

The European High Performance Computing Joint Undertaking

The European High Performance Computing Joint Undertaking (EuroHPC JU) is pooling European resources to buy and deploy top-of-the-range supercomputers.

European Commission 2018 - The EuroHPC JU will pool European resources to develop top-of-the-range exascale supercomputers for processing big data, based on competitive European technology. fix-empty

The EuroHPC JU aims to improve quality of life, advance science, boost industrial competitiveness, and ensure Europe's technological autonomy. It is a legal and funding entity, which enables the pooling of EU and national resources in high performance computing (HPC).

The JU is currently supporting two main activities:

- **Developing a pan-European supercomputing infrastructure:** buying and deploying in the EU 3 pre-exascale supercomputers, capable of at least 10^{17} — one hundred million billion, calculations per second. These computers should be among the top 5 in the world. It will also buy and develop 5 petascale supercomputers, capable of at least 10^{15} — one million billion calculations per second. These computers should rank in the global top 50. These new machines will benefit European private and public users working in academia and industry across Europe.
- **Supporting research and innovation activities:** developing a European supercomputing ecosystem, stimulating a technology supply industry from low-power processors to software and middleware, and their integration into supercomputing systems. And, making supercomputing resources in many application areas available to a large number of public and private users, including small and medium-sized enterprises (SMEs).

The EuroHPC JU beyond 2020

In September 2020, the European Commission proposed a new regulation to replace the Council Regulation (EU) 2018/1488 establishing the EuroHPC JU. It sets out an ambitious mission and a substantially larger budget of €8 billion, for the period 2021-2033, in order to:

- further develop, deploy, extend and maintain in the EU a world-class supercomputing and data infrastructure, driven by key scientific, industrial and social applications;
 - develop and deploy a quantum computing and quantum simulation infrastructure integrated with the HPC infrastructure that would make it possible to substantially accelerate the computing capacity of some of the EuroHPC JU's supercomputers;
- federate European supercomputing and quantum computing resources and make them accessible to a wide range of public and private users everywhere in Europe, including for the European public data spaces, as presented in the 2020 European Data Strategy;
- provide secure cloud-based supercomputing services for a wide range of public and private

- users everywhere in Europe;
- support the development of innovative supercomputing technologies and applications to underpin a world-class European HPC ecosystem;
- develop greener computing, and exploit the synergies of HPC with artificial intelligence, big data and cloud technologies;
- extend and widen the use of supercomputing to a wide range of scientific and industrial users, for instance by helping SMEs develop innovative business cases using supercomputers and providing them with training opportunities and the critical HPC skills they need via National HPC Competence Centres;
- deploy Centres of Excellence in HPC applications and the industrialisation of HPC software, with novel algorithms, codes and tools optimised for future generations of supercomputers;
- put in place large-scale industrial pilot test-beds and platforms for HPC and data applications and services in key industrial sectors;

Benefits of the EuroHPC Joint Undertaking

The EuroHPC JU enables European countries to coordinate their supercomputing strategies and investments together with the EU. Since its creation, the EuroHPC JU has substantially increased overall investments in HPC at European level, and has started to restore Europe's position as a leading HPC power globally.

The development in Europe of a competitive HPC ecosystem and of an integrated world class exascale supercomputing and quantum computing capability will be crucial. It will provide Europe with world-class supercomputers, and will ensure that the EU maintains a leading position in the digital economy. It will also contribute to strengthening Europe's technological and data autonomy.

The EuroHPC JU supports a strategy for innovation procurement of exascale machines based on competitive European technologies. By developing the prospect of creating a lead market for exascale technology in Europe, the EuroHPC JU is encouraging European HPC suppliers to take the risk of developing such machines on their own.

As part of its research and innovation agenda, the EuroHPC JU is also strengthening the European knowledge base in HPC technologies and bridging the digital skills gap, notably through the creation of a network of national HPC Competence Centres. The Competence Centres will act locally to ease access to European HPC opportunities in different industrial sectors, delivering tailored solutions for a wide variety of users.

Members

The EuroHPC Joint Undertaking is composed of public and private members:

- Public members:
 - the European Union (represented by the Commission),
 - Member States and Associated Countries that have chosen to become members of the Joint Undertaking: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Montenegro, the Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, and Turkey.
- Private members: representatives from the two participating private partners, the European Technology Platform for High Performance Computing (ETP4HPC) and the Big Data Value

(BDVA) associations. The JU also relies on collaboration with key European actors such as PRACE (Partnership for Advanced Computing in Europe) and GEANT (the pan-European high-speed network for research and education).

Other Member States and Associated States to Horizon 2020 can also join the Joint Undertaking at any moment.

Governance

The governance structure of the EuroHPC Joint Undertaking is composed of:

1. The Governing Board (representatives of the public members), responsible for the Joint Undertaking's decision-making, including funding decisions related to all procurement and research and innovation activities.
2. The Industrial and Scientific Advisory Board (representatives appointed by the private members and the Governing Board), consisting of the Research and Innovation Advisory Group (RIAG) and the Infrastructure Advisory Group (INFRAG), which provides independent advice to the Governing Board on the Joint Undertaking's strategic research and innovation agenda and on the acquisition and operation of the supercomputers it owns.
3. The Executive Director, the chief executive responsible for the Joint Undertaking's day-to-day management.

Budget

The EuroHPC JU is jointly funded by its public members. The initial budget of the JU was around €1.1 billion for the period 2018-20. The EU contribution of €536 million from the current MFF (2014-2020), was matched by a similar amount from participating countries.

The private members provided additional contributions to the value of over €420 million, through participation in the JU's activities. The JU provides financial support in the form of procurement or research and innovation grants to participants following open and competitive calls.

For the period 2021-2033, the European Commission proposed a substantially larger budget of €8 billion. This new budget was announced by President von der Leyen in her State of the Union address on 16 September 2020. The funding will come from the EU's Horizon Europe and Digital Europe programmes and the Connecting Europe Facility (€3.5 billion). And, there will be an equal investment from the JU's participating countries, and (as in-kind and cash contributions) from its private partners.

EuroHPC JU's website

Factsheet on the EuroHPC JU

FAQs on the EuroHPC JU

Latest

DIGIBYTE | 13 July 2021

Adoption of the Council Regulation to establish the new EuroHPC JU

On 13 July the Economic and Financial Affairs Council adopted the Council Regulation on establishing the new European High Performance Computing Joint Undertaking (EuroHPC JU).

PRESS RELEASE | 16 June 2021

Commission to invest €14.7 billion from Horizon Europe for a healthier, greener and more digital Europe

The Commission has adopted the main work programme of Horizon Europe for the period 2021-2022, which outlines the objectives and specific topic areas that will receive a total of €14.7 billion in funding. These investments will help accelerate the green and digital transitions and will contribute to sustainable recovery from the coronavirus pandemic and to EU resilience against future crises. They will support European researchers through fellowships, training and exchanges, build more connected and efficient European innovation ecosystems and create world-class research infrastructures

DIGIBYTE | 11 May 2021

EU and India to work together for a stronger digital cooperation and to tackle the pandemic

India and EU leaders have agreed to build a sustainable and comprehensive Connectivity Partnership, as well as cooperate on supercomputers to bring solutions to challenges brought by the COVID-19 pandemic, during the 16th EU-India Summit held on the 8th of May.

PRESS RELEASE | 20 April 2021

Vega: launch of the first world-class supercomputer in the EU

The European Commission together with the European High-Performance Computing Joint Undertaking and the Government of Slovenia have inaugurated the operation of the Vega Supercomputer at a high-level ceremony in Maribor, Slovenia on Monday. This marks the launch of a first EU supercomputer procured jointly with EU and Member State funds, with a joint investment of 17.2 million.

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Big Picture

High Performance Computing

High performance computing refers to computing systems with extremely high computational power that are able to solve hugely complex and demanding problems.

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