PRACE Project access – 2nd call for proposals

Opening date: 1st November 2010

Closing date: 11th January 2011, 1600 CET

Start date: 1st May 2011

Allocation period: 1 year

Type of access: Project access

Machines available:

IBM Blue Gene/P "JUGENE" (GCS@Jülich, Germany)
Bull BULL Bullx cluster "*Curie*" (GENCI@CEA, France)

Introduction

PRACE (Partnership for Advanced Computing in Europe) is a Research Infrastructure that allows researchers from across Europe to apply for time on high-performance computers from a series of hosting nations via a central peer review process. This call is the second PRACE-RI Regular call for Project access, inviting applications for high-end (Tier-0) computing resources to carry out projects which have high scientific quality and impact. Allocation will be for 1 year starting from 1st May 2011.

The deadline for submission of proposals is **11th January 2011 at 1600 CET**. The PRACE on-line system will not accept proposals submitted after 1600 CET on 11th January.

Applicants to the 2nd PRACE Regular call can only submit proposals for project access. For information on the types of access, please visit http://www.prace-ri.eu/hpc-access.

Project access is for access to PRACE Tier-0 computing resources for projects which use codes that may have been previously tested and must have demonstrated high scalability and optimisation. Access to the PRACE HPC resources will be given for 1 year starting on 1st May 2011.

Proposals for code testing and optimisation are not covered by this call. A separated call for Preparatory access will be published on the 8th of November, 2011.

Scope of the call

The 2nd PRACE Regular call is intended for large-scale projects of high scientific quality and for which a significant impact at European and international level is anticipated. High scalability of the code (at least 8k compute cores for JUGENE and for *Curie* above 2048/1024 cores or above 512 cores with 64 GB of memory used per node or 256 cores with 16 threads allocated per task *Curie*) must be demonstrated. Proposals for project access must be ready to run. The projects must demonstrate scientific excellence and should cover topics of major relevance for European research. They should also include elements of novelty, transformative aspects, have a recognised scientific impact and include a dissemination plan. Possible practical and timely applications resulting from the project are also desirable. The projects should also demonstrate the possibility of achieving results which will be publishable in journals of recognised scientific impact.

Process

The projects will be technically and scientifically peer reviewed by recognised experts. Applicants have the right to reply to the comments of the reviewers. The proposals, together with the reviewers' reports and the applicants' responses, will be analysed by the Prioritisation Panel who will produce the final ranking list. Proposals will be awarded by moving down the ranking list in order until quality or resources run out. If necessary, the Prioritisation Panel may agree on a quality cut-off threshold. Proposals ranked under the cut-off threshold will not be awarded even if there is resource left on the machine. For more information, please check http://www.prace-ri.eu/hpc-access.

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. The total available capacity in this call is 360 million compute core hours.
- Bull Bullx cluster – *Curie* – founded 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.

  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.

  Four Bullx S6010 nodes will be linked together with the BCS (Bull Coherent Switch) to form 90 fattest nodes, each one offering 128 cores and 512 GBytes of memory in a single system image.

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

The total available capacity from Curie in this call is 40 million compute core hours.

Eligibility

For this call, proposals from academia are eligible, as long as the project leader is a senior researcher employed in a research organisation homed in a European Union country or a PRACE Association member country. 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.
Industry will be eligible for access through collaborations with academia, i.e. industry must have the role of collaborators in academic projects. Full access to industry will begin later in 2011 and will be announced at the PRACE website.

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. Mandatory fields are marked with a red square. After the form has been saved, applicants can continue to access it and update it before they finally submit it. Once an application has been submitted then no changes can be made, unless you un-submit the proposal. After un-submitting the proposal, you can make all necessary changes. Then you will have to save your changes, and submit again the proposal. Each time you submit or un-submit your proposal, you will receive an e-mail with the status of your proposal (un-submitted or submitted). Please note that only submitted proposals will be put forward for peer review. All applications must be submitted by **1600 CET on 11th January 2011**. The system will not accept applications that are submitted after this time. In the case of technical difficulties, the decision of PRACE as to whether an application can be accepted is final. However, 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 filled in and submission is accepted.

Further details on the standard application procedure can be found on the PRACE website.

Assessment Procedure

All proposals will undergo PRACE technical and scientific assessment. Applicants will have the opportunity to comment on these assessments. All applicants should expect to be notified of the outcome by the end of April 2011 although efforts will be made to notify successful applicants as soon as possible after the outcome so that they can begin to schedule work on the system.

The assessment procedure will adhere to the PRACE principles of peer review:

- Transparency
- Ensure fairness to the science proposed
- No parallel assessment
- Managing interests

- Expert assessment
- Confidentiality
- Prioritisation
- Right to reply

More information on the principles of peer review can be found on the PRACE website.

Criteria for Assessment

It is essential that proposals submitted are at high level of scientific and technical maturity. The results of the project should lead to the anticipated publication of results in one or more high-quality journals.

The proposal must demonstrate scientific excellence and focus on topics of major relevance for European research. They must also demonstrate the need for Tier-0 resources. They should explain the novelty, transformative aspects, and expected scientific impact of the project, and include a dissemination plan. The identification of possible practical and timely applications resulting from the project is also desirable. All of this must be made clear by the information submitted to support the application.

The codes used during the project should have been previously tested and a high level of scalability and development must be demonstrated. The codes should be ready to run.

Timetable

Closing date for the submission of proposals:	**11th January 2011, 1600 CET**
Anticipated allocation decisions:	**End April 2011**
Start date of successful proposals:	**1st May 2011**
End date of award:	**30th April 2011**

Further information

A continuous call for applications for preparatory access will open on 8th November 2010. Further info about the preparatory access call are available on the PRACE website.

Contacts: peer-review@prace-ri.eu

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.