

2017 19th International Symposium on Computer Architecture and Digital Systems (CADS 2017)

**Kish Island, Iran
21-22 December 2017**



**IEEE Catalog Number: CFP1736J-POD
ISBN: 978-1-5386-4380-8**

**Copyright © 2017 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP1736J-POD
ISBN (Print-On-Demand):	978-1-5386-4380-8
ISBN (Online):	978-1-5386-4379-2
ISSN:	2325-9361

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

Table of Contents

Design and Evaluation of a 5-Input Majority Gate-Based Content-Addressable Memory Cell in Quantum-Dot Cellular Automata	4
Milad Bagherian Khosroshahy, Mohammad Hossein Moaiyeri and Keivan Navi	
A Bio-Inspired Method for Hardware Trojan Detection	10
Najmeh Farajipour Ghohroud and Shaahin Hessabi	
Towards a robust and efficient EM based authentication of FPGA against counterfeiting and recycling	12
Mosabbah Mushir Ahmed, David Hely, Nicolas Barbot, Romain Siragusa, Etienne Perret, Maxime Bernier and Frederic Garet	
NOC Characteristics of Cloud Applications	18
Pejman Lotfi-Kamran, Mehdi Modarressi and Hamid Sarbazi-Azad.	
High Performance Implementation of 2-D Convolution Using AVX2	24
Hossein Amiri and Asadollah Shahbahrami.	
NoD: Network-on-Die as a Standalone NoC for Heterogeneous Many-core Systems in 2.5D ICs	28
Masoumeh Ebrahimi, Awet Yemane Weldezion and Masoud Daneshtalab.	
SKERD: Reuse Distance Analysis for Simultaneous Multiple GPU Kernel Executions	34
Mohsen Kiani and Amir Rajabzadeh.	
A Novel Congestion-aware and Adaptive Routing Algorithm in Mesh-based Networks-on-Chip with Segmentation	40
Reza Akbar and Farshad Safaei.	
Efficient Mapping of DNA Logic Circuits on Parallelized Digital Microfluidic Architecture	46
Zohre Beiki, Maryam Tajobian and Ali Jahanian.	
PAMS: A new position-aware multi-sensor dataset for human activity recognition using smartphone	52
Pegah Esfahani and Hadi Tabatabaee Malazi.	
A Novel Key Partitioning Schema for Efficient Execution of MapReduce Applications	59
Saeed Nasehi Basharzad, Seyed Morteza Nabavinejad and Maziar Goudarzi.	
DA-FTL: Dynamic Associative Flash Translation Layer	65
Peyman Forouhar and Farshad Safaei.	
NOMeS: Near-Optimal Metaheuristic Scheduling for MPSoCs	70
Amin Majd, Masoud Daneshtalab, Juha Plosila, Nima Khalilzad, Golnaz Sahebi and Elena Troubitsyna	

Table of Contents

RI-COTS: Trading Performance for Reliability Improvements in Commercial of the Shelf Systems	76
Golsa Ghasemi, Amir Mahdi Hosseini Monazzah and Hamed Farbeh.	
High Speed, Low Power and Approximated Current Mode XOR in Secure Image Applications Based on CNT	82
Ali Kargaran Dehkordi, Ali Bozorgmehr and Keivan Navi.	
Tree-based Design Space Exploration for Mapping Application onto Heterogeneous MPSoCs	86
Sima Sinaei and Omid Fatemi.	
UTIC: A Toolchain for Enumeration and Selection of Custom Instructions	92
Mahdi Mohammadpour Fard and Mostafa Ersali Salehi Nasab.	
Exploration of ring oscillator based temperature sensors network accuracy on FPGA	94
Golnaz Korkian, Navid Rahmanikia, Hamid Noori and Juan Antonio Clemente.	
Dynamic Prioritization and Cell Fixation Placement Algorithm Based on Simulated Annealing	100
Maryam Bigonah, Dariush Abbasinezhad-Mood and Morteza Nikooghadam.	
Delaunay based two-phase algorithm for connected cover in WSNs	103
Maryam Tahmasbi, Hadi Tabatabaee and Fahimeh Eltejaei.	
Evolutionary Architecture Design for Approximate DCT	108
Abbas Azaraein, Babak Djalaee and Mostafa E. Salehi.	
Impact of Increasing Number of Neurons on Performance of Neuromorphic Architecture	110
Mahyar Shamsavari, Pierre Boulet, Assadollah Shahbahrami and Said Hamdioui.	
Novel Algorithm and Architectures for High-Speed Low-power ConText-based Steganography	116
Somayeh Timarchi, Masoud Abbasi Alaie and Hossein Kooshkbaghi.	
Bamshad: A JIT Compiler for running Java Stream APIs on heterogeneous environments	122
Bahram Yarahmadi and Farshad Khunjush.	