

ParCo2007

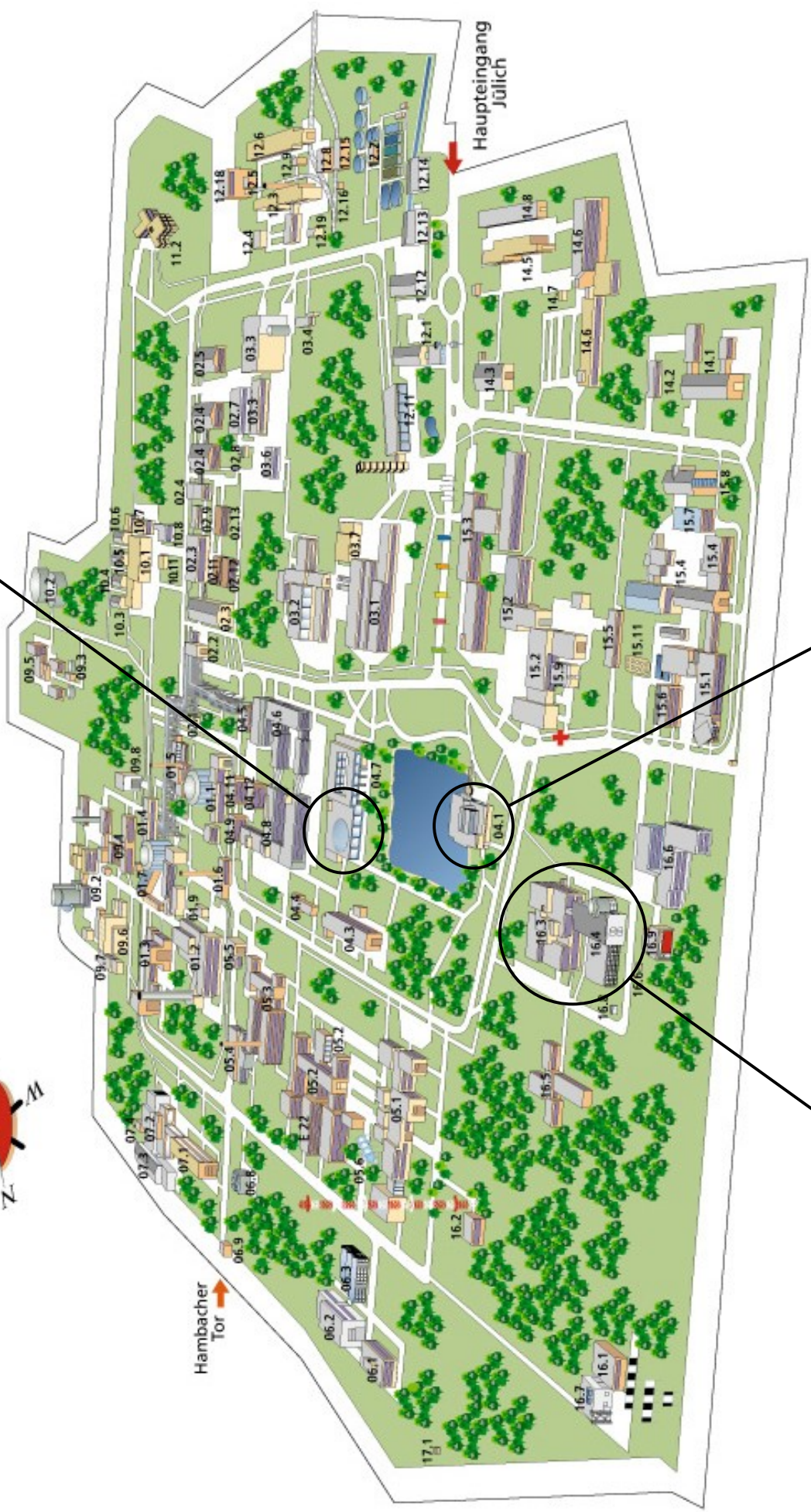
Program



Forschungszentrum Jülich



Auditorium (keynote talks)



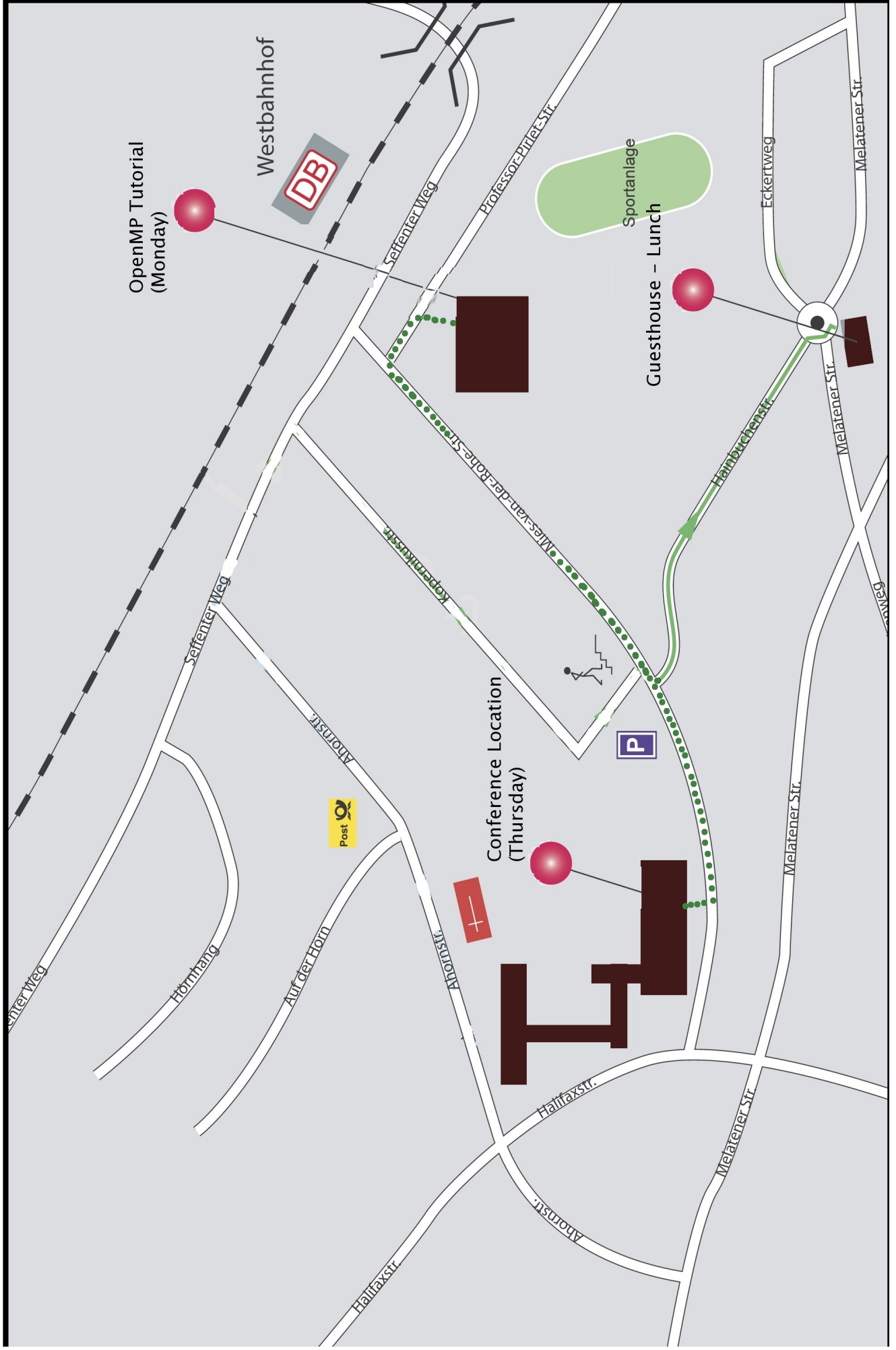
Casino (Lunch, Barbecue)

ZAM
(MPI tutorial, paper and mini symposium talks)

Hambacher Tor

Haupteingang Jülich

RWTH Aachen University Campus



Monday, 3. September 2007

08:15	Bustransfer Aachen => Jülich (MPI tutorial participants only) Leaves from Hotel IBIS Marschiertor	
08:45	Taxitransfer to Tutorial Lecture Hall (OpenMP tutorial participants only) Leaves from Hotel IBIS Marschiertor	
09:30	TUTORIAL Advanced OpenMP RWTH Aachen University Lecture Hall of: Faculty of Civil Engineering Mies-van-der-Rohe-Str. Aachen	TUTORIAL MPI Application Performance on the IBM Blue Gene Architecture Forschungszentrum Jülich ZAM Jülich
18:00	Bustransfer Jülich => Aachen (MPI tutorial participants only) Leaves from Forschungszentrum Jülich, ZAM Taxitransfer back to Hotel IBIS Marschiertor (OpenMP tutorial participants only) Leaves from Tutorial Lecture Hall	
19:00 to 21:00	Early Registration and Reception Aachen Hotel IBIS Marschiertor	

Tuesday, 4. September 2007, Morning

08:00	Bustransfer Aachen => Jülich Leaves from Hotel IBIS Marschiertor			
09:00	Registration			
	Opening Session & Welcome			
09:30	Welcome ParCo Conference Committee Chair Gerhard Joubert Welcome Chairman of the Board of Directors, Forschungszentrum Jülich Achim Bachem Local Announcements Bernd Mohr Welcome Program Committee Chair Christian Bischof			
	Invited Talks			
10:00	European E-Infrastructure: Promoting Global Virtual Research Communities Maria Ramalho-Natario Partnership for Advanced Computing in Europe (PACE) Thomas Lippert Chair: Christian Bischof			
11:00	Coffee Break			
	Session 1			
	Track A1 (Room 1)	Track B1 (Room 2)	Mini-Symposium C1 (Room 3)	Mini-Symposium D1 (Room 4)
	A1: Electronic Structure Simulation Chair: Thomas Lippert	B1: Parallel Performance Tools Chair: Bettina Krammer	C1: The Future of OpenMP in the Multi-Core Era Chair: Dieter an Mey	D1: Scaling Science Applications on Blue Gene Chair: Bill Gropp
11:30	Domain Decomposition for Electronic Structure Computations Guy Bencteux, Maxime Barrault, Eric Cancès, William Hager, Claude Le Bris	Visualising Parallel Functional Program Runs: Case Studies with the Eden Trace Viewer Jost Berthold, Rita Loogen	Towards OpenMP V3.0 J. Mark Bull	Turbulence in Laterally Extended Systems Jörg Schumacher, Matthias Pütz <hr/> Large Simulations of Shear Flow in Mixtures via the Lattice Boltzmann Equation Kevin Stratford, Jean Christophe Desplat
12:00	Scalable Dynamic Adaptations for Electronic Structure Calculations Masha Sosonkina	Automatic Phase Detection of MPI Applications Marc Casas, Rosa M. Badia, Jesús Labarta		
12:30 to 14:00	Lunch			

Tuesday, 4. September 2007, Afternoon

Session 2				
	Track A2 (Room 1)	Track B2 (Room 2)	Mini-Symposium C2 (Room 3)	Mini-Symposium D2 (Room 4)
	A2: Particle + Atomistic Simulation Chair: Paul Gibbon	B2: Performance Modelling and Analysis Chair: Felix Wolf	C2: The Future of OpenMP in the Multi-Core Era Chair: Barbara Chapman	D2: Scaling Science Applications on Blue Gene Chair: Kirk Jordan
14:00	Load Balanced Parallel Simulation of Particle-Fluid DEM-SPH Systems with Moving Boundaries Florian Fleissner, Peter Eberhard	Distribution of Periscope Analysis Agents on ALTIX 4700 Michael Gerndt, Sebastian Strohhäcker	OpenMP for Clusters Larry Meadows	Simulating Materials with Strong Correlations on BlueGene Erik Koch
14:30	Communication and Load Balancing of Force-Decomposition Algorithms for Parallel Molecular Dynamics Godehard Sutmann, Florian Janoschek	Analysis of the Weather Research and Forecasting (WRF) Model on Large-Scale Systems Darren J. Kerbyson, Kevin J. Barker, Kei Davis	Getting OpenMP Up to Speed Ruud van der Pas	DL_POLY_3: Parallel Performance and Large Scale Simulations Ilian T. Todorov
15:00	Aspects of a Parallel Molecular Dynamics Software for Nano-Fluidics Martin Bernreuther, Martin Buchholz, Hans-Joachim Bungartz	Analytical Performance Models of Parallel Programs in Clusters Diego R. Martínez, Vicente Blanco, Marcos Boullón, José Carlos Cabaleiro, Tomás F. Pena	PerfOMP: A Runtime Performance Monitoring API for OpenMP Van Bui, Oscar Hernandez, Barbara Chapman, Rick Kufrin, Danesh Tafti, Pradeep Gopalkrishnan	Massively Parallel Simulation of Cardiac Electrical Wave Propagation on Blue Gene Jeffrey Fox, Gregory T. Buzzard, Robert Miller, Fernando Siso-Nadal
15:30	Massively Parallel Quantum Computer Simulations: Towards Realistic Systems Marcus Richter, Guido Arnold, Binh Trieu, Thomas Lippert	Computational Force: A Unifying Concept for Scalability Analysis Robert W. Numrich	Affinity Matters! OpenMP on Multicore and ccNUMA Architectures Dieter an Mey, Christian Terboven	Simulations of QCD in the Era of Sustained TFlop/s Computing Thomas Streuer, Hinnerk Stüben

Tuesday, 4. September 2007, Late Afternoon

16:00 Coffee Break				
Session 3				
	Track A3 (Room 1)	Track B3 (Room 2)	Track C3 (Room 3)	Mini-Symposium D3 (Room 4)
	A3: Image Reconstruction Chair: Gerhard Joubert	B3: Parallel Algorithms Chair: Martin Bucker	C3: Parallel Programming with OpenMP Chair: Dieter an Mey	D3: Scaling Science Applications on Blue Gene Chair: Boris Orth
16:30	A Parallel Workflow for the Reconstruction of Molecular Surfaces Daniele D'Agostino, Ivan Merelli, Andrea Clematis, Luciano Milanesi, Alessandro Orro	Parallelisation of Block Recursive Matrix Multiplication in Prefix Computations Michael Bader, Sebastian Hanigk, Thomas Huckle	Implementing Data-Parallel Patterns for Shared Memory with OpenMP Michael Süß, Claudia Leopold	Blue Gene/P: The Next Generation Enabling Breakthrough Simulation Based Engineering and Science Kirk E. Jordan
17:00	HPC Simulation of Magnetic Resonance Imaging Tony Stöcker, Kaveh Vahedipour, N. Jon Shah	Parallel Exact Inference Yinglong Xia, Viktor K. Prasanna	Generic Locking and Deadlock-Prevention with C++ Michael Süß, Claudia Leopold	Petascale Atmospheric General Circulation Models for CCSM Henry M. Tufo
17:30	A Load Balancing Framework in Multithreaded Tomographic Reconstruction José A. Álvarez, Javier Roca Piera, Jose J. Fernández	Efficient Parallel String Comparison Peter Krusche, Alexander Tiskin	Parallelizing a Real-Time Steering Simulation for Computer Games with OpenMP Bjoern Knafla, Claudia Leopold	
18:00	Bustransfer Jülich => Aachen Leaves from Forschungszentrum Jülich, ZAM			

Wednesday, 5. September 2007, Morning

08:00	Bustransfer Aachen => Jülich Leaves from Hotel IBIS Marschiertor			
09:00	Registration & Opening Session			
	Invited Talk			
09.30	Programming in the Multi-Core Era Barbara Chapman Chair: Bernd Mohr			
10:30	Coffee Break			
	Session 4			
	Track A4 (Room 1)	Track B4 (Room 2)	Mini-Symposium C4 (Room 3)	Mini-Symposium D4 (Room 4)
	A4: Parallel Computing with FPGAs Chair: Dirk Stroobandt	B4: Numerical Algorithms I Chair: Martin Bücker	C4: Scalability and Usability of HPC Programming Tools Chair: Felix Wolf	D4: DEISA: Extreme Computing in an Advanced Supercomputing Environment Chair: Hermann Lederer
11:00	IANUS: Scientific Computing on an FPGA-Based Architecture Francesco Belletti, Maria Cotallo, Andres Cruz, Luis Antonio Fernández, Antonio Gordillo, Andrea Maiorano, Filippo Mantovani, Enzo Marinari, Victor Martín-Mayor, Antonio Muñoz-Siduepe, Denis Navarro, Sergio Pérez-Gaviro, Mauro Rossi, Juan Jesus Ruiz-Lorenzo, Sebastiano Fabio Schifano, Daniele Sciretti, Alfonso Tarancón, Raffaele Tripiccione, Jose Luis Velasco	Strategies for Parallelizing the Solution of Rational Matrix Equations José M. Badía, Peter Benner, Maribel Castillo, Heike Faßbender, Rafael Mayo, Enrique S. Quintana-Ortí, Gregorio Quintana-Ortí	Benchmarking the Stack Trace Analysis Tool for BlueGene/L Gregory L. Lee, Dong H. Ahn, Dorian C. Arnold, Bronis R. de Supinski, Barton P. Miller, Martin Schulz	DEISA: Enabling Cooperative Extreme Computing in Europe Victor Alessandrini

11:30	Optimizing Matrix Multiplication on Heterogeneous Reconfigurable Systems Ling Zhuo, Viktor K. Prasanna	A Heterogeneous Pipelined Parallel Algorithm for Minimum Mean Squared Error Estimation with Ordered Successive Interference Cancellation Francisco-Jose Martínez-Zaldívar, A.M. Vidal-Maciá, A. González	Scalable, Automated Performance Analysis with TAU and PerfExplorer Kevin A. Huck, Allen D. Malony	Effective Methods for Accessing Resources in a Distributed HPC Production System Andrea Vanni
12:00			Developing Scalable Applications with Vampir Matthias S. Müller, Holger Brunst, Matthias Jurenz, Andreas Knüpfer, Wolfgang E. Nagel	GPFS: a Cluster Filesystem Klaus Gottschalk
12:30 to 14:00	Lunch			

Wednesday, 5. September 2007, Afternoon

Session 5				
	Track A5 (Room 1)	Track B5 (Room 2)	Mini-Symposium C5 (Room 3)	Mini-Symposium D5 (Room 4)
	A5: Parallel Programming Models Chair: Michael Gerndt	B5: Numerical Algorithms II Chair: Bernhard Steffen	C5: Scalability and Usability of HPC Programming Tools Chair: Matthias Müller	D5: DEISA: Extreme Computing in an Advanced Supercomputing Environment Chair: Victor Alessandrini
14:00	A Framework for Performance-Aware Composition of Explicitly Parallel Components Christoph Kessler, Welf Löwe	OpenMP Implementation of the Householder Reduction for Large Complex Hermitian Eigenvalue Problems Andreas Honecker, Josef Schüle	Scalable Collation and Presentation of Call-Path Profile Data with CUBE Markus Geimer, Björn Kuhlmann, Farzona Pulatova, Felix Wolf, Brian Wylie	Development Strategies for Modern Predictive Simulation Codes Alice Koniges, Robert Anderson, Aaron Fisher, Brian Gunney, Nathan Masters
14:30	A Framework for Prototyping and Reasoning about Distributed Systems Marco Aldinucci, Marco Danelutto, Peter Kilpatrick	Multigrid Smoothers on Multicore Architectures Carlos García, Manuel Prieto, Francisco Tirado	Coupling DDT and Marmot for Debugging of MPI Applications Bettina Kramer, Valentin Himmler, David Lecomber	Submission Scripts for Scientific Simulations on DEISA Gavin J. Pringle, Terence M. Sloan, Odysseas Bournas, Elena Breitmoser, Arthur S. Trew
15:00	Formal Semantics Applied to the Implementation of a Skeleton-Based Parallel Programming Library Joel Falcou, Jocelyn Sérot	Parallelization of Multilevel Preconditioners Constructed from Inverse-Based ILUs on Shared-Memory Multiprocessors José I. Aliaga, Matthias Bollhöfer, Alberto F. Martín, Enrique S. Quintana-Ortí	Compiler Support for Efficient Profiling and Tracing Oscar Hernandez, Barbara Chapman	Application Enabling in DEISA: Hyperscaling of Turbulence Codes Supporting ITER Hermann Lederer, Reinhard Tisma, Roman Hatzky, Alberto Bottino, Frank Jenko

Wednesday, 5. September 2007, Late Afternoon

15:30	Coffee Break			
	Session 6			
	Track A6 (Room 1)	Track B6 (Room 2)	Mini-Symposium C6 (Room 3)	Mini-Symposium D6 (Room 4)
	A6: Parallel Data Distribution and I/O Chair: Henry Tufo	B6: Parallel Automatic Differentiation Chair: Christian Bischof	C6: Scalability and Usability of HPC Programming Tools Chair: Bettina Krammer	D6: DEISA: Extreme Computing in an Advanced Supercomputing Environment Chair: Alice Koniges
16:00	Optimization Strategies for Data Distribution Schemes in a Parallel File System Jan Seidel, Rudolf Berrendorf, Ace Crngarov, Marc-André Hermanns	Parallelism in Structured Newton Computations Thomas F. Coleman, Wei Xu	Comparing Intel Thread Checker and Sun Thread Analyzer Christian Terboven	First Principles Simulations of Plasma Turbulence within DEISA Frank Jenko, Alberto Bottino, Tobias Görler, and Emanuele Poli
16:30	Parallel Redistribution of Multidimensional Data Tore Birkeland, Tor Sørenvik	Automatic Computation of Sensitivities for a Parallel Aerodynamic Simulation Arno Rasch, H. Martin Bucker, Christian H. Bischof	Continuous Runtime Profiling of OpenMP Applications Karl Furlinger, Shirley Moore	Heavy Particles Transport in Turbulent Flows Alessandra S. Lanotte, Luca Biferale, Jérémie Bec, Massimo Cencini, Stefano Musacchio, Federico Toschi
17:00	Parallel I/O aspects in PIMA(GE)² Lib Andrea Clematis, Daniele D'Agostino, Antonella Galizia	Parallel Jacobian Accumulation Ebadollah Varnik, Uwe Naumann	Understanding Memory Access Bottlenecks on Multi-core Josef Weidendorfer	Membranes Under Tension: Atomistic Modeling of the Membrane-Embedded Synaptic Fusion Complex Marc Baaden
17:30				
18:00	Barbecue Jülich at the lake			
21:00	Bustransfer Jülich => Aachen Leaves from Forschungszentrum Jülich, Cantine			

Thursday, 6. September 2007, Morning

08:45	Bustransfer Aachen => RWTH Aachen Leaves from Hotel IBIS Marschiertor				
09:00	Registration & Opening Session				
	Invited Talk				
09:30	Simulation of Heart-Assist Devices Marek Behr Chair: Martin Bucker				
10:30	Coffee Break				
	Session 7				
	Track A7 (Room 1)	Track B7 (Room 2)	Track C7 (Room 3)	Mini-Symposium D7 (Room 4)	Vendor Session E7 (Room 5)
	A7: Scheduling Chair: Anne Elster	B7: Performance Analysis I Chair: Bill Gropp	C7: Bio-Medical Applications Chair: Gerhard Joubert	D7: Parallel Computing FPGAs Chair: Abdellah Touhafi	E7: Tools Chair: Bernd Mohr
11:00	Layer-Based Scheduling Algorithms for Multiprocessor-Tasks with Precedence Constraints Joerg Dümmler, Raphael Kunis, Gudula Rünger	Analyzing Cache Bandwidth on the Intel Core 2 Architecture Robert Schöne, Wolfgang E. Nagel, Stefan Pflüger	Experimenting Grid Protocols to Improve Privacy Preservation in Efficient Distributed Image Processing Antonella Galizia, Federica Viti, Ivan Merelli, Daniele D'Agostino, Luciano Milanese, Andrea Clematis	Parallel Computing with Low-Cost FPGAs: A Framework for COPACOBANA Tim Güneysu, Christoph Paar, Jan Pelzl, Gerd Pfeiffer, Manfred Schimmler, Christian Schleiffer	Recent Advances in Debugging and Profiling at Allinea David Lecomber Allinea
11:30	Unified Scheduling of I/O- and Computation-Jobs for Climate Research Environments N. Peter Drakenberg, Sven Trautmann	Analyzing Mutual Influences of High Performance Computing Programs on SGI Altix 3700 and 4700 Systems with PARbench Rick Janda, Matthias S. Müller, Wolfgang E. Nagel, Bernd Trenkler	Efficient Parallel Simulations in Support of Medical Device Design Marek Behr, Mike Nicolai, Markus Probst	Accelerating the Cube Cut Problem with an FPGA-Augmented Compute Cluster Tobias Schumacher, Enno Lübbers, Paul Kaufmann, Marco Platzner	Grid Monitor Michael Rauh ParTec
12:00		Low-level Benchmarking of a New Cluster Architecture Norbert Eicker, Thomas Lippert		A Run-Time Reconfigurable Cache Subsystem Fabian Nowak, Rainer Buchty, Wolfgang Karl	High Performance Computing Made Easy Ullrich Becker-Lemgau Intel
12:30 to 14:00	Lunch				

Thursday, 6. September 2007, Afternoon

Session 8					
	Track A8 (Room 1)	Track B8 (Room 2)	Track C8 (Room 3)	Mini-Symposium D8 (Room 4)	Vendor Session E8 (Room 5)
	A8: Fault Tolerance Chair: Stefan Lankes	B8: Performance Analysis II Chair: Matthias Müller	C8: MHD and Turbulence Simulation Chair: Paul Gibbon	D8: Parallel Computing with FPGAs Chair: Dirk Stroobandt	E8: Tools Chair: Bernd Mohr
14:00	Mitigating the Post-Recovery Overhead in Fault Tolerant Systems Guna Santos, Angelo Duarte, Dolores Rexachs, Emilio Luque	Comparative Study of Concurrency Control on Bulk-Synchronous Parallel Search Engines Carolina Bonacic and Mauricio Marin	Massively Parallel Simulations of Solar Flares and Plasma Turbulence Lukas Arnold, Christoph Beetz, Jürgen Dreher, Holger Homann, Christoph Schwarz, Rainer Grauer	Novel Brain-Derived Algorithms Scale Linearly with Number of Processing Elements Jeff Furlong, Andrew Felch, Jayram Moorkanikara Nageswaran, Nikil Dutt, Alex Nicolau, Alex Veidenbaum, Ashok Chandrashekar, Richard Granger	
14:30	Towards Fault Resilient Global Arrays Vinod Tipparaju, Manoj Krishan, Bruce Palmer, Fabrizio Petrini, Jarek Nieplocha	Gb Ethernet Protocols for Clusters: An OpenMPI, TIPC, GAMMA Case Study Stylianos Bounanos, Martin Fleury	Object-Oriented Programming and Parallel Computing in Radiative Magnetohydrodynamics Simulations Vladimir Gasilov, Sergei D'yachenko, Olga Olkhovskaya, Alexei Boldarev, Elena Kartasheva, Sergei Boldyrev	Programmable Architectures for Realtime Music Decompression Martin Botteck, Holger Blume, Jörg von Livonius, Martin Neuenhahn, Tobias G. Noll	
15:00	Using AOP to Automatically Provide Distribution, Fault Tolerance, and Load Balancing to the CORBA-LC Component Model Diego Sevilla, José M. García, Antonio F. Gómez	Performance Measurements and Analysis of the BlueGene/L MPI Implementation Michael Hofmann, Gudula Rünger	Parallel Simulation of Turbulent Magneto-hydrodynamic Flows Axelle Viré, Dmitry Krasnov, Bernard Knaepen, Thomas Boeck	The HARWEST High Level Synthesis Flow to Design a Special-Purpose Architecture to Simulate the 3D Ising Model Alessandro Marongiu, Paolo Palazzari	

15:30	VirtuaLinux: Virtualized High-Density Clusters with no Single Point of Failure Marco Aldinucci, Marco Danelutto, Massimo Torquati, Francesco Polzella, Gianmarco Spinatelli, Marco Vanneschi, Alessandro Gervaso, Manuel Cacitti, Pierfrancesco Zuccato	Potential Performance Improvement of Collective Operations in Current UPC Implementations Rafik A. Salama, Ahmed Sameh	Pseudo-Spectral Modeling in Geodynamo Maxim Reshetnyak, Bernhard Steffen	Towards an FPGA Solver for the PageRank Eigenvector Problem Séamas McGettrick, Dermot Geraghty, Ciarán McElroy
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16:00 **Bustransfer RWTH Aachen => Aachen**
 Leaves from RWTH Computer Science Lecture Hall

17:00 **Guided tours Aachen**
 (a) Cathedral and treasury
 (b) Historical city center

19:00 **Dinner Aachen**
 to 22:00 Ratskeller (city hall)

Friday, 7. September 2007, Morning

08:00	Bustransfer Aachen => Jülich Leaves from Hotel IBIS Marschiertor			
09:00	Registration & Opening Session			
	Invited Talk			
09:30	Towards Petascale Grids as a Foundation of E-Science Satoshi Matsuoka Chair: Thomas Lippert			
10:30	Coffee Break			
	Session 9			
	Track A9 (Room 1)	Track B9 (Room 2)	Track C9 (Room 3)	Track D9 (Room 4)
	A9: Parallel Tools and Middleware Chair: Christoph Kessler	B9: Image Processing and Visualization Chair: Frans Peters	C9: Fluid Dynamics Simulation Chair: Christian Bschof	D9: Hyperscalable Applications Chair: Thomas Lippert
11:00	Design and Implementation of a General-Purpose API of Progress and Performance Indicators Ivan Rodero, Francesc Guim, Julita Corbalan, Jesús Labarta	Lessons Learned Using a Camera Cluster to Detect and Locate Objects Daniel Stødle, Phuong Hoai Ha, John Markus Bjørndalen, Otto J. Anshus	Parallelisation of a Geothermal Simulation Package: A Case Study on Four Multicore Architectures Andreas Wolf, Volker Rath, Martin Bücken	Massively Parallel All Atom Protein Folding in a Single Day Abhinav Verma, Srinivasa M. Gopal, Alexander Schug, Jung S. Oh, Konstantin V. Klenin, Kyu H. Lee, Wolfgang Wenzel
11:30	Efficient Object Placement including Node Selection in a Distributed Virtual Machine Jose M. Velasco; David Atienza; Katalin Olcoz; Francisco Tirado	Hybrid Parallelization for Interactive Exploration in Virtual Environments Marc Wolter, Marc Schirski, Torsten Kuhlen	A Lattice Gas Cellular Automata Simulator with Cell Broadband Engine Yusuke Arai, Ryo Sawai, Yoshiki Yamaguchi, Tsutomu Maruyama, Moritoshi Yasunaga	Optimizing Lattice QCD Simulations on BlueGene/L Stefan Krieg
12:00	Memory Debugging of MPI-Parallel Applications in Open MPI Rainer Keller, Shiqing Fan, Michael Resch			
12:30	Closing Session (Room 4)			
12:45 to 14:00	Lunch			
14:00	Bustransfer Jülich => Train station Düren / Aachen Leaves from Forschungszentrum Jülich, ZAM			