

Scientists Write Guide to Build Supercomputer from Sony Playstation 3

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(PhysOrg.com) -- UMass Dartmouth Physics Professor Gaurav Khanna and UMass Dartmouth Principal Investigator Chris Poulin have created a step-by-step guide to building a home-brewed supercomputer that can reduce the cost of university and general computing research.

Found at www.ps3cluster.org, the resource fully illustrates how to create a fully functioning and high performance supercomputer with the Sony Playstation 3.

Last year, Khanna's construction of a small supercomputer using eight Sony-donated Playstation 3 gaming consoles made headlines nationwide in the scientific community. On the consoles, he is solving complex equations designed to predict the properties of gravitational waves generated by the black holes located at the center of the galaxies.

"Science budgets have been significantly dropping over the last decade," Khanna said. "Here's a way that people can do science projects less expensively. This new web site will show people how to move forward."

Typically, scientists rent supercomputer time by the hour. A single simulation can cost more than 5,000 hours at \$1 per hour on the National Science Foundation's TeraGrid computing infrastructure. "For the same cost, you can build your own supercomputer and it works just as well if not better," Khanna said. "Plus, you can use it over and over again, indefinitely." The cost for his initial Playstation grid was \$4,000.

The guide is freely available to the public under an open source license.

The Cluster Workshop project is partially funded by the National Science Foundation and was first announced and demonstrated at the 2nd Annual Georgia Tech, Sony/Toshiba/IBM Workshop on

Software and Applications for the Cell/B.E. Processor.

"This opens up a huge door to partnerships with industry and other universities," said Khanna, noting that the UMass Dartmouth College of Engineering has an interest and focus in simulation sciences. Tyco Electronics (through the UMass Dartmouth Advanced Technology and Manufacturing Center in Fall River), Sony, Terra Soft Solutions and IBM are among the companies already involved with this effort. The scientists are seeking input from industry members and researchers to determine future project direction.

"We hope to continue to bring supercomputing to a broader audience by providing tools that simplify the use of these systems," said Poulin, who specializes in distributed pattern recognition and artificial intelligence.

Provided by University of Massachusetts Dartmouth

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