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50 Years ZAM/JSC

A young institute is looking back to its roots: although the Jülich Supercomputing Centre first became known by this name in 2007, its predecessor has a long history which goes back to 1961. In autumn 1961, the Central Institute for Applied Mathematics (ZAM) was founded at Forschungszentrum Jülich (then known as Kernforschungsanlage) as a combination of a mathematical institute and a computing centre. After ten years of fruitful investigations in applied and numerical mathematics and scientific computing, a politically motivated drastic shortage of research funding slowed down the prosperity of the institute for a couple of years in the early seventies.

It was due to the personal commitment of Prof. Friedel Hoßfeld, director of ZAM from 1973 to 2002, that the institute recovered and regained its scientific position under his leadership. In the early eighties, the institute entered the field of supercomputing with the installation of a Cray supercomputer, which at that time was the fastest supercomputer in Europe. In 1987, Friedel Hoßfeld's continuous engagement led to the foundation of the first German national supercomputing centre (Höchstleistungsrechenzentrum HLRZ) together with DESY and GMD, with ZAM being the main computer centre in this alliance. Supercomputing, data communication, cooperative computing and mathematics were the main topics of research at ZAM in the nineties. The Cray supercomputer complex installed in 1996 was another milestone in ZAM's history: for the first time, a supercomputer at Forschungszentrum Jülich was among the top 10 in the TOP500 list of the fastest supercomputers worldwide.

After Prof. Thomas Lippert became director of ZAM in 2004, he expanded the institute to a leading supercomputing centre not only in Germany but also in Europe. In an increasingly competitive research landscape, funds could be secured to continue to procure and install leadership-class supercomputers: first JUMP in 2004, and JUGENE and JUROPA/HPC-FF in 2009. The latter computer was the first computer to be co-designed by JSC and realized by a multinational collaboration of several companies. Furthermore, several unique strategic partnerships with leading international companies like IBM and Intel have been set up to investigate hardware and software topics necessary for exascale supercomputers. In 2010, JSC became the first computing centre to deliver computing time to the European PRACE community.

Our institute celebrates its 50th birthday in November, but it is far away from resting on its laurels. There are many plans for the future. Simulation labs on diverse topics offer a new high-end support structure for scientific communities. New projects and collaborations lie ahead that will tackle the problems of future computer architectures. We hope that our users, partners, supporters and friends all join with us in celebration: Happy birthday, JSC!

Open Day at JSC

On 24 November 2011, JSC is celebrating its 50th birthday. We want to share this special event with you and would like to invite

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you into our foyer and Rotunda from 12:00 to 14:30 on this particular day. Have a look at our supercomputers and get more information on JSC's activities. There will be virtual reality presentations in the Rotunda, and our MATSE trainees will demonstrate their robots from the robotics course. Every visitor will receive a piece of German lebkuchen. We look forward to seeing you there!

Exascale Software Efforts Continue

On 7-8 October 2011, JSC organized and hosted the 7th meeting of the International Exascale Software Project (IESP) in Cologne. The objectives of IESP are to develop and maintain an international exascale system software roadmap, to investigate opportunities for international collaborations and funding, and to explore governance structure and models for an international effort to create the exascale system software needed. Around 80 experts from China, Europe, Japan, Russia, and the USA meet about two to three times a year to discuss these topics. For further information see *http://www.exascale.org*.

Subsequent to the IESP meeting, on 10-11 October, the EU-funded support action "European Exascale Software Initiative" (EESI) presented their final results to the general public after 18 months of expert consultations and meetings. The goals of EESI were to intensify IESP efforts on the European level, to develop a European exascale system and application software vision and roadmap, to investigate Europe's strengths and weaknesses, to identify sources of competitiveness for Europe, and finally to investigate and propose programmes in education and training for the next generation of computational scientists. JSC coordinated 4 of the 8 EESI expert groups working under the topic "Enabling technologies for Exaflop computing". Furthermore, the three new EU-funded exascale projects CRESTA, Mont-Blanc and DEEP were presented. The meeting, attended by over 220 guests from science and industry, concluded with presentations of comparable efforts in the USA, Japan, and China and discussions on possible international collaborations. The final reports will be published by the end of the year on the project website: *http://www.eesi-project.eu*.
(Contact: Dr. Bernd Mohr, ext. 3218)

International Workshop SMQS-IP2011

The "International Workshop on Simulation and Manipulation of Quantum Systems for Information Processing (SMQS-IP2011)" took place from 17 to 19 October 2011 at the Jülich Supercomputing Centre. The goal of the workshop was to discuss methods to simulate and manipulate quantum systems for pure scientific and more applied purposes. More than 50 researchers from Germany, France, Poland, the Netherlands, the United States and Japan participated in the workshop. Recent developments in quantum annealing, open quantum systems, quantum computer hardware, optical lattices, equilibration and thermalization of quantum systems, quantum biology, and related topics were highlighted in talks and posters. Managing and designing complex quantum systems with specified behaviour for quantum information processing requires a deep understanding of the cooperative behaviour of their components. Unravelling this behaviour necessitates an intensive collaboration between theoreticians and experimenters. The workshop successfully presented an overview of the current research on various topics very closely and less closely related to quantum information processing. A similar workshop in 2012 is being considered.
(Contact: Prof. Kristel Michielsen, ext. 2524)

Next PRACE and DECI Calls

The Partnership for Advanced Computing in Europe (PRACE) allows researchers from across Europe to apply for computing time on high-performance computers from a series of hosting partners. The new calls for proposals have now been opened for the highest supercomputing class (Tier-0) as well as for the national systems (Tier-1, known as DECI projects). Allocation will be for one year starting from 1 May 2012. The deadline for the submission of proposals is 10 January 2012. Details can be found at *http://prace-ri.eu/PRACE-Project-Access-4th-call-for*. JSC is offering computing time on JUGENE within the PRACE call and on JUROPA within the DECI call.

Events

Open Day at JSC
Date: 24 November 2011, 12:00 - 14:30
Venue: JSC, Rotunda and Foyer, building 16.4

Introduction to the programming and usage of the supercomputing resources at Jülich
Instructors: Representatives of IBM, Intel and ParTec, JSC staff members
Date: 24 November 2011, 13:00 - 17:30, and
25 November 2011, 08:30 - 16:00
Venue: JSC, Hörsaal (building 16.3, room 006)
Registration: *dispatch.jsc@fz-juelich.de*, ext. 5642
Agenda: *http://www.fz-juelich.de/ias/jsc/events/sc-agenda*

PhD student seminar "Fluid dynamics on supercomputers"
Date: 29 November 2011, 09:00 - 15:30
Venue: JSC, Besprechungsraum 1 (building 16.3, room 107)
Agenda: *http://www.fz-juelich.de/ias/jsc/events/dlr-fzj-phd*

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