Design and Test of Energy-Efficient, High-Performance, and Secure Computing Technologies via Accelerators

This issue of IEEE Design&Test is focused on accelerators tailored to the specific requirements of data centers. The guest editors, Mustafa Ozdal, Gi-Joon Nam, and Debbie Marr, argue that existing CPU and GPU platforms may not be the most efficient options for certain compute patterns, which led to a new breed of emerging accelerator platforms that are introduced in this special issue. My thanks to the guest editors and authors for presenting the newest trends. Accompanied in this special issue is a survey by Mustafa Ozdal, who presents us with a comprehensive view with a focus on commercial platforms.

Another highlight of this issue is a tutorial by Elke De Mulder, Thomas Eisenbarth, and Patrick Schaumont on “Identifying and Eliminating Side-Channel Leaks in Programmable Systems.” Presented are basics on side channels, attacker models, and countermeasures.

Furthermore, we have a general interest article on “Thermal Modeling and Validation of Real-World Mobile AP,” where the authors describe the problem of thermal hotspots in on-chip systems, and they propose an accurate thermal model.

A highlight of our departments is the perspective by Dimitrios Serpanos on “Secure and Resilient Industrial Control Systems.” Serpanos provides a view on problems and solutions for the security of industrial control systems. He discusses the role of design methods and technologies, secure networks, software security, as well as an effective vulnerability analysis.

Embedded Systems Week took place 15–20 October 2017, in Seoul, South Korea. The General Chairs, Lothar Thiele and Soonhoi Ha, provide a report with the highlights from the event. A report from the 25th VLSI-SoC conference in Abu Dhabi, 23–25 October, is brought to us by the General Chair Ibrahim M. Elfadel.

Many thanks also to Scott Davidson for the LastByte.

Enjoy reading this issue of IEEE Design&Test that enters its 35th year. For any question or inspirations, please contact me at henkel@kit.edu.

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