

JUNE 27 - 29
ARLINGTON, VIRGINIA

2013

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INTERNATIONAL
GREENCOMPUTING
CONFERENCE

INTERNATIONAL GREENCOMPUTING CONFERENCE

THURSDAY, JUNE 27TH

9:00 am – 3:00 pm

WORKSHOPS

WORKSHOP 1: ENERGY-EFFICIENT NETWORKS OF COMPUTERS (E²NC): FROM THE CHIP TO THE CLOUD

9:00 – 10:00 am

KEYNOTE: POWER AND PERFORMANCE CONSIDERATIONS IN THE DATA CENTER • Partha Kundu

10:00 – 10:30 am

BREAK | Vivace Foyer

10:30 am – 12:00 pm

SESSION 1 | Vivace A

Session Chairs: Amlan Ganguly and Partha Pande

- Improving Linearity in Class-AB Power Amplifiers Using a Body-Biased NMOS Predistortion Stage • Hooman Rashtian and Shahriar Mirabbasi
- Drowsy Cache Partitioning for Reduced Static and Dynamic Energy in the Cache Hierarchy • Brendan Fitzgerald, Sonia Lopez Alarcon, and Julio Sahuquillo
- An Efficiency Enhancement Technique for CMOS Rectifiers with Low Start-Up Voltage for UHF RFID Tags • Pouya Kamalinejad, Kamyar Keikhosravy, Shahriar Mirabbasi and Victor C.M. Leung

12:00 – 1:30 pm

LUNCH

1:30 – 3:00 pm

SESSION 2 | Vivace A

Session Chairs: Amlan Ganguly and Partha Pande

- Management of Large-Scale Wireless Sensor Networks Utilizing Multi-Parent Recursive Area Hierarchies • Johnathan Cree and Jose Delgado-Frias
- Vector Repacking Algorithms for Power-Aware Computing • Mario Consuegra, Giri Narasimhan, and Raju Rangaswami
- Dynamic Task Graph Scheduling on Multicore Processors for Performance, Energy, and Temperature Optimization • Hafiz Fahad Sheikh and Ishfaq Ahmad

WORKSHOP 2: POWER MEASUREMENT AND PROFILING (PMP)

9:00 – 10:30 am

SESSION 1 | Vivace B

Session Chair: Abhishek Agrawal

- Temperature Effects on On-Chip Energy Measurements • Juan M. Cebrian and Lasse Natvig
- PowerInsight - A Commodity Power Measurement Capability • James Laros, Phil Pokorny, and David Debonis
- Granular CPU Power Measurement for SMP Clusters • David Newsom, Ahmad Anbar, Tarek El-Ghazawi, and Sardar Azari

10:30 – 11:00 am

BREAK | Vivace Foyer

11:00am – 12:00 pm

SESSION 2 | Vivace B

Session Chair: Abhishek Agrawal

- Statistical Modeling of Power/Energy of Scientific Kernels on a Multi-GPU System • Sayan Ghosh, Sunita Chandrasekaran, and Barbara Chapman
- Auto-Tuning Multi-Programmed Workload on the SCC • Brian Roscoe, Mathias Herlev and Chen Liu

1:00 – 3:00 pm

WORKSHOP 3: COMPUTING FOR WATER SUSTAINABILITY

SESSION 1 | Vivace B

Session Chairs: Carol J. Miller and Shawn P. McElmurry

- Optimizing Water Distribution System Storage and Its Influences on Pollutant Emission Reduction • Steven Jin, Carrie Loya-Smalley, and Awni Qaqish
- Energy Cost Optimization in Water Distribution Systems using Markov Decision Processes • Paulo Fracasso, Frank Barnes, and Anna Costa
- A Case Study of Energy Optimization in Monroe Water Distribution System • Fatemeh Alighalehbabakhani, Carol J. Miller, Shawn McElmurry, and Seyed Mohsen Sadatiyan Abkenar
- Optimizing Pumping System for Sustainable Water Distribution Network by Using Genetic Algorithm • Seyed Mohsen Sadatiyan Abkenar, Samuel Dustin Stanley, Donald Chase, Carol Miller, and Shawn P. McElmurry
- A Smart-Phone Application for Home Emissions Estimates • Guoyao Xu, Michelle Rogers, Carol Miller, Shawn McElmurry, Weisong Shi, Caisheng Wang, Yang Wang, and Cheng-Zhong Xu

FRIDAY, JUNE 28TH

8:30 – 10:00 am	KEYNOTE: ENERGY-AWARE ROBUST RESOURCE MANAGEMENT FOR PARALLEL COMPUTING SYSTEMS • H.J. Siegel Vivace
10:00 – 10:30 am	BREAK Vivace Foyer
10:30 am – 12:00 pm	SESSION 1A: POWER-AWARE MULTI-CORE SYSTEMS Vivace A

Session Chair: Ken Christensen

- REMEDIATE: A Scalable Fault-Tolerant Architecture for Low-Power NUCA Cache in Tiled CMPs • Abbas Banaianmofrad, Houman Homayoun, Vasileios Kontorinis, Dean Tullsen, and Nikil Dutt
- Energy-Aware Task Replication to Manage Reliability for Periodic Real-Time Applications on Multicore Platforms • Mohammad Haque, Hakan Aydin and Dakai Zhu
- A Distributed File System for Intermittent Power • Navin Sharma, David Irwin, and Prashant Shenoy

SESSION 1B: ENERGY-EFFICIENT MANAGEMENT OF DATA CENTERS AND ELECTRIC VEHICLES | Vivace B

Session Chair: Sahra Sedighsarvestani

- Energy-Optimized Dynamic Deferral of Workload for Capacity Provisioning in Data Centers • Muhammad Abdullah Adnan, Ryo Sugihara, Yan Ma, and Rajesh Gupta
- Distributed Resource Management in Data Center with Temperature Constraint • Mohammad Islam, Shaolei Ren, Niki Pissinou, Hasan Mahmud, and Athanasios Vasilakos
- Joint Management of Data Centers and Electric Vehicles for Maximized Regulation Profits • Marco Brocanelli, Sen Li, Xiaorui Wang, and Wei Zhang

12:00 – 1:30 pm	LUNCH Terrace
1:30 – 3:00 pm	SESSION 1C: GREEN CLOUD COMPUTING AND CONTENT DELIVERY Vivace A

Session Chair: Rong Ge

- Energy-Efficient Content Delivery Networks using Cluster Shutdown • Vimal Mathew, Ramesh Sitaraman, and Prashant Shenoy
- Providing Green SLAs in High Performance Computing Clouds • Md E. Haque, Kien Le, Inigo Goiri, Ricardo Bianchini, and Thu D. Nguyen
- Implementing Green Technologies and Practices in a High Performance Computing Center • Jay Patel, Salvatore Guercio, Andrew Bruno, Matthew Jones, and Thomas Furlani

SESSION 1D: POWER-AWARE PLATFORMS | Vivace B

Session Chair: Michele Magno

- Energy Conservation in Asynchronous Systems using Self-Adaptive Fine-Grain Voltage Scaling • Vishal Gupta and Montek Singh
- Introducing FIRESTARTER: A Processor Stress Test Utility • Daniel Hackenberg, Roland Oldenburg, Daniel Molka, and Robert Schöne
- Evaluating Effects of Thermal Management in Wireless NoC-Enabled Multicore Architectures • Jacob Murray, Paul Wettin, Partha Pande, Behrooz Shirazi, Nishad Nerurkar, and Amlan Ganguly
- Ocelot: A Wireless Sensor Network and Computing Engine with Commodity Palmtop Computers • Haifeng Xu, Alex Jones, Laura Schaefer, Amy Landis, and Melissa Bilec

3:00 – 3:30 pm	BREAK Vivace Foyer
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FRIDAY, JUNE 28TH

3:30 – 5:00 pm	SESSION 1E: POWER-AWARE TASK SCHEDULING Vivace A
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Session Chair: Shaolei Ren

- Your Cluster is not Power Homogeneous: Take Care when Designing Green Schedulers • Mohammed El Mehdi Diouri, Olivier Glück, Laurent Lefèvre, and Jean-Christophe Mignot
- Optimizing Communication and Cooling Costs in HPC Data Centers via Intelligent Job Allocation • Fulya Kaplan, Jie Meng, and Ayse K. Coskun
- Energy-Aware Checkpointing of Divisible Tasks with Soft or Hard Deadlines • Guillaume Aupy, Anne Benoit, Rami Melhem, Paul Renaud-Goud, and Yves Robert

SESSION 1F: GREEN AUDITS AND TRENDS | Vivace B

Session Chair: Amlan Ganguly

- EnergyAudit: Monitoring Power Consumption in Diverse Network Environments • Joseph Chabarek and Paul Barford
- HomeSim: Comprehensive, Smart, Residential Energy Simulation and Scheduling • Jagannathan Venkatesh, Baris Aksanli, Tajana Rosing, Jean-Claude Junqua, and Philippe Morin
- Power-Saving in Storage Systems for Internet Hosting Services with Data Access Prediction • Jumpei Okoshi, Koji Hasebe, and Kazuhiko Kato
- Trends in Energy-Efficient Computing: A Perspective from the Green500 • Balaji Subramaniam, Tom Scogland, and Wu-Chun Feng

5:00 – 6:30 pm	HAPPY HOUR Terrace
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SATURDAY, JUNE 29TH

8:30 – 10:00 am	KEYNOTE: ENERGY ADAPTATION IN STORAGE SYSTEMS • Krishna Kant Vivace
10:00 – 10:30 am	BREAK Vivace Foyer
10:30 am – 12:00 pm	SESSION 2A: ENERGY MANAGEMENT IN LARGE AND REAL-TIME SYSTEMS Vivace A

Session Chair: Baniasadi Amirali

- Energy Management of Standby-Sparing Systems for Fixed-Priority Real-Time Workloads • Mohammad Haque, Hakan Aydin, and Dakai Zhu
- Locality Aware Power Optimization and Measurement Methodology for PGAS Workloads • David Newsom, Ahmad Anbar, Tarek El-Ghazawi, and Sardar Azari
- Online System for Energy Assessment in Large Facilities: Methodology and a Real-World Case Study • Venkata Ramakrishna P., Gollakota Kaushik, K. Loknath Sudhakar, Geetha Thiagarajan, and Anand Sivasubramaniam
- Is There Always Abundant Green Power? A Step Before Geographical Load Balancing for Renewable Energy • Chuansheng Dong, Fanxin Kong, Xue Liu and Haibo Zeng

SESSION 2B: SMART BUILDINGS AND URBAN DEVELOPMENT | Vivace B

Session Chair: Zong Ziliang

- Empirical Characterization and Modeling of Electrical Loads in Smart Homes • Sean Barker, Sandeep Kalra, David Irwin, and Prashant Shenoy
- Distributed Battery Control for Peak Power Shaving in Datacenters • Baris Aksanli, Eddie Pettis, and Tajana Simunic Rosing
- Enabling Advanced Environmental Conditioning with a Building Application Stack • Jay Taneja, Andrew Krioukov, Stephen Dawson-Haggerty, and David Culler

SATURDAY, JUNE 29TH

12:00 – 1:30 pm	LUNCH	Terrace
1:30 – 3:00 pm	SESSION 2C: USING I.T. TO REDUCE CARBON EMISSIONS	Vivace A

Session Chair: Matthew Jones

- Towards an Architecture for Integrated Gas District Cooling with Data Center Control to Reduce CO₂ Emission • Jun Okitsu, Ken Naono, Mohd Fatimie Irzaq Khamis, Ahmad Abba Haruna, and Nordin Zakaria
- Effect of Climatic Conditions on Energy Consumption in Direct Fresh-Air Container Data Centers • Hiroshi Endo, Hiroyoshi Kodama, Hiroyuki Fukuda, Toshio Sugimoto, Takeshi Horie, and Masao Kondo

WIP SESSION 2D: ARCHITECTURE | Vivace B

Session Chair: Ali Hurson

- Adapting Data Quality with Multihop Routing for Energy-Harvesting Wireless Sensor Networks • Nga Dang, Mahnaz Roshanaei, Eli Bozorgzadeh, and Nalini Venkatasubramanian
- Application Specific Low Leakage Data Cache for Embedded Processors • Mostafa Farahani, Fatemeh Eslami, and Amirali Baniasadi
- Energy-Efficient Server Consolidation for Multi-threaded Applications in the Cloud • Can Hankendi and Ayse Coskun
- Eco-Threading Framework for Commodity Platform • Shouta Nagashima and Shigeru Kusakabe

3:00 – 3:30 pm	BREAK	Vivace Foyer
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3:30 – 5:00 pm	WIP SESSION 2E: POWER ANALYSIS	Vivace A
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Session Chair: Behrooz Shirazi

- Operation Cost Minimization for Distributed Data Centers Through Exploring Electricity Price Diversity • Zichuan Xu and Weifa Liang
- Energy-Efficient Resource Management of Cloud Datacenters Under Fault Tolerance Constraints • Seyed Mohammad Ghoreyshi
- The CAESARA Architecture for an Energy and Thermal-Aware Placement of Virtual Machines • Daniel Versick and Djamshid Tavangarian
- Automatic Estimation of DVFS Potential • Nicolas Triquenaux, Alexandre Laurent, Benoît Pradelle, Jean Christophe Beyler, and William Jalby
- Energy Modeling of Supercomputers and Large-Scale Scientific Applications • Scott Pakin and Michael Lang

WIP SESSION 2F: SUSTAINABILITY | Vivace B

Session Chair: Sahra Sedigh

- Local Power Distribution with Nanogrids: A Position Paper • Bruce Nordman and Ken Christensen
- Green Computing: A Life Cycle Perspective • Alex Jones, Liang Liao, William Collinge, Haifeng Xu, Laura Schaefer, Amy Landis, and Melissa Bilec
- Towards Green GPUs: Warp Size Impact Analysis • Ahmad Lashgar, Amirali Baniasadi, and Ahmad Khonsari
- A Power-Aware Multi Harvester Power Unit with Hydrogen Fuel Cell for Embedded Systems in Outdoor Applications • Michele Magno, Danilo Porcarelli, Davide Brunelli, and Luca Benini
- Smart Proxying: An Optimal Strategy for Improving Battery Life of Mobile Devices • Raffaele Bolla, Maurizio Giribaldi, Rafiullah Khan, and Matteo Repetto
- Classification of Sidewalks in Street View Images • Virginia Smith, Jitendra Malik, and David Culler
- Granular CPU Power Measurement for SMP Clusters • Thomas Wirtz, Rong Ge, Ziliang Zong, and Zizhong Chen

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