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Helmholtz Data Federation Launched

Large-scale experiments and simulations in science are generating an increasing amount of data. However, transforming data and information into findings and knowledge requires a new quality of storage and analysis capability. Together with five other Helmholtz Association data centres, JSC is now designing the infrastructure in the permanent, secure, and usable storage of data. With respect to big data management in science, the Helmholtz Association has established the Helmholtz Data Federation (HDF). Within the next five years, about € 49.5 million will be invested into multidisciplinary data centres and modern data management. The HDF, which was initiated in January 2017, will establish a data federation comprising three elements: innovative software technologies, excellent user support, and cutting-edge storage and analysis hardware.
(Contact: Daniel Mallmann, *d.mallmann@fz-juelich.de*)

Guest Student Programme 2017

In summer 2017, JSC will again be offering a guest student programme that is to be supported by the Centre Européen de Calcul Atomique et Moléculaire (CECAM) and IBM. Within this programme, students with a bachelor's degree in natural sciences, engineering, computer science, or mathematics will have 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 the participant's interest and prior knowledge, the assignment can be chosen from a range of different areas, including mathematics, physics, chemistry, neuroscience, software development tools, visualization, distributed computing, operating systems, and communication. Special emphasis is given to the use of supercomputers.

The participants are expected to have expertise and experience in the computer-oriented branches of their subjects. Students should already have completed their bachelor's degree but not yet finished their master's. In addition, a letter of recommendation from a university lecturer or professor is required for an application.

The programme will last ten weeks from 7 August to 13 October 2017. Students are encouraged to apply for the programme online. The closing date for applications is 26 March 2017. Further information can be found online at *http://www.fz-juelich.de/ias/jsc/gsp/*.
(Contact: Dr. Ivo Kabadshow, *jsc-gsp@fz-juelich.de*)

New JURECA Cooperation Agreement Signed

In the presence of delegates from the Ministry of Industry and Trade of the Russian Federation, the JURECA cooperation agreement was signed on 3 February. The general purpose cluster JURECA, which was developed by the Jülich Supercomputing Centre together with Russian manufac-

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turer T-Platforms (Moscow) and HPC software and support company ParTec (Munich) was put into general operation in November 2015. With the signing of the agreement, the three partners are striving to intensify and strengthen this cooperation by addressing (operational) limitations of current cluster-computing technologies in the fields of scalability and efficiency as well as with respect to adaptability and ease of use. To this end, the partners have agreed to engage in research in the following fields within the next four years: the development of tools for energy (and system) monitoring and research on energy control mechanisms based on frequency adaptation, support for container execution on HPC clusters using the ParaStation resource management system, virtualization of cluster services for efficient cluster provisioning and simplified deployment of multiple independent cluster instances on shared hardware, and advanced high-performance network technologies.

The JURECA cooperation agreement constitutes the fourth implementation phase of JSC's co-design research agenda, which combines the expertise of industry-leading hardware and software vendors with the software and application competence at JSC in order to develop production-ready solutions for next-generation cluster architectures.
(Contact: Dr. Dorian Krause, *d.krause@fz-juelich.de*)

JUQUEEN Users Reimbursed for Lost Cycles

Severe technical problems caused long-term outages on our high-performance computing (HPC) systems in December 2016. The problems were related to the General Parallel File System GPFS and affected all HPC systems connected to the central GPFS file server. A bug-fix sent in mid-December by the GPFS supplier appeared to have solved the problem until the file system crashed again during the Christmas holidays.

An error analysis revealed that the failure originated from the JUQUEEN HPC system. For this reason, the JUQUEEN system was taken out of operation on 24 December, while the other compute systems – after repairing the GPFS file system – were restarted in production mode. In the course of a comprehensive analysis after Christmas, the problem was eventually rectified on 4 January. To this end, a temporary solution was established on the JUQUEEN system while a new GPFS software version was rolled out on the GPFS file server and other related systems. A new GPFS version is currently unavailable for JUQUEEN.

In order to alleviate the impact of the extended downtime, especially on JUQUEEN, JSC decided to reimburse JUQUEEN users for lost compute time. Each JUQUEEN project will therefore receive one-twelfth of its originally allocated annual budget on top of its regular allocation. These additional resources will be spread out equally over the months February, March, and April 2017. The reimbursement has been made possible by adopting JUQUEEN resources.

We apologise for the significant inconvenience caused by the crash and the subsequent downtime, in particular on JUQUEEN. All HPC systems are back in production again and we are confident that the source of the problems has been identified and fixed.
(Contact: Ulrich Detert, *u.detert@fz-juelich.de*)

Big Blue Gene Week to Become a Regular Event

From 25-30 January, JSC offered the second "Big Blue Gene Week" on the JUQUEEN system. The event confirmed the additional value that can be generated by fully dedicating the highly parallel HPC infrastructure to applications that rely on capability computing. Similar to the first-ever Big Blue Gene Week, various scientific use-cases were covered which cannot be considered in terms of capacity computing. Examples include exascale-oriented numerical experiments on the NEST simulator in neuroscience, simulations of plasticity effects of binary steel alloys in materials science, and advanced multi-scale computations in atmospheric science.

Drawing on the experience of the past two events, JSC will move forward in providing these kinds of opportunities to its users. JSC aims to facilitate the proper use of its machines for projects which use highly scalable code. For this purpose, the level of code scalability will be given increased emphasis in the process of awarding computing time.

Users are encouraged to consider this perspective in their projects and to contact JSC for support. The next event of this kind is planned to take place around September 2017.
(Contact: Dr. Daniel Rohe, *sc@fz-juelich.de*)

Bernd Mohr Named on HPCwire People to Watch 2017 List

Every year, the technology blog and news service HPCwire names its annual list of "People to Watch" to initiate a dialogue about the HPC industry and give its readers a personal look at the hard work, dedication, and contributions from some of the best and brightest minds in HPC. In the latest edition, JSC researcher Bernd Mohr featured on this list in recognition of his leadership roles in organizing the large HPC community events SC and ISC. He is one of just a few people to have featured on the list twice – in 2015 and 2017 (see *https://www.hpcwire.com/people-to-watch-2017/7/*).

New: Subscribe to the email version of JSC News by sending an email to *jscnews-subscribe@fz-juelich.de*.

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