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FOREWORD

Special Section on Solid-State Circuit Design — Architecture, Circuit, Device and Design Methodology

"Internet of Things (IoT)" has a great impact on business processes and daily life in recent years. Billions of IoT devices such as smartphones, tablets and watches, are interconnected to cloud network. In IoT era, the edge computing, which processes big data at each edge device, becomes important technique to reduce data traffic and save energy dissipation. Solid-state circuit design is essential for this and will be driven by the endless efforts of innovators including not only the authors but also the readers of this special section.

It is my great honor to announce the publication of this special section on solid-state circuits design. The section is devoted to a distinctive exploration of new techniques on integrated circuits. It contains 5 regular papers and 2 brief papers. One paper presents a high efficient voltage source with glitch-free programmable voltage detector for RF energy harvesting application. The second paper proposes a logarithmic compression technique for analog-to-digital converters and achieves wide dynamic range. Other two papers demonstrate low phase noise oscillator designs. In solid-state-drive applications, a workload-based non-volatile cache algorithm is investigated. From the reliability perspective, a dual-modular-redundancy architecture is discussed for soft-error-tolerant FPGAs. For coordinate rotational digital computer (CORDIC), a parallel pipeline architecture is shown.

On behalf of the editorial committee, I would like to express my sincere appreciation to all the authors for their contributions and to all the reviewers for their critical readings. Also, I would like to thank the editorial committee for their work on this special section.

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Minoru Fujishima *(Senior Member)* received the B.E., M.E. and Ph. D degrees from the University of Tokyo, Japan in 1988, 1990 and 1993, respectively. He joined the University of Tokyo in 1988 as a research associate, and was an associate professor since 1999. He was also a visiting professor of Universiteit Leuven, Belgium from 1998 to 2000. Since 2009, he has been a professor of Hiroshima University. His current research interests are in millimeter and terahertz CMOS circuits.

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