Lecture Notes in Computer Science 5419

Commenced Publication in 1973
Founding and Former Series Editors:
Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

David Kaeli Kai Sachs (Eds.)

Computer Performance Evaluation and Benchmarking

SPEC Benchmark Workshop 2009
Austin, TX, USA, January 25, 2009
Proceedings

Springer

Volume Editors

David Kaeli
Northeastern University
Department of Electrical and Computer Engineering
360 Huntington Ave., Boston, MA 02115, USA
E-mail: kaeli@ece.neu.edu

Kai Sachs
Technische Universität Darmstadt
Dept. of Computer Science
Schlossgartenstr. 73, 64289 Darmstadt, Germany
E-mail: sachs@dvs.tu-darmstadt.de

Library of Congress Control Number: Applied for

CR Subject Classification (1998): B.2.4, B.2.2, B.3.3, B.8, C.1, B.1, B.7.1

LNCS Sublibrary: SL 2 – Programming and Software Engineering

ISSN 0302-9743
ISBN-10 3-540-93798-6 Springer Berlin Heidelberg New York
ISBN-13 978-3-540-93798-2 Springer Berlin Heidelberg New York

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India
Printed on acid-free paper SPIN: 12603886 06/3180 5 4 3 2 1 0

Preface

This volume contains the set of papers presented at the SPEC Benchmark Workshop 2009 held January 25 in Austin, Texas, USA. The program included eight refereed papers, a keynote talk on virtualization technology benchmarking, an invited paper on power benchmarking and a panel on multi-core benchmarking. Each refereed paper was reviewed by at least four Program Committee members. The result is a collection of high-quality papers discussing current issues in the area of benchmarking research and technology.

A number of people contributed to the success of this workshop. Rudi Eigenmann served as General Chair and ably handled many of the details involved with providing a high-quality meeting. We would like to thank the members of the Program Committee for their time and effort in arriving at a high-quality program. We would also like to acknowledge the guidance provided by the SPEC Workshop Steering Committee.

We would like to thank the staff at Springer for their cooperation and support. We want to particularly recognize Dianne Rice for her assistance and guidance, and also Kathy Power, Cathy Sandifer and the whole SPEC office for their help. And finally, we want to thank all SPEC members for their continued support and sponsorship of this meeting.

January 2009

David Kaeli
Kai Sachs

Organization

SPEC Benchmark Workshop 2009 was sponsored by the Standard Performance Evaluation Corporation in cooperation with IEEE Technical Committee on Computer Architecture (TCAA).

Executive Committee

General Chair	Rudi Eigenmann (Purdue University, USA)
Program Chair	David Kaeli (Northeastern University, USA)
Publication Chair	Kai Sachs (TU Darmstadt, Germany)

Program Committee

Jose Nelson Amaral	University of Alberta, USA
Umesh Bellur	Indian Institute of Technology Bombay, India
Anton Chernoff	AMD, USA
Lieven Eeckhout	University of Ghent, Belgium
Rudi Eigenmann	Purdue University, USA
Jose Gonzalez	Intel Barcelona, Spain
John L. Henning	Sun Microsystems, USA
Lizy K. John	University of Texas at Austin, USA
David Kaeli	Northeastern University, USA
Helen Karatza	Aristotle University of Thessaloniki, Greece
Samuel Kounev	Universität Karlsruhe (TH), Germany
Tao Li	University of Florida, USA
David Lilja	University of Minnesota, USA
Christoph Lindemann	University of Leipzig, Germany
John Mashey	Consultant, USA
Jeffrey Reilly	Intel Corporation, USA
Kai Sachs	TU Darmstadt, Germany
Resit Sendag	University of Rhode Island, USA
Erich Strohmaier	Lawrence Berkeley National Laboratory, USA
Bronis Supinski	Lawrence Livermore National Laboratory, USA
Petr Tůma	Charles University in Prague, Czech Republic
Reinhold Weicker	(formerly) Fujitsu Siemens, Germany

Workshop Steering Committee

Alan Adamson	IBM, Canada
Jose Nelson Amaral	University of Alberta, USA
David Bader	Georgia Tech, USA
Rudi Eigenmann	Purdue University, USA
Rema Hariharan	AMD, USA
John L. Henning	Sun Microsystems, USA
Lizy K. John	University of Texas at Austin, USA
David Kaeli	Northeastern University, USA
Samuel Kounev	Universität Karlsruhe (TH), Germany
David Morse	Dell, USA
Kai Sachs	TU Darmstadt, Germany

Table of Contents

Benchmark Suites

CPU Benchmarking

Power/Thermal Benchmarking

Modeling and Sampling Techniques