

Seamless Continuation: 4th PRACE Implementation Phase Project

In response to the European Commission's call for proposal in 2014 within the new European framework programme Horizon 2020 PRACE partners from 25 countries submitted a successful proposal and started the 4th Implementation Phase project (PRACE-4IP) on 1 February 2015. The project will support the transition from the initial five-year period (2010-2015) of the Research Infrastructure established by the Partnership for Advanced Computing in Europe (PRACE) to PRACE 2.0.

Key objectives of PRACE-4IP are:

Ensure long-term sustainability of the infrastructure. The project will assist the PRACE Research Infrastructure (PRACE RI) in managing the transition from the business model used in the Initial Period. It demonstrated the case for a European HPC research infrastructure relying on the strong engagement of four hosting partners (BSC representing Spain, CINECA representing Italy, GCS representing Germany and GENCI representing France) who funded and deployed the petaflop/s systems used by PRACE RI.

Promote Europe's leadership in HPC applications. Scientific and engineering modelling and simulation require capabilities of supercomputers. The project will enable application codes for PRACE leadership platforms and prepare for future systems, notably those with architectural innovation embodied in accelerators

or co-processors, by investigating new programming tools and developing suitable benchmarks.

Increase European human resources skilled in HPC and HPC applications.

The project will contribute by organizing highly visible events, enhancing the state of the art training provided by the PRACE Advanced Training Centres (PATCs), targeting both the academic and industrial domains. On-line training will be improved and a pilot deployment will assess a Massively open online Course (MooC).

Support a balanced eco-system of HPC resources for Europe's researchers.

The project will contribute to this objective through tasks addressing: a) the improvement of PRACE operations; b) the prototyping of new services including "urgent computing", the visualization of extreme size computational data, and the provision of repositories for open source scientific libraries. Links will be established with other e-infrastructures, the Centres of Excellence which will be created in Horizon 2020 and the existing international collaborations will be extended.

Evaluate new technologies and define Europe's path for using ExaFlop/s resources.

The project will extend its market watch and evaluation based on user requirements, study best practices for energy-efficiency and lower environmental impact throughout the life cycle of large

HPC infrastructures and define best practices for prototype planning and evaluation. This will contribute to solve a wide range of technological, architectural and programming challenges for the exaflop/s area.

Disseminate effectively the PRACE results. This targets engaging European scientists and engineers in the wider utilisation of high end HPC. The project will continue to organise well known events like PRACEdays, Summer of HPC or the International HPC Summer School in order to promote and support innovative scientific approaches in modelling, simulation and data-analysis. With the extended presence at conferences (e.g. SC, ISC or ICT) the project is seeking wider support of the general

public for investment in HPC, in particular by illustrating success stories and raising awareness in the potential for development.

PRACE-4IP is again coordinated and managed by by Forschungszentrum Jülich. It has a budget of nearly Euro 16,5 Mio including an EC contribution of Euro 15 Mio. The duration will be 27 month.

Over 250 researchers collaborate in PRACE from 49 organisations¹ in 25 countries. 106 collaborators met in Ostrava from 28-29 April 2015, for the PRACE-4IP kick-off meeting. The meeting was organised by IT4Innovation-VSB and held at the Technical University of Ostrava, Czech Republic.



Figure 1: PRACE collaborators at the PRACE-4IP kick-off meeting

Synopsis of the PRACE Projects

The European Commission supported the creation and implementation of PRACE through five projects with a total EC funding of Euro 82 Mio. The partners co-funded the projects with more than Euro 33 Mio in addition to the commitment of Euro 400 Mio for the initial period by the hosting members to procure and operate Tier-0 systems and the in-kind contribution of Tier-1 resources on systems at presently twenty partner sites. The following table gives an overview of the PRACE projects.

Project Id Grant Number	Number Partners	Euro Budget Mio.	Euro EC Funds Mio.	Duration	Status
PRACE-PP RI-211528	16	18.9	10.0	1.1.2008 - 30.6.2010	completed
PRACE-1IP RI-261557	21	28.5	20.0	1.7.2010 - 31.8.2013	completed
PRACE-2IP RI-283493	22	25.4	18.0	1.9.2011 - 31.8.2013	completed
PRACE-3IP RI-312763	26	26.8	19.0	1.7.2012 - 30.6.2014	completed PCP ² to end June 30, 2016
PRACE-4IP 653838	26	16.5	15.0	01.02.2015 - 30.4.2017	started
(total)		116.0	82.0		



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¹ This includes 26 Beneficiaries and 23 linked Third Parties from associated universities or centres.

² The Pre Commercial Procurement Pilot (PCP) is part of the PRACE-3IP project, however with a duration of 48 month.