MNHACK23: 5th MareNostrum Hackathon

Objectives

The fifth edition of the Marenostrum Hackathon, co-located with the 2nd "EuroHPC Workshop/hackathon on Dynamic Resources in HPC" aims to help HPC developers and users with their codes and executions. Participants will be mentored from many disciplines including computer and domain science. Mentors are assigned to the participants depending on their needs and requirements of programming models, tools, or systems. In this regard, participants are expected to bring an application to optimize or analyze.

Participants will have access to the resources of the general-purpose cluster of Marenostrum IV and the GPU-enabled CTE-Power cluster. If Marenostrum V is already in production, participants will also be able to run their codes in the new supercomputer.
Furthermore, the event will count with experts who can help teams to work on their codes. In general terms, experts can give advice on, among others, BSC technologies such as Extrae, Paraver, Dimemas, OmpSs, and OmpSs-2, as well as programming models CUDA, MPI, OpenMP, OpenACC, and HIP. The event also counts with mentors for system dev-ops.

Important Information

- Registration deadline: 9 October 2023
- Notification of acceptance: before 11 October 2023 (we will try to review it as soon as possible after your submission).
- Date: 17/Oct/2022 Time: 09:00 - 19/Oct/2023 Time: 18:00
- Place: BSC Building Auditorium (Floor -1)
- Teams: Up to four people.
- Mentors: Provided by BSC and third-party institutions.
- Cost: Free of charge.
- Contact: mnhack[at]bsc.es.

Topics

We can help on optimizing applications using a variety of programming models. We also have mentors from many disciplines, including computer scientists and domain scientists. We will make sure we have the right mentors for you in case your application is selected. Note that this is not a GPU-only hackathon.

Participants will have access to the resources of the general-purpose cluster of the MareNostrum 4 supercomputer and the GPU enable MN4 CTE-Power cluster and will use, among others, the technologies of

the BSC Extrae, Paraver, Dimemas, OmpSs, OmpSs-2, OmpSs-2 @ OpenACC and OmpSs-2 @ Cluster. Furthermore, in the event we will count with experts who can help teams to work on their codes. In general terms, experts can give advice on:
· Programming models: CUDA, MPI, OpenMP, OpenACC, OmpSs-2, and HIP.
· Tools: Extrae/Paraver (performance analysis), Dynamic Load Balance, Parallelware (analyzer, trainer).
· Systems dev-ops.

Technical talks

HPCNow!: Services and Tools for GPGPU development and maintenance.

We present a concise description of some tools and services related to General Purpose Graphical Processing Units development. Architecture, development, and management are included in the roll of services and training HPCNow offers. For a science-related environment, we discuss distributed parallel libraries like MPI and NCCL, features like Multi-Instance GPU (MIG), and tools for monitoring and reporting like NVIDIA Data Center GPU Manager (DCGM).

BSC's Organizing Committee

Steering Committee: Antonio J. Peña (chair), Xavier Teruel, and David Vicente.
General Chairs: Sergio Iserte and Julián Morillo.
Review Committee: Muhammad Usman, Oriol Lehmkuhl, and Marta García.

Accommodation

Low budget

- Student residence Torre Girona (https://www.resainn.com): 2 minutes walking
- Student residence Diagonal (https://www.resainn.com): 13 minutes walking
- Albergue Studio Hostel (https://www.alberguestudio.com): 20 minutes walking

Medium budget

- Bonanova Park (http://hotelbonanovapark.com/): 14 minutes walking
- Arenas Atiram Hotel (http://www.atiramhotels.com/hoteles/barcelona/hotel-arenas-atiram-cerca-camp-nou/): 13 minutes walking
- Hotel Upper Diagonal (https://www.hotel-upperdiagonal.com): 7 minutes walking
- Catalonia Rigoletto (https://www.cataloniahotels.com/es/hotel/catalonia-rigoletto?mb=1) 15 minutes walking

High budget

- Sansi Pedralbes (https://www.hotelsansipedralbes.com): 7 minutes walking
- Limehome Barcelona (https://www.limehome.com/suites?city=110&guests=1&property=271): 15 minutes walking

Registration

Here: https://www.bsc.es/education/training/other-training/mnhack23-5th-marenostrum-hackathon/register

Sponsors

HPC Now!

Barcelona Supercomputing Center
Centro Nacional de Supercomputación