4th Workshop on Runtime and Operating Systems for the Many-core Era (ROME 2016)

held in conjunction with Euro-Par 2016

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E.ON Energy Research Center | RWTH AACHEN UNIVERSITY

Topics of interest

Idea

- Predecessor: MARC Symposium 2012
- Topic: New hardware trends (e. g. SCC) $\Rightarrow$ Consequences for the Runtime

Summary of the CfP

- New approaches for operating systems on novel many-core architectures
- Virtualization solutions to deal with hardware limitations on many-cores
- Message-passing interfaces and middleware for many-core systems
- Heterogeneity- and/or hierarchy-aware many-core middleware
- Concepts and methods for exploiting deep memory hierarchies
- Operating system extensions for non-volatile memory support

Thanks to the PC

- Jens Breitbart, TU München
- André Brinkmann, Johannes Gutenberg Universität
- Christos Kartsaklis, Oak Ridge National Laboratory
- Florian Kluge, Universität Augsburg
- Timothy G. Mattson, Intel Labs
- Jörg Nolte, BTU Cottbus
- Lena Oden, Argonne National Laboratory
- Antonio J. Peña, Barcelona Supercomputing Center
- Andreas Polze, Hasso-Plattner-Institute
- Pablo Reble, RWTH Aachen University
- Bettina Schnor, University of Potsdam
- Oliver Sinnen, University of Auckland
- Christian Terboven, RWTH Aachen University
- Josef Weidendorfer, TU München
- Carsten Weinhold, TU Dresden

Agenda

Session 1 (13:30 – 13:35)

- Welcome speech and announcements
- Keynote by Rolf Riesen: *Extreme-Scale Operating Systems*

Short break

Agenda

Session 2 (14:30 - 16:00)

- Mathias Gottschlag and Frank Bellosa: *Reducing Response Time with Preheated Caches*
- Randolf Rotta, Robert Kuban, Mark Simon Schöps and Jörg Nolte: *Dealing with Layers of Obfuscation in pseudo-Uniform Memory Architectures*
- Suyang Zhu, Sunita Chandrasekaran, Peng Sun, Barbara Chapman, Marcus Winter and Tobias Schuele: *Exploring Task Parallelism for Heterogeneous Systems Using Multicore Task Management API*

Coffee break

Agenda

Session 3 (16:30 - 17:30)

- Jens Breitbart, Simon Pickartz, Josef Weidendorfer and Antonello Monti: *Viability of Virtual Machines in HPC*
- Josef Weidendorfer: *DBrew – A library for dynamic binary rewriting* (invited talk)

Announcements

- Meet the session chair at coffee break before your session starts
- Send your slides to me (slankes@eonerc.rwth-aachen.de) to publish on the web-site
- Copy your slides on our laptop (MS Powerpoint & Adobe Reader)
- Test the equipment at coffee break
- 25 minutes per talk + 5 minutes questions

Josef Weidendorfer

- Senior researcher at the chair of computer architecture at Technische Universität München (TUM).
- Ph.D. from TUM in 2003 for research on load balancing issues in car crash simulation on industrial code (PamCrash, ESI) at BMW AG.
- Since then working on performance analysis tools using architecture simulation (KCachegrind) and corresponding cache optimization methods (e. g. DFG DiME project)
- Recent research involves accelerators and heterogeneous computing, corresponding tuning of data structures, as well as code generation techniques.

Extreme-Scale Operating Systems (Keynote)

Rolf Riesen

- Currently software architect for the multi operating system (mOS) project at Intel
- Twenty-five years of experience in researching, developing, and deploying software for massively parallel processors
  - Key member of the Sandia National Laboratory and University of New Mexico team
    - Creation of lightweight kernels and the Portals message passing interface
    - Breaking the teraflops barrier in 1997 with ASCI Red supercomputer
  - His research ideas have enabled HPC systems for almost twenty years
    - SUNMOS on an nCUBE 2
    - Catamount OS on the Cray/Sandia Red Storm system
  - After that he focused his research on simulation and fault tolerance for extreme.
  - Between 2011 and 2014 he worked for IBM Research laboratory in Dublin, Ireland.

Thank you for your kind attention!

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