Productive Programming in Chapel:
A Computation-Driven Introduction

Chapel Team, Cray Inc.
SC16, Salt Lake City, UT
November 13, 2016

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Organizational Notes

- **Slides on the SC16 USB / website are early drafts**
  - Final slides are available at:
    http://chapel.cray.com/tmp/SC16 (first link: "Tutorial Files")

- **Things up here on the table:**
  - Marketing Partner Network sign-ups
    - for using Cray accounts
  - USBs with all tutorial content
    - for those who cannot access website above
  - Quick reference sheet
    - also available online
  - Chapel screen/glasses microfiber cloths
  - Chapel stickers

- **Sometime today / shortly thereafter:**
  - Please fill out the SC16 survey (available from our tutorial page)

What is Chapel?

Chapel: A productive parallel programming language

Goals:
- Support general parallel programming
- Make parallel programming at scale far more productive

Who Are We?

- **Brad Chamberlain,** technical lead

- **Ben Albrecht**

- **Michael Ferguson**

- **Greg Titus**

- **Sung-Eun Choi**

- **Engin Kayraklioglu** (GWU)

Who Are You?

- **Type of Institution / Position?**

- **Favorite Programming Languages / Models?**
    - For fun? For work?
    - C? C++? Python? Java? Fortran? Matlab? R? …?
    - MPI? SHMEM? UPC? CAF? OpenMP? CUDA? Spark? ...?

- **Styles of Computations?**

Our goals today

- **To teach you as much about Chapel as we can:**
  - What it is
  - How to use it
  - Hands-on experience: on laptops / on a Cray
  - Current status / Future plans
  - Chapel resources

- **To get your feedback on Chapel**
  - What aspects of it are attractive? Need improvement?
  - What would make Chapel more useful / usable for you?

Today's Schedule

8:30: Welcome
8:40: Chapel Background + Overview
9:30: Installing, Resources, Hello world
10:00: Break
10:30: Base Language
11:00: Data Parallelism
11:30: Hands-on
12:00: Lunch
1:30: Task Parallelism
2:00: Locality
2:30: Data Parallelism II: Domain Maps
3:00: Break
3:30: Hands-on II
4:00: Q & A
4:15: Grab-bag Topics
4:45: Resources + Wrap-up
5:00: Done!
5:30: CHUG: 7th annual Chapel Users Group Happy hour

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COMPUTE | STORE | ANALYZE

Questions at this level?

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