



European High Performance Computing Joint Undertaking

# Hosting Agreement

No [Number]/2024

*[Abbreviation/name of quantum computer]*

*Hosting Entity for a EuroHPC Quantum Computer*

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## Hosting Agreement

The present Hosting Agreement is concluded between the following parties:

**The European High Performance Computing Joint Undertaking (hereinafter 'EuroHPC Joint Undertaking')**, represented for the purposes of signature of this Agreement by its Executive Director, Anders Dam Jensen on the one part, and

**the "Hosting Entity",**

[Name, Address, Country, VAT number (if applicable)]

duly represented for the signature of this Agreement by [name and function of the representative]

on the other part,

### **HAVE AGREED**

to the **terms and conditions** set out below and the following annexes:

**Annex I.** Minimum requirements of the Hosting Site

**Annex II.** Service Level Agreement

**Annex III.** Key Performance Indicators (KPIs)

**Annex IV.** Associated Deliverables and Milestones

**Annex V.** Application of the Hosting Entity (Application Ref: [Ares(202x)xxxxx]) submitted to the Call for Expression of Interest for the selection of Hosting Entities for EuroHPC Quantum Computers (REF: EUROHPC-2023-CEI-QC-01)

which form an integral part of the present Hosting Agreement (hereinafter referred to as "Agreement").

## **General Framework**

Council Regulation (EU) 2021/1173 of 13 July 2021<sup>1</sup> (hereinafter 'Regulation') establishes the European High Performance Computing Joint Undertaking (hereinafter 'EuroHPC Joint Undertaking').

The EuroHPC Joint Undertaking shall acquire quantum computers and quantum simulators, that could range from pilots and experimental systems to prototypes and operational systems as stand-alone machines or hybridised with high-end or mid-range High Performance computing machines (hereinafter *EuroHPC quantum computers*) and shall own them. In accordance with Article 12.2 of the Regulation, the Union's contribution from the Digital Europe Programme should cover up to 50 % of the acquisition costs plus up to 50 % of the operating costs of the quantum supercomputer.

In accordance with Article 9 of the Regulation, the EuroHPC launched a call for expression of interest (CEI) for the selection of the hosting entities for quantum computers integrated into a supercomputer located at the

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<sup>1</sup> OJ L 256, 19.7.2021,p.3-51,

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Hosting Site<sup>2</sup> of the EuroHPC quantum computer. On the basis of the criteria and process specified in the Regulation and above mentioned CEI, and provided the Hosting Site complies with the requirements set up in the CEI and application, the EuroHPC Governing Board has selected the Hosting Entity [Name] referred to above as the Hosting Entity for a EuroHPC quantum computer and its integration in a hybrid high performance computing and quantum computing (HPC-QC) system at the Hosting Site described in the proposal.

The competent authorities of the Participating States to the Hosting Consortium will cover the share of the total cost of ownership of the EuroHPC quantum computer that is not covered by the Union contribution, either until its ownership is transferred by the EuroHPC Joint Undertaking to that Hosting Entity, or until the quantum computer is sold or decommissioned in case there is no transfer of ownership. The Joint Undertaking shall not be liable for any costs incurred after the transfer of ownership of the quantum computer or after its sale or decommissioning.

The purpose of this Hosting Agreement is to lay down the terms and conditions under which the Hosting Entity, will host the EuroHPC quantum computer in the name and on behalf of the EuroHPC Joint Undertaking, including by providing data storage equipment and associated services through access to an existing supercomputer at the Hosting Site as required by the CEI for the fulfilment and implementation of the EuroHPC Joint Undertaking tasks and activities as these are defined in the Regulation and the Statutes of the EuroHPC Joint Undertaking annexed thereto. The Hosting Entity will operate the EuroHPC quantum computer on behalf of the EuroHPC Joint Undertaking.

## I. **CHAPTER 1**

### I.1 **Subject matter**

1. The subject matter of the Agreement is to define the roles and responsibilities between the EuroHPC Joint Undertaking and the Hosting Entity regarding the provision of the facilities to host and operate the EuroHPC quantum computer and the provision of the hosting services, which are entrusted by the EuroHPC Joint Undertaking, being the sole owner of the EuroHPC quantum computer, to the Hosting Entity and define the relevant terms and conditions for the long term collaboration between the Hosting Entity and the EuroHPC Joint Undertaking.
2. The Hosting Entity will execute the tasks assigned to it in accordance with the Agreement and its Annexes and the grant agreement to be signed for the operating costs of the EuroHPC quantum computer.

### I.2 **Definitions**

1. For the purposes of this Agreement the following definitions apply:
  - a) 'acquisition costs' means the cost of acquiring the system and includes shipping as well as the costs of installation and testing of the quantum computer.
  - b) 'access rights' means the right of a user or group of users to access a EuroHPC quantum computer in order to consume the allocated access time.
  - c) 'acceptance test' means a test conducted to determine if the requirements of the system specification of the computing system are met.
  - d) 'access time' means the computing time of a EuroHPC quantum computer that is made available to a user or a group of users to execute their programmes.

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<sup>2</sup> REF: EUROHPC-2023-CEI-QC-01

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- e) 'agreed share' means the share of the nominal total resources on the host supercomputer (see definition below) which must be available to use of the integrated hybrid HPC-QC system at any time users that have been granted access by the EuroHPC JU may use the EuroHPC quantum computer.
- f) 'call for Expression of Interest (CEI)' means the procedure followed to select the Hosting Entities of the EuroHPC quantum computer.
- g) 'confidential information or document' means any information or document received by either party from the other or accessed by either party in the context of the performance of the Agreement that any of the parties has identified in writing as confidential. It may not include information that is publicly available.
- h) 'conflict of interest' means a situation where the impartial and objective implementation of the Agreement by the Hosting Entity is compromised for reasons involving family, emotional life, political or national affinity, economic interest, any other direct or indirect personal interest.
- i) 'force majeure' means any unforeseeable, exceptional situation or event beyond the control of the parties that prevents either of them from fulfilling any of their obligations under the Agreement which is not attributable to error or negligence on their part or on the part of the subcontractors affiliated entities or third parties in receipt of financial support and which proves to be inevitable despite their exercising due diligence. Such force majeure events can include, if not proven otherwise, inter alia, terrorist attacks, war or insurrection, natural catastrophes, interruptions in general traffic or data communication. The situation or event must not be attributable to error or negligence on the part of the parties or on the part of the subcontractors and must prove to be inevitable despite their exercising due diligence. Defaults, defects in equipment or material or delays in making them available, labour disputes, strikes and financial difficulties may not be invoked as force majeure, unless they stem directly from a relevant case of force majeure as set out above.
- j) 'formal notification' means a form of communication between the parties made in writing by mail or email, which provides the sender with concrete evidence that the message was delivered to the specified recipient.
- k) 'fraud' means any intentional act or omission by the Hosting Entity or the Hosting Consortium affecting the Union's or the Joint Undertaking's financial interests relating to the use or presentation of false, incorrect or incomplete statements or documents, to non-disclosure of information in violation of a specific obligation.
- l) 'hosting consortium' means a group of Participating States that have agreed to contribute to the acquisition and operation of a EuroHPC quantum computer and any organisations representing these Participating States. Members of the Hosting Consortium are enumerated in Annex V. Application of the Hosting Entity.
- m) 'hosting entity' means the legal entity established in a Participating State to the EuroHPC Joint Undertaking that is a Member State which provides facilities to host and operate a EuroHPC quantum computer and which has been selected in accordance with the CEI.
- n) 'hosting site' means the physical facilities at which the Hosting Entity will host and operate the EuroHPC quantum computer, and which is established in a Participating State that is a Member State.
- o) 'host supercomputer' or 'host system' refers to an existing supercomputer at the Hosting Site, with a capacity of at least 4 PFlops, which is operated and owned by the Hosting Entity, or co-owned with the EuroHPC JU and operated by the Hosting Entity. The host supercomputer or owned by EuroHPC JU or

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host system acts as the host for the EuroHPC quantum computer, i.e. the quantum computer will be integrated into the host system.

- p) 'grave professional misconduct' means a violation of applicable laws or regulations or ethical standards of the profession to which a person or entity belongs, or any wrongful conduct of a person or entity which has an impact on its professional credibility where such conduct denotes wrongful intent or gross negligence.
- q) 'irregularity' means any infringement of a provision of Union law resulting from an act or omission by the Hosting Entity or an organisation representing the Participating States in the Hosting Consortium, if any, which has or would have the effect of prejudicing the Union's or the Joint Undertaking's financial interests.
- r) 'IT infrastructure' means the set of IT equipment needed for hosting and operating the EuroHPC quantum computer. It includes storage for home directories, long term storage, back-up and various auxiliary servers as required for the purposes of hosting the quantum computer and the host supercomputers.
- s) 'EuroHPC quantum computer' means a quantum computer or a quantum simulator fully owned by the Joint Undertaking.
- t) 'quantum computer' means a computing device that harnesses the laws of quantum mechanics to solve certain particular tasks using therefore fewer computational resources than classical computers.
- u) 'quantum simulator' means a highly controllable quantum device that allows to obtain insights into properties of complex quantum systems or to solve specific computational problems inaccessible to classical computers.
- v) 'related person' means any natural or legal person who is a member of the administrative, management or supervisory body of the Hosting Entity or its partners, if any, or an economic operator, or who has powers of representation, decision or control with regard to that person.
- w) 'Regulation' means the Council Regulation (EU) No 2021/1173 of 13 July 2021 on establishing the European High Performance Computing Joint Undertaking and repealing Regulation (EU) 2018/1488, and the statutes of the Euro HPC Joint Undertaking ('Statutes') annexed thereto.
- x) 'subcontract' means a procurement contract within the meaning of Chapter III of this Agreement, which covers the implementation by a third party of tasks forming part of the Agreement.
- y) 'substantial error' means any infringement of a provision of the Agreement resulting from an act or omission, which causes or might cause a loss to the Union's financial contribution to the EuroHPC Joint Undertaking or damage the Union's or the JU's financial interests.
- z) 'technical infrastructure' means the set of infrastructure equipment needed for hosting and operating the EuroHPC quantum computer, the host supercomputer, and the relevant IT infrastructure. It includes equipment related to cooling, power supply and distribution, fire security and physical security.
- aa) 'total cost of ownership' of a EuroHPC quantum computer means the acquisition costs plus the operating costs, including maintenance, until the ownership of the quantum computer is transferred to the hosting entity or is sold, or until the quantum computer is decommissioned without transfer of ownership.

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- bb) 'user' or "users' means any natural or legal person, entity or international organisation that has been granted access time to use a EuroHPC quantum computer.
- cc) 'vendor' refers to the person(s) with whom the EuroHPC Joint Undertaking has a procurement contract for the acquisition and maintenance of the EuroHPC quantum computer or parts thereof.

2. Terms not defined herein will have the same meaning as in the Regulation.

## II. **CHAPTER 2**

### II.1 **General Obligations of the Hosting Entity**

1. The Hosting Entity shall execute the Agreement to the highest professional standards respecting deadlines mutually agreed by the Parties.
2. All activities and services will be carried out by the Hosting Entity in compliance with the applicable health and safety laws and regulations.
3. The Hosting Entity must ensure the functional separation, and to the extent possible, the physical separation of the EuroHPC quantum computer and any national or regional computing systems it operates with the exception of the host supercomputer of the EuroHPC quantum computer.
4. The Hosting Entity must ensure that the personnel performing the Agreement possesses the professional qualifications and experience required for the execution of the tasks assigned to it. The Hosting Entity will be solely responsible for the personnel who executes the tasks assigned to it.
5. The Hosting Entity will:
  - a) ensure the proper operation of the EuroHPC quantum computer, the availability of the agreed share of the host supercomputer to the users of the EuroHPC quantum computer and the IT infrastructure within the scope of its responsibilities (as listed in II.1 6.) to enable users to access the resources and services for the total duration of the Agreement;
  - b) ensure the security of the EuroHPC quantum computer, the host supercomputer, the technical and IT infrastructure, and of the Hosting Entity itself. This includes all necessary measures which need to be implemented on the host supercomputer.
  - c) report to the EuroHPC Joint Undertaking through the submission of documents and completion of Key Performance Indicators defined in Annex III Key Performance Indicators (KPIs).
  - d) The KPIs can be modified by the Hosting Entity and the EuroHPC Joint Undertaking by express written agreement of the Parties.
  - e) apply the access-time conditions and rules set up by the EuroHPC Joint Undertaking to the Union's access time to the EuroHPC quantum computer including the agreed share of the host supercomputer and to its IT infrastructure on the basis of the relevant decision of the EuroHPC JU Governing Board.
  - f) apply the access-time conditions and rules set up by additional agreements between the EuroHPC Joint Undertaking and the Hosting Entity, if any, regarding access time on the host supercomputer and the integrated HPC-QC system consisting of the host supercomputer and the EuroHPC quantum computer.
  - g) inform the EuroHPC Joint Undertaking and users without delay about the incidents impacting the use of the EuroHPC quantum computer, the host supercomputer, or the IT infrastructure.



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- h) provide any information to the EuroHPC Joint Undertaking that is relevant for the Joint Undertaking to perform its duties under the present Agreement and the Regulation.
  - i) fulfil its financial obligations as defined in the Agreement, the Regulation and the grant agreement.
  - j) Implement the energy efficiency and environmental sustainability measures defined as part of the technical specifications of the hosting site on the basis of the application of the selected Hosting Entity.
  - k) commits to support the implementation of a platform, developed and acquired by the EuroHPC Joint Undertaking for the seamless federation and secure service provisioning of supercomputing and quantum computing service and data infrastructure, establishing a one-stop shop access point for any supercomputing or data service managed by the Joint Undertaking, providing any user with a single point of entry.
6. The Hosting Entity will ensure the functionality of the EuroHPC quantum computer, the agreed share of the host supercomputer and the infrastructure for the joint use of these resources, but it will not be liable for incidents or damage attributable to: a) hardware failures or faults of the EuroHPC quantum computer where their origin lies outside the action of the Hosting Entity, b) software failures or faults where their origin lies outside the action of the Hosting Entity, c) misuse of the EuroHPC quantum computer or software by users or by vendor's personnel operating the maintenance contract, d) negligence or failure of users to follow the instructions for use of the EuroHPC quantum computer or software or breach of the end user license terms, e) instructions or specifications given by EuroHPC Joint Undertaking, or f) force majeure events in accordance with Article IV.6. In all cases, including the above, the Hosting Entity will inform the EuroHPC Joint Undertaking and will take without delay all appropriate measures to restore the functionality of the EuroHPC quantum computer to minimise costs and prevent financial loss or damage to the EuroHPC Joint Undertaking, to the EuroHPC quantum computer and through the unavailability of the agreed resources and services to EuroHPC users.
7. Specific research and innovation activities related to integration and beyond the preparation of the hosting Site and the host supercomputer are not covered in this Agreement but will be address in the separate integration grant agreement that takes precedent over the activities described in Annex V.

### **II.2 *General Obligations of the EuroHPC Joint Undertaking***

1. The EuroHPC Joint Undertaking will:
  - a) Be the sole owner of the EuroHPC quantum computer and the sole contractor with the vendor for the acquisition and maintenance of the EuroHPC quantum computer.
  - b) Provide any information to the Hosting Entity that is relevant for the latter to perform its duties under the Regulation and the Agreement within the deadlines agreed by the Parties.
  - c) Fulfil its financial obligations as defined in the Regulation, the Agreement and the grant agreement.

### **II.3 *Obligations of the Parties during the acquisition procedure***

1. The EuroHPC Joint Undertaking, supported by the Hosting Entity, will launch the process for the acquisition of the EuroHPC quantum computer in accordance with the financial rules of the EuroHPC Joint Undertaking.
2. Throughout the acquisition process of the EuroHPC quantum computer, including the preparatory phase, the Parties will work together in a spirit of collaboration for achieving the objective of acquiring the EuroHPC quantum computer and its integration into the host supercomputer.
3. For that purpose, the Parties will have the following responsibilities:

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- a. The EuroHPC Joint Undertaking and the Hosting Entity will work together in order to define (design) the main technical specifications of the EuroHPC quantum computer to be acquired.
  - b. The Hosting Entity will identify and implement the hosting site requirements, including but not limited to the host supercomputer, infrastructure, security rules and site regulation, for the proper installation and operation of the EuroHPC quantum computer. It is the responsibility of the Hosting Entity to prepare the hosting site and the host supercomputer, including the software environment on the host supercomputers login nodes, resource management and access policies on time for the installation and operation of the EuroHPC quantum computer Annex IV. Associated deliverables and milestones defines the milestones (M2 “Site preparation according to the acquisition procedures of the EuroHPC quantum computer”, M3 “Site adaptation to host the EuroHPC quantum computer”) required for the installation of the supercomputer. For considering the two abovementioned milestones met in accordance with Annex IV. Associated deliverables and milestones and within the deadlines set therein, the Hosting Entity will provide to the EuroHPC Joint Undertaking:
    - i. Evidence of compliance with each requirement and specification as included in Annex I. Minimum Requirements and Annex V Application of the Hosting Entity.
    - ii. Evidence of readiness to provide the required services defined in this Agreement;
    - iii. Evidence of successful testing of all requirements defined in this Agreement;
    - iv. Demonstration of resilience of systems and components.
4. The EuroHPC Joint Undertaking or any mandated entity of the Joint Undertaking will have the right to inspect the hosting site including the host supercomputer, data centre and relevant infrastructure, documentation, certifications and test reports, where relevant, in order to sign off acceptance of the relevant milestones.

### **II.4 *Obligations of the Parties during the performance of the Agreement***

1. Unless otherwise indicated, the Hosting Entity, will be mandated to act in the name and on behalf of the EuroHPC Joint Undertaking during the installation, the maintenance and, if necessary, the dismantling of the EuroHPC quantum computer. For these technical operations, the Hosting Entity will be the single point of contact of the vendor in the framework of the procurement contract to be signed between the EuroHPC Joint Undertaking and the vendor.

#### **II.4.1 Delivery and installation of the EuroHPC quantum computer**

1. The Hosting Entity will monitor and supervise the proper delivery and installation of the EuroHPC quantum computer by the vendor, in cooperation with the vendor.
2. The Hosting Entity will provide a report to the EuroHPC Joint Undertaking in that regard and will respond to any questions relevant to its delivery and installation in a timely manner.
3. The Hosting Entity will collaborate with the vendor during the installation to make sure that the installation of the EuroHPC quantum computer is done in time and according to the specified requirements of the contract between the EuroHPC Joint Undertaking and the vendor of the quantum computer. The vendor will be solely liable for the proper installation of the supercomputer. The Hosting Entity will collaborate with the vendor in order to enable the integration of the quantum computer with the host supercomputer, based on specifications of both parties.
4. The Hosting Entity will supervise, monitor and check the compliance of the equipment/supplies provided by the vendor during the delivery and installation of the EuroHPC quantum computer with the requirements of the aforementioned contract between the EuroHPC Joint Undertaking and the vendor.

### II.4.2 Acceptance of the EuroHPC quantum computer

1. The Hosting Entity will check the compliance of the EuroHPC quantum computer with the requirements of the contract between the EuroHPC Joint Undertaking and the vendor of the quantum computer and perform the acceptance test.
2. The Hosting Entity will perform the acceptance test of the EuroHPC quantum computer in accordance with the testing procedure which shall be jointly agreed between the Parties and defined in the EuroHPC Joint Undertaking's contract with the vendor.
3. In case of compliance, the Hosting Entity will inform the EuroHPC Joint Undertaking accordingly, so that the Executive Director of the EuroHPC Joint Undertaking can proceed with the authorisation of the payments to the vendor.
4. In case of non-compliance, the Hosting Entity will inform the EuroHPC Joint Undertaking in writing of all defects or errors detected in the delivery and installation, will identify such defects or errors in sufficient detail and support the EuroHPC Joint Undertaking in notifying the vendor about same and/or suggest to the EuroHPC Joint Undertaking technical solutions identified following a risk management process. The Hosting Entity shall have the primary role in interacting with the vendor in order to choose the most appropriate solution to be implemented, in consultation with the EuroHPC Joint Undertaking, while keeping it informed throughout the process.

### II.4.3 Operations

1. The Hosting Entity must provide the hosting services defined in Required Hosting Activities in Annex II Service Level Agreement (SLA) and shall be responsible for the operation of the EuroHPC quantum computer including the agreed share of the host supercomputer in accordance with the grant agreement.
2. The Hosting Entity must regularly provide the EuroHPC Joint Undertaking with Service, Utilisation and Performance reports as defined in Annex IV. Associated deliverables and milestones. The Hosting Entity must implement the allocation of the EuroHPC Joint Undertaking's share of access time to the EuroHPC quantum computer in accordance with the relevant decision of the EuroHPC JU Governing Board as communicated to the Hosting Entity, in accordance with additional agreements between the Hosting Entity and the EuroHPC JU and in accordance with Article II.11 of this Agreement. Moreover, these obligations also apply to the host supercomputer including the agreed share of resources where relevant for the access, use and operation of the EuroHPC quantum computer for hybrid HPC-QC workflows.
3. The Hosting Entity must meet the KPIs defined in Annex III. Key performance indicators (KPIs).

### II.5 ***End of the operations of the EuroHPC quantum computer***

1. At the earliest four years after the successful acceptance test by the EuroHPC Joint Undertaking of the EuroHPC quantum computer installed in the Hosting Site, the EuroHPC Joint Undertaking, upon mutual agreement of the Parties and subject to decision of the Governing Board may decide to transfer the ownership of the EuroHPC quantum computer to the Hosting Entity, or sell it to another entity or decommission it, in whole or in part.
2. If the EuroHPC Joint Undertaking, with the agreement of the Hosting Entity, decides to transfer the ownership of the EuroHPC quantum computer at the end of its operation, the associated costs will be calculated at that moment in accordance with standard accounting practices for such assets in force at that time. Linear depreciation using a period of 4 years will be applied.

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3. In the case of transfer of ownership to the Hosting Entity in accordance with paragraph 1 before full depreciation of the EuroHPC quantum computer, the Hosting Entity will reimburse the EuroHPC Joint Undertaking the residual value of the EuroHPC quantum computer that is transferred. The residual value of the Union's share of the acquisition of the EuroHPC quantum computer will be calculated taking into account the depreciation in accordance with standard accounting practices for such assets in force at that time. In the absence of commonly agreed standards, linear depreciation using a period of 4 years will be applied.
4. If there is no transfer of ownership to the Hosting Entity but a decision for decommissioning, the relevant costs will be shared equally by the EuroHPC Joint Undertaking and the Hosting Entity.
5. In case of decommissioning of the EuroHPC quantum computer:
  - a) The Hosting Entity will be responsible for the dismantling process, which will be performed by the vendor in accordance with the relevant contract.

This process will notably include:

    - i) The electrical and cooling-subsystem (if applicable) disconnections of the equipment;
    - ii) The removal and evacuation of electrical wiring of the equipment;
    - iii) The removal and evacuation of network cables from the configuration;
    - iv) The disassembly of the disks;
    - v) The handling and evacuation of the equipment outside the hosting site;
    - vi) The removal of any other parts belonging to the system (e. g. for cooling, vacuum chambers etc.)
    - vii) The replacement of raised floor slabs.
  - b) The EuroHPC Joint Undertaking will have the right to decide how to use the dismantled equipment.
6. The EuroHPC Joint Undertaking will not be liable for any costs incurred after the transfer of ownership of the EuroHPC quantum computer or after its sale to the Hosting Entity or its decommissioning.

### II.6 ***Conflict of Interest***

1. The Hosting Entity must take all measures to prevent any situation where the impartial and objective implementation of the tasks is compromised for reasons involving economic interest, political or national affinity, family or emotional ties or any other shared interest ("conflict of interest").
2. The Hosting Entity must formally notify to the EuroHPC Joint Undertaking without delay any situation constituting or likely to lead to a conflict of interest and immediately take all the necessary steps to rectify this situation.
3. The EuroHPC Joint Undertaking may verify that the measures taken are appropriate and may require additional measures to be taken by a specified deadline.
4. In relation to the action funded under the grant agreement, the conflict of interest rules in the grant agreement will apply.

### II.7 ***Confidentiality obligation and non-disclosure***

1. The EuroHPC Joint Undertaking and the Hosting Entity undertake to preserve the confidentiality of any document, information or other material directly related to the subject of the Agreement that is duly classified as confidential.

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2. The Parties will not use confidential information and documents for any reason other than fulfilling the obligations under the Agreement or the grant agreement, unless otherwise foreseen in writing.
3. A receiving party will notify the disclosing party if it is legally required to disclose any confidential information or learns of any unauthorized disclosure of confidential information.
4. The Parties will be bound by the obligation referred to in the above paragraphs during the implementation of the Agreement and for as long as the EuroHPC quantum computer remains in the Hosting Entity under the ownership of the EuroHPC Joint Undertaking and for a period of ten (10) years starting from the date of its termination, unless:
  - a) the concerned party agrees to release the other party from the confidentiality obligations earlier;
  - b) the confidential information becomes public through other means than in breach of the confidentiality obligation through disclosure by the party bound by that obligation;
  - c) the disclosure of confidential information is required by law, regulation or binding order of competent authorities.
5. In relation to the action funded under the grant agreement, the confidentiality rules in the grant agreement will apply.

## II.8 *Processing of Personal data*

### II.8.1 Processing of personal data by the EuroHPC Joint Undertaking

1. The EuroHPC Joint Undertaking will process any personal data under the Agreement in accordance with Regulation (EU) 2018/1725.<sup>3</sup>
2. Where the Joint Undertaking is the data controller under Regulation (EU) 2018/1725, such data will be processed by the 'data controller' solely for the purposes of the implementation, management and monitoring of the Agreement or to protect the Union's or the Joint Undertaking's financial interests, including checks, audits and investigations, without prejudice to possible transmission to the bodies charged with the monitoring or inspection tasks in application of the applicable rules.
3. The persons whose personal data are processed have the right to access, rectify or erase their own personal data and the right to restrict or, where applicable, the right to data portability or the right to object to data processing in accordance with Regulation (EU) No 2018/1725. For this purpose, they must send any queries about the processing of its personal data to the data controller, via the contact point indicated in the privacy statement(s) that are published on the JU and Commission website.
4. The persons whose personal data are processed may have recourse at any time to the European Data Protection Supervisor.

### II.8.2 Processing of personal data by the Hosting Entity

1. The Hosting Entity must process personal data under the Agreement in compliance with applicable EU and national law on data protection (including authorisations or notification requirements).
2. The Hosting Entity may grant its personnel access only to data that is strictly necessary for implementing, managing and monitoring the Agreement. The Hosting Entity must ensure that the personnel authorised to process personal data has committed itself to confidentiality or is under appropriate statutory obligation of confidentiality.

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<sup>3</sup> Regulation (EU) 2018/1725 of the European Parliament and of the Council of 23 October 2018 on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data, and repealing Regulation (EC) No 45/2001 and Decision No 1247/2002, OJ L 295, 21.11.2018, p. 39–98.

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3. The Hosting Entity must adopt appropriate technical and organisational security measures having regard to the risks inherent in the processing and to the nature, scope, context and purposes of processing of the personal data concerned. This is to ensure, as appropriate:
  - a) the pseudonymisation and encryption of personal data;
  - b) the ability to ensure the ongoing confidentiality, integrity, availability and resilience of processing systems and services;
  - c) the ability to restore the availability and access to personal data in a timely manner in the event of a physical or technical incident;
  - d) a process for regularly testing, assessing, and evaluating the effectiveness of technical and organisational measures for ensuring the security of the processing;
  - e) measures to protect personal data from accidental or unlawful destruction, loss, alteration, unauthorised disclosure of or access to personal data transmitted, stored or otherwise processed.
4. In relation to the action funded under the grant agreement, the confidentiality rules in the grant agreement will apply.

## II.9 **VISIBILITY OF UNION FUNDING AND SUPPORT FROM PARTICIPATING STATES**

### II.9.1 Information on JU funding and support from Participating States – Obligation and right to use the EuroHPC JU logo and the EU emblem

1. Unless the EuroHPC Joint Undertaking requests or agrees otherwise, any communication or publication made by the Hosting Entity that relates to the EuroHPC quantum computer or its use, including at conferences, seminars or in any information or promotional materials (such as brochures, leaflets, posters, presentations, in electronic form, etc.), must:
  - a. display the EuroHPC Joint Undertaking logo,
  - b. display the EU emblem, and
  - c. include the following text: “The acquisition and operation of the EuroHPC quantum computer is funded jointly by the EuroHPC Joint Undertaking, through the European Union’s Digital Europe programme, as well as by [insert]”.
2. When displayed together with another logo, the EuroHPC Joint Undertaking logo and the EU emblem must have appropriate prominence.
3. The obligation to display the EuroHPC Joint Undertaking logo and the European Union emblem does not confer to the Hosting Entity a right of exclusive use. The Hosting Entity may not appropriate the EuroHPC Joint Undertaking logo and the EU emblem or any similar trademark or logo, either by registration or by any other means.
4. For the purposes of the first, second and third subparagraphs and under the conditions specified therein, the Hosting Entity may use the EuroHPC Joint Undertaking logo and the EU emblem without first obtaining permission from the Joint Undertaking or the Commission.
5. In relation to the action funded under the grant agreement, the visibility rules in the grant agreement will apply.

### II.9.2 Disclaimer

1. Any communication or publication that relates to the EuroHPC quantum computer, made by the Hosting Entity in any form and using any means, must indicate:
  - a) that it reflects only the author's view; and
  - b) that the EuroHPC Joint Undertaking is not responsible for any use that may be made of the information it contains.

### II.9.3 Information on support from Participating States

1. Unless the parties agree otherwise, any communication or publication made by the Joint Undertaking that relates to the EuroHPC quantum computer, shall together with the EuroHPC Joint Undertaking logo and the EU emblem, display:
  - a) the flag of the Participating States in the Hosting Consortium
  - b) the logo of the Hosting Entity,
  - c) include the following text: "The acquisition and operation of the EuroHPC quantum computer is funded jointly by the EuroHPC Joint Undertaking, through the European Union's Digital Europe Programme, as well as by [insert]."
2. For the purposes of the paragraph 1 above (Article II.9.3) and under the conditions specified therein, the EuroHPC Joint Undertaking may use the logo of the Hosting Entity without first obtaining its permission.

### II.10 **Security**

1. The Hosting Entity will provide access to the EuroHPC quantum computer through the host supercomputer, while ensuring the security of this computer and prevent unauthorised use by all reasonable means. These should include as a minimum the physical and IT security measures described in Annex I Minimum Requirements of the Hosting site.
2. The Hosting Entity must adopt appropriate technical and organisational security measures having regard to the risks inherent to the hosting and operations of such machines. This will include the functional separation, and to the extent possible, the physical separation of the EuroHPC quantum computer as provided in Article II.1.3 above.
3. The Hosting Entity will provide access in a secure manner to the hosting site and allow for external visitors to visit the EuroHPC quantum computer.
4. The security requirements will be those defined in in Annex V. Application of the Hosting Entity.

### II.11 **Allocation of access time to the EuroHPC quantum computer**

1. The share of the Union's access time to the EuroHPC quantum computer will be directly proportional to the financial contribution of the Union referred to in Article 5(1) of the Regulation to the total cost of ownership of the supercomputer and will not exceed 50 % of the total access time of the EuroHPC quantum computer.
2. The agreed share of access time to the host supercomputer must allow for hybrid HPC-QC computations with a performance of up to at least 0.5 PFlops using any HPC partition(s) of the host supercomputer. Due to the required serialisation of quantum computing tasks, the hosting site must provide a resource allocation

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mechanism on the hosting system with sufficient prioritisation of computations involving the EuroHPC quantum computer to ensure the full use of the EuroHPC JU's share of the access time on the quantum computer – irrespective of the workload on the host supercomputer. The required resources (core hours) on the host supercomputer may be accounted to the EuroHPC JU's share of the host supercomputer if applicable. If the EuroHPC JU has no access rights on the host supercomputer the required resources must be provided in-kind and free of charge for open research and innovation to the users of the EuroHPC quantum computer for hybrid HPC-QC applications. Access time provided in-kind by the Hosting Entity shall not be made available against payment.

3. The Governing Board of the EuroHPC Joint Undertaking will define the access rights to the Union's share of access time to the EuroHPC quantum computer and the agreed share of access time to the host supercomputer for the use of the integrated hybrid HPC-QC system. The EuroHPC Joint Undertaking will inform the Hosting Entity of the relevant decision of the Governing Board in due course to allow the Hosting Entity to implement the necessary requirements, processes and arrangements. This will apply also to the specific conditions for industrial users applying for the Union's access time to the EuroHPC quantum computer for commercial purposes.
4. The Participating State where the Hosting Entity is established or each Participating State in a Hosting Consortium will be allocated a share of the remaining access time to the EuroHPC quantum computer. In the case of a Hosting Consortium, the Participating States will agree among themselves the distribution of access time to the EuroHPC quantum computer and will inform the EuroHPC Joint Undertaking accordingly.
5. The Hosting Entity must comply with the conditions of allocation of access time defined in Articles 17 and 18 of the Regulation and will make all necessary arrangements to implement the decision of the EuroHPC Joint Undertaking's Governing Board regarding the Union's access time.
6. The Parties may agree that the implementation of the access rights to the Union's share of access time to the EuroHPC quantum computer and the agreed share of access time to the host supercomputer for the use of the integrated hybrid HPC-QC system may be implemented by a third party.
7. The EuroHPC Joint Undertaking will inform the Hosting Entity of the changes to the access rights to the Union's share of access time to the EuroHPC quantum computer and the agreed share of access time to the host supercomputer for the use of the integrated hybrid HPC-QC system decided by the EuroHPC Joint Undertaking's Governing Board at least 15 working days before the start of the use period.
8. The Hosting Entity will ensure the quality of the service and that the quality of service is the same for all users in accordance with the relevant SLAs.
9. In accordance with Article 18 of the Regulation, in case the Union's access time to the quantum computer is used for commercial purposes, the fees generated directly by the commercial use of the Union's access time will constitute revenue to the EuroHPC Joint Undertaking's budget and will be used to cover operational costs of the Joint Undertaking.
10. The Hosting Entity will provide access to the EuroHPC quantum computer and the host supercomputer, while ensuring the security of the supercomputer and the protection of personal data in accordance with Regulation (EU) 2016/679<sup>4</sup>, the protection of privacy of electronic communications in accordance with Directive 2002/58/EC<sup>5</sup>, the protection of trade secrets in accordance with Directive (EU) 2016/943<sup>6</sup> and the protection of confidentiality of other data covered by the obligation of professional secrecy.

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<sup>4</sup> OJ L 119, 4.5.2016, p. 1.

<sup>5</sup> OJ L 201, 31.7.2002, p. 37.

<sup>6</sup> OJ L 157, 15.6.2016, p. 1.



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11. The use of the EuroHPC quantum computer and the agreed share of access time to the host supercomputer for the use of the integrated hybrid HPC-QC system will be subject to a reasonable and non-discriminatory user- terms and conditions and data processing agreement, drafted jointly by the Hosting Entity and the EuroHPC Joint Undertaking, designed to ensure compliance with applicable security and data protection requirements, in conformity with any access conditions as defined pursuant to Article 16, 17 and 18 of the Regulation while appropriately excluding the hosting entity's liability for indirect damages such lost profits, revenues, or user data in accordance with industry practise. Any such user terms and data processing agreement cannot impose any condition to the EuroHPC Joint Undertaking less favourable than any other user. Any such user terms and data processing agreement will not improperly limit the access of the EuroHPC Joint Undertaking to the EuroHPC quantum computer and the host supercomputer.
12. The Participating States constituting the Hosting Entity define and implement the allocation process for their share of access time.

### II.11.1 Accounting of Access time

1. The Hosting Entity must ensure that the access time and resource usage is collected and stored in a traceable and auditable way and provides an appropriate overview of the system utilisation. The Hosting Entity must provide regular information of access time allocation and usage as part of the reports indicated in Annex IV, including all access time allocation on the host supercomputer when used with the EuroHPC quantum computer.
2. The EuroHPC Joint Undertaking has the right to audit the allocation and usage of the EuroHPC quantum computer resources, including the relevant resources provided on the host supercomputer, in accordance with Article II.13.

## II.12 *Financial obligations*

### II.12.1 Acquisition costs of the EuroHPC quantum computer

1. The budget for the acquisition of the EuroHPC quantum computer is set at maximum EUR [insert]. The Union's financial contribution to the acquisition of the EuroHPC quantum computer is set at a maximum EUR [insert]. The Union's financial contribution will cover up to 50 % of the acquisition costs.
2. The remaining acquisition costs of the EuroHPC quantum computer will be covered by the Participating State where the Hosting Entity is established or by the Participating States in the Hosting Consortium committed in the commitment letter(s) included in the Application ([insert Ares reference number]).
3. The contribution by the Participating State where the Hosting Entity is established or by the Participating States in the Hosting Consortium must be transferred to the EuroHPC Joint Undertaking at least 2 months ahead of the respective payments to the vendor as agreed in the relevant Administrative Agreement. The Administrative Agreement will be signed between EuroHPC Joint Undertaking and the Participating State where the hosting entity is established.
4. EuroHPC Joint Undertaking is not subject to Value Added Tax (VAT) linked to the procurement of the quantum computer, however depending on applicable national VAT rules where the quantum computer is to be located, VAT contributions may still have to be paid by EuroHPC JU to the vendor and later recovered from the relevant national VAT authorities.
5. Within the budget agreed, and following the schedule agreed in the Administrative Agreement between EuroHPC Joint Undertaking and the relevant competent authorities of the Participating State in the Hosting Entity, the EuroHPC Joint Undertaking will send at any time it deems necessary a payment

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request to the competent authority of the Participating State in the Hosting Entity (the "Payment Request") to cover the commitments for the acquisition of the EuroHPC quantum computer taking into account the schedule of payments agreed between the EuroHPC Joint Undertaking and the vendor.

### II.12.2 Operating costs of the EuroHPC quantum computer

1. The Union financial contribution will cover up to 50 % of the operating costs of the EuroHPC quantum computer as set out in the terms provided in the application (Ares(202X)XXX) and clarified and specified during the call for expression process within the limits of the overall available budget envelop for the EuroHPC quantum computer.
2. The reimbursement of operating costs of the EuroHPC quantum computer from the Union contribution will be calculated based on the unit cost of operating hours allocated to the EuroHPC Joint Undertaking up to the agreed ceiling for the Union financial contribution on the basis of the grant agreement to be signed in that regard.
3. The remaining operating costs of the EuroHPC quantum computer will be covered by the Participating State where the Hosting Entity is established. The EuroHPC Joint Undertaking will bear no responsibility for the remaining operating costs.
4. The specific terms and conditions for the eligibility and reimbursement of the part of the operating costs of the EuroHPC quantum computer to be covered by the Union financial contribution shall be subject to the grant agreement.

## II.13 *Checks and Audits*

### II.13.1 General obligations

1. The EuroHPC Joint Undertaking may, during the implementation of the Agreement or afterwards, carry out technical and financial checks and audits to determine that the Hosting Entity is implementing the Agreement properly and is complying with the obligations under the Agreement, including assessing deliverables and reports. For that purpose, the Hosting Entity must provide any information, including information in electronic format, requested by the EuroHPC Joint Undertaking or by any other outside body authorised by the EuroHPC Joint Undertaking. Information provided must be accurate, precise and complete and in the format requested, including electronic format.
2. Upon request from the EuroHPC Joint Undertaking, the Hosting Entity must put in place an audit procedure covering the access of the users and allocation of access time managed by EuroHPC JU in accordance with Article 17 of the Regulation. The controls must address but not be limited to all user access and user identification linked to any changes to the system and data.
3. The Hosting Entity must submit by 31 January of each year to the EuroHPC Joint Undertaking's Governing Board an audit report and data on the use of access time in the previous financial year. This is indicated as a deliverable in Annex IV. Associated deliverables and milestones.
4. The checks and audit data must be protected, non-repudiated and restricted to authorized staff. Retention of the relevant records will be retained online for at least ninety (90) days and further preserve offline for a period of the agreement or required by the EuroHPC Joint Undertaking.
5. Information and documents provided as part of checks or audits must be treated on a confidential basis.
6. The above checks and audits may be carried out either directly by the EuroHPC Joint Undertaking's own staff or by any other outside body authorised to do so on its behalf.

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7. In addition to the EuroHPC Joint Undertaking, the European Commission, the European Anti-Fraud Office (OLAF) and the Court of Auditors may carry out checks and audits in accordance with their respective competences and the applicable legal framework.
8. For actions funded from the Digital Europe Programme, audits of recipients of Union funds under this Regulation should be carried out in compliance with Regulation (EU) 2021/694.
9. In relation to the action funded under the grant agreement, the rules on checks and audits in the grant agreement apply.

### II.13.2 On-the-spot visits

1. The EuroHPC Joint Undertaking has the right to perform on-the-spot visits to the hosting site, host supercomputer and the premises of the Hosting Entity.
2. During an on-the-spot visit, the Hosting Entity will allow the staff of the EuroHPC Joint Undertaking and any external personnel authorised by the EuroHPC Joint Undertaking to have access to the hosting site and premises of the EuroHPC quantum computer and host supercomputer, and to all the necessary information related to the hosting and operation of the EuroHPC quantum computer, including all relevant information on the host supercomputer, for the assessment of the fulfilment of this Hosting Agreement, including information in electronic format.
3. The Hosting Entity must ensure that the information is readily available at the moment of the on-the-spot visit and that information requested is handed over in an appropriate form.
4. Visits agreed herein will be notified at least fourteen (14) calendar days beforehand and be carried out in a way that causes minimal disruption to safety and operation of services under the Hosting Entity's responsibilities.
5. In relation to the action funded under the grant agreement, the rules in the grant agreement apply.

## III. CHAPTER 3

### III.1 *Subcontracting and third parties*

1. The Hosting Entity is allowed to subcontract certain activities to be performed to third parties. However, the Hosting Entity must ensure that the percentage of subcontracting activities is proportionate and justifiable in accordance with the objective of the Agreement. The Hosting Entity will remain bound by its obligations under the Agreement and will be solely responsible for the proper performance of this agreement, including by third parties acting in their capacity as subcontractors.
2. The Hosting Entity will make sure that the subcontract does not affect rights and guarantees granted to the EuroHPC Joint Undertaking by virtue of this Agreement.
3. In relation to the action funded under the grant agreement, the rules concerning subcontracting in the grant agreement will apply.

## IV. CHAPTER 4

### IV.1 *Consequences of non-compliance with obligations*

1. The Hosting Entity will use its best endeavours to fulfil its obligations under this Agreement and provide the hosting site services, including access to the host supercomputer, under the highest professional standards and in a timely manner, within the deadlines agreed between the Parties.
2. The EuroHPC Joint Undertaking will use its best endeavours to fulfil its obligations under this Agreement in a timely manner, within the deadlines agreed between the Parties.
3. The EuroHPC Joint Undertaking and the Hosting Entity will use their best efforts to solve any non-compliance issue amicably, taking into account the best interests of the Union, the interests of the Hosting Entity and the Hosting Consortium and the shared objectives of the EuroHPC Joint Undertaking and the Hosting Entity.
4. In case one of the Parties is not in position to fulfil its obligations under this Agreement on time for whichever reason, it will notify the other party without delay, stating the nature of the circumstances, their likely duration and effects and the measures taken to limit or mitigate any damage.
5. In case a status report shows that the services provided by the Hosting Entity are not fully compliant with this Agreement, the EuroHPC Joint Undertaking will evaluate the severity of the problem and its consequences, and discuss the conclusions of this evaluation with the Hosting Entity.
6. If the obligations of the Hosting Entity included in this Agreement have not been implemented accordingly or if any obligation under the Agreement has been breached by the Hosting Entity, the EuroHPC Joint Undertaking will send a formal notification to the Hosting Entity requesting the Hosting Entity to rectify that situation or provide explanations and intended rectification or remedial actions. The Hosting Entity will respond to this notification within ten (10) calendar days following the date of receipt.
7. If the Hosting Entity does not respond within the abovementioned period, the EuroHPC Joint Undertaking will send a reminder by way of a second formal notification to the Hosting Entity, specifying the measures it intends to take if the Hosting Entity does not respond to its request or does not take appropriate and reasonable measures to rectify the situation. The Hosting Entity must respond to this second formal notification within ten (10) calendar days following the date of receipt. If the Hosting Entity does not respond to this reminder, the EuroHPC Joint Undertaking will have the right to take the measures described in paragraph 8 and in Article IV.2, notwithstanding any other legal rights of the EuroHPC Joint Undertaking taking into account, the principle of proportionality the seriousness of the breach or non-compliance.
8. In all cases, including cases of force majeure, the EuroHPC Joint Undertaking will have the right to request from the Hosting Entity to comply with the Agreement, where possible, take remedial measures and/or proportionally reduce or recover amounts unduly paid to the Hosting Entity, as appropriate and in accordance with the principle of proportionality and the seriousness of the breach or non-compliance and after using its best endeavours to allow the hosting entity to exercise its right to be heard.
9. Before the EuroHPC Joint Undertaking proceeds as described in paragraph 8 of this Article, it will send a formal notification to the Hosting Entity which will include the following information:
  - a. the measures it intends to take and the start date of their application;
  - b. the EuroHPC Joint Undertaking's intention to reduce any amount to be paid and the corresponding amount;
  - c. the reasons for reduction and/or other measures; and

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- d. invitation to the Hosting Entity to submit observations within ten (10) calendar days following the date of receipt of the formal notification.
10. In all cases, where the fault, situation or event is attributable to error or negligence on the part of the vendor and in cases referred to in II.1 paragraph 6 the Hosting Entity shall not be considered as non-compliant, in breach of its obligations or liable.
11. In relation to the action funded under the grant agreement, the rules regarding non-compliance in the grant agreement apply.

### IV.2 *Liquidated Damages*

1. If the Hosting Entity fails to perform its obligations within the applicable time limits as set out in this Agreement, and such cases constitute significant and/or recurring and/or persistent non-compliance or breach of the obligations under the Agreement, the EuroHPC Joint Undertaking, taking the principle of proportionality into account, may claim liquidated damages for each day or hour of delay using the following formula:

$$0,20* (CH*h)$$

Where CH is the cost of the Computational Hour as defined in the grant agreement.

And h is the duration in hours of the non-compliance or breach of the obligations under the Agreement. The maximum amount of liquidated damages payable per each calendar year will be limited to two hundred fifty thousand euro (250,000 €).

2. The amount of such liquidated damages that results from the application of the formula above may be reduced by the Joint Undertaking if it is considered justified by the seriousness of the breach and the specific character and circumstances of the non-compliance or breach, taking the principle of proportionality into account.
3. Liquidated damages may be imposed in addition with other reductions in the Union's financial contribution.
4. The EuroHPC Joint Undertaking must formally notify the Hosting Entity of its intention to apply liquidated damages and the corresponding calculated amount.
5. The Hosting Entity will have thirty (30) calendar days following the date of receipt to submit observations. Failing that, the decision of the EuroHPC Joint Undertaking becomes enforceable the day after the deadline for submitting observations has elapsed.
6. If the Hosting Entity submits observations, the EuroHPC Joint Undertaking, taking into account the relevant observations, must notify the Hosting Entity:
  - a. of the withdrawal of its intention to apply liquidated damages; or
  - b. of its decision to reduce the amount of the liquidated damages as appropriate; or
  - c. of its final decision to apply liquidated damages and the corresponding amount.
7. The Parties expressly acknowledge and agree that any amount payable under this Article is not a penalty and represents a reasonable estimate of fair compensation for the damage incurred due to failure to provide the services within the agreed time limits set out in this Agreement.
8. Any claim for liquidated damages does not affect the Hosting Entity's actual or potential liability that exceeds the amount of damages provided for herein, paid by the Hosting Entity for the breach of the EuroHPC Joint Undertaking's rights under other articles in this Agreement and the grant agreement.

9. In relation to the action funded under the grant agreement, the rules in the grant agreement apply in addition to the provisions of this Article.

### IV.3 **Liability**

1. The EuroHPC Joint Undertaking will not be liable for any damage or loss caused by the Hosting Entity, including any damage or loss to third parties during or as a consequence of performance of the Agreement, and the operation of the EuroHPC quantum computer on its behalf, unless the loss or damage was caused by wilful misconduct or gross negligence by the EuroHPC Joint Undertaking.
2. The Hosting Entity will assume full liability towards the EuroHPC Joint Undertaking for the performance of its obligations under this Agreement as a whole, including financial and operational liability. In case of a Hosting Consortium, only the Hosting Entity will be fully liable towards the EuroHPC Joint Undertaking for the performance of the Agreement.
3. When determining the liability of the Hosting Entity under the Agreement the principle of proportionality shall be applied and the seriousness of the breach or non-compliance shall be taken into account.
4. The Hosting Entity will be liable for any loss or damage caused to the EuroHPC Joint Undertaking during or as a consequence of the performance of the Agreement. The aggregate maximum liability for damages of the Hosting Entity based on the Agreement will not exceed the residual value of the EuroHPC quantum computer, including possible liquidated damages, or other reduction in accordance with the grant agreement. However, if the damage or loss is caused by the gross negligence or wilful misconduct of the Hosting Entity or of its personnel or subcontractors, as well as in the case of an action brought against the EuroHPC Joint Undertaking by a third party, the Hosting Entity will be liable for the whole amount of the damage or loss.
5. If a third party brings any action against the EuroHPC Joint Undertaking in connection with the performance of the Agreement, the Hosting Entity must closely collaborate and assist the EuroHPC Joint Undertaking in the legal proceedings, including by intervening in support of the EuroHPC Joint Undertaking upon request.
6. If the liability of the EuroHPC Joint Undertaking towards the third party is established and such liability is caused by the Hosting Entity during or as a consequence of the performance of the Agreement, paragraphs 2 and 3 apply.
7. In relation to the action funded under the grant agreement, the rules on liability for damages in the grant agreement apply.

### IV.4 **Insurance**

1. The Hosting Entity must take out an insurance policy or accepted equivalence to cover the operation of their hosting site, host supercomputer and of the EuroHPC quantum computer and against risks and damage or loss relating to the performance of the EuroHPC quantum computer. It must also take out supplementary insurance as reasonably required by standard practice in the industry. Upon request, the Hosting Entity must provide evidence of insurance coverage to the EuroHPC Joint Undertaking.

### IV.5 **Termination of the Agreement**

1. The Agreement may be terminated by mutual consent of the parties in case the subject matter of this Agreement has been fulfilled or becomes impossible to fulfil.
2. The Agreement may be terminated in case the grant agreement has been terminated either by the EuroHPC Joint Undertaking or by the Hosting Entity.

### IV.5.1 Termination by the EuroHPC Joint Undertaking of the Agreement for specific reasons

1. The EuroHPC Joint Undertaking may terminate the Agreement, if the Hosting Entity does not remedy within sixty (60) calendar days from written notification any material or serious breach or non-compliance issue falling under its responsibility concerning the following situations, unless manifestly such breach or non-compliance cannot by its nature be remedied:
  - a) if the Hosting Entity is unable, through its own fault, to obtain any permit or licence required for performance of the Agreement;
  - b) the Hosting Entity or any person that assumes unlimited liability for the debts of the Hosting Entity is in one of the situations provided for in points (a) and (b) of Article 136(1) of the EU Financial Regulation<sup>7</sup>;
  - c) the Hosting Entity is subject to any of the situations provided for in points (c) to (f) of Article 136(1) or to Article 136(2) of the EU Financial Regulation;
  - d) the procedure for selecting the Hosting Entity proves to have been subject to Hosting Entity's substantial errors, irregularities or fraud;
  - e) the Hosting Entity does not comply with applicable obligations under environmental, social and labour law established by Union and Community law, national law, collective agreements or by the international environmental, social and labour law provisions listed in Annex X to Directive 2014/24/EU<sup>8</sup>;
  - f) the Hosting Entity is in a situation that constitutes a conflict of interest or a professional conflicting interest as referred to in Article II.5;
  - g) a change to the Hosting Entity's legal, financial, technical, organisational or ownership situation is likely to substantially affect the implementation of the Agreement in an adverse manner;
  - h) the Hosting Entity does not comply with or is in serious breach of its obligations under this Agreement;
  - i) if the EuroHPC Joint Undertaking has terminated the grant agreement.

### IV.5.2 Procedure and effect of termination

1. One party must formally notify the other party of its intention to terminate the Agreement and the grounds for termination. The termination will become effective on the date on which the EuroHPC quantum computer will no longer be hosted in the Hosting Entity's premises, unless otherwise agreed by the Parties, taking into account the grounds for termination.
2. In such case, at the request of the EuroHPC Joint Undertaking and regardless of the grounds for termination, the Hosting Entity must provide all necessary assistance, including information, documents and files, to allow the EuroHPC Joint Undertaking to complete, continue or transfer the EuroHPC quantum computer to a new Hosting Entity, with minimum interruption or adverse effect on the quality or continuity of the operation of the computer. The Parties may agree to draw up a transition plan detailing the transfer of the EuroHPC quantum computer.
3. In cases where the Agreement has been terminated on the grounds that the Hosting Entity does not comply with its obligations under this Agreement, the Hosting Entity must provide such assistance at no additional cost, except if it can demonstrate that it requires substantial additional resources or means or otherwise causes additional expenses, in which case it must provide an estimate of the costs involved; the parties will negotiate a relevant arrangement in good faith.

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<sup>7</sup> 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. 1–222

<sup>8</sup> OJ L 94 of 28.03.2014, p. 65.

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4. If the Agreement has been terminated on the basis of Article IV.5.1, the Hosting Entity will be liable for direct damages incurred by the EuroHPC Joint Undertaking as a result of the termination of the Agreement, including the cost of selecting another Hosting Entity, unless the damage was caused by force majeure.
5. In any case, the Parties must take all appropriate measures to minimise costs and prevent damage to the other party and to the EuroHPC quantum computer.

### IV.6 *Force majeure*

1. If a party is affected by force majeure, it must immediately notify the other party, stating the nature of the circumstances, their likely duration and the foreseeable effects.
2. If a party is affected by force majeure, it must immediately notify the other party, stating the nature of the circumstances, their likely duration and the foreseeable effects.
3. The party faced with force majeure may not be considered in breach of its obligations under the Agreement if it has been prevented from fulfilling them by force majeure. The Parties must take all reasonable measures to limit any damage due to force majeure. They must do their best to resume the implementation of the action as soon as possible.
4. In relation to the action funded under the grant agreement, the rules on force majeure in the grant agreement will apply.

## V. CHAPTER 5

### V.1 *Entry into force and duration*

1. The Agreement shall enter into force on the date on which it is signed by the last party and will remain in force until either the ownership of the EuroHPC quantum computer is transferred by the Joint Undertaking to the Hosting Entity or until the EuroHPC quantum computer is sold or decommissioned in case there is no transfer of ownership.
2. The extension of the duration of the present Agreement is subject to the written agreement of both Parties.

### V.2 *Amendments*

1. Any amendment to the Agreement must be made by mutual agreement of the Parties in writing.
2. Any amendment must not make changes to the Agreement that might alter its purpose.
3. Any request for amendment must be duly justified and must be sent to the other party in due time before it is due to take effect, except in cases duly substantiated by the party requesting the amendment and accepted by the other party.
4. Amendments will enter into force on a date agreed by the Parties or, in the absence of such an agreed date, on the date on which the last party signs the amendment.

### V.3 *Severability*

1. Each provision of this Agreement is severable and distinct from the others. If a provision is or becomes illegal, invalid or unenforceable to any extent, it must be severed from the remainder of the Agreement. This does not affect the legality, validity or enforceability of any other provisions of the Agreement, which continue in full force and effect. The illegal, invalid or unenforceable provision must be replaced by a legal, valid and enforceable substitute provision which corresponds as closely as possible to the real intent of the Parties.



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The replacement of such a provision must be made in accordance with Article V.2. The Agreement must be interpreted as if it had contained the substitute provision as from its entry into force.

### V.4 **Applicable law and settlement of disputes**

1. The Agreement is governed by Union law, supplemented for any matter not covered by the Regulation or by other Union legal acts by the law of the Member State where the Hosting Entity is located.
2. The Parties will endeavour to settle amicably any dispute or complaint relating to the interpretation, application or validity of the Agreement. Any dispute which cannot be settled amicably must be submitted to the jurisdiction of the General Court or, on appeal, the Court of Justice of the European Union.
3. Nothing in the Agreement will be interpreted as a waiver of any privileges or immunities which are accorded to EuroHPC Joint Undertaking by its constituent act.

### V.5 **Communication between the Parties**

#### V.5.1 Communication Details

1. For the purpose of this Agreement, communications must be sent to the following addresses:

1. EuroHPC JU:

European High Performance Computing Joint Undertaking  
Drosbach Building (DRB) - Wing E – 1st floor  
12E Rue Guillaume Kroll  
L-2920 Luxembourg  
[info@eurohpc-ju.europa.eu](mailto:info@eurohpc-ju.europa.eu)

2. Hosting Entity:

[hosting entity details]

#### V.5.2 Form and means of communication

1. Any communication of information, notices or documents under the agreement must:
  - a. be made in writing in paper or electronic format in the language of the Agreement;
  - b. bear the Agreement number;
  - c. be made using the relevant communication details set out above; and
  - d. be sent by mail or email.
2. If a party requests written confirmation of an email within a reasonable time, the other party must provide an original signed paper version of the communication as soon as possible.

#### V.5.3 Date of communications by mail and electronic mail (email)

1. Any communication is deemed to have been made when the receiving party receives it unless this Agreement refers to the date when the communication was sent.
2. Email is deemed to have been received on the day of dispatch of that email, provided that it is sent to the email address indicated in Article V.5.1. The sending party must be able to prove the date of dispatch. If the

## Hosting Agreement

sending party receives a non-delivery report, it must make every effort to ensure that the other party receives the communication by email or mail. In such a case, the sending party is not held in breach of its obligation to send such communication within a specified deadline.

3. Mail sent to the EuroHPC JU is deemed to have been received by the latter on the date on which the EuroHPC JU registers it.
4. Formal notifications are considered to have been received on the date of receipt indicated in the proof received by the sending party that the message was delivered to the specified recipient.

## VI. ***SIGNATURES***

**IN WITNESS WHEREOF** the undersigned, being duly authorized, have signed this Hosting Agreement.

**For the Hosting Entity**

[name, position]

Done in English

In [place], on the date of

**For the EuroHPC Joint Undertaking**

Anders Dam Jensen, Executive Director

Done in English,

in Luxembourg, on the date of

## ***Annex I. Minimum requirements of the Hosting Site and the Host Supercomputer***

The following list provides the minimum requirements for the Hosting Entity to host a EuroHPC quantum computer subject to this Agreement.

The **hosting site** must be able to guarantee the following within the timeline for the installation of the EuroHPC quantum computer:

1. Power capacity and power quality for hosting a system in the range of up to 100 kW total consumption for the EuroHPC quantum computer.
2. UPS power available to cover the quantum computer and critical systems including storage and access to data of the host system.
3. Enough capacity of appropriate cooling for hosting the system of the EuroHPC Joint Undertaking
4. At least 20 m<sup>2</sup> of contiguous floor space available for the hosting of the EuroHPC quantum computer, its auxiliary systems and the required maintenance area
5. Raised floor able to bear sufficient distributed load to accommodate the EuroHPC quantum computer and all related equipment, independent of the choice of the solution.
6. Minimal requirements for physical access security:
  - i. Operated reception and ability to limit or restrict physical access to the EuroHPC quantum computer.
  - ii. badge access with differentiated access areas (Layered security zones)
  - iii. video surveillance
  - iv. intrusion detection
7. Minimal requirements regarding fire mitigation:
  - v. fire detection
  - vi. fire extinguishing mechanism
  - vii. operational procedures to deal with fire and minimize damage to equipment and persons
8. Minimum requirements regarding IT access security:
  - viii. intrusion detection
  - ix. firewalling
  - x. network segmentation
  - xi. activity / traffic monitoring and traceability
  - xii. user authentication and user authorisation
  - xiii. vulnerability scanning and monitoring
  - xiv. security awareness and training
9. Existence of a dedicated on-call service team for IT issues
10. Existence of a dedicated on-call service team for facilities issues
11. At least 100 Gbit/s connectivity towards the rest of the GEANT Network (link capacity)
12. A mechanism to regularly measure the satisfaction of your users with your service via a user survey (at least every year)
13. A host supercomputer at the hosting site according to the minimum specifications in the call, which is in full operation and where the EuroHPC quantum computer will be integrated.
14. Front end nodes which are part of the host supercomputer, including the HPC software and development environment, access to the different partitions and storage systems of the host supercomputer, providing access to the EuroHPC quantum computer.

## Hosting Agreement

15. A reliable software environment must be provided on the host supercomputer's login nodes for development and use of quantum computing software on the EuroHPC quantum computer.
16. Resource management, security and access policies must be in place on time for the installation and operation of the EuroHPC quantum computer to prevent underutilisation of the EuroHPC quantum computer due to resource allocation within the agreed share on the host supercomputer.
17. Hosting facilities providing a suitable environment for the stable operation of the EuroHPC quantum computer (e. g. temperature, humidity, vibration isolation) to achieve the best possible performance, such as qubit fidelities, according to the recommendations by the vendor for the selected solution.
18. Availability of a competent support team , on the premises of the hosting site with all specific expertise in quantum computing for the maintenance, management and user/application support for the EuroHPC quantum computer, closely working together with the support teams of the host supercomputer. This includes 24/7 availability in the context of the Host supercomputer and specific support for all issues related to the EuroHPC quantum computer by a competent team on premises during working hours.

## ***Annex II Service Level Agreement (SLA) - Required Hosting Activities***

The Hosting Entity is required to provide the following services relevant to the hosting of the EuroHPC quantum computer. These services are expected to be integrated in the SLA of the host supercomputer:

- a) Provide the technical infrastructure including all facility management necessary to the operation of the EuroHPC quantum computer according to the technical specifications of the quantum computer to be acquired.
- b) Supervise, monitor and check the performance of the commitments and obligations of the vendor that relate to the delivery, installation and maintenance of the EuroHPC quantum computer in full respect of the mandate given by the EuroHPC Joint Undertaking to the Hosting Entity.
- c) To ensure the operation of the EuroHPC quantum computer and the IT environment to enable users to access the resources and services for the duration of the Agreement. Access should be provided via the host supercomputer, including access to resources of the host system to perform hybrid HPC-QC simulations, allowing users to execute code in the EuroHPC quantum computer, monitor its evolution and retrieve the results.
- d) The Hosting Entity undertakes to provide at least the following user services, covering both the EuroHPC quantum computer and the host supercomputer where the EuroHPC quantum computer is integrated:
  1. Hotline/helpdesk and support services, to provide users with a contact point in order to get help for the use of the system and IT environment. This support should be organized as follows:
    - A single point of support at least in English which can be contacted by phone and email should be set-up which provides at least Service Levels 1 and 2.
    - This hotline/helpdesk should answer to requests about difficulties/issues dealing with the use of the EuroHPC quantum computer and information about the integrated EuroHPC quantum computer. Moreover, the hotline/helpdesk should provide support and information about the host supercomputer on all matters relevant for the use of the integrated EuroHPC quantum computer through the host supercomputer.
    - The unresolved incidents/requests by the hotline/helpdesk should be forwarded to a more experienced technical level through a ticketing management tool. This advanced technical level should address system and user applications (porting and optimization until five person days per case)<sup>9</sup>.
  2. Access to EuroHPC quantum computer resources by the users;
  3. User documentation (also in the form of an online knowledge base), including manuals and other information and tools that are required by the users;
  4. Incident management:

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<sup>9</sup> in the case that porting and optimization exceeds five person days, the service is considered as a specific development request.

## Hosting Agreement

- Level 1 – the system is not available to any user, the ability to work of all users is suspended.
  - Level 2 – parts of the system are unavailable, the ability to work of some users is limited.
  - Level 3 – the system or parts of the system are not available to individual users. The ability to work of these users is limited or suspend
5. User account management;
  6. Data storage services ;
  7. Data post-processing, including software tools to post-process data;
  8. User support for code porting and optimization (under the terms agreed separately with the EuroHPC Joint Undertaking);
  9. Data processing and visualization services (under the terms agreed separately with the EuroHPC Joint Undertaking), including remote visualisation services when relevant;
  10. Information to users and the EuroHPC Joint Undertaking about incidents impacting the use of the EuroHPC quantum computer or the IT environment;
  11. At least yearly measurement of user satisfaction with the service offered by the Hosting Entity via user surveys;
- e) The Hosting Entity undertakes to provide support related to the EuroHPC quantum computer. This must include:
1. On call service support teams for IT issues available to users;
  2. Dedicated on-call service team for facilities issues available to users;
- f) The Hosting Entity must have in place an escalation process (both functional and hierarchical) designed to bring appropriate authority and expertise rapidly into play to resolve issues and problems in accordance with agreed service levels. The hosting site must ensure the availability of competent support staff and quantum computing experts on premises covering operations, hardware, software, interconnect between host supercomputer and other IT infrastructure including the host supercomputer.
- g) Once an incident has been raised, the Hosting Entity support team will do the utmost to resolve, repair and restore services to full operation within the defined Service Level Agreement time limits.
- h) The Hosting Entity undertakes to report to the EuroHPC Joint Undertaking through the production of documents and KPIs reports defined in Annex IV (Associated deliverables and milestones).
- i) The Hosting Entity undertakes to monitor the IT infrastructure and technical infrastructure and equipment, including power electrical systems.
- j) The Hosting Entity undertakes to monitor the capacity and operational load of the hosting site infrastructure providing services to the EuroHPC quantum computer.

## Hosting Agreement

- k) Cooling and other infrastructure services related to the operation of the EuroHPC quantum computer, such as fire detection, monitoring, security, at the hosting site of the EuroHPC quantum computer.
- l) Provision of electricity consumption of the EuroHPC quantum computer and other IT equipment and by the facility (cooling, heating losses ...) related to the operation of the EuroHPC quantum computer, taking into account the Power Usage Effectiveness (PUE).
- m) Provision of the hosting site infrastructure, including equipment required for operating the EuroHPC quantum computer. This involves network at the data centre level, different storage subsystems (e.g. high-performance and short-term storage tiers, backup systems and other IT equipment like licence servers etc.).
- n) Provision of External Network Connectivity: Connectivity for the EuroHPC quantum computer to any external site, including the rest of the Union will require access to an adequate physical networking infrastructure in conformity with the requirements of this Hosting Agreement via the host supercomputer.
- o) Provision of power back up for critical systems and distribution items related to providing power to the EuroHPC quantum computer installed inside the data centre technical area according to the requirements of this Hosting Agreement.
- p) Provision of long term data storage to fulfil the requirements of the users of the EuroHPC quantum computer and HPC-QC hybrid system during the duration of this Hosting Agreement.
- q) Ensure the security of the Hosting Entity, the Technical and IT Environments, the EuroHPC quantum computer, and host supercomputer. As a minimum, the IT security must include the security measures defined in Annex I "Minimum requirements of the Hosting Site"
- r) Facilitate user access to the EuroHPC quantum computer, the host supercomputer, and to its IT environment according to the Access Policy of the EuroHPC Joint Undertaking.
- s) Put in place a certified audit procedure covering the operational expenses of the EuroHPC quantum computer and the access-times of the users and to submit an audit report and data on access time once a year to the EuroHPC Joint Undertaking's Governing Board.



## ***Annex III Key performance indicators (KPIs)***

The Hosting Entity and EuroHPC may, at any time, discuss and agree on amendments of the following KPIs, taking into account the specific requirements of the EuroHPC quantum computer.

When reported, along with the KPI values, the KPIs must indicate as a minimum:

1. number of problems reported and scheduled or planned downtime experienced;
2. any incidents or changes to the resources such as power failures, security incidents and network performance; and
3. any other impact on normal operations of the resources

If a KPI is not met, the Hosting Entity has to provide an explanation of the reason/justification together with the corrective action as part of the KPI report to the EuroHPC Joint Undertaking. In particular, the Hosting Entity must demonstrate at least the following best effort has been made to resolve the situation

1. personnel with the necessary competences and skills in quantum computing and HPC is available at the hosting site;
2. specific actions to improve the situation on-premises support team at the hosting site;
3. the vendor has been involved where required;
4. the targets have not been missed due to issues with the host supercomputer;
5. the JU has been informed as soon as the Hosting site/entity became aware of the situation.

**The EuroHPC JU may apply appropriate measures described in Chapter 4 in case of non-compliance.**

The following KPIs apply for the services provided by the Hosting Entity to the EuroHPC Joint Undertaking and defined in this Agreement and in the grant agreement:

No	KPI	Description	Target value	Period for computing of figure	Resp. when operation
1.	Availability of the EuroHPC quantum computer	Fraction of time the system is fully usable (stable operation and delivering full performance) and available to users, meaning it processes the jobs and returns a result.  Quantum computer executes user operation, takes input from the user API and returns output. The fidelities and relaxation times are within the specified ranges.  Includes: calibration cycles, quality benchmarks subroutines.	> 75 % (monthly basis) for the first 3 months of operation  > 80 % (monthly basis) for the first 12 months of operation  >90% (monthly basis) for the remaining of the operational period  The target values may be redefined in a separate agreement after the specific characteristics of the EuroHPC quantum computer re known.	Monthly	Hosting Entity (HE)

## Hosting Agreement

2.	Scheduled maintenance of the EuroHPC quantum computer	Maintenance is considered as scheduled if users are warned at least 1 week in advance  Includes the replacement of chips and other components (if applicable)	not more than 20 days per year	Monthly	HE
3.	Stability of performances of the EuroHPC quantum computer	Regular execution of a set of benchmarks e. g. on gate fidelity (if applicable)  Includes: successful calibration cycle and detection of quantum device degradation with time.	The specific performance target will be defined in a separate agreement for the specific technology.	Every 3 months	HE
4.	Availability of the critical auxiliary IT equipment	IT equipment necessary for the usage of the EuroHPC quantum computer Includes: Agreed share and services provided by the host supercomputer, host supercomputer scheduler, file systems, home directories, login nodes, access network etc.  Excludes scheduled maintenance according to KPI 2.	>95 % (monthly basis) for the first 3 months of operation  >97% (monthly basis) for the remaining of the operational period	Monthly	HE
5.	Available access time to the EuroHPC Joint Undertaking	Percentage of the total available time slot usage.	Up to 50% of available time slot usage is dedicated to run the Joint Undertaking's access time.	Monthly	HE
6.	Handling of tickets	A ticket is considered as solved only once an acceptable solution is proposed to the user  Level 1 – problems to submit a job on the quantum computer  Level 2 – facing issues setting up algorithms  Level 3 – requests access to the HLST for specific adaptation of quantum algorithm or specific quantum computer reconfiguration  Response time: time interval between request and beginning of support  Resolution time: time interval between request and resolution of request  Help desk on duty all business days from 9:00 to 17:00 (CET)	Level 1 – response time (during service hours): <2h - resolution time (during service hours) – <2 working day  Level 2 – response time (during service hours): <4h - resolution time (during service hours) – <5 working days  Level 3 – response time (during service hours): <8h - resolution time (during service hours) – <30 working days unless specifically justified	Monthly	HE

## Hosting Agreement

7.	Availability of the facility	Cooling (if applicable), power supply, fire security  Excludes scheduled maintenance according to KPI 2.	> 99% on a monthly basis	Monthly	HE
8.	Availability of external connectivity	External connectivity (GÉANT).  The target value excludes connectivity failure outside the responsibility of the Hosting entity. In such cases, the Hosting entity will inform GEAN of any observed connectivity issue within 24 hours and include the incident in the monthly report to the JU.  Excludes scheduled maintenance according to KPI 2.	> 99 % on a monthly basis	Monthly	HE
9.	User Satisfaction	Measure of user satisfaction via user survey. The Survey will be jointly defined by the EuroHPC Joint Undertaking and the Hosting Entity.	Overall user satisfaction must be over 3 on a scale of 0-5. Value 3 indicates an acceptable degree of satisfaction; users are reasonably happy with the environment and services, and no changes are required although there might still be room for improvement.  Values below 3 indicate dissatisfaction; improvements or other actions are desirable.  The values above 3 indicate a level of exceptional appreciation and satisfaction.	Yearly	HE

Table 1. KPIs

### 1. Service Hours

The EuroHPC quantum computer services provided to users must be available 24 hours, 7 days per week, except when there is maintenance. Scheduled recalibration, if necessary for the operation of the EuroHPC quantum computer, does not count as maintenance.

A service can be requested during support hours.

The Hosting Entity must provide support to users in accordance with point 5 below.

### 2. Service Availability

- For the provision of the service covered by the Hosting Entity, availability is determined by the percentage of fully usable time (able to operate in normal performance) and available to users. The EuroHPC quantum computer is considered available when it can execute operations submitted by any EuroHPC user from the login node of the host supercomputer and returns output. The fidelities and relaxation times are within the

## Hosting Agreement

specified ranges during the execution. Service availability also includes seamless access the agreed share of the host supercomputer and must include at least the compute nodes, login nodes, network access, file systems and access to home directories.

2. The Hosting Entity will seek the best availability, and meeting the availability defined in the KPIs.
3. The Hosting Entity will calculate "Service Unavailability" in a calendar month. "Service Unavailability" consists of the number of minutes that the service was not available to Users, and includes unavailability associated with any maintenance at the hosting site other than Scheduled Maintenance. Outages will be counted as Service Unavailability even if users do not open an incident with support during or after the outage. Service unavailability will not include Scheduled Maintenance, or any unavailability resulting from:
  - a) acts or omissions of the EuroHPC Joint Undertaking or any use or user of the service authorised by the Joint Undertaking;
  - b) deliberate acts or gross negligence of a user or an end user or reasons of force majeure.
4. In the case of a malfunction involving a total unavailability exceeding 48 hours of the EuroHPC quantum computer or its IT environment, the Hosting Entity must inform the EuroHPC Joint Undertaking no later than 48 hours after the start of the incident and a crisis unit would be set up between Hosting Entity and the EuroHPC Joint Undertaking.

### **3. Availability of external connectivity**

1. The Hosting Entity must ensure the EuroHPC quantum computer's external connectivity via the host supercomputer, through the GÉANT pan-European academic and research network via its NREN to the point of outermost router under the Hosting Entity's control. The Hosting Entity will seek 100 % availability for external connectivity and meet the availability defined in the KPIs.
2. The Hosting Entity must ensure that there are not more than 5 days of maintenance per year.

### **4. Performance Testing**

1. The Hosting Entity must take all necessary measures to ensure the performance of the EuroHPC quantum computer. In order to test and review it a set of benchmarks must be executed regularly (at least every 3 months) in the EuroHPC quantum computer, trying to minimise its service unavailability, and including successful calibration cycle and detection of quantum device degradation with time. Every time the set of benchmarks is executed, the benchmarks must achieve at least a 90 % of the performances measured after the installation of the EuroHPC quantum computer. For benchmarks targeting the 1 and 2 qubit gate fidelities, the measured fidelity decrease must be less than 1% point with respect to the performances measured after the installation of the EuroHPC quantum computer. These will be reviewed as part of the yearly reports. Potential issues not attributable to the Hosting Entity shall be resolved by the vendor of the quantum computer or other relevant support providers.

### **5. Regression testing**

1. The Hosting Entity must provide regression testing where possible. The regression testing should be applied when significant changes have been applied to the EuroHPC quantum computer to verify that previous applications still work with the latest changes.

### **6. Support Hours**

1. Support must be available from 9:00 AM to 5:00 PM (CET), Monday through Friday, except when the facilities are closed due to holidays, administrative closings, or inclement weather. A service can be

## Hosting Agreement

requested or an incident reported by telephone during working hours, or by mail or by a Web Portal at any time. Incidents reported or services requested outside the working hours will be served at the next scheduled working day unless a special procedure for major incident is invoked.

### 7. Incident Escalation

1. In case of operational issues affecting the availability of the services provided to users:
  - a) The Hosting Entity will inform without delay the EuroHPC Joint Undertaking's responsible and propose corrective actions.
  - b) The Hosting Entity will assess the severity of the issue and its impact on the users of the EuroHPC Joint Undertaking.
  - c) The EuroHPC Joint Undertaking and the Hosting Entity will agree on the actions to be implemented.
  - d) The Hosting Entity will monitor their implementation and provide feedback to the EuroHPC Joint Undertaking.

### 8. Usage of the EuroHPC quantum computer

1. The Hosting Entity must measure the usage of the EuroHPC quantum computer, including the consumption of HPC resources in combination with the usage of the quantum computer (e. g. hybrid HPC-QC workflows) and provide the information on a monthly basis. The purpose is to ensure the maximum possible utilisation of the access time of the quantum computer and ensure that its usage is not restricted, for example, by the delayed allocation of resources on the host supercomputer. The usage does not include unavailability and scheduled maintenance periods and performance tests when executed. This is measured as part of the monthly KPIs.

### 9. Backups

1. The Hosting Entity must ensure that they have a properly backup policy that has been approved by the EuroHPC Joint Undertaking with onsite and offsite backup solutions that ensure that the functioning of the EuroHPC quantum computer integrated into the host supercomputer can be restored to a state that can provide back service to customers in case of user or system error. The Hosting Entity must ensure a backup retention policy of at least 1 month to the users. However, the users shall be responsible for taking their own backups and the HE shall not be liable for any adverse effects of any data unless otherwise specified in the relevant user terms and data processing agreement. In such case, the Hosting Entity shall make available to the JU and its users an amount of access time equal to processing hours lost without extra cost.

### 10. Monitoring

1. To verify the EuroHPC quantum computer and services availability, the Hosting Entity must have proper monitoring systems (active or passive or combination of both) that provide regularly feedback about the status of the EuroHPC quantum computer and related equipment and services including the host supercomputer. The monitoring system must be used to provide statistics about the service availability and downtimes.

### 11. Maintenance

1. Scheduled Maintenance means any maintenance at the EuroHPC quantum computer or host supercomputer that affects the users of the EuroHPC quantum computer and that is notified at least one (1) week in advance. Notice of Scheduled Maintenance will be provided to users and the EuroHPC

## Hosting Agreement

Joint Undertaking's designated point of contact via email and other communication systems (e.g. portal).

2. The maintenance program including their maintenance windows should be available to all users and the EuroHPC Joint Undertaking.
3. The Hosting Entity will use reasonable efforts to coordinate with possible impacted users when planning any maintenance to minimise impact to users.
4. "Emergency Maintenance" means any maintenance by the Hosting Entity, its subcontractors or service providers that does not meet the definition of Scheduled Maintenance. No notice will be required or provided for Emergency Maintenance.

### 12. Reporting

1. The Hosting Entity must provide regular reports as deliverables. The list of deliverables is indicated in Annex IV. Associated deliverables and milestones. The status reports must be submitted to the EuroHPC Joint Undertaking no later than the 15<sup>th</sup> of the subsequent month. The due dates for delivery of the Reports are indicated in the same Annex IV. Associated IV. Associated deliverables and milestones.
2. Status reports will allow assessing if the services provided by the Hosting Entity are compliant with the specifications listed in Annex IV. Associated deliverables and milestones and with the KPIs listed in Annex III. Key performance indicators (KPIs). Each quarterly status report will contain, broken down per month, at least the information requested in Annex IV. Associated deliverables and milestones.
3. This report must include KPIs and status of shared resources used by the EuroHPC quantum computer, the agreed share of the host supercomputer and its users. In case a KPI is not met, the reason should be documented, together with the actions implemented to solve it.
4. The annual report must summarise at least the information above for one entire year.

## ***Annex IV. Associated deliverables and milestones***

The services provided by the Hosting Entity to the EuroHPC Joint Undertaking and the achievement of milestones (see the table below) will be reviewed based on monthly status reports provided by the Hosting Entity to the EuroHPC Joint Undertaking.

Service Reporting must include at least:

- a) Performance against service targets (Including SLAs)
- b) Relevant information about significant events including at least major incidents, deployment of new or changed services.
- c) Access time allocation
- d) Detected non-conformities against the requirements of this Agreement
- e) Customer satisfaction measurements, service complaints and results of the analysis of satisfaction measurements and complaints.
- f) Workload characteristics including volumes and periodic changes in workload.
- g) Trend Information on the performance and utilisation indicators described below.
- h) Information on commercial use of the quantum computer
- i) Performance and utilisation of the quantum computer, including at least:

<b>Indicator</b>	<b>Description</b>	<b>Period</b>
Number of submitted Jobs including breakdown of QC and HPC-QC jobs	# per queue	Monthly
Number of completed jobs including breakdown of QC and HPC-QC jobs	# per queue	Monthly
Number of failed jobs including breakdown of QC and HPC-QC jobs	# per queue	Monthly
Average job waiting time including breakdown of QC and HPC-QC jobs. The JU may request further information on the reasons for waiting time (availability of HPC or quantum computing resources)	Hrs per queue	Monthly
Average job completion time including breakdown of QC and HPC-QC jobs.	Hrs per queue	Monthly
QPU hours offered (available capacity)	Total Hrs per month for QPU	Yearly
Resources consumed by EuroHPC JU projects	Total core Hrs on HPC system and total QPU time consumed per month, % of	Monthly

## Hosting Agreement

	consumption of available QPU time	
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Table 2. Performance and utilization Reporting values of the quantum computer

The Hosting Entity must provide the following periodic deliverables:

Ref.	Periodicity	Title of deliverable	Due date
KPI_month	Monthly	Monthly KPI report for previous month	15th of the next month
PR_month	Monthly	Monthly Performance and utilisation report for the previous month (Table 2. Performance and utilisation Reporting values of the supercomputer)	15th of the next month
AR_year	Yearly	Audit report and data on the use of access time in the previous financial year	31st January
CR_year	Yearly	Audit report and data on the operation costs in the previous financial year. (Using agreed calculation method)	31st March

Table 3. Periodic deliverables

In addition to the deliverables stated above, the Hosting Entity has to meet the following milestones:

Ref.	Milestone	Due date
M1	Nomination of a member of the team by the Hosting Entity for collaboration with the EuroHPC Joint Undertaking on the acquisition process	Two weeks after the signature of the Hosting Agreement
M2	Site preparation accordingly to the acquisition procedures of the EuroHPC quantum computer including a plan for the integration in the data centre infrastructure	31 December 202x
M3	Site adaptation to host the EuroHPC quantum computer including adaptation of the host supercomputer	31 March 202x

Table 4. Milestones

In case a milestone is not reached on time, the Euro HPC JU will have the right to reject further deliverables.



***Annex V. Application of the Hosting Entity (Application Ref:  
Ares(2024)xxx)***