Special issue on IEEE MWSCAS 2012

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This special issue consists of the expanded version of three papers in the area of Analog Integrated Circuits and Signal Processing presented at the 2012 IEEE 55th International Midwest Symposium on Circuits and Systems (MWSCAS), held at Boise, ID, from the 5th to the 8th of August, 2012.

The major areas of Circuits and Systems covered by MWSCAS 2012, drew 368 submissions from 40 countries spanning the globe; 313 contributions were selected for presentations. Among the published contributions in the IEEE MWSCAS 2012 proceedings, a pre-selection of 10 papers has been completed and corresponding authors were invited for contributions to this special issue. After the assessment of at least two independent reviewers, three manuscripts have been accepted for publication. It is evident that selecting only three papers out of several hundreds of MWSCAS presentations is a difficult and critical task. We are aware that we probably missed several excellent contributions, but we do know that we did our best to put together this special issue in a timely manner.

The guest editors wish to thank Professor Mohammed Ismail, Editor-in-Chief of Analog Integrated Circuits and Signal Processing Journal for giving us this opportunity, Nader Raffle, General Chair of MWSCAS 2012, and Mohamad Sawan and José de la Rosa, Technical Program Co-Chairs of

MWSCAS 2012 for their unequivocal support. We also gratefully acknowledge all of the reviewers for their assistance and Springer personnel for the competent and efficient support provided while putting together this special issue.

The three selected papers reflect continuing trends towards higher levels of integrated analog circuits and systems.

The first paper, “A 2.488-11.2 Gb/s SerDes in 40 nm Low-Leakage CMOS with Multi-Protocol Compatibility for FPGA Applications,” by Socrates Vamvakos, Claude R. Gauthier, Chethan Rao, Alvin Wang, Karthisha Ramoshan Canagasaby, Khaldoun Abugharbieh, Prashant Choudhary, Sanjay Dabral, Shaishav Desai, Mahmudul Hassan, K. C. Hsieh, Bendik Kleveland, Gurupada Mandal, Richard Rouse, Ritesh Saraf, Jason Yeung, and Ying Cao presents a multi-protocol, next generation SerDes design. This paper authored by teams from MoSys Inc., Santa Clara, CA and Xilinx Inc., San Jose, CA received the MWSCAS 2012 Myril B. Reed Best Paper Award.

The second paper, “A 1 GS/s, 31 MHz BW, 76.3 dB Dynamic Range, 34 mW CT-Delta-Sigma ADC with 1.5 Cycle Quantizer Delay and Improved STF,” by Sakkaranpani Balagopal, Kehan Zhu and Vishal Saxena of Boise State University, Boise, ID details the implementation of a high-performance continuous-time delta-sigma modulator with improved signal transfer function (STF). This paper was one among the ten papers presented at the MWSCAS 2012 Student Paper Contest.

The third paper, “Fully Integrated 1.2- μ A and 13- μ A Quiescent Current LDOs with Improved Transient Response,” by Harish Valapala and Paul M. Furth of New Mexico State University, Las Cruces, NM details the implementation of two extremely low quiescent current, low-dropout (LDO) voltage regulators. Both LDO designs are fully integrated, stabilized with an on-chip capacitive load of 100 pF.

We thank all the authors who contributed to this issue; the issue wouldn't be possible without their research and

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effort! We hope you will enjoy reading the fine papers we have selected for this issue.

Sincerely,
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*Guest Co-Editors, Special Issue on MWSCAS 2012
Analog Integrated Circuits and Signal Processing*

Annajirao Garimella received the B.E. degree in electrical and electronics engineering from the University of Madras, Chennai, India, in 2000, the M.S. degree in VLSI from Manipal University, Manipal, India, in 2002, and the M.S. and Ph.D. degrees in electrical engineering with a minor in management from New Mexico State University, Las Cruces, NM in 2009 and 2010, respectively. He is currently with Intel Corporation. He has authored or coauthored

more than 35 papers, published in conferences and journals. His research interests lie in the area of Circuits and Systems, with emphasis on analog, mixed-signal IC design, power management IC design, SoC design, and testing. He is a recipient of the HENAAC (Hispanic Engineer National Achievement Award Corporation) AMD Scholarship in 2005 and the HENAAC DaimlerChrysler Scholarship in 2006. Dr. Garimella received the Outstanding Ph.D. Graduate Alumni Association Award at New Mexico State University for the class of fall, 2010. He has co-organized special sessions on analog and power management circuit design and delivered embedded tutorials at IEEE conferences. He was Publication co-chair for the 2012 55th IEEE Midwest Symposium on Circuits and Systems (MWSCAS 2012) and Student Paper Contest Co-chair for MWSCAS 2013. He served on the technical program committee and was Publication Co-chair for the 2012 and 2013 International Conferences on VLSI Design (VLSID 2012 and VLSID 2013). He is publicity chair for the 2014 IEEE Computer Society Annual Symposium on VLSI (ISVLSI 2014). He is also serving on the Steering Committee of the IEEE Midwest Symposium on Circuits and Systems (MWSCAS).

Igor Filanovsky is a Life Senior Member of IEEE. He has served as a Co-chair and a Technical Program Chair for the Midwest Symposium on Circuits and Systems (MWSCAS) 1990, in Calgary, and as Session Chair for many ISCAS and MWSCAS Symposiums. He has served an Associated Editor of IEEE Transactions on Circuits and Systems, Part 1 (2003–2005, 2009–2011). At the present time, he is a member of IEEE Analog Signal Processing Committee

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Editorial Board of the International Journal of Circuit Theory and Applications. I. M. Filanovsky has held senior research positions at the Research Institute of High Frequency Currents and the Research and Development Corporation GIRICOND, Petersburg, Russia. In November 1976, Dr. Filanovsky joined the Department of Electrical Engineering of the University of Alberta, Canada. In July 2005, he became Professor Emeritus of the same Department. I. M. Filanovsky is a coauthor of the books, *Analysis and Design of Quadrature Oscillators*, (Springer, 2008) and *Operational Amplifier Speed and Accuracy Improvement (Analog Circuit Design with Structural Methodology)*, (Boston, MA: Kluwer, 2004). He has contributed to four books, *Sensor Technology and Devices*, L. Ristic, Ed., (Norwell, MA: Artech House, 1994), *Analog VLSI: Signal and Information Processing*, M. Ismail and T. Fiez, Eds., (New York: McGraw-Hill, 1994), *The Circuits and Filters Handbook*, W.-K. Chen, Ed., (Boca Raton, FL: CRC Press, 1995), and *The Electronics Handbook*, J. Whitaker, Ed., (Boca Raton, FL: CRC Press, 1996). He was also a contributor to *The Encyclopedia of Electrical and Electronic Engineering*, J. Webster, Ed., (New York: Wiley, 1999) and *Comprehensive Dictionary of Electrical Engineering*, P. A. Laplante, Ed., (Boca Raton, FL: CRC Press, 1999). I. M. Filanovsky is the author or coauthor of approximately 300 publications and four patents on circuit theory (theory of approximation, theory and technical applications of oscillations, strongly nonlinear oscillations) and applied microelectronics (analog electronic circuits, oscillators and multivibrators, signal-conditioning circuits for sensors). His paper received the Best Paper Award at the International Conference on Electronics, Circuits and Systems (ICECS), Tel-Aviv, Israel, 2004. Dr. Filanovsky was mentioned by NSERC of Canada (2004) for important research achievements that have contributed to the sum total of human knowledge and the advancement of the economic and social well-being of Canadians over the 25 years of NSERC's existence. In 2006, he obtained the IEEE MWSCAS Award for outstanding technical contribution and professional service.

Paul M. Furth received the BA from Grinnell College, Grinnell, IA, in 1984, the B.S.E.E from the California Institute of Technology, Pasadena, CA in 1985 and the M.S.E and Ph.D degrees in electrical engineering from the Johns Hopkins University, Baltimore, MD, in 1992 and 1996, respectively. In 1995, he joined the Klipsch School of Electrical and Computer Engineering, New Mexico State University, Las Cruces, where he is currently Associate Pro-

fessor. His areas of interest include analog and mixed-signal VLSI design, power management circuits, and CMOS image sensors. He has work experience at Sandia National Labs, Micron, and Motorola. Prof. Furth received the Bromilow and Roush Teaching Excellence Awards in 2008 and 2012, respectively. He was the Technical Program Chair at the 42nd IEEE Midwest Symposium on Circuits and Systems Conference (MWSCAS) 1999 and currently serves on the MWSCAS steering committee. He is a Senior Member of IEEE.