Public Affairs

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August 25, 2003

UNM COMPUTING FACULTY COLLABORATING WITH IBM TO DESIGN NEXT-GEN SUPERCOMPUTER

UNM Computing faculty David A. Bader, Patrick Bridges, Arthur B. Maccabe and Bernard Moret, are collaborating on IBM's Productive, Easy-to-use, Reliable, Computing Systems (PERCS) project, a new initiative to design a supercomputer several orders of magnitude faster than today's high-end systems.

IBM has received more than $53 million in funding from the Defense Advanced Research Projects Agency (DARPA) for the second phase of DARPA's High Productivity Computing Systems (HPCS) initiative to perform this research and development effort in technology risk reduction demonstrations and a preliminary design review.

The IBM PERCS project will conduct ground-breaking research in areas that include revolutionary chip technology, new computer architecture, operating systems, compiler and programming environments. PERCS is based on an integrated software-hardware co-design that will enable multi-petaflop sustained performance by 2010. A petaflop is one quadrillion calculations per second.

PERCS aims at reducing the time-to-solution, starting from the inception to actual result. To this end, PERCS will include innovative middleware, compiler andprogramming environments that will be supported by hardware features to automate many phases of the program development process.

"High-performance computing is a strategic area of excellence at the University of New Mexico, and this project represents UNM's continued research leadership in advanced computing studies," said Bader, principal investigator for UNM's portion of the project.

Maccabe, associate director of UNM's Center for High Performance Computing, noted that, "It is rare for universities to be involved this early in the development of a new computing system. Usually, we have to make the best use of what we are given."

Bader and Moret were part of IBM's team on the one-year technology assessment in phase one, and will be working on architecture design and evaluation. Bridges and Maccabe join the project this year and are working on operating systems and communication.

The research will be performed in cooperation with the Center for High Performance