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High-Performance Computing Breakthroughs Win ACM Gordon Bell Prizes

NEW YORK, Dec. 23 (AScribe Newswire) -- ACM (the Association for Computing Machinery) presented the 2009 ACM Gordon Bell Prizes to four teams of scientists who created innovations in a range of applications related to high performance computing. Using supercomputers and computer clusters to solve advanced computation problems, each of the teams demonstrated exceptional performance in the areas of space science, biological research, cognitive computing, and storage technologies. The Gordon Bell Prizes, which recognize outstanding achievements in high-performance computing, were presented in November at the SC09 supercomputing conference (http://sc09.supercomputing.org/) in Portland, Ore.

In the category of Lower Price performance, a team led by Tsuyoshi Hamada of Nagasaki University conducted simulations used to study the evolution of star clusters with unprecedented efficiency. Team members included Rio Yokota of the University of Bristol; Keigo Nitadori of RIKEN, the natural sciences research institute in Japan; Tetsu Narumi of the University of Electro-Communications; Kenji Yasuka of Keio University; Makoto Taiji, also of RIKEN; and Kyoshi Oguri of Nagasaki University (http://scyourway.cupercomputing.org/conference/view/gb107).

Two awards were presented in the Special Category. In the first award, David E. Shaw of D.E. Shaw Research headed a 22-person effort using Anton, a special-purpose supercomputer designed for molecular dynamics (MD) simulations of bimolecular systems. The group (http://scyourway.supercomputing.org/conference/view/gb116) was able to examine the motion of Individual atoms by dramatically increasing the speed of MD calculations to about two orders of magnitude beyond the previous state of the art.

The second award in the Special Category went to a team from IBM Almaden Research Center and Lawrence Berkeley National Laboratory (LLNL). It was recognized for building a massively parallel cortical simulator, C2, that incorporates a number of innovations in computation, memory, and communication. Using C2 on LLNL's Dawn Blue Gene/P supercomputer, the researchers created two cortical simulations at unprecedented scale. The team, led by Rajagopal Ananthanarayanan of IBM, included Steven K. Esser and Dharmendra S. Modha, also of IBM, and Horst D. Simon of Lawrence Berkeley (http://scyourway.

supercomputing.org/conference/view/gb/108).

In the Peak Performance category, Markus Eisenbach of Oak Ridge National Laboratory and his team presented a highly scalable method for calculating the thermodynamics of nanoscale systems. these systems were targeted to the of nanomagnetic systems used in magnetic storage technologies such as disk drive storage, magnetic random access memory, and magnetic cellular logic. The team included Chenggang Zhou of J.P. Morgan Chase & Co.; Donald M. Nicholson of Oak Ridge National Laboratory; Gregory Brown of Florida State University; Jeff Larkin of Cray Inc.; and Thomas C. Schulthess of ETH (Swiss Federal Institute of Technology) Zurich (http://scyourway.supercomputing.org/conference/view/gb109).

About the ACM Gordon Bell Prizes

The ACM Gordon Bell Prizes are awarded each year to recognize outstanding achievement in high-performance computing. The purpose of this recognition is to track the progress over time of parallel computing, with particular emphasis on rewarding innovation in applying high-performance computing to applications in science. Prizes are awarded for peak performance as well as special achievements in scalability and time-to-solution on important science and engineering problems and low price/performance. Financial support for the $10,000 awards is provided by Gordon Bell, a pioneer in high-performance and parallel computing.

About ACM

ACM, the Association for Computing Machinery (http://www.acm.org/), is the world's largest educational and scientific computing society, uniting computing educators, researchers and professionals to inspire dialogue, share resources and address the field's challenges. ACM strengthens the computing profession's collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for life-long learning, career development, and professional networking.

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