Software Development in Petascale Computing

Presented by Dr Brett Bode (Blue Waters Software Development Manager, NCSA, University of Illinois)

Time: 9am-10am Location: Room 135, Building 26, Clayton Campus

The primary goal of the 'Blue Waters' supercomputer software development team is to increase the productivity of researchers, system administrators and application developers via an integrated toolset to use, analyse, monitor and control the behaviour of the new Blue Waters supercomputer, due to come online in 2011.

The Blue Waters team and their partners have considered the following areas:

* Workflow systems to simplify the running of jobs.
* Methods of moving and storing data.
* Computational libraries which support scientific applications.
* Tools for managing and monitoring system performance.
* Debugging tools.
* Environments for creating new scientific applications.
* Simulators which can model the performance of scientific applications.
* Application frameworks suited to new programming methods.

For more information about Blue Waters visit: http://www.ncsa.illinois.edu/BlueWaters/

Abstract of Talk

Developing software for high-end HPC systems has become more and more challenging in recent years not only due to the large number of cores, but also the limitations placed on the programmer by lightweight kernels, limited per core memory and IO bandwidth. This talk will explore how Blue Waters will be one of the fastest HPC systems and, at the same time, one of the easiest to program. The talk will include a description of the Blue Waters hardware and software ecosystems and explore the range of programming models and tools that will enable applications to achieve petascale performance.

Bio

Brett M. Bode is Blue Waters Software Development Manager at the National Center for Supercomputing Applications. He is responsible for managing the software development projects at NCSA and partner organizations that are focused on improving the quality and capability of the software that will be deployed on the Blue Waters system. Prior to joining NCSA in 2008 Brett spent nearly ten years as a scientist with the Department of Energy’s Ames Laboratory at Iowa State University. At Ames Laboratory Brett pursued a variety of projects aimed at improving the performance of real applications on HPC cluster systems from communication driver performance to the optimization of parallel file systems on InfiniBand networks. Brett holds a BS in chemistry and physics from Illinois State University and a PhD in physical chemistry from...
Iowa State University. His research interests span a range of issues from the management and optimization of HPC resources to application development efforts.

Monash Enquiries

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MURPA Seminar Series


29 October, Lattice QCD: Challenges of Scaling to Peta and Exaflop Speeds, by Dr. Steven Gottlieb
5 November, Performance Measurement in Peta Scale Supercomputing, by Dr. Jim Myers