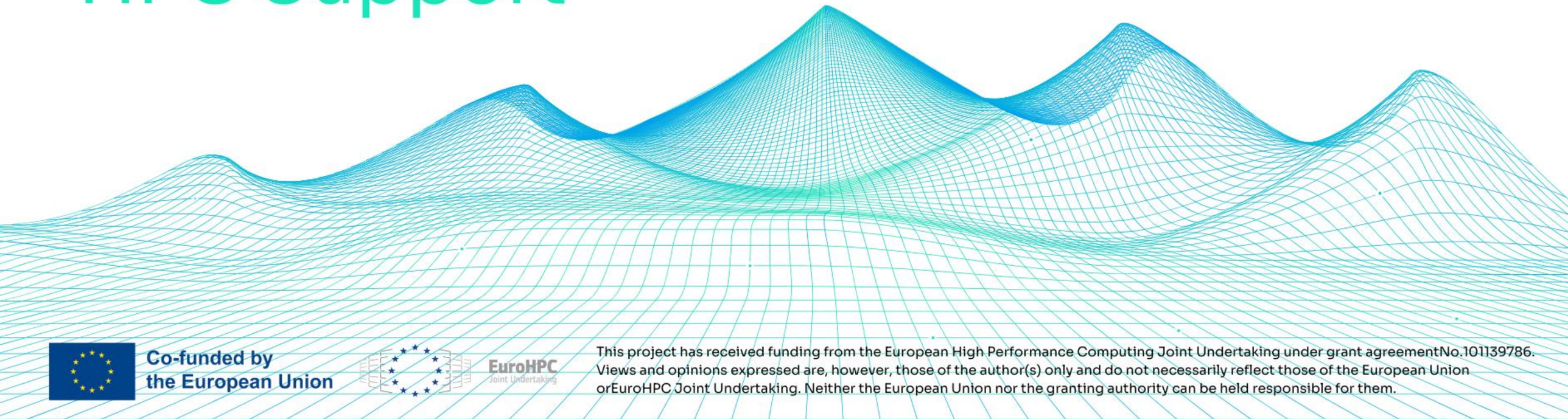
EPICURE

Unlocking European-level HPC Support



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EuroHPC Joint Undertaking

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1. Context
2. Mission
3. Main Goals
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5. Support Services
6. Access the Resources
7. Consortium

Context

HPC has enabled technologies with a positive impact on society

- More precise climate and weather modelling
- Reduced healthcare research costs through simulation
- Planning and yield prediction of renewable energy resources
- Train larger and more complex Artificial Intelligence models
- …

Installation of supercomputers in multiple countries reflects a commitment to HPC's technological potential

- EuroHPC JU has been instrumental in elevating European supercomputing

Context

5
Petascale

KAROLINA

VEGA

MELUXINA

DISCOVERER

DEUCALION

3
Pre-Exascale

LEONARDO

LUMI

MARE NOSTRUM 5

2
Future Exascale

JUPITER

JULES VERNE

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Mission

EPICURE draws on the experience and knowledge of the current and future EuroHPC supercomputer hosting organisations to provide better user support

- Adequate code installation and porting to different architectures (Level 2)
- Intra- and inter-node optimisation, focusing on accelerators and scalability (Level 3)

Knowledge exchange through the organisation of hardware-specific training, hackathons, webinars, and workshops in several EU countries

- Promotes sharing of expertise among hosting organisations
- Provides users with a wide knowledge pool

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Main Goals

- To establish a four-year operation of a distributed European-wide high-performance computing application support service bringing together Application Support Teams (ASTs);
- To reach a large pool of EuroHPC users;
- To develop a European HPC Application Support portal;
- To contribute to the development and improvement of the European HPC Application Support Service;
- To collaborate with the Centers of Excellence to develop an HPC-skilled workforce.

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Expected Outcomes

- Publish best practice guidelines on how to code applications that use EuroHPC supercomputers adequately;
- Create a knowledge pool publicly available with the resources of training and webinar activities;
- Provide the community with optimised codes of various scientific domains;
- Foster an educated HPC user community;
- Provide a wide range of support services across all EuroHPC JU centers.

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Support Services

Meet our Support Services

Code enablement and scaling

Support for enabling and increase the scalability of user codes to EuroHPC supercomputers

Performance Analysis

Performance analysis for HPC codes

Benchmarking

Our service focuses on developing a benchmarking suite to evaluate the performance of EuroHPC machines.

Code refactoring

This service involves restructuring or rewriting parts of an application code to improve it maintainability but without changing its function.

Code optimization

Our service aims at improving the efficiency and performance of the software such that it consumes fewer resources

Support Levels

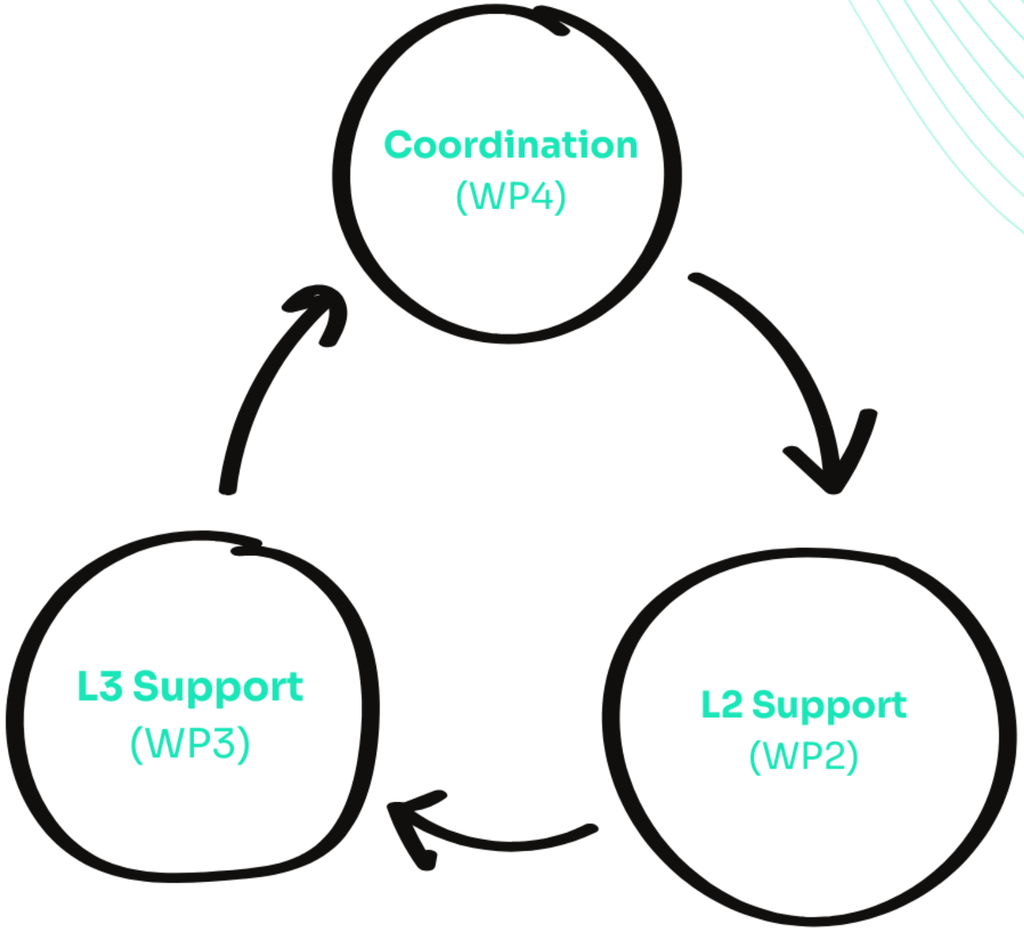
2nd Level Support | Code Porting, Enabling and Scaling

Work limited to 1-2 months with focus in compilation improvements, vectorization and scalability analysis

3rd Level Support | Code Optimization

Handling large-scale workloads with durations of 2 to 6 months, focused on performance improvements that require code modifications, such as inter-node optimizations, GPU porting and scalability improvements

Technical Distribution



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Access the Resources

1. **Access to EuroHPC JU supercomputers through open calls**
   - Regular, Extreme Scale, and AI/Data Intensive access typologies
   - Accepted projects are matched to adequate supercomputers

2. **Access to EPICURE support for accepted projects**
   - Users choose the level of support needed
   - A team of experts will work closely with users to achieve set goals

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Consortium


CSC


BSC
Barcelona
Supercomputing
Center
Centro Nacional de Supercomputación


CINECA


VSB TECHNICAL
UNIVERSITY
OF OSTRAVA
IT4INNOVATIONS
NATIONAL SUPERCOMPUTING
CENTER


IZUM
Institute of Information Science, Maribor, Slovenia


LUX
PROVIDE
NEXT-LEVEL INSIGHTS WITH
SUPERCOMPUTING


INESCTEC


SOFIA
TECH


Universiteit
Antwerpen

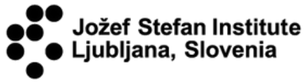

KTH
VETENSKAP
OCH KONST


CYFRONET


DTU
Technical University
of Denmark


JÜLICH
Forschungszentrum


GENCI
HPC at the service of knowledge


Jožef Stefan Institute
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INES

EPICURE

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Thank you!

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