



EuroHPC
Joint Undertaking

Leonardo Early Access Program (LEAP)

Call for Early Access to Leonardo

November 2022

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Introduction

This call aims to provide selected users early access to the Booster Module of EuroHPC Leonardo exascale precursor system. This partition module is expected to provide a computational performance over 240 Pflops. More details on the System architecture can be found [here](#). This access is tentatively planned from January 2023 until March 2023, during the Leonardo pre-production phase¹.

This call targets projects expected to have a high scientific impact by leveraging extremely large computing resource availability. The Leonardo Early Access Program (LEAP) call is open to all fields of science, industry, and the public sector. The projects must demonstrate to be production-ready and be able to exploit as much as efficiently possible the full performance of Leonardo in order to produce valuable scientific outcomes.

Project proposals² will be assessed technically by CINECA HPC staff and ranked by a Scientific Committee based on scientific impact. Since the supercomputing system will be in the pre-production phase, CINECA cannot guarantee that all the selected proposals will be able to reach their goals or that the system will not experience unscheduled downtimes or maintenance periods.

Eligibility

The call is open to all researchers and no limitation of nationality will be applied in the selection phase. Proposals can be submitted by researchers from both public and private institutions. Only proposals with a civilian purpose will be eligible to participate.

Tentative schedule

These are the key dates of LEAP:

- **Beginning of November 2022:** call opening
- **End of November 2022:** closing call and starting of the Acceptance Procedure
- **End of December 2022:** list of allowed projects
- **Beginning of January 2023:** start of Leonardo Early Access Program
- **End of March 2023:** end of Leonardo Early Access Program

¹ The early access is provided to users with no guarantee for the project's success. Due to the very nature of the pre-production phase, the system could be out of service for maintenance interventions with short to no warning time. Moreover, the early access program may last shorter or longer than foreseen or be shifted in time.

² Henceforth simply proposal

Acceptance procedure

Proposal selection is excellence based and will be implemented as a two-step procedure. First a technical assessment to verify the project technical compliance, and then a peer-review scientific assessment.

- **Technical assessment.** The proposal will be evaluated on a technical basis by CINECA staff. To be accepted, proposals must be compliant with Leonardo's technical specifications, and demonstrate to be production-ready and able to exploit as much as efficiently possible Leonardo system.
- **Scientific assessment.** The proposal will be evaluated according to the scientific merit and impact in order to produce a project final ranking. This assessment will be done by the CINECA scientific access panel for the Italian SuperComputing Resources Allocation – ISCRA action.

According to the final ranking, the first projects will be allowed to access and use Leonardo for a defined period. Once reached the project goals or the end of the period, the access grants will be removed and the next proposal in the ranking will be allowed to access the system. Multiple projects could be allowed to execute concurrently if requested computational resources could be accommodated.

Execution run model

To provide to large computing resource projects the best system availability without affecting each other execution, two different “run typologies” are foreseen. Project proposals should reflect this classification and report on the expected run model.

- **Parallel:** executions able to scale from thousands of computing nodes to the full size of the system³. Please note that runs executing at full machine's scale will be allowed only during weekends if not agreed otherwise.
- **Ensemble:** independent executions, each using few computing nodes (e.g., 10 nodes). This class of execution will be allowed to run using the full availability of the system only nightly and during weekdays

The submission of these runs will be the user's responsibility.

Requirements

- The call is reserved to “production ready” projects. Proposals including a code-development phase will not be accepted.
- The proposal must report on application code scalability on Nvidia-GPU based supercomputer according to the execution model proposed (parallel or ensemble). The proposal must include supporting information to demonstrate such scalability.

³ This means to access from about 17 PFlop machine up to 240 PF.

Reference to articles assessing the application performance constitute a considerable added value.

- The project must aim to an outcome of high level in its scientific field.
- The proponents should be autonomous and able to install all the libraries and tools required for the execution of the project.

Dissemination

The abstracts of all accepted proposals will be published on the Leonardo website. All users of the system must acknowledge the role of CINECA and EuroHPC JU for the use of the resources obtained through the LEAP program in articles or other dissemination activities where the results have been published.

Users shall use the following wording in such acknowledgement in all such papers and other publications: “We acknowledge CINECA and EuroHPC JU for awarding this project access to Leonardo supercomputing hosted at CINECA”

LEAP support services

CINECA user support services during the early access program will be mainly devoted to configuring and preparing the system for production. Any feedback from the LEAP users – especially when stressing the system with applications running at scale – is welcome. Issues concerning the system productivity will be readily addressed to the best of CINECA staff ability and capacity.

How to submit the proposal

- Here there is the [template](#) for the Early Access Program
- The proposal must be submitted sending an email to leap@cineca.it
- Check Leonardo publicly available technical details [here](#)
- For further clarifications please send an e-mail to leap@cineca.it