

CASES

A Jump-target Identification method for multi-architecture static binary translation

Alessandro Di Federico and Giovanni Agosta

A Real-Time Digital-Microfluidic Platform for Epigenetics

Mohamed Ibrahim, Craig Rowell, Krishnendu Chakrabarty, Kristin Scott and Miroslav Pajic

CaffePress: An Optimized Library for Deep Learning on Embedded Accelerator-based platforms

Gopalakrishna Hingde, Siddhartha V. Nachappa, Rameshwar and Nishant Kapse

COMET: Communication-Optimized Multi-threaded Error-detection Technique

Konstantina Mitropoulou, Vasileios Porpodas and Timothy M. Jones

D-PUF: An Intrinsically Reconfigurable DRAM PUF for Device Authentication in Embedded Systems

Srabajyoti Sutar, Arnab Raha and Vijay Nighurathian

Enabling OpenCL support in mW-scale parallel accelerators

Giuseppe Tagliavini, Germain Haugou, Andrea Marongiu and Luca Benini

FastCollect: Offloading Generational Garbage Collection to Integrated GPU

Abhinav Jangia and Rupesh Nare

Handling Large Data Sets for High-Performance Embedded Applications in Heterogeneous Systems-on-Chip

Paolo Martovani, Emilio G. Cota, Christian Pilato, Giuseppe Di Guglielmo and Luca Carloni

Hybrid Network-on-Chip Architectures for Accelerating Deep Learning Kernels on Heterogeneous Manycore Platforms

Wonjo Choi, Karthi Duraisamy, Ryan Kim, Jaseelhan Rao Doppa, Partha Pandey, Rada Marculescu and Diana Marculescu

ILP-based Module Scheduling for High-level Synthesis

Julian Oppermann, Andreas Koch, Melanie Reuter-Oppermann and Oliver Stenz

LOCUS: Low-Power Customizable Many-Core Architecture for Wearables

Chong Tan, Aditi Kulkarni, Vanchinathan Venkatesaneni, Manasa Ramaratnam, Tulika Mitra and Li-Shiuan Peh

Matrix Multiplication Beyond Auto-Tuning: Rewrite-based GPU Code Generation

Michel Streuver, Thomas Rummel and Christophe Dubach

On-the Fly Load Data Value Tracing in Multicores

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Redesigning a Tagless Access Buffer That Requires Minimal ISA Changes

Carlos Sanchez, Peter Gavin, Daniel Morcu, Magnus Sjölander, David Whalley, Per Larsson-Edefors and Sally McKee

Runtime Management of Adaptive MPSoCs for Graceful Degradation

Stavros Tolia, Ioannis Sourdis, Vasileios Vasiliadis, Dimitrios Rodopoulos and Dimitrios Sourdis

Speculative disassembly of binary code

M. Ammar Ben Khadra, Dominik Stoffel and Wolfgang Fenz

Thrifty-malloc: a hardware/software codesign for the dynamic management of the hardware transactional memory in embedded multicore systems

Thomas Cario, Iris Bahar, Maurice Herlihy, Dimitris Papagianopoulos, Tali Morscher and Andrea Marongiu

Towards the Design of Fault-Tolerant Mixed-Criticality Systems on Multicores

Luyuan Song, Pengcheng Huang and Lethar Thiele

CODES+ISSS

A Design to Reduce Write Amplification in Object-based NAND Flash Devices

Jie Guo, Chaitan Mita, Tao Cai and Yimin Chen

A Disturbance-aware Sub-Block Design to Improve Reliability of 3D MLC Flash Memory

Huang-Sheng Chang, Yuan-Hao Chang, Tai-Wei Kuo, Yu-Ming Chang and Hsiang-Pang Li

A Practical Methodology to Validate the Statistical Behavior of Bloom Filters

Venkateshwar Kottapalli and Sandi Khatzi

An Accurate and Flexible Early Memory System Power Evaluation Approach Using a Microcomponent Method

Chi-Kang Chen, Hsin-I Wu, Chi-Ting Hsiao and Ben-Song Tsay

AsyncStripe: I/O Efficient Asynchronous Graph Computing on a Single Server

Shailan Cheng, Guangyan Zhang and Jiea Shu

Checkpoint Awaits Hybrid Cache Architecture for NV Processor in Energy Harvesting Powered Systems

Minli Xia, Mengyang Zhao, Hibo Li, Chen Pan, Yousuo Zhang, Yonggan Liu, Jason Xie and Jingdong Hu

Efficient Design Space Exploration by Knowledge Transfer

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Energy-Efficient Mapping of Real-Time Applications on Heterogeneous MPSoCs using Task Replication

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Fast and cycle-accurate simulation of multi-threaded applications on SMP architectures using hybrid prototyping

Ehsan Saboori and Samir Abdi

Fault Injection at Host-Compiled Level with Static Fault Set Reduction for SoC Firmware Robustness Testing

Petra E. Malek, Veit Kleeberger, Daniel Mueller-Grubschneider and Ulf Schlickmann

How to Enable Software Isolation and Boost System Performance with Sub-block Erase over 3D Flash Memory

Hsin-Yu Chang, Chien-Chang Ho, Yuan-Hao Chang, Yu-Ming Chang and Tai-Wei Kuo

Mitigation of Homodyne Crosstalk Noise in Silicon Photonic NoC Architectures with Tunable Decoupling

Khan Thakkar, Raj Vineel Reddy Chittamuru and Sudipto Paudyal

Nano-Engineered Architectures for Ultra-Energy-Efficient Wireless Body Sensor Nodes

Rubén Bragón, Tony F. Wu, Giovanni Asanović, Mohamed M. Sabry, David Atienza, Subhasish Mitra and H.-S. Philip Wong

Optimal Functional-Unit Assignment and Buffer Placement for Probabilistic Pipelines

Wenwen Jiang, Edwin Shu, Qingfeng Zhuo and Xianhang Chen

Optimizing the Location of ECC Protection in Network-on-Chip

Jurabi Wang, Lethar Huang, Guangyan Li and Axel Jantsch

Realizing Erase-free SLC Flash Memory with Rewritable Programming Design

Yu-Ming Chang, Yung-Chun Li, Ping-Hsien Lin, Hsiang-Pang Li and Yuan-Hao Chang

Runtime Configurable Deep Neural Networks for Energy-Accuracy Trade-off

Hsiachang Tann, Sohail Hashemi, R. Iris Bahar and Sherief Reda

Scalable and Realistic Benchmark Synthesis for Efficient NoC Performance Evaluation: A Complex Network Analysis Approach

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SPARTA: Runtime Task Allocation for Energy Efficient Heterogeneous Many-cores

Bryan Doornavard, Tiago Mach, Santiago Sarma and Niki Datt

Web Browser Workload Characterization for Power Management on HMP Platforms

Nadja Peters, Sangyoung Park, Samarjit Chakraborty, Ramona Payer, Benedikt Maurer and Daniel Clifford

Zero and Data Reuse-aware Fast Convolution for Deep Neural Networks on GPU

Gyunsun Park, Dongyoung Kim, Junghwan Ahn and Sungjoo Yoo

EMSOFT

A Fast, Lightweight, and Reliable File System for Wireless Sensor Networks

Bhavjit Mazumdar and Anves Hallstrom

A Flattened Hierarchical Scheduler for Real-Time Virtualization

Michael Drescher, Vincent Legout, Antonio Barbalace and Remy Revivras

A Refinement Theory for Timed-Dataflow Analysis with Support for Reordering

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An Algorithmic Approach to Global Asymptotic Stability Verification of Hybrid Systems

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Automatic HAL Generation for Embedded Multiprocessor Systems

Hermen Papp, Orlando Morina, Wim Veldema and Manno Lindwer

Cache-Related Preemption Delay Analysis for Multi-Level Inclusive Caches

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Darboux-type Barrier Certification for Safety Verification of Nonlinear Hybrid Systems

Xia Zeng, Wang Lin, Zhongfeng Yang, Xia Chen and Lili Wang

Energy and Timing Aware Synchronous Programming

Julie Wang, Partha S. Bop and Alain Chouk

Exploring the Performance of ROS2

Yuya Maruyama, Shinsuke Kato and Takuya Aizumi

Flexible Support for Time and Costs in Scenario-Aware Dataflow

Michael Bungert, Arnd Hartmanns and Heiger Hermans

I/O Scheduling with Mapping Cache Awareness for Flash Based Storage Systems

Cheng Li, Chao Wu, Li-Pin Chang, Liang Shi and Jason Xue

Locally Optimal Reach Set Over-approximation for Nonlinear Systems

Chaoxi Fan, James Kapinski, Xiaojing He and Sayan Mitra

Making DDS Really Real-Time with OpenFlow

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Modular Deductive Verification of Cyber-physical Systems

Daniel Ricketts, Gregory Malecha and Boris Lerner

On-the-Fly Fast Overrun Budgeting for Mixed-Criticality Systems

Biao Hu, Kai Huang, Pengcheng Huang, Lethar Thiele and Alois Knoll

PCFIRE: Towards Provable Preventative Control-Flow Integrity Enforcement for Realistic Embedded Software

Jaeji Tan, Hui Jun Tay, Utsav Desai, Rajeev Gandhi and Priya Narendran

Real-Time Cache Management for Multi-Core Virtualization

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RMCC: an Integrated Runtime System for Adaptive Many-Core Computing

Anna Park, Danli Je and Woongil Baek

Robust Controller Synthesis of Switched Systems Using Counterexample Guided Framework

Hadi Benabdelkhal and Srinan Sankaranarayanan

Schedulability Analysis of Mixed-criticality Systems with Multiple Frequency Specifications

Sanjoy Baruah

Synthesizing Time-Triggered Schedules for Switched Networks with Faulty Links

Guy Amir, Shihabish Ouba and Guillermo Rodriguez-Soriano

The Design of an Efficient Swap Mechanism for Hybrid DRAM-NVM Systems

Xianchang Chen, Edwin H.-M. Sha, Weiqian Jiang, Qingfeng Zhang, Junxi Chen, Huijie Qin and Yuesong Zeng

The SMT-Based Automatic Road Network Generation in Vehicle Simulation Environment

Baskiya Kim, Akshay Iravankar, Jonathan Shum, Shinichi Shimokata and Masahiro Yamazaki

Underminer: A Framework for Automatically Identifying Non-Convergent Behaviors in Black Box System Models

Ayca Balkan, Paolo Tabuada, Jyotirmoy Deshmukh, Xiaojing Jin and James Kapinski

Verifying Cyber-Physical Systems by Combining Software Model Checking with Hybrid Systems Reachability

Stanley Bak and Sagar Chaki

IoT Day

A Big Data Approach to Optimizing Storage

Art Jochims, Google Research

Controlling Concurrent Change - A self-aware Infrastructure for Continuous Change and Evolution in Automotive Systems

Kolb Ernst, TU Braunschweig

Distributed QoS Management for Internet of Things under Resource Constraints

Farhad Samir, Vasileios Tziouvaras, Soledad Kylla, Lars Bauer, Dimitrios Sourdis

Evolving Authentication Design Considerations for the Internet of Biometric Things (IoBT)

Mina Karimianfarzmandi, Paul Wortman and Kenneth Tshenipoor

IoT Technologies for Embedded Computing: A Survey

Farhad Samir, Lars Bauer and Joerg Henkel

Self-aware Computing and the Internet of (Adaptive) Things

Henry Hoffmann, University of Chicago