Arm SVE Hackathon: "Arm Scalable Performance for HPC and ML"

Objectives

This hackathon targets application developers that are interested in investigating the impact of novel SVE extensions on High Performance Computing (HPC) and Machine Learning (ML) applications. Arm researchers and engineers will introduce the different HPC tools available from Arm including compilers, math libraries, debugging and profiling tools. The hackathon will focus on the benefits of SVE extensions in the context of HPC and ML kernels and applications. The instructors will guide attendees to vectorize codes through compilation, refactoring and intrinsics. The vectorization examples will showcase the features of SVE that help provide higher performance and energy efficiency by increasing utilization of vectors, improving data movement and exploiting in-core acceleration of important compute patterns. To ease this experience, the organizers will provide access to HPC machines with all the required tools already installed.

This is the second edition of the Arm SVE Hackathon series. The first one was held at SC18 (find more information here: https://developer.arm.com/hpc/events/sve-hackathon-sc18).

Requirements

- Master in Computer Sciences or similar.
- Expert programmer in C/C++, OpenMP, MPI
- Experience as a user of an HPC cluster.

Each participant should bring his own application to port to SVE. If necessary, we will provide some mini-apps to port to SVE.

Academic Staff

Co-organizers of the Arm SVE Hackathon: Filippo Mantovani (BSC), Miquel Moreto (BSC), Alex Rico (Arm) and John Linford (Arm).

Barcelona Supercomputing Center - Centro Nacional de Supercomputación