

**\*\* DEADLINE EXTENSION \*\***

**IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS II:  
EXPRESS BRIEFS CALL FOR PAPERS**

**Special Issue on ULTRA-LOW VOLTAGE VLSI CIRCUITS AND SYSTEMS  
FOR GREEN COMPUTING**

The strive for greener computing and nearly-minimum energy operation is continuously pushing VLSI circuits and systems toward lower voltages. From this perspective, sub-threshold and near-threshold operation have become very attractive under low to moderately high performance targets.

Ultra-low voltage operation poses many challenges related to (i) reliable operation despite of variations and transient errors, (ii) reduction of the energy/performance penalty due to uncertainty and design margining, (iii) energy scalability and adaptation to a wide range of operating conditions, (iv) efficient modeling and design exploration, (v) reduction of cost associated with design, verification and yield degradation, among the other challenges currently tackled by the VLSI community (see, e.g., vision and directions of the IEEE CASS VLSI Systems and Applications technical committee, <http://vsa-tc.dii.unisi.it/menu/vision.html>). In the context of green computing, these challenges need to be faced not only at each level of abstraction, but often times by explicitly considering their interaction. At the same time, they need to be tackled not only within components, but also explicitly pursuing global optimization.

In view of the above challenges, this Special Issue calls for contributions in the following areas, with emphasis on circuit- to system-level aspects of green computing:

- design-time and run-time techniques to mitigate any issue arising under aggressive voltage reduction (e.g., impact of variations/leakage, yield degradation)
- VLSI building blocks with nearly-minimum energy (e.g., logic, memory, interconnect fabric)
- modeling, design exploration, optimization and design methodologies for nearly-minimum energy operation
- adaptive circuits and systems to cope with variations and transient errors at ultra-low voltages
- energy-scalable circuits and systems under wide range of operating conditions (e.g., aggressive dynamic voltage scaling, approximate computation, logic/voltage regulation co-design)
- energy-centric design approaches (e.g., co-design, data locality, heterogeneity, specialized modules/accelerators, reconfigure-ability)
- techniques to leverage specific features of CMOS or emerging technologies at ultra-low voltages
- other issues related to ultra-low voltage VLSI circuits and systems for green computing.

**Submission Guidelines:** All submitted manuscripts must (i) conform to TCAS II's normal formatting requirements and page-count limits (at no more than 5 pages); (ii) incorporate no less than 60% of new (previously unpublished) material; (iii) be submitted on line at <http://tcas2.polito.it/Forms/Authors/index.html>. Please note that you need to select "Special Issue on Ultra-Low Voltage VLSI Circuits and Systems for Green Computing" when you submit a paper to this Special Issue.

**Timeline and Review Process:** The tentative publication date for this Special Issue is **December of 2012**, so prospective authors must submit their manuscripts by no later than **July 17, 2012 (\*\* extended deadline \*\*)**. Once submitted, manuscripts will undergo IEEE's standard peer-review process for TCAS II. Authors must subsequently submit revised manuscripts no later than **September 17, 2012**.

**Guest Editor**

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