



**INTERNATIONAL
SUPERCOMPUTER
CONFERENCE**

21st | **ISC 2006**

The HPC Event in Europe

Dresden, Germany

June 27 – 30, 2006

www.isc2006.org



“Addressing Challenges for Industry, Academia and Research”



DEAR HPC COLLEAGUES

This year the International Supercomputer Conference (ISC2006) will substantially expand its scope in the HPC world. With a new enhanced concept plus the new state-of-the-art venue in Dresden, Germany, ISC2006 strives to deliver the highest level of HPC expertise in a perfect setting.

The International Congress Center Dresden will provide an ideal platform for various one-day HPC tutorials, a three-day, high-caliber HPC conference including two outstanding panel sessions, and a greatly expanded central HPC exhibition.

“Addressing Challenges for Industry, Academia and Research” will be the major theme of ISC2006 – focal points will be new industrial and scientific applications, the booming Asian market, life sciences, and benchmarking. Two highly engaging panel sessions will address current HPC hot topics and are aimed at encouraging lively discussions and generating real-world benefits for both attendees and panelists.

This year’s exceptional conference program will be augmented by new activities – Vendor Tracks, Birds-of-a-Feather(BoF) Sessions and Research Poster Sessions – to help you make the most valuable use of your time at ISC2006.

Twice a year the HPC world anticipates the release of the new TOP500 List of the world’s fastest supercomputers. The next list will be published and discussed in the course of the ISC2006 conference program.

Spectacular social events like the Get-Together-Party on the terraces of the Dresden Congress Center, situated directly on the Elbe River, will allow participants to meet colleagues, customers, partners, researchers and manufacturers in a friendly, casual and cooperative atmosphere.

I would indeed be very pleased to welcome you to ISC2006 in Dresden,

Yours sincerely

Prof. Dr. Hans Meuer
General Chairman of ISC

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WHY YOU SHOULD PARTICIPATE IN ISC2006

- ➔ ISC is “The HPC Event” in Europe where the best minds in High Performance Computing (HPC) convene for four days of intensive sessions.
- ➔ ISC’s conference program is populated with an exceptional list of invited speakers from the highest level of international HPC expertise.
- ➔ ISC runs a single-track technical program – allowing conference participants to attend all of the key sessions.
- ➔ ISC has grown to an ideal size with participant numbers approaching 800-1000, ensuring productive sessions and interactions at the event.
- ➔ ISC’s Hot Seat Session presents a comprehensive and unparalleled compact overview of the current HPC market.
- ➔ ISC’s new activities – BoF Sessions, Vendor Tracks and Research Poster Session – will maximize the value of your time at the conference.
- ➔ ISC Conferences provide a unique atmosphere of collaboration and cooperation.
- ➔ ISC hosts the legendary Get-Together-Party – where users, researchers and manufacturers get to know each other, keep in touch and do business in a friendly, casual and cooperative atmosphere.



ISC2006 Exhibition

Under the ISC2006 theme “Addressing Challenges for Industry, Academia and Research,” the world’s leading HPC manufacturers and research organisations will be showcasing their newest applications in high performance computing in a state-of-the-art environment featuring hardware, software, networking, data storage, data management, scientific visualizations and collaborative technologies.

With the move to Dresden, the ISC2006 exhibition – already the number one HPC exhibition event in Europe – will be the largest ever in the history of the conference in an expanded exhibit space of approximately 26,000 square feet (2400 m²).

The International Congress Center Dresden – situated directly on the banks of the river Elbe in the heart of the historical city of Dresden – constitutes a state-of-the-art convention venue providing ideal logistics and a highly attractive central exhibition hall.

For further details, including the exhibition floor-plan and current exhibitor list, please see: www.isc2006.org/exhibition



● TUTORIALS, June 27, 8:15 - 18:00

Please note, that the three Tutorial Sessions will be held in parallel, for detailed information see www.isc2006.org/tutorials.

Blades – Basics, Innovations and Usability for HPC

Speakers: *Phil Butcher and Dr. Guy Coates, both Wellcome Trust Sanger Institute, Cambridge, UK; Prof. Dr. Rudolf Lohner, University of Karlsruhe, Germany.*

Speakers from NEC, IBM and HP will address corporate Blade Strategies, Systems and Roadmaps and three speakers from research, bioscience and financial institutions will talk about customer experiences with large blade installations.

Abstract and Objectives: High Performance Computing architectures are changing dramatically. Traditional multi-processor, large memory systems may still be the mainstay in the majority of data centers worldwide, but new innovations in system design are rivalling these traditional platforms. High performance, high-density, cost-effective blades are increasingly moving into the data center environment.

Focusing and Introducing New Benchmark Initiatives

Speakers: *Prof. Dr. Jack Dongarra, University of Tennessee, USA; Dr. Matthias S. Mueller, Technische Universität Dresden, Germany; Dr. Erich Strohmaier, Lawrence Berkeley National Laboratory, USA.*

Abstract and Objectives: Since the existence of computers, there have been benchmarks to measure their performance. Moreover, the benchmarks are used to analyze systems, verify functionality, decide about procurements and guide the development of future generations of supercomputers. This tutorial first provides an overview of existing benchmarks and benchmarking methodologies. This will be followed by discussions of the details of various approaches like synthetic benchmarks, kernels and application benchmarks.

Software Tools to Support Programming and Optimization on HPC Systems

Speakers: *Prof. Dr. Allen D. Malony, University of Oregon, USA; Dr. Bernd Mohr, Research Center Jülich, Germany; Prof. Dr. Wolfgang E. Nagel, Technische Universität Dresden, Germany.*

Abstract and Objectives: This tutorial presents the state-of-the-art tool developments for leading-edge HPC, parallel and cluster systems, focusing on debugging, profile- and trace-based program visualization, automatic performance analysis, and programming environments that provide generic interfaces to the tools. The overall goal is to show the real potential of modern tools for program analysis. In addition, we will show how these tools can be used to diagnose and locate typical performance bottlenecks in real-world parallel programs.

Tutorial Fees*

	Advance Registration	Late Registration	Onsite Registration
Regular	€ 500.00	€ 600.00	€ 650.00
University	€ 350.00	€ 420.00	€ 470.00
Government	€ 400.00	€ 480.00	€ 530.00
Student/Retired	€ 100.00	€ 150.00	€ 180.00
	March 15, 2006 - May 26, 2006	May 27, 2006 - June 26, 2006	June 27, 2006 - June 30, 2006

*A 16% government-mandated Value-Added-Tax (VAT) is charged in addition to the stated fee. Fees include tutorial proceedings, full working materials, coffee breaks and lunch.

Please register for ISC2006 Tutorials at www.isc2006.org/registration



CONFERENCE PROGRAM, June 28-30

For detailed information on listed speakers please see www.isc2006.org/speakers

First Day

June 28

10:00 - 19:30

→ 10:00 - 12:00

I. Opening Session

Chair: Prof. Dr. Hans Meuer, University of Mannheim & Prometheus GmbH, Germany

Welcome Address

Prof. Dr. Georg Milbradt, Minister President, Saxony, Germany (invited)

“Highlights of the 27th TOP500 List”

Dr. Erich Strohmaier, Lawrence Berkeley National Laboratory, USA

ISC2006 Keynote Presentation

“From Transaction Processing to High-Performance Business Computing (HPBC)”

Dr. Peter Zencke, SAP AG, Germany

→ 14:00 - 16:30

II. New & Innovative Applications

Chair: Dr. Frank Baetke, Hewlett-Packard HPCD, USA

”Trends in HPC for Aerospace”

Nigel Barry, Airbus, UK

“High Performance Computing for CAE at AUDI: Past, Present and Future”

Hans-Ulrik von Bülow, AUDI AG, Germany

„Neuroscience meets HPC –

Enabling Detailed Brain Simulations“

Prof. Dr. Henry Markram & Dr. Felix Schuermann, Brain Mind Institute, EPFL Lausanne, Switzerland

“Feature Film Animation – New Challenges for HPC”

Dr. Evan Smyth, DreamWorks Animation, USA

→ 17:00 - 17:45

III. HPC Retrospect

Chair: Prof. Dr. Hans Meuer, University of Mannheim & Prometheus GmbH, Germany

”Looking Back over the Last Year in HPC “

Prof. Dr. Thomas Sterling, Louisiana State University & Caltech, USA

→ 18:00 - 19:30

IV. Panel Discussions (in parallel)

Panel I

“Petaflops Computing in the U.S. and in Japan”

Co-Chairs:

Prof. Dr. Kenichi Miura, NII & NAREGI, Japan

Prof. Dr. Thomas Sterling, Louisiana State University & Caltech, USA

Panelists:

Dr. Pete Beckman, Argonne National Laboratory, USA

Dr. Yasuhiro Idomura, Japan Atomic Energy Agency, Japan

Prof. Dr. Dr. Thomas Lippert, Research Center Juelich, Germany

Dr. Steve Scott, Cray Inc., USA

Dr. Adrian Simmons, ECMWF, UK

Panel II

“Acquisition and Operation of an HPC System”

Co-Chairs:

Bill Kramer, NERSC, Berkeley, USA

Prof. Dr. Michael Resch, HLRS, Stuttgart, Germany

Panelists:

Dr. Rupak Biswas, NASA Ames Research Center, USA

Dona Crawford, LLNL, USA

Pierre Leca, CEA, France

Dr. Fang-Pang Lin, High-Performance Computing (NCHC), Taiwan

→ 19:30 - 23:00

V. Get-Together Party

Congress Center Terraces





CONFERENCE PROGRAM, June 28-30

Second Day
June 29
08:00 - 19:00

➔ **08:00 - 09:05**

VI. Reconfigurable Supercomputing

Chair: Prof. Dr. Alexander Reinefeld, ZIB Berlin, Germany

"Experiences with High-Level Programming of FPGAs"

Dr. Thomas Steinke, ZIB Berlin, Germany

"Reconfigurable Supercomputing: Hurdles and Chances"

*Prof. Dr. Reiner Hartenstein, Technische Universität
Kaiserslautern, Germany*

➔ **09:15 - 11:15**

VII. Biocomputing/Life Sciences

*Chair: Prof. Dr. Wolfgang E. Nagel, Technische Universität
Dresden, Germany*

"Computer Simulation of Tumour Growth – Can it Help?"

*Dr. Andreas Deutsch, Technische Universität Dresden,
Germany*

ISC Award-Winning Paper Award paper presentation

Speaker to be announced

"In Silico Biology for Health and Diseases: New Horizons 2006 – 2015"

Prof. Dr. Samir Brahmachari, IGIB, India

➔ **11:45 - 12:30**

VIII. Thursday Keynote Presentations

Chair: Prof. Dr. Michael Resch, HLRS Stuttgart, Germany

"Trends and Challenges in High Performance Computing: an HP Labs Perspective"

Wayne C. Johnson, Hewlett Packard, USA

"The Cluster in Our Laptop"

Dr. Ben Bennet, Intel, UK

➔ **12:30 - 12:45**

IX. Presentation of the two ISC Award Winners

Chair: Prof. Dr. Michael Resch, HLRS Stuttgart, Germany

ISC Awards to be presented by Wayne C. Johnson
(Hewlett Packard) and Dr. Ben Bennet (Intel)

➔ **14:00 - 19:00**

X. Hot Seat Session Part I & II

Co-Chairs:

*Prof. Dr. Arndt Bode,
Technische Universität Munich, Germany*

*Prof. Dr. Thomas Ludwig,
University of Heidelberg, Germany*

*Prof. Dr. Hans Meuer,
University of Mannheim & Prometheus GmbH, Germany*

*Dr. Erich Strohmaier,
Lawrence Berkeley National Laboratory, USA*

*Speakers and Inquisitors:
To be announced*

Eighteen 15-minute vendor presentations, including
Inquisitor questions.

➔ **Evening**

Vendor Parties

■ Birds-of-a-Feather Sessions (BoF)

Ten BoFs will be scheduled at ISC2006, aimed at providing a wide range of topics for participants to choose from. BoFs allow those with similar interests to network, exchange ideas and learn from colleagues. BoFs are open to all conference attendees, including exhibitors.





For detailed information on listed speakers please see www.isc2006.org/speakers

Third Day

June 30
08:15 - 13:00

→ 08:15 - 10:00

XI. Hardware Megalomania – Will Application Scalability Hit the Wall?

Chair: Dr. Marie-Christine Sawley, CSCS, Switzerland

„Scalable Algorithms and Applications in Particle Accelerator Modeling“

Dr. Andreas Adelman,
Paul Scherrer Institut, Switzerland

ISC Award-Winning Paper

Award paper presentation

Speaker to be announced

“Calculation of the Chicxulub Impact Event“

Dr. Galen Gisler, Los Alamos National Laboratory, USA

→ 10:30 - 12:00

XII. Worldwide Supercomputing: The Asian Attack

Chair: Dr. Horst Simon, Lawrence Berkeley National Laboratory, USA

”Supercomputing in Japan – Past, Present and Future“

Prof. Dr. Yoshio Oyanagi, University of Tokyo, Japan

”The Growing HPC Momentum in China“

Dr. Steve Chen, Galactic Computing, China

→ 12:15 - 13:00

XIII. Friday Keynote Presentation

Chair: Prof. Dr. Hans Meuer, University of Mannheim & Prometheus GmbH, Germany

“The HPC Challenge Benchmark: A Candidate for Replacing Linpack in the TOP500?”

Prof. Dr. Jack Dongarra, University of Tennessee, USA

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University	€ 590.00	€ 700.00	€ 800.00
Government	€ 690.00	€ 800.00	€ 900.00
Student/Retired	€ 150.00	€ 200.00	€ 230.00
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■ Hot Seat Session and Vendor Tracks

ISC's Hot Seat and Vendor Track Sessions present a unique opportunity to hear from the major HPC manufacturers about the latest developments and products in the HPC world. Presentations and the Hot Seat Inquisitors' questions result in an unparalleled comprehensive and compact overview of the current HPC market.

■ Research Poster Session

The new ISC2006 Research Poster Session provides an excellent forum for participants to present new projects, research results and innovative work in an informal and interactive setting.

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Organizer

Prometeus GmbH
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www.isc2006.org

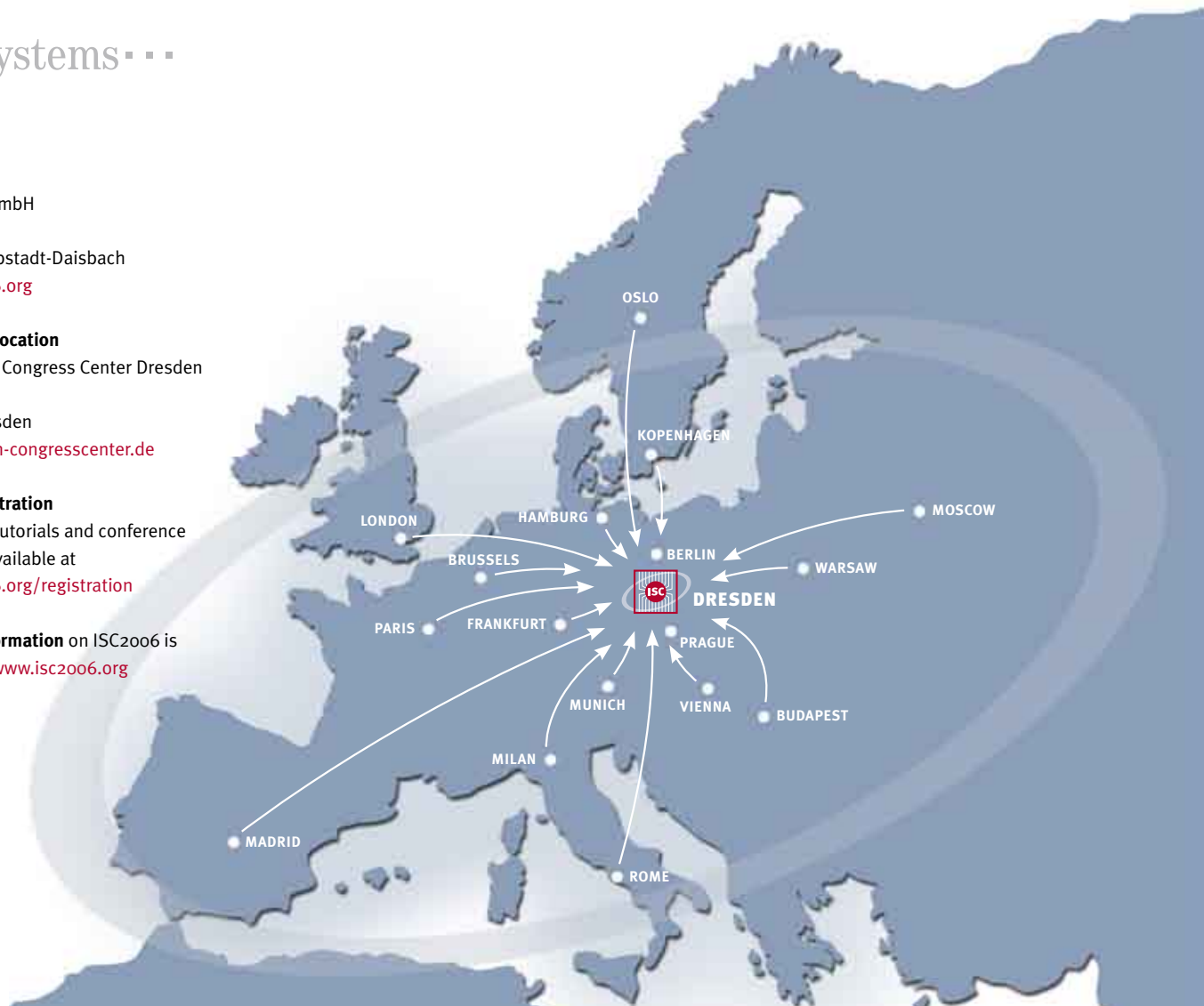
Conference Location

International Congress Center Dresden
Ostra-Ufer 2
D-01067 Dresden
www.dresden-congresscenter.de

Online Registration

for ISC2006 tutorials and conference program is available at
www.isc2006.org/registration

Detailed Information on ISC2006 is available at www.isc2006.org



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