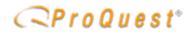
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## THE WALL STREET JOURNAL.

## Cray to Unveil Systems Based On New Chip Line From AMD; Microprocessor Technology Was Developed in Contract With Sandia National Lab

Don Clark. Wall Street Journal. (Eastern edition). New York, N.Y.: Oct 27, 2003. pg. B.6

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## Abstract (Article Summary)

Clusters aren't suited for some kinds of challenging tasks, because of delays in passing data among the many microprocessors. Wayne Kugel, Cray's program director for the Red Storm project, compares the problem to planning housing and transportation. "The more houses you add near the freeway, the more of a bottleneck you get," he said.

The Red Storm system combines the speed of proprietary supercomputers with low-cost components found in clusters. Cray says it designed communications chips that exchange data at close to the peak speed of AMD's Opteron microprocessor, or 6.4 billion bytes a second. That is about 20 times the speed of connections often used with clusters. The company hasn't set pricing or a precise delivery date, but expects to begin selling the system next year.

Full Text (480 words)

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Cray Inc., which pioneered the market for supercomputers, hopes to blaze another trail with machines based on a new line of microprocessor chips from Advanced Micro Devices Inc.

The Seattle company developed the technology under a \$90 million contract with Sandia National Laboratory in New Mexico, which is installing a system dubbed Red Storm that will be one of the most powerful in the world. Cray plans to announce today that it also will sell systems based on the Red Storm technology to other customers.

Cray's plans have spurred interest in the scientific community, because the company is addressing a technical bottleneck that has prevented systems based on inexpensive components to be applied to the most demanding

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computing tasks.

"This is an exciting development," said Horst Simon, director of the National Energy Research Scientific Computing Center in Berkeley, Calif. The center, which provides computing resources for research funded by the U.S. Department of Energy, may consider the Cray machines for its own future requirements, Mr. Simon said. "This type of technology is the correct approach to the current issues in high- performance computing," he said.

The term supercomputer is generally applied to the largest machines available, which are typically constructed from hundreds of microprocessor chips. Cray, the successor to a company formed by the late computer designer Seymour Cray, is known for augmenting those chips with proprietary circuitry that allows the chips to exchange data at very high speed. It sells a machine called X1 that uses a custom-designed microprocessor along with its communications chips.

Another approach, stressing low price over speed, uses standard chips from Intel Corp. or AMD along with circuit boards that are similar to those in personal computers or low-end server systems. Such low-price machines, called clusters, often use the free Linux operating system, further reducing costs.

But clusters aren't suited for some kinds of challenging tasks, because of delays in passing data among the many microprocessors. Wayne Kugel, Cray's program director for the Red Storm project, compares the problem to planning housing and transportation. "The more houses you add near the freeway, the more of a bottleneck you get," he said.

The Red Storm system combines the speed of proprietary supercomputers with low-cost components found in clusters. Cray says it designed communications chips that exchange data at close to the peak speed of AMD's Opteron microprocessor, or 6.4 billion bytes a second. That is about 20 times the speed of connections often used with clusters. The company hasn't set pricing or a precise delivery date, but expects to begin selling the system next year.

Cray's plans are good news for AMD, which is a much smaller player in server systems than rival Intel. But AMD is making some progress with Opteron, which was introduced last spring and competes with a high-end chip called Itanium 2 that Intel has been selling for high- end applications.

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