Guest Student Programme 2014

In summer 2014, JSC is again offering a guest student programme. This programme is supported by the Centre Européen de Calcul Atomique et Moléculaire (CECAM), the German Research School for Simulation Sciences (GRS) and IBM. In this programme, students majoring in the natural sciences, engineering, computer science or mathematics will be given the opportunity to familiarize themselves with different aspects of scientific computing. Together with local scientists, the participants will work on various current topics in research and development. Depending on previous knowledge and on the participant's interest, an assignment can be chosen from different areas. These fields include mathematics, physics, chemistry, neuroscience, software development tools, visualization, distributed computing, operating systems and communication. Special emphasis is placed on the use of supercomputers.

The participants are expected to have some experience in the computer-oriented branches of their subjects. The students should have completed their first degree but not yet finished their master's course. Additionally a letter of recommendation from a university lecturer or professor is required.

The programme will last ten weeks and takes place from 4 August to 10 October 2014. Students are encouraged to apply for the programme online. The closing date for applications is 30 April 2014. Further information can be found on the website at

http://www.fz-juelich.de/ias/jsc/gsp/.
(Contact: Dr. Ivo Kabadshow, *jsc-gsp@fz-juelich.de*)

News from PRACE Implementation Projects

On 18 February 2014, PRACE-1IP – the first of three EU-funded projects to support the implementation of the PRACE Research Infrastructure – successfully completed its final review. The reviewers' assessment concluded that the project made the 'very impressive achievement' of establishing the European HPC Infrastructure with 'six Tier-0 centres funded in four countries, a scientific steering committee and a peer review process for resource allocation to scientific projects, starting from an almost blank slate'. Consequently the project was rated 'excellent'.

Almost at the same time, preparations started for a proposal for the next PRACE project, to be funded under the new EU framework programme Horizon 2020. At its meeting in London in January, the PRACE Council asked JSC to act as coordinator for the project proposal, as a continuation of the two past (PRACE Preparatory Phase and PRACE-1IP) and the two ongoing implementation projects (PRACE-2IP and -3IP). A major task of the new project will be to support the transition of the PRACE Research Infrastructure to its second 5-year period due to start in mid-2015. PRACE is currently in the process of defining its strategy for this period, called PRACE 2.0. The challenges include the

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transition towards a more inclusive funding model and addressing HPC needs for longer-term research programmes. (Contact: Dr. Florian Berberich, *f.berberich@fz-juelich.de*)

Forschungszentrum Jülich Joins the OpenPOWER Foundation

In summer 2013, the companies IBM, NVIDIA, Mellanox, Google, and the Taiwanese manufacturer of computer motherboards, TYAN, announced the establishment of the OpenPOWER Foundation. Meanwhile other companies like Samsung have also joined. Members of the foundation plan to build advanced server, networking, storage and acceleration technology. While aiming at a broader market, the technology provided by several members of the OpenPOWER Foundation is a key for new supercomputing architectures. Broadening the scope of supercomputing solutions available in the future and opening new paths towards power-efficient exascale computing were the main reasons for Forschungszentrum Jülich joining the OpenPOWER Foundation in March.

In 2010 and 2012, JSC established long-term collaborations with IBM and NVIDIA, and created the exascale labs Exascale Innovation Centre (EIC) and NVIDIA Application Lab at Jülich. As part of the OpenPOWER initiative, both labs have started to work jointly on an evaluation of architectures based on the next generation POWER8 processors, which will become available in the next few months, and NVIDIA's next generation high-end GPUs. In the framework of the POWER8 Early Shipment Programme, a first test system will be installed at JSC in the near future.

GPUs provide large amounts of computational performance through extreme parallelism at moderate clock speeds and thus small power envelope. Therefore, many of the largest supercomputers currently in operation are based on such massively parallel computing devices as GPUs or Xeon Phi. As not all applications can leverage this high level of concurrency and require more memory capacity than typical GPUs can offer, these need to be combined with high-end processing cores. Tighter integration with POWER processors thus opens up new opportunities for GPU-based high-performance computing. JSC expects to contribute to the supercomputing-oriented roadmap within the OpenPOWER Foundation.
(Contact: Prof. Dr. Dirk Pleiter, *d.pleiter@fz-juelich.de*)

Looking Back at Lattice Practices 2014

In March 2014, the workshop "Lattice Practices 2014" at Zeuthen was organized by the Simulation Lab Nuclear and Particle Physics established jointly by the Cyprus Institute, DESY, and JSC. The workshop provided 29 students and researchers with practical training as well as theoretical background for their own research. Speakers from the SimLab partners and other European institutions gave lectures on topics in their own field of expertise and prepared hands-on exercises, with a strong emphasis on practical training. This year's topics ranged from data analysis and numerical techniques, optimization strategies and computer architecture up to Higgs physics on the lattice. The participants' comments showed that the workshop met their interests and provided encouraging feedback for the next workshop. More information can be found at *https://indico.desy.de/event/LAP2014*
(Contact: Dr. Stefan Krieg, *s.krieg@fz-juelich.de*)

Young Scientist Award for Anna Westhoff

During the 11th Workshop on Parallel Algorithms and Systems and Algorithms (PASA) recently held in Lübeck, Anna Westhoff was awarded the "PARS-Nachwuchspreis der PARS-GI/ITG-Fachgruppe" for her presentation of work based on her master's thesis. Her paper "Hybrid parallelization of a seeded region growing segmentation of brain images for a GPU cluster" describes her approach to identifying brain and non-brain regions in images captured with the polarized light imaging technique developed at the Institute of Neuroscience and Medicine (INM-1) at Forschungszentrum Jülich. The algorithm has been successfully parallelized for the GPU cluster JUDGE using MPI and CUDA. We congratulate Anna Westhoff on her prize.

Events

Advanced GPU Programming
Instructors: Dr. J. Meinke, J. Kreutz, P. Philippen, W. Homberg, Dr. A. Adinets, Dr. W. Schenck, JSC; J. Kraus, NVIDIA
Date: 5-6 May 2014, 09:00-16:30
Venue: Ausbildungsraum 1, Jülich Supercomputing Centre
Registration: *w.homberg@fz-juelich.de*, ext. 2424

Introduction to the programming and usage of the supercomputing resources at Jülich
Instructors: Representatives of IBM, Intel and ParTec, JSC staff members
Date: 19-20 May 2014, starting at 13:00 on 19 May
Venue: Hörsaal, Jülich Supercomputing Centre
Registration: *jsc-conferences@fz-juelich.de*

Parallel I/O and Portable Data Formats
Instructors: W. Frings, Dr. M. Stephan, Dr. F. Janetzko, JSC
Date: 21-23 May 2014, 09:00-16:30
Venue: Ausbildungsraum 1, Jülich Supercomputing Centre
Registration: *http://www.fz-juelich.de/ias/jsc/events/parallelio*

3rd Workshop on Parallel-in-Time Integration
Date: 26-28 May 2014, 09:00-16:30
Venue: Rotunda, Jülich Supercomputing Centre
Info: *http://www.fz-juelich.de/ias/jsc/pintws2014*