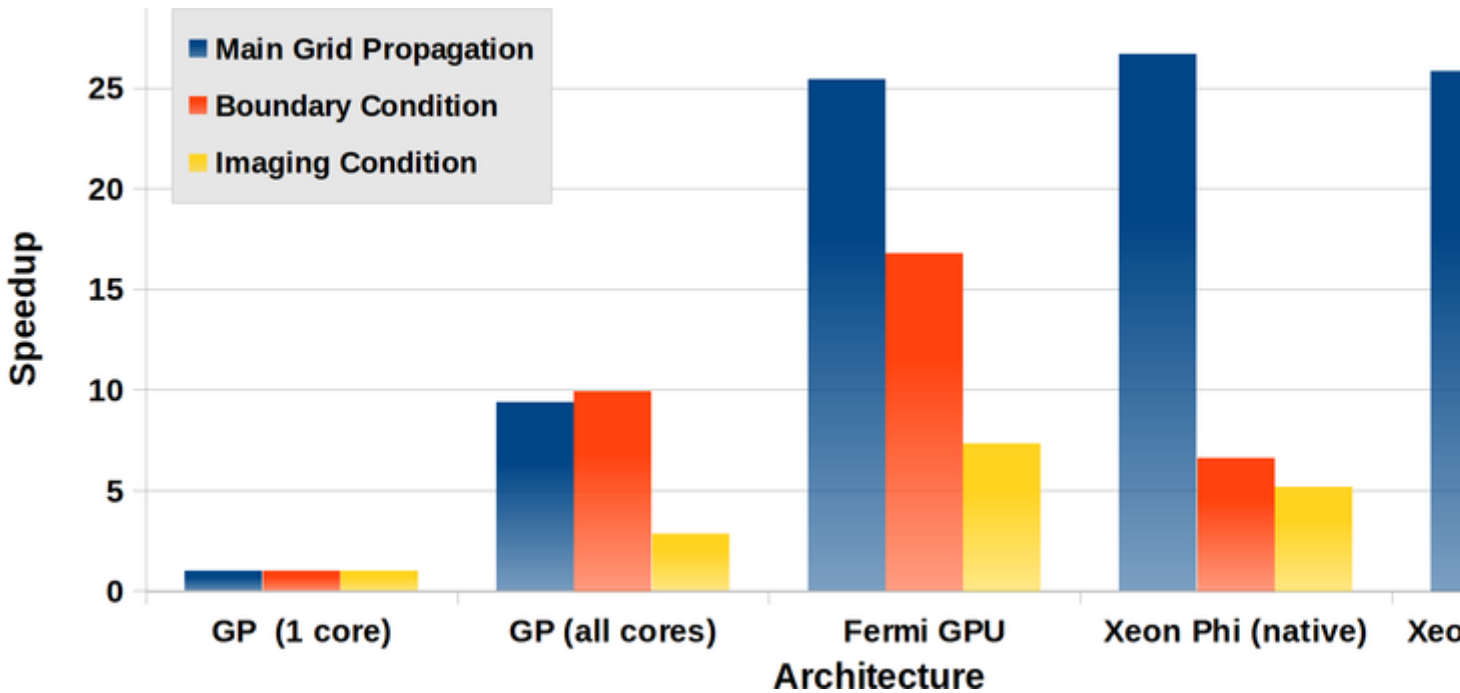


HPC Software Optimization



HPC software optimisation aims to develop more efficient HPC code considering: the algorithm, the data and the underlying computer architecture. All of these aspects continuously evolve which makes code optimisation mandatory in order to make the most of modern supercomputers.

Summary

The research area of HPC software optimisation focuses on providing the knowledge and expertise necessary for optimising the software developed in the CASE department. By optimise, we mean developing the most efficient code for a given architecture without losing effectiveness. Our research interests target optimisations specific for scientific code running on computer architectures broadly used in the HPC field.

Objectives

- Understand how the most used architectures in HPC work to be able to develop the most efficient code for these architectures.
- Understand the basic building blocks (e.g. stencils) of the scientific code developed in the department and understand the known optimisation techniques for each of them.
- Tackle upcoming and new architectures in HPC and develop new optimisation techniques for scientific code on these architectures.

- Apply all this knowledge and expertise to the applications developed in the CASE department

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

Source URL (retrieved on 15 gen 2025 - 05:29): <https://www.bsc.es/ca/research-development/research-areas/hpc-software-engineering/hpc-software-optimization>