

Table of Contents

Speaker Information

Industrial Applications: Challenges in Modeling and Computing	1
<i>Jari Järvinen, Juha Haataja, Jari Hämäläinen</i>	
Data Grids for Next Generation Problems in Science and Engineering	17
<i>Carl Kesselman</i>	
High-Performance Computers: Yesterday, Today, and Tomorrow	18
<i>Erik Hagersten</i>	
The Evolution of OpenMP	19
<i>Timothy Mattson</i>	
JavaGrande – High Performance Computing with Java	20
<i>Michael Philippsen, Ronald F. Boisvert, Valdimir S. Getov, Roldan Pozo, José Moreira, Dennis Gannon, Geoffrey C. Fox</i>	
Ocean and Climate Prediction on Parallel Super Computers	37
<i>Geir Evensen</i>	
LAWRA: Linear Algebra with Recursive Algorithms	38
<i>Bjarne S. Andersen, Fred Gustavson, Alexander Karaivanov, Minka Marinova, Jerzy Waśniewski, Plamen Yalamov</i>	
Solving CFD Problems with Open Source Parallel Libraries	52
<i>Bill Gropp</i>	
High-Performance Library Software for <i>QR</i> Factorization	53
<i>Erik Elmroth, Fred Gustavson</i>	
Parallel Triangular Sylvester-Type Matrix Equation Solvers for SMP Systems Using Recursive Blocking	64
<i>Isak Jonsson, Bo Kågström</i>	
On the Efficiency of Scheduling Algorithms for Parallel Gaussian Elimination with Communication Delays	74
<i>Raimondas Čiegis, Vadimas Starikovičius, Jerzy Waśniewski</i>	
High Performance Cholesky Factorization via Blocking and Recursion That Uses Minimal Storage	82
<i>Fred Gustavson, Isak Jonsson</i>	

Parallel Two-Stage Reduction of a Regular Matrix Pair to Hessenberg-Triangular Form	92
<i>Björn Adlerborn, Krister Dackland, Bo Kågström</i>	
A Fast Minimal Storage Symmetric Indefinite Solver	103
<i>Fred Gustavson, Alexander Karaivanov, Minka Marinova, Jerzy Wasniewski, Plamen Yalamov</i>	
A Scalable Parallel Assembly for Irregular Meshes Based on a Block Distribution for a Parallel Block Direct Solver	113
<i>David Goudin, Jean Roman</i>	
MUMPS: A General Purpose Distributed Memory Sparse Solver	121
<i>Patrick R. Amestoy, Iain S. Duff, Jean-Yves L'Excellent, Jacko Koster</i>	
Runtime Adaptation of an Iterative Linear System Solution to Distributed Environments	131
<i>Masha Sosonkina</i>	
A Local Refinement Algorithm for Data Partitioning	140
<i>Jarmo Rantakokko</i>	
Feedback Guided Scheduling of Nested Loops	149
<i>T. L. Freeman, D. J. Hancock, J. M. Bull, R. W. Ford</i>	
A Comparison of Partitioning Schemes for Blockwise Parallel SAMR Algorithms	160
<i>Johan Steensland, Stefan Söderberg, Michael Thuné</i>	
Parallelizing an Adaptive Dynamical Grid Generator in a Climatological Trace Gas Transport Application	170
<i>Jörn Behrens</i>	
Optimal Parameter Values for a Parallel Structured Adaptive Mesh Refinement Algorithm	177
<i>Michael Thuné, Stefan Söderberg</i>	
Partition of Unstructured Finite Element Meshes by a Multilevel Approach	187
<i>Noureddine Bouhmala, Xing Cai</i>	
GRISK: An Internet Based Search for K-Optimal Lattice Rules	196
<i>Tor Sørevik, Jan Frode Myklebust</i>	
Parallel and Distributed Document Overlap Detection on the Web	206
<i>Krisztián Monostori, Arkady Zaslavsky, Heinz Schmidt</i>	
A Parallel Implementation of a Job Shop Scheduling Heuristic	215
<i>U. Der, K. Steinhöfel</i>	

Restructuring Irregular Computations for Distributed Systems Using Mobile Agents	223
<i>Rocco Aversa, Beniamino Di Martino, Nicola Mazzocca</i>	
An Information System for Long-Distance Cooperation in Medicine	233
<i>Harald Kosch, Renata Słota, László Böszörményi, Jacek Kitowski, Janusz Otifinowski</i>	
Hydra - Decentralized and Adaptative Approach to Distributed Computing	242
<i>Marian Bubak, Paweł Płaszczał</i>	
Object-Oriented Approach to Finite Element Modeling on Clusters	250
<i>Roman Wyrzykowski, Tomasz Olas, Norbert Sczygiol</i>	
An Object Oriented Framework for Parallel Multiple Optimizations	258
<i>Beidi S. Hamma</i>	
Experiments in Separating Computational Algorithm from Program Distribution and Communication	268
<i>R. B. Yehezkael, Y. Wiseman, H. G. Mendelbaum, I. L. Gordin</i>	
Performance Tuning on Parallel Systems: All Problems Solved?	279
<i>Holger Brunst, Wolfgang E. Nagel, Stephan Seidl</i>	
Performance Measurement Support for MPI Applications with PATOP ..	288
<i>Marian Bubak, Włodzimierz Funika, Bartosz Baliś, Roland Wismüller</i>	
A Parallel Volume Visualization Using Extended Space Leaping Method ..	296
<i>Sung-Up Jo, Chang-Sung Jeong</i>	
Hands-On Training for Undergraduates in High-Performance Computing Using Java	306
<i>Christian H. Bischof, H. Martin Bücker, Jörg Henrichs, Bruno Lang</i>	
A Parallel 3-D FFT Algorithm on Clusters of Vector SMPs.....	316
<i>Daisuke Takahashi</i>	
High-End Computing on SHV Workstations Connected with High Performance Network	324
<i>Lars Paul Huse, Håkon Bugge</i>	
From the Big Bang to Massive Data Flow: Parallel Computing in High Energy Physics Experiments	333
<i>C. Adler, J. Berger, D. Flierl, H. Helstrup, J. S. Lange, J. Lien, V. Lindenstruth, D. Röhricht, D. Schmischke, M. Schulz, B. Skaali, H. K. Sollveit, T. Steinbeck, R. Stock, C. Struck, K. Ullaland, A. Vestbø, A. Wiebalck</i>	

A Data Parallel Formulation of the Barnes-Hut Method for <i>N</i> -Body Simulations	342
<i>M. Amor, F. Argüello, J. López, O. Plata, E. L. Zapata</i>	
Par-T: A Parallel Relativistic Fully 3D Electromagnetic Particle-in-Cell Code	350
<i>Peter Messmer</i>	
Evaluation of MPI's One-Sided Communication Mechanism for Short-Range Molecular Dynamics on the Origin2000	356
<i>T. Matthey, J. P. Hansen</i>	
Ship Hull Hydrodynamic Analysis Using Distributed Shared Memory	366
<i>João Silva, Paulo Guedes</i>	
Domain Decomposition Solvers for Large Scale Industrial Finite Element Problems	373
<i>Petter E. Bjørstad, Jacko Koster, Piotr Krzyżanowski</i>	
A High Parallel Procedure to Initialize the Output Weights of a Radial Basis Function or BP Neural Network	384
<i>Rossella Cancelliere</i>	
High-Performance Computing in Geomechanics by a Parallel Finite Element Approach	391
<i>Felicja Okulicka – Dlużewska</i>	
Author Index	399