Some Logistics

- This hands-on training is provided by HPE staff, with help from NERSC staff
  - Thanks to all, especially presenter Chris Marsh of HPE
- Users are muted upon joining Zoom
  - Feel free to unmute and ask questions
- Please provide your full name in Zoom session
  - Click "Participants", then "More" next to your name to edit
- You can click the CC button to toggle captions and view full transcript
- Slides will be uploaded soon. Recordings to be available in a few days
  - https://www.nersc.gov/hpe-perlmutter-training-oct2024/
- Please ask your questions in GDoc (preferred over Zoom chat)
  - https://tinyurl.com/4d35ya9h
- Please help us improve by answering the survey
  - Day 1: https://tinyurl.com/4nebxe9j
  - Day 2: https://tinyurl.com/3436ye34

Agenda

Day 1: Mon, Oct 14 (9 am - 1 pm)

- NERSC and HPE Introduction -- 10 min
- Perlmutter Architecture Review -- 20 min
- CPE Overview and Environment Modules -- 40 min
- Break -- 20 min
- HPE Cray MPI and Scientific Libraries -- 40 min
- MPI Hands-on Activity -- 45 min
- Break -- 20 min
- New Feature Preview -- Fortran DO CONCURRENT Offload -- 30 min
- Wrap up, Q&A -- 10 min

Day 2: Tues, Oct 15 (9 am - 2 pm)

- Optimizing Single GPU Performance -- 20 min
- HPE Cray Performance Analysis Tools with GPUs -- 40 min
- Break -- 10 min
- HPE Cray Perftools Hands-on -- 60 min
- Break -- 30 min
- Code Parallelization Assistant (Reveal) Demo -- 40 minutes
- CPE Debugging Tools Gdb4hpc and Valgrind4hpc -- 30 min
- Break -- 15 min
- CPE Debugging Tools - Hands-on -- 45 min
- Wrap up, Q&A -- 10 min

Using Perlmutter

- NERSC users have been added to ntrain7 project
- Non-users were sent the instruction to get a training account
  - Accounts valid through Oct 22
- Login to Perlmutter: ssh username@perlmutter.nersc.gov
- Please install No Machine (NX) to expedite X-forwarding when using GUI tools: https://docs.nersc.gov/connect/nx/
- Running Jobs examples:
  - https://docs.nersc.gov/jobs/
- Hands-on Exercises
  - % cd $SCRATCH
  - % cp -r /global/cfs/cdirs/training/2024/HPE_Oct2024 . (notice the last dot)
  - Follow instructions for each lab

Compute Node Reservations

- GPU node reservations:
  - 9 am -1 pm Pacific, Oct 14: HPE_day1
  - 9 am - 2 pm Pacific, Oct 15: HPE_day2
  - To use 1 GPU only (sample flags for sbatch or salloc):
    - -A ntrain7 --reservation=HPE_day1 -C gpu -N 1 -c 32 -G 1 -t 30:00 -q shared
  - To use multiple nodes (sample flags for sbatch or salloc), and have access to all 4 GPUs on each node:
    - -A ntrain7 --reservation=HPE_day1 -C gpu -N 2 -t 30:00 -q regular
- Outside of reservation, use:
  - To use 1 GPU only (sample flags for sbatch or salloc):
    - -A <project> -C gpu -N 1 -c 32 -G 1 -t 30:00 -q shared
  - To use multiple nodes (sample flags for sbatch or salloc):
    - -A <project> -C gpu -N 2 -t 30:00 -q regular   (or -q interactive for salloc)

A few Upcoming Events Trainings

- [NERSC@50](#), Special Annual NERSC User Meeting, Oct 22-24
- [Berkeley Lab AI for Science Summit](#), Oct 24-25
- [Totalview Debugging Office Hours](#), Oct 25
- [OpenMP Training Series, May 6 - October 28](#)
  - Monthly training sessions. Last session on Oct 28
- [Valgrind and Sanitizers Training](#), Nov 1
- [Quantum Days 2024](#), Nov 7-8

Find up-to-date NERSC Training Events at

https://www.nersc.gov/users/training/events/

NERSC Code of Conduct

As NERSC collaborators, we are all bound by the Code of Conduct:

Team Science

Service

Trust

Innovation

Respect

■ We agree to **work together professionally and productively** towards our shared goals while respecting each other's differences and ideas.

■ We should all feel free to speak up to maintain this environment and remember there are resources available to **report violations** to foster an inclusive, collaborative environment.
Email nersc-training@lbl.gov for any concerns

https://www.nersc.gov/nersc-code-of-conduct or search "NERSC Code of Conduct"