

2011 International Conference on Energy Aware Computing

(ICEAC 2011)

**Istanbul, Turkey
30 November 2011**



**IEEE Catalog Number: CFP1175K-PRT
ISBN: 978-1-4673-0466-5**

TABLE OF CONTENTS

A Comparative Analysis between FinFET Semi-Dynamic Flip-Flop Topologies under Process Variations	1
<i>M. Rabie, A. Bahgat, K. Ramadan, H. Shobak, T. Nasr, M. Abdelhafez, E. Moustafa, M. Anis</i>	
A Cr-Ni Thermoelectric MEMS Energy Harvester for Low Profile Applications	7
<i>E. Topal, O. Zorlu, H. Kulah, A. Muhtaroglu</i>	
A Design Methodology for a Low Power Bang-Bang All Digital PLL Based on Digital Loop Filter Programmable Coefficients	13
<i>S. Safwat, M. Ghoneima, Y. Ismail</i>	
A Novel Power Gated Digitally Controlled Oscillator	17
<i>A. Lotfy, M. Ghoneima, M. Abdel-Moneum</i>	
All-Digital Comparator Using Device-Ratio Programmable Triggering Levels	21
<i>L. Salem, Y. Ismail</i>	
An Approach to Measuring Kernel Energy in Software Applications	25
<i>M. Dabbagh, H. Hajj, W. Hajj</i>	
CloudESE: Energy Efficiency Model for Cloud Computing Environments	31
<i>I. Sarji, C. Ghali, A. Chehab, A. Kayssi</i>	
Dynamic Energy Allocation for Coordinated Optimization in Enterprise Workloads	37
<i>R. Khanna, K. Doshi, C. Le, J. Ping, M. Dimitrov</i>	
EEffSim: A Discrete Event Simulator for Energy Efficiency in Large-Scale Storage Systems	43
<i>R. Prabhakar, E. Kruus, G. Lu, C. Ungureanu</i>	
Empirically Based Methodology for Thermoelectric Generation in Notebook Systems	49
<i>R. Denker, A. Muhtaroglu, H. Kulah</i>	
Energy Consumption Breakdown of a Modern Mobile Platform under Various Workloads	54
<i>F. Hamady, A. Chehab, A. Kayssi</i>	
Energy Efficient Hierarchical Epidemics in Peer-to-Peer Systems	58
<i>E. Cem, T. Koc, O. Ozkasap</i>	
Energy Management for Tiny Real-Time Kernels	63
<i>M. Bambagini, F. Prospieri, M. Marinoni, G. Buttazzo</i>	
Energy-Efficient Platform-as-a-Service Security Provisioning in the Cloud	69
<i>W. Itani, A. Chehab, A. Kayssi</i>	
Exploring Energy Aware Microarchitectural Design Space via Computationally Efficient Genetic Programming	75
<i>A. El-Halaby, M. Awad, R. Khanna</i>	
Fabrication of SU-8 Low Frequency Electrostatic Energy Harvester	80
<i>K. Ramadan, I. Foulds</i>	
H-TRACE: A Hybrid Energy-Aware Routing Scheme for Mobile Ad Hoc Networks	85
<i>A. Tajeddine, A. Chehab, A. Kayssi</i>	
Hybrid Energy Harvesting From Keyboard	91
<i>L. Beker, O. Zorlu, H. Kulah, A. Muhtaroglu</i>	
Improved Second Generation Electromagnetic MEMS Energy Scavenger	95
<i>S. Turkyilmaz, A. Muhtaroglu, H. Kulah</i>	
Low Power FPAA Design Based on OTA Using 90nm CMOS Technology	99
<i>S. Mahmoud, K. Ali, M. Rabea, A. Amgad, A. Adel, A. Nasser, H. Mohamed, Y. Ismail</i>	
Multiple Instruction Sets Architecture (MISA)	103
<i>H. Karaki, H. Akkary</i>	
Piezoelectric Cantilever Prototype for Energy Harvesting in Computing Applications	109
<i>L. Beker, H. Kulah, A. Muhtaroglu</i>	
Ppower Delivery for Series Connected Voltage Domains in Digital Circuits	113
<i>Pradeep Shenoy, I. Fedorov, T. Neyens, P. Krein</i>	
Resonant Square-Wave Clock Generator For Low Power Applications	119
<i>M. Wahba, Y. Ismail</i>	
Slow-Switching-Limit Loss Removal in SC DC-DC Converters Using Adiabatic Charging	123
<i>L. Salem, Y. Ismail</i>	
Tag Simplification: Achieving Power Efficiency through Reducing the Complexity of the Wakeup Logic	127
<i>M. Aykenar, M. Ozgur, V. Bayraktar, O. Ergin</i>	

Ultrabook™: Doing More with Less	133
<i>J. Hermerding, E. Distefano, T. Hill, K. Shah, V. Srinivasan</i>	
Unified Extensible Firmware Interface: An Innovative Approach to DRAM Power Control	137
<i>R. Khanna, F. Zuhayri, M. Nachimuthu, C. Le, M. Kumar</i>	
Author Index	