

High Performance Computing: Technology, Application & Programming

Objectives

- Tools and techniques based on the latest available HPC platforms
- Enable participants to quickly get started with writing their high performance codes
- Provide hands-on experience in parallel programming. These special sessions will provide the rich hands-on experience with various languages and tools covered in the lectures. They comprise a brief introduction to the programming assignments, followed by independent work periods. To help with the assignments, teaching assistants will be available in person and via the web.
- Present case studies from different application domains.

By the end of the workshop, participants will:

- Be exposed to computational thinking skills for accelerating applications in science and engineering.
- Understand the most important architectural performance considerations for developing parallel applications.
- Be able to design algorithms that are appropriate for accelerators.
- Engage computing accelerators on science and engineering breakthroughs.

Target audience

Anyone who want to learn developing exciting applications for parallel processors, as well as those who want to develop programming tools and future implementations for these processors:

- Students, Faculty and Researchers from Academic Institutes
- Researchers from Govt. Research Organizations
- Engineers / Researchers from Industry

Prerequisites

- Basic programming knowledge
- Laptops wifi connectivity to access the supercomputing cluster

Topics to be covered in the workshop :

- History and fundamentals
- Present and boom
- Future and pursue
- Technology and programming models
- Hands-on
- Supercomputer access
- Application I
- Application II
- HPC tools
- Performance optimization

- Application III
- Application IV
- Facts and updates
- Supercomputer 101
- Access and environment setup

Note: The schedule and topics are standard and tentative, will be revised and updated if necessary.

Software stack for hands-on session would be provided. Exam and assignments are part of the training and would be conducted during or after the workshop.

HPC hardware access for hands-on session would be provided.