ISC'11 research paper sessions proceedings

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The International Supercomputing Conference started in 1986 as the “Supercomputer Seminar” organized by Prof. Hans Meuer, then director of the computer center and professor for computer science at the Universität Mannheim (Germany). At that time it attracted a group of 81 scientists and industrial partners who had a shared interest in high performance computing. Since these early days the annual conference became a major international event in the HPC community. As the conference grew bigger, it moved from Mannheim over Heidelberg and Dresden to Hamburg. In 2010 the conference celebrated its 25th birthday! About 2,000 attendees and more than 140 exhibitors from over 45 countries attend the conference. We are optimistic that this steady growth of interest will also turn ISC'11 into a powerful and memorable event.

Over the years we decided to strengthen the scientific part of the conference and to present selected talks on relevant research results in the field of HPC. These research paper sessions started in 2007 as a separate day preceding the conference. Back then, slides and accompanying papers were made available via the conference web site. Now, the research paper sessions evolved into an integral part of the conference. In 2011 scientific presentations are scheduled on three afternoons. The call for participation was issued in winter 2010 inviting researchers and developers to submit

latest results of their work as full research papers to the program committee of the scientific sessions.

Altogether 45 papers were submitted from authors all over the world. In a peer-reviewing process with an international committee the best 20 papers were selected for publication and for presentation during the research paper sessions of the conference.

We are happy to announce that many fascinating aspects of HPC will be presented. Accepted publications cover the following research and development areas:

- Applications
- GPU computing in HPC
- High-performance communication and I/O
- Numerical programming and algorithms
- System architecture

We are confident that this selection is appealing and that the presentations will seed inspiring discussions in the audience.

As in the years before, two independent award committees selected the best papers.

The German Gauss Center for Supercomputing is the sponsor of the Gauss Award. This award is assigned to the most outstanding paper in the field of scalable supercomputing and goes to:

- J. Dennis, G. Gao, X. Meng: Experiments with the Fresh Breeze Tree-Based Memory Model

PRACE, the Partnership for Advanced Computing in Europe, awards a price to the best scientific paper by a European student or young scientist. This year's award is granted to:

- R. Spurzem, P. Berczik, T. Hamada, K. Nitadori, G. Marcus, A. Kugel, R. Männer, I. Berentzen, J. Fiestas, R.

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Banerjee, R. Klessen: Astrophysical Particle Simulations with Large Custom GPU Clusters on Three Continents

The proceedings of the scientific sessions are published in this special issue of Springer's Journal "Computer Science—Research and Development". Thomas Ludwig (Universität Hamburg and German Climate Computing Centre) and Julian Kunkel (German Climate Computing Centre) acted as guest editors.

We would like to express our gratitude to all the colleagues who submitted papers to the ISC scientific sessions, as well as to the members of the program committee for compiling an attractive program for the conference's audience and the proceedings.

Hamburg, June 2011

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