

“... NOTHING SHORT OF STUNNING.”

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“The system did so many things right ... open and uncolored sound, tuneful and powerful bass, wide dynamics, and ability to play loudly are ... unprecedented in this price range.”

by Robert Harley

After twelve years of full-time equipment reviewing, I’m used to friends razzing me about the “tough” job I have. Sure, it’s great to have a steady stream of high-end home-theater products show up at your door. But as exciting as it is to try out state-of-the-art gear, there’s something even more fun: discovering great-performing products that virtually anyone can afford.

Uncovering the hidden bargains of home theater is particularly rewarding because many more people can enjoy the home-theater experience when products are priced within reach of any budget.

That’s why Paradigm’s new Atom loudspeaker system, a complete 5.1-channel package, has me so excited. The system comprises a pair of Atom left and right speakers, the CC-170 center channel, a pair of ADP-70 dipolar surround speakers, and the PDR-12 subwoofer. This package has been enjoying some great word of mouth, so I decided to get one in my theater room for a full evaluation.



The Atom is a two-way loudspeaker smaller than most bookshelf speakers but larger than the so-called “palm” speakers that have recently become popular. The black fabric-covered grill doesn’t come off, so you can’t see the drivers inside. The driver complement, however, is a 5-1/2” woofer mated to a 3/4” dome tweeter. The woofer uses a polypropylene cone

(rather than cheaper paper), and, unusual in this price range, a die-cast basket (the frame holding the cone and magnet) instead of a stamped one (some \$1,000-per-pair speakers use stamped baskets). The tweeter's dome is made from a Paradigm-developed material called CMC™ (for Ceramic/Metal Composite) that reportedly combines low mass with high stiffness. Frequency response of the Atom is rated at 70 Hz - 20 kHz ± 2 dB, which is extremely flat. Most speakers' frequency response is specified with a less stringent ± 3 dB tolerance. Sensitivity (how loudly the system will play for 1W of input power) is on the high side at 90 dB, meaning the Atom can be driven by low-wattage receivers.

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The CC-170 center speaker is a magnetically shielded (so it doesn't interfere with your television picture), horizontally mounted speaker, designed to sit atop your direct-view or rear-projection television. It employs dual 5-1/2" woofers mated to a 3/4" CMC™ dome tweeter. A rear-firing port vents bass out the back.

A pair of Paradigm's ADP-70 surround speakers is included in the package. These are very small, shallow cabinets holding a pair of coaxial drivers (the tweeter is mounted inside the woofer cone), with one coaxial driver facing forward and the other facing backward. ADP stands for



CC-170

Adaptive DiPole, a Paradigm-developed technique of making the speaker operate as a bipolar speaker below 150 Hz, and dipolar above that frequency. In a bipolar speaker, the front- and rear-firing outputs are in phase with each other; in a dipole they are out of phase. This hybrid technique reportedly produces the extended bass response of a bipole with the surround envelopment and immersion of a dipole. Unlike the Atoms, which require a shelf or stands for mounting, the ADPs come with wall-mounting brackets. Black and white finishes are available for the same price.

"... I could hear inner detail in the guitar sounds that gave each of the three instruments their distinctive characters. Many speakers costing three times the price don't deliver this degree of tonal accuracy and resolution of detail. ... treble was open, smooth, and well integrated with the rest of the spectrum."

Finally, the PDR-12 subwoofer is a rectangular cabinet housing a single 12" woofer powered by an integral 330W (110W RMS) amplifier. The subwoofer can be driven by the subwoofer output of your receiver, or by speaker-level signals by connecting your receiver's speaker-output jacks to the PDR-12. The rear-panel controls let you adjust the subwoofer volume, and set the low-pass frequency. This latter control sets the frequency range sent to the subwoofer. When driving the PDR-12 from the receiver's subwoofer-out jack (my recommendation), set this low-pass frequency control to its maximum value, 150 Hz. That way, the low-pass filter in your receiver and the subwoofer's low-pass filter won't interact in unpredictable ways.

All the drivers in each speaker are designed and manufactured by Paradigm. The company even winds its own voice coils,

and produces the cutting tools for the machine that makes the mold for the die-cast chassis. Many speaker companies outsource drivers, cabinets, and crossovers from diverse companies, and then assemble the components into a finished product. Designing every component from the ground up gives Paradigm an advantage over the competition.

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The Atom and PDR-12 subwoofer cabinets are finished in a subtle cherry-wood-looking vinyl finish, with rosenut or black ash finish available. The Atom is also available in white. The CC-170 center-channel speaker and ADP-70 are finished in black (the ADP-70 is available in white). Vinyl-covered speaker cabinets look far better than they did a few years ago, but the Atom and PDR-12 are particularly impressive. Although this is the entry level for serious home theater performance, Paradigm has managed to keep the appearance, construction quality, and fit 'n' finish high.

You can adjust this system up or down in price to suit your needs or budget by using the less expensive PDR-8 subwoofer, or going with the more expensive Titan front speakers, for example. In fact, Paradigm makes a complete 5.1-channel system for \$716. By the way, spending more on a single center-channel speaker than on the pair of main speakers is a good idea; the center-channel speaker reproduces most of the sound in film soundtracks, including the all-important dialogue.

LISTENING

I set up the Paradigm system in my home-theater room, and drove it with my usual reference-quality electronics Classé SSP-75 controller, Theta Dreadnaught power amplifier, Sony DVP-S9000ES DVD player—and also with the moderately-priced Onkyo TX-DS767 receiver (105Wpc) to see how the Paradigm system performed with real-world electronics.

“... a large soundstage with a real sense of air between instrumental images. ... remarkable transparency, allowing the listener to “see” into the sonic image and hear instruments and sounds in the back of the mix. ... the system “disappeared” into the soundstage ...”

To say I was surprised by the Paradigm’s performance would be an understatement. The system did so many things right—and had none of the glaring faults common in this price range—that I had to remind myself I was listening to a system that cost less than the state sales tax on the selling price of my reference-quality loudspeaker system (\$20,500, plus the \$1500 subwoofer).

For starters, the Atom left and right speakers had no serious peaks or dips in the frequency response that would color the sound. Consequently, musical timbres were reproduced with near lifelike realism. Many inexpensive speakers add a common coloration to all sounds, blurring the tonal distinction between instruments. The Atom’s refinement allowed it to resolve nuances in tonal shading that made it easier to forget the loudspeakers. On the concert-video DVD G3, featuring guitar virtuosos Joe Satriani, Eric Johnson, and Steve Vai, I could hear inner detail in the guitar sounds that gave each of the three instruments their distinctive characters. Many speakers costing three times the

price don’t deliver this degree of tonal accuracy and resolution of detail.

In addition, the treble was open, smooth, and well integrated with the rest of the spectrum. Speakers in the Atom’s price range usually reveal their budget heritage with a hard, bright, raspy, and grainy treble, either because of a poor-quality tweeter or because the manufacturer made them intentionally bright to stand out in side-by-side comparisons. Paradigm apparently played no such games with the Atom; the speaker was obviously voiced for accurate reproduction of music and film soundtracks, and the company endowed the Atom with a far better tweeter than found in most speakers in this price range.

“The CC-170 center channel had excellent clarity and intelligibility of dialogue ... didn’t sound peaky or shrill ... 70 Hz – 20 kHz ±2 dB is a remarkably flat response, and identical to that of the ultra-accurate Atom.”

The Atom’s soundstaging was also surprising, with this little speaker throwing a large soundstage with a real sense of air between instrumental images. The soundstage also had a remarkable transparency, allowing the listener to “see” into the sonic image and hear instruments and sounds in the back of the mix. In addition, the system “disappeared” into the soundstage, rather than giving the impression of sound coming from six boxes around the room.

The CC-170 center channel had excellent clarity and intelligibility of dialogue—the most important performance aspect of a center speaker. I got the impression, however, that some of this additional clarity and projection of vocals in music and dialogue in film soundtracks was due to a slightly overemphasized midrange. The CC-170 didn’t sound peaky or shrill; rather, the entire midband seemed just a bit on the forward side of reality. The

specifications, however, don’t bear this out; 70 Hz - 20 kHz ±2 dB is a remarkably flat response, and identical to that of the ultra-accurate Atom.

Surround performance was remarkably good for the price. Indeed, many loud-speaker systems costing twice as much don’t deliver the surround environment, resolution of detail in the surround channels, or smooth pans between front and rear as the Paradigm system. The ADP surrounds provided a wonderful feeling of envelopment, with the rear soundfield bathing me in the ambient acoustic. I felt immersed in the soundfield, rather than hearing sound from two sources to the sides of me. Pans (movement) of sounds from front to rear—the many “flyover” effects in *Galaxy Quest*, for example—were seamless between the Atoms and ADPs.

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When auditioning a loudspeaker system, you can get a feel for the company’s design goals. Sometimes speakers are designed to sell themselves in short in-store comparisons; others are voiced to deliver long-term listening satisfaction. It was obvious Paradigm took the latter route, particularly with the PDR-12 subwoofer. Rather than make the thing move as much air as possible, the PDR-12 sacrificed a bit of low-end extension for articulation, transient response (which translates to lack of boomy overhang), pitch definition, and musicality. You won’t get the last measure of subterranean bass from the PDR-12, but you will hear seamless integration with the

main speakers, smooth response, and no annoying bloat.

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The overall experience with film soundtracks and concert videos with this system was far better than I would have thought possible for the price. I was impressed not only by the attributes I’ve just mentioned, but also by the system’s dynamic impact, ability to play loudly, and overall sense of coherence. Budget systems often sound confused and disjointed, as though the elements don’t pull together as a whole. The Paradigm system sounded as refined as packages costing twice the price.

A multichannel loudspeaker system can be judged not just by its performance on stereo music sources and film soundtracks (or concert videos), but also by the special test signals on the *AVIA Guide to Home Theater* DVD. This disc contains signals that are invaluable for making sure your system is set up correctly, and also for judging loudspeaker quality. The low-frequency sweep signals can identify how smooth the transition is between the front speakers and subwoofer, and the pink-noise pan reveals how well matched in timbre all five speakers are, for example. These test signals confirmed my listening impressions; the Paradigm system has excellent technical performance—performance that translated to an engaging and involving music and home-theater experience.

What don’t you get for the price? Well, the CC-170 center channel could sound a bit strained when pushed hard at high playback levels. I could hear some coloration on dialogue induced by cabinet vibration during loud and complex passages. And the PDR-12 subwoofer won’t reproduce the lowermost octave of bass. These are, however, minor

criticisms in relation to the Paradigm’s outstanding performance for the price.

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CONCLUSION

The Paradigm Atom/CC-170/ADP-70/PDR-12 loudspeaker system isn’t one of those products I’ll recommend with a lukewarm “good for the money” or “a solid performer” conclusion. Instead, this package is nothing short of stunning. The system’s open and uncolored sound, tuneful and powerful bass, wide dynamics, and ability to play loudly are, in my experience, unprecedented in this price range. While not the first choice for an ambitious home theater, the Atom package manages to deliver more than a taste of true high-end performance at a price anyone can afford.