



## Introduction to Special Issue: Design and Performance of Networks on Chip

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Advance in VLSI technology has led to the emergence of on-Chip Systems (SoC), where a complete system with a large number of intellectual property cores can be integrated onto a single silicon chip. The performance of SoCs highly depends on the speed and efficiency of their underlying communications subsystems. On-Chip Network (NoC), have been suggested to overcome the scalability problem found in traditional shared-bus communication architectures. Intensive research studies are conducted in an attempt to find the optimal networks in terms of performance and cost such as power consumption, and silicon area.

This special issue of International Journal of Computing and Digital Systems (IJCDs) published selected papers from the 2014 International Workshop on the Design and Performance of Networks on Chip (DPNoC 2014), August 17-20, 2014, Niagara Falls, Ontario, Canada. The international workshop DPNoC'2014 (<http://www.intnoc.org/>) was organized

in conjunction with the 9th International Conference on Future Networks and Communications-FNC'2014 (<http://cs-conferences.acadiau.ca/fnc-14/>), Niagara Falls, Ontario, Canada, August 17-20, 2014. This workshop represented an international forum for researchers from both academia and industry to expose the latest trends, research findings, and emerging issues in this area.

Several research papers were submitted to the workshop from several countries across the world, and which were rigorously reviewed by the technical program committee members, six papers were selected to be published in this special issue of the journal.

We would like to take this opportunity to thank all people, authors of the submitted papers, organizers of this event, the technical program committee members, and reviewers, who were behind the success of this event.



**Yehea Ismail** is the director of the Nanoelectronics and Devices Center at Zewail City and the American University in Cairo. He was a tenured professor with Northwestern University, USA from 2000 to April 2012. Professor Ismail is the Editor-in-Chief of the IEEE Transaction on Very Large Scale Integration (TVLSI) and the chair elect of the IEEE VLSI technical committee. He is on the editorial board of the Journal of Circuits, Systems, and Computers, was on the editorial board of the IEEE Transactions on Circuits and Systems I: Fundamental Theory and Applications, and a guest editor for a special issue of the IEEE Transactions on Very Large Scale Integration (VLSI) Systems on "On-Chip Inductance in High Speed Integrated Circuits". He has also

chaired many conferences such as GLSVLSI, IWSOC, ISCAS. He was the Chief Scientist of the Innovation and Entrepreneurship Center of the Ministry of Communications and Information Technology, Egypt.

Professor Ismail has several awards such as the USA National Science Foundation Career Award, the IEEE CAS Outstanding Author Award, Best Teacher Award at Northwestern University, and many other best teaching awards and best paper awards. Professor Ismail is the distinguished lecturer of IEEE CASS. He is an IEEE Fellow.

Professor Ismail has published more than 200 papers in top refereed journals and conferences and many patents. He co-authored five books: On-Chip Inductance in High Speed Integrated Circuits, Handbook on Algorithms for VLSI Physical Design, Temperature-Aware Computer Architecture, Arbitrary Modeling of



TSVs for 3D Integrated Circuits, and Circuit Design Techniques for Microscale Energy Harvesting Systems. He has many patents in the area of high performance circuits and interconnect design and modeling. His work is some of the most highly cited in the VLSI area and is extensively used by industry.



**Wael Mohamed Elmedany** holds a PhD degree in Electrical Engineering, Manchester University, UK, 1999; MSc degree in computer communications, Menoufia University, Egypt, 1991; BSc degree in Electronic Engineering, Menoufia University, Egypt 1987. He is the founding and managing editor of International Journal of Computing and Digital Systems (IJCDS). He has been invited as a Guest Editor for Inderscience special issue on International Journal of Embedded Systems entitled "Reconfigurable Architectures and Self-adaptive Autonomic Systems". He is the organizer and Program Chair of MobiApps 2014, 27-29 August 2014, Barcelona, Spain and DPNOC 2014, August 17-20, 2014, Niagara Falls, Ontario, Canada; he is also Program Chair of RASAS'14, September 24-27, 2014, Delhi, India. El-Medany is also IEEE member. He is a member of editorial boards and technical program committees of many international journals and conferences, reviewer in many international journals and conferences, and acts as chairperson in many conferences. El-Medany has around forty publications, and attended several national and international conferences and workshops. His research interests in ASIC design, FPGA, embedded systems, remote monitoring systems, and reconfigurable computing.



**Samia Loucif** received the B.Sc. degree in computer science from Constantine University, Constantine, Algeria in 1986, her Master's degree in computer science from Constantine University in cooperation with Glasgow University, Scotland, in 1990, and her Ph.D. degree in computer science from Glasgow University in 1999. Currently, she is an associate Professor in the Department of Software Engineering, ALHOSN University, UAE. Prior to joining ALHOSN University, Dr. Loucif was a Post-Doctoral Research Fellow with the Faculty of Engineering, Moncton University, Moncton, Canada, in 2007. an Assistant Professor at United Arab Emirates University, Al-Ain, UAE, from 1999 to 2006; and a Lecturer in the Computer Science Department, Constantine University from 1986 to 1995. Her current research interests include parallel computer architectures, high performance computing, networks on chip, performance evaluation and mathematical modelling, and wireless networks. Dr. Loucif has served on program committees of over 30 international conferences and workshops. She is the Workshop Coordinator of the International Conference on Mobile Web Information Systems (MobiWIS), and She is Co-Chair of several international workshops: IEEE International Workshop on the Performance Analysis and Enhancement of Wireless Networks (PAEWN), the IEEE International Workshop on Performance and Management of Wireless and Mobile Networks (P2MNet), the International Workshop on the Design and Performance of Networks on Chip (DPNoC), the International Workshop on mobile applications (MobiApps). Dr. Loucif is a member of the IEEE Computer Society and IEEE Communications Society.

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