[HYBRID] Heterogeneous Programming on GPUs with MPI & OmpSs

Objectives

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

Requirements

Prerequisites:
Good knowledge of C/C++
Basic knowledge of CUDA/OpenCL
Basic knowledge of Paraver/Extrae

Please download and carefully read the following **instructions** regarding the logistics participants enrolling PATC at BSC are expected to follow.

Learning Outcomes

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, and with the OmpSs@FPGA, to be executed on FPGA boards, like the Zedboard, or Xilinx ZCU102 and Alveo.

Academic Staff

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Course Convener: Xavier Martorell

Lecturers:

BSC - Computer Sciences department

Xavier Teruel - Best Practices for Performance and Programmability - Recognised Researcher
Xavier Martorell - Programming Models - Parallel programming model - Group Manager

Materials

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Further information

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All PATC Courses at BSC do not charge fees.
NOTE: PLEASE BRING YOUR OWN LAPTOP.

Recommended Accomodation: Please follow the link for map of some local hotels.

CONTACT US for further details about MSc, PhD, Post Doc studies, exchanges and collaboration in education and training with BSC.
For further details about Postgraduate Studies in UPC - Barcelona School of Informatics (FiB), visit the website

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- BSC
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