

# **Annex 1**

to Call for expression of interest for the selection of Hosting Entities and their consortia of private partners for the procurement of Industrial-Grade High Performance Computers

APPLICATION FORM

**Call REF: EUROHPC-2024-CEI-IND-01**

Application Ref: [***ACRONYM***]

***IMPORTANT NOTICE***

*Applicants must use this template for their applications (designed to highlight important aspects and facilitate the assessment against the evaluation criteria).*

***Character*** *and* ***page limits****:*

* *page limit: 90 pages*
* *minimum font size — Arial 8 points*
* *page size: A4*
* *margins (top, bottom, left and right): at least 15 mm (not including headers & footers).*
* *pagination instructions: each document from the application must be individually numbered in the bottom right corner.*

*Please abide by the formatting rules. They are not a target! Keep your text as concise as possible. Do not use hyperlinks to show information that is an essential part of your project.*

*Please include in the header (top left) of each page the Acronym of the Application.*

*Before filling in this form, please read carefully the relevant call for Expression of Interest, and any other reference documents related to this call available on the* [*EuroHPC web site*](https://eurohpc-ju.europa.eu/supercomputers/selection-hosting-entities_en)

*Please make sure that your application:*

* *is submitted on the correct form, completed in full and dated;*
* *is signed by the person authorised to enter into legally binding commitments on behalf of the applicant;*
* *meets the submission arrangements set out in the call;*
* *is submitted by the deadline.*

*Applicants may be requested to provide additional information or to clarify the supporting documents submitted in connection with the application, provided that such information or clarification does not substantially change the proposal.*

* Paragraphs in italics or boxes with paragraphs in italics are intended as an explanatory guidance for the applicant and shall be deleted before applying.*

* Don’t forget to delete this page and all the explanatory text in italics.*

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| **EuroHPC Industrial-grade Supercomputer** | |
| **REFERENCE NUMBER OF THE CALL** | |
| Call for Expression of Interest for the selection of Hosting Entities of the Industrial-grade EuroHPC Supercomputers and its associated consortium of private partners | |
| **SUMMARY OF THE APPLICATION** | |
| Title: | |
| Identity of the Coordinator/Applicant: | |
| Consortium: [*YES]/[NO]* | |
| Coordinator:  *Partner1*: | Contribution Coordinator: [XXX] *Euro*  Contribution *partner1*: [XXX] *Euro* |
| Summary of the Application:(*in EN, max 1000 words)*  [insert] | |
| Would the hosting consortium be ready to include additional participants if selected? [*YES]/[NO]*  If YES, please include the indicative amounts of the contribution of the additional participants: | |

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#### INFORMATION ON THE APPLICANTS

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| **1 REFERENCES OF THE APPLICANTS** |

* 1. (*Option 1: Applicant No1 — or Option 2: Coordinator; please indicate what is applicable*):

|  |
| --- |
| **1.1.1 IDENTITY OF THE APPLICANT** |
| Official name in full: |
| Acronym:  (if applicable) |
| Official legal form: |
| Legal personality[[1]](#footnote-2): |
| Place of establishment or registration:  (Address and country) |
| Entity registration number:  (Not applicable if the applicant is a public-sector body.) |
| VAT number (if applicable): |

##### The legal details are attached in the Legal Entity Form[[2]](#footnote-3) to be provided as annex. Any changes in the legal entity form must be notified in writing to the Executive Director.

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| --- |
| **1.1.2 CONTACT DETAILS** |
| Street address: |
| Postcode: |
| City: |
| Region (if applicable): |
| Country: |
| Telephone: Mobile: |
| Fax: |
| E-mail address: |
| Website: |

Any change in the addresses, phone numbers, fax numbers or e-mail, must be notified in writing to the Executive Director. The Executive Director will not be held responsible in the event that he cannot contact an applicant**.**

|  |
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| **1.1.3 CONTACT PERSON RESPONSIBLE FOR THE EXPRESSION OF INTEREST** |
| Family name: First Name: |
| Position/Function: |
| Telephone: Mobile: |
| Fax: |
| E-mail address: |
| **1.1.4 LEGAL REPRESENTATIVE (PERSON AUTHORISED TO SIGN THE HOSTING AGREEMENT)** |
| Family name: First Name: |
| Position/Function/Mandate: |
| Telephone: Mobile: |
| Fax: |
| E-mail address: |

* 1. Applicant No 2 (If applicable, repeat this part as often as is required to include all applicants)*.*

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| **1.2.1 IDENTITY OF THE APPLICANT** |
| Official name in full: |
| Acronym:  (if applicable) |
| Official legal form: |
| Legal personality[[3]](#footnote-4): |
| Place of establishment or registration:  (Address and country) |
| Entity registration number:  (Not applicable if the applicant is a public-sector body.) |
| VAT number (if applicable): |

##### The legal details are attached in the Legal Entity Form[[4]](#footnote-5) to be provided as annex. Any changes in the legal entity form must be notified in writing to the Executive Director.

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| **1.2.2 CONTACT DETAILS** |
| Street address: |
| Postcode: |
| City: |
| Region (if applicable): |
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| Telephone: Mobile: |
| Fax: |
| E-mail address: |
| Website: |

Any change in the addresses, phone numbers, fax numbers or e-mail, must be notified in writing to the Executive Director. The Executive Director will not be held responsible in the event that it cannot contact an applicant**.**

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| --- |
| **1.2.3 CONTACT PERSON RESPONSIBLE FOR THE APPLICATION** |
| Family name: First Name: |
| Position/Function: |
| Telephone: Mobile: |
| Fax: |
| E-mail address: |

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#### INFORMATION ON THE EXPRESSION OF INTEREST

## II.1 General System specifications

*The proposal should provide detailed architectural walkthrough of the system, analysing the rationale behind the system design, emphasising on the possibly novel aspects the system is introducing in terms of technologies aiming to support the proposed application domain(s). The analysis should include the expected aggregated performance of the proposed system, describing the benchmarks to be used for its evaluation, providing justification for their selection.*

*The proposal should also analyse the security and confidentiality requirements of the application domain and incorporate in the system architecture the technology solutions, coupled with the necessary procedures and policies, that together will ensure that these security requirements are met.*

*The hosting site should comply with at least the following requirements:*

* *Power capacity and power quality appropriate for the operation of the proposed supercomputing system. UPS power available to cover the critical systems including storage and access to data of the proposed system.*
* *Adequate capacity of air or liquid cooling for hosting the proposed system.*
* *At least 150 m² of floor space available for hosting the industrial-grade supercomputer and auxiliary systems.*
* *Raised floor able to bear at least 2200 kg/m² distributed load. In case a raised floor is not used the application should explain how the construction of the datacenter can sustain the same amount of load.*
* *100 Gbit/s connectivity towards the rest of the GEANT Network (link capacity).*
* *Hosting physical security.*
* *Hosting fire mitigation equipment/procedures.*
* *Hosting IT access security.*
* *On call service support teams for IT issues*
* *Dedicated on-call service team for facilities issues*
* *Regularly measure the satisfaction of the users with the service via a user survey*

*Applications must include a description of the proposed industrial-grade supercomputer and hosting site, including features such as:*

* *Detailed description of the site hosting the system*
* *Description of the main features of the targeted supercomputer system, including e.g.:*
  + *Number of partitions*
  + *Main processing elements (CPU, GPUs, IPUs, FPGAs, etc)*
  + *Type of nodes and their configuration (e.g. accelerated, CPU-only, High memory, etc.)*
  + *Memory and storage capacities and architecture*
  + *Ratio of different node types within the system (accelerator/CPU, memory size, …)*
* *Expected sustained performance per partition and aggregated (Linpack and/or other performance indicators)*
* *Acceptance tests and benchmarks to be used for the acceptance of the industrial-grade supercomputer*
* *Description of how management of specific needs of industrial users for their owned software licenses, for example hosting a dedicated license server, license transfer or channelling of already in-use software licenses will be addressed.*
* *Other related software/services (containers, virtualisation, support of workflows, workflow management…)*

## II.2 Total Cost of Ownership (TCO)

The applicant should include an estimation of the cost of the industrial-grade supercomputer that the applicant has in mind to host and that has been described in the previous section “general system specifications”.

The estimation of the TCO will be based on an estimation of the acquisition costs of a potential system that complies with the general system specifications. The costs related to the construction of the hosting site per se (i.e., the costs related to the building infrastructure that will host the industrial-grade supercomputer, etc.) shall not be covered by the EuroHPC JU. The costs of the preparation and adaptation of the hosting site incurred by the hosting entity that can be directly accounted to the industrial-grade supercomputer may be considered as part of the system acquisition costs and included in the supercomputer call for tenders.

### Site Preparation

*The hosting entity must be able to meet the baseline requirements set out herein in time for the anticipated timeline for the delivery of the machine in Q4 2025. The applicant must provide a plan of how and in what timeline the applicant intends to realise the construction of a new or the upgrade of an existing site, including costs of each action (indicating the ones that will be considered as in-kind contribution) and the definitive date at which the site will be ready for the installation of the EuroHPC system.*

### Acquisition Costs

Applicants must detail the estimation for the cost of the acquisition of the industrial-grade supercomputer. Applicants must indicate clearly what costs will be included in this category, how they will calculate them and who will pay for those.

### Operating Costs

Applicants must provide a realistic estimation of the operating costs of the industrial-supercomputer and assurance that these cost will be covered by the applicants during the whole duration of the operation of the supercomputer until the part of the ownership of the industrial-grade supercomputer owned by the EuroHPC JU is transferred to the hosting entity after the full depreciation of the supercomputer, unless otherwise specified or agreed.

## II.3 Experience of the hosting entity in installing and operating similar systems

Applicants must provide information of their experience in installing and operating supercomputers and dedicated high performance storage facilities, including at least:

1. *Previous experience with installing and operating supercomputers. Provide information in case the applicant’s site has experience in hosting very early releases of new systems. If relevant, applicants must provide documentation of their experience in having installed systems in the last 5 years (especially systems that ranked in the Top500 at the time of their first listing).*
2. *In the case of installing and operating a supercomputer for a 3rd party (the supercomputer is owned by a 3rd party and operated for them as agreed in the relevant Service Level Agreement (SLA)) or operating a supercomputing service or equivalent major infrastructure for a 3rd party (3rd party pays for a service based on a SLA, the supercomputer is owned by the hosting entity); applicants must provide a description of the service provided as well as at least one contact person from the 3rd party from whom the JU may request a reference for this service.*
3. *Description of the current organizational structure and the teams of people responsible for the supercomputer operation and management (including user support and specialist support of the HPC systems). If available, include current procedures and tools for system management, help desk project management, configuration management, training and education put in place.*
4. *Description of the current procedures adopted by the supercomputing operation and management team to monitor HPC systems. Please indicate which of these are these are in-house and which are 3rd party solutions; how they have been integrated and customized. List any current Quality Control certifications your organization has obtained for system management, help desk project management, configuration management, training and education.*
5. *Description of the current procedures adopted by the supercomputing operation and management team to trace and resolve issues and communicate them to users and other stakeholders. Include description of current procedures adopted by the supercomputing operation and management team to ensure that service level agreements are met.*
6. *Description of any current continuity procedures the operations team or the Network Operations Centre (NOC) has in place and description of current workload management software and methodology (bonus/malus; backfill; etc.) in place.*
7. *Description of previous experience in providing supercomputer access and other related services to users from other member states or pan European environments*

## II.4 Quality of the hosting facility's physical and IT infrastructure, its security and its connectivity with the rest of the Union

Applicants must provide information of the hosting physical and IT infrastructure, including security and connectivity that the site can provide for the industrial-grade supercomputer.

For the site preparation, the hosting entity must be able to meet the baseline requirements set out herein in time for the anticipated timeline for the delivery of the industrial-grade supercomputer by mid-2025 and the operations by the last quarter of 2025. The applicants must provide a plan of how and in what timeline the applicant intends to realise the upgrade of the site, including the definitive date at which the site will be ready for the installation of the industrial-grade supercomputer. This may include, but is not limited to Gantt charts, contractual timelines, construction permits and work contracts status.

Applicants should include (at least) the following information related to the current and proposed capacities of the hosting facility and how to achieve them:

1. *Description of the intended hosting entity site and facility, including cooling methods and experience on cooling systems, power measurement facilities, accessibility, possibility to accommodate visitors, courses, possible extendibility of the site (m² and KW) and description of physical security concept, including access control, CCTV, etc.*
2. *Power measurement facilities in place at infrastructure level and where (device type, location of measurement à at rack, PDU, centre) and maximum levels of energy measurement according to the EE HPC Power Measurement Methodology. If available, reference to any memberships of energy efficiency interest groups or codes of conduct (e.g. EE HPC WG, EU Code of Conduct, EMAS, or other); certifications for energy efficiency and sustainability (e.g. ISO / IEC 13273).*
3. *Information about the connection to the power grid, including maximum capacity of connection to the power grid and other characteristics such as redundant connection to the power grid. Information about power grid quality (number of outages from supplier in last 48 months, starting January 1st* *2019) and energy procurement method (e.g., long-term contracts, annual market based purchases, other).*
4. *Information about availability of the data centre: expressed as a minimum percentage of uptime or in maximum number of hour’s downtime that the hosting entity deem are acceptable per year. Average availability of data centre infrastructure (cooling, power, etc.) (over the last 24 months for current)[[5]](#footnote-6).*
5. *Information about connectivity towards the rest of the GEANT Network (link capacity) and the Network Operating Centre (NOC) and its reachability (e.g. 24/7).*
6. *Facility managers (in-house or outsourced) involved in ensuring the operation of the data centre, and their specialization.*
7. Total memory and storage capacities of the centre, defining what part would be dedicated to the industrial-grade supercomputer.

## II.5 Quality of service to the users, namely capability to comply with the service level agreement

The applicant should specify the benchmarks or deliverables which the applicant intends to employ to achieve the expected results and targets and how they will be used. These should include at least the SLAs in the Hosting Agreement and information related to:

1. *Access time accounting model that will be used to control the allocation time of the supercomputer. Provide historic system uptake and usage for recent HPC systems.*
2. *Availability of main HPC systems over last 12 months if the system has been operational for at least 18 months. If the system has been operational for less, please provide availability numbers based on the duration for which the system has been in full production. This should include hours of scheduled maintenance and hours of unscheduled maintenance.*
3. *Availability of helpdesk; number of active projects currently supported. Description of services provided by user support (e.g. 1st level, 2nd level, application support) and of policy regarding response times for level 1, 2 and 3 tickets[[6]](#footnote-7). Description of support services provided to industry.*
4. *Overview of training course curriculum related to HPC and scientific computing and links towards user documentation pages, user tutorials and webinars[[7]](#footnote-8).*
5. *Description of how the on-call service (24/7) for the supercomputing service and infrastructure facilities are set up and work. Include, if available, results from the user satisfaction surveys for your site for the last 5 years.*
6. *Fraction of time for which the current supercomputing service (supercomputer + all necessary auxiliary services like storage, network, login nodes, etc. + main software services like scheduler, access to file systems, etc.) has been available over the last 12 months[[8]](#footnote-9)?*
7. *Do you perform regular regression tests to assess the stability of performance of your current supercomputer service? If yes, please provide a description of the regression test used and the frequency at which it is run.*
8. *Does your site provide any additional services that may not be critical to running the supercomputing service but may provide an additional benefit to the end user? If yes, please provide a description of these services.*

Applicants must provide details on how these tasks are currently done and how they propose to achieve them for the hosting of the industrial-grade supercomputer. Applicants must indicate subcontracted action tasks (if any) and explain the reasons why (as opposed to direct implementation).

By submitting an application, the applicant accepts that in case of award certain data like the name, locality and amount (amongst others) will be published.

By submitting an application, the applicant and participants of the hosting consortium accept the terms and conditions set out in the call for expression of interest and the model hosting agreement to be found in Annex 2 of the call for expression of interest.

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| I declare that all information provided in this application form and its annexes is correct.  Date: Signature of the legal representative  of the coordinator organisation |

#### CHECKLIST FOR APPLICANTS

*Please use this checklist to ensure that you attach all of the necessary documents*

|  |  |  |
| --- | --- | --- |
| **Document and content** | **Coordinator** | **Partner** |
| All sections of the application form have been filled in, where appropriate, in accordance with the Call for Expression of Interest or any other document provided as guidance related to the programme concerned. |  | N/A |
| Provision of an appropriate supporting document proving the commitment of the Member State where the hosting entity is established or of the competent authorities of the Participating States of the hosting consortium to cover the share of the total cost of ownership of the industrial supercomputer that is not covered by the Union contribution (see template in Annex 3). |  |  |
| The declaration(s) on honour has (have) been signed and attached in original (see template in Annex a) |  |  |
| Legal details have been included in the Legal Entity Form annexed.  [http://ec.europa.eu/budget/contracts\_grants/info\_contracts/legal\_entities/legal-](http://ec.europa.eu/budget/contracts_grants/info_contracts/legal_entities/legal-entities_en.cfm) [entities\_en.cfm](http://ec.europa.eu/budget/contracts_grants/info_contracts/legal_entities/legal-entities_en.cfm) |  | N/A |
| Mandate letters have been signed and attached in original (if applicable; see template in Annex b) | N/A |  |

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1. Legal personality is understood as applicant’s capacity to sign contracts and constitute a party in court proceedings under the applicable national legislation. [↑](#footnote-ref-2)
2. <http://ec.europa.eu/budget/contracts_grants/info_contracts/legal_entities/legal-entities_en.cfm> [↑](#footnote-ref-3)
3. Legal personality is understood as applicant’s capacity to sign contracts and constitute a party in court proceedings under the applicable national legislation. [↑](#footnote-ref-4)
4. <http://ec.europa.eu/budget/contracts_grants/info_contracts/legal_entities/legal-entities_en.cfm> [↑](#footnote-ref-5)
5. Facility is deemed available when no facility issues are affecting the running of the supercomputing service. Availability = total hours – (scheduled + unscheduled downtime). [↑](#footnote-ref-6)
6. Level 1 => simple request, can be solved in 1 day; Level 2 => more complex request, requires some research, can take up to 5 working days to resolve, Level 3 => request that requires vendor response to resolve, may take longer than 5 working days. [↑](#footnote-ref-7)
7. Or provide electronic copies if these are not reachable online or without a user account. [↑](#footnote-ref-8)
8. Available = fully up and running and reachable by the users and at least 98% of compute nodes available. [↑](#footnote-ref-9)