



EuroHPC JU Extreme Scale Access call

Terms of Reference

Introduction

The EuroHPC Joint Undertaking (JU) enables the coordination of efforts and the sharing of EuroHPC resources with the objective of deploying a world-class High Performance Computing (HPC) infrastructure and a competitive innovation ecosystem in supercomputing technologies, applications, and skills in Europe.

The EuroHPC JU is acquiring a large range of supercomputers (the EuroHPC supercomputers) which are located at and operated by supercomputing centres (Hosting Entities) in the Union. The supercomputing infrastructure deployed by EuroHPC, comprises a significant investment of the JU members (European Union and Participating States). The Joint Undertaking manages the Union's access time of these supercomputers. Access time is allocated to eligible European users according to the principles stated in Article 16(2) of the EuroHPC JU Council Regulation.¹

The EuroHPC JU Access Resource Committee, composed of leading European experts, will rank the proposals received and produce a recommendation to award EuroHPC JU resources based on scientific and technical excellence, its impact, and its quality and efficiency of the implementation.

The proposals submission is done via the Peer-Review portal available at <https://access.eurohpc-ju.europa.eu>.

Further details on the standard application procedure can be found [EuroHPC JU Call for Proposals for Extreme Scale Access Mode](#) webpage.

¹ Council Regulation (EU) 2021/1173 of 13 July 2021 establishing the European High Performance Computing Joint Undertaking (OJ L 256, 19.07.2021, p. 3–51)



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1 Scope of the EuroHPC JU Extreme Scale Access Call

The EuroHPC JU Extreme Scale Access, open to all fields of **science, industry,** and the **public sector,** calls for applications which will enable progress and innovation in the domains covered.

The call is continuously open with pre-defined cut-off dates (2 per year) that trigger the evaluation of the proposals submitted.

Extreme Scale call is intended for applications with **high-impact, high-gain** innovative research, justifying the need for and the capacity to use **extremely large allocations** in terms of compute time, data storage and support resources.

The allocations are granted for a period of one (1) year. Applicants (Principal Investigators) can, in principle, have only one Extreme scale application awarded at any given time. However, awards of additional ranked projects of the same Principal Investigator are still possible if time is still available in the given call. Excellence of the application will be the decisive factor of the final allocation decision.

1.1 Common requirements across all tracks

Applications to EuroHPC JU computing resources must use codes that have been thoroughly tested and can demonstrate either high performance and scalability on the EuroHPC JU systems requested (or compatible) or a need for ensemble simulations or a need for large data training in cases of AI applications that require a large amount of CPU/GPU time overall. The focus should be on approaches (parallelization, architectures and software) and memory requirements, and should be justified in terms of time-to-solution and the suitability of the hardware requested, e.g., the fraction of peak performance that can be attained.

The need for EuroHPC JU systems computing performance must be clearly presented in detail in the proposal.

Resources can be requested on a single system, or on more than one system when justified. Requests for resources on more than one system should only be made if your project proposal needs more than one system; **do not request resources on more than one system as alternatives to the preferred system.**

It is strongly recommended that the target production codes are tested in the requested machine. Following the recommendation of the EuroHPC JU Access Resource Committee and availability of



resources, proposals may either be awarded in their entirety, may be awarded with a reduced scope, or may be rejected with a justification.

Applicants must submit a full application demonstrating:

- the relevance of the application to the call;
- the significant impact of the expected results;
- that their application requires the use of large allocations - both in terms of compute and data storage resources- to reach the objective of their application; and
- that the methods, software, and tools are technically adapted to efficiently use the target supercomputer thereby demonstrating the feasibility of the project. Applications should clearly explain why the work cannot be performed on a smaller HPC system. To this end, applicants may rely on technical data collected via [Benchmark Access](#).

Furthermore, the Applicant must:

- provide a project plan, with an adequate time schedule of the expected resource consumption during the lifetime of the project; and
- commit to publish the abstract and results of their project as well as Principal Investigator’s and team members’ names, surnames, affiliations and countries.

The applicants should respect the minimum request for each system listed in the Call text; proposals that do not respect the minimum request will be administratively rejected.

Applicants requesting access as a continuation to a running or completed EuroHPC JU Extreme Scale Access project must present the corresponding [progress](#) or [final](#) reports, using the templates available online in the documents section of “[EuroHPC JU Call for Proposals for Extreme Scale Access Mode](#)”. The EuroHPC JU Access Resource Committee will use them to evaluate the status of the on-going and completed allocations, and whether the need for the continuation of the project is recommended or not.

Projects not covered under the Extreme Scale Access Call:

Proposals for code testing and optimisation are outside of the scope of this call. A separate call for Benchmark or Development Access is continuously open for such purposes (see the EuroHPC JU [Benchmark](#) and [Development](#) Access calls for further details).

The call is not designed for proposals that will attempt to pool resources by grouping several independent sub-proposals without aiming for a common and concrete end result. Therefore, if the Access Resource Committee considers that the activities of a submitted proposal are not coherent with each other, it may decide to disqualify it by assigning scores below the threshold in one or more of the evaluation criteria.



1.2 Scientific Access Track

This track is targeting applications from the **academia** and **public research institutes** (see also [Section 2.1. Eligibility criteria for academia and public research organisations](#)). Proposals must demonstrate scientific excellence and include **elements of novelty and transformative aspects**. They must have a recognised impact, validated in a coherent dissemination plan. The proposal should demonstrate the potential of achieving results, which should be published in high impact peer reviewed scientific journals and conferences (please see [Section 4 “Terms of access”](#)).

This is the main track of the call aiming to allocate the majority of the available resources for the call. The Scientific Track will allocate **75%** of the total available resources. Resources remaining unallocated from the Scientific Track (assuming such proposals have passed the scoring threshold of the Access Resource Committee and do not amount to more than the 75% prioritised) will be used for allocation under the other tracks.

1.3 Industry and Public Administration Access Tracks

Principal Investigators (PIs) from industry or the public sector are invited to submit their proposals to the respective Industry and Public Administration Access Tracks (see also [Section 2.2 “Eligibility criteria for commercial companies and public administration organisations”](#)). PIs are strongly encouraged to also involve collaborators from academia in their proposals.

The proposals submitted to these tracks will follow the same peer review process as those submitted to the Scientific Track. The EuroHPC JU Access Resource Committee will rank the proposals submitted to these two tracks separately according to the criteria defined in [Section 3. “Award criteria, scores and weighting”](#) with a priority to the innovation and impact aspects.

The Industry Access Track ranked list of proposals will be considered for allocation of **up to 20%** of the total resources available for the present cut-off. Resources remaining unallocated from the Industry Access Track (assuming such proposals have passed the scoring threshold of the Access Resource Committee and do not amount to more than the 20% prioritised) will be used for allocation under the other tracks.

The Public Administration Access Track ranked list of proposals will be considered for allocation of **up to 5%** of the total resources available for the present call. Resources remaining unallocated from the Public Sector Access Track (assuming such proposals have passed the scoring threshold of the Access Resource Committee and do not amount to more than the 5% prioritised) will be used for allocation under the other tracks.



The Industry and the Public Administration Tracks are meant for open R&D research purposes. Consequently, the Principal Investigator commits to publishing the results obtained thanks to the awarded resources with an acknowledgement of the received EuroHPC JU grant in compliance with [Access Policy](#).



2 Eligibility criteria

Scientists and researchers from academia, industry and the public sector can apply for access to EuroHPC JU resources provided that they satisfy the specific criteria listed in the sections below.

Only proposals with a civilian purpose will be eligible to participate in EuroHPC JU calls for proposals. Only proposals written in English will be eligible. **Double-awarding is not allowed**; proposals already granted resources as part of the EuroHPC JU Extreme Scale Access call or Regular Access, and are currently running, will be rejected.

2.1 Eligibility criteria for academia and public research organisations

Principal Investigators and Team Members from academia and public research organisations are eligible to apply as long as:

- a) The academic or public research organisation is established or located in a Member State or in a third country associated to **Horizon 2020** for accessing the supercomputers acquired by the EuroHPC Joint Undertaking established by Regulation (EU) 2018/1488.²
- b) The academic or public research organisation is established or located in a Member State or in a third country associated to the **Digital Europe Programme** or to **Horizon Europe** for accessing the supercomputers acquired by the EuroHPC Joint Undertaking after 2020.³
- c) The Principal Investigator has an employment contract in the organisation at the time of proposal submission and valid for at least 3 months after the end of the allocation period.

2.2 Eligibility criteria for commercial companies and public sector organisations

Commercial companies and public sector organisations may apply on their own or in collaboration with academia/public research organisations (as principal investigators or collaborators).

In case the proposal is submitted to the Industry Track or the Public Administration Track (see Section 1.3 “Industry and Public Administration Access Tracks”), the Principal Investigator **must be** from a commercial company or public administration organisation respectively (collaborators from academia are allowed and strongly encouraged for this track).

Principal Investigators and Team Members coming from commercial companies and the public organisations are eligible to apply if:

² Supercomputers covered under the Horizon 2020 Programme – LUMI, MareNostrum5, Leonardo, Vega, Karolina, MeluXina, Discoverer, Deucalion

³ Supercomputers covered under the Digital Europe Programme – JUPITER



- a) The company or public organisation is established or located in a Member State or in a third country associated to **Horizon 2020** for accessing the supercomputers acquired by the EuroHPC Joint Undertaking established by Regulation (EU) 2018/1488.⁴
- b) The company or public organisation is established or located in a Member State or in a third country associated to the **Digital Europe Programme** or to **Horizon Europe** for accessing the supercomputers acquired by the EuroHPC Joint Undertaking after 2020.⁵
- c) The employment contract of the Principal Investigator is in force when the proposal is submitted and valid for at least 3 months after the end of the allocation period.
- d) The access is devoted solely for open R&D purposes.

In general, for what concerns access to commercial companies and Small and Medium Enterprises (SMEs), the relevant Horizon 2020 *rules of participation* shall be applied.

⁴ Supercomputers covered under the Horizon 2020 Programme – LUMI, MareNostrum5, Leonardo, Vega, Karolina, MeluXina, Discoverer, Deucalion

⁵ Supercomputers covered under the Digital Europe Programme – JUPITER



3 Award criteria, scores and weighting

Proposals will be evaluated by experts, based on the award criteria of ‘excellence’, ‘innovation and impact’ and ‘quality and efficiency of the implementation’. In detail, the following aspects are considered during the evaluation for each evaluation criterion:

a. Excellence

This criterion aims to evaluate the scientific quality and merit of the project through the following dimensions:

- Clarity and relevance of the objectives;
- Soundness of the concept;
- Scientific and technical maturity of the project;
- Credibility and appropriateness of the proposed methodology;
- Clarity, consistency and adequacy of the proposal regarding the theoretical framework, the objectives, the methodology, the work plan, and the expected outcomes and impacts;
- Demonstrates the need for Tier-0 resources;
- Covers topics of major relevance for European research.

For proposals submitted to the Scientific Access Track, scientific excellence will be the driving evaluation criterion.

b. Innovation and Impact

This criterion intends to assess the innovative nature, the potential impacts and contributions of the project. It evaluates to what extent the proposed work is beyond the state of the art, and demonstrates innovation potential (e.g., ground-breaking objectives, novel concepts and approaches, new products, services or business and organizational models). The following dimensions are considered:

- Originality and novelty of the objectives;
- Innovative nature of the proposed project;
- Contribution of the project to the advancement of scientific knowledge and potential innovations;
- Impact of the project results on the societal, economic and/or technological dimensions.

For industrial applications, proposals should demonstrate the innovation and industrial impact on the specific market and the broader socio-economic impact.

For public sector applications, the proposal should demonstrate the innovative aspects of the applications, the expected societal impact, and how the application will contribute to the delivery of quality and efficient public sector services.



c. Quality and efficiency of the implementation

This criterion is intended to evaluate the quality and feasibility of the project work plan in order to deliver the project successfully.

Proposals should demonstrate a balanced distribution of resource utilization during the lifetime of the project, ensuring a stable consumption of the total awarded time during the awarding period.

The following dimensions are considered:

- Feasibility of the project plan;
- Alignment between the resources requested and the objectives of the project;
- Appropriateness of resource allocation schedule to successfully complete the project;
- Appropriateness, quality and skills of the team members to perform the proposed objectives and tasks and accomplish the proposed schedule.

3.1 Scoring principles

Experts score each award criterion on a scale from 0 to 5 (half point scores may be given):

- 0** - Proposal fails to address the criterion or cannot be assessed due to missing or incomplete information.
- 1** - Poor. The criterion is inadequately addressed or there are serious inherent weaknesses.
- 2** - Fair. The proposal broadly addresses the criterion, but there are significant weaknesses.
- 3** - Good. The proposal addresses the criterion well, but a number of shortcomings are present.
- 4** - Very good. The proposal addresses the criterion very well, but a small number of shortcomings are present.
- 5** - Excellent. The proposal successfully addresses all relevant aspects of the criterion. Any shortcomings are minor.

The maximum overall score is thus **15**. The minimum threshold for each criterion is **3** and the overall threshold for the sum of all criteria is **10**.

3.2 Weighting

All criteria are equally weighted (1.0). However, in case of a tie in the score ranking, different rules apply for breaking the tie depending on the application track:

- For Scientific applications, in case of a score tie, proposals are ranked based on the individual criteria scoring applying the following priority: **1. Excellence, 2. Innovation and Impact** and **3. Quality and efficiency of implementation**.



- For applications submitted in Industry and Public sector tracks respectively the following priority applies in case of a tie: **1. Innovation and Impact, 2. Excellence** and **3. Quality and efficiency of implementation.**



4 Terms of access

The Principal Investigator (PI) shall lead the project and is expected to be an essential participant in its implementation. The PI will have the overall responsibility for the management of the project and interactions with EuroHPC JU. The applicants should make sure that the contact details for the PI are consistent in the different forms to be completed and that **all e-mail addresses used are professional e-mail addresses**.

The usage of EuroHPC JU resources needs to be acknowledged for all data produced through EuroHPC JU allocations, both in publications and when depositing the data to other infrastructure.

The PI commits to:

- a) Provide to EuroHPC JU a **final report within 3 months of the completion of an allocation**, using the proper EuroHPC JU [template](#), with the results obtained through the access to the EuroHPC JU systems, as well as qualitative feedback on the use of the resources.
- b) **Acknowledge** the role of the HPC Centre and EuroHPC JU in all publications which include the results above mentioned. Users shall use the following wording in such acknowledgement in all such papers and other publications:

“We acknowledge EuroHPC JU for awarding the project ID EHPC-EXT-XXXXXXXX-XXX access to [resources on partition name hosted by site]”

Use as many instances of the pattern [\[resources on partition name hosted by site\]](#) as the number of systems awarded via EuroHPC JU.

Respecting the words in bold above is particularly important since EuroHPC JU will use this word pattern when searching for bibliographic references in scientific articles. In case additional resources have been used, the acknowledgement should include a clear breakdown of which part of the work was performed using EuroHPC JU resources.

- c) **Allow** EuroHPC JU to publish the report mentioned in section (a) above after one year from the termination of the allocation period.
- d) **Contribute** to EuroHPC JU dissemination activities and other EuroHPC JU events. Selected awardees are expected to contribute to and attend such events at least once over the two year period, starting from the end of the allocation period. Awardees will also be expected to reply favourably, when asked to be interviewed for EuroHPC JU publications and/or send visualizations or other materials for promotional purposes.

Access to EuroHPC JU resources is for **Open Research and Development purposes and is free of charge** provided that the eligibility criteria and terms of access described herein and in the online



Application Form are fulfilled/respected. If this differs from the terms of access that the relevant Centre may have in place, it is the terms of access of the relevant Centre that will prevail.

Users will not hold liable EuroHPC JU or the relevant Centre, including their Directors and staff, with regard to any claim and expense arising out of the use of the resources.

From the start to the end of the access period, the applicant should direct questions and requests for support to the user support of the HPC Centre(s) where resources have been allocated.

Applicants must inform promptly the EuroHPC JU and the centre where the resources are allocated of any changes to a successful proposal, namely a decrease in the amount of resources needed or on the distribution of the usage of the resources within the agreed time plan with the centre.



5 Allocation process details

5.1 How to apply

All proposals must be submitted via the Peer-Review portal available at <https://access.eurohpc-ju.europa.eu>.

All proposals must be fully completed and submitted by the closing cut-off date and time in order to be considered for evaluation for that submission period. The submission platform will not accept applications for a dedicated cut-off date that are submitted after the respective cut-off date and time has passed. All proposals submitted after the cut-off date and time will be considered for assessment in the next cut-off period. In the case of technical difficulties, the decision of EuroHPC JU as to whether an application can be accepted is final.

Applicants are advised to make sure, that they submit proposals as early as possible before the given deadline, in order to ensure that all mandatory fields are completed and submission is accepted.

Further details on the standard application procedure can be found online in the “[Extreme Scale Access - Full Call Details](#)” document.

5.1.1 Applications

All proposals consist of 2 parts: an online form and the ‘Project Scope and Plan’ document, to be submitted via the Peer-Review portal available at <https://access.eurohpc-ju.europa.eu>.

The template of the ‘Project Scope and Plan’ document (Uploaded on the online application form as a .pdf) must be carefully respected (Headings, length, tables and figures). **Proposals that do not follow the template or that are incomplete will be administratively rejected and will not be further evaluated.** The Peer-Review team is available to answer questions by email (access@eurohpc-ju.europa.eu).

All mandatory fields of the online application form must be completed before it can be submitted. Please note that only submitted proposals will be put forward for peer-review.

Proposals requesting access as a **continuation to an existing running project** should submit a new proposal indicating a continuation proposal option within the application form.

The applicants can request a continuation around 3 months prior and up to 3 months after the end of the existing allocation. The applicants will need to present a **progress** or **final report** presenting the status of the continued project.



The EuroHPC JU Access Resource Committee will in addition to the new form and Project Scope and Plan, use these reports to evaluate the project.

The template documents for these reports are available on the **EuroHPC JU Call for Proposals for Extreme Scale Access Mode** ("[Documents](#)") and must be **carefully respected**.

5.1.2 Project extensions

Extension requests for awarded projects are possible for **up to 3 months** in the event that the resources weren't completely used and the project is not completed in the allotted time.

In such cases, the Principal Investigator should submit a formal request to EuroHPC JU Peer-Review Sector (PRS) at least 1 month before the conclusion of the project. After the acknowledgement of the request, the PRS will unlock a step in the online platform (<https://access.eurohpc-ju.europa.eu>). The JU will together with the Hosting Entity assess the request and communicate the results as soon as possible after the extension request submission date.

The maximum resources that will be available during this extension period will be **up to 20% of the initial allocation**. The project team should keep in mind that the overall resources usage will be taken into consideration for deciding on the extension duration and available resources. Proposals with heavily underutilized resources will not be eligible for an extension except in dully justified cases.

5.2 The Peer-Review process

The Peer-Review process abides to the EuroHPC JU Peer-Review principles stated in "The Peer-Review Process", as explained in the document "[Extreme Scale Access - Full Call Details](#)". The Peer-Review process encompasses 10 phases:

1. **Administrative Check.** Proposals not complying with EuroHPC JU eligibility criteria will be rejected at this stage and will not continue to the next phase. During this phase, applicants may be contacted by the Peer-Review Sector in case of concerns regarding potential clerical errors.
2. **Technical Assessment.** Proposals will be technically reviewed by technical experts of EuroHPC JU Hosting sites, who will assess the suitability of the application to run in the indicated system.
3. **Scientific Evaluation.** Proposals will be peer reviewed by external recognized independent scientific and/or industry experts.



4. **Response to Reviews.** Applicants will have the opportunity to reply to any potential criticisms or questions raised by the technical and scientific reviewers.
5. **Rapporteur Reporting.** The proposals are evaluated by the Access Resource Committee members (Rapporteurs) in form of Individual and Consolidated Reports.
6. **Access Resource Committee (ARC) meeting.** All proposals are discussed, graded and ranked. The committee will also provide a recommendation for resources to be awarded per proposal.
7. **Resource Allocation Panel (RAP) meeting.** The global consolidated ranking is produced. The process is led by the EuroHPC JU Executive Director gathering the ARC Chair and representatives of the Hosting Entities participating in the call. The ARC will apply the quality cut-off thresholds described in Section 3.1. “Scoring Principles”. Proposals ranked under this threshold will not be awarded, even if there are resources available on the systems.
8. **EuroHPC JU Governing Board (GB) ranking list adoption.** The results from the overall evaluation procedure are compiled and forwarded for the EuroHPC JU GB in form of a GB Decision that needs to be formally adopted by the GB.
9. **Communication of results.** After the EuroHPC JU Governing Board approval, successful applications are notified by email.
10. **Award acceptance.** Successful applicants should accept their awards and are afterward contacted by the technical teams of the assigned supercomputing center for the onboarding procedure. Prospective users will be requested to sign an Acceptable User Policy before accessing the system.

5.3 Right to appeal

Applicants whose proposal has not been awarded access time due to low ranking or have been rejected due to eligibility reasons, may appeal to the decision by sending a formal letter by email to the EuroHPC JU (access@eurohpc-ju.europa.eu) within 15 days from the date of reception of the rejection decision. The appeal letter should clearly state the reasons why the applicant considers that the evaluation or eligibility check results were incorrect, by referring to the rejection arguments listed in the response letter. The letter should not be a mere resubmission of the initial proposal.

A review committee will assess the reasons of appeal and will respond to the applicant within a maximum period of 1 month from the date of reception of the appeal. In case of eligibility rejection, the committee will recheck the reasons of rejection while in case of low ranking, the committee will assess whether there are grounds for proposal re-evaluation. In the latter case, a new evaluation committee will be assigned to perform the review.



Should the committee accept the grounds of redress, in case of eligibility rejection, the application will be included for evaluation in the next cut-off period. In case of low ranking, the application will be prioritized for allocation in the resources available for the next cut-off period.

5.4 Tips and examples

This section includes a few tips and examples of common mistakes or misunderstandings in the preparation and submission of proposals:

- a) **Submission deadline.** A research team faces last-minute problems, not related to the submission system, in the submission of their proposal and is not able to submit it completely before the deadline. The application is not considered for the current cut-off.
- b) **Submission completeness.** An application is received incomplete, i.e. missing documents or documents with missing sections. The application is administratively rejected, and it will not be evaluated.
- c) **Application exceeding limits.** A research team submits a proposal exceeding the page limits. The exceeding pages will not be considered as part of the application. Reviewers will be instructed not to consider the exceeding pages, and this may imply that the application is administratively rejected.
- d) **Minimum allocation of resources.** A research team should respect the minimum allocation requests and not request resources below this threshold. The resources requested in the submission platform need to match the ones indicated in the Project Scope and Plan.
- e) **Technical readiness.** A research team submits an application lacking the scalability data of their codes, assuming that they will be able to provide this data during the evaluation of their proposal. The application is administratively rejected since this data is mandatory at the time of submission.
- f) **Technical data.** A research team uses their local HPC system to prepare the benchmarks required to support the request of resources. This system is somehow related but not completely representative of the EuroHPC system requested. There is a risk that the application is technically rejected, depending on the architecture used and the criteria of the technical reviewers, whose decision is final.



6 Contacts

For any queries related to applications, please contact: access@eurohpc-ju.europa.eu.