

Euro-Par'03

The 9th International Conference on
Parallel and Distributed Computing
Klagenfurt, Austria, 26 - 29 August, 2003



Final Program

(version August 04, 2003)

Welcome to Euro-Par 2003

Euro-Par is the annual series of international conferences dedicated to the promotion and advancement of all aspects of parallel and distributed computing. This year's conference attracts about 300 participants coming from universities, research centres and industry.

Euro-Par 2003 represents major themes in the categories of hardware, software, algorithms and applications. New and interesting topics are proposed, like Peer-to-Peer Networks, Distributed Multimedia Systems and Middleware Systems. For the first time we promote a Demo Session for the presentation of applications.

Euro-Par 2003 is organized as a number of parallel sessions on the following topics:

- Topic 01: Support Tools and Environments
- Topic 02: Performance Evaluation and Prediction
- Topic 03: Scheduling and Load Balancing
- Topic 04: Compilers for High Performance
- Topic 05: Parallel and Distributed Databases, Data Mining and Knowledge Discovery
- Topic 06: Grid Computing and Middleware-Systems
- Topic 07: Applications on High-Performance Computers
- Topic 08: Parallel Computer Architecture and Instruction-Level Parallelism
- Topic 09: Distributed Algorithms
- Topic 10: Parallel Programming: Models, Methods and Programming Languages
- Topic 11: Numerical Algorithms and Scientific Engineering Problems
- Topic 12: Architectures and Algorithms for Multimedia Applications
- Topic 13: Theory and Algorithms for Parallel Computation
- Topic 14: Routing and Communication in Interconnection Networks
- Topic 15: Mobile and Ubiquitous Computing
- Topic 16: Distributed Systems and Distributed Multimedia
- Topic 17: High-Performance Object-Oriented and Middleware Systems
- Topic 18: Peer-to-Peer Computing
- Topic 19: Demonstration of Parallel and Distributed Computing taken from the Topics above

Conference Organization

Organizer

Institute of Information Technology
University Klagenfurt, Austria
Universitätsstr. 65-67, 9020 Klagenfurt
<http://www.ifi.uni-klu.ac.at/ITEC/>

General Chairs

Harald Kosch, University Klagenfurt
László Böszörményi, University Klagenfurt
Hermann Hellwagner, University Klagenfurt

Program Committee: Local and Global Chairs

Local Chairs

Topic01: T. Ludwig (D)
Topic02: T. Fahringer (A)
Topic03: D. Kranzlmüller (A)
Topic04: M. Schordan (USA/A)
Topic05: D. Talia (I)
Topic06: P. Kacsuk (H)
Topic07: P. Luksch (D)
Topic08: A. Bode (D)
Topic09: L. Lefevre (F)
Topic10: C. Herrmann (D)
Topic11: P. Zinterhof (A)
Topic12: A. Uhl (A)
Topic13: M. Kaufmann (D)
Topic14: H. Hellwagner (A)
Topic15: A. Ferscha (A)
Topic16: L. Böszörményi (A)
Topic17: M. Philippsen (D)
Topic18: F. Cappello (F)
Topic19: M. Kropfberger (A)

Global Chairs

H. Burkhart (CH)
J. Hollingsworth (USA)
Y. Robert (F)
M. Gerndt (D)
B. Mitschang (D)
H. Bal (NL)
J. Kitowski (PL)
S. Vassiliadis (NL)
J. Misra (US)
J. Cunha (P)
I. Duff (UK)
I. Ahmad (CA)
C. Kaklamanis (GR)
J. Duato (E)
M. Mühlhäuser (D)
F. Pereira (P)
G. Fox (US)
L. Bougé (F)
R. Perrott (UK)

Local Organization Team:

Martina Steinbacher, Angelika Rossak, Mario Döllner, Mulugeta Libsie, Ronald Sowa, Andreas Griesser and Peter Schojger

Tuesday, 26 th August 2003	09:30	<i>Full-day Tutorials:</i> Bernard Traversat (Sun Microsystems): <i>Project JXTA: An Open P2P Platform Architecture</i> (HS C) Mark Baker (University of Portsmouth) and Zoltan Juhasz (University of Veszprém): <i>Grid Computing with Jini</i> (HS 4)				
	14:00	<i>Half-day Tutorials:</i> Alois Ferscha (University Linz): <i>Pervasive Computing</i> (HS 1) Ibrahim Haddad (Ericsson Research): <i>Carrier Grade Linux Platforms: Characteristics and Development Efforts</i> (HS 2) Fernando Pereira (Instituto Superior Técnico, Lisbon) and Hermann Hellwagner (University Klagenfurt): <i>A Family of Multimedia Representation Standards: MPEG-4/-7/-21</i> (HS 3) Peter Drayton (Microsoft Research): <i>Under the Hood of Rotor, the Microsoft Shared Source CLI Implementation</i> (z-109)				
	18:00	<i>Memorial Panel</i> in Honor of Dijkstra, Dahl, and Nygaard (HS A) — <i>Welcome Reception</i> (19:30, Cafeteria) — <i>Memorial Exhibition Opening</i> (20:00, Eastern Glass Bridge)				
Wednesday, 27 th August 2003	09:00	<i>Welcome and Conference Opening</i> (HS A)				
	09:30	<i>Invited Talks:</i> C.A.R. Hoare (Microsoft Research and Oxford University): <i>The Verifying Compiler: A Grand Challenge For Computing Research</i> (HS A) Jim Miller (Microsoft Research): <i>Evolving a Multi-Language Object-Oriented Framework: Lessons from .NET</i> (HS A)				
	12:30	Lunch Break				
	14:00	Session 06.1 (HS C) <i>Services and RPC</i>	Session 01.1 (HS B) <i>Performance and Analysis Tools</i>	Session 15.1 (HS 1) <i>Peer-to-Peer and Mobile Games</i>	Session 03.1 (HS 4) <i>Scheduling in Parallel Systems</i>	Session 08.1 (HS 3) <i>Caches</i>
	15:30	Coffee Break				
	16:00	Session 06.2 (HS C) <i>Resource Scheduling in the Grid</i>	Session 01.2 (HS B) <i>Debugging Tools</i>	Session 15.2 (HS 1) <i>Coordination and Mobile Middleware</i>	Session 03.2 (HS 4) <i>Load Balancing in Parallel Systems</i>	Session 08.2 (HS 3): <i>Instruction and Thread Level Parallelism</i>
	17:30	Coffee Break				
	18:00	Session 06.3 (HS C) <i>Grid Applications</i>	Session 01.3 (HS B) <i>Management Tools</i>	Session 15.3 (HS 1) <i>QoS and Context Awareness</i>	¾	Session 08.3 (HS 3) <i>Industrial System Software</i>
	19:15	Trip to Velden				
	Thursday, 28 th August 2003	09:00	Session 07.1 (HS C): <i>Applications in Science and Multimedia</i>	Session 10.1 (HS B): <i>Concurrent Programming Languages</i>	Session 15.4 (HS 1): <i>Congestion Control and Location Services</i>	Session 03.3 (HS 4): <i>Selected Issues in Load Balancing and Scheduling</i>
10:30		Coffee Break				
11:00		Session 07.2 (HS C) <i>Applications in Engineering</i>	Session 10.2 (HS B): <i>Functional Prog. Methods and Cost Models</i>	<i>Industrial Session</i> (until 13:00, HS 1)	<i>Demonstration Session</i> (Topic 19) (until 13:00, z-109)	Session 13.2 (HS 3) <i>Theory and Algorithms II</i>
12:30		Lunch Break				
14:00		Session 07.3 (HS C) <i>Systems Applications</i>	Session 10.3 (HS B) <i>Systems and Environments</i>	Session 18.1 (HS 1) <i>P2P Systems</i>	Session 16.1 (HS 4) <i>Distributed Systems</i>	Session 14.1 (HS 3): <i>Communication Software and Protocols</i>
15:30		Coffee Break				
Friday, 29 th August 2003	16:00	Session 07.4 (HS C) <i>Numerical Applications</i>	Session 10.4 (HS B): <i>Nondeterminism and Analytical Cost Models</i>	Session 18.2 (HS 1) <i>P2P Coordination and Applications</i>	Session 16.2 (HS 4): <i>VoD and Video Server Technology</i>	Session 14.2 (HS 3): <i>Congestion Control, Forwarding, and Routing</i>
	18:00	<i>Conference Dinner</i> (Schloss Mageregg)				
	09:00	Session 04.1 (HS C) <i>Code Optimization and Vectorization</i>	Session 02.1 (HS B) <i>High Performance Evaluation</i>	Session 15.5 (HS 1): <i>Ubiquitous and Pervasive Computing I</i>	Session 16.3 (HS 4) <i>Cluster Systems</i>	Session 09.1 (HS 3) <i>Distributed Algorithms I</i>
	10:30	Coffee Break				
	11:00	Session 04.2 (HS C): <i>Parallelization and Multiprocessor Optimization</i>	Session 02.2 (HS B): <i>Performance Evaluation for Distr. and Grid App's.</i>	Session 05.1 (HS 1): <i>Algorithms in Parallel Databases and Data Mining</i>	Session 16.4 (HS 4): <i>Multimedia Streaming and Adaptation</i>	Session 11.1 (HS 3) <i>Parallel Linear Algebra</i>
12:30	Lunch Break					
13:30	Session 04.3 (HS C) <i>Communication Optimization</i>	Session 15.6 (HS B) : <i>Ubiquitous and Pervasive Computing II</i>	Session 05.2 (HS 1): <i>Distributed Databases: Grid and Sensors</i>	Session 09.2 (HS 4) <i>Distributed Algorithms II</i>	Session 11.2 (HS 3) <i>Parallel Methods for PDEs</i>	
14:30	<i>Invited Talks:</i> Stefan Dessloch (Kaiserslautern University of Technology): <i>Databases, Web Services, and Grid Computing – Standards and Directions</i> (HS A) Henri E. Bal (Vrije Universiteit, Amsterdam): <i>Ibis: A Java-based Grid Programming Environment</i> (HS A)					
18:30	<i>Guided Tour</i> through Klagenfurt — <i>Old Town Festival</i> ("Altstadtfest", 20:00)					

Euro-Par 2003 Conference Program

Tuesday, August 26, 2003, 09:30-12:30 and 14:00-17:30

Full Day Tutorials (09:30-12:30 and 14:00-17:30)

- HS C** Project JXTA: An Open P2P Platform Architecture
Bernard Traversat (Sun Microsystems)
- HS 4** Grid Computing with Jini
Mark Baker (University of Portsmouth) and Zoltan Juhasz (University of Veszprém)

Afternoon Tutorials (Half Day Tutorials - 14:00-17:30)

- HS 1** Pervasive Computing
Alois Ferscha (University Linz)
- HS 2** Carrier Grade Linux Platforms: Characteristics and Development Efforts
Ibrahim Haddad (Ericsson Research)
- HS 3** A Family of Multimedia Representation Standards: MPEG-4/7/21
Hermann Hellwagner (University Klagenfurt) and Fernando Pereira (Instituto de Telecomunicações, Lisboa)
- sz-109** Under the hood of Rotor, the Microsoft Shared Source CLI implementation
Peter Drayton (Microsoft Research)

APART-2 Workshop (9.00-17.30)

- SR 2-42 APART-2 workshop on Grid Monitoring and Performance Analysis
Peter Kacsuk

Memorial panel in honor of: Dijkstra, Dahl, Nygaard

20:00 Opening Memorial Exhibition and Buffet

Wednesday, August 27, 2003, 09.00 – 12.30

Opening and Invited Talks

Location: HS A

09.00 - Welcome and Open Conference
09.30

Harald Kosch and Christian Lengauer

Chair: László Böszörményi

09.30 - The Verifying Compiler: A Grand Challenge For Computing Research
10.30

C.A.R. Hoare (Microsoft Research, Oxford University)

Chair: Harald Kosch

11.00 - Evolving a Multi-Language Object-Oriented Framework: Lessons from
12.00 .NET

Jim Miller (Microsoft Research)

Wednesday, August 27, 2003, 14.00 - 15.30

Session 06.1: Services and RPC

Time Wednesday, August 27, 2003, 14.00 - 15.30

Location 0

Chair Henri E. Bal

14.00 - GrADSolve - RPC for High Performance Computing on the Grid
14.30

Sathish Vadhiyar, J. Dongarra, and A. YarKhan

14.30 - Automated Negotiation for Grid Notification Services
15.00

R. Lawley, K. Decker, M. Luck, T. Payne, and L. Moreau

15.00 - Secure Web Services with Globus GSI and gSOAP (Research Note)
15.15

G. Aloisio, M. Cafaro, D. Lezzi, and R. van Engelen

15.15 - Delivering Data Management for Engineers on the Grid (Research Note)
15.30

J. Wason, M. Molinari, Zhuoan Jiao, and S. J. Cox

Session 01.1: Performance and Analysis Tools

Time Wednesday, August 27, 2003, 14.00 - 15.30

Location HS B

Chair Thomas Ludwig

14.00 - On Utilizing Experiment Data Repository for Performance Analysis of
14.30 Parallel Applications

H.-L. Truong and Th. Fahringer

14.30 - *ParaProf*: A Portable, Extensible, and Scalable Tool for Parallel
15.00 Performance Profile Analysis

R. Bell, A. D. Malony, and S. Shende

15.00 - A Hardware Counters Based Tool for System Monitoring
15.30

T. C. Ferreto, L. DeRose, and C. A. F. De Rose

Session 15.1: Peer-to-Peer and Mobile Games

Time Wednesday, August 27, 2003, 14.00 - 15.30

Location HS 1

Chair Karin Hummel

14.00 - iClouds – Peer-to-Peer Information Sharing in Mobile Environments
14.30

A. Heinemann, J. Kangasharju, F. Lyardet, and M. Mühlhäuser

14.30 - Designing mobile games for a challenging experience of the urban heritage
15.00

F. Bellotti, R. Berta, A. De Gloria, E. Ferretti, and M. Margarone

15.00 - Short Message Service in a Grid-Enabled Computing Environment
15.15 (Research Note)

Fenglian Xu, Hakki Eres, and S. J. Cox

15.15 - Service Migration Mechanism using Mobile Sensor Network (Research
15.30 Note)

Kyungsoo Lim, Woojin Park, Sinam Woo, and Sunshin An

Session 03.1: Scheduling in Parallel Systems

Time Wednesday, August 27, 2003, 14.00 - 15.30

Location HS 4

Chair Dieter Kranzlmüller

14.00 - Impact of Job Allocation Strategies on Communication-Driven
14.30 Coscheduling in Clusters

Gyu Sang Choi, S. Agarwal, Jin-Ha Kim, A. B. Yoo, and C. R. Das

14.30 - Trading Cycles for Information: Using Replication to Schedule Bag-of-
15.00 Tasks Applications on Computational Grids

D. Paranhos da Silva, W. Cirne, and F. Vilar Brasileiro

15.00 - Recursive Refinement of Lower Bounds in the Multiprocessor Scheduling
15.15 Problem (Research Note)

Satoshi Fujita, Masayuki Masukawa, and Shigeaki Tagashira

15.15 - An Experimental Study of k -Splittable Scheduling for DNS-Based Traffic
15.30 Allocation (Research Note)

A. Agarwal, T. Agarwal, S. Chopra, A. Feldmann, N. Kammenhuber, P. Krysta, and B. Vöcking

Session 08.1: Caches

Time Wednesday, August 27, 2003, 14.00 - 15.30

Location HS 3

Chair Arndt Bode

14.00 - Cache Performance Optimizations for Parallel Lattice Boltzmann Codes
14.30

J. Wilke, Th. Pohl, M. Kowarschik, and U. Rüdte

14.30 - Counteracting Bank Misprediction in Sliced First-Level Caches
15.00

E.F. Torres, P. Ibañez, V. Viñals, and J. M. Llaberia

15.00 - Compression in Data Caches with Compressible Field Isolation for
15.15 Recursive Data Structures (Research Note)

Masamichi Takagi and Kei Hiraki

15.15 - Value Compression to Reduce Power in Data Caches (Research Note)
15.30

C. Aliagas, C. Molina, M. Garcia, A. Gonzalez, and J. Tubella

Wednesday, August 27, 2003, 16.00 - 17.30

Session 06.2: Resource Scheduling in the Grid

Time Wednesday, August 27, 2003, 16.00 - 17.30

Location HS C

Chair Peter Kacsuk

16.00 - Resource and Job Monitoring in the Grid
16.30

Z. Balaton and G. Gombás

16.30 - Grid Resource Selection for Opportunistic Job Migration
17.00

R. S. Montero, E. Huedo, and I. M. Llorente

17.00 - A Resource Accounting and Charging System in Condor Environment
17.15 (Research Note)

C. Somogyi, Z. László, and I. Szeberényi

17.15 - Future-Based RMI: Optimizing Compositions of Remote Method Calls on
17.30 the Grid (Research Note)

M. Alt and S. Gorlatch

Session 01.2: Debugging Tools

Time Wednesday, August 27, 2003, 16.00 - 17.45

Location HS B

Chair Helmar Burkhart

16.00 - EventSpace - Exposing and Observing Communication Behavior of Parallel
16.30 Cluster Applications

L. A. Bongo, O. J. Anshus, and J. M. Bjørndalen

16.30 - A Race Detection Mechanism Embedded in a Conceptual Model for the
17.00 Debugging of Message-Passing Distributed Programs

A. P. Cláudio and J. D. Cunha

17.00 - Flexible performance debugging of parallel and distributed applications
17.30

J. Chassin de Kergommeaux, C. Guilloud, and B. de Oliveira Stein

17.30 - Why Not Use a Pattern-based Parallel Programming System? (Research
17.45 Note)

J. Anvik, J. Schaeffer, D. Szafron, and Kai Tan

Session 15.2: Coordination and Mobile Middleware

Time Wednesday, August 27, 2003, 16.00 - 17.30

Location HS 1

Chair Alois Ferscha

16.00 - Network Based Mobile Station Positioning in Metropolitan Area
16.30

Karl R. P. H. Leung, Joseph Kee-Yin Ng, Tim K. T. Chan, Kenneth M.
K. Chu, and Chun Hung Li

16.30 - Programming Coordinated Motion Patterns with the TOTA Middleware
17.00

M. Mamei, F. Zambonelli, and L. Leonardi

17.00 - A Coordination Model for Ad Hoc Mobile Systems
17.30

M. Tulio Valente, F. Magno Pereira, R. da Silva Bigonha, and M. A. da
Silva Bigonha

Session 03.2: Load Balancing in Parallel Systems

Time Wednesday, August 27, 2003, 16.00 - 17.15

Location HS 4

Chair Yves Robert

16.00 - Dynamic Load Partitioning Strategies for Managing Data of Space and Time
16.30 Heterogeneity in Parallel SAMR Applications

Xiaolin Li and Manish Parashar

16.30 - Performance-based Dynamic Scheduling of Hybrid Real-time Applications
16.45 on a Cluster of Heterogeneous Workstations (Research Note)

Ligang He, St. A. Jarvis, D. P. Spooner, and G. R. Nudd

16.45 - Efficient Dynamic Load Balancing Strategies for Parallel Active
17.00 SetOptimization Methods (Research Note)

I. Pardines and F. F. Rivera

17.00 - Dynamic Load balancing for I/O- and Memory-Intensive workload in
17.15 Clusters using a Feedback Control Mechanism (Research Note)

Xiao Qin, Hong Jiang, Yifeng Zhu, and D. R. Swanson

Session 08.2: Instruction and Thread Level Parallelism

Time Wednesday, August 27, 2003, 16.00 - 17.45

Location HS 3

Chair Nikitas Dimopoulos

16.00 - Trace Substitution
16.30

H. Vandierendonck, H. Logie, and K. De Bosschere

16.30 - Optimizing a Decoupled Front-End Architecture: the Indexed Fetch Target
17.00 Buffer (iFTB)

J. C. Moure, D. I. Rexachs, and E. Luque

17.00 - Clustered Microarchitecture Simultaneous Multithreading
17.30

Seong-Won Lee and J.-L. Gaudiot

17.30 - Compiler-Assisted Thread Level Control Speculation (Research Note)
17.45

Hideyuki Miura, Luong Dinh Hung, Chitaka Iwama, Daisuke Tashiro,
Niko Demus Barli, Shuichi Sakai, and Hidehiko Tanaka

Wednesday, August 27, 2003, 18.00 – 18.45

Session 06.3: Grid Applications

Time Wednesday, August 27, 2003, 18.00 - **19.00**

Location HS C

Chair Luc Moreau

18.00 - Semantic Access Control for Medical Applications in Grid Environments
18.30

L. Seitz, J.-M. Pierson, and L. Brunie

18.30 - Implementation of a Grid Computation Toolkit for Design Optimisation
19.00 with Matlab and Condor

G. Xue, M.J. Fairman, G. Pound, and S. J. Cox

Session 01.3: Management Tools

Time Wednesday, August 27, 2003, 18.00 - 18.45

Location HS B

Chair Tomàs Margalef

18.00 - DIOS++: A Framework for Rule-Based Autonomic Management of
18.30 Distributed Scientific Applications

H. Liu and M. Parashar

18.30 - DeWiz - A Modular Tool Architecture for Parallel Program Analysis
18.45 (Research Note)

D. Kranzlmüller, M. Scarpa, and J. Volkert

Session 15.3: QoS and Mobility

Time Wednesday, August 27, 2003, 18.00 - 18.45

Location HS 1

Chair Azzedine Boukerche

18.00 - Dynamic Layouts for Wireless ATM
18.30

M. Flammini, G. Gambosi, A. Gasparini, A. Navarra

18.30 - QoS Provision in IP Based Mobile Networks (Research Note)
18.45

V. Simon, A. Huszák, S. Szabá, and S. Imre

Session 08.3: Industrial System Software

Time Wednesday, August 27, 2003, 18.00 - 19.00

Location HS 3

Chair Emilio Luque

18.00 - An Overview of the Blue Gene/L System Software Organization
18.30 (Distinguished Paper)

G. Almási, R. Bellofatto, J. Brunheroto, C. Caüscaval, J. G. Castañes, L. Ceze, P. Crumley, C. Ch. Erway, J. Gagliano, D. Lieber, X. Martorell, J. E. Moreira, A. Sanomiya, and K. Strauss

18.30 - An Enhanced Trace Scheduler for SPARC Processors (Research Note)
18.45

S. Kalogeropoulos

Thursday, August 28, 2003, 09.00 - 10.30

Session 07.1 Applications in Science and Multimedia

Time Thursday, August 28, 2003, 09.00 - 10.30

Location HS C

Chair Peter Luksch

09.00 - Interactive Ray Tracing on Commodity PC Clusters
09.30

I. Wald, C. Benthin, A. Dietrich, and Ph. Slusallek

09.30 - Comparing Two Long Biological Sequences Using a DSM System
10.00

R.C. F. Melo, M. E. Telles Walter, A. C. Magalhaes Alves Melo, R. Batista, M. Nardelli, Th. Martins, and T. Fonseca

10.00 - Effectiveness of Parallelizing the ILOG-CPLEX Mixed Integer Optimizer in
10.30 the PUBB2 Framework

Yuji Shinano, Tetsuya Fujie, and Yuusuke Kounoike

Session 10.1: Concurrent Programming Languages

Time Thursday, August 28, 2003, 09.00 - 10.30

Location HS B

Chair José Cunha

09.00 - High-level Process Control in Eden
09.30

J. Berthold, U. Klusik, R. Loogen, S. Priebe, N. Weskamp

09.30 - Prototyping Application Models in Concurrent ML

10.00

D. Johnston, M. Fleury, A. Downton

10.00 - An Inter-entry Invocation Selection Mechanism for Concurrent

10.30 Programming Languages

A. W. Keen, R. A. Olsson

Session 15.4: Congestion Control and Location Services

Time Thursday, August 28, 2003, 09.00 - 10.30

Location HS 1

Chair Sotiris Nikolettseas

09.00 - Performance Evaluation of Two Congestion Control Mechanisms with On-
09.30 Demand Distance Vector (AODV) Routing Protocol for Mobile and
Wireless Networks

Azzedine Boukerche

09.30 - Towards an Approach for Mobile Profile based Distributed Clustering
10.00

C. Seitz and M. Berger

10.00 - Simulating Demand-Driven Server and Service Location in Third
10.30 Generation Mobile Networks

G. R. Mateus, O. Goussevskaia, and A. A. F. Loureiro

Session 03.3: Selected Issues in Load Balancing and Scheduling

Time Thursday, August 28, 2003, 09.00 - 10.30

Location HS 4

Chair Helen Karatza

09.00 - Static load-balancing techniques for iterative computations on heterogeneous
09.30 clusters (Distinguished Paper)

H. Renard, Y. Robert, and F. Vivien

09.30 - Predicting the Best Mapping for Efficient Exploitation of Task and Data
09.45 Parallelism (Research Note)

F. Guirado, A. Ripoll, C. Roig, X. Yuan, and E. Luque

09.45 - Scheduling Strategies of Divisible Loads in DIN Networks (Research Note)
10.00

Ligang Dong, Lek Heng Ngoh, and Joo Geok Tan

10.00 - Cooperating Coscheduling in a Non-Dedicated Cluster (Research Note)
10.15

F. Giné, F. Solsona, P. Hernández, and E. Luque

10.15 - An Experimental Investigation into the Rank Function of the Heterogeneous
10.30 Earliest Finish Time Scheduling Algorithm (Research Note)

Henan Zhao and Rizos Sakellariou

Session 13.1: Theory and Algorithms for Parallel Computation 1

Time Thursday, August 28, 2003, 09.00 - 10.30

Location HS 3

Chair Christos Kaklamanis

09.00 - Minimizing Global Communication in Parallel List Ranking
09.30

Jop F. Sibeyn

09.30 - Construction of efficient communication sub-structures: Non-
10.00 approximability results and polynomial sub-cases

Christian Laforest

10.00 - A Model of Pipelined Mutual Exclusion on Cache-Coherent Multiprocessors
10.15 (Research Note)

Masaru Takesue

10.15 - c -Perfect Hashing Schemes for Binary Trees, with Applications to Parallel
10.30 Memories (Research Note)

G. Cordasco, A. Negro, V. Scarano, A. L. Rosenberg

Thursday, August 28, 2003, 11.00 - 12.30

Session 07.2: Applications in Engineering

Time Thursday, August 28, 2003, 11.00 - 12.30

Location HS C

Chair Rizos Sakellariou

11.00 - CAD Grid: Corporate-Wide Resource Sharing for Parameter Studies
11.30

E. Wheelhouse, C. Trinitis, and M. Schulz

11.30 - Implementation of Adaptive Control Algorithms in Robot Manipulators
12.00 using Parallel Computing

J. C. Fernández, V. Hernández, and L. Peñalver

12.00 - Two Dimensional Airfoil Optimisation Using CFD in a Grid Computing
12.30 Environment

W. Song, A. Keane, H. Eres, G. Pound, and S. J. Cox

Session 10.2: Functional Programming Methods and Cost Models

Time Thursday, August 28, 2003, 11.00 - 12.30

Location HS B

Chair Christoph Herrmann

11.00 - Cost Optimality and Predictability of Parallel Programming with Skeletons
(Distinguished Paper)

H. Bischof, S. Gorlatch, E. Kitzelmann

11.30 - Parallel Juxtaposition for Bulk Synchronous Parallel ML
12.00

Frédéric Loulergue

12.00 - Parallelization with Tree Skeletons
12.30

K. Matsuzaki, Z. Hu, M. Takeichi

Session 13.2: Theory and Algorithms for Parallel Computation 2

Time Thursday, August 28, 2003, 11.00 - 11.45

Location HS 3

Chair Rainer Feldmann

11.00 - Improving Communication Sensitive Parallel Radix Sort for Unbalanced
11.30 Data

Martin Schmollinger

11.30 - Efficient Parallel Multiplication Algorithm for Large Integers (Research
11.45 Note)

V. Bunimov, M. Schimmler

Thursday, August 28, 2003, 11.00 - 13.00

Topic 19:

Demonstration of Parallel and Distributed Computing

Demonstration Session 19.1:

Time Thursday, August 28, 2003, 11.00 - 13.00

Location sz-109

Chair M. Kropfberger

Coupling Parallel Simulation and Multi-display Visualization on a PC
Cluster

J. Allard, B. Rafin, F. Zara

Kerrighed: a Single System Image Cluster Operating System for High
Performance Computing

C. Morin, R. Lottiaux, G. Vallée, P. Gallard, G. Utard, R. Badrinath, L.
Rilling

Demonstration of P-GRADE job-mode for the Grid

P. Kacsuk, R. Lovas, J. Kovács, F. Szalai, G. Gombás, N. Podhorszki,
A. Horváth, A. Horányi, I. Szeberényi, T. Delaitre, G. Terstyánszky, A.
Gourgoulis

Demonstration Session 2:

Time Thursday, August 28, 2003, 11.00 - 13.00

Location sz-109

Chair Henk Sips

ASSIST demo: a high level, high performance, portable, structured parallel
programming environment at work

M. Aldinucci, S. Campa, P. Ciullo, M. Coppola, M. Danelutto, P.
Pesciullesi, R. Ravazzolo, M. Torquati, M. Vanneschi, C. Zoccolo

KOJAK – A Tool Set for Automatic Performance Analysis of Parallel
Programs

B. Mohr, F. Wolf

Visual System for Developing of Parallel Programs

O. G. Monakhov

Industrial Session

Time Thursday, August 28, 2003, 11.00 - 13.00

Location HS 1

Chair László Böszörményi and Harald Kosch

11:00 -
11:25



Martin Farrow: "Quant-X and Compusys a European HPC Cluster Offering"

11:25 -
11:50



Joseph Pareti: "Scientific codes on a cluster of Itanium-based compute nodes"

11:50 -
12:05



Wolfgang Dreyer: "NEC's High Performance Computing Strategy"

12:05 -
12:20



Hans-Jürgen Kitzhöfer: "IBM - Grid Computing"

12:20 -
12:35



Franz Lackinger: "SunONE - an open platform for software development, integration and operation"

12:35 -
12:50



Jochen Krebs: "How to get more cycles out of a LINUX Cluster"

Thursday, August 28, 2003, 14.00 - 15.30

Session 07.3: System's Applications

Time Thursday, August 28, 2003, 14.00 - 15.30

Location HS C

Chair Michael Philippsen

14.00 - Parallel Agent-Based Simulation on a Cluster of Workstations
14.30

K. Popov, V. Vlassov, M. Rafea, F. Holmgren, P. Brand, and S. Haridi

14.30 - Toward Automatic Management of Embarrassingly Parallel Applications
15.00

I. Dutra, D. Page, V. Santos Costa, J. Shavlik, and M. Waddell

15.00 - Applied Grid Computing: Optimisation of Photonic Devices (Research
15.15 Note)

D. H. Beckett, B. Hiatt, K. S. Thomas, and S. J. Cox

15.15 - Parallel Linear System Solution and Its Application to Railway Power
15.30 Network Simulation (Research Note)

M. F. Ercan, Y. F. Fung, T. K. Ho, and W. L. Cheung

Session 10.3: Systems and Environments

Time Thursday, August 28, 2003, 14.00 - 15.30

Location HS B

Chair Marco Danelutto

14.00 - Using Skeletons in a Java-Based Grid System
14.30

M. Alt, S. Gorlatch

14.30 - THROOM — Supporting POSIX Multithreaded Binaries on a Cluster
15.00

H. Löf, Z. Radovic, E. Hagersten

15.00 - The Implementation of ASSIST, an Environment for Parallel and Distributed
15.30 Programming.

M. Aldinucci, S. Campa, P. Ciullo, M. Coppola, S. Magini, P. Pesciullesi, L. Potiti, R. Ravazzolo, M. Torquati, M. Vanneschi, C. Zoccolo

Session 18.1: Peer-to-Peer Systems

Time Thursday, August 28, 2003, 14.00 - 15.30

Location HS 1

Chair Luc Bougé

14.00 - Hierarchical Peer-to-Peer Systems
14.30

L. Garcés-Erice, E.W. Biersack, P.A. Felber, K.W. Ross, G. Urvoy-Keller

14.30 - Fault Tolerant Peer-to-Peer Dissemination Network
15.00

K. G. Zerfiridis, H. D. Karatza

15.00 - A Spontaneous Overlay Search Tree
15.30

Hung-Chang Hsiao, Chuan-Mao Lin, Chung-Ta King

Session 16.1: Distributed Systems

Time Thursday, August 28, 2003, 14.00 - 15.30

Location HS 4

Chair Abdulmotaleb El Saddik

14.00 - A New Distributed JVM for Cluster Computing
14.30

M. Lobosco, A. Silva, O. Loques, C. L. de Amorim

14.30 - On the Characterization of Distributed Virtual Environment Systems
15.00

P. Morillo, J. M. Orduña, M. Fernández, J. Duato

15.00 - Low Overhead Agent Replication for the Reliable Mobile Agent System
15.30

T. Park, I. Byun

Session 14.1: Communication Software and Protocols

Time Thursday, August 28, 2003, 14.00 - 15.45

Location HS 3

Chair José Duato

14.00 - Dynamic Streams for Efficient Communications between Migrating Processes in a Cluster

P. Gallard and C. Morin

14.30 - RoCL: A Resource oriented Communication Library

A.A. Pina, J. Exposto, and J. Rufino

15.00 - FOBS: A Lightweight Communication Protocol for Grid Computing

P.M. Dickens

15.30 - Implementation and Performance Evaluation of M-VIA on AceNIC Gigabit Ethernet Card (Research Note)

In-Su Yoon, Sang-Hwa Chung, Ben Lee, and Hyuk-Chul Kwon

Thursday, August 28, 2003, 16.00 - 17.30

Session 07.4: Numerical Applications

Time Thursday, August 28, 2003, 16.00 - 17.30

Location HS C

Chair Simon J. Cox

16.00 - Low Level Parallelization of Nonlinear Diffusion Filtering Algorithms for Cluster Computing Environments

D. Sbgnsnat, M. Fischer, A. Bruhn, J. Weickert, and U. Brüning

16.30 - Improving Performance of Hypermatrix Cholesky Factorization

J. R. Herrero and J. J. Navarro

17.00 - Computational models for Web- and Grid-based computation

J. Gabarró, A. Stewart, M. Clint, E. Boyle, and I. Vallejo

Session 10.4: Nondeterminism and Analytical Cost Models

Time Thursday, August 28, 2003, 16.00 - 17.30

Location HS B

Chair Holger Bischof

16.00 - A Methodology for Order-Sensitive Execution of Non-deterministic Languages on Beowulf Platforms

K. Villaverde, E. Pontelli, H-F. Guo, G. Gupta

16.30 - The Design of an API for Strict Multithreading in C++

W. Blochinger, W. Küchlin

17.00 - From Complexity Analysis to Performance Analysis

V. Blanco, J. A. González, C. Léon, C. Rodriguez, G. Rodriguez

Session 18.2: Peer-to-Peer Coordination and Applications

Time Thursday, August 28, 2003, 16.00 - 17.30

Location HS 1

Chair Bernard Traversat

16.00 - Exploring the Catalactic Coordination Approach for Peer-to-Peer systems

O. Ardaiz, P. Artigas, T. Eymann, F. Freitag, R. Messeguer, L. Navarro, M. Reinicke

16.30 - Enabling Peer-to-Peer Interactions for Scientific Applications on the Grid

V. Matossian, M. Parashar

17.00 - Incentives for Combatting Freeriding on P2P Networks (Research Note)

S. D. Kamvar, M. T. Schlosser, H. Garcia-Molina

17.15 - Peer-to-Peer Communication through the Design and Implementation of Xiangqi (Research Note)

A. El Saddik, A. Dufour

Session 16.2: Video-on-Demand and Video Server Technology

Time Thursday, August 28, 2003, 16.00 - 17.30

Location HS 4

Chair Andreas Uhl

16.00 - On Transmission Scheduling in a Server-less Video-on-Demand System

C. Y. Chan, Jack Y. B. Lee

16.30 - Exploiting Traffic Balancing and Multicast Efficiency in Distributed Video-on-Demand Architectures

F. Cores, A. Ripoll, B. Qazzaz, R. Suppi, X. Yang, P. Hernández, E. Luque

17.00 - A Proxy Placement Algorithm for the Adaptive Multimedia Server
17.30 B. Goldschmidt, Z. László

Session 14.2: Congestion Control, Forwarding, and Routing

Time Thursday, August 28, 2003, 16.00 - **17.45**
Location HS 3
Chair Olav Lysne

16.00 - A Robust Mechanism for Congestion Control: INC
16.30 E. Baydal and P. López

16.30 - Low-Fragmentation Mapping Strategies for Linear Forwarding Tables in
17.00 InfiniBand
P. López, J. Flich, and A. Robles

17.00 - A QoS Multicast Routing Protocol for Dynamic Group Topology
17.30 Li Layuan and Li Chunlin

17.30 - A study of network capacity under deflection routing schemes (Research
17.45 Note)
J. Fàbrega and X. Muñoz

Friday, August 29, 2003, 09.00 - 10.30

Session 04.1: Code Optimization and Vectorization

Time Friday, August 29, 2003, 09.00 - 10.30
Location HS C
Chair Michael Gerndt

09.00 - Partial Redundancy Elimination with Predication Techniques
09.30 B. Scholz, E. Mehofer, and N. Horspool

09.30 - Branch Elimination via Multi-Variable Condition Merging
10.00 W. Krehling, D. Whalley, M. Bailey, Xin Yuan, Gang-Ryung Uh, and
R. van Engelen

10.00 - SIMD Vectorization of Straight Line FFT Code
10.30 St. Kral, F. Franchetti, J. Lorenz, and Ch. W. Ueberhuber

Session 02.1: High Performance Evaluation

Time Friday, August 29, 2003, 09.00 - 10.30
Location HS B
Chair Allen D. Malony

09.00 - Obtaining Hardware Performance Metrics for the BlueGene/L
09.30 Supercomputer
P. Mindlin, J. Brunheroto, L. DeRose, and J. E. Moreira

09.30 - A Reconfigurable Monitoring System for Large-scale Network Computing
10.00 R. Subramanyan, J. Miguel-Alonso, and J. A. B. Fortes

10.00 - Symbolic Performance Prediction of Speculative Parallel Programs
10.30 H. Gautama and A. J.C. van Gemund

Session 15.5: Ubiquitous and Pervasive Computing 1

Time Friday, August 29, 2003, 09.00 - **10.45**
Location HS 1
Chair Max Mühlhäuser

09.00 - A Comparative Study of Protocols for Efficient Data Propagation in Smart
09.30 Dust Networks (Distinguished Paper)
I. Chatzigiannakis, T. Dimitriou, M. Mavronicolas, S. Nikolettseas, and
P. Spirakis

09.30 - Support for Personal and Service Mobility in Ubiquitous Computing
10.00 Environments
K. El-Khatib, N. Hadibi, and G. v. Bochmann

10.00 - Benefits and Requirements of Using Multi-agent Systems on Smart Devices
10.30 C. Carabelea, O. Boissier, and F. Ramparany

10.30 - Design of a Management System for Wireless Home Area Networking
10.45 (Research Note)
T. Rantanen, J. Siki, M. Hnnikinen, T. Vanhatupa, O. Karasti, and T.
Hmlinen

Session 16.3: Cluster Systems

Time Friday, August 29, 2003, 09.00 - **10.15**
Location HS 4
Chair Mark Baker

09.00 - Nswap: A Network Swapping Module for Linux Clusters

- 09.30 T. Newhall, S. Finney, K. Ganchev, M. Spiegel
- 09.30 - 10.00 A Transparent Software Distributed Shared Memory
E.-D. Kohn, A. Schuster
- 10.00 - 10.15 Fast Construction, Easy Configuration, and Flexible Management of a Cluster System (Research Note)
Ha Yoon Song, Han-gyoo Kim, Kee Cheol Lee

Session 09.1: Distributed Algorithms 1

Time Friday, August 29, 2003, 09.00 - 10.45
Location HS 3
Chair Laurent Lefèvre

- 09.00 - 09.30 Energy Efficient Algorithm for Disconnected Write Operations in Mobile Web Environments
Jong-Mu Choi, Jin-Seok Choi, Jai-Hoon Kim, Young-Bae Ko
- 09.30 - 10.00 iRBP - a Fault Tolerant Total Order Broadcast for Large Scale Systems
L. A. Barchet-Estefanel
- 10.00 - 10.30 Multiresolution Watershed Segmentation on a Beowulf Network
S. Ishar, M. Bister
- 10.30 - 10.45 Distributed scheduling of mobile priority requests (Research Note)
A. Housni, M. Lacroix, M. Trehel

Friday, August 29, 2003, 11.00 - 12.30

Session 04.2: Parallelization and Multiprocessor Optimization

Time Friday, August 29, 2003, 11.00 - 12.15
Location HS C
Chair Markus Schordan

- 11.00 - 11.30 Increasing the parallelism of irregular loops with dependences
D. E. Singh, M. J. Martín, and F. F. Rivera
- 11.30 - 12.00 Exploiting On-Chip Data Transfers for Improving Performance of Chip-Scale Multiprocessors
G. Chen, M. Kandemir, I. Kolcu, and A. Choudhary
- 12.00 - 12.15 Finding Free Schedules for Non-uniform Loops (Research Note)

V. Beletskyy and K. Siedlecki

Session 02.2: Performance Evaluation for Distributed and Grid Applications

Time Friday, August 29, 2003, 11.00 - 12.30
Location HS B
Chair Jeff Hollingsworth

- 11.00 - 11.30 Presentation and Analysis of Grid Performance Data
N. Podhorszki and P. Kacsuk
- 11.30 - 12.00 Distributed Application Monitoring for Clustered SMP Architectures
K. Furlinger and M. Gerndt
- 12.00 - 12.15 An Emulation System for Predicting Master/Slave Program Performance (Research Note)
Y. Mizutani, F. Ino, and K. Hagihara
- 12.15 - 12.30 POETRIES: Performance Oriented Environment for Transparent Resource-management, Implementing End-user Parallel/Distributed Applications (Research Note)
E. Cesar, J. G. Mesa, J. Sorribes, and E. Luque

Session 05.1: Algorithms in Parallel Databases and Data Mining

Time Friday, August 29, 2003, 11.00 - 12.30
Location HS 1
Chair Domenico Talia

- 11.00 - 11.30 Pushing Down Bit Filters in the pipelined execution of large queries
J. Aguilar-Saborit, V. Muntés-Mulero, and J.-L. Larriba-Pey
- 11.30 - 12.00 A Parallel Algorithm for Incremental Compact Clustering
R. Gil-Garcia, J. M. Badia-Contelles, and A. Pons-Porrata
- 12.00 - 12.15 Suffix Arrays in Parallel (Research Note)
M. Marín and G. Navarro
- 12.15 - 12.30 Revisiting Join Site Selection in Distributed Database Systems (Research Note)
Haiwei Ye, B. Kerhervé, and G. v. Bochmann

Session 16.4: Multimedia Streaming and Adaptation

Time Friday, August 29, 2003, 11.00 - **12.15**
Location HS 4
Chair László Böszörményi/Christian Timmerer

11.00 - Distributed Multimedia Streaming over Peer-to-Peer Networks
11.30 Jin B. Kwon, Heon Y. Yeom
11.30 - An Extension of BSDL for Multimedia Bitstream Syntax Description
12.00 Sylvain Devillers
12.00 - A Proxy-based Dynamic Multicasting Policy Using Stream's Access
12.15 pattern (Research Note)
Yong Woon Park, Si Woong Jang

Session 11.1: Parallel Linear Algebra

Time Friday, August 29, 2003, 11.00 - 12.45
Location HS 3
Chair Martin Van Gijzen

11.00 - RECSY — A High Performance Library for Sylvester-Type Matrix
11.30 Equations
I. Jonsson, B. Kagström
11.30 - Parallel ScaLAPACK-Style Algorithms for Solving Continuous-Time
12.00 Sylvester Matrix Equation
R. Granat, B. Kagström, P. Poromaa
12.00 - Scalable Parallel RK Solvers for ODEs Derived by the Method of Lines
12.30 M. Korch, T. Rauber
12.30 - Overlapping computation/communication in the parallel one-sided Jacobi
12.45 method (Research Note)
El Mostafa Daoudi, Abdelhak Lakhouaja, Halima Outada

Friday, August 29, 2003, 13.30 - 14.15

Session 04.3: Communication Optimization

Time Friday, August 29, 2003, 13.30 - 14.15
Location HS C
Chair Christoph Ueberhuber

13.30 - An Energy-Oriented Evaluation of Communication Optimizations for
14.00 Microsensor Networks
.I. Kadayif, M. Kandemir, A. Choudhary, and M. Karakoy
14.00 - Replicated Placements in the Polyhedron Model (Research Note)
14.15 P. Faber, M. Griebel, and Ch. Lengauer

Session 15.6: Ubiquitous and Pervasive Computing 2

Time Friday, August 29, 2003, 13.30 - **14.30**
Location **HS B**
Chair Andreas Heinemann

13.30 - Modeling Context-aware Behavior by Interpreted ECA Rules
14.00 W. Beer, V. Christian, A. Ferscha, and L. Mehrmann
14.00 - Making Existing Interactive Applications Context-Aware
14.30 T. Nakajima, A. Hasegawa, T. Akutagawa, A. Ibe, and K. Yamamoto

Session 05.2: Distributed Databases: Grid and Sensors

Time Friday, August 29, 2003, 13.30 - 14.15
Location HS 1
Chair Bernhard Mitschang

13.30 - Preventive Multi-Master Replication in a Cluster of Autonomous Databases
14.00 E. Pacitti, M. Tamer Özsu, and C. Coulon
14.00 - SCINTRA: A Model for Quantifying Inconsistencies in Grid-organized
14.15 Sensor Database Systems (Research Note)
L. Schlesinger and W. Lehner

Session 09.2: Distributed Algorithms 2

Time Friday, August 29, 2003, 13.30 - 14.15
Location HS 4
Chair TBD

13.30 - CAS-Based Lock-Free Algorithm for Shared Deques
14.00 Maged M. Michael
14.00 - Parallel Distributed Algorithms of the β -model of the Small World Graphs
14.15 (Research Note)

M. Rafea, K. Popov, P. Brand, F. Holmgren, S. Haridi

Session 11.2: Parallel Methods for PDEs

Time Friday, August 29, 2003, 13.30 - 14.15

Location HS 3

Chair Josep R. Herero

13.30 - Two Level Parallelism in a Stream-Function Model for Global Ocean
14.00 Circulation

Martin van Gijzen

14.00 - Hierarchical Hybrid Grids as basis for parallel numerical solution of PDE
14.15 (Research Note)

F. Hülsemann, B. Bergen, U. Råde

Friday, August 29, 2003, 14.30 – 16.30

Opening and Invited Talks

Location: HS A

Chair: Hermann Hellwagner

14.30 – Databases, Web Services, and Grid Computing – Standards and Directions
15.30

Stefan Desseloch: (Kaiserslautern University of Technology)

Chair: Hermann Hellwagner

15.30 – Ibis: A Java-based grid programming environment
16.30

E. Bal (Vrije Universiteit, Amsterdam, The Netherlands)