

## PRACE Training Course: 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

### 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.

### Requirements

- Good knowledge of C/C++
- Basic knowledge of CUDA/OpenCL
- Basic knowledge of Paraver/Extrac

Material for practical sessions will be provided during the course, and it is also interesting that students can provide their own application(s) for session 4, free hands-on.

You are expected to come with your own laptop with either linux, windows or MacOS operating system.

**NOTE:** PATC courses do not have registration fee. You need to fill in an [Application Form](#)

**You can now access the lecture notes under "Materials"**

### Recommended Accomodation:

Please follow [the link](#) for map of some local hotels.

### Contact Us:

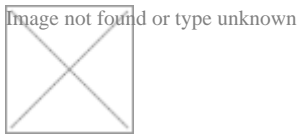
prace [at] bsc [dot] es (CONTACT US) for further details about MSc, PhD, Post Doc studies, exchanges and collaboration in education and training with BSC.

For further details about Postgraduate Studies in UPC - Barcelona School of Informatics (FiB), visit the [website](#).

### Sponsors:

If you want to learn more about PRACE Project, visit the [website](#).

### [Materials](#)



[PATC lecture notes:bsc\\_heterogeneous\\_programming\\_ompss](#)

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

---

**Source URL (retrieved on 16 abr 2024 - 09:42):** <https://www.bsc.es/ca/education/training/patc-courses/prace-training-course-heterogeneous-programming-gpus-mpi-ompss-0>