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JUMP Succession

On 1 July 2008, the new IBM Power6 machine p6 575 – known as JUMP, just like its predecessor – took over the production workload from the previous Power4 cluster as scheduled. First benchmark tests show that users can expect their applications to run about three times faster on the new machine. This factor could even be improved by making the most out of the following Power6 features:

- Simultaneous multi-threading (SMT mode): 64 threads (instead of 32) can be used on one node, where 2 threads now share one physical processor with its dedicated memory caches and floating point units.
- Medium size virtual memory pages (64K): applications can set 64K pages as a default during link time and thus can benefit from improved hardware efficiencies by accessing these pages.

For more information, visit our new website: *http://www.fz-juelich.de/jsc/jump*

The new machine has about the same peak performance as the Power4 cluster. This machine is an interim solution until the general purpose part of our dual supercomputer complex will be significantly upgraded, as detailed below.

On 30 June, a contract was signed to install an Intel-based Linux cluster (codename: JUROPA) in 2009. This system will have a peak performance of nearly 200 TFlop/s and is scheduled to begin operation next spring. Currently, it is planned to run JUMP simultaneously with JUROPA for at least two more years. This should provide users with sufficient available computing power on the general purpose part and time to migrate their applications to the new cluster. (Contact: Klaus Wolkersdorfer, ext. 6579)

Gauss Alliance Founded

During the ISC 2008, an agreement was signed to found the Gauss Alliance, which will unite supercomputer forces in Germany. The Gauss Centre for Supercomputing (GCS) and eleven regional and topical high-performance computer centres are participating in the alliance, thus creating a computer association that is unique worldwide. The signatories are: Gauss Centre for Supercomputing (GCS), Center for Computing and Communication of RWTH Aachen University, Norddeutscher Verbund für Hoch- und Höchstleistungsrechnen (HLRN) consisting of Zuse Institute Berlin (ZIB) and Regionales Rechenzentrum für Niedersachsen (RRZN), Center for Information Services and High Performance Computing (ZIH) in Dresden, Regionales Rechenzentrum Erlangen (RRZE), Center for Scientific Computing of the Johann Wolfgang Goethe-University Frankfurt (G-CSC), Rechenzentrum Garching (RZG) of the Max Planck Society and the IPP, Deutsches Klimarechenzentrum (DKRZ), Steinbuch Centre for Computing (SCC), Deutscher Wetterdienst (DWD) and Paderborn Center for Parallel Computing (PC^2). With the foundation of this German HPC alliance, the partners have given their longstanding close cooperation a legal basis for the future.

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UNICORE Day at ISSGC'08

JSC organized a UNICORE day at the International Summer School on Grid Computing (ISSGC'08) in Balatonfüred, Hungary, on 8 July 2008. The day started with an introductory lecture on HPC systems and job management on these computers. The background and principles of the UNICORE Grid technology were then demonstrated. This was followed by lectures, which focussed on the technical details of job submission and workflows. In two practical sessions, 45 students from all over the world learned how to use the command-line and graphical client of UNICORE to submit jobs and workflows. The day closed with a presentation on e-Science with UNICORE, where several methods of using UNICORE in application use cases were outlined. The programme and accompanying material can be found at:
http://www.iceage-eu.org/issgc08/programme.cfm#08
(Contact: Dr. Achim Streit, ext. 6576)

Supercomputer as an Educational Telescope

Each year, the BMBF initiative "Year of Science" highlights one of the individual scientific disciplines. 2008 is the Year of Mathematics. In this context, JSC is encouraging young people to explore the fascination of mathematics and supercomputing. Senior pupils are invited to participate in an online workgroup simulating stellar motion by parallel computation. Each participant will download a small part of a computation describing the interaction and motion of 100,000 stars, compute it individually, and upload his partial results. The projects will conclude with a symposium featuring a live run of the same computation on the JUGENE supercomputer and a 3D visualization of the collected results. Participants have a chance to win an internship at Forschungszentrum Jülich along with other prizes. The closing date for applications is 15 August 2008. Further information is available at: *http://jdm.fz-juelich.de*. (Contact: Inge Gutheil, ext. 3135)

News from NIC Scientific Council

The NIC Scientific Council held its annual meeting in June. Prof. Gernot Münster from the University of Münster and Prof. Dietrich Wolf from the University of Duisburg-Essen were re-elected as Chairman and Deputy Chairman of the Scientific Council, respectively. Furthermore, Prof. Kurt Binder from the Johannes Gutenberg University Mainz was elected as a new member. An important topic was the NIC research groups, which are currently undergoing a period of change: The research group Computational Biophysics and Biology at Forschungszentrum Jülich concluded its activities in July 2008; a successor group is currently being set up. Final negotiations are in progress with the designated head of the research group Elementary Particle Physics, operated by DESY with staff in Zeuthen and Jülich. The setting up of the research group on Nuclear and Hadron Physics at GSI has also been delayed due to a change of the directorate. However, every effort is being made to overcome these difficulties as quickly as possible and to re-establish three well-recognised and active NIC research groups.
(Contact: Dr. Manfred Kremer, ext. 3660)

JSC on ISC 2008

From 17 to 20 June 2008, the 23rd International Supercomputing Conference (ISC) took place in Dresden. The Jülich Supercomputing Centre was involved in the exhibition as one of the members of the Gauss Centre for Supercomputing together with the Höchstleistungsrechenzentrum Stuttgart (HRLS) and the Leibniz Rechenzentrum (LRZ) in Garching. On the new TOP500 list published during the ISC, Jülich's IBM Blue Gene/P system JUGENE is ranked the 6th fastest supercomputer in the world. Outranked only by five US supercomputer systems – among them the new number 1 system "Roadrunner" from IBM breaking the 1 PFlop/s barrier – JUGENE is still the fastest supercomputer in Europe. This places Jülich and Germany in an important position among the leading HPC centres for computational science worldwide.

Another highlight from JSC's viewpoint was that Bernd Mohr, Brian Wylie und Felix Wolf of JSC received one of two "Best Paper" ISC 2008 awards for their contribution entitled "Performance Measurement and Analysis Tools for Extremely Scalable Systems".

The PRACE project was also prominent at ISC, with a plenary session on European HPC projects, including talks from Achim Bachem and Thomas Lippert, a BoF about the HPC ecosystem, and a PRACE booth at the exhibition. PRACE also awarded a young scientists' prize for the best paper on petascaling to Stefan Turek, Dominik Göddeke et al. from Dortmund University of Technology.

Once again, the conference saw an increase in the number of participants – almost 1,400 this year. The next ISC will take place at Congress Center Hamburg from 23 to 26 June 2009. (Contact: Marc-André Hermanns, ext. 2054)

Events

Parallel programming with MPI and OpenMP
Date: 5 - 8 August 2008, 09:00 - 16:30
Venue: Ausbildungsraum 1, Jülich Supercomputing Centre
Registration: *M.A.Hermanns@fz-juelich.de*, ext. 2054

Introduction to programming and using the IBM supercomputers
Date: 11 - 12 August 2008, beginning on 11 August, 13:00
Venue: Hörsaal, Jülich Supercomputing Centre
Registration: *B.Scheid@fz-juelich.de*, ext. 6402

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