



# EuroCC@Greece

The overall objective of the Greek National Competence Center is to enable the efficient uptake of HPC technologies with the 3-fold goal to:

- advance competitiveness in **research**
- improve the effectiveness of **government** services and
- promote innovation in **industry**

## The Greek Competence Center for High Performance Computing and Artificial Intelligence

Enhancing innovation capacity in Business, Industry and Science  
by utilizing advanced High Performance Computing services



# EuroCC@Greece

## Services

- Technological Support & Consulting
  - High-Performance Computing,
  - Artificial Intelligence, and
  - High-Performance Data Analytics
- Training and Skills Development
- Access to computational resources

<https://eurocc-greece.gr/>

## Technologies

- Artificial Intelligence
- Machine Learning
- Computer Vision
- Large Language Models
- Scientific Simulations
- Digital Twins
- High-Performance Data Analytics

## Sectors

- Life Sciences & Healthcare
- Biotechnologies
- Materials & Batteries
- Engineering & Manufacturing
- Climate Change & Meteorology
- Cybersecurity
- Robotics



## Consortium

The Greek National Competence Center “EuroCC@Greece”, is run by a consortium of 5 institutions, namely

1. National Infrastructures for Research and Technology (coordinator) - **GRNET**
2. National Center for Scientific Research - **Demokritos**
3. Institute of Communication and Computer Systems - **NTUA**
4. Aristotle University of Thessaloniki - **AUTH**
5. Foundation for Research and Technology Hellas - **FORTH**

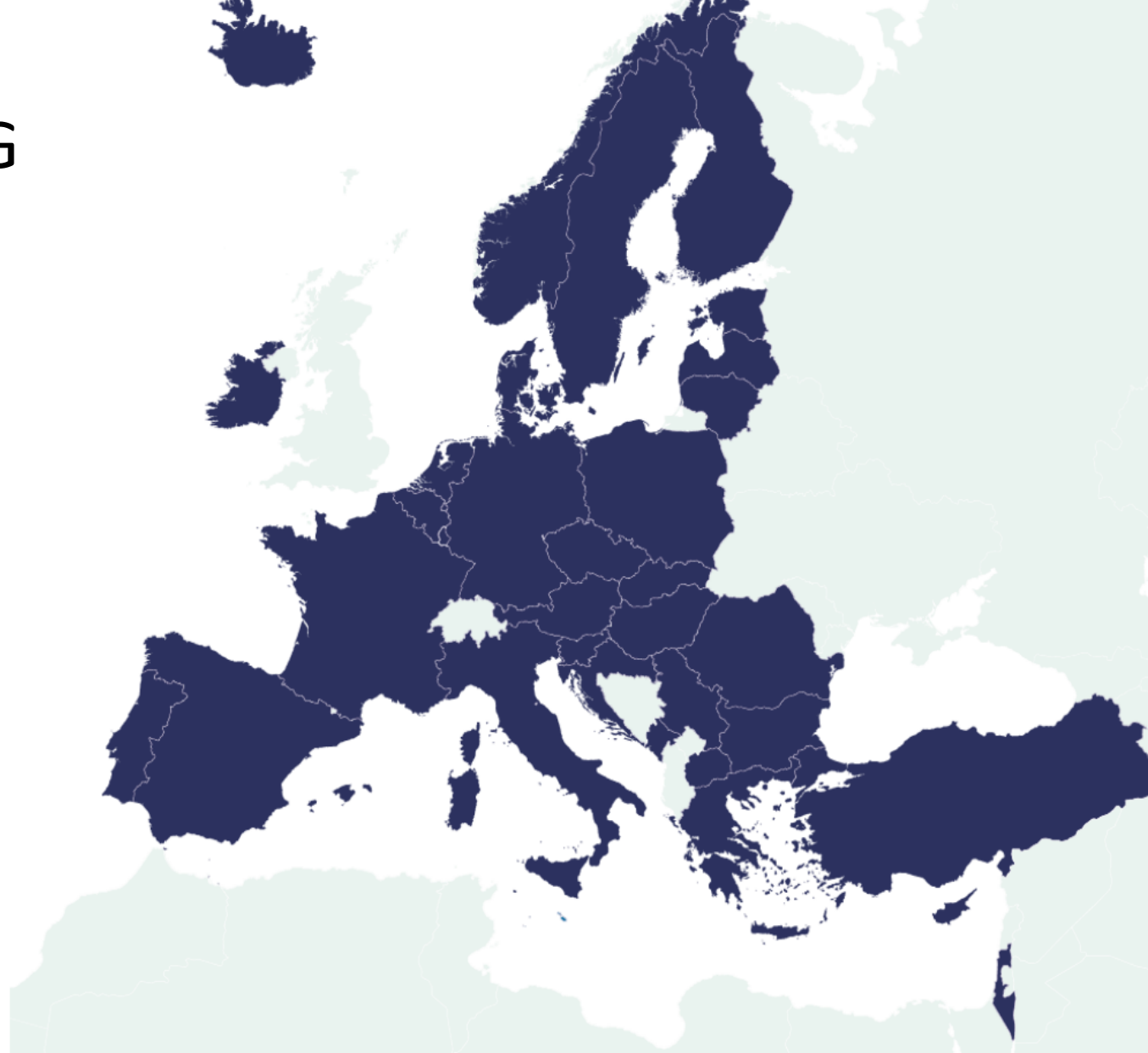


# EUROHPC JOINT UNDERTAKING

- 34 participating countries
- The European Union (represented by the European Commission)
- 3 private partners

Each of our members is represented in the EuroHPC JU's Governing Board

The Governing Board also takes advice from the EuroHPC Industrial and Scientific Advisory Board (INFRAG & RIAG)





**8 operational systems, all ranking among the world's most powerful supercomputers:**

1. LUMI in Finland #5
2. LEONARDO in Italy #6
3. MARENOSTRUM in Spain
4. VEGA in Slovenia
5. MELUXINA in Luxembourg
6. KAROLINA in Czechia
7. DEUCALION in Portugal
8. DISCOVERER in Bulgaria

**Underway:**

- JUPITER in Germany
- DAEDALUS in Greece

1	<b>Frontier</b> - HPE Cray EX235a, AMD Optimized 3rd Generation EPYC 64C 2GHz, AMD Instinct MI250X, Slingshot-11, HPE
2	<b>Aurora</b> - HPE Cray EX - Intel Exascale Compute Blade, Xeon CPU Max 9470 52C 2.4GHz, Intel Data Center GPU Max, Slingshot-11, Intel
3	<b>Eagle</b> - Microsoft NDv5, Xeon Platinum 8480C 48C 2GHz, NVIDIA H100, NVIDIA Infiniband NDR, Microsoft
4	<b>Supercomputer Fugaku</b> - Supercomputer Fugaku, A64FX 48C 2.2GHz, Tofu interconnect D, Fujitsu
5	<b>LUMI</b> - HPE Cray EX235a, AMD Optimized 3rd Generation EPYC 64C 2GHz, AMD Instinct MI250X, Slingshot-11, HPE
6	<b>Leonardo</b> - BullSequana XH2000, Xeon Platinum 8358 32C 2.6GHz, NVIDIA A100 SXM4 64 GB, Quad-rail NVIDIA HDR100 Infiniband, EVIDEN
7	<b>Summit</b> - IBM Power System AC922, IBM POWER9 22C 3.07GHz, NVIDIA Volta GV100, Dual-rail Mellanox EDR Infiniband, IBM

# ARIS – HPC Infrastructure in Greece Compute Nodes

The ARIS infrastructure consists of a total of five computing system nodes based on Intel x86 architecture, interconnected into a single InfiniBand FDR14 network offering multiple options and processing architectures. More specifically, the infrastructure consists of:

- **Thin Nodes:** 426 IBM NeXtScale nodes, Intel Xeon E5-2680v2, 8,520 cores.
- **Fat Nodes:** 44 Dell PowerEdge R820, 4 Intel Xeon E5-4650v2, 512 GB memory per node.
- **GPU Nodes:** 44 Dell PowerEdge R730, 2 Intel Xeon E5-2660v3, 64 GB memory, 2 NVIDIA K40 GPUs per node.
- **Xeon Phi Nodes:** 18 Dell PowerEdge R730, 2 Intel Xeon E5-2660v3, 64 GB memory, 2 Xeon Phi 7120P co-processors per node.
- **ML Node:** 1 server, 2 Intel E5-2698v4, 512 GB memory, 8 NVIDIA V100 GPUs.



# The way is open to building a EuroHPC world-class supercomputer in Greece

- A hosting agreement has been signed between the EuroHPC Joint Undertaking and the National Infrastructures for Research and Technology (**GRNET**) in **Greece**, where **DAEDALUS**, a new **EuroHPC supercomputer**, will be located.
- **60 petaflops** or 60 million billion calculations per second  
<https://grnet.gr/en/business-directory/grant-for-the-development-of-a-new-national-hpc-system-daedalus/>
- **Lavrion** Technological and Cultural Park (TCPL) [https://eurohpc-ju.europa.eu/way-open-building-eurohpc-world-class-supercomputer-greece-2022-11-28\\_en](https://eurohpc-ju.europa.eu/way-open-building-eurohpc-world-class-supercomputer-greece-2022-11-28_en)
- June 11, 2024: GRNET S.A. conducts a Public Consultation on the Open Tender Announcement Issue  
<https://grnet.gr/2024/06/11/public-consultation-lavrio-daedalus/>



# EuroHPC Access Modes

## [EuroHPC JU Call for Proposals – Extreme Scale Access Mode](#)

For applications with high-impact, high-gain innovative research

## [EuroHPC JU Call for Proposals – Regular Access Mode](#)

The expected impact in the application's domain should justify the need for large allocations

## [EuroHPC JU Call for Proposals – AI and Data-Intensive Applications Access Mode](#)

To support ethical artificial intelligence & machine learning

## [EuroHPC JU Call for Proposals – Development Access Modes](#)

To develop, test and optimise applications

## [EuroHPC JU Call for Proposals – Benchmark Access Modes](#)

To test or benchmark applications

[https://eurohpc-ju.europa.eu/access-our-supercomputers/access-policy-and-faq\\_en](https://eurohpc-ju.europa.eu/access-our-supercomputers/access-policy-and-faq_en)



# 2024 Cut off dates for EuroHPC Access Calls

## BENCHMARK ACCESS:

- 1<sup>st</sup> day of each month

## DEVELOPMENT ACCESS:

- 1<sup>st</sup> day of each month

## AI AND DATA INTENSIVE APPLICATIONS ACCESS:

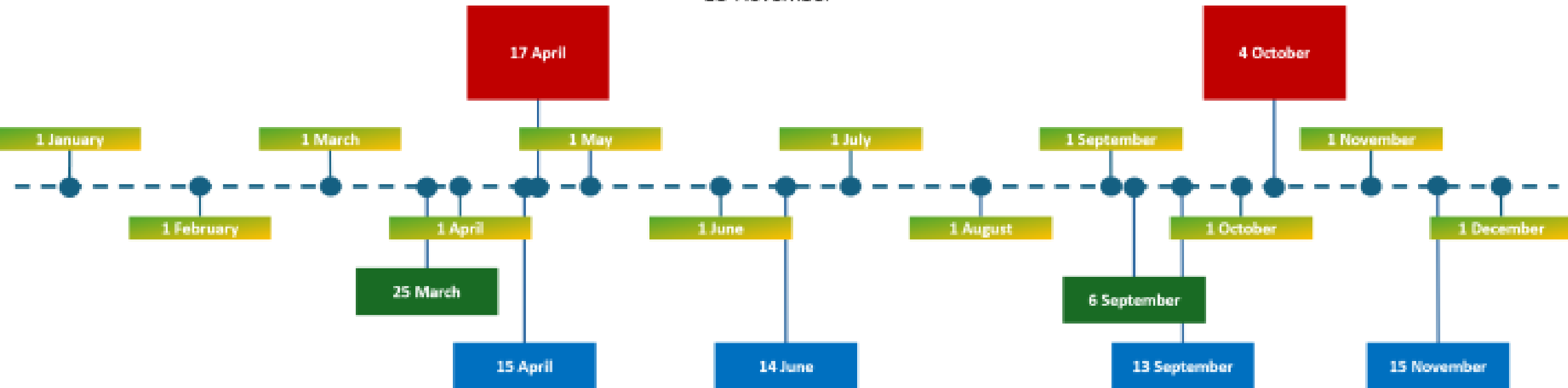
- 15 April
- 14 June
- 13 September
- 15 November

## REGULAR ACCESS:

- 25 March
- 6 September

## EXTREME SCALE ACCESS:

- 17 April
- 4 October



## Open Calls for Proposals



Cut-off ends in

3 hours

### EuroHPC Benchmark Access Call

● Open

The EuroHPC Benchmark call is designed for code scalability test...



Cut-off ends in

6 days

### EuroHPC Extreme Scale Access C...

● Open

The Extreme Scale Access mode is designed to serve research...



Cut-off ends in

7 days


### EuroHPC AI and Data-Intensive A...

● Open

The EuroHPC JU AI and Data-Intensive Applications Access cal...



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

Proposal for civilian purposes\* 

Is any part of the project confidential?\*


Yes  No 

### Research fields

Research field title\*

PE6 Computer Science and Informatics 

Research field sub-title\*

PE6\_7 Artificial intelligence, intelligent systems, natural language processing 

Research field share (%)\*

50

The sum of all research fields should not exceed the total of 100%



Cut-off ends in

3 hours

### EuroHPC Development Access Call

● Open

The EuroHPC Development call is designed for projects focusing on...

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

## Research fields #2

Research field title\*

PE6 Computer Science and Informatics

Research field sub-title\*

PE6\_11 Machine learning, statistical data processing and applications using signal

Research field share (%)\*

50

The sum of all research fields should not exceed the total of 100%

Remove

+ Research fields

AI set of technologies selection

Machine Learning

Natural Language Processing

Deep Learning

If applicable, please select used AI technologies. This is a multi-select field so you are able to choose more than one option.

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


## Partitions

Partition name\*

Code(s) used\*

This field is a multi-text field, for adding another code separate it with a comma

Requested amount of resources (node hours)\*

Average number of processes/threads\*

Average job memory (total usage over all nodes in GB)\*

Maximum amount of memory per process/thread (MB)\*

Total amount of data to transfer to/from (GB)\*

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

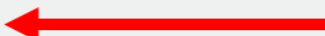
Partitions #2 

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Requested amount of resources (node hours)\*

Average number of processes/threads\*

Average job memory (total usage over all nodes in GB)\*

Maximum amount of memory per process/thread (MB)\*

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

## Frequently Asked Questions (FAQ)

[https://eurohpc-ju.europa.eu/access-our-supercomputers/access-policy-and-faq\\_en](https://eurohpc-ju.europa.eu/access-our-supercomputers/access-policy-and-faq_en)

- **How can I gain access to computation time on EuroHPC machines?**
  - You will need to **apply** to one of the open **access calls** that **EuroHPC** provides. The list of available calls can be found here.
- **Which organisations are eligible for access to EuroHPC machines?**
  - Any European organisation is eligible for access to perform Open Science research (the **results** of the work are made available for **open access**). This includes **public and private** academic and research institutions, public sector organisations, industrial enterprises and SMEs
- **What is the cost?**
  - Currently access is **free of charge**.
- **What are the participation conditions?**
  - Participation conditions depend on the specific access call that a research group has applied. In general users of EuroHPC systems commit to: **acknowledge** the use of the **resources** in their related publications, contribute to **dissemination** events, produce and submit a **report** after completion of a resource allocation. More information on participation conditions can be found in the call's Documents section.

# Our Training Events <https://eurocc-greece.gr/events-2/>



**EURO Greece**

**HPC Training Series**

**Course 1**

**HPC for beginners: basic concepts, MPI and OpenMP**

| PRESENTATION LANGUAGE: GREEK |

MARCH 29 | 09:45 EET | ONLINE



**EURO Greece**

**HPC Training Series**

**Course 2**

**Introduction to accelerators: GPUs / CUDA**

| PRESENTATION LANGUAGE: GREEK |

APRIL 19, 2024 | 10:00 EET | ONLINE



**EURO Greece** **it.auth**

**HPC Training Series**

**Course 3**

**Large Language Models (LLMs) on High Performance Computing (HPC) Systems**

| PRESENTATION LANGUAGE: GREEK |

APRIL 24, 2024 | 10:00 EET | ONLINE



**EURO Greece** **EURO**

**HPC Training Series**

**Course 4**

**Intermediate-level Programming for HPC using Python**

| PRESENTATION LANGUAGE: ENGLISH |

MAY 29, 2024 | 10:00 EET | HYBRID



**NTUA** **EURO Greece**

**HPC Workshop**

**"LARGE SCALE SCIENTIFIC COMPUTATIONS" BY NTUA**

**SUPPORTED BY EUROCC@GREECE**

| PRESENTATION LANGUAGE: GREEK |

JULY 11-14, 2024 | 10:00 - 16:00 EET | ON-SITE



**EURO Greece**

**HPC Training Series**

**Course 5**

**Computational Fluid Dynamics (CFD) using OpenFOAM on High Performance Computing (HPC)**

| PRESENTATION LANGUAGE: GREEK |

JUNE 14, 2024 | 09:30 EET | ONLINE



**NTUA** **gnet** **EURO Greece** **DCoMEX**

**Workshop**

**Data-driven Applications for Exascale Supercomputers**

SEPTEMBER 2-3, 2024 | 09:00 - 17:00 EET | ATHENS, GREECE



**EURO Greece**

**HPC Training Series**

**Course 6**

**Gradient-based & gradient-free Optimization, with applications to CFD & beyond**

| PRESENTATION LANGUAGE: GREEK |

OCTOBER 4, 2024 | 10:00 EET | ONLINE



**EURO Greece**

**HPC Training Series**

**Course 7**

**AI for Life Sciences**

**Vol. 1: Deep Learning for Health and Life Sciences**

| PRESENTATION LANGUAGE: GREEK |

NOVEMBER 1, 2024 | 10:00 EET | ONLINE





# EuroCC@Greece

Dr Nikos Bakas

<https://eurocc-greece.gr/newsletter/>

<https://www.linkedin.com/company/eurocc-greece>

<https://www.youtube.com/@euroccgreece9501>

[https://twitter.com/EuroCC\\_Greece](https://twitter.com/EuroCC_Greece)



**EuroHPC**  
Joint Undertaking

This project has received funding from the European High-Performance Computing Joint Undertaking (JU) under grant agreement No 951732. The JU receives support from the European Union's Horizon 2020 research and innovation programme and Germany, Bulgaria, Austria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Greece, Hungary, Ireland, Italy, Lithuania, Latvia, Poland, Portugal, Romania, Slovenia, Spain, Sweden, United Kingdom, France, Netherlands, Belgium, Luxembourg, Slovakia, Norway, Switzerland, Turkey, Republic of North Macedonia, Iceland, Montenegro