

# Supercomputing Infrastructures in Europe

Norbert Attig

Jülich Supercomputing Centre (JSC), Institute for Advanced Simulation (IAS),  
Forschungszentrum Jülich, 52425 Jülich, Germany

## Abstract

In the past decade a number of very successful endeavours have been launched and brought into operation by the EU in the field of High Performance Computing (HPC) infrastructures. The first major infrastructure was DEISA, the Distributed European Infrastructure for Supercomputing Applications, which was a consortium of leading national Supercomputing centres that aimed at fostering the pan-European world-leading computational science research. DEISA was funded through several EU projects in the period 2004 to 2011 and finally handed over its services to PRACE.

The mission of PRACE (Partnership for Advanced Computing in Europe) is to enable high impact scientific discovery and engineering research and development across all disciplines to enhance European competitiveness for the benefit of society. PRACE seeks to realize this mission by offering world class computing and data management resources and services through a peer review process. PRACE currently (June 2013) has 25 member countries and offers peer reviewed access to 6 Tier-0 HPC systems with a total capability of 15 PFlop/s. These systems are provided by 4 PRACE members (BSC/Spain, CINECA/Italy, GCS/Germany, and GENCI/France) who committed HPC-resources worth of €400 million for the period 2010-2015. Since its creation in mid 2010, PRACE has provided 5.5 billion CPU-cores hours to hundreds of projects from all scientific disciplines. PRACE is established as an international not-for-profit association (aisbl) with seat in Brussels. It is complemented by several projects. The PRACE project partners receive EC funding since 2007 under the PRACE Preparatory and Implementation Phase Projects for a total of €67 million complemented by the consortium budget of over €43 million.

Further European HPC infrastructures are dedicated to specific regions, like HP-SEE to South-Eastern Europe or LinkSCEEM to the Eastern Mediterranean.

In the presentation all these infrastructures will be introduced briefly, followed by a detailed description of PRACE, the most important HPC infrastructure in Europe. In some detail organisation, hardware, HPC access, peer review process, scientific case, scientific successes, education and training and relations to industry will be discussed.