

39th Annual International Conference on Parallel Processing

Workshop Program

MONDAY, Sept. 13

8:00 – 9:00 Breakfast

Grand Ballroom II 8:45-9:00

PSTI Opening Remarks

Grand Ballroom III 8:45-9:00

P2S2 Opening Remarks

Grand Ballroom I 9:00 – 10:30

MCSoc Session 1: Invited Speech

Chair: Ben Abdallah Abderazek

- Extreme-Scale Embedded Computing: GEMM-based Algorithms and Unified Cellular Architecture, Prof. Stanislav G. Sedukhin

Grand Ballroom II 9:00-10:30

PSTI Session 1: Analysis using Tracing

Chair: TBA

- Non-Intrusive Performance Analysis of Parallel Hardware Accelerated Applications on Hybrid Architectures, Robert Dietrich, Thomas Ilsche, Guido Jukeland
- Efficient Pattern Based I/O Analysis of Parallel Programs, Michael Kluge, Andreas Knupfer, Wolfgang E. Nagel
- MPSoC Performance Analysis with Virtual Prototyping Platforms, David Castells-Rufas, Jaume Joven, Sergi Risueno, Eduard Fernandez, Jordi Carrabina, Thomas William, Hartmut Mix

Grand Ballroom III 9:00-10:30

P2S2 Session 1: Communication

Chair: TBA

- Efficient Zero-Copy Noncontiguous I/O for Globus on InfiniBand, Weikuan Yu, Jeffrey Vetter
- Scaling Linear Algebra Kernels using Remote Memory Access, Manojkumar Krishnan, Robert Lewis, Abhinav Vishnu
- High Performance Design and Implementation of Nemesis Communication Layer for Two-sided and One-Sided MPI Semantics in MVAPICH2, Miao Luo, Sreeram Potluri, Ping Lai, Emilio, P. Mancini, Hari Subramoni, Krishna Kandalla, Sayantan Sur, Dhableswar K. Panda.

Grand Ballroom IV 9:00-10:30

Greencom Session 1: Metrics and Models for Green Computing

Chair: TBA

- On Performance and Energy Management in High Performance Computing Systems, Jeffrey J. Evans
- On Non-Invasive Thermal Modeling Techniques Using Ambient Sensors for Greening Data Centers, Michael Jonas, Georgios Varsamopoulos, Sandeep Gupta
- Energy Proportionality and the future: Metrics and Directions, Georgios Varsamopoulos, Sandeep Gupta

10:30 – 11:00 Break

Grand Ballroom I 11:00-12:30

MCSoc Session 2: Embedded

Multicore Software

Chair: TBA

- A Split-Driver Approach to SoC Virtualization -- Challenges and Opportunities, Venkatraghavan Srinivasan, Narendra Parihar, Vivek Khurana, Ada Gavrilovska
- FFT Algorithms Evaluation on a Homogeneous Multi-Processor System-on-Chip, Roberto Airoidi, Fabio Garzia, Jari Nurmi
- A Parallel Skeleton Library for Embedded Multicores, Xin Liu, Jingyu Zhou, Minyi Guo

Grand Ballroom II 11:00-12:30

PSTI Session 2: Visualization for Performance Analysis

Chair: TBA

- GEM: Graphical Explorer for MPI Programs, Alan Humphrey, Christopher Derrick, Ganesh Gopalakrishnan, Beth Tibbitts
- Jedula: A Tool for Visualizing Schedules of Parallel Applications, Sascha Hunold, Ralf Hoffmann, Frederic Suter
- Effectively Presenting Call Path Profiles of Application Performance, Laksono Adhianto, John Mellor-Crummey, Nathan R. Tallent

Grand Ballroom III 11:00-12:30

P2S2 Session 2: Panel: Is Hybrid Programming a Bad Idea Whose Time has Come?

Panel Moderator: Pavan Balaji

Panelists: TBD

Grand Ballroom IV 11:00-12:30

Greencom Session 2: Green Computing Platforms

Chair: TBA

- Towards Sustainable Portable Computing, Vinod Namboodiri
- Smartphone Evolution and Reuse: Establishing a more Sustainable Model, Xun Li, Pablo Ortiz, Jeff Browne, Diana Franklin, John Oliver, Roland Geyer, Yuanyuan Zhou, Frederic T. Chong
- Memory-aware Green Scheduling on Multi-core Processors, Johnatan Pecero, Frederic Pinel, Pascal Bouvry, Samee Khan

12:30-1:30 Lunch

Grand Ballroom I 2:00 – 3:30

MCSoc Session 3: Network-on-Chip, Power-Aware Multicore

Chair: TBA

- Power and Performance TABU Search Based Multicore Network-on-Chip Design, Anita Tino, Gul N. Khan
- A Regular Expression Processor Embedded in Service-Friendly Router for Future Internet, Yasutsugu Nagatomi, Michihiro Koibuchi, Hideyuki Kawashima, Koichi Inoue, Hiroaki Nishi
- A Performance Estimation Technique for the SegBus Distributed Architecture, Moazzam Fareed Niazi, Tiberiu Seceleanu, Hannu Tenhunen
- An Efficient Algorithm and Embedded Multicore Implementation for ECG Analysis in Multi-lead Electrocardiogram Records, A. Ben Abdallah, Y. Haga, Keichi Kuroda

Grand Ballroom II 2:00 – 3:30

PSTI Session 3: System and Application Analysis

Chair: TBA

- PIR: PMaC's Idiom Recognizer, Catherine Mills Olschanowsky, Mitesh R. Meswami, Laura Carrington, Allan Snavely
- Generating Performance Bounds from Source Code, Sri Hari Krishna Narayanan, Boyana Norris, Paul D. Hovland
- LIKWID: A Lightweight Performance-Oriented Tool Suite for x86 Multicore Environments, Jan Treibig, Georg Hager, Gerhard Wellein

Grand Ballroom III 1:30 – 3:30

P2S2 Session 3: Programming Models and Performance Evaluation

Chair: TBA

- A Micro-benchmark Suite for AMD GPUs, Ryan Taylor, Xiaoming Li
- A Hybrid Programming Model for Compressible Gas Dynamics using OpenCL, Ben Bergen, Marcus Daniels, Paul Weber
- Message Driven Programming with S-Net: Methodology and Performance, Frank Penczek, Sven-Bodo Scholz, Alex Shafarenko, Chun-Yi Chen, Nader Bagherzadeh, Clemens Grelck, JungSook Yang
- Implementation and Performance Evaluation of XcalableMP: A Parallel Programming Language for Distributed Memory Systems, Jinpil Lee, Mitsuhsa Sato

Grand Ballroom IV 2:00 – 3:30

Greencom Session 3: Green Cloud and Cluster Computing

Chair: TBA

- Integrating Power and Cooling Data into Parallel Performance Analysis, Rashawn L. Knapp, Karen L. Karavanic, Andrés Márquez
- A Power-Aware Cloud Architecture with Smart Metering, Che-Yuan Tu, Wen-Chieh Kuo, Wei-Hua Teng, Yao-Tsung Wang, Steven Shiau
- Optimal Server Allocation and Frequency Modulation in Server Clusters, Xinying Zheng, and Yu Cai;

3:30 – 4:00 Break

Grand Ballroom I 4:00 – 5:30

MCSoc Session 4: Embedded Multicore Architecture

Chair: Stanislav G. Sedukhin

- Exploring the Limits of Tag Reduction for Energy Saving on a Multi-core Processor, Long Zheng, Mianxiong Dong, Kaoru Ota, Huakang Li, Song Guo and Minyi Guo
- Parallelization of Face Detection Engine, Deepak Shekhar, Kiran Varaganti
- Fine-Grained Parallel Compacting Garbage Collection through Hardware-Supported Synchronization, Oswin Horvath, Matthias Meyer
- Orbital Algorithms and Unified Array Processor for Computing 2-D Separable Transforms, Stanislav Sedukhin, Ahmed Zekri, Toshiaki Miyazaki

Grand Ballroom II 4:00 – 5:30

PSTI Session 4: System and Application Analysis; Case Studies and Tool Comparisons

Chair: TBA

- tQUAD – Memory Bandwidth Usage Analysis, S. Arash Ostadzadeh, Marco Corina, Carlo Galuzzi, Koen Bertels
- Performance Evaluation of an Irregular Application Parallelized in Java, Christopher D. Krieger, Michelle Mills Strout
- Mixed-Tool Performance Analysis on Hybrid Multicore Architectures, Peng Du, Piotr Luszczek, Stanimire Tomov, Jack Dongarra

Grand Ballroom III 4:00 – 5:30

P2S2 Session 4: Scheduling and Cache Management

Chair: TBA

- Scheduling a ~100,000 core Supercomputer for maximum utilization and capability, Phil Andrews, Patricia Kovatch, Victor Hazlewood, Troy Baer.
- Improving the Effectiveness of Context-based Prefetching with Multi-order Analysis, Yong Chen, Huaiyu Zhu, Hui Jin, Xian-He Sun.
- Hierarchical Load Balancing for Large Scale Supercomputers, Gengbin Zheng, Esteban Meneses, Abhinav Bhatele and Laxmikant V. Kale.

Grand Ballroom IV 4:00 – 5:30

Greencom Session 4: Green Consolidation and Virtualization

Chair: TBA

- Power Optimization with Performance Assurance for Multi-tier Applications in Virtualized Data Centers, Yefu Wang, Xiaorui Wang
- Power and Performance Modeling in a Virtualized Server System, Massoud Pedram and Inkwon Hwang

Tuesday, SEPT. 14

Grand Ballroom IV 11:00-12:00

CLAWS Session 1: Web Services

Chair: TBA

- WS4D: Toolkits for networked embedded systems based on the Devices Profile for Web Services, Elmar Zeeb, Guido Moritz, Dirk Timmermann, Frank Golatowski
- A Load Balancing Scheme for ebXML Registries, Sadhana Sahasrabudhe, Christopher Paolini

12:30 – 2:00 Break

San Diego I 2:00-3:30

SRMPDS Session 1: Opening Remarks and Invited Talk

Chair: Rajkumar Kettimuthu

- Dynamic Fractional Resource Allocation via Virtualization, Dr. Henri Casanova
- Optimizing Service Level Agreements for Autonomic Cloud Bursting Schedulers, Sriram Kailasam, Nathan Gnanasambandam, Dharanipragada Janakiram, Naveen Sharma

Grand Ballroom IV 2:00-3:30

SCC Session 1: Security of Cloud Storage

Chair: TBA

- A case for Secure Virtual Append-only Storage for Virtual Machines, Zhao Lin, Kartik Gopalan, Ping Yang,
- Analysis of Integrity Vulnerabilities and a Non-repudiation Protocol for Cloud Data Storage Platforms, Jun Feng, Yu Chen, Wei-Shinn Ku, Pu Liu
- An efficient secure shared storage service with fault and investigative disruption tolerance, Stelios Erotokritou, Sriyith Krishnan Nair, Theo Dimitrakos

3:30 – 4:00 Break

San Diego I 4:00-5:30

SRMPDS Session 2: Resource Scheduling

Chair: TBA

- Applying P2P Strategies to Scheduling in Decentralized Grid Computing Infrastructures, Christian Grimme, Joachim Lepping, Jonathan Moreno Picon, Alexander Papaspyrou
- Resource Discovery and Scheduling in Unstructured Peer-to-Peer Desktop Grids, Shun Kit Kwan and Jogesh K. Muppala
- Predictive Space- and Time-Resource Allocation in Parallel Job Scheduling for Cluster, Grids, Clouds, Angela Sodan
- Exponential Smoothing for network-aware meta-scheduler in advance in Grids, Luis Tomas, Agustin Caminero, Carmen Carrin, Blanca Caminero

Grand Ballroom IV 4:00-5:30

SCC Session 2: Security of General Cloud Computing

Chair: TBA

- Improvement for vTPM access control on Xen, Morikawa Hiroakiy, Ebara Hiroyukiz, Onishi Katsumiy, Nakano Hideo

- The Characteristics of Cloud Computing, Chunye Gong, Jie Liu, Jin Qin, Haitao Chen and Zhenghu Gong
- A Cooperative Intrusion Detection System Framework for Cloud Computing Networks, Cji-Chun Lo, Chun-Chieh Huang, and Joy Ku

Wednesday, SEPT. 15

Grand Ballroom IV 11:00-12:30

SRMPDS Session 3: Resource

Allocation

Chair : TBA

- A Tie-Breaking Strategy for Processor Allocation in Meshes, Christopher Johnson, David Bunde, Vitus Leung
- On Better Performance from Scheduling Threads according to Resource Demands in MMMP, Lichen Weng, Chen Liu
- Parallel Job Scheduling Policies to Improve Fairness - A Case Study, Vitus Leung, Gerald Sabin and P. Sadayappan
- rSearch: Ring-based Semantic Overlay for Efficient Recall-guaranteed Search in P2P Networks, Zhenyu Li, Gaogang Xie

12:30 – 2:00 Lunch

Grand Ballroom IV 2:00-3:30

DIAMOND Session 1: Mobile and Wireless Applications

Chair: TBA

- A Sampling-based Algorithm for Approximate Maximum Average Value Region in Wireless Sensor Networks, Hao Zhang
- Collaborative Spatial Object Recommendation in Location Based Services, Gaurav Gupta, Wang-Chien Lee
- Application Specific Instruction Accelerator for Multistandard Viterbi and Turbo Decoding, Mangesh Kunchamwar
- Multi-Layer Prefetching for Hybrid Storage Systems: Algorithms, Models, and Evaluations, Mais Nijim

3:30 – 4:00 Break

Thursday, SEPT. 16

Grand Ballroom IV 11:00-12:30

AWASN Session 1: Systems

Chair: TBA

- A Multi-hop Walkie-Talkie-Like Emergency Communication System for Catastrophic Natural Disasters,

Yao-Nan Lien, Li-Cheng Chi, Chih-Chieh Huang

- Sensor-Aided Personal Navigation Systems, Chao-Min Su, Jia-Wei Chou, Chih-Wei Yi, Yu-Chee Tseng, Da-Chun Chang
- Localization with Rotatable Directional Antennas for Wireless Sensor Networks, Jehn-Ruey Jiang, Chih-Ming Lin, Yi-Jia Hsu

12:30 – 2:00 Lunch

Grand Ballroom IV 2:00-3:30

AWASN Session 2: Localization

Chair : TBA

- A Novel RSS-Based Indoor Positioning Algorithm Using Mobility Prediction, Lyu-Han Chen, Gen-Huey Chen, Ming-Hui Jin, Eric Hsiao-Kuang Wu
- A Region-based Hierarchical Location Service with Road-adapted Grids for Vehicular Networks, Guey-Yun Chang, Yun-Yu Chen, and Jang-Ping Sheu
- Optimal Multipath Planning for Intrusion Detection in Smart Homes Using Wireless Sensor and Actor Networks, Yung-Liang Lai and Jehn-Ruey Jiang

3:30 – 4:00 Break

Grand Ballroom IV 4:00-5:30

AWASN Session 3: Theory

Chair : TBA

- A Distributed and Energy Efficient Algorithm for Data Collection in Sensor Networks, Sarah Sharafkandi, David H.C Du, Alireza Razavi
- Multiple Trees with Network Coding for Efficient and Reliable Multicast in MANETs. Yu-Hsun Chen, Gen-Huey Chen, Eric Hsiao-Kuang Wu
- Quality of Surveillance Measures in K-covered Heterogeneous Wireless Sensor Networks, Meng-Chun Wueng and I-Shyan Hwang