# Preface

## Pao-Ann Hsiung

Department of Computer Science and Information Engineering,
National Chung Cheng University,
Chiayi, Taiwan
E-mail: hpa@computer.org

**Biographical notes:** Pao-Ann Hsiung received the BS degree in Mathematics and the PhD degree in Electrical Engineering from the National Taiwan University, in 1991 and 1996, respectively. From February 2001 to July 2002, he was an Assistant Professor in the Department of Computer Science and Information Engineering, National Chung Cheng University, where he is currently an Associate Professor. He was the recipient of the 2001 ACM Kuo-Ting Li Young Researcher Award and a recipient of the 2004 Young Scholar Research Award given by National Chung Cheng University. He is a member of the IEEE, ACM, and IICM. He has published more than 100 papers in international journals and conferences. His main research interests include: formal verification, system-on-chip and embedded system design and verification, hardware-software codesign, and software engineering.

The state-of-art techniques in hardware-software codesign must evolve to solve problems that are enhanced and also are limited by the System-on-Chip (SoC) design trend. This special issue presents a broad spectrum on novel and emerging state-of-art techniques in hardware-software codesign, cosimulation and formal methods for hardware–software systems that are implemented in an SoC.

There were four invited submissions and 24 submitted papers. A thorough peer-review process by the editorial board members and volunteer reviewers resulted in at least three reviews for each submission. After a tough scrutiny and selection process, eight papers were selected from the 24 submissions, which give us an acceptance rate of only 33%. There are, thus, totally 12 high quality articles in this special issue, half of which (6 out of 12) are coauthored by IEEE and ACM fellows. Topic-wise, we have an even distribution based on its importance; there are two papers on design frameworks, two on performance analysis, five on codesign, two on cosimulation and one on formal method Distribution of the target system or application also gives a fair coverage; there are three papers on processor design, one on distributed systems, two on multiprocessor systems, one on software system, two on reconfigurable systems, two on multimedia processing system and one on hardware system. Based on the country of the first author, there are four papers from America, six from Europe and two from Asia.

In this special issue, we see technology breakthroughs in the form of advances in faster hardware-software cosimulation techniques, prototyping techniques for reconfigurable systems, platform-based techniques for SoC and other design considerations such as performance analysis, low power and formal validation of processors designs.

We believe that this special issue will be an important reference to future hardware-software designers both from academia and industry.