31st Heterogeneity in Computing Workshop

May 30, 2022
Virtual

HETEROGENEOUS ARCHITECTURE FOR SPARSE DATA PROCESSING
Shashank Adavally, Alex Weaver, Pranathi Vasireddy, Krishna Kavi, Gayatri Mehta, Nagendra Gulur

Combined Application of Approximate Computing Techniques in DNN Hardware Accelerators
Enrico Russo, Maurizio Palesi, Davide Patti, Habiba Lahdhiri, Salvatore Monteleone, Giuseppe Ascia, Vincenzo Catania

Highly Efficient Alltoall and Alltoallv Communication Algorithms for GPU Systems
Chen-Chun Chen, Kawthar Shafie Khorassani, Quentin G. Anthony, Aamir Shafi, Hari Subramoni, Dhabaleswar K. Panda

On Energy Nonproportionality of CPUs and GPUs
Ravi Reddy Manumachu, Alexey Lastovetsky

Implementating Spatio-Temporal Graph Convolutional Networks on Graphcore IPUs
Johannes Moe, Konstantin Pogorelov, Daniel Thilo Schroeder, Johannes Langguth

The Best of Many Worlds: Scheduling Machine Learning Inference on CPU-GPU Integrated Architectures
Giorgos Vasiliadis, Rafail Tsirbas, Sotiris Ioannidis

30th Heterogeneity in Computing Workshop

May 17, 2021
Virtual

Adaptive Stochastic Gradient Descent for Deep Learning on Heterogeneous CPU+GPU Architectures
Yujing Ma, Florin Rusu, Kesheng Wu, Alexander Sim

Providing In-depth Performance Analysis for Heterogeneous Task-based Applications with StarVZ
Vinícius Garcia Pinto, Lucas Leandro Nesi, Marcelo Cogo Miletto, Lucas Mello Schnorr

A Streaming Accelerator for Heterogeneous CPU-FPGA Processing of Graph Applications
Francis O'Brien, Matthew Agostini, Tarek S. Abdelrahman

A New Double Rank-based Multi-workflow Scheduling with Multi-objective Optimization in Cloud Environments
Feng Li, Moon Gi Seok, Wentong Cai

Pooling Acceleration in the DaVinci Architecture Using Im2col and Col2im Instructions
Caio S. Rohwedder, João P. L. de Carvalho, José Nelson Amaral, Guido Araújo, Giancarlo Colmenares, Kai-Ting Amy Wang

Scheduling HPC Workflows with Intel Optane Persistent Memory
Ranjan Sarpangala Venkatesh, Tony Mason, Pradeep Fernando, Greg Eisenhauer, Ada Gavrilovska

Coding the Computing Continuum: Fluid Function Execution in Heterogeneous Computing Environments
Rohan Kumar, Matt Baughman, Ryan Chard, Zhuozhao Li, Yadu Babuji, Ian Foster, Kyle Chard

Practice and Experience in using Parallel and Scalable Machine Learning with Heterogenous Modular Supercomputing Architectures
Morris Riedel, Rocco Sedona, Chadi Barakat, Petur Einarsson, Reza Hassanian, Gabriele Cavallaro, Matthias Book, Helmut Neukirchen, Andreas Lintermann

29th Heterogeneity in Computing Workshop

May 18, 2020
Virtual

MigHEFT: DAG-based Scheduling of Migratable Tasks on Heterogeneous Compute Nodes
Achim Lösch, Marco Platzner

Autonomous Task Dropping Mechanism to Achieve Robustness in Heterogeneous Computing Systems
Ali Mokhtari, Chavit Denninnart, Mohsen Amini Salehi

I/O Performance of the SX-Aurora TSUBASA
Mitsuo Yokokawa, Ayano Nakai, Kazuhiko Komatsu, Yuta Watanabe, Yasuhisa Masaoka, Yoko Isobe, Hiroaki Kobayashi

(Special Topic Submission) Enabling Domain-Specific Architectures with an Open-Source Soft-Core GPGPU
Marcelo Brandalero, Hector Gerardo Muñoz Hernandez, Mitko Veleski, Muhammed Al Kadi, Paolo Rech, Michael Hübner

User-Space Emulation Framework for Domain-Specific SoC Design
Joshua Mack, Nirmal Kumbhare, Anish NK, Umit Y. Ogras, Ali Akoglu

Improving Inference Latency and Energy of Network-on-Chip based Convolutional Neural Networks through Weights Compression
Giuseppe Ascia, Vincenzo Catania, John Jose, Salvatore Monteleone, Maurizio Palesi, Davide Patti

28th Heterogeneity in Computing Workshop

May 20, 2019
Rio de Janeiro, Brazil

Improving Robustness of Heterogeneous Serverless Computing Systems via Probabilistic Task Pruning
Chavit Denninnart, James Gentry, Mohsen Amini Salehi

Influence of Tasks Duration Variability on Task-Based Runtime Schedulers
Olivier Beaumont, Lionel Eyraud-Dubois, Yihong Gao

Heterogeneous Active Messages for Offloading on the NEC SX-Aurora TSUBASA
Matthias Noack, Erich Focht, Thomas Steinke

A Lock-Free Skiplist for Integrated Graphics Processing Units
Joel Fuentes, Wei-yu Chen, Guei-yuan Lueh, Isaac D. Scherson

Programmable Acceleration for Sparse Matrices in a Data-Movement Limited World
Arjun Rawal, Yuanwei Fang, Andrew Chien

SummaGen: Parallel Matrix-Matrix Multiplication Based on Non-rectangular Partitions for Heterogeneous HPC Platforms
Stephen Patton, Hamidreza Khaleghzadeh, Ravi Reddy Manumachu, Alexey Lastovetsky

27th Heterogeneity in Computing Workshop

May 21, 2018
Vancouver, Canada

User-Transparent Translation of Machine Instructions to Programmable Hardware
Leslie Barron, Tarek S. Abdelrahman

Budget-Aware Scheduling Algorithms for Scientific Workflows with Stochastic Task Weights on Heterogeneous IaaS Cloud Platforms
Yves Caniou, Eddy Caron, Aurélie Kong Win Chang, Yves Robert

Optimizing Parallel Reduction on OpenCL FPGA Platform – A Case Study of Frequent Pattern Compression
Zheming Jin, Hal Finkel

Approximation Algorithm for Scheduling Applications on Hybrid Multi-core Machines with Communications Delays
Massinissa Ait Aba, Lilia Zaourar, Alix Munier

Exploration and Design of a Synchronous Message Passing Framework for a CPU-NPU Heterogeneous Architecture
Sean Pennefather, Karen Bradshaw, Barry Irwin

Large Scale Data Centers Simulation Based on Baseline Test Model
Fei Lei, Lei Yu, Bing Shao, Fei Teng, Bo Zhou

Application Performance on a Cluster-Booster System
Anke Kreuzer, Norbert Eicker, Jorge Amaya, Estela Suarez

26th Heterogeneity in Computing Workshop

May 29, 2017
Lake Buena Vista, Florida

Portable Implementation of Advanced Driver-Assistance Algorithms on Heterogeneous Architectures
Oliver Jakob Arndt, Fabian David Träger, Tobias Moß, Holger Blume

Improving CPU Performance Through Dynamic GPU Access Throttling in CPU-GPU Heterogeneous Processors
Siddharth Rai, Mainak Chaudhuri

Transparent heterogeneous backing store for file systems
Benjamin Marks, Tia Newhall

Alternative Processor Within Threshold: Flexible Scheduling on Heterogeneous Systems
Sonia Lopez, Stavan Satish Karia

Preemptive resource management for dynamically arriving tasks in an oversubscribed heterogeneous computing system
Dylan Machovec, Sudeep Pasricha, Anthony A. Maciejewski, Howard Jay Siegel, Gregory A. Koenig, Michael Wright, Marcia Hilton, Rajendra Rambharos, Thomas Naughton, Neena Imam

Modeling of Applications and Hardware to Explore Task Mapping and Scheduling Strategies on a Heterogeneous Micro-Server System
Lilia Zaourar, Massinissa Ait Aba, David Briand, Jean-Marc Philippe

Consumer-and-Provider-Oriented Efficient IaaS Resource Allocation
Thibaud Ecarot, Djamal Zeghlache, Cedric Brandily

25th Heterogeneity in Computing Workshop

May 23, 2016
Chicago, Illinois

Towards a Green, QoS-Enabled Heterogeneous Cloud Infrastructure
Julio Proaño, Carmen Carrión, M. Blanca Caminero

Predicting Job Completion Time in Heterogeneous MapReduce Environments
Rekha Singhal, Abhishek Verma

Minimizing Rental Cost for Multiple Recipe Applications in the Cloud
Fouad Hanna, Loris Marchal, Jean-Marc Nicod, Laurent Philippe, Veronika Rehn-Sonigo, Hala Sabbah

Providing Fairness in Heterogeneous Multicores with a Predictive, Adaptive Scheduler
Saeid Barati, Hank Hoffmann

clCaffe: OpenCL Accelerated Caffe for Convolutional Neural Networks
Jeremy Bottleson, SungYe Kim, Jeff Andrews, Preeti Bindu, Deepak N. Murthy, Jingyi Jin

Parallel Graph Partitioning on a CPU-GPU Architecture
Bahareh Goodarzi, Martin Burtscher, Dhrubajyoti Goswami

Dynamic Resource Management for Parallel Tasks in an Oversubscribed Energy-Constrained Heterogeneous Environment
Dylan Machovec, Bhavesh Khemka, Sudeep Pasricha, Anthony A. Maciejewski, Howard Jay Siegel, Gregory A. Koenig, Michael Wright, Marcia Hilton, Rejendra Rambharos, Neena Imam

Analyzing the Energy Efficiency of the Fast Multipole Method Using a DVFS-Aware Energy Model
Jee W. Choi, Richard W. Vuduc

Evaluation of Emerging Energy-Efficient Heterogeneous Computing Platforms for Biomolecular and Cellular Simulation Workloads
John E. Stone, Michael J. Hallock, James C. Phillips, Joseph R. Peterson, Zaida Luthey-Schulten, Klaus Schulten

24th Heterogeneity in Computing Workshop

May 25, 2015
Hyderabad, India

Considerations on Distributed Load Balancing for Fully Heterogeneous Machines: Two Particular Cases
Nathanael Cheriere, Erik Saule

ProSteal: A Proactive Work Stealer for Bulk Synchronous Tasks Distributed on a Cluster of Heterogeneous Machines with Multiple Accelerators
Tarun Beri, Sorav Bansal, Subodh Kumar

Scheduling Tasks with Precedence Constraints on Hybrid Multi-core Machines
Safia Kedad-Sidhoum, Florence Monna, Denis Trystram

Bridging the Gap between Performance and Bounds of Cholesky Factorization on Heterogeneous Platforms
Emmanuel Agullo, Olivier Beaumont, Lionel Eyraud-Dubois, Julien Herrmann, Suraj Kumar, Loris Marchal, Samuel Thibault

Efficient Message Logging to Support Process Replicas in a Volunteer Computing Environment
Md Tarikul Islam, Hien Nguyen, Jaspal Subhlok, Edgar Gabriel

Early Multi-node Performance Evaluation of a Knights Corner (KNC) Based NASA Supercomputer
Subhash Saini, Haoqiang Jin, Dennis Jespersen, Samson Cheung, Jahed Djomehri, Johnny Chang, Robert Hood

23rd Heterogeneity in Computing Workshop

May 19, 2014
Phoenix, Arizona

Hybrid Multi-elimination ILU Preconditioners on GPUs
Dimitar Lukarski, Hartwig Anzt, Stanimire Tomov, Jack Dongarra

Searching for the Optimal Data Partitioning Shape for Parallel Matrix Matrix Multiplication on 3 Heterogeneous Processors
Ashley DeFlumere, Alexey Lastovetsky

Taking Advantage of Hybrid Systems for Sparse Direct Solvers via Task-Based Runtimes
Xavier Lacoste, Mathieu Faverge, George Bosilca, Pierre Ramet, Samuel Thibault

Topology-Aware Optimization of Communications for Parallel Matrix Multiplication on Hierarchical Heterogeneous HPC Platform
Tania Malik, Vladimir Rychkov, Alexey Lastovetsky, Jean-Noel Quintin

Scheduling Methods for Accelerating Applications on Architectures with Heterogeneous Cores
Linchuan Chen, Xin Huo, Gagan Agrawal

Utility Driven Dynamic Resource Management in an Oversubscribed Energy-Constrained Heterogeneous System
Bhavesh Khemka, Ryan Friese, Sudeep Pasricha, Anthony A. Maciejewski, Howard Jay Siegel, Gregory A. Koenig, Sarah Powers, Marcia Hilton, Rajendra Rambharos, Steve Poole

An Efficient Algorithm for Scheduling Jobs in Volunteer Computing Platforms
Adel Essafi, Denis Trystram, Zied Zaidi

Resource Centered Computing Delivering High Parallel Performance
Jens Gustedt, Stephane Vialle, Patrick Mercier

Point-to-Point and Congestion Bandwidth Estimation: Experimental Evaluation on PlanetLab Data
Lionel Eyraud-Dubois, Przemyslaw Uznanski

Runtime Behavior Comparison of Modern Accelerators and Coprocessors
Ayman Tarakji, Niels Ole Salscheider

22nd Heterogeneity in Computing Workshop

May 20, 2013
Boston, Massachusetts

Network Delay-Aware Load Balancing in Selfish and Cooperative Distributed Systems
Piotr Skowron, Krzysztof Rzadca

An Analysis Framework for Investigating the Trade-Offs between System Performance and Energy Consumption in a Heterogeneous Computing Environment
Ryan Friese, Bhavesh Khemka, Anthony A. Maciejewski, Howard Jay Siegel, Gregory A. Koenig, Sarah Powers, Marcia Hilton, Jendra Rambharos, Gene Okonski, Stephen W. Poole

Scheduling Tightly-Coupled Applications on Heterogeneous Desktop Grids
Henri Casanova, Fanny Dufosse, Yves Robert, Frederic Vivien

SDBATS: A Novel Algorithm for Task Scheduling in Heterogeneous Computing Systems
Ehsan Ullah Munir, Sajjad Mohsin, Altaf Hussain, Muhammad Wasif Nisar, Shoukat Ali

An On-chip Heterogeneous Implementation of a General Sparse Linear Solver
Arash Sadrieh, Stefano Charissis, Adam P. Hill

Parallel Macro Pipelining on the Intel SCC Many-Core Computer
Tim Suss, Andrew Schoenrock, Sebastian Meisner, Christian Plessl

Brawny vs. Wimpy: Evaluation and Analysis of Modern Workloads on Heterogeneous Processors
Vishal Gupta, Karsten Schwan

Seeds for a Heterogeneous Interconnect
Adam Hackett, Deepak Ajwani, Shoukat Ali, Steve Kirkland, John P. Morrison

Issues in Communication Heterogeneity for Message-Passing Concurrent Computing
Jaroslaw Slawinski, Umberto Villa, Tiziano Passerini, Alessandro Veneziani, Vaidy Sunderam

21st Heterogeneity in Computing Workshop

May 21, 2012
Shanghai, China

Experiences with the Sparse Matrix-Vector Multiplication on a Many-core Processor
Juan C. Pichel, Francisco F. Rivera

Performance Benefits of Heterogeneous Computing in HPC Workloads
Victor W. Lee, Ed Grochowski, Robert Geva

Thermal-Aware Performance Optimization in Power Constrained Heterogenous Data Centers
Abdulla M. Al-Qawasmeh, Sudeep Pasricha, Anthony M. Maciejewski, Howard Jay Siegel

Experiences with Target-Platform Heterogeneity in Clouds, Grids, and On-Premises Resources
Jaroslaw Slawinski, Tiziano Passerini, Umberto Villa, Alessandro Veneziani, Vaidy Sunderam

BLOR: Bandwidth and Latency Sensitive Overlay Routing for Flash Data Dissemination
Xiaoyong Li, Yijie Wang, Yongquan Fu, Xiaoling Li, Weidong Sun

Scheduling Batch and Heterogeneous Jobs with Runtime Elasticity in a Parallel Processing Environment
Dinesh Kumar, Zon-yin Shae, Hani Jamjoom

Task Scheduling in Large-scale Distributed Systems Utilizing Partial Reconfigurable Processing Elements
M. Faisal Nadeem, Imran Ashraf, S. Arash Ostadzadeh, Stephan Wong, Koen Bertels

Mixed Data-Parallel Scheduling for Distributed Continuous Integration
Olivier Beaumont, Nicolas Bonichon, Ludovic Courtes, Eelco Dolstra, Xavier Hanin

A Monte-Carlo Approach for Full-Ahead Stochastic DAG Scheduling
Wei Zheng, Rizos Sakellariou

A Block-Asynchronous Relaxation Method for Graphics Processing Units
Hartwig Anzt, Stanimire Tomov, Jack Dongarra, Vincent Heuveline

Partitioning for Parallel Matrix-Matrix Multiplication with Heterogeneous Processors: The Optimal Solution
Ashley DeFlumere, Alexey Lastovetsky, Brett A. Becker

A Fast Parallel Implementation of Molecular Dynamics with the Morse Potential on a Heterogeneous Petascale Supercomputer
Qiang Wu, Canqun Yang, Feng Wang, Jingling Xue

High-Performance Distributed Multi-Model / Multi-Kernel Simulations: A Case-Study in Jungle Computing

Niels Drost, Jason Maassen, Maarten A.J. van Meersbergen, Henri E. Bal, F. Inti Pelupessy, Simon Portegies Zwart, Michael Kliphuis, Henk A. Dijkstra, Frank J. Seinstra

A Portable High-Productivity Approach to Program Heterogeneous Systems
Zeki Bozkus, Basilio B. Fraguela

dOpenCL: Towards a Uniform Programming Approach for Distributed Heterogeneous Multi-/Many-Core Systems
Philipp Kegel, Michel Steuwer, Sergei Gorlatch

Scalable Communication-aware Task Mapping Algorithms for Interconnected Multicore Systems
I-Hsin Chung, Che-Rung Lee, Jiazheng Zhou, Chung-Yi Chou, Yeh-Ching Chung

A Combined Dual-stage Framework for Robust Scheduling of Scientific Applications in Heterogeneous Environments with Uncertain Availability
Florina M. Ciorba, Timothy Hansen, Srishti Srivastava, Ioana Banicescu, Anthony A. Maciejewski, Howard Jay Siegel

20th Heterogeneity in Computing Workshop

May 16, 2011
Anchorage, Alaska

Time Utility Functions for Modeling and Evaluating Resource Allocations in a Heterogeneous Computing System
Luis Diego Briceño, Bhavesh Khemka, Howard Jay Siegel, Anthony A. Maciejewski, Christopher Groër, Gregory Koenig, Gene Okonski, Steve Poole

Optimized Barriers for Heterogeneous Systems Using MPI
Jan C. Meyer, Anne C. Elster

Characterizing Task-Machine Affinity in Heterogeneous Computing Environments
Abdulla M. Al-Qawasmeh, Anthony A. Maciejewski, Rodney G. Roberts, Howard Jay Siegel

Scheduling on Unspecified Heterogeneous Distributed Resources
Daniel Millot, Christian Parrot

MO-Greedy: An Extended Beam-Search Approach for Solving a Multi-criteria Scheduling Problem on Heterogeneous Machines
Louis-Claude Canon, Emmanuel

A Model-Based Schedule Representation for Heterogeneous Mapping of Dataflow Graphs
Hsiang-Huang Wu, Chung-Ching Shen, Nimish Sane, William Plishker, Shuvra S. Bhattacharyya

A Waterfall Model to Achieve Energy Efficient Tasks Mapping for Large Scale GPU Clusters
Wenjie Liu, Zhihui Du, Yu Xiao, David A. Bader, Chen Xu

An Agent-Based Approach to Reconciling Data Heterogeneity in Cyber-Physical Systems
Jing Lin, Sahra Sedigh, Ali R. Hurson

NVCR: A Transparent Checkpoint-Restart Library for NVIDIA CUDA
Akira Nukada, Hiroyuki Takizawa, Satoshi Matsuoka

Use of Internet Embedding Tools for Heterogeneous Resources Aggregation
Olivier Beaumont, Nicolas Bonichon, Philippe Duchon, Hubert Larchevêque

19th Heterogeneity in Computing Workshop

April 19, 2010
Atlanta, Georgia

A first step to the evaluation of SimGrid in the context of a real application
Abdou Guermouche, Helene Renard

Statistical predictors of computing power in heterogeneous clusters
Ron C. Chiang, Anthony A. Maciejewski, Arnold L. Rosenberg, Howard Jay Siegel

An empirical study of a scalable Byzantine agreement algorithm
Olumuyiwa Oluwasanmi, Jared Saia, Valerie King

Custom Built Heterogeneous Multi-core Architectures (CUBEMACH): Breaking the conventions
Nagarajan Venkateswaran, Karthikeyan Palavedu Saravanan, Nachiappan Chidambaram Nachiappan, Aravind Vasudevan, Balaji Subramaniam, Ravindhiran Mukundarajan

Unibus: Aspects of heterogeneity and fault tolerance in cloud computing
Magdalena Slawinska, Jaroslaw Slawinski, Vaidy Sunderam

Dynamic adaptation of DAGs with uncertain execution times in heterogeneous computing systems
Qin Zheng

Robust resource allocation of DAGs in a heterogeneous multicore system
Luis Diego Briceno, Jay Smith, Howard Jay Siegel, Anthony A. Maciejewski, Paul Maxwell, Russ Wakefield, Abdulla Al-Qawasmeh, Ron C. Chiang, Jiayin Li

Characterizing heterogeneous computing environments using singular value decomposition
Abdulla M. Al-Qawasmeh, Anthony A. Maciejewski, Howard Jay Siegel

Improving MapReduce performance through data placement in heterogeneous Hadoop clusters
Jiong Xie, Shu Yin, Xiaojun Ruan, Zhiyang Ding, Yun Tian, James Majors, Adam Manzanares, Xiao Qin

Decentralized dynamic scheduling across heterogeneous multi-core desktop grids
Jaehwan Lee, Pete Keleher, Alan Sussman

18th Heterogeneity in Computing Workshop

May 25, 2009
Rome, Italy

Offer-based scheduling of deadline-constrained Bag-of-Tasks applications for utility computing systems
Marco A. S. Netto, Rajkumar Buyya

Resource-aware allocation strategies for divisible loads on large-scale systems
Anne Benoit, Loris Marchal, Jean-Francois Pineau, Yves Robert, Frederic Vivien

Robust sequential resource allocation in heterogeneous distributed systems with random compute node failures
Vladimir Shestak, Edwin K. P. Chong, Anthony A. Maciejewski, Howard Jay Siegel

Revisiting communication performance models for computational clusters
Alexey Lastovetsky, Vladimir Rychkov, Maureen O'Flynn

Cost-benefit analysis of Cloud Computing versus desktop grids
Derrick Kondo, Bahman Javadi, Paul Malecot, Franck Cappello, David P. Anderson

Robust data placement in urgent computing environments
Jason M. Cope, Nick Trebon, Henry M. Tufo, Pete Beckman

A robust dynamic optimization for MPI Alltoall operation
Hyacinthe Nzigou Mamadou, Takeshi Nanri, Kazuaki Murakami

Validating Wrekavoc: A tool for heterogeneity emulation
Olivier Dubuisson, Jens Gustedt, Emmanuel Jeannot

A component-based framework for the Cell Broadband Engine
Timothy D. R. Hartley, Umit V. Catalyurek

Portable builds of HPC applications on diverse target platforms
Magdalena Slawinska, Jaroslaw Slawinski, Vaidy Sunderam

17th Heterogeneity in Computing Workshop

April 14, 2008
Miami, Florida

Divisible Load Scheduling with Result Collection on Heterogeneous Systems
Abhay Ghatpande, Hidenori Nakazato, Hiroshi Watanabe, Olivier Beaumont

Scheduling divisible workloads on heterogeneous platforms under bounded multi-port model
Olivier Beaumont, Nicolas Bonichon, Lionel Eyraud-Dubois

Process reassignment with reduced migration cost in grid load rebalancing
Lin Chen, Cho-Li Wang, Francis. C.M. Lau

Resource allocation in a client/server hybrid network for virtual world environments
Luis Diego Briceno, Howard Jay Siegel, Anthony A. Maciejewski, Ye Hong, Brad Lock, Mohammad Nayeem Teli, Fadi Wedyan, Charles Panaccione, Chen Zhang

Optimizing latency and reliability of pipeline workflow applications
Anne Benoit, Veronika Rehn-Sonigo, Yves Robert

An efficient, model-based CPU-GPU heterogeneous FFT library
Yasuhito Ogata, Toshio Endo, Naoya Maruyama, Satoshi Matsuoka

On the design, control, and use of a reconfigurable heterogeneous multi-core system-on-a-chip
Tyrone Tai-On Kwok, Yu-Kwong Kwok

A reputation algorithm for a self-organizing system based upon resource virtualization
Dan C. Marinescu, Chen Yu, Gabriela M. Marinescu, John P. Morrison, Christoffer Norvik

Automatic Middleware Deployment Planning on Heterogeneous Platforms
Pushpinder Kaur Chouhan, Eddy Caron, Frederic Desprez

Asynchronous genetic search for scientific modeling on large-scale heterogeneous environments
Travis Desell, Boleslaw Szymanski, Carlos Varela

Enhancing build-portability for scientific applications across heterogeneous platforms
Magdalena Slawinska, Jaroslaw Slawinski, Vaidy Sunderam

Enabling personal clusters on demand for batch resources using commodity software
Yang-Suk Kee, Carl Kesselman, Daniel Nurmi, Rich Wolski

16th Heterogeneous Computing Workshop

March 26, 2007
Long Beach, California

Study of an Iterative Technique to Minimize Completion Times of Non-Makespan Machines
Luis Diego Briceno, Mohana Oltikar, Howard Jay Siegel, Anthony A. Maciejewski

Using Speed Diagrams for Symbolic Quality Management
Jacques Combaz, Jean-Claude Fernandez, Joseph Sifakis, Loic Strus

Bi-criteria Scheduling Algorithm with Deployment in Cluster
Feryal-Kamila Moulai, Gregory Mounie

Optimal Assignment of a Tree-Structured Context Reasoning Procedure onto a Host-Satellites System
Hailiang Mei, Pravin Pawar, Ing Widya

PFAS: A Resource-Performance-Fluctuation-Aware Workflow Scheduling Algorithm for Grid Computing
Fangpeng Dong, Selim G. Akl

Stochastic Approach to Scheduling Multiple Divisible Tasks on a Heterogeneous Distributed Computing System
Ankur Kamthe, Soo-Young Lee

Load Balancing in the Bulk-Synchronous-Parallel Setting using Process Migrations
Olaf Bonorden

Strategies for Replica Placement in Tree Networks
Anne Benoit, Veronika Rehn, Yves Robert

High-Performance Multi-Rail Support with the NEWMADELEINE Communication Library
Olivier Aumage, Elisabeth Brunet, Guillaume Mercier, Raymond Namyst

Enhancing Portability of HPC Applications across High-end Computing Platforms
Magdalena Slawinska, Jaroslaw Slawinski, Dawid Kurzyniec, Vaidy Sunderam

Domain Decomposition vs. Master-Slave in Apparently Homogeneous Systems
Cyril Banino-Rokkones

15th Heterogeneous Computing Workshop

April 25, 2006
Rhodes, Greece

The impact of heterogeneity on master-slave on-line scheduling
J.-F. Pineau, Y. Robert, F. Vivien

Wrekavoc: a tool for emulating heterogeneity
L.-C. Canon, E. Jeannot

Scheduling multiple DAGs onto heterogeneous systems
Henan Zhao, R. Sakellariou

Scheduling of tasks with precedence delays and relative deadlines framework for time-optimal dynamic reconfiguration of FPGAs
P. Sucha, Z. Hanzalek

A task duplication based bottom-up scheduling algorithm for heterogeneous environments
D. Bozdag, U. Catalyurek, F. Ozguner

FIFO scheduling of divisible loads with return messages under the one-port model
O. Beaumont, L. Marchal, V. Rehn, Y. Robert

Using SCTP to hide latency in MPI programs
H. Kamal, B. Penoff, M. Tsai, E. Vong, A. Wagner

A brokering framework for large-scale heterogeneous systems
Xin Bai, L. Boloni, D.C. Marinescu, H.J. Siegel, R.A. Daley, I-Jeng Wang

Cooperative load balancing for a network of heterogeneous computers
S. Penmatsa, A.T. Chronopoulos

An economy-driven mapping heuristic for hierarchical master-slave applications in grid systems
N. Ranaldo, E. Zimeo

Plan switching: an approach to plan execution in changing environments
Han Yu, D.C. Marinescu, A.S. Wu, H.J. Siegel, R.A. Daley, I-Jeng Wang

Integrating heterogeneous information services using JNDI
D. Gorissen, P. Wendykier, D. Kurzyniec, V. Sunderam

14th Heterogeneous Computing Workshop

April 4, 2005
Denver, Colorado

Homogeneous Redundancy: a Technique to Ensure Integrity of Molecular Simulation Results Using Public Computing
M. Taufer, D. Anderson, P. Cicotti, C. L. Brooks III

Measuring Scalability of Resource Management Systems
Arindam Mitra, Muthucumaru Maheswaran, Shoukat Ali

Combining FT-MPI with H2O: Fault-Tolerant MPI Across Administrative Boundaries
Dawid Kurzyniec, Vaidy Sunderam

A Lightweight Kernel for the Harness Metacomputing Framework
C. Engelmann, G. A. Geist

BondFlow: A System for Distributed Coordination of Workflows over Web Services
Janaka Balasooriya, Mohini Padhye, Sushil K. Prasad, Shamkant B. Navathe

A Stochastic Approach to Estimating Earliest Start Times of Nodes for Scheduling DAGs on Heterogeneous Distributed Computing Systems
Ankur Kamthe, Soo-Young Lee

Processor Allocation for Tasks that is Robust Against Errors in Computation Time Estimates
Prasanna V. Sugavanam, H. J. Siegel, Anthony A. Maciejewski, Syed Amjad Ali, Mohammad Al-Otaibi, Mahir Aydin, Kumara Guru, Aaron Horiuchi, Yogish G. Krishnamurthy, Panho Lee, Ashish Mehta, Mohana Oltikar, Ron Pichel, Alan J. Pippin, Michael Raskey, Vladimir Shestak, Junxing Zhang

Overhead Analysis of a Dynamic Load Balancing Library for Cluster Computing
Ioana Banicescu, Ricolindo L. Cari?, Jaderick P. Pabico, Mahadevan Balasubramaniam

Off-Line Scheduling of Divisible Requests on an Heterogeneous Collection of Databanks
Arnaud Legrand, Alan Su, Frederic Vivien

Optimal Mapping of a Parallel Application Processes onto Heterogeneous Platform
Alexey Kalinov, Sergey Klimov

A Measure of Robustness Against Multiple Kinds of Perturbations
Behdis Eslamnour, Shoukat Ali

Resource Allocation for Periodic Applications in a Shipboard Environment
Vladimir Shestak, Edwin K. P. Chong, Anthony A. Maciejewski, H. J. Siegel, Lotfi Benmohamed, I-Jeng Wang, Rose Daley

Adaptive Inter-System Handover for Heterogeneous RF and IR Networks
Jindong Hou, D. C. O'Brien

Event Logging: Portable and Efficient Checkpointing in Heterogeneous Environments with Non-FIFO Communication Platforms
Zhao Peng, Alexey Lastovetsky

13th Heterogeneous Computing Workshop

April 26, 2004
Santa Fe, New Mexico

IQ-Services: Resource-Aware Middleware for Heterogeneous Applications
Zhongtang Cai, Greg Eisenhauer, Christian Poellabauer, Karsten Schwan, Matthew Wolf

Data Partitioning with a Realistic Performance Model of Networks of Heterogeneous Computers
Alexey Lastovetsky, Ravi Reddy

Multisite Resource Selection and Scheduling Algorithm on Computational Grid
Weizhe Zhang, Binxing Fang, Hui He, Hongli Zhang, Mingzeng Hu

An Execution-Time Estimation Model for Heterogeneous Clusters
Yoshinori Kishimoto, Shuichi Ichikawa

A Comparison of Static QoS-Based Scheduling Heuristics for a Meta-Task with Multiple QoS Dimensions in Heterogeneous Computing
Kavitha S. Golconda, Füsun Özgüner, Atakan Doğan

Capabilities-Based Query Planning in Mediator Systems
Jiuyang Tang, Weiming Zhang, Junfeng Song, Weidong Xiao

A High Performance, Low Complexity Algorithm for Compile-Time Task Scheduling in Heterogeneous Systems
Tarek Hagras, Jan Janeček

Metainformation and Workflow Management for Solving Complex Problems in Grid Environments
Han Yu, Xin Bai, Guoqiang Wang, Yongchang Ji, Dan C. Marinescu

Evaluation of an Unfair Decider Mechanism for the Self-Tuning dynP Job Scheduler
Achim Streit

A Framework for Heterogeneous Middleware Security
Simon N. Foley, Thomas B. Quillinan, Maeve O?Connor, Barry P. Mulcahy, John P. Morrison

Improving Performance of Java Applications Using a Coprocessor
Feihui Li, Mahmut Kandemir

Automatic Deployment for Hierarchical Network Enabled Servers
Eddy Caron, Pushpinder-Kaur Chouhan, Arnaud Legrand

Static Mapping of Subtasks in a Heterogeneous Ad Hoc Grid Environment
Sameer Shivle, Ralph Castain, H. J. Siegel, Anthony A. Maciejewski, Tarun Banka, Kiran Chindam, Steve Dussinger, Prakash Pichumani, Praveen Satyasekaran, William Saylor, David Sendek, J. Sousa, Jayashree Sridharan, Prasanna Sugavanam, Jose Velazco

Performance Improvement in Web Services Invocation Framework
Mauro Migliardi, Roberto Podesta

Application of Lagrangian Receding Horizon Techniques to Resource Management in Ad Hoc Grid Environments
Ralph H. Castain, William W. Saylor, H. J. Siegel

A Hybrid Heuristic for DAG Scheduling on Heterogeneous Systems
Rizos Sakellariou, Henan Zhao

Parallel Implementation of Strassen's Matrix Multiplication Algorithm for Heterogeneous Clusters
Yuhsuke Ohtaki, Daisuke Takahashi, Taisuke Boku, Mitsuhisa Sato

Latency Tolerance through Parallelization of Time in Scientific Applications
Ashok Srinivasan, Namas Chandra

Performance and Client Heterogeneity in Service-Based Metacomputing
Tomasz Wrzosek, Dawid Kurzyniec, Vaidy Sunderam

12th Heterogeneous Computing Workshop

April 23, 2003
Nice, France

A Genetic Approach to Planning in Heterogeneous Computing Environments
Han Yu, Dan C. Marinescu, Annie S. Wu, Howard Jay Siegel

New Dynamic Heuristics in the Client-Agent-Server Model
Yves Caniou, Emmanuel Jeannot

Dynamic Mapping in a Heterogeneous Environment with Tasks Having Priorities and Multiple Deadlines
Jong-Kook Kim, Sameer Shivle, Howard Jay Siegel, Anthony A. Maciejewski, Tracy D. Braun, Myron Schneider, Sonja Tideman, Ramakrishna Chitta, Raheleh B. Dilmaghani, Rohit Joshi, Aditya Kaul, Ashish Sharma, Siddhartha Sripada, Praveen Vangari, Siva Sankar Yellampalli

Optimal Algorithms for Scheduling Divisible Workloads on Heterogeneous Systems
O. Beaumont, A. Legrand, Y. Robert

Trust Modeling for Peer-to-Peer Based Computing Systems
Farag Azzedin, Muthucumaru Maheswaran

Managing Heterogeneous Resources in Data Mining Applications on Grids Using XML-Based Metadata
Carlo Mastroianni, Domenico Talia, Paolo Trunfio

Heterogeneous Access to Service-Based Distributed Computing: The RMIX Approach
Dawid Kurzyniec, Tomasz Wrzosek, Vaidy Sunderam

Simulation of Dynamic Data Replication Strategies in Data Grids
Houda Lamehamedi, Zujun Shentu, Boleslaw Szymanski, Ewa Deelman

Load-Balancing Scatter Operations for Grid Computing
Stéphane Genaud, Arnaud Giersch, Frédéric Vivien

Supporting QoS-Based Discovery in Service-Oriented Grids
Rashid J. Al-Ali, Ali ShaikhAli, Omer F. Rana, David W. Walker

Natural Block Data Decomposition for Heterogeneous Clusters
Egor Dovolnov, Alexey Kalinov, Sergey Klimov

HMPI: Towards a Message-Passing Library for Heterogeneous Networks of Computers
Alexey Lastovetsky, Ravi Reddy

Simulation of Data Distribution Strategies for LU Factorization on Heterogeneous Machines
J. Barbosa, C. N. Morais, A. J. Padilha

HARNESSing Intranet Computational Power for Legacy Applications: The Case of Ship Vulnerability Evaluation
Mauro Migliardi, Stefano Zappaterra, Massimo Maresca, Chiara Bisso

An Approach to Heterogeneous Process State Capture/Recovery to Achieve Minimum Performance Overhead During Normal Execution
Prashanth P. Bungale, Swaroop Sridhar, Vinay Krishnamurthy

11th Heterogeneous Computing Workshop

April 15, 2002
Fort Lauderdale, Florida

Efficient manipulation of large datasets on heterogeneous storage systems
M.D. Beynon, T. Kurc, U. Catalyurek, A. Sussman, J. Saltz

Standards based heterogeneous metacomputing: the design of HARNESS II
M. Migliardi, D. Kurzyniec, V. Sunderam

A software design model for parallel applications on heterogeneous systems
M. Dwivedula, S. Hariri, M. Parashar

Heterogeneous multi-cluster networking with the Madeleine III communication library
O. Aumage

Characterizing NAS benchmark performance on shared heterogeneous networks
J. Subhlok, S. Venkataramaiah, A. Singh

Performance prediction technology for agent-based resource management in grid environments
Junwei Cao, S.A. Jarvis, D.P. Spooner, J.D. Turner, D.J. Kerbyson, G.R. Nudd

Load balancing highly irregular computations with the adaptive factoring
I. Banicescu, V. Velusamy

The self-tuning dynP job-scheduler
A. Streit

A realistic model and an efficient heuristic for scheduling with heterogeneous processors
O. Beaumont, V. Boudet, Y. Robert

Distributed dynamic scheduling of composite tasks on grid computing systems
Hongtu Chen, M. Maheswaran

Utilization-based heuristics for statically mapping real-time applications onto the HiPer-D heterogeneous computing system
S. Aliy, J.-K. Kimy, Yang Yu, S.B. Gundala, S. Gertphol, H.J. Siegel, A.A. Maciejewski, V. Prasanna

Supporting co-allocation in an auctioning-based resource allocator for grid systems
Chunming Chen, M. Maheswaran, M. Toulouse

Adaptive QoS management for collaboration in heterogeneous environments
R. Chowdhury, P. Bhandarkar, M. Parashar

10th Heterogeneous Computing Workshop

April 23, 2001
San Francisco, California

Resource Discovery for Dynamic Clusters in Computational Grids
Omer F. Rana, Daniel Bunford-Jones, David W. Walker, Matthew Addis, Mike Surridge, Ken Hawich

Enhancing the Scalability and Usability of Computational Grids via Logical User Accounts and Virtual File Systems
Nirav H. Kapadia, Renato J. Figueiredo, Jose A. B. Fortes

A Case for Economy Grid Architecture for Service Oriented Grid Computing
Rajkumar Buyya, David Abramson, Jonathan Giddy

Performance Analysis of Flat and Layered Gossip Services for Failure Detection and Consensus in Scalable Heterogeneous Clusters
K. Sistla George, R. Todd, R. Tilak

Failure Detection and Consensus in Scalable Heterogeneous Clusters Failure Detection and Consensus in Scalable Heterogeneous Clusters
K. Sistla, A. George, R. Todd, R. Tilak

System Sensitive Runtime Management of Adaptive Applications
Shweta Sinha, Manish Parashar

Taking the Step From Meta-information to Communication Middleware in Computational Data Streams
Beth Plale, Karsten Schwan

Energy Management for Dynamically Reconfigurable Heterogeneous Mobile Systems
Paul J.M. Havinga, Lodewijk T. Smit, Gerard J.M. Smit, Martinus Bos, Paul M. Heysters

Efficient Inter-Device Data-Forwarding in the Madeleine Communication Library
Olivier Aumage, Lionel Eyraud

Run-Time Adaptation for Grid Environments
Ammar H. Alhusaini, C.S. Raghavendra, Viktor K. Prasanna

Task Matching and Scheduling in Heterogeneous Systems Using Simulated Evolution
Hassan Barada, Sadiq M. Sait, Naved Baig

An Adaptive Communication System for Heterogeneous Network Computing
IIkeyun Ra, Salim Hariri, Cauligi Raghavendra

A Dynamic, Real-Time Testbed for Resource Management Technology

David Chelberg, Lonnie Welch, Cynthia Marling, Carl Bruggeman, Douglas Lawrence, David Matolak, Robert William, Jae Lew, Arvind Lakshmikumar, Matthew Gillen, Qiang Zhou

Runtime Support for Automatic Wide Area Implementation Management in Legion
Micheal J. Lewis, Andrew S. Grimshaw

Data Dissemination Approaches for Performance Discovery in Grid Computing Systems
Muthucumaru Maheswaran

Distributed High Performance Computing in Heterogeneous Environments with DOTS
Wolfgang Blochinger

A Comparison Between Single-agent and Multi-agent Classification of Documents
S. Peng, S. Mukhopadhyay, R. Raje, M. Palakal

Performance of scheduling scientific applications with adaptive weighted factoring
I. Banicescu, V. Velusamy

Performance analysis of flat and layered gossip services for failure detection and consensus in scalable heterogeneous clusters
K. Sistla, A. George, R. Todd, R. Tilak

Collective value QoS: a performance measure framework for distributed heterogeneous networks
Jong-Kook Kim, T. Kidd, H.J. Siegel, C. Irvine, T. Levin, D.A. Hensgen, D. St. John, V.K. Prasanna, R.F. Freund, N.W. Porter

9th Heterogeneous Computing Workshop

May 1, 2000
Cancun, Mexico

SESSION 1-A GRID ENVIRONMENT
Master/Slave Computing on the Grid
Gary Shao, Francine Berman, Rich Wolski

SESSION 1-A GRID ENVIRONMENT
Heterogeneity as Key Feature of High Performance Computing: the PQE1 Prototype
Paolo Palazzari, Lidia Arcipiani, Massimo Celino, Roberto Guadagni, Alessandro Marongiu, Agostino Mathis, Paolo Novelli, Vittorio Rosato

SESSION 1-A GRID ENVIRONMENT
The NRW-Metacomputer-Building Blocks for A Worldwide Computational Grid
Claus Bitten, Joern Gehring, Uwe Schwiegelshohn, Ramin Yahyapour

SESSION 1-B RESOURCE DISCOVERY AND MANAGEMENT
Agent-Based Resource Discovery
Kyungkoo Jun, Ladislau Bölöni, Krzysztof Palacz, Dan C. Marinescu

SESSION 1-B RESOURCE DISCOVERY AND MANAGEMENT
Evaluation of PAMS' Adaptive Management Services
Yoonhee Kirn, Salim Hariri, Muhamad Djunaedi

SESSION 1-B RESOURCE DISCOVERY AND MANAGEMENT
Load Balancing across Near-Homogeneous Multi-Resource Servers
William Leinberger, George Karypis, Vipin Kumar, Rupak Biswas

SESSION 2-A COMMUNICATION AND DATA MANAGEMENT
Evaluation of Expanded Heuristics in a Heterogeneous Distributed Data Staging Network
Mitchell D. Theys, Noah B. Beck, Howard Jay Siegel, Michael Jurczyk

SESSION 2-A COMMUNICATION AND DATA MANAGEMENT
Fast Heterogeneous Binary Data Interchange
Greg Eisenhauer, Lynn K. Daley

SESSION 2-A COMMUNICATION AND DATA MANAGEMENT
A Heuristic Algorithm for Mapping Communicating Tasks on Heterogeneous Resources
Kenjiro Taura, Andrew Chien

SESSION 2-A COMMUNICATION AND DATA MANAGEMENT
Design of a Framework for Data-Intensive Wide-Area Applications
Michael D. Beynon, Tahsin Kurc, Alan Sussman, Joel Saltz

SESSION 2-B MODELING AND METRICS
Toward Quality of Security Service in a Resource Management System Benefit Function
Cynthia E. Irvine, Timothy E. Levin

SESSION 2-B MODELING AND METRICS
Optimizing Heterogeneous Task Migration in the Gardens Virtual Cluster Computer
Ashley Beitz, Simon Kent, Paul Roe

SESSION 2-B MODELING AND METRICS
Linear Algebra Algorithms in Heterogeneous Cluster of Personal Computers
J. Barbosa, J. Tavares, A.J. Padilha

SESSION 2-B MODELING AND METRICS
New Cost Metrics for Iterative Task Assignment Algorithms in Heterogeneous Computing Systems
Raju D. Venkataramana, N. Ranganathan

Reliable cluster computing with a new checkpointing RAID-x architecture
K. Hwang, Hai Jin, R. Ho, W. Ro

SESSION 3-A HETEROGENEOUS ENVIRONMENT
Task Execution Time Modeling for Heterogeneous Computing Systems
Shoukat Ali, Howard Jay Siegel, Muthucumaru Maheswaran, Sahra Ali, Shoukat Ali, Debra Hensgen

SESSION 3-A HETEROGENEOUS ENVIRONMENT
Distributed Quasi Monte-Carlo Methods in a Heterogeneous Environment
Elise deDoncker, Rodger Zanny, Manuel Ciobanu, Yuqiang Guan

SESSION 3-B SCHEDULING I
Scheduling Multi-Component Applications in Heterogeneous Wide-Area Networks
Jon B. Weissman

SESSION 3-B SCHEDULING I
Application-Aware Scheduling of a Magnetohydrodynamics Application in the Legion Metasystem
Holly Dail, Graziano Obertelli, Francine Berman, Rich Wolski, Andrew Grimshaw

SESSION 3-B SCHEDULING I
Fast and Effective Task Scheduling in Heterogeneous Systems
Andrei Radulescu, Arjan J.C. Van Gemund

SESSION 4-A GRID APPLICATIONS
Combining Workstations and Supercomputers to Support Grid Applications: The Parallel Tomography Experience
Shava Smallen, Walfredo Cirne, Francine Berman, Steve Young, Mark Ellisman, Jaime Frey, Rich Wolski, Mei-Hui Su, Carl Kesselman

SESSION 4-A GRID APPLICATIONS

Cluster Performance and the Implications for Distributed, Heterogeneous Grid Performance
Craig Lee, Cheryl DeMatteis, James Stepanek, Johnson Wang

SESSION 4-A GRID APPLICATIONS
A Debugger for Computational Grid Applications
Robert Hood, Gabriele Jost

SESSION 4-B RESOURCE MANAGEMENT
A Framework for Mapping with Resource Co-Allocation in Heterogeneous Computing Systems
Ammar H. Alhusaini, Viktor K. Prasanna, C.S. Raghavendra

SESSION 4-B RESOURCE MANAGEMENT
Heterogeneous Resource Management for Dynamic Real-Time Systems
Eui-Nam Huh, Lonnie R. Welch, Behrooz A. Shirazi, Charles D. Cavanaugh

SESSION 4-B RESOURCE MANAGEMENT
A Cost/Benefit Model for Dynamic Resource Sharing
Dimitrios Katramatos, Deepak Saxena, Nehal Mehta, Steve J. Chapin

SESSION 5-A DESIGN TOOLS
The HARNESS PVM-Proxy: Gluing PVM Applications to Distributed Object Environments and Applications
Mauro Migliardi, Vaidy Sunderam

SESSION 5-A DESIGN TOOLS
MoBiDiCK: A Tool for Distributed Computing on the Internet
Moyez Dharsee, Christopher W.V. Hogue

SESSION 5-A DESIGN TOOLS
RsdEditor: A Graphical User Interface for Specifying Metacomputer Components
R. Baraglia, D. Laforenza, A. Keller, A. Reinefeld

SESSION 5-B SCHEDULING II
Heuristics for Scheduling Parameter Sweep Applications in Grid Environments
Henri Casanova, Dmitrii Zagorodnov, Francine Berman, Arnaud Legrand

SESSION 5-B SCHEDULING II
Parallel Program Execution on a Heterogeneous PC Cluster Using Task Duplication
Yu-Kwong Kwok

SESSION 5-B SCHEDULING II
Segmented Min-Min: A Static Mapping Algorithm for Meta-Tasks on Heterogeneous Computing Systems
Min-You Wu, Wei Shu, Hong Zhang

8th Heterogeneous Computing Workshop

April 12, 1999
San Juan, Puerto Rico

SESSION I: COMPARISONS OF MAPPING HEURISTICS
Task Scheduling Algorithms for Heterogeneous Processors
Haluk Topcuoglu, Salim Hariri, Min-You Wu

SESSION I: COMPARISONS OF MAPPING HEURISTICS
A Comparison Study of Static Mapping Heuristics for a Class of Meta-Tasks on Heterogeneous Computing Systems
Tracy D. Braun, Howard Jay Siegel, Noah Beck, Ladislau L. Bölóni, Albert I. Reuther, Mitchell D. Theys, Bin Yao, Richard F. Freund, Muthucumaru Maheswaran, James P. Robertson, Debra Hensgen

SESSION I: COMPARISONS OF MAPPING HEURISTICS
Dynamic Matching and Scheduling of a Class of Independent Tasks onto Heterogeneous Computing Systems
Muthucumaru Maheswaran, Shoukat Ali, Howard Jay Siegel, Debra Hensgen, Richard F. Freund

SESSION II: DESIGN TOOLS
An On-Line Performance Visualization Technology
Aleksandar Bakic, Matt W. Mutka, Diane T. Rover

SESSION II: DESIGN TOOLS
Heterogeneous Distributed Virtual Machines in the Harness Metacomputing Framework
Mauro Migliardi, Vaidy Sunderam

SESSION II: DESIGN TOOLS
Parallel C++ Programming System on Cluster of Heterogeneous Computers
Yutaka Ishikawa, Atsushi Hori, Hiroshi Tezuka, Shinji Sumimoto, Toshiyuki Takahashi, Hiroshi Harada

SESSION II: DESIGN TOOLS
Are CORBA Services Ready to Support Resource Management Middleware for Heterogeneous Computing?
Alpay Duman, Debra Hensgen, David St. John, Taylor Kidd

SESSION III: MODELING AND ANALYSIS
Statistical Prediction of Task Execution Times Through Analytic Benchmarking for Scheduling in a Heterogeneous Environment
Michael A. Iverson, Füsun Özgüner, Lee C. Potter

SESSION III: MODELING AND ANALYSIS
Simulation of Task Graph Systems in Heterogeneous Computing Environments
Noe Lopez-Benitez, Ja-Young Hyon

SESSION III: MODELING AND ANALYSIS
Communication Modeling of Heterogeneous Networks of Workstations for Performance Characterization of Collective Operations
Mohammad Banikazemi, Jayanthi Sampathkumar, Sandeep Prabhu, Dhabaleswar K. Panda, P. Sadayappan

SESSION IV: TASK ASSIGNMENT AND SCHEDULING
Multiple Cost Optimization for Task Assignment in Heterogeneous Computing Systems Using Learning Automata
Raju D. Venkataramana, N. Ranganathan

SESSION IV: TASK ASSIGNMENT AND SCHEDULING
On the Robustness Of Metaprogram Schedules
Ladislau Boloni, Dan C. Marinescu

SESSION IV: TASK ASSIGNMENT AND SCHEDULING
A Unified Resource Scheduling Framework for Heterogeneous Computing Environments
Ammar H. Alhusaini, Viktor K. Prasanna, C.S. Raghavendra

SESSION V: INVITED CASE STUDIES
Metacomputing with MILAN
A. Baratloo, P. Dasgupta, V. Karamcheti, Z.M. Kedem

SESSION V: INVITED CASE STUDIES
An Overview of MSHN: The Management System for Heterogeneous Networks
Debra A. Hensgen, Taylor Kidd, David St. John, Matthew C. Schnaidt, Howard Jay Siegel, Tracy D. Braun, Muthucumaru Maheswaran, Shoukat Ali, Jong-Kook Kim, Cynthia Irvine, Tim Levin, Richard F. Freund, Matt Kussow, Michael Godfrey, Alpay Duman, Paul Carff, Shirley Kidd, Viktor Prasanna, Prashanth Bhat, Ammar Alhusaini

SESSION V: INVITED CASE STUDIES
QUIC: A Quality of Service Network Interface Layer for Communication in NOWs
R. West, R. Krishnamurthy, W. K. Norton, K. Schwan, S. Yalamanchili, M. Rosu, V. Sarat

SESSION V: INVITED CASE STUDIES
Adaptive Distributed Applications on Heterogeneous Networks
Thomas Gross, Peter Steenkiste, Jaspal Subhlok

7th Heterogeneous Computing Workshop

March 30, 1998
Orlando, Florida

SESSION I: INVITED CASE STUDIES AND STATUSREPORTS ON EXISTING SYSTEMS
Scheduling Resources in Multi-User, Heterogeneous, Computing Environments with SmartNet
R.F. Freund, M. Gherrity, S. Ambrosius, M. Campbell, M. Halderman, D. Hensgen, E. Keith, T. Kidd, M. Kussow, J.D. Lima, F. Mirabile, L. Moore, B. Rust, H.J. Siegel

SESSION I: INVITED CASE STUDIES AND STATUSREPORTS ON EXISTING SYSTEMS
The Globus Project: A Status Report
I. Foster, C. Kesselman

SESSION I: INVITED CASE STUDIES AND STATUSREPORTS ON EXISTING SYSTEMS
NetSolve: A Network-Enabled Solver: Examples and Users
Henri Casanova, Jack J. Dongarra

SESSION I: INVITED CASE STUDIES AND STATUSREPORTS ON EXISTING SYSTEMS
Implementing Distributed Synthetic Forces Simulations in Metacomputing Environments
Sharon Brunett, Dan Davis, Thomas Gottschalk, Paul Messina, Carl Kesselman

SESSION II: RESOURCE MANAGEMENT, MATCHING, AND SCHEDULING
CCS Resource Management in Networked HPC Systems
Axel Keller, Alexander Reinefeld

SESSION II: RESOURCE MANAGEMENT, MATCHING, AND SCHEDULING
A Dynamic Matching and Scheduling Algorithm for Heterogeneous Computing Systems
Muthucumaru Maheswaran, Howard Jay Siegel

SESSION II: RESOURCE MANAGEMENT, MATCHING, AND SCHEDULING
Dynamic, Competitive Scheduling of Multiple DAGs in a Distributed Heterogeneous Environment
Michael Iverson, Fusun Ozguner

SESSION II: RESOURCE MANAGEMENT, MATCHING, AND SCHEDULING
The Relative Performance of Various Mapping Algorithms is Independent of Sizable Variances in Run-time Predictions
Robert Armstrong, Debra Hensgen, Taylor Kidd

SESSION III: MODELING ISSUES AND GROUP COMMUNICATIONS
Modeling the Slowdown of Data-Parallel Applications in Homogeneous and Heterogeneous Clusters of Workstations
Silvia M. Figueira, Francine Berman

SESSION III: MODELING ISSUES AND GROUP COMMUNICATIONS
Specification and Control of Cooperative Work in a Heterogeneous Computing Environment

6th Heterogeneous Computing Workshop

April 1, 1997
Geneva, Switzerland

SESSION 1: SYSTEM SUPPORT FOR HETEROGENEOUS COMPUTING
Dynamic load balancing of distributed SPMD computations with explicit message-passing
M. Cermele, M. Colajanni, G. Necci

SESSION 1: SYSTEM SUPPORT FOR HETEROGENEOUS COMPUTING
The MOL project: an open, extensible metacomputer
A. Reinefeld, R. Baraglia, T. Decker, J. Gehring, D. Laforenza, F. Ramme, T. Romke, J. Simon

SESSION 1: SYSTEM SUPPORT FOR HETEROGENEOUS COMPUTING
A programming environment for heterogenous distributed memory machines
D. Arapov, A. Kalinov, A. Lastovetsky, I. Ledovskih, T. Lewis

SESSION 1: SYSTEM SUPPORT FOR HETEROGENEOUS COMPUTING
UbiWorld: an environment integrating virtual reality, supercomputing, and design
T. Disz, M.E. Papka, R. Stevens

CASE STUDY
Mercury Computer Systems' modular heterogeneous RACE(R) multicomputer
T.H. Einstein

SESSION 2: MAPPING AND SCHEDULING SYSTEMS
A scheduling expert advisor for heterogeneous environments
M.G. Sirbu, D.C. Marinescu

SESSION 2: MAPPING AND SCHEDULING SYSTEMS
Exploiting multiple heterogeneous networks to reduce communication costs in parallel programs
JunSeong Kim, D.J. Lilja

SESSION 2: MAPPING AND SCHEDULING SYSTEMS
On-line use of off-line derived mappings for iterative automatic target recognition tasks and a particular class of hardware platforms
J.R. Budenske, R.S. Ramanujan, H.J. Siegel

CASE STUDY
Distributed interactive simulation for synthetic forces
P. Messina, S. Brunett, D. Davis, T. Gottschalk, D. Curkendall, L. Ekroot, H. Siegel

SESSION 3: MAPPING AND SCHEDULING ALGORITHMS
A stochastic model of a dedicated heterogeneous computing system for establishing a greedy approach to developing data relocation heuristics
Min Tan, H.J. Siegel

SESSION 3: MAPPING AND SCHEDULING ALGORITHMS
Optimal task assignment in heterogeneous computing systems
M. Kafil, I. Ahmad

SESSION 3: MAPPING AND SCHEDULING ALGORITHMS
Mapping heterogeneous task graphs onto heterogeneous system graphs
M.M. Eshaghian, Y.C. Wu

CASE STUDY
Practical issues in heterogeneous processing systems for military applications
G.O. Ladd, Jr.

SESSION 4: PERFORMANCE EVALUATION AND RELIABILITY AND SECURITY
Estimating the execution time distribution for a task graph in a heterogeneous computing system
Y.A. Li, J.K. Antonio

SESSION 4: PERFORMANCE EVALUATION AND RELIABILITY AND SECURITY
Stochastic Petri nets applied to the performance evaluation of static task allocations in heterogeneous computing environments
A.R. McSpadden, N. Lopez-Benitez

SESSION 4: PERFORMANCE EVALUATION AND RELIABILITY AND SECURITY
Supporting fault-tolerance in heterogeneous distributed applications
P. Maheshwari, J. Ouyang

SESSION 4: PERFORMANCE EVALUATION AND RELIABILITY AND SECURITY
The hopping ruse
M. Chen, J. Cowie

CASE STUDY:
A performance and portability study of parallel applications using a distributed computing testbed
V. Morariu, M. Cunningham, M. Letterman

5th Heterogeneous Computing Workshop

April 15-16, 1996
Honolulu, Hawaii

Score: A Compiler Representation for Heterogeneous Systems
Weaver, McKinley, Weems

Static Matching of Ordered Program Segments to Dedicated Machines in a Heterogeneous Computing Environment
Watson, Antonio, Siegel, Gupta, Atallah

The Interference Paradigm for Network Job Scheduling
Weissman

Work-Based Performance Measurement and Analysis of Virtual Heterogeneous Machines
Ambrosius, Freund, Scott, Siegel

A Competitive Environment for Parallel Applications on Heterogeneous Workstation Clusters
Shum, Moody

Heterogeneous Networks Considered Harmful
Demmel, Dongarra, Hammarling, Ostrouchov, Stanley

A Genetic-Algorithm-Based Approach for Task Matching and Scheduling in Heterogeneous Environments
Wang, Siegel, Roychowdhury

Mapping and Scheduling Heterogeneous Task Graphs Using Genetic Algorithms
Singh, Youssef

Scheduling Data-Dependent Tasks in Heterogeneous Environments: A Genetic Simulated Annealing Approach
Shroff, Watson, Flann

MEGA: An Approach to System-Level Design of Application- Specific Heterogeneous Multiprocessors
Tirat-Gefen, Parker

4th Heterogeneous Computing Workshop

April 25, 1995
Santa Barbara, California

Adding Rescheduling to and Integrating Condor with SmartNet
D. Hensgen, L. Moore, T. Kidd, R. Freund, E. Keith, M. Kussow, J. Lima, and M. Campbell

Developing Heterogeneous Applications Using Zoom and HeNCE
R. Wolski, C. Angiano, J. Schopf, and F. Berman

Distributed Scheduling Support in the Presence of Autonomy
S. Chapin

Dynamic Task Mapping Algorithms for a Distributed Heterogeneous Computing Environment
C. Leangsuksun, J. Potter, and S. Scott

Estimating the Distribution of Execution Times for SIMD /SPMD Mixed-Mode Programs
Y. Li, J. Antonio, H. Siegel, M. Tan, and D. Watson

On Estimating the Resource Requirements of Heterogeneous Tasks
M. Eshaghian, A. Parker, and Y. Wu

Experiences in Using Heterogeneous Computing for Image Understanding
R. Freund, S. Natarajan, and V. Prasanna

A Language for Characterizing Heterogeneous Systems
J. Schlesinger

Load Sharing under Heterogeneity of Processor Availability
E. Haddad

Mapping Unstructured Computational Graphs for Adaptive and Non-Uniform Computational Environments
M. Kaddoura, C. Ou, and S. Ranka

Overview of VPE: A Visual Environment for Message-Passing
P. Newton and J. Dongarra

Parallelizing Existing Applications in a Distributed Heterogeneous Environment
M. Iverson, F. Özgüner, and G. Follen

Performance Impact of Processor and Memory Heterogeneity in a Network of Machines
M. Zaki, W. Li, and M. Cierniak

Scheduling and Data Relocation for Sequentially Executed Subtasks in a Heterogeneous Computing System
M. Tan, J. Antonio, H. Siegel, and Y. Li

3rd Heterogeneous Computing Workshop

April 26, 1994
Cancun, Mexico

A network architecture for distributed high performance heterogeneous computing
S. Bhattacharya, D.H.C. Du, A. Pavan, S.-R. Tong, R. Vetter, K. Williams

A generic multi virtual machines architecture for distributed parallel operating systems design
T. Muntean

A framework for the Virtual Heterogeneous Associative Machine
S.L. Scott, J. Potter

Scalable heterogeneous programming tools
Song Chen, M.M. Eshaghian, R.F. Freund, J.L. Potter, Ying-Chieh Wu

Linguistic support for heterogeneous parallel processing: a survey and an approach
C.C. Weems, G.E. Weaver, S.G. Dropsho

Heterogeneous partitioning in a workstation network
T. Schnekenburger, M. Huber

Dynamic task assignment in heterogeneous linear array networks for metacomputing
Sang-Young Cho, Kyu Ho Park

Static program decomposition among machines in an SIMD/SPMD heterogeneous environment with non-constant mode switching costs
D.W. Watson, J.K. Antonio, H.J. Siegel, M.J. Atallah

A heterogeneous processing (HP) framework for multimedia query processing
A. Khokhar, A. Ghafoor

Partitioning of image processing tasks on heterogeneous computer systems
M.A. Iqbal, S. Iqbal, M.E. Shaaban

Heterogeneous computing for vision
R. Nevatia

Dynamic optimization of load distribution in heterogeneous systems
E. Haddad

Estimating execution time for parallel tasks in heterogeneous processing (HP) environment
J. Yang, A. Khokhar, S. Sheikh, A. Ghafoor

Designs and experiments on heterogeneous mapping heuristics
C. Leangsuksun, J. Potter

A sub-optimal assignment of application tasks onto heterogeneous systems
J.C. DeSouza-Batista, M.M. Eshaghian, A.C. Parker, S. Prakash, Y.C. Wu

Matching and scheduling in a generalized optimal selection theory
B. Narahari, A. Youssef, Hyeong-Ah Choi

2nd Workshop on Heterogeneous Processing

April 13, 1993
Newport Beach, California

Heterogeneous Associative Computing
J.L. Potter

A Selection Theory and Methodology for Heterogeneous Supercomputing
Song Chen, M.M. Eshaghian, A. Khokhar, M.E. Shaaban

Partitioning Problems in Heterogeneous Computer Systems
M.A. Iqbal

Experiments with a Task Partitioning Model for Heterogeneous Computing
D.J. Lilja

Heuristics for Mapping Parallel Computations to Parallel Architectures
L. Tao, B. Narahari, Y.C. Zhao

Load Distribution Optimization in Heterogeneous Multiple Processor Systems
E. Haddad

Problem Representations for an Automatic Mapping Algorithm on Heterogeneous Processing Environments
C. Leangsuksun, J. Potter

A Framework for Compile-Time Selection of Parallel Modes in an SIMD/SPMD Heterogeneous Environment
D.W. Watson, H.J. Siegel, J.K. Antonio, M.A. Nichols, M.J. Atallah

Triton/1: A Massively-Parallel Mixed-Mode Computer Designed to Support High Level Languages
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