



The concept

Ever imagined what it would be like to listen to the hi-fi system of your dreams right in your own home? No practical, financial, or logistical limits — just the *best* audio system you've ever envisioned? That's basically what TWBAS 2009 is all about.

For the past 11 years I've reviewed myriad high-end audio components from around the world, many of them right here on *Ultra Audio* in my column, "The World's Best Audio System," for which my brief has been to write about "the best of the best." In those years I've auditioned some simply fabulous components in the contexts of some mind-blowing two-channel audio systems. However, reviewing any given product, no matter how good, can have its drawbacks: Is every *other* component in the chain perfectly suited to the device being tested? If I weren't limited by what was currently in my system, what would make the most ideally synergistic match with the review component? Can I really get the best possible sound when every part of the system was *not* chosen with every other part in mind?

So I'll start with the obvious: My goal for TWBAS 2009 is to set up a two-channel audio system that can be considered the best in the world. Opinions will vary, debates will rage, and some very good companies that end up not having been chosen for this project might be miffed. Nonetheless, TWBAS 2009 will represent my attempt to get the best sound possible, period. No excuses, no qualifications, no limits — practical, financial, or logistical.

The challenge

The above begs the most obvious of questions: *How* would I go about assembling the best audio system in the world? First, I had to remove some restrictions.

1. *No international borders* — I'd choose products from all over the world.
2. *No dealer restrictions* — I'd negotiate directly with the manufacturers.
3. *No financial restrictions* — by necessity, this system will be super expensive.
4. *As few logistical considerations as possible* — I'd be using my dedicated listening room, The Music Vault, and begin by removing my *entire* reference audio system.

Literally beginning with a blank sheet of paper (OK, a blank screen), I set out to assemble a stereo system that would live up to this column's title.

The search

The search for TWBAS 2009's participant components began with a post on the "Ultra Hi-End HT Gear (\$20,000+)" section of the AV Science Forum that read, in part: "I'm in the planning stages now and would like to solicit opinions on what system, if you were me, you'd like to hear. The sky's the limit." To date, the thread has had over 46,000 views and 850 responses. As the thread unspooled and opinions poured in from audiophiles all over the world — via the thread, e-mails, private messages on the AV Science Forum site, even phone calls at all hours of the night — the reality of what I was facing sank in. I would be making some *really hard* choices: Which companies should I include? Should I take seriously the suggestions of the thread participants, most of whom were strangers to me? Should I rely on products that I already know perform well, so as to have no unpleasant surprises? Should I delve into intense research, to try to conclude, based on spec sheets and manufacturers' and designers' white papers, which gear shows the most promise? How about industry buzz? All of those considerations were valid, I concluded.

Nor did it end there, but already the real business of choosing the participants for TWBAS 2009 had begun. The process lasted a couple of months. Early on, I settled on two prerequisites: 1) The companies I ultimately chose would have to send me their best gear, which I would carefully slot into the prearranged system configuration I had chosen. 2) On setup day, each participating company would be required to have a representative present at my home in Hampstead, North Carolina, to ensure that all products had been installed correctly and were operating to the best of their abilities.

"...no other
preamp/amplifier combination
in the world
operates like the
Behold units do,
one of the
reasons they were picked."
— Doug Schneider, *SoundStage!*, April 2009

The system structure I decided on was as follows:

- Company 1: Speakers
- Company 2: Amplifiers
- Company 3: Digital front end
- Company 4: Speaker cables and interconnects
- Company 5: Power conditioning and power cords
- Company 6: Racks and isolation devices



I had some personal reasons for this particular system configuration. Most obviously, I wanted a system based on a digital source, and my choice of source would be heavily biased toward a digital music server. Why? First, because I migrated from CD to a music server almost two years ago, for the server's better sound and more functional user interface. Second, massive amounts of research and development continue to be conducted by myriad companies in this market segment: if high-resolution digital is the future of truly great hi-fi, as I believe it is, then this is the area I wanted to explore in TWBAS 2009.

Two other areas of interest related to system configuration: First, I separated power conditioning and power cords from speaker cables and interconnects to leave open the possibility that two different companies might occupy each slot — after all, this project is about specialists making the best products in their particular product genre. Second, there is no question in my mind that component isolation is critical to really good sound. Therefore, racks and isolation devices got a category of their own. The final tally, then, would be six equipment manufacturers.

But before I introduce the participating companies...

The one aspect of my reference system that would *not* change is perhaps the most important: The Music Vault itself. Fortunately, it didn't have to. I've written about the design and construction of my listening room in great detail: "Building The Music Vault: Parts One, Two, and Three" will tell you all you need to know. Acoustic engineer Terry Montlick, of Terry Montlick Labs, who designed the Vault, is partly responsible for what TWBAS 2009 will ultimately sound like.

So without further ado, and in alphabetical order, here are the participants, which of their products they'll be contributing, and partial explanations of why they've been chosen.



The participants

▶ Behold, based in Germany, and Laufer Teknik, based in New York, New York.

Ralf Ballmann of Germany's Behold and Sam Laufer of Behold's US distributor, Laufer Teknik, have sent the Behold BPA768 power amplifier (\$50,000) and APU768 preamplifier-processor (\$58,000, as configured). (All prices in US dollars.)

My overwhelmingly positive experiences with Behold go back several years. I travel annually to Munich, Germany, to cover the High End Show for the SoundStage! Network, and one of the highlights of those trips always seems to be the Behold demonstration. Over the years, in fact, Doug Schneider and I have awarded Behold a number of Standout Demo and Showstopper awards. Their room is *always* worth hearing.

Engineer Ralf Ballmann of Behold seems to grasp the melding of digital and analog audio as has no other engineer I've met. In fact, Behold claims a number of "world firsts" for their cutting-edge electronic designs, many of these involving the marriage of digital to analog technologies. For instance, Behold lists the BPA768 amplifier as featuring "Digital control of the output-stage idle currents making it a true class-A amplifier with class-AB power consumption. The D/A converter is directly located in the analog output section of the amplifier... [and it] uses eight D/A converters phase and time shifted to play back the analog signal for each audio channel. [The BPA768] uses a motor-control DSP to compute all the parameters and coefficients of a switch-mode power supply including the power factor correction (PFC), generating the best possible built-in power conditioner."



The APU768 preamplifier-processor has a similar number of impressive characteristics, being a "fully digital preamplifier with two separate audio bus systems at a handling capability of up to 16 audio channels at 192kHz/24-bit sampling rates and 768kHz/24-bit stereo." Clearly, the APU768 and BPA768 are not your run-of-the-mill preamp and power amp.

A significant feature of the modular APU768 that I felt was a necessity for TWBAS 2009 was its room-correction option (which adds \$15,000 to the base price of \$30,000; please see Laufer Teknik for pricing of individual modules), implemented by Ballmann and the software developer, fellow German Jürgen Scheuring, of loudspeaker manufacturer Ascendo. If true high fidelity is the goal of TWBAS 2009 — and it is! — being able to make minor yet audibly significant adjustments in frequency response is mandatory. And last, the APU768 will accept a digital signal at full 24-bit/192kHz — a needed specification for

the signals delivered by the music-server front end. The Beholds are the most technically advanced electronics I know of, and a perfect match for TWBAS 2009.

▶ **Blue Smoke Entertainment Systems, based in Chicago, Illinois.**

Ron Lapporte has sent his Black Box music server (\$6995), along with an ELO 1515L 15" touchscreen (\$509) and a 2TB EX475 HP MediaSmart NAS (network-attached storage) device (\$975).

I heard about Ron Lapporte on the Net when I ran across his former Illinois dealership, Ultimate Audio Video. Ron, a lifelong audiophile, had been searching for that elusive "perfect sound" for many years, and his quest has led him to some of the same components that I've found extraordinary, such as Rockport Technologies loudspeakers. His case of *Audiophilia nervosa* led him to open his own audio dealership, where he could share his knowledge and experience with audiophiles worldwide.

When Lapporte closed up his retail shop and began to manufacture digital music servers, I was intrigued. It seemed that a single product category had caused Lapporte to rethink his entire career, and resulted in the birth of Blue Smoke Entertainment Systems. When I spoke at length with Lapporte about his new product, he seemed genuinely excited with the results of the two-year R&D project he had undertaken. And when he told me more about the actual development process of his first product, the Black Box music server, my interest was piqued. The list of digital front ends that the Black Box upstaged in Lapporte's listening tests put me over the top, and I signed on.

I shipped a portion of my music collection on a hard drive to Blue Smoke a month before the TWBAS 2009 event to have the files converted from Apple Lossless to Windows Media Audio files, the lossless format that Blue Smoke prefers. Lapporte states, "We evaluated several operating systems for the Black Box, and for a wide variety of reasons, we settled on Windows Vista. Vista actually has the most capable audio subsystem of any of the systems we put through our lab. It was difficult work ensuring that the architecture of the Black Box conformed to the industry standards required by a mainstream operating system. It would have been much easier to move to a 'closed system' and take control of the hardware. The problem in doing that was that we would lose too many benefits we found essential: compatibility, upgradeability, open standards, extensibility, etc."

Blue Smoke Entertainment Systems espouses the benefits of both listening *and* technical tests for their products, an approach that has always seemed to me the most balanced and most correct. Both litmus tests are very much parts of TWBAS 2009.

▶ **Crystal Cable, based in Arnhem, The Netherlands.**

Gabi van der Kley has sent her Dreamline speaker (\$18,750 per 3m pair) and digital cables (\$10,250 per 4m cable).

When Doug Schneider returned to Canada after his November 2008 trip to the Netherlands to visit Crystal Cable/Siltech, we talked at length about what he'd seen and heard. It was enlightening. Doug had been *thoroughly* impressed by what he'd heard in terms of audio quality, by what he'd seen of the manufacturing of audio products, and what he'd learned of the engineering behind it all. As it happened, I'd simultaneously been hot on Siltech's trail, after a poster on the AV Science Forum thread suggested that the brand might be a great fit for my project — he thought Siltech the best of the best. I contacted Gabi van der Kley and inquired about their products. To say that I was surprised at the e-mail conversation that ensued would be an understatement. Basically, it seemed that, in her opinion, Crystal Cable would indeed be the best fit for TWBAS 2009. After hearing more about what goes into these products, I had to agree.

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— Jeff Fritz, *Ultra Audio*, April 2009

According to Doug, the Crystal Cable operation includes significant investment in R&D as well as advanced manufacturing techniques. The alloys of silver and gold that Crystal Cable uses in their Dreamline series are proprietary to them, and their technical explanations of why they use those materials in the forms they've chosen appear solid. According to Crystal, their "conductors are optimized to minimize audio signal errors to nearly zero distortion over the entire audio spectrum and beyond. This is achieved by using a proprietary, annealed silver-gold metallurgy which minimizes crystal boundary-induced distortions (very close to truly amorphous levels). Although much debated if this is detectable, the common error made by skeptics is that they tend to analyze voltage distortions, since that is what most measuring equipment is designed to do. Not many people realize the importance of current-induced distortions. Compared to voltage distortions, these current distortions are several orders of magnitude higher, and are for the large part responsible for the deformation of sound from an audio cable. Crystal Cable subsequently sets new standards for audio performance by reducing current-induced distortion to vanishingly low levels."

Having spent time with Gabi and her engineer husband, Edwin van der Kley, at the 2009 Consumer Electronics Show, I can tell you that they pour their hearts and minds into their products. I'm thrilled to include that level of enthusiasm and know how in TWBAS 2009.

► **Harmonic Resolution Systems, based in Buffalo, New York.**

Michael Latvis has sent his MXR-1921-3V audio stand (\$10,660, plus \$1990 for the optional bird's eye maple finish), fitted with three M3-1921 isolation bases (\$2495 each), along with two SXR-1921-1V-B audio stands (\$1795 each) with accompanying M3-1921 isolation bases (\$2495 each). Grand total: \$28,715.

Harmonic Resolution Systems (HRS) differentiates its products from those of its competitors in at least two important ways. First, the means employed by Chief Engineer Michael Latvis to mitigate all manner of vibration is, by any subjective or objective standard, extreme. Second, from what I can see, the materials used are the absolute best the industry has to offer. Latvis says, "If you look at many designs with an educated eye, you will see the use of standard off-the-shelf commercial-grade hardware.... Many companies use standard sheet metal, wood products, low-cost commercial paint systems, industrial hardware, industrial extrusions, cut pieces of wood, acrylic, foam filters, or even toss a skin of carbon fiber on something and call this a high-tech exotic product. In our mind, a high-end product also has a high degree of manufacturing expertise and art to it."

It seems logical that, particularly with a state-of-the-art audio system capable of moving *serious* volumes of air in the low frequencies, the need to isolate system components from the sometimes significant vibrations generated by the speakers comes to the fore. HRS approaches this problem with hard-core engineering coupled to qualities of build and materials that fit the pedigree of TWBAS 2009. Latvis again: "If you look closely at HRS products you will see extensive use of billet-machined aircraft aluminum, exotic hardwood veneers of only the finest grade, and proprietary materials that HRS spent tens of thousands of dollars to create.... Each piece is often carefully hand-finished with a particular texture that complements all the other textures and colors in the system. Every shape and texture is not what was commercially convenient but is what we think represents true high-end performance, craftsman-grade quality, and exceptional manufacturing standards. Every piece of hardware, and I mean *every single piece*, is 100% visually inspected to the highest standard, using even 10x- or 20x-magnification inspection devices to make final decisions on the level of perfection achieved. If it does not meet our exceptionally high standard, then it does not ship to our customer." All that sounds right up my alley — I'm a nut for build *and* performance quality.

► **Rockport Technologies, based in Rockport, Maine.**

Andrew Payor has sent his Arrakis loudspeaker system (\$165,000/pair).

I chose Rockport Technologies for several reasons:

First was my ear-opening experience with the Rockport Altair — my reference speaker for the past two years. When I first heard the Altair, in Andrew Payor's Maine facilities in December 2006, I had never before heard such a neutral, high-resolution, complete loudspeaker. Then, when I formally reviewed the Altair, that first experience was only confirmed. I subsequently purchased the review pair, and my fondness for them has only grown over time.

Second, Payor's skill in engineering loudspeakers is simply extraordinary. He explains: "The singular overall difference between Rockport Technologies loudspeakers and our competitors' products is also the defining philosophy that makes our company stand out in the overwhelming sea of loudspeaker companies. That is simply that we are willing to spend the time, effort, and money to *properly* design and manufacture products that will allow the listener the most pure and unadulterated view into the original recorded event as is possible. And, while other manufacturers make outrageous, yet totally unsubstantiated claims about their products, either in terms of the technology used in the manufacture, or how the use of a certain technology translates into the listening experience, we can *actually demonstrate* the superiority of our approach, both by measurement and listening. Also, high-performance loudspeaker design is a multifaceted discipline where a number of critical interdependencies exist in the electrical, mechanical, and acoustic realms simultaneously, and hence must all be satisfied simultaneously to achieve an excellent and, by definition, balanced design. This is an elusive and daunting task that must be addressed with *real* solutions to real problems if authentic excellence is really the goal.

"Unfortunately, the consumer must wade through a veritable orgy of misinformation, unsubstantiated or outright false claims about design approaches and their impact on performance, or even clever new terminology meant to distract them from the real issue — that these loudspeakers are mediocre at best. We want to be absolutely certain that the effort and money (which is ultimately that of the customer) is expended in our designs in a way that will actually translate to the best listening experience for the customer at any given price point. We have separated ourselves from conventional audio products by virtue of extraordinary, *relevant* applied technology and execution, and we have consistently attracted customers who share our passion for music, as well as our passion for elegantly crafted, technically superior equipment that, above all else, does justice to the musical experience. Our designs are unequalled in terms of their intrinsic value and build quality, and this is what makes them stand apart from the competition."

I can't add much to that.

► **Shunyata Research, based in Poulsbo, Washington.**

Grant Samuelson and Caelin Gabriel of Shunyata Research have sent their Hydra V-Ray II (\$4999) and Guardian Pro Model-2 power conditioners (two at \$495 each), and King Cobra (three at \$3500 each) and Anaconda (three at \$2000 each) power cords. Grand total: \$21,485.

I fondly recall Grant Samuelson enthusing about his exceptional experiences with Caelin Gabriel's Shunyata Research power cords well over ten years ago. Grant was then a reviewer for the SoundStage! Network, but was so taken with the Shunyata products that he eventually went to work for the company. Back then, in the late 1990s, the market for high-end power-cords and power conditioners was still in its infancy, and Shunyata Research quickly became a leader. That hasn't changed; in fact, their reputation has grown.

Caelin Gabriel, the company's founder and chief designer, has an impressive background that has lent itself perfectly to the task of reducing electrical-system-borne noise in audio systems. According to Shunyata Research, "While in college, Caelin Gabriel's performance

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in the physical sciences attracted the attention of the US military. Gabriel was recruited and selected for training at a secret Navy cadre, and was subsequently assigned to the Military division of the National Security Agency. The NSA is *the* governmental information-gathering agency, with the world's most elaborate high-speed computers and signal-decoding equipment. Gabriel was involved in the extensive R&D of ultra-sensitive data-acquisition systems. These systems were designed to detect extremely low-level signals that required an *outside-the-box* approach to signal and noise isolation. Equipment used by Gabriel and the team of NSA scientists could lock onto a correlated signal virtually obscured by random noise — a feat believed impossible by engineers using commercial electronics of that era.”

Shunyata's designs have been refined and improved over the years, and today the company's products hold pride of place in state-of-the-art systems worldwide. Based on the company's impressive track record and my own overwhelmingly positive experiences with its products, the inclusion of Shunyata Research in TWBAS 2009 was a natural choice.



TWBAS 2009 has arrived

Over the past several weeks, somewhere in the neighborhood of \$360,079 worth of equipment has arrived here in Hampstead. SoundStage! Network colleague Randall Smith and I, and a few hired hands, have been tirelessly hauling equipment up into The Music Vault for final assembly into The World's Best Audio System 2009. I'm happy to say that the components and manufacturers included in this project are all "first choices" — thanks to a group of first-class individuals who all decided to play ball in the most elaborate audio adventure I've ever heard of.

As you read this, hopefully on or about March 1, we're only a few days away from an historic meeting of the minds: All involved in the TWBAS 2009 will combine their respective talents to tweak this audio system into what we all hope will be sonic perfection. You'll hear all about that weekend, its trials and tribulations, the experiments and the tinkering, in the next installment of TWBAS 2009. Let's get down to business.

... Jeff Fritz
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Note: My thanks goes out to those who participated in the AV Science Forum's "Your 'World's Best Audio System'" thread. Their input was lively, sometimes contentious, but always highly entertaining, and ultimately helpful.