Welcome to the XSEDE MPI Workshop

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Parallel Computing Scientist
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Who are we?

Your hosts:

Pittsburgh Supercomputing Center

Our satellite sites:

Tufts University
University of Iowa
Purdue University
Clarkson University
Stanford University
University of Oregon
University of Delaware
Texas Tech University
University of Oklahoma
Arizona State University
Wayne State University
Old Dominion University
George Mason University
Ohio Supercomputer Center
Pennsylvania State University
North Dakota State University
University of Texas at El Paso
West Virginia State University
University of Houston - Clear Lake
University of Puerto Rico at Mayaguez
Lawrence Berkeley National Laboratory
National Center for Supercomputing Applications
University of Tennessee, Knoxville - National Institute for Computational Sciences

XSEDE

Extreme Science and Engineering Discovery Environment

PITTSBURGH SUPERCOMPUTING CENTER

Who am I?

John Urbanic
Parallel Computing Scientist
Pittsburgh Supercomputing Center

Parallelize codes with

- MPI
- OpenMP
- OpenACC
- Hybrid and Big Data/Machine Learning mixes of these

Mostly for XSEDE platforms. Mostly to extreme scalability.

XSEDE HPC Monthly Workshop Schedule

June 6-9	*Summer Boot Camp*
August 15	*HPC Monthly Workshop*: OpenMP
September 12-13	*HPC Monthly Workshop*: Big Data
October 3-4	*HPC Monthly Workshop*: MPI
November 7	*HPC Monthly Workshop*: OpenACC
December 5-6	*HPC Monthly Workshop*: Big Data
January 9	*HPC Monthly Workshop*: OpenMP
February 7-8	*HPC Monthly Workshop*: Big Data
March 6	*HPC Monthly Workshop*: OpenACC
April 3-4	*HPC Monthly Workshop*: MPI
May 1-2	*HPC Monthly Workshop*: Big Data
June 4-7	*Summer Boot Camp*
August 7	*HPC Monthly Workshop*: OpenMP
September 5-6	*HPC Monthly Workshop*: Big Data
October 2-3	*HPC Monthly Workshop*: MPI
November 6	*HPC Monthly Workshop*: OpenACC
December 4-5	*HPC Monthly Workshop*: Big Data

HPC Monthly Workshop Philosophy

- Workshops as long as they *should* be.

- You have real lives…
  in different time zones…
  that don't come to a halt.

- General Agenda
  - Lightweight first morning to get all the logistical nonsense out of the way so we can focus on…
  - Intense afternoon
  - Second day is advanced and optional topics (to allow you to continue with exercises at your pace)
  - As much hands on as we can fit…
    - but now 2 weeks of follow on accounts

- Learning is a social process
  - This is not a MOOC
  - This is the Wide Area Classroom
    - so raise your expectations

Agenda

Tuesday, April 3

11:00	Welcome
11:15	Computing Environment
12:00	Intro To Parallel Computing
1:00	Lunch Break
2:00	Introduction To MPI
3:30	Intro Exercises
4:10	Intro Exercises Review
4:30	Scalable Programming: Laplace Exercise
5:00	Adjourn / Laplace Exercises

Wednesday, April 4

11:00	Advanced MPI
12:30	Lunch break
1:30	Laplace Solution
2:00	Outro To Parallel Computing
2:45	Parallel Debugging and Profiling Tools
3:00	Exercises
4:30	Adjourn

Resources

Your local TAs

Questions from the audience

On-line talks

bit.ly/XSEDEWorkshop

Getting Time on XSEDE

https://portal.xsede.org/web/guest/allocations

Check your email now for the post-event survey.

Surveys are conducted by an external evaluation team. XSEDE staff will not know who said what. If you have questions regarding the evaluation please contact: Lorna Rivera, lirivera@Illinois.edu, or Lizanne DeStefano, ldestefano6@gatech.edu