Courses in May

This May, the PATC in Barcelona Supercomputing Center is teaching a series of courses introducing key skills and knowledge for the HPC ecosystem. They will be running between 12th and 19th of May just before the **PRACE Scientific and Industrial Conference 2014** "HPC for Innovation: when Science meets Industry" which also will be held in Barcelona at the Universitat Politècnica de Catalunya (UPC) campus from Tuesday 20 to Thursday 22 May 2014.

Performance Analysis and Tools (12 and 13 May)

The objective of this course is to learn how *Paraver* and *Dimemas* tools can be used to analyze the performance of parallel applications and to familiarize with the tools usage as well as instrumenting applications with *Extrae*.

The students who finish this course will have a basic knowledge on the usage of the BSC performance tools. They will be able to apply the same methodology to their applications, identifying potential bottlenecks and getting hints on how to improve the applications performance.

For more information and to register for this course, please visit:

http://events.prace-ri.eu/conferenceDisplay.py?confId=212

Heterogeneous Programming on GPUs with MPI + OmpSs (14 and 15 May)

The tutorial will motivate the audience on the need for portable, efficient programming models that put less pressure on program developers while still getting good performance for clusters and clusters with GPUs.

More specifically, the tutorial will:

- Introduce the hybrid MPI/OmpSs parallel programming model for future exascale systems
- Demonstrate how to use MPI/OmpSs to incrementally parallelize/optimize:
  - MPI applications on clusters of SMPs, and
  - Leverage CUDA kernels with OmpSs on clusters of GPUs

The students who finish this course will be able to develop benchmarks and simple applications with the MPI/OmpSs programming model to be executed in clusters and clusters of GPUs.

For more information and to register for this course, please visit:

http://events.prace-ri.eu/conferenceDisplay.py?confId=213

Systems Workshop: Programming ARM based prototypes (16 May)

Objectives: Get a comprehensive view of the architecture of the ARM-based prototypes at BSC (ARM multicore cluster and ARM+CUDA GPU cluster) and how to program these machines efficiently.

Learning Outcomes: Understand how ARM multicore and ARM+GPU clusters work. Work with some example codes, compiling, debugging and executing trough system queues.
Get a global view of the machines with their specific configuration (Operating system, batch system, debuggers, compilers, how to access to the machines, how to use the resources, etc)

Target Group: Standard HPC users, some knowledge of multicore and GPU-accelerated systems is desirable, but not required.

For more information and to register for this course, please visit:

http://events.prace-ri.eu/conferenceDisplay.py?confId=214

Industry Focused Course: HPC-based simulations for the Industrial Realm (19 May)

The course is organized as a series of talks describing several industrial projects we are carrying on at the CASE department of BSC. All these projects have a common point: very complex simulations of physical systems lie at the core, requiring HPC-based software. The CASE department develops Alya, a multi-physics parallel simulation code capable of running on thousands of processors. Among the application fields are:

- Oil and Energy,
- Environment,
- Aerospace and
- Pharmaceutical Industry.

For more information and to register for this course, please visit:

http://events.prace-ri.eu/conferenceDisplay.py?confId=220

For more information, registration and the full program of the PRACE Conference 2014 please visit:
http://www.prace-ri.eu/pracedays14

If you have specific inquiries, please visit BSC website www.bsc.es/education or mail to us directly

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Barcelona Supercomputing Center - Centro Nacional de Supercomputación

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