

## The 11th International Symposium on Parallel and Distributed Computing

The 11th International Symposium on Parallel and Distributed Computing - ISPDC 2012, in conjunction with MAC Summer Workshop 2012, June 25-29, 2012, Leibniz Supercomputing Centre, Munich, Germany

- Website: <http://ispdc.cie.bv.tum.de/>
- Responsible partner: ICT-BAS

Technical digest:

The topics of the workshop were highly relevant to the HP-SEE project and the technology watch, encompassing issues of hardware, middleware and application software developments. The most important presentations, regarding deployment of advanced hardware in Europe HPC centers, were given by Arndt Bode, chairman of the Board of Directors of Leibniz Supercomputing Centre (LRZ) of the Bavarian Academy of Sciences and Humanities, Germany, “Energy efficient supercomputing with SuperMUC” and Wolfgang E. Nagel, Director of the Center for Information Services and High Performance Computing (ZIH), Dresden, Germany, “Petascale-Computing: What have we learned, and why do we have to do something?”

We point out that the plans for the expansion of the Bulgarian supercomputer center also include the procurement of a BlueGene Q system in the future. Many talks presented new advanced methods for software development for the new hardware architectures. For example, the talk by David I. Ketcheson, Assistant Professor, Applied Mathematics, King Abdullah University of Science and Technology, Saudi-Arabia: PyClaw: making a legacy code accessible and parallel with Python presented a general hyperbolic PDE solver that is easy to operate yet achieves efficiency near that of hand-coded Fortran and scales to the largest supercomputers, using Python for most of the code while employing automatically-wrapped Fortran kernels for computationally intensive routines. Several talks presented other developments regarding the use of python in HPC environments.

Another area of active developments is the use of accelerators and more specifically GPUs. Many such talks were presented. We outline the talk by Rio Yokota, Extreme Computing Research Group, KAUST Supercomputing Lab, King Abdullah University of Science and Technology, Saudi-Arabia on Petascale Fast Multipole Methods on GPUs.

Issues and problems and the ways to approach their resolution, regarding the operations of a distributed HPC infrastructure in Europe, were presented by Achim Streit, Director of Steinbuch Centre for Computing (SCC), Karlsruhe Institute of Technology (KIT), Germany, in his talk “Distributed Computing in Germany and Europe and its Future”.

Where he emphasized the suitability of UNICORE middleware. Several talks presented approaches that combine HPC and Cloud usage. A representative from Matlab demonstrated the

ease of use of cloud resources from matlab prompt. Another interesting cloud platform was presented by Miriam Schmidberger and Markus Schmidberger: Software Engineering as a Service for HPC, where a prototype platform was presented and a call for testing it and gathering of user / operator requirements was opened, so that HP-SEE project can consider such option.