



EuroHPC and the European HPC infrastructure

EuroHPC Summit Week – Poznan – 15 May 2019

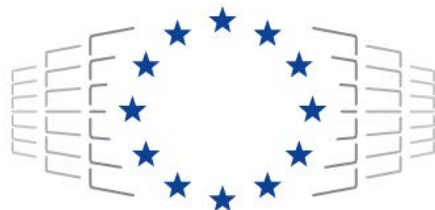
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HPC and Quantum technologies unit

Digital Excellence & Science Infrastructure - DG CONNECT

European Commission

The EuroHPC Joint Undertaking



EuroHPC
Joint Undertaking

<https://eurohpc-ju.europa.eu/>

A legal funding entity

- 28 Participating States + EC
- Site: Luxembourg
- Budget (2019-2020): ~1 B€
(half from EU)
- Operational: 11/2018 to 2026

■ **EuroHPC JU**
EuroHPC JU Participating Sta

EuroHPC JU Participating States

Austria, Belgium, Bulgaria, Croatia,
Czech Republic, Denmark, Estonia,
Finland, France, Germany, Greece,
Hungary, Ireland, Italy, Latvia, Lithuania,
Luxembourg, the Netherlands, Norway,
Poland, Portugal, Romania, Slovakia,
Slovenia, Spain, Sweden, Switzerland
and Turkey.





**Calls for Hosting
Entities**

Infrastructure: selecting Hosting Entities for EuroHPC Supercomputers

Precursors to exascale

>150 Petaflops



At least 2 (hosted in EU)

Maximum EU

contribution: 250 M€



EU contribution

≤50% of CAPEX + ≤50% of OPEX

(computing time for EuroHPC proportional to contribution to TCO)

Petascale

(2 - 100 Petaflops)



At least 2 (hosted in EU)

Maximum EU contribution:

30 M€



EU contribution

≤35% of CAPEX

(computing time for EuroHPC proportional to contribution to CAPEX.)

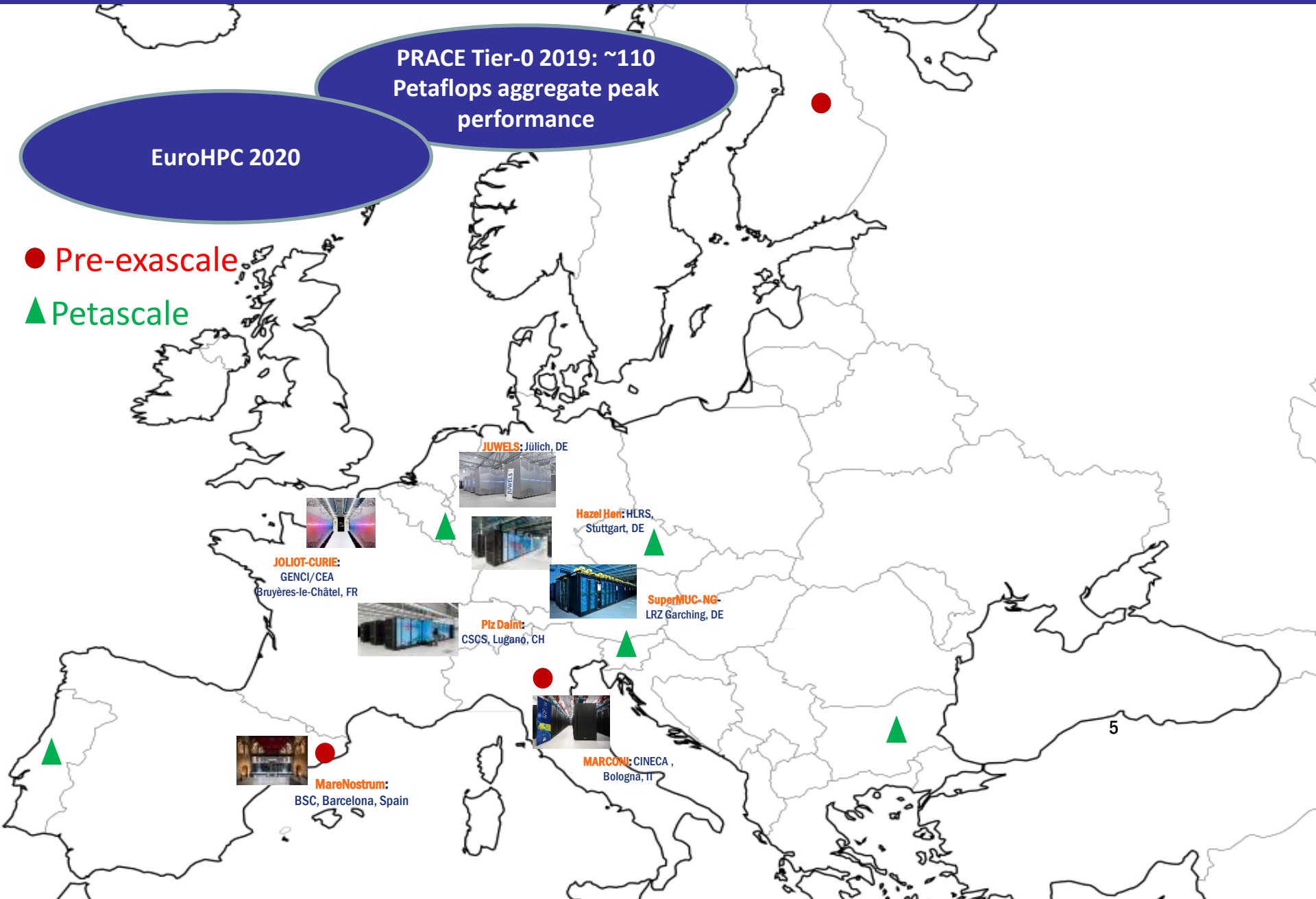
TOP HPC CAPABILITIES available for European Access - PRACE

EuroHPC 2020

PRACE Tier-0 2019: ~110 Petaflops aggregate peak performance

● Pre-exascale

▲ Petascale



JUWELS: Jülich, DE

Hazel Hen: HLRS, Stuttgart, DE

SuperMUC-NG: LRZ Garching, DE

Piz Daint: CSCS, Lugano, CH

JOLIOT-CURIE: GENCI/CEA Bruyères-le-Châtel, FR

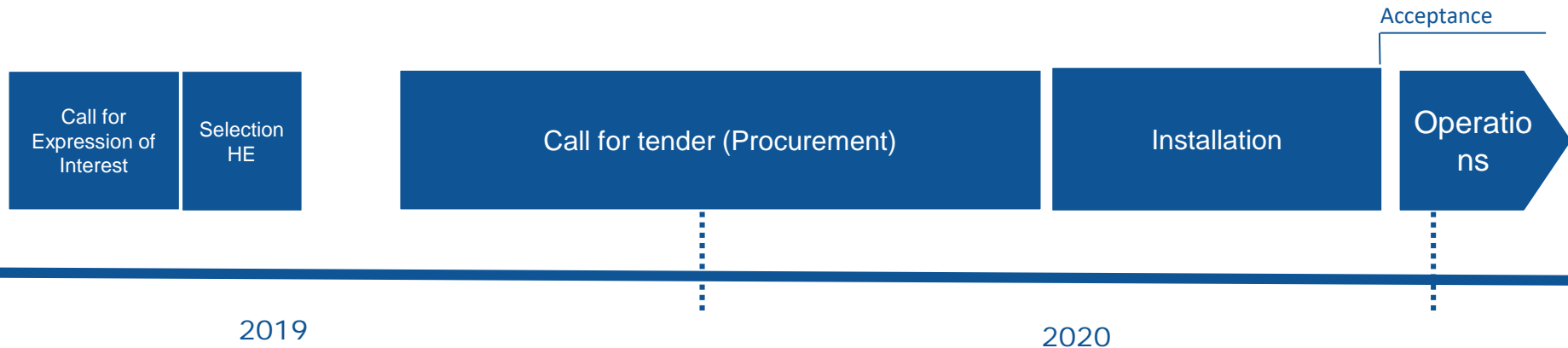
MareNostrum: BSC, Barcelona, Spain

MARCONI: CINECA, Bologna, IT

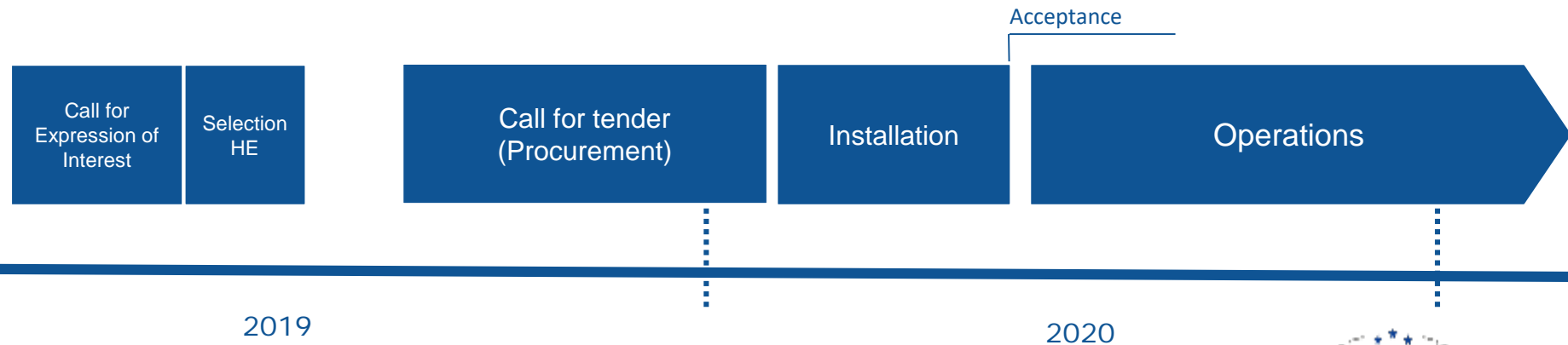
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Acquisition – Indicative timeline

Precursors to exascale



Peta-scale systems



Next steps...

- **Mission:** Establish an integrated world-class supercomputing and data infrastructure and support a highly competitive and innovative HPC and Big Data ecosystem

- **Objectives**

- 1. *An integrated world-class supercomputing and data infrastructure***

- At least 2 pre-exascale + at least 2 petascale by 2020

- 2 exascale by 2022/2023 (1 EU tech);

- post-exascale infrastructure by 2027

- federation of HPC infrastructures at European level

- hybrid HPC/Quantum infrastructure

- 2. *Research and innovation for a HPC and Big Data ecosystem***

- an integrated European HPC R&I agenda

- independent HPC technology supply

- excellence in HPC applications and use

- HPC Competence Centres, training/skills, outreach

The EuroHPC Infrastructure Roadmap

EuroHPC JU

Work in progress

2020

2021

2022

2023

2024

2025

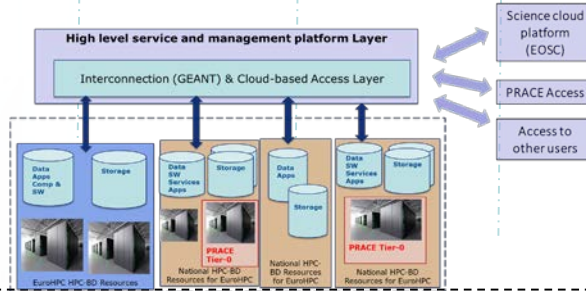
2026

2027

Pre-exa
Petascale

2 Exascale
(at least 1
EU tech.)

Post-
Exascale



Hybrid HPC
infrastructure
(quantum,
neuromorphic, ...)

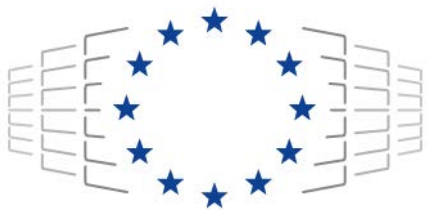
Towards a federated and
hyperconnected (0.1 - 1Tbps)
infrastructure in coordination with



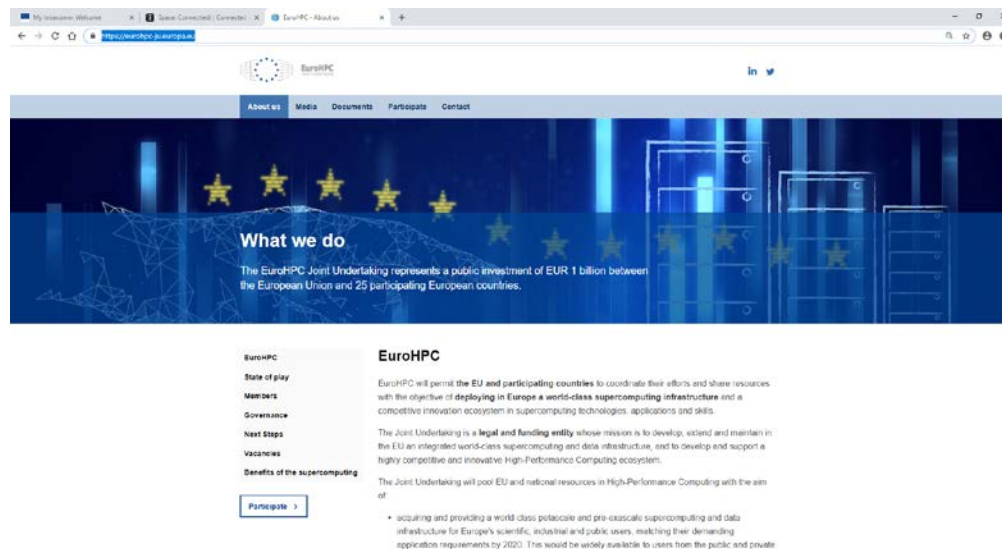
The EuroHPC JU

Thank you!

Visit the EuroHPC JU website at: <https://eurohpc-ju.europa.eu/>



EuroHPC
Joint Undertaking



The screenshot shows the homepage of the EuroHPC Joint Undertaking website. The header includes the EuroHPC logo and navigation links: About us, Media, Documents, Participate, and Contact. The main content area features a large blue graphic with a network of nodes and stars, and the heading "What we do". Below this, a paragraph states: "The EuroHPC Joint Undertaking represents a public investment of EUR 1 billion between the European Union and 25 participating European countries." A sidebar on the left lists various sections: EuroHPC, State of play, Members, Governance, Next steps, Vacancies, and Benefits of the supercomputing. The main content area also has a "Participate" button. The footer contains a detailed description of EuroHPC's mission and goals, including the objective of deploying a world-class supercomputing infrastructure and a competitive innovation ecosystem in supercomputing technologies, applications and skills. It also mentions that the Joint Undertaking is a legal and funding entity whose mission is to develop, extend and maintain in the EU an integrated world-class supercomputing and data infrastructure, and to develop and support a highly competitive and innovative High-Performance Computing ecosystem. The footer also states that the Joint Undertaking will pool EU and national resources in High-Performance Computing with the aim of:

- acquiring and providing a world class petascale and pre-exascale supercomputing and data infrastructure for Europe's scientific, industrial and public users, matching their demanding application requirements by 2020. This would be widely available to users from the public and private