N-Ways To GPU Programming Bootcamp and Beyond for NERSC

Apr 5, 2023

Helen He
N-Ways To GPU Programming

- Thanks NVIDIA for bringing the N-Ways GPU Programming Bootcamp to NERSC!
  - Organizers, presenters, people worked on materials, and TAs
- Majority of the bootcamp attendees are NERSC/ALCF/OLCF users
- It covers GPU programming concepts and basic introduction of various programming models
- Users can continue to learn by using the bootcamp materials as guideline, while program and run your GPU codes on Perlmutter and other DOE systems.
- Users can explore more in-depth past and upcoming NERSC training materials on GPU programming models and profiling tools
Perlmutter Supports Every GPU Programming Model

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<th>CUDA</th>
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* highest portability  
** available soon

Vendor Supported  
NERSC Supported
Selected NERSC GPU Training Events

- NERSC Training Events and Archives (slides, recordings):
  - https://www.nersc.gov/users/training/events/
    - 3-part OpenACC Training Series, Apr-Jun 2020
    - 9-part CUDA Training Series, Jan 2020 - Oct 2021
    - 2-part Standard C/C++ and Fortran Training Series, Apr-May 2022
    - **OpenMP Offload Training**, Aug-Sep 2022
    - **Nsight Systems and Nsight Compute Profiling**, Aug 2022
    - **Nvidia HPC SDK Training**, Jan 2022
    - **Using Perlmutter Training**, Jan 2022
    - **New User Training**, Sep 2022
    - GPUs for Science Day 2022, **Oct 2022** and **Jun 2020**
    - **Perftools and Reveal Tools for GPU Programming**, Sep 2022
    - **GPU Debugging with Nvidia tools**, Nov 2022
    - **HIP for CUDA Programmers**, Jul 2022
    - **SYCL Training**, Mar 2022

[NERSC Logo]

[NERSC Training Events and Archives URL]

[Selected Training Events]

- New User Training, Sep 2022
- GPUs for Science Day 2022, Oct 2022 and Jun 2020
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Upcoming NERSC GPU Training Events

- **Codee training**, Apr 25-26, 2023
  - A developer tool to help inserting OpenMP and OpenACC directives

- **NERSC Open GPU Hackathon**, application due May 24

- Advanced SYCL Training, end of May 2023