

LCTES 2004
ACM SIGPLAN/SIGBED Conference on
Languages, Compilers, and Tools for Embedded Systems

Washington, DC
June 11-13, 2004

Friday, June 11th (Executive Forum)

1:15-1:30 Welcome

1:30-3:00 Evaluating Embedded Applications (session chair: Mary Jane Irwin)

"GaalBench: A 3D Graphics Benchmark Suite for Mobile Phones" *Iosif Antochi, Ben Juurlink, Stamatis Vassiliadis (Delft University) and Petri Liuhi (NOKIA)*

"Modeling and Simulating E-Textile Applications" *Thomas Martin, Mark Jones, Joshua Edmison, Tanwir Sheikh, Zahi Nakad (Virginia Tech)*

"Spinach: A Liberty-based Simulator for Programmable Network Interface Architectures" *Paul Willman, Michael Broglioli, Vijay Pai (Rice University)*

3:00-3:30 Break (Executive Forum Foyer)

3:30-5:00 Languages and Software Architectures (session chair: Bruce Childers)

"NDL: A Domain-Specific Language for Device Drivers" *Christopher L. Conway, Stephen A. Edwards (Columbia University)*

"Asynchronous Software Thread Integration for Efficient Software Implementations of Embedded Communication Protocol Controllers" *Nagendra J. Kumar, Shiddhartha Shivshankar, Alexander G. Dean (North Carolina State University)*

"A Formal Concurrency Model Based Architecture Description Language for Synthesis of Software Development Tools" *Wei Qin, Subramanian Rajagopalan, Sharad Malik (Princeton University)*

5:00-5:45 Keynote Speaker

"NSF-Sponsored Research Opportunities in Embedded Systems" *Helen Gill*

6:00-7:00 LCTES Steering Committee Meeting (Imperial One)

7:00-9:00 LCTES Reception (Roosevelt Room)

Saturday, June 12th (Executive Forum)

7:00-8:00 Breakfast (Executive Forum Foyer)

8:00-10:00 Power Management I (session chair: Daniel Kaestner)

"Procrastination Scheduling in Fixed Priority Real-Time Systems" *Ravindra Jejurikar (University of California, Irvine), Rajesh Gupta (University of California, San Diego)*

"Power-Efficient Prefetching via Bit-Differential Offset Assignment on Embedded Processors" *Xiaotong Zhuang, Santosh Pande (Georgia Institute of Technology)*

"Speculative Software Management of Datapath-width for Energy Optimization" *Gilles Pokam, Olivier Rochecoste, Andre Sez nec, Francois Bodin (IRISA)*

"Dynamic Voltage Scaling for Real-Time Multi-Task Scheduling Using Buffers" *Chaeseok Im, Soonhoi Ha (Seoul National University)*

10:00-10:30 Break (Executive Forum Foyer)

10:30-12:00 Power Management II (session chair: Al Mok)

"A Trace-Based Binary Compilation Framework for Energy-Aware Computing" *Lian Li, Jingling Xue (University of New South Wales)*

"ESys.NET: A New Solution for Embedded Systems Modeling and Simulation" *J. Lapalme, E.M.*

Aboulhamid, G. Nicolescu, L. Charest, F.R. Boyer, J.P. David, G. Bois (Universite de Montreal and Ecole Polytechnique de Montreal)

"XTREM: A power simulator for the Xscale microprocessor" *Gilberto Contreras, Margaret Martonosi (Princeton University), Jinzham Peng, Roy Ju, Guei-Yuan Lueh (Intel)*

12:00-1:30 Lunch (Culpeper Room and Longworth Room)

1:30-3:00 Caches and Instruction Sets (session chair: Alex Dean)

"Feedback Driven Instruction-Set Extension" *Dinh Khoi Le, Adrian Slowik, Michael Thies, Uwe Kastens (University of Paderborn)*

"Compositional Static Instruction Cache Simulation" *Kaustubh Patil, Kiran Seth, Frank Mueller (North Carolina State University)*

"Measuring the Cache Interference Cost in Preemptive Real-Time Systems" *Johan Staerner, Lars Asplund (Malardalen University)*

3:00-3:30 Break (Executive Forum Foyer)

3:30-5:00 Code Management (session chair: Chandra Krintz)

"Adaptive Code Unloading for Resource-Constrained JVMs" *Lingli Zhang, Chandra Krintz (University of California, Santa Barbara)*

"Advanced Control Flow in Java Card Programming" *Peng Li, Steve Zdancewic (University of Pennsylvania)*

"Synthesizing Fast Code from Concurrent Program Dependence Graphs" *Jia Zeng, Cristian Soviani, Stephen A. Edwards (Columbia University)*

5:00-6:00 Student Poster Session (Culpeper Room)

Sunday, June 13th (Executive Forum)

7:00-8:00 Breakfast (Executive Forum Foyer)

8:00-9:30 Register Allocation (session chair: Rajiv Gupta)

"EMBARC: An Efficient Memory Bank Assignment Algorithm for Retargetable Compilers" *Jason D. Hiser, Jack W. Davidson (University of Virginia)*

"Hardware-managed Register Allocation for Embedded Processors" *Tao Zhang, Xiaotong Zhuang, Santosh Pande (Georgia Institute of Technology)*

"A Retargetable Register Allocation Framework for Embedded Processors" *Jean-Marc Daveau, Thomas Thiery, Thierry Lepley, Miguel Santana (STMicroelectronics)*

9:30-10:00 Break (Executive Forum Foyer)

10:00-11:30 Compilers and Optimization (session chair: Yunheung Paek)

"Link-Time Optimization of ARM Binaries" *Bruno De Bus, Bjorn De Sutter, Ludo Van Put, Dominique Chagnet, Koen De Bosschere (Ghent University)*

"Optimizing for Space and Time Usage with Speculative Partial Redundancy Elimination" *Bernhard Scholz (University of Sydney), Nigel Horspool (University of Victoria), Jens Knoop (Technische Universitaet Wien)*

"Finding Effective Compilation Sequences" *L. Almagor, Keith D. Cooper, Alexander Grosul, Timothy J. Harvey, Steven W. Reeves, Devika Subramanian, Linda Torczon, Todd Waterman (Rice University)*

11:30-1:00 Lunch (Ballroom One)

1:00-2:30 Software (session chair: E. Christopher Lewis)

"Code Protection for Resource-Constrained Embedded Devices" *H. Saputra, G. Chen, R. Brooks, N. Vajaykrishnan, M. Kandemir, M. J. Irwin (Pennsylvania State University)*

"Input Data Reuse In Compiling Window Operations Onto Reconfigurable Hardware" *Zhi Guo, Betul Buyukkurt, Walid Najjar (University of California, Riverside)*

"Flattening Statecharts without Explosions" *Andrzej Wasowski (University of Copenhagen)*