

Parallel Computing Technologies

13th International Conference, PaCT 2015, Petrozavodsk, Russia, August 31-September 4, 2015,
Proceedings

Bearbeitet von
Victor Malyskin

1. Auflage 2015. Buch. XIII, 548 S. Kartoniert
ISBN 978 3 319 21908 0
Format (B x L): 15,5 x 23,5 cm
Gewicht: 854 g

Weitere Fachgebiete > EDV, Informatik > Programmiersprachen: Methoden >
Funktionale, logische, parallele und visuelle Programmierung

Zu Leseprobe

schnell und portofrei erhältlich bei

The logo for beck-shop.de features the text 'beck-shop.de' in a bold, red, sans-serif font. Above the 'i' in 'shop' are three red dots of increasing size. Below the main text, 'DIE FACHBUCHHANDLUNG' is written in a smaller, red, all-caps, sans-serif font.

beck-shop.de
DIE FACHBUCHHANDLUNG

Die Online-Fachbuchhandlung beck-shop.de ist spezialisiert auf Fachbücher, insbesondere Recht, Steuern und Wirtschaft. Im Sortiment finden Sie alle Medien (Bücher, Zeitschriften, CDs, eBooks, etc.) aller Verlage. Ergänzt wird das Programm durch Services wie Neuerscheinungsdienst oder Zusammenstellungen von Büchern zu Sonderpreisen. Der Shop führt mehr als 8 Millionen Produkte.

Contents

Parallel Models, Algorithms and Programming Methods

Software System for Maximal Parallelization of Algorithms on the Base of the Conception of Q -determinant.	3
<i>Valentina N. Aleeva, Ilya S. Sharabura, and Denis E. Suleymanov</i>	
Highly Parallel Multigrid Solvers for Multicore and Manycore Processors . . .	10
<i>Oleg Bessonov</i>	
Hierarchical Optimization of MPI Reduce Algorithms	21
<i>Khalid Hasanov and Alexey Lastovetsky</i>	
On Parallel Computational Technologies of Augmented Domain Decomposition Methods.	35
<i>Y.L. Gurieva and V.P. Il'in</i>	
A Modular-Positional Computation Technique for Multiple-Precision Floating-Point Arithmetic.	47
<i>Konstantin Isupov and Vladimir Knyazkov</i>	
Creation of Data Mining Algorithms as Functional Expression for Parallel and Distributed Execution	62
<i>Ivan Kholod and Ilya Petukhov</i>	
Dynamic Parallelization Strategies for Multifrontal Sparse Cholesky Factorization.	68
<i>Sergey Lebedev, Dmitry Akhmedzhanov, Evgeniy Kozinov, Iosif Meyerov, Anna Pirova, and Alexander Sysoyev</i>	
Distributed Algorithm of Data Allocation in the Fragmented Programming System LuNA.	80
<i>Victor E. Malyshkin, Vladislav A. Perepelkin, and Georgy A. Schukin</i>	
Control Flow Usage to Improve Performance of Fragmented Programs Execution.	86
<i>V.E. Malyshkin, V.A. Perepelkin, and A.A. Tkacheva</i>	
Towards Application Energy Measurement and Modelling Tool Support	91
<i>Kenneth O'Brien, Alexey Lastovetsky, Ilia Pietri, and Rizos Sakellariou</i>	
The Mathematical Model and the Problem of Optimal Partitioning of Shared Memory for Work-Stealing Deques.	102
<i>Andrew Sokolov and Eugene Barkovsky</i>	

Dynamic Load Balancing Based on Rectilinear Partitioning in Particle-in-Cell Plasma Simulation	107
<i>Igor Surmin, Alexei Bashinov, Sergey Bastrakov, Evgeny Efimenko, Arkady Gonoskov, and Iosif Meyerov</i>	
Unconventional Computing - Cellular Automata	
A Behavioral Analysis of Cellular Automata	123
<i>Jan M. Baetens and Bernard De Baets</i>	
Contradiction Between Parallelization Efficiency and Stochasticity in Cellular Automata Models of Reaction-Diffusion Phenomena	135
<i>Olga Bandman</i>	
A Parallel Genetic Algorithm to Adjust a Cardiac Model Based on Cellular Automaton and Mass-Spring Systems	149
<i>Ricardo Silva Campos, Bernardo Martins Rocha, Luis Paulo da Silva Barra, Marcelo Lobosco, and Rodrigo Weber dos Santos</i>	
Hexagonal Bravais–Miller Routing by Cellular Automata Agents	164
<i>Dominique Désérable and Rolf Hoffmann</i>	
The Influence of Cellular Automaton Topology on the Opinion Formation. . .	179
<i>Tomasz M. Gwizdała</i>	
Cellular Automata Model of Electrons and Holes Annihilation in an Inhomogeneous Semiconductor.	191
<i>A.E. Kireeva and K.K. Sabelfeld</i>	
Constructions Used in Associative Parallel Algorithms for Directed Graphs. . . .	201
<i>Anna Nepomniaschaya</i>	
Oscillatory Network Based on Kuramoto Model for Image Segmentation. . . .	210
<i>Andrei Novikov and Elena Benderskaya</i>	
Using Monte Carlo Method for Searching Partitionings of Hard Variants of Boolean Satisfiability Problem	222
<i>Alexander Semenov and Oleg Zaikin</i>	
A Class of Non-optimum-time $3n$ -Step FSSP Algorithms - A Survey	231
<i>Hiroshi Umeo, Masashi Maeda, Akihiro Sousa, and Kiyohisa Taguchi</i>	
CA - Model of Autowaves Formation in the Bacterial MinCDE System	246
<i>Anton Vitvitsky</i>	

Distributed Computing

Agent-Based Approach to Monitoring and Control of Distributed Computing Environment	253
<i>Igor Bychkov, Gennady Oparin, Alexei Novopashin, and Ivan Sidorov</i>	
Virtual Screening in a Desktop Grid: Replication and the Optimal Quorum . . .	258
<i>Ilya Chernov and Natalia Nikitina</i>	
Partition Algorithm for Association Rules Mining in BOINC-Based Enterprise Desktop Grid.	268
<i>Evgeny Ivashko and Alexander Golovin</i>	
Task Scheduling in a Desktop Grid to Minimize the Server Load	273
<i>Vladimir V. Mazalov, Natalia N. Nikitina, and Evgeny E. Ivashko</i>	
An HPC Upgrade/Downgrade that Provides Workload Stability	279
<i>Alexander Rumyantsev</i>	
Job Ranking and Scheduling in Utility Grids VOs.	285
<i>Victor Toporkov, Anna Toporkova, Alexey Tselishchev, Dmitry Yemelyanov, and Petr Potekhin</i>	
Congestion Elimination on Data Storages Network Interfaces in Datacenters.	298
<i>P.M. Vdovin, I.A. Zotov, V.A. Kostenko, and A.V. Plakunov</i>	

Special Processors Programming Techniques

Use of Xeon Phi Coprocessor for Solving Global Optimization Problems. . . .	307
<i>Konstantin Barkalov, Victor Gergel, and Ilya Lebedev</i>	
Increasing Efficiency of Data Transfer Between Main Memory and Intel Xeon Phi Coprocessor or NVIDIA GPUS with Data Compression	319
<i>Konstantin Y. Besedin, Pavel S. Kostenetskiy, and Stepan O. Prikazchikov</i>	
Parallelizing Branch-and-Bound on GPUs for Optimization of Multiproduct Batch Plants	324
<i>Andrey Borisenko, Michael Haidl, and Sergei Gorlatch</i>	
Optimal Dynamic Data Layouts for 2D FFT on 3D Memory Integrated FPGA.	338
<i>Ren Chen, Shreyas G. Singapura, and Viktor K. Prasanna</i>	

High-Performance Reconfigurable Computer Systems Based on Virtex FPGAs	349
<i>Alexey I. Dordopulo, Ilya I. Levin, Yuri I. Doronchenko, and Maxim K. Raskladkin</i>	
Parallelizing Biochemical Stochastic Simulations: A Comparison of GPUs and Intel Xeon Phi Processors	363
<i>P. Cazzaniga, F. Ferrara, M.S. Nobile, D. Besozzi, and G. Mauri</i>	
Cost of Bandwidth-Optimized Sparse Mesh Layouts	375
<i>Martti Forsell, Ville Leppänen, and Martti Penttonen</i>	
Toward a Core Design to Distribute an Execution on a Manycore Processor	390
<i>Bernard Goossens, David Parelo, Katarzyna Porada, and Djallal Rahmoune</i>	
Heuristic Algorithms for Optimizing Array Operations in Parallel PGAS-programs	405
<i>Ivan Kulagin, Alexey Paznikov, and Mikhail Kurnosov</i>	
Progressive Transactional Memory in Time and Space.	410
<i>Petr Kuznetsov and Srivatsan Ravi</i>	
Wavelet-Based Local Mesh Adaptation with Application to Gas Dynamics. . . .	426
<i>Kirill Merkulov</i>	
On Implementation High-Scalable CFD Solvers for Hybrid Clusters with Massively-Parallel Architectures.	436
<i>Pavel Pavlukhin and Igor Menshov</i>	
Parallelization of 3D MPDATA Algorithm Using Many Graphics Processors.	445
<i>Krzysztof Rojek and Roman Wyrzykowski</i>	
Performance Evaluation of a Human Immune System Simulator on a GPU Cluster	458
<i>Thiago M. Soares, Micael P. Xavier, Alexandre B. Pigozzo, Ricardo Silva Campos, Rodrigo W. dos Santos, and Marcelo Lobosco</i>	
HPC Hardware Efficiency for Quantum and Classical Molecular Dynamics . . .	469
<i>Vladimir V. Stegailov, Nikita D. Orekhov, and Grigory S. Smirnov</i>	
Automatic High-Level Programs Mapping onto Programmable Architectures. . .	474
<i>Boris Ya. Steinberg, Denis V. Dubrov, Yury Mikhailuts, Alexander S. Roshal, and Roman B. Steinberg</i>	

Applications

Implementation of a Three-Phase Fluid Flow (“Oil-Water-Gas”) Numerical Model in the LuNA Fragmented Programming System	489
<i>Darkhan Akhmed-Zaki, Danil Lebedev, and Vladislav A. Perepelkin</i>	
Development of a Distributed Parallel Algorithm of 3D Hydrodynamic Calculation of Oil Production on the Basis of MapReduce Hadoop and MPI Technologies.	498
<i>Darkhan Akhmed-Zaki, Madina Mansurova, Timur Imankulov, Bazargul Matkerim, and Ekaterina Dadykina</i>	
A Two-Level Parallel Global Search Algorithm for Solution of Computationally Intensive Multiextremal Optimization Problems	505
<i>Victor Gergel and Sergey Sidorov</i>	
Efficient Parallel Implementation of Coherent Stacking Algorithms in Seismic Data Processing.	516
<i>Maxim Gorodnichev, Anton Duchkov, and Alexander Kupchishin</i>	
Accurate Parallel Algorithm for Tracking Inertial Particles in Large-Scale Direct Numerical Simulations of Turbulence.	522
<i>Takashi Ishihara, Kei Enohata, Koji Morishita, Mitsuo Yokokawa, and Katsuya Ishii</i>	
Treating Complex Geometries with Cartesian Grids in Problems for Fluid Dynamics	528
<i>Igor Menshov</i>	
Architecture, Implementation and Performance Optimization in Organizing Parallel Computations for Simulation Environment	536
<i>Maria Nasyrova, Yury Shornikov, and Dmitry Dostovalov</i>	
Author Index	547

Parallel Computing Technologies

13th International Conference, PaCT 2015, Petrozavodsk,
Russia, August 31–September 4, 2015, Proceedings

Malyshev, V. (Ed.)

2015, XIII, 548 p. 204 illus., Softcover

ISBN: 978-3-319-21908-0