# Table of Contents

## Message from the Program Chair

## Keynote Speakers

## Program Committee

## Reviewers

### WCET-Aware Techniques

- **Bus-Aware Multicore WCET Analysis through TDMA Offset Bounds**
  - Timon Kelter, Heiko Falk, Peter Marwedel, Sudipta Chattopadhyay, and Abhik Roychoudhury
  - Page 3

- **WCET-aware Register Allocation Based on Integer-Linear Programming**
  - Heiko Falk, Norman Schmitz, and Florian Schmoll
  - Page 13

- **CAMA: A Predictable Cache-Aware Memory Allocator**
  - Jörg Herter, Peter Backes, Florian Haupenthal, and Jan Reineke
  - Page 23

### Real-Time Networks

- **Priority Assignment for Real-Time Flows in WirelessHART Networks**
  - Abusayeed Saifullah, You Xu, Chenyang Lu, and Yixin Chen
  - Page 35

- **Controller Area Network (CAN) Schedulability Analysis with FIFO Queues**
  - Robert I. Davis, Steffen Kollmann, Victor Pollex, and Frank Slomka
  - Page 45

- **MBStar: A Real-time Communication Protocol for Wireless Body Area Networks**
  - Xiuming Zhu, Song Han, Pei-Chi Huang, Aloysius K. Mok, and Deji Chen
  - Page 57

- **Interference-Aware Real-Time Flow Scheduling for Wireless Sensor Networks**
  - Octav Chipara, Chengjie Wu, Chenyang Lu, and William Griswold
  - Page 67
Energy and Thermal-Aware Techniques

End-to-End Delay Minimization in Thermally Constrained Distributed Systems

Pratyush Kumar and Lothar Thiele
End-to-End Delay Minimization in Thermally Constrained Distributed Systems

Enhanced Race-To-Halt: A Leakage-Aware Energy Management Approach for Dynamic Priority Systems

Muhammad Ali Awan and Stefan M. Petters
Enhanced Race-To-Halt: A Leakage-Aware Energy Management Approach

Cache-Aware Utilization Control for Energy Efficiency in Multi-Core Real-Time Systems

Xing Fu, Khairul Kabir, and Xiaorui Wang
Cache-Aware Utilization Control for Energy Efficiency

Multi-Processor Scheduling

Partitioned Real-time Scheduling on Heterogeneous Shared-Memory Multiprocessors

Martin Niemeier, Andreas Wiese, and Sanjoy Baruah
Partitioned Real-time Scheduling on Heterogeneous Shared-Memory Multiprocessors

Is Semi-Partitioned Scheduling Practical?

Andrea Bastoni, Björn B. Brandenburg, and James H. Anderson
Is Semi-Partitioned Scheduling Practical?

Improved Schedulability Tests for Global Fixed-Priority Scheduling

Risat Mahmud Pathan and Jan Jonsson
Improved Schedulability Tests for Global Fixed-Priority Scheduling

Scheduler Properties

Stability Conditions of On-line Resource Managers for Systems with Execution Time Variations

Sergiu Rafiliu, Petru Eles, and Zebo Peng
Stability Conditions of On-line Resource Managers for Systems

On the Tractability of Digraph-Based Task Models

Martin Stigge, Pontus Ekberg, Nan Guan, and Wang Yi
On the Tractability of Digraph-Based Task Models

Modelling, Verification and Synthesis of Two-Tier Hierarchical Fixed-Priority Preemptive Scheduling

Mikael Åsberg, Paul Pettersson, and Thomas Nolte
Modelling, Verification and Synthesis of Two-Tier Hierarchical Fixed-Priority Preemptive Scheduling

Distributed and Multi-Core Scheduling

Meeting Deadlines Cheaply

Julien Legriel and Oded Maler
Meeting Deadlines

Schedulability Analysis and Optimization of Heterogeneous EDF and FP Distributed Real-Time Systems

Juan M. Rivas, J. Javier Gutiérrez, J. Carlos Palencia, and Michael González Harbour
Schedulability Analysis and Optimization of Heterogeneous EDF and FP Distributed Real-Time Systems
Global-EDF Scheduling of Multimode Real-Time Systems Considering Mode Independent Tasks .................................................................205

Vincent Nélis, Björn Andersson, José Marinho, and Stefan M. Petters

Non-preemptive and Game-theory Scheduling
Optimal Selection of Preemption Points to Minimize Preemption Overhead .................................................................217

Marko Bertogna, Orges Xhani, Mauro Marinoni, Francesco Esposito, and Giorgio Buttazzo

A Best-Response Algorithm for Multiprocessor Periodic Scheduling .........................................................228

A. Al Sheikh, O. Brun, P.E. Hladik, and B.J. Prabhu

Scalable Utility Aware Scheduling Heuristics for Real-time Tasks with Stochastic Non-preemptive Execution Intervals .................................................238

Terry Tidwell, Carter Bass, Eli Lasker, Micah Wylde, Christopher D. Gill, and William D. Smart

Resource Sharing
Independently-Developed Real-Time Systems on Multi-cores with Shared Resources .................................................................251

Farhang Nemati, Moris Behnam, and Thomas Nolte

Limited Blocking Resource Sharing for Global Multiprocessor Scheduling .........................................................262

Georgiana Macariu and Vladimir Crețu

Resource Sharing Protocols for Real-Time Task Graph Systems .................................................................272

Nan Guan, Pontus Ekberg, Martin Stigge, and Wang Yi

Author Index .................................................................................................................................282