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Cray's Jaguar could become the fastest supercomputer in the world
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Cray's Jaguar to Become the Fastest Supercomputer

The new supercomputer is able to deliver 1.64 petaflops of raw performance

The fastest computer in the world nowadays is considered to be IBM's Roadrunner, which managed to break the petaflop barrier five months ago. Recent news shows that the top position is also targeted by Cray Inc.'s XT Jaguar, which may prove a lot faster next week. According to the U.S. Department of Energy, the latest implementation of the XT Jaguar supercomputer at its Oak Ridge National Laboratory in Oak Ridge, Tenn., has managed to reach 1.64 petaflops, more than a quadrillion mathematical calculations per second.

IBM's Roadrunner managed to reach a sustained speed of 1.026 petaflops, which propelled it to the top position on the semi-annual Top500 List of supercomputers, being considered the fastest computer in the world. Since the Roadrunner was the first machine ever to break the petaflop barrier, industry watchers looked at it as at the first runner breaking the four-minute mile. Even so, they also noted that there are companies following IBM closely.

Next week, at the Supercomputing Conference in Austin, the latest Top500 List will be unveiled, and the entire world will learn whether XT Jaguar, running a Linux-based operating system, has managed to be crowned as the world's fastest supercomputer, stated Steve Scott, chief technology officer at Cray. According to him, the Cray machine managed to outpace Roadrunner's achievement in June, yet it is possible that the supercomputer at Los Alamos National Laboratory has been upgraded since then.

Scott also revealed that the scalable Jaguar machine at the Oak Ridge lab had been continually upgraded by Cray engineers since 2004. The supercomputer now has 362 terabytes of memory and a 10-petabyte file system. Only this fall, 200 cabinets have been added, raising the number from 84 cabinets to 284, said Scott. According to him, each cabinet is able to hold up to 92 separate quad-core Opteron processors from Advanced Micro Devices. Overall, the machine features 45,000 CPUs, which totals 180,000 processor cores, Scott noted.

"Jaguar is one of science's newest and most formidable tools for advancement in science and engineering," said Raymond Orbach, the DOE's undersecretary for science, in a statement. "It will enable researchers to simulate physical processes on a scale never seen before, and approach convergence for dynamical processes never thought possible. High-end computation will become the critical third pillar for scientific discovery, along with experiment and theory."

Jaguar will be used for open research, which means that scientists from universities, corporations, government agencies and nonprofit organizations are able to benefit from its performance capabilities to power their projects.