Call-for-Papers

IEEE T-SUSC Special Issue on Low-Power Dependable Computing (LPDC)

With the continuous technology scaling and miniaturization of computing systems, faults become more common and it is imperative for most modern computing systems to deploy various fault-tolerance techniques. Traditionally, fault tolerance is achieved in general through various error reduction, detection and recovery techniques at different levels (for instance, circuit, architecture, operating systems, compiler and application software) in the systems. On the other hand, fault-tolerance does not come for free, and generally has power/energy/temperature overheads, which warrants careful consideration since power/energy is a first-class system resource and has been emerging as a significant limiting factor for multicore scaling. In particular, understanding the interdependencies between reliability and power are important to consider, e.g., high power consumption may lead to elevated temperature that can further aggravate reliability. In response to these challenges, this special issue seeks original contributions on novel and bold ideas to achieve low-power dependable computing (LPDC).

Topics of Interests: This issue considers the development of models, algorithms and techniques at all levels (from circuits to software) for all components (from memory to computation) from all modern computing systems (from battery-powered embedded systems to large scale reliable servers) to enable energy efficiency and fault tolerance. The topics of interest include, but are not limited to, the following:

- Energy-efficient redundant circuit design
- Energy-efficient fault-tolerant architecture
- Compilation techniques for reliability and low-power
- Runtime management and scheduling algorithms for energy-efficiency and fault tolerance
- Low-power reliable memory and storage systems
- Low-power and reliable on-chip networks and communication
- Mitigating reliability threats (aging, soft errors, process variations) in Dark Silicon chips
- Emerging paradigms for low-power and dependable computing (e.g., approximate computing)
- Case studies on low-power dependable systems

Instructions for authors: The special issue opens for all submissions. Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. Previously published conference and workshop papers may only be submitted if the paper is substantially extended with at least 30% new material, where the extension requirement of 30% is not in textual volume but in novelty. Active researchers/experts in related areas will be invited for contributions. Authors of accepted papers in the Third Workshop on Low-Power Dependable Computing (LPDC), to be held with International Green and Sustainable Computing (IGSC) in November 2016, will also be invited to submit their extended work. All submissions will go through the same review process and will be treated equally in their consideration for publication.

Papers should be submitted via the Manuscript Central website (https://mc.manuscriptcentral.com/tsusc-cs) and should follow IEEE T-SUSC author guidelines (https://www.computer.org/web/tsusc/author), where the page limit is 14 (including figures and references). Moreover, please indicate that you are submitting to the Special issue on Low-Power Dependable Computing (LPDC) on the first page and in the field “Author’s Cover Letter:” in Manuscript Central. Any questions on this special issue should be addressed to Dr. Dakai Zhu at dakai.zhu@utsa.edu.

Important Dates:

- Submission deadline: Jan. 1, Jan. 31, 2017
- Preliminary notification: Apr. 1, 2017
- Revision deadline: May 15, 2017
- Final notification: Jul. 15, 2017
- Final manuscript due: Aug. 1, 2017
- Publication: Dec. 2017

Guest Co-Editors:

- Dr. Man Lin, St. Francis Xavier University, Canada
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- Dr. Muhammad Shafique, Vienna University of Technology (TU Wien), Austria
- Dr. Dakai Zhu, University of Texas at San Antonio, USA