

2009 IEEE International Symposium on Parallel & Distributed Processing

(IPDPS)

**Rome, Italy
23-29 May 2009**

Pages 1-634



**IEEE Catalog Number: CFP09023-PRT
ISBN: 978-1-4244-3751-1**

**Copyright © 2009 by the Institute of Electrical and Electronic Engineers, Inc
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

******This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP09023-PRT
ISBN 13:	978-1-4244-3751-1
ISSN:	1530-2075

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

IPDPS Introduction	1
Sensor Network Connectivity with Multiple Directional Antennae of a Given Angular Sum	5
<i>D. Krizanc, E. Kranakis, Q. Shi, Y. Hu, B. Bhattacharya</i>	
On Scheduling Dags to Maximize Area	16
<i>G. Cordasco, A. Rosenberg</i>	
Accelerating Leukocyte Tracking using CUDA: A Case Study in Leveraging Manycore Coprocessors.....	28
<i>M. Boyer, D. Tarjan, S. Acton, K. Skadron</i>	
Path-Robust Multi-Channel Wireless Networks.....	40
<i>A. Rosenberg</i>	
Information Spreading in Stationary Markovian Evolving Graphs	50
<i>F. Pasquale, R. Silvestri, A. Clementi, A. Monti</i>	
Multiple Priority Customer Service Guarantees in Cluster Computing.....	62
<i>K. Xiong</i>	
A Cross-Input Adaptive Framework for GPU Program Optimizations.....	74
<i>Y. Liu, E. Zhang, X. Shen</i>	
Packer: an Innovative Space-Time-Efficient Parallel Garbage Collection Algorithm Based on Virtual Spaces	84
<i>S. Liu, L. Wang, X.F. Li, J.L. Gaudiot</i>	
On Reducing Misspeculations in a Pipelined Scheduler.....	95
<i>R. Gran, E. Morancho, A. Olive, J.M. Llaberia</i>	
Best-Effort Parallel Execution Framework for Recognition and Mining Applications.....	107
<i>J. Meng, S. Chakradhar, A. Raghunathan</i>	
A Metascalable Computing Framework for Large Spatiotemporal-Scale Atomistic Simulations	119
<i>L. Yang, F. Shimojo, P. Vashishta, K.I. Nomura, R. Seymour, W. Wang, H. Dursun, R. Kalia, A. Nakano</i>	
Design, Implementation, and Evaluation of Transparent pNFS on Lustre	129
<i>W. Yu, O. Drokin, J. Vetter</i>	
Online Time Constrained Scheduling with Penalties.....	138
<i>N. Thibault, C. Laforest</i>	
A Performance Model for Fast Fourier Transform.....	146
<i>Y. Li, L. Zhao, H. Lin, A. Chow, J. Diamond</i>	
A General Approach to Toroidal Mesh Decontamination with Local Immunity	157
<i>F. Luccio, L. Pagli</i>	
A Snap-Stabilizing Point-to-Point Communication Protocol in Message-Switched Networks.....	165
<i>V. Villain, A. Cournier, S. Dubois</i>	
Helgrind+: An Efficient Dynamic Race Detector.....	176
<i>A. Jannesari, K. Bao, V. Pankratius, W. Tichy</i>	
Compiler-Enhanced Incremental Checkpointing for OpenMP Applications	189
<i>S. McKee, R. Rugina, G. Bronevetsky, D. Marques, K. Pingali</i>	

Efficient Large-Scale Model Checking.....	201
<i>K. Verstoep, H. Bal, J. Barnat, L. Brim</i>	
Building a Parallel Pipelined External Memory Algorithm Library	213
<i>J. Singler, A. Beckmann, R. Dementiev</i>	
Combinatorial Properties for Efficient Communication in Distributed Networks with Local Interactions.....	223
<i>P.G. Spirakis, S. Nikolettseas, C. Raptopoulos</i>	
NewMadeleine: An Efficient Support for High-Performance Networks in MPICH2	234
<i>D. Buntinas, G. Mercier, F. Trahay, E. Brunet</i>	
Annotation-Based Empirical Performance Tuning Using Orio.....	246
<i>A. Hartono, B. Norris, P. Sadayappan</i>	
Designing Efficient Sorting Algorithms for Manycore GPUs	257
<i>N. Satish, M. Harris, M. Garland</i>	
Using Hardware Transactional Memory for Data Race Detection	267
<i>S. Gupta, F. Sultan, S. Cadambi, F. Ivancic, M. Rotteler</i>	
Treat-Before-Trick : Free-riding Prevention for BitTorrent-like Peer-to-Peer Networks	278
<i>K. Shin, D. Reeves, I. Rhee</i>	
Performance Analysis of Optical Packet Switches Enhanced with Electronic Buffering.....	290
<i>Z. Zhang, Y. Yang</i>	
Unit Disk Graph and Physical Interference Model: Putting Pieces Together	299
<i>E. Lebhar, Z. Lotker</i>	
Minimizing Startup Costs for Performance-Critical Threading	307
<i>A. Castaldo, R. Whaley</i>	
High-Order Stencil Computations on Multicore Clusters	315
<i>A. Loddock, M. Netzband, W. Volz, C. Wong, P. Vashishta, L. Peng, R. Seymour, K.I. Nomura, R. Kalia, A. Nakano</i>	
On the Tradeoff Between Playback Delay and Buffer Space in Streaming.....	326
<i>A. Chow, L. Golubchik, S. Khuller, Y. Yao</i>	
Core-aware Memory Access Scheduling Schemes	338
<i>Z. Fang, X.H. Sun, Y. Chen, S. Byna</i>	
Scalability Challenges for Massively Parallel AMR Applications	350
<i>B. Straalen, J. Shalf, T. Ligocki, N. Keen, W.S. Yang</i>	
Accommodating Bursts in Distributed Stream Processing Systems.....	362
<i>Y. Drougas, V. Kalogeraki</i>	
Efficient Shared Cache Management through Sharing-Aware Replacement and Streaming-Aware Insertion Policy	373
<i>Y. Chen, W. Li, C. Kim, Z. Tang</i>	
Minimizing Total Busy Time in Parallel Scheduling with Application to Optical Networks.....	384
<i>M. Flammini, G. Monaco, L. Moscardelli, H. Shachnai, M. Shalom, T. Tamir, S. Zaks</i>	
A Fusion-based Approach for Tolerating Faults in Finite State Machines	396
<i>B. Balasubramanian, V. Garg, V. Ogale</i>	
HPCC Random Access Benchmark for Next Generation Supercomputers	407
<i>V. Aggarwal, Y. Sabharwal, R. Garg, P. Heidelberg</i>	
vCUDA: GPU Accelerated High Performance Computing in Virtual Machines.....	418
<i>L. Shi, H. Chen, J. Sun</i>	

Speculation-Based Conflict Resolution in Hardware Transactional Memory	429
<i>R. Titos, M. Acacio, J. Garcia</i>	
Efficient Microarchitecture Policies for Accurately Adapting to Power Constraints.....	441
<i>J. Cebrian, J. Aragon, J. Garcia, P. Petoumenos, S. Kaxiras</i>	
A Resource Allocation Approach for Supporting Time-Critical Applications in Grid Environments	453
<i>Q. Zhu, G. Agrawal</i>	
Energy Minimization for Periodic Real-Time Tasks on Heterogeneous Processing Units.....	465
<i>J.J. Chen, A. Schranzhofer, L. Thiele</i>	
Scalable RDMA Performance in PGAS Languages.....	477
<i>M. Farreras, G. Almasi, C. Cascaval, T. Cortes</i>	
On the Complexity of Mapping Pipelined Filtering Services on Heterogeneous Platforms.....	489
<i>A. Benoit, F. Dufosse, Y. Robert</i>	
Automatic Detection of Parallel Applications Computation Phases	501
<i>J. Gonzalez, J. Gimenez, J. Labarta</i>	
An Asynchronous Leader Election Algorithm for Dynamic Networks.....	512
<i>R. Ingram, P. Shields, J. Walter, J. Welch</i>	
Small-File Access in Parallel File Systems	524
<i>P. Carns, S. Lang, R. Ross, M. Vilayannur, J. Kunkel, T. Ludwig</i>	
Concurrent SSA for General Barrier-Synchronized Parallel Programs	535
<i>P. Varma, H. Shah, R.K. Shyamasundar</i>	
Parallel Data-Locality Aware Stencil Computations on Modern Micro-Architectures	547
<i>M. Christen, O. Schenk, E. Neufeld, P. Messmer, H. Burkhardt</i>	
Taking the Heat off Transactions: Dynamic Selection of Pessimistic Concurrency Control	557
<i>N. Sonmez, T. Harris, A. Cristal, O. Unsal, M. Valero</i>	
Competitive Buffer Management with Packet Dependencies	567
<i>A. Kesselman, B. Patt-Shamir, G. Scalosub</i>	
Autonomic Management of Non-Functional Concerns in Distributed & Parallel Application Programming	579
<i>M. Aldinucci, M. Danelutto, P. Kilpatrick</i>	
An Approach for Matching Communication Patterns in Parallel Applications	591
<i>C. Ma, Y. Teo, V. March, N. Xiong, I. Pop, Y. He, S. See</i>	
Elastic Scaling of Data Parallel Operators in Stream Processing.....	603
<i>S. Schneider, H. Andrade, B. Gedik, A. Biem, K.L. Wu</i>	
Multi-Users Scheduling in Parallel Systems	615
<i>E. Saule, D. Trystram</i>	
Parallel Accelerated Cartesian Expansions for Particle Dynamics Simulations	624
<i>M. Vikram, A. Baczewski, B. Shanker, S. Aluru</i>	
A Framework for Efficient and Scalable Execution of Domain-Specific Templates on GPUs	635
<i>N. Sundaram, A. Raghunathan, S. Chakradhar</i>	
Dynamic High-Level Scripting in Parallel Applications.....	647
<i>F. Gioachin, L. Kale</i>	
Remote-Spanners: What to Know beyond Neighbors	658
<i>P. Jacquet, L. Viennot</i>	

Self-Stabilizing Minimum-Degree Spanning Tree Within one From the Optimal Degree.....	668
<i>L. Blin, M. Potop-Butucaru, S. Rovedakis</i>	
Input-independent, Scalable and Fast String Matching on the Cray XMT.....	679
<i>O. Villa, D. Chavarria-Miranda, K. Maschhoff</i>	
Static Strategies for Worksharing with Unrecoverable Interruptions.....	691
<i>A. Benoit, Y. Robert, A.L. Rosenberg, F. Vivien</i>	
Efficient Scheduling of Task Graph Collections on Heterogeneous Resources.....	703
<i>M. Gallet, L. Marchal, F. Vivien</i>	
Handling OS Jitter on Multicore Multithreaded Systems.....	714
<i>P. De, V. Mann, U. Mittal</i>	
An Upload Bandwidth Threshold.....	726
<i>L. Viennot, D. Perino, F. Montgolfier, Y. Bouffkhad, F. Mathieu</i>	
A New Mechanism to Deal with Process Variability in NoC Links.....	736
<i>C. Hernandez, F. Silla, V. Santonja, J. Duato</i>	
Multi-Dimensional Characterization of Temporal Data Mining on Graphics Processors.....	747
<i>J. Archuleta, Y. Cao, T. Scogland, W.C. Feng</i>	
Crash Fault Detection in Celerating Environments.....	759
<i>S. Sastry, S. Pike, J. Welch</i>	
Parallel Implementation of Irregular Terrain Model on IBM Cell Broadband Engine.....	771
<i>Y. Song, J. Rudin, A. Akoglu</i>	
Adaptable, Metadata Rich IO Methods for Portable High Performance IO	778
<i>K. Schwan, J. Lofstead, F. Zheng, S. Klasky</i>	
Optimal Deterministic Self-stabilizing Vertex Coloring in Unidirectional Anonymous Networks.....	788
<i>S. Bernard, S. Devismes, M. Potop-Butucaru, S. Tixeuil</i>	
A Scalable Auto-tuning Framework for Compiler Optimization.....	796
<i>A. Tiwari, C. Chen, J. Chame, M. Hall, J. Hollingsworth</i>	
Understanding the Design Trade-offs among Current Multicore Systems for Numerical Computations	808
<i>S. Kang, D. Bader, R. Vuduc</i>	
TupleQ: Fully-Asynchronous and Zero-Copy MPI over InfiniBand.....	820
<i>M. Koop, J. Sridhar, D. Panda</i>	
Performance Projection of HPC Applications Using SPEC CFP2006 Benchmarks.....	828
<i>S. Sharkawi, D. DeSota, R. Panda, R. Indukuru, S. Stevens, V. Taylor, X. Wu</i>	
Singular Value Decomposition on GPU using CUDA.....	840
<i>S. Lahabar, P.J. Narayanan</i>	
Dynamic Iterations for the Solution of Ordinary Differential Equations on Multicore Processors	850
<i>Y. Yu, A. Srinivasan</i>	
Compact Graph Representations and Parallel Connectivity Algorithms for Massive Dynamic Network Analysis	860
<i>K. Madduri, D. Bader</i>	
The Weak Mutual Exclusion Problem	871
<i>P. Romano, L. Rodrigues, N. Carvalho</i>	

CellMR: A Framework for Supporting Map Reduce on Asymmetric Cell-Based Clusters.....	883
<i>M. Rafique, B. Rose, A. Butt, D. Nikolopoulos</i>	
DMTCP: Transparent Checkpointing for Cluster Computations and the Desktop	895
<i>J. Ansel, K. Arya, G. Cooperman</i>	
A Partition-based Approach to Support Streaming Updates over Persistent Data in an Active Data Warehouse	907
<i>A. Chakraborty, A. Singh</i>	
Message Passing on Data-Parallel Architectures	918
<i>J. Stuart, J. Owens</i>	
Sequence Alignment with GPU: Performance and Design Challenges.....	930
<i>G. Striemer, A. Akoglu</i>	
Coupled Placement in Modern Data Centers	940
<i>M. Korupolu, A. Singh, B. Bamba</i>	
Exploring the Multiple-GPU Design Space	952
<i>D. Schaa, D. Kaeli</i>	
An On/Off Link Activation Method for Low-Power Ethernet in PC Clusters.....	964
<i>M. Koibuchi, T. Otsuka, H. Matsutani, H. Amano</i>	
Making Resonance a Common Case: A High-Performance Implementation of Collective I/O on Parallel File Systems	975
<i>X. Zhang, S. Jiang, K. Davis</i>	
Phaser Accumulators: a New Reduction Construct for Dynamic Parallelism	987
<i>J. Shirako, D.M. Peixotto, V. Sarkar, W.N. Scherer</i>	
Transitive Closure on the Cell Broadband Engine: A Study on Self-Scheduling in a Multicore Processor	999
<i>S. Vinjamuri, V. Prasanna</i>	
Evaluating the use of GPUs in Liver Image Segmentation and HMMER Database Searches	1010
<i>J. Walters, V. Balu, S. Kompalli, V. Chaudhary</i>	
Improving MPI-HMMER's Scalability With Parallel I/O	1022
<i>J. Walters, R. Darole, V. Chaudhary</i>	
Parallel Short Sequence Mapping for High Throughput Genome Sequencing.....	1033
<i>D. Bozdag, C. Barbacioru, U. Catalyurek</i>	
Scaling Communication-Intensive Applications on BlueGene/P Using One-Sided Communication and Overlap.....	1043
<i>R. Nishtala, P. Hargrove, D. Bonachea, K. Yelick</i>	
Scheduling Resizable Parallel Applications.....	1055
<i>R. Sudarsan, C. Ribbens</i>	
Architectural Implications for Spatial Object Association Algorithms	1065
<i>V. Kumar, T. Kurc, J. Saltz, G. Abdulla, S. Kohn, C. Matarazzo</i>	
Work-First and Help-First Scheduling Policies for Async-Finish Task Parallelism	1077
<i>Y. Guo, R. Barik, R. Raman, V. Sarkar</i>	
Map Construction and Exploration by Mobile Agents Scattered in a Dangerous Network	1089
<i>P. Flocchini, M. Kellett, P. Mason, N. Santoro</i>	
Disjoint-Path Routing: Efficient Communication for Streaming Applications.....	1099
<i>D. Seo, M. Thottethodi</i>	
APDCM Introduction	1111

Graph Orientation to Maximize the Minimum Weighted Outdegree.....	1113
<i>Yuichi Asahiro, Jesper Jansson,Eiji Miyano, Hirotaka Ono</i>	
Uniform Scattering of Autonomous Mobile Robots in a Grid	1121
<i>Lali Barrière, Paola Flocchini,Eduardo Mesa-Barrameda, Nicola Santoro</i>	
Resource Allocation Strategies for Constructive In-Network Stream Processing	1129
<i>Anne Benoit, Henri Casanova,Veronika Rehn-Sonigo, Yves Robert</i>	
Filter Placement on a Pipelined Architecture.....	1137
<i>Anne Benoit, Fanny Dufossé,Yves Robert</i>	
Crosstalk-Free Mapping of Two-dimensional Weak Tori on Optical Slab Waveguides.....	1145
<i>Hatem M. El-Boghdadi</i>	
Combining Multiple Heuristics on Discrete Resources	1153
<i>Marin Bougeret, Pierre-François Dutot,Denis Trystram</i>	
A Distributed Approach for the Problem of Routing and Wavelength Assignment in WDM Networks.....	1161
<i>Simone Cintra Chagas, Eber Huanca Cayo,Koji Nakano, Jacir Luiz Bordim</i>	
Self-Stabilizing K-out-of-l Exclusion on Tree Networks.....	1168
<i>Ajoy K. Datta, Stéphane Devismes,Florian Horn, Lawrence L. Larmore</i>	
Improving Accuracy of Host Load Predictions on Computational Grids by Artificial Neural Networks.....	1176
<i>Truong Vinh Truong Duy, Yukinori Sato,Yasushi Inoguchi</i>	
Computation with a Constant Number of Steps in Membrane Computing	1184
<i>Akihiro Fujiwara, Takeshi Tateishi</i>	
New Implementation of a BSP Composition Primitive with Application to the Implementation of Algorithmic Skeletons	1192
<i>Frédéric Gava, Ilias Garnier</i>	
Distributed Selfish Bin Packing	1200
<i>Flávio K. Miyazawa, André L. Vignatti</i>	
Predictive Analysis and Optimisation of Pipelined Wavefront Computations.....	1208
<i>G.R. Mudalige, S.D. Hammond,J.A. Smith, S.A. Jarvis</i>	
RSA Encryption and Decryption using the Redundant Number System on the FPGA.....	1216
<i>Koji Nakano, Kensuke Kawakami,Koji Shigemoto</i>	
Table-based Method for Reconfigurable Function Evaluation	1224
<i>María Teresa Signes Pont, Higinio Mora,Juan Manuel García Chamizo, Gregorio de Miguel Casado</i>	
Analytical Model of Inter-Node Communication under Multi-Versioned Coherence Mechanisms.....	1233
<i>Shigero Sasaki, Atsuhiko Tanaka</i>	
Deciding Model of Population Size in Time-Constrained Task Scheduling	1241
<i>Wei Sun</i>	
Performance Study of Interference on Sharing GPU and CPU Resources with Multiple Applications.....	1249
<i>Shinichi Yamagiwa, Koichi Wada</i>	
CAC Introduction	1257
A Power-Aware, Application-Based Performance Study Of Modern Commodity Cluster Interconnection Networks	1258
<i>Torsten Hoefler, Timo Schneider,Andrew Lumsdaine</i>	

An Analysis of the Impact of Multi-threading on Communication Performance	1265
<i>François Trahay, Élisabeth Brunet, Alexandre Denis</i>	
RI2N/DRV: Multi-link Ethernet for High-Bandwidth and Fault-Tolerant Network on PC Clusters	1272
<i>Shin'ichi Miura, Toshihiro Hanawa, Taiga Yonemoto, Taisuke Boku, Mitsuhsa Sato</i>	
Efficient and Deadlock-Free Reconfiguration for Source Routed Networks	1279
<i>Åshild Grønstad Solheim, Olav Lysne, Aurelio Bermúdez, Rafael Casado, Thomas Sødning, Tor Skeie, Antonio Robles-Gómez</i>	
Deadlock Prevention by Turn Prohibition in Interconnection Networks	1287
<i>Lev Levitin, Mark Karpovsky, Mehmet Mustafa</i>	
Implementation and Analysis of Nonblocking Collective Operations on SCI Networks	1294
<i>Christian Kaiser, Torsten Hoefler, Boris Bierbaum, Thomas Bemmert</i>	
Designing Multi-Leader-Based Allgather Algorithms for Multi-Core Clusters	1301
<i>Krishna Kandalla, Hari Subramoni, Gopal Santhanaraman, Matthew Koop, Dhabaleswar K. Panda</i>	
Using Application Communication Characteristics to Drive Dynamic MPI Reconfiguration	1309
<i>Manjunath Gorentla Venkata, Patrick G. Bridges, Patrick M. Widener</i>	
Decoupling Memory Pinning from the Application with Overlapped on- Demand Pinning and MMU Notifiers	1315
<i>Brice Goglin</i>	
Improving RDMA-based MPI Eager Protocol for Frequently-used Buffers	1323
<i>Mohammad J. Rashti, Ahmad Afsahi</i>	
DPDNS Introduction	1331
Keynote - Resilient Computing: an Engineering Discipline	1335
<i>Samee Ullah Khan, Anthony A. Maciejewski, Howard Jay Siegel</i>	
Robust CDN Replica Placement Techniques	1336
<i>Samee Ullah Khan, Anthony A. Maciejewski, Howard Jay Siegel</i>	
A Flexible and Robust Lookup Algorithm for P2P Systems	1344
<i>Mauro Andreolini, Riccardo Lancellotti</i>	
Extending SRT for Parallel Applications in Tiled-CMP Architectures	1352
<i>Daniel Sánchez, Juan L. Aragón, José M. García</i>	
Byzantine Fault-Tolerant Implementation of a Multi-Writer Regular Register	1360
<i>Khushboo Kanjani, Hyunyoung Lee, Jennifer L. Welch</i>	
APART+: Boosting APART Performance via Optimistic Pipelining of Output Events	1368
<i>Paolo Romano, Francesco Quaglia, Bruno Ciciani</i>	
Message-Efficient Omission-Tolerant Consensus with Limited Synchrony	1376
<i>C. Delporte-Gallet, H. Fauconnier, A. Tielmann, F. C. Freiling, M. Kilic</i>	
AVR-INJECT: a Tool for Injecting Faults in Wireless Sensor Nodes	1384
<i>Marcello Cinque, Domenico Cotroneo, Catello Di Martino, Stefano Russo, Alessandro Testa</i>	
Dependable QoS support in Mesh Networks	1392
<i>M. Fazio, M. Paone, D. Bruneo, A. Puliafito</i>	
Storage Architecture with Integrity, Redundancy and Encryption	1399
<i>Henning Klein, Jörg Keller</i>	
Pre-calculated Equation-based Decoding in Failure-tolerant Distributed Storage	1405
<i>Peter Sobe</i>	
HCW Introduction	1413

Keynote - GPU Computing: Heterogeneous Computing for Future Systems	1421
<i>Marco A. S. Netto, Rajkumar Buyya</i>	
Offer-based Scheduling of Deadline-Constrained Bag-of-Tasks Applications for Utility Computing Systems	1422
<i>Marco A. S. Netto, Rajkumar Buyya</i>	
Resource-aware Allocation Strategies for Divisible Loads on Large-scale Systems	1433
<i>Anne Benoit, Loris Marchal, Jean-François Pineau, Yves Robert, Frédéric Vivien</i>	
Robust Sequential Resource Allocation in Heterogeneous Distributed Systems with Random Compute Node Failures	1437
<i>Vladimir Shestak, Edwin K. P. Chong, Anthony A. Maciejewski, Howard Jay Siegel</i>	
Revisiting Communication Performance Models for Computational Clusters	1449
<i>Alexey Lastovetsky, Vladimir Rychkov, Maureen O'Flynn</i>	
Cost-Benefit Analysis of Cloud Computing versus Desktop Grids	1460
<i>Derrick Kondo, Bahman Javadi, Paul Malecot, Franck Cappello, David P. Anderson</i>	
Robust Data Placement in Urgent Computing Environments	1472
<i>Jason M. Cope, Nick Trebon, Henry M. Tufo, Pete Beckman</i>	
A Robust Dynamic Optimization for MPI All to All Operation	1485
<i>Hyacinthe Nzigou Mamadou, Takeshi Nanri, Kazuaki Murakami</i>	
Validating Wrekavoc: a Tool for Heterogeneity Emulation	1500
<i>Olivier Dubuisson, Jens Gustedt, Emmanuel Jeannot</i>	
A Component-Based Framework for the Cell Broadband Engine	1512
<i>Timothy D. R. Hartley, Umit V. Catalyurek</i>	
Portable Builds of HPC Applications on Diverse Target Platforms	1526
<i>Magdalena Slawinska, Jaroslaw Slawinski, Vaidy Sunderam</i>	
HiCOMB Introduction	1534
Keynote - De Novo Modeling of GPCR Class A Structures	1537
<i>Yongchao Liu, Bertil Schmidt, Douglas L. Maskell</i>	
Parallel Reconstruction of Neighbor-Joining Trees for Large Multiple Sequence Alignments using CUDA	1538
<i>Yongchao Liu, Bertil Schmidt, Douglas L. Maskell</i>	
Accelerating Error Correction in High-Throughput Short-Read DNA Sequencing Data with CUDA	1546
<i>Haixiang Shi, Bertil Schmidt, Weiguo Liu, Wolfgang Müller-Wittig</i>	
Parallel Monte Carlo Study on Caffeine-DNA Interaction in Aqueous Solution	1554
<i>M.D. Kalugin, A.V. Teplukhin</i>	
Dynamic Parallelization for RNA Structure Comparison	1562
<i>Eric Snow, Eric Aubanel, Patricia Evans</i>	
Accelerating HMMer on FPGAs Using Systolic Array Based Architecture	1570
<i>Yanteng Sun, Peng Li, Guochang Gu, Yuan Wen, Yuan Liu, Dong Liu</i>	
A Resource-Efficient Computing Paradigm for Computational Protein Modeling Applications	1578
<i>Yaohang Li, Douglas Wardell, Vincent Freeh</i>	
Exploring FPGAs for Accelerating the Phylogenetic Likelihood Function	1586
<i>N. Alachiotis, E. Sotiriades, A. Dollas, A. Stamatakis</i>	

Long Time-scale Simulations of in Vivo Diffusion Using GPU Hardware	1594
<i>Elijah Roberts, John E. Stone, Leonardo Sepúlveda, Wen-Mei W. Hwu, Zaida Luthey-Schulten</i>	
An Efficient Implementation of Smith Waterman Algorithm on GPU Using CUDA, for Massively Parallel Scanning of Sequence Databases	1602
<i>Łukasz Ligowski, Witold Rudnicki</i>	
Stochastic Multi-particle Brownian Dynamics Simulation of Biological Ion Channels: A Finite Element Approach	1610
<i>May Siksik, Vikram Krishnamurthy</i>	
High-throughput Protein Structure Determination Using Grid Computing.....	1616
<i>Jason W. Schmidberger, Blair Bethwaite, Colin Enticott, Mark A. Bate, Steve G. Androulakis, Noel Faux, Cyril F. Reboul, Jennifer M. N. Phan, James C. Whisstock, Wojtek J. Goscinski, Slavisa Garic, David Abramson, Ashley M. Buckle</i>	
Folding@Home: Lessons From Eight Years of Volunteer Distributed Computing	1624
<i>Adam L. Beberg, Daniel L. Ensign, Guha Jayachandran, Siraj Khaliq, Vijay S. Pande</i>	
HIPS Introduction	1632
An Integrated Approach To Improving The Parallel Application Development Process	1635
<i>Gregory R. Watson, Craig E Rasmussen, Beth R. Tibbitts</i>	
MPIXternal: A Library for a Portable Adjustment of Parallel MPI Applications to Heterogeneous Environments	1643
<i>Carsten Clauss, Stefan Lankes, Thomas Bemberl</i>	
A Lightweight Stream-processing Library using MPI	1651
<i>Alan Wagner, Camilo Rostoker</i>	
Sparse Collective Operations for MPI	1659
<i>Torsten Hoefler, Jesper Larsson Träff</i>	
Smart Read/Write for MPI-IO	1667
<i>Saba Sehrish, Jun Wang</i>	
Triple-C: Resource-Usage Prediction for Semi-Automatic Parallelization of Groups of Dynamic Image-Processing Tasks	1675
<i>Rob Albers, Eric Suijs, Peter H.N. de With</i>	
GPAW Optimized for Blue Gene/P Using Hybrid Programming	1683
<i>Mads Ruben Burgdorff Kristensen, Hans Henrik Happe, Brian Vinter</i>	
CellFS: Taking The "DMA" Out Of Cell Programming	1689
<i>Latchesar Ionkov, Aki Nyrhinen, Andrey Mirtchovski</i>	
A Generalized, Distributed Analysis System for Optimization of Parallel Applications.....	1697
<i>Hung-Hsun Su, Max Billingsley III, Alan D. George</i>	
CuPP - A Framework for Easy CUDA Integration	1705
<i>Jens Breitbart</i>	
Fast Development of Dense Linear Algebra Codes on Graphics Processors	1713
<i>M. Jesús Zafont, Alberto Martín, Francisco Igual, Enrique S. Quintana-Ortí</i>	
HOTP2P Introduction	1721
Robust Vote Sampling in a P2P Media Distribution System	1722
<i>Rameez Rahman, David Hales, Michel Meulpolder, Vincent Heinink, Johan Pouwelse, Henk Sips</i>	
Reliable P2P Networks: TrebleCast and TrebleCast.....	1730
<i>Ivan Hernandez-Serrano, Shadanan Sharma, Alberto Leon-Garcia</i>	

Ten Weeks in the Life of an eDonkey Server	1738
<i>Frédéric Aidouni, Matthieu Latapy, Clémence Magnien</i>	
Study on Maintenance Operations in a Chord-based Peer-to-Peer Session Initiation Protocol Overlay Network	1743
<i>Jouni Mäenpää, Gonzalo Camarillo</i>	
Resource Advertising in PROSA P2P Network	1752
<i>Vincenza Carchiolo, Antonio Lima, Giuseppe Mangioni</i>	
Relaxed-2-Chord: Efficiency, Flexibility and Provable Stretch.....	1759
<i>Gennaro Cordasco, Francesca Della Corte, Alberto Negro, Alessandra Sala, Vittorio Scarano</i>	
Measurement of eDonkey Activity with Distributed Honeypots	1767
<i>Oussama Allali, Matthieu Latapy, Clémence Magnien</i>	
Network Awareness of P2P Live Streaming Applications.....	1775
<i>Delia Ciullo, Maria Antonieta Garcia, Ákos Horváth, Emilio Leonardi, Marco Mellia, Dario Rossi, Miklós Telek, Paolo Veglia</i>	
Bartercast: A Practical Approach to Prevent Lazy Freeriding in P2P Networks.....	1782
<i>M. Meulpolder, J.A. Pouwelse, D.H.J. Epema, H.J. Sips</i>	
Underlay Awareness in P2P Systems: Techniques and Challenges.....	1790
<i>Osama Abboud, Aleksandra Kovacevic, Kalman Graffi, Konstantin Pussep, Ralf Steinmetz</i>	
Analysis of PPLive Through Active and Passive Measurements	1798
<i>Salvatore Spoto, Rossano Gaeta, Marco Grangetto, Matteo Sereno</i>	
A DDS-Compliant P2P Infrastructure for Reliable and QoS-Enabled Data Dissemination.....	1805
<i>Antonio Corradi, Luca Foschini</i>	
Peer-to-Peer Beyond File Sharing: Where are P2P Systems Going?	1813
<i>Renato Lo Cigno, Tommaso Pecorella, Matteo Sereno, Luca Veltri</i>	
HPGC Introduction	1821
INFN-CNAF Activity in the TIER-1 and GRID for LHC Experiments	1822
<i>M. Bencivenni, M. Canaparo, F. Capannini, L. Carota, M. Carpenè, A. Cavalli, A. Ceccanti, M. Cecchi, D. Cesini, A. Chierici, V. Ciaschini, A. Cristofori, S. Dal Pra</i>	
Ibis: Real-World Problem Solving using Real-World Grids.....	1831
<i>H.E. Bal, N. Drost, R. Kemp, J. Maassen, R.V. van Nieuwpoort, C. vanReeuwijk, F.J. Seinstra</i>	
A Semantic-aware Information System for Multi-Domain Applications over Service Grids.....	1839
<i>Carmela Comito, Carlo Mastroianni, Domenico Talia</i>	
Managing the Construction and Use of Functional Performance Models in a Grid Environment.....	1847
<i>Robert Higgins, Alexey Lastovetsky</i>	
Modelling Memory Requirements for Grid Applications	1855
<i>Tanvire Elahi, Cameron Kiddle, Rob Simmonds</i>	
Improving GridWay with Network Information: Tuning the Monitoring Tool.....	1863
<i>Luis Tomás, Agustín Caminero, Blanca Caminero, Carmen Carrión</i>	
Using a Market Economy to Provision Compute Resources Across Planet Wide Clusters	1871
<i>Murray Stokely, Jim Winget, Ed Keyes, Carrie Grimes, Benjamin Yolken</i>	
Evaluation of Replication and Fault Detection in P2P-MPI	1879
<i>Stéphane Genaud, Chooan Rattanapoka</i>	

Grid-Enabled Hydropad: a Scientific Application for Benchmarking GridRPC Based Programming Systems	1887
<i>Michele Guidolin, Alexey Lastovetsky</i>	
Assessing the Impact of Future Reconfigurable Optical Networks on Application Performance	1895
<i>Jason Maassen, Kees Verstoep, Henri E. Bal, Paola Grosso, Cees de Laat</i>	
HPPAC Introduction	1903
On the Energy Efficiency of Graphics Processing Units for Scientific Computing	1904
<i>S. Huang, S. Xiao, W. Feng</i>	
Power-Aware Dynamic Task Scheduling for Heterogeneous Accelerated Clusters	1912
<i>Tomoaki Hamano, Toshio Endo, Satoshi Matsuoka</i>	
Clock Gate on Abort: Towards Energy-Efficient Hardware Transactional Memory	1920
<i>Sutirtha Sanyal, Sourav Roy, Adrian Cristal, Osman S. Unsal, Mateo Valero</i>	
Power-Aware Load Balancing Of Large Scale MPI Applications	1928
<i>Maja Etinski, Julita Corbalan, Jesus Labarta, Mateo Valero, Alex Veidenbaum</i>	
The GREEN-NET Framework: Energy Efficiency in Large Scale Distributed Systems	1936
<i>Georges Da Costa, Jean-Patrick Gelas, Yiannis Georgiou, Laurent Lefèvre, Anne-Cécile Orgerie, Jean-Marc Pierson, Olivier, Richard, Kamal Sharma</i>	
Analysis of Trade-Off Between Power Saving and Response Time in Disk Storage Systems	1944
<i>E. Otoo, D. Rotem, S. C. Tsao</i>	
Enabling Autonomic Power-Aware Management of Instrumented Data Centers	1952
<i>Nanyan Jiang, Manish Parashar</i>	
Modeling and Evaluating Energy-Performance Efficiency of Parallel Processing on Ultracore Based Power Aware Systems	1960
<i>Rong Ge, Xizhou Feng, Kirk W. Cameron</i>	
Time-Efficient Power-Aware Scheduling for Periodic Real-Time Tasks	1968
<i>Da-Ren Chen, Chiun-Chieh Hsu, Ming-Fong Lai</i>	
The Green500 List: Year One	1976
<i>W. Feng, T. Scogland</i>	
JAVAPDC Introduction	1983
Providing Security for MOCCA Component Environment	1984
<i>Michal Dyrda, Maciej Malawski, Marian Bubak, Syed Naqvi</i>	
Towards Efficient Shared Memory Communications in MPJ Express	1991
<i>Amir Shafi, Jawad Manzoor</i>	
TM-STREAM: an STM Framework for Distributed Event Stream Processing	1998
<i>Heiko Sturzrehm, Pascal Felber, Christof Fetzer</i>	
Is Shared Memory Programming Attainable on Clusters of Embedded Processors?	2006
<i>Konstantinos I. Karantasis, Eleftherios D. Polychronopoulos</i>	
High Performance Computing Using ProActive Environment and The Asynchronous Iteration Model	2013
<i>Raphaël Couturier, David Laiymani, Sébastien Miquée</i>	
JSSPP Introduction	2020
The World's Fastest CPU and SMP Node: Some Performance Results from the NEC SX-9	2025
<i>Thomas Zeiser, Georg Hager, Gerhard Wellein</i>	

GPU Acceleration of Zernike Moments for Large-scale Images	2033
<i>Manuel Ujaldon</i>	
Harnessing the Power of Idle GPUs for Acceleration of Biological Sequence Alignment	2041
<i>Fumihiko Ino, Yuki Kotani, Kenichi Hagihar</i>	
Application Profiling on Cell-based Clusters	2049
<i>Hikmet Dursun, Kevin J. Barker, Darren J. Kerbyson, Scott Pakin</i>	
Non-Uniform Fat-Meshes for Chip Multiprocessors	2057
<i>Yu Zhang, Alex K. Jones</i>	
An Evaluative Study on the Effect of Contention on Message Latencies in Large Supercomputers	2065
<i>Abhinav Bhatele, Laxmikant V. Kale</i>	
The Impact of Network Noise at Large-Scale Communication Performance	2073
<i>Torsten Hoefler, Timo Schneider, Andrew Lumsdaine</i>	
Large Scale Experiment and Optimization of a Distributed Stochastic Control Algorithm. Application to Energy Management Problems	2081
<i>Pascal. Vezolle, Stephane Vialle, Xavier Warin</i>	
Performance Analysis and Projections for Petascale Applications on Cray XT Series Systems.....	2089
<i>Sadaf R. Alam, Richard F. Barrett, Jeffery A. Kuehn, Steve. W. Poole</i>	
Performance Modeling in Action: Performance Prediction of a Cray XT4 System During Upgrade	2097
<i>Kevin J. Barker, Kei Davis, Darren J. Kerbyson</i>	
MTAAP Introduction	2105
Implementing OpenMP on a High Performance Embedded Multicore MPSoC	2107
<i>Barbara Chapman, Lei Huang, Eric Biscondi, Eric Stotzer, Ashish Shrivastava, Alan Gatherer</i>	
Multi-Threaded Library for Many-Core Systems	2115
<i>Allan Porterfield, Nassib Nassar, Rob Fowler</i>	
Implementing a Portable Multi-threaded Graph Library: the MTGL on Qthreads	2123
<i>Brian W. Barrett, Jonathan W. Berry, Richard C. Murphy, Kyle B. Wheeler</i>	
A Super-Efficient Adaptable Bit-Reversal Algorithm for Multithreaded Architectures	2131
<i>Anne C. Elster, Jan C. Meyer</i>	
Implementing and Evaluating Multithreaded Triad Census Algorithms on the Cray XMT.....	2139
<i>George Chin Jr., Andres Marquez, Sutanay Choudhury, Kristyn Maschhoff</i>	
A Faster Parallel Algorithm and Efficient Multithreaded Implementations for Evaluating Betweenness Centrality on Massive Datasets	2148
<i>Kamesh Madduri, David Ediger, Karl Jiang, David A. Bader, Daniel Chavarri-Miranda</i>	
Accelerating Numerical Calculation on the Cray XMT	2156
<i>Chad Scherrer, Tim Shippert, Andres Marquez</i>	
Early Experiences on Accelerating Dijkstra's Algorithm Using Transactional Memory.....	2163
<i>Nikos Anastopoulos, Konstantinos Nikas, Georgios Goumas, Nectarios Koziris</i>	
Early Experiences with Large-Scale Cray XMT Systems	2171
<i>David Mizell, Kristyn Maschhoff</i>	
Linear Optimization on Modern GPUs.....	2180
<i>Daniele G. Spampinato, Anne C. Elster</i>	

Enabling High-Performance Memory Migration for Multithreaded Applications on Linux.....	2188
<i>Brice Goglin, Nathalie Furmento</i>	
Exploiting DMA to Enable Non-Blocking Execution in Decoupled Threaded Architecture	2197
<i>Roberto Giorgi, Zdravko Popovic,Nikola Puzovic</i>	
NIDISC Introduction.....	2205
Exact Pairwise Alignment of Megabase Genome Biological Sequences Using A Novel Z-align Parallel Strategy	2206
<i>Azzedine Boukerche, Rodolfo Bezerra Batista,Alba Cristina Magalhaes Alves de Melo</i>	
Solving Multiprocessor Scheduling Problem with GEO Metaheuristic.....	2214
<i>Piotr Switalski, Franciszek Seredynski</i>	
Using XMPP for Ad-Hoc Grid Computing - An Application Example Using Parallel Ant Colony Optimization.....	2222
<i>Gerhard Weis, Andrew Lewis</i>	
Hybridization of Genetic and Quantum Algorithm for Gene Selection and Classification of Microarray Data	2226
<i>Allani Abderrahim, El-Ghazali Talbi,Mellouli Khaled</i>	
Fine Grained Population Diversity Analysis for Parallel Genetic Programming	2234
<i>Stephan M. Winkler, Michael Affenzeller,Stefan Wagner</i>	
New Sequential and Parallel Algorithm for Dynamic Resource Constrained Project Scheduling Problem	2242
<i>André Renato Villela da Silva, Luiz Satoru Ochi</i>	
Interweaving Heterogeneous Metaheuristics Using Harmony Search.....	2249
<i>Young Choon Lee, Albert Y. Zomaya</i>	
Adaptative Clustering Particle Swarm Optimization.....	2257
<i>Salomão S. Madeiro, Carmelo J. A. Bastos-Filho,Fernando B. Lima Neto, Elliackin M. N. Figueiredo</i>	
Metaheuristic Traceability Attack against SLMAP, an RFID Lightweight Authentication Protocol.....	2265
<i>Julio C. Hernandez-Castro, Juan E. Tapiador,Pedro Peris-Lopez, John A. Clark, El-Ghazali Talbi</i>	
Parallel Nested Monte-Carlo Search.....	2270
<i>Tristan Cazenave, Nicolas Jouandeau</i>	
Combining Genetic Algorithm with Time-Shuffling in Order to Evolve Agent Systems More Efficiently	2276
<i>Patrick Ediger, Rolf Hoffmann</i>	
Multi-thread Integrative Cooperative Optimization for Rich Combinatorial Problems	2284
<i>Teodor Gabriel Crainic, Gloria Cerasela Crisan,Michel Gendreau, Nadia Lahrichi, Walter Rei</i>	
The Effect of Population Density on the Performance of a Spatial Social Network Algorithm for Multi-Objective Optimisation	2292
<i>Andrew Lewis</i>	
A Parallel Hybrid Genetic Algorithm-Simulated Annealing for Solving Q3AP on Computational Grid	2298
<i>Lakhdar Loukil, Malika Mehdi,Nouredine Melab, El-Ghazali Talbi, Pascal Bouvry</i>	
Solving the Industrial Car Sequencing Problem in a Pareto Sense.....	2306
<i>Arnaud Zinflou, Caroline Gagné,Marc Gravel</i>	
A Multi-objective Strategy for Concurrent Mapping and Routing in Networks onChip	2314
<i>Rafael Tornero, Valentino Sterrantino,aurizio Palesi, Juan M. Orduña</i>	

Evolutionary Game Theoretical Analysis of Reputation-based Packet Forwarding in Civilian Mobile Ad Hoc Networks	2322
<i>Marcin Seredynski, Pascal Bouvry</i>	
How to Build a Useful Thousand-Core Manycore System?	2330
<i>J. Torrellas</i>	
PCGRID Introduction	2331
An Analysis of Resource Costs in a Public Computing Grid	2333
<i>John A. Chandy</i>	
MGST: A Framework for Performance Evaluation of Desktop Grids	2341
<i>Majd Kokaly, Issam Al-Azzoni, Douglas G. Down</i>	
Evaluating the Performance and Intrusiveness of Virtual Machines for Desktop Grid Computing	2349
<i>Patricio Domingues, Filipe Araujo,Luis Silva</i>	
EmBOINC: An Emulator for Performance Analysis of BOINC Projects	2357
<i>Trilce Estrada, Michela Taufer,David P. Anderson</i>	
GenWrapper: A Generic Wrapper for Running Legacy Applications on Desktop Grids	2365
<i>Attila Csaba Marosi, Zoltán Balaton,Péter Kacsuk</i>	
Towards a Formal Model of Volunteer Computing Systems	2371
<i>Wang Yu, Haiwu HE,ZhiJian WANG</i>	
Monitoring the EDGeS Project Infrastructure	2376
<i>Filipe Araujo, David Santiago,Diogo Ferreira, Jorge Farinha, Patricio Domingues, Luis Moura Silva, Etienne Urbah, Oleg Lodygensky,Haiwu He, Attila Csaba Marosi, Gabor Gombas, Zoltan Balaton, Zoltan Farkas</i>	
Thalweg: A Framework For Programming 1,000 Machines With 1,000 Cores	2384
<i>Adam L. Beberg, Vijay S. Pande</i>	
BonjourGrid: Orchestration of Multi-instances of Grid Middlewares on Institutional Desktop Grids	2391
<i>Heithem Abbes, Christophe Cérin,Mohamed Jemni</i>	
PyMW - a Python Module for Desktop Grid and Volunteer Computing	2399
<i>Eric M. Heien, Yusuke Takata,Kenichi Hagihara, Adam Kornafeld</i>	
PDCoF Introduction	2406
Pricing American Options with the SABR Model	2408
<i>M.H. Vellekoop</i>	
High Dimensional Pricing of Exotic European Contracts on a GPU Cluster, and Comparison to a CPU Cluster	2414
<i>Lokman A. Abbas-Turki, Stephane Vialle,Bernard Lapeyre, Patrick Mercier</i>	
Using Premia and Nsp for Constructing a Risk Management Benchmark for Testing Parallel Architecture	2422
<i>Jean-Philippe Chancelier, Bernard Lapeyre,Jérôme Lelong</i>	
Towards the Balancing Real-Time Computational Model: Example of Pricing and Risk Management of Exotic Derivatives	2428
<i>Grzegorz Gawron</i>	
Advanced Risk Analytics on the Cell Broadband Engine	2434
<i>Ciprian Docan, Manish Parashar,Christopher Marty</i>	
A High Performance Pair Trading Application	2442
<i>Jieren Wang, Camilo Rostoker,Alan Wagner</i>	

Option Pricing with COS Method on Graphics Processing Units	2450
<i>Bowen Zhang, Cornelis W. Oosterlee</i>	
Calculation of Default Probability (PD) Solving Merton Model PDEs on Sparse Grids.....	2458
<i>Philipp Schroeder, Gabriel Wittum</i>	
An Aggregated Ant Colony Optimization Approach for Pricing Options.....	2464
<i>Yeshwanth Udayshankar, Sameer Kumar, Girish K. Jha, Ruppa K. Thulasiram, Parimala Thulasiraman</i>	
A Novel Application of Option Pricing to Distributed Resources Management	2471
<i>David Allenator, Ruppa Thulasiram, Parimala Thulasiraman</i>	
PDSEC Introduction.....	2479
Optimization Techniques for Concurrent STM-Based Implementations: A Concurrent Binary Heap as a Case Study	2481
<i>Kristijan Dragi?evi?, Daniel Bauer</i>	
Optimizing the Execution of A Parallel Meteorology Simulation Code.....	2489
<i>Sonia Jerez, Juan Pedro Montáñez, Domingo Giménez</i>	
NUMA-ICTM: A Parallel Version of ICTM Exploiting Memory Placement Strategies for NUMA Machines.....	2495
<i>Márcio Castro, Luiz Gustavo Fernandes, Christiane Pousa, Jean-François Méhaut, Marilton Sanchotene de Aguiar</i>	
Distributed Randomized Algorithms for Low-Support Data Mining	2503
<i>Alfredo Ferro, Rosalba Giugno, Misaël Mongioví, Alfredo Pulvirenti</i>	
Towards A Framework for Automated Performance Tuning	2510
<i>G. Cong, S. Seelam, I. Chung, H. Wen, D. Klepacki</i>	
Parallel Numerical Asynchronous Iterative Algorithms: Large Scale Experimentations.....	2518
<i>Jean-Claude Charr, Raphaël Couturier, David Laiymani</i>	
Exploring the Effect of Block Shapes on the Performance of Sparse Kernels	2526
<i>Vasileios Karakasis, Georgios Goumas, Nectarios Koziris</i>	
Coupled Thermo-Hydro-Mechanical Modelling: A New Parallel Approach.....	2534
<i>P.J. Vardon, I. Banicescu, P.J. Cleall, H.R. Thomas, R.N. Philp</i>	
Concurrent Scheduling of Parallel Task Graphs on Multi-Clusters Using Constrained Resource Allocations.....	2543
<i>Tchimou N'Takpé, Frédéric Suter</i>	
Solving "Large" Dense Matrix Problems on Multi-Core Processors.....	2551
<i>Mercedes Marqués, Gregorio Quintana-Ortí, Enrique S. Quintana-Ortí, Robert A. van de Geijn</i>	
Parallel Solvers for Dense Linear Systems for Heterogeneous Computational clusters.....	2559
<i>Ravi Reddy, Alexey Lastovetsky, Pedro Alonso</i>	
Concurrent Adaptive Computing in Heterogeneous Environments (CACHE)	2567
<i>John U Duseles, Isaac D. Scherson</i>	
Toward Adjoinable MPI	2575
<i>Jean Utke, Laurent Hascoët, Patrick Heimbach, Chris Hill, Paul Hovland, Uwe Naumann</i>	
Parallelization and Optimization of a CBVIR System on Multi-Core Architectures	2583
<i>Qiankun Miao, Yurong Chen, Jianguo Li, Qi Zhang, Yimin Zhang, Guoliang Chen</i>	
EHGRID: An Emulator of Heterogeneous Computational Grids.....	2591
<i>Basile Clout, Eric Aubanel</i>	

Optimizing Assignment of Threads to SPEs on the Cell BE Processor.....	2599
<i>C.D. Sudheer, T. Nagaraju,P.K. Baruah, Ashok Srinivasan</i>	
Guiding Performance Tuning for Grid Schedules.....	2607
<i>Jörg Keller, Wolfram Schiffmann</i>	
Design and Analysis of An Active Predictive Algorithm in Wireless Multicast Networks.....	2613
<i>Naixue Xiong, Laurence T. Yang,Yi Pan, Athanasios V. Vasilakos, Jing He</i>	
PMEO Introduction.....	2621
Performance Evaluation of Gang Scheduling in a Two-Cluster System with Migrations	2627
<i>Zafeirios C. Papazachos, Helen D. Karatza</i>	
Performance Evaluation of a Resource Discovery Scheme in a Grid Environment Prone to Resource Failures.....	2635
<i>Konstantinos I. Karaoglanoglou, Helen D. Karatza</i>	
A Novel Information Model for Efficient Routing Protocols in Delay Tolerant Networks	2643
<i>Xiao Chen, Jian Shen,Jie Wu</i>	
Accurate Analytical Performance Model of Communications in MPI Applications.....	2651
<i>D. R. Martínez, J. C. Cabaleiro,T. F. Pena, F. F. Rivera, V. Blanco</i>	
Prolonging Lifetime via Mobility and Load-balanced Routing in Wireless Sensor Networks.....	2659
<i>Zuzhi Fan</i>	
A Performance Model of Multicast Communication in Wormhole-Routed Networks on-Chip	2665
<i>Mahmoud Moadeli, Wim Vanderbauwhede</i>	
Reduction of Quality (RoQ) Attacks on Structured Peer-to-Peer Networks.....	2673
<i>Yanxiang He, Qiang Cao,Yi Han, Libing Wu, Tao Liu</i>	
New Adaptive Counter Based Broadcast Using Neighborhood Information in MANETS	2682
<i>M. Bani Yassein, A. Al-Dubai,M. Ould Khaoua, Omar M. Al-jarrah</i>	
A Distributed Filesystem Framework for Transparent Accessing Heterogeneous Storage Services	2689
<i>Yutong Lu, Huajian Mao,Jie Shen</i>	
Dynamic Adaptive Redundancy for Quality-of-Service Control in Wireless Sensor Networks.....	2697
<i>Ing-Ray Chen, Anh Ngoc Speer,Mohamed Eltoweissy</i>	
The Effect of Heavy-Tailed Distribution on the Performance of Non- Contiguous Allocation Strategies in 2D Mesh Connected Multicomputers.....	2705
<i>Saad Bani Mohammad</i>	
Energy Efficient and Seamless Data Collection with Mobile Sinks in Massive Sensor Networks.....	2713
<i>Taisoo Park, Daeyoung Kim,Seonghun Jang, Seong-eun Yoo, Yohhan Lee</i>	
Priority-based QoS MAC Protocol for Wireless Sensor Networks	2721
<i>Hoon Kim, Sung-Gi Min</i>	
Experimental Evaluation of a WSN Platform Power Consumption	2729
<i>Ch. Antonopoulos, A. Prayati,T. Stoyanova, C. Koulamas, G. Papadopoulos</i>	
Throughput-Fairness Tradeoff in Best Effort Flow Control for On-Chip Architectures	2737
<i>Fahimeh Jafari, Mohammad S. Talebi,Mohammad H. Yaghmaee, Ahmad Khonsari, Mohamed Ould-Khaoua</i>	

Analysis of Data Scheduling Algorithms in Supporting Real-time Multi-item Requests in On-demand Broadcast Environments.....	2745
<i>Jun Chen, Kai Liu, Victor C.S. Lee</i>	
Network Processing Performability Evaluation on Heterogeneous Reliability Multicore Processors using SRN Model	2753
<i>Peter D. Ungsanan, Chuang Lin, Yang Wang, Yi Gai</i>	
A Statistical Study on the Impact of Wireless Signals' Behavior on Location Estimation Accuracy in 802.11 Fingerprinting Systems	2759
<i>Reza Farivar, David Wiczer, Alejandro Gutierrez, Roy H. Campbell</i>	
Performance Prediction for Running Workflows under Role-based Authorization Mechanisms	2767
<i>Ligang He, Mark Calleja, Mark Hayes, Stephen A. Jarvis</i>	
Routing, Data Gathering, and Neighbor Discovery in Delay-Tolerant Wireless Sensor Networks.....	2775
<i>Abbas Nayebi, Hamid Sarbazi-Azad, Gunnar Karlsson</i>	
A Service Discovery Protocol for Vehicular Ad Hoc Networks: A Proof of Correctness.....	2781
<i>Azzedine Boukerche, Kaouther Abrougui</i>	
A QoS Aware Multicast Algorithm for Wireless Mesh Networks	2789
<i>Liang Zhao, Ahmed Yassin Al-Dubai, Geyong Min</i>	
Design and Implementation of a Novel MAC Layer Handoff Protocol for IEEE 802.11 Wireless Networks	2797
<i>Zhenxia Zhang, Azzedine Boukerche</i>	
RAW Introduction	2802
Evaluation of a Multicore Reconfigurable Architecture with Variable Core Sizes	2805
<i>Vu Manh Tuan, Naohiro Katsura, Hiroki Matsutani, Hideharu Amano</i>	
ARMLang: A Language and Compiler for Programming Reconfigurable Mesh Many-cores	2813
<i>Heiner Giefers, Marco Platzner</i>	
Double Throughput Multiply-Accumulate Unit for FlexCore Processor Enhancements	2821
<i>Tung Thanh Hoang, Magnus Sjölander, Per Larsson-Edefors</i>	
Energy Benefits of Reconfigurable Hardware for Use in Underwater Sensor Nets.....	2828
<i>Bridget Benson, Ali Irturk, Junguk Cho, Ryan Kastne</i>	
A Multiprocessor Self-reconfigurable JPEG2000 Encoder.....	2835
<i>Antonino Tumeo, Simone Borgio, Davide Bosisio, Matteo Monchiero, Gianluca Palermo, Fabrizio Ferrandi, Donatella Sciuto</i>	
Reconfigurable Accelerator for WFS-Based 3D-Audio.....	2843
<i>Dimitris Theodoropoulos, Georgi Kuzmanov, Georgi Gaydadjiev</i>	
A MicroBlaze Specific Co-Processor for Real-Time Hyperelliptic Curve Cryptography on Xilinx FPGAs.....	2851
<i>Alexander Klimm, Oliver Sander, Jürgen Becker</i>	
Implementing Protein Seed-Based Comparison Algorithm on the SGI RASC- 100 Platform	2859
<i>Van-Hoa Nguyen, Alexandre Cornu, Dominique Lavenier</i>	
Hardware Accelerated Montecarlo Financial Simulation over Low Cost FPGA Cluster.....	2866
<i>J. Castillo, José L. Bosque, E. Castillo, P. Huerta, J.I. Martínez</i>	
High Performance True Random Number Generator Based on FPGA Block RAMs	2874
<i>Tamas Györfi, Octavian Crețu, Alin Suciu</i>	

Design and implementation of the Quarc Network on-Chip	2882
<i>M. Moadeli, P. P. Maji, W. Vanderbauwhede</i>	
Modeling Reconfiguration in a FPGA with a Hardwired Network on Chip	2891
<i>Muhammad Aqeel Wahlah, Kees Goossens</i>	
A Low Cost and Adaptable Routing Network for Reconfigurable Systems	2899
<i>Ricardo Ferreira, Marcone Laure, Antonio C. Beck, Thiago Lo, Mateus Rutzig, Luigi Carro</i>	
Runtime Decision of Hardware Or Software Execution on a Heterogeneous Reconfigurable Platform	2907
<i>Vlad-Mihai Sima, Koen Bertels</i>	
Impact of Run-Time Reconfiguration on Design and Speed - A Case Study Based on a Grid of Run-Time Reconfigurable Modules inside a FPGA	2913
<i>Jochen Strunk, Toni Volkmer, Klaus Stephan, Wolfgang Rehm, Heiko Schick</i>	
System-Level Runtime Mapping Exploration of Reconfigurable Architectures	2921
<i>Kamana Sigdel, Mark Thompson, Andy D. Pimentel, Carlo Galuzzi, Koen Bertels</i>	
3D FPGA Resource Management and Fragmentation Metric for Hardware Multitasking	2929
<i>J. A. Valero, J. Septién, D. Mozos, H. Mecha</i>	
RDMS: A Hardware Task Scheduling Algorithm for Reconfigurable Computing	2936
<i>Miaoqing Huang, Harald Simmler, Olivier Serres, Tarek El-Ghazawi</i>	
Flexible Pipelining Design for Recursive Variable Expansion	2944
<i>Zubair Nawaz, Thomas Marconi, Koen Bertels, Todor Stefanov</i>	
Generation Of Synthetic Floating-point Benchmark Circuits	2952
<i>Thomas C. P. Chau, Sam M. H. Ho, Philip H.W. Leong, Peter Zipf, Manfred Glesner</i>	
The Radio Virtual Machine: A Solution for SDR Portability and Platform Reconfigurability	2961
<i>Riadh Ben Abdallah, Tanguy Risset, Antoine Fraboulet, Yves Durand</i>	
Scheduling Tasks on Reconfigurable Hardware with a List Scheduler	2965
<i>Justin Teller, Füsun Özgüner</i>	
Software-Like Debugging Methodology for Reconfigurable Platforms	2969
<i>Loic Lagadec, Damien Picard</i>	
Efficient Implementation of QRD-RLS Algorithm using Hardware-Software Co-design	2973
<i>Nupur Lodha, Nivesh Rai, Aarthy Krishnamurthy, Hrishikesh Venkataraman</i>	
Achieving Network on Chip Fault Tolerance by Adaptive Remapping	2977
<i>Cristinel Ababei, Rajendra Katti</i>	
On The Acceptance Tests of Aperiodic Real-Time Tasks for FPGAs	2981
<i>Ahmed A. El Farag, Hatem M. El-Boghdadi, Samir I. Shaheen</i>	
High-Level Estimation and Trade-Off Analysis for Adaptive Real-Time Systems	2985
<i>Ingo Sander, Jun Zhu, Axel Jantsch, Andreas Herrholz, Philipp A. Hartmann, Wolfgang Nebel</i>	
Smith-Waterman Implementation on a FSB-FPGA module using the Intel Accelerator Abstraction Layer	2989
<i>Jeff Allred, Jack Coyne, William Lynch, Vincent Natoli, Joseph Grecco, Joel Morrisette</i>	
High-Level Synthesis with Coarse Grain Reconfigurable Components	2993
<i>George Economakos, Sotiris Xydis</i>	
On-Line Task Management for a Reconfigurable Cryptographic Architecture	2997
<i>Ivan Beretta, Vincenzo Rana, Marco D. Santambrogio, Donatella Sciuto</i>	
SMTSPS Introduction	3001

Performability Evaluation of EFT Systems for SLA Assurance	3002
<i>Erica Sousa, Paulo Maciel, Carlos Araújo, Fábio Chicout</i>	
A Global Scheduling Framework for Virtualization Environments	3010
<i>Yoav Etsion, Tal Ben-Nun, Dror G. Feitelson</i>	
Symmetric Mapping: an Architectural Pattern for Resource Supply in Grids and Clouds	3018
<i>Xavier Gréhant, Isabelle Demeure</i>	
Application Level I/O Caching on Blue Gene/P Systems	3026
<i>Seetharami Seelam, I-Hsin Chung, John Bauer, Hao Yu, Hui-Fang Wen</i>	
Low Power Mode in Cloud Storage Systems	3034
<i>Danny Harnik, Dalit Naor, Itai Segall</i>	
Predicting Cache Needs and Cache Sensitivity for Applications in Cloud Computing on CMP Servers with Configurable Caches	3042
<i>Jacob Machina, Angela Sodan</i>	
Resource Monitoring and Management with OVIS to Enable HPC in Cloud Computing Environments	3050
<i>Jim Brandt, Ann Gentile, Jackson Mayo, Philippe Pébay, Diana Roe, David Thompson, Matthew Wong</i>	
Distributed Management of Virtual Cluster Infrastructures	3058
<i>Michael A. Murphy, Michael Fenn, Linton Abraham, Joshua A. Canter, Benjamin T. Sterrett, Sebastien Goasquen</i>	
Blue Eyes: Scalable and Reliable System Management for Cloud Computing	3066
<i>Sukhyun Song, Kyung Dong Ryu, Dilma Da Silva</i>	
Desktop to Cloud Transformation Planning	3074
<i>Kirk Beaty, Andrzej Kochut, Hidayatullah Shaikh</i>	
SSN Introduction	3082
Intrusion Detection and Tolerance for Transaction Based Applications in Wireless Environments	3084
<i>Yacine Djemaiel, Nouredine Boudriga</i>	
A Topological Approach to Detect Conflicts in Firewall Policies	3092
<i>Subana Thanasegaran, Yi Yin, Yuichiro Tateiwa, Yoshiaki Katayama, Naohisa Takahashi</i>	
Automated Detection of Confidentiality Goals	3099
<i>Anders Moen Hagalisletto</i>	
Performance Analysis of Distributed Intrusion Detection Protocols for Mobile Group Communication Systems	3107
<i>Jin-Hee Cho, Ing-Ray Chen</i>	
A New RFID Authentication Protocol with Resistance to Server Impersonation	3115
<i>Mete Akgün, M. Ufuk Çağlayan, Emin Anarim</i>	
TLS Client Handshake with a Payment Card	3123
<i>David J. Boyd</i>	
Combating Side-Channel Attacks Using Key Management	3131
<i>Donggang Liu, Qi Dong</i>	
Design of a Parallel AES for Graphics Hardware using the CUDA framework	3139
<i>Andrea Di Biagio, Alessandro Barengi, Giovanni Agosta</i>	
Security Analysis of Micali's Fair Contract Signing Protocol by Using Coloured Petri Nets : Multi-session case	3147
<i>Panupong Sornkhom, Yongyuth Permpoontanalarp</i>	

Modeling and Analysis of Self-stopping BT Worms Using Dynamic Hit List in P2P Networks.....	3155
<i>Jiaqing Luo, Bin Xiao,Guobin Liu, Qingjun Xiao, Shijie Zhou</i>	
SFTrust: A Double Trust Metric Based Trust Model in Unstructured P2P System	3163
<i>Yunchang Zhang, Shanshan Chen,Geng Yang</i>	
TCPP Ph.D. Forum.....	3170
Author Index	