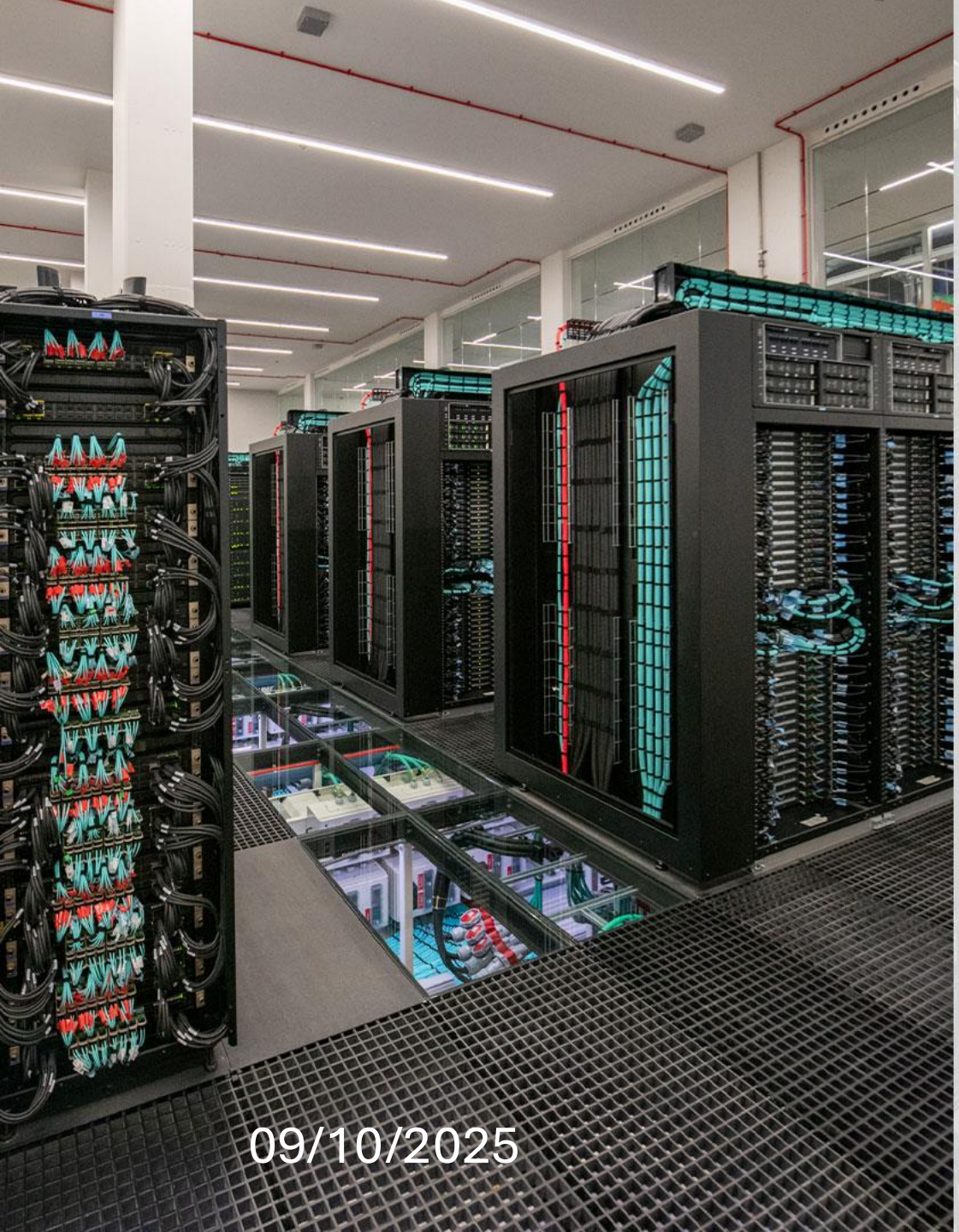

09/10/2025

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AI Factories

Empowering Research and Innovation through Supercomputing Infrastructures

Sevil Sarıkurt Malcıoğlu

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TÜBİTAK ULAKBİM, Network Technologies Department,

TRUBA User Support Team

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20 BSC YEARS

fct Fundação para a Ciência e a Tecnologia

TÜBİTAK

ICI

Affiliated Entities

UPC UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

CNCA Centro Nacional de Computação Avançada

OUTLINE

- EuroHPC JU Supercomputers and Access Calls
- Fortissimo Plus Open Call
- MareNostrum 5 National Access Call
- TRUBA Turkish Science e-Infrastructure
- BSC AIF User Support

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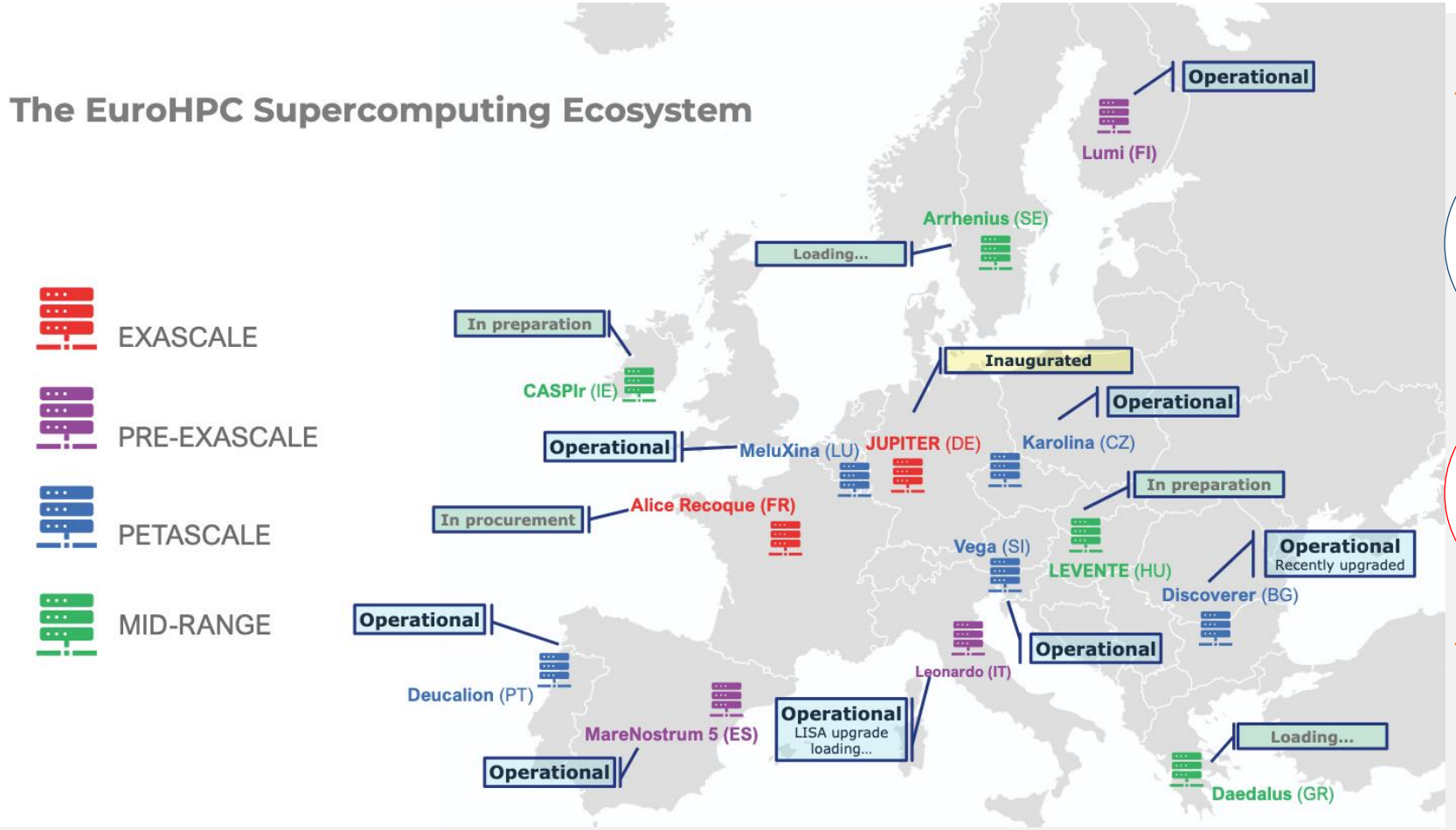
EuroHPC JU Supercomputers



EuroHPC JU Access Calls

- Traditional HPC Applications
- AI Factories

MN5 National Access Call

EuroHPC Joint Undertaking

TeraFLOPS: Process one trillion (10^{12}) floating-point operations per second (A laptop can perform operations up to one teraFLOPS.)
Petascale: Capable of processing at least 10^{15} floating-point operations per second (1petaFLOPS)
Pre-exascale: Capable of processing more than 100 petaFLOPS and less than 1exaFLOPS
Exascale: Capable of processing at least 10^{18} floating-point operations per second (1exaFLOPS)

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EuroHPC JU Supercomputers Access Calls

TRADITIONAL HPC

PREPARATORY ACTIVITIES	PRODUCTION ACTIVITIES
BENCHMARK ACCESS	REGULAR ACCESS
DEVELOPMENT ACCESS	EXTREME SCALE ACCESS

ARTIFICIAL INTELLIGENCE

INDUSTRIAL INNOVATION	SCIENCE
PLAYGROUND ACCESS	AI for SCIENCE and COLLABORATIVE EU PROJECTS
FAST LANE ACCESS	
LARGE SCALE ACCESS	

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Traditional HPC Access Modes

EuroHPC Joint Undertaking

AI Factories Access Modes

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EuroHPC JU Traditional HPC Access Modes

PREPARATORY ACTIVITIES

BENCHMARK ACCESS

Designed for code scalability tests
Access Duration: 2 or 3 months

DEVELOPMENT ACCESS

Designed for code and algorithm development and optimization
Access Duration: 6 or 12 months

EVALUATION

Technical Assessment
Allocation Process: 2 weeks from cut-off date

PRODUCTION ACTIVITIES

REGULAR ACCESS

Designed for research applications requesting large allocations
Access Duration: 12 months, Evaluation Time: 4 months

EXTREME SCALE ACCESS

Designed for high-impact, high-gain research applications requesting extremely large allocations
Access Duration: 12 months, Evaluation Time: 6 months

EVALUATION

Administrative, technical and scientific assessment

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https://eurohpc-ju.europa.eu/supercomputers/supercomputers-access-calls_en

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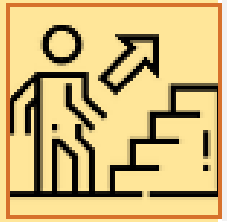
AI ACCESS MODES: INDUSTRIAL INNOVATION

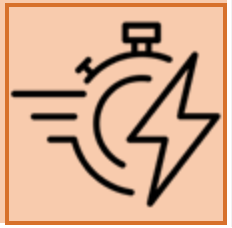
PLAYGROUND ACCESS

- Limited resources for entry-level users (5.000 GPU hours)
- Evaluations on rolling basis
- Access within **2 days** after the proposal submission
- Access Duration: **1-3 months**



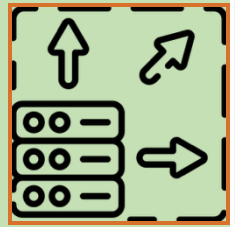
FAST LANE ACCESS

- For users already familiar with HPC requiring up to 50.000 GPU hours
- Evaluations on rolling basis
- Access within **4 days** after the proposal submission
- Access Duration: **1-3 months**



LARGE SCALE ACCESS

- Allocations larger than 50.000 GPU hours
- 2 cut-off dates/month (15 Oct 2025/31 Oct 2025/14 Nov 2025/1Dec 2025,...)
- Access within **10 days** after the cut-off date
- Access Duration: **3, 6 or 12 months**



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Vega GPU, Discoverer GPU, MeluXina GPU, Leonardo Booster, MareNostrum5 ACC, LUMI-G

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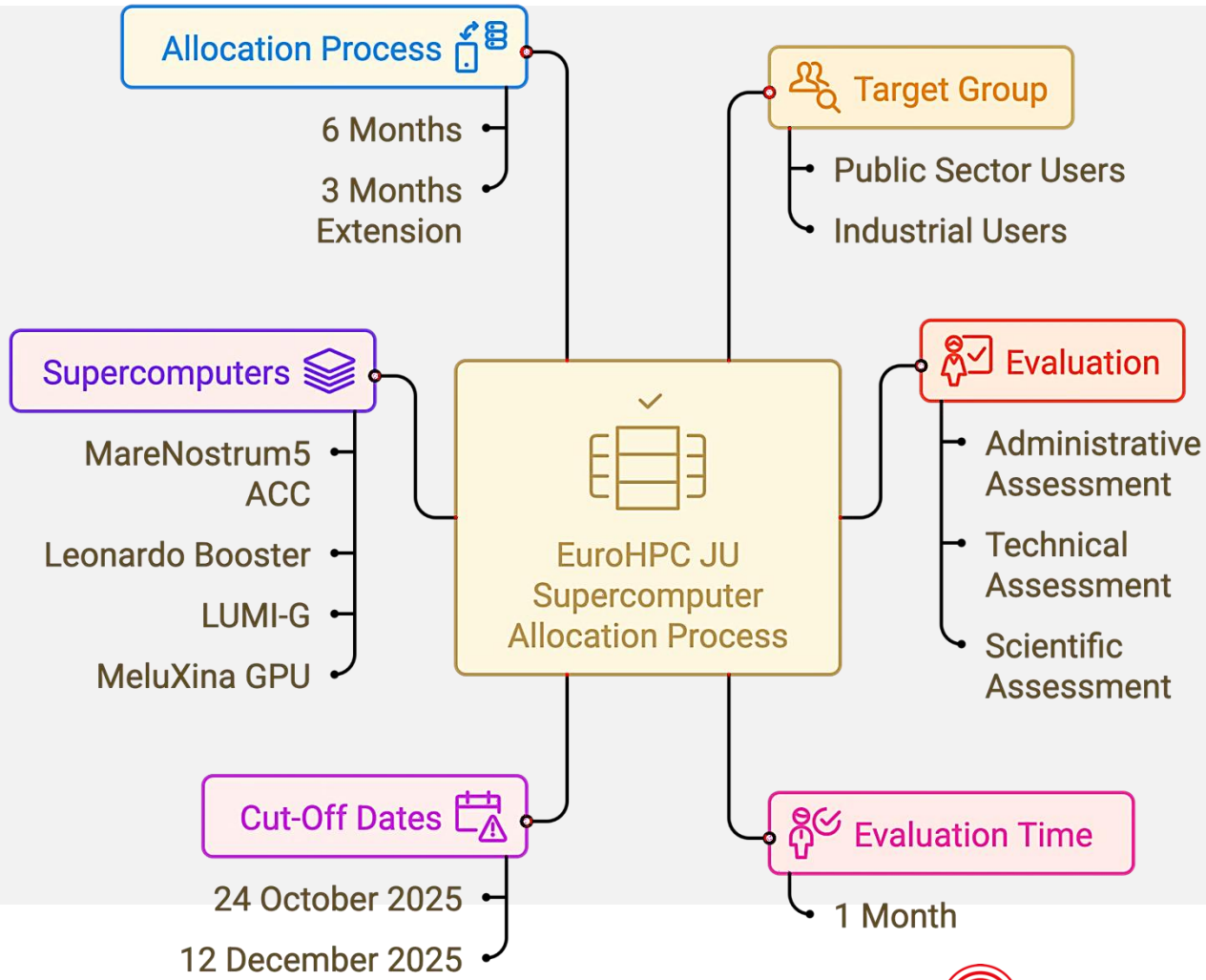
AI ACCESS MODES: SCIENCE

AI for SCIENCE and COLLABORATIVE EU PROJECTS

- To support AI applications for science, with a focus on ethical AI, Machine Learning, and cutting-edge foundation Models and Generative AI, including LLMs.



https://www.eurohpc-ju.europa.eu/ai-factories/ai-factories-access-calls_en

AI ACCESS MODES: INDUSTRIAL INNOVATION LARGE SCALE ACCESS

- Awarded Projects from Türkiye

waytogo
digital coaching platform

Development of an AI-Powered Auto-Supervision System in the Coaching Sector

This project will perform cross-datacenter training of a stage-of-the-art multilingual LLM at an unprecedented scale (tens of billions of parameters trained on tens of trillions of tokens) using coordinated allocations across multiple supercomputers.

NewMind AI
where data finds its mind

Turkish-Specific Large Language Model for Information Processing and Contextual Analysis

The proposed project aims to develop a cutting-edge AI platform powered by a domain-specific Large Language Model (LLM) uniquely tailored for the Turkish language.

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https://www.eurohpc-ju.europa.eu/supercomputers/awarded-projects_en

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ELIGIBILITY

WHICH TYPES OF ACCESS EXIST?

- Development Access Mode
- Benchmark Access Mode
- Regular Access Mode
- Extreme Scale Access Mode
- Playground Access Mode
- Fast Lane Access Mode
- Large Scale Access Mode
- AI for Science and Collaborative EU Projects

WHO IS ELIGIBLE?

- ❑ Academic and research institutions (public and private)
- ❑ Public sector organisations
- ❑ Industrial enterprises and SMEs

→ Open to all fields of research

EuroHPC JU Access Policy

WHAT ARE THE CONDITIONS FOR ACCESS?

Access is free of charge. Participation conditions depend on the specific access call that a research group has applied to.

In general users of EuroHPC systems commit to:

- ❑ acknowledge the use of the EuroHPC JU resources in their related publications
- ❑ contribute to dissemination events (EuroHPC JU Success Stories, User Days,...)
- ❑ produce and submit a report after completion of a resource allocation
- ❑ The applicant commits to not use the project results for military purposes.

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More information on EuroHPC access calls available at:

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FFPlus: 2nd Call for Innovation Studies for the Development of Generative AI Models

FORTISSIMO PLUS

FFPlus Projects (1st Open Call)

Objective

Strengthen the technological development of European SMEs in Generative AI

Target Group Identification

SMEs and start-ups proficient in Generative AI and HPC are identified.

Opening Date

The application process begins on December 3, 2025.

Deadline Date

The application deadline is February 25, 2026.

Targeted Commencement

Projects are expected to start on July 1, 2026.

Project Duration & Funding

Projects will last 10 months with funding up to 300 K€. (For the main participant SME: a maximum of 200 K€)

EuroHPC Joint Undertaking

EU Funding & Tenders Portal

BSC AI Factory

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/competitive-calls-cs/11502

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Info Days for EuroHPC JU Access Modes & FFPlus Open Calls

NCC TÜRKİYE

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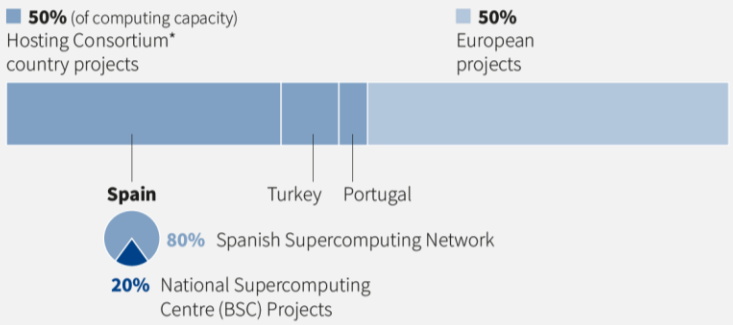
Pre-exascale System: MareNostrum 5

- 50% EuroHPC – 50% Hosting Entitities (Spain %35.13, Türkiye %9.87, Portugal %5)
- MareNostrum 5 is hosted by Barcelona Supercomputing Center (Barcelona, Spain)

Barcelona Supercomputing Center
Centro Nacional de Supercomputación

Free access to the most valuable research projects for society, chosen by external committees.



EuroHPC Joint Undertaking

TOP 500 The List.

JUNE 2025	TOP500	Green500
JUPITER	#4	#1(JEDI) #21(Booster)
LUMI	#9	#36
LEONARDO	#10	#70
MARENOSTRUM 5	#14	#44
MELUXINA	#136	#79
KAROLINA	#196	#76
DISCOVERER	#260	#244
DEUCALION	#299	#116
VEGA	#307	#287

Hosting Consortium

Spain Portugal Türkiye European Commission

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MareNostrum 5 Infographic

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MareNostrum 5 National Access Call

- **Application Period:** November 2024 - January 2026
- **Target Group:** Academia, industry and public institutions
- **Evaluation:** Administrative + Technical Evaluation (15 days)
- **Access Period:** 3 - 6 Months
- **Access:** Free of charge

https://indico.truba.gov.tr/e/marenostrum5

Resource Requirement

CPU (cores/hour) = 448.000 (min)/ 896.000 (max)
GPU (cores/hour) = 192.000 (min) / 256.000 (max)

https://www.bsc.es/supportkc/docs/MareNostrum5/intro

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MareNostrum 5 National Access Call

Open R&D Activities

Open research and development projects

Technical Competence

Have the technical competence to use the HPC system

HPC Experience

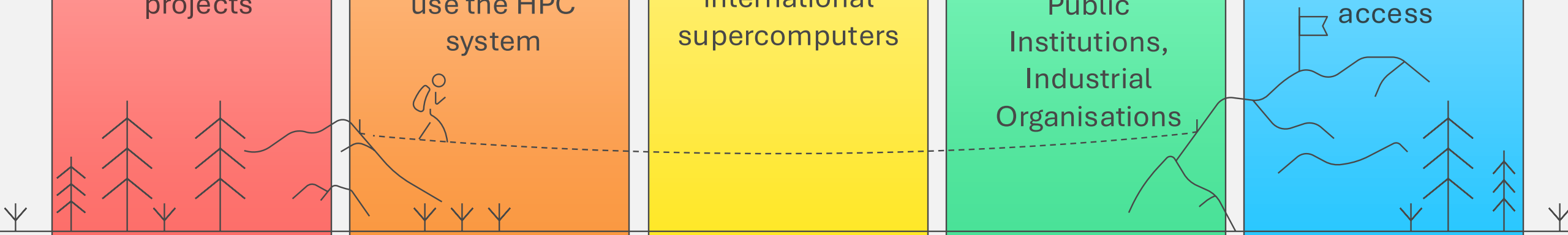
Experience in using national / international supercomputers

Organisation Institution

Türkiye-based Organisations: Universities, Public Institutions, Industrial Organisations

Eligible Research Projects

Projects that are scalable in terms of resource access



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https://indico.truba.gov.tr/e/marenostrum

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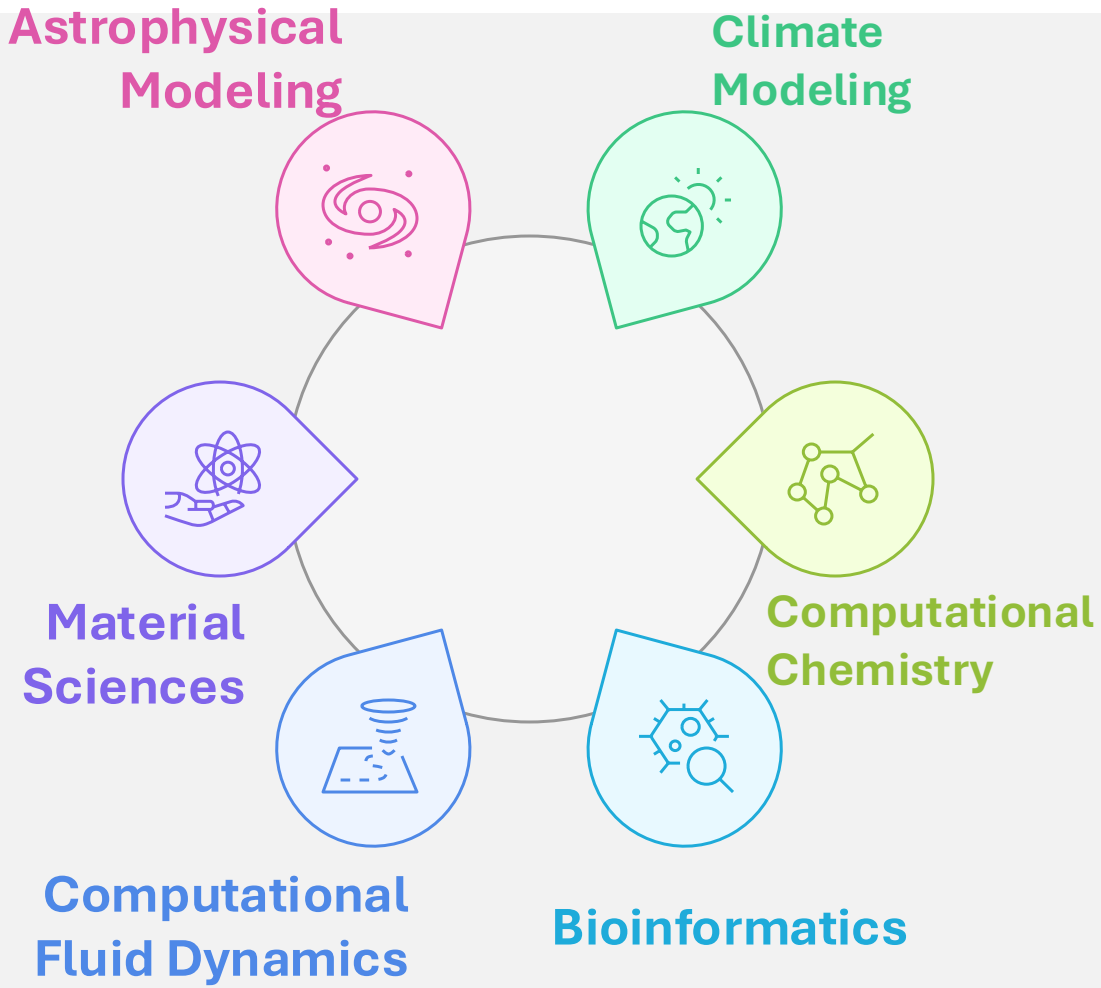
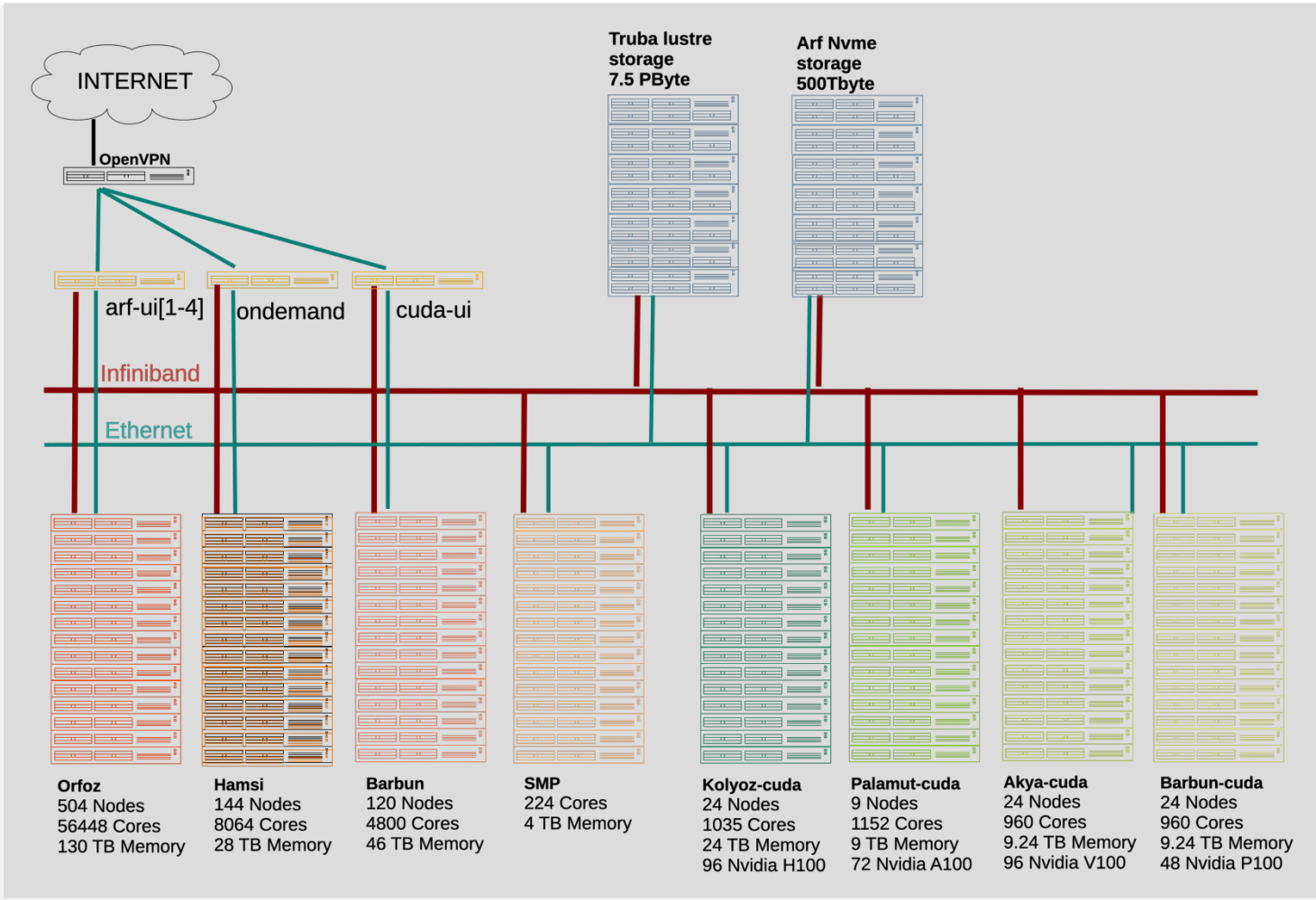
TRUBA Turkish Science e-Infrastructure





TRUBA
Turkish Science e-Infrastructure

TRUBA GPU RESOURCES

Calculation Nodes	Year	#Nodes	Architecture	Processor	Memory (1 Node)
Barbun-Cuda	2018	24	20 core x 2CPU 2xNvidia P100 GPU	Intel Xeon 6148 2.40GHz	384 GB 2x16 GB HBM2
Akya-Cuda	2018	24	20 core x 2CPU 4xNvidia V100 GPU	Intel Xeon 6148 2.40GHz	384 GB 4x16 GB HBM2
Palamut-Cuda	2021	9	64 core x 2CPU 8xNvidia A100 GPU	AMD EPYC 7742 2.24GHz	1 TB 8x80GB HBM2e
Kolyoz-Cuda	2024	24	32 core x 2CPU 4xNvidia H100 GPU	Intel(R) Xeon(R) GOLD 6548Y+ 2.5GHz	1 TB 4x80GB HBM3
Kolyoz-Cuda+	2025	48	32 core x 2CPU 4xNvidia H200 GPU	Intel(R) Xeon(R) GOLD 6548Y+ 2.5GHz	1 TB 4x141GB HBM3e

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Who can use TRUBA?

Academic Researchers
Provides computing power for innovative academic research.

Public Institutions
Supports scientific initiatives for public sector advancements.

Industry Professionals
Enhances industry innovation with advanced computing resources.

Register
- Visit the TRUBA portal to start the application

Verification
- Identity is verified through e-Government and YÖKSİS

Access Credentials
- Login details are provided upon approval

grid-teknik@ulakbim.gov.tr
trubaservis@ulakbim.gov.tr

TRUBA
Turkish Science e-Infrastructure

OUTLINE

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BSC AIF User Journey

Initial Contact
Fill out a short online form to start the process

One-to-One Interview
Discuss needs and create a diagnosis

Service Presentation
Propose a service package based on diagnosis

Service Delivery
Begin service delivery with a kickoff session

Process Improvements
Collecting feedback and making necessary adjustments

One-page Diagnosis

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Contact Form

TÜBİTAK

BSC AIF User Support Ecosystem

One-stop shop

Support for start-ups, SMEs, public institutions, and academia.

Access to resources

Access to AI-oriented computing and resources.

Field experts provide support based on specific sectors.

Sector-based support

Access to applications, software, and datasets.

Application access

Maturity assessment

Assessment of maturity levels for stakeholders.

Technical support

Technical support at various levels (1-4).

Training programs for stakeholders to enhance their skills.

Training

Recognition throughout Europe for stakeholders.

European recognition

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BSC AI Factory

AI Factories

Thank You!

Contact Form

aifactory@tubitak.gov.tr

bsc-ie@bsc.es

Social Media

Web Page

Co-funded by the European Union

EuroHPC Joint Undertaking

TÜBİTAK

This project has received funding from the European High-Performance Computing Joint Undertaking (JU) under grant agreement No 101234399 and Spain, Portugal, Romania and Türkiye. The JU receives support from the European Union's Horizon Europe Programme.

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