2011 9th IEEE Symposium on Embedded Systems for Real-Time Multimedia

(ESTIMedia 2011)

Taipei, Taiwan
13-14 October 2011
Table of Contents

**Message from the Chairs**
Jian-Jia Chen, Jörg Henkel, Naehyuck Chang and Andy D. Pimentel

**Keynote**
System Perspective on Embedded Multimedia
Liang-Gee Chen

**Invited Talks**
A Whole Layer Performance Analysis Method for Android Platforms 001
Namseung Lee and Sung-Soo Lim

Support of Software Framework for Embedded Multi-core Systems with Android Environments 002
Yu-Hao Chang, Chi-Bang Kuan, Cheng-Yen Lin, Te-Feng Su, Chun-Ta Chen, Jyh-Shing Jang, Shang-Hong Lai and Jenq-kuen Lee

**Memory and Storage**
Scheduling of Stream Programs onto SPM Enhanced Processors with Code Overlay 009
Weijia Che and Karam Chatha

Exploiting Set-Level Write Non-Uniformity for Energy-Efficient NVM-Based Hybrid Cache 019
Jianhua Li, Liang Shi, Chun Jason Xue, Chengmo Yang and Yinlong Xu

A Flash-Friendly B+-Tree with Endurance-Awareness 029
Hua-Wei Fang, Mi-Yen Yeh, Pei-Lun Suei and Tei-Wei Kuo

On the Management of Multichannel Architectures of Solid-State Disks 037
Li-Pin Chang, Yi-Hsun Huang and Chen-Yi Wen

**Coding, Estimation and Modeling**
Shadow-based Vehicle Model Refinement and Tracking in Advanced Automotive Driver Assistance Systems 046
Florian Rattei, Philipp Kindt, Alma Pröbstl and Samarjit Chakraborty

Multi-ASIP Based Parallel and Scalable Implementation of Motion Estimation Kernel for High Definition Videos 056
Hong Chinh Doan, Haris Javaid and Sri Parameswaran

Model Checking a SystemC/TLM Design of the AMBA AHB Protocol 066
Marcel Pockrandt, Paula Herber and Sabine Glesner

SVC or MDC? That's the Question 076
Yi-Hsuan Chiang, Polly Huang and Homer H. Chen

**Mapping and Compilation**
Resource Minimized Static Mapping and Dynamic Scheduling of SDF Graphs 083
Jinwoo Kim, Tae-Ho Shin, Soonhoi Ha and Hyunok Oh
Parallelization of a Bokeh Application on Embedded Multicore DSP Systems 093
Chi-Bang Kuan, Shao-Chung Wang, Wen-Li Shih, Kun-Hsien Tsai, Shang-Hong Lai and Jenq Kuen Lee

Automatic Derivation of Polyhedral Process Networks from While-Loop Affine Programs 102
Dmitry Nadezhkin and Todor Stefanov

Fault Tolerance and Scheduling
A Greedy Approach to Tolerate Defect Cores for Multimedia Applications 112
Ke Yue, Soumia Ghalim, Zheng Li, Frank Lockom, Shangping Ren, Lei Zhang and Xiaowei Li

Towards an ESL Design Framework For Adaptive and Fault-Tolerant MPSoCs: MADNESS or not? 120
Emanuele Cannella, Lorenzo Di Gregorio, Leandro Fiorin, Menno Lindwer, Paolo Meloni, Olaf Neugebauer and Andy Pimentel

Tractable Real-Time Schedulability Analysis For Mode Changes Under Temporal Isolation 130
Nathan Fisher and Masud Ahmed

Evaluation of Scheduling Heuristics for Jitter Reduction of Real-Time Streaming Applications on Multi-core General Purpose Hardware 140
Mark Westmijze, Marco Bekooij, Gerard Smit and Marc Schrijver