

Annex 1

to the call for expression of interest for the selection of Hosting Entities for Petascale Supercomputers

**REF: EUROHPC-2019-CEI-PT-01**

**APPLICATION FORM**

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 our site https://eurohpc-ju.europa.eu/participate.html*

*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 bidding.*

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

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| **PROGRAMME CONCERNED** | |
| **EuroHPC Petascale Supercomputer** | |
| **REFERENCE NUMBER OF THE CALL** | |
| Call for Expression of Interest for the selection of Hosting Entities for Petascale Supercomputers - REF: EUROHPC-2019-CEI-PT-01 | |
| **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 Expression of Interest:(*in EN, max 1000 words)* | |
| Would the hosting consortium be ready to include additional Participating States if selected? *YES/NO*  If YES, please include the indicative amounts of the contribution of the additional Participating States: | |

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# I. INFORMATION ON THE APPLICANTS

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| **1 REFERENCES OF THE APPLICANTS** |

1.1 (*Option 1: Applicant No 1 — 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 it cannot contact an applicant**.**

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| **1.1.3 CONTACT PERSON RESPONSIBLE FOR THE APPLICATION** |
| 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: |

1.2 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: |
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| Telephone: Mobile: |
| Fax: |
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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: |

# III. INFORMATION ON THE ACTION

*As mentioned in Section 1 of the call text, the present call addresses Participating States that intend to jointly procure with the EuroHPC JU a petascale supercomputer and install it either in an existing hosting entity or in a new hosting entity.*

## III.1 General system specifications

*Applicants must describe how the following general system specifications will be met, for both the EuroHPC supercomputer and the site.*

*The hosting entity will host a supercomputer with at least these requirements:*

* *Computing system with a performance level capable of executing more than 2 Petaflops and less than 100 Petaflops (measured using linpack Rmax benchmark)*

*The hosting site should ensure at least the following requirements:*

* *UPS power available to cover the critical systems including storage and access to data of the JU system.*
* *Enough capacity of air or liquid cooling for hosting the JU system*
* *At least 150 m² of contiguous floor space available for hosting the EuroHPC supercomputer and auxiliary systems*
* *Raised floor able to bear at least 2200 kg/m² distributed load*
* *50 Gbit/s connectivity towards the rest of the GEANT Network (link capacity)*
* *Hosting physical access security*
* *Hosting fire mitigation equipment/procedures*
* *Hosting IT access security*
* *Ability to perform at least a Level 1 measurement quality for a Top500 submission*
* *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 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.:*
  + *Type of nodes and their configuration (e.g. accelerated, CPU, High memory, etc.)*
  + *Memory and storage capacities and architecture*
  + *Ratio of different node types within the system (accelerator/CPU, memory size, …)*
* *Expected sustained performance (linpack and other performance indicators)*
* *What type of application domains (e.g. computational, HPDA, AI …) and specific applications (e.g. weather forecasting, climate change, new materials, drugs design …) will the system be optimised for? What are the expected performance increases for the targeted applications?*
* *Acceptance tests and benchmarks to be used for the acceptance of the EuroHPC supercomputer*
* *Other related software/services (containers, virtualisation, support of workflows, workflow management…)*

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

*The applicant should include an estimation of the cost of the 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 EuroHPC 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 EuroHPC Supercomputer may be considered as part of the TCO.*

### 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 before June 2020. The applicant must provide a plan of how and in what timeline 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 EuroHPC 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 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 petascale supercomputer owned by the EuroHPC JU is transferred to the hosting entity after the full depreciation of the supercomputer, unless otherwise specified or agreed.*

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

*Applicants must provide information of the experience, know-how and capability of the intended team that would be in charge at the existing or new hosting entity for installing and operating supercomputers, including at least the following aspects:*

* *Experience, know-how and capability of the applicant’s team in charge at the hosting entity for installing and operating supercomputers. Applicants should provide documentation of their team's experience, know-how and capability, including but not limited to CVs, letters of support, partnership agreements, service contracts…*
* *Description of the foreseen organizational structure and the foreseen teams responsible for the supercomputer operation and management (including user support and specialist support of the HPC systems). Include description of intended procedures and tools for system management, help desk project management, configuration management, training and education.*
* *Description of the foreseen procedures to be adopted by the supercomputing operation and management team to monitor HPC systems. Please indicate which of these will be in-house and which will be 3rd party solutions; and, how they would be integrated and customized.*
* *Description of the foreseen procedures to be adopted by the supercomputing operation and management team to trace and resolve issues and communicate them to users and other stakeholders.*
* *Description of any foreseen continuity procedures the operations team or the Network Operations Centre (NOC) intends to put in place and description of foreseen workload management software and methodology (bonus/malus; backfill; etc.).*
* *Description of foreseen processes in providing supercomputer access and other related services to users from other member states or pan European environments (e.g. PRACE).*
* *In the case of installing and operating a supercomputer for a 3rd party (supercomputer is legal title of 3rd party and operated for them at agreed SLA) or operating a supercomputing service or equivalent major infrastructure for a 3rd party (3rd party pays for a service with agreed SLA, supercomputer is the legal title of the hosting site); 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.*

## III.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 EuroHPC 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 EuroHPC supercomputer by mid-2020 and the operations by the last quarter of 2020. The applicant must provide a plan of how and in what timeline it intends to realise the upgrade of the site, including the definitive date at which the site will be ready for the installation of the EuroHPC 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:*

* *Description of the intended Hosting Entity site and facility, including cooling methods and 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.*
* *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 and energy procurement method (e.g., long-term contracts, annual market based purchases, other)*
* *Information about availability of the data centre: expressed as a minimum percentage of uptime or in maximum number of hour’s downtime that the HE deem are acceptable per year. Average availability of data centre infrastructure (cooling, power, etc.) (over the last 24 months for current)*[[5]](#footnote-6)..
* *Power measurement facilities in place an 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 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).*
* *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).*
* *Facility managers (in-house or outsourced) involved in ensuring the operation of the data centre, and their specialization.*
* *Total memory and storage capacities of the centre, defining what part would be dedicated to the EuroHPC supercomputer.*

## III.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:*

* *Access time accounting model that will be used to control the allocation time of the supercomputer. Description of access time policy proposed and how the total number of nodes of jobs in waiting queue ready to run will be measured.*
* *Describe how you will ensure the availability of the main HPC systems in accordance with the requirements described in the SLA, including a description of the foreseen availability policy. This should include information on scheduled maintenance and unscheduled maintenance.*
* *Describe how you will ensure help-desk availability as specified in the SLA and number of projects to be supported. Description of services that will be 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).*
* *Overview of proposed training course curriculum related to HPC and scientific computing and links towards user documentation pages, user tutorials and webinars[[7]](#footnote-8).*
* *Description of how the on-call service (24/7) for the supercomputing service and infrastructure facilities will be set up and works.*
* *Describe how you will ensure the availability of the supercomputing services (supercomputer + all necessary auxiliary services like storage, network, login nodes, etc. + main software services like scheduler, access to file systems, etc.) in accordance with the requirements described in the SLA[[8]](#footnote-9)*
* *Description of proposed regression test(s) to assess the stability of performance of the supercomputer service and the frequency at which such test(s) will be performed.*
* *Provide description of any additional services you intend to provide that may not be critical to running the supercomputing service but may be of additional benefit to the end user.*

*Applicants must provide details on how they propose to achieve the tasks described above for the hosting of the EuroHPC 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 selection 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 pre-exascale supercomputer that is not covered by the Union contribution. |  |  |
| 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-entities_en.cfm> |  | N/A |
| Mandate letters have been signed and attached in original (if applicable; see template in Annex b) | N/A |  |

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)