



# 2008 IEEE International Conference on Computer Design

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## Welcome to ICCD 2008!

On behalf of the Program Committee, we would like to welcome you to the 26<sup>th</sup> IEEE International Conference on Computer Design 2008! For a second time in a row the conference is being held in the quiet and inspiring mountainside of Lake Tahoe, California.

The International Conference on Computer Design (ICCD) encompasses a wide range of research and technical topics in the architecture, design, implementation, verification, and test of computer systems. Throughout its history, ICCD has retained its unique characteristics as the most diverse multidisciplinary venue for academic and industry practitioners to discuss practical and theoretical work in the field of computer design. As a tradition, ICCD is an international gathering of highly qualified researchers from industry and academia sharing ideas in whole daylong inspiring discussions.

The conference technical program consists of technical papers submitted to the Program Committee for evaluation and selected after a rigorous peer-review process, with an average of four reviews per paper. The technical papers are submitted to one of five conference tracks: Computer Systems Design and Applications; Processor Architecture; Logic and Circuit Design; Electronic Design Automation; and Verification and Test. The track committees are composed of world level technical experts in their disciplines, who review and select the best submissions. After the individual reviews are completed, each paper is discussed collectively by the track committee, to ensure equity and consistency in the selection process. The Program Chairs review the selections from the track committees and finalize the program.

ICCD is truly an international conference, with participation from researchers and developers from academic institutions, research laboratories, and industry design and development groups throughout the world. This year, the Program Committee received paper submissions from 33 different countries. More precisely the submissions came from: Austria, Australia, Belgium, Brazil, Canada, China, Denmark, Egypt, France, Germany, Greece, India, Iran, Israel, Italy, Japan, Lebanon, Netherlands, Norway, Pakistan, Poland, Portugal, Puerto Rico, Russia, Singapore, South Korea, Spain, Taiwan, Turkey, United Arab Emirates, United Kingdom, United States and Vietnam. Of the 306 papers submitted, the track committees accepted 106 papers (34% acceptance rate) for inclusion in the conference proceedings and for presentation at the conference. In addition, the conference program includes an embedded tutorial on the topic of “*SOC power management verification*” organized by Bhanu Kapoor. Speakers, Shankar Hemmady, Prapanna Tiwari, Kaushik Roy and Manuel D. Abreu (from Synopsis, Purdue and SanDisk Corp.), will give their views on the subject. Furthermore, Sule Ozev and Reiner Hartenstein organized the conference panel that will address the question: “*Will unaffordable von Neumann dominance enforce new directions in manycore architectures?*”

The conference program features three keynote presentations from luminaries in our field: Fred Chong from University of California at Santa Barbara, Chris Rowen from Tensilica, and Christian Belady from Microsoft.

On behalf of the Organizing Committee, we would like to thank all 145 program committee members, and especially the track committee chairs, for their dedication and diligence in selecting an exceptional set of technical presentations. The investment of their time and insights is very much appreciated. Of course, ICCD would not happen without the excellent papers from the authors. Thanks to all of them as well!

On a personal note, we would like to thank our colleagues on the organizing committee for their efforts, their support, and their camaraderie. The efforts of Kevin Rudd, Past Chair; Kee Sup Kim, Finance Chair; Greg Byrd and Suleyman Sair, Publications Co-Chairs; Sule Ozev, Special Sessions Chair; Eren Kursun and Ben Juurlink, Publicity Chairs are all very much appreciated. In addition, we thank Bogdan Spinean, Catalin Ciobanu and Daniele Ludovici from TU Delft for migrating and maintaining the conference webpage and the overall technical support.

We are indebted to the support and guidance from the IEEE Circuit and Systems Society and the IEEE Computer Society as well as the IEEE Publications and Conference Management staffs.

The outstanding conference program at ICCD 2008 is a result of many individuals who contributed their time and expertise leading up to the event. The culmination of their efforts is the technical interchange, informal discussion, and personal communication that can only occur at the conference itself. In that regard, we hope you have a rewarding and enjoyable time at the conference. **Welcome to ICCD 2008!**

Carl Pixley  
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*Electronic Design Automation  
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Shih-Chieh Chang  
Shinji Kimura  
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*Verification and Test  
Track*

Patrick Girard - Chair  
Soene Tahar – Chair

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Davide Appello  
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Chia-Hsiang Yang  
Bilal Zafar  
Alenka Zajic  
Yimin Zhang  
Ji Zhang

## Keynote Presentations

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### **Towards More Sustainable Computer Design**

Fred Chong, University of California at Santa Barbara



Fred Chong is the Director of Computer Engineering and a Professor of Computer Science at UCSB. He also directs the Greenscale effort in Energy-Efficient Computing, which involves over 20 multi-disciplinary faculty. Chong received his Ph.D. from MIT in 1996 and was a faculty member and Chancellor's fellow at UC Davis from 1997-2005. He is a recipient of the NSF CAREER award and his research interests include emerging technologies for computing, multicore and embedded architectures, computer security, and sustainable computing.

### **Green Computing: Big Challenges and Little Solutions**

Chris Rowen, Tensilica



Chris Rowen, Ph.D. is Founder, Chief Technology Officer, member of the board of directors, and Tensilica's first president. He was a pioneer in the development of RISC architecture at Stanford in the early 80s and helped start MIPS Computer Systems Inc. in 1984, where he served as Vice President for Microprocessor Development. Most recently, he was Vice President and General Manager of the Design Reuse Group of Synopsys Incorporated. He received a B.A. in physics from Harvard University and M.S. and Ph.D. in electrical engineering from Stanford University.

### **Lean IT: Lead or Die**

Christian Belady, Microsoft



Christian Belady is Microsoft's Principal Power and Cooling Architect for Global Foundation Services where his role is to improve both efficiency and cost in their online services infrastructure. In addition, his responsibilities included driving initiatives for sustainability in the data center and infrastructure space. Prior to joining Microsoft, Christian was a Distinguished Technologist for HP where his responsibilities included driving the technology direction in HP's server products and their environments as well as driving industry data center initiatives. In addition, his earlier employers include; Convex Computers (acquired by HP), TI and IBM. With over 60 US patents, Christian is an ASME Fellow, an IMAPS Fellow and a founding member of ASHRAE's TC9.9, which is responsible for developing data center guidelines. He was one of the early architects of the Green Grid, and continues to participate actively with the group. Christian has engineering degrees from Cornell University (BS) and Rensselaer Polytechnic Institute (MS) and a business degree from the University of Texas at Dallas (MA).



## **Embedded Tutorial**

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### **SoC Power Management Verification**

Bhanu Kapoor, Mimasic  
Shankar Hemmady, Synopsys  
Kaushik Roy, Purdue University  
TBD, nVIDIA

## **Panel Session**

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### **Reset Microprocessor Hardware and Software Roadmaps for the Next 30 Years?**

#### **Moderated by:**

Georgi Gaydadjiev, TU Delft

#### **Panelists:**

Tom Conte, Georgia Institute of Technology  
Ed Grochowski, Intel Corporation  
Joerg Henkel, University of Karlsruhe

#### **Organized by:**

Reinter Hartenstein, Kaiserslautern University of Technology  
Sule Ozev, Arizona State University