

Table of Contents

Invited Talks

Some Parallel Algorithms for Integer Factorisation	1
<i>Richard P. Brent</i>	
MERCATOR, the Mission	23
<i>Philippe Courtier</i>	
Adaptive Scheduling for Task Farming with Grid Middleware	30
<i>Henri Casanova, MyungHo Kim, James S. Plank, Jack J. Dongarra</i>	
Applying Human Factors to the Design of Performance Tools	44
<i>Cherri M. Pancake</i>	
Building the Teraflops/Petabytes Production Supercomputing Center	61
<i>Horst D. Simon, William T.C. Kramer, Robert F. Lucas</i>	
A Coming of Age for Beowulf-Class Computing	78
<i>Thomas Sterling, Daniel Savarese</i>	

Topic 01

Support Tools and Environments	89
<i>Frédéric Desprez</i>	
Systematic Debugging of Parallel Programs in DIWIDE Based on Collective Breakpoints and Macrosteps	90
<i>P. Kacsuk, R. Lovas, J. Kovács</i>	
Project Workspaces for Parallel Computing - The TRAPPER Approach . .	98
<i>Dino Ahr, Andreas Bäcker</i>	
PVMbuilder - A Tool for Parallel Programming	108
<i>Jan B. Pedersen, Alan Wagner</i>	
Message-Passing Specification in a CORBA Environment	113
<i>T. Es-sqalli, E. Fleury, E. Dillon, J. Guyard</i>	
Using Preemptive Thread Migration to Load-Balance Data-Parallel Applications	117
<i>Gabriel Antoniu, Christian Perez</i>	
FITS—A Light-Weight Integrated Programming Environment	125
<i>B. Chapman, F. Bodin, L. Hill, J. Merlin, G. Viland, F. Wollenweber</i>	

INTERLACE: An Interoperation and Linking Architecture for Computational Engines	135
<i>Matthew J. Sottile, Allen D. Malony</i>	
Multi-protocol Communications and High Speed Networks	139
<i>Benoît Planquelle, Jean-François Méhaut, Nathalie Revol</i>	
An Online Algorithm for Dimension-Bound Analysis	144
<i>Paul A.S. Ward</i>	
Correction of Monitor Intrusion for Testing Nondeterministic MPI-Programs.....	154
<i>D. Kranzlmüller, J. Chassin de Kergommeaux, Ch. Schaubschläger</i>	
Improving the Performance of Distributed Shared Memory Environments on Grid Multiprocessors	159
<i>Dimitris Dimitrelos, Constantine Halatsis</i>	
Topic 02	
Performance Evaluation and Prediction	163
<i>Jean-Marc Vincent</i>	
Performance Analysis of Wormhole Switching with Adaptive Routing in a Two-Dimensional Torus.....	165
<i>M. Colajanni, B. Ciciani, F. Quaglia</i>	
Message Passing Evaluation and Analysis on Cray T3E and SGI Origin 2000 Systems	173
<i>M. Prieto, D. Espadas, I.M. Llorente, F. Tirado</i>	
Performance Evaluation and Modeling of the Fujitsu AP3000 Message-Passing Libraries	183
<i>Juan Touriño, Ramón Doallo</i>	
Improving Communication Support for Parallel Applications	188
<i>Joerg Cordsen, Marco Dimas Gubitoso</i>	
A Performance Estimator for Parallel Programs.....	193
<i>Jeff Reeve</i>	
Min-Cut Methods for Mapping Dataflow Graphs	203
<i>Volker Elling, Karsten Schwan</i>	
Influence of Variable Time Operations in Static Instruction Scheduling....	213
<i>Patricia Borensztein, Cristina Barrado, Jesus Labarta</i>	
Evaluation of LH*LH for a Multicomputer Architecture*	217
<i>Andy D. Pimentel, Louis O. Hertzberger</i>	

Set Associative Cache Behavior Optimization	229
<i>Ramón Doallo, Basilio B. Fraguera, Emilio L. Zapata</i>	
A Performance Study of Modern Web Server Applications	239
<i>Ramesh Radhakrishnan, Lizy Kurian John</i>	
An Evaluation of High Performance Fortran Compilers Using the HPFBench Benchmark Suite	248
<i>Guohua Jin, Y. Charlie Hu</i>	
Performance Evaluation of Object Oriented Middleware	258
<i>László Böszörményi, Andreas Wickner, Harald Wolf</i>	
PopSPY: A PowerPC Instrumentation Tool for Multiprocessor Simulation .	262
<i>C. Limousin, A. Vartanian, J-L. Béchenne</i>	
Performance Evaluation and Benchmarking of Native Signal Processing . .	266
<i>Deependra Talla, Lizy Kurian John</i>	
Topic 03	
Scheduling and Load Balancing	271
<i>Jean-Marc Geib, Bruce Hendrickson, Pierre Manneback, Jean Roman</i>	
A Polynomial-Time Branching Procedure for the Multiprocessor Scheduling Problem	272
<i>Ricardo C. Corrêa, Afonso Ferreira</i>	
Optimal and Alternating-Direction Load Balancing Schemes	280
<i>Robert Elsässer, Andreas Frommer, Burkhard Monien, Robert Preis</i>	
Process Mapping Given by Processor and Network Dynamic Load Prediction	291
<i>Jean-Marie Garcia, David Gauchard, Thierry Monteil, Olivier Brun</i>	
Ordering Unsymmetric Matrices into Bordered Block Diagonal Form for Parallel Processing	295
<i>Y.F. Hu, K.C.F. Maguire, R.J. Blake</i>	
Dynamic Load Balancing for Ocean Circulation Model with Adaptive Meshing	303
<i>Eric Blayo, Laurent Debreu, Grégory Mounié, Denis Trystram</i>	
DRAMA: A Library for Parallel Dynamic Load Balancing of Finite Element Applications	313
<i>Bart Maerten, Dirk Roose, Achim Basermann, Jochen Fingberg, Guy Lonsdale</i>	
Job Scheduling in a Multi-layer Vision System	317
<i>M. Fikret Ercan, Ceyda Oğuz, Yu-Fai Fung</i>	

A New Algorithm for Multi-objective Graph Partitioning	322
<i>Kirk Schloegel, George Karypis, Vipin Kumar</i>	
Scheduling Iterative Programs onto LogPMachine	332
<i>Welf Löwe, Wolf Zimmermann</i>	
Scheduling Arbitrary Task Graphs on LogP Machines	340
<i>Cristina Boeres, Aline Nascimento, Vinod E.F. Rebello</i>	
Scheduling with Communication Delays and On-Line Disturbances	350
<i>Aziz Moukrim, Eric Sanlaville, Frédéric Guinand</i>	
Scheduling User-Level Threads on Distributed Shared-Memory Multiprocessors	358
<i>Eleftherios D. Polychronopoulos, Theodore S. Papatheodorou</i>	
Using Duplication for the Multiprocessor Scheduling Problem with Hierarchical Communications	369
<i>Evrpidis Bampis, Rodolphe Giroudeau, Jean-Claude König</i>	
Topic 04	
Compilers for High Performance Systems	373
<i>Barbara Chapman</i>	
Storage Mapping Optimization for Parallel Programs	375
<i>Albert Cohen, Vincent Lefebvre</i>	
Array SSA for Explicitly Parallel Programs	383
<i>Jean-François Collard</i>	
Parallel Data-Flow Analysis of Explicitly Parallel Programs	391
<i>Jens Knoop</i>	
Localization of Data Transfer in Processor Arrays	401
<i>Dirk Fimmel, Renate Merker</i>	
Scheduling Structured Systems	409
<i>Jason B. Crop, Doran K. Wilde</i>	
Compiling Data Parallel Tasks for Coordinated Execution	413
<i>Erwin Laure, Matthew Haines, Piyush Mehrotra, Hans Zima</i>	
Flexible Data Distribution in PGHPF	418
<i>Mark Leair, Douglas Miles, Vincent Schuster, Michael Wolfe</i>	
On Automatic Parallelization of Irregular Reductions on Scalable Shared Memory Systems	422
<i>E. Gutiérrez, O. Plata, E.L. Zapata</i>	

I/O-Conscious Tiling Strategy for Disk-Resident Data	430
<i>Mahmut Kandemir, Alok Choudhary, J. Ramanujam</i>	
Post-Scheduling Optimization of Parallel Programs	440
<i>Stephen Shafer, Kanad Ghose</i>	
Piecewise Execution of Nested Parallel Programs - A Thread-Based Approach	445
<i>W. Pfannenstiel</i>	
Topic 05	
Parallel and Distributed Databases	449
<i>Burkhard Freitag, Kader Hameurlain</i>	
Distributed Database Checkpointing	450
<i>Roberto Baldoni, Francesco Quaglia, Michel Raynal</i>	
A Generalized Transaction Theory for Database and Non-database Tasks .	459
<i>Armin Feßler, Hans-Jörg Schek</i>	
On Disk Allocation of Intermediate Query Results in Parallel Database Systems	469
<i>Holger Märtens</i>	
Highly Concurrent Locking in Shared Memory Database Systems	477
<i>Christian Jacobi, Cédric Lichtenau</i>	
Parallel Processing of Multiple Text Queries on Hypercube Interconnection Networks	482
<i>Basilis Mamalis, Paul Spirakis, Basil Tampakas</i>	
Topic 06 + 20	
Fault Avoidance and Fault Removal in Real-Time Systems & Fault-Tolerant Computing	487
<i>Gilles Motet, David Powell</i>	
Quality of Service Management in Distributed Asynchronous Real-Time Systems	489
<i>Binoy Ravindran</i>	
Multiprocessor Scheduling of Real-Time Tasks with Resource Requirements	497
<i>Costas Mourlas</i>	
Designing Multiprocessor/Distributed Real-Time Systems Using the ASSERTS Toolkit	505
<i>Kanad Ghose, Sudhir Aggarwal, Abhrajit Ghosh, David Goldman, Peter Sulatycke, Pavel Vasek, David R. Vogel</i>	

UML Framework for the Design of Real-Time Robot Controllers	511
<i>L. Carroll, B. Tondou, C. Baron, J.C. Geffroy</i>	

Software Implemented Fault Tolerance in Hypercube	515
<i>D.R. Avresky, S. Geoghegan</i>	

Managing Fault Tolerance Transparently Using CORBA Services	519
<i>René Meier, Paddy Nixon</i>	

Topic 07

Theory and Models for Parallel Computation	523
<i>Michel Cosnard</i>	

Parallel Algorithms for Grounded Range Search and Applications	525
<i>Michael G. Lamoureux, Andrew Rau-Chaplin</i>	

Multi-level Cooperative Search: A New Paradigm for Combinatorial Optimization and an Application to Graph Partitioning.....	533
<i>Michel Toulouse, Krishnaiyan Thulasiraman, Fred Glover</i>	

A Quantitative Measure of Portability with Application to Bandwidth-Latency Models for Parallel Computing.....	543
<i>Gianfranco Bilardi, Andrea Pietracaprina, Geppino Pucci</i>	

A Cost Model for Asynchronous and Structured Message Passing	552
<i>Emmanuel Melin, Bruno Raffin, Xavier Rebeuf, Bernard Viot</i>	

A Parallel Simulation of Cellular Automata by Spatial Machines	557
<i>Bruno Martin</i>	

Topic 08

High-Performance Computing and Applications	561
<i>Wolfgang Gentzsch</i>	

Null Messages Cancellation Through Load Balancing in Distributed Simulations	562
<i>Azzedine Boukerche, Sajal K. Das</i>	

Efficient Load-Balancing and Communication Overlap in Parallel Shear-Warp Algorithm on a Cluster of PCs.....	570
<i>Frédérique Chaussumier, Frédéric Desprez, Michel Loi</i>	

A Hierarchical Approach for Parallelization of a Global Optimization Method for Protein Structure Prediction	578
<i>S. Crivelli, T. Head-Gordon, R. Byrd, E. Eskow, R. Schnabel</i>	

Parallelization of a Compositional Simulator with a Galerkin Coarse/Fine Method	586
<i>Geir Åge Øye, Hilde Reme</i>	

Some Investigations of Domain Decomposition Techniques in Parallel CFD	595
<i>F. Chalot, G. Chevalier, Q.V. Dinh, L. Giraud</i>	
A Parallel Ocean Model for High Resolution Studies	603
<i>Marc Guyon, Gurvan Madec, François-Xavier Roux, Maurice Imbard</i>	
Nonoverlapping Domain Decomposition Applied to a Computational Fluid Mechanics Code	608
<i>Paulo B. Vasconcelos, Filomena D. d'Almeida</i>	
A PC Cluster with Application-Quality MPI	613
<i>M. Gołębiewski, A. Basermann, M. Baum, R. Hempel, H. Ritzdorf, J.L. Träff</i>	
Using Network of Workstations to Support a Web-Based Visualization Service	624
<i>Wilfrid Lefer, Jean-Marc Pierson</i>	
High-Speed LANs: New Environments for Parallel and Distributed Applications	633
<i>Patrick Geoffray, Laurent Lefèvre, CongDuc Pham, Loïc Prylli, Olivier Reymann, Bernard Tourancheau, Roland Westrelin</i>	
Consequences of Modern Hardware Design for Numerical Simulations and Their Realization in FEAST	643
<i>Ch. Becker, S. Kilian, S. Turek, the FEAST Group</i>	
A Structured SADT Approach to the Support of a Parallel Adaptive 3D CFD Code	651
<i>Jonathan Nash, Martin Berzins, Paul Selwood</i>	
A Parallel Algorithm for 3D Geometry Transformations in OpenGL	659
<i>J. Sébot Julien, A. Vartanian, J-L. Béchenne, N. Drach-Temam</i>	
Parallel Implementation in a Industrial Framework of Statistical Tolerancing Analysis in Microelectronics	663
<i>Salvatore Rinaudo, Francesco Moschella, Marcello A. Anile</i>	
Interaction Between Data Parallel Compilation and Data Transfer and Storage Cost Minimization for Multimedia Applications	668
<i>Chidamber Kulkarni, Koen Danckaert, Francky Catthoor, Manish Gupta</i>	
Parallel Numerical Simulation of a Marine Host-Parasite System	677
<i>Michel Langlais, Guillaume Latu, Jean Roman, Patrick Silan</i>	
Parallel Methods of Training for Multilayer Neural Network	686
<i>El Mostafa Daoudi, El Miloud Jaâra</i>	

Partitioning of Vector-Topological Data for Parallel GIS Operations:
Assessment and Performance Analysis 691
*Terence M. Sloan, Michael J. Mineter, Steve Dowers,
Connor Mulholland, Gordon Darling, Bruce M. Gittings*

Topic 09

Parallel Computer Architecture - What Is Its Future? 695
Chris Jesshope

The Algebraic Path Problem Revisited 698
Sanjay Rajopadhye, Claude Tadonki, Tanguy Risset

Vector ISA Extension for Sparse Matrix-Vector Multiplication 708
Stamatis Vassiliadis, Sorin Cotofana, Pyrrhos Stathis

A Study of a Simultaneous Multithreaded Processor Implementation 716
Dominik Madoń, Eduardo Sánchez, Stefan Monnier

The MorphoSys Parallel Reconfigurable System 727
*Guangming Lu, Hartej Singh, Ming-hau Lee, Nader Bagherzadeh,
Fadi Kurdahi, Eliseu M.C. Filho*

A Graph-Oriented Task Manager for Small Multiprocessor Systems 735
*Xavier Verians, Jean-Didier Legat, Jean-Jacques Quisquater,
Benoit Macq*

Implementing Snoop-Coherence Protocol for Future SMP Architectures ... 745
Wissam Hlayhel, Jacques Collet, Laurent Fesquet

An Adaptive Limited Pointers Directory Scheme for Cache Coherence of
Scalable Multiprocessors 753
Cheol Ho Park, Jong Hyuk Choi, Kyu Ho Park, Daeyeon Park

Two Schemes to Improve the Performance of a *Sort-Last* 3D Parallel
Rendering Machine with Texture Caches 757
Alexis Vartanian, Jean-Luc Béchenne, Nathalie Drach-Temam

ManArray Processor Interconnection Network: An Introduction 761
Gerald G. Pechanek, Stamatis Vassiliadis, Nikos Pitsianis

Topic 10

Distributed Systems and Algorithms 767
Gérard Padiou, André Schiper

A Cooperation Service for CORBA Objects. From the Model to the
Applications 769
Khalil Drira, Frédéric Gouëzec, Michel Diaz

Symphony: Managing Virtual Servers in the Global Village	777
<i>Roy Friedman, Assaf Schuster, Ayal Itzkovitz, Eli Biham, Erez Hadad, Vladislav Kalinovsky, Sergey Kleyman, Roman Vitenberg</i>	
<i>Épidaure: A Java Distributed Tool for Building DAI Applications</i>	785
<i>Djamel Fezzani, Jocelyn Desbiens</i>	
A Client/Broker/Server Substrate with 50 μ s Round-Trip Overhead	790
<i>Olivier Richard, Franck Cappello</i>	
Universal Constructs in Distributed Computations	795
<i>Ajay D. Kshemkalyani, Mukesh Singhal</i>	
Illustrating the Use of Vector Clocks in Property Detection: An Example and a Counter-Example	806
<i>Michel Raynal</i>	
A Node Count-Independent Logical Clock for Scaling Lazy Release Consistency Protocol	815
<i>Luciana Bezerra Arantes, Bertil Folliot, Pierre Sens</i>	
Mutual Exclusion Between Neighboring Nodes in an Arbitrary System Graph Tree That Stabilizes Using Read/Write Atomicity	823
<i>Gheorghe Antonoiu, Pradip K. Srimani</i>	
Topic 11	
Parallel Programming: Models, Methods and Languages	831
<i>Luc Bougé, Bill McColl, Mamoun Filali, Henk Sips</i>	
Exploiting Advanced Task Parallelism in High Performance Fortran via a Task Library*	833
<i>Thomas Brandes</i>	
A Run-Time System for Dynamic Grain Packing	845
<i>João Luís Sobral, Alberto José Proença</i>	
Optimising Skeletal-Stream Parallelism on a BSP Computer	853
<i>Andrea Zavanella</i>	
Parallel Programming by Transformation	858
<i>Noel Winstanley</i>	
Condensed Graphs: A Multi-level, Parallel, Intermediate Representation . .	866
<i>John P. Morrison, Niall J. Dalton</i>	
A Skeleton for Parallel Dynamic Programming	877
<i>D. Morales, F. Almeida, F. Garcia, J. Gonzalez, J. Roda, C. Rodriguez</i>	

Programming Effort vs. Performance with a Hybrid Programming Model for Distributed Memory Parallel Architectures	888
<i>Andreas Rodman, Mats Brorsson</i>	
DAOS — Scalable And-Or Parallelism	899
<i>Luís Fernando Castro, Vítor Santos Costa, Cláudio F.R. Geyer, Fernando Silva, Patrícia Kayser Vargas, Manuel E. Correia</i>	
Write Detection in Home-Based Software DSMs	909
<i>Weiwu Hu, Weisong Shi, Zhimin Tang</i>	
D'Caml: Native Support for Distributed ML Programming in Heterogeneous Environment	914
<i>Ken Wakita, Takashi Asano, Masataka Sassa</i>	
ParBlocks - A New Methodology for Specifying Concurrent Method Executions in Opus	925
<i>Erwin Laure</i>	
Static Parallelization of Functional Programs: Elimination of Higher-Order Functions & Optimized Inlining	930
<i>Christoph A. Herrmann, Jan Laitenberger, Christian Lengauer, Christian Schaller</i>	
A Library to Implement Neural Networks on MIMD Machines	935
<i>Yann Boniface, Frédéric Alexandre, Stéphane Vialle</i>	
Topic 12	
Architectures and Algorithms for Vision and Other Senses	939
<i>Alain Ayache, Virginio Cantoni, Concettina Guerra, Pieter Jonker</i>	
LUX: An Heterogeneous Function Composition Parallel Computer for Graphics	940
<i>Stéphane Mancini, Renaud Pacalet</i>	
A Parallel Accelerator Architecture for Multimedia Video Compression ...	950
<i>Bertil Schmidt, Manfred Schimmmler</i>	
A Parallel Architecture for Stereoscopic Processing	961
<i>Milton Romero, Bruno Ciciani</i>	
A Robust Neural Network Based Object Recognition System and Its SIMD Implementation	969
<i>Alfredo Petrosino, Giuseppe Salvi</i>	
Multimedia Extensions and Sub-word Parallelism in Image Processing: Preliminary Results	977
<i>Marco Ferretti, Davide Rizzo</i>	

Vanishing Point Detection in the Hough Transform Space	987
<i>Andrea Matessi, Luca Lombardi</i>	
Parallel Structure in an Integrated Speech-Recognition Network	995
<i>M. Fleury, A.C. Downton, A.F. Clark</i>	
3D Optoelectronic Fix Point Unit and Its Advantages Processing 3D Data	1005
<i>B. Kasche, D. Fey, T. Höhn, W. Erhard</i>	
Parallel Wavelet Transforms on Multiprocessors	1013
<i>Manfred Feil, Rade Kutil, Andreas Uhl</i>	
Vector Quantization-Fractal Image Coding Algorithm Based on Delaunay Triangulation	1018
<i>Zahia Brahimi, Karima Ait Saadi, Noria Baraka</i>	
Topic 13+19	
Numerical Algorithms for Linear and Nonlinear Algebra	1023
mpC + ScaLAPACK = Efficient Solving Linear Algebra Problems on Heterogeneous Networks	1024
<i>Alexey Kalinov, Alexey Lastovetsky</i>	
Parallel Subdomain-Based Preconditioner for the Schur Complement	1032
<i>Luiz M. Carvalho, Luc Giraud</i>	
A Preconditioner for Improved Fermion Actions	1040
<i>Wolfgang Bietenholz, Norbert Eicker, Andreas Frommer, Thomas Lippert, Björn Medeke, Klaus Schilling</i>	
Application of a Class of Preconditioners to Large Scale Linear Programming Problems	1044
<i>Venansius Baryamureeba, Trond Steihaug, Yin Zhang</i>	
Estimating Computer Performance for Parallel Sparse <i>QR</i> Factorisation .	1049
<i>David J. Miron, Patrick M. Lenders</i>	
A Mapping and Scheduling Algorithm for Parallel Sparse Fan-In Numerical Factorization	1059
<i>Pascal Hénon, Pierre Ramet, Jean Roman</i>	
Scheduling of Algorithms Based on Elimination Trees on NUMA Systems	1068
<i>María J. Martín, Inmaculada Pardines, Francisco F. Rivera</i>	
Block-Striped Partitioning and Neville Elimination	1073
<i>P. Alonso, R. Cortina, J. Ranilla</i>	

A Comparison of Parallel Solvers for Diagonally Dominant and General Narrow-Banded Linear Systems II	1078
<i>Peter Arbenz, Andrew Cleary, Jack Dongarra, Markus Hegland</i>	
Using Pentangular Factorizations for the Reduction to Banded Form	1088
<i>B. Großer, B. Lang</i>	
Experience with a Recursive Perturbation Based Algorithm for Symmetric Indefinite Linear Systems	1096
<i>Anshul Gupta, Fred Gustavson, Alexander Karaivanov, Jerzy Wasniewski, Plamen Yalamov</i>	
Parallel Cyclic Wavefront Algorithms for Solving Semidefinite Lyapunov Equations	1104
<i>José M. Claver, Vicente Hernández, Enrique S. Quintana-Ortí</i>	
Parallel Constrained Optimization via Distribution of Variables	1112
<i>Claudia A. Sagastizábal, Mikhail V. Solodov</i>	
Solving Stable Stein Equations on Distributed Memory Computers	1120
<i>Peter Benner, Enrique S. Quintana-Ortí, Gregorio Quintana-Ortí</i>	
Convergence Acceleration for the Euler Equations Using a Parallel Semi-Toeplitz Preconditioner	1124
<i>Andreas Kähäri, Samuel Sundberg</i>	
A Stable and Efficient Parallel Block Gram-Schmidt Algorithm	1128
<i>Denis Vanderstraeten</i>	
On the Extension of the Code GAM for Parallel Computing	1136
<i>Felice Iavernaro, Francesca Mazzia</i>	
PAMIHR. A Parallel FORTRAN Program for Multidimensional Quadrature on Distributed Memory Architectures	1144
<i>G. Laccetti, M. Lapegna</i>	
Stability Issues of the Wang's Partitioning Algorithm for Banded and Tridiagonal Linear Systems	1149
<i>Velisar Pavlov, Plamen Yalamov</i>	
Topic 14	
Emerging Topics in Advanced Computing in Europe	1153
<i>Renato Campo, Luc Giraud</i>	
The HPF+ Project: Supporting HPF for Advanced Industrial Applications	1155
<i>Siegfried Benkner, Guy Lonsdale, Hans Zima</i>	

TIRAN: Flexible and Portable Fault Tolerance Solutions for Cost Effective Dependable Applications	1166
<i>O. Botti, V. De Florio, G. Deconinck, F. Cassinari, S. Donatelli, A. Bobbio, A. Klein, H. Kufner, R. Lauwereins, E. Thurner, E. Verhulst</i>	
OCEANS – Optimising Compilers for Embedded Applications	1171
<i>Michel Barreteau, François Bodin, Zbigniew Chamski, Henri-Pierre Charles, Christine Eisenbeis, John Gurd, Jan Hoogerbrugge, Ping Hu, William Jalby, Toru Kisuki, Peter M.W. Knijnenburg, Paul van der Mark, Andy Nisbet, Michael F.P. O’Boyle, Erven Rohou, André Sez nec, Elena A. Stöhr, Menno Treffers, Harry A.G. Wijshoff</i>	
Cray T3E Performances of a Parallel Code for a Stochastic Dynamic Assets and Liabilities Management Model	1176
<i>G. Zanghirati, F. Cocco, F. Taddei, G. Paruolo</i>	
Parametric Simulation of Multi-body Systems on Networks of Heterogeneous Computers	1187
<i>Javier G. Izaguirre, José M. Jiménez, Unai Martín, Bruno Thomas, Alberto Larzábal, Luis M. Matey</i>	
Parallel Data Mining in the HYPERBANK Project	1195
<i>S. Fotis, J. A. Keane, R. I. Scott</i>	
High Performance Computing for Optimum Design of Multi-body Systems	1199
<i>José M. Jiménez, Nassouh A. Chehayeb, Javier G. Izaguirre, Beidi Hamma, Yan Thiaudière</i>	
Topic 15	
Routing and Communication in Interconnection Networks	1203
Optimizing Message Delivery in Asynchronous Distributed Applications .	1204
<i>Girindra D. Sharma, Nael B. Abu-Ghazaleh, Umesh Kumar V. Rajasekaran, Philip A. Wilsey</i>	
Circuit-Switched Broadcasting in Multi-port Multi-dimensional Torus Networks*	1209
<i>San-Yuan Wang, Yu-Chee Tseng, Sze-Yao Ni, Jang-Ping Sheu</i>	
Impact of the Head-of-Line Blocking on Parallel Computer Networks: Hardware to Applications	1222
<i>V. Puente, J.A. Gregorio, C. Izu, R. Beivide</i>	
Interval Routing on Layered Cross Product of Trees and Cycles	1231
<i>R. Kráľovič, B. Rován, P. Ružička</i>	

Topic 16

Instruction-Level Parallelism and Uniprocessor Architecture . . . 1241

Pascal Sainrat, Mateo Valero

Design Considerations of High Performance Data Cache with Prefetching 1243

Chi-Hung Chi, Jun-Li Yuan

Annotated Memory References: A Mechanism for Informed Cache
Management 1251

*Alvin R. Lebeck, David R. Raymond, Chia-Lin Yang,
Mithuna S. Thottethodi*

Understanding and Improving Register Assignment 1255

Cindy Norris, James B. Fenwick, Jr.

Compiler-Directed Reordering of Data by Cyclic Graph Coloring 1260

Daniela Genius, Sylvain Lelait

Code Cloning Tracing: A “Pay per Trace” Approach 1265

Thierry Lafage, André Seznec, Erven Rohou, François Bodin

Execution-Based Scheduling for VLIW Architectures 1269

Kemal Ebcioglu, Erik R. Altman, Sumedh Sathaye, Michael Gschwind

Decoupling Recovery Mechanism for Data Speculation from Dynamic
Instruction Scheduling Structure 1281

Toshinori Sato

Implementation of Hybrid Context Based Value Predictors Using Value
Sequence Classification 1291

Luis Piñuel, Rafael A. Moreno, Francisco Tirado

Heterogeneous Clustered Processors: Organization and Design 1296

Francesco Pessolano

An Architecture Framework for Introducing Predicated Execution into
Embedded Microprocessors 1301

*Daniel A. Connors, Jean-Michel Puiatti, David I. August,
Kevin M. Crozier, Wen-mei W. Hwu*

Multi-stage Cascaded Prediction 1312

Karel Driesen, Urs Hölzle

Mispredicted Path Cache Effects 1322

Jonathan Combs, Candice Bechem Combs, John Paul Shen

Topic 17

Concurrent and Distributed Programming with Objects 1333

Patrick Sallé, Marc Pantel

Non-regular Process Types	1334
<i>Franz Puntigam</i>	
Decision Procedure for Temporal Logic of Concurrent Objects	1344
<i>Jean-Paul Bahren, Rami El-Baïda, Hugues-Olivier Yar</i>	
Aliasing Models for Object Migration*	1353
<i>Uwe Nestmann, Hans Hüttel, Josva Kleist, Massimo Merro</i>	
Dynamic Extension of CORBA Servers	1369
<i>Marco Catunda, Noemi Rodriguez, Roberto Ierusalimsky</i>	
On the Concurrent Object Model of UML	1377
<i>Julian Ober, Ileana Stan</i>	
Object Oriented Design for Reusable Parallel Linear Algebra Software ...	1385
<i>Eric Noulard, Nahid Emad</i>	
Topic 18	
Global Environment Modelling	1393
<i>Michel Déqué</i>	
The Parallelization of the Princeton Ocean Model	1395
<i>L.A. Boukas, N.Th. Mimikou, N.M. Missirlis, G.L. Mellor, A. Lascaratos, G. Korres</i>	
Modular Fortran 90 Implementation of a Parallel Atmospheric General Circulation Model	1403
<i>William Sawyer, Lawrence Takacs, Andrea Molod, Robert Lucchesi</i>	
Implementation of the Limited-Area Numerical Weather Prediction Model Aladin in Distributed Memory	1411
<i>Claude Fischer, Jean-François Estrade, Jure Jerman</i>	
Parallelization of the French Meteorological Mesoscale Model MésoNH ...	1417
<i>Patrick Jabouille, Ronan Guivarch, Philippe Kloos, Didier Gazen, Nicolas Gicquel, Luc Giraud, Nicole Asencio, Veronique Ducrocq, Juan Escobar, Jean-Luc Redelsperger, Joël Stein, Jean-Pierre Pinty</i>	
The PALM Project: MPMD Paradigm for an Oceanic Data Assimilation Software	1423
<i>A. Fouilloux, A. Piacentini</i>	
A Parallel Distributed Fast 3D Poisson Solver for Méso-NH	1431
<i>Luc Giraud, Ronan Guivarch, Joël Stein</i>	
Porting a Limited Area Numerical Weather Forecasting Model on a Scalable Shared Memory Parallel Computer	1435
<i>Roberto Ansaloni, Paolo Malfetti, Tiziana Paccagnella</i>	

Topic 22
High-Performance Data Mining and Knowledge Discovery1439

David Skillicorn, Domenico Talia

Mining of Association Rules in Very Large Databases: A Structured
Parallel Approach1441

P. Becuzzi, M. Coppola, M. Vanneschi

Parallel k/h -Means Clustering for Large Data Sets1451

Kilian Stoffel, Abdelkader Belkoniene

Performance Analysis for Parallel Generalized Association Rule Mining on
a Large Scale PC Cluster1455

Takahiko Shintani, Masato Oguchi, Masaru Kitsuregawa

Inducing Load Balancing and Efficient Data Distribution Prior to
Association Rule Discovery in a Parallel Environment1460

Anna M. Manning, John A. Keane

Topic 23
Symbolic Computation1465

Mike Dewar

Parallelism in ALDOR — The Communication Library Π^{it} for Parallel,
Distributed Computation1466

Thierry Gautier, Niklaus Mannhart

A Library for Parallel Modular Arithmetic1476

David Power, Russell Bradford

Performance Evaluation of Or-Parallel Logic Programming Systems on
Distributed Shared-Memory Architectures1484

Vanusa Menditi Calegario, Inês de Castro Dutra

A Parallel Symbolic Computation Environment: Structures and
Mechanics1492

Mantêsika Matookane, Arthur Norman

Index of Authors1497

Euro-Par' 99 Parallel Processing

5th International Euro-Par Conference Toulouse,

France, August 31–September 3, 1999 Proceedings

Amestoy, P.; Berger, P.; Daydé, M.; Duff, I.; Fraysse, V.;

Giraud, L.; Ruiz, D. (Eds.)

1999, LXIV, 1503 p. 198 illus. In 2 volumes, not available
separately., Softcover

ISBN: 978-3-540-66443-7