# TABLE OF CONTENTS

## SESSION VI: MULTI/MANY CORE

Establishing A Standard Interface Between Multi-Manycore And Software Tools – SHIM .................................................. 1  
M. Gondo, F. Arakawa, M. Edahiro

Parallel Design of Control Systems Utilizing Dead Time for Embedded Multicore Processors ................................. 4  
Y. Suzuki, K. Sata, J. Kako, K. Yamaguchi, F. Arakawa, M. Edahiro

## SESSION VII: PANEL DISCUSSIONS

M. McCool, S. Ryu, S. Kawasaki, H. Tobia, F. Arakawa

## SESSION IX: MEMORIES

Language Runtime Support for NVM/DRAM Hybrid Main Memory ......................................................................................... 9  
G. Nakagawa, S. Ohkawa

A Low Power DRAM Refresh Control Scheme for 3D Memory Cube ........................................................................... 12  
Y. Wang, Y. Han, H. Li

A Flexibly Fault-Tolerant FU Array Processor and its Self-Tuning Scheme to Locate Permanently Defective Unit .................................................................................................................. 15  
J. Yao, Y. Nakashima, M. Saito, Y. Hazama, R. Yamanaka

A Globally Asynchronous Locally Synchronous DMR Architecture for Aggressive Low-Power Fault Toleration .................................................................................................................. 18  
Y. Yuttakonki, J. Yao, Y. Nakashima

Kernel Data Race Detection using Debug Register in Linux ............................................................................................... 21  
Y. Jiang, Y. Yang, T. Xiao, T. Sheng, W. Chen

## SESSION XII: LOW-POWER CIRCUIT TECHNIQUES

A Perpetuum Mobile 32bit CPU with 13.4pJ/cycle, 0.14µA Sleep Current using Reverse Body Bias Assisted 65nm SOTB CMOS Technology ........................................................................................................... 24  

Embedded SRAM and Cortex-M0 Core with Backup Circuits Using a 60-nm Crystalline Oxide Semiconductor for Power Gating ................................................................................................................ 27  

## SESSION XIII: POWER OPTIMIZATION

Aggressive Use of Deep Sleep Mode in Low Power Embedded Systems ........................................................................... 30  
J. Segawa, Y. Shirot, K. Fujisaki, T. Kimura, T. Kamai

An Energy Optimization Method for Vector Processing Mechanisms ............................................................................. 33  
Y. Gao, M. Sato, R. Egawa, H. Takizawa, H. Kobayashi

A Fine Grained Power Management supported by Just-In-Time Compiler ......................................................................... 36  
M. Wada, M. Sato, M. Namiki
SESSION XIV: NOV

A Task-level Pipelined Many-SIMD Augmented Reality Processor with Congestion-aware Network-on-Chip Scheduler ................................................................. 39
  G. Kim, S. Park, K. Lee, Y. Kim, I. Hong, K. Bong, D. Shin, S. Choi, J. Park, H. Yoo

A Low Power Noc Router Using The Marching Memory Through Type ................................................................. 42

Author Index