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FORSCHUNGSZENTRUM

JSCNews
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Open Day at JSC

Forschungszentrum Jülich cordially invites the public to an Open Day on Sunday, 5 June 2016. JSC will be open from 10:00 to 17:00 with the following highlights for all those interested: opportunity to view the supercomputers, 3D visualization of scientific simulations, the innovative prototype cluster-booster system DEEP, and the supercomputer simulator SuperResi.

Our education team will be on hand to inform visitors about opportunities to train as a mathematical-technical software developer (MATSE), bachelor's courses in scientific programming, and master's courses in technomathematics. Furthermore, one question in the popular research rally for children is about JSC. For detailed information on the attractions at JSC, see *http://www.fz-juelich.de/ias/jsc/tdn* (in German).

We are looking forward to your visit!

JSC@ISC'16

The International Supercomputing Conference 2016 (ISC'16) will take place from 19 to 23 June 2016 in Frankfurt am Main. JSC, together with its partners in the Gauss Centre for Supercomputing (GCS), HLRS (Stuttgart), and LRZ (Garching), will present its wide-ranging supercomputing activities at the GCS booth (#1310).

In particular, JSC will showcase LLview, the comprehensive interactive monitoring software for supercomputers developed in-house, demonstrating live the operation of various supercomputers worldwide. A wide spectrum of scientific results obtained with its supercomputers will be exhibited in the form of videos and animations. Flyers will present information about JSC's research and support activities as well as the HPC infrastructure provided to national and international scientists.

JSC staff will co-organize the workshops "Hardware Prototyping: Developing Next-gen HPC Architectures" and "International Workshop on OpenPOWER for HPC (IWOPH'16)". Furthermore, members of JSC will speak in the Birds-of-a-Feather sessions "POP Improves HPC Applications" and "Exascale I/O: Challenges, Innovations & Solutions". Additionally, they will give several presentations at the conference and will co-organize the tutorials "Hands-on Practical Hybrid Parallel Application Performance Engineering" and "Debugging & Performance Analysis on Native & Offload HPC Architectures". Members of JSC will also be on hand at the booths of the European Exascale Projects (#1340), PRACE (#1201), JARA (#1320) and UNICORE (#553). Detailed information on JSC's participation can be found at *http://www.fz-juelich.de/ias/jsc/isc16*.
(Contact: Dr. Florian Janetzko, *f.janetzko@fz-juelich.de*)

International Workshop QuAASI'16

The international workshop "Quantum Annealing and its Applications in Science and Industry (QuAASi'16)" will take place from 26 to 28 July 2016 in the Rotunda of the Jülich Supercomputing Centre. The goal of

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the two-day workshop, followed by a D-Wave Exploration Day, is to bring together researchers from different communities to discuss the challenges in using quantum annealing to solve some real-world problems and in optimizing and designing existing and future quantum annealing hardware.

Quantum annealing is a technique, inspired by the classical simulated annealing techniques based on temperature fluctuations, for finding the global minimum of a function by a process using quantum fluctuations. It is mainly used for optimization problems that have a discrete search space with many local minima. Many challenging optimization problems of this kind play a role in scientific research and in industrial applications.

D-Wave is the first company that has commercialized quantum annealers. Its quantum annealer is a programmable artificial spin system manufactured as an integrated circuit of superconducting qubits. Qubits or quantum bits are the elementary building blocks of a quantum computer, similar to the bits in a digital computer. The latest D-Wave system, D-Wave 2X, is a 1000-qubit quantum annealer. Although discussions on whether the D-Wave machines outperform classical optimizers are continuing, it is clear that the availability of operational hardware allows the potential of quantum annealing to be explored for a range of real-world applications as of today.

This two-day workshop will provide participants with the opportunity to discuss the potential of quantum annealing for pure scientific and more applied purposes. The D-Wave Exploration Day will allow a limited number of selected participants to get a feeling of how to use a quantum annealer for computation. The talks, given by invited speakers, will cover topics including the history of quantum annealing, adiabatic quantum computation, quantum annealing algorithms for optimization problems in science and industry, and D-Wave's quantum annealing architecture.

More information on the workshop can soon be found at *http://www.fz-juelich.de/ias/jsc/events/quaasi16*.
(Contact: Prof. Kristel Michielsen,
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New GCS Large-Scale Projects in May 2016

Twice a year, the Gauss Centre for Supercomputing (GCS) issues a call for large-scale projects on its petascale supercomputers, currently JUQUEEN (JSC), Hazel Hen (HLRS), and SuperMUC (LRZ). Projects are classified as large-scale if they require at least 35 million compute core hours. At its April meeting at JSC, the GCS Peer Review Board decided to award the status of a large-scale project to 21 projects from various fields of the simulation sciences. Three projects were granted a total of about 440 million compute core hours on Hazel Hen, twelve projects were granted a total of about 610 million compute core hours on JUQUEEN, and eight projects were granted about 600 million compute core hours on SuperMUC. In total, more than 1.6 billion compute core hours have been awarded for GCS large-scale projects, which is a new all-time high. For more details on these projects, some of which utilize the resources of several centres, see *http://www.gauss-centre.eu/large-scale*.
(Contact: Dr. Florian Janetzko, *nic@fz-juelich.de*)

News from the NIC Scientific Council

The Scientific Council of the John von Neumann Institute for Computing (NIC) held its annual meeting on 14 April 2016 at JSC. Prof. Kurt Binder chaired the meeting. Dr. Stefan Schäfer (DESY, Zeuthen), Dr. Urs Wenger (University of Bern), and Prof. Ludger Wirtz (University of Luxembourg) were elected as new members and will begin their terms in January 2017. Dr. Christian Stemmer, Technical University of Munich, was elected as new member of the NIC Peer Review Board and will begin his term of office at the next meeting of the Peer Review Board in October.
(Contact: Dr. Alexander Schnurpfeil, *nic@fz-juelich.de*)

Michael Stephan New President of SPXXL

Dr. Michael Stephan from JSC was elected president of SPXXL, the worldwide user group for large HPC installations running IBM or Lenovo systems. Unlike other vendor-organized user groups, SPXXL is a self-organized, self-sufficient non-profit organization. Members and affiliates participate actively in SPXXL meetings and cover their own costs for participating. At the moment, SPXXL has 45 member sites. The goal of the organization is to work together with the vendors to increase the capabilities and advance the technology of large-scale, parallel technical computing hardware and software and to provide guidance to vendors on essential development and support issues for HPC at scale. JSC wishes Michael Stephan all the best for his new duty.

Events

Introduction to the usage and programming of supercomputer resources in Jülich
Instructors: Representatives of Intel and ParTec, JSC staff members
Date: 23-24 May 2016, beginning on 23 May at 13:00
Venue: Jülich Supercomputing Centre, Hörsaal
Info: *http://www.fz-juelich.de/ias/jsc/events/sc-may*

JURECA Porting and Tuning Workshop
Date: 6-8 June 2016, 09:00-17:00
Venue: Jülich Supercomputing Centre, Rotunda
Info: *http://www.fz-juelich.de/ias/jsc/jurecapt16*

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