Welcome to the 2016 XSEDE Summer Boot Camp

John Urbanic
Parallel Computing Scientist
Pittsburgh Supercomputing Center

Who are we?

Your hosts:

Pittsburgh Supercomputing Center

Our satellite sites:

Yale University
Lehigh University
Purdue University
Boston University
University of Utah
University of Iowa
University of Houston
University of Michigan
Stony Brook University
University of Delaware
University of Oklahoma
Georgia State University
Old Dominion University
University of Colorado Boulder
National Center for Supercomputing Applications

Who am I?

John Urbanic
Parallel Computing Scientist
Pittsburgh Supercomputing Center

Parallelize codes with

- MPI
- OpenMP
- OpenACC
- Hybrid

Mostly for XSEDE platforms. Mostly to extreme scalability.

XSEDE HPC Monthly Workshop Schedule

- September 3,4 — *HPC Monthly Workshop*: MPI
- October 6 — *HPC Monthly Workshop*: OpenMP
- November 3 — *HPC Monthly Workshop*: Big Data
- December 3 — *HPC Monthly Workshop*: OpenACC
- January 20 — *HPC Monthly Workshop*: OpenMP
- February 9,10 — *HPC Monthly Workshop*: MPI
- March 8 — *HPC Monthly Workshop*: OpenACC
- April 5 — *HPC Monthly Workshop*: Big Data
- May 10 — *HPC Monthly Workshop*: OpenMP
- June 14-17 — *HPC Monthly Workshop*: HPC Summer Boot Camp
- August 9 — *HPC Monthly Workshop*: Big Data
- September 7,8 — *HPC Monthly Workshop*: MPI
- October 4 — *HPC Monthly Workshop*: OpenMP
- November 1 — *HPC Monthly Workshop*: Big Data
- December 6 — *HPC Monthly Workshop*: OpenACC

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.

- Summer Boot Camp is most ambitious HPC workshop *ever*

  but we know what we are doing

- Learning is a social process
  - This is not a MOOC

Agenda

Tuesday, June 14

11:00	Welcome
11:15	Computing Environment
11:45	Intro To Parallel Computing
12:30	Intro To OpenMP
1:30	Lunch Break
2:30	Exercise 1
3:15	More OpenMP
4:30	Exercise 2
5:00	Adjourn

Wednesday, June 15

11:00	Intro To OpenACC
12:00	Exercise 1
12:30	Intro To OpenACC (cont.)
1:00	Lunch Break
2:00	Exercise 2
2:45	Introduction to OpenACC (cont.)
3:00	Using OpenACC with CUDA Libraries
3:30	Advanced OpenACC
4:00	OpenMP 4.0 Sneak Peek
5:00	Adjourn

Agenda

Thursday, June 16
11:00 Introduction to MPI
1:00 Lunch break
2:00 Intro Exercises
3:10 Intro Exercises Review
3:15 Super Scalable Programming: Laplace code
3:45 Laplace Exercise
5:00 Adjourn

Friday, June 17
11:00 Laplace Exercises
12:30 Laplace Solution
1:00 Lunch break
2:00 Advanced MPI
3:00 Outro to Parallel Computing
4:00 Parallel Tools
4:20 Hybrid Computing
4:40 Hybrid Competition
5:00 Adjourn

You'll know this by the time we get there

Resources

Your local TAs

Questions from the audience

On-line talks

bit.ly/XSEDE-Workshop

Getting Time on XSEDE

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