

MURPA Seminar: Friday 12 October 2012, 9am

Improving the Eclipse Parallel Tools Platform to Create an Effective Workbench for High Performance Computing

Speaker: Jay Alameda

Venue: Seminar Room 135, Building 26, Clayton Campus, Monash University

Abstract:

Eclipse [1] is a widely used, open source integrated development environment that includes support for C, C++, Fortran, and Python. The Parallel Tools Platform (PTP) [2] extends Eclipse to support development on high performance computers. PTP allows the user to run Eclipse on her laptop, while the code is compiled, run, debugged, and profiled on a remote HPC system. PTP provides development assistance for MPI, OpenMP, and UPC; it allows users to submit jobs to the remote batch system and monitor the job queue. It also provides a visual parallel debugger. As part of a US National Science Foundation funded project to improve PTP to produce a productive Workbench for High Performance Computing, we have been making significant improvements in PTP to better support science and engineering code development on remote high performance computers. In this talk, we will describe capabilities we have recently added to PTP to better support a diverse range of HPC resources. These capabilities include submission and monitoring of jobs on systems running Sun/Oracle Grid Engine, support for GSI authentication and MyProxy logon, support for environment modules, and integration with compilers from Cray and PGI. We will describe ongoing work and directions for future collaboration, including OpenACC support and parallel debugger integration. Finally, we will describe how PTP can be used to improve one's software engineering practices for developing science and engineering codes.

[1] Eclipse – The Eclipse Foundation open source community website, [Online]. Available:

<http://www.eclipse.org/>

[2] Eclipse Parallel Tools Platform (PTP) [Online]. Available:

<http://www.eclipse.org/ptp/>

Biography:

Jay Alameda is the lead of the Advanced Applications Support Group at the National Center for Supercomputing Applications. He is also the lead for the activity in the US-NSF funded Extreme Science and Engineering Discovery Environment (XSEDE) project that provides advanced user support staff for training, outreach, and education activities. Jay also leads an NSF-funded project to improve Eclipse for science and engineering code development on high performance computers, as well as directs efforts to adapt Eclipse to the NSF-funded Blue Waters resource being deployed at NCSA.

MURPA Seminar: Friday 5 October 2012, 9am

Mythbusting Scientific Knowledge Transfer with nanoHUB.org

Speaker: Professor Gerhard Klimeck

Venue: Seminar Room 135, Building 26, Clayton Campus, and Seminar Room H7.84, Caulfield Campus, Monash University

Abstract:

More than 230,000 users in 172 countries annually participate in nanoHUB.org, a science and engineering gateway providing the capability to perform online simulation resources through a web browser without the installation of any software. nanoHUB is an online meeting place for simulation, research, collaboration, teaching, learning and publishing. Over 12,000 users run simulation software from their browser in nanoHUB's science computing cloud.

Cumulatively over 14,000 students in over 700 classes utilized nanoHUB simulations in classrooms and over 1,400 authors referenced nanoHUB in over 850 scientific publications. The platform has spawned nanoHUB-U and, in turn, Purdue HUB-U, interfaces for online courses that are broadly accessible around the world.

Biography:

Gerhard Klimeck is director of the Network for Computational Nanotechnology (NCN) and professor of electrical and computer engineering at Purdue University. His research interest is the modeling of nanoelectronic devices, bridging the gap between material science and device engineering, and impact studies through science gateways. He is a fellow of both the American Physical Society and the Institute of Physics. His over 320 peer reviewed papers resulted in a citation h-index of 39 on Google Scholar.