



ALL-IN-ONE AUDIO

BY DANIEL KUMIN

What do you want in a no-holds-barred hi-fi system? A high-end, high-resolution, outboard digital-to-analog converter? It's in there. A carefully balanced, three-way loudspeaker? It's in there. Two hundred-plus watts per channel of power? That's in there, too. An intelligently designed, remote-commanded control preamplifier? It's in there.

There is the Meridian D600 Digital Active Loudspeaker, an uncommonly intelligent, powered three-way system that's packed with all of the above, and more. The notion of building what amounts to an entire high-end system into a speaker cabinet is just the sort of innovation we might expect from Meridian's Bob Stuart, the engineer behind Boothroyd/Stuart, the British firm's parent company. While Meridian's quirky CD player, the 207Pro, has won considerable audiophile acclaim (see *CDR* 5/88), the D600 is more than just another unusual Stuart design. It could prove to be a weathervane in the breeze of the audio future.

The case for active (amplified) loudspeakers is pretty well established. Left to their own devices (that is to say, free of marketing pressures), most engineers would opt for active designs. If nothing else, they eliminate the passive crossover network—that complex and difficult, high-power frequency dividing network that sends the lows to woofers, highs to tweeters, and middles to midrange drivers. Passive crossovers are bulky and expensive. They are subject to both amplitude and time-domain distortions. They are generally highly reactive, which means they can make life miserable for the power amps driving them (and

their associated system's drivers), particularly in complex, high-end designs. It also means they can absorb as much as one half an amplifier's power before it ever gets to a transducing speaker driver.

Powered speakers eliminate this millstone by employing an active electronic crossover, the first element in their circuit designs. This is followed by individual power amplifier sections for each driver. Since the crossover is a low-level circuit, coming before the power

amps, it disposes of the liabilities associated with high-powered passive networks. Plus, active speakers can employ unusually efficient amplifier modules because each one is specialized to power a particular, known driver load.

Stuart says that the D600 design was originally conceived as a "conventional" active system. Through the years, Meridian has made many such designs. But as he began thinking about it, the question arose: "Why not put the D/A converter in the speaker, where it belongs?" With the totality of the system's electronics on board, component interaction and interconnect problems are eliminated, and a level of ergonomic elegance previously unknown is achieved.

In the case of the D600, the power amps are three 75-watt modules per cabinet; one for each driver. The crossover and amps, however, are preceded by a built-in preamplifier, complete with on-board D/A conversion. The Meridians' D/A circuitry is Philips-based, using the select grade TD1541A converter and four-times oversampled digital filter. One entire chip set is employed per speaker, in an unusual configuration said to optimize conversion accuracy to these

components' (high) limit.

Two 160 mm polypropylene drivers are mounted in each cabinet. One is driven as a pure woofer; the other functions as a woofer/midrange, making the D600 in fact a "two-and-a-half-way" design. The tweeter is a 25 mm aluminum dome model. Each electronic crossover section applies equalization custom-fit to the D600's drivers—another advantage of active speaker design.

Available in a range of finishes that includes



MERIDIAN D600 DIGITAL ACTIVE LOUDSPEAKERS

Photo by Larry Dunn

MANUFACTURER'S SPECS:

Meridian D600 Test Measurements

The Meridian D600 measures the way an expensive equalized loudspeaker system should: quite well. The smoothness shown in all the measurements' earmarks an extremely accurate system that's uncommonly easy to listen to.

Electronics:

Power Amplifiers: 3 70-watt modules per cabinet
Oversampling: 4 x (176.4 kHz)
No. of D/A Converters: 4 (2 per cabinet)
Digital Inputs: 3 (2 coax elec.; 1 optical)
Digital Output: 1 Coax elec.
Remote Control: Yes
Power Consumption: 600 W max. (approx.) (each cabinet)

Loudspeakers:

Type: Digital Active Loudspeaker (triampified, preamp- and D/A converter-equipped; duct-vented enclosure)

Driver Complement: One 160 mm (six-inch) polypropylene bass driver; one 160 mm (six-inch) polypropylene bass/midrange driver; one 25 mm (one-inch) aluminum tweeter

Frequency Response: 36 Hz to 20 kHz

Maximum Sound

Pressure Level: 110 dB

Finish: Black ash, walnut, rosewood veneers

Dimensions: 35 1/2 x 8 1/8 x 11 7/8 inches

Weight: 71 lbs.

Suggested Retail

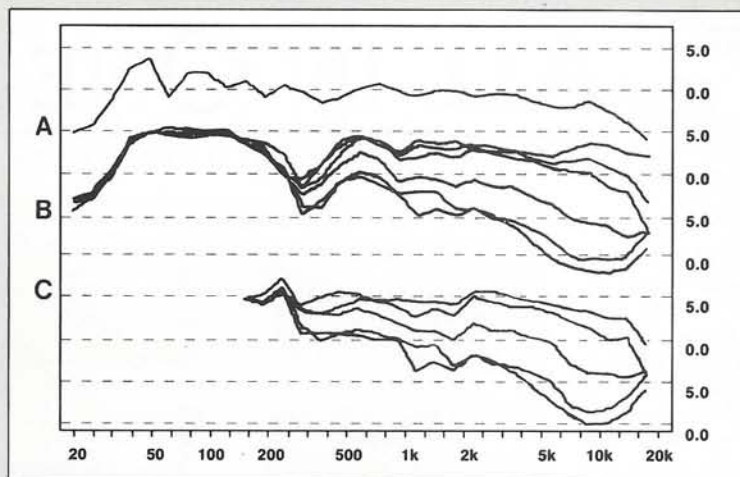
Price: \$5490/pair

Address: Meridian America, Inc.

14120-K Syllyfield Cir.,

Chantilly, VA 22021

MERIDIAN D600 TEST REPORT



Curve A (Blue)—Room Response (Tonal Balance)

With all tone settings flat, this curve shows that smoothness: within ± 1.5 dB from around 100 Hz to 10,000 Hz, and within 1 dB (!) in the all-important mid to upper midrange, (1000 to 4000 Hz), where the human ear is so very sensitive. Highs continue smoothly and cleanly out to close to 20 kHz. This is an impressive result.

Bass is powerful. The rise of a few dB at 40 to 50 Hz (almost surely room- and listening-position-dependent) is all to the good with most systems in typical listening rooms. If necessary, it could be successfully flattened using either or both of the D600's helpful, subtle bass controls, ("Bass," and "Q"—the former is more a conventional tone control, the latter a very gradual low-cut filter; -1 at 100 Hz, -3 dB at 50 Hz). Below 30 Hz, the D600's flat response nose-dives more steeply than usual for a vented design due to its built-in, fixed electronic filtration and infrasonic filtering, which help ensure clean reproduction of some analog sources.

Curve Family B (Red)—Horizontal Radiation

The D600's horizontal radiation pattern in a 2-pi environment (floor but no walls) reaffirms the midrange smoothness and displays somewhat narrowly spread highs. All these response curves, taken as usual from about seven feet distant and three feet high, are overlaid at 50 Hz. As the top three—0 degrees (on-axis), and 30 degrees and 60 degrees off-axis—demonstrate, a touch of forward beaming occurs in the 1000 to 2000 Hz octave, becoming more pronounced above 5000 Hz. Beyond that point, the sideways output (90 degrees off-axis, the fourth curve down) is considerably more rolled off, but also smoother than is usually seen. The sonic shadow (treble reduction) cast by the cabinet (135 and 180 degrees), seen in the bottom two curves, is likewise a bit more than might be expected from such a narrow enclosure, yet again smoother. Whatever your feelings about beaminess, all of this appears to show exceedingly canny crossover design.

The consistent 4 to 9 dB dip around 315 Hz is due to floor-reflection interference. Surprisingly, the instruction manual says little about D600 placement in the room. Following the rule of staggering the three distances from the woofers to the floor, front, and side walls—as curve A shows—managed to fill the dip in rather well. If you don't experiment with similarly staggered boundary-distance proportions with D600s (and most other speakers) in your room, it's entirely likely that this nasty dip will crop up. Your cello recordings, among many others (drums, voice), will not like it.

Curve Family C (Green)—Imaging Quality

The C bundle of curves, converged on 160 Hz, shows only response departures by angle (30, 60, 90, 135, and 180 degrees) from the on-axis response. Here we look for similarity of tracking and parallelism to ensure stable, unwandering imaging qualities. With the D600, if you want it, you got it. The uniformity from about 300 to 1600 Hz is striking. Even more so is the smooth congruence thereafter. (The small 250-Hz peak was much mitigated with the D600 as positioned in the listening room.)

The imaging verdict? Oh, quite. I say, Meridian—jolly good show. —David Moran

Test Equipment: dbx RTA-1 Real-Time Analyzer, dbx BX-1 Power Amplifier, AKG C460B/CK62ULS calibrated microphone ensemble.

walnut, teak, and black, the D600s stand about waist-high on spiked feet (provided with protective caps for nicer wood floors). This makes an elegantly slim tower that's topped with a small, glass-covered display, which can be directed to read out relevant data such as speaker volume setting, tone-modifying control settings, or selected input. It also can show CD track and time data when a player—even a non-Meridian model—is connected to one of the D600's digital inputs, since this data is contained in the digital bitstream.

The attractive, white, supplied remote commander handles all system controls, and will globally command associated components (CD player, tuner)—as long as they are made by Meridian. Alas, it's not a universal "learning" design to allow other brands into the scheme. (Stuart promises to address this situation in future models.) Its long-range and off-axis control power is at least three times greater than any other infrared remote we've seen, so it need not be pointed at the speakers, but can remain on the lap, coffee table, or whatever. Nifty.

It takes little time to grow accustomed to having your preamplifier built into the loudspeakers. The D600 handles source selec-

tion, volume and tone controls. The latter are in the British Quad tradition—a “Tilt” control provides gradual adjustment of the entire upper-mid/treble range above about 500 Hz, while a “Q” control provides three stops for deep-bass roll-off. A conventional bass control handles more appreciable low-end boost and cut. The remote controller includes a handy memory “stack” so you can compare your current settings to the flat defaults.

Along with these built-in preamp functions, the D600’s will control directly any connected Meridian brand components such as the previously mentioned CD player, and a tuner. Two generic analog inputs are included on the speaker’s rear panel, permitting direct connection of components such as tuners, tape decks, or video sound. (For the last word in audiophile tech, these analog ins may be connected in balanced mode, via double RCA jacks.) Two coax digital inputs and a digital output are present, as is a third digital input in the EIAJ “Tos-link” optical format, for ample acceptance of CD players, DAT machines, or what-have-you.



THE D600'S ELEGANT SYSTEM
REMOTE COMMANDER.

Here we must first note that the D600’s digital input/output system can be linked with some additional Meridian componentry to accommodate multiroom, throughout-the-house installations. Individual rooms can be controlled independently, and additional remotes—both wireless and in-wall—are available. The de-

tails of this scheme, unfortunately, are beyond our scope here.

Second, the Meridian’s preamp design, being fully digital, is actually programmable. You must “tell” the speakers which is left, which is right; which is “Master” and which is “Slave.” The system may be programmed to customize its displays, as well as for surround-sound installations employing more than one pair of speakers (for the truly well-heeled).

In fact, ergonomically speaking, the Meridian’s format makes more and more sense the longer you use it. To turn the volume up, for example, you simply point the remote at the speakers—the source, after all, of all that great music—and press “up.” If you think about it, this clearly makes more sense than any other arrangement. Plus, there’s much to be said for the directness of having your volume setting, as well as CD track or time data, displayed on the loudspeaker itself.

But any hi-fi priced in a league with small Korean cars—no matter how clever or groundbreaking—had better sound good as well. Fortunately for Meridian, the D600 does so, and

with ease. Its most prevalent sonic signature is a rather ear-catching ability to clarify midrange detail—those much-discussed inner voices: dense string timbres, carefully recorded woodwinds, and busy choral passages. The outer octaves, while less thrilling, are no less accurate. The D600’s treble is smooth and seamless, well detailed, and open. It only sounds a touch hard when subjected to carelessly miked source material, or when pushed rather hard.

Things are equally good down low—where the Meridian design indisputably goes. Bass in our listening room was essentially unattenuated, with tight and terrific impact well below 40 Hz on deep bass drum and synthesizer bass lines. In fact, the slim speaker’s ability to produce startlingly high levels of wide range music is remarkable. When excessive demands are made—say,

rock’n’roll at listening levels over 100 dB SPL—the D600 will begin to sound a bit hard. This at least *sounds* more like the driver’s physical limits being encountered than like a lack of amplifier power.

Imaging on the D600 focuses on pinpoint localization, presenting a detailed left-right—even, sometimes, up-down—portrait of the soundstage. The depth dimension is pleasantly present, though the Meridian’s sense of “air” and space is not as dramatic as from some more omnidirectional designs, or from most dipole radiating panel speakers. (This remains one of the eternal trade-offs—and debates—of loudspeaker design.)

All in all, the Digital Active Loudspeaker’s musical presentation goes well beyond pleasant. This is a fine-sounding system, ideally suited for just sitting down and seriously listening to music. Its ergonomic

design and integrated nature are really wonderful—once you grow accustomed to the thoroughly British feel of even this high-tech system’s controls. About the only fly in the ointment is the D600’s strongly radiated interference at video frequencies, which played havoc with a TV picture on the listening room’s monitor. This probably was peculiar to our installation—and with some additional electronic sleuthing around the AC power sources and ground planes, should prove easily remediable.

The verdict? Clearly, \$5500 is a lot of money for a pair of speakers, however good. But it’s a considerably more justifiable tariff for a pair of excellent speakers, a nifty preamp, a state-of-the-art D/A converter box, six channels of high-power amplification, and multiroom expansion potential. Serious listeners, take note. ■

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