

PRACE Preparatory Access call
8th November 2010



PRACE preparatory access –Call for proposals

Opening date: 8th November 2010

Closing date: Rolling call, applications accepted all-year round, no closing dates

Type of access: Preparatory access

Machine(s) available: IBM Blue Gene/P “JUGENE” (GCS@Jülich, Germany) and, after 1st of January 2011, BULL Bullx cluster “CURIE” (GENCI/CEA, Bruyères-Le-Châtel, France)

Introduction

PRACE (Partnership for Advanced Computing in Europe) Research Infrastructure (RI) allows researchers from across Europe to apply for time on high-end high-performance computers via a peer review process. Preparatory access allows researchers to apply for code scalability testing and also support for code development and optimisation from PRACE RI members software experts. Preparatory access allows researchers to optimise their codes before responding to project calls.

Preparatory access calls are rolling calls, researchers can apply for resources all year. There are no closing dates.

Systems

- IBM Blue Gene/P – JUGENE – hosted by GCS in Jülich, Germany. The maximum number of compute cores available at JUGENE is 294912. Details and terms of usage can be found at <http://www.fz-juelich.de/jsc/jugene>.
- Bull Bullx cluster – CURIE – funded by GENCI and installed at CEA, Bruyères-Le-Châtel, France. CURIE is the second PRACE Tier-0 machine, available for the first time for European scientists via this call. CURIE is based on general x86 architecture with a mix of thin and fat nodes interconnected through a QDR Infiniband interconnect. It has a total of 114 racks and a total of 92 160 processing cores. The peak performance of the 2 partitions (thin nodes and fat nodes) is 1.6 Petaflops. The memory capacity is 4 GBytes per core resulting a total distributed memory of 360 TBytes.

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CURIE will be installed in two phases, the first one starts in end of 2010 with the fat nodes partition and the second phase in the end of 2011 with the thin nodes partition.

The fat nodes partition is based on 360 Bullx S6010 nodes, each node boast 4 Intel Nehalem-EX (X7560) octo-cores 2.26 GHz, 128 GBytes of memory, a 2TBytes local disk and an Infiniband QDR link.

These fat nodes are dedicated to hybrid (MPI+OpenMP) parallel codes requiring a big memory footprint and/or massive multithreading capabilities as well as pre and post processing tasks. The peak performance of the fat nodes partition is 105 Teraflops.

CURIE Fat Node Partition will be available after January 1st, 2011.

Types of preparatory access

There are 3 types of preparatory access:

- A. **Code scalability testing** to obtain scalability data which can be used as supporting information when responding to future PRACE project calls. This route provide an opportunity to ensure the scalability of the codes within the set of parameters to be used for PRACE project calls, and document this scalability. Assessment of applications is undertaken using a light-weight application procedure with application evaluated at least every 2 months. The maximum allocation for type A is 100,000 core hours on JUGENE and 50,000 core hours on CURIE. The maximum allocation time is 2 months which includes submission of the final report.
- B. **Code development and optimisation by the applicant** using their own personnel resources (i.e. without PRACE support). Applicants will need to describe the planning for development in detail together with the expert resources that are available to execute the project. Applications will be assessed at least every 2 months. The maximum allocation is 250,000 core hours on JUGENE and 200,000 core hours on CURIE. The maximum allocation time is 6 months which includes submission of the final report.
- C. **Code development with support from experts** from PRACE. Assessment of the applications received will be carried out at least every two months. The maximum allocation is 250,000 core hours on JUGENE and 200,000 core hours on CURIE. The maximum allocation time is 6 months which includes submission of the final report.

From 1st January to 30th April 2011, CURIE will be exclusively dedicated to PRACE Preparatory Access with 19 million core hours available on the fat node partition. Therefore, during this time, the maximum allocation for types B and C Preparatory Access may be increased. After this period, a total of 5 million core hours per year will be available for Preparatory Access on the CURIE fat node partition.

In total 10 million core hours are available for preparatory access for JUGENE.

Scope of the call

Preparatory access is intended for testing or development of computer codes for preparation for applications for PRACE project access. Standard production runs will not be allowed as part of preparatory access. For types B and C a detailed description of code bottlenecks is very important for the assessment.

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Process

The projects will be technically peer reviewed by recognised experts from the PRACE computer centers providing computer resources and PRACE partners. For more information, please visit <http://www.prace-ri.eu/hpc-access>.

Eligibility

For this call, proposals from academia are eligible, as long as the project leader is employed in a research organisation homed in a European Union country or a country which is member of the PRACE RI. The employment contract of the project leader with the research organisation must be valid to at least 3 months after the end of the allocation period.

PRACE HPC centres may have further restrictions on who is eligible to use the machines, for example, due to US export rules. It is the responsibility of the applicant to ensure that they are eligible to use the system.

How to Apply

All proposals must be submitted via the PRACE website at: <http://www.prace-ri.eu/hpc-access>. All mandatory fields must be filled in before the application form can be submitted. After the form has been saved, applicants can continue to access it and update it before they finally submit it.

Disclaimer

Award of preparatory access proposals of all types is limited by the amount of resources available. For type C there are also limitations regarding the amount of expert support available (in terms of staff hours) and also the type of expertise available (the amount of expertise available is not the same in all fields of computer science, mathematics and fields of science and engineering).

Further details on the standard application procedure can be found on the [PRACE website](#).

Assessment procedure

All proposals will undergo PRACE technical assessment. Assessment of proposals is undertaken using a light-weight procedure with evaluations of the applications communicated at least every 2 months.

Criteria for assessment

Proposals submitted are only for code testing or development. Only runs for testing and development will be allowed, i.e. no standard production runs will be allowed. It is essential that proposals for types B and C identify bottlenecks in code development. For type B proposals a clear plan for the code development proposed and the available resources to execute this planning is essential.

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Contacts

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About PRACE: The Partnership for Advanced Computing in Europe (PRACE) is an international non-profit association with its seat in Brussels. The PRACE Research Infrastructure (RI) provides a persistent world-class High Performance Computing (HPC) service for scientists and researchers from academia and industry. The PRACE leadership systems form the apex of the performance pyramid and are well integrated into the European HPC ecosystem. The preparation and implementation of the PRACE RI receive EC funding under grants RI-211528 and FP7-261557.