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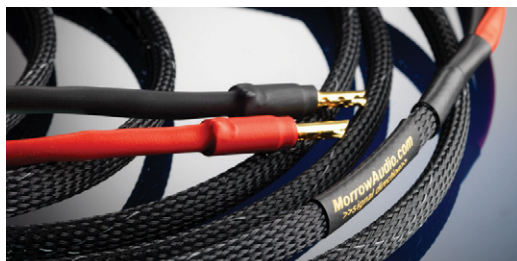




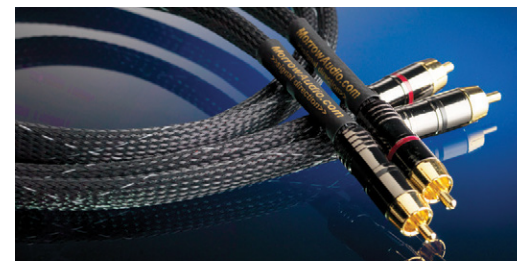
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# Contents



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## On the Horizon

Hot new affordable products coming out soon

## Sneak Previews

- KEF Muo desktop speaker system
- Revel Concerta2 M16 speakers
- Shunyata Research Venom cables

## Book Excerpts

- What is High-End Audio?
- *The Absolute Sound's Illustrated History of Audio, Vol. 1: Loudspeakers*

## Electronics

- Denon PMA-50 integrated amplifier
- NuPrime IDA-8 integrated amplifier
- Cambridge CXA80 integrated amplifier
- Audio by Van Alstine Vision phonostage
- Yamaha A-S801 integrated amplifier
- Audio Alchemy DDP-1, DPA-1, and DPA-1M
- **Our Top Picks**

## Analog

- Pro-Ject Debut Carbon
- GEM Dandy PolyTable
- Clearaudio Concept
- Ortofon Quintet cartridges
- Acoustic Signature Wow XL
- **Our Top Picks**

## DACs, Music Servers, and Disc Players

- Meridian Explorer<sup>2</sup> MQA DAC
- Sony PHA-2 DAC/headphone amplifier
- Rotel RDD-1580 DAC
- Sony HAP-Z1ES music server
- **Our Top Picks**

## Speakers and Subwoofers

- Audioengine HD6
- Elac Debut B5
- Elac Debut F5
- GoldenEar Triton Five
- MartinLogan Motion X35T
- PSB Imagine X2T
- Magnepan .7
- Audience ClairAudient 1+1
- KEF Q500
- GoldenEar Technology SuperSub XXL subwoofer
- REL S/5 subwoofer
- JL Audio e110 subwoofer
- **Our Top Picks**

## Cables, Power Products, and Other Accessories

- Shunyata Research Venom PS8, Defender
- Audience Ohno
- Morrow Audio Grand Reference SP7, MA4, and MA7
- **Our Top Picks**



*Click on any title to go to that review*



## HYDRA DENALI SERIES

Designed to perfect the listening experience, the NEW Denali Series power conditioners incorporate the absolute latest technologies from Shunyata Research.



### NEW VERTICAL DESIGN

- First-in-the-industry vertical design offers a sleek look while saving much-needed audiophile rack space.
- Tower models feature an *integrated base platform* that provides vibration isolation while maintaining a solid foundation.
- The innovative Cable Cradle secures the power cable preventing cable droop while ensuring reliable electrical connection.
- Each outlet has a vibration absorbing system.
- All chassis panels and internal components are treated with vibration dampening materials which improve subtle detail and musical nuance.

### NOISE REDUCTION TECHNOLOGY

The latest technologies from Shunyata Research reduce high-frequency interference for clear signals and cleaner sound.

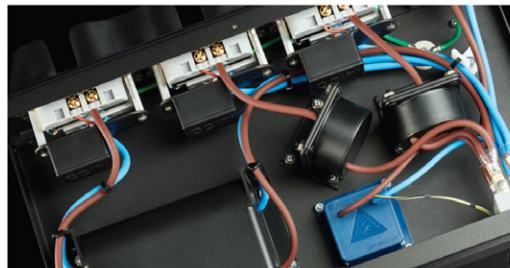
#### CCI Medical Grade Filters

- CCI filters isolate each component from one another.
- These are advanced versions of the CCI filters originally developed for medical and scientific applications.

#### NIC v2 — Noise Isolation Chambers

- Next generation NIC v2s are smaller and yet more efficient than the previous generation.
- Noise Isolation Chambers reduce Megahertz to Gigahertz interference and are exclusive to Shunyata Research.

Patent No. US 8,658,892



### IMPROVED DYNAMICS

- New QR/BB technology dramatically eliminates any sense of dynamic compression that is often heard when an amplifier is connected to a power conditioner. Dynamics are actually improved when the amplifier is connected to the DENALI even when compared to a direct connection to the wall outlet.

Patents pending.

- The advanced electromagnetic breaker combined with massive 8 gauge internal wiring maximizes instantaneous current delivery to all components.

## HYDRA DENALI SERIES

by Shunyata Research



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"With the final step of placing the mapping computer on the Shunyata Research system, both resolution and noise were improved to a level that I have *never* seen."

~ Dr. Daniel Melby: Director of Electrophysiology, Abbott Northwestern Heart Hospital

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# the absolute sound

## BUYER'S GUIDE TO

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It's no secret that high-end audio is considered an expensive hobby. But great sound doesn't necessarily have to cost a fortune.

- **“On the Horizon,”** featuring the scoop on **17 of the hottest upcoming products** across a variety of categories.
- **“What Is High-End Audio?”**—essential reading excerpted from the latest (fifth) edition of Robert Harley’s classic *Complete Guide to High-End Audio*.
- Exclusive **“Sneak Previews,”** plus **new equipment reviews not yet published in TAS.**
- **A look inside** *The Absolute Sound’s Illustrated History of High-End Audio, Volume One: Loudspeakers*.
- **“Top Picks,”** where **our reviewers select the best affordable gear in five categories.**

Happy listening!

Julie Mullins, Editor

# THE PATHWAY OF DISTINCTION



*"Vocals were sensational for any loudspeaker, never mind one that costs less than \$2k."*  
Robert Harley - **The Absolute Sound** - October '14



*"This isn't just another small loudspeaker,  
it's the start of a revolution!"*  
Alan Sircom - hifi+



*"Audience's Au24 SE powerChords, interconnects, and speaker cables are the most satisfying wiring products I've used in the last 39 years. They sit at the pinnacle of cable performance, and provide an attractive combination of big spaces, a very neutral sound and marvelously balanced performance, from the deepest bass to the highest treble."*

Doug Blackburn - **SoundStage ULTRA** - October '14

*"Across the entire line the build-quality is nothing short of exemplary."*

**The Absolute Sound** - 2014 Editors' Choice

*"Bottom line: The aR12-TS is the best power conditioner I've heard."*

Brian Damkroger - **Stereophile** - Jan '12

*"The sound of the aR6-TS was, in a word, stunning."*

Doug Blackburn - **UltraAudio.com** - Jan '12



*"A power cord that touches all the right bases and then some."* **The Absolute Sound** - 2014 Editors' Choice Award, Neil Gader

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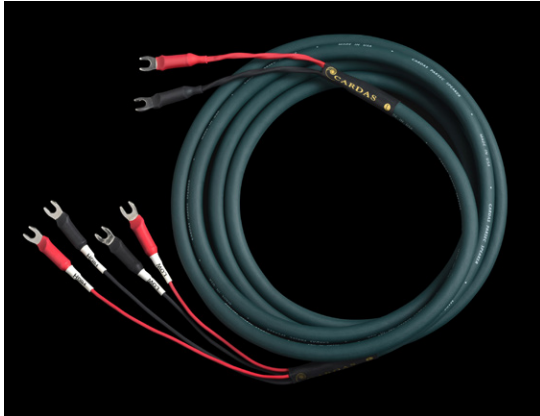
Access these and other reviews at [www.audience-av.com](http://www.audience-av.com)



# On the Horizon



## ON THE HORIZON



### Cardas Parsec Speaker Cable

Parsec speaker cable takes its geometry from the classic Cardas Quadlink speaker cable, and Matched Propagation conductor technology from the Clear cable line to bring high-end performance to affordable systems. Made in the U.S.A. and hand-terminated at the company's factory in Bandon, Oregon, the Parsec cable line (speaker, interconnect, power and digital) offers the famous Cardas warmth and musicality, along with deep, tight bass, extended highs, and spectacular imaging. Termination options include Cardas' proprietary bananas and the maker's own billet copper spades, both of which are plated with rhodium over silver. Parsec speaker cable comes with a Cardas lifetime warranty.

**Price:** \$575 for 2-meter pair. [cardas.com](http://cardas.com)



### HiFiMan SuperMini Portable Player

HiFiMan is a leader in hi-res portable players; however its reference players have been too large and heavy for ultra-portable applications. To address these portability needs the company has introduced the SuperMini, a hi-res portable player that is big on performance yet compact in size and weight. Its dimensions are a teeny 4.09" x 1.77" x 0.33" and it weighs in at an ultra-light 2.4 oz. In terms of performance, it supports music formats up to 24-bit/192kHz including WAV, FLAC, AIFF, APE, MP3, OGG, AAC, WMA, ALAC, and DSD64 (DSF, DFF). It includes unbalanced and balanced outputs, and features exceptional battery charge endurance up to a whopping 22 hours.

**Price:** est. \$399. [hifiman.com](http://hifiman.com)



### AudioQuest DragonFly Black and Red USB DAC Preamplifier/Headphone Amplifiers

The latest generation of AudioQuest's award-winning DragonFly brings improved performance, greater versatility, and software upgradability to a wider audience of music lovers. Whereas the original DragonFly was designed specifically for use with computers, the new models incorporate Microchip Technology's PIC32MX microprocessor—a low-noise, high-efficiency solution that enables compatibility with Android and Apple mobile devices. The new DragonFlies also use improved 32-bit ESS Sabre DAC chips—the 9010 in Black and the higher-performance 9016 in Red—both of which employ minimum-phase filtering for naturally detailed sound. While DragonFly Black uses the same high-quality headphone amp and analog volume control found in the original model, DragonFly Red includes the latest ESS headphone amp and a bit-perfect digital volume control that resides on the 9016 DAC chip itself—a smart implementation that ensures maximum fidelity, dynamic contrast, and signal-to-noise ratio. Finally, the latest DragonFlies are software-upgradeable through a complimentary Windows or OS X desktop application.

**Price:** DragonFly Black, \$99; Red, \$199. [audioquest.com](http://audioquest.com)

## ON THE HORIZON



### KEF LS50 Mini-monitor

This popular, innovative mini-monitor speaker—now available in two new limited-edition finishes—is designed to bring a professional studio monitor concept into the home. Unusual for such a compact design, the LS50 monitor delivers a rich, multi-dimensional “soundstage experience” that is out of all proportion to its size. Patented acoustic designs, together with state-of-the-art technologies from KEF’s flagship Blade loudspeaker, provide a studio-like experience—even in the smallest of spaces. In cabinet construction, baffle shaping, and port design, LS50 breaks new ground with patent-pending technologies made possible by KEF’s advanced acoustic research that’s led to techniques such as Finite Element Analysis and Computational Fluid Dynamics. Using a KEF-patented Uni-Q driver specifically designed for this model, LS50 radiates an extremely large and even listening area. **Price:** \$1499/pr. [kef.com](http://kef.com)

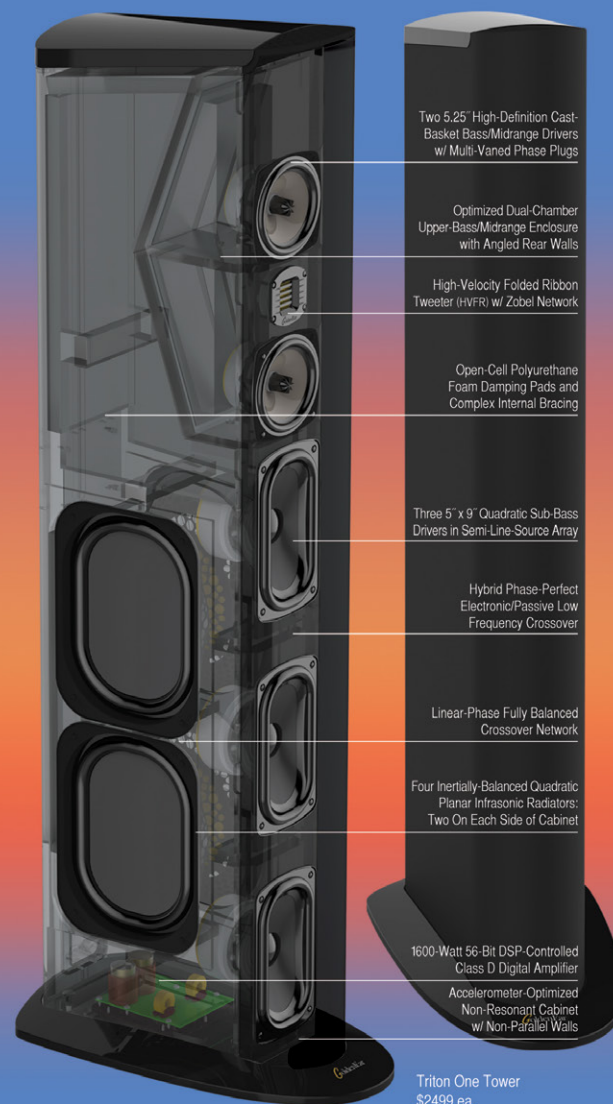


### Oppo Digital Sonica Wireless Speaker

Sonica is an elegant and compact Wi-Fi speaker that comes equipped with Wi-Fi, AirPlay, and Bluetooth capabilities. Its companion smartphone and tablet app makes it easy to manage multiple speakers on the same network. Acoustic design and tuning of the Sonica Wi-Fi Speaker is performed by Igor Levitsky, the same designer behind the award-winning Oppo PM series planar magnetic headphones. The speaker’s deep, pure sound can be further optimized with the Sonica app’s built-in presets for different room sizes, speaker locations, and listening preferences. Sonica is capable of decoding audio files up to 24-bit/192kHz from mobile devices, USB drives, DLNA servers, and NAS drives—and it supports established lossless audio formats such as FLAC, WAV, and Apple Lossless. Additionally, multiple built-in adaptive antennae with MIMO technology ensure stellar signal strength for 2.4 and 5 GHz 802.11ac Wi-Fi—compatible with 802.11a/b/g/n. **Price:** \$299. [oppodigital.com/sonica/](http://oppodigital.com/sonica/)

# GoldenEar has Engineered Our New Triton One to Perform Like a \$20,000+ Super Speaker!

## “Product of the Year 2014 – The Absolute Sound”



*“Best Sound for the Money at CES 2014”*

– Jonathan Valin, Kirk Midskog and Neil Gader, *The Absolute Sound*

When three of The Absolute Sound’s top reviewers all choose the same product for their “Best Sound for the Money at CES” honors, you know it is something very special. And when The Absolute Sound’s senior writer, Anthony Cordesman, writes a rave review, calling them, “*intensely musical*”, says that, “*You can get lost in the lifelike reproduction*” and praises their, “*exceptional bass performance*” as well as their, “*exceptional soundstage and imaging performance*.” you know we are speaking about a truly epic and iconic loudspeaker.

*“An absolute marvel ... shames some speakers costing ten times as much.”*

– Caleb Denison, *Digital Trends*

Introducing the Triton One, an evolutionary loudspeaker that builds upon all the advanced technologies that have made the Tritons mega-hits around the world. This new top-of-the-line flagship has been engineered to deliver even better dynamics and bass than the extraordinary Triton Two, along with further refinement of all aspects of sonic performance. In the words of HD Living’s Dennis Burger, the Triton One, “*creates visceral, tangible waves of pure audio bliss*” and deliver, “*the sort of upper-echelon performance that normally only comes from speakers whose price tags rival a good luxury automobile*”.

*“Extraordinary sound quality and value ... one of the best buys in speakers ... they provide sustained musical pleasure and exceptional realism. Highly recommended.”*

– Anthony Cordesman, *The Absolute Sound*

Yes, great sound is what it is all about. HiFi+’s Chris Martens raved the One is, “*Jaw-droppingly good*” and delivers, “*a dazzling array of sonic characteristics that are likely to please (if not stun)*”, calling it, “*one of the greatest high-end audio bargains of all time*”. And Stereophile called them, “*A Giant-Killer Speaker*”, with Robert Deutsch writing, “*And yet, the mere fact that it’s not unreasonable to compare the sound of the \$4999 Triton One with the sounds of speakers costing tens of thousands of dollars more per pair says a lot about the GoldenEar’s level of performance.*” Hear them for yourself and discover what all the excitement is about!

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## ON THE HORIZON



### HiFiMan Intros Edition S Headphones

HiFiMan offers its first on-ear headphone, Edition S, for music lovers on the go. The affordably priced, dynamic on-ear model features a removable logo cap on the ear cup that instantly transforms Edition S into your choice of an open- or closed-back model. Headphone experts have long recognized the sonic benefits of an open-back design while closed-back headphones are often a necessity when traveling or listening in close quarters, such as on board an airplane. HiFiMan gives you the best of both worlds with an on-ear headphone that can go from one mode to the other. Engineers have optimized the performance in each mode to make this not only possible but also quick and easy. HiFiMan Edition S also comes with a travel case.

**Price:** \$249. [hifiman.com](http://hifiman.com)

# MUO

WIRELESS SPEAKER



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OBSESSED WITH HIGH RESOLUTION

## ON THE HORIZON



### MoFi Turntables, Cartridges, and Phono Preamps

The independent record label MoFi (aka Mobile Fidelity) is bringing its sonic pedigree to a series of made-in-the-U.S.A. turntables and home audio components that offer high performance and high value. The new line includes a pair of turntables, StudioDeck and UltraDeck, that feature technology typically reserved for much more expensive 'tables. Each model uses MoFi's in-house-designed 10-inch tonearm to achieve an optimum balance of rigidity and low tracking error. Custom vibration-damping feet isolate the turntables from external vibration and create an extremely stable foundation. MoFi selected Delrin—a substance very similar to vinyl—as the platter material for its neutral sonic signature and ability to dissipate vibrations. Cartridges include the StudioTracker MM, UltraTracker MM, and MasterTracker MM; these utilize two powerful lightweight magnets precisely aligned with the left and right channels within the stereo groove. This topology mirrors the layout of a cutter head used to make the master lacquer and offers increased channel separation, higher resolution, and excellent tracking. Finally, three phono preamps are offered: StudioPhono and two UltraPhono models with modes for either mm or mc cartridges, along with a subsonic filter and a setting for mono playback. UltraPhono also includes a powerful, built-in Class-A headphone amplifier to enable vinyl record playback through headphones. **Price:** StudioDeck, \$999; UltraDeck, \$1799; StudioTracker MM, \$199; UltraTracker MM, \$499; MasterTracker MM, \$699; StudioPhono \$299; UltraPhono, \$499. [mofidistribution.com](http://mofidistribution.com)



### Rega Planar 3 Turntable and RB330 Tonearm

The new Rega Planar 3 turntable features a complete redesign for 2016 that carries over just two components from the previous model. These efforts have resulted in all-new main bearings, sub-platters, platters, motor controls, and feet—even arm clips saw significant revision. The lightweight acrylic-laminated plinth has also been strengthened using a new, improved double-brace system mounted specifically where the increased rigidity is required (between the tonearm mounting and the main hub bearing), which forms a structurally sound “stressed-beam” assembly. Engineered alongside the Planar 3 is the new RB330 tonearm that has benefited from the latest 3D CAD and CAM technology, and features a brand-new bearing housing with zero-tolerance and greater stiffness. The tonearm wand was designed using intelligent redistribution of mass. As a result, this 'arm wand exhibits fewer points of possible resonance and has a more neutral sonic character. **Price:** \$1145 with pre-fitted Elys 2 mm cartridge; \$945 w/o cartridge; RB330 available separately: \$595. [soundorg.com](http://soundorg.com)



### PSB Imagine XA Loudspeaker

Imagine XA from PSB is the latest Certified Elevation Speaker for Dolby Atmos. Specifically designed to be the height speaker in a Dolby Atmos surround system, it's purpose-built to fit on top of the Imagine X floorstanding and bookshelf speakers, but can also be added to any existing such speakers to create a true, multi-dimensional sonic atmosphere that lets you feel the excitement and lifelike realism of music and movies. The XA speaker, finished in simulated black ash, can either be secured to a speaker top with available anti-slip strips or wall-mounted with the supplied mounting bracket. In short, PSB's Imagine X speakers are designed to provide the ideal solution for recreating the magic of Dolby's Atmos object-oriented surround system. **Price:** \$499/pr. [psbspeakers.com](http://psbspeakers.com)



## ON THE HORIZON



### Atlantic Technology AT-2 H-PAS Loudspeaker

Atlantic Technology's AT-2 compact bookshelf loudspeaker uses patented H-PAS bass technology to produce a greater level of deep, low-distortion bass than is typically possible with conventional speakers of the same size. Less than 16 inches tall, it delivers full, rich bass response down to 41Hz at -3dB—exceptional bass performance for such a small speaker. The AT-2 uses a single 5.25-inch-long-excursion woofer and the 1.1-inch Low Resonance Tweeter (LRT) with a crossover frequency of 2,200Hz—lower than most conventional two-way speakers—to afford much wider horizontal midrange dispersion. For its finish, the AT-2 uses a metallic speckle, multi-layer, gloss-black paint process with clear-coat that is quite similar to what's used in the automotive industry.

**Price:** \$1800/pr. [atlanticttechnology.com](http://atlanticttechnology.com)



### AudioQuest Niagara 1000 Low-Z Power Noise-Dissipation System

Designed by Garth Powell, the AudioQuest Niagara 1000 embodies the very same design philosophy and incorporates the patented technology found in its larger sibling, the Niagara 7000, but packs it into a smaller, sleeker enclosure—at a fraction of the price. Much like the Niagara 7000, the Niagara 1000 uses capacitor forming technologies that vastly improve linearity and minimize distortion, ultra-low resistance solid-core wiring optimized for low-noise directionality, and low-impedance AC inlet and outlet contacts with heavy silver plating over high-purity Beryllium Copper for superior noise dissipation. While the Niagara 1000 lacks the 7000's sophisticated Transient Power Correction and Dielectric-Biased AC Isolation Transformers, it does employ AQ's patented Ground-Noise Dissipation System and boasts 18 octaves of Ultra-Linear Noise-Dissipation Technology. Of course, the six-outlet Niagara 1000 features AQ's non-sacrificial surge protection and over-voltage shutdown, ensuring that A/V systems are thoroughly protected from AC surges and spikes.

**Price:** \$995. [audioquest.com](http://audioquest.com)



### Parasound Halo Integrated Amplifier

For more than 35 years, Parasound's mission has been—and continues to be—putting great sound and solid reliability into beautiful packages while offering prices that are magnitudes lower than competitors'. Parasound products have also earned best-in-class awards from audiophile publications worldwide. The company's flagship Halo line products have gone head-to-head with some of the most expensive reference equipment on the market while costing far less. The Halo Integrated represents the culmination of Parasound's 35 years of experience—from its cutting-edge 384kHz/DSD DAC and 160-watt John Curl-designed Class A/AB amplifier to its advanced analog features, it aims to set new price/performance standards for integrated amps. The Halo Integrated's favorable reviews underscore the manufacturer's reputation for making stereo equipment with extremely high performance for the money. **Price:** \$2495. [parasound.com](http://parasound.com)



### Linear Tube Audio Micro-ZOTL2.0 Preamp/Headphone Amp

Linear Tube Audio's MicroZOTL2.0 re-introduces David Berning's classic original multi-functioning unit in an updated form. Able to be used as a preamp, a headphone amp, and as a 1Wpc stereo amplifier, the MicroZOTL2.0 utilizes Berning's remarkable ZOTL circuitry, which manages to eliminate the output transformers and their associated distortion in tube amplifiers while maintaining very low output impedance, low current, low heat, linearity down to 10Hz, and achieving the correct turns ratio. Essentially, it's an OTL amp that can match almost any speaker or headphone, doesn't run hot, has extremely long tube life, and achieves a detailed sound across all frequencies. **Price:** Standard version, \$1100; \$1695 for the MicroZOTL2.0 Deluxe, with Linear Tube Audio's Linear Power Supply. [urbanhifi.com](http://urbanhifi.com)



### Sonus faber Principia Series Loudspeakers

The Principia collection is the new entry-level line offered by Sonus faber, designed for those who are seeking a simple hi-fi solution but one with a definite Italian touch. The Principia collection is made up of four stereo models (two, two-way compacts, and two three-way floorstanders) that share many of the Chameleon line's design and technical details, particularly the brushed aluminum finishes and trapezoidal shape—both of which reference and pay homage to the historic Sonus faber loudspeakers that helped shape the company. The 29mm, high-definition precoated fabric dome tweeter with DKM membrane is also inherited from the Chameleon, while the other drivers are new Sonus faber designs and are unique to Principia. While Chameleon has exchangeable colored side panels and leather coverings, Principia features a flawless black-vinyl veneer surface that matches and complements many different decors, especially modern ones. **Price:** (in standard black finish): Principia 1, two-way compact, \$549/pr.; Principia 3, two-way compact, \$699/pr.; Principia 5 and 7, three-way floorstanders, \$1199/pr. and \$1499/pr. [sonusfaber.com](http://sonusfaber.com)



### Revel Concerta2 Series Loudspeakers

Revel's entry-level lineup incorporates numerous design and engineering upgrades designed to provide high-end loudspeaker value. The two tower models F36 and F35 (pictured), and M16 compact (see Sneak Preview) employ a 1" aluminum tweeter with an integral phase ring, derived from Revel's Performa3, to deliver detailed and transparent high-frequency response. The tweeters are mated to a new, patented fourth-generation Acoustic Lens Waveguide that optimizes the blend between the tweeter and woofers and improves off-axis performance for greater smoothness and consistency over a wide listening area. The newly designed woofers feature aluminum cones that minimize distortion by improving rigidity without increasing mass. The result is transducers that behave like ideal pistons throughout their operating range, a fundamental of Revel's DNA. Additionally, Concerta2 models offer a refined appearance with new contoured enclosures, high-gloss finishes, and elegant design accents. (Also offered are the C25 center and S16 surround.) **Price:** F36, \$2000/pr.; F35, \$1500/pr.; M16 \$850/pr. [revelspeakers.com](http://revelspeakers.com)





## ON THE HORIZON



### PSB SubSeries 450 Subwoofer

PSB's most advanced subwoofer to date, the SubSeries 450 is a compact yet powerful design that features for the first time an advanced 400W RMS (1,000W peak power) Class D amplifier designed by sister brand NAD with DSP control. A massive, tightly regulated, switch-mode power supply is capable of the instantaneous high current required for accurate and powerful bass response. This is combined with one of the most advanced Class D architectures available, which is licensed from Hypex in the Netherlands. Housed in a stylish gloss-black cabinet, the SubSeries 450 design features a 12" active woofer supported by twin 10" passive radiators. Truly flat response to 20Hz is seldom achieved, especially at the high SPLs required to accurately reproduce the sound effects of today's motion-picture soundtracks, yet the SubSeries 450 delivers. Music also benefits from the low bass extension that opens up the soundstage and ambience from a good live recording.

**Price:** \$1499. [psbspeakers.com](http://psbspeakers.com)



### Shunyata Research Venom Series Signal and Speaker Cables

The new Venom Series represents fifteen years of Shunyata Research's ongoing technical innovation and custom-parts engineering. The over-arching goal for this new line was to create products that possess peerless quality and performance at real-world prices. To that end, the company uses the finest available metals in expensive Ohno Continuous Cast Copper. Also, Shunyata has designed never-before-seen features such as hollow-core (VTX) conductors. The Venom interconnects incorporate custom designed and manufactured connectors of the finest quality; for instance, these speaker cable terminations use the same interchangeable terminals that can be found on Shunyata's most expensive designs. With Venom Signal cables, you might discover that high-quality signal cable performance need not cost a fortune. (See the Sneak Preview.)

**Price:** \$595, Speaker; \$295, Interconnect. [shunyata.com](http://shunyata.com)

# PASS



*"In the end, everything is subjective, but in my humble opinion there is no better brand out there for innovative design, military spec like build quality and outstanding sound performance. In this case, if you also consider the astonishing value realized when compared to the best, we have something very very special."*

Robert S. Youman

INT-60 Review  
Positive-Feedback Issue 79

## SNEAK PREVIEW



# KEF Muo

Julie Mullins

This wonderfully portable little wireless loudspeaker delivers sonic goods well beyond expectations, especially given its petite dimensions. Intended for those who want quality listening on the go, it's a tiny two-way that pumps out big, full, and expansive sound with respectable resolution—and even reproduces some sense of soundstaging on many recordings. Like KEF's iconic Muon flagship floorstander—but at the opposite end of the size and price spectrum—the Muo was also designed by Ross Lovegrove and its exterior is of the same solid aluminum that minimizes resonances (though with the Muo you can feel some vibration in the lower octaves). Perfect for small-to-midsize rooms, desktop, and/or travel, the Muo offers plenty of versatility: You can stream via Bluetooth 4.0 aptX from any computer or mobile device, or listen via an auxiliary input; plus there's a micro USB, which can be used for charging or firmware updates. You can pair them for stereo use, or position them vertically for “party mode” listening. It even remembers up to

eight devices and can prioritize pairings. The Muo weighs in at about two pounds, has a streamlined form factor, and comes with a selection of international plug-in chargers for its Li-ion battery; KEF has also just introduced an optional pocket-sized portable charger shaped like a mini Muo (and it can juice up your smartphone or other devices)—not that you constantly have to worry about that: A full charge lasts for 10-12 hours of listening time. Available in six different finishes, it may look cute and colorful on the outside, but it's serious on the inside: The Muo boasts a miniature version of KEF's Uni-Q “point-source” driver arrays—a decoupled central tweeter dome, midbass, plus a long-throw radiator in the middle for better bass extension. How they packed this remarkably clean- and clear-sounding configuration into this sleek 3.1" x 8.3" x 2.3" form is a wonder—and a testament to its clever design. **\$349.**

[kefdirect.com](#) Julie Mullins, review forthcoming



SNEAK PREVIEW

Revel Concerta2 M16 Loudspeaker

Neil Gader

My expectations for Revel loudspeakers run high. Revel, led by veteran designer Kevin Voecks, has, in my experience, maintained a rock-solid track record notable for its model-to-model musical and technical consistency leading to high marks across all performance criteria. Its latest series, Revel Concerta2, is no exception. As the manufacturer's value line of loudspeakers, Concerta2 slots in neatly beneath the mid-priced Performa3 and flag-carrying Ultima2. The Concerta2 collection includes a pair of towers, the F36 and F35, in addition to the C25 center and the S16 surround. The sole stand-mounted compact, the M16, is the subject of this Sneak Peak.

Aesthetically it's a feast for the eyes. Making a statement within this segment, the speaker's look has been refreshed and refined with smartly contoured enclosures, high-gloss finishes, and elegant design accents. There are no visible front-baffle screws or hardware for grilles—they're magnetically affixed. The drivers are flush-mounted and cutouts are nearly seamless. Similarly well executed is the spotless back panel which houses the rear port and a nicely inset board for the single-wire speaker terminals. Informed by Performa3 technology (Issue 234), upgrades and advances include the one-inch aluminum tweeter with an integral phase ring that is mated to a new,

fourth-generation Acoustic Lens Waveguide. This implementation is designed to optimize the blend between the tweeter and woofers and improve off-axis performance over a wide listening area. The refreshed woofers feature aluminum cones that minimize distortion by improving rigidity without increasing mass. These efforts all work towards achieving the goal of ideal pistonic behavior for the drivers across the frequency spectrum—the Holy Grail for cone transducers.

My early impressions evidenced a compact loudspeaker that extolled classic Revel virtues: A dynamic, uncompromising midband, good overall speed, and excellent inter-driver coherence, all of which conspire to generate a tonal ripeness that belies the M16's stature. Revel doesn't design wallflowers that shrink into the background sonically, and the M16 follows suit. Transients were nicely portrayed—quick but always connected to the reality of a performance. The M16's overall low-end response, pitch, and dynamics provided a steady and heavy anchor for a rock music rhythm section, as was plainly demonstrated during Fleetwood Mac's

"Dreams" and "Gold Dust Woman." Predictably, as it approaches its limits in the fifty-cycle region, the bass line softens and a hint of wool and pitch hesitancy seeps in. Fully flowing and enveloping bass resonances and natural sustain

and decay are capabilities a little beyond the 15"-tall M16; it cuts these off a bit sooner. Port noise, however, was very well controlled with virtually no overhang. And the cabinet imparted little in the way of observable coloration baggage as a result of absorbing transient energy and slowing down the performance. Although I'm still playing with room placement, in my current setup I could discern a little rise in the 100-150 region that attaches some big-speaker chestiness to male vocals but also shades detail a bit. A slight boost in the sibilance range adds some juice to harmonics in that range, but this is more enhancement than distraction.

Perhaps the most enthralling aspect of M16 performance up to this point lies in the fullness and cohesiveness of its soundstage and image presentation. The M16 doesn't paint small sonic landscapes. Revel is no

stranger to creating immersive presentations with its multichannel systems, and clearly much of that expertise has rubbed off on its two-channel efforts. The sense of immersion and "widescreen" scale was one of the M16's most distinctive characteristics. A prime example would be Frank Sinatra's classic "One for My Baby" from *Only the Lonely*, a track filled with so much ambience and spatiality that it creates the illusion of being in a smoky, late-night bar—the slightly muted piano in a dark pocket of melancholy space, the listener sitting just a couple of bar stools from the singer and the barkeep. It's a track that succeeds or fails based on capturing this mood. Little speakers don't often have the sophistication and range to retrieve these key elements, and the M16 did. A good part of this observation is owed to the speaker's excellent dispersion, à la the improved waveguide and Revel's general philosophy about optimizing in-room power response (a measurement that factors in both off- and on-axis performance). It's the antithesis of the authoritarian "sweet spot" which commands the listener to sit as still as a statue to glean the magic. And unlike most compacts, I didn't need to tilt, twist, or tweak them into hyper-specified positions. Just set them down and get out of the way.

Even at these early stages of the review process, the Concerta2 M16 shows tremendous promise as a potentially class-leading compact. And so far it's been all too easy to forget that the Concerta2 M16 is not a lot more expensive than it actually is. Look for my full review in an upcoming issue.

SPECS & PRICING

Type: Two-way, bass-reflex	Dimensions: 14.75" x 8.6" x 10.76"
Frequency response: 55Hz (-3dB)	Weight: 16 lbs.
Drivers: 1" aluminum dome tweeter, 6.5" aluminum woofer	Price: \$850
Nominal impedance: 6 Ohms	<b>HARMAN INTERNATIONAL INDUSTRIES</b>
Sensitivity: 86dB	8500 Balboa Blvd. Northridge, CA 91329 revelspeakers.com

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## SNEAK PREVIEW

# Shunyata Research Venom Interconnects and Speaker Cables

Julie Mullins

Shunyata Research is not your typical cable manufacturer. Though the company invests most of its budget in top-tier parts and materials, its main focus is keeping prices as low as possible for the end user. In keeping with this philosophy, the Venom Series is Shunyata's most affordable cable and interconnect yet to meet high-performance standards.

The Venom cables and interconnects use a proprietary hollow-core conductor that Shunyata calls VTX. (According to Shunyata, this hollow-core VTX design, fabricated from highest-purity copper, ensures that all the current travels through the conductor's circumference, eliminating skin effects and random eddy currents.) The Venom cables are also highly flexible and pliable—not just through their length but also in their terminations, thanks to Shunyata's STIS (Speaker Terminal Interconnect System), which allows you to change terminations simply by unscrewing the one currently on the cable and screwing on another.

Thus far in my listening, I've found the sound of the Venom Series to be very natural, open, and dimensional—in other words, they get out of the way of the music and the rest of the system to reveal the sound of recordings. The Venom speaker cables and interconnects offer a reasonably neutral palette with pleasing

delicacy of detail and rich, warm harmonics. To borrow a favorite expression from JV, they are quite *gemütlich* and sweet, without glare or etching. Some might find them a touch polite dynamically (I don't), but that's a matter of personal taste.

Perhaps what's struck me most favorably up to now is that, even when compared to several far more expensive cables I've had in my system, the sonic differences aren't stark or glaring. Naturally most of you won't be pitting cables in this low-to-mid three-figure price category against those retailing for well over five figures, but my point is that, even if you do make this comparison, Venom's cost-to-performance ratio is remarkable.

It's unusual for a cable in this price range to contain Ohno cast copper (OFE 101 certified), for instance, but the high-grade materials and build-quality seem to have paid off handsomely. These lovely-looking and -sounding cables are easy to handle, easy on the eyes—and most importantly, easy on the ears. A great value—no snake oil here!

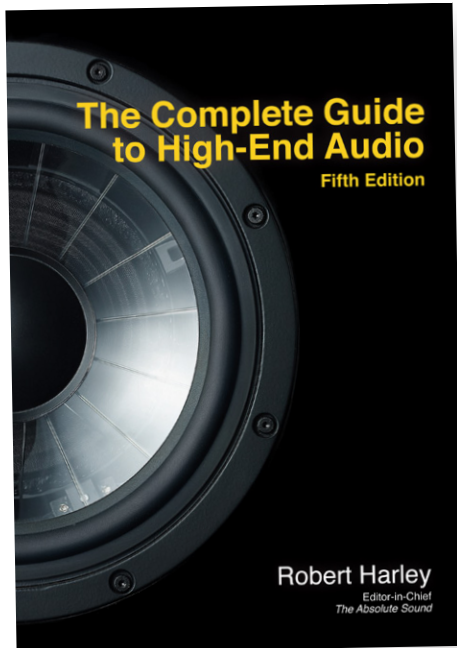
**Interconnect: \$295 1m/pr.; Speaker: \$595**  
[shunyata.com](http://shunyata.com) (full review forthcoming)





# What Is High-End Audio?

Excerpted and adapted from *The Complete Guide to High-End Audio* (fifth edition). Copyright © 1994–2015 by Robert Harley. [hifibooks.com](http://hifibooks.com). To order call (800) 841-4741.



**H**igh-end audio is about passion—passion for music, and for how well it is reproduced. High-end audio is the quest to re-create in the listener's home the musical message of the composer or performer with the maximum realism, emotion, and intensity. Because music is important, re-creating it with the highest possible fidelity is important.

High-end audio products constitute a unique subset of music-reproduction components that bear little similarity to the “stereo systems” sold in department stores. A music-reproduction system isn't a home appliance like a washing machine or toaster; it is a vehicle for expressing the vast emotional and intellectual potential of the music encoded on our records and digital sources. The higher the quality of reproduction, the deeper our connection with the music.

The high-end ethos—that music and the quality of its reproduction matter deeply—is manifested in high-end audio products. They are designed by dedicated enthusiasts who combine technical skill and musical sensitivity in their crafting of components that take us one step closer to the original musical event. High-end products are designed by ear, built by hand, and exist for one reason: to enhance the experience of music listening.

A common misperception among the hi-fi-consuming public is that high-end audio means high-priced audio. In the mass-market mind, high-end audio is nothing more than elaborate stereo equipment with fancy features and price tags aimed at millionaires. Sure, the performance may be a little better than the hi-fi you find at your local

appliance store, but who can afford it? Moreover, high-end audio is seen as being only for trained, discriminating listeners, snobs, or gadget freaks—not for the average person on the street.

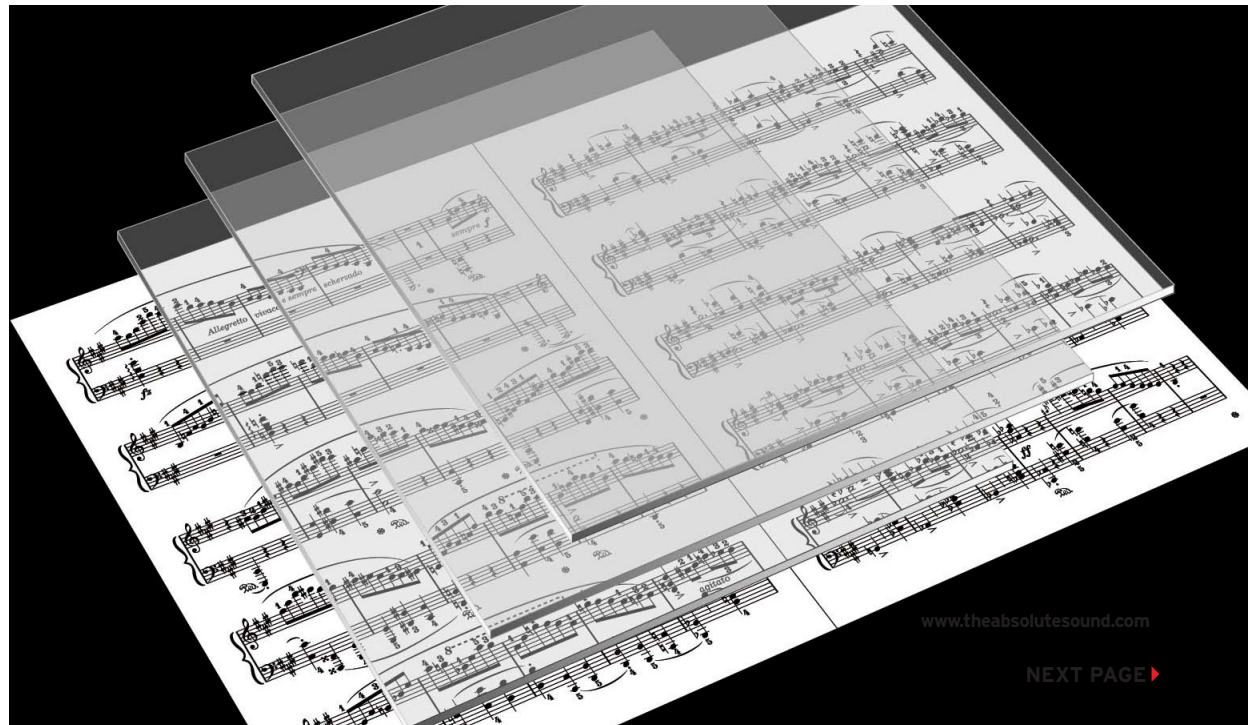
High-end audio is none of these things.

First, the term *high-end* refers to the products' performance, not their price. Many true high-end systems cost no more—and often less—than the all-in-one rack systems sold in department stores. I've heard many inexpensive systems that capture

the essence of what high-quality music reproduction is all about—systems easily within the budgets of average consumers. Although many high-end components are high-priced, this doesn't mean that you have to take out a second mortgage to have high-quality music reproduction in your home. A great-sounding system can be less expensive than you might think.

Second, high-end audio is about communicating the musical experience, not adding elaborate, difficult-to-operate features. In fact, high-end systems are much easier to use than mass-market mid-fi systems. This is because the high-end ethic eliminates useless features, instead putting the money into sound quality. High-end audio is for music lovers, not electronics whizzes.

Third, *anyone* who likes music can immediately appreciate the value of high-quality sound reproduction. It doesn't take



## What Is High-End Audio?

a “golden ear” to know what sounds good. The differences between good and mediocre music reproduction are instantly obvious. The reaction—usually pleasure and surprise—of someone hearing a true high-end audio system for the first time underscores that high-end audio can be appreciated by everyone. If you enjoy music, you’ll enjoy it more through a high-end system. It’s that simple.

Finally, the goal of high-end audio is to make the equipment “disappear”; when that happens, we know that we have reached the highest state of communication between musician and listener. High-end audio isn’t about equipment; it’s about music.

The high-end credo holds that the less the musical signal is processed, the better.

Any electronic circuit, wire, tone control, or switch degrades the signal—and thus the musical experience. This is why you won’t find graphic equalizers, “spatial enhancers,” “subharmonic synthesizers,” or other such gimmicks in high-end equipment. These devices are not only departures from musical reality, they add unnecessary circuitry to the signal path. By minimizing the amount of electronics between you and the musicians, high-end audio products can maximize the directness of the musical experience. Less is more.

Imagine yourself standing at the edge of the Grand Canyon, feeling overwhelmed by its grandeur. You experience not only the vastness of this massive sculpture carved deep into the earth, but all its smaller features jump out at you as well, vivid and alive. You can discern fine gradations of hue in the rock layers—distinctions between the many shades

of red are readily apparent. Fine details of the huge formations are easily resolved simply by your looking at them, thus deepening your appreciation. The contrasts of light and shadow highlight the apparently infinite maze of cracks and crevasses. The longer and closer you look, the more you see. The wealth of sensory input keeps you standing silently at the edge, in awe of nature’s unfathomable beauty.

Now imagine yourself looking at the Grand Canyon through a window made of many thicknesses of glass, each one less than perfectly transparent. One pane has a slight grayish opacity that dulls the vivid hues and obliterates the subtle distinctions between similar shades of color. The fine granular

“Each 3dB increase in sound-pressure level requires a doubling of amplifier output power.”

structure of the next pane diminishes your ability to resolve features in the rock. Another pane reduces the contrast between light and shadow, turning the Canyon’s immense depth and breadth into a flat canvas. Finally, the window-frame itself constricts your view, destroying the Canyon’s overall impact. Instead of the direct and immediate reality of standing at the edge of the Grand Canyon, what you see is gray, murky, lifeless, and synthetic. You may as well be watching it on television.

Hearing reproduced music through a mediocre playback system is like looking at the Grand Canyon through those panes of glass. Each component in the playback chain—digital source, turntable, preamplifier,

power amplifier, loudspeakers, and the cables that connect them—in some way distorts the signal passing through it. One product may add a coarse, grainy character to instrumental textures. Another may reduce the dynamic contrasts between loud and soft, muting the composer’s or performer’s expression. Yet another may cast a thick, murky pall over the music, destroying its subtle tonal colors and overlaying all instruments with an undifferentiated timbre. Finally, the window-frame—that is, the electronic and mechanical playback system—diminishes the expanse that is the musicians’ artistic intent.

High-end audio is about removing as many panes of glass as possible, and making those that remain as transparent as they can be. The fewer the panes, and the less effect each has on the information passing through it, the closer we get to the live experience and the deeper our connection with the musical message.

Why are high-end audio products more transparent windows on the musical event than mass-market “stereo systems”? High-end products are designed to *sound* good—that is, like the real thing. They’re not necessarily designed to perform “well” according to some arbitrary technical specification. The true high-end designer *listens* to the product during its development, changing parts and trying different techniques to produce the most realistic sound possible. He combines technical skill with musical sensitivity to create a product that best conveys the musical experience. This dedication often becomes a zealous pursuit, involving many hundreds of listening hours and painstaking attention to every factor that

influences the sound. Often, a more expensive part will be included to improve the product’s sound, while the retail price remains the same. The higher cost of this musically superior part comes off the company’s bottom line. Why? Because the high-end designer cares deeply about music and its reproduction.

Conversely, mass-market audio components are often designed to look good “on paper”—on the specification sheet—sometimes at the expense of actual sound quality. A good example of this is the “THD wars” of the 1970s and ‘80s. THD stands for Total Harmonic Distortion, a specification widely used by uneducated consumers as a measure of amplifier quality. (If you’ve done this, don’t worry; before I learned more about audio, I, too, looked at THD figures.) The lower the THD, the better the amplifier was perceived to be. This led the electronics giants to produce products with vanishingly low THD numbers. It became a contest to see which brand had the most zeros after the decimal point in its THD specification (0.001%, for example). Many buyers bought receivers or amplifiers solely on the basis of this specification.

Although low THD is a worthy design goal, the problem arose in *how* those extremely low distortion figures were obtained. A technique to reduce distortion in amplifiers is called *feedback*—taking part of the output signal and feeding it back to the input. Large amounts of feedback reduce THD, but cause all kinds of other problems that degrade the amplifier’s musical qualities. Did the electronics giants care that the large amounts of negative feedback induced to reduce their



## What Is High-End Audio?

products' THD measurements actually made those products sound *worse*? Not a chance. The only thing that mattered was making a commodity that would sell in greater quantity. They traded musical performance for an insignificant technical specification that was sold to the public as being important. Those buyers choosing components on the basis of a specification sheet rather than listening ended up with poor-sounding systems. Ironically, the amplifiers that had the lowest THDs probably had the lowest quality of sound as well.

This example illustrates the vast difference between mass-market manufacturers' and high-end companies' conceptions of what an audio component should do. High-end manufacturers care more about how the product sounds than about how it performs on the test bench. They

know that their audience of musically sensitive listeners will buy on the basis of sound quality, not specifications.

High-end products are not only designed by ear, but are often hand-built by skilled craftspeople who take pride in their work. The assemblers are often audiophiles themselves, building the products with as much care as if the products were to be installed in their own homes. This meticulous attention to detail results in a better quality of construction, or *build quality*. Better build quality can not only improve a product's sound, but increase its long-term reliability as well. Moreover, beautifully hand-crafted components can inspire a pride in ownership that the makers of mass-produced products can't hope to match.

High-end audio products are often backed by better customer service than mid-fi products. Because high-end manufacturers care more about their products and customers, they generally offer longer warranties, more liberal exchange policies, and better service. It is not uncommon for high-end manufacturers to repair products out of warranty at no charge. This isn't to say you should expect such treatment, only that it sometimes happens with high-end and is unthinkable with mass-market products. High-end companies care about their customers.

These attributes also apply to high-end specialty retailers. The high-end dealer shares a passion for quality music reproduction and commitment to customer service. If you're used to buying audio components at a mass-market dealer, you'll be pleasantly surprised by a visit to a high-end store. Rather than trying to get

you to buy something that may not be right for you, the responsible high-end dealer will strive to assemble a system that will provide the greatest long-term musical pleasure. Such a dealer will put your musical satisfaction ahead of this month's bottom line.

Finally, many high-end products are designed and built in America by American companies. In fact, American-made audio components are highly regarded throughout the world. More than 40% of all American high-end audio production is exported to foreign countries, particularly the Far East. This is true even though high-end products cost about twice as much abroad as they do in the U.S., owing to shipping, import duties, and importer profit. The enthusiasm for American high-end products abroad is even more remarkable when one remembers the popular American misperception that the best audio equipment is made in Japan.

On a deeper level, high-end products are fundamentally different from mass-market products, in their conception, purpose, design, construction, and marketing. In all these differences, what distinguishes a high-end from a mass-market product is the designer's caring attitude toward music. He isn't creating boxes to be sold like any other commodity; he's making musical instruments whose performance will affect how his customers experience music. The high-end component is a physical manifestation of a deeply felt concern about how well music is reproduced, and, by extension, how much it is enjoyed by the listener.

The high-end designer builds products he would want to listen to himself. Because he

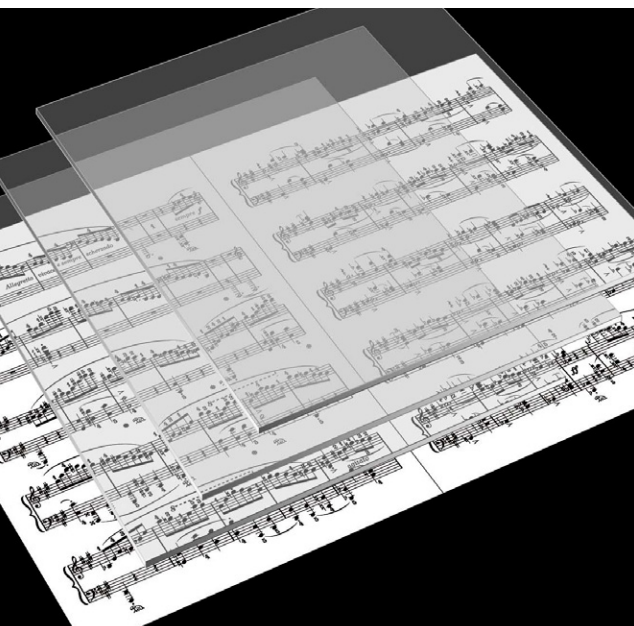
cares about music, it matters to him how an unknown listener, perhaps thousands of miles away, experiences the joy of music. The greater the listener's involvement in the music, the better the designer has done his job.

To the high-end designer, electronic or mechanical design isn't merely a technical undertaking—it's an act of love and devotion. Each aspect of a product's design, technical as well as musical, is examined in a way that would surprise those unaccustomed to such commitment. The ethos of music reproduction goes to the very core of the high-end designer's being; it's not a job he merely shows up for every day. The result is a much more powerful and intimate involvement in the music for the listener than is possible with products designed without this dedication.

What *is* high-end audio? What is high-end sound? It is when the playback system is forgotten, seemingly replaced by the performers in your listening room. It is when you feel the composer or performer speaking across time and space *to you*. It is feeling a physical rush during a musical climax. It is the ineffable roller-coaster ride of emotion the composer somehow managed to encode in a combination of sounds. It is when the physical world disappears, leaving only your consciousness and the music.

*That* is high-end audio.

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In addition to these in-depth profiles, we've included shorter pieces on many other companies that have helped shape the high-end industry, including those at the forefront today. And to make the book definitive, we've added a series of features on landmark technological developments and trends, and on the overall history of high-end loudspeakers. We trace the loudspeaker's development from its earliest incarnations in 1874 all the way through to today's high-tech marvels. This is truly a monumental project that tells the complete story of high-end loudspeakers.

The 320-page deluxe hardcover book is nearly the size of an LP cover, and is richly illustrated with rare archival photos of the company founders, their workshops, and early products. No expense was spared in this book's production, from its UV-coated hardcover format, to its deluxe dust jacket, to its ultra-premium paper and made-in-the-USA quality.

I encourage you to visit our Web site for *The Absolute Sound's Illustrated History of High-End Audio* at [tasbook.com](http://tasbook.com). There you'll find sample page layouts, the table of contents, and a complete description of the project. A limited quantity of books are still available for ordering online. **tas**



Robert Harley takes you on a guided video tour of the *Illustrated History* from his listening room.

# Advent and KLH

BY DICK OLSHER

High-end audio was indeed fortunate to have had Henry Kloss (born February 21, 1929, died January 31, 2002) connect with Edgar Villchur in the early 1950s. As fate would have it, Kloss happened to be attending an evening course taught by Ed Villchur at New York University on the subject of high fidelity. The two befriended each other and that eventually led to a commercial partnership. Without Kloss' manufacturing skills and business savvy it's unlikely Acoustic Research would have materialized in 1954. And Villchur freely admitted that Kloss had a significant hand in the development of the AR-1, the first acoustic suspension speaker.

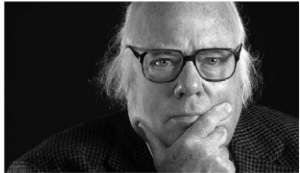
When Henry Kloss left Acoustic Research in 1957 to found KLH with partners Malcolm Low and Tony Hoffmann, the L and H initials in the name, the new venture opened the door for a decade of Kloss innovation in the midst of audio's golden age. The goal, as Kloss said in a 1992 interview, was to make a better speaker via development of superior drivers, and in particular to extend the upper range of a woofer by tuning its breakup range in the 1-to-2kHz range. The first thing KLH did was to work with a paper chemist in order to set up a paper-making laboratory for the production of paper cones. Kloss got good at this and was able to experiment with various fiber formulations, cranking out finished samples in about two hours for testing.

The first three models from KLH, the One, Two, and Three, were woofer-only acoustic suspension designs engineered to mate with an external JansZen tweeter, the best tweeter money could buy in those days. The model Four was KLH's first full-range design and used a tweeter sourced from GE. The breakthrough product that put KLH on the map was the model Six which was introduced in 1958 and stayed in production for over 15 years. It was a two-way design featuring a 10-inch woofer and a cone tweeter. Both drivers were manufactured in-house giving KLH complete control over performance and quality, allowing for the maintenance of very tight tolerances. The tweeter was unique, being a wide-range design with a one-piece cone construction without a dust cap and with the voice coil glued directly to the apex. Voice coil excitation was robust enough to permit operation down to 1.5kHz which eased integration with the woofer, making for a more perfect union in the transition region. The pricing and voicing of the Six were such that it became an instant commercial success and the gold standard for future low speakers at KLH. There was a model Five, actually two versions of the model Five were manufactured. The chronological Five was not a major product, but the second Five, designed by Kloss well after the Six, was a three-way design with greater bass extension and an even cleaner midrange.

## Did You Know?

Henry Kloss founded or co-founded seven audio companies over a 50-year career: Kloss Industries, Acoustic Research, KLH, Advent, Kloss Video, Cambridge SoundWorks, and Tivoli Audio.

For many years this second model Five was KLH's most expensive low speaker. Panels at the time found the Six, and the new Five, to be similar sonically to the AR line but with greater bass range warmth and treble sweetness. Both the Five and Six were prime examples of KLH bass speaker technology during the 1960s, and were undoubtedly some of the best sounding acoustic suspension designs of their day.



In addition to revolutionizing the audio industry, Henry Kloss is credited with inventing projection television.

However, KLH is best remembered today for the model Nine, a full-range electrostatic speaker that went into production circa 1969 (\$1395/pr in 1975). It was a product that Kloss admitted he didn't have anything to do with. Arthur Janster, who joined the KLH team as a fourth member, designed the bass panels for the Nine and integrated the tweeter and bass panels into a coherent two-way speaker system. Each channel comprised multiple bass panels surrounding a single JansZen electrostatic tweeter mounted roughly in the center and crossed over at about 2kHz. It was clearly a contender for state-of-the-art honours in the late 60s. It went deeper in the bass than the QUAD ESL and excelled in clarity, transient response, soundstage transparency, and detail resolution. To be sure, it wasn't perfect. It was tonally laid back and inefficient, and it didn't quite equal the QUAD's natural voicing in the midrange. Most frustrating was its heavy treble range, the consequence of a single flat tweeter panel. Enterprising audiophiles resorted to using a double Nine

about The Advent Loudspeaker cost \$112 per pair at its introduction in 1967.

right: The KLH Model 9 was clearly a contender for the state of the art in the late 1960s.



system, which increased the number of side-by-side panels from two to four per channel. This served primarily to improve bass extension, high-frequency dispersion, and available sound pressure level. Unfortunately, imaging was less than optimal in this configuration. Apparently the Nine was never a money maker for the company, but KLH kept it in the line as a flagship product even after the Singer Corporation took over operations in 1964, and even long after Kloss departed in 1967 to found Advent.

Kloss pointed out that Advent was started to develop projection TV, but as funds ran out for such ambitious R&D, the decision was made to make loudspeakers, and that's how the Advent loudspeaker was born. A smaller and less costly Advent was also introduced. It incorporated the same tweeter and crossover as the large Advent but of course, as physics dictates, a smaller woofer for a smaller box. Bass extension and efficiency were reduced in the process, and as its price compared to the large Advent traded too much performance for the savings incurred, sales suffered in the process. Kloss always felt that the smaller Advent was never the lesser Advent and regarded it as a product of impotence that he still listened to. That was vintage Kloss: a

man who delighted in designing cost-effective products with mass appeal.

Both Advent loudspeakers were two-way acoustic suspension designs, and in particular, the large Advent competed directly with the three-way AR-3a but cost just under half as much. Though onside in the bass range, it measured well and scored high in musicality. It was the kind of speaker that didn't necessarily impress in the showroom but satisfied music lovers in a domestic setting. Known unofficially as the "Large Advent" after introduction of the smaller Advent, it was this model that caught the attention of Harry Pearson who featured a stretched large Advent system in the inaugural issue of TAS (1973). HP expounded that "it's only when you double up on the Advents, that you begin to get the sort of authoritative performance that comes strikingly close to the real thing...the spaciousness of the two working in tandem suggested that of a huge Bosac system, but without its considerable frequency deviations. The bass, if anything, had that certain low-end sock you hear in a good hall, and the upper strings, matted violins in particular, began to sound like massed violins." HP noted that the Advent loudspeaker "has several things going against it with most cabinet audiophiles. First, it has been a huge commercial success. Second, it is easily available. Third, it is not backbreaking, either in cost or in weight. Perhaps worst of all, it contains no 'radically' new principles." His conclusion was that "the Double Advent system suffers when compared in first one area, then another, to individual speaker systems costing many times more, but overall, none puts it to shame."

After leaving Advent, Kloss went on to found Kloss Video and fulfilled a prolific audio career, spanning nearly 50 years, by co-founding Cambridge SoundWorks (1988) and Tivoli Audio (2000).

## Advent in *The Absolute Sound*



Harry Pearson's now-legendary review of the "Double Advent" system in the first issue of *The Absolute Sound* put the magazine on the map. TAS allowed Advent to reprint tens of thousands of copies of the review provided that the reprint include subscription information. Circulation skyrocketed instantly, and *The Absolute Sound* never looked back.



# MartinLogan

BY DICK OLSHER

## The

power of two is in no greater evidence than in the founding of MartinLogan. Gayle Martin Sanders and Ron Logan Sutherland met in Lawrence, Kansas, during the late 70s and managed to convince each other that they could not only build an electrostatic speaker but could better previous designs such as the KLH Model 9 and Quad ESL when it came to bass extension and dynamic range. Needless to say, that was an ambitious vision and one only likely to succeed through the blending of their two minds talents.

Even though electrostats are conceptually simple to understand, basically a stretched Mylar diaphragm sandwiched between two stators, reliability and ultimate performance reside in the engineering details. The early years were focused on experimentation with conductive coatings, insulation, adhesives, perforated steel stators, and, of course, the curvilinear line-source panel (CLS). The CLS was a conceptual breakthrough now a fixture in every MartinLogan electrostatic design. Some said that a curved panel wouldn't work, but we're all grateful to MartinLogan for exploring the road less traveled.

Over the years MartinLogan strove to improve its core technology, the electrostatic transducer, by researching new materials and methods to improve conductive coatings, insulation, adhesives, and assembly processes. This continuing evolution has resulted in improvements to bandwidth, efficiency, consistency, and reliability. The electrostatic panel of 1983, while looking similar, is vastly different from its contemporary counterpart. For example, in 1983 conductive coatings were hand applied with a conductive slurry. Today, conductive coatings are applied to the diaphragm through a proprietary vapor deposition process in a state-of-the-art vacuum chamber that allows the diaphragm to maintain a 5000-volt charge.

What motivated all this experimentation was that audiophiles wanted (and still want) full-scale reproduction of both dynamics and bass. After significant experience with all variations of both ESL and dipole technology, MartinLogan had to face the reality that dipoles, and ESLs in particular, are challenged when asked to reproduce both large-scale dynamics and low-frequency information at the same time. So ML decided early on to design a high-efficiency electrostatic transducer to be integrated into a hybrid system. That first speaker was the Monolith and it launched the company following an encouraging reception at the 1983 CES. Sales took off in 1985 placing the company on a firm financial footing that was also when Ron Sutherland departed MartinLogan to pursue his first love, electronics.

The first full-range electrostatic speaker, the CLS, arrived in 1986. But it was the Sequel, a smaller hybrid introduced in 1987, that resulted in explosive sales. During the 90s product releases came fast and furious and included some of MartinLogan's classic models such as the Quest, Actus, and SLA, and to top off the product line with a claim on state-of-the-art honors, the massive Statement c2 loudspeaker was released in 1998.

The release of the Summit in 2005, followed by the Summit X in 2009, heralded the arrival of the most advanced hybrid yet, combining dual independently-powered woofers with MartinLogan's most advanced electrostatic transducer to date, the XStat. The CLX, unveiled in 2010, is its most advanced full-range electrostatic so far. Though co-founder Gayle Sanders left MartinLogan about the same time it was acquired in October 2005 by ShowView Industries, MartinLogan is still today a growing company with an internationally recognized brand, and a first-class design and manufacturing team.



# Electronics





# Denon PMA-50 Integrated Amplifier

The First Rung on the Ladder

Vade Forrester

**M**emo to audiophiles: Most people don't appreciate your hobby. They think you're weird for using a stack of large, ugly, and (to them) insanely expensive equipment to listen to music. They are happier than (fill in your own favorite phrase) listening to music streamed over the Internet or stored on their smartphones and played through the earbuds that came with those phones. Perhaps, if they feel a need for better sound, they'll buy some better earbuds, or if they wanted to make an even larger improvement, some headphones or earphones to replace the earbuds. One thing we shouldn't lose sight of is that regardless of how they listen, they are passionate about music—just as we audiophiles are.

Occasionally, however, even these non-audiophile music lovers want better sound. Perhaps they'd like to use other sources, or switch from earbuds to loudspeakers. What should their first purchase of audio equipment be? My take: It should be small and attractive, packaged in a single box, have features that will actually be used, and not cost a lot. It should allow music lovers to use their existing sources with minimum effort. It should require the fewest possible ugly cables. And (drumroll, please): *It should be easy to use.*

Let's see how Denon's new PMA-50 integrated amplifier fulfills the requirements I just laid out. It has a completely modern DAC, which will play most PCM formats up to 384kHz/24-bit, as well as DSD64 and DSD128. That should accommodate most any computer audio file a user will likely encounter. It has an amplifier section rated at 50Wpc into 4 ohms, 25Wpc into 8 ohms, which should drive many speakers satisfactorily, especially in a small room like you might find in an apartment. It has five digital inputs: an asynchronous USB Type B jack, two TosLink jacks, a coaxial input on an RCA jack, and Bluetooth. There's also an analog input, which allows you to connect an analog source such as a turntable, although you'll need an external phono preamp as well. Rear outputs are limited to a pair of speaker terminals and one line-level subwoofer output so you can set up a 2.1 speaker system (left and right channels, plus a subwoofer). The front panel has a 1/4" headphone jack, a large central volume-control knob, an on/off switch, and a small status screen. It also has a button for selecting the source and one for turning on Bluetooth. The PMA-50 measures 7" x 3 <sup>25</sup>/<sub>64</sub>" x 10 <sup>5</sup>/<sub>32</sub>" and weighs in at 5 <sup>1</sup>/<sub>2</sub> pounds. It can be positioned horizontally or vertically. And at \$599, it's not crazy expensive. The PMA-50 is attractively styled, with brushed silver aluminum top, back, and bottom plates bent into a "U" shape. The front and side panels are also "U"-shaped pieces, painted black and nested into the top and bottom pieces. The recessed rear panel contains all the connections except the headphone jack. Like any recessed panel, it's a little hard to read, but setup is pretty much a one-time deal. The only cables you'll need are speaker cables and if you use

a wired digital source, a cable to attach it. So how well does the PMA-50 meet the specified requirements? I'd say it's right on target.

The PMA-50's small display screen to the right of the volume knob shows the type of input you're listening to, the sampling rate of digital recordings, and the input being used (e. g., USB-DAC). A graphic display shows you the volume setting when you turn the volume knob. (The display cleverly rotates if you orient the PMA-50 vertically.)

The PMA-50's remote control not only has all the controls on its front panel, but it also accesses a set-up menu which includes bass, treble, balance, and headphone-amplifier gain settings (low, medium, and high). There's also a three-position dimmer for the PMA-50 display, although, for once, I thought the brightest setting was just fine.

## Setting Up and Using the PMA-50

The PMA-50 ships with a Quick Start Guide printed in three languages, a CD which contains the full manual as a PDF file, a remote control, a USB cable, and a basic power cord which has only two conductors—no ground connection. The Quick Start Guide had clear, straightforward instructions, which were easy to follow. The full manual was also well laid out, and information was easy to find and understand—just what an audio-system novice needs. The CD manual is actually easier to navigate than the paper manual.

If you want to plug your Windows computer into the PMA-50, you'll need to install a driver, which is available as a download from the Denon website. Installing the driver is quite straightforward, requiring minimal computer skills. Linux or Macintosh computer users won't need to bother with drivers. But regardless of which operating system you use, you'll need to adjust the settings of your music-playback software so it works with the PMA-50. For the J. River Media Center software I use on my Windows laptop that meant I had to click Tools/Options and set the Audio Device to Digital Audio Interface (Denon USB Audio) so J. River would be able to use the installed driver.

The PMA-50 needed some break-in time to sound its best.

## EQUIPMENT REVIEW - Denon PMA-50 Integrated Amplifier

Right out of the box, it was bright and brittle, but with 100 hours of use, it started to sound fuller and smoother, with substantially deeper bass. And it continued to improve with more break-in. It ran slightly warm to the touch.

To use headphones with the PMA-50, just plug them into the jack on the front panel. If your headphones don't have a 1/4" plug, you'll need an adaptor; one may have come with your headphones. If you want to use speakers, you'll need speaker cables with bare wire or banana plug terminations. The speaker cable binding posts won't accept spade lugs. Speakers from 4 to 16 ohms will work with the PMA-50. When you plug in your headphones, it cuts off the speaker output.

Because they are easy to drive, I used some old Soliloquy SM-2A3 bookshelf speakers. Originally designed for compatibility with single-ended triode (SET) amplifiers, the SM-2A3s were rated at a highish 91dB sensitivity. A rear port loads the 5 1/4" mid/woofers. I used Kimber 4VS speaker cables to connect the PMA-50 to the speakers.

Departing from my usual reviewing routine, I started my PMA-50 listening sessions using headphones, since I expect that's how many people will first use the amplifier. I tried the following headphones: HiFiMAN HE-400, NAD Viso HP50, AKG K712, and Audeze LCD-X. The PMA-50 drove them all to satisfactory levels, though I'm no headbanger. The power-thirsty HiFiMAN HE-400 was the hardest to drive, but the PMA-50 handled it well when set to the mid- and high-gain positions, extracting a level of treble detail not always heard through those headphones. Most of my critical listening was

done with the AKG K712 headphones, since they were the type of medium-priced headphones someone would likely use with the PMA-50. Though not unusually hard to drive, the K712s benefit from some amplifier power, so I set the PMA-50 to the medium-gain position.

It was easy to establish a Bluetooth connection to my iPhone 6; I just pressed the Bluetooth button on the front panel and the PMA-50 started trying to pair. When it appeared in the iPhone Settings under Bluetooth, I just pressed "PMA-50" on the menu and I was in contact. You can play music from the smartphone, or stream music from on-line sites. When you want to switch back to the USB input to play music from the computer, press the input source selection button on the front panel.

The PMA-50 switched between PCM and DSD flawlessly, always displaying the correct format and sampling rate on the front panel. That should be no big deal, but it doesn't always happen, even with very expensive gear.

### Sound

*With headphones.* A novice hi-fi buyer who's used to listening to a smartphone with headphones may find the PMA-50's headphone amplifier its most immediately appealing feature, so that's where I started. The PMA-50 sounded smooth and relaxed. There was no peakiness or etch present in the sound, although the high frequencies were extended. On Alex de Grassi's *Special Event 19* (DSD64/DSF, Blue Coast Music), the PMA-50 played the track "Shenandoah" with gobs of harmonic detail, and the drone effect of de Grassi's

unusual guitar came across clearly. Transient detail was accurately portrayed, but not overemphasized. I was reminded how excellent this recording is.

On Jordi Savall's *La Folia, 1490-1701* (ripped to AIF format from Alia Vox AFA 9805), the track "Folia: Rodrigo Martinez 1490" displayed exceptional transient response; the sharply struck castanets had an almost physical impact. However, the *cascabels* (sleigh bells) seemed a little recessed, indicating perhaps a bit of a treble irregularity. The PMA-50 produced a lot of powerful bass from the headphones; however, it lacked the deepest extension that I hear with the subwoofer I use with my speakers. Even with the bass-rich HiFiMAN headphones, I didn't hear the subterranean frequencies on this track. The midrange seemed slightly elevated, making it easy to hear Savall's viola da gamba playing the main theme. I could distinguish between the harp and baroque guitar. (Since they play similar phrases, sometimes they tend to sound a bit alike.)

A little surprised at the PMA-50's lack of the deepest bass, I queued up Holly Cole's album *Temptation* (DSD64/DSF, Acoustic Sounds). The track "Invitation to the Blues" opened with tons of bass power and detail. So why was there an apparent difference from "Folia Rodrigo Martinez"? Well, while there's lots of bass on the Holly Cole album, it was not as deep as the bass on "Folio Rodrigo Martinez." In the midrange, Cole's voice caressed the superbly recorded songs with rich harmonics and delicate vocal nuances—a real hi-fi showcase which contradicts the urban audio legend that

excellent performances are invariably cursed with poor recordings.

At the risk of overdoing female vocalists (is that possible?), I queued up Rebecca Pidgeon's *The Raven* (176.4/24 FLAC, Chesky/HDTracks, remastering by Bob Katz). On "Kalerka," Pidgeon's soprano exhibited a bit of sibilance I've not often heard in this recording. Throughout, this album sounded a smidgen overemphasized in the upper midrange, though still very clean and detailed.

I wanted to check how music via Bluetooth compared to music from a wired computer connection, so I ripped the CD *La Folia, 1490-1701* in AIF format to my iPhone and played "Folia: Rodrigo Martinez 1490" over Bluetooth.

## SPECS & PRICING

**Rated output:** 25Wpc (8 ohms, 1kHz, THD 0.1%);  
50Wpc (4 ohms, 1kHz, THD 1.0%)  
**Output connectors:** 1/4" (6.3 mm) headphone jack;  
four 16-ohm speaker terminals  
**Audio formats:** Digital audio interface (Linear PCM)  
**Communication system:** Bluetooth version 3.0  
**Supported profiles:** A2DP 1.3/AVRCP 1.5  
**Supported codecs:** aptX low latency/AAC/SBC  
**Price:** \$599  
**Warranty:** 3 years, parts and labor

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## EQUIPMENT REVIEW - Denon PMA-50 Integrated Amplifier

I cranked the volume setting on the iPhone's Music app to its maximum setting and controlled the headphone volume with the PMA-50's volume control, which worked fine; the PMA-50 Bluetooth gain was compatible with the iPhone's Bluetooth gain. Through the Bluetooth connection, everything sounded very clean; however, the highs were a bit overemphasized. I should note that although I tried the Bluetooth connection after the amplifier had broken in, I didn't make a special effort to break in the Bluetooth connection itself. I don't know if that would have made a difference, but I couldn't live without my phone long enough to break in the Bluetooth. Wait—did I just admit I can't live without my iPhone? How sad.

*With speakers.* I didn't expect a lot of bass from the Soliloquy speakers' 5 1/4" mid/woofers. Often, speakers designed to work well with an SET's low damping factor sound lean and thin driven by solid-state amplifiers, which tend to have fairly high damping factors. So I was pleasantly surprised when I heard robust, powerful bass from the PMA-50 with the Soliloquies. In particular, the bass on "Invitation to the Blues" was more powerful than expected, with lots of detail. Holly Cole's vocals were quite clearly defined, and highs were smooth but extended.

As expected, through loudspeakers "Shenandoah" showed more dimensionality. There actually was a decent soundstage! The tonality of de Grassi's guitar was rich and full. On another song on this album, I was startled when de Grassi whacked the body of his guitar. Since the Soliloquy speakers were easy to

drive, the PMA-50 never came close to clipping. Unless you try driving low-sensitivity speakers quite loudly, I suspect the PMA-50 will work fine in a small room.

### Comparison

I didn't have a classic integrated amplifier to compare to the PMA-50, so I used another type of integrated amp, the Light Harmonic Geek Out 450. Reviewed in Issue 251, the Geek Out sees daily use driving a variety of headphones in my office computer system. J. River Media Center version 20.0.63 is the music playback software I use to drive the Geek Outs through their supplied 6" USB cable. Like the PMA-50, the Geek Out includes a DAC and a headphone amplifier, but not a power amplifier to drive speakers. Its power is provided by a computer's USB port.

Starting with "Folia: Rodrigo Martinez 1490," transients created by the percussion instruments really snapped. High frequencies were extended but not peaky. For a headphone amplifier, the Geek Out 450 really has a surprisingly good soundstage. It doesn't compete with speakers, of course, but for headphones it's pretty remarkable. Bass was powerful and extended. Only a few other headphone amps have produced deeper bass.

On "Shendoah," the Geek Out 450 produced a resonant sound with extended highs. The drone effect of de Grassi's guitar was pronounced, giving it an ethereal sound. Transients were quite well defined. The harmonic structure of the guitar was rather well portrayed, giving a very realistic guitar sound.

Holly Cole's "Invitation to the Blues" opened

with crushing bass. Through the Geek Out 450, her vocals were better defined than with the PMA-50. Cole's occasional coarseness in her vocal production was extremely realistic. Cymbals had that distinctly metallic sound, with sharply-defined leading-edge transients.

Pidgeon's "Kalerka" had a smidgen of emphasis on sibilants, but was clean and open-sounding.

As an aside, I still have trouble believing the Geek Out 450 costs only \$199. But it doesn't drive speakers.

### Competition

I haven't listened to these competing components, but thought it might be useful to compare their features and specifications. The \$799 Sony UDA-1S or UDA-1B (silver or black) is a more conventional-looking integrated amplifier with USB and coaxial digital inputs, an analog input, and both headphone and speaker outputs. Power output is rated at 23Wpc at 4 ohms, but at a rather high 10 percent distortion. It has a remote control. It plays DSD and PCM high-resolution files. Unlike the next two amplifiers, it does not have a Bluetooth input.

The PS Audio Sprout is priced at \$799 and is rated at 50Wpc at 4 ohms, 33Wpc at 8 ohms (no distortion level given), and comes in silver with a walnut top. It includes a moving-magnet phono preamp, but not a remote control. It plays only PCM computer audio files, not DSD. Its headphone amplifier produces enough power to drive most headphones. If you have power-thirsty headphones like the HiFiMAN HE-6, you'll probably already have a headphone amplifier capable of putting out the high power

they require, but for most headphones, the Sprout should be adequate. It has a line-level analog input and output on stereo jacks, and a phono input on RCA jacks. If you have a turntable, the Sprout would be the clear choice. I'd kinda like a remote, though.

The \$499 NAD D3020 is rated at 30Wpc at 8 ohms, but claims to produce much higher dynamic power. Its DAC is rated at 192kHz sampling rate/24-bit word length through its SPDIF input, 96/24 through its USB input. As those specifications imply, it does not play DSD files. A remote control is included. It has two analog inputs and a subwoofer output. No information is given about the headphone output. It comes in typical dark-grayish NAD color. It's designed to be oriented vertically, with the volume control on top.

### Bottom line

In my view, the Denon PMA-50 hits the bulls-eye as a beginner-level hi-fi component: It looks good, sounds good, has a lot of features for its price, is easy to hook up and blessedly easy to use. Its features, including its remote control and the increasingly popular Bluetooth connectivity, are genuinely useful. Even though its power is limited, it's very competitive at the price. Actually, there's no reason to restrict all this hi-fi goodness to beginners; it would make a terrific centerpiece for a bedroom or office system. Pricewise, I can't think of a better value. The Denon PMA-50 may not be state of the art (what would you expect at its price?), but it may be state of the start(up). tas



# NuPrime IDA-8

## Smart Design at Work

Julie Mullins

**W**hen the NuPrime IDA-8 integrated amplifier first arrived at my home, I immediately had a good feeling about it. Initially, that positive impression was based on its packaging. The outer shipping box the amp came in was not any larger than it needed to be, and inside was a smaller box with a plastic carrying handle on top—almost like a little briefcase. More than just a cute or superficial add-on, it represented smart design for those who would be handling the amp—from the distributors to end-users. It also came in handy because I needed to repack the amp before moving house a couple of months ago.

As I'm a relative newbie to the hi-fi scene (though I was raised in an audiophile household) and a fan of great design in all its forms, I appreciate this kind of attention to detail. But the real point here is that those outer elements reflect the care and thoughtfulness that went into the IDA-8's design on the inside.

First, a bit about NuPrime's heritage. Its recent history is slightly complicated, so I'm going to borrow a couple of key points from Steven Stone's review of NuPrime's DAC-10H DAC/pre and ST-10 power amp (Issue 255). In 2014, NuForce's cofounder, Jason Lim, with backing from the OEM factory, bought the assets of NuForce's high-end division, obtained the rights to NuForce technologies, and formed NuPrime Audio, Inc. (Shortly thereafter the NuForce company was sold to Optoma.)

Since NuPrime's founding, Lim has continually sought to improve sonics through the application of innovative technologies—in addition to offering high performance and value with respect to pricing. The IDA-8 exemplifies this approach. Here's how Lim summarizes the IDA-8, "It is as if we combined the 'perfect' ST-10 and DAC-10H, made it sound like a high-end Class A amp, and brought the price down to \$995."

Sonically and functionally, there's plenty to love about the IDA-8. Essentially, it's a sleek-looking, small-footprint hybrid Class A/Class D integrated amplifier/DAC—that combines Class A warmth and resolution with Class D speed, power, and efficiency, and delivers both with remarkably low noise, thanks in part to ultra-low-noise JFETs in its input stage. Its DAC supports USB 384kHz/32-bit and DSD256, and is also capable of decoding DoP (DSD over PCM) via coaxial and optical inputs. NuPrime's SRC (sampling rate conversion) IC chip provides

## SPECS & PRICING

<b>Type:</b> Class A/Class D hybrid integrated amplifier	<b>NUPRIME AUDIO</b> (219) 364-6549 nuprimeaudio.com
<b>Power output:</b> 100Wpc into 8 ohms, 100Wpc into 4 ohms	ASSOCIATED EQUIPMENT Loudspeakers: Raidho D-1, Monitor Audio Gold 300 Subwoofer: JL Audio e110 (pair)
<b>Inputs:</b> USB PCM up to 384kHz/DSD up to DSD256; coaxial SPDIF (PCM up to 192k supporting DoP format DSD64); optical SPDIF (PCM up to 192K supporting DoP format DSD64); Bluetooth or WiFi receiver module (optional); analog, stereo RCA (analog input will be digitized)	Sources: George Merrill GEM Dandy PolyTable with Jelco tonearm and Air Tight PC-7 cartridge; MacBook Pro with 2.3GHz Intel Core i7 processor running OS X 10.9.5 with Audirvana Plus
<b>Outputs:</b> One pair of stereo speaker (binding posts); one pair of stereo RCA (line-level)	Phonostage: Walker Audio Procession Power conditioner: Ansuz Cables and interconnects: AudioQuest Fire, Shunyata Research Venom series
<b>Peak output power:</b> 280W	
<b>Frequency response:</b> 10Hz–50kHz	
<b>THD+N:</b> < 0.005%	
<b>SNR ratio:</b> 95dB	
<b>Dimensions:</b> 235mm x 55mm (including feet) x 281mm	
<b>Weight:</b> 4.3kg	
<b>Price:</b> \$995	

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## EQUIPMENT REVIEW - NuPrime IDA-8

FPGA processing with ultra-low jitter and distortion.

There's also a wireless port (for which an optional dongle is available) in addition to an impressive array of inputs and outs (especially given its rather diminutive dimensions) that allows users a great deal of functional flexibility. The IDA-8 is remarkably user-friendly to boot. The best part? Not only does it work and sound great, but this petite, yet powerful amp is also a stone-cold bargain at \$995.

### Smart Design, Inside and Out

Let's take a closer look at the IDA-8's internal and external design elements and technologies. On the outside, its relatively minimalist yet modern form factor is clean, sleek, and nearly square in width and depth, and, like its box, appears to have been designed to be only as large as it needs to be. Neither too dinky nor too clunky, its scale seems suitable for almost any size listening room (even one in a small apartment). You won't need much space for this powerful little integrated (so you can go ahead and buy those bigger loudspeakers!). Available finishes include matte black (as with my review sample) or silver anodized aluminum. To provide extra damping to absorb vibration, the amp boasts unique, patent-pending isolation feet shaped a bit like shallow inverted cones.

Elegant in its simplicity, the IDA-8's front panel has only two knobs, each of which is multi-functional, as well as an alphanumeric LED display in blue. The knob on the right serves as a push-button to power on and off and, when pressed for three seconds, to access standby mode (which consumes very low power); when

turned, it allows for five input selections (shown in codes): coaxial (C1), optical (O2), USB (U3), extension port for Bluetooth dongle or WiFi module (E4), and stereo analog RCA (A5). The left knob controls the volume functions; turning it adjusts the volume in 99 precise 0.5dB increments, and a brief press mutes and unmutes the sound. The volume control consists of an advanced, thin-film switched-resistor ladder network, with only a single resistor in the signal path at any volume setting. (This switched resistor design is implemented with an FPGA chip.) Each input features individually adjustable volume to allow for precise level-matching across various sources. In addition to the inputs mentioned, the back panel also has subwoofer and stereo speaker outputs, a slow-blow AC fuse, and an IEC power plug, plus a rather tiny toggle switch to turn the unit off and on. On the bottom of the chassis is an AC inlet voltage selector with options for 115V or 230V for use in different countries (it arrives set at 230V to prevent accidental damage). The IDA-8 comes with a power cord and two petite remote controls that could not be simpler to use—another way NuPrime makes the end user's life easier. The smaller of the two remotes is tiny—dimensionally littler than a credit card and weighing not much more.

The innovative technologies inside the IDA-8 provide clues to how it achieves such remarkably detailed, powerful, yet musical sound—not to mention very low noise—in such a compact and affordable package. It has an ultra-linear Class A module (ULCAM) in the input (pre-amplifier) stage—indeed, the entire amp was designed to sound like pure Class A, according to Lim—that uses discrete components to

help fine-tune the signal and reduce noise. In the Class D output stage, the sonic issues that plagued early switch-mode designs have been circumvented via the use of a self-oscillating circuit to generate the PWM (pulse width modulation) signal. While most Class D amps switch at a frequency of 300kHz or lower, the IDA-8 switches at 600kHz. This difference helps eliminate old-school Class D tendencies towards bright and/or rolled-off upper octaves and a darker sonic character elsewhere. In addition to a more uniformly colorless tonal balance, this Class D power stage also seems to provide an enhanced sense of speed and transient response.

### Setup and Sound

Setup was straightforward. Indeed, The IDA-8 was virtually plug-and-play (break-in time notwithstanding). It's worth mentioning that the friendly user manual includes a line diagram that illustrates a plethora of possible source options and where they should be connected on the back panel. This is in addition to some technical diagrams showing signal path and amplifier stages. The inclusion of both kinds of illustrations leaves the impression that the IDA-8 is intended for both neophytes and long-time audiophiles. The manual also offers detailed step-by-step instructions for how to set up the IDA-8 for PCM or DSD playback on both Windows and Mac platforms.

Although the IDA-8 is designed primarily for digital sources, I found myself in my usual habit of spinning LPs, though naturally I also did some digital listening too. Interestingly enough, it turns out that I was in effect listening to digital

even while listening to analog. Here's why: The analog input signal gets digitized by an A-to-D. In general, Mr. Lim says the design of IDA-8 maximizes the performance of digital inputs instead of the analog one. But had I not inquired, I might have been none the wiser—nor would I have enjoyed listening to my LPs any less. And I listened to scores of records throughout the review timeframe; the IDA-8 was my go-to amp across a range of musical genres. I became hooked not only by its ear-pleasing, easygoing sound, but also on its ease of use.

How did it sound? In short, beautiful and inviting. I was first struck by its effortlessness, remarkable resolution, and incredibly dark background. This integrated amp sounds much more expensive than it is. Speaking of darkness, I did notice a touch of it in the timbre overall—no doubt in part a factor of the IDA-8's Class D amplification stage—but it was more apparent on some recordings than others. On the superb *Dream with Dean* LP reissue from Analogue Productions, Dean Martin's easygoing baritone took on a touch of slight reediness, almost like a bass clarinet, and a slight sibilance, but it remained well resolved and quite lovely sounding. The bass and guitar followed suit beautifully, demonstrating the IDA-8's midrange-to-lower-midrange prowess. An impressive degree of detail and soundstaging clarity allowed me to distinguish the various mike setups across the first three cuts on the recording.

Shifting to some more rocking tunes, tracks on the Mobile Fidelity LP reissue of Dire Straits' *Brothers in Arms* were reproduced with surprising power and gusto. On "Money for Nothing," bass and kick-drum had plenty of slam, while

## EQUIPMENT REVIEW - NuPrime IDA-8

Knopfler's guitar licks pulsed through my speakers (first Raidho D-1s with a pair of JL Audio e110 subs, then later, Monitor Audio Gold 300s, review forthcoming) with exciting dynamics and long decays. The bells on "So Far Away" sounded, well, a touch far away (as in, slightly receded), but the balance of percussion and guitars was crisp, with more than satisfying speed and attack. Class D's high damping factor is known to benefit the bottom end, but the lower midrange is arguably even more of a strength in the IDA-8.

A listen to Buena Vista Social Club's *Lost and Found*, a captivating collection of previously unreleased studio and live tracks, presented thrilling speed, snap, and detail—particularly on the wide range of percussion instruments from cowbell to tablas and beyond. The sharp transient attacks, lifelike vocal layers and vibratos, gorgeous horns, and overall high-octane musical energy made me want to jump out of my seat and dance around the room (OK, I did). The IDA-8 conveyed the music's richly woven textures as well as its individual parts. Soundstaging was deeper and wider than I expected for an amp in this price category, with precise instrumental placement. Background noise was also shockingly low; the IDA-8 boasts an impressive 95dB signal-to-noise ratio.

Somewhat to my surprise, I found largely similar sonic characteristics when I shifted to digital sources—a MacBook Pro from mid-2012 with 2.3GHz Intel Core i7 processor running OS X 10.9.5 with Audirvana Plus, wireless streaming via Tidal, and even some run-of-the-mill Red Book tracks ripped from CDs way back when via Bluetooth (using the dongle provided). Perhaps the IDA-8's digital conversion of the analog

signal accounts for some of this, but the zeros and ones delivered the great-sounding goods! I still prefer vinyl for most of my critical (and fun) listening, but the IDA-8 brought warmth to its clean and clearly resolved presentation of digital sources too.

In my experience, the downsides to the IDA-8 were few. Upon occasion, the upper treble thinned out a touch, but not much. Can fans might well miss a headphone input option. The only moments I felt something was missing occurred when the sound of the digitally converted analog signal softened ever so slightly due to A-to-D processing; the effect is quite subtle and hard to describe, but once in a while, it seemed some of the raw impact on my LPs was lost. I want to stress that the instances when I noticed this were few and far between and never detracted from my musical enjoyment. Perhaps digital devotees would not register this. The tradeoff here, I would say, is the IDA-8's consistently lovely and uncannily liquid presentation.

In summary, the IDA-8 is a winner, and a force to be reckoned with in its category (and beyond it). Though a touch dark in character (à la Class D), it delivers substance and warmth with speed, resolution, and plenty of gusto—and does so from an astonishingly quiet background. It has a slightly digital-like sound in its detail resolution but doesn't cross the line into the overly analytical. A well-conceived Class A/Class D hybrid that doesn't want for power or clarity, the IDA-8 ought to find itself on the audition short list of a wide range of hi-fi hobbyists, from newbies to more experienced audiophiles. I'm considering purchasing my review sample. Highly recommended. TAS

## Audio by Van Alstine Vision SL Preamplifier



The Vision SL Preamplifier has the best solid state circuits we have ever designed.

It features all new discrete transistor Class A audio circuits, thermally balanced and outrageously musical. There are no ICs anywhere in the audio path from the line inputs to the line outputs. It has a new power supply board with three times the supply capacitance than we've previously offered and built-in ultra low distortion headphone drivers. The Vision preamplifier circuits give you all the music and nothing but the music.

The Vision SL preamp has more of the transparency, dynamic range, linearity and pure music for which Audio by Van Alstine is known. Listen to your recordings again and find all of the space and all of the sounds of the instruments that you'd overlooked before.

**Available options include:** Remote Control, Machined Silver Faceplate (shown), Vision Phono Stage (for MM only), Vision Adjustable Phono Stage (for MM or MC), Buffered Tape Outputs, 240V Wiring.





# Cambridge CXA80

Well Played

Neil Gader



In a newspaper article published a few months ago, a survey of Millennials had automakers worrying. Apparently car ownership was not nearly as important to this group as it was to previous generations. However, what was *crucial* in a new car purchase were issues of technology and connectivity. Expensive luxury cruisers? Not so much. A gas-conserving hybrid with top-notch Bluetooth/GPS interface, wireless surfing, and something akin to Apple's CarPlay? Now you're talking. Courting the youth vote in the high end also continues to be a tricky proposition, and like the automobile, excellent connectivity might just be the answer.

The new CX Series from Cambridge could be just the right ticket to engage this new generation. Offering components designed to partner with each other and to appeal to both audio and home-theater fans, the CX Series has a fresh look with a brushed finish and a nice “floating effect” created by the upturned corners of the chassis bottom plate. There are six models in the series including a pair of integrated amps, the A60 and the A80, the CXN network music player, the CXC dedicated CD player, plus a pair of multichannel AVRs in 120W and 200W versions.

The CXA80 at \$899 is the top rung of the aggressively priced CX line. Besides featuring a major power bump over the CXA60, it's also equipped with a DAC, today's equivalent of the once-ubiquitous phonostage. Its Class AB amplifier outputs a healthy 80Wpc into 8 ohms (120Wpc into 4). Its toroidal transformer is a low-flux design with separate dual-mono windings—the tranny's prodigious size is

proudly on display through the vented top plate of the chassis. The A80's internal circuitry has been designed from the ground up and includes a high-specification 24-bit/192kHz WM8740 DAC from Wolfson, and a bundle of digital inputs to manage the potpourri of today's digital sources. Thus, the unit features two optical inputs, a SPDIF input, plus asynchronous USB for a PC or Mac. An optional BT100 Bluetooth dongle is available for aptX streaming direct from smartphones or tablets, allowing access to music from Spotify, YouTube, and various other sources. Standby power consumption is a miserly 0.5W.

The front panel offers a host of controls including treble, bass, and balance. In addition, there is a headphone jack and a portable-player input. On the back panel are a trio of analog RCA inputs, a subwoofer out, and dual sets of speaker terminals. A balanced XLR input is also offered exclusively on the CXA80.

Ergonomically I found a couple of misfires. The front-panel buttons are small and hard to read, although repeated use will likely ameliorate this criticism somewhat. My larger grievance is reserved for the lack of a lighted alphanumeric front-panel display to specify volume level and input selection. Also the volume knob does not have a small positioning light or audible click to indicate changes. I was so surprised at these omissions that I considered the possibility that I'd overlooked something in the manual. But no, the user is left to fend for himself, using a best-guess estimate when navigating loudness levels. A real head-scratcher.

Fortunately, the strength of the A80's sonics made these minor annoyances fade into the background (at least most of the time). The

## SPECS & PRICING

**Power output:** 80Wpc into 8 ohms (120Wpc into 4 ohms)

**Inputs:** Analog, one balanced XLR, four RCA; digital, one SPDIF, two TosLink, USB

**Outputs:** 3.5mm headphone, preamp, subwoofer

**Dimensions:** 16.9" x 4.5"

x 13.4"  
**Weight:** 19.1 lbs.  
**Price:** \$899

**AUDIO PLUS SERVICES**  
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156 Lawrence Paquette  
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## EQUIPMENT REVIEW - Cambridge CXA80

A80 springs out of the blocks with a richly textured, almost exuberant midrange that persuasively propels a beat-driven groove such as the crunchy snare and dancing bass line that introduce Michael Jackson's "Billie Jean." And then there's the vamping piano and kickdrum opening of Steely Dan's "Time Out Of Mind"—a heavy rhythmic engine that drives this song forward. The A80 retrieves the low-level details of this precision-engineered track with finesse, especially the backing harmonies featuring the white-soul vocals of former Doobies heartthrob Michael McDonald. His voice, which often breaks into a breathy falsetto, is well captured by the A80, with a notable amount of air and space enlivening the mix.

And this amp has some real guts. It doesn't shrink from a big operatic track like Dire Straits' "Telegraph Road." This fourteen-minute cut has a wide dynamic envelope that intensifies into a meter-pinning crescendo before it begins a slow fade many minutes later. Any amp worth its salt needs to be able to hang on to the bite of the lengthy Knopfler guitar solo, the piano fills, and the runaway-train drum fills; otherwise the

song loses its scope and scale. I've rarely heard an amp in this price range match the CXA80 in this regard.

At the other end of the dynamic range, Norah Jones' cover of "The Nearness of You" is reproduced with nice sensual intimacy on her close-miked vocal, and authentic weight and rich timbre on the piano accompaniment. Tonally, the A80 is firmly midrange-centric, but on a vocal like this one I found that there's a slightly artificial coolness and whiteness that hardens the edges of vocal transients. It's a narrow-band coloration, to be sure, and its relative presence will likely depend on the rest of your system.

Singling out the DAC for a moment, I found its performance lively, with swift, clean transients, stable imaging, and surefooted bass. It was very good in general (and excellent in this segment), but some fine resolution was lost. For example, it didn't fully exploit the dynamic gradations and the tactile and harmonic complexities that are revealed in the 24-bit/96kHz version of Fleetwood Mac's "Dreams," and soundstage depth was slightly

truncated during "Gold Dust Woman." Certain elusive musical elements, both intimate and tactile, such as the skin reverberation of a drum, fingertips on a Steinway keyboard, or a short breath escaping a singer's parted lips are a bit obscured.

When it comes to representing three-dimensional acoustic space, volume, and hall boundaries, nothing can match a great orchestral track. Most often I call on the brilliant recordings of Keith Johnson on the Reference Recordings label, which are nothing if not revealing of the exact balance of the music, the musicianship, and the acoustic space. No matter how many times you listen to one of his recordings, you never lose sight of how much liveliness and immediacy fill every moment. As I listened to the Rutter *Requiem*, and the array of the vast Turtle Creek Choral, there was no denying the expanse of the huge, vaulted space, and the weighty voice of the pipe organ. Although the bottom octave of the pipe organ was less than fully realized in pitch and grip, the A80 did more than a commendable job delivering most fundamentals. Certainly if

the A80 had a Soulution badge across its prow, I would have expected a more fully realized expression of dimension and ambient space, but given that the A80's price is missing a couple of zeros compared with that marque, I think I'll tip my hat instead.

So, well played, Cambridge. Except for one particular grievance, the CXA80 was a delight to have in my system. It's pleasingly styled, forward thinking, and sonically appealing. And priced in a sweet spot for audiophile first-timers. I haven't done any polling myself, but I would have to believe that the youth market would be nicely served by this highly connectable and competitive integrated amplifier and DAC. Recommended with enthusiasm. *tas*







# Audio by Van Alstine Vision Phonostage

Little Marvel

Dick Olsher

**V**isually, the Vision phonostage appears to be a pretty simple affair: a small black box powered by an external transformer. The latter is a small 15V AC “wall wart,” which by virtue of its location manages to decrease internal AC-induced hum. The chassis interior is dominated by a large main audio board and 15V regulated power supplies. Its compact size and low cost (\$499) are made possible by the use of operational amplifiers. Being integrated chips, op-amps are the product of intensive research and development by major semiconductor manufacturers. The end result typically offers superb and repeatable technical performance in a sub-five-dollar part that fits neatly into an eight-pin socket. Historically, high-end audio has shunned op-amps in favor of discrete circuits, and while that made sense some 30 years ago there’s no longer a valid rationale for it. In fact, op-amps have become ubiquitous in the recording chain. A typical mixing console used to master multi-track recordings may contain dozens of op-amps, as do mike preamps, mixers, limiters/compressors, and eq and reverb effect devices. Even so, op-amp-based audio products are still rare on the high-end scene. One notable exception has been Junji Kimura of 47 Lab, who has elevated op-amp designs to new sonic heights.

Enter Frank van Alstine. Since op-amps can never be discrete, his vision was to keep them as sonically inconspicuous as possible. And Frank has successfully accomplished that with the Vision. I should note that the Vision phonostage is also available as an option that can be included in all-new AVA preamps, at \$329 for the moving-coil version and \$250 for the basic moving-magnet stage. The design is based on a schematic he drew up in the 1970s during the Jensen’s Stereo Shop days. He says that the original version never saw production because the integrated circuits of those days just weren’t quiet or linear enough, and that trying to null DC offset for each IC using trimming resistors would have been a nightmare in production. Frank decided to revisit that old circuit because of its potential, this time with much better modern ICs. The Vision uses a split, passive, RIAA de-emphasis network. One section provides the necessary 20dB of bass boost between 500 and 20Hz, while the second section provides the required treble cut above a frequency of 2.21kHz. Both of these frequency-shaping networks are first-order 6dB/octave types, and each uses a single WIMA polypropylene capacitor.

Frank relates that weeks were spent rolling in and listening to almost all the modern linear ICs available, including some surface-mount chips, before finalizing the design around a pair of gain stages per channel using the highly regarded (and rather expensive) Burr-Brown OPA627 op-amps, the first OPA627 being selected for low noise. There is no third gain stage; instead, a National LME49600 current amplifier—featuring a high slew rate of 2000V/→S, THD of 0.0003%, and an output current capability of ±250mA—is used as an output current buffer to isolate the circuitry from the outside world. The Vision’s overall gain is a tad below industry standard at 38dB for moving-magnet and a nominal 58dB for moving-coil cartridges, as measured at 1kHz. The mc gain can be boosted by an additional 6dB, but even so, plan on mating the Vision with a line preamp with at least 15dB of gain.

Because of the OPA627’s exceptionally low DC offset

and bias current, it was possible to direct-couple the circuit from input to output, meaning that no coupling caps are used. As Frank puts it, “You have no worries about which brand or type of coupling capacitors to use; there are none.” But I’m not so sure that DC-coupling a phonostage is necessarily a good idea. It opens up the possibility of passing subsonic garbage downstream to the power amp and loudspeaker. In an imperfect world, there are the usual subsonic suspects to contend with, most notably record-warp energy and tonearm/cartridge resonances. But the Vision’s design has addressed this issue; the active stages are driven to unity gain at DC, and have no input or output voltage or current offset, minimizing the chance of energy from very low-frequency record warps appearing at the output.

A flexible, user-adjustable mc-cartridge loading scheme has been implemented. Two dual, in-line, package (DIP) switch banks are located on the main board. Combinations of switch settings can provide various cartridge loads. Mercifully, there are only four chassis cover screws that need to be removed to access the board. You can select one of the five fixed resistors (1000, 475, 220, 100, and 47 ohms), or a parallel combination of several resistors. For example, switching all of these resistors on in tandem (positions 7, 8, 9, and 10) gives an effective 30-ohm load. Frank says that if you’re not up on the algebra involved in calculating the loading of several resistors in parallel, AVA will be glad to assist. [*The total resistance is the reciprocal of the sum of the reciprocals of the individual resistances.*—RH]

Being able to experiment with and optimize cartridge loading is a big deal sonically. The Technics EPS-310MC moving-coil I use in my Technics SL-10 linear-tracking turntable is specified at an internal impedance of 30 ohms. I experimented with loadings of 475, 100, 47, and 30 ohms. Not only did the gain increase with decreasing loading, but the sense of space, image focus, and dynamics were also significantly enhanced when I finally settled on a loading of 30 ohms. Incidentally, the Vision easily

## EQUIPMENT REVIEW - Audio by Van Alstine Vision Phonostage

outclassed the SL-10's built-in mc pre-preamp.

It was a similar experience with the Clearaudio da Vinci V2 cartridge currently taking up residence in my Kuzma Reference phono front end. Although Clearaudio recommends a minimum impedance of 300 ohms, I found that setting on the Vision a bit too bright for my taste. I eventually settled on 47 ohms, which gave the most gain and best overall tonal balance.

The Vision pretty much met my preconceived notion of what a solid-state phonostage would sound like and lived up to the promise of its objective technical specifications. I expected plenty of low-level detail resolution and a strong bass range, and I wasn't disappointed. Transient speed and control could only be described as excellent. Alas, I expected a dead-quiet noise floor, but the Vision didn't quite get there. On the purely subjective side, dynamic contrasts impressed with a rare ability—for solid-state gear, that is—to bloom and boogie. This miniature phonostage was able to light a fire under the soundstage. The biggest impediment to total musical bliss turned out to be somewhat muted tonal colors through the upper midrange. For example, violin tone was lacking requisite sheen. This was a persistent impression, though its degree of severity was a function of the associated cartridge and linestage. The Vision seemed happiest being mated with a romantic-sounding tube preamp.

With its smooth textures and precise transient control, the Vision was able to hold its own in the company of far more expensive gear. Partnered with the new Audible Illusions L3A line preamp it did not embarrass itself, despite

the nearly 10:1 price ratio. On balance, I find the Vision to be a well-engineered little marvel. However, what you think of it will depend on the associated line preamp and cartridge. It needs a tube preamp in the mix to approach reasonable fidelity in fleshing out tonal colors. In such a context, Van Alstine's Vision makes for an easy recommendation, and in view of its asking price, it rises to the level of a godsend for audiophiles on a budget. *tas*

### SPECS & PRICING

**Gain:** 38dB (mm), 58dB (mc)  
**Input impedance:** 47k ohms (mm); adjustable (mc)  
**Dimensions:** 7" x 2.5" x 5"  
**Weight:** 2.5 lbs.  
**Price:** \$499

#### AUDIO BY VAN ALSTINE, INC.

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

#### ASSOCIATED EQUIPMENT

Analysis Audio Omega loudspeaker; VTL Manley Reference 200/100 monoblocks; Kuzma Reference turntable; Kuzma Stogi Reference 313 VTA tonearm; Clearaudio da Vinci V2 phono cartridge; Technics SL-10 and Revox B795 turntables; Audible Illusions L3A and Atma-Sphere UV-1 preamps; FMS Nexus-2, WireWorld, and Kimber KCAG interconnects; Kimber silver speaker cable; Sound Application power line conditioners

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# Yamaha A-S801 Integrated Amplifier and YBA-11 Bluetooth Wireless Adapter

Full Featured & Good Sounding

Vade Forrester

**S**ometimes reviews of expensive, advancing-the-art gear lead us to think that's where all the interesting developments take place. While I can appreciate the ultra-high-priced spread, I can't afford it; I think it's more interesting when a manufacturer offers a component with tons of capabilities at a bargain price. And that's just what we have here: a 100Wpc integrated amplifier with an built-in DAC, priced at \$899.

The Yamaha A-S801 may be inexpensive but its feature set is amazingly rich. Its internal DAC uses an ESS Technology 32-bit ES9010K2M chip to play PCM files up to 384kHz/32-bit and DSD files up to DSD128. That range encompasses most of the computer-audio files available today. Status lights on the front panel indicate the sampling rate and DSD speed of a digital file being played. There are three digital inputs: asynchronous USB 2.0 on a USB Type B connector, coaxial on an RCA connector, and optical on a TosLink connector, which together will accommodate most digital sources. And you can add aptX Bluetooth connectivity by plugging Yamaha's \$49.95 YBA-11 Bluetooth wireless adapter into the digital coaxial input jack. That lets devices such as smartphones and tablets (except iOS devices that don't support aptX) connect wirelessly—a shrewd design feature, since many music lovers have large collections of music files on their portable devices. But wait! There's also a USB Type A jack, the type you find on computers. What's that for? It powers the YBA-11. A separate cord is provided, with a USB Type A connector on one end and a small coaxial connector like you see on many power supply cords on the other. So you don't need a separate power supply for the YBA-11—clever.

In addition to the digital inputs, the A-S801 has five analog line inputs (labeled Line 1, 2, 3, CD, and Tuner), and even a moving-magnet phono input. And it has a single line-level output jack for connecting a subwoofer. Lots of folks today have 2.1 speaker setups (two satellite speakers and a subwoofer), and the A-S801 supports that arrangement—smart again. But wait, there's even more! The Line 2 and 3 inputs have both record and playback jacks, so you can connect a tape deck. There's a blast from the past—when a respectable audio system had open-reel and cassette tape machines.

The parade of features continues with bass, treble, and loudness controls. Loudness controls used to be common, but like tone controls, have since become scarce. (If you're wondering, a loudness control boosts the bass

and treble as the volume level decreases.) There's even a balance control! There are also two settings you can use for maximum signal purity: Pure Direct, which bypasses unused audio inputs and turns off power to those inputs; and CD Direct Amp, which switches directly to the CD player, bypassing all other inputs and turning off the power supply to unused inputs. Both of those settings bypass the tone, balance, and loudness controls. There is also a two-position speaker switch that lets you select two sets of speakers, or turn the speakers off entirely so you can use the headphone jack. You can also activate both sets of speaker terminals simultaneously if you want to bi-amp your speakers. And there's a full-featured remote, too, which also controls all six of the CD players Yamaha makes. Did I mention that the A-S801 is feature-rich?

Styling is traditional Yamaha, which I've always admired. That means it comes in a full-sized case (17.125" x 6" x 15.25") with lots of controls on the front panel. Both black and silver faceplates are available; the silver review unit looked quite stylish, and all its labels were readable. The amplifier carries a two-year parts-and-labor warranty, reasonable for an \$899 product.

Yamaha emphasizes that it uses premium parts in constructing the A-S801, though no specific examples are cited. The chassis is double-layered to suppress vibrations. Lots of manufacturers are turning to Class D output sections to achieve high power output at low cost, but I was pleased to find the A-S801 uses a Class AB output circuit. Input impedance for all analog inputs, including the mm phono input, is 47k ohms, which should pose no problems with most sources. The single, summed subwoofer output on an RCA jack has an output impedance of 1.2k ohms and a built-in high-frequency cutoff at 90Hz. The relatively high output impedance for the subwoofer jack could cause problems with some subwoofers; it's higher than ideal for my JL Audio Fathom f110 subwoofer, for example. An impedance selector switch on the back panel lets you choose the output impedance of your speakers: low for 4-ohm speakers, high for others. The

EQUIPMENT REVIEW - Yamaha A-S801 Integrated Amplifier and YBA-11 Bluetooth Wireless Adapter

amplifier should be turned off before changing the position of the impedance selector switch. An auto power standby switch, if turned on, automatically puts the amplifier in standby mode if it's not operated for 8 hours. A two-prong IEC jack is provided for the power cord connection. There are no standard line-out jacks, so you can't use an additional power amplifier for bi-amplifying, or use separate left- and right-channel subwoofers. Those omissions seemed well-chosen for an amplifier at this price point.

Since headphones have become such an important part of the connected listener's experience, it was important to provide a headphone jack. The headphone amp is rated at 54 milliwatts into 16 ohms, and 400mW into 300 ohms.

A well-illustrated owner's manual is provided with sections in English, French, and Spanish. Each section is 19 pages long. The manual is also available on Yamaha's website. It has an exhaustively thorough list of specifications.

Setting Up and Using the A-S801

The full-width amplifier slid easily onto a shelf of my equipment rack with plenty of clearance for ventilation. It ran barely warm to the touch when playing. I used the power cord furnished with the amplifier, reasoning that at this price level users would probably not spring for an aftermarket cord. Since the amplifier had facilities for a 2.1 speaker system, that's what I used: KEF LS50 satellite speakers with a JL Audio Fathom f110 subwoofer. To evaluate the A-S801's bass performance, it was necessary to let the amplifier run full-range, so I turned

the subwoofer off for that. Blue Marble Audio speaker cable, with banana plugs on the amplifier end, made it easy to connect to the A-S801's speaker terminals. An HP Envy laptop computer running 64-bit Windows 7 and Roon server software comprised a computer-based server. It was connected to A-S801's USB input using Audience Au24 SE USB cables. I remotely controlled Roon from both the iPad version of Roon Remote and from a second copy of Roon installed on a Toshiba laptop computer. It was cool to be able to use the Toshiba laptop to write this review and then switch over to use it as a remote for Roon. I also tried a dedicated

server, the Linux-based Aurender N100H, connected to the USB input with a Wireworld Platinum Starlight 6 cable. The servers were connected to my home network, where I store my collection of music files on a QNAP TS-251 network attached storage drive.

I downloaded a copy of Yamaha's Steinberg USB Windows driver Version 1.9.5 for the A-S801 and installed it so the computer would recognize the A-S801's DAC, then changed the settings in Roon to play through the A-S801—a very straightforward procedure. Usually, a Windows driver installation actually installs several drivers, such as a Windows Audio Session API (WASAPI) driver and an Audio Stream Input/Output (ASIO) driver and possibly others. Normally, I use the WASAPI driver; however, Yamaha's WASAPI driver was buggy; it crashed a few times, and when it did work, it would not play DSD files, converting them instead to PCM, even though I had set Roon's DSD playback strategy to play DSD files using DoP mode. Fortunately, the Yamaha ASIO driver worked just fine. To explore this problem, I also tried the drivers in the JRiver Media Center version 21 server program; again, the WASAPI driver crashed occasionally, while the ASIO driver worked OK. The Linux-based Aurender server worked flawlessly. Grrr—whereas I found dealing with such a problem an interesting challenge, it would have been very frustrating for a newbie.

The A-S801 epitomized the need for amplifier break-in. Yamaha recommended 100 hours, so I let the amplifier play 24/7 until it reached (and passed) that elapsed time before I started listening critically. When I first connected the



A-S801, I feared the review was going to be an ordeal; the amplifier sounded brittle and raw; but after 100 hours of play, it smoothed out dramatically. A couple of audio dealer friends who heard the amplifier before and after break-in (but not in-between) agreed there was a big improvement. Since I'm a headphone fan, I made sure the headphone jack got plenty of break-in time, too, using \$299 NAD VISO PM50 headphones, a good match for the Yamaha.

Lots of people have large music collections on their smartphones, so it's handy to be able to play that music by connecting the phones to an amplifier using a wireless Bluetooth connection. I plugged Yamaha's YBA-11 Bluetooth wireless adapter into the digital coaxial input jack to provide Bluetooth connectivity. As noted above, the A-S801 provides a Type A USB port on the rear panel that powers the adapter. Both a power cable and a skinny SPDIF cable are also provided. They aren't very long, so you'll need to place the adapter near the amplifier—not much farther away than the front panel. Connecting the YBA-11 to my iPhone 6 was quite easy. It was one of the best-sounding Bluetooth connections I've heard, too—very enjoyable.

### SPECS & PRICING

Minimum output power:	coaxial, USB (type B)
100Wpc RMS, 0.019% THD, 8 ohms, 20Hz–20kHz	Dimensions: 17.125" x 6" x 15.25"
Dynamic power (per channel):	Weight: 26.7 lbs.
140/170/220/290W (8/6/4/2 ohms)	Price: \$899
Damping factor: 240	Yamaha YBA-11 Bluetooth Wireless Adapter
Frequency response: 10Hz–100kHz +/- 1.0dB	Price: \$49
THD: 0.019% (50W/8 ohms)	YAMAHA CORPORATION OF AMERICA
SNR: 99dB (input shorted, 200mV)	6600 Orangethorpe Ave.
Inputs: Eight	Buena Park, CA 90620
Outputs: Two	(714) 522-9105
Digital inputs: Optical,	usa.yamaha.com

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## EQUIPMENT REVIEW - Yamaha A-S801 Integrated Amplifier and YBA-11 Bluetooth Wireless Adapter

The remote control was easy to use, with buttons to raise or lower the volume separated slightly from the other buttons for easier access. A mute button, just below the volume buttons, partially muted the output of the amplifier, letting the music play at a much reduced level. The muting was quiet enough to permit a telephone call or conversation, but loud enough to remind you music was still on. I was pleased to see that each input had a separate button on the remote, so you could access any input directly without having to scroll through intermediate ones. The source selector knob on the A-S801 was freely rotating, but had a detent at each input's position, and a small LED lighted up at each position to indicate which input was selected. The volume control had a small index line inscribed on it, indicating its position, but it was a bit difficult to see from my listening position ten feet away. The volume control was a continuously variable unit with a motor drive that enabled the remote to set the level. The power amp section turned off when headphones were plugged in. I wondered if the relatively low headphone output into low-impedance 'phones would pose a problem, but it drove the 32-ohm NAD PM50s to higher SPLs than I cared to hear. The NAD headphone is quite an easy load, so I challenged the A-S801 with the harder-to-drive 35-ohm HiFiMan HE400, which has a fairly low 92.5dB sensitivity. The A-S801 drove it louder than I could stand to listen to, so any worries I might have had about wimpiness from the headphone amplifier were put to rest. Similarly, in my largish room (23' by 20' by 12') the A-S801 effortlessly drove the 85dB-sensitive KEF speakers much louder than I wanted to hear them

play. Bass without the subwoofer was punchy and dynamic, although it understandably didn't plumb the depths; after all, the KEF speakers only have a 5¼-inch mid/woofer—although sometimes the bass performance compelled me to check to make sure I hadn't left the subwoofer on. The A-S801 had no problem driving my sub, though I had to turn it down considerably from the setting I normally use with my preamp.

Unfortunately, I didn't have a moving-magnet cartridge available, so was unable to try the phono section. Nor did I have a CD player, which prevented using the CD Direct feature, but I did try the Pure Direct setting, which sounded a bit cleaner. I used the Pure Direct setting for the review.

### Sound

The Yamaha A-S801 amplifier sounded sweet and smooth, particularly with vocals. Not a trace of the glare that plagued the unit before break-in was present, until the volume was advanced to a louder level than I ever cared to listen; then, some glare and coarseness set in.

It's useful to begin a review with a very familiar musical piece, so I queued up old favorite "Folia Rodrigo Martinez" ripped as an AIFF file from the CD *La Folia 1490-1701* [Alia Vox]. It's an information-rich recording of a musical piece written in 1490 and realized by Jordi Savall and his band. On the A-S801, the cascabels which open the piece were very clearly delineated, though without as much detail as I've heard on the best systems. The bass, which descends into the mid-20Hz range, was, of course, not fully developed on the small KEF speakers (with subwoofer off), but had plenty of impact,

and the upper bass was quite detailed. When I switched on the subwoofer, the low bass was reproduced with impact, though it lacked the resolution I'm used to hearing. Percussion instruments sounded harmonically accurate, but blurred into the background a bit more than they do with top-of-the-line systems. Savall's viola da gamba sounded harmonically rich, and the baroque guitar and harp were distinctive. Sometimes the last two instruments seem to sound quite similar, making it hard to tell them apart. The A-S801 had plenty of microdynamic verve, so the music sounded quite lively. I could tell Savall and his forces were having lots of fun playing the piece, and I had just as much fun listening to it.

With "Folia Rodrigo Martinez" fresh in mind, I played the same piece from my iPhone 6 through the YBA-11 Bluetooth connection. My expectations weren't very high, but I was pleasantly surprised at the quality of reproduction: plenty of sparkle and dynamics, maybe less detail than via the computer connection, but thoroughly enjoyable. If you have a lot of music on your smartphone, as many people do, it's well worthwhile to invest in the YBA-11 Bluetooth adapter.

To see how the A-S801 handled a solo instrumental, I queued up Alex de Grassi playing "Shenandoah" from his album *Special Event 19* [Blue Coast Records]. The A-S801 did a fine job reproducing the guitar: the initial transient of the plucked strings, the sustain as the string sounded its note, and the decay as the note slipped into silence. Treble was extended but not peaky. The A-S801 accurately captured the sound of the drone strings from

de Grassi's unusual instrument.

To evaluate how well a component handles soundstaging, I often turn to the piece "Miserere" from the Tallis Scholars *Allegri's Miserere & Palestrina's Missa Papae Marcelli* album [Gimell]. This a *cappella* work has two vocal groups: The main one is at the front of the soundstage, while a smaller solo grouping is located well behind them in the church where the piece was recorded. The main group was reproduced with plenty of detail and clarity, without any trace of the distortion that some components impose on the piece. I've heard the main (front) choir distributed more widely across the soundstage, but singers within the group were well localized. The rearward solo group was reproduced in a wash of reverberation, but the singers there were still understandable. I've heard this piece reproduced better, but by systems costing multiples of what the review system cost.

You can't write an audio review without playing a Girl with Guitar piece, so I queued up Shelby Lynne's *Just a Little Lovin'* [Acoustic Sounds]. Although this album was recorded at quite a low level, the A-S801 had no trouble playing it. Even though the subwoofer was turned off on the title song, the A-S801 reproduced the bass (mid-bass, actually) with a lot of impact and punch, so that the song was quite enjoyable. With the subwoofer back on, the bass extended quite a bit deeper—the advantage of a 2.1 speaker system. As in other pieces, treble was once again quite extended but not peaky. Lynne's voice was reproduced with just a little hoarseness, which I think is how it actually sounds. I could hear how she phrased the words quite clearly.

## EQUIPMENT REVIEW - Yamaha A-S801 Integrated Amplifier and YBA-11 Bluetooth Wireless Adapter

Finally, I challenged the A-S801 with full orchestra, playing Manfred Honeck and the Pittsburgh Symphony's recording of a favorite piece: Beethoven's Symphony No. 7 [Reference Recordings/NativeDSD]. (If you're unfamiliar with NativeDSD.com, its rapidly growing catalog specializes in downloads of high-resolution music recorded in DSD and DXD formats, including DSD256.) The opening bars nearly blew me off the couch, since I had forgotten to reduce the listening level after playing *Just a Little Lovin'*. But even at that level, there was no strain to the sound. The DSD128 indicator light on the A-S801's front panel came on verifying that the A-S801's DAC was indeed playing that extra-high-resolution format, and the orchestral sound was gloriously natural—tons of detail, harmonically rich, with distinct but continuous dynamic levels.

### Comparison

Ideally, I'd compare an item being reviewed to a similar component; however, I had no similar integrated amplifier on hand, and there doesn't seem much point in comparing it to my much more expensive reference system, with electronics alone costing over \$23,000. I could sum up such a comparison like this: The reference system sounded better in virtually all respects, but so what? It doggone should sound better, given the considerable difference in price. It surely doesn't sound 23 times better! Instead, let me draw on my memory of other integrated amplifiers I've reviewed fairly recently and compare them to the A-S801.

Most closely resembling the A-S801 was the \$2600 NuPrime IDA-16 amplifier I reviewed in

Issue 252. It included an equally versatile DAC and had even more power: 200Wpc from a Class D amplifier section. The amplifier section sounded smoother and never showed any inclination to sound ragged, even at obscenely loud levels, as you'd expect, given the power difference. Class D amplifiers have gained a reputation for sounding a bit odd, but the NuPrime had no such problem. It had several more sophisticated design features than the A-S801, such as ultra-low noise JFETs employed in its input stage, and a volume control with ninety-nine ½-dB steps implemented via an advanced, thin-film, switched-resistor ladder where only a single resistor is in the signal path at any volume setting. Its digital volume-level display was easy to read from a distance. It also had a full stereo line output which could be used to drive subwoofers or another external amplifier. This differed from the A-S801's summed subwoofer output, and the NuPrime also had no built-in crossover. I don't view that omission as a problem; most subwoofers have built-in low-pass crossovers. However, the NuPrime amplifier lacked a phono section, and had no headphone amplifier.

Another recently reviewed (Issue 255) integrated amplifier I'll mention was the \$599 Denon PMA-50. It's a smaller switching amplifier designed for a different environment—a bedroom, office, or just as a headphone amplifier. I think of the A-S801 as an integrated amplifier that will also drive headphones, and the PMA-50 as a headphone amp that will also drive speakers. In the latter application, it has a more powerful headphone amplifier. I didn't even try using the 25Wpc Denon to drive the



85dB-sensitive KEF speakers; I imagine the maximum volume attainable would be fairly limited. The Denon had only a single analog input, and no phono section or subwoofer output. But it did have a very versatile DAC and remote control. Although it looks very minimalist, a lot of controls are accessible through the tiny remote, including tone controls and three-level gain for the headphone amp. It also had an internal Bluetooth section, so you didn't need an adapter like the YBA-11. However, I wasn't nearly as impressed by the sound of the Denon's Bluetooth connection as I was the YBA-11's. Befitting its intended purpose, the Denon was less than half the size of the A-S801. If you have pretty efficient speakers and don't want to play them loudly, or if headphones are your primary means of listening, the Denon amplifier could be a better buy than the A-S801.

### Bottom Line

Is there any other audio component with as many features as the A-S801 amplifier? And it's not like

the features were just thrown in to impress; the A-S801 surprised me by how good it sounded driving the low-sensitivity KEF LS50 speakers in my largish room. No, it didn't equal my far more expensive reference system, but during a listening session, several of my audio buddies said they derived genuine musical enjoyment from the system anchored by the Yamaha A-S801 amplifier, and could happily live with it. Coming from a group of lifelong audiophiles, that's high praise indeed.

The Yamaha A-S801 looks good, sounds splendid, and has a long list of useful features at a price that makes it a flaming bargain! I suspect many readers are lifelong audiophiles like me, for whom system upgrades are a way of life, possibly even the purpose of life. But for lots of people who just want a good hi-fi to play their music on, a hi-fi may be a once-in-a-lifetime purchase. For those people, or for anyone who wants good sound with lots of flexibility at a reasonable price, the Yamaha A-S801 integrated amplifier would be my top recommendation. It may be the only hi-fi electronics purchase they will ever need. tas





# Audio Alchemy DDP-1, DPA-1, and DPA-1M

Value City

Robert Harley

**A**udio Alchemy blazed a trail in the 1990s with a range of ultra-low-priced products housed in utilitarian cases with no cosmetic frills. The products were almost toy-like in appearance and name—the \$199 DAC-in-the-Box, for example—but contained solid engineering inside. If you could overlook the Spartan casework, Audio Alchemy products delivered exceptional performance for the money. I reviewed quite a number of these components in the mid-1990s and found them to be excellent. Audio Alchemy folded in the late 1990s, probably because it didn't build enough profit into the products' retail prices.

But that was then and this is now. The company is back, headed by industry veteran Peter Madnick, the design talent behind the original Audio Alchemy (and many products from other companies). Audio Alchemy has retained the same value orientation as before, but this first wave of products from the new company is a far cry from the black stamped-metal chassis and faceplates of the original. Instead, the new company's first offerings boast upscale casework, an extensive and modern feature set, and more ambitious engineering.

The products reviewed here are the \$1995 DDP-1 lineage preamplifier/DAC/headphone amplifier, along with the \$1995 DPA-1 stereo power amplifier and \$1995-each DPA-1M monoblock amplifiers. All are housed in compact chassis of the same size and shape, their rounded edges and satin-silver finish exuding a decidedly upscale vibe.

The DDP-1's front panel is dominated by two large knobs, one for volume and another for input selection as well as navigating the menus. The oval display shows the input selected, the volume setting, whether the unit is locked to a digital source, the digital filter selected, and whether "resolution enhancement" is engaged (more on these features later). Four small buttons provide additional controls, including mute, selecting between headphone output and preamplifier output, and back/enter buttons that are used in conjunction with the menu/input selector knob. An 1/8" headphone jack, a feature that for many years all but disappeared from preamps but is now mandatory, adorns the front panel. The power button just below the display rounds out the controls. A well-laid-out remote handles nearly all the DDP-1's functions.

The outboard power supply, a little larger than a "wall wart," can be upgraded to a more sophisticated supply, the \$595 PS-5 Power Station. The PS-5 is housed in a chassis that matches aesthetically with the DDP-1, "nesting" into that unit's curved side panel. It offers independent supplies for the DDP-1's analog and digital circuits, more elaborate voltage regulation, and more filter capacitance. Audio Alchemy claims that the PS-5 offers lower noise and wider dynamics than the stock supply.

The DDP-1's sensible array of controls and buttons, its feel, and the display itself are all superb—this is one well-thought-out user interface. The display's source-selection is unique; as you scroll through the list of inputs, the one selected becomes larger in type size. The remote is also outstanding; your index finger naturally falls on the volume up/down buttons. Even the volume-control ballistics are perfectly dialed-in; I could quickly make large volume changes, yet had fine control once I was in the ballpark. Moreover, the chassis' industrial design and metalwork are far above what's expected at this price. The compact package, with the rounded edges and satin-silver finish, is extremely attractive, and a welcome departure from the less inspired chassis work of competing products. My only complaint is that the front-panel markings are white against a silver panel, with almost no contrast. Between the low contrast and the small type, the text is difficult to read. There are, however, so few controls that it doesn't take long before you're operating the DDP-1 without need for the legends. Audio Alchemy reports that they are increasing the contrast of the lettering, which, incidentally, is laser-

# EQUIPMENT REVIEW - Audio Alchemy DDP-1, DPA-1, and DPA-1M

etched in the front panel. No channel-balance control is provided.

The DDP-1 offers two unbalanced inputs on RCA jacks, one balanced input on XLR jacks, and an extensive array of digital inputs. These include AES/EBU, two TosLink optical, two coaxial, USB, and even I2S. The USB input accepts PCM up to 216kHz/32-bit along with DSD64. The other digital inputs accept PCM only (also up to 216kHz/32-bit). Mac users can connect to the USB input and start playing music. Windows users must download a driver. You can select from four digital filters, including an apodizing filter. (To recap, an apodizing

filter shifts the filter ringing in time so that the ringing occurs after the transient, rather than before and after the transient. This is an important distinction, because in nature we never hear part of a transient signal's energy *before* the transient itself. This filter "pre-ringing" is particularly deleterious to music, and contributes to the glassy hardness of textures and flat soundstaging of most digital. In my experience, there's a slight penalty in bass tautness and definition with apodizing filters, but it's a worthwhile tradeoff.)

Through the front-panel display and controls, you can select any one of the filters

as the default for a particular input. Similarly, resolution enhancement can be turned on and off for the individual inputs. The front-panel "Enh" legend turns green when resolution enhancement is on, red when off (see sidebar for more detail on resolution enhancement).

An important consideration when buying a DAC today is whether the its software can be updated to decode Master Quality Authenticated (MQA). I've written extensively about this new technology (Issues 253 and 261) that greatly improves digital sound quality. Because the DDP-1 is a purely software-driven product that runs on two XMOS general-purpose DSP chips and a field-programmable gate array, it may be possible that the DDP-1 can up updated to offer MQA decoding. Although Audio Alchemy hasn't committed to this possibility, it's worth noting that the demonstration board MQA has provided to manufacturers runs on the same XMOS chip used in the Audio Alchemy DAC, and that the Alchemy's software can be updated via the read-panel micro-USB port.

Overall, the DDP-1 is a highly capable and versatile centerpiece of a system that's a pleasure to use on a daily basis.

Looking next at the DPA-1, this stereo power amplifier delivers 125Wpc into 8 ohms and 200Wpc into 4 ohms. The front panel offers more features than are traditionally found on power amplifiers, including selectable gain (a +6dB button), clipping indicators, a mute button, and soft-start warm-up. Both balanced and unbalanced inputs are provided, and the binding posts are of high quality. A 12V trigger input allows connection to the DDP-1 (or other product with 12V trigger output) so that powering on the DDP-1 automatically powers

on the amplifier as well. The DPA-1M is simply a monaural version of the same amplifier, delivering 325W into 8 ohms and 400W into 4 ohms. At the most recent CES, Alchemy announced the DPA-2 stereo amplifier with 250Wpc (\$2995). The company also showed the matching PPA-1 phonostage and the Roon-ready DMP-1 Media Player, both of which are \$1795.

The amplifier features a Class A input stage built from discrete FETs, the same topology found in expensive amplifiers. Most amplifiers at this price rely on op-amps rather than discrete circuits. The output stage is Class D, which explains the DPA-1's compact size and light weight—the amplifier weighs just 16 pounds. Specifically, the output stage is a Hypex UcD module, designed by Bruno Putzeys. The DPA-1M monoblock simply bridges two of these modules for greater output power.

From first impressions, these new products from Audio Alchemy appear to be quite a step up from those of the company's first incarnation.

**Listening**

I was eager to review the new generation of Audio Alchemy products for several reasons: I was a fan of the company's earlier offerings; I have great respect for the design talents of Peter Madnick; and most importantly, I heard the DDP-1 and DPA-1M sound amazingly great in very-high-end systems at several shows. One of those show systems (Munich) featured TAD CR-1 loudspeakers (perhaps the best stand-mount speaker extant) and another (Rocky Mountain) showcased the Alchemy products with the outstanding Wilson Sabrina speakers.

## SPECS & PRICING

### DDP-1 Linestage Preamplifier/DAC and Headphone Amplifier

**Analog inputs:** One balanced, two unbalanced

**Analog outputs:** Balanced on XLR jacks, unbalanced on RCA jacks, 1/8" headphone jack (plus 12V trigger)

**Digital inputs:** Coaxial (x2), TosLink (x2), USB, I<sup>2</sup>S (additional micro-USB for software updates only)

**Digital format supported:** Up to 192kHz/24-bit on all inputs, plus DSD64 on USB input

**Digital filtering:** Custom, with four user-selectable filters

**Outputs:** Balanced and unbalanced

**Headphone amplifier power:** 1W into 32 ohms

**Input impedance:** 50k ohms

**Output impedance:** 75 ohms

**Channel separation:** 100dB (digital input), 130dB (analog input)

**Dimensions:** 10.5" x 3" x 11.6"

**Weight:** 8 lbs.

**Price:** \$1995

**Output impedance:** 0.06 ohms

**Gain:** 20dB or 26dB (switchable)

**Channel separation:** 80dB

**Dimensions:** 10.5" x 3" x 11.6"

**Weight:** 16 lbs.

**Price:** \$1995

**PS-5 Power Station (for DDP-1)**

**Dimensions:** 5.5" x 3.5" x 11.6"

**Weight:** 9 lbs.

**Price:** \$595

**DPA-1 Stereo Amplifier**

**Output power:** 125Wpc into 8 ohms, 200Wpc into 4 ohms

**THD:** 0.05%, 1W into 8 ohms

**Input impedance:** 100k ohms

**DPA-1M Monaural Power Amplifier**

**Output power:** 325W into 8 ohms, 400W into 4 ohms

**THD:** 0.05%, 1W into 8 ohms

**Input impedance:** 100k ohms

**Output impedance:** 0.06 ohms

**Gain:** 20dB or 26dB (switchable)

**Dimensions:** 10.5" x 3" x 11.6"

**Weight:** 16 lbs. each

**Price:** \$1995 each

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## EQUIPMENT REVIEW - Audio Alchemy DDP-1, DPA-1, and DPA-1M

The Alchemy gear more than acquitted itself in this illustrious company.

Speaking of illustrious company...I dropped the DDP-1 (with the PS-5 supply) and a pair of the DPA-1M monoblocks into my reference system. After three days of warm-up, I began by listening to LPs, driving the DDP-1's balanced analog input, with the DPA-1M monoblocks powering Magico Q7 Mk.IIs. I was immediately impressed by the Alchemy's sonic virtues and ability to communicate the music. The sound was remarkably transparent, clean, dynamic, and resolved by any measure, and even more so considering the components' reasonable price.

The Alchemy products threw a large and well-defined soundstage, with outstanding depth, dimensionality, and separation of individual instrumental lines. On "Mars" from *The Planets* (Mehta, LA Philharmonic, Decca), the insistent snare drum that drives the rhythm was well back in the stage, with a real sense of air and space around it. The call-and-response lines of the tenor tuba and trumpet were well differentiated from each other and from the rest of the orchestra. The sense of size and scale was outstanding. Other hallmarks of the products were clarity and transparency—the sense of nothing between you and the music. The soundstage lacked the veiling that diminishes the sense of realism of instruments at the back of the stage.

With smaller-scale music, the Alchemy electronics showed that they were transparent enough to reflect a recording's spatial character. Intimate music, like Joni Mitchell's *Blue* (LP reissue), was rendered with the

appropriate sense of presence and immediacy.

Perhaps the most salient characteristics of the DDP-1 and DPA-1M, however, were powerful rhythmic drive, wide dynamic expression, and rock-solid visceral grip in the bottom end. The timpani in "Mars" was taut, powerful, deep, and dynamic. Bass guitar had a solid feel that was simultaneously full and tight, combining timbral warmth and body with outstanding pitch definition and articulation. Kick-drum cut through the mix with a solid impact. Switching to the less powerful DPA-1 stereo amplifier, I heard no reduction in dynamic range, bass control, or bottom-end extension, at least driving the 94dB-sensitive Magico loudspeakers. (Less sensitive speakers may benefit from the monoblocks' greater output power.) Both the stereo and the mono versions of this amplifier sounded like indefatigable powerhouses, with plenty of dynamic headroom. I never heard the amplifier soften the bass, harden textures, or congeal the soundstage, no matter what the playback level or how demanding the music.

This powerful rhythmic expression wasn't just the result of terrific bass grip and definition. The DDP-1 and DPA-1 excelled at portraying transient information, such as drums and percussion. The Alchemy electronics were fast and dynamic, qualities that brought to the fore subtle rhythmic nuances by great drummers, allowing their kits to take on a lifelike quality. The contribution from the great Roy Haynes on the track "Windows" from the album *Like Minds* (Gary Burton, Chick Corea, Pat Metheny, Dave Holland, and Haynes) was highlighted by the Alchemy electronics. On the track "Helena" from Gary Burton's *Guided Tour*, drummer

Antonio Sanchez (who, incidentally, composed and performed the soundtrack for the film *Birdman*, for which he won the Academy Award in 2015) lets loose with a *tour de force* solo that was well served by the Alchemy's outstanding speed and immediacy. Similarly, the timbales on the outstanding Mobile Fidelity reissue of Santana's *Abraxis* fairly jumped from the soundstage as though they were recorded yesterday.

When listening to LPs, I thought the overall sound was a bit laid-back in the midrange to the lower treble, with vocals slightly recessed in the mix. The DDP-1 and DPA-1Ms were at the other end of the sonic spectrum of electronics that are bright and forward in this region. This was a good sign, because I've selected for these qualities in my LP front end (Basis Inspiration turntable with Basis Superarm 9 and Air-Tight PC-1 Supreme cartridge), which leans toward a less incisive rendering than many vinyl playback systems. I'm no fan of moving-coil cartridges that are tipped up in the treble or that hype detail. In other words, the DDP-1's linestage section and the DPA-1M sounded like my LP front-end sounds; the Alchemy electronics managed to pass along the LP playback system's character with very little editorializing. This level of transparency to sources in a product of this price is remarkable, particularly when considering the quality of the LP front-end and the resolution of the Magico Q7 Mk.II speakers. These reference-grade components would have laid bare any added brightness, hardness, opacity, or reduction in dynamic expression.

When I switched to a digital source (the Aurender W20 via USB) and was listening to the DDP-1 as a DAC and preamplifier, all the virtues mentioned were present, but now the music had greater verve and illumination. The sound was a bit more immediate and upfront, reflecting the DAC's character compared with that of my turntable. It didn't take a lot of careful listening to realize that the DDP-1's DAC is spectacular—highly resolved, open, transparent, and extremely dynamic. The DAC is very lively and incisive, with a full measure of detail. As with the DPA-1 amplifier, the DDP-1's DAC excels at reproducing transient information, from the micro to the macro. The DAC's sound can be fine-tuned through filter selection; I opted for Filter 4, which has a more "gentle" sound than the other three.

The DAC's sound could be improved by engaging the resolution enhancement feature described earlier (and in the sidebar). Turning on resolution enhancement seemed to make the overall perspective a little less immediate and upfront, as though the entire stage moved back slightly. Put another way, engaging resolution enhancement was like moving from Row G to Row M. Resolution enhancement better resolved the space around individual instruments, and soundstage width and depth expanded. Reverberation tails were longer and better defined. On the 44.1kHz/16-bit recording *Aras* by the band Curandero, the first track begins with some sharp percussion work. Engaging resolution enhancement not only expanded the space around the percussion, but I could hear more detail and texture in the drumhead's decay, and more resonance of the

## EQUIPMENT REVIEW - Audio Alchemy DDP-1, DPA-1, and DPA-1M

air within the bodies of the drums. On the track “Switchback” from Jesse Cook’s *Free Fall*, the multiple rhythm acoustic guitars behind the lead guitar were more clearly distinguishable as individual instruments, and they had a more immersive sound. That is, the soundstage was more continuous horizontally, with less impression of sound coming from two loudspeakers. The background guitars were also farther back in the mix, increasing soundstage depth. The intricate horn and woodwind lines in the contemporary big-band music of Gordon Goodwin were more clearly resolved. Resolution enhancement also benefited the Alchemy’s rendering of timbre, which was a little smoother, particularly in the upper midrange. Overall, resolution enhancement contributed significantly to my view that the DDP-1’s DAC section is not only terrific in an absolute sense, but nothing short of amazing in a \$1999 full-featured preamplifier.

Finally, I’ll comment on the PS-5 power supply and the differences between the stereo and mono amplifiers. Compared with the stock power supply, the PS-5 vaults the DDP-1 into a different league. The sound with the PS-5 is more refined, spacious, and detailed. Instrumental textures are more liquid and natural. The upgraded supply also gives the sound

much greater dimensionality, with a heightened sense of layering and depth, along with more air between instrumental images. I auditioned the DDP-1 only briefly with the stock supply because the sound was so much better with the PS-5. My description of the DDP-1’s sound is with the PS-5. It’s a worthwhile upgrade.

The DPA-1 stereo amp gives up nothing in sound quality to the monoblocks, except output power. The DPA-1’s 200W into 4 ohms was plenty of power for the 94dB-sensitive Magico Q7 Mk.II. In fact, I never saw the clipping LEDs illuminate, even at high listening levels. Of course, if you’re driving loudspeakers of lower sensitivity the additional power provided by the monoblocks will come in handy, but don’t jump to the conclusion that you need the monoblocks. The cost difference between the complete package (a DDP-1 with its power supply) with the stereo and mono amps is \$4600 vs. \$6600—quite a jump. The best way to tell if the DPA-1’s output power is enough for your loudspeakers, room size, and listening levels is to borrow one from your dealer and try it. There’s simply no substitute for auditioning an amplifier in your own system.

### Conclusion

These new products are a far cry from the Alchemy of yore, with much

more advanced engineering, upscale casework, and a superb user interface. The DDP-1 and DPA-1 bring terrific sound and stunning value to the category. As a linestage, the DDP-1 is amazingly clean and transparent. Unlike most electronics of this price, the DDP-1 doesn’t add a patina of electronic hardness over instrumental timbres. Nor does it add opacity to the soundstage or compress dynamics. The DDP-1’s DAC section is simply sensational; this level of sound quality would be outstanding in a \$4000 stand-alone DAC. Clarity, openness, detail, and exceptional dynamics define the DAC’s performance.

The DPA-1 stereo amplifier and DPA-1M mono amplifiers are no less impressive. Their wide dynamics, terrific grip in the bass, and upbeat sonics made them a joy to listen to. Moreover, the amplifiers possess the same level of clarity and resolution as the DDP-1. Significantly, the amplifiers don’t exhibit the shortcomings I’ve heard in previous Class D designs. Even in the context of reference-quality sources and loudspeakers, it was easy to forget that I was listening to electronics that aren’t stratospherically priced.

The return of Audio Alchemy is welcome news for those seeking the highest possible price-to-performance ratio in electronics today. 188

## DDP-1 Tech Tour

The DDP-1 incorporates a number of advanced technologies and circuit topologies that reveal its ambitions as a high-end product. First, the entire analog signal path is based on discrete Class A circuits rather than op-amps. On the digital side, the DDP-1 features dual AKM DAC chips in a proprietary configuration that reportedly increases dynamic range. The filtering and digital processing is performed on a pair of XMOS general-purpose DSP chips, followed by a field-programmable gate array. These DSPs perform the digital filtering and resolution enhancement.

The digital input stage is built around a dual phase-locked loop (PLL) architecture, a technique pioneered by Alchemy more than 20 years ago. The first PLL locks to the incoming data; the second PLL locks to the first PLL and generates the clock. This technique isolates jitter in the incoming data stream and creates a low-jitter clock that serves as the timing reference for the digital-to-analog converters.

One of the original Audio Alchemy’s most ambitious and successful products in the mid-1990s was the DTI-Pro (and later, the DTI-Pro 32) that offered a “resolution enhancement” technology. The DTI-Pro was a purely digital device that was inserted between a CD transport and a DAC, allowing the user to selectively increase the DTI-Pro’s output word length to 18 bits, 20 bits, or 24 bits to match your DAC’s capability. When the DTI-Pro was introduced, digital-to-analog converters varied in how many bits they could handle. DACs with the Yamaha input receiver truncated incoming data to 16 bits, which introduces significant distortion. Those with the NPC digital filter truncated to 18 bits. DACs with the Pacific Microsonics PMD100 filter could handle up to 24 bits, but in some implementations, the DAC’s architecture provided a data path of only 16 or 18 bits. The DTI-Pro thus allowed you to select the appropriate output word length for your particular DAC.

But in today’s world, 24-bit (or wider) data paths and DACs are standard. The DDP-1’s data path is 32 bits wide, and the AKM DAC can accept 32-bit input words (this doesn’t mean that it has 32-bit resolution). The DDP-1’s resolution enhancement algorithm knows this and redithers the data to 32 bits for input to the DACs no matter what the word length of the incoming data.

The resolution enhancement is most effective on data coming in on the USB input, and less so on the other digital inputs. Audio Alchemy is working on a software update that will apply resolution enhancement equally across all digital inputs.

Incidentally, the resolution enhancement in the DDP-1 was designed by Keith Allsop, who created the original resolution-enhancement algorithm for the DTI-Pro more than 20 years ago. He and Peter Madnick have worked together continuously since that time. Finally, it’s worth noting that the DDP-1’s DSP horsepower is greater than ten times that of the DTI-Pro.



# OUR TOP PICKS ELECTRONICS



## Hegel H80 Integrated Amplifier

**\$2000**

The H80 represents much of what is right in the high-end-audio scene. Those who are (sometimes justifiably) frustrated with escalating prices, take heart; the Hegel H80 answers the call for high-performing audio kit at a very reasonable price. An incredible integrated with 75Wpc, a plethora of analog and digital inputs, and a built-in DAC capable of 192/24, the Hegel H80 offers everything you need in one slim package.

[hegel.com](http://hegel.com) (249)



## NuPrime IDA-8 Integrated Amplifier

**\$995**

Sonically and functionally, there's plenty to love about the IDA-8. Essentially, it's a sleek-looking, small-footprint hybrid Class A/Class D integrated amplifier/DAC—that combines Class A warmth and resolution with Class D speed, power, and efficiency. Its DAC supports USB 384kHz/32-bit and DSD256, and is also capable of decoding DoP (DSD over PCM) via coaxial and optical inputs. The well-conceived IDA-8 delivers substance with plenty of gusto—and does so from an astonishingly quiet background. Since NuPrime's founding, Jason Lim has continually sought to improve sonics through innovative technologies—in addition to offering high performance and value with respect to pricing. This amp exemplifies that approach. A great-sounding stone-cold bargain.

[nuprimeaudio.com](http://nuprimeaudio.com) (263)



## Yamaha A-S801 Integrated Amplifier

**\$899**

This 100Wpc integrated amplifier is a very capable and flexible performer that can handle just about any digital or analog input. It even has a built-in phonostage. And by connecting Yamaha's optional \$49.95 YBA-11 Bluetooth Wireless Adapter, the A-S801 becomes an aptX Bluetooth receiver to enable devices like smartphones and tablets (except iOS devices that don't support aptX) connect wirelessly. The Yamaha A-S801 may be inexpensive but its feature set is amazingly rich. Its internal DAC plays PCM files up to 384kHz/32-bit and DSD files up to DSD128. When many manufacturers are turning to less-expensive Class D amplifier circuits, the Yamaha features a true Class A/B output stage. The amp sounded sweet and smooth, particularly with vocals and acoustic guitar. The A-S801 looks good, sounds splendid, and has a long list of useful features at a price that makes it a flaming bargain.

[usa.yamaha.com](http://usa.yamaha.com) (263)



## Audio Alchemy DDP-1, DPA-1, and DPA-1M

**\$1995/\$1995/\$1995 each**

Audio Alchemy, the company that made a name in the 1990s for its high-value products, is back. The first of its new products are the DDP-1 preamp/DAC/headphone amp, the DPA-1 stereo power amp, and DPA-1M monoblocks. The highly capable and versatile DDP-1 and DPA-1 deliver terrific sound and stunning value. As a lineage, the DDP-1 is clean and transparent, and its DAC section is sensational; this level of sound quality would be outstanding in a \$4000 stand-alone DAC. Clarity, openness, detail, and exceptional dynamics define the DAC's performance. The DPA-1 stereo amplifier and DPA-1M mono amplifiers are no less impressive. Their wide dynamics, terrific bass grip, and upbeat sonics made them a joy to listen to. Moreover, the amplifiers possess the same level of clarity and resolution as the DDP-1.

[audioalchemy.com](http://audioalchemy.com) (262)

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# Analog



# Pro-Ject Debut Carbon Turntable with Ortofon 2M Red Moving-Magnet Cartridge

A Chicken in Every Pot

Wayne Garcia



It's not exactly a secret that over the past decade turntables have gained popularity with the young and hip—okay, they're also popular with the not-so-young and not-so-hip—appearing in movies, fashion spreads, and newspaper articles. As such, record players are more than mere tools to spin LPs on; they've also become something of a design statement that can be purchased outside of traditional brick-and-mortar stores and on-line audio retail sites.

And there's nothing wrong with that. After all, even veteran audiophiles experience gear obsessions triggered by the way a component looks—before we've heard a single note from it. Who among us has not ogled or, to conjure Jimmy Carter, lusted in his heart for the latest and greatest from any number of manufacturers reported on in these and other pages?

Although some of these objects of desire are unattainable—my credit line can't quite cover \$89k for the latest Walker Proscenium Black Diamond—almost anyone can afford something like Pro-Ject's latest Debut Carbon. For \$399 mounted with Ortofon's 2M Red it represents the audio equivalent of Henry IV's notion of “a chicken in every pot”—analog sustenance for the common man.

Though the basics remain the same—MDF plinth, cast-steel platter with felt mat, a belt-drive synchronous motor with simple Sorbothane “suspension,” and a choice from among seven gloss colors for the plinth—the Debut Carbon's most significant upgrade over the Debut III can be found in the model's name, which refers to the lighter, more rigid, single-piece 8.6" carbon-fiber arm tube that replaces the III's aluminum arm.

The Debut Carbon comes pre-mounted with Ortofon's 2M Red moving-magnet cartridge, which sports an elliptical stylus and a healthy 5.5mV output, making it compatible with essentially any built-in or outboard phonostage. If you want to use the Debut Carbon to transfer your LPs to a music server, it can be ordered with a built-in phonostage and analog-to-digital converter (with a USB

output) for an additional hundred dollars. Either version of the 'table is available in seven high-gloss colors (black, red, green, blue, yellow, silver, and white).

Ease of setup is an especially important consideration for today's entry-level 'tables, which, as noted, are frequently sold by non-audio specialists. In other words, the buyer will need to do it him- or herself. After unpacking, all that's involved in this case is fixing the drive belt, attaching the platter, threading the counterweight to 1.75 grams tracking force, attaching the ant-skating weight, plugging in the arm leads and wall-wart power supply, and you're ready to play your first LP.

I do have one minor gripe: The arm's finger-grip is a bit stubby, which makes it somewhat difficult to grasp. Combine that with a U-shaped armrest that sits higher than the arm's “neutral” zone at queuing level, and what happens, until one's motor memory kicks in, is an awkward and repeated bumping of the arm into its resting place. It took about a week before I got used to this and automatically remembered to raise the arm over and into its cradle. Presumably the younger audience the Debut is likely to attract will have greater elasticity in the cranial cavity than I.

As an entry-level design the Debut Carbon nails the basics: dynamic shading and speed constancy. The essentials of what we call “rhythm and pace” are impressive. Without this foundation a turntable is going to fail at its most important job—drawing us into the music.

## EQUIPMENT REVIEW - Pro-Ject Turntable with Ortofon 2M Red Cartridge

Queuing up Glenn Gould's recording of Bach's Partita No. 1 in B-Flat Major [Columbia] I immediately heard a very nice sense of interplay between Gould's overlapping hands and interspersed digits as he dances his way through this remarkable piece. Though one might accurately note a tad of smearing or lack of ultimate precision with those notes, this is really something that will only be heard by comparison with more costly designs.

Coltrane's *Crescent* [Impulse] reinforced my sense of the Debut Carbon's overall poise. Though the widest dynamics are not exactly explosive, there is, nevertheless, a natural balance between the peaks and valleys that works well at delivering the tunes. With the Ortofon, Coltrane's tenor sounds throaty but not as meaty as it might, as does McCoy Tyner's piano. But Jimmy Garrison's bass is nice and tuneful with an impressive texture and feeling of wood, and Elvin Jones' drum kit delivered good punch combined with a cymbal sound that was naturally shimmering and not too splashy. The soundstage was likewise good with more than a decent sense of air and space, and good instrumental focus.

Playing ORG's excellent 45rpm edition of Marianne Faithfull's *Strange Weather* revealed a hint of thinness in her mostly well-recreated vocal, but again an impressive overall balance, a sweet sounding violin, and the ability to pull listeners into the album.

Rock—from Jack White's *Blunderbuss* [Third Man] to Nick Cave and Co.'s *Grinderman 2* [Anti] to the Stones' *Sticky Fingers* [RS Records]—showed that the Debut Carbon can also deliver the punch, textures, and gritty

edge required to bring home the goods.

Whether for first-time turntable buyers or anyone wishing to enjoy high-quality LP playback without spending a lot of money, Pro-Ject's Debut Carbon is a great way to go. It doesn't excel in any one area but gets the basics so right that it's hard to criticize what's lacking—because, after all, that's what good entry-level models should provide, a solid foundation for musical pleasure. *tas*

### SPECS & PRICING

**Type:** Belt drive, unsuspended turntable

**Speeds:** 33.3, 45 (78 rpm pulley adaptor optional)

**Dimensions:** 16.35" x 6.33" x 12.66"

**Weight:** 12.4 lbs.

**Price:** \$399

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#### ASSOCIATED EQUIPMENT

Rega P3-24 and RP3 turntables; Rega Exact 2 moving-magnet and Lyra Delos moving-coil cartridges; SimAudio 310LP/320S phonostages; Electrocompaniet PL 1 integrated amplifier, PC 1 CD player, and EBS 1 loudspeakers; AudioQuest Diamondback interconnects and Type 2 speaker cable

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## What you need to know about modern technology and sound quality

**W**e have to stop and think. Everyone walks around with their cellphone. When you sit down and listen to your music, you might be controlling your server with an iPad or an Android device. Think about the other devices in your home. Your music server is computer-based. The DAC has a processor. All of these devices generate RF and EMI. Even though the device itself is shielded and attempts to block these fields from escaping, you still have a field around them that acts as a radiator for RF and EMI.

So often, people talk about how their system is bright, or does not sound natural. Much of this is due to problems caused by improperly shielded cables, mechanical vibrations, and other noises. When we originally came out with our first cable in 1986, 30 years ago, we saw this problem would keep growing and it has. Increasingly, it isn't only the adults in the household who possess cellphones and electronic devices, it is the whole family. Electronics are a greater and greater part of our everyday lives.

Purist Audio Design concerns itself with the details. Our catch phrase, "Connecting you to the music" is more than that. It's a

means. How often do you sit down and listen to your music, and find yourself fatigued? When you listen with Purist cables, you listen for hours, thinking "one more song." We pay attention to details because we're music lovers and audiophiles, ourselves.

Purist Audio Design began in a garage as part of an audiophile's dream. Jim Aud put together what he learned from his time in the US Air Force and NASA, and worked to make music better. Now, Purist ships around the world. Yet, if you call us you'll still talk to Jim or other members of his family. You'll talk to real people, real audiophiles who share the same passion you do.

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# GEM Dandy PolyTable

## The Little 'Table That Could (and Does)

Julie Mullins

**D**on't let its unusual looks fool you. Ditto its odd name. Deceptively simple in design and eminently user-friendly, this belt-driven turntable was created for those who want to purchase a quality analog source without breaking the bank. GEM Dandy company founder George Merrill—whose initials make up the “GEM” part of the ‘table’s name—designed the GEM Dandy PolyTable especially for analog fans seeking a high-performance unit that is a cut above mass-market offerings. I found that the GEM did, indeed, deliver solid sound and a positive user experience—from basic assembly and setup to hours of listening enjoyment. Made in the U.S. (in a suburb of Memphis, Tennessee), this ‘table is, in fact, so good it won our 2015 Product of the Year Award in the Affordable Analog category.

About the PolyTable’s design: It avoids fuss and frills, and though it has a small footprint—another plus for those with less-than-palatial living spaces—to a large extent its form follows its function. Its trio of sturdy, knob-like, adjustable feet gives it a sort of spaceship vibe. Of course, beauty is famously in the eye of the beholder, but I find the PolyTable to have a certain spare, straightforward appeal that is also kind of sleek and modern. Moreover, its streamlined look befits its streamlined operation, suitable for both budding and more experienced audiophiles. It’s as if this little “gem” of a turntable has nothing to hide.

The PolyTable’s unsuspended plinth, sub-platter, and platter are made of polyvinyl-chloride synthetic plastic, which is produced by polymerization of vinyl-chloride monomer.

George Merrill, who has been designing and building turntables for more than three decades, pioneered the use of such materials and holds related patents (applicable to some of his other turntables). “These polymers manage energy to an overwhelmingly better degree than any metal can,” he says. “None of the turntables since my first Heirloom design (1979) has had any metal in the critical signal path.” The catchy PolyTable name—and those of its Poly-Cover and PolyWeight accessories—comes from the use of polymer plastics.

### Arrival and Assembly

My PolyTable review sample arrived in a larger box than I expected; it was well packed and included a helpful, four-page, color instruction manual. The PolyTable turntables are shipped with Japanese-made Jelco tonearms; upon ordering you can choose from one of three models at tiered prices: the entry-level SA-250 (which was supplied with my sample), the SA-750D, or the 10" SA-750E. The PolyTables do not come bundled with a cartridge, so you’ll have to buy one for yourself, although a range of Ortofon models is available through Merrill’s store online.

Assembly instructions for the ‘table and tonearm—and assembly itself—were simple. The aforementioned brief guide

contains photos that make setup even easier. The PolyTable is a subplatter/platter design that uses an oil-well bearing and shaft that require the addition of about 10 drops of oil (included) when you fit the platters together. There are three leveling feet (adjustable via internal screws) on the bottom of the plinth. The platter is lined on its surface with a rubber and cork compound, and there’s a small bubble level built into the plinth. I moved house partway through the audition period, so that little level came in handy for readjusting the feet to compensate for my new home’s not-quite-level hardwood floors. Like any ‘table worth its salt, the PolyTable allows for VTF, VTA, and azimuth adjustments to enable optimization of a wide range of cartridges.

### Spinning and Listening

Now for the fun part: spinning vinyl. I began auditioning the PolyTable with the supplied Jelco tonearm and a Shelter 201 moving-magnet cartridge during the review period for the PS Audio Sprout (another affordable Product of the Year winner). For a time, I used it as a source for HiFiMan 400S headphones, listening to LPs ranging from Khachaturian’s *Masquerade Suite* in Analogue Productions’ marvelous Living Stereo reissue to the energetic Mobile Fidelity-remastered *Special Beat Service* by The English Beat. The former shone with powerful climaxes that exceeded my expectations. The latter, a recording that’s prone to sounding slightly bright on a few systems, was reproduced quite cleanly, with its mid-range-centric instrumentation and percussive punches rendered intact. In general, timbre veered somewhat towards the warmish side—certainly one of the Shelter mm cartridge’s characteristics—though realism on voices was untouched. (In my Sprout review, I described how, when I was using the PolyTable as a source for the HiFiMan cans, a layered-in backup vocal—which seemed to come out of nowhere from right behind me—actually made me jump and turn around to see who had crept up. How’s that for realistic reproduction of a voice?)

Once I switched to a moving-coil cartridge, namely the entry-level PS-7 from Air Tight, the sense of realism only increased. My setup at this time included a Walker Procession

EQUIPMENT REVIEW - GEM Dandy PolyTable

phonostage and a NuPrime IDA-8 integrated driving Raidho D-1 two-way loudspeakers and a pair of JLAudio e-110 subs. “Dance Me to the End of Love” from Leonard Cohen’s wonderful *Live in London* album filled the room with his smooth, smoky baritone and the powerful swells of Neil Larsen’s accordion. With this setup, I spun so many records across so many genres that I have a hard time culling examples.

To take in a true “gold standard” reference system, I spent a great deal of time listening to LPs at JV’s house in the room with the Magico M-Pros and JLAudio Gotham subs, driven by Soulution’s 725 preamp and 711 stereo amp. The source? The new, massive, and enormous Invictus turntable from Acoustic Signature. For reference purposes, I listened to recordings that I was very familiar with and that were, naturally, great-sounding across various criteria.

I’d brought Elvis Costello’s *My Aim Is True*—which I happen to own in an original 1977 Stiff Records pressing. Quite the well-recorded gem, its unabashed attack and slam blew us both away on JV’s reference system (not surprisingly), but wow, did it also rock my new home! No, it didn’t have all the grip and definition of JV’s super-system, or the resolution, transient speed, dimensionality, and color. But, honestly, it wasn’t utterly embarrassed by the comparison. “Welcome to the Working Week” delivered impressive drive and percussive energy. The transient attack of Costello’s Fender guitar strums resonated and decayed with far greater impact and realism than I would have expected. On “No Dancing,” the kickdrum beats and tambourine strikes were similarly satisfying. No, you don’t get all the low-end texture that you do on JV’s reference systems, but the bass sel-

dom went muzzy, and by and large had respectable definition—thanks in part to the JL subs. Costello’s raw vocal emotion was powerfully rendered on the melancholy ballad “Alison,” while “Sneaky Feelings” boasted detailed, rapid-fire cymbal taps that were as crisp and clean as you please.

I also cross-compared the excellent live LP *Lost and Found* from Buena Vista Social Club on World Circuit Records, which Greg Cahill reviewed favorably in TAS, and the GEM PolyTable once again held up quite well. JV’s reference system captured the magic of the ensemble’s live performance with spectacular imaging and finesse. The snap and speed across a plethora of percussion were thrilling. The delicacy and power of Ibrahim Ferrer’s tenor vocals emerged in incredibly lifelike detail. On my setup with the PolyTable, perhaps the most noticeable differences were the degree of transient response, bass definition, and overall resolution. The GEM sounded rather polite by comparison.

### SPECS & PRICING

Type: Belt-driven turntable with two platters	Weight: 12 lbs. Price: \$1495
Tonearm: Jelco SA-250 (SA-750D or SA-750E can be specified)	<b>GEM DANDY PRODUCTS, INC.</b> 820 Herbert Rd. Suite 109 Cordova, TN 38018 (901) 751-3337 hifigem.com
Speeds: 33rpm and 45rpm	
Dimensions: 18" x 7" x 12" (18.5" with SA-750E 10" tonearm)	

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The point I’m making here is one of scale—of cost-to-performance ratios. We know JV’s reference system—hell, just his turntable, tonearm, and cartridge—costs upwards of 120 times the price of the PolyTable. The point is that the performance it provides, as great as it is, is not 100 times better than that of the PolyTable. Overall, the system with the PolyTable delivered a very solid, very musical presentation, albeit with a midrange emphasis, across a broad spectrum of instruments. Although it might not have been the last word in any single audiophile criterion, it offered an impressive degree of detail and a quite respectable sense of verisimilitude. I kept on wanting to listen—and listen more. And isn’t that what this hobby is about?

Regarding any downsides, I have only a few nits to pick with the PolyTable. One concern arose after I had borrowed the stellar Constellation Perseus phonostage preamp from JV. As it turned out, I could not actually connect the PolyTable and the Perseus because the RCA plugs of the Jelco ‘arm would not separate far enough to span the distance between the preamp’s widely spaced right and left-channel inputs. Obviously, this would not be a real-world pairing anyway, but I wanted to mention this just in case folks at home have phonostages with inputs that aren’t positioned in a close side-by-side configuration.

On the aesthetic front, some might find the GEM a little too light and stripped-down-looking. Personally, as noted, I think it has its charms. The PolyTable is actually more substantial and somewhat heavier than photos of it suggest. In keeping with its minimalist overall design, changing speeds from 33 1/3 to 45rpm involves removing the top platter, lifting the little rubber belt, and moving it from the smaller sheave

on the pulley to the larger one beneath it. Talk about hands-on! A certain analog-hound audiophile I know (who shall remain nameless) was vaguely appalled by this, but I didn’t mind it at all. I felt more “in touch” with the ‘table—kind of like my preference for cars with manual transmissions. I feel like I’m actually driving the thing.

Of course, keeping an eye on belt or general mechanical/motor wear-and-tear is part of belt-driven-turntable ownership. Listening will inform you of any major problems. Not that I foresee a problem with the GEM. Even though we’re talking about a ‘table that’s intended to be fairly entry-level and basic, it has still been designed and built with a care and quality that should keep it running happily (and keep you listening happily) for years and years to come.

Conclusion

If you’re an analog lover who doesn’t have a big living space and/or a big budget, this high-value, small-footprint, belt-driven turntable could be just your ticket. From setup to playback to overall musical enjoyment, I found the PolyTable to be a delight in every way. It avoids fuss and frills, boasting a sleek, modern form, while its sturdy, two-piece platter, easy-to-install bearing, and adjustable feet make for easy assembly and operation. Additional optional accessories include a clear PolyCover (\$49) and a PolyWeight (\$59). If you’re seeking more features and flexibility than a typical mass-market turntable offers, give this rather unique-looking number a look—and a listen. With both the mm and mc cartridges I tried, the PolyTable delivered serious analog pleasure worthy of far bigger bucks. A gem, indeed. TAS



# Clearaudio Concept

## High Value

Wayne Garcia



**F**or me, the analog versus digital debate is similar to one in the wine world, where “Old” versus “New” World advocates often engage in passionate arguments in defense of not only their preferred regions, but styles, winemaking techniques, and flavor profiles. And though I enjoy many New World wines, I’m a strong advocate of the Old World. Because to me, if you really want to understand what pinot noir or chardonnay are all about, then you need to know Burgundy; or for the cabernet lover, Bordeaux; or for sangiovese, Tuscany. After all, these regions have been making wine and cultivating these same varietals in the same vineyards since the Middle Ages, and are where these grapes have consistently achieved the greatest possible expression.

When it comes to music reproduction, as advanced technologically and sonically as digital currently is—and one assumes that progress will only continue—there remains, to these ears, a degree of expressiveness, call it heart or soul, to analog that continues to elude even the best digital. I’m not saying that I don’t enjoy listening to digital recordings, but that over time, I, like other audiophiles I know, have drifted back to playing mostly vinyl LPs.

But since this issue is all about analog, we thought a look at one of today’s more sophisticated yet still reasonably affordable turntables would be of interest not only to potential first time buyers, but also to those who have loved analog in the past and are now looking to re-engage with the vinyl medium.

### Clearaudio Concept with MC Concept Cartridge

Let’s get this out of the way right now—Clearaudio’s new Concept turntable and cartridge combo offers a hugely rewarding analog experience at a very attractive price. The ‘table alone sells for a reasonable \$1400, and the cartridge goes for \$800. Bundle them together, as many other manufacturers are also doing, and you save a few hundred bucks: Importer Musical Surroundings sells the pre-set-up package for an even \$2000.

Made in Germany, the Concept is a sleekly handsome, low-profile design that, as with designs from companies like Rega, relies on a low-mass, non-resonant plinth and carefully designed working parts to make its musical magic. Moreover, for those who want an audiophile-grade playback system without having to futz with the sometimes nerve-racking job of setting the thing up, the Concept is about as “plug-and-play” as you can get. The cartridge is pre-mounted at the factory, and critical issues such as overhang and offset angle, tracking force, VTA, and azimuth are all pre-adjusted. All you need to do is level the unit via the three tiny spiked feet, mount the belt and platter, and you’re ready to go. Note, however, that the factory settings are worth double-checking. For instance, although

the basics were just fine, in transit the tracking force had shifted upward from 2.0 to 2.5 grams, and the azimuth was off a few degrees. For something meant to track groove walls measuring mere hundredths of an inch, these are not insignificant differences, as I would hear (and easily correct).

The 30mm (approximately 1.18”) thick Delrin platter rests on a lightweight sub-platter that is belt-driven by a decoupled DC motor. A handy control knob allows you dial-in speeds of 33.3, 45, or 78rpm. The latter may not be something many of us will use, but for vinyl lovers whose record collections span the decades it is an unusually welcome touch.

The new Verify tonearm features a “friction-free” magnetic bearing. It too, is a handsome thing that exudes the same quality of construction found throughout this design. The arm, like unipivots, takes a little getting used to because, unlike fixed-bearing arms, it feels as if it might float away once it’s left the armrest.

Excited to hear what the Concept sounded like, I did what most consumers are likely to: After getting the ‘table leveled and the motor spinning, I started to play a favorite record. But the arm felt a bit off. That was verified—oops, no pun intended—by the first few seconds of Dylan’s “Tangled Up In Blue,” from 1974’s *Blood On The Tracks* [Columbia], which sounded tonally unbalanced and lacking in rhythmic drive. This was when I discovered the shifts in the arm setup noted above. So while the Concept is *close* to ready to go out of the box, be sure to check any factory settings to ensure that they haven’t been affected by transport.

Once tweaked, “Tangled Up In Blue” came back to life. The midrange—Dylan’s voice, the

## EQUIPMENT REVIEW - Clearaudio Concept

acoustic rhythm guitars—was naturally balanced and musically involving. The brushed cymbal and snare and the kick-drum added dynamic momentum and punctuation, aided by good clarity, transparency, and a solid overall balance. With Jascha Heifetz's recording of Bach's Unaccompanied Sonatas and Partitas [RCA], the Concept brought a convincing sense of the instrument's presence, and the great fiddler's legendarily masterful technique—a tribute to the design's dynamic nuance and rhythmic precision. And as I heard with the Third Tableau from *Petrushka* [Athena/Decca], the same Ansermet-led performance I used in my cartridge survey elsewhere in this issue, the Clearaudio setup did an impressive job reproducing the air and space from which the orchestra emerges. While other, more costly designs, may better it by comparison, this \$2000 rig will not leave you wanting for much. The same goes for the loudest dynamic peaks, which come close, if not all the way, to being as explosive as those I hear from my reference TW Acoustic turntable, Tri-Planar arm, and Transfiguration Phoenix cartridge. Pizzicato strings, cymbal crashes, thumped bass drums, and fluttering winds were effortless sounding and engaging, with a very fine sense of depth and detail, as, say, when the solo trumpet reverberates off the rear wall of the hall during the "Ballerina's Dance."

To put this in perspective, the cartridge in my reference vinyl playback system sells for \$500 more than this entire package—and my entire setup costs six times as much. Although I'm not going to tell you that the Clearaudio Concept equals that performance, what I will tell you is that it is good enough in all the ways

that count—resolution, dynamics, low-noise, and that hard-to-pin-down thing I'll call musical involvement—that I enjoyed the hell out of my time with it. Couple that with its terrific German build and finish, and the Concept strikes me as a hands-down bargain. *tas*

### SPECS & PRICING

**Type:** Belt drive, unsuspended turntable

**Speeds:** 33.3, 45rpm

**Dimensions:** 16.5" x 5" x 13.8"

**Weight:** 28 lbs.

**Price:** \$1400

#### MUSICAL SURROUNDINGS

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#### Associated Equipment

TW-Acoustic Raven One turntable; Tri-Planar Ultimate VII arm; Transfiguration Phoenix moving-coil cartridge; Artemis Labs PL-1 phonostage; Cary Audio SLP-05 preamp & 211-FE monoblock amplifiers; Magnepan MG 1.7 loudspeakers; Tara Labs Zero interconnects, Omega speaker cables, The One power cords, and BP-10B Power Screen; Finite Element Spider equipment racks; Feickert universal protractor; AcousTech electronic stylus force gauge; Musical Surroundings/Fosgate Fozgometer azimuth adjust meter; Analogue Productions Test LP

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# Ortofon Quintet Cartridges

## The Red and the Black

Neil Gader

**I**t's hard to believe but it's been over five years since the Ortofon 2M collection of moving-magnet cartridges was introduced—cleverly color-coded to indicate entry-level to top-tier pricing. I reviewed the 2M Red and 2M Black in Issue 182 and walked away shaking my head in admiration at the performance of these modestly priced mm's. The Red was a paltry \$99 for goodness sake—roughly “the price of a nice dinner for two,” I said at the time.

As with a hit cable TV series, popularity bred spin-offs, and Ortofon has taken it to the next level with Quintet, a set of five low-to-midpriced *moving-coil* cartridges that replaces the aging Rondo Series of moving coils. (See reviews of the Rondo Red in Issue 206 and the Rondo Blue in Issue 199.) The Quintet line mirrors the 2M series with the same color-coding, beginning with the least expensive Red, ascending to the Blue and Bronze, and topping out with the Black. A mono version is also offered. The Red, Blue, and Mono have a 0.5mV output that's compatible with most mc phonostages. The Bronze and Black benefit from a lower 0.3mV output—fewer windings save weight and often yield sonic benefits, particularly in speed and dynamic nuance. The entire line uses neodymium magnets.

Ortofon parcels out the upgrades progressively at each level. Hot-rodding includes coil wire-quality, which ranges from copper to Aucurum (a gold-plated six 9s copper), and most particularly stylus type. Quintet carts use a nude elliptical, while the Black gets the royal treatment with a nude Shibata, known for its asymmetric front-to-back profile. The other key difference is that the Black uses a boron cantilever. Typically found on higher-end offerings, boron is preferred over aluminum for its stiffness and lower mass. (Maintaining the lowest possible moving mass in the stylus/cantilever assembly is key to allowing the cartridge to pick up the finest groove modulations.) Ortofon recommends >20 ohms loading, which makes practical sense given that lower-priced phonostages often feature a single 100-ohm setting. The weight

and compliance on these models have been optimized to mate with all medium-mass arms.

Setup was a breeze. The biggest adjustment required was raising my SME V tonearm a few millimeters to accommodate the relatively tall cartridge bodies of the Quintets. I settled for a VTA just south of neutral—a slightly negative rake. Ortofon lists the tracking force range as between 2.1 and 2.5 grams, and I ultimately chose the suggested 2.3 grams. Note: Don't forget to check your cartridge lead-wire connections carefully for fit and wear. Ortofon offers upgrades in three versions, and made its LW-7N lead wire available for this review (high-purity seven 9s copper with rhodium-plated terminals, price \$59).

Truthfully I'm not loyal to any particular camp of phono cartridges. Moving magnet, moving iron, or moving coil...I'm happy to give each an equal shot with no agenda on my part. In that spirit, the Red does a more than respectable job of living up to the values that fans of moving coils have come to expect. It's damn responsive, rhythmically lively, and especially light on its feet in transient response. Imaging is stable, and soundstage cues and overall dimensionality are well defined.

It never fails that whenever I receive a couple of fresh cartridges for review I begin cueing up my old 45rpm LP dance remixes. Why? These studio-contrived sonic spectacles with their wide-open groove-spacing are not only a nostalgic hoot but also present tracking, bass, and dynamic hurdles that challenge the “can-do” of any cartridge from cantilever to coil. Favorites (don't laugh) are Lionel Ritchie's “All Night Long” [Motown] and Huey Lewis and the News'

## EQUIPMENT REVIEW - Ortofon Quintet Cartridges

“The Power of Love” [Chrysalis]. The former’s got a blazing brass section, an army of hyper-busy percussion players, and background partying like you’ve never heard before. The Red tracked very well and reproduced a soundstage that stretched from edge to edge of the Audio Physic Classic 30 and ATC SCM19 loudspeakers’ enclosures (reviews to come). It was responsive to the ever-deepening layers of multi-tracking that drives this dance tune forward. Brass cues, however, though clearly EQ’d, were still a little hotter than I’d encountered with my reference carts. Moving to the Lewis track, the Red grew a little looser in the midbass trying to corral the Godzilla-scale of the electric bass doubled by kickdrum from the remix, but once again it tracked without a whimper.

On classical music its midbass response seemed slightly overripe and discontinuous during Tchaikovsky’s *1812 Overture/Marche Slav* [EMI]; the bass drum and tympani cues succumbed to some added thickness that reduced pitch definition a bit. On Norah Jones’ “Sinkin Soon” [Blue Note] the contrasts in timbre and transient energy from the interplay of percussion instruments was also somewhat reduced. In terms of low-level resolution the Red short-sheeted some of the finer gradations—a reduction that led to a flatter soundstage compared to the higher-priced spreads.

At \$299 the Quintet Red is obviously on the low end of the price scale for moving-coil cartridges, but it doesn’t sound like a cheapskate. It drops some resolution and tonal purity at the frequency extremes and lacks

some micro-information everywhere, but it retains a persuasive feel for the distinctive musicality of LP playback. It’s a slam-dunk for any thoughtful starter system. Those who are a little less inclined to compromise and have the bankroll to back it up, read on.

In some areas, the leap from the entry-level Red to the top-gun Black was smooth. Certain basic traits made the transition, namely the speed, the enriched bass response, and broad soundstage. The Black took these virtues and amplified them, while at the same time minimizing the Red’s modest vices. Specifically, the Quintet Black conveyed a more settled and even neutrality across the tonal spectrum, while adding a bit more midrange warmth. It has both a lighter touch and a more commanding sense of control.



In comparison to the Red, the Black’s upper-octave edges have been rounded off and polished. Violins are more fluid and airy. It also sweetened and clarified treble information more completely. For instance, Joni Mitchell’s soaring vocal in “A Case of You” [Reprise] had more bloom and warmth, which focused the performance more precisely. The Black also lifted the dulcimer beyond a dull drone and fully illuminated the many acoustic and transient facets that Mitchell wrings out of this quintessentially American lap instrument. There was also a shift in bass response during the Ritchie and Lewis 45rpm remixes. Both were a bit tighter, more controlled, and better defined in pitch. There was certainly a reduction in midbass coloration and more bottom-end extension.

Turning back to the Tchaikovsky *1812*, the Black provided a crisper, more defined snare sound and cleaner brass volleys, and the pealing church bells of the finale were more refined and focused. Similarly during the third movement of Shostakovich Symphony No. 8 [EMI] the unrelenting low string ostinato had a greater sense of layering, while the intensity of the trumpet fanfare had a golden aura that seemed to add fullness to the entire brass section. During Stravinsky’s *Pulcinella* [Argo] the Black found the sweetspot of the soaring piccolo trumpet at a moment where every element of a system needs to align or those same brassy transients quickly turn as steely and stressed as high-tension wire.

Having now reviewed both of Ortofon’s

“Black” versions (Quintet and 2M) I find I’m leaning towards the Quintet Black overall. I’ll grant that the 2M has a bit more midrange warmth, but its top end lacks the clarity and nuance of the Quintet. The latter is also singularly more transparent, illuminating more low-level information. But the Black is also marginally pricier and unlike the high-gain 2M it requires a phono amp with a lot more pep. Still, at the end of the day perhaps the greatest tribute I can pay the Quintet Black is that I haven’t felt the urge to quickly return to one of my pricey reference cartridges. I don’t need to tell you that for this analog junkie, that’s *really* saying something. **tas**

### SPECS & PRICING

#### Quintet Red & Black

Type: Moving coil

Output: 0.5mV (Red); 0.3mV (Black)

Recommended load impedance: >20 ohm

Cartridge body: ABS

Coil wire: Copper (Red); aurogum (Black)

Tracking Force: 2.1-2.5 grams

Weight: 9 grams

Price: Red, \$299; Blue, \$499; Mono, \$499; Bronze, \$799; Black, \$999

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# Acoustic Signature Wow XL Turntable

## Solid Foundation

Spencer Holbert



**W**hat's the ultimate purpose of a turntable? To spin a vinyl record at a precise speed without introducing any vibrations into the cartridge. Of course, this is the holy grail of turntable design, and basically an impossible task. Turntables are constantly in a miniature battle to counteract opposing forces. When the Beach Boys sang about "good vibrations," they weren't talking about their turntables. Many turntable manufacturers go to great lengths to reduce the effects of unwanted vibrations, but as the designs become more exotic, so do the prices. So when a turntable comes along that does its job well—and does it without costing a year's salary—that's something to celebrate. Maybe somebody at Acoustic Signature had a wry sense of humor when he decided to name this 'table the Wow; irony aside, the Wow XL is all wow factor without all of the Gleichlaufschwankung (the bad wow).

### The Setup

The \$2395 Wow XL is one solid piece of precision German engineering. The plinth is a beveled design about the same thickness as the platter, though it is a combination of aluminum and wood (the wood is masked by the outer shell of the plinth). Three height-adjustable feet allow for easy leveling of the entire 'table. The platter alone weighs fourteen pounds and is over one-and-a-half inches of solid aluminum; it could probably be used for home defense, if necessary. Be ultra-careful as you slide the platter spindle into the bearing, as the fit is a bit snug. The heavy weight of the platter can easily pinch a finger, so make sure to drop it in while holding the outer circumference. The bearing is Acoustic Signature's "signature" Tidorfolon bearing, which is the same proprietary bearing design used in all AS turntables, including AS's flagship Ascona turntable reviewed by Jonathan Valin back in 2012. Luckily, you don't need to spend \$34k to benefit from the bearing technology employed in this 'table.

The Wow XL is driven by an ultra-precise synchronous motor that employs a 20MHz microprocessor that provides "perfect" speed

stability and fine-tuning. Two small recessed buttons on the back of the 'table allow  $\pm 0.1$  percent speed adjustments, so you can dial-in the speed during initial setup. I checked the speed after I set up everything, and it was spot on. I checked it three weeks later, and things were still spinning correctly. It's safe to assume that once you initially set the speed, you can leave it be without worrying—it's always good to check speed if you move the 'table, though. The motor is extremely quiet, too. Fitting the belt was easy, and once the motor was turned on any twists were straightened out after a few revolutions. Two stainless-steel buttons are located to the left of the platter, an on/off button and a 33/45 button to easily switch speeds. Turn the turntable on, and a red LED blinks above the speed button until the precise speed is reached.

When I first pulled the 'table out of the box, I wondered why there was an Ethernet port in the back of it. The interesting thing about the power supply is that it plugs into the back of the turntable using what looks like an RJ45 Ethernet cable. My one quibble is with the wall-wart, which is so large (roughly 3" x 4.5")

## EQUIPMENT REVIEW - Acoustic Signature Wow XL Turntable

it blocked two adjacent outlets on my power conditioner. Plus, the wall-wart is so long that I had to slide my power conditioner to the very back of the rack to let the power supply hang over the edge. This might not be an issue with every power conditioner, but it's something to be aware of; you wouldn't want to spend \$3k on a conditioner and have three plugs taken up by the Wow XL's wall-wart.

My Wow XL review sample was shipped with a Funk Firm FXR-II tonearm (\$2400), which makes a really superb combination with this 'table. (Most dealers will receive Acoustic Signature 'tables in this price range with the Funk FXR-II, the Funk F6 thread-bearing tonearm [\$600; see my Funk Flamenca review in this issue for more], or the Rega RB202 [\$400].) The 'table sans tonearm is \$2395. The FXR-II was a breeze to set up: adjusting VTA takes no time with the supplied Allen wrench, and the detachable headshell allows for easy cartridge mounting and azimuth adjustment. I used the Ortofon 2M Black moving-magnet cartridge (\$720) for this review, and a Pro-Ject Tube Box II (\$450) with a pair of Mullard 12AX7 tubes for the phonostage. All told, it took about an hour to set up the Wow XL, with periodic adjustments here and there to fine-tune the sound.

### The Sound

I struggled for a bit to determine exactly what the Acoustic Signature Wow XL's sound was. It's an extremely neutral turntable, which is exactly what you want, but something that I wasn't expecting for \$2395. If anything, the 'table—paired with the Funk Firm FXR-II tonearm—is a

bit on the analytical side, which I tend to prefer. There wasn't any of the false impression of warmth that some turntables give to vinyl. Of course, some of this can be attributed to the Ortofon 2M Black, which has won multiple TAS Editors' Choice and Product of the Year awards; yet even with a fast, slightly forward cartridge like the 2M, the Wow XL imparted little overt sonic character of its own. It was this *lack* of sonic signature that was most apparent while listening to Ludovico Einaudi's *In a Time Lapse*, particularly on the track "Experience," during which Einaudi's soft piano notes are joined by the soft plucks of a harp situated toward the back of the room.

It's the way the Wow XL resolves these delicate, single notes that really shines. If you enjoy the minimalist approach of many modern composers—especially Phillip Glass, Hans Otte, or Ludovico Einaudi—the Wow XL does an amazing job of letting the music be music, with only the faintest traces of image smear. I actually question whether I would have noticed any smear at all if I hadn't heard this record on the superb Kronos turntable a few days earlier at the Montreal Audio Show.

There were some minor tracking issues during certain passages of Stravinsky's *Rite of Spring* [Everest], but this is a torture test for even the best cartridges and tonearms. Some of this is due to the turntable's minimal vibration control. If your rack is an afterthought and in need of an upgrade, the Wow XL will benefit from improved vibration control. Since the feet on the Wow XL are solid aluminum, vibrations from an inferior rack might be an issue, depending on your setup. I experimented

with several isolation devices, including the Symposium Acoustics Svelte Shelf and Audioquest's affordable SorboGel Q Feet, which improved imaging. But this isn't to say that the Wow XL is going to have major issues when you set it up at home—far from it. The 'table itself is of such solid construction that it acts as one large vibration-control device, from the high-mass platter to the equally heavy plinth. This, of course, is a methodology to which not every turntable manufacturer subscribes, but Acoustic Signature has hit the mark with this one, and at a price that is affordable for the dedicated vinyl listener.

### Taking the Leap

The Acoustic Signature Wow XL sits right in the middle of two turntable worlds. On the one hand, it's a 'table that is pretty much ready to go as soon as you take it home, especially if your dealer sets it up for you, and represents an amazing amount of quality—both sonically and in construction—for the price. But, unlike a manufacturer that pairs its 'arms with its 'tables, it's a 'table that takes you into the world of mixing and matching tonearms, which can be a little daunting for someone who isn't ready to make that leap. If you're ready to delve into this world and start experimenting, the Wow XL is about as good a 'table as it gets. It's German engineering at its most affordable, and it allows you to start with a solid base and slowly upgrade your tonearm until you find the one you like best. You can get out the door with the Rega RB202 for \$2795, then move on to more expensive—and more elaborate—tonearms. For me, this is exactly the kind of turntable I want

to own, because it doesn't break the bank, yet allows for lots of perfecting. If picking out tonearms seems scary, have your local dealer guide you through the process; once you're comfortable with your newfound freedom of choice, you'll thank yourself for having a solid foundation upon which to build—which is exactly what the Acoustic Signature Wow XL was designed to be. **tas**

## SPECS & PRICING

**Drive unit:** Synchronous, electronically regulated internal motor  
**Bearing:** Tidorfolon proprietary bearing  
**Chassis:** 10mm aluminum and 25mm wooden plinth  
**Platter:** 34mm solid aluminum  
**Dimensions:** 16" x 6.5" x 13"  
**Weight:** 35 lbs.  
**Price:** \$2395 ('table only); \$4795 as reviewed

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## OUR TOP PICKS **ANALOG**



### **Rega RP1** **\$449**

It's notable that Rega's entry-level 'table today sells for roughly the same price it did some 20 years ago. That doesn't mean the RP1 performs at exactly the same level as the original P(lanar) 2 or 3, but it does mean that Rega's commitment to value remains paramount and its knowledge of materials and manufacturing techniques has deepened. Building on success, the RP1 uses the classic Rega motor, drive system, and main bearing, but instead of a glass platter this one is made of MDF. The 'arm is the new RB101, which comes pre-mounted with Ortofon's OM5e mm cartridge. You won't get much frequency extension or wide dynamics here, but what you do get is the pace, musical interplay, and involvement that makes analog special.

[soundorg.com](#) (171)



### **Gem Dandy PolyTable** **\$1495**

If you're an analog lover who doesn't have a massive living space and/or a massive budget, this high-value, small-footprint, belt-driven turntable could be just your ticket. From setup to playback to overall musical enjoyment, JM found this American-made 'table to be user-friendly in every way. It comes with a Jelco tonearm of your choice, which allows for VTF, VTA, and azimuth adjustments. For the past few decades, George E. Merrill—whose initials make up the GEM name—has steadfastly been designing and small-batch-manufacturing turntables that offer high performance at a friendly price. With both the mm and mc cartridges JM tried, the PolyTable delivered serious analog pleasure worthy of far bigger bucks.

[hifigem.com](#) (260)



### **Pro-Ject Debut Carbon** **\$399**

The most significant upgrade to Pro-Ject's latest Debut is found in the model's name, which refers to the lighter, more rigid, single-piece 8.6" carbon-fiber arm tube that replaces the Debut III's aluminum tube. Pre-mounted with Ortofon's 2M Red moving-magnet cartridge, the Carbon offers all one expects from a modestly priced 'table. It doesn't excel in any one area but gets the basics so right that it's hard to criticize what's lacking.

[sumikoaudio.net](#) (226)



### **Acoustic Signature WOW XL** **\$2395**

The Acoustic Signature WOW XL is the perfect base turntable around which to build one superb analog front end. Weighing in at a massive 35 lbs. (fourteen of which is the platter), the WOW XL is the kind of turntable that allows you to continually upgrade 'arms and cartridges as money permits, without needing to worry that your base 'table might be the cause of any sound degradation. Though this turntable will benefit from a good rack with vibration control, the 'table itself is its own giant vibration absorber, as its mass cancels many of the ill effects of poor-quality racks. To sum it up, this is the turntable you want to own if you're looking for a serious analog front end, without the serious analog price.

[acoustic-signature.com](#) (244)



### **Ortofon Quintet Red and Black** **\$299-\$999**

Five years after Ortofon launched the venerable 2M Red and 2M Black moving-magnet cartridges that made such a splash in the high-end world, Ortofon has done it again with their Quintet series Red and Black. Still budget friendly, the Quintet series is low-end price with high-end quality, and made vinyl-junkie Neil Gader eschew his higher-priced reference cartridges in favor of these superb examples of great analog.

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# Meridian Explorer<sup>2</sup> MQA DAC

## Lowering the Price of Admission

Robert Harley



**T**he \$22k price tag for the 808v6 is far beyond the means of all but a few listeners, but Meridian’s \$299 MQA-capable Explorer<sup>2</sup> makes MQA accessible to just about anyone. In fact, most people will experience MQA for the first time through the Explorer<sup>2</sup>. I requested a review sample of this popular “pocket DAC” that has been on the market for some time (without MQA capability). A software update in early February added MQA decoding.

This small oval tube of a DAC is designed for personal listening, but with both line output and a headphone jack, can be used in a home system. The Explorer<sup>2</sup> has one mini-USB input at one end of the oval tube, and stereo 1/8" line-out and headphone-out jacks at the other end. One of the three LEDs indicates whether Explorer<sup>2</sup> is decoding a standard file (white), an MQA file (green), or an MQA Studio file (blue). The two other LEDs indicate sampling rates of 88k/96k and 176k/192k, respectively. Mac users can plug-and-play; Windows users need to download a driver from Meridian.

Inside the extruded aluminum case is an asynchronous USB interface, analog volume control, and Meridian’s apodizing digital filter. The filter and MQA decoding run on an XMOS DSP chip with 1000MIPS of horsepower. For comparison, Meridian’s 808v2 CD player that introduced Meridian’s apodizing digital filter made do with 150MIPS of DSP power. The Explorer<sup>2</sup>’s filter upsamples incoming data to 176.4kHz, but passes 192kHz data natively to the TI PCM5102 DAC. Output impedance is 0.47 ohms.

I listened to the Explorer<sup>2</sup> primarily in my desktop system with the Audience 1+1 V2+ single-driver speakers, Audeze LCD-4 and PSB M4U 2 headphones (driven directly by the Explorer<sup>2</sup>), and the headphones powered by the Moon by Simaudio 430HA headphone amplifier with the Explorer<sup>2</sup>’s line output driving the headphone amp via Audience Au24 1/8"-to-RCA cable. I also listened to the Explorer<sup>2</sup> in my main system, fed by an Aurender W20 playing MQA-encoded files as well as conventional PCM files. Note that the Explorer<sup>2</sup> won’t work with a Sooloos system, which doesn’t support the USB interface (Sooloos is network-connected only).

Playing standard (non-MQA) files, the Explorer<sup>2</sup> proved itself to be a good \$299 portable DAC. The treble was fairly clean, dynamics were wide, and the sound was reasonably resolved and transparent. It’s a huge upgrade from the computer’s audio output, boasting much smoother treble and more liquid midrange. The Explorer<sup>2</sup> was significantly more dimensional and spacious, with better differentiation among instruments. By comparison, the computer’s audio output was grainy and flat. The Explorer<sup>2</sup> brought the sound quality up to an audiophile level. I would characterize it as a solid and competent performer in the category when compared with other products in the very competitive low-priced portable DAC category.

But the Explorer<sup>2</sup> morphed into an entirely different animal when decoding MQA files. The disparity in sound quality between standard files and MQA files was large, and far greater through the Explorer<sup>2</sup> than between those same files decoded by the Meridian 808v6. Meridian’s flagship CD player/DAC’s performance on standard material was significantly better than the Explorer<sup>2</sup> (as would be expected between a company’s \$299 entry-level product and \$22k

flagship), but less dramatically better when playing MQA files. The MQA decoder knows what DAC chip it is driving and can correct for certain DAC shortcomings. The Explorer<sup>2</sup>’s less-expensive DAC chip apparently benefited to a greater degree from this aspect of MQA than did the superior DAC chip in the 808v6.

When decoding MQA files on my desktop system, through headphones, or even at the front of a world-class reference system, the Explorer<sup>2</sup> sounded stunningly great. It delivers, to a surprising degree, the MQA experience I described elsewhere in this issue. Playing MQA files, the Explorer<sup>2</sup> has that sense of realism and presence that defines MQA. This was largely because of the increased dimensionality, along with the removal of the glassy hardness overlaying instrumental and vocal timbres. Even at the front of a massively resolving system of Constellation electronics and Magico Q7 Mk.II speakers, the MQA experience was unmistakable. Of course, it didn’t have the sonic performance as Meridian’s flagship 808v6, but it came closer than one would expect considering the 74x price disparity.

As I listened to MQA files through the Explorer<sup>2</sup> and PSB M4U 2 headphones (\$299 and \$395 respectively) on my PC, it struck me just how good this combination sounded for not a lot of money. This level of sound quality at this price would have been unimaginable not that long ago.

The Explorer<sup>2</sup> is great way for you to experience MQA for yourself, in a desktop, portable, or even home system. It’s a good-sounding DAC with conventional digital files, but spectacular when decoding MQA. It’s not the ultimate realization of MQA, but it delivers the technology’s musical essence at an eminently reasonable price. **188**

### SPECS & PRICING

Inputs: Mini-USB	Output impedance: 0.47
Outputs: Line out on 1/8" stereo jack, headphone out on 1/8" stereo jack	ohms
	Dimensions: 4" x 1.25" x 0.7"
	Weight: 1.76 oz.
	Price: \$299



# Sony PHA-2 DAC/Headphone Amplifier

Road Warrior

Steven Stone



**A**s part of its “high-resolution initiative” Sony has rolled out several exciting new products during the past year including the HAP-Z1ES and HAP-S1 digital players, the NW-F887 portable player (Asia only), and the PHA-2 portable DAC and headphone amplifier. I reviewed the HAP-Z1ES in Issue 241. It proved to be an outstanding value that has shaken up the digital audio player marketplace.

The Sony PHA-2 portable headphone amplifier and DAC was created to be a digital “bridge” product, designed to improve the sound from smartphones, iPods, iPads, and computer USB sources. For the on-the-go audiophile who wants to own and carry only one DAC/headphone amplifier on his travels, the Sony PHA-2 could be just what the traveler ordered.

## A Tech Tour

The 270-gram (0.6-pound) PHA-2 is housed in an aluminum enclosure that features a zinc-alloy bumper as well as a unique rail/edge design. It has provisions for digital inputs from a PC via a micro-USB, or an iPad/iPhone/iPad via a standard USB, or a high-resolution-supported

Walkman via Sony’s own proprietary mini-USB connector. The PHA-2 also accepts analog via a mini-stereo input that doubles as a line-level output. Outputs include one mini-stereo headphone output plus the line level. One side of the PHA-2 has a pair of toggle switches to select between the line-level and headphone outputs and to choose the normal or high-gain amplifier-output levels.

Controls on the PHA-2 include a large volume knob, nestled underneath one of the alloy bumpers, that also turns the unit on and off. Next to the volume knob are two small LEDs. The “power” LED glows green when the unit is playing and also tells you the charge level of the internal rechargeable 3.7-volt 2160mAh Li-ion battery

via a series of blinks when you initially turn it on. Three blinks signify a full charge, two a partial charge, and one blink means you don’t have much time before recharging will be needed. The other LED glows red during recharging.

On the bottom of the PHA-2 you’ll find three digital inputs as well as a small toggle to select which one is currently active. If you’re looking for a mute button or any way to navigate through a music library, you won’t find it on the PHA-2. Whether you’re using the PHA-2 as a DAC or as a headphone amplifier, Sony assumes that any device you hook up to the PHA-2 will have its own navigation and playback controls. During the review period I used the PHA-2 tethered to a variety of devices including an iPhone 5 (via a direct-digital lightspeed-to-USB connector) the Astell&Kern AK100 (via the analog input), the Astell&Kern AK240 (via analog), and several of my Macs via the micro-USB digital input.

The PHA-2 DAC section supports a wide variety of digital formats including PCM up to 192/24, and DSD 2.8 (64x), and DSD 5.6 (128x) via any of its digital inputs. Sony’s technical literature notes that DSD 5.6 is not available for the Mac (with Audirvana Plus software 128x material is automatically converted to 176.24 PCM for playback). The PHA-2 employs an asynchronous USB 2.0 transfer mode that uses a proprietary driver for Windows; no drivers are needed for Mac.

## Setup and Use

With all the portable and computer playback devices I tried with the PHA-2 setup was virtually plug-and-play. The only “tricky” part was selecting the right position for the PHA-2’s digital-input toggle switch. Occasionally, when going from DSD material to WAV on my Mac, I could “trick” the PHA-2 into spitting out

noise instead of music. Resetting the audio preferences in Audirvana Plus quickly solved this minor glitch.

Battery life on the PHA-2 is spec’d from 7 to 15 hours. If used as a DAC/headphone amplifier the figure will be the lower number; if used solely as a headphone amplifier you can expect battery life to be closer to the fifteen-hour figure. Recharging the PHA-2 can only occur while it is not playing music. This means that if you use the PHA-2 as your PC’s DAC you need to turn the volume to “off” at the end of the day if you want to have a full charge for the next day’s playback. If you forget to turn the PHA-2 off, yet leave it attached to your PC, it will *not* automatically recharge overnight.

One clever ergonomic feature on the PHA-2 is the “rail” edges. These edges are for attaching the two stretchy rubber straps that are designed to hold your playback device so it’s firmly connected to the PHA-2. I used the bands with the iPhone 5 as well as the Astell&Kern AK100. In both cases you end up with a fairly substantial mass that is too thick to fit in anything except a large cargo-pants pocket (if carrying your player and phone in your pocket is your plan.) Also, when you add the weight of the PHA-2 to your portable playback device, you are very likely to wind up with a package that weighs close to, and in some cases even more than, a pound.

If you want to use the PHA-2 as a DAC in a desktop system you’ll discover several minor ergonomic issues. First, with an analog source, such as the analog output from the Astell&Kern AK100, you will need to use the headphone rather than the analog-out to drive your preamp or powered speakers, since the analog output also doubles as the analog input. Also if you need two outputs, such as when you want to drive a

## EQUIPMENT REVIEW - Sony PHA-2 DAC/Headphone Amplifier

set of speakers and a subwoofer, since the PHA-2 only gives you a single analog output you will have to split the signal in two via a jumper or Y connector, or get your amplifier/monitor-speaker feed via the pass-through from your subwoofer.

I used the PHA-2 with a variety of headphones from high-sensitivity models such as the Westone ES5 and Ultimate Ears IERM to more power-hungry cans such as the Audeze LCD-2, Mr. Speakers Alpha Dogs, and Beyer Dynamic DT-990 600-ohm version. With the Beyer Dynamic DT-990s headphones I did long for slightly more gain and volume when I listened to my own live concert recordings, even with the high-gain setting engaged. The Mr. Speakers Alpha Dogs and Audeze LCD-2 headphones had just enough gain to deliver satisfying volume levels with my own source material. With high-sensitivity in-ears, such as the Westone ES5, which exhibit hiss with many headphone amplifiers, the PHA-2 was dead silent with lots of gain, making it one of the most compatible portable headphone amplifiers I've used with the ES5s.

If you are looking for a headphone amplifier to drive especially inefficient headphones, the PHA-2 should be auditioned to see if it will deliver adequate power. Some prospective owners will undoubtedly be disappointed that the PHA-2 can't drive everything in their headphone arsenal, but in my experience finding one headphone amplifier that works equally well with all kinds of headphones is something of a fool's errand. A more reasonable goal is to find a headphone and headphone amplifier that have synergy together. For my uses the PHA-2 proved to be ideal with highly efficient headphones such as the Westone ES-5 and Ultimate Ears IERM, and certainly

adequate with most medium-sensitivity cans. The new Oppo PM-1 headphone was an especially good match for the Sony PHA-2.

### Sound

Since the primary reason for choosing the PHA-2 over other DAC/headphone amplifiers such as the ADL X1 is the PHA-2's DSD capabilities, I spent a majority of my critical listening time playing my own live on-location DSD recordings through the PHA-2. One of my more recent recordings was done at a house concert in Boulder, CO, using a pair of Alesis/Groove Tube GT AM30 FET microphones with cardioid capsules to capture a performance by the mandolinist/clarinetist Andy Statman accompanied by Jim Whitney on acoustic bass. The microphones were set up approximately five feet away from Statman and Whitney in a coincident pattern. Statman's spirited playing provided material with an extremely wide dynamic range as well as a rich harmonic palette. Listening with the PHA-2 tethered to my Ultimate Ear IREMs, which were the in-ear monitors I used while originally making the recording, I was instantly transported back to the moment the recording was made. It was as if I were listening to the live microphone feed, hunched over my Korg MR-1000, making sure that my levels were spot on. Even during Statman's most frenetic and dynamic clarinet solos the PHA-2 never had the slightest feeling of stress or dynamic constriction.

On the audience's applause between numbers the PHA-2 did a superb job of preserving all the subtle location cues as well as the not-so-subtle fast transients that clapping hands create. Frequency extension and tonal accuracy through the

PHA-2 were especially good on Whitney's acoustic bass. I could hear not only the primary transient energy pulse of his plucked notes, but also the way the acoustic bass bloomed as the notes spread out through the room after the original attack.

When I switched to using the PHA-2 as a DAC/preamp connected directly to an April Music Eximus S-1 power amplifier driving a pair of Audience Clair Audient 1+1 speakers in a nearfield setup, I was once more impressed by the PHA-2's sonic abilities. All the dimensional and locational cues were preserved accurately by the PHA-2. I could even tell when Statman pointed his instrument in a slightly different direction, from the way the room's reverberation and bloom changed. It was also easy to differentiate the direct sound from sound reflecting from the back wall, which was only a foot or so behind the players. When Statman switched to mandolin all of his characteristic contrapuntal humming (similar to Glenn Gould's famous vocalizations) could be clearly heard and located in space, several inches above his mandolin. The PHA-2 also preserved the differences in room reverberance and bloom between Statman's voice and his mandolin.

Since many prospective owners will be using the PHA-2 with smartphones, I spent some time near the end of the review period with the PHA-2 tethered to my iPhone 5 via its digital lightning connector. Using several high-definition Internet radio stations as primary sources I was impressed by how involving and musical the results turned out to be. Using the "HiDef Radio" app I listened to the 128KBPS Venice Classical Radio. eu from Italy, and heard a reasonable sense of depth and dimensionality from a recording of

Brahms Piano Sonata No. 2, as well as an excellent feeling of weight and power from the piano's lower registers. Switching to Boston's WGBH at 160kbps feed on the TuneMark radio app I was greeted by a series of sonically spacious recordings that brought back fond memories of my time living in Boston and regularly attending the Thursday evening concert series.

Because I could, I also compared the sound quality of the WGBH 160kbps Internet radio feed of the Hyperion Trio playing Mendelssohn's Piano Trio Op. 49 routed from the iPhone 5 into the PHA-2 and then out to an analog input on a Wyred 4 Sound mPre with that same Internet radio feed also coming through my MacPro's iTunes into the Wyred 4 Sound mPre DAC via its USB 2.0 connection. After matching the output levels, I found it was virtually impossible to tell a difference between the two radio feeds. Both were equally spacious, dynamic, full-range, and detailed. When the program material changed to the BSO conducted by James Levine playing Mozart's Symphony No. 14, I was immediately aware on both sources of the slightly astringent sound of the string section and the overly reverberant recording technique.

### Conclusion

Some prospective owners may find my main ergonomic issues with the PHA-2 are its greatest strength—its solidity and weight. The PHA-2 isn't even close to being in the running as the most "travel-friendly" portable DAC/headphone amplifier I've used, weight-wise. Compared to the Resonance Herus or AudioEngine A3, the PHA-2 is massive. When I recently attended AX-PONA in Chicago I opted to carry the Astell&Kern AK100 as my primary portable audio device be-



## EQUIPMENT REVIEW - Sony PHA-2 DAC/Headphone Amplifier

cause of its much lighter weight and far smaller footprint. If faced with equal levels of travel-induced trauma, the PHA-2 would undoubtedly survive better than the AK100, but at the cost of its additional weight and bulk.

As consumers demand more “one-box” solutions for computer and portable-audio playback, we’re beginning to see a steady stream of new DAC/headphone-amplifier products designed for both home and travel use. The Sony PHA-2 offers a lot of capabilities and excellent sound for under \$600. But since no one device can do everything, prospective owners should look at the PHA-2’s feature set carefully to ensure that it does what you need it to do. If you plan to use it with especially difficult-to-drive headphones, you should definitely audition it with those headphones before making a final purchasing decision. While the PHA-2 does drive higher-impedance headphones such as the 600-ohm version of the Beyerdynamic DT-990 with more authority than the Astell&Kern AK100, most users are unlikely to carry this type of headphone while traveling. For those audiophiles who strongly favor a difficult-to-drive headphone, the PHA-2 will be a better option than the headphone amplifiers built into most portable devices. Also for owners of highly sensitive, custom, in-ear monitors, who are tired of listening to the low-level background hiss that emanates from many headphone amplifiers, the PHA-2’s lack of noise and hiss could make it an ideal pairing for the Westone ES5 as well as many other custom high-sensitivity in-ears. **tas**

I auditioned the PHA-2 with the superb PSB M4U headphones and an Astell&Kern AK120. In this context, the PHA-2 was a remarkable performer, infusing the music with wider dynamics and a more open soundstage. But it was in the bass where the PHA-2 shone. This headphone amplifier extended the bottom end and restored a sense of weight and body to acoustic and electric bass, as well as providing greater solidity and impact on kick drum. Overall, the PHA-2 rendered a significant upgrade in my headphone listening experience. In addition, the ingenious strapping system that allows you to attach your portable player to the PHA-2 greatly increased this amplifier’s appeal. –Robert Harley

### SPECS & PRICING

<b>Digital inputs:</b> USB Micro-B input (for charging & PC), USB Mini-B input (for Walkman), USB Standard type A (for iPod/iPhone/iPad)	10% distortion)
<b>Recharging time:</b> Approx. 7 hours	<b>Battery type:</b> Built-in lithium-ion rechargeable battery
<b>Outputs:</b> Phones (stereo mini-jack, only 3-pole supported), Audio In/Line Out (stereo mini-jack, only 3-pole supported)	<b>Battery life:</b> Analog connection, approx. 17 hours; digital connection, approx. 6.5 hours
<b>Analog input:</b> One	<b>Battery charging:</b> Approx. 7 hours from empty to full-charge
<b>Output power:</b> Approx. 165mW+165mW (8-ohm, 10% distortion); approx. 90mW+90mW (32-ohm, 1% distortion); approx. 25mW+25mW (300-ohm,	<b>Input voltage:</b> Maximum: 1V RMS
	<b>Dimensions:</b> 2.67" x 1.14" x 5.5"
	<b>Weight:</b> 4.2 oz. (rechargeable battery included)
	<b>Price:</b> \$595
	sony.com

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# Rotel RDD-1580 DAC

Great Digital Made Affordable

Spencer Holbert



It's an amazing time for computer-based audio. It wasn't too long ago that DACs connected to a PC or Mac were limited to CD-quality resolution and relied heavily on upsampling or multiple conversions to match the capabilities of transports. What's better than a computer that manages a seemingly unlimited number of high-res songs at 192kHz/24-bit (or higher)? Here's what: the fact that you can now own an entire computer-based system at a fraction of the cost of components from just a couple years ago, without sacrificing sound quality. As with all facets of life there will always be über-expensive gear that can do it better, but the new \$799 Rotel RDD-1580, with its myriad inputs and superb design, represents an affordable option that won't become obsolete in a few years. Plus the RDD-1580 is more than just a checklist of features; it's a true hi-fi component with gripping sonics that run with the best of 'em without running you into debt.

## Back to Basics

First and foremost, a DAC should have the ability to handle any digital input you could ever hope to use. There's no point in purchasing one component for your transport, another for your computer, and then another for your

iPod. The Rotel RDD-1580 has six inputs: two optical TosLink, two digital coax, one computer USB, and one iDevice USB on the front panel. It's easy to scoff at that last one, because the front-panel USB input is limited to 48k/16, but it's a great option when friends come over and

want to play "that new song you just have to hear" without the hassle of ripping the music from their iPhone or iPad onto your computer. The front-panel USB input also doubles as a charger, which was super-helpful when my iPad—aka my computer-audio command center—ran out of juice.

For high-res computer audio, I connected the RDD-1580 via USB and TosLink to my iMac with an external 12TB RAID NAS drive, selected the Rotel under outputs, then fired up iTunes with Amarra Hi-Fi. It's nice that most Macs feature optical and multiple USB outputs, because that not only allows for easy A/B comparisons from the same source, it also allows for comparisons with multiple DACs. Like I said, it's an amazing time for computer-based audio.

Maybe I'm a bad reviewer for admitting this, but I no longer use a transport for SACDs—I

rip all of my SACDs to my computer using a Playstation 3. Caveat: This requires an older firmware version that can read SACDs and convert them into an ISO file, then more software to convert the files into PCM that can be streamed to your DAC, all of which can be a little daunting for a newcomer to computer-based audio. If you have a large collection of SACDs, a transport is still the easiest option; but if you're up to the challenge it can be fun—yet very time-consuming—to finally transfer those SACDs to your computer and break free of the physical constraints of changing discs. This topic probably warrants an entire article, but let's get back to the DAC.

Rotel has long been known for high-quality components at an affordable price, and the RDD-1580 is no exception. Unlike most DACs in the same price range, the RDD-1580 features two Wolfson WM8740 converters—one for each channel—a Rotel-designed toroidal transformer, and slit-foil capacitors to supply the DAC with great power. If you've been following DAC technology for a while, you'll know that sound quality is not just about the quality of the converters, but also the digital filters, output stage, and power supply; in this regard the "dual-mono" design of the RDD-1580 really shines. Unless you are getting into DSD, this DAC has everything you need to rule the digital world. Oh, and it has a remote! More on that in a bit (pun intended).

## Bits, Bytes, and the RDD-1580's Sonic Capability

If the world of digital audio were simply eight bits in a byte, any ol' DAC would do. It's the



## EQUIPMENT REVIEW - Rotel RDD-1580 DAC

aggregate design that counts, not just the mathematical sum of its parts. When I listened to the RDD-1580, it was obvious that Rotel always had high-quality analog sound as its goal. Sound quality seems to be an afterthought for many sub-\$1000 DACs that have the capability to handle 192/24 PCM signals; heck, there are \$30 DACs that can do this. For those of you who remember the early mindset when turntables were simply something that spins a record, this will be a little *déjà entendu*.

When testing DACs, my go-to music is always something from the Ultimae record label, purveyors of incredible ambient soundscapes from artists like Aes Dana, Solar Fields, Hol Baumann, and Carbon Based Lifeforms. This type of music is perfect because it's not only great to listen to, but also pushes the limits of a system in a controlled manner that orchestral movements just can't touch. Ambient music plays with soundstage width, depth, height, and extreme frequency response with lightning-fast speed. Such ambient music is like a modern-day version of classical music in that it paints a landscape and takes you on a journey, except that the sound is phasey left and right, front to back, and top to bottom.

What's amazing about the RDD-1580 is that it took the massive amount of sound from Solar Fields' *Movements* and translated it into a beautiful soundscape that was far wider and deeper than that of my comparison DAC, which retails for about the same price. On "Sol," the first track of the album, the bass seemed to rip from the ground and leap into my chair, while simultaneously the high-frequency zips-and-zaps flew from beyond the outer edges

of the speakers to land centerstage, dance in mid-air, then retreat well to the rear. With the comparison DAC the effect was "similar," but the soundstage was truncated, never extending beyond the edges of the speakers, and had about half the depth. This was using the same USB cable, the same computer—same everything. For the same price, the RDD-1580 put the comparison DAC to shame, and was far more engaging in its ability to elicit a visceral response to the music. Several times during the track "Discovering" I caught myself clenching my fists and sliding toward the edge of my seat, all because the RDD-1580 made the music that much more gripping.

I wanted to throw another variable into this aural showdown and choose an album that I have on vinyl and digital. If you haven't heard Zero 7's *When It Falls*, it's an absolute must-own. This genre-bending album employs multiple "jazz" singers—both male and female—throws in violins, pianos, electric basses, and acoustic guitars, then interlaces everything with down-tempo ambient music to create an intoxicating sound. If you've seen the movie *Garden State*, or TV shows like *Top Gear*, *CSI*, or *Smallville*, then you've heard Zero 7. So I pulled out the vinyl version of *When It Falls*, threw it on an analog setup that cost the same as the RDD-1580, and A/B compared the digital to the vinyl. I'm going to get hate mail for saying this, but on the track "Somersault," underrated jazz singer Sia Furler sounded *much* better than with the vinyl setup of similar cost, not to mention that the instruments were more distinctly defined within the soundstage. Even though I liked the "vinyl sound" more than the

digital, it couldn't compete with the RDD-1580's imaging, lack of smear, and superb dynamics. Before this, if someone would have asked me, "For \$800, should I go digital or vinyl?" I would have said *vinyl* all day long. Yet, the RDD-1580 made me reconsider that question, and then ultimately decide in favor of it over an analog front end for the same price. Yes, I'm going on record and saying that if you have \$800 and have to choose between vinyl and digital, buy the RDD-1580 first.

But maybe that was just a fluke, eh? Let's try the same vinyl/digital comparison with James Blake's "Retrograde" from his second album, *Overgrown*. This track features Blake's incredible vocal range as he hums R&B-style up and down the octaves, backed by a simple beat and piano. Yet again, the RDD-1580 easily beat out the other DAC and comparable analog front end. The RDD-1580's soundstage was deeper, the piano was spatially separate from the vocals and the beat, and everything sounded tighter. I did the same test again with Portugal. The Man [*sic*], Neko Case, Wayne Shorter, Miles Davis, ZZ Top, and dozens more, and each time the RDD-1580 outperformed the "other DAC" and the analog setup.

I wanted to do this same "triple comparison" in another system located in an entirely different room, so I went over to a fellow audiophile's house and began the process all over again. I didn't necessarily expect the same conclusions, but I was curious whether I simply preferred the sound of the RDD-1580 through my amp/speaker combination. Maybe the RDD-1580 better complements my system, I thought. After three or four hours of A/B/C

testing, it was abundantly clear that the RDD-1580 *still* sounded better than the alternatives in my friend's system. A couple days later, I received an e-mail from this friend, who had gone out and purchased the DAC for himself. If you are in the market for a DAC and have a max budget of \$1000, you would be foolish not to audition the RDD-1580.

### Other Likes, and a Few Minor Dislikes

Like I said earlier, the RDD-1580 comes with a remote, which when connected via USB controlled PLAY, SKIP FORWARD, and SKIP BACK; obviously this didn't work with the other inputs. But these controls were a little finicky:

## SPECS & PRICING

**Inputs:** Two digital coax; two optical TosLink; one PC-USB; one front-panel USB

**Output:** RCA; XLR

**DAC:** Dual Wolfson WM8740s

**Frequency response:** 10Hz-95kHz

**SPDIF LPCM:** up to 192kHz/24-bit

**Rear-panel USB:** Asynchronous, 192kHz/24-bit

**Front-panel USB:** Up to 48kHz/16-bit

**Dimensions:** 17" x 2 1/8" x 12 1/2"

**Weight:** 11.24 lbs.

**Price:** \$799

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## EQUIPMENT REVIEW - Rotel RDD-1580 DAC

The PAUSE button didn't work via USB, but if you hit the PLAY button again it would pause the track. I could skip forward and back with the respective buttons, but I couldn't fast forward, nor was there any volume-control capability. I used the RDD-1580's remote mainly because it was faster than unlocking my iPad, letting the Remote app sync, and then trying to control the computer. But ultimately I preferred using the iPad to control the computer, rather than Rotel's remote.

This next one might just be my personal preference, but the blue indicator light, which rings the circumference of the RDD-1580's power button, stays illuminated whether the DAC is on or in standby mode. Several times I thought the DAC was on when it was actually in standby, and vice versa. The only way to tell if the DAC is actually on is to look at the small input indicator light, or the sample-rate indicator. Again, this isn't a huge deal, though it is somewhat strange to not indicate on/standby individually.

Another thing that might throw a lot of people off is the fact that you need to manually switch between USB 1.0 and USB 2.0 modes by holding the PC-USB input button for five seconds (this is a one time thing). Windows users will need to install a supplied driver in order to utilize USB 2.0. For Mac users, this is already taken care

of, but I couldn't determine whether the switch from USB 1.0 to 2.0 actually made a difference in my Mac setup, because the 192kHz indicator light was illuminated before I read the owner's manual (I might have been overeager).

I really like the RDD-1580's sleek, slim design; the review sample I received came with the silver faceplate, which just so happens to match a lot of my other gear. Plus, the RDD-1580 ran surprisingly cool, which means that you could place a preamp on top of it without worries; this is most likely due to the fact that it only draws 25W when on, and less than 0.5W when in standby.

Another really cool feature is that you can stream music via Bluetooth when the supplied Bluetooth adaptor is plugged in to the front-panel USB input. The Bluetooth dongle is tiny and unobtrusive, and was a lot of fun to use when I worked on my laptop and wanted to stream music from my favorite listening chair. You can also stream music from smartphones and tablets, but I didn't test out what would happen if multiple devices tried to connect via Bluetooth simultaneously, *à la* during a party where multiple people want to play phone DJ.

Aside from these few minor things, the RDD-1580 was flawless, both in features and in sound quality. It is by far the best DAC that I've heard in this price range, and probably would beat out most DACs double or triple its price. Does it beat out a \$10,000 DAC? Sorry Rotel, but the big boys still win in overall sonics (not to mention DSD capability). But if you are looking for a DAC that costs even \$2500, don't overlook the RDD-1580. I definitely hope Rotel will let me hang on to this one a while longer. *tas*



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# Sony HAP-Z1ES

## Game Changer

Steven Stone

**A**s the flagship model for its “High Resolution Audio Initiative,” the new Sony HAP-Z1ES defines what Sony sees as the future of two-channel audio. It attempts to be easy for a naïve user to operate, yet capable of the highest audio quality. And while it’s relatively simple to make an audio product that is easy to use, very few ergonomically elegant mass-market audio devices also produce state-of-the-art sonics. Conversely, there are quite a few state-of-the-art computer audio rigs that sound superb, but require at least a bachelor’s degree in electronics with a minor in computer sciences to set up and use. Bridging the gap between these two extremes is exactly what the Sony HAP-Z1ES is all about.

### The Grand Tour

What *is* an HDD audio player? In the case of the HAP-Z1ES, it is a local network-aware device that plays digital music files. It hooks up via Ethernet or Wi-Fi to your local network and the Internet. The HAP-Z1ES contains a 1TB hard drive for storing music files; it also has the ability to use external USB drives for additional storage. And what can the HAP-Z1ES store and play? It supports virtually any format audio file, including: DSD (WSF and DSDIFF), WAV, AIFF, FLAC, ALAC, ATRAC, MP3, AAC, and WMA files.

Since it is a local-network-aware device, any music file on any computer hard-drive in your home network can be imported into the HAP-Z1ES via a proprietary application program called “HAP Music Transfer.” The HAP Music Transfer app can run on almost every PC that supports 32-bit versions of Windows or Mac OS. Besides the initial transfer of music files, the HAP Music Transfer app can also automatically and periodically transfer any new music files on designated hard drives in your home network to your HAP-Z1ES player’s HD storage.

Don’t look for SPDIF, USB, or AES/EBU digital inputs on the HAP-Z1ES player, or any digital outputs. The only hard-wired input is the aforementioned Ethernet connection, and the only outputs from the HAP-Z1ES player are analog. Located on the rear panel you’ll find a pair of balanced XLR and a pair of single-ended RCA outputs. If you are in need of digital outputs to connect to your DAC or AV receiver, the HPA-Z1ES won’t help you.

The front panel of the HAP-Z1ES is almost as Spartan as its rear panel. It has an on/off button on the extreme right, a large 3 7/8" by 2 1/4" full-color display panel in the center, and four buttons and one large knob on the left side—the four buttons are menu, back, enter, and play. The HAP-Z1ES also comes with a small wand remote that supports basic functions including play, pause, jump forward, jump back, and select tracks for play. But most users will probably want to use Sony’s new dedicated app with the HAP-Z1ES. My review sample came with a Sony Xperia tablet that had the HAP app already installed. By the time you read this review Sony will have versions available for IOS and Android devices. I’ll tell you more about the app later in the review.

While the outside of the HAP-Z1ES may be simple, its inside is full of new, sophisticated circuitry. For compressed music files Sony has developed DSEE (Digital Sound Enhancement Engine) technology, which

restores upper frequencies and the “tail” of waveforms that were truncated by lossy compression schemes. The HAP-Z1Es also includes Sony’s new “DSD Remastering Engine,” which according to Sony “combines a high-performance DSP (digital signal processing) and FPGA (field-programmable gate array) to convert *any signal* (my emphasis) into DSD128 signals. It was designed based on the know-how garnered from Sony’s 8-times oversampling and Extended SBM (Super Bit Mapping) technology for professional recorders.” Yes, you read that right: the remastering engine can convert any and all PCM music files into DSD128 format, regardless of their original sample- or bit-rate. You can, if you wish, turn off the DSD Remastering engine via the main settings menu so the HAP-Z1ES will not convert PCM to DSD.

Once a digital file has been converted into DSD128, the final step is to convert that DSD file into analog for playback. The HAP-Z1ES does this step with an analog FIR (finite impulse response) filter. Along with reducing the extreme high frequency noise inherent in DSD signals, the FIR filter system has independent right and left channels with four separate filters per channel.

A low-phase-noise liquid-crystal oscillator handles internal digital timing in the HAP-Z1ES, which acts as the master clock for all digital signals. According to Sony’s measurements, the low-noise liquid-crystal oscillator delivers 20-30dB lower noise than conventional clocks.

The HAP-Z1ES has two separate large-capacity transformers, one for the analog power supply and one for the digital supply. Both receive a special vacuum impregnation pretreatment so all the winding coils are uniformly coated with varnish. By using separate transformers for analog and digital power supplies, the HAP-Z1ES achieves separation of analog and digital signals at the circuit board level. This reduces the adverse effects of digital noise to a minimum.

Unlike many digital products, where the chassis is merely a big metal box, the HPS-Z1Es uses “Frame Beam

## EQUIPMENT REVIEW - Sony HAP-Z1ES

Chassis” construction, which Sony has used on all its ES-level products in the past. The HP-Z1ES’s base is composed of two metal plates of different thicknesses that support the main chassis. There are two additional base plates under each power transformer. Along with these metal plates, Sony employs structural beams that run crosswise to reinforce the overall rigidity and improve resonance control.

To further improve overall vibration control the HAP-Z1ES uses a new foot design that employs ribs combined with an offset connection that isolates sound pressure from external sources. Inside the HAP-Z1ES Sony uses special mounting methodologies—an example is the analog connection terminal, which is mounted separately on its own isolated board to minimize the effects of vibration. An internal cooling fan is mounted via a damping system to minimize any vibration it might generate. It is also specifically angled so that it can operate with maximum efficiency and minimum noise.

Sony’s attention to detail on the HAP-Z1ES extends even to the main dial on the front panel. It is attached to an iron plate to prevent twisting or lateral movement. Although priced at only \$1999, the HAP-Z1ES’ fit and finish certainly rivals preamps and network players costing a lot more.

### The Setup

The original set-up plan was for a Sony technical expert to fly into Denver from San Diego and set up the HAP-Z1ES for me. An especially vigorous snowstorm curtailed his visit. He got as far as the outskirts of Boulder before he

had to give up. Undaunted, I set up the HAP-Z1ES by myself without any outside technical assistance. I found that even an audiophile with limited computer savvy could install a HAP-Z1ES with little difficulty.

After unpacking the HAP-Z1ES, I placed it on an equipment rack shelf and attached its analog outputs to my preamp and connected its Ethernet input to my home network via a 100 feet of Cat 5 Ethernet cable. I could have used the HAP-Z1ES’ built-in Wi-Fi (I got a signal strength reading of 61 from the HAP-Z1ES’s built-in Wi-Fi signal strength meter), but I wanted to make sure the HAP-Z1ES was receiving the most robust signal I could supply.

After connecting the HAP-Z1ES I turned it on and went to the “Network Settings” section of the main menu. There I selected “wired set-up” and “Auto” from the IP address page. After that, the HAP-Z1ES linked to my network and I saved the configuration. For users who like reassurance, the HAP-Z1ES lets you check and confirm that the settings are “OK” before closing the network settings pages. The procedure is much the same for wireless Wi-Fi, except you have a page that lets you select your access points. If you live in a Wi-Fi-intensive environment you can pick the correct Wi-Fi network and enter your password. Near the end of the review period I switched over to Wi-Fi access and had no issues with changes to the installation or impaired Internet performance.

Once the HAP-Z1ES is connected to your home network, either via Ethernet cable or via Wi-Fi, you can transfer music files to its internal hard drive. Unlike many music servers that employ a closed system (see AHC’s review of

the Olive player), the Sony HAP-Z1ES permits you to add, store, and backup your music files onto standard USB hard drives as well as its internal drive. Although created so those new to music servers can easily use it, the HAP-Z1ES can fit into a fairly complex computer music eco-system. Sony expects the average HAP-Z1ES owner already has a library or even multiple libraries of music. With the Sony HAP Music Transfer application owners can not only transfer current music files over to the HAP-Z1ES, but also periodically and automatically copy over any new music to their HAP-Z1ES.

Initially I had some problems using the HAP Music Transfer application on my ancient Dell D620 laptop, which runs Windows XP. Even though I was running the last version of XP, the D620 did not recognize the HAP-Z1ES. After a couple of e-mails, Sony determined that the D620 was not running XP in the 32-bit mode that is needed for the program to run successfully. Any PC running a more current version of XP, Windows 7, or Windows 8 won’t have this issue. Since my ancient laptop proved to be better suited for doing firmware upgrades than running current software, I asked to see the Mac version of the HAP Music Transfer application. Sony then sent me a Beta copy of the Mac version which had just become available. It worked flawlessly.

When first used the HAP Music Transfer application has a default location for your Mac’s music library that may or may not be correct for your system. If you don’t keep your music on your primary drive you will have to change the app’s default location for your music folders. You must change the music library default or



nothing will be transferred because the app won’t be able to find your music files.

The HAP Music Transfer app supports multiple music folder locations. This means that if you and your family have separate music libraries on different computers in your home, as long as they are attached to your home network via Ethernet or Wi-Fi, the HAP Music Transfer app can move them over to the HAP-Z1ES after you’ve selected and added them to the HAP Music Transfer’s music library folder list.

Once your music folder locations have been entered into the HAP Music Transfer app, you can specify what kind of files you would like to transfer. The HAP-Z1ES supports 3GP, AA3, AIF, AIFF, DFF, DSF, FLA, FLAC, M4A, MP3, MP4, OMA, WAV, and WMA file types. And while you can transfer any and all of these formats over to the HAP-Z1ES, you might want to restrict its library to higher-quality lossless file formats. For users who’ve generated MP3 versions of their full-resolution files for their portable devices, being able to exclude MP3 files is a useful feature. By checking or unchecking the format boxes on the “Contents Settings” page of the HAP Music Transfer app, you can specify exactly which formats will be transferred. Once



## EQUIPMENT REVIEW - Sony HAP-Z1ES

you've specified file types, pushing the "Start" button will initiate file transfers. My initial transfer involved 5697 music files and required almost 20 hours to complete. You can expect the first transfer to take a while, which is why a wired Ethernet connection with its faster transfer rates is the best option.

After all your music files are transferred to the HAP-Z1ES by the HAP Music Transfer app, the HAP-Z1ES connects to Gracenote's database to acquire artwork for any files that may not have artwork. A majority of my music files already had artwork, but for some of my own recorded tracks the HAP-Z1ES found some interesting, if not entirely correct, art and attributions. On one particular track, which was a recording by my acoustic band, Knapweed, of the Bill Monroe/Peter Rowan song, "Walls of Time," the song was incorrectly attributed to Emmylou Harris and the Nash Ramblers from their *Live at the Ryman* album. I was quite surprised when I selected it; instead of Emmylou's superb vocals I heard my own pitiful croaking.

If you select "auto update" from the HAP Music Transfer program's options, during each launch it will immediately look for any new tracks in your designated music library locations and automatically transfer any new files onto the HAP-Z1ES.

In addition to playing music from your music library, the HAP-Z1ES also has a built-in Internet radio tuner. Called the "V-Tuner," this feature includes the ability to search for Internet radio stations by genre or location. It also lists the bit rate of each station so you can see exactly what quality level a station

can deliver. I quickly found the local stations that I listen to regularly and designated them as "favorites" via a heart symbol icon, which added them to a special list that I could access more easily.

Sony also added a special AI feature to the HAP-Z1ES called SenseMe channels. According to Sony, SenseMe channels is a function that analyzes and automatically categorizes music tracks according to their mood and tempo using the 12-tone analysis technology developed by Sony. SenseMe has twelve categories of music—morning, daytime, evening, midnight, energetic, relax, upbeat, mellow, lounge, emotional, dance, and extreme. These could be handy, especially if you'd like something a bit more selective than good old-fashioned shuffle mode. In my music library of almost 6000 songs, selecting "extreme" brought up 34 tracks. I guess I'm just not an extreme kinda guy.

### The HAP App and HAP-Z1ES Remote

The HAP-Z1ES comes with a silver wand-shaped remote control. It also has its own dedicated free downloadable app. The remote control duplicates all the buttons on the HAP-Z1ES front panel. It also adds jump forward, jump reverse, as well as mute and volume controls. Although the HAP-Z1ES has a fixed output level, both the volume and muting can be controlled by compatible Sony receivers and integrated amplifiers, or even assigned to products from other manufacturers, using the HAP-Z1ES's "Amp Control Setting."

The HAP control application will be available for Android phones, iPhones, iPads, and Sony

Xperia, and other Android tablets. At the time of the review, only the Android app had been finalized, so Sony included an Xperia tablet with the app installed on it. Once the app located the HAP-Z1ES on my network it worked flawlessly with no crashes or delayed responses. The app lets you choose music, make playlists, and find particular tracks in your music library. Among its extra features is a "new music" list that shows you the latest additions to your HAP-Z1ES's music library and the most popular tracks called "favorites" (in case you really enjoy playing the same tracks over and over.) One nice, yet completely superfluous feature is that the background colors of the app change in response to the primary colors in the cover art of any currently playing track.

### Day-to-Day Use

While I'm pretty sure there's a computer in there somewhere, its lack of computer-based issues has made living with and using the HAP-Z1ES on a day-to-day basis a joy. I just turn it on and it works. Whether controlled from the front panel, the remote control, or the app, the HAP-Z1ES responded to commands quickly, and except in the case of hooking up with Internet radio stations via its V-Tuner, where it sometimes took as much as ten seconds for some stations to start to play, any music on the internal HD began playing almost instantly after being selected.

While I didn't find Sony's SenseMe feature of particular value, I'm sure most users will find some use for it, if only to annoy significant others by selecting "lounge." One feature I did enjoy was the "Favorites" selection feature in

the V-Tuner. I was able to assemble a very nice list of higher-bit-rate Internet radio stations in a short time by using V-Tuner's search features.

### The Sound

As someone who has felt that the best digital reproduction comes from files that have not had their native rate changed, reading that PCM files can be converted into DSD by the HAP-Z1ES raised some red flags. But after comparing the HAP-Z1ES's DSD Remastering Engine's rendition of PCM recordings with those same files played back at their native rate through the HAP-Z1ES, I can only conclude that whatever Sony is doing in the conversion process doesn't appear to have any signature negative sonic effects. And while I wouldn't go so far as to write that the Sony HAP-Z1ES does a better job of reproducing PCM than PCM-centric DACs or HD players, it certainly is on sonic par with the best I've heard.

After an initial break-in period I did a number of A/B comparisons between the HAP-Z1ES and two streaming audio/computer based sources. The first source was a Sonos ZP100 feeding a Mytek Stereo192 DAC via a coaxial digital connection. The second source was a Mac Mini running Pure Music into the Mytek Stereo192 via its USB 2.0 connection. It took me several sessions of comparing these three systems before I could consistently recognize the HAP-Z1ES from the other sources in a blind A/B. The primary and telling difference was that the Mytek had slightly more energy in the upper midrange into the lower treble. In my system I felt the HAP-Z1ES was slightly more natural sounding with less edge. On *Ella Fitzgerald*

## EQUIPMENT REVIEW - Sony HAP-Z1ES

and Oscar Peterson, Ella’s voice had more air through the MyTek, but it had a more natural and organic tonality through the HAP-Z1ES.

In many respects the HAP-Z1ES and the Mytek DAC were very similar in their sonic presentations. Both recreated a soundstage with convincing three-dimensionality. Both also had the same level of dynamic contrast on the micro- and macro-levels. Bass extension was also a virtual dead heat with both quite capable of full low-frequency extension and subtle inner detail.

Which sound is more neutral or preferable will very likely depend on the rest of your system. If your system is on the darker side of neutral, the Mytek’s extra bit of forwardness would match quite well, while the HAP-Z1ES could sound a bit subdued and perhaps even hooded. But if your system has any tendency toward brightness, the HAP-Z1Es will probably be better received than the Mytek. There’s also something quite seductive in the HAP-Z1ES’ midrange presentation that is hard to resist.

The most difficult and least conclusive A/B test I performed during the review was comparing the DSD Remastering Engine’s DSD conversion of PCM files with those same files played back without the DSD Remastering Engine engaged. When switched back and forth there was a pause followed by about a two seconds of playback of the last snippet of music before the switchover. During that two seconds the sound was slightly different, seemingly warmer and rounder, but after that initial two seconds the sound reverted, and in blind A/Bs I could not tell whether I was listening to Remastering Engine or native output. I used



both 16/44.1 and 24/96 PCM files for this test and didn’t hear any differences when I switched between DSD and PCM on standard Red Book or higher-definition digital files.

During the A/B listening sessions I had ample opportunity to compare the HAP-Z1ES app with the “Remote” app for iTunes. I much preferred Sony’s App to Apple’s. The HAP app was easier to use and navigate. It also provided more information about tracks including the original sample and bit rates.

One final aspect of the HAP-Z1ES’ performance that deserves attention is its prowess as an Internet radio tuner. It was easily the best-sounding Internet radio I’ve heard to-date from any device. And while I didn’t hear any changes when I switched in Sony’s DSEE (Digital Sound Enhancement Engine) on my uncompressed music files, when it was activated for Internet radio the overall sound quality improved dramatically. For some prospective owners the HAP-Z1ES’ stellar Internet radio performance could be a primary reason for ownership.

### The High-Value HAP-Z1ES

In overall sonics and build-value for the dollar,

the Sony HAP-Z1ES sets new standards. A Mac Mini with monitor, keyboard, mouse, and external drives attached to the MyTek Stereo192 DAC runs over \$2500, and if you use better quality cables the price could go substantially higher. Even the Sonos ZP100/Mytek Stereo192 front end costs around \$2300 when you include a NAS drive. For \$1999 the Sony HAP-Z1ES supplies the computer, hard drive, DAC, and app to run it all. While this is a bit of a stretch, the HAP-Z1ES could be considered the iMac of HD music players—everything you need to acquire, store, and reproduce HD music files, regardless of format, in one carefully thought out and powerful box.

For audiophiles and music lovers who want to listen to high-quality digital music files without the hassles of keeping another computer working optimally, the HAP-Z1ES is an attractively priced, yet fully featured option. It also doesn’t hurt that its control interfaces are easy to use and unintimidating even for non-techy users.

Sonically, it’s difficult to fault the HAP-Z1ES. Its sound quality was such that it rivals comparably priced standalone DACs, yet delivers more functionality and won’t be made obsolete by the latest USB, FireWire, or

## SPECS & PRICING

Frequency response: 2Hz–80kHz +/-3dB	USB for hard drive, IR Remote-Out jack for IR blaster
Dynamic range: 105dB or higher	Power consumption: 35W (on), 0.3W (off), 2.8W (standby)
THD: 0.0015% or less	Dimensions: 17" x 5 1/8" x 15 3/8"
HDD capacity: 1TB	Weight: 32 lbs.
Supported playback formats: DSD (DSF, DSDIFF), LPCM (WAV, AIFF), FLAC, ALAC, ATRAC Advanced Lossless, ATRAC, MP3, AAC, WMA (2 channels)	Price: \$1999
Outputs: Unbalanced 2.0V RMS (50k ohms); balanced 2.0V RMS (50k ohms), 600 ohms	<b>SONY ELECTRONICS INC.</b> 16530 Via Esprillo San Diego, CA 92127 (858) 942-2400
External ports: Type A	sony.com

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Thunderbolt interfaces since it uses Ethernet and Wi-Fi as input connections.

Throughout the review period as I put the HAP-Z1ES through its paces, I looked for reasons the player might be not be considered a true high-performance component and found none. If you plan to spend more than \$2000 on any digital front end, whether it be an audio-computer, CD player, DAC, network player, or any other front end that uses digital files as a source, and you don’t audition a HAP-Z1ES, you are failing to consider what may well be the benchmark digital product of 2014. *tas*



# OUR TOP PICKS DACs, MUSIC SERVERS, AND DISC PLAYERS



## Oppo BDP-105 Disc Player/DAC \$1199

Few disc player/DACs can compete with Oppo's BDP-105 at its price point (or even near its price point), because the Oppo offers a seemingly unbeatable combination of versatility, flexibility and serious high-end sound quality. Clean, clear, and detail-oriented, it hews somewhat toward sonic leanness, but is far more revealing than it has any right to be for the money. With the BDP-105 what you hear is what's on the record, with no comforting infusions of softness, warmth, or bass enrichment. In sum, the do-all Oppo is a multi-format disc player and multi-input DAC with which your system can grow (and it is also the vehicle of choice for many firms offering ultra-high-performance upgrade mods). Finally, did we mention the Oppo sounds terrific when heard through its top-tier headphones?

[oppodigital.com](#) (232)



## Sony HAP-Z1ES Music Server \$1999

As the flagship model for its "High Resolution Audio Initiative," the new Sony HAP-Z1ES defines what Sony see as the future of two-channel audio. It's easy for the nascent user to operate, yet capable of the highest audio quality. If you plan to spend more than \$2000 on any digital front end, whether it be an audio-computer, CD player, DAC, network player, or any other front end that sues digital files as a source, and you don't audition the HAP-Z1ES, you might miss what may well be the benchmark digital product of 2014.

[sony.com](#) (241)



## Resonessence Herus DAC \$350

For \$350, the Resonessence Lab's Herus is one of the most future-proof bargain DACs available, with the capability to run DSD, PCM, and DXD files. Machined out of a solid block of aluminum and made in Canada, the Herus can handle headphones 32–600 ohms without issue, and it's portable. With a full-sized USB B input, those with premium USB cables at home will be able to take their high-res music on the road and enjoy all the capabilities of an at-home DAC without the at-home hassle.

[resonessencelabs.com](#) (245)



## Meridian Explorer<sup>2</sup> MQA DAC \$299

The Explorer<sup>2</sup> is the first DAC available to decode Master Quality Authenticated (MQA), a new digital format that delivers better-than-high-res sound quality in a file size that can be easily streamed. This small oval tube of a DAC is designed for personal listening, but with both line output and a headphone jack, can be used in a home system. The Explorer<sup>2</sup> has one mini-USB input at one end of the oval tube, and stereo 1/8" line-out and headphone-out jacks at the other end. The Explorer<sup>2</sup> is great way for you to experience MQA for yourself, in a desktop, portable, or even home system. It's a good-sounding DAC with conventional digital files, but spectacular when decoding MQA. It's not the ultimate realization of MQA, but it delivers the technology's musical essence at an eminently reasonable price.

[meridian-audio.com](#) (263)



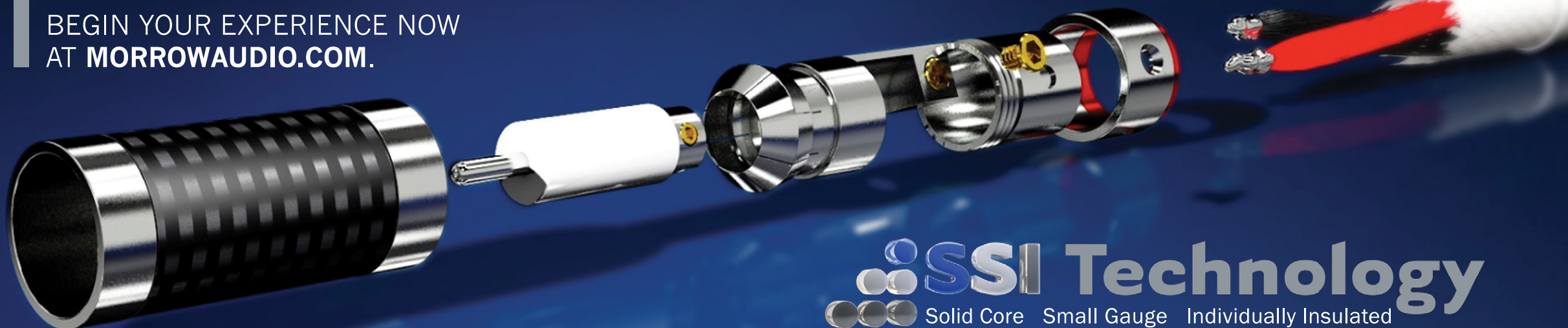
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# Audioengine HD6

Crossover Vehicle

Neil Gader

**F**or any audio company, making the leap from the desktop to the listening room is not the simple, slam-dunk proposition it might appear to be. The goals are often at odds with each other and require different skill and feature sets. The desktop experience is more intimate and personal, while the listening room is more inclusive and often shared. Audioengine, however, is not just a loudspeaker company. With an innate grasp of the market, its strength as a desktop and personal listening specialist involves a panoply of products from powered speakers, to DACs, to wireless systems, to accessories, and cables. The new HD6 loudspeaker is arguably the most versatile piece of gear Audioengine has come up with yet. Powered, DAC-equipped, and Bluetooth-enabled, the two-way HD6 is comfortable on a desk or shelf, or flanking a flat panel, or set out in the room on a pair of stands. The HD6 is a crossover product like few others.

The \$749-per-pair HD6 is more than an attractive loudspeaker. Much more. It's a complete audio system that only needs a source as humble as a smartphone to it get up and running. Separate components and wires? Thanks to the HD6's built in Bluetooth you won't need 'em. Or perhaps you'd like to hook up an old-fashioned source

component like a CD player or even something *really* ancient like a turntable via a phonostage. No worries—there's also a pair of analog inputs. No muss, no fuss.

There are a lot of features built into the HD6, but its ultimate success hinges on the loudspeaker's quality. The HD6 is a two-way

compact, roughly a foot tall. The bass-reflex enclosure has a rear-mounted, horizontally slotted port. Each HD6 employs a ferrofluid-cooled silk-dome tweeter with a neodymium magnet. The woofer is a 5.5" Kevlar/woven-glass/aramid composite with a rubber surround. It's housed in a cast aluminum frame for rigidity and increased heat dispersion. The cabinets are available in several finishes, including walnut and cherry veneers as well as satin-black paint. Also included are detachable grilles with hidden neodymium magnets.

The right speaker accommodates the brains of the operation—amplifiers, DAC, and Bluetooth, as well as a set of analog inputs and an optical digital input. You'll know the right channel immediately by its front panel power light and volume control (an all-analog design). The left speaker connects to the internal amplifier in the right channel via an included banana-terminated speaker umbilical. The amplifiers in the HD6 are Class AB analog monoblock designs with an output of 50Wpc RMS, but capable of 75W peaks. The circuit boards for the power and preamp sections are vertically mounted for mechanical shock protection. Audioengine also touts the use of gapless-core toroidal transformers, which have a more tightly radiated magnetic field. Translation: lower noise. AE points out that its toroidals are lighter than standard, lower-cost "EI" transformers and also generate less heat.

Keep in mind that the HD6 is not a fully active loudspeaker system. The internal crossover is passive in contrast to professional "active" monitors that insert an electronic crossover in front of each discrete amp per transducer—sending only the audio signal required for that specific driver. The HD6 is more like a

conventional amplifier/loudspeaker rig, only with *all* the electronic bits and bobs squeezed into a single speaker. Given the tight internal confines, the HD6 sports an oversize aluminum heatsink on the rear panel of the master speaker to address any potential thermal issues. An amazing piece of packaging sleight-of-hand, if you ask me.

The HD6's Bluetooth features aptX coding—an advanced audio codec that's also backwards-compatible with almost any BT device. How extended is its range? Answer: In the real world it all depends on the home, but I found its performance suitable to any medium to large room depending on the home's construction and floor plan. Both the BT receiver and optical input utilize the AKM AK4396A DAC, widely known for its low-noise and fidelity. The optical input configures the AK4396A as a bit-perfect 24-bit DAC, and can accommodate sample rates up to 192kHz.

## Instant Gratification

Setup is devilishly easy, even for someone like me, who invariably cringes at the prospect of "pairing" devices (it's a childhood issue, like eating lima beans). But the AE team couldn't have made the task any simpler. With my smart device at the ready, an iPad, I only had to power on the right/master speaker and press the "pair" button. Within seconds I'd identified the HD6 within the Settings/Bluetooth submenu of my iPad's System window and selected "Audioengine HD6." I was literally streaming my Oldies playlist in seconds with very good musical results. Bluetooth response was stable with only a few dropouts over the course of the evaluation. When all was said and done, however,



# EQUIPMENT REVIEW - Audioengine HD6

I spent most of my listening sessions running the elite Esoteric K-03X SACD player and a Blu-ray player through the analog and optical inputs. The HD6 was positioned on heavy stands, a good two feet or so from back and sidewalls.

I listened to the HD6 in the manner that I imagined many listeners would—a combination of music and movies. It's well suited to both of these genres but sonically tipped in favor of a cinema balance. By that I mean it makes voices intelligible without getting edgy, and has the weight and dynamics to lend credibility to an action/adventure soundtrack. It also creates a strong center image, crucial to the cinema experience in the absence of a true center channel. It did a marvelous job contributing to the immersive atmosphere of the harrowing mountain climbing documentary *Meru*. The sensational soundscape of arctic winds buffeting the climbers at twenty thousand feet sent more than a few chills up my spine and added greatly to the thrillingly vertiginous cinematography.

In tonal balance, the HD6 offers a forgiving, ear-coddling midrange—a warmer, slightly darker balance that was effective at conveying big sound from a small box. Bass response was largely very good, if a little overly enthusiastic in the upper midbass. This added oomph in the 80-150Hz range is not uncommon among mini-monitors. Like a loudspeaker equipped with a much larger woofer, the HD6 creates an illusion of bottom-octave extension. Although not perfectly flat in frequency response, its bass has been tailored pleasingly, with commendable control and usable extension into the 50-60Hz range—certainly enough to provide excitement while listening to large-scale music, a feature

I noted immediately during the final moments of Vaughan-Williams' *Antartica* [Naxos] when the orchestra, playing at full tilt, is suddenly interrupted by pipe organ, emerging like a leviathan from the musical depths. That's a lot of information, and the HD6 traversed this territory with confidence and clarity. Indeed, it's a game little speaker, with very good midrange dynamics. Don't expect it to reproduce the full impact of timpani mallets upon the big drumhead or the complex canvas of cavernous hall reverberations from a pipe organ. Yet, as I discovered, it didn't shy away from these challenges, either.

The HD6 exhibits a conservative signature in the treble range. As I listened to Norah Jones' "Come Away With Me" [Blue Note], I noted that her vocal sibilance was more subdued, and the intensity of brushed cymbals



was moderated somewhat. Likewise, during Copland's *Fanfare* [Reference Recordings], the lusty brass ensemble was a little less immediate than I've noted in the past, but presented with a fair amount of air—overall a little rolled-off but musically convincing, nonetheless. As I listened to the Beatles' "Hey Jude" on the HD6 I detected a small subtraction of presence and snap in Paul and John's harmonies and a general ceiling over the soundstage. I then reverted to my own, much pricier ATC SCM20-2SL two-way monitors for comparison. The height component of the crisply struck tambourine returned to the mix, as did the vocal transparency of Paul and John's vocals [*Past Masters*, Apple].

Yes, these are the sorts of trade-offs that small loudspeakers confront all the time, but I rate the HD6 sonics far preferable over the long haul than the hyper-detailed and bass-starved

mini-monitors that were once the rage years ago, when such "lil' screamers" were taking the world by storm. Mini-monitors are about making hard choices in tonality and dynamic output. I like and admire the direction AE has taken the HD6.

Is the HD6 for you? First, you might consider how you plan to listen to music—now and in the future. A smart device-only system of today might very well handcuff you down the road. However, the HD6 is intelligently designed to grow with your changing tastes and listening habits. I can tell you from personal experience with my nieces and nephews—millennials all—that the HD6 is quite what the audio doctor ordered in their regard. A genuine performer, it's attractive, flexible, and user-friendly. Indeed, it's hard to imagine a "tweener" rig that does more for less than the HD6. Truly the little audio engine that could. tas

## SPECS & PRICING

<b>Type:</b> Self-powered wireless loudspeaker	<b>Frequency response:</b> 50Hz-22kHz +/-1.5dB
<b>Inputs:</b> TosLink optical, Bluetooth aptX, 3.5mm stereo analog, left and right RCA analog	<b>Dimensions:</b> 7.25" x 11.75" x 10"
<b>Codecs supported:</b> aptX, AAC, SBC	<b>Weight:</b> Right speaker (powered) 17.5 lbs.; left speaker, 12.5 lbs.
<b>Amplifier type:</b> Analog dual-class A/B monolithic	<b>Price:</b> \$749
<b>Drivers:</b> 5.5" Kevlar woofer, 1" silk-dome tweeter	<b>AUDIOENGINE USA</b> audioengineusa.com (877) 853-4447

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# Elac Debut B5 Loudspeaker

## The Teaser

Neil Gader

**T**he Elac Debut B5 is a rarity in the high end. It's little, it's vinyl-clad, and it's cheap, yet it has still managed to generate the kind of buzz normally reserved for blockbusters. Part of the reason for this buzz is that the B5 represents a new era for Elac, an old-guard German speaker-maker. But most of all, the hype is because it sounds terrific, costs a humble \$229 per pair, and is the first effort in what many hope will be a long and fruitful collaboration between Elac and the celebrated designer Andrew Jones, who recently joined the company after a stellar career with KEF, TAD, and Pioneer.

Physically unimposing, the B5 is similar in size to the celebrated, Jones-designed Pioneer SP-BS22—a \$129-per-pair stunner that people snapped up like collectable baseball cards. The B5, however, is bigger in all the right places. Compared with the BS22, it's outfitted with a mid/bass driver that at 5.25" is an inch and change greater in diameter. The 1" soft-dome tweeter uses a custom waveguide for improved dispersion. The all-MDF bass-reflex cabinet has a larger interior volume. At a meager \$229 a pair it's also bigger in its intentions.

Sonically it's a speaker that's as good as (or better than) the SP-BS22 in all criteria. It's more refined and dynamic across the board, plus there's greater bass extension on tap and a stronger feel for the body and scale of live music. It's robust in the mid and upper bass, although at times you can hear some port-tuning—

but that comes with the territory of a single five-inch woofer in a teeny cabinet. The B5 just feels and sounds more substantial. You can give these babies a little more gas and not cringe for fear of smoking a driver. Not to burst anyone's bubble, but sorry, the B5 can't match the refinement of Jones' own mega-efforts (and he'd likely be the first to admit that). Cello resonances, a swelling bass-viol section—these are more suggestion than reality, and the tweeter is a bit dry, yet imaging is spot-on, and there's better than average soundstaging.

What makes the B5 so effective? It's certainly not its parts cost—there are capacitors that cost more than these numbers. The difference is how everything comes together in such an exquisitely balanced, musical fashion. My own unofficial panel of non-audiophile listeners instinctually connected with the basic honesty of the B5 sound and was confounded by its bargain-basement price.

I'll have more to say about the B5 and its floorstanding brother, the F5, in a forthcoming issue. However, in the meantime what Jones and the team at Elac have managed to wring from this most humble of designs is nothing short of exceptional. One can only imagine what's in store down the road, and in truth, this is really what the buzz is all about: the future. It's clear to me that Jones, who is an avid archer in his spare time, has a great many more arrows in his quiver. And his first shot for Elac is a bull's-eye. *tas*

## SPECS & PRICING

<b>Type:</b> Two-way, bass reflex	<b>Sensitivity:</b> 85dB
<b>Drivers:</b> 1" cloth-dome tweeter with custom deep-spheroid waveguide, 5.25" woven aramid-fiber mid/bass cone with oversized magnet and vented pole piece	<b>Dimensions:</b> 12.75" x 7.87" x 8.75"
<b>Frequency response:</b> 46Hz-20kHz	<b>Net weight:</b> 11.5 lbs.
<b>Nominal impedance:</b> 6 ohms	<b>Price:</b> \$229/pr.
<b>ELAC AMERICA</b> 11145 Knott Avenue, Suites E & F Cypress, CA 90630 elac.us	

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## Elac Debut F5

### The Main Event

Neil Gader

One of the great stories in the high end for 2015 is the resurgence of the venerable German loudspeaker company Elac, and its hiring of one of the industry's top designer/engineers Andrew Jones. Jones, formerly of KEF and TAD, wasted no time getting to work, and within a few short months brought to market the Debut Series, an entry-level lineup of loudspeakers. Recently I wrote about the Elac Debut B5 (Short Take, Issue 259), a two-way compact with mighty intentions and an unpretentious \$229-per-pair sticker. There, I heralded its class-shattering performance and sonics, and the stupendous value that the speaker represents. However, there's no harm in admitting that even a mighty-mite like the B5 may not meet every audiophile's

expectations for dynamic output and bass extension, right? That's why I also called the B5 "the teaser"—a compact that even within its limits seemed to auger much more to come. Presenting, the "much-more-to-come" Elac Debut F5.

Before the cartwheels begin, a quick description. The F5 is a three-way floorstanding loudspeaker in a bass-reflex enclosure. It has the same basic DNA as its smaller sibling, the B5. The form factor is virtually the same: It looks like the B5 after a teenage growth spurt—a good two feet of cabinet, to be exact. The driver components are identical. The F5 uses the same cloth-dome tweeter, which thanks to the deep spheroid waveguide provides good off-axis dispersion that doesn't lock the listener within a narrow sweet spot or leave an adjacent listener out in the cold. Also carried over is the 5.25" woven-Aramid woofer with an oversized magnet and vented pole piece. But the quantity has grown from a single mid/bass driver to three woofers, or more accurately, a mid/bass and twin woofers.

Crossover points are specified at 100Hz for the mid driver, which in turn, hands off to the tweeter at 3kHz. Internally the upper third of the black brushed-vinyl cabinet is sectioned off to isolate the mid/bass and tweeter, and there are twin horizontal braces to further stiffen the cabinet and prevent unwanted resonances. The bass-reflex configuration uses a single port for the uppermost tweeter/midrange section while the bottom section of the cabinet has two ports.

In sonics, the pint-sized B5 would be a tough act to follow under most circumstances, but the F5 still manages to steal the show. It takes the strengths of the B5—a warm, relaxed, and responsive midrange, surprising bass extension and tunefulness, a lack of cabinet and port colorations, and a strong sense of musical truth, then significantly builds on them. In sonic criteria like tonality, micro- and macro-dynamics, and

transient speed, the B5 and F5 have got the essentials down pat. As I listened to Ana Caram singing "Fly Me To The Moon," accompanying herself on a nylon-strung acoustic guitar, there were all the familiar cues—her gentle, airy vocals, the warm, subdued resonances of the guitar, and an expansive, immersive ambience that put me in mind of white sand beaches and soft tropical breezes. Turning to Christopher Cross' eponymous debut LP, I felt the Elac accurately captured the vocal balances of Christopher Cross' vocal and Michael McDonald's classic harmony. It caught the distinctive rhythmic "gallop" of the backing percussion section, while the rising string section arrangements were nearly as accurate to my ear on the B5/F5 as they were on my reference ATC—the passive version of the pro model, known for its tonal accuracy.

However, the main reason why many audiophiles (including myself) might opt for the F5 over the B5 is midrange and low-frequency dynamics. Take the Bach Cello Suite, for example. Correctly reproducing the initial transients off the bow and the thick, deep, trailing resonances of this instrument has foiled all levels of loudspeakers, but the F5 does a much more than credible job at capturing the full-throated voice of this instrument. And, as I listened to the Manhattan Jazz Quintet's version of "Autumn Leaves" it was as if someone had opened the dynamic floodgates. Compared with the B5, bass lines were reproduced with more accurate pitch and greater dynamic potency, while Lew Soloff's tricky-to-handle trumpet blasts had the speed and authority of a much bigger and sturdier old-pro speaker, costing many times the F5's price.

Although both models provide copious amounts of midbass energy, the biggest thing that distinguishes the F5 over the B5 is the sheer volume of air that the F5's additional woofers can move. For classical music listeners and "big music" peeps this has ramifications beyond mere bass extension and output—areas where the F5 already outpoints the B5. The F5 creates orchestral scale



## EQUIPMENT REVIEW - Elac Debut F5

and scope that paints a much more convincing and deeply dimensional landscape of a large ensemble performing in a concert hall.

Vocalists of all stripes and genders shine on the F5 with performances that are fully fleshed out with chest-resonance weight and bloom. Take “Sabra Girl” by Nickel Creek—the Elac captures the delicacy of the arrangement with the acoustic flattop and mandolin sailing and swirling around Sara Watkins’ vocal and harmonies. And then there’s the issue of backbone. The F5 doesn’t need a gut-check when called upon to play back the tortured, gritty, crunchy distortion of George and John’s electric guitars as they pegged the meters during the “fast” version of “Revolution.”

Let’s get a couple nitpicks out of the way. Neither the B5 nor the F5 is a flawless loudspeaker—although it could be effectively argued that they’re as faultless as a speaker is likely to get at these prices. Nonetheless, the tweeter remains a bit on the dry side, and the upper harmonic range could be more extended and open. Along those same lines, the F5 doesn’t always disappear as a source and there are intimations of tweeter localization.

Also as good as its dynamic strengths were at medium-loud levels, when called upon to summon the reserves necessary to reproduce Stewart Copeland’s kickdrum during the opening of “Murder by Numbers,” the F5 grew a little shy and compressed. Imaging, though very good for this segment, did lack a bit of focus and specificity. For the most part the F5 enclosure does a stupendous job, and there is very little in the way of port noise or other effects; however, there’s a small sense of the enclosure absorbing

### SPECS & PRICING

<b>Debut F5</b>	bass-reflex
<b>Speaker type:</b> Three-way, bass-reflex	<b>Drivers:</b> 1" cloth-dome tweeter with custom deep-spheroid waveguide, 5.25" woven aramid-fiber mid/bass cone with oversized magnet and vented pole piece
<b>Drivers:</b> 1" cloth-dome with custom deep-spheroid waveguide, (3) 5.25" woven aramid-fiber cone with oversized magnet and vented pole piece	<b>Frequency response:</b> 46Hz-20kHz
<b>Frequency response:</b> 42Hz-20kHz	<b>Nominal impedance:</b> 6 ohms
<b>Nominal impedance:</b> 6 ohms	<b>Sensitivity:</b> 85dB
<b>Sensitivity:</b> 85dB at 2.83v/1m	<b>Dimensions:</b> 7.87" x 12.75" x 8.75"
<b>Dimensions:</b> 7.87" x 38" x 8.75"	<b>Net weight:</b> 11.5 lbs.
<b>Weight:</b> 32.8 lbs.	<b>Price:</b> \$229/pr.
<b>Price:</b> \$559/pr.	
<b>Debut B5</b>	<b>ELAC AMERICA</b>
<b>Speaker type:</b> Two-way,	11145 Knott Avenue
	Suites E & F
	Cypress, CA 90630
	elac.com

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some of the output.

The Elac F5/B5 go beyond just being the rare, good speaker for the money. They’re a veritable gift to budget-conscious audiophiles and the younger audience, particularly those looking for a cost-effective, room-filling alternative to headphones. And keep in mind that the Elac/Jones collaboration is just getting ramped up!

## Q&A with Andrew Jones, Chief Designer, Elac

### Were the F5 and B5 conceptualized simultaneously?

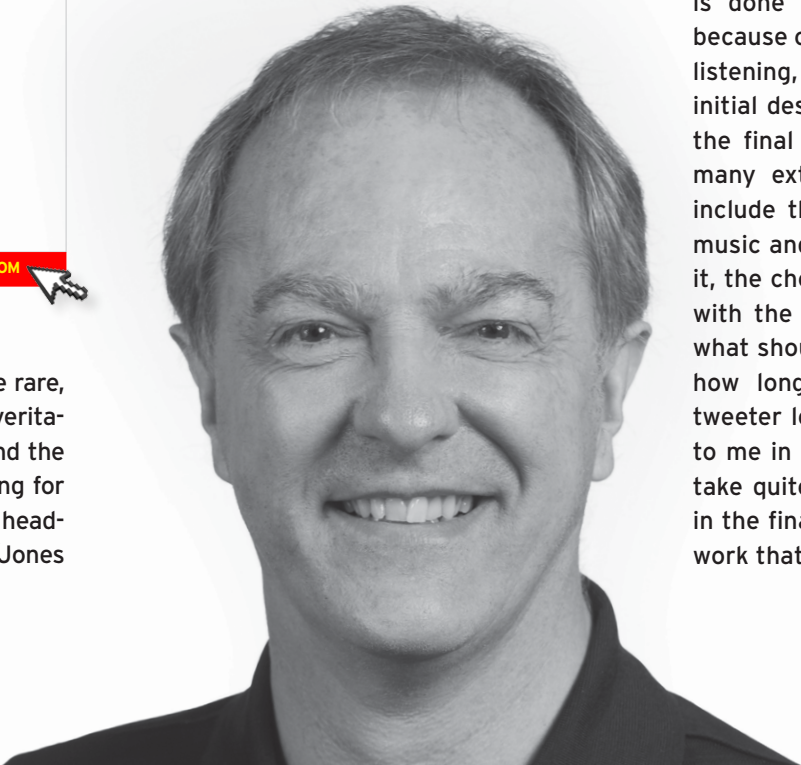
All the speaker ranges were conceptualized simultaneously. This is necessary in order to plan what drivers are going to need designing and to make sure, therefore, that the drivers will work in as many systems as possible without needing changes. This helps guarantee the best possibility for the range to have a similar sound signature.

### In a newly proposed model line like Debut, do you decide and commit to the specs for the largest model first and scale the line down from there, or start with the smallest and scale up? Or, does it happen more organically than that?

I always start with the smallest first, if only because they are the easiest! It gives me an initial confidence boost that hopefully is not dashed as I begin work on the bigger ones. It all starts with the driver development. That sets the capability of the sound of the systems. Having developed the drivers then I can begin the work of blending them together into a system. The trick is getting the big system to sound as near identical as possible to the small system, just with more “more” to it. I came up with a neat concept for the crossover in the F5 that helps tremendously in this goal.

### How much personal listening and voicing went into the Debut Series?

I have often said that 80% of the design work is done before listening. This, of course, is because of years of experience in designing and listening, so that I know what to look for in the initial design goals. However, in some respects the final listening is the most difficult, as so many extra variables come into play. These include the room in which I am listening, the music and recording quality and provenance of it, the choice of equipment I choose to partner with the speakers, and of course deciding on what should be my target sound. It’s surprising how long I debated, for example, over the tweeter level choice; 0.5dB variation mattered to me in the final voicing. So the listening can take quite some time, and is of course critical in the final process, but there is an awful lot of work that precedes it.



## EQUIPMENT REVIEW - Elac Debut F5

### Are two-ways more difficult to design and voice than three-ways?

I see that my words of “the best two-way speaker is a three-way” are coming back to haunt me. My answer is yes, it is more difficult to design a two-way, especially a low-cost two-way. Blending becomes more difficult because the drivers have to work over a wider range and so are more internally compromised. At entry-level prices, I don’t have access to parts and technologies that help so much to ameliorate this transition, so I have to spend a lot of time determining how to design the parts with minimum added cost to best achieve my goals.

### What is the most important area to get “right “ in a budget loudspeaker?

My colleague and product planner Chris would say “cost and timing!” My answer would be balance. Balance in performance across the range. Budget speakers have to appeal to a large audience. It’s no good just getting the midrange “right” for vocals, for example. That will appeal to only a subset of listeners. At the same time, the loudspeaker must perform beyond expectation. At these price points, audiophiles are not necessarily purchasing for themselves, but are also recommending to others. I want those new listeners to be surprised when they listen.

### What particular failing spells certain death for a budget loudspeaker?

I would say a hyped balance that is used to impress at the initial auditioning, especially in a situation where you can switch between different speakers. It might help in the initial sale, but once you listen at home you will

quickly tire of the sound and then return the speaker to the store. That hurts long-term sales and profitability for both the store and the manufacturer, and ruins any reputation that the manufacturer is trying to build.

### You’re celebrated for your coincident driver designs but they’re more costly. Are there techniques you use to emulate that high level of performance in a budget product?

Coincident drivers primarily help with driver integration and improved off-axis performance. One of the ways this happens is by the cone acting as a waveguide for the tweeter to control its directivity. In a non-coincident speaker this can be done by mounting the tweeter into its own waveguide. Doing so controls the directivity, improves its efficiency, and allows the tweeter to work lower in frequency with reduced distortion. <sup>tas</sup>



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# GoldenEar Triton Five

Must-Audition

Jacob Heilbrunn

**I**n Greek mythology, the demigod Triton is a creature of the depths who carries a trident. Half-man, half-fish, he resides in a golden palace at the bottom of the sea. But perhaps his most distinguishing characteristic is his ability to blow vigorously into a twisted conch shell to calm or rouse the waves.

So Triton is a fitting name for legendary manufacturer Sandy Gross' latest loudspeaker, the GoldenEar Triton Five. Much like the Greek god

of yore, this GoldenEar speaker, roughly in the middle of the marque's lineup, has the ability to create upheaval or calm within the space of a few seconds. Connect speaker cables to it, hit play, and you have a rather formidable beast playing at musical levels far beyond its very modest (by high-end standards) price. Indeed, install it in a system like mine, where much of the equipment is considerably more costly, and it more than holds its own in both musicality and sheer output.

These speakers, in other words, can rock, which is what they did when I put the pedal to the metal with a rare first pressing (courtesy of a magnanimous friend) of Led Zeppelin II, an LP released by Atlantic in April 1969. "Whole Lotta Love" had a whole lotta impact through the Tritons, with drum whacks whizzing through the air, fronted by electric guitar solos and various sound effects. Is it beneficial for your ears to listen at such levels? Of course not. So I cooled it fairly soon. But still, even if such SPLs would give Gross himself heartburn, the inner audio devil in me couldn't resist seeing if the Triton Fives really have what it takes to peel out. They did, and do.

The Triton Five features an abundance of noteworthy drivers—one of the keys to its projection of a luscious and bountiful soundstage. For instance, its four side-mounted, sub-bass radiators are designed to deliver subwoofer bass without the need to employ an active sub, helping the Five to deliver a spacious sound—and setting it apart from most other speakers in the Triton line. They're also positioned close to the floor to maximize low-end impact. (More on the bass to come.) At the other end of the frequency spectrum, the Five's tweeter features what the company calls a High Velocity Ribbon

Driver (akin to the Heil air-motion transformer), which is designed to pressurize the air rather than pushing it back and forth, thus providing superior impedance matching. The Triton's two 6" mid/bass drivers are also special—made from a formulated polypropylene cone material combined with a unique apical glue-bonding technique. Throw in nonparallel enclosure walls, a sleek front panel, and a decidedly elegant black finish (on the review pair submitted to me), and you have a winning loudspeaker.

Once again, I have to confess that, as was the case with some of the more economically priced equipment that's been in for review lately, I wasn't quite sure what to expect from these Triton Fives. The last time I listened extensively to a speaker in this price range was when I owned the Snell E/IV well over a decade ago. The Snells provided me with plenty of listening pleasure, and I recall them fondly to this day. But they had limitations that became more obvious as time went on. At the time, the Snells, a Conrad-Johnson preamplifier and amplifier, and a Linn turntable were at the extreme of what I could afford—and were what amounted to my audio gateway drug leading to the Magnepan 3.7 and then the 20.1 loudspeaker, Classé amplifiers, and so on. So listening to the Fives not only brought me full circle, but also provided a chance to see how much progress has been made in loudspeaker design in what amounts to an entry-level, full-range, high-end transducer.

What did I notice first? The Triton's coherence was obvious, and its treble capabilities and integration were striking. Every time I go to listen to a live orchestra I'm reminded of the degree to which audiophiles often seek out what they view as airy, extended top octaves, which is fine

and dandy, but which can get confused with an artificially sparkly sound. That's not what the Five produces. If anything, the speaker's overall presentation landed somewhere on the darker side, particularly in the treble region. On a wonderful Carlos Kleiber live recording of the Vienna Philharmonic playing Strauss waltzes, for example, I was struck by the suppleness of the strings on "Accelerations." I was consistently impressed by the smoothness and silkiness of the Triton's tweeter; there was no etch, no glare, no trace of the digital nasties.

The soundstage was also surprisingly focused. On the Kleiber recording, bass drum whacks were clearly defined in the rear of the hall, with plenty of air surrounding flutes and the various other sections of the orchestra. Another example: The recent Anderson & Roe piano duo CD *The Art of Bach*, released by Steinway & Sons, features creative and innovative arrangements that delve into Bach's compositions in new ways. Once again, soundstaging and imaging were spot-on. The two pianos were precisely delineated, making it easy not only to follow where they were positioned relative to one another, but also to distinguish their intricate counterpoint.

The Triton Fives boast an excellent jump factor—they're quite fast. I've become increasingly aware that speed is crucial to dynamics. It isn't just the sheer wattage of an amplifier, but also the overall transient response of the entire system that can add to or detract from verisimilitude. For instance, I was somewhat taken aback by the sheer propulsive energy and thwack of the Fives on the CD *Count Basie Remembered* [Nagel Heyer Records] by The New York All-stars, which was recorded live in Hamburg before an enthusiastic audience. The ensemble

## EQUIPMENT REVIEW - GoldenEar Triton Five

certainly sounded all-star. On the cut “Swingin’ the Blues,” the band simply exploded out of these transducers. Joe Acione’s drumming came through brilliantly as did a lusty trombone solo by Dan Barrett, both delivered through the Triton Fives with snap and precision.

What about the bass? It proved to be these Tritons’ weakest point. I’m not saying the low end was anemic, just that it’s not quite as good as the mids and highs, which are stellar. The Tritons go fairly deep but their bass response isn’t—to borrow a marvelous term recently used by my TAS colleague Neil Gader in reviewing Kharma loudspeakers—saturnine. But this really shouldn’t come as a surprise. Accurate, extended bass costs the most money in any loudspeaker. And while the Tritons’ mids were creamy and full, and its treble region extremely accurate—you could hear performers talking or singing with great clarity—the deep bass was just a little bit murky by comparison.

Still, when you contemplate everything that this loudspeaker does do well—gorgeously prismatic tonal color, dynamic alacrity, and a beautifully lissome treble—then it becomes hard to quibble about the Fives. Ultimately, among its other attributes, the Fives’ ability to convey a direct emotional connection with the music is what makes it such an engaging product. On Christian McBride’s album *Out Here*, the Tritons conveyed the soulfulness of the song “I Have Dreamed” in a simply mesmerizing way. The cymbal seemed to float into the ether, while the piano swells rolled on and on.

With its knack for playing a wide gamut of music convincingly, the Fives offer a tremendous amount of performance for the dough. After my foray into Led Zep territory, Sandy Gross was

worried that I might prematurely terminate my listening sessions by destroying his speakers—or sink into pure headbanging. Not a chance. I enjoyed hour after hour of satisfying listening. I know that these speakers will appeal to a lot of audiophiles, but I can’t help hoping that they will also entice anyone (like me all those years ago) who might be looking for a reasonably priced first speaker. In sum, Sandy Gross has hit another homerun. For anyone considering a loudspeaker under \$10,000, the Triton Five isn’t just an option. It’s a must-audition. *tas*

### SPECS & PRICING

**Driver complement:** Two 6" high-definition cast-basket mid/bass drivers, four 8" planar sub-bass radiators; one HVFR (high-velocity folded ribbon) tweeter

**Frequency response:** 26Hz-35kHz

**Sensitivity:** 90dB

**Nominal impedance:** 8 ohms

**Dimensions:** 8 1/8" (rear) x 12 3/8" x 44 1/4"

**Weight:** 40 lbs.

**Price:** \$1998/pr.

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# MartinLogan Motion 35XT

Sweet and Lowdown

Neil Gader

I first encountered the MartinLogan Motion 35XT at the California Audio Show in San Francisco last September, and my ears perked up immediately. Even under the less than ideal show conditions, these stand-mounted compacts were engaging, rock-solid performers. So much so that I just had to see how things would shake out in my own listening room, for as every veteran audiophile can attest, sometimes first impressions stick and sometimes they don't.

The Motion 35XT is a two-way design in a bass-reflex enclosure with a rear-firing port. It's one of two stand-mount speaker options in ML's Motion Series, a "mix and match" collection that also includes three XT floorstanders, a pair of center channels, plus designer FX models, ultra-slim XL models, and even a sound bar, for goodness sake. The one common thread this broad lineup

shares is ML's Folded Motion Tweeter—a fairly esoteric transducer in this modest price range but a not entirely surprising feature given that MartinLogan built its reputation on exotic electrostatic designs that harken back to the original full-range CLS from 1986. In many ways the Folded Motion driver is derivative of the classic Heil Air Motion Transformer wherein an ultra-low-mass diaphragm (4.5" x 2.75") is pleated, accordion-style, embossed with a conductor, and suspended in a magnetic field. The diaphragm squeezes the air along the pleats or "folds" and, voila, music. Its virtues are its extremely low mass, tiny excursions, and large radiating surface. MartinLogan has used this design on previous models, but this new generation boasts a 40% larger diaphragm area. The three XT models (35XT, 50XT, and 60XT) feature this new, larger-diaphragm tweeter; the other four Motion models use the standard Folded Motion driver.

Beneath the aforementioned Folded Motion Tweeter rests a 6" black aluminum cone mid/woofer in a cast-polymer basket. It uses a rigid, structured dust cap to reduce cone break-up modes. Both drivers are bolted securely in place between the underlying baffle and a black-anodized brushed-aluminum outer baffle. The handoff between mid/bass and tweeter occurs at 2.2kHz via a crossover network that features a custom air-core coil, low DCR steel-laminate inductors, polypropylene film capacitors, and high-quality electrolytic capacitors. The tweeter receives thermal/current protection, as well.

The enclosure is a stout construction of ¾-inch MDF; its top panel is raked gently front-to-back presenting a non-parallel surface meant to reduce resonances and internal

standing waves. The Motion 35XT is nicely detailed and richly finished in deep gloss—a clear step up from the typical bookshelf. Other features include ML's signature perforated steel grille, which attaches magnetically, and dual custom-angled, 5-way, tool-less binding posts for connection versatility.

The sonic character of the 35XT is first and foremost, refined. And like any contemporary small monitor worth its salt, the 35XT manages to vanish within the soundspace with ease. It has a smooth, neutral to neutral/light character not untypical of compacts that tout a single, smallish, mid/bass transducer and restricted internal volume. But it's not an edgy cold signature, which is often the case. There is a relaxed quality to the 35XT that takes a natural acoustic recording like Stravinsky's *Pulcinella* and delivers wind sections and upper strings with sweetness and openness. Transients, low-level resolution, and micro-dynamics are likewise also very good—I always listen for the soft tapping of the keys of the oboe midway through this ballet. The 35XT never missed a cue. The result of ML's efforts are treble octaves that possess an expansive yet precise sound that delivers images with air and substance—a realistic effect that isn't normally captured by a typical dome tweeter, but clearly is by MartinLogan's Folded Motion design. In many ways, solo images have some of the same freely suspended openness and sparkling character that I typically associate with Maggies and Quads, although on a more restricted basis with the 35XT. When I listened to Glinka's song *The Lark*, arranged for piano, the transmission of sound was almost frictionless, with free-flowing, fluttering keyboard trills and little to no smearing.

As I listened to The Carpenters' hit "Sing,"

## EQUIPMENT REVIEW - MartinLogan Motion 35XT



the harmonica intro with piano accompaniment was pristine, the harmonica untrammelled by colorations, just reedy-pure and quicksilver fast. Vocal sibilants were natural—sharp but not spitty. On this high-resolution DSD track I could hear all kinds of minutiae, including the tape hiss softly joining the overall mix when Karen's vocal track is brought up and the accompanying flow of reverb cascading down the soundspace. However, at the upper frequency extremes harmonics seemed to darken slightly. As I listened to Miles Davis' "So What," some of the upper-frequency air and whitish pressure generated from Davis' mouthpiece were hinted at rather than fully realized.

Imaging, on the other hand, was exceptional; the kaleidoscope of panned vocals and images zipping across the soundstage from Yes' "Owner of a Lonely Heart" and "It Can Happen" were

startling in their movement and clarity. Sound-stage dimensionality—at least laterally—was well resolved, but depth was a little lacking. The speaker has a tendency to emphasize and press forward a recording's backgrounds—for example, the backing singers, principally Michael McDonald harmonizing behind Steely Dan's Donald Fagen during "Hey Nineteen." Similarly the vast ambience and the depth of the soprano soloist within the Turtle Creek Chorale on the Rutter *Requiem* were not fully revealed; rather everything was pressed forward and flattened slightly.

Outside of the lowest octave—the 20–40Hz range is beyond the grasp of the 35XT—bass response was faithful and tuneful, with good tonality and pitch specificity. And to its credit, the bugaboo of port overhang was all but non-existent at any rational listening level. Predictably, the 35XT had limits on large-scale

dynamic shifts in the midbass regions, and its mid and upperbass were a bit shy of ruler-flat. Although the duet for bass violin and trombone from *Pulcinella* indicated some suppressed macrodynamic energy, the 35XT still managed to more than pull its own weight (and that of the instruments)—quite an accomplishment for a compact barely topping thirteen inches.

Keep in mind that the quality of bass response performance will be commensurate with positioning in the room, meaning the 35XT needs the reinforcement of the wall directly behind it. In my room, midbass and upper bass response smoothed out appreciably at a distance of about 28" from the backwall to the speaker's rear panel.

Driver integration, a critical aspect of the listening experience, becomes ever more significant with hybrid designs such as the 35XT. Mixing driver materials, types, and technologies can be a little like stirring oil and water—the drivers struggling to integrate with each other and to sing with one voice. In other words, the heavier (read: slower) woofer can be heard to be operating at a disadvantage to the feather-light folded diaphragm of the tweeter. Fortunately evidence of this familiar divide was negligible in my listening sessions with the 35XT. The human voice is excellent at exposing inter-driver irregularities, but the 35XT proved its mettle to my ears. It managed to strike a canny musical balance. An impressive achievement, to say the least.

All told, the Motion 35XT offers some stiff competition to battle-hardened rivals like the Sonus faber Venere 1.5 with its espresso midrange, or the Focal Aria 906 with its punchy bass response and all-around dynamism. But of these contenders only the ML has the virtue of

its sweet tweet, and offers such a high level of overall transparency and musicality. The 35XT is a worthy heir to the proud tradition at MartinLogan. *tas*

### SPECS & PRICING

**Type:** Two-way, bass-reflex, hybrid ribbon/cone, stand-mount loudspeaker  
**Frequency response:** 50Hz–25kHz +/-3dB  
**Drivers:** Folded Motion XT Tweeter (4.5" x 2.75" diaphragm), 6" aluminum mid-bass  
**Sensitivity:** 92dB @ 2.83 volts/meter  
**Impedance:** 4 ohms  
**Dimensions:** 13.5" x 7.6" x 11.8"  
**Weight:** 18.5 lbs.  
**Price:** \$1299/pr.

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# PSB Imagine X2T

## Bring on the Bass

Julie Mullins

**I**magine a company that claims its \$1295 loudspeakers make “real sound for real people,” and what’s likely to be your gut reaction? At the very least, it’s safe to say you wouldn’t expect such a speaker to sound “great.” And as a rule you’d be right.

Well...meet the exception. PSB has created a transducer of incredible value for an incredibly reasonable price: the aptly named Imagine X2T Tower. (Indeed, it is already an award-winner—a Reviewer’s Choice Award from another magazine—and will likely get a Golden Ear from me and earn well-deserved spots in our next Buyer’s Guide and Editor’s Choice lists.)

In appearance, this four-driver three-way is anything but flashy: a slim, compact, dual-front-ported, quasi-D’Appolito (midrange on top, dual woofers on the bottom, tweeter in between) floorstander about three feet tall, with an MDF enclosure that comes in any finish you want as long as it’s black ash. Perhaps the X2T’s main distinguishing feature is the mustard-yellow hue of its twin woofers, whose cones are made of injection-molded, clay/ceramic-reinforced polypropylene. But what the X2T lacks in eye-

catching looks, it more than makes up for in ear-pleasing sound.

Famous for being persnickety when it comes to sonic quality, PSB founders Paul and Sue Barton—the husband-and-wife duo whose initials form the Canadian company’s name—have consistently found ways to bring high performance to lower price points. Their goal for the Imagine X line was simply to offer the most accurate sound for the money. Naturally, various design and build compromises came into play, with careful consideration paid to what could be stripped away from PSB’s more expensive models, and what had to be retained.

Luckily for listeners (particularly those who are just getting started or who might not have the deepest pockets), PSB does its homework. In a pioneering move, in 1974 it became the first loudspeaker company to use the advanced acoustical labs housed at the National Research Council Canada (NRC) for product development. Since that time, the PSB design team has devoted many years to research at the NRC facilities, where the focus has been as much on how we perceive sound, as on what sounds good. PSB’s double-blind testing eliminates listener bias, enabling researchers to gain insight into which sonic characteristics are most important—and which can be more or less left out of the equation.

Beneath its unpromising exterior the X2T is a highly engineered speaker artfully designed to play to the ear. Geared to getting the most out of the midband, this three-way uses a midrange driver that is housed in its own enclosure for ideal dispersion and minimized distortion at high SPLs. Moreover, the driver features an injection-molded, poly-filled carbon-fiber cone

designed especially for the X2T. The one-inch tweeter dome is made of pure titanium, with a phase plug that is intended to help extend high-frequency response and control breakup (in addition to protecting the dome).

In part because of their surprisingly powerful bass (which we’ll get to in a moment), the X2Ts should be placed away from walls by three feet or so—to help minimize room reinforcement, especially in small-to-mid-sized spaces. Solid-state amplifiers probably are the way to go for better grip on the woofers, and (once again) to help offset some of this transducer’s inherent low-end emphasis. For this review, I used the Odyssey Audio Stratos monoblocks fed by an ARC tube preamp and phono stage.

Before delving into my listening notes, I feel compelled to share one of the most striking discoveries I experienced listening to the X2Ts. In spite of their darkish overall balance, these speakers can be quite transparent—that is, they regularly reveal a given recording’s strengths and weaknesses. As a consequence, sound quality varies widely and (naturally) from disc to disc. For example, the X2Ts really elevated their game on certain extremely well-recorded selections, such as the Analogue Productions 45rpm reissue of the Rachmaninov *Symphonic Dances*, where (despite some slight, yet attractive depression of the brilliance range) their beauty, resolution, and power were reminiscent of more expensive speakers.

According to the PSB’s website, the X2T’s new 5 1/4" midrange driver features a novel shape and filleted surround intended to optimize the reproduction of voice. And, indeed, vocals generally proved to be a strong suit. Madeleine Peyroux’s soulful rendition

# EQUIPMENT REVIEW - PSB Imagine X2T

of Leonard Cohen’s tune, “Dance Me to the End of Love,” for instance, had a surprising measure of the smoky sweep and gentle swing that it has through JV’s superb \$220k Raidho D-5s. However, the PSB’s darker, “bottom-up” balance was also evident on occasions, giving something like Pete Seeger’s sunny tenor on The Weavers’ classic “Guantanamera” (from the group’s live 1963 Carnegie Hall reunion LP) a decidedly baritone tint that it doesn’t have on the Raidhos (and didn’t have in life).

On the other hand, Louis Armstrong’s trumpet—which plays into the PSB’s wheelhouse—on “Stars Fell on Alabama” from *Ella & Louis* [AP] blew me away. (Then again, it would be a sad speaker day if Satchmo’s playing didn’t shine.) On this same album, the recording quality of the accompaniment varies, and here it often faded far into the background. (I had the image of Oscar Peterson’s piano being played timidly, unobtrusively in a corner, as if he didn’t want to detract from the main event.) This wasn’t really the speakers’ fault; they merely became the “messengers” of what had been recorded. Although such transparency to sources is far from unique, it’s still pretty impressive in \$1295 loudspeakers.

The X2T’s primary strengths lie in the power range and the bass, where it can really turn heads. This little speaker delivers surprisingly dense tone color and hefty, extended low end—an unexpected feature in such a package at such a price point. Because bass is something audiophiles tend to drop big coin for, the X2T’s quality in the bottom octaves is a rare treat that absolutely sealed the deal for me. In definition and solidity, the X2Ts may not deliver the kind of bass you can sit on, but its bottom

octaves are still unusually full, powerful, and nicely differentiated in pitch.

Actually, the slight predominance of the two 6 1/2" woofers (each housed in its own separate acoustic chamber) produces what I’ve already said is a bottom-up sound. Whether or not you like this kind of bass-centric balance, it is hard to deny that it can add lifelike richness and body to the presentation. In general, I found it to be rather pleasing.

I appreciate accuracy, but I also like a little heft and warmth with certain styles of music, some rock ‘n’ roll or pop, for instance. So I did some 80s throwback listening (and 90s, too). Much of REM’s *Life’s Rich Pageant* on MoFi vinyl powered through with exciting energy and drive. On the spare ballad “Swan, Swan, H,” Pe-

ter Buck’s acoustic guitar resonated beautifully with realistic articulation. Marshall Crenshaw’s “Someday, Someway” on MoFi was also reproduced with impressive accuracy on jangly guitar, jingly bell, and bass guitar. And in spite of Crenshaw’s somewhat limited range, the X2Ts really allowed the emotion of his voice to shine through. On Dead Can Dance’s “Spider Strategem,” percussion had relatively crisp snap and the tabla beats thrilled, creating a pleasing counterpoint to the ethereal vocals. The track sounded at once heavy and light—and quite agreeably so—despite some murkiness in the bottommost octaves. (I’d estimate that the bass goes down into the upper thirties or low forties before nose-diving.) As I’ve already noted, some of the X2T’s finest moments arrived with Rachmaninov’s *Symphonic Dances* and Earl Wild’s piano and Arthur Fiedler’s Boston Pops ensemble on Analogue Productions’ great reissue of the RCA *Rhapsody in Blue*. (Classical music seemed to be another forte for the X2Ts.) These famously well-recorded masterpiece’s strengths were revealed in all their regal glory, though here and there winds, strings, and higher-pitched percussion could have used a little more energy, air, and sparkle in their top octaves.

In staging, the X2T is decidedly upfront, though still expansive. The soundstage might not be the deepest around, but in almost all cases the imaging of singers, instruments, and players was pretty precise, offering greater sonic verisimilitude. The sax, horns, and bass on The English Beat’s classic “I Confess” on MoFi vinyl dazzled with full, and quite realistic, exuberance.

As impressive as the X2Ts are, some lambs had to be sacrificed in order to get so handsomely to this price point. Though they don’t lack speed of attack, the X2Ts aren’t the lightning bolts that some (much pricier) transducers are; nor do they have the same definition and articulation of such big-bucks speakers (although this was more apparent on certain instruments and recordings than others). At times, as I’ve said, I was a little hungry for more soundstage depth. And the reproduction of upper harmonics left a bit to be desired, with a general feeling of rounded softness in the brilliance range and shading in the treble that made some instruments either fade down or sail past like Macy’s Thanksgiving Day floats on an overcast November morning.

But I wouldn’t want to dwell on these shortcomings. With the X2Ts, you get your money’s worth and then some. Exceptionally well engineered for their price, these speakers play with a midrange focus and naturalness, and a bass-range power and resolution that simply aren’t available in most other loudspeakers at this price. They really deliver the goods, especially on well-recorded music, be it classical, jazz, or rock ‘n’ roll. Vocals, strings, piano, drums, low-pitched winds, and brass tended to have the greatest accuracy and realism, but the X2Ts provided surprisingly faithful reproduction of most recordings.

As easy as these speakers are to enjoy—and especially given their unbelievably high value—they certainly live up to PSB’s marketing message: “real sound for real people.” I loved ‘em. *tas*

## SPECS & PRICING

Type: Four-driver, three-way, quasi-d’Appolito, floorstanding loud-speaker	Power handling: 200 watts
Drivers: One 1" titanium cone tweeter; one 5 1/4" injection-molded, fiber-reinforced polypropylene cone midrange; two 6 1/2" injection-molded, clay/ceramic-reinforced polypropylene cones	Dimensions: 9" x 40 1/8" x 17 5/8"
woofers	Weight: 52 lbs. (each)
Frequency response: 30Hz-20kHz +/-3dB	Price: \$1295
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# Magnepan .7

## Julie Versus the Maggies

Julie Mullins

**L**et's face it: Most audiophiles are into cone loudspeakers. And why not? They're plentiful, good-sounding, and (at least in many cases) quite affordable. Though force of habit is a powerful thing, what if there were an alternative that was every bit as good-sounding (maybe even better-sounding) and just as affordable, only it didn't have cones and didn't come in a box? Although I imagine most of you have already made their acquaintance in previous versions, let me introduce you to Magnepan's latest "mini" planar dipole, the two-way, floorstanding, all-quasi-ribbon-driver MG .7—a speaker that is capable of a more natural and full-range sound than any previous "mini" Maggie, and a more natural and full-range sound than anyone might reasonably expect for the money.

### The .7s Versus Your Room

Let me say right off the bat that these are very impressive speakers offering a practically unbeatable quality-to-cost ratio. Of course, they do have certain peculiarities. For one thing, with Magnepan's proper setup in your room is arguably more critical than it is with most other types of speakers. It certainly took some experimentation with positioning to get the .7s to sound their best (though the result was worth every minute of effort). Happily, these guys aren't too heavy, only 27 pounds each, so they can easily be shifted around to suit your room's needs—even by a gal!

Though small by Maggie standards, the .7s are still four-and-a-half-foot-tall, one-foot-four-inch-wide rectangular panels about the height

of a largish dynamic floorstander, a little wider than same, and, at under an inch in depth, about twenty times thinner. Their figure-8 dipolar dispersion (see below) makes sidewall reflections less of an issue with the .7s than it is with wide-dispersion cones; however, if the .7s (or any Maggies) are toed-in toward the listener rather than made parallel to the backwall, then part of their rear wave *will* bounce off sidewalls, potentially adding (as it does with any loudspeaker) brightness from early-arrival reflections. What this means is that with Maggies you should take some of the same care in placement vis-à-vis sidewalls as you would with any loudspeaker, especially if you toe the speakers in.

The Maggies should also be placed a reasonable distance from back walls, in order to avoid doubling and/or cancellation in the bass from the dipolar .7s' out-of-phase rearwave. (In the end I set them up about three-and-a-half feet from the rear walls.)

Unlike most dynamic loudspeakers, the Maggies can be positioned with their tweeters in different locations—to the inside of the speaker, firing more or less directly at you, or on the outside of the speaker, firing less directly at you. All you need to do to change the tweeter orientation is swap the left speaker for the right one. Obviously the location of the tweeter makes a difference in tonal balance, imaging, and soundstaging. Though JV and I preferred the sound of the .7s with their tweeter to the outside in the room in which we were listening, the inside position did have more presence, image focus, and treble energy. Obviously any decision about tweeter orientation will depend on the size of your room and how far you're seated from the panels.

Once again like all Maggies, the quasi-ribbon panels of the .7s need some break-in before they sound their best. Though quite listenable out of the box, they will sound better (less bright in the upper mids, more filled-out, freed-up, and energetic in the bass) with several weeks of play.

### The .7 Versus the MMG

At 15-1/4 inches wide and 54-1/4 inches tall, the .7s are about an inch wider and better than six inches taller than Maggie's other much-less-expensive two-way "mini," the MMG. However, unlike the MMG, both the tweeter and the midrange/bass panels of the .7s are quasi-ribbons (as opposed to quasi-ribbon and planar-magnetic, for which see JV's sidebar), giving the new Maggie an audible leg up in speed, resolution, bandwidth, and overall coherence over their little brothers. Not only are the .7s more extended in the treble than the MMGs; thanks to their considerably larger mid/bass panels they are also more extended in the low end, which Jon and I judged to go down

## SPECS & PRICING

<b>Type:</b> Two-way floorstanding planar loudspeaker with quasi-ribbon tweeter and quasi-ribbon mid/woofer	<b>Weight:</b> 27 lbs. (each)
<b>Frequency response:</b> 50Hz-24kHz +/-3dB	<b>Price:</b> \$1395
<b>Impedance:</b> 4 ohms	<b>MAGNEPAN</b>
<b>Sensitivity:</b> 86dB/2.83V/1 meter, 500Hz	1645 Ninth Street
<b>Dimensions:</b> 15 1/4" x 54 1/4" x 1/2"	White Bear Lake, MN
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## EQUIPMENT REVIEW - Magnepan .7

more or less linearly into the low 50s. Perhaps the best news is that they will only set you back mere pocket-change (for high-end gear): \$1395 the pair.

### The .7s Versus Cones

As you probably already know, planar speakers use a different kind of technology than cone or horn loudspeakers. The most obvious visible

difference is that there's no box to "house" the drivers or to damp their backwave—and thus no "box coloration." Planars produce equal amounts of sound front and back, and, at least in theory, use the room (or the distance between their panels and the walls) to "damp" or attenuate their rear wave.

What you can't see in a planar speaker is the drivers themselves, which are also very different

### Ribbons, Quasi-Ribbons, and Planar Magnetics

For those of you who don't understand the difference between "true" and "quasi" ribbon drivers, let me explain. In a nutshell the incredibly lightweight foil of a true ribbon is the driver—it simultaneously conducts the signal and vibrates to turn it into sound waves. In a "quasi-ribbon," the foil is not the driver—or not exactly. In a quasi-ribbon, that strip of aluminum foil is itself attached to an extremely lightweight strip of Mylar; the foil, which is suspended between permanent bar magnets, acts as the signal conductor (a planar voice coil, if you will), transmitting the signal to the entire surface of the Mylar, which, in turn, vibrates (together with the aluminum) to produce sound.

As a point of comparison, in a traditional planar-magnetic panel the Mylar driver is not driven uniformly over its entire surface by a foil of aluminum as it is in a quasi-ribbon; instead, it is driven by a latticework of thick signal-conducting wires that are attached to the Mylar itself. The difference in the uniformity of drive and in the relative mass of the driver should be obvious.

Up until the MG-1.7, all Maggie speakers used a mix

of ribbon (typically for high frequencies), quasi-ribbon (typically for high frequencies and upper mids), and planar-magnetic drivers (typically for the lower mids and the bass), which, as I just noted, made for variations in uniformity of drive, uniformity of dispersion, uniformity of moving mass, and uniformity of power-handling that could be heard as discontinuities in the overall presentation. This was particularly true of the transition between ribbon tweeter and quasi-ribbon or planar-magnetic panels, but also of the transition between quasi-ribbon and planar-magnetic panels.

What made the 1.7 (and subsequent .7 Series Maggies) such a landmark—and a departure—is that every driver in it, from its super-tweeter panel to its tweeter/upper-mid panel to its lower-mid/bass panel—were quasi-ribbon, making it the first Magneplanar to use ribbon technology in all of its drivers. Though a two-way and not a three-way like its bigger brother the 1.7, the .7 is the first "mini-Maggie" to use quasi-ribbon technology for all drivers. As was the case with the 1.7, the result is a loudspeaker of superior "uniformity"—a speaker's whose power-handling, dispersion, resolution, and overall presentation are more "of a piece" than any previous miniature Maggie. JV



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## EQUIPMENT REVIEW - Magnepan .7

than cones. The .7s use ultra-low-mass strips of aluminum bonded to very thin sheets of Mylar as drivers. Suspended between permanent bar magnets, these featherweight “quasi-ribbons” are faster and lower in distortion than much-more-massive cones. (Once again, see Jon’s sidebar for an explanation of how quasi-ribbons work.)

It may be obvious, but a driver’s mass and a speaker’s box inevitably and profoundly affect what you hear. Magneplanars offer the advantages of an extremely low-mass/low-inertia/large-surface-area driver suspended in a more open, unrestricted, less resonant and resonance-prone framework than that of a dynamic loudspeaker’s massive enclosure. All of this results in a boxless “airiness” to the sound and a naturalness of timbre that allow acoustic instruments to shine.

### The .7s Versus Music

In my listening tests, I spun a wide range of LPs and some digital tracks, too. At the risk of sounding cliché, my musical tastes really run the gamut. (If you saw my record collection, you might even wonder whether I had multiple personalities!) Anyway, I’d like to share some listening examples and how the Maggie .7s fared with each.

I knew going in that no speaker is going to be perfect on every kind of music, and that perhaps the most important consideration for a potential buyer is how well his listening preferences match up with a speaker’s characteristics: with what the speaker does well, and what it doesn’t do as well. Magneplanars are famous for their

accurate reproduction of the midrange, so I expected them to deliver impressively realistic sound with almost all acoustic instruments (save perhaps for big bands and very large orchestras). And deliver they did!

On digital tracks from *Temptation*, Holly Cole’s well-known covers of Tom Waits tunes, the “airiness” of the sound of the Maggies was a match made in heaven with Cole’s breathy vocals. “(Looking for) The Heart of a Saturday Night” was a real standout in its faithful sonic reproduction of the entire Holly Cole Trio’s stellar performance. Translation: The recording sounded beautiful and true-to-life. Also, I could swear that the presentation, while open and graced with a striking measure of air and light, felt like it existed within some precisely (almost mathematically) defined soundfield. Quite a large field, but still a space with a specific form and shape that was different than the form and shape of the listening room. I suppose what I’m talking about is a “soundstage,” the .7s’ recreation of which was kind of stunning. When you add this remarkable reproduction of ambient space to the .7s’ natural timbre, they are clearly an excellent choice for acoustic music recorded live or in an actual hall.

With *Temptation*, the only time the .7s took a dive was on a few, big, low bass notes in the opening bars of “Jersey Girl,” where there was some audible clipping as the .7s reached/exceeded their excursions limit, although the volume I was listening at was fairly substantial.

Which brings me to bass-heavy rock and roll.

Personally, I tend to like a little bit of added color and drama with such music. I enjoy

experiencing the weight of a Fender bass guitar and feeling the punch/impact of a kickdrum. And on their own the .7s just don’t do this particular trick the way cones do.

So I decided to bring some JL Audio subwoofers into the mix. (It’s worth noting that Magnepan offers its own add-on woofer option, the Magneplanar Bass Panel or DWM, which essentially contains two bass drivers on one thin-film planar-magnetic panel. Because they’re “all-Maggie,” the DWMs might integrate very seamlessly. I would certainly like to give them a test drive when I get the opportunity. Hopefully I’ll be able to report back soon.)

With some rock and roll, the JL Audio subwoofers added needed muscle and punch. A high-res digital file of the Stones’ “Gimme Shelter,” for instance, sounded big, brash, and bold with the subwoofered .7s. And not just in the bottom octaves. You could also better feel the weight and power of Merry Clayton’s “backing” vocals—not to mention Keith Richards’ driving guitar. A couple of cuts from the Pixies’ indie/post-punk *Surfer Rosa* on vinyl sounded heavier than thou. The insistent throb of “Cactus” and the building, searing strains of “Where Is My Mind?” simply filled the room. This was music you could hear and feel.

That said, weight isn’t everything.

On much music the magic of pure, authentic acoustics rang true through these Magnepanns to very satisfying effect with no subwoofers required. For instance, “The Girl from Ipanema” from the 1964 eponymous Getz/Gilberto album sounded infinitely more spacious and open without the subs. The song floated and soared



## EQUIPMENT REVIEW - Magnepan .7

in all its subtle, understated beauty. Also on the jazz front, *Coleman Hawkins Encounters Ben Webster* was a captivating experience without subs. The breathiness and buzzy vibrations from Hawkins' tenor saxophone reed sounded incredibly real and present. The soundstaging felt true-to-life. The piano's low notes were clear and warm. You could easily pick up nuances of the recording space.

The bottom line is this: As I spent more time experimenting with the .7 speakers both with and without the addition of subwoofers, I discovered that I definitely preferred some music with them, but many selections without. Generally speaking, I found my preferences fell along lines of musical genres, though sometimes even *those* lines got a little blurred.

Without subs, for example, the acoustic/electric sound of the live version of "Late in the Evening," from *Simon & Garfunkel: The Concert in Central Park* made me want to dance to its catchy salsa rhythms. Closing your eyes you could picture the stage full of instruments in a rich scene that must have been an unforgettable concert experience.

Even some classic rock tracks (particularly those without big driving bass) worked well without the subwoofers. On David Bowie's "Diamond Dogs," the solid percussion came through vividly and felt balanced against the raw electric guitar and the rocking piano via the .7s all by themselves. (And that cowbell never sounded better.)

### The .7s Versus Amplifiers

But before you start thinking we're entering some sort of hi-fi utopia, know that while this

design eliminates some variables from the equation, it also brings with it other demands and considerations.

For one, the .7s are a bit power-hungry: They require an amplifier capable of driving a low-sensitivity 4-ohm load. I listened first with a tube amp, but definitely heard better results with a solid-state one. Why? The tube amp gave almost too much leeway to the bass, making it less clearly defined. This also left the upper midrange more exposed (i.e., a shade bright). Some might like the more forward projection (not unlike what you'd hear from horn loudspeakers) of tubes, but I liked the more blended, balanced feel of the solid-state amp, so I stuck with that for most of my listening.

### The .7s Versus You

At a tough-to-beat price point that would make even the thriftiest loudspeaker lovers open their wallets, the .7s become even more attractive when you consider that Magnepan is also offering a 30-day in-home trial and a money-back guarantee. Whether you're in the market for a starter pair of high-quality speakers, or have the proverbial champagne taste on a beer budget (or both!), why *wouldn't* you consider these babies? They're terrific.

## JV Versus the .7s

I don't know how I'm going to improve on Ms. Mullins' review. We are in complete agreement on every point. However, since I'm expected to comment, goes here.

As many of you know, I've heard, reviewed, and owned more Magnepan loudspeakers than



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## EQUIPMENT REVIEW - Magnepan .7

any other brand, so, given my recent extended sojourn in the land of ultra-high-end cone speakers, listening to Maggie's latest offering was very much a homecoming. It is easy to forget, given the gorgeous timbre and seemingly unlimited dynamic range of something like Raidho's quarter-million-dollar, multiway, ribbon/diamond-coned D-5s or Magico's near-\$200k aluminum-enclosed, beryllium/carbon-fiber-driver Q7s, how much sonic realism a \$1395 Maggie can still buy ya, particularly in the mid-band, where it counts the most. It is also easy to forget that the .7s represent a different sonic paradigm than the exceptionally rich, exciting, "musicality-first" Raidhos or the astonishingly high-resolution, high-neutrality, "accuracy-first" Magicos. The .7s don't sound inherently gorgeous and thrilling, and they don't sound inherently like exact replicas of mastertapes. As has been the case with all Maggies since Jim Winey invented them, the .7s are intended for "absolute sound" listeners—which is to say that they fare best with acoustic music and will appeal most to fans of same.

All you have to do is listen to a voice—be it Thomas Hampson on "Das Trinklied vom Jammer der Erde" from the Tilson Thomas/SFO *Das Lied von der Erde* or Louis Armstrong and Ella Fitzgerald on "Cheek to Cheek" from Analogue Production's *Louis and Ella*—to instantly hear why these plain, rectangular, ultra-thin, boxless, room-divider-like panels have appealed to high-end audiophiles for the better part of half a century. Their sheer openness and wonderfully lifelike midrange timbre and presence will grab you even if you don't know or care about how they work. Voices

such as the ones I just mentioned simply sound less like they're coming from loudspeakers and more like they're "there" in the room with you. Ditto for instruments that play primarily in the midrange, like, oh, John Coltrane's bluesy sax or Curtis Fuller's gliding trombone on *Blue Train*. In fact, the Maggies are so good at what they do in the midrange that they don't just sound great in their own right; they also make even the priciest competition sound slightly florid, boxy, and/or analytical by comparison.

Like all Maggies, the .7s crave power and I agree with Ms. Mullins that they sound better defined in the bass and less forward in the upper mids (albeit also less bloomy and present) when driven by solid-state amplifiers rather than by tube ones. (The .7s are definitely easier to blend with subwoofers when driven by transistors amps, which better damp and control their bottom octaves.) They also sound less bright and more spacious with their tweeters to the outside, rather than to the inside (although inside placement does add pop-out-at-you presence to closely miked voices).

No Maggie, or at least no Maggie that I've heard since the Tympani Series, does the mid-to-low bass with realistic power (multiway cone speakers such as the big Raidhos and Magicos simply stomp them in this area). And though Maggies have always had great depth of field—producing very wide, deep, tall soundstages that are also exceptionally neutral (in the sense of not being darkened, constrained, or otherwise colored or distorted by the sound of a box)—they have never been world-beaters when it comes to depth of image. By this I mean that instruments

and voices sound slightly "flatter" in aspect, more one-dimensional (or bas-relief), through Maggies than they do through the best cones.

Like all Maggies the .7s have to be pushed hard (i.e., played loud) to achieve a semblance of the large-scale dynamic impact of well-designed cones. And no matter how loudly you play the .7s (or any Maggies), their bass panels won't match the excursions of really good dynamic woofers and midranges. This doesn't matter as much with the wind, brass, or bowed/plucked string instruments of a symphony orchestra. But with the electronically amplified instruments (and much of the percussion) of rock music, the presentation can sound a bit gutless. The information is there, all right, but the energy that brings it to life (and raises goosebumps) isn't.

Of course, the .7s' bottom-end dynamic reticence and reduction of power-range color and oomph is somewhat off-set by their lifelike speed on transients like drum and cymbal strikes and their simply superb reproduction of drumhead textures. (No speaker reproduces the "skin" of a drumhead the way a Maggie does.) On the other hand, the big resonant barrel of a tom goes more than a bit missing with the .7s, as does the kick of a kickdrum or the semi-pulling-away-from-a-curb rumble of a Fender bass or synth.

All of which means that the .7s probably aren't the ideal speakers for much non-acoustic rock 'n' roll or certain kinds of hard-driving jazz. At least, not by themselves.

However, for reasons I don't completely understand, the .7s proved easy to match to subwoofers—which, trust me, has *not* been

the case in the past with Magnepan's—whether they were JL Audio's very large and expensive Gothams, which are the best subs I've ever heard, or the same company's very small and affordable e110s, which are the second best. Crossed over at about 70-80Hz (24dB/octave), the JL subs provide the bottom-end extension and power that the .7s on their own just don't have, and they do so with relatively minimal losses in the midrange openness and bloom that Maggies have a patent on. They also virtually eliminate the slight brightness of the .7s by filling out the tonal balance.

No, the subwoofered .7 system is not quite as expansive and completely free of box coloration as the .7s are all by themselves. (I mean you *are* adding the sound of subwoofer enclosures to the presentation.) And no, you still won't get the upper-bass/power-range density of tone color, three-dimensionality, and sock that you hear with big Raidhos or Magicos. What you will get, however, is the most lifelike, high-resolution, relatively compact, full-range loudspeaker system I've heard for anything remotely close to this kind of money.

The bottom line here couldn't be simpler. If you like chamber music, small-combo jazz, folk, or acoustic rock, the .7s will satisfy you more completely than any mini-Maggie that has preceded it. If you like larger-scale music and listen at higher volumes, the addition of one or two JL Audio e110s will supply the dynamic range and low-bass extension such music thrives on. Either way, this is a great loudspeaker. Drive it with a pair of Odyssey Audio Strati, and you will have a small, affordable system that approaches the state of the art. tlb



## ClairAudient 1+1

1+1=3

Steven Stone

**A** couple of months ago I reviewed Audience's smallest speaker, "The One" in TAS. I thought it was one of the best desktop/nearfield speakers I'd ever heard, regardless of price or technology. So, when I was offered a chance to review "The One's" bigger brother, the 1+1, I was more than willing. If I had to sum up the 1+1 speaker in a single sentence I'd write, "It's 'The One' on steroids."

For readers who've never heard of Audience or its ClairAudient line of speakers, the company's beginnings go back to 1979 when Audience's president, John McDonald, met the late audio

designer Richard Smith. Together they founded Sidereal Akustic. McDonald left Sidereal in 1986, and then teamed up with Smith in 1997 to form Audience. From the beginning Audience's primary goal was to build a full-range-driver speaker without tweeters, woofers, or crossovers. Nine years of research went into developing a driver design that could accomplish Audience's sonic goals. Finally in 2009 Audience unveiled its first product, the ClairAudient 16 loudspeaker. Other models soon followed, including the 16+16, 8+8, 2+2, 1+1, and most recently "The One."

### Tech Info

What does using a single, solitary, driver sans woofers, tweeters, and crossovers get you sonically speaking? The answer in one word is coherence. The entire Audience speaker line is designed to achieve this goal. By eliminating a crossover circuit, the sonic issues, such as phase anomalies at the hinge points, vanish. Also the timing and group-delay problems introduced by a crossover's filtering components are no longer an issue.

But there is no "free lunch" in physics. Eliminating the crossover puts greater demands on the full-range driver. It's very hard to produce a full-range driver that has even power-handling throughout its frequency range. It is also difficult for a single full-range driver to create an even dispersion pattern without beaming at higher frequencies.

Although Audience is understandably reticent to release too many specifics on the inner workings of its proprietary "dual-gap motor" A3S driver, according to its Web site, "The A3S has an exceptionally flat response from 40Hz to 22kHz +/-3dB in certain enclosures. No other

single driver available today can deliver this kind of performance."

The A3S driver cone is made of titanium alloy combined with a concave dust cap constructed with constrained-layer damping to control high-frequency break-up modes. The total mass of the driver cone is only 2.5 grams. This low-mass cone is coupled to a patented oversize motor structure using neodymium magnets and a large voice coil. According to Audience the A3S has "12mm of usable excursion with less than 1dB compression at levels up to 95dB SPL." To achieve this usable excursion requires an especially oversized spider made of "special materials."

The A3S driver has vents in its pole pieces to allow a more unobstructed airflow to and from the voice coil. This not only aids in cooling but also prevents turbulence created by the driver's large excursions. Other key components in Audience's A3S driver include the proprietary basket design and patent-pending S-shaped speaker-surround. This surround minimizes diffraction and allows for large excursions while maintaining uniform resistance on both sides of travel. The result is lower measured harmonic distortion levels.

As you might suspect from its name, the Audience ClairAudient 1+1 uses two A3S drivers. One faces forward while the other is mounted on the back of the enclosure and fires to the rear. Both A3S drivers are in phase with each other. This bi-pole arrangement offers several advantages over the single-driver "The One." First, having two drivers increases the 1+1's power-handling capabilities and its sensitivity. The 1+1 is 3dB more sensitive than "The One," and can handle twice as much power (50 watts RMS rather than The One's 25-watt suggested maximum). Second, the two-driver configuration extends the speaker's

## SPECS & PRICING

<b>Impedance:</b> 8 ohms	<b>DACs:</b> Antelope
<b>Efficiency:</b> 87dB/1W/1m	Zodiac Platinum DSD,
<b>Maximum RMS</b>	Wyred4Sound mPre,
<b>continuous output per</b>	April Music Eximus DP-
<b>pair:</b> 104dB	1, Empirical Audio Off-
<b>Maximum RMS</b>	Ramp 5, Mytek 192/24
<b>continuous power per</b>	DSD DAC
<b>speaker:</b> 50 watts	<b>Amplifiers:</b> April Music
<b>Dimensions:</b> 6" x 8" x	Eximus S-1, Accuphase
9.75"	P-300
<b>Price:</b> \$1795	<b>Speakers:</b> ProAc
	Anniversary Tablette,
<b>AUDIENCE</b>	Role Audio Kayak,
120 N. Pacific Street,	Aerial Acoustics 5B,
#K-9	Audience Clair Audient
San Marcos, CA 92069	"The One," Velodyne
(800) 565-4390	DD+ 10 subwoofer
audience-av.com	Cables and Accessories:
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<b>ASSOCIATED</b>	cable, Synergistic
<b>EQUIPMENT</b>	Research USB cable,
<b>Source Devices:</b> MacPro	AudioQuest Carbon
model 1.1 Intel Xeon	USB cables. PS Audio
2.66 GHz computer	Quintet, AudioQuest
with 16 GB of memory	CV 4.2 speaker cable,
with OS 10.6.7, running	AudioQuest Colorado
iTunes 10.6.3 and	interconnect, Cardas
Amarra Symphony	Clear interconnect,
2.6 music software,	Black Cat speaker cable
Pure Music 1.89 music	and Interconnect, and
software, and Audirana	Crystal Cable Piccolo
Plus 1.5.12 music	interconnect, Audience
software	Au24SE speaker cable

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## EQUIPMENT REVIEW - ClairAudient 1+1

low frequencies. The 1+1 cabinet also has a pair of passive drivers, one mounted on each side of the enclosure, which further augment the 1+1's bass.

The 1+1 cabinet isn't a rectangular box; instead it has non-parallel front and rear baffles as well as angled edges to reduce diffraction. The 1+1's grilles are attached to the enclosure magnetically making them easy to remove and re-attach. Whether the 1+1 sounds "better" with the grilles on or off is a matter of taste, since the grilles

have some effect on both imaging and overall harmonic balance.

The overall build-quality of the Audience ClairAudient 1+1 is quite luxurious, with a deep-black gloss finish on most of the cabinet that is complemented by the rich wood grain of the side panels. The 1+1 rear panel sports a single pair of five-way gold-plated binding posts (there's no point in bi-wiring a full-range driver). My only quibble with the 1+1's physical configuration is that it

### Robert Harley Listens to the 1+1: More Than a Desktop Loudspeaker

I've been listening to the 1+1s on my desktop system and am continually amazed by their midrange transparency, resolution, and naturalness. Many expensive high-end loudspeakers would kill for this kind of midrange performance. In addition to its transparency and lack of coloration, the 1+1s are imaging champs, completely disappearing into the soundfield despite being positioned on either side of a large computer monitor—and I was driving my pair with a \$104 Class D Chinese integrated amplifier.

Just out of curiosity I put the 1+1s on Sound Anchor stands in my main listening room next to the Magico Q7s and drove them with \$300k worth of reference-level sources and electronics. Although positioned well away from any walls in a large room, the 1+1s' bass balance was surprisingly full and warm. Of course, you shouldn't expect deep extension or bottom-end dynamics from this small

speaker, but that's not their *raison d'être*. Where the 1+1s excel is in the mids, which can only be described as magical. Reproducing the entire frequency range with a single driver, and with no crossover parts in the signal path, pays huge dividends in the naturalness of instrumental timbre, the sense of hearing nothing between you and the performer, and the ability of the loudspeakers to get out of the way of the music. Vocals were sensational for any loudspeaker, never mind one that costs less than \$2k.

I expected to hear a reduction in top-octave air and extension given that the 3" driver covers the entire frequency range, but the 1+1 had no shortage of treble detail, particularly when I was sitting on-axis to the driver. The soundstage was wide and deep, with pinpoint imaging. I agree with Steven Stone's conclusion that the 1+1 is a superb small nearfield monitor, but it's more than that. As part of a main system in an appropriately sized room I could imagine the 1+1 delivering an eminently satisfying musical presentation, particularly for those listeners who value midrange transparency over the last measures of dynamics and bass extension.

would have been a nice option if speaker grilles were available to cover the side-firing passive drivers. The front and rear A3S drivers look just fine without the grille covers, but the side-firing passive drivers are not as well integrated into the side panels. The overall look of the speaker could benefit from the side-mounted passive radiators being covered by speaker grilles.

#### The Setup

Most of my listening to the Audience ClairAudient 1+1 speakers was in my nearfield high-end desktop system. Like its smaller sibling, the 1+1 is small enough that without some kind of stand it will end up well below ear level when placed on a desktop. I used the same pair of closed-cell high-density "stands" that I use with many of my small desktop monitor reviews, as well as a pair of Ultimate Support adjustable speaker platforms to raise the 1+1 speakers so the center of the drivers were level with my ear height.

Although the 1+1 speakers will produce a remarkably cohesive and well-defined image almost regardless of how they are set up, proper set-up geometry is important for optimal imaging. I recommend using a tape measure to insure that the speakers are precisely triangulated so they are equidistant from your ears. Having one speaker more than an inch closer than the other can have an audible effect on their time-alignment. Also the toe-in between the two speakers needs to match. I used Genelec's free "Speaker Angle" iPod App to put each speaker at exactly the same angle.

With a sensitivity of 87dB at one watt, I found that the 1+1s mated well with a variety of amplifiers. During most of the review I used a

single April Music S1 power amplifier, which had more than enough power to drive 1+1 speakers to ear-bleed levels. I also used the 1+1 in a separate system driven by the tiny Olasonic Nanocompo Nano UA-1 integrated amplifier, which puts out only 13 watts into 8 ohms. Even with this small amplifier the 1+1 speaker could play cleanly at satisfying volume levels.

#### The Sound of the Audience 1+1

Given that I called Audience's "The One" the best dedicated desktop speaker I'd heard, how much better could the Audience 1+1 be? Much better? A little bit better? No better? Let's see...

First, let me detail how and where the 1+1 bests its smaller sibling. Near the end of the review period I managed to destroy both drivers on my review pair of "The One" speakers when they received a dose of ABBA at full level from my Accuphase P-300 power amplifier. Replacing the blown drivers with new ones was an easy job that took less than 30 minutes. But since that experience I've been more careful to check output levels before choosing a source when using "The Ones." With the 1+1 speaker's greater power-handling capabilities I feel a bit more comfortable turning them up to 10 or even 11. And while I never heard "The One" speakers show any audible signs of distress when playing loudly at my desktop, I do feel that on big, dynamic musical selections the 1+1 speakers have a bit better control and finesse during triple forte passages.

Where else does the Audience 1+1 best "The One?" Listening to my live concert DSD5.6 recordings I noticed the 1+1 speakers had slightly better dynamic contrast, principally on peak levels during triple-forte passages. Using the SPL meter in the

## EQUIPMENT REVIEW - ClairAudient 1+1

Audiotools app I noticed that when the low-level outputs were matched between the two speakers the 1+1 produced, on average, a 1.5dB increase in peak volume during the loudest passages.

In imaging precision the 1+1 and "The One" speakers were equals. The 1+1 duplicates "The One's" uncanny ability to disappear while creating a seamless three-dimensional soundstage. And not only do the 1+1 speakers disappear when you're sitting in their sweet spot, their sweet spot is large enough that no amount of chair-based gyrations will alter their imaging. The only "tricks" needed for optimum soundstaging are that the two speakers should be equidistant from your ears and raised up off your desktop so that the center of the drivers is at or very near ear height.

The 1+1 do deliver more midbass energy than

"The One" speaker, and for some listeners they may have sufficient bass extension so that they could be employed without a subwoofer. But for anyone who requires a true full-range desktop or nearfield system, a subwoofer is recommended. I used a Velodyne DD+ 10 subwoofer crossed over at 65Hz into the 1+1 speakers. Besides the additional low-frequency extension, using a subwoofer also relieved the 1+1 speakers of low-bass duties, which allowed them to play louder than they could when fed a full-range signal.

### 1+1 = 3

When I finished my review of the Audience ClairAudient "The One" I was convinced it was one of the best nearfield monitors I'd ever heard. My time with the larger Audience 1+1 speakers hasn't reduced my positive impressions of "The One," but it has induced me to place the 1+1 above the "The One" at the top of my own personal "best" nearfield loudspeaker list.

Just like "The One," the Audience 1+1 creates a three-dimensional soundstage that allows an audiophile to easily listen into the subtle low-level nuances of a mix or live performance. Also, like all Audience speakers, the 1+1 provides a seamless, phase-coherent, crossover-less, sonic presentation that makes it very hard to go back to listening to a conventional multi-driver speaker without hearing the sonic discontinuities caused by the crossover design and its components.

If you are planning to assemble a high-performance nearfield listening system I urge you to audition the Audience 1+1 (or if your budget is tighter, "The One"). They are both superb transducers that show that the right technology in the right application creates magic. tas

## Audience 1+1 V2+

Don't let the 1+1 V2+'s nearly identical appearance to the 1+1 fool you; this newly upgraded version is a huge leap over its already superlative predecessor. The V2+ employs a significantly redesigned version of Audience's full-range driver, Audience's top-level Au24SX internal wiring, retuned passive radiators, and custom tellurium solderless binding posts. The result is far more resolution and detail (particularly in the treble), superior transparency, wider dynamic expression, and even greater midrange purity. The 1+1 V2+'s midrange clarity, just one of the virtues of a crossover-less single-driver speaker, is on par with that of many speakers costing twenty times the V2+'s price. The state of the art for desktop listening, and a terrific choice as a main speaker in smaller rooms.

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## KEF Q500

### Clarity and Articulation

David Martson

**R**aymond Cooke, himself, would be proud of these speakers. KEF, which from the beginning has sought to take advantage of new, synthetic materials and state-of-the-art technologies, has remained true to its founder's legacy of innovation to the present day.

The KEF Q500, a two-and-a-half-way bass-reflex design, is the introductory point for the company's "Hi-Fi Speakers" Q Series loudspeaker line that also includes the Q700 and Q900 models. The obvious primary differences between the \$799-per-pair Q500 and its smaller siblings are the Q500's larger drivers and cabinet dimensions. All Q Series loudspeakers use a high-quality, aluminum-coned driver complement, including the namesake Uni-Q array (which I describe later), with the Q500 employing drivers that each measure 5¼": one woofer, two auxiliary bass (passive) radiators, plus one Uni-Q midrange/treble array. (The Q700 and Q900 utilize 6½" and 8" drivers, respectively.) First introduced in the late 80s, the company's unique (pun intended) driver is now in its 11<sup>th</sup> generation.

Upon opening the review samples' cartons, I found the installation manual conveniently placed under the flaps—a nice, easy-access touch. The speakers were held in place by closed-cell foam inserts and carefully wrapped in both a foam sheet and a protective cardboard sleeve. All components associated with installing the speaker, i.e., the plinths, plinth-mounting hardware, spike feet, etc., were also carefully packaged in their own discrete containers.

The black oak finish of my review samples was flawless, and the overall build-quality of the speakers very impressive. Installing the spike

feet on the plinths and leveling the speakers was an easy task. The spike adjustment is performed *from above* using the supplied hex wrench and a spirit level (not supplied). My listening room is in an old wood-frame house with floors that are far from being perfectly flat, but happily, the spikes' extended adjustment range allowed a perfect level to be easily obtained. This was the fastest I have ever accomplished that task!

The KEFs are equipped with high-quality five-way binding posts, allowing for the use of almost any home-audio connector available. In addition, the Q500s are designed to be bi-wireable with an additional pair of binding posts to facilitate independent connection to the tweeters. When not bi-wired, rather than being fitted with external shorting straps or bars, the Q series speakers utilize the KEF link—a clever, internal shorting mechanism. Per the manufacturer's description: "The link is done internally with an impedance-neutral short-run copper circuit. The electrical connection is made to the link run via a threaded connector that opens or closes the connection based on the position of the external knob. By using the circuit-board-based shorting link, no skin effect or capacitance difference between the planes of the connectors is introduced."

The heart and soul of the loudspeaker series is the Uni-Q array, which provides the mid and high frequencies. The current version of the array resulted from engineering development during the company's recent Concept Blade program. In brief, the Uni-Q array places both the midrange and tweeter drivers concentrically within the same mechanical structure to form a single acoustic source that's coherent in position, directivity, and time. This is in contrast to the old "whizzer cone" drivers, which placed the

tweeter in front of the lower-frequency driver, and not at the same acoustic point. Moreover, the manufacturer states that this alignment of the midrange (which provides many of the spatial clues in stereo listening) and the tweeter improves the tonal balance characteristics and broadens the listening area rather than limiting it to a sweet spot.

My listening room is 13' by 21', with lath-and-plaster walls, hardwood floors, and a 9' 4" plastered ceiling. The speakers are located on the long wall. With the exception of some large record-storage shelves along portions of two walls and a large floor rug, the room is "live." I initially installed the Q500s 19" from the front wall with the faces toed-in towards the listening position, similar to the way my reference Sunfire CRM-2 speakers are oriented. My listening seat placed my ears level with the tweeters.

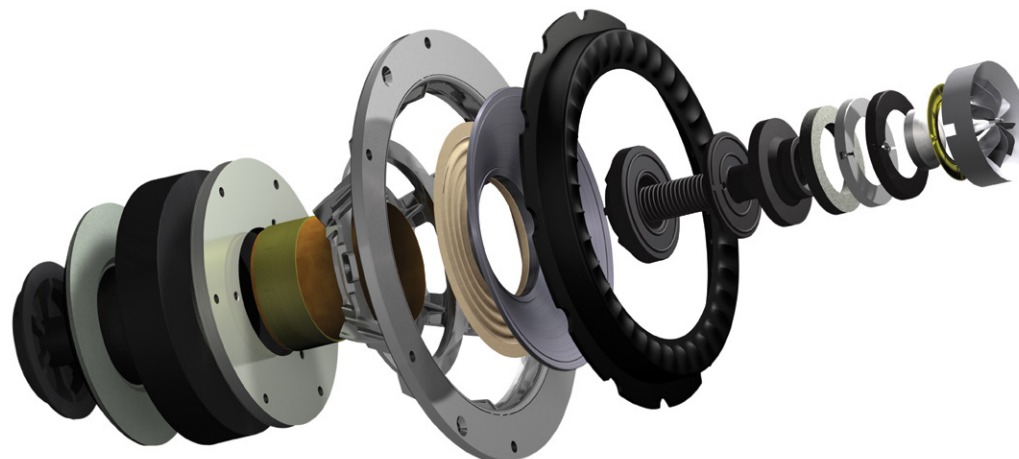
On first listen, I was immediately struck by the Q500's clarity and articulation. In fact, during early listening to "Eleanor Rigby," from Dick Hyman's *Brasilian Impressions* [Command], I could hear the vibrations of the clarinet player's reed—quite impressive. Listening to "Waltz For Debby" from Bill Evans' CD of the same name [Original Jazz Classics], as well as tracks from *Bob Brookmeyer and Friends* CD [Sony], I was able to easily pick out and identify instruments and voices within the soundstage. It was also obvious that the upper-frequency limit was quite high, likely in excess of 20kHz (the manufacturer claims 40kHz) and was not lacking in output. On "Captain Caribe" from *Dave Grusin Discovered Again! Plus* [Sheffield Lab], I noticed the cymbals shimmered without sizzling, and the overall amount of high-frequency content and rich harmonics was amazing. On "The Peacocks," from *The Bill Evans Trio featuring Stan Getz*

## EQUIPMENT REVIEW - KEF Q500

CD [Milestone], the full-bodied timbre of Getz's saxophone was well represented, as was his "spitting" into his instrument while playing to produce sharp, staccato sounds. At the same time, the Q500s revealed the very soft sounds of his fingers on the sax keys. Closing my eyes for a moment, I could envision Getz onstage playing.

On Yellowjackets' *Shades LP* [MCA], Jimmy Haslip's bass lines were, within the lower-bandwidth limit of the speaker, well represented, with a solid foundation. Subsequently, listening to "The Love Nest," from Leroy Vinnegar's *Walkin' the Basses* CD [Contemporary], I found both the strings of Vinnegar's upright bass and the rich harmonic content they generated to be well defined, with even more lifelike realism than the *Shades LP*.

The Uni-Q array is complemented by one 5¼" driver with two similarly sized auxiliary bass radiators to enhance low-end response. Though initially I noticed edginess in the midrange and tweeter, I assumed that everything would smooth out following adequate break-in. And, indeed, after some 60 hours of playing time, the edginess disappeared. I was still aware of some forwardness in the midrange and treble, i.e., those frequencies reproduced by the Uni-Q array, relative to the upper bass around 150Hz. Some genres of music were more forgiving of, perhaps even enhanced by, this trait, though the phenomenon was exacerbated when listening to highly compressed recordings and/or substantially increasing the volume level. Starting with Yellowjackets' *Shades* CD [MCA]—an extended dynamics, high-energy, jazz-fusion recording—the perceived lack of warmth due



to the aggressive upper midrange and treble response became immediately apparent as SPLs increased. Substituting the LP of the same recording (from the same digital master, released simultaneously with the CD), I found the tonal balance somewhat improved, likely a result of that medium's lower upper-frequency limit, though the presentation still proved a little too forward for my tastes.

The worst scenario I encountered was listening to highly compressed rock recordings loud, but certainly not at ear-splitting levels, where the screaming voices and guitars were punishing to the eardrums. Attempting to alleviate this, I tried toeing-out the speakers, making them perpendicular to the front wall and not directly pointed toward the listening position. While that orientation did ameliorate the effect a bit (as did different distances from the front wall, i.e., 9", 12", and 30", with various combinations of speaker toe-in and spacing), the Uni-Q driver's acoustic output in this configuration simply overshadowed the amount of low end that the woofers were producing. That is not to say that the woofers were underperformers—more likely they were victim of design choices

in the second-order crossover—but that the Uni-Q drivers are hot rods. With the level of performance that the Uni-Q array delivers, I would have appreciated some adjustment(s) to fine-tune their response and to allow the overall tonal balance to be brought more in scale with the rest of the system. The absence of adjustments to effectuate such changes, and the fact that the existing balance seemed relatively constant regardless of position and orientation, suggests the sonic presentation is by design—and perhaps a compromise between music listening and home-theater use (for which the speakers are also marketed). After several different placements and toe-ins, I finally settled on a location 18" out from the front wall with no toe-in as the best compromise in my room.

Thinking that my perception of the Q500's leanness in the upper bass might somehow have been due to listening to loudspeakers (such as the Sunfire CRM-2) that not only use but also require a subwoofer, I connected my Sunfire TS-EQ10 sub and made the appropriate adjustments. While the overall low-bass response was bolstered with the sub's inclusion (as expected), the previously described accentuation of the

midrange and treble regions was unchanged, confirming that the response characteristics I was hearing were "errors" of commission rather than omission. Using the KEF Q400b series subwoofer, which was designed and co-engineered for use as part of a total system with the Q Series speakers, will definitely improve the bottom end but will likely not change the overall tonal balance.

Utilizing the Link facility to bi-wire the speakers was easy—merely rotating the dedicated knobs a few turns on each speaker to connect/disconnect the internal shorting mechanism instead of dealing with or, worse, losing pesky external shorting bars. While bi-wiring the Q500s, I experimentally (using resistors on hand, and don't try this at home) connected my Sunfire 300~two current-source outputs, first through a 1.9-ohm resistor, subsequently replacing it with a 3.3-ohm resistor, in series with each tweeter input. (The amplifier's voltage-source outputs were connected directly to the speaker LF inputs at all times.) The upper-octave response diminished substantially with 1.9 ohms in series, and continued to do so with 3.3 ohms. Indeed the experiment reinforced my thinking about the value of a proper adjustment control.

As stated earlier, one of the goals of the Uni-Q design was to improve off-axis stereo imaging and the uniformity of tonal balance across the listening area. The listener is not, therefore, as limited to a central sweet spot as with conventional speakers. Based on the various speaker placement locations I tried, I must say that some level of success was achieved. This is in contrast to my reference, the Sunfire CRM-2, whose optimum soundstage



## EQUIPMENT REVIEW - KEF Q500

only occurs within the confines of a small well-defined sweet spot, causing Robert Harley to comment in his review [Issue 183] that "every parameter must be perfectly dialed-in to realize the CRM's potential." Though each placement I tried with the Q500 did change the soundstage presentation somewhat, its integrity and tonal characteristics stayed the same.

From the outset, the Q500's quality is evident—and it befits a product much more costly than its modest price. From the moment one opens the packing cartons, peruses the assembly instructions, and finally, connects the loudspeakers to the system, virtually every detail is well thought-out and every practical nuance addressed. This is even more impressive considering that the company—which is also committed to the protection of the environment—manufactures the fine-furniture-quality cabinets from wood pulp, whose handsome appearance easily swayed my significant other (they successfully passed the "spouse acceptance test" for inclusion in the living room).

The Q500 is very articulate; perhaps one of the most articulate loudspeakers I have ever listened to. Its clarity and presentation of detail, including what I might call selectivity (i.e., its ability to reproduce low-level information accurately in the presence of high-level signals close in frequency), exceeded my expectations. It creates a very believable soundstage despite various different placement schemes (though with the expected obvious and subtle differences), making it room-friendly. Though its sensitivity is specified as 87dB, the Q500 is easy to drive with as little as a 15-watt

amplifier. Keeping the volume level in mind, no matter which recording I listened to, be it acoustic jazz, chamber music, and all but the most over-compressed sources, I found my attention immediately drawn to the distinctive and compelling sound. With the simple addition of a control to adjust the output level(s) of the Uni-Q driver to more closely match that of the woofer (or the listener's tastes), this speaker has the potential to compete with many others, so exceptional is its quality and performance in most respects. In any estimation, the Q500 offers a noteworthy value for overall quality at its price point. Those who appreciate a very articulate sonic presentation should give them a listen. **tas**

### SPECS & PRICING

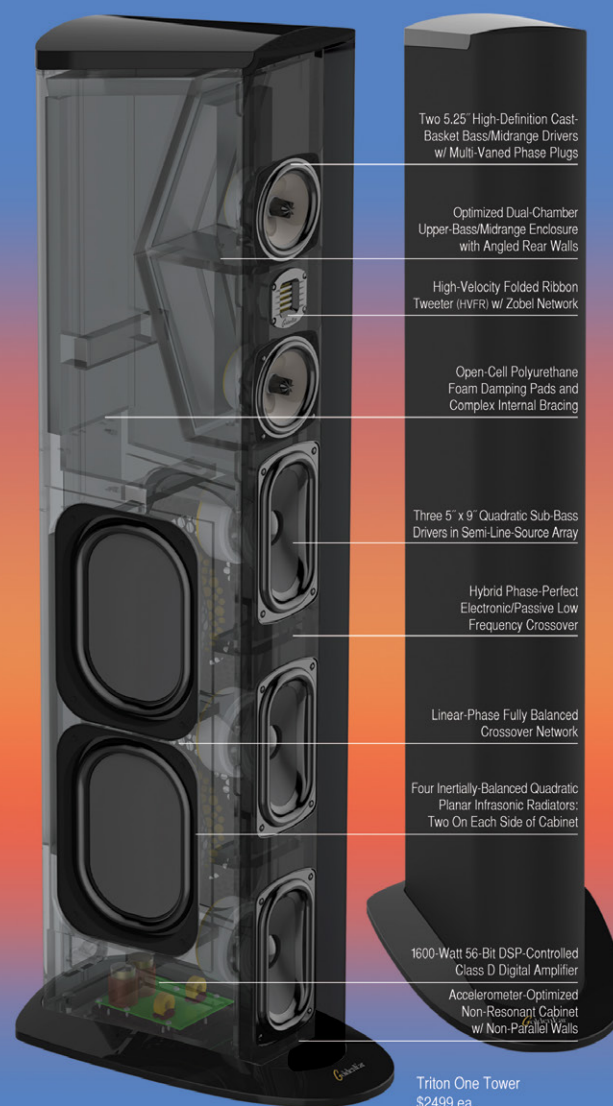
<b>Type:</b> Two-and-a-halfway bass-reflex floorstander	<b>Dimensions:</b> 7.1" x 34.3" x 10.7"
<b>Drivers:</b> Aluminum Uni-Q with 5.25" midrange and 1" teeter, one 5.25" aluminum woofer, and two 5.23" passive radiators	<b>Weight:</b> 33.1 lbs.
<b>Frequency response:</b> 40Hz-40kHz	<b>Price:</b> \$799
<b>Crossover frequency:</b> 2.5kHz	<b>ASSOCIATED EQUIPMENT</b>
<b>Sensitivity:</b> 87dB	Rega P5 Turntable, RB700 tonearm, Shure V15VxMR cartridge,
<b>Impedance:</b> 8 ohms	Rotel RCD-1072 CD Player, Sunfire Vacuum
<b>Maximum output:</b> 110dB	Tube Control Console, Sunfire 300-two
	Amplifier, Sunfire TS-EQ10 True Subwoofer

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# GoldenEar has Engineered Our New Triton One to Perform Like a \$20,000+ Super Speaker!

## "Product of the Year 2014 – The Absolute Sound"



### "Best Sound for the Money at CES 2014"

– Jonathan Valin, Kirk Midskog and Neil Gader, *The Absolute Sound*

When three of The Absolute Sound's top reviewers all choose the same product for their "Best Sound for the Money at CES" honors, you know it is something very special. And when The Absolute Sound's senior writer, Anthony Cordesman, writes a rave review, calling them, "intensely musical", says that, "You can get lost in the lifelike reproduction" and praises their, "exceptional bass performance" as well as their, "exceptional soundstage and imaging performance." you know we are speaking about a truly epic and iconic loudspeaker.

*"An absolute marvel ... shames some speakers costing ten times as much."*

– Caleb Denison, *Digital Trends*

Introducing the Triton One, an evolutionary loudspeaker that builds upon all the advanced technologies that have made the Tritons mega-hits around the world. This new top-of-the-line flagship has been engineered to deliver even better dynamics and bass than the extraordinary Triton Two, along with further refinement of all aspects of sonic performance. In the words of HD Living's Dennis Burger, the Triton One, "creates visceral, tangible waves of pure audio bliss" and deliver, "the sort of upper-echelon performance that normally only comes from speakers whose price tags rival a good luxury automobile".

*"Extraordinary sound quality and value ... one of the best buys in speakers ... they provide sustained musical pleasure and exceptional realism. Highly recommended."*

– Anthony Cordesman, *The Absolute Sound*

Yes, great sound is what it is all about. HiFi+’s Chris Martens raved the One is, "Jaw-droppingly good" and delivers, "a dazzling array of sonic characteristics that are likely to please (if not stun)", calling it, "one of the greatest high-end audio bargains of all time". And Stereophile called them, "A Giant-Killer Speaker", with Robert Deutsch writing, "And yet, the mere fact that it's not unreasonable to compare the sound of the \$4999 Triton One with the sounds of speakers costing tens of thousands of dollars more per pair says a lot about the GoldenEar's level of performance." Hear them for yourself and discover what all the excitement is about!

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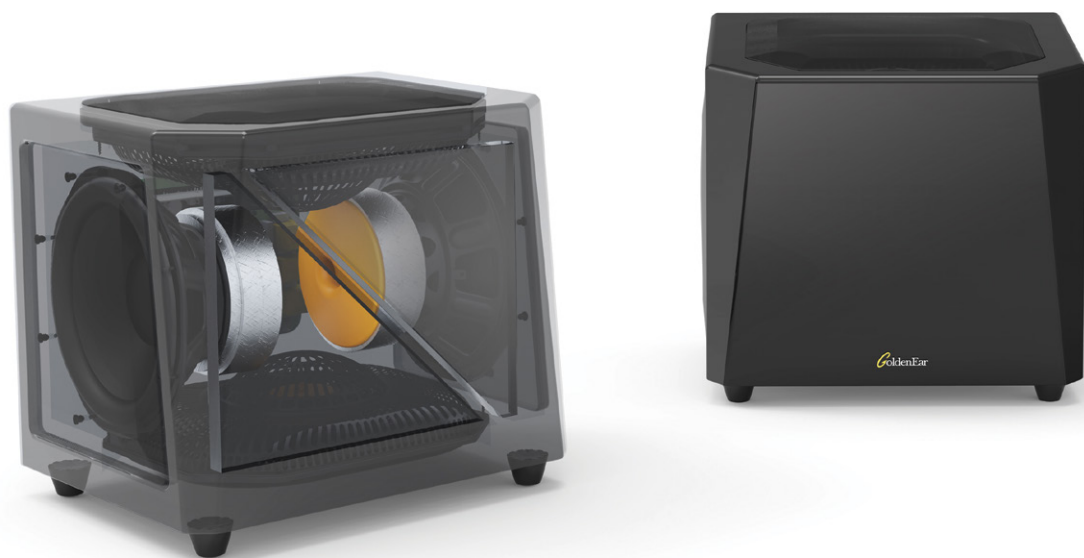
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# GoldenEar Technology SuperSub XXL Subwoofer

Big Bass in a Small Package

Jacob Heilbrunn

**E**ver since I heard a Mark Levinson No.334 amp grab the woofers of a Thiel CS3.6 at a friend's house many years ago and reproduce the shuddering whacks of a bass drum on a CD titled *Summon the Heroes*, I've been chasing the deep frequencies. It's not that this CD was particularly well recorded. It wasn't. But the way the Levinson amps delivered the bass region was a revelation. Something was appearing that was fundamentally, palpably satisfying that simply had not been present before. The Thiels, which were notoriously difficult to drive because of their low impedance in the bass, almost sounded like a new loudspeaker. I was really impressed—and my heart sank. I now knew that, no matter how much amplifier muscle you threw at them, my own diminutive Snell E/IV loudspeakers sounded anemic by comparison. They could never compete with what I'd heard.

Since then, I've gone on to own or audition a number of other loudspeakers, ranging from the Magnepan 20.1 to the Wilson XLF. But even using stout amplification was never enough to satisfy me

fully. Over the years, I also deployed a variety of subwoofers from manufacturers such as REL, ATC, and JL Audio. One thing I quickly figured out was that I really liked to use a pair of subs in stereo for maximum performance, which is why I used a pair of JL Audio Gothams before switching to a pair of Wilson Hammer of Thor subwoofers. Throughout my listening, I've been fascinated by the effects of room placement, crossover frequency, and phase adjustment. I suppose there are always some downsides to subwoofers, as well: They're pretty much bound to impinge upon the main loudspeakers, and it's really tough to get the blend just right between the two. But the benefits can be enormous not only in the deep bass, but also in a sense of scale and, believe it or not, detail retrieval, even in the treble region. Put otherwise, a good sub can act like a backdrop for a loudspeaker to strut its stuff.

So when Sandy Gross, the impresario of GoldenEar Technology, offered to send me a pair of SuperSub XXLs, I was more than eager to listen to them. About a year ago I reviewed his Triton Five loudspeakers, which sounded quite enticing and powerful. As nifty as they were, however, I'd have to say that his subwoofers belong in a different category. The XXLs are not good; they're superb.

As with the Triton Five loudspeakers, GoldenEar tries to cram as much technology as possible into a small enclosure in the XXL. With a little effort, you can heft one of these fairly compact babies around and get it situated for optimal performance. I ended up putting them near the loudspeakers, as the owner's manual recommends. With a 1600-watt Class D amplifier powering them, there really is no need to opt for corner placement,

which, incidentally, the manual warns against. If anything, I was taken aback by the sheer output of the XXL, which should be able to pressurize any reasonably sized listening room. The internal amplifier itself is controlled by a 56-bit DSP device with a 192kHz sampling rate. This Programmable Logic State Machine, among other things, equalizes the drivers to ensure linear performance in the bass range, which is no small challenge. The XXL's enclosure is constructed of high-density medite and finished in high-gloss piano-black lacquer. The driver complement consists of two fully inertially balanced 12" long-throw active drivers in the horizontal plane and two fully inertially balanced 12 3/4" x 14 1/2" planar infrasonic radiators in the vertical plane. Double this with a second sub, and you truly have a healthy amount of air displacement (and, boy, are those infrasonic radiators speedy).

Actually, this had been my greatest apprehension about the XXL: Would it be able to deliver enough output to fill my large room? Once I set the subs up, however, I could immediately tell that they could more than deliver the goods.

The inputs to the subs are unbalanced only. In addition, I used the stock cord supplied by GoldenEar. There is no on-off switch for the subwoofer. A blue light on the rear illuminates to alert you that the subwoofer is powered up. In addition, a switch on the rear allows you to toggle between mono use (both left and right channels) with a built-in adjustable low-pass filter on both channels, or for LFE or outside low-pass filtered pass-through input. If you have two subwoofers, you can set it to play back one channel alone, either filtered or unfiltered.

Initially, I ran the XXL without the main loudspeakers to ensure that I could place them



EQUIPMENT REVIEW - GoldenEar Technology SuperSub XXL



optimally. Already I was taken aback by the volume of sound they produced. When mated with my main XLF loudspeakers, I dropped the crossover frequency on the XXLs to 40Hz and set the volume control on them fairly low as well. It's fun to hear subs pumping away, but the old adage holds true: The best sub is one that you can't hear.

What I heard with the XXL was an exceedingly tuneful, pitch accurate, and speedy subwoofer. There was no smearing or blurring of notes. This is no muffin-top subwoofer, where you hear that old bugaboo—deep bass intruding upon the midrange. Instead, you get a sleek and

svelte performer that, when called upon, will also deliver tremendous wallop.

After to listening to a couple of tracks from Madonna, just to hear the sheer grunt of the bass lines, I turned to the venerable *Head Hunters* album from Herbie Hancock. On the opening number "Chameleon," the electronic bass line, which is set to a funk beat, endows the song with an elemental excitement. Even after listening to the disc for so many years, I really was quite taken by the precision with which the XXL sub not only helped im-

prove the transient pluck of the notes, but also allowed the notes to decay for just a split second longer. There simply was none of the overhang that sometimes afflicts subwoofers.

To hear the *Head Hunters* SACD sound so distinctive wasn't a revelation, but it did add a sense of realism to the proceedings. I felt as though I were hearing one notch further into the song. On the SACD *Friendship*, which features Clark Terry and Max Roach in a duet, the pounding of the detuned drum heads and the wailing of the virtuosic trumpet runs came through with a ferocity that compelled not simple respect but awe for these two players.

That same sense of clarity and precision came through on another recording that I've come to cherish, *The Art of Bach*, by the talented piano duo Anderson & Roe. Their recording obviously consists of transcriptions, including one of the Brandenburg Concerto No. 3 arranged by the composer Max Reger, but I feel that, rather like looking through a prism, the two-piano versions open up new musical angles into Bach's compositions. What did the XXL bring to the table? It helped provide a foundation for the deepest piano notes, thereby subjectively improving the sense of a steady tempo on a number of the pieces. This was especially so with stately works such as the opening cantata arranged for piano. It seemed to acquire an even more tranquil and magisterial character. Ditto for a marvelous performance of a Deutsche Grammophon CD of Schumann's violin sonatas performed by the peerless Gidon Kremer and Martha Argerich. Once again, the grand piano just sounded a notch grander with the XXL. At the same time, the quietest notes also sounded a touch more ethereal as though they were emanating from pitch-black backgrounds.

Some of this can surely be ascribed to the XXL's effortless ability to help widen the soundstage. The best way that I can describe this effect is to suggest that the combination of deep notes and concert-hall air and ambiance that a sub like the XXL supplies adds a degree of verisimilitude that a single pair of loudspeakers cannot, no matter how low or how powerful the bass coming out of those speakers is. The stone cold truth is that a pair of subwoofers will add a vital ingredient to the sonic stew that is simply

impossible to capture otherwise.

This, the latest brainchild from industry veteran Sandy Gross, is the real deal. I must admit to shaking my head at what Gross manages to extract from small packages; somehow he and his engineering team successfully defy the maxim that size matters. The XXL is a diminutive beast that offers a lot of performance for just about any stereo system. No, it doesn't have the cachet of some of its tonier brethren. But for anyone looking for a reasonably priced subwoofer that plunges into the nether regions with musicality and dexterity, volcanic power, and subtlety, the SuperSub XXL is a must-audition. I imagine that it will win over more than a few listeners as much as it did me. *tas*

SPECS & PRICING

Frequency response:	Variable high-pass from 10Hz-200Hz	Dimensions: 17 3/8" x 19 3/4" x 16 3/8"
Drivers:	Two 12" long-throw high-output bass; two 13" x 15" quadratic planar infrasonic radiators	Weight: 78 lbs.
Amplifier:	1600-watt ForceField switching amplifier	Price: \$1999 each
LFE line-level input:	Unfiltered (no low pass)	
Right/left line-level input:		

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# REL S/5

You Complete Me

Neil Gader



**I**f REL Acoustics, the highly regarded subwoofer manufacturer, pulled out of the high-end marketplace tomorrow, never again to manufacture another unit, its place in the audio pantheon would forever be assured. REL has offered superb build-quality and high standards of bass reproduction since the company was founded in 1990. Thankfully for bass fans everywhere, nothing has changed in its latest venture, the S/5, which may be the best-performing midpriced sub REL has offered in its vaunted history. The S/5 goes about its tasks so matter-of-factly, effortlessly, and invisibly that it seems to become another attractive fixture in the room—until you pull it from the system. Then you understand what authentic low bass brings to the party. You also begin to understand the meaning of...addiction.

The REL S/5 is the kingpin of the freshly minted S Series, a line second only to the big Gibraltar subs in the REL lineup. Tipping the scale at seventy pounds, the S/5 is not small, but it isn't a real-estate hog, either. The S Series enclosures are visually lavish and lavishly inert. Sporting 1 1/8"-thick cabinet walls, my gloss-black sample was superb in fit and finish. The solid T-304 stainless steel grab handles are first cast, then micro-machined, and finally polished in a six-stage process. The polished aluminum trim pieces—such as the footers—elegantly accent its dark good looks.

Inside the S/5 is a new forward-firing 12" alloy-cone woofer. According to John Hunter, REL's Woofer-in-Chief, this driver's excursion

has been increased to a full two inches, an improvement of a 1/4". He also points out that the cone's moving mass has been reduced almost 60 percent by his reckoning, and that it is "self-quieting," which is to say, it is so non-resonant that it stops as quickly as it starts. Additionally, there's a downward-firing 12" passive driver with a unique carbon diaphragm that is similarly stiff and lightweight. REL says that the S/5 uses a simple filter-type that's quite fast—with about eight milliseconds in group delay—to eliminate the passage of unwanted higher frequencies to the REL driver. Power is also superior to that of its predecessor, the discontinued R-528. The S/5 now uses a NextGen2 550W switching amplifier that can generate up to 873W on hard transients.

Per tradition, REL subs do not use high-pass filters—the main speakers run full-range, full-time. REL's view is that high-passing the sub/sat looks good on paper, as it allows the main speakers to perform with less stress and more dynamism. But REL also believes that high-pass filtration creates more problems than it solves. Why? Because the main speakers are designed and voiced to operate within a specific range of frequencies, and by cleaving away a portion of that output via a high-pass crossover you are essentially refashioning the speaker into a different, even unpredictable unit never contemplated by its designer. That's why—at least under their breath—many designers don't actively embrace third-party subs, high-pass or not. Subwoofers from the same brand are another story. They have purposefully designed drivers and low- and high-pass crossovers to pair with designated models (Revel, among others, comes immediately to mind as a specialist in these matters). In any case, no

high-pass filtering for the S/5.

The back panel houses a phase toggle and rotary settings for the low-frequency effects (LFE) level and for volume, plus the tiniest 39-step increments for adjusting the crossover over the range of 30-120Hz. There are dual low-level RCA inputs, plus an LFE input, but the high-level input is and has always been REL's preferred means of installation. A lengthy Neutrik connector is provided for this purpose. It carries within its jacket four wires for connection to an amplifier's speaker taps.

REL suggests starting with corner placement, usually on a room diagonal. This not only maximizes room gain but also allows "for the most linear true low bass wavelaunch." The set-up manual REL provides is quite comprehensive (without being intimidating) about optimizing placement. In my experience, dialing in an REL is a matter of a few easygoing minutes rather than hours of hand-wringing. My advice: Bring a friend for fine adjustments. (Because of the added expense, I hesitate to mention that if you have a "problem" room, setup is easier with two subs, as they work together to smooth and flatten overall room response, and thereby become less of a sonic presence. This was an experience that I enjoyed first-hand with a pair of S/5s, but that's a story for another time.)

## Mood Elevator

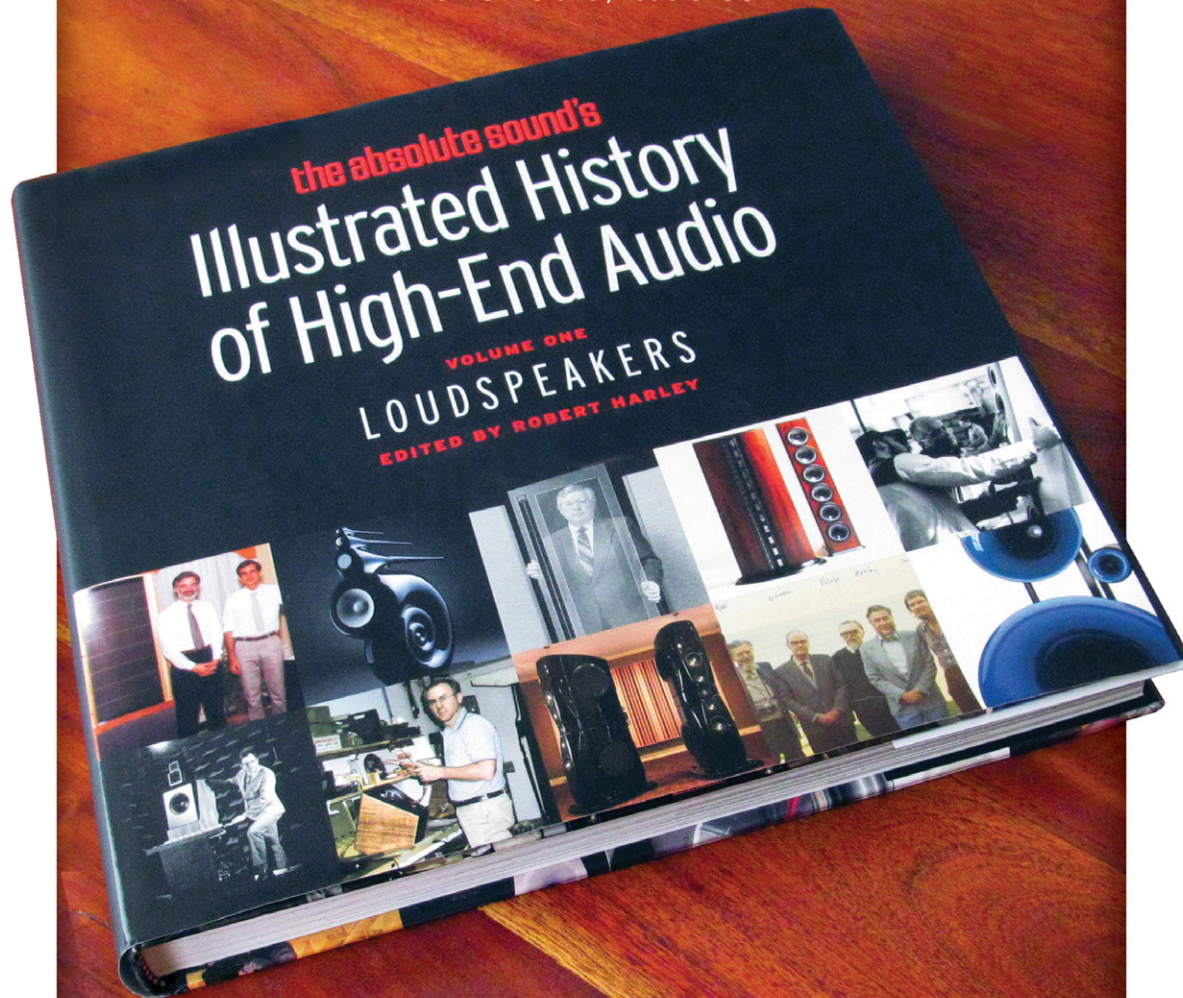
There are two sets of criteria that I use to evaluate subwoofers. There's overall bass quality (extension and musicality), and then there's integration (the subwoofer's ability to blend with the main stereo speakers). Net: Does it remain true to the character and voice of the satellites?

In the tight confines of my listening room, the S/5 wasn't even breathing hard as it extended



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## REL S/5 - EQUIPMENT REVIEW

response into the middle twenty-cycle range. It did so without calling attention to itself—no overhang, perceived box coloration or, to use the sonic slang, "slowness" in its response. In all honesty the S/5 will go even lower, but my room struggled to support 25Hz without the doors rattling and the space over-pressurizing. The S/5 makes short work of large-scale orchestral pieces laden with timpani and bass drum. Every decaying flutter off the skin of these instruments is presented concisely and cleanly, and often in overwhelming detail. Small-scale, low-level cues don't escape the S/5, either. Towards the end of Jackson Browne's "Colors of the Sun" from *For Everyman*, there's a repeated piano and drum motif that resolves into a deepening bass note that seems to ripple, sustain, and expand as if suspended in space. Each repetition of the motif is heavier and more resonant than the last, until the track begins a long fade. The bass notes hardly exist at all without the help of the S/5. Similarly, during Yes' "It Can Happen" from *90125*, there's a recurring bass line where the bassist slides his finger down the string, the pitch plunging as if tossed off a cliff. Most speakers by themselves can't reproduce the full weight of these descending notes convincingly. The S/5 can.

What makes its performance special, however, is not its obvious power, extension, and dynamic headroom. These exist to degrees that can overpower most medium-sized rooms. It's its clarity and focus that really impress. Credit is owed to the sub/sat transition, which is so seamless that it becomes anyone's guess where the REL leaves off and the sats

takeover. For me, this is where the believability factor kicks in. For example, when drummer Russ Kunkel plays some tom-tom fills during Carole King's "Home Again" on *Tapestry*, the drum-skin detail and tuning, and the resonant decay, reveal themselves in full bloom, images locked into position without a hint of the S/5 in the sonic picture. This was also true of the kickdrum positioned centerstage during Holly Cole's "Take Me Home." The weight of the impact didn't pull towards the corner position where the S/5 was sitting—it remained focused dead center within the soundspace. And this wasn't just the case with the REL augmenting my compact ATC SCM20s, either. Even a speaker like the gorgeous Kharma Elegance S7 Signature floorstander, certainly no sluggard in midbass response and speed, benefitted richly from the ministrations of the S/5.

Less obviously, the S/5 enhances the mood of a performance in the way it conveys sweeping and subtle landscapes of tonal color and timbre,

## SPECS & PRICING

Type: Front-firing  
subwoofer, with downward-  
firing passive radiator

Drivers: 12" woofer, 12"  
passive

Frequency response: 21Hz  
-6dB

Power: 550W

Dimensions: 17.5" x 18" x  
20"

Weight: 70 lbs.

Price: \$2500

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AMERICA

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## EQUIPMENT REVIEW - REL S/5

gradients of shadow and light. The S/5 establishes the musical context for what is to come. For example, without the opening 30Hz organ pedal point that introduces Strauss' *Thus Sprach Zarathustra*, or the deeply ominous synth note that kicks off Dire Straits' epic "Telegraph Road," listening to these pieces would be like listening to a Shakespearean sonnet with the opening quatrain lopped off. On the tight, crisp bass intro to Holly Cole's cover of "I Can See Clearly" from *Temptation*, the REL captures the optimistic bounce and jauntiness of the instrument—character that's pivotal to the upbeat emotion of the song. Similarly, from the opening bar onward, the forward placement of Ray Brown's standup bass immediately signals listeners that the album *Soular Energy* is about the bass player as frontman, not backing musician.

Of equal importance is the ambient information that the REL reproduces. This baby can move a lot of air. Take a familiar piece like "Lux Aeterna" from the Rutter Requiem. The hall sound becomes a more active player in the performance when the S/5 is in the system. You can hear the air filling with sound around the musicians and chorus, and then hear this ambience even more clearly when the organist hits the lowest pedal points. And when the organist abruptly stops and the instrument goes silent, there is a sense of air rapidly escaping from the venue, like a balloon suddenly deflating.

A couple of tips to keep in mind: Subs do not operate in isolation. Only well-engineered main speakers with fairly neutral low-end response will excel with subwoofers. Sats with a sucked-out lower midrange and upper bass will sound



### REL Wireless? Hello, Longbow!

Longbow is REL's wireless solution, available in specific models like the S Series. It was originally developed for the REL Habitat1—a 4.5"-thick, on-wall subwoofer. To keep up with the emerging—and growing—wireless trend in consumer electronics, Longbow has been designed to eliminate the look of cables and to address situations where a lengthy cable-run becomes an issue. Longbow wireless allows you to transmit wide-bandwidth signals (20Hz-20kHz) via the REL's high-level Neutrik connection. And, should you wish to use a REL sub in a home-cinema setup, it will also simultaneously send a more limited-bandwidth, .1-channel signal (250Hz and below). Unlike Bluetooth-based systems, Longbow does not compress, resulting in minimal delay. I'm hopeful that I'll be able to report on Longbow in a forthcoming issue. Price: \$299. **NG**

a little bass-light and dynamically lean. And attempting to mask such a tonal deficit by raising the output and crossover point of the S/5 will only smear midrange detail and create a noxious midbass bump that further decreases the sense of sub/sat integration that, after all, is the desired effect. Also, with smaller compact monitors, care should be exercised in gain-matching the more dynamically limited satellite with the much higher dynamic limits of the sub.

What about value? Put it this way, if you consider that you can easily spend a \$2500 on a couple of power cords, then the real value of the S/5 comes into crystalline focus.

From time to time I meet audiophiles who continue to insist that subwoofers are the bane of their audio existence. I don't know what sort of deep-rooted, sub-bass trauma they were exposed to in their earliest high-end years, but I'm here to tell you that the only drama I experienced during my time with the REL S/5 was the emotion that its evenly weighted balance and full-range musicality brought to the fore. (Plus the separation anxiety I'm anticipating when REL calls for its return.)

In both subtle and not so subtle ways the REL S/5 completed every speaker system it partnered with. Ultimately, it's up to every audiophile to ask himself whether he wants the whole musical picture—the entirety of the soundscape. If your answer to that question is an unqualified yes, then consider yourself warned: Don't even think of plugging in the S/5 if you ever expect to use that outlet again. An exceptional performer in any class. **tas**





# JL Audio E-Sub e110

Old Dog, New Trick

Jonathan Valin

**I**t is no secret that I'm not a fan of subwoofers. In my experience they take away more in transparency and coherence than they pay back in low-end extension and power-handling, especially when they are mated to bass-shy two-ways or any kind of planar, 'stat, ribbon, or quasi-ribbon. (Ironically, subwoofers work best—or at least better—with speakers that don't really need them, i.e., with dynamic speakers that already have good bass extension.) Thus, it may come as a surprise to learn that I really like JLAudio's e110 sub, even when it is paired with a two-way. It certainly came as a surprise to me.

The e110's price tag may also come as a surprise—\$1500 in what JL calls its “black ash” finish, and \$1700 in the gloss-black version sent to me. This isn't exactly cheap for a single ten-inch driver in a small (13.5" x 14.25" x 16.5"), hefty (53-pound), sturdy box, but it isn't Thor's Hammer or JL Audio Gotham (or even REL Series R) territory, either.

What you get for that grand-and-a-half is a highly engineered loudspeaker that incorporates many of the patented Finite Element Analysis-based technologies that JL Audio has been introducing since 1997—such as its Dynamic Motor Analysis program for computer-optimizing driver design, its Vented Reinforcement Collar driver-mount system, its Floating Cone Attachment method of driver construction, and its Engineered Lead-Wire System for internal wiring. You also get a built-in, proprietary Class D amplifier (powered by a proprietary switch-mode power supply) said to be capable of 1200W RMS; a genuine two-way (high-pass and low-pass), built-in, active crossover using a fourth-order (24dB/octave, 80dB/decade) Linkwitz-Riley filter, equipped with variable gain, variable crossover-frequency, and variable phase controls, as well as a polarity (absolute-phase) switch; a ten-inch JL Audio woofer with dual spiders and a linear motor system engineered to provide equal force over the driver's entire excursion range (with both positive and negative current flowing through the coils) at any applied power level up to the built-in amp's peak; and a sealed box whose entire front panel is actually the steel mounting flange of the E-Sub's driver assembly (the back plate of the driver is threaded and bolted to the thick rear wall of the enclosure). In sum, the e110 represents a lot of technology for the money.

As anyone who's fiddled with subs knows, setup is at least half the battle when it comes to getting the most out of a subwoofed system, and I can honestly say that JL Audio (for whom subwoofers are a long-time labor of love) provides some of the sanest instructions and most useful tools for optimizing its subs I've seen—provided that you first acquire the right software. That software, which was sent to me separately by JL Audio (it doesn't come with the sub—and I think it should), is the Soundocor Test CD V 2.6.1, available (for \$18) on-line at <http://www.soundocor.com/testcd/index.htm>.

Without this CD (or something similar) you will just be making educated guesses when it comes to certain key adjustments, which means, of course, that you will be haunted by second and third guesses since you'll never be quite sure whether your first guess was “right.” With the Soundocor CD (and the Radio Shack SPL meter for which it is optimized) you can dial certain parameters in with confidence, giving you a “textbook accurate” baseline, from which you can depart or to which you can return as you season the sound—and you will season the sound—by ear.

The first step in the set-up process is finding the spots where the subs are happiest in your listening room. What JL and Soundocor suggest is to place one sub at your listening position, facing forward, then plug a CD player directly into the sub's RCA inputs (using the CD player's analog outputs), and play back Tracks 22, 23, and 24 of the Soundocor CD, which contain music with very deep bass. As these tracks are playing, you crawl around the perimeter of your room listening for those areas where the bass sounds weak and thin or those where it sounds boomy and ill-defined (usually in the corners).

# EQUIPMENT REVIEW - JL Audio e110

According to JL, you should also find certain spots where the porridge is just right, and these are where the subs go.

To be honest, this “crawl-around” method is rather hit-and-miss. It also assumes that the subs will sound better somewhere along the perimeters of the room, which hasn’t always been the case in my experience. Typically, I’ve found that for the transparency and coherence I prefer (as opposed to ultimate slam and extension) subs fare better close by the main speakers, immediately to the outside or the inside (or both, as explained in the sidebar) of the speakers’ enclosure and roughly parallel to their drivers, although the subs’ exact location

vis-à-vis the mains and the sidewalls needs to be adjusted by ear.

Far more hit than miss are JL’s suggestions for getting the subs and the mains in phase. A subwoofer’s phase control is intended to adjust the “arrival time” of the sub’s output so that its driver and the main speaker’s woofer or mid/woofer or bass panel are pushing and pulling together throughout the frequency range covered by both units. The question is how can you tell when the drivers of both speakers are in maximum sync? With the appropriate tracks on the Soundocor CD and the e110’s continuously adjustable phase control, finding the answer to this often-perplexing question is a snap.

For the record, JL Audio recommends the same method that Robert Harley recommends in *The Complete Guide to High-End Audio*: Reversing polarity on the main speakers, playing a test tone at the crossover frequency (Tracks 2 through 17 on the Soundocor CD give you one-minute test tones ranging from 20Hz to 120Hz at 5Hz and 10Hz intervals), and adjusting the continuously variable phase control for the least amount of bass. As Robert explains it: “The technique works because it’s easier to hear the maximum null than it is to hear the maximum peak. When the phase control is set perfectly, the main speaker’s woofers will move out when the subwoofer cone is moving in, cancelling

each other. When the main speaker’s correct polarity is restored, the main speakers and the subwoofer are maximally in-phase.”

Similarly the sub’s volume level can be optimally set by playing back Tracks 18 and 19 on the Soundocor CD. Track 18 contains “contoured” high-frequency noise (i.e., a test signal with no low-frequency information that has been contoured for the Radio Shack SPL meter). What you do is adjust the volume of your preamp so that your Radio Shack meter reads 85dB (slow, C-weighted) while Track 18 is playing. Track 19 contains “contoured” low-frequency noise (i.e., a test signal with only low-frequency information that has also been contoured for the Radio Shack SPL meter). Playing this track back, you adjust the level control on the e110 subwoofer so that your meter once again reads 85dB SPL (slow, C-weighted). In theory, your e110 subs are now matched in level with your main speakers.

Of course, this doesn’t mean that your system will sound as coherent or as transparent as it does without subwoofers—or that the sub’s level will not need further tweaking by ear. Getting a relatively seamless blend and tight, powerful, high-resolution, high-definition bass depends on several other equally important factors: the crossover frequency that you choose between subs and mains, the quality of the subwoofer itself (including its amp, controls, and crossover), and above all else your own listening preferences.

The question of crossover frequency is hotly debated. JL Audio recommends that crossover be set at 80Hz or higher, regardless of main speaker. And it is true that setting the sub at

## SPECS & PRICING

**Enclosure type:** Sealed

**Driver:** 10"

**Effective piston area:** 58.78 square inches

**Effective displacement:** 131 cubic inches

**Frequency response (anechoic):** 25-116Hz  
+/-1.5dB, -3dB at 23Hz, -10dB at 18Hz

**Amplifier power:** 1200 W RMS (short-term)

**Dimensions:** 13.5" x 14.24" x 16.51"

**Weight:** 52.7 lbs.

**Price:** \$1500 in ash, \$1700 in gloss

**JL AUDIO, INC.**

10369 North Commerce Pkwy  
Miramar, FL 33025-3962  
(954) 443-1100  
jlaudio.com

**JV’s Reference System**

**Loudspeakers:** Raidho D-5, Raidho D-1,  
Estelon X Diamond, MartinLogan CLX,  
Magnepan 1.7, Magnepan 3.7, Magnepan  
20.7

**Linestage preamps:** Soultion 520,  
Constellation Virgo, Audio Research  
Reference 10, Siltech SAGA System C1,  
Zanden 3100

**Phonostage preamps:** Audio Research  
Corporation Reference Phono 10,  
Innovative Cohesion Engineering Raptor,  
Soultion 520, Zanden 120, Constellation  
Perseus

**Power amplifiers:** Soultion 501 and  
701, Siltech SAGA System V1/P1, Audio  
Research Reference 250, Lamm ML2.2,

**Zanden 8120**

**Analog source:** Walker Audio Proscenium  
Black Diamond Mk V record player, AMG  
Viella 12

**Phono cartridges:** Clearaudio Goldfinger  
Statement, Ortofon MC A90, Ortofon MC  
Anna

**Digital source:** Berkeley Alpha DAC 2

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

**Power Cords:** Synergistic Research Galileo  
LE, Crystal Cable Absolute Dream

**Power Conditioner:** Synergistics Research  
Power Cell 10 SE Mk III, Synergistic  
Research Transporter Ultra SE, Technical  
Brain

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



## EQUIPMENT REVIEW - JL Audio e110



a higher crossover frequency can make for a more seamless sound. Alas, it can also make for a substantially different sound than what you're used to from your main speakers alone.

Let's face it: You've spent a lot of time and a lot of money on your loudspeakers. Presumably, you picked them from a myriad of others because you prefer the way they sound on the music you typically listen to. This doesn't mean, of course, that you think they are perfect. (Or why opt for subwoofers?) What it does mean,

first place. With steeper crossover slopes, such as the 24dB/octave Linkwitz-Riley filters in the e110's crossover, this should be less of a problem. (The theoretical advantage of fourth-order Linkwitz-Riley filters is that because of their steep roll-off at the high and low cutoff frequencies their gain at crossover is closer to 0dB.) And yet...crossing the e110s over at 80Hz or higher isn't less of a problem. Here it's not so much that the sub is still playing beyond the crossover point, masking the main

I think, is that their essential qualities satisfy you—that you are pleased with what we used to call, in The HP Era, their “character.”

There is no sure-fire way of changing a loudspeaker's character than crossing it over to a powered subwoofer at too high a frequency. With first- or second-order crossovers the problem is generally that the subs continue to play (albeit at reduced levels) into the power range and the midrange, audibly masking the very qualities of timbre, resolution, speed, and dynamic nuance that led you to buy your main speakers in the

speaker's virtues; rather it's that the sub's own character (including the character of its amplifier and crossover) becomes more audible and predominant the higher up you cross it over, since the sub is literally playing more of the music.

Many people don't seem to be as sensitive to this “change of sonic character” as I am, and can live happily with the added bass-range power and extension (and concomitant added breadth and width of soundstage) at what they presumably consider a reasonable cost in tonality and transparency. Speaking for myself, I would far rather live without the deepest bass than audibly sacrifice the characteristic sound of my main speakers.

For me, then, the secret to subwoofer satisfaction is to find a way to cross the subs over that doesn't markedly change the character of the main speakers—or that changes it only in the sense of extending its virtues into the bottom octaves. With the e110s this means a lower crossover point (lower than 80Hz).

Although the speaker that I am using with the e110—Raidho's superb stand-mounted D-1 (review forthcoming, recommendation already the highest)—is a two-way, it has remarkably satisfying mid-to-upper bass. Flattish down to the 50Hz–55Hz range its ported 4.5" mid/bass driver (which uses a diamond diaphragm) manages to give the psychoacoustic impression of going lower than it does because of its naturally full and high-resolution reproduction of the power range, where first and second harmonics live (as do a whole lot of fundamentals).

Because the D-1 doesn't really cry out for a subwoofer and because I simply love the beautiful and lifelike way it sounds (which, reduced image size and dynamic power notwithstanding, comes very close to—and in certain respects exceeds—the sound of my reference Raidho C-4.1s), I picked it for this experiment, knowing full well that I would easily hear any changes in its character, and knowing, as well, that in the past I have not been able to mate super-high-resolution two-ways to subwoofers without substantial sonic penalties. And at a crossover point of 80Hz—with all other parameters (placement, phase, level) set to theoretical correctness (and then tweaked by ear to my own preference)—the changes in the Raidho's character were marked. Despite the much deeper, more generous bass, the D-1 simply no longer sounded like the speaker I'd fallen in love with.

However...moving the e110's crossover point down to 70Hz and subsequently to just below 60Hz, where the D-1 is still playing strongly, made for a blend that was so unexpectedly magical—and so much in character—that it was almost as if the D-1 had developed several more octaves of bass on its own.

At a crossover point of around 57–58Hz (this is an educated guess as the scale on the e110's crossover-frequency control, though graduated, isn't graduated finely enough to say for sure), the bottom bass—and this little sub goes deep, down only 3dB at 23Hz—acquired the same tonal and dynamic character, the same dark, rich, lifelike timbre, sensational transient speed, and ultra-fine resolution of texture and articulation in the low bass that

## EQUIPMENT REVIEW - JL Audio e110

the D-1 has on its own in the mid-to-upper bass, power range, midrange, and treble. At the same time bottom-end pitch-definition, impact, and extension were dramatically improved.

It was as if (and I scarcely exaggerate) a blanket that had been thrown over the deepest bass octaves had suddenly been lifted, revealing an astonishing wealth of previously unheard information—and revealing it with a clarity and definition that I don't quite hear even with my reference Raidho C-4.1s (though, as you will

see, there are other aspects of the bass that the C-4.1s are far better at reproducing).

I could give you musical example after example of the e110/D-1's virtues, but it is simpler to sum them up like this: In the bottom bass this combination reveals low-level details about pitch, timbre, intensity, and duration more clearly and more often than any loudspeaker I've heard, no matter how expensive or sophisticated. This is an ear- and mind-bogglingly high-resolution system.

### How Many Subs: One, Two, or...Four?

Unless you're restricted by budget or space, two woofers are the way to go. Though in the old days low bass was summed to mono on LPs, that isn't always the case with today's high-res sources (or with reissued stereo recordings from the so-called Golden Age). A single centrally located sub tends to "pull" bass-range instruments toward it, constricting soundstage breadth and changing the perceived location of instruments at the sides of the stage. For the widest and deepest soundfield and the most faithful-to-source imaging, two subs are definitely better than one.

However, there is a new wrinkle in low-bass management called "swarm" or "distributed bass" subwoofing. The logic behind the "swarm" is simple and elegant. With one or two subwoofers you are inevitably prisoner to the room-induced dips and peaks in response that (no matter how thoroughly you've "crawled around" the periphery of your listening space) accompany the locations you've finally settled on. But what if you were to

add two or four more subwoofers (i.e., a swarm) to the original pair, asymmetrically positioning each sub throughout the room? Proponents of swarm subwoofing argue that the combined average of the different peaks and dips at the different locations of each sub will smooth out overall bass response. *Voilà*: no giant mid-to-upper-bass humps, no need for digital signal correction.

Now I don't know whether this idea always works in practice as it should in theory, but I do know this: When I added a second pair of e110s to my setup (one on the outside of each D-1 and one on the inside at slightly different locations vis-à-vis the mains) I got even more fabulous sound. I'm not saying that you have to buy a second pair of e110s to get the exemplary sonics I talk about in this review. One pair will do quite nicely, thank you. But...if you want to carry this sub/satellite system even closer to the sound of those ultra-expensive Big Boys, a second pair of e110s will do the trick. JV

(It kind of makes me wonder what JL Audio's top-line sub—the \$12k Gotham, with dual 13.5" woofs—is capable of, although, when it comes to matching the speed and resolution of a great two-way, there is something to be said for a "quick" ten-inch driver.)

While hearing a fresh bonanza of low-level information about an instrument and the way it is being played is enormously satisfying (and contributes greatly to the sense of being in the presence of that instrument), let me quickly point out that bass-range instruments in particular aren't just about texture and articulation. They are also about power and impact, and here the e110/D-1 combo is not the most revealing speaker system I've heard. To be fair, this isn't the e110's fault. A two-way—even a great one like the Raidho D-1—and a ten-inch sub simply can't move air in the bass and power range the way a big multiway can; nor can such a combo image with the more-lifelike size (particularly image height) of a big multiway.

There is this, as well. My decision to place the subs nearby the mains and to cross over at a lower-than-recommended frequency in order to more fully preserve the character of the D-1s comes with a slight additional price in imaging and power. With the reinforcement provided by a nearer-to-the-wall placement and a higher crossover point, the e110/D-1 seems to size bass instruments—indeed all instruments—more consistently from their top octaves to their bottom ones. With the closer-to-the-speaker positioning and lower crossover point, some instruments seem to shrink a bit in size as they descend in pitch, so that a four-

string contrabass, for example, isn't as big and expansive sounding on its lowest notes (E1 and C1, 41Hz or circa 33Hz) as it is higher up in its frequency range.

This slight "funnel-like" effect in imaging is accompanied by a small loss of impact on big, powerful instruments and orchestral tutti. I don't want to oversell this point. The e110/D-1 is plenty powerful, capable of genuine room-shaking temblors on really deep synth or bass drum, and punch-in-the-chest sock on toms or kickdrum. As two-way-based systems go, this one is a veritable dynamo. But...when it comes to pure wallop it ain't a Wilson XLF or a Magico Q7 or a Raidho D-5.

But then the Raidho D-1 and e110 subs don't cost what these giants cost, and don't take up the real estate that these giants do, and (if configured optimally—for which see the sidebar) don't give anything away in color, speed, definition, or resolution to the biggest of these Big Boys. For one-sixth (or less) of the system cost, you can live like a Robert Harley (or, yeah, like a Jonathan Valin)—with a loudspeaker that comes so close to the very best that you'll scarcely notice the difference. I scarcely do...and I do live like a Jonathan Valin.

The E-Sub e110 is a no-brainer highest recommendation if ever I heard one. And remember this is coming from someone who hates subwoofers (or used to). *tas*



# OUR TOP PICKS SPEAKERS AND SUBWOOFERS



**Elac Debut F5**  
\$560

The floorstanding F5 leverages the strengths of the compact B5—its warm, relaxed and responsive midrange balance, surprising bass extension and tunefulness, and strong sense of musical truth—then significantly builds on them. What really distinguishes the F5 is the sheer volume of air that the F5's additional woofers can move. The F5 created nicely weighted orchestral scale and scope, and vocalists of all genres were fully formed and fleshed out, with chest resonance, weight, and bloom. A veritable gift to budget-conscious audiophiles and the younger audience. While not flawless, the F5 is as faultless as a speaker is likely to get at this price.

[elac.com](#) (260)



**GoldenEar Triton Five**  
\$1995

Legendary speaker-manufacturer Sandy Gross's latest offering, the \$999 GoldenEar Triton Five floorstander features noteworthy drivers—four side-mounted, sub-bass radiators designed to deliver subwoofer bass without the need to employ an active sub; Golden Ear's High Velocity Ribbon Driver; and two 6" mid/bass drivers made from a formulated polypropylene cone material, all housed in a beautifully finished enclosure with nonparallel walls. Reviewer Jacob Heilbrunn thought the Fives offered a tremendous amount of performance for the price, generating hour after hour of satisfying playback regardless of genre. Greatly appealing to many audiophiles on a budget, the Triton Fives will also entice anyone who might be looking for a reasonably priced first speaker. "In sum," JHb concluded, "The Triton Five isn't just an option. It's a must-audition."

[goldeneear.com](#) (255)



**Audioengine HD6**  
\$749

The HD6 is more than an attractive loudspeaker. It's a complete audio system that only needs a source as humble as a smartphone to get it up and running. Powered, DAC-equipped, and Bluetooth-enabled, the two-way HD6 is flexible enough to be comfortable on a desk or shelf, or flanking a flat panel, or set out in the room on a pair of stands. In tonal balance, the HD6 offers a forgiving, ear-coddling midrange—a warmer, slightly darker balance that was effective at conveying big sound from a small box. Bass response was largely very good, if a little overly enthusiastic in the upper midbass. Although not perfectly flat in frequency response, its bass has been tailored pleasingly, with commendable control and usable extension into the 50–60Hz range. The HD6 exhibits a conservative signature in the treble range, with sibilance and cymbals a bit subdued. A genuine performer, it's attractive, flexible, and user-friendly.

[audioengineusa.com](#) (262)



**JL Audio e110/e112**  
\$1500/\$1900

Before he got the hefty little e110 with 10" driver (the e112 comes with a 12" woofer), JV was anything but a fan of subwoofers, which always seemed to take more away in midrange transparency, tone color, and resolution than they paid back in bass-range extension, detail, and power. Crossed over at the right frequency—which is easy to do with the instructions that JL Audio provides and the unit's manifold built-in controls—the e110 is the very first sub he's heard that doesn't screw up the sound of the main speaker. Rather it seemed to extend that sound into the bottom octaves, producing the highest low-level resolution of bass timbres and textures from any transducer of his experience. Paired with something like a Raidho D-1 stand-mount the e110 will give you everything (save for overall impact) that you pay the big, big money for in a massive multiway floorstander, and it will do so for a mere \$1500.

[jlaudio.com](#) (244)

# OUR TOP PICKS SPEAKERS AND SUBWOOFERS



## Magnepan .7 \$1395

The latest (and greatest) “mini-Maggie,” this modestly sized, 2-way, line-source floorstander uses all quasi-ribbon drivers (as opposed to the mix of quasi-ribbon and planar-magnetic in the MMG). The result is a superior blend between tweeter and mid/bass, with much better power-and-bass-range speed, low-level resolution, color, and extension. (Indeed, much better speed, low-level resolution, and color overall.) Though the .7 benefits on some (chiefly large-scale) music from the addition of a subwoofer, reviewer JM thought that, all by its lonesome, it was shockingly realistic on acoustic instruments (and equally swell on a good deal of rock), reproducing an ambient soundstage so markedly different than the sound of the room the speakers were auditioned in that it transported her. JV completely agreed. In his opinion (and that of Ms. Mullins), the new .7 is the best option in a reasonably priced high-end loudspeaker. Like all Maggies, the .7s do require some power to drive. [magnepan.com \(250\)](#)



## KEF LS50 \$1500

The LS50 monitor spins pure coincident-driver magic thanks to its blushing pink-gold Uni-Q coaxial midrange/tweeter mounted in bulls-eye fashion on a uniquely arched baffle. Visually arresting and sonically satisfying, it delivers tonal neutrality at just the right pitch, with superb midrange sonics, full-bodied presence, and potent midbass punch. Thanks to its beautiful crafted high-density enclosure—an ideal platform for the space-saving Uni-Q—there’s little in the way of cabinet resonances or port colorations. Imaging is clean and pinpoint-precise as you’d expect from KEF. Positioned in a small- or medium-sized room, the LS50 makes a statement like few small speakers. You’ll want to hold on to these no matter how many upgrade you make to rest of your system. [kef.com \(231\)](#)



## PSB X2T \$1299

Luckily for listeners (particularly those who are just getting started or who might not have the deepest pockets), PSB does its homework. The Canadian manufacturer has created a transducer of incredible value for an incredibly reasonable price—and, incredibly enough, it also sounds great. In appearance, this four-driver three-way is anything but flashy: a slim, compact, three-foot-tall, dual- front-ported, quasi-D’Appolito floorstander, with an MDF enclosure that comes in any finish you want as long as it’s black ash. But what the X2T lacks in eye-catching looks, it more than makes up for in ear-pleasing sound. Its primary strengths lie in the power range and the bass, where it can really turn heads. This little speaker delivers surprisingly dense tone color and hefty, extended low end—an unexpected feature in such a package at such a price point. Its soundstage may not be the deepest around, but in almost all cases the imaging of singers, instruments, and players is impressive, even precise, offering high sonic verisimilitude. In short, the X2Ts live up to PSB’s marketing message: “real sound for real people.” [psbspeakers.com \(253\)](#)



## Audience ClairAudient 1+1 \$1795

When Steven Stone reviewed the single-full-range-driver Audience “The One” speakers, he was convinced that they were the best nearfield monitors he’d ever heard. His time with the larger Audience 1+1 speakers has led him to place the 1+1 above the “The One” at the top of his own personal “best” nearfield loudspeaker list. Just like “The One” speakers, the Audience 1+1 creates a three-dimensional soundstage that allows you to listen deeply into the nuances of a mix or a live performance. [audience-av.com \(246\)](#)

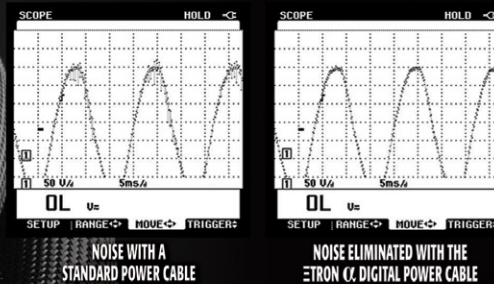




# Cables, Power Products, & Other Accessories

# DISTRIBUTED POWER

Shunyata Research delivers power conditioning and measurable noise reduction at each of three critical stages within high-performance recording, film and sound systems.



VENOM DEFENDER

# CONDITIONING SYSTEMS

## THREE STAGES OF POWER CONDITIONING

- 1 Shunyata's  $\alpha$  SERIES and VENOM DIGITAL power cords measurably reduce noise where it matters most — at the component power supply.
- 2 The HYDRA DPC-6 completely isolates digital components from analog components in the system.
- 3 The pocket-sized VENOM DEFENDER reduces power line noise and provides transient surge protection at the wall outlet.

The Shunyata Distributed Power Conditioning System provides the most comprehensive noise-reduction and protection system in the industry.

“With digital sources it was almost as if we had switched from 44.1k/16 bit to 96k/24 bit. We now run all our analogue machines, workstations and the mixing console from the Shunyata equipment.”

— Andy Jackson:  
Senior Mastering Engineer,  
Astoria Studio UK







Shunyata must've seen me coming. It has designed a system that takes the existing AC power entering a listening room to the next step without engaging the services of an electrical contractor. There are three basic components to its entry-level Venom Series of power products, starting with a Venom PS8 power strip. Nicely constructed of heavy, brushed steel,

hand-soldered contacts that are crimped to improve the metal-to-metal contact integrity.

All Shunyata components are cryogenically treated. Each can be purchased individually, but these three have been designed and priced to perform in trio. With *three* Venom HC cords, the complete Venom system Shunyata set me up with retails for under \$1800.

Shunyata's Grant Samuelson filled me in on Venom system particulars. He reiterated that "all home electronics are extremely peak-current-sensitive. Their power supplies draw current dynamically off the peak and trough of the sinewave. Any break or open contact in the electrical chain represents a *loss* that can affect system performance."

Shunyata, he says, "views current delivery as a high-frequency event, not a low-frequency event because systems draw current at a high-frequency and they output high-frequency noise. It all starts and ends with junction integrity, material quality, material manipulation—all aimed to lower the insertion-loss of the device. The overriding design goal of this system is to minimize peak-current loss at every junction.

"The Defender builds upon the foundation the PS8 establishes. Its filters are computer-modeled to capture and filter the high-frequency noise that exists on any line and prevent it from re-circulating within the system. All of this is accomplished without any added connections and with no loss of peak current integrity—which is our baseline for performance."

### All Amped Up

My approach to evaluating power strips, power cords, and line conditioners pretty much comes

the PS8 is 20-amp rated to cover even the most demanding high-current components, provides eight Hubbell outlets that are cryogenically treated using Shunyata's Alpha process, and a tough Carling Hydraulic Electromagnetic breaker. It sits on thick rubber feet, but steel spiked-footers with floor protectors are also offered as a \$195 option.

The second component is the Venom Defender—a tidy little plug-and-play power conditioner. Chassis-free, it's a plug-in module that incorporates the MPDA (multi-phase-differential-array), thirty-element parallel filters found in Shunyata's flagship Hydra models. Ruggedly built, Defender is equipped with 20,000 amps of surge protection and its own LED fault-detector. It can be plugged directly into the PS8 or, ideally, into the same wall outlet.

The final link in Shunyata's power chain are the Venom HC power cords. Big brothers to the original Venom cords (still a steal), they use heavier 10-gauge conductors, and employ

# Shunyata Venom PS8 Power Distributor, Venom Defender, and Venom HC Power Cords

How Dedicated Are You?

Neil Gader

**M**y history with AC power-distribution and line-conditioning products is a fairly spotty one. Sonically, they give and they take away, and I generally put them aside after a few weeks. Nowadays I just grab a power cord and head for the nearest available outlet, avoiding power-surge-protection strips for critical components. I've come to view such "convenience" strips as a hangover from the days of tower computers, forty-meg hard drives, and 14" monochrome displays, when the fear of a brownout sent shivers down the spine. My listening room isn't blessed with a dedicated circuit, either. I've considered remedying this but just haven't gotten around to hiring an electrical contractor. The truth is that I'm a little skeptical of monkeying with power and conditioning products. My room is quiet with a seemingly low noise floor. Basically what I'm admitting is that my listening space is probably a lot like yours. Sensible but nothing fancy.

EQUIPMENT REVIEW - Shunyata Venom PS8, Defender, and HC power cord



down to the same tried-and-true methodology. After concluding a period of extended listening with the current reference system, I unplug the entire rig, substitute the electricals under evaluation, and let 'er rip. Electronics in this instance were the Parasound JC 3 phonostage, the mbl Corona C11 preamp, and the mbl C21 stereo amplifier in rotation with the Aragon 8008 amp (review to come)—a system requiring three power cords. A Meridian Director USB DAC decoded computer-sourced files.

My first impression of the Venom system flat-out caught me off-guard, largely because my expectations were built on previous encounters with power distribution products, some good, some not so good. I began by cueing up *The Wasps Overture* [RCA] followed by the third and fourth movements of the Beethoven Ninth Symphony [Decca]. In each instance I heard the same thing, which arrived in the form of newly discovered orchestral weight and a more rigidly grounded soundstage. The system revealed a

density change in the way I perceived ambient information. At first I thought I was hearing a tonal shift downward, as if a darker palette of colors were being applied to the performance. But in truth this was more about system or line noise being reduced to the extent that significantly more ambient information and harmonic minutiae from venue and orchestra were freely emerging.

Celli and bass viols exhibited more pitch precision and less bloat. The individual voices of a chorus were unwavering in space and could be more easily pinpointed, almost visualized. String section layering was better defined in depth. The Venom system was not just quieting the system down; it was also allowing resolution within those silences of the acoustic/reverberant life that exists between notes or during musical pauses, but which is so often obscured. It was like the air was fueled with a different mixture of energy and harmonics. I listened closely to Copland's *Fanfare For The Common Man* and its near

overpowering dynamic swings. Thankfully, what I *didn't* hear was a softening or smoothing over of transient detail and contrasts. The textures of music, from the reedy and bristly to the buttery, were fully represented. Compression of dynamics—the bane of many conditioning products—was non-existent on either the micro or macro scale.

Weirder still was that when I took out the Venom system the individual artists of St Martin's in the Fields, performing excerpts from Stravinsky's *Pulcinella*, seemed somewhat abandoned, as if they were separated by acoustic dead zones rather than joined as a contiguous ensemble. With the PS8 out of the system, the air and dimensionality, the swirl of ambient activity became spotty. The impression of a single soundspace unbroken from one end of the proscenium to the other, upstage and down, sounded more thread-bare, like an unframed musical canvas. Reinserting the Shunyata into the system, the fully framed picture rematerialized.

When I turned to pop vocals like Shelby Lynne's "Just A Little Lovin'," I encountered the same enriched ambient quality that I had with symphonic recordings. In this instance it was the distinctive, heavily damped, reverb-washed character of the recording studio. Imaging on this disc was truly stunning. Drums, bass, acoustic guitar cues were so clean, quick, and stable that it was as if someone had applied a squeegee to a grimy window. Even the title track's metronomic hi-hat had more drive and a thicker, less tinny quality. The Shunyata found more sustain in the instrument, while the slight smearing that collected in the wake of

certain of its transients all but vanished. Bass response was further defined in character and timbre. For example, the bass vamp that kicks off the intro to Holly Cole's "I Can See Clearly" didn't come off as more deeply extended *per se* but as considerably tightened up, with more rhythmic bounce and melodic character.

In as little time as it takes to plug in a couple power cords, I've gone from skeptic to believer. The Shunyata Venom system refined the voicing of my system to an extent I never would have predicted at the outset. And I never felt the music was being compromised. To be clear, Shunyata doesn't promise a seismic shift in system performance, but a subtle clarification of previously hidden musicality. Don't look at me to pull the plug anytime soon. For the dedicated among us (without a dedicated line) the Venom system represents a cost-effective, plug-and-play, real-world solution to power issues. Another way of saying that I guess I better tell my electrical contractor not to wait up for my call. *tas*

SPECS & PRICING

<b>Venom PS8</b>	<b>SHUNYATA</b>
Number of outlets: 8	<b>RESEARCH</b>
Price: \$695	26273 Twelve Trees
<b>Defender</b>	Lane, Ste D
Price: \$195	Poulsbo, WA 98370
<b>Venom HC Power Cord</b>	(360) 598-9935
Price: \$295/1.75m	shunyata.com

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Sonically the Audience Ohno achieved a level of balance and midrange tonal weight and density that seemed almost contradictory to its skinny contours. It was quiet, quick, and extended with well-focused and pleasingly dimensional imaging. Characterized by a slightly warmer, rounder balance, vocals were full-bodied and expressive, and midrange dynamics spirited. Importantly, Ohno's sibilance range was nicely kept in check. Transient behavior was clean and naturalistic. Its resolution was slightly subtractive in the best sense of the word, but a little more brilliance for the *All-Star Percussion Ensemble* [Goldenstring] would have been preferable. But most significantly, there were no additive colorations, or distracting tonality shifts. The top end was extended, although Sara Watkins' lead vocal during Nickel Creek's "Sabra Girl" [*This Side: Rounder*] was a smidge darker in timbre, and a lowered ceiling over the soundstage was noticeable. And during The Police's "Murder by Numbers" from *Synchronicity*, Sting's vocal seemed positioned a step back from the mike. Drummer Stewart Copeland's percussion riffs had appreciable snap and speed, although the omnipotent kick-drum figures didn't convey the same level of explosive air following the initial transient impact. Ultimately Ohno was not the last word in resolution—that is, the line seemed short on both the deepest excursion and timbral retrieval in the bass region, and on the airy extension in the harmonic range. But given its entry-level mission, Audience Ohno was heroically on the money in most every other respect.

Audience Ohno wires are ideal partners for smaller systems, especially so for those of the desktop persuasion. Easy to position, and so light that they won't tug a loudspeaker off

its stands, Ohno offered an unerring sense of musicality at a blue-collar price that might have one of your snobby audio buddies gagging on his Perrier. Maybe the best performance per dollar cable that I've heard in some time.

**Sneak Preview: Au24 SX**

Shortly before deadline, Audience delivered samples of its latest flagship cable lineup, the Au24 SX. The successor to Au24 SE (Issues 230, 249), the SX improvements as compared with earlier iterations of Au24 wire include the use of purer copper (now six-nines) and higher quality XLPE dielectric insulation as well as geometry mods. I will have more to say in an upcoming issue, but immediately noteworthy was just how comparable the voicing of this premier cable was with respect to the entry-level Ohno. With all their ripe midrange weight and sweetness, the two ranges are recognizably of the same family. The major differences—and these are big ones—were dynamic contrast, sensitivity to delicate volume gradations, and ultimately a brilliance factor that cast light in the deepest corners of the soundstage, and restored air and lift to harmonics.

Auspicious news; more to come. *tas*

# Audience Ohno Speaker Cables and Interconnects

A Powerful, Pliable Featherweight

Neil Gader

The slender profile of Audience Ohno interconnects and speaker cables runs counter to perceived audiophile gospel that high-quality wires must be thick and heavy, with dreadlock twists of conductors encased within unyielding jacketing. Audience turns this stereotype on its ear by returning to well considered and finely executed basics. The cables in its wickedly affordable Ohno line are kinky-whip-thin, unobtrusive featherweights—nicely built and pliable. And, they employ the same six-nines, 21AWG, OCC-stranded copper that Audience uses in its uptown Au24 SE powerChords.

## SPECS & PRICING

Price: Ohno	AUDIENCE
interconnect, \$199/1m (\$82 per add'l. meter);	120 N. Pacific St., K-9 San Marcos, CA 92069
speaker, \$209/1m (\$20 per add'l. meter)	(800) 565-4390 audience-av.com

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# Morrow Audio SP7 Grand Reference Speaker Cable and MA4 Reference and MA7 Grand Reference Interconnects

Up-and-Comer

Neil Gader



**M**orrow Audio is a relative newcomer to the high-end cable segment. Founded in 2006 and based in Independence, Kentucky, the company currently manufactures both a pro line as well as a comprehensive consumer line that includes power cords and an expanding assortment of headphone cables. Morrow's interconnects and speaker cables are divided into seven levels not including the Elite Grand Reference Series, which, as the name implies is in a class of its own. Common to all Morrow cabling is a three-pronged design philosophy that it describes as SSI Technology—an acronym for solid-core, small-gauge, individually insulated. Key to Morrow's SSI configuration is the excellent RFI- and noise-rejection characteristics that its technologies are said to bring to the table.

My review samples included two levels of interconnects, the MA4, the MA7, and the marque's penultimate speaker cable, the SP7. The MA4 consists of 24 runs of insulated silver/copper conductors and is thin, very lightweight, and manageable. The MA7 ups the ante with 72 runs with its stiffness increasing only slightly. The SP7 speaker wire consists of a whopping 120 runs. For insulation Morrow uses PVDF, a plastic material of the fluoropolymer family. The wires are finished with nylon jacketing and silver-soldered to a choice of terminations. The cables have an attractive, nondescript appearance and are refreshingly light and pliable. Whereas some cables approach the rigidity of conduit pipes, Morrow makes it a breeze to angle its offerings around equipment or furnishings.

Morrow Audio might be the new kid on the block, but its wire performed like an old pro. The entry-level MA4 was nicely weighted with a firmly centered midrange sweetspot that focused images with clarity and conviction. In all-out extension, MA4 is a hint subtractive in that it couldn't fully capture the air and ease of the fancier MA7 interconnects. For example,

when it was tasked with reproducing the complexities of orchestra and chorus during Beethoven's *Ninth* [Chicago, Solti, Decca], the imaging of each section grew a little less distinct, the dimensional outlines of the hall a bit imprecise. The sound also wasn't quite as dynamically charged, exhibiting hints of compression on the gut-churning opening kickdrum of The Police's "Murder By Numbers."

However, the MA4 is particularly well suited to the entry-level world in that it possesses a darker, more forgiving character that soothes and slightly softens treble anomalies rather than resolving every last harmonic detail. This makes it an ideal palliative for systems that already have some attenuation in the lower frequencies and might also have a bit of a treble kick that tends to bleach orchestral string and brass harmonics. At this juncture, I always return to the all-important issues of perspective and system-matching. As well positioned as the MA4 is in its entry- to mid-level niche, it would be overmatched in the company of ultra-high-performance electronics driving resolution monsters like the Vandersteen Treo CT (review forthcoming) or the Wilson Audio Sabrina (Issue 256). Naturally that's why Morrow Audio offers Level 7.

If the MA4 proved to be a great warm-up act, the combination of MA7/SP7 was a very satisfying main event. Compared with the MA4, the darker overall character was lifted. And while the MA4 was midrange centered, the pricier MA7 spiced up harmonics and offered more than a bit juicier textures. It fully restored the delicacy and dynamic throw-down of pianist Ivo Pogorelich's performance during the Mozart Piano Sonata in A Major [DG]. Though a little cooler overall than its budget sibling, the MA7/SP7 wire was by no means bright or edgy. The sibilance range was nicely controlled and conveyed naturally occurring energy rather than a hard sizzle. Also on hand were very good low-level resolving power and solid bass responsiveness. During Nickel Creek's "Sabra Girl," I admired how the MA7/



## EQUIPMENT REVIEW - Morrow Audio SP7, MA4, and MA7

SP7 captured the delicate, acrobatic character and transient speed of Chris Thile's mandolin, and the ripe resonance of the acoustic flat-top accompaniment, and fiddle player Sara Watkins' touching vocal on *This Side* [Sugar Hill]. In soundstage and dimensionality, the Level 7 combination came up a little short of reference level in conveying the vast spread and dimensional depth that top-tier cables such as the much more expensive Kimber Select KS and Synergistic Atmosphere offer. During Norah Jones' "The Nearness of You," her piano didn't fully inhabit the soundspace and decay into the resonant hall. And micro-dynamic differences were not as distinguishable. In comparison, my reference wire placed Pieter Wispelwey's cello precisely within a pocket of the orchestra, while the Morrow was a little more tentative in committing to this unambiguous, locked-down position [Bruch, Channel Classics]. However, in terms of the absolute sound-acoustic music recorded live in a hall-on balance, the Morrow wire bore most of the hallmarks of the very best cables, particularly in the areas of dynamics, tonality, resolving power, and harmonic nuance. It possessed a general ease and lack of artifice when reproducing complex groupings of musicians on the symphonic stage.

Setting performance aside for a moment, Morrow Audio is also making an aggressive play on the marketing side of the equation. For example, all Morrow Audio wire comes with a lifetime guarantee. Morrow also offers bundle packages, an "easy pay program" option, a break-in service option, and a 60-day return. That's what I call *confidence*. Morrow is even shaking things up in the more freewheeling

### SPECS & PRICING

<b>Price:</b> Interconnects, MA4 \$329, 1m/pr.; MA7, \$1399/1m pr.	<b>MORROW AUDIO</b> 5195 Madison Pike Independence, KY 41051 (859) 356-6994 morrowaudio.com
<b>Speaker cable:</b> SP7 level, \$1499/2m pr.	

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headphone market with innovative ideas such as color selections for some headphone cable models.

By any standard, Morrow Audio is an up-and-comer. Its products may not be head-turners to look at, but in the high end performance is where the rubber meets the road, and perform Morrow's cables do. Going forward I expect its offerings will challenge many of the more highly regarded notables. An impressive debut. *tas*



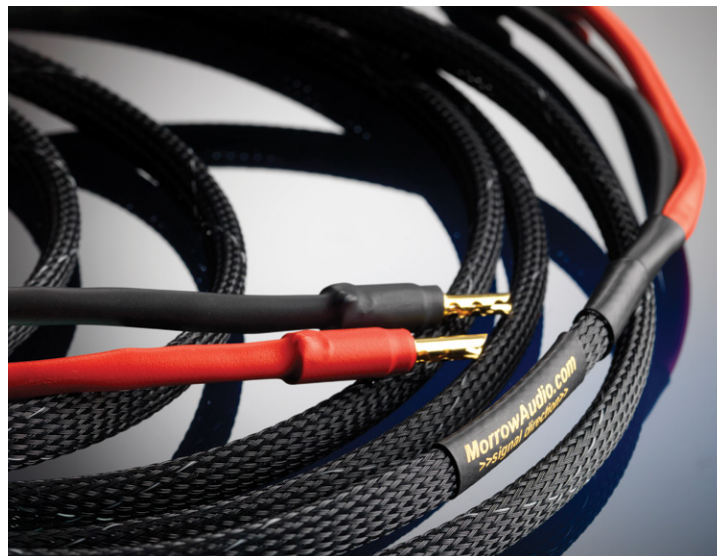
# OUR TOP PICKS CABLES, POWER PRODUCTS, & OTHER ACCESSORIES



**Kimber Kable Hero Interconnect/12VS, 8TC, and 12TC Speaker Cable**  
Interconnect: \$210/1m; Speaker: 12VS, \$345/8' pr.; 8TC, \$416/8' pr.; 12TC, \$630/8' pr.

Kimber's now classic Hero interconnect and braided 8TC/12TC speaker wires have become true staples of the industry. They are dead neutral, with dynamics at once powerful yet finely resolved in an essentially grain-free presentation. The 8TC speaker cable has that elusive ability to remain musical and ideally mediate detail, liveliness, tonal neutrality, and dynamic contrasts within a very realistic, holographic soundstage. Yielding only a tiny bit in control and top-end transparency, Hero's bass lives up to its name—prodigious in amplitude and definition. Newly available and sacrificing little is Kimber 12VS speaker wire which consists of twelve gray and twelve black conductors, arranged in a large format braid. The conductors feature VariStrand conductor geometry and are drawn from ultra pure copper. The aggregate wire size comprises two hefty 8 AWG conductors. A great match for full-range speakers, subwoofers, and the low frequency section of the bi-wired loudspeakers.

[kimber.com](http://kimber.com) (138 & 146)



**Morrow Audio SP7 Grand Reference Speaker and MA4 Reference and MA7 Grand Reference Interconnects**

Interconnects: \$329/1m pr. MA4; \$1399/1m pr. MA7; Speaker: \$1499/2m pr.

Relative newcomers to the cable ranks, Morrow Audio's wires performed like old pros. Nicely weighted with a solid midrange sweetspot, these wires had terrific low-level resolving power, solid bass, and good soundstaging and dimensionality. The MA4 interconnects were mildly dry on top; the more expensive MA7s spiced things up, adding just a bit more juicy harmonic texture and complexity. Overall this was a cable that defied expectations in its range and comfortably joined some of the well-established notables.

[morrowaudio.com](http://morrowaudio.com) (259)



**Nordost Purple Flare Interconnect**

Interconnect: \$260/1m, \$365/2m; Speaker: \$518/2m, \$596/3m pr.

Featuring Nordost's classic flatline configuration, the Purple Flare might be a rung below the current incarnation of Blue Heaven, yet it's a little trip to heaven all on its own. It's a cable that shines in the midband with a driving, slightly forward energy that imparts dynamic liveliness to all genres of music. There's significant macro-dynamic punch resulting in orchestral crescendos, full-blown percussion, and brass-section blasts of impressive authority. It evinced the transient speed of a sprinter, yet never suggested any serious tonal balance discontinuities. Its treble range was wonderfully free from major constrictions. Bass is not quite as fully exploited in terms of extension or bloom, and its personality is cooler in the middle treble, yet—on balance—it was as open and as transparent as any cable in this accessible class.

[nordost.com](http://nordost.com) (236)



# OUR TOP PICKS CABLES, POWER PRODUCTS, & OTHER ACCESSORIES

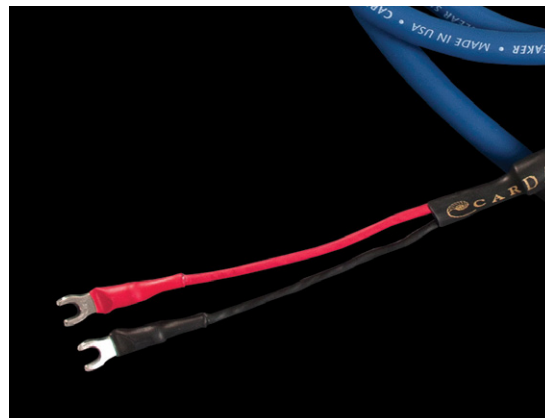


## AudioQuest Wind

**\$1995 1m/pr. (RCA or XLR)**

Although not entry-level priced, AudioQuest's Wind interconnect nonetheless represents a terrific value. This interconnect features all of AudioQuest's top technologies, and competes with top-tier models at a less-than-stratospheric price. Wind has very little sonic effect on the signals passing through it, and consequently, preserves the music's dynamic verve, spatial dimensionality, and timbral purity. It's detailed and vivid, but not in an analytical way. If you want a cable that softens transients and removes a bit of excessive zip from your system, this isn't it. Dynamics are sensational, in part because of the extremely quiet background. With a quick and taut rendering, the bass is also exceptional.

[audioquest.com](http://audioquest.com) (254)



## Cardas Clear Light Interconnect and Clear Sky Speaker Cables

**Interconnect: \$692 1m/pr.; Speaker: \$900/3m**

Designed *and* superbly made in the U.S.A., the fat *Blue Man Group*-blue cables are the first rungs of Cardas' top-of-their-line Clear series and use concentric Matched Propagation copper conductors in a PFA dielectric. Impressive both sonically *and* physically (think garden hose-thick), yet their soft rubber jackets make them surprisingly flexible and easy to dress in tight spaces. Musicality abounds with the Clear Light/Sky wires with finely wrought inner detail along with a slight fullness to upright and electric basses. The touch of added warmth will likely prove most welcome in smaller scale setups. Critically, hum and noise rejection was also quite good. Seek an audition since spacing between the massive RCA connectors might prove tight when connected to some components.

[cardas.com](http://cardas.com) (236)



## Moon Audio Silver Dragon V2 Interconnect

**\$500 1m/pr.**

The successor to the critically lauded Silver Dragon, the V2 counts among its strengths a noise-free, settled environment that establishes a dark, dead-silent launching pad for music to freely emerge. Its tonal signature is a model of smooth, rich midrange response—elegant in its neutrality and color saturation and fluidity. Structurally V2 employs an eight-wire braided geometry made of solid core 99.999 percent pure silver 26 AWG with Teflon insulation. However, its braiding has been upgraded and an external shield added to the mix for further noise rejection and durability—handy for lengthy runs across a studio floor. There's a satisfying mellowness to its character, one that doesn't exactly soften transients (there's plenty of snap and speed to go around), but it does add a welcome measure of overall warmth to the presentation. A cable that defies every expectation for a modestly priced interconnect.

[moon-audio.com](http://moon-audio.com) (244)



## Shunyata Research Venom Interconnects and Speaker Cables

**Interconnect: \$295 1m/pr.; Speaker: \$595**

Shunyata Research is not your typical cables manufacturer. Its philosophy focuses on investing most of the budget in top-tier parts and materials, with an eye to keeping prices as low as possible. In keeping with this ethos, the Venom series marks the company's first foray into more affordable cables that meet high performance standards. Indeed, thus far in her listening, JM finds the sound to be very natural, open, and dimensional—in other words, they get out of the way of the music and the rest of the system to reveal a window right into the presence of recordings. The Venom speaker cables and interconnects offer good neutrality with pleasing delicacy and sense of harmonics. To borrow a favorite expression from JV, they are quite *gemütlich* and sweet, without glare or etching. It's rare for a cable in this price range to contain Ohno cast copper, but the high-grade materials and build-quality seem to have paid off—handsomely.

[shunyata.com](http://shunyata.com) (review forthcoming)