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JUWELS – Installation of JUQUEEN Successor Started

In spring 2018, an era will come to an end at JSC. After more than 14 successive years, in which all three generations of the Blue Gene architecture were operated by JSC, the last Blue Gene/Q system at JSC – JUQUEEN – will be shut down soon. The successor system called Jülich Wizard for European Leadership Science – or JUWELS for short – will be constructed as a modular supercomputer. This architectural paradigm has been developed at JSC over the past few years and was successfully demonstrated at scale in 2017, when the JURECA Cluster-Booster system was unveiled and ranked 29th on the November Top500 list.

The JUWELS system will consist of multiple, architecturally diverse but fully integrated, Tier-0 modules designed for specific simulations and data science tasks. The first module, which is set to replace the JUQUEEN system in 2018, will be a versatile cluster architecture based on commodity multi-core CPUs. A second booster module, optimized for massively parallel workloads, is currently scheduled for the beginning of 2020. In the meantime, JUQUEEN users can also answer the call for compute time on the highly scalable JURECA Booster module.

The JUWELS Cluster module is supplied by Atos based on its Sequana architecture. The Munich-based company ParTec will provide software and support for systems operation. The module will consist of about 2,550 compute nodes, each with two Intel Xeon 24-core Skylake CPUs and 96 GiB of main memory. About 9% of the compute nodes will be equipped with twice the main memory (192 GiB) capacity. In addition, about 2% of the compute nodes will feature four of the latest-generation NVIDIA Volta GPUs. The compute nodes are interconnected with a Mellanox EDR InfiniBand interconnect. The system will use ParTec's ParaStation cluster middleware. The peak performance of the system will be 12 petaflops (10.4 petaflops without GPUs).
(Contact: Dr. Dorian Krause, *d.krause@fz-juelich.de*)

InHPC-DE Project to Further Integrate the GCS Centres

The three GCS centres – High Performance Computing Center Stuttgart (HLRS), Jülich Supercomputing Centre (JSC), and Leibniz Supercomputing Centre, Garching near Munich, (LRZ) – have started an initiative that aims to expand the existing close cooperation of the three national high-performance computing (HPC) sites. The InHPC-DE project aims to unite the three national HPC centres into one integrated national HPC ecosystem, in turn creating the foundation of a homogeneous yet distributed HPC concept for Germany's Tier-1 computing facilities and technologies as well as its world-class HPC services and support.

At the heart of this initiative is a high-speed 100 Gbit/s network, based on DFN's X-WiN and BelWü, to interlink the three centres

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nationwide, enabling an easy and fast, cross-organizational transfer of the massive amounts of data resulting from the large-scale computing runs. This extremely fast network will support distributed workflows, including post processing, and allow for collaborative, remote visualization. Equally important will be the implementation of a distributed yet integrated data management system spread across the three centres.

By fostering a tighter technical integration of the GCS centres, InHPC-DE will complement the ongoing SiVeGCS project, which is mainly focused on the provision of national (Tier-1) and European (Tier-0) HPC services. The latter project also aims to provide unified, peer-review-based access to these services and a revamp of the user support structure to include not only HPC support specialists, but also application experts. With the aid of a contact person specialized in their various science domains, researchers using GCS resources can collaborate more closely with the respective centres and have someone available to help solve specific computing challenges in the researchers' respective areas of study.

Under the umbrella of GCS, the three national centres will maintain their status as closely coordinated, highly aligned HPC centres. The technical and conceptual investments involved with the InHPC-DE project lay the foundation for Germany's "Smart Scaling" initiative, in which an advanced support structure and integrated computing ecosystem will lead to scientists being able to successfully leverage ever-increasing computing capabilities on the path towards exascale computing.

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Calls for Computing Time Applications in January 2018

New calls for computing time applications on JUWELS and JURECA were issued on 22 January 2018. You can find further details at *http://www.fz-juelich.de/ias/jsc/computingtime*. All applications should be submitted by 17:00 CET on Friday, 23 February 2018, at the latest.

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GCS Large-Scale Projects from November

Twice a year, the Gauss Centre for Supercomputing (GCS) issues a call for large-scale projects on its petascale supercomputers, which at present are Hazel Hen (HLRS), JUQUEEN (JSC) – which will be replaced by its successor JUWELS in 2018 – and SuperMUC (LRZ). Large-scale projects are classified as those that require at least 35 million compute core hours (Mcore-h). During its October meeting at JSC, the GCS Peer Review Board decided to award the status of a large-scale project to 30 projects from various scientific fields. Seven projects were granted 465 Mcore-h on Hazel Hen, 14 projects were granted 750 Mcore-h on JUQUEEN, and nine projects were granted 388 Mcore-h on SuperMUC. In total, GCS awarded about 1.6 billion compute core hours to large-scale projects. For more details of these projects, some of which utilize the resources of several centres, visit *http://www.gauss-centre.eu/large-scale*.

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Martin Schultz among Highly Cited Researchers 2017

Dr. Martin Schultz from JSC ranks among the 3,300 Highly Cited Researchers of 2017, a list compiled every year by Clarivate Analytics. For this list, more than 10 million articles from around 11,000 journals are evaluated in 21 research fields. A researcher receives the accolade if he is among the top 1% of most-cited authors in his field. In the case of Martin Schultz, the category was Geosciences. Schultz has contributed to several major international assessments of tropospheric ozone and atmospheric aerosols.

JSC congratulates him on this recognition.

JSC on Twitter

JSC has been active on Twitter for several months now. In 2017, tweets from JSC reached 52,700 times interested readers. We use two channels: *fzj_jsc* for tweets about the activities of the institute and *fzj_jscusers* for tweets on topics relevant to our supercomputer users. Follow us on Twitter!

JSC News via Email

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Events

NIC Symposium 2018
Date: 22-23 February 2018
Venue: Lecture theatre of Forschungszentrum Jülich
http://www.john-von-neumann-institut.de/nic/nic-symposium

Further events, talks, and training courses:
http://www.fz-juelich.de/ias/jsc/events

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