

## **WORKSHOP ON INTRODUCTION TO CLUSTER-BASED PARALLEL COMPUTING**

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### **Synopsis**

The ability to build low cost supercomputers from commodity-off-the-shelf (e.g. PC) has now become common in research laboratories around the world. However, the skills required to harness the maximum power from these compute resources (typically PC clusters) has been scarce. This course has been carefully designed to equip researchers with the necessary skill set to develop efficient and portable parallel codes. There will be many tutorial sessions to enhance understanding of the subject matter. IHPC has conducted about 10 of such workshop and trained more than 100 professionals from the research and industry communities.

The course outline is as follows:

- The need of Parallel Computing
- Serial Program Optimization
- Parallel Architectures
- Parallel Computing
- Introduction to MPI
- Introduction to OpenMP
- Profiling and Debugging
- Performance Issues
- Performance Measure
- MPI Program Optimization

### **Prerequisite:**

- Programming Knowledge: Fortran, C, C++ or any other language.
- Basics of Unix
- Attendees are to bring their own laptop for telnet/ssh access to the compute servers

**Fees:**            **S\$315 nett**  
**Date:**           **15 - 16 May 2006 (as part of GridAsia 2006 conference)**  
**Time:**          **9am – 5pm**  
**Venue:**         **Singapore Management University**

## **PROFILES OF TRAINERS**

### **Chung Shin Yee**

Mr. Chung Shin Yee is currently a Senior Research Officer at the Institute of High Performance Computing (IHPC). His research interests include Parallel Computing and Cache-Efficient Algorithms & Data Structures. He specialized in the area of Parallel Computing since his internship with SGI (2001) in developing Parallel DNA Sequence Matching using OpenMP on SGI Origin 2000. He received B. Eng. degree (Computer Engineering) from Nanyang Technological University in 2002/2003. He researched on Parallel DNA Multiple Sequence Alignment using MPI during his studies. Then, he joined School of Computer Engineering in Nanyang Technological University in 2003. Shin Yee is currently pursuing his Ph.D. degree with NTU to explore more efficient cache-oblivious algorithms. Since January 2004, Shin Yee has been running these workshops for academic and industry professionals.

### **Kevin Veragoo**

Mr. Veragoo Kevin is a research officer with the Institute of High Performance Computing (IHPC). He currently researches on optimisation strategies for the IA64 architecture and in Parallel Computing. His interests also include the Common Language Infrastructure (CLI) and Just In Time (JIT) compiler optimisations. Kevin received his BSc degree (Computational Science) from the National University of Singapore in 2002. He worked in a Digital Video Monitoring software development for 14 months. He then joined the University of Sydney and completed a Master of Information Technology in 2004. His Masters project involved working with the Linux implementation of the CLI, and he is now looking into CLI optimisations.