JÜLICH
FORSCHUNGSZENTRUM

JSCNews
Jülich
Supercomputing
Centre

No. 161 • Feb. 2008

PRACE project launched

PRACE, the Partnership for Advanced Computing in Europe, has reached another milestone in its mission to create a European high-performance computing infrastructure. At the end of 2007 the project received a grant of € 10 million from the European Commission towards its total budget of € 20 million for the next two years. On 29 and 30 January 2008, the kick-off meeting of the project – which is coordinated by Forschungszentrum Jülich – took place at JSC. 74 participants from 14 European countries attended the meeting. Thomas Rachel, Parliamentary State Secretary at the Federal Ministry of Education and Research, opened the event.

PRACE has been established to create a permanent pan-European High Performance Computing service for research. In the preparatory phase, which runs until the end of 2009, the project will establish the basis for a transnational organisational structure for scientific supercomputing in Europe. By bringing together the know-how and resources of the partners, PRACE will provide European researchers with access to supercomputing capacities at a world-class level, transcending those affordable at the national level. This includes a coordinated approach to hardware procurement and potentially a European platform for the development of hardware and software jointly with industry. Close cooperation with national and regional computer centres and scientific organisations will ease access to computing resources at all levels for scientists and engineers from academia and industry.

To achieve these challenging goals, the researchers from the partner organisations firmed up details of the project workplan during the kick-off meeting at Jülich. One task is to define a suitable legal form and organisational structure for the permanent European HPC infrastructure. Key to the success of the project are the technical developments required to enable operation of a distributed supercomputing infrastructure, the scaling and optimisation of application software, and the evaluation of prototypes of future computers. PRACE aims to install a petaflop system as early as 2009.

The following countries are collaborating in the PRACE project: Germany, UK, France, Spain, Finland, Greece, Italy, The Netherlands, Norway, Austria, Poland, Portugal, Sweden, and Switzerland. Germany is represented in PRACE through the Gauss Centre for Supercomputing, which focuses the activities of the three HPC centres in Jülich, Stuttgart, and Garching. Through close cooperation with established European research organisations such as ESF, EMBL, and ESA, PRACE will be embedded into the European Research Area. The PRACE project receives funding from the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement no. RI-211528. Additional information: *http://www.prace-project.eu*
Contact: Dr. Thomas Eickermann, ext. 6596

Forschungszentrum Jülich GmbH
in der Helmholtz-Gemeinschaft
Jülich Supercomputing Centre
52425 Jülich I Germany

Phone +49 2461 61-6402

jsc@fz-juelich.de
www.fz-juelich.de/jsc

FZJ-CEA Workshop on High-Performance Computing and Simulation

The Jülich Supercomputing Centre hosted a meeting of researchers from Jülich and the French research organisation CEA. The subject of the workshop was the future collaboration between the two organisations, particularly in the computational sciences and in supercomputing. Leading scientists from a wide range of scientific and technical disciplines were present and discussed plans for joint research in the fields of materials science and quantum technology, soft matter and biophysics, earth and atmospheric sciences, nuclear safety research, hadron physics and nuclear structure, as well as plasma physics and fusion. It was noted that in these areas of the simulation sciences the two centres are in the forefront of European research, due both to their outstanding science and their excellent computational resources.

CEA and FZJ are members of the national consortia which are preparing for the future European HPC ecosystem. They stated that they are both ready and willing to host future European supercomputers and that they want to start with technical preparations for the evaluation and installation of these petaflop systems. They agreed to coordinate their search for complementary systems, which is a requirement of the international simulation community. They also decided to jointly investigate fundamental technical challenges of extreme parallelism. These challenges include the development of highly scalable communication technology, tools for monitoring and steering energy consumption, and the development of terabyte/s-class I/O systems with the emphasis on open software, interoperability, and hierarchical storage.

Special discussions concerned the fusion experiment ITER, which will be built on the CEA campus at Cadarache. CEA supports Jülich's proposal to host and operate a 100 TFlop/s system required for crucial simulations accompanying the construction phase.

The workshop successfully defined the scientific basis for a bilateral collaboration agreement between FZJ and CEA, which will be presented at the 3rd German-French Research Forum in Paris on 29 February 2008.

Number 1 in Robotics Competition

On 25 January 2008, students of the robotics course for the bachelor's degree in "Scientific Programming" at Aachen University of Applied Sciences presented the results of their work at the annual robotics contest in Aachen. This year a team of students from Forschungszentrum Jülich provided the winning robot. Approximately 100 trainees, students, supervisors and other enthusiasts watched the exciting contest with 17 teams participating from Aachen and Jülich. The task was to design robots from building blocks and develop (Java-)control programs enabling the robots to find and collect drinks cans. According to the rules, two teams/robots competed in each match for three minutes. After an exciting group stage, four teams reached the semifinal. In the final, a FZJ team won by 2:1 cans and took the first place. Congratulations!

D-Grid Integration Project

After a funding period of two years, the D-Grid Integration Project 1 (DGI-1) was successfully concluded at the end of 2007. The project was funded by the German Federal Ministry of Education and Research in order to build up a sustainable Grid infrastructure in Germany as part of the e-Science Initiative. The Jülich Supercomputing Centre contributed to DGI-1 by providing solutions in the fields of development and support for the Grid middleware UNICORE, the development of the core D-Grid infrastructure, networking, and security.

The successor project, D-Grid Integration Project 2 (DGI-2), started at the beginning of 2008. The Jülich Supercomputing Centre continues to be involved in several work packages in the project: centre of excellence for Grid middleware – i.e. development and support for UNICORE –, firewalls, and operation of the D-Grid infrastructure. The latter work package is coordinated by JSC and includes the operation and further development of the services for virtual organisations and Grid users and of the Grid resource management system. Furthermore, a common production environment for Grid jobs will be established and the redundancy of central Grid services will be extended. In collaboration with ParTec, JSC will develop an enhanced cluster process management to improve the integration of compute clusters into the Grid infrastructure. The new DGI-2 project will be funded for three years by the German Federal Ministry of Education and Research. Further information: *http://dgi.d-grid.de*

NIC Workshop "From Computational Biophysics to Systems Biology (CBSB08)"

The NIC research group Computational Biology and Biophysics is organising its third annual international workshop "From Computational Biophysics to Systems Biology". The event will take place in the auditorium of Forschungszentrum Jülich from 19 to 21 May 2008. The workshop will bring together renowned scientists from biology, computer science, and physics to discuss current trends and developments in computational biology as well as physical approaches to systems biology. An important question will be how to simulate the physics of the cell, which spans several orders of magnitude. Participants will also discuss new and improved algorithms and their implementation on high-performance computers. Interested scientists are very welcome to attend the workshop. For further information and the online registration form, please visit *http://www.fz-juelich.de/cbsb08*.

Editor: Dr. Sabine Höfler-Thierfeldt, ext. 6765