CCT Tech Talk Series

HPX - High Performance ParalleX

Hartmut Kaiser, LSU

Adjunct Assistant Professor, Department of Computer Science

Johnston Hall 338
November 03, 2011 - 03:30 pm

Abstract:
ParalleX is a new (and still experimental) parallel execution model aiming to overcome the limitations imposed by the current hardware and the way we write applications today. Our group focuses on applications which require excellent strong scaling, allowing for a dramatic reduction of execution time for fixed workloads and/or need highest level of sustained performance through massive parallelism. Those are applications which through conventional practices either are presently unable to effectively exploit a relatively small number of cores in a multi-core system or that by the end of this decade will not be able to exploit Exascale computing systems likely to employ hundreds of millions of such cores. The talk will discuss HPX (High Performance ParalleX) as a modular, feature-complete, and performance oriented representation of the ParalleX execution model targeted at conventional architectures and, currently, Linux based systems, such as SMP nodes and conventional clusters. The most important design objective of HPX is to create a state-of-the-art parallel runtime system providing a solid foundation for UHPC-scalable applications while remaining as efficient, as portable, and as modular as possible.

Speaker's Bio:
Dr. Hartmut Kaiser is an Adjunct Professor of Computer Science at Louisiana State University. At the same time he holds the position of a senior scientist at the Center for Computation and Technology (LSU). He received his doctorate from the Technical University of Chemnitz (Germany) in 1988. He is probably best known through his involvment in open source software projects, mainly as the author of several C++ libraries he has contributed to Boost, which are in use by thousands of developers world wide. His current research is focused on the practical design and implementation of the ParalleX execution model and related programming methods. In addition, he architected and developed the core library modules of SAGA for C++, a Simple API for Grid Applications.

Center for Computation & Technology
2003 Digital Media Center • Telephone: +1 225/578-5890 • Fax: +1 225/578-8957