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## BaSiGo - New Project in Civil Security

The planning and execution of large public events pose great challenges for the organizers. To improve the safety of such events, the Federal Ministry of Education and Research (BMBF) is funding the BaSiGo project starting from 1 March 2012. Public authorities, organizations with security tasks, private event agencies and research institutions – altogether 17 partners – cooperate in this project, which is coordinated by Prof. Frank Fiedrich from the University of Wuppertal. The main goal of BaSiGo is to develop a guideline for security concepts of large public events. Results from the successfully completed research projects of the "Research Programme for Civil Security", such as Hermes, EVA, VeRSiert und SiKomm, will be incorporated.

Within BaSiGo, the team from JSC will execute large-scale experiments with up to 1000 test persons, enhance the methods to automatically extract pedestrian trajectories from video footages, and further develop the models for simulations of pedestrian dynamics. The research will focus on the emergence of congestion and the occurrence of critical states in crowds. The results will help to improve the tools and the methods used to evaluate pedestrian facilities and to determine safe dimensions for large public events. In particular, pedestrian models will be enhanced in order to obtain reliable simulations of dense crowds and identify dangerous congestion in advance.

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## New BMBF HPC Project GASPI

Within the 2nd BMBF call for "HPC software for scalable parallel computers", the GASPI project (Global Address Space Programming Interface) will be funded for a period of three years. The goal of the project is to develop a standard for an interface addressing communication between processors on parallel computers via a partitioned global address space (PGAS) guaranteeing interoperability with MPI. The GPI parallel interface, which was developed at the Fraunhofer Institute ITWM in Kaiserslautern, will serve as the basis for the work.

During the project, a high-performance library for one-sided and asynchronous communication will be developed. It supports the hiding of communication during run-time and therefore enables highly scalable parallel implementations. In addition, the performance analysis tool Vampir will be further developed to support GASPI features. Several application codes from the fields of climate research, CFD, molecular simulations and numerical libraries will be ported to the GASPI standard and evaluated.

The project is coordinated by T-Systems Stuttgart. The project partners are Forschungszentrum Jülich, the Fraunhofer Institutes ITWM in Kaiserslautern and SCAI in St. Augustin, KIT Karlsruhe, DLR in Göttingen, Technical University Dresden, DWD Offenbach and scapos AG in St. Augustin.

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JSC will provide a multi-scale particle simulation code, which will be ported to the GASPI standard and evaluated with respect to MPI and hybrid implementations.
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## LMAC - Performance Dynamics of Massively Parallel Codes

The time-dependent behaviour of parallel simulation codes is often irregular, especially when adaptive algorithms are employed. Therefore, understanding performance dynamics is an essential prerequisite for the optimization of such codes. To support developers in this task, the LMAC project (Leistungsdynamik massiv-paralleler Codes), funded under the 2nd BMBF call for "HPC software for scalable parallel computers", aims to extend the established performance analysis tools Vampir, Scalasca and Periscope with a new functionality allowing them to automatically examine performance dynamics. The project is coordinated by the German Research School for Simulation Sciences in Aachen and also involves the Jülich Supercomputing Centre, GNS mbH, RWTH Aachen, TU Dresden and TU Munich. In addition, the University of Oregon is an associated partner complementing the project with corresponding extensions to the performance tool TAU.

At the same time, the project will further develop and maintain the parallel instrumentation and measurement system Score-P, which forms the common base of all four tools mentioned above. Training and support for the software will be offered by VI-HPS, and will continue beyond the lifetime of the LMAC project itself. For more information, see the project website at *http://www.vi-hps.org/projects/lmac*.
(Contact: Christian Rössel, *c.roessel@fz-juelich.de*)

## Milky Way - a JUDGE Extension for Astronomers

JUDGE, the IBM iDataPlex GPU Cluster that has been running since last year at JSC, will be expanded in spring with a new partition for astronomers. The new partition was designed and purchased in a common effort involving JSC, the University of Heidelberg within the DFG Sonderforschungsbereich 881 "The Milky Way System" (SFB 881), and the Ludwig-Maximilian-Universität München within the DFG Schwerpunktprogramm 1573 "Physics of the Interstellar Medium" (SPP 1573). JSC will host this JUDGE partition for scientists in these two programmes aiming to investigate the origin and evolution of the Milky Way in order to clarify fundamental principles of galaxy formation. The "Milky Way" part of JUDGE comprises 84 compute nodes and 4 service nodes. It can be operated as a stand-alone cluster with its own login nodes and is also connected directly via GPFS-gateway nodes to the Jülich Storage Cluster. Large applications can also be run on all 206 compute nodes of JUDGE as the old and new hardware partitions are coupled via Infiniband connections. "Milky Way" will begin operation in April. For further information, see
*http://www.fz-juelich.de/ias/jsc/judge*
(Contact: Otto Büchner, *o.buechner@fz-juelich.de*)

## NIC Symposium 2012 in Retrospect

The NIC symposium is held every two years and provides an overview of the activities and results of research groups who were granted computing time on the supercomputers at Jülich through the John von Neumann Institute for Computing (NIC). The 6th NIC Symposium took place at Forschungszentrum Jülich from 7 to 8 February 2012 and was attended by about 130 scientists.

The participants were welcomed by Prof. Bachem (Board of Directors of Forschungszentrum Jülich), who gave an overview of recent developments in the European supercomputing landscape, and by Prof. Lippert (JSC), who presented new perspectives in supercomputing.

This symposium also marked the 25th anniversary of the founding of the Höchstleistungsrechenzentrum (HLRZ), which became the NIC in 1998. Prof. Binder (University of Mainz), who is one of the founding fathers of the HLRZ and currently serves as chairman of the NIC scientific council, gave a historical overview of HLRZ/NIC. In particular, he emphasized that HLRZ/NIC's structure and peer-review system serve as a model for other supercomputing organizations.

In the scientific programme, recent results in various research fields, ranging from astrophysics to turbulence were presented in 14 invited talks and 60 posters. Both attendance and the number of poster presentations were a new record high. Ample discussion sessions after the talks and the poster session gave the participants rich opportunities to exchange ideas and methods in an interdisciplinary setting.

The detailed programme, talks, posters, proceedings, and pictures from the symposium are available at http://www2.fz-juelich.de/nic/symposium/symposium-2012.html
(Contact: Dr. Walter Nadler, *w.nadler@fz-juelich.de*)

## Events

**Parallel I/O and Portable Data Formats**
Instructors: W. Frings, Dr. M. Stephan, Dr. F. Janetzko, JSC
Date: 28-30 March 2012, 09:00 - 16:30
Venue: JSC, Ausbildungsraum 1, building 16.3, room 021
Info: *http://www.fz-juelich.de/ias/jsc/events/parallelio*

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