



EuroHPC
Joint Undertaking

The EuroHPC Supercomputing Infrastructure and Access Opportunities

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May 2022

Who are we ?

The European High Performance Computing Joint Undertaking is a legal and funding entity,

- *Created in 2018*
- *Autonomous from the European Commission since September 2020*
- *Headquarters: Luxembourg*
- *Executive director : Anders Dam Jensen*

We are pooling the resources of our members to :

- *Deploy top-of-the-range supercomputing infrastructures across Europe to support European HPC users wherever they are in Europe,*
- *Implement an ambitious research and innovation agenda to develop a competitive HPC ecosystem and supply chain in Europe, which includes hardware, software, applications but also training and skills.*



Members: European Commission + 31 participating states + 3 private members (ETP4HPC, BDVA, QuiC)

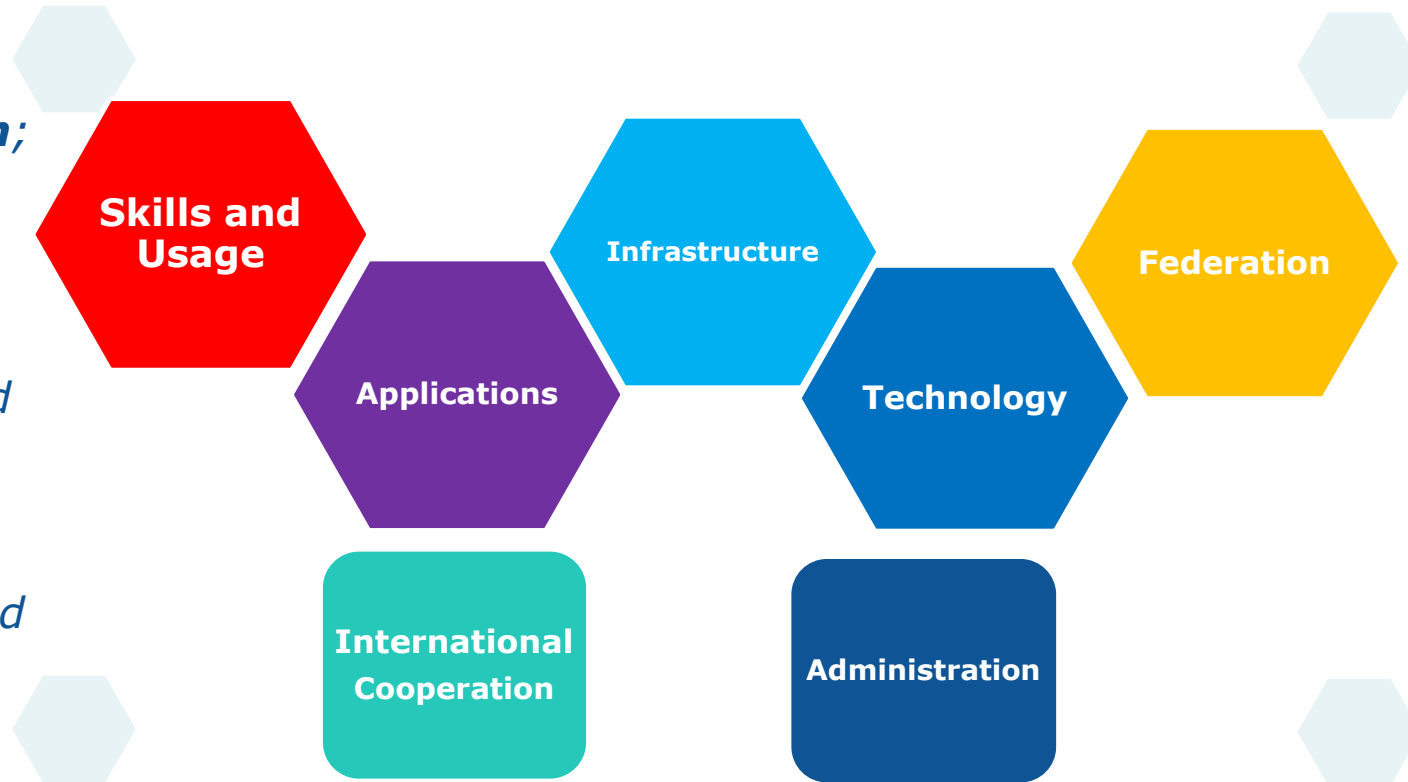
EuroHPC mission



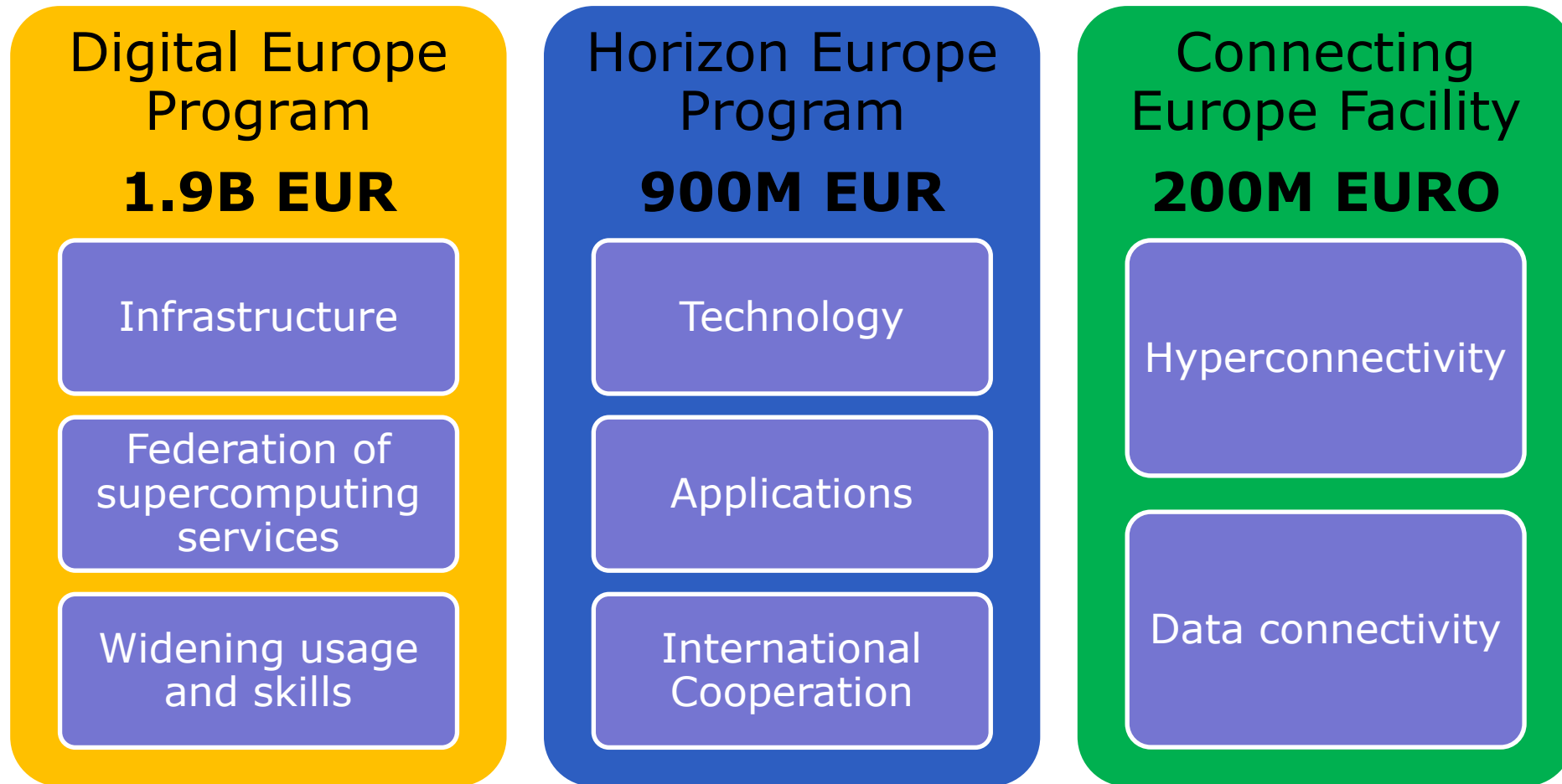
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By 2027,

- develop, deploy, extend and maintain in the European Union a world leading **federated, secure and hyper-connected supercomputing, quantum computing service and data infrastructure ecosystem;**
- support the (*development*) and production of innovative and competitive supercomputing systems based on **a supply chain that will ensure components, technologies and knowledge** limiting the risk of disruptions and the development of a **wide range of applications optimised** for these systems;
- **widen the use of this supercomputing infrastructure** to a large number of public and private users and support the development of **key skills for European science and industry.**



Level and Sources of EU funding 2021-2027 **(indicative)**!

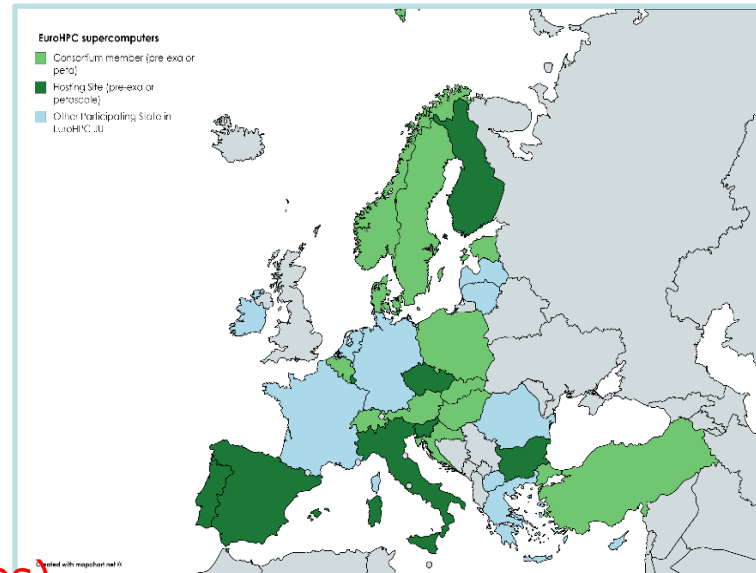


*Member states to match this with national contributions

HPC systems



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8 Hosting Entities

- **3 Pre-exascale (150+ PFlops).**
Owned by the JU (50/50 CAPEX/OPEX cost and time share with the HE)
- **5 Petascale (4-12 PFlops).**
- **Co-owned** by the JU (65/35 CAPEX cost and time share with the HE)

7 Contracts **signed** and completed or under implementation

1 tender ongoing (MN5)

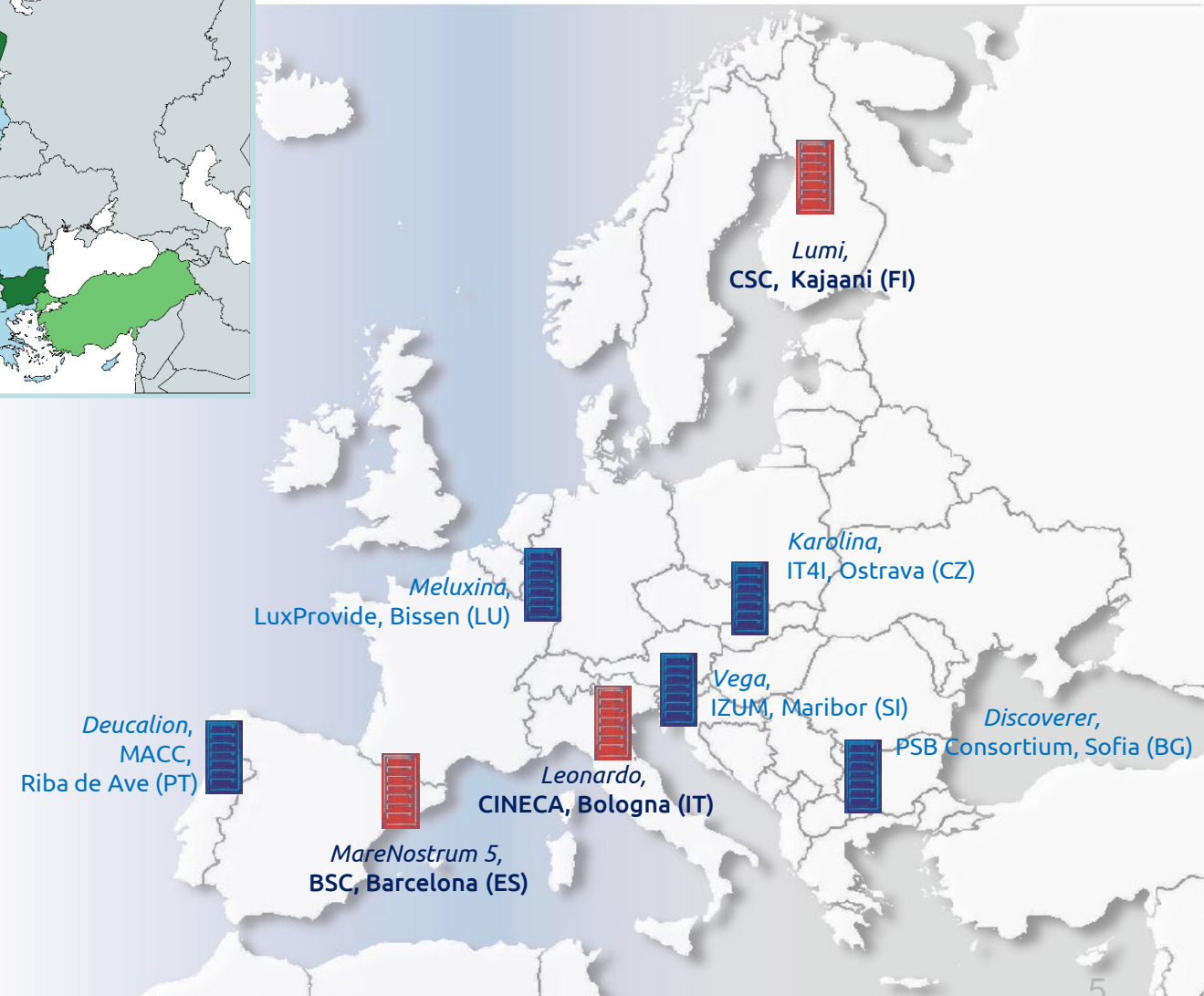
Total contracts value: ~360 MEuro
(163.3 EU)



Pre-exascale



Petascale



EuroHPC Systems: Petascale (operational)



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Vega



Sustained performance:	6,9 petaflops
Compute partitions:	CPU (768+192 nodes), GPU (60 nodes)
CPU:	AMD Epyc Rome
GPU:	Nvidia A100
Interconnect	Infiniband HDR
Storage capacity:	Lustre (1PB) Ceph (19 PB)
TOP500 ranking:	#32 in EU; #106 globally (June 2021)
Vendor/model	Atos BullSequana XH2000
Operated by	IZUM, Maribor, Slovenia

MeluXina



Sustained performance:	12,8 petaflops
Compute partitions:	CPU (573+20 nodes), GPU (200 nodes), FPGA (20 nodes), Cloud (20 nodes)
CPU:	AMD Epyc Rome
GPU:	Nvidia A100
Interconnect	Infiniband HDR
Storage capacity:	Lustre (20PB multi-tiered), Ceph (96TB)
TOP500 ranking:	#10 in EU; #36 globally (June 2021)
Vendor/model	Atos BullSequana XH2000
Operated by	LuxProvide, Bissen, Luxembourg

Karolina



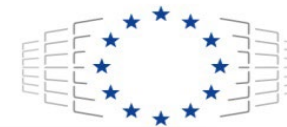
Sustained performance:	9,13 petaflops
Compute partitions:	CPU (720 nodes) GPU (72 nodes) Cloud (36 nodes) Data analytics (1 node)
CPU:	AMD Epyc Rome
GPU:	Nvidia A100
Interconnect	Infiniband HDR
Storage capacity:	Lustre (1PB) + NFS
TOP500 ranking:	#20 in EU; #69 globally (June 2021)
Vendor/model	HPE Apollo 2000Gen10 Plus and Apollo 6500
Operated by	IT4I, Ostrava, Czech Republic

Discoverer



Sustained performance:	4,45 petaflops
Compute partitions:	CPU (1110+18 nodes)
CPU:	AMD Epyc Rome
GPU:	-
Interconnect	Infiniband HDR
Storage capacity:	Lustre (2PB)
TOP500 ranking:	#27 in EU; #91 globally (June 2021)
Vendor/model	Atos BullSequana XH2000
Operated by	PSB consortium, Sofia, Bulgaria

EuroHPC Systems: Pre-exascale



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CSC – IT Center for Science,
Kajaani, Finland

Cray EX, Hewlett Packard Enterprise

Sustained performance: 375 petaflops,

Peak performance: 552 petaflops

Compute partitions:

- GPU partition (LUMI-G),
- **x86 CPU-partition (LUMI-C)**,
- data analytics partition (LUMI-D),
- container cloud partition (LUMI-K),

CPU: 64-core next-generation AMD EPYC™ CPUs,

GPU: Future generation AMD Instinct™ GPU
(MI250X),

Storage capacity: 117 PB multi-tiered 2 Tbit/sec

Applications: AI, especially deep learning, and
traditional large-scale simulations combined with
massive scale data analytics



LUMI-C (Operational)

Sustained performance (whole system / aggregated)	6.3 petaflops
Peak performance: (whole system / aggregated)	7.6 petaflops
Compute partitions	1536 nodes in total, each node with 2xAMD Epyc 7763 and the following memory capacities: 1376 x 256GB 128 x 512GB 32 x 1TB
Central Processing Unit (CPU)	AMD Epyc 7763 (64C, 2.45GHz)

Access Policy



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Access Policy v1.1 adopted by the EuroHPC GB

- **Free access to Open R&D for Science, Industry and Public Sector**
- **6 Access Modes offering resources on a periodic and continuously open call basis.**
 - **Extreme scale:** Large applications, Pre-exascale systems. Peer-reviewed
 - **Regular:** Medium to large applications, Petascale systems. Peer-reviewed
 - **Development.** All systems. Up to 1 year access. Limited resources.
 - **Benchmark.** All systems. Up to 3 months access. Limited resources.
 - **Fast track for Industry & Academia.** Quick access to previously completed applications (not yet available)
- Calls for **Urgent/Emergency** Computing & Access to **Strategic Initiatives/Projects** – Decided by the Governing Board.

Regular Access Calls

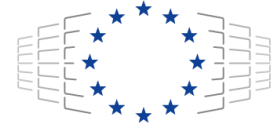


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- EuroHPC JU Regular Access call is open to all fields of **science, industry**, and the **public sector**, targeting applications that will enable progress and innovation in the domains covered (3 distinctive tracks).
- The call is **continuously open** with **pre-defined cut-off dates (3 per year)** that trigger the evaluation of the proposals submitted up to this date.
- Regular Access is intended for **large-scale projects** demonstrating excellence in their domain with significant European added-value.
- The allocations are granted for **one (1) year** with the option for projects to apply for a continuation of their allocation, if required.
- As a guiding principle, a person acting as **Principal Investigator** may only have one Regular Access application awarded at any given time. However, exceptions are allowed subject to proposal ranking and resource availability

How to Apply for Access

Visit <https://pracecalls.eu>



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The screenshot displays the PRACE Access Calls website. At the top, the PRACE logo and the text "PARTNERSHIP FOR ADVANCED COMPUTING IN EUROPE" are on the left, while "Calls", "Log in", and "Sign Up" are on the right. The main section, titled "PRACE Access Calls" and "Open Calls for Proposals", features a dark blue background with a subtle geometric pattern. It contains five white cards, each with a logo and text: "EuroHPC Regular Access", "PRACE Development Access", "EuroHPC Development Access", "PRACE Benchmark Access", and "EuroHPC Benchmark Access". Each card has a green dot and the word "Open". Below this section, a white bar with the text "Browse through all Calls" is visible, followed by a row of four white cards with the same logos and titles as the ones above.

PRACE PARTNERSHIP FOR ADVANCED COMPUTING IN EUROPE

Calls Log in Sign Up

PRACE Access Calls
Open Calls for Proposals

EuroHPC Regular Access
● Open

PRACE Development Access
● Open

EuroHPC Development Access
● Open

PRACE Benchmark Access
● Open

EuroHPC Benchmark Access
● Open

Browse through all Calls

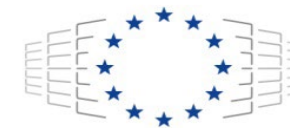
EuroHPC Regular Access
● Open

PRACE Development Access
● Open

EuroHPC Development Access
● Open

PRACE Benchmark Access
● Open

Regular Access - level of allocations



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System	Architecture	Site (Country)	Total Core Hours	Minimum request core hours
Vega CPU	BullSequana XH2000	IZUM Maribor (SI)	150 million	15 million
Vega GPU	BullSequana XH2000	IZUM Maribor (SI)	4.1 million	1 million
MeluXina CPU	BullSequana XH2000	LuxProvide (LU)	65.5 million	10 million
MeluXina GPU	BullSequana XH2000	LuxProvide (LU)	11.1 million	2 million
Karolina CPU	HPE Apollo 2000Gen10 Plus and HPE Apollo 6500	VSb-TUO, IT4Innovations, (CZ)	60 million	10 million
Karolina GPU	HPE Apollo 2000Gen10 Plus and HPE Apollo 6500	VSb-TUO, IT4Innovations, (CZ)	6 million	1 million
Discoverer CPU	BullSequana XH2000	Sofiatech, (BG)	104 million	10 million
LUMI-C	HPE Cray EX	CSC (FI)	262.8 million	20 million

Source: <https://prace-ri.eu/hpc-access/eurohpc-access/eurohpc-ju-call-for-proposals-for-regular-access-mode/>

Key dates



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Regular Access

Deadlines and allocation periods

- **March 2022 cut-off:** 1 July 2022 – 30 June 2023
- **July 2022 cut-off:** 1 November 2022 – 31 October 2023
- **November 2022 cut-off:** 1 March 2023 – 29 February 2024
- **March 2023 cut-off:** 1 July 2023 – 30 June 2024

Extreme Scale

Dates to be confirmed. Bi-yearly cut-off dates:

- 1st cut-off: October 2022
- 2nd cut-off: April 2023

Thank you!

Keep up with EuroHPC news:

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



@EuroHPC_JU



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