Call for Papers

IEEE TETC Special Issue on Emerging Technologies in Computer Design

based on IEEE International Conference on Computer Design

IEEE International Conference on Computer Design (ICCD) and IEEE Transactions on Emerging Technologies in Computing (TETC) invite manuscripts describing original work on practical and theoretical work covering system and computer architecture, test, verification and security, design and technology, and tools and methodologies:

1. Computer Systems and Applications: Advanced architectures for general and application-specific enhancement; Software design for embedded, mobile, general-purpose, cloud, and high-performance platforms; IP and platform-based designs; HW/SW co-design; Modeling and performance analysis; Support for security, languages and operating systems; Hardware/software techniques for embedded systems; Application-specific and embedded software optimization; Compiler support for multithreaded and multi-core designs; Memory system and network system optimization; On-chip and system-area networks; Support for communication and synchronization.

2. Processor Architecture: Microarchitecture design techniques for uni- and multi-core processors: instruction-level parallelism, pipelining, caching, branch prediction, multithreading; Techniques for low-power, secure, and reliable processors; Embedded, network, graphic, system-on-chip, application-specific and digital signal processor design; Hardware support for processor virtualization; Real-life design challenges: case studies, tradeoffs, post-mortems.

3. Logic and Circuit Design: Circuits and design techniques for digital, memory, analog and mixed-signal systems; Circuits and design techniques for high performance and low power; Circuits and design techniques for robustness under process variability and radiation; Design techniques for emerging process technologies (MEMs, spintronics, nano, quantum); Asynchronous circuits; Signal processing, graphic processor and arithmetic circuits.

4. Electronic Design Automation: High-level, logic and physical synthesis; Physical planning, design and early estimation for large circuits; Automatic analysis and optimization of timing, power and noise; Tools for multiple-clock domains, asynchronous and mixed timing methodologies; CAD support for FPGAs, ASSPs, structured ASICs, platform-based design and NOC; DFM and OPC methodologies; System-level design and synthesis; Tools and design methods for emerging technologies (MEMs, spintronics, nano, quantum).

5. Test, Verification and Security: Design error debug and diagnosis; Fault modeling; Fault simulation and ATPG; Analog/RF Testing; Statistical Test Methods; Large volume yield Analysis and Learning; Fault tolerance; DFT and BIST; Functional, transaction-level, RTL, and gate-level modeling and verification of hardware designs; Equivalence checking, property checking, and theorem proving; Constrained-random test generation; High-level design and SoC validation. Hardware security primitives; Side channel analysis; Logic and micro-architectural countermeasures; Hardware security for IoT; Interaction between VLSI test and trust.

**Special Issue submission procedure and timeline:**
The highest-ranking papers of ICCD 2017 will be invited for inclusion in the IEEE TETC Special Issue. If the authors accept the invitation, the paper will be assumed to have gone through one round of revisions. Publication in the IEEE TETC Special Issue will replace publication in the ICCD Proceedings.

**Submission Deadline:** Same as ICCD (June 9, 2017)

**Submission portal:** ICCD submission portal: [https://easychair.org/conferences/?conf=iccd2017](https://easychair.org/conferences/?conf=iccd2017)

**First round of reviews and selection of papers to IEEE TETC special issue:** Sep 1, 2017 (ICCD author notification date)

**Presentation at ICCD:** Nov 5-8 2017; invited papers should be presented at ICCD for additional feedback.

**Submission deadline for revised selected manuscripts:** Nov 30, 2017.

**Submission portal:** IEEE TETC manuscript central (Indicate the ICCD Special Issue in cover letter).
If the selected papers are not submitted to the IEEE Manuscript Central within the time frame, they will appear in IEEE ICCD conference proceedings in IEEE Xplore.

**Acceptance notification:** Dec 15, 2017.

**TETC Special Issue Publication:** Early 2018

**Guest Editors:** Ozgur Sinanoglu, Umit Ogras
Ozgur Sinanoglu, New York University Abu Dhabi, ozgursin@nyu.edu
Umit Ogras, Arizona State University, umit@asu.edu