



EUROPEAN HIGH PERFORMANCE COMPUTING
JOINT UNDERTAKING

The Executive Director

DECISION 12/2023

authorising the use of unit costs for providing access to the European High Performance Computing Joint Undertaking supercomputers under the Horizon Europe and Digital Europe Programme

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Council Regulation (EU) 2021/1173 of 13 July 2021¹ on establishing the European High Performance Computing Joint Undertaking and repealing Regulation (EU) 2018/1488 (hereinafter "Regulation") and in particular to Articles 7 (1) and 11 (2) thereof,

Having regard to the Statutes the European High Performance Computing Joint Undertaking annexed to the Regulation (thereinafter "Statutes"), Article 1 (e), and Article 15 (3) (b) (c) thereof,

Having regard to the Regulation (EU) No 2021/695 of the European Parliament and of the Council of 28 April 2021 establishing Horizon Europe – the Framework Programme for Research and Innovation, laying down its rules for participation and dissemination, and repealing Regulations (EU) No 1290/2013 and (EU) No 1291/2013 -2020², and in particular Articles 10, 21 and 35 thereof,

Having regard to the Regulation (EU) No 2021/694 of the European Parliament and of the Council of 29 April 2021 establishing the Digital Europe Programme and repealing Decision (EU) 2015/2240³, and in particular Articles 15 and 19 thereof,

Having regard to the Regulation (EU, Euratom) No 2018/1046 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union⁴, and in particular Articles 125 and 181 thereof.

Whereas:

- (1) Article 181 of Regulation (EU, Euratom) No 2018/1046 contains detailed rules regarding unit costs.
- (2) Simplification as a central aim of the Digital Europe Programme and Horizon Europe needs to be fully reflected in their design, rules, financial management and implementation.

¹ OJ L 256, 19.7.2021, p. 3–51

² OJ L 170, 12.5.2021, p. 1–68

³ OJ L 166, 11.5.2021, p. 1–34

⁴ Regulation (EU, Euratom) 2018/1046 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union, amending Regulations (EU) No 1296/2013, (EU) No 1301/2013, (EU) No 1303/2013, (EU) No 1304/2013, (EU) No 1309/2013, (EU) No 1316/2013, (EU) No 223/2014, (EU) No 283/2014, and Decision No 541/2014/EU and repealing Regulation (EU, Euratom) No 966/2012 (OJ L 193, 30.7.2018, p.1).

- (3) The European High Performance Computing Joint Undertaking established in the framework of Horizon Europe Framework Programme, the Digital Europe Programme and the Connecting Europe Facility supports access to supercomputers entrusted to a hosting entity.
- (4) Simpler funding rules reduce the administrative costs for participation and contribute to the prevention and reduction of financial errors. In this respect, the use of unit costs can simplify the calculation of reimbursement of these access costs, significantly decrease the workload of both the hosting entities and the Joint Undertaking as well as accelerate payment procedures.
- (5) The use of unit costs should therefore be authorised for actions involving the access to supercomputers funded by the European High Performance Computing Joint Undertaking, for the reasons and under the conditions set out in the Annex.
- (6) The European Commission (DG CNECT and DG BUDG) were consulted and agreed on the content of this Decision on the basis that this decision is taken by the relevant Responsible Authorizing Officer within the Joint Undertaking (Ares(2021)6306193, Ares(2023)1729113, Ares(2023)2281943).

THE FOLLOWING HAS BEEN DECIDED:

Sole article

The use of eligible costs declared by recipients of Union funds on the basis of unit costs is authorised for actions involving access to the European High Performance Computing Joint Undertaking supercomputers, under the Horizon Europe and Digital Europe Programme, for the reasons and under the conditions set out in the Annex.

Done in Luxembourg, on 24 April 2023

Anders Dam Jensen
Executive Director

Annex

1. Form of Union contribution and categories of costs covered

The Union contribution for the reimbursement of the operating costs of the European High Performance Computing Joint Undertaking (“EuroHPC JU”) to the Hosting Entities of these supercomputers, under the Horizon Europe Framework Programme, shall exclusively take the form of unit costs for the total access time made available to the EuroHPC Joint Undertaking (“Union access time”) by the Hosting Entity.

For that purpose, the following definitions shall apply:

- (1) ‘access time’ means the computing time of a supercomputer that is made available to a user or a group of users to execute their computer programs;
- (2) ‘hosting entity’ means a legal entity which includes facilities to host and operate a supercomputer and which is in charge of providing access to the EuroHPC supercomputer, and the beneficiary of the action; the EuroHPC Joint Undertaking and the hosting entity have signed a hosting agreement in that regard;
- (3) ‘EuroHPC supercomputer’ means the supercomputer procured, owned or co-owned by the EuroHPC Joint Undertaking;
- (5) ‘Union's access time’ means the share of access time allocated to the Union and made available to the EuroHPC Joint Undertaking and its users;
- (6) ‘user’ means any natural or legal person, entity or international organisation that has been granted Union access time to use a Joint Undertaking supercomputer under the action.

The unit costs shall be calculated by beneficiaries in accordance with the method set out in Section 3 and shall be specified in the grant agreement to be used throughout the duration of the action. In duly justified cases, in particular when there are significant variations in the costs for providing access, it can be updated (with the agreement of the EuroHPC Joint Undertaking and in accordance with the method in Section 3) through an amendment.

Costs for providing access time to the EuroHPC supercomputer made available to the EuroHPC Joint Undertaking and its user declared by beneficiaries on the basis of unit costs shall be eligible if they correspond to the amount per unit set out in Annex 2 to the grant agreement multiplied by the number of actual units of access provided under the action and if the conditions set out in the grant agreement are met.

The categories of eligible costs covered by the unit contribution are the following:

Direct costs for the hosting site preparation

These costs are reimbursed only if they are directly linked to the EuroHPC supercomputer and only to the portion used by and for the EuroHPC supercomputer:

- Costs of contracts for site (building/ room) preparation or modification (including design and project management)
- Network establishment at data centre level
- IT equipment
- Power supply to the facility, power distribution and power backup
- Cooling equipment
- Fire detection and extinction

- CCTV, security, access control
- Monitoring, building and facility
- Waste heat utilisation equipment

These costs, even if incurred in a specific period and/or one-off costs, are distributed over the years of expected operation of the supercomputer taking into account depreciation per year on the basis of usual accounting practices and national accounting rules.

Direct costs of operation of the Supercomputer

These costs are reimbursed only if they are directly linked to the EuroHPC supercomputer and only to the portion used by and for the EuroHPC supercomputer, inter alia

- *Personnel cost*
 - Personnel cost of staff directly assigned to the system administration, operation, training and to the support of the users of the EuroHPC supercomputers on the basis of average salaries.
- *Maintenance and operations cost*
 - Costs of contracts for management, maintenance and repair of the building hosting the EuroHPC supercomputer, including cleaning fees, security fees, upgrading to national and/or EU quality, quality control and certification, safety or security standards specifically incurred for the operation of the EuroHPC supercomputers and only to the portion used by and for the EuroHPC supercomputer.
 - Costs of contracts for management, maintenance and repair of the EuroHPC supercomputer including, insurance costs, network connection, specifically incurred for the operation of the EuroHPC supercomputers and only to the portion used by and for the EuroHPC supercomputer.
 - Costs of energy power supplied specifically for the EuroHPC supercomputer.
 - Costs of scientific software licence, internet connection or other electronic services for data management and computing supplied specifically for the operation of the EuroHPC supercomputers.
 - Costs of renting the data centre facilities directly linked to the operation of the EuroHPC supercomputers.
 - Cost of back-up storage directly linked to the operation of the EuroHPC supercomputers.

In addition, the revenue from the sale of waste heat and energy efficiency certificates incomes are incorporated in the unit cost methodology as an additional revenue factor to the access time made available to the EuroHPC Joint Undertaking and its users (negative values).

Indirect costs of operation of the supercomputer

For this unit cost model grant agreement the standard 25% overhead rate of Horizon Europe is not applicable, not least for reasons of respecting the principle of sound financial management. A rate of 7% is accepted on the personnel costs for some Hosting Entities where a full breakdown of costs directly linked to the implementation of the action is not possible. A rate of 7% is considered reasonable and justified, following common practice.

Indeed, the proposed unit-cost methodology identifies cost items that are considered in the calculation of the standard overhead rate of Digital Europe Programme and therefore a rate of 25% is not considered proportionate and appropriate in the specific case in terms of sound financial management.

Hence, a rate of 7% as a maximum overhead on personnel costs is justified and applied in cases where considered appropriate and this approach shall be acceptable by the Hosting Entities for the reasons set above.

2. Justification

The use of unit costs considerably simplifies, streamlines and reduces the time needed for the financial management of the action, both at Joint Undertaking as well as at beneficiary levels. It allows for an easy and accurate calculation of the real costs of providing access to the EuroHPC supercomputer (what is the cost of an hour access to the machine (computing hours)). This reduces the risk of cross-subsidies of other activities implemented by the Hosting Entity, reduces the risk of funding more than the real and eligible costs, and provides a sound methodology to calculate the market price for providing commercial access.

Furthermore, it implies additional simplifications at beneficiary level both in terms of application and reporting requirements which enables them to focus more on quality and impact. In addition, it ensures an appropriate contribution to these categories of costs which are relevant for the operation of the EuroHPC supercomputers, and facilitates long term partnership.

2.1. Nature of the supported actions

The European High Performance Computing Joint Undertaking (EuroHPC JU) was established by Council Regulation (EU) 2021/1173 of 13 July 2021⁵ (EuroHPC Regulation). Its mission is to develop, deploy, extend and maintain in the Union a world-leading federated, secure and hyper-connected supercomputing, quantum computing, service and data infrastructure ecosystem; to support the development and uptake of demand-oriented and user-driven 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; and, to widen the use of that supercomputing infrastructure to a large number of public and private users, and support the twin transition and the development of key skills for European science and industry.

In accordance with Articles 11, 12, 14 and 15 of the EuroHPC Regulation, the EuroHPC Joint Undertaking shall procure high-end and mid-range supercomputers, quantum computers and quantum simulators, upgrades of EuroHPC supercomputers and shall own or co-own them. In accordance with Article 9 of the EuroHPC Regulation, the Joint Undertaking will delegate the hosting and operation of each EuroHPC supercomputer to a Hosting Entity having the resources and expertise to operate such a supercomputer.

The Union financial contribution shall cover up to 50% of the acquisition costs plus up to 50% of the operating costs of each of the high-end supercomputers or quantum computers or quantum simulators, as well as up to 35% of the acquisition costs plus up to 35% of the operating costs of each of the mid-range supercomputers. The remaining total cost of ownership of the supercomputers shall be covered by the Participating State where the hosting entity is established or by the Participating States⁶ in the hosting consortium⁷. The Joint Undertaking will be given access time to high-end and quantum EuroHPC supercomputers and mid-range supercomputers, proportional to the Union financial contribution i.e. up to 50% or 35% of the

⁵ OJ L 256, 19.7.2021, p. 3–51

⁶ ‘Participating State’ means a country that is a member of the Joint Undertaking

⁷ ‘hosting consortium’ means a group of Participating States that have agreed to contribute to the acquisition and operation of a supercomputer

access time to each supercomputer.

In accordance with Article 15 of the EuroHPC Regulation, an EuroHPC supercomputer may be upgraded by its hosting entity, following a successful application to a call of expression of interest. The Union financial contribution for the upgrade shall cover up to 35 % of the acquisition costs of the upgrade, depreciated over the expected remaining lifetime of the original supercomputer and up to 35 % of the additional operating costs. The total cost of the upgrade shall not exceed 30 % of the total acquisition cost of the original EuroHPC supercomputer. The EuroHPC Joint Undertaking should acquire, jointly with the contracting authorities of the Participating State where the selected hosting entity is established or with the contracting authorities of the Participating States in the selected hosting consortium, the upgrade of the supercomputer and own it under the same conditions of ownership of the original EuroHPC supercomputer. The share of the Union's access time to the upgraded EuroHPC supercomputer remains then unchanged over the lifetime of the machine.

The Union contribution reimburses to the hosting entities the costs of providing access time to the EuroHPC Joint Undertaking and its users to the EuroHPC supercomputer, and the unit cost will correspond to that cost and the access time made available in that regard.

As the Hosting Entity or the Hosting Consortium is co-funding the operating costs, providing a grant is fully justified by the Financial Regulation. In addition, it is deemed appropriate for the following reasons:

- ease of verifying the access time made available to the Joint Undertaking and its users and calculate the costs on this basis;
- the availability of documentary evidence which can be verified to enable calculation of unit costs.

In addition, in cases the Union's access time to EuroHPC supercomputers is used for commercial purposes the unit cost methodology would allow to identify the cost of access time made available for commercial purposes in defining the relevant fee to be charged in that regard.

2.2. Risks of irregularities and fraud and costs of control

The risks of irregularities or fraud related to the accounting data used to establish unit costs are low, as the hosting entities are mostly owned and operated by large public research organisations which have their financial statements regularly analysed and certified by external or public auditors. This is all the more so, considering that the remaining operating costs of the EuroHPC supercomputers will be covered by contributions of the Participating State where the hosting entity is established or by the Participating States in the hosting consortium. Therefore, the data they provide can therefore be considered reliable.

The risks are all the more lower considering the ease with which the ease of verifying the access time made available to the Joint Undertaking and its users can be verified.

In addition, the hosting entity has the obligation stemming from the EuroHPC Regulation and the Hosting Agreement to verify the operating costs of the supercomputer, by ensuring, for example, the functional separation, and to the extent possible, the physical separation of the EuroHPC supercomputer and any national or regional computing systems it operates.

A single ex-ante control carried out by DG CONNECT was used to establish unit costs for each hosting entity.

When access time is reimbursed on the basis of unit cost, the access time to be paid to the beneficiary will be easily identified by multiplying the unit cost by the number of units (hours) of access provided to the EuroHPC Joint Undertaking and its users under the action.

The use of a simplified method to reimburse the operating costs for the Union access time therefore appears appropriate.

3. Method to determine and update the unit of cost

3.1. Main points of the method

The unit cost is the sum of the site *preparation* costs, *personnel* costs and the *maintenance and operations* costs calculated per hour:

$$U \text{ [€/h]} = \Sigma S_i + \Sigma P_i + \Sigma M_i$$

The eligible operational cost are then obtained by multiplying the number of hours made available to the EuroHPC Joint Undertaking with the unit cost of an hour:

$$C \text{ [€]} = U \text{ [€/h]} \times h$$

Even though most of the cost elements would be the same for all prospective hosting entities, there would be some differences in the exact cost elements included and justified by the organisation, structure and planned action implementation and co-funding by the Participating States or Hosting Consortiums. Below the detailed analysis of the method of calculating the amounts for prospective supercomputers.

3.2. Method of calculating amounts for each prospective supercomputer:

3.2.1. Site preparation costs

The table below is an example of typically expected cost breakdown for the site preparation costs. The list of actions is non-exhaustive:

Site Preparation	Code
Site modification, project management and design	S _{MOD}
Network at data centre level	S _N
Other IT equipment	S _{IT}
Power supply to the facility and power distribution	S _{PS}
Power backup	S _{PB}
Waste heat utilisation equipment	S _H
Cooling equipment	S _C
Fire detection and extinction	S _F
CCTV, security, access control	S _{CCTV}
Monitoring, building and facility	S _{MON}

The site preparation costs even if incurred in a single year are distributed over the years of operation of the supercomputer.

When relevant, the calculation takes into account the depreciation and the percentage of utilisation of the cost by the EuroHPC JU supercomputer.

3.2.2. Personnel Costs

The table below is an example of typically expected cost breakdown for the personnel costs. The list of actions is non-exhaustive:

Personnel costs	Code
System administration	P _S
Application enablement, user support and training	P _A
Facility team	P _F
Installation team	P _I

The facility and installation teams are estimated to be active during the site preparation phase. Their costs will be distributed over the expected lifetime of the supercomputer.

3.2.3. Operations and maintenance costs

The table below is an example of typically expected cost breakdown for the operations and maintenance costs. The list of actions is non-exhaustive:

Operations and maintenance	Code
Electricity	M _E
Sales of waste heat	M _S
Network connection	M _N
Data centre facilities, rent	M _D
Scientific software	M _{SW}
Back-up storage	M _{BU}
Building maintenance (incl. security and cleaning)	M _B
Service contracts of data centre infrastructure	M _{SC}
Insurances	M _I

When relevant, the calculation shall take into account the depreciation and the percentage of utilisation of the cost by the EuroHPC JU supercomputer

3.2.4. Unit Cost Formula

The unit cost is the sum of the site *preparation* costs, *personnel* costs and the *maintenance and operations* costs calculated per hour:

$$U \text{ [€/h]} = \Sigma S_i + \Sigma P_i + \Sigma M_i$$

$$\Sigma S_i = S_{MOD} + S_N + S_{IT} + S_{PS} + S_{PB} + S_H + S_C + S_F + S_{CCTV} + S_{MON}$$

$$\Sigma P_i = P_S + P_A + P_F + P_I$$

$$\Sigma M_i = M_E + M_S + M_N + M_D + M_{SW} + M_{BU} + M_B + M_{SC} + M_I$$

4. Sound financial management and co-financing principles and absence of double financing

The methodology described in Section 3 complies with the principles of no-profit, co-financing and absence of double funding as required by Regulation (EU, Euratom) No 2018/1046, Regulation (EU) No 2021/694 and Regulation (EU) No 2021/695.

Moreover applying pre-established unit contributions offers advantages in terms of transparency, predictability and equal treatment of beneficiaries.

The unit cost should not exceed the actual eligible costs as its calculation is based on the certified or auditable costs incurred to provide access. In addition, the hosting entities will contribute with their own resources to the provision of access time under the action, thus complying with the co-financing and no-profit principles. Moreover, the potential revenue from the sale of waste heat and energy efficiency certificates incomes are be incorporated in the unit cost methodology as an additional revenue factor to the access time made available to the EuroHPC Joint Undertaking and its users which will be reflected as a negative cost element (negative values).

Double funding is avoided by the specification/identification of eligible costs detailed in Section 1. Compliance with the specification method of eligible costs is checked through controls during the proposal evaluation phase, on the application of the methodology for the calculation of the unit cost, as well as through ex-post controls on the existence of other Union funding sources specifically covering the union access time.