



White Box & Custom Systems Annual Guide

The Duel Over Dual

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In August 2005, Advanced Micro Devices invited about 30 channel partners to a demonstration at its Austin, Texas, headquarters. Technicians placed a box with one dual-core processor next to another with two single-core processors. They were running the same routines.

Jaws dropped as the dual-core machine scorched the two-processor machine, recalled Jason Voncordsen, general manager of Bass Computers, who was at the demonstration. "We were amazed because it was close to twice as fast," he says.

That presentation and others have been taken to heart by builders and resellers. In their ongoing battle with the titans of the computer industry, makers and marketers of generic "white-box" servers say dual-core processors have become a vital arrow in their quiver. Call it the duel over dual.

Just how big a dent have dual-core processors made in the server market?

Dual-core servers accounted for roughly 3 percent of x86 server sales and 6 percent of white-box server sales in 2005, according to IDC research analyst Jed Scaramella. Those numbers, however, represent only the first wave of a long multicore tide, vendors and analysts say.

Bill Carr, CEO of B3 Computers, a builder of white-box machines running Sun Microsystems' Solaris, says dual-core systems accounted for three-quarters of recent server sales. Scaramella notes that, while AMD rolled out its dual-core Opteron processor in April 2005, Intel didn't counter with the first of its dual-core versions of the Xeon chip until that September. Intel's transition of the Xeon line to dual-core technology during the next 12 to 18 months will jump-start the technology, IDC predicts. One reason: Intel's delay will give Dell, an exclusive Intel shop and the No. 2 server vendor by volume in 2005, a full dual-core lineup.

Although OEMs also will be riding the dual-core wave, i-Value.com analyst Christopher Gardner says makers and marketers of so-called "white-hot boxes"--low-cost but high-performance servers--have the most to gain. He compares the server business to that of cornflakes, where makers of low-priced store-brand generics have grabbed market share from cereal giant Kellogg's.

"Intel is really making the cornflakes," Gardner says. "You've got IBM and Dell and others packing it up and putting it in a pretty box. Those customers who are price-sensitive may not buy the higher-priced product."

The dual-core machines may give resellers of white-box servers entre to the coveted corporate market, long a stronghold of companies such as IBM and Hewlett-Packard. "You're going to see [white-box servers] in the corporate environment and not just in small businesses," Gardner says,

citing Credit Suisse First Boston, which, for example, was very much on top of Linux and moved toward open-source software. "I think they'll recognize the opportunity here and jump on it," he says. "IBM and Dell are going to be pressured from a margin standpoint."

Strength in white-box servers will build as Intel and AMD move beyond dual-core technology to quad processors, says Rob Lineback, senior analyst at Scottsdale, Ariz.-based IC Insights.

"Next year, we'll be waiting for the quad-core processors to be rolled out," he says. "On the road map, there are even eight-core processors further out."

Until now, OEMs have dominated the server market, with the top five vendors--HP, Dell, IBM, Sun and Fujitsu/Siemens--accounting for almost three-quarters of the 7.6 million servers shipped, according to research firm Gartner. But those figures tend to undercount the fragmented white-box market, Voncordsen says.

"My guess is we're probably underestimating how big this is," adds Rob Enderle, principal analyst at the Enderle Group.

NEXT: Increasing the white-box opportunity.

Increasing the white-box opportunity is the inclination by Intel and AMD to court that channel as a way to counterbalance the power of giant vendors such as Dell and HP, which can use their market power to pressure semiconductor makers to cut prices, Gardner says.

Jon Green, AMD's worldwide channel-market development manager in the server and workstation division, says attention to the white-box market is part of his company's DNA. "We've always focused on the white-box market and grew into the OEM market from the days when we were the second-source supplier," he says.

After shipping its first dual core in April 2005, AMD expects more than half of server processors to have dual cores this year, Green says, adding, "The ramp-up has been very quick. We publicly stated quad-core in 2007. That's as specific as we can be."

Frederick Darter, CEO of Rave Computer Association, which builds custom AMD-, Intel- and SPARC-based systems for the military, OEMs and software vendors, says the dual-core chip's technical advantage lies in its cooler and less power-hungry operation. "Imagine we've got rack-mount servers on a ship," he says. "There are power and space limitations."

When single-microprocessor designs with clock speeds nearing 4 GHz began generating blistering heat and sucking up too much power, Intel changed direction, veering toward multiple-core designs. "Intel tore up its road map about two years ago," Enderle says.

Adding to the value equation for customers that buy multicore machines is the licensing structure. Users often pay licensing fees to server-software vendors such as Microsoft on a per-socket basis. If a dual-core processor plugs into one socket, the user may get roughly the capacity of two single cores but have to make license payments for only one socket.

Dual-core processors may not improve margins, but they might help companies land business and differentiate their offerings from those with single-core processors.

"I see applications for single-core machines diminishing," says Rave senior product manager Karl Rosenberger, who forecast that 70 percent of new server business will be based on dual-core machines by the end of 2006 and 90 percent through 2007.

Voncordsen says the ratio of recent AMD-based server sales was 70-to-30 in favor of dual cores at Bass Computers, while Intel, with its later rollout, was roughly split between single and dual.

That's not to say, though, that dual-core sales are necessarily a slam dunk.

Rave's Rosenberger says one small-business client had barely heard of them. "I had to educate him about [the chips]," he says. "It's shocking. And this is a company with an IT guy."

Inevitably, price also is a consideration. "If Intel and AMD want people to use their new technology and there's a huge price differential, there's going to be work to do," says Rosenberger, who planned to push a dual-core system by putting it in the hands of one prospective SMB customer. The system, Rosenberger says, will "annihilate" its single-core counterpart.

Another hurdle for dual-core white-box makers will be continuing pricing pressure from high-volume OEMs such as Dell, Carr says.

"Dell is good at marketing a computer for \$299," he says. "That's like the Mustang that costs \$15,000 but costs \$30,000 when you drive it off the lot," after all the options have been tacked on.

In any case, says Gardner, industry players should prepare for a decade-long shift in architecture. "The dual core is just the start," he says. "Intel's research and development is focused on building not just dual-core but multicore."

In the future, two-core machines will sit at the bargain end of the product spectrum, Enderle notes.

Adds Gardner: "This is easily a five-to-10-year deal. We're talking about a long-term trend Intel's betting the ranch on."