



## PRACE Project Access

### 3<sup>rd</sup> call for proposals for Tier-0 and Synchronized Pilot Call for Tier-1

Opening date: 2<sup>nd</sup> May 2011

Closing date: 22<sup>nd</sup> June 2011, 1600 CEST

Start date: 1<sup>st</sup> November 2011

Allocation period: 1 year

Type of access: Project access

Tier-0 machines available:

IBM Blue Gene/P "JUGENE" (GCS@Jülich, Germany)

Bull BULL Bullx cluster "CURIE" (GENCI@CEA, France)

Cray XE6 "HERMIT" (GCS@HLRS, Germany)

Tier-1 HPC systems available from: Bulgaria, Finland, France, Germany, Ireland, Italy, Poland, Spain, Sweden, The Netherlands and UK.

### 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 third 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 1<sup>st</sup> November 2011.

The call includes a Pilot Call for project access to Tier-1 resources, via the DECI initiative (Distributed European Computing Initiative), providing single project cross-national access to European Tier-1 resources. The DECI pilot call is synchronized with the Tier-0 call in preparation for future integrated calls for Tier-0 and Tier-1 resources. The DECI Pilot Call, its processes, the procedures and mechanisms are explained in detail in section "**DECI Pilot Call**".

The deadline for submission of proposals both for Tier-0 and for Tier-1 systems is **22<sup>nd</sup> June 2011 at 1600 CEST**.

### Tier-0 call

The deadline for submission of proposals for Tier-0 systems is **22<sup>nd</sup> June 2011 at 1600 CEST**.

The PRACE on-line system for Tier-0 proposals will not accept proposals submitted after 1600 CEST on 22<sup>nd</sup> June (please read the paragraph "**Process details and deadlines**" for further details on the deadlines).



Applicants to the 3<sup>rd</sup> PRACE Regular call can only submit proposals for project access. For information on the types of access, please visit <http://www.prace-ri.eu/Calls-for-Proposals>.

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 1<sup>st</sup> November 2011.

Proposals for code testing and optimisation are not covered by this call. A separate call for Preparatory access is continuously open. Further details about the preparatory access are available in the PRACE website, <http://www.prace-ri.eu/Calls-for-Proposals>.

### **Scope of the Tier-0 call**

The 3<sup>rd</sup> 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; at least 512 cores for the fat nodes partition and above 2048 cores for the thin nodes partition for CURIE and 2048 cores for HERMIT) 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 details and deadlines for Tier-0 proposals**

The call will close at 1600 CEST on the 22<sup>nd</sup> of June 2011. The PRACE peer-review team will perform an administrative validation check. In case of administrative inaccuracies, the applicant will receive, on June 23<sup>rd</sup>, an email asking for administrative details. The deadline for the applicant to provide such details is June 27<sup>th</sup> at 1200 CEST. Anything received after June 27<sup>th</sup> at 1200 CEST will NOT be accepted nor considered in the review process.

Between June 23<sup>rd</sup> and June 27<sup>th</sup> the PRACE peer-review team will accept ONLY details in reply to the requested issues.

On June 27<sup>th</sup> at 1200 CEST all applicants will receive a confirmation about the correct submission of the proposal and about the eligibility.

From June 27<sup>th</sup> 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>.



## Tier-0 Systems

- IBM Blue Gene/P – JUGENE – hosted by GCS in Jülich, Germany. Details and terms of usage can be found at <http://www.fz-juelich.de/jsc/jugene>.

JUGENE has a peak performance of 1 Petaflop. It is composed of 294,912 processing cores with 4 cores forming a node with 2 GB of memory for a total of 147 TB.

The total available capacity in this call is 360 million compute core hours. The allocation period is November 1<sup>st</sup>, 2011 until August 31<sup>st</sup>, 2012.

- Bull Bullx cluster – CURIE – funded by GENCI and installed at CEA, Bruyères-Le-Châtel, France. Details and terms of usage can be found at <http://www-hpc.cea.fr/en/complexe/tgcc-curie.htm>.

CURIE is composed by 2 different partitions:

- A fat node partition open to PRACE calls since January 2011 and composed by 360 nodes with 32 cores per nodes, for a peak performance of 105 TFlops
- A thin node partition, open to PRACE calls in Q1 2012 and composed by 5040 blades with 16 cores per node, for a peak performance of up to 1.5 PFlops

The total available capacity in this call for CURIE is:

- On the thin nodes partition: 125 million compute core hours, with an 8 months allocation starting from March, 1st of 2012.
- On the fat nodes partition: 31 million compute core hours, with a one year allocation starting from November, 1st of 2011.

- Cray XE6 – HERMIT – hosted by GCS in HLRS, Stuttgart, Germany. Details and terms of usage can be found at <http://www.hlrs.de/systems/platforms/cray-xe6-hermit/>.

HERMIT has a peak performance of 1 Petaflop and is designed for sustained application performance and highly scalable applications. It is composed of 3552 dual socket nodes equipped with AMD Interlagos Processors leading to overall 113664 processing cores. Nodes are equipped with 32GB or 64GB main memory.

The total available capacity in this call is 160 million compute core hours.

For this call, proposals asking for resources on a single machine or on multiple machines are allowed.

Please note that a proposal asking for resources on multiple machines has to justify the need to access several machines. The proposal will be awarded or rejected in totality (no subpart of the proposal will be awarded).

## Eligibility for Tier-0 resources

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 for Tier-0 resources**

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 CEST on 22<sup>nd</sup> June 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 <http://www.prace-ri.eu/hpc-access>.

### **Assessment Procedure for Tier-0 applications**

All proposals will undergo PRACE technical and scientific assessment. Applicants will have the opportunity to comment on these assessments until September 15<sup>th</sup>. All applicants should expect to be notified of the outcome by the end of October 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 <http://www.prace-ri.eu/hpc-access>

### **Criteria for Assessment to Tier-0 resources**

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.

### **Further information**

A continuous call for applications for preparatory access on Tier-0 systems is also open. Further info about the preparatory access call are available on the PRACE website.

### **DECI Pilot Call**

The deadline for submission of proposals for Tier-1 systems is **22<sup>nd</sup> June 2011 at 1600 CEST**.

DECI provides single project cross-national access to European Tier-1 resources. Access will be awarded for a period of 12 months, beginning 1 November 2011.

Resources are available on the following architectures:

Cray (XT and XE), IBM Blue Gene/P, IBM Power 6, Intel and PowerPC Clusters (various processor and memory configurations) and hybrid systems (clusters with GPGPU accelerators).

### **Scope of the Tier-1 call**

DECI enables European researchers to obtain access to the most powerful national (Tier-1) computing resources in Europe, regardless of their country of origin or work and to enhance the impact of European science and technology at the highest level.

Proposals must deal with complex, demanding, innovative simulations that would not be possible without Tier-1 access.

Please note that in addition to offering access to computing resources, applications-enabling assistance from experts at the leading European HPC centres is offered to enable projects to be run on the most appropriate Tier 1 platforms in PRACE (read more in paragraph "**Criteria for Assessment to Tier-1 resources**").

### **Process details and deadlines for Tier-1 proposals**

The call will close at 1600 CEST on the 22<sup>nd</sup> of June 2011. Starting from 1600 CEST of the 22<sup>nd</sup> of June, the PRACE peer-review team will perform an administrative validation check. In case of administrative inaccuracies, the applicant will receive, on June 23<sup>rd</sup>, an email asking for administrative details. The deadline for the applicant to provide such details is June 27<sup>th</sup> at 1200 CEST. Anything received after June 27<sup>th</sup> at 1200 CEST will NOT be accepted nor considered in the review process.

Several submissions of the same proposal before the submission deadline are permitted, but only the last one will be considered.



Between June 23<sup>rd</sup> and June 27<sup>th</sup> the PRACE peer-review team will accept ONLY details in reply to the requested issues.

On June 27<sup>th</sup> at 1200 CEST all the applicants will receive a confirmation about the correct submission of the proposal and about the eligibility.

From June 27<sup>th</sup> the DECI projects will be technically and scientifically peer reviewed.

The DECI proposals submitted by PI affiliated to institutions located in one of the Tier-1 countries will be peer-reviewed by their own national peer-review system.

The DECI proposals submitted by PI affiliated to institutions located in countries NOT acting as Tier-1 will be peer-reviewed by the HPC-Europa2 SUSP Panel.

The applicants will be informed of the review results in the third week of October 2011.

### Tier-1 Systems

For Tier-1, applicants should indicate a preference for a class of architecture. Four classes have been defined below.

- Cray XT4/5/6 and Cray XE6 – three large Cray XE and XT systems are available at EPCC (UK), KTH (Sweden) and CSC (Finland). The largest of these machines has a peak performance of 360 TFlops and a total of 44,544 cores.
- IBM Blue Gene/P – three BG/P systems are available at IDRIS (France), RZG (Germany) and NCSA (Bulgaria). The largest of these machines has a peak performance of 139 TFlops and a total of 40,960 cores.
- IBM Power 6 – three IBM Power 6 systems are available at RZG (Germany), SARA (The Netherlands) and CINECA (Italy). The largest of these machines has a peak performance of 98 TFlops.
- Clusters – PRACE offers access to eight clusters at FZJ (Germany, Bull Nehalem cluster), LRZ (Germany, Xeon cluster), HLRS (Germany, NEC Nehalem cluster plus GP/GPU cluster), CINES (France, SGI ICE8200), BSC (Spain, IBM PowerPC), CINECA (Italy, Westmere plus GP/GPU cluster), PSNC (Poland, Bullx plus GP/GPU cluster and HP cluster) and ICHEC (Ireland, SGI ICE8200). The largest cluster has a peak performance of 267 TFlops and a total of 23,040 cores.

The following table summarizes the available resources in each machine:

Architecture class	PRACE 2IP partner	Total core-hours
Cray XT4/5/6, XE6	EPCC	7.800.000
	KTH	12.749.000
	CSC	2.284.000
IBM BG/P	IDRIS	6.000.000
	RZG	2.872.000
	NCSA	2.870.000
IBM Power6	RZG	1.150.000
	SARA	880.000
	CINECA	1.400.000
Clusters	FZJ	2.900.000
	LRZ	1.437.000



	HLRS	784.000+9.000 GP/GPU hours
	CINES	2.000.000
	BSC	1.900.000
	CINECA	850.000+140.000 GP/GPU hours
	PSNC	(BUIIx) 2.747.000 (HP) 1.513.728
	ICHEC	3.363.840

### Eligibility for Tier-1 resources

For this Tier-1 Pilot 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 for Tier-1 resources

All DECI proposals for this Pilot call must be submitted via e-mail.

The template for proposals is available at <http://www.prace-project.eu/documents/deci-related-material> and must be carefully respected. All the fields must be filled in. Proposals that do not follow the template (strict check will be performed on the presence of all the sections foreseen and on maximum lengths when defined) or that are incomplete will not be considered for peer-review.

The proposals shall be submitted in PDF format at the e-mail address [DECI-support@prace-project.eu](mailto:DECI-support@prace-project.eu)

All applications must be sent by **1600 CEST on 22<sup>nd</sup> June 2011**. The peer-review team 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.

### Assessment Procedure for Tier-1 applications

All proposals will undergo technical and scientific assessment. All applicants should expect to be notified of the outcome by the end of October 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, also for this Pilot DECI call, to most of the general PRACE principles of peer review, namely:

- Transparency
- Ensure fairness to the science proposed



- No parallel assessment
- Managing interests
- Expert assessment
- Confidentiality

More information on the general principles of PRACE peer review can be found on the [PRACE website](#).

### Criteria for Assessment to Tier-1 resources

Proposals must deal with complex, demanding, innovative simulations that would not be possible without Tier-1 access.

Projects supported by DECI will be chosen on the basis of innovation potential, scientific excellence and relevance criteria.

In addition to offering access to computing resources, applications-enabling assistance from experts at the leading European HPC centres is offered to enable projects to be run on the most appropriate Tier 1 platforms in PRACE.

Priority will be given to proposals that promote collaborative research, either at a cross-national or cross-disciplinary level.

### Timetable for both Tier-0 and Tier-1 proposals

<b>Closing date</b> for the submission of proposals:	<b>22<sup>nd</sup> June 2011, 1600 CEST</b>
<b>Request</b> for administrative clarification:	<b>23<sup>rd</sup> June 2011</b>
<b>Deadline for sending administrative clarifications requested:</b>	<b>27<sup>th</sup> June 2011, 1200 CEST</b>
<b>Response of applicants to reviews</b> (Only for Tier-0 applications)	<b>12<sup>th</sup> – 20<sup>th</sup> September, 2011, 1200 CEST</b>
<b>Anticipated allocation decisions:</b>	<b>Third week of October 2011</b>
<b>Start date</b> of successful proposals:	<b>1<sup>st</sup> November 2011</b>
<b>End date</b> of award:	<b>31<sup>st</sup> October 2012</b>

### Contacts

For peer review queries please contact

Tier-0: [peer-review@prace-ri.eu](mailto:peer-review@prace-ri.eu)

Tier-1: [DECI-support@prace-project.eu](mailto:DECI-support@prace-project.eu)