

Minisymposium Announcement



Computational mechanics on GPUs and modern many-core processors

Streaming processors are currently revolutionizing the way scientific computing is done. Processors like GPUs (Graphics Processing Units) and Intel's Larrabee achieve unprecedented performance by utilizing a large number of cores and a high memory bandwidth. Computational fluid dynamics and molecular dynamics are examples of successful areas of application of this new technology. Some scientific applications can achieve speed-ups from 10 to 100 compared to a single CPU core. With 240 streaming processors, recent Nvidia GPUs have a peak performance in the vicinity of 708 Gflops and a wide memory bandwidth around 159 GB/sec (GTX 285). CUDA, a programming language developed by Nvidia, makes it relatively easy to program GPUs, although tuning the code for performance is in general a complex task. In this minisymposium, we will discuss how to port existing algorithms to streaming processors, how to develop new ones with better performance, and advanced topics like multi-GPU computing and heterogeneous parallel platforms.

Organizers:

Takayuki Aoki, Tokyo Institute of Technology

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Up to date information at <http://www.wccm2010.com/>