2012 IEEE 14th International Conference on High Performance Computing and Communications

HPCC 2012

Table of Contents

Message from HPCC-2012 General Chairs
Message from HPCC-2012 Program Chairs
Message from HPCC-2012 Steering Chairs
Message from HPCC-2012 Workshop/Symposium Chairs
Message from FGC-2012 Workshop Chairs
Message from WNM-2012 Workshop Chairs
Message from the FFCN-2012 Workshop Chairs
Message from DSOC-2012 Workshop Chairs
Message from ESCAPE-2012 Workshop Chairs
Message from AHPCN-2012 Symposium Chairs
HPCC-2012 Organizing and Program Committees
FGC-2012 Organizing and Program Committees
WNM-2012 Organizing and Program Committees
FFCN-2012 Organizing and Program Committees
DSOC-2012 Organizing and Program Committees
ESCAPE-2012 Organizing and Program Committees
Message from ICESS-2012 General Chairs
Message from ICESS-2012 Program Chairs
Message from ICESS-2012 Steering Chairs
Message from ICESS-2012 Workshop/Symposia Chairs
Message from EMCA-2012 Workshop Chairs
Message from IWITEI-2012 Workshop Chairs
Message from ESA-2012 Symposium Chairs
ICESS-2012 Organizing and Program Committees
EMCA-2012 Organizing and Program Committees
IWITEI-2012 Organizing and Program Committees
Keynote: Utility-based Routing and its Application in Dynamic Wireless Networks
Keynote: Complexity Science Takes Charge of Viral Infections
Volume 1

HPCC-2012: The 14th IEEE International Conference on High Performance Computing and Communications

Parallel Computing (1)

Analytical Assessment of the Suitability of Multicast Communications for the SpiNNaker Neuromimetic System .................................................................1

Javier Navaridas, Mikel Luján, Luis A. Plana, Jose Miguel-Alonso, and Steve B. Furber

Exploring Potential Parallelism of Sequential Programs with Superblock Reordering .................................................................9

John M. Ye and Tianzhou Chen

A Parallel Multi-Core Team of Multiobjective Evolutionary Algorithms to Discover DNA Motifs ..............................................................................................................................17

David L. González-Alvarez, Miguel A. Vega-Rodríguez, Juan A. Gómez-Pulido,
and Juan M. Sánchez-Pérez

Fully Distributed On-chip Instruction Memory Design for Stream Architecture Based on Field-Divided VLIW Compression ........................................................................25

Yi He, Maolin Guan, Chunyaun Zhang, Tian Tian, and Qianming Yang

Parallel Speculative Dom-based XML Parser ........................................................................................................................................................................33

Ma Jianliang, Shaobin Zhang, Tongsen Hu, Minghui Wu, and Tianzhou Chen

Implementation of Motion Estimation Based on Heterogeneous Parallel Computing System with OpenCL ........................................................................................................41

Jinglin Zhang, Jean-Francois Nezan, and Jean-Gabriel Cousin

A Parallel Multiobjective Artificial Bee Colony Algorithm for Dealing with the Traffic Grooming Problem ..................................................................................................................46

Alvaro Rubio-Largo, Miguel A. Vega-Rodríguez, Juan A. Gómez-Pulido, and Juan M. Sánchez-Pérez

Parallel Computing (2)

Space-efficient Sparse Matrix Storage Formats for Massively Parallel Systems .................................................................................................54

Ivan Šimeček, D. Langr, and P. Tvrdík

Architectural Support for Exploiting Fine Grain Parallelism .................................................................................................................................61

Demian Rosas-Ham, Isuru Herath, Paraskevas Yiapanis, Mikel Luján, and Ian Watson

MHPM: Multi-Scale Hybrid Programming Model: A Flexible Parallelization Methodology .................................................................................................71

Nader Khammassi, Jean-Christophe Le Lann, Jean-Philippe Dignel, and Alexandre Skrzyniarz

Experimental Analysis of SMP Scalability in the Presence of Coherence Traffic and Snoop Filtering .....................................................................................................................81

Mayez A. Al-Mouhamed and Khaled A. Daud

Application Parallel Test with Parameter of High Performance Computer .................................................................................................................89

Zhenyu Liu, Lizhi Cai, and Yun Hu
SoAP: A Strip-oriented Asynchronous Prefetching for Improving the Performance of Parallel Disk Systems ...............................................................96
Yang Liu and Feng Wang

Tool-assisted Optimization of Shared-memory Accesses in UPC Applications .........................................................104
Guojing Cong, Huifang Wen, Hiroki Murata, and Yasushi Negishi

Multicore Systems

A DVB-T Implementation for Android Stagefright on a Heterogeneous Multi-core Platform ........................................................112

PartitionSim: A Parallel Simulator for Many-cores ........................................................................................................119
Shuai Jiao, Da Wang, Xiaochun Ye, Weizhi Xu, Hao Zhang, and Ninghui Sun

High Performance Memory Requests Scheduling Technique for Multicore Processors ........................................127

ALWP: A Workload Partition Method for the Efficient Parallel Simulation of Manycores ........................................................................135
Shuai Jiao, Da Wang, Xiaochun Ye, Weizhi Xu, Hao Zhang, and Ninghui Sun

Computational Comparison of Some Multi-core Programming Tools for Basic Matrix Computations ........................................................................143
Panagiotis D. Michailidis and Konstantinos G. Margaritis

Performance of a Hardware Scheduler for Many-core Architecture ..............................................................................151
Itai Avron and Ran Ginosar

VSCP: A Cache Controlling Method for Improving Single Thread Performance in Multicore System ................................................................161
Yu Liu, Hong An, Xiaomei Li, Peng Leng, Sun Sun, and Junshi Chen

Distributed Systems and Applications (1)

Enhance Virtualized HPC System Based on I/O Behavior Perception and Asymmetric Scheduling ............................................................169
Yanyan Hu, Xiang Long, and Jiong Zhang

A Hypercubic Event-dissemination Overlay Using Structure-aware Addressing for Distributed XML-based Pub/sub System ........................................179
Yu Xiaochuan and Alvin Chan Toong Shoon

Joint ML and MMSE Estimation Based Signal Detection for MIMO-OFDM Radio over Fiber System ........................................................187
Sun Xuekang and Qiao Rong

Scalable Performance Predictions of Distributed Peer-to-Peer Applications ...........................................................................193
Bogdan Florin Cornea, Julien Bourgeois, The Tung Nguyen, and Didier El-Baz

A Distributed Index Service for Peer-to-Peer VOD ......................................................................................................................202
Linchen Yu, Hai Jin, Yang Yu, Xiaofei Liao, and Wembin Jiang
Dealing with the Functional Units Starvation in SMT ..........................................................208
  Yannan Liu, Chen Tianzhou, Tiefei Zhang, and Jinming Yue

Dynamic Tuning of the Workload Partition Factor in Data-Intensive Applications .....................216
  Claudia Rosas, Anna Sikora, Josep Jorba, Andreu Moreno, and Eduardo César

YAO: A Generator of Parallel Code for Variational Data Assimilation Applications .........................224
  Luigi Nardi, Fouad Badran, Pierre Fortin, and Sylvie Thiria

MyStore: A High Available Distributed Storage System for Unstructured Data ................................233
  Wenbin Jiang, Lei Zhang, Weizhong Qiang, Hai Jin, and Yaqiong Peng

**Distributed Systems and Applications (2)**

Detection of Concept Drift for Learning from Stream Data .......................................................241
  Jeonghoon Lee and Frédéric Magoulès

Identifying Elephant Flows Using a Reversible MultiLayer Hashed Counting Bloom
Filter ..............................................................................................................................................246
  Weijiang Liu, Wenyu Qu, Zhaobin Liu, Keqiu Li, and Jian Gong

Single Operation Multiple Data - Data Parallelism at Subroutine Level .......................................254
  Eduardo Marques and Hervé Paulino

Efficient Online Index Maintenance for SSD-based Information Retrieval Systems .....................262
  Ruixuan Li, Xuefan Chen, Chengzhou Li, Xiwu Gu, and Kunmei Wen

Scalable Distributed Fast Multipole Methods ...............................................................................270
  Qi Hu, Nail A. Gumerov, and Ramani Duraiswami

Improve Indirect Branch Prediction with Private Cache in Dynamic Binary Translation ..................280
  Liao Yin, Jiang Haitao, Sun Guangzhong, Jin Guojie, and Chen Guoliang

Runtime Optimization of Broadcast Communications Using Dynamic Network
Topology Information from MPI ......................................................................................................287
  Jeffrey Godwin, Christer Karlsson, and Zizhong Chen

Express Router Microarchitecture for Triplet-based Hierarchical Interconnection
Network ............................................................................................................................................295
  Yang Zhang, Feng Shi, Qi Zuo, Shahnawaz Talpur, and Ziyu Liu

**Grid, Cluster and Cloud Computing**

Commodity Converged Fabrics for Global Address Spaces in Accelerator Clouds ..........................303
  Jeffrey Young and Sudhakar Yalamanchili

Cloud Resource Provisioning to Extend the Capacity of Local Resources in
the Presence of Failures .....................................................................................................................311
  Bahman Javadi, Parimala Thulasiraman, and Rajkumar Buyya

Architecture, Functional Requirements, and Early Implementation of
an Instrumentation Grid for the IoT .................................................................................................320
  Andrea Azzarà, Daniele Alessandrelli, Stefano Bocchino, Paolo Pagano, and Matteo Petracca
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applying Cluster Computing to Enable a Large-scale Smart Grid Stability Monitoring</td>
<td>328</td>
</tr>
<tr>
<td>John Interrante and Kareem S. Aggour</td>
<td></td>
</tr>
<tr>
<td>Subhash Saini, Steve Heistand, Haoqiang Jin, Johnny Chang, Robert Hood, Piyush Mehrotra, and Rupak Biswas</td>
<td></td>
</tr>
<tr>
<td>An Implementation of Parallel 1-D FFT on the K Computer</td>
<td>344</td>
</tr>
<tr>
<td>Daisuke Takahashi, Atsuya Uno, and Mitsuo Yokokawa</td>
<td></td>
</tr>
<tr>
<td>Reengineering High-throughput Molecular Datasets for Scalable Clustering Using MapReduce</td>
<td>351</td>
</tr>
<tr>
<td>Trilce Estrada, Boyu Zhang, Michela Taufer, Pietro Cicotti, and Roger Armen</td>
<td></td>
</tr>
<tr>
<td>Application-specific Cloud Provisioning Model Using Job Profiles Analysis</td>
<td>360</td>
</tr>
<tr>
<td>Seoyoung Kim and Yoonhee Kim</td>
<td></td>
</tr>
<tr>
<td>Themis: Economy-based Automatic Resource Scaling for Cloud Systems</td>
<td>367</td>
</tr>
<tr>
<td>Stefania Costache, Nikos Parlavanias, Christine Morin, and Samuel Kortas</td>
<td></td>
</tr>
<tr>
<td><strong>GPU Computing</strong></td>
<td></td>
</tr>
<tr>
<td>Rootbeer: Seamlessly Using GPUs from Java</td>
<td>375</td>
</tr>
<tr>
<td>Philip C. Pratt-Szeliga, James W. Fawcett, and Roy D. Welch</td>
<td></td>
</tr>
<tr>
<td>High-Performance Volume Rendering on the Ubiquitous WebGL Platform</td>
<td>381</td>
</tr>
<tr>
<td>Movania Muhammad Mobeen and Lin Feng</td>
<td></td>
</tr>
<tr>
<td>An Adaptative Multi-GPU Based Branch-and-Bound. A Case Study: The Flow-Shop Scheduling Problem</td>
<td>389</td>
</tr>
<tr>
<td>I. Chakroun and N. Melab</td>
<td></td>
</tr>
<tr>
<td>Accelerating Viola-Jones Facce Detection Algorithm on GPUs</td>
<td>396</td>
</tr>
<tr>
<td>Haipeng Jia, Yunquan Zhang, Weiyan Wang, and Jianliang Xu</td>
<td></td>
</tr>
<tr>
<td>Image Feature Description by Frequent Patterns</td>
<td>404</td>
</tr>
<tr>
<td>Nuo Zhang and Toshinori Watanabe</td>
<td></td>
</tr>
<tr>
<td>Directive-based Programming for GPUs: A Comparative Study</td>
<td>410</td>
</tr>
<tr>
<td>Ruymán Reyes, Ivan López, Juan J. Fumero, and Francisco de Sande</td>
<td></td>
</tr>
<tr>
<td>Integer Programming Based Heterogeneous CPU-GPU Cluster Scheduler for SLURM Resource Manager</td>
<td>418</td>
</tr>
<tr>
<td>Seren Soner and Can Özturan</td>
<td></td>
</tr>
<tr>
<td>Ice Simulation Using GPGPU</td>
<td>425</td>
</tr>
<tr>
<td>Shadi Alawneh and Dennis Peters</td>
<td></td>
</tr>
<tr>
<td>Memory Efficient Parallelization for Aho-Corasick Algorithm on a GPU</td>
<td>432</td>
</tr>
<tr>
<td>Nhat-Phuong Tran, Myungho Lee, Sugwon Hong, and Minho Shin</td>
<td></td>
</tr>
<tr>
<td>Fast Linear Algebra on GPU</td>
<td>439</td>
</tr>
<tr>
<td>Lukas Polok and Pavel Smrz</td>
<td></td>
</tr>
</tbody>
</table>
Streaming Dynamic Coarse-Grained CPU/GPU Workloads with Heterogeneous Pipelines in FastFlow ................................................................. 445
Mehdi Goli, Michael T. Garba, and Horacio González–Vélez

An Effective Approach for Implementing Sparse Matrix-Vector Multiplication on Graphics Processing Units ................................................. 453
Walid Abu-Sufah and Asma Abdel Karim

DMA-Assisted, Intranode Communication in GPU Accelerated Systems .............................................................. 461
Feng Ji, Ashwin M. Aji, James Dinan, Darius Buntinas, Pavan Balaji, Rajeev Thakur, Wu-chun Feng, and Xiaosong Ma

Embedded Systems
Radiata: Enabling Whole System Hot-mirroring via Continual State Replication .......................................................... 469
Yang Chen, Chunming Hu, and Tianyu Wo

Peak Temperature Minimization for Embedded Systems with DVS Transition
Overhead Consideration ............................................................................................................................................. 477
Meikang Qiu, Jianwei Niu, Fei Pan, Yu Chen, and Yongxin Zhu

Incremental Run-time Application Mapping for Heterogeneous Network on Chip .................................................. 485
Jingcheng Shao, Chen Tian-zhou, and Li Liu

Design of a High-Throughput NoC Router with Neighbor Flow Regulation ............................................................. 493
Weiwei Fu, Jingcheng Shao, Bin Xie, Tianzhou Chen, and Li Liu

TrafficLite: A Configurable On-Chip Interconnect Router Microarchitecture .......................................................... 501
Xie Bin, Fu Weiwei, and Chen Tian-zhou

Using Direct Cache Access Combined with Integrated NIC Architecture to Accelerate Network Processing .................................................. 509
Wen Su, Longbing Zhang, Dan Tang, and Xiang Gao

Implementation and Analysis of Block Dense Matrix Decomposition on Network-on-Chips .......................................................... 516
Thomas Canhao Xu, Tapio Pahikkala, Antti Airola, Pasi Liljeberg, Juha Plosila, Tapio Salakoski, and Hannu Tenhunen

Implementation and Evaluation of Large Interconnection Routers for Future Many-core Networks on Chip ................................................................................. 524
Amir H.M. Zaytoun, Hossam A.H. Fahmy, and Khaled M.F. Elsayed

Diametric Mesh of Tree (DiaMoT) Routing Framework for High Performance NoCs: A Hierarchical Approach ........................................................................ 532
Prasun Ghosal, Sunita Choudhuri, and Hafizur Rahaman
Scientific and Engineering Computing

Exploitation of High Performance Computing in the FLAME Agent-Based Simulation Framework

Simon Coakley, Marian Gheorghe, Mike Holcombe, Shawn Chin, David Worth, and Chris Greenough

Managing Communication Latency-Hiding at Runtime for Parallel Programming Languages and Libraries

Mads Ruben Burgdorff Kristensen and Brian Vinter

A Data Structure Centric Method and Execution Model for Partitioning Sequential Programs into Multiple Speculative Threads

Yanning Du, Yinliang Zhao, Bo Han, and Yuancheng Li

Data Independent Method of Constructing Distributed LSH for Large-Scale Dynamic High-Dimensional Indexing

Xiaoguang Gu, Lei Zhang, Dongming Zhang, Yongdong Zhang, Jintao Li, and Ning Bao

Trends in Computation, Communication and Storage and the Consequences for Data-intensive Science

Simone Ferlin Oliveira, Karl Fürlinger, and Dieter Kranzlmüller

HyDB: Access Optimization for Data-Intensive Service

Qing Zhu and Zuoyan Qin

Assessing the Impact of Network Compression on Molecular Dynamics and Finite Element Methods

Branimir Dickov, Miquel Pericàs, Guillaume Houzeaux, Nacho Navarro, and Eduard Ayguadé

Effective Quality-of-Service Policy for Capacity High-Performance Computing Systems

Ana Jokanovic, Jose Carlos Sancho, Jesus Labarta, German Rodriguez, and Cyriel Minkenberg

Autonomic, Reliability and Fault-tolerance

King Topologies for Fault Tolerance

Esteban Stafford, Emilio Castillo, Fernando Vallejo Jose Luis Bosque, Carmen Martinez, Cristobal Camarero, and Ramon Beivide

Automatic Tuning of the Fast Multipole Method Based on Integrated Performance Prediction

Holger Dachsel, Michael Hofmann, Jens Lang, and Gudula Rünger

Night-Watch: Cooperated Low Power Operation of Container Security Devices

Seyoung Park, Hyosung Hwang, and Yunju Baek

Robustness Testing of Web Services Composition

Issam Rabhi
Scheduling and Services

A Multiple Priority Queueing Genetic Algorithm for Task Scheduling on Heterogeneous Computing Systems .................................................................639

Yuming Xu, Kenli Li, Tung Truong Khac, and Meikang Qiu

MPI-ACC: An Integrated and Extensible Approach to Data Movement in Accelerator-based Systems .........................................................................................647

Ashwin M. Aji, James Dinan, Darius Buntinas, Pavan Balaji, Wu-chun Feng, Keith R. Bisset, and Rajeev Thakur

Application Based Rate Controllable TCP for High Performance Bulk Data Transfer .........................................................................................................655

Guodong Wang, Yongmao Ren, and Jun Li

A Simple Classifier Based on a Single Attribute .................................................................................................................................................660

Lei Du and Qinbao Song

Self-adaptive Schedule Mechanism for Peer-to-peer Multi-rate Live Streaming System ........................................................................................................666

Linchen Yu, Hai Jin, Wenbin Jiang, Guangxian Liao, and Xiaofei Liao

DMTRH: A Real-Time Scheduling Algorithm for Multiple Earth Observation Satellites ........................................................................................................673

Jianjiang Wang, Xiaomin Zhu, Jianghan Zhu, Manhao Ma, and Laurence T. Yang

Stable Set Model Based Methods for Large-capacity Client Cache Management .........................................................................................................681

Mingyang Guo, Liu Liu, Yongle Zhang, Zhenjun Liu, and Lu Xu

Wireless Networks

Cooperative MAC Protocol for Multi-Channel Wireless Networks .................................................................................................................................691

Li-Ling Hung, Chih-Yung Chang, Tzu-Lin Wang, and Chin-Yao Hsiao

Sensor Placement with Multiple Objectives for Structural Health Monitoring in WSNs .................................................................................................699

Md Zakirul Alam Bhuiyan, Guojun Wang, and Jiannong Cao

Design and Implementation of IEEE 802.11n in Multi-hop over Wireless Mesh Networks with Multi-Channel Multi-Interface .................................................................................................................................707

Won-Suk Kim and Sang-Hwa Chung


Chih-Yung Chang, Li-Ling Hung, Tzu-Chia Wang, and Tzu-Lin Wang

HWMP+: An Improved Traffic Load Sheme for Wireless Mesh Networks .........................................................................................................................722

Lihua Yang and Sang-Hwa Chung

An Energy Efficient MAC Protocol Based on IEEE 802.11 DCF for Wireless Sensor Networks in Port Logistics .........................................................................................728

Haosong Gou and Younghwan Yoo

Dynamic Source and Channel Rate Adaptation for Video Streaming over Wireless Fading Channels .................................................................................................734

Nilanjan Banerjee, Swades De, Pradipta De, and Kiran Dhamale
Two-tier Cellular Networks with Frequency Selective Surface ..........................................................740
Siyi Wang, Weisi Guo, and Tim O’Farrell

Optimizing Routing in Multi-hop Wireless Networks Using Analytical Capacity
Estimation: A Study on Video Streaming ..........................................................................................748
Yuwei Xu, Jeremiah D. Deng, and Mariusz Nowostawski

Performance Evaluation and Measurement

Evaluation of the Broadcast Operation in Kademlia ........................................................................756
Antonio Delgado Peris, José M. Hernández, and Eduardo Huedo

A Nonlinear Array Subscripts Dependence Test .............................................................................764
Zhao Jie, Zhao Rongcai, and Han Lin

Performance Comparison of Queues with Batch Renewal Arrivals in Continuous
and Discrete Times ..........................................................................................................................772
Wei Li, Demetres Kouvatsos, and Rod Fretwell

A Performance Study to Guide RDMA Programming Decisions ..................................................778
Patrick MacArthur and Robert D. Russell

Inequity of Sharing Ratio Enhancement in Darknet: Measurement and Improvement ..................786
Xiaowei Chen, Xiaowen Chu, Adele L. Jia, and Johan A. Pouwelse

Optimizing Network Measurements through Self-adaptive Sampling ...........................................794
João Marco C. Silva and Solange Rito Lima

Evaluating High Performance Data Transfer with RDMA-based Protocols
in Wide-Area Networks ...................................................................................................................802
Ezra Kissel and Martin Swany

FGC-2012: The Third International Workshop on Frontier of GPU Computing

Run-Time GPU Computing and Rendering of Earthquake Ground-Motion Data .........................812
Ming-Da Chen and Tung-Ju Hsieh

Implementation of a Lattice Boltzmann Method for Large Eddy Simulation
on Multiple GPUs .........................................................................................................................818
Qinjian Li, Chengwen Zhong, Kai Li, Guangyong Zhang, Xiaowei Lu, Qing Zhang,
Kaiyong Zhao, and Xiaowen Chu

UFO: A Scalable GPU-based Image Processing Framework for On-line Monitoring ...................824
Mathias Vogelgesang, Suren Chilingaryan, Tomy dos Santos Rolo, and Andreas Kopmann

OpenCL Remote: Extending OpenCL Platform Model to Network Scale ...................................830
Ridvan Özaydin and D. Turgay Altilar

Iterative Methods for Sparse Linear Systems on Graphics Processing Unit ................................836
Abal-Kassim Cheik Ahamed and Frédéric Magoulès

Implementation and Analysis of AES Encryption on GPU ............................................................843
Qinjian Li, Chengwen Zhong, Kaiyong Zhao, Xinxin Mei, and Xiaowen Chu
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parallel UPGMA Algorithm on Graphics Processing Units Using CUDA</td>
<td>849</td>
</tr>
<tr>
<td>A Performance Study of Traversing Spatial Indexing Structures in Parallel on GPU</td>
<td>855</td>
</tr>
<tr>
<td>Jinwoong Kim, Sumin Hong, and Beomseok Nam</td>
<td></td>
</tr>
<tr>
<td>WNM-2012: The Third International Workshop on Wireless Networks and Multimedia</td>
<td></td>
</tr>
<tr>
<td>A Partial Reconstruction of Connected Dominating Sets in the Case of Fault Nodes</td>
<td>861</td>
</tr>
<tr>
<td>Youn-Sik Hong and Hye-Kyung Jeon</td>
<td></td>
</tr>
<tr>
<td>Intelligent Bandwidth Management Using Fast Learning Neural Networks</td>
<td>867</td>
</tr>
<tr>
<td>Fahad Ullah, Gul M. Khan, and Sahibzada Ali Mahmud</td>
<td></td>
</tr>
<tr>
<td>Resolution Scaled Quality Adaptation for Ensuring Video Availability in Real-time Systems</td>
<td>873</td>
</tr>
<tr>
<td>Krishnapriya S., Balaji Hariharan, and Sangeeth Kumar</td>
<td></td>
</tr>
<tr>
<td>Marios C. Charalambous, Constandinos X. Mavromoustakis, and Muneer Bani Yassein</td>
<td></td>
</tr>
<tr>
<td>Traffic Policing Mechanism Based on the Token Bucket Method for WiMax Networks</td>
<td>885</td>
</tr>
<tr>
<td>Henaldo Barros Moraes and Paulo Roberto Guardieiro</td>
<td></td>
</tr>
<tr>
<td>Provisioning QoE over Converged Networks: Issues and Challenges</td>
<td>891</td>
</tr>
<tr>
<td>Hajer Gahbiche Msakni and Habib Youssef</td>
<td></td>
</tr>
<tr>
<td>An Efficient Mobility Management Approach for IEEE 802.15.4/ZigBee Nodes</td>
<td>897</td>
</tr>
<tr>
<td>Chiraz Chaabane, Alain Pegatoquet, Michel Auguin, and Maher Ben Jemaa</td>
<td></td>
</tr>
<tr>
<td>Performance Evaluation of Widely Used Portknoking Algorithms</td>
<td>903</td>
</tr>
<tr>
<td>Z.A. Khan, N. Javaid, M.H. Arshad, A. Bibi, and B. Qasim</td>
<td></td>
</tr>
<tr>
<td>FFCN-2012: The International Symposium on Frontier of Future Communication Networks</td>
<td></td>
</tr>
<tr>
<td>Ad hoc On-demand Multipath Distance Vector Routing with Backup Route Update Mechanism</td>
<td>908</td>
</tr>
<tr>
<td>Zhenyu Chen, Lin Guan, Xingang Wang, and Xunli Fan</td>
<td></td>
</tr>
<tr>
<td>Adaptive Bubble Scheme with Minimal Buffers in Torus Networks</td>
<td>914</td>
</tr>
<tr>
<td>Wang Yongqing, Zhang Minxuan, Fu Qingchao, and Pang Zhengbin</td>
<td></td>
</tr>
<tr>
<td>An Ant Colony Algorithm for Aggregated Multicast Based on Clustering</td>
<td>920</td>
</tr>
<tr>
<td>Shanwen Yi, Hua Wang, and Rui Zhang</td>
<td></td>
</tr>
<tr>
<td>Research on E-commerce Data Management Based on Semantic Web</td>
<td>925</td>
</tr>
<tr>
<td>Jihong Sun and Lei Wang</td>
<td></td>
</tr>
<tr>
<td>MVA: An Interactive Assistant Communication Scheme in Blind Area of VANET</td>
<td>929</td>
</tr>
<tr>
<td>Hong Yao, Huawei Huang, Lei Cong, and Qingzhong Liang</td>
<td></td>
</tr>
</tbody>
</table>
DSOC-2012: The Third International Workshop on Dependable Service-Oriented and Cloud computing

Scalability and Bandwidth Optimization for Data Center Networks .................................................................935
Teng Zhang, Jiaxing Song, and Weidong Liu

Augmentation of BPEL with New Functions Using Aspect-oriented Programming ...........................................941
Donggyu Kwak, Jaeyoung Choi, and Myungho Lee

A Service-oriented Measurement Infrastructure for Cloud Computing Environments ..................................947
Gregg Hamilton and Dimitrios Pezaros

Taking the Business Intelligence to the Clouds ..................................................................................................953
Hussain Al-Aqrabi, Lu Liu, Richard Hill, and Nick Antonopoulos


Comparison Studies of Large-scale Conventional Molecular Dynamics Simulation on Parallel Machines .................................................................959
Yun-Che Wang, Chun-Yi Wu, and I-Hsin Chung

A Study of the Memory Wall within the Jacobi Iteration Method .................................................................964
Siqi Sun, Shan Wang, Wenfeng Shen, Weimin Xu, and Yanheng Zheng

Parallel Implementation and Performance Analysis of a 3D Oil Reservoir Data Visualization Tool on the Cell Broadband Engine and CUDA GPU .................................................................970
Fadi N. Siba, Saadullah Mohammad, Hashir Karim Kidwai, Bibrak Qamar, and Falah Awwad

AHPCN-2012: The Fifth International Symposium on Advances of High Performance Computing and Networking

Parallel and Distributed Systems and Applications (1)

Performance of Large Scale MHD Simulation of Global Planetary Magnetosphere with Massively Parallel Scalar Type Supercomputer Including Post Processing .................................................................976
Keiichiro Fukazawa and Takeshi Nanri

D-iteration: Evaluation of a Dynamic Partition Strategy ..................................................................................983
Dohy Hong

A Novel Parallel Approach of Radix Sort with Bucket Partition Preprocess ..................................................989
Keliang Zhang and Baifeng Wu

V-Set Cache Design for LLC of Multi-core Processors ..................................................................................995
Ali A. El-Moursy and Fadi N. Sibai

CFDComm: An Optimized Library for Scalable Point-to-Point Communication for General CFD Applications ..........................................................................................................................1001
Sina Haeri and John S. Shrimpton
Parallel and Distributed Systems and Applications (2)

A Design Pattern for Parallel Programming of Games ................................................................. 1007
  Wessam AlBahnassi, Sudhir P. Mudur, and Dhrubajyoti Goswami

Double Mutual-Aid Checkpointing for Fast Recovery ................................................................. 1015
  Jane-Ferng Chiu

Classification Based Metadata Management for HDFS ............................................................. 1021
  Ashok Chandrasekar, Karthik Chandrasekar, Harini Ramasatagopan, Rafica A.R.,
  and Jagadeesh Balasubramaniyan

Using Prioritized Disk Service to Expedite Program Execution .................................................. 1027
  Tsozen Yeh and Liming Yang

Vector Register Design with Register Bypassing for Embedded DSP Core .................................. 1033
  Ming-Yen Homh and Jen-Ming Wu

An Analytical Approach to Modeling and Evaluation of Optical Chip-scale Network
  using Stochastic Network Calculus ............................................................................................. 1039
  Quanyou Feng, Jiannong Cao, Yue Qian, and Wenhua Dou

Cloud, Peer-to-Peer, and Internet Computing

Using Risk in Access Control for Cloud-Assisted eHealth ......................................................... 1047
  Meeta Sharma, Yan Bai, Sam Chung, and Lirong Dai

Stratus: A Distributed Computing Framework for Scientific Simulations on the Cloud .............. 1053
  Pelle Jakovits, Satish Narayana Srirama, and Ilja Kromonov

MalikCredit - A New Credit Unit for P2P Computing ................................................................. 1060
  Malik Shahzad K. Awan and Stephen A. Jarvis

Enabling Scalable Cloud Infrastructure Using Autonomous VM Migration .............................. 1066
  Hyung Won Choi, Andrew Sohn, Hukeun Kwak, and Kyusik Chung

An Efficient Distributed Concurrency Control Scheme for Transactional Systems
  with Client-Side Caching .............................................................................................................. 1074
  Fahren Bukhari and Santosh Shrivastava

PEGA: A Performance Effective Genetic Algorithm for Task Scheduling
  in Heterogeneous Systems ............................................................................................................ 1082
  Saima Gulzar Ahmad, Ehsan Ullah Munir, and Wasif Nisar

High-Performance Scientific and Engineering Computing

Reliability-Aware Task Allocation in Distributed Computing Systems using Hybrid
  Simulated Annealing and Tabu Search ......................................................................................... 1088
  Hamid Reza Faragardi, Reza Shojaei, and Nasser Yazdani

A Nested Loop Fusion Algorithm Based on Cost Analysis ......................................................... 1096
  Zhao Jie, Zhao Rongcai, and Yao Yuan
Optimization Technology in SIMD Mathematical Functions Based on Vector Register Reuse ........................................................................................................................................................................1102

Xu Jinchen, Guo Shaozhong, and Wang Lei

An Improved Lock Detection Algorithm for Costas Loop ........................................................................................................1108

Zhu Nan, Feng Wenquan, Zhang Shilong, and Liu Suxiao

Optimizing Private Memory Performance by Dynamically Deactivating Cache Coherence .................................................................................................................................................................1112

Wang Shaogang, Xu Weixia, Pang Zhengbin, Wu Dan, Dai Yi, and Lu Pingjing

Advanced VRM Incorporated with 3D DCB Package for Computer Power Management Applications ........................................................................................................................................1118

Xiao Fu and M. Jin

Speculative Versioning through Perceptron Predictors ............................................................................................................................1125

Ehsan Atoofian and Amir Ghanbari Bavarsad

Scaling the Distributed Stochastic Simulation to Exaflop Supercomputers .............................................................................................1131

Boris Glinsky, Alexei Rodionov, Mikhail Marchenko, Dmitry Podkorytov, and Dmitry Weins

A Framework for Predicting Query Response Time .........................................................................................................................1137

Rekha Singhal

A Hybrid Service Selection Approach for Multi-user Requests ................................................................................................................1142

Hua Jin, Hua Zou, Fangchun Yang, Rongheng Lin, and Xinchao Zhao

A Practical Method for Quickly Improving Performance and Reducing Answer Time through the Selection of Hot Loops based on the Input Data ........................................................................................................1150

Lamia Atma Djoudi and Mohamed Amine Achab

Wireless Communications

Iterative Cross-layer Decoder for WiMAX Using Hybrid-ARQ ..................................................................................................................1158

Obaid Ur-Rehman and Natasa Zivic

An Adaptive Blind Single Antenna Interference Cancellation Algorithm for 4G LTE Systems ........................................................................................................................................................................1162

Zhenyu Zhou, Yi Jiang, Muhammad Tariq, Yanwei Li, and Takuro Sato

An Efficient TCP Algorithm for Differentiating Random Packet Losses from Spurious Retransmission Timeouts in Multi-hop Wireless Networks ........................................................................................................1167

Prasanthi S. and Meejeong Lee


Femi Aderohunmu, Jeremiah D. Deng, and Martin Purvis

A Comprehensive Analytical Model of Cognitive Radio Networks Employing Centralized Scheduling Mechanism .................................................................................................................................1179

Lei Liu, Xiaolong Jin, Geyong Min, and Keqiu Li

Energy Efficient MAC Protocols .................................................................................................................................................................1185

Serial PN Acquisition Using Smart Antenna and Censored Mean Level CFAR
Adaptive Thresholding for a DS/CDMA Mobile Communication ..................................................1193
Nour Alhariqi, Mourad Barkat, and Aghus Sofwan

Architectural Implications for SIMD Processors in the Wireless Communication
Domain ........................................................................................................................................1199
Yaohua Wang, Kai Zhang, Jianghua Wan, Sheng Liu, Xi Ning, and Shuming Chen

On the Characterization of CAR Systems Based on Mobile Computing ......................................1205
Víctor Fernández, Juan M. Orduña, and Pedro Morillo

Network Protocols and Algorithms
MR-PBGP: A Multi-Root Tree Model for Parallel BGP .................................................................1211
Yaping Liu, Shuo Zhang, and Baosheng Wang
Task Allocation Optimization for Neighboring Communication on Fat Tree ................................1219
Yoshiyuki Morie and Takeshi Nanri
Energy Efficient Routing Algorithm for WSNs via Unequal Clustering ......................................1226
Ruihua Zhang, Lei Ju, Zhiping Jia, and Xin Li
Survey of Extended LEACH-Based Clustering Routing Protocols for Wireless Sensor Networks .................................................................................................................................1232
M. Aslam, N. Javaid, A. Rahim, U. Nazir, A. Bibi, and Z.A. Khan
A Parallel EAX-based Algorithm for Minimizing the Number of Routes in the Vehicle
Routing Problem with Time Windows ......................................................................................1239
Mirosław Błocho and Zbigniew J. Czech
ABPS: An Accurate Backup Path Selecting Approach in Overlay Networks ...........................1247
Xiaolei Zhou, Deke Guo, Tao Chen, Zhen Shu, and Xueshan Luo
QBLUE: A New Congestion Control Algorithm Based on Queuing Theory ............................1253
Xunli Fan, Jie Zhang, Lin Guan, and Xingang Wang

Trust, Security and Privacy
Reliability Prediction on the Vehicle Control System .................................................................1258
Zhuting Yao and Hongxia Pan
Aswathy B. Raj, Maneesha V. Ramesh, Raghavendra V. Kulkarni, and Hemalatha T.
Improving Organisational Information Security Management: The Impact of Training
and Awareness ..........................................................................................................................1270
Nesren Waly, Rana Tassabehji, and Muntaz Kamala
Study and Implementation of Trust Evaluation Access Control Mechanism Based
on XEN ......................................................................................................................................1276
Lai Yingxu, Wang Ruozeng, and Yang Zhen
Dynamic Recommendation Trust Evaluation Model Based on Mobile E-Commerce ...............1282
Gang Wang and Xiaolin Gui
GPU Computing

Improve GPGPU Latency Hiding with a Hybrid Recovery Stack and a Window Based Warp Scheduling Policy .................................................................1288

Tianzhou Chen, Xingsheng Tang, Licheng Yu, Jianliang Ma, and Minghui Wu

Acceleration of Generalized Minimum Aberration Designs of Hadamard Matrices on Graphics Processing Units ..........................................................1294

Jon Calhoun, Josh Graham, Hong Zhou, and Hai Jiang

An Efficient Sparse Matrix Multiplication for Skewed Matrix on GPU .................................................................1301

Monika Shah and Vibha Patel

Fast Sparse Matrix-Vector Multiplication on Graphics Processing Unit for Finite Element Analysis .................................................................1307

Abal-Kassim Cheik Ahamed and Frédéric Magoulès

Speeding up Scoring Module of Mass Spectrometry Based Protein Identification by GPU .................................................................1315

You Li and Xiaowen Chu

Volume 2

ICESS-2012: The 9th IEEE International Conference on Embedded Software and Systems

Hardware/Software Co-Design

Demons Kernel Computation with Single-pass Stream Processing on FPGA .................................................................1321

Wei Ming Chiew, Feng Lin, Kemao Qian, and Hock Soon Seah

Migration between Software and Hardware Task on Preemptive Multitasking CPU/FPGA Hybrid Architecture .................................................................1329

Xun Wang, Degui Feng, Chen Tian-zhou, and Hu Tong-sen

FPGA Implementation of a Simple Approach for Jitter Minimisation in Ethernet for Real-time Control Communication .................................................................1337

Mohamad Khairi Ishak, Guido Herrmann, and Martin Pearson

Low Power Schedule Algorithm for Embedded Multimedia Applications Basing on Imagine-L Processor .................................................................1344

Shan Cao, Zhaolin Li, Zhixiang Chen, Guoyue Jiang, and Shaojun Wei

Performance Prediction for Reconfigurable Processor .................................................................1352

Daofu Liu, Qi Guo, Tianshi Chen, Ling Li, and Yunji Chen

A Software-hardware Collaborating Framework for Wear Leveling on Phase Change Memory .................................................................1360

Licheng Yu, Tianzhou Chen, and JianZhong Wu

A Novel Partial Dynamic Reconfiguration Image Sensor Node for Wireless Multimedia Sensor Networks .................................................................1368

Fucai Liu, Zhiping Jia, and Yibin Li
Domain and Application-Specific Design Techniques

ASIP-based Design and Implementation of RSA for Embedded Systems .................................................................1375
Zhongbo Wang, Zhiping Jia, Lei Ju, and Renhai Chen

Block RAM Implementation of a Reconfigurable Real-time PID Controller ..............................................................1383
Rikus le Roux, George van Schoor, and Pieter van Vuuren

An Efficient Quality Metric for DIBR-based 3D Video .............................................................................................1391
Chao Sun, Xingang Liu, and Wenjie Yang

Efficient Handling of Arrays in Dataflow Process Networks ....................................................................................1395
Daniel Baudisch, Jens Brandt, and Klaus Schneider

GNSS/INS State Estimation for Multi-Robot Systems Based on Embedded Multi-core
Stream Architecture .................................................................................................................................1403
Shenglong Li, Zhaolin Li, Hao Liu, and Fang Wang

A Bounded-time Service Composition Algorithm for Distributed Real-time Systems ..............................................1413

A Cross-platform Application Development Environment Supported by Cloud Service .......................................1421
Baixing Quan, Tianzhou Chen, Hongjun Dai, Bin Peng, and Minghui Wu

FloodFill Maze Solving with Expected Toll of Penetrating Unknown Walls
for Micromouse ..................................................................................................................................................1428
Zhuang Cai, Lu Ye, and Ang Yang

Embedded Software

TECS Components Providing Functionalities of OSEK Specification for ITRON OS ...............................................1434
Atsushi Ohno, Takuya Azumi, and Nobuhiko Nishio

Impact of Instruction Cache and Different Instruction Scratchpads on the WCET
Estimate ........................................................................................................................................................1442
Stefan Metzlaff and Theo Ungerer

An Analysis of the Impact of Bus Contention on the WCET in Multicores ............................................................1450
Dakshina Dasari and Vincent Nelis

Model Driven Timing Analysis for Real-Time Systems ..........................................................................................1458
Yassine Ouhammou, Emmanuel Grolleau, Michael Richard, and Pascal Richard

Towards Power-Efficient Smartphones by Energy-Aware Dynamic Task Scheduling .........................................1466
Meikang Qiu, Zhi Chen, Laurence T. Yang, Xiao Qin, and Bin Wang

Operational Support for Critical Infrastructure Security .......................................................................................1473
William Hurst, Madjid Merabti, and Paul Fergus

Thermal-Aware Feedback Control Scheduling for Soft Real-time Systems ..........................................................1479
Jinming Yue, Tiefei Zhang, Yannan Liu, Baixin Quan, and Chen Tianzhou
Simulation, Validation and Verification

Design-Time Verification of Reconfigurable Real-time Embedded Systems ..........................................................1487
Fatma Krichen, Brahim Hamid, Bechir Zalila, and Mohamed Jmaiel

Research on Cryptographic Algorithms for Embedded Real-time Systems: A Perspective of Measurement-based Analysis ...........................................................................................................1495
Wei Jiang, Zhenlin Guo, Yue Ma, and Nan Sang

Mind the Gap!: From Simulation to Reality .............................................................................................................1502
Stuart Jobbins

A Data Flow Monitoring Service Based on Runtime Verification for AUTOSAR ..........................................................1508
Sylvain Cotard, Sébastien Faucou, Jean-Luc Béchennec, Audrey Queudet, and Yvon Trinquet

Embedded Systems Architecture

Address-Locking Cache: A Flexible on Chip Memory Implementation for Embedded System ..........................................................1516
Wen Su, Jing Wang, Longbing Zhang, and Xinke Chen

Area Utilization Based Mapping for Network-on-chip Architectures with Over-sized IP Cores ......................................................................................................................................................................1520
Hsin-Chou Chi, Ji-Fen Ferg, and Yu-Chen Hsieh

Record Branch Prediction: An Optimized Scheme for Two-level Branch Predictors ..........................................................1526
Tianzhou Chen, Ping Pan, Guanjun Jiang, and Minjiao Ye

Selective Resource Sharing with RT-Level Retiming for Clock Enhancement in High-Level Synthesis ...........................................................................................................................................1534
Yuko Hara-Azumi, Toshinobu Matsuba, Hiroyuki Tomiyama, Shinya Honda, and Hiroaki Takada

Young-Ho Suh, Kang-Woo Lee, Moohun Lee, Hyun Kim, and Eun-Sun Cho

Improvements to CSMA-CA in IEEE 802.15.4 ...............................................................................................................1549
Mohammed Baz, Paul D. Mitchell, and David A.J. Pearce

Industrial Practices and Case Studies

Enhanced Trajectory Estimation Method for RTLS in Port Logistics Environment ..........................................................1555
Hyuntae Cho, Taewook Kim, Youngjoon Park, and Yunju Baek

Applying Design Patterns to Improve the Reliability of Embedded Systems through a Process of Architecture Migration ...........................................................................................................................................1563
Farah Lakhani and Michael J. Pont

Embedded Unit for Point-of-Care Impedance Based Biosensor Readout ..........................................................................................................................1571
Jeroen Broeders, Dieter Croux, Ans Wustenraed, Thomas Cleij, Patrick Wagner, Ward De Ceurinck, Wouter Vanaken, Stijn Duchateau, and Ronald Thoelen
Embedded Damage Detection in Water Pipelines Using Wireless Sensor Networks ........................................... 1578
Hadil Mustafa and Pai H. Chou

Low Cost Universal Remote Patient Monitoring System ......................................................................................... 1587
Anastasios Kanakis, Bilal Malik, and Mohammed Benaissa

EMCA-2012: 2012 The 2nd International Workshop on Embedded Multi-Core computing and Applications

Multi-Core Computing and Applications
Run-time Adaptation to Heterogeneous Processing Units for Real-time Stereo Vision ............................................. 1592
Benjamin Ranft and Oliver Denninger
Reliability Enhancement of Fault-prone Many-core Systems Combining Spatial and Temporal Redundancy ............................................................................................................................................... 1600
Armin Runge
The Single Vehicle Routing Problem with Deliveries and Selective Pickups in a CPU-GPU Heterogeneous Environment ......................................................... 1606
Igor Machado Coelho, Luiz Satoru Ochi, Pablo Luiz Araújo Munhoz, Marcone Jamilson Freitas Souza, Ricardo Farías, and Cristiana Bentes
Efficient Packet Pattern Matching for Gigabit Network Intrusion Detection Using GPUs ........................................ 1612
Che-Lun Hung, Chun-Yuan Lin, Hsiao-hsi Wang, and Chin-Yuan Chang
Improvement of Multimedia Performance Based on 3-D Stacking Memory Architecture and Software Refinement ........................................................................................................................................ 1618
Yi-Fa San, Chun-Nan Liu, Tse-Min Chen, Hsien-Ching Hsieh, Jen-Chieh Yeh, and Yung-Chang Chang

Embedded Architectures and Embedded Wireless Sensor Networks
A Probabilistic Load-Balancing Convergecast Tree Algorithm for Heterogeneous Wireless Sensor Networks ........................................................................................................... 1624
A Novel Dynamic Convergecast Tree Generator for WSN-based Environmental Surveillance of Orchid Plantation ................................................................................................................................................ 1629
High-Precision RSSI-based Indoor Localization Using a Transmission Power Adjustment Strategy for Wireless Sensor Networks .................................................................................................. 1634
Adaptive Memory Map Switch for System on Chip ........................................................................................................... 1639
Chih-Jen Yang, Hsing-Chuang Liu, Kung-Ming Ji, Chang-Hsin Cheng, Yi-Fa Sun, and Yung-Chang Chang
A Study of NoC Topologies and Switching Arbitration Mechanisms .................................................................1643
Yung-Chang Chang and Ching-Te Chiu

IWITEI-2012: The 2012 International Workshop on Information Technology Education and Innovation

Information Technology Education and Innovation (1)

Reform and Practice on ITO Talents Training of Software-related Specialties in Applied-oriented Undergraduate Universities ........................................................................................................1648
Shiping Ye, Chaoxiang Chen, Binbin Zhou, and Guoyong Dai

Multi-level Project Driven Computer Applied Talents Training ..................................................................................1653
Minghui Wu, Hui Yan, and Beijia Zheng

Management Enhanced Double PBL Based Reform in Advanced Programming Design Course .........................................................1658
Yikui Zhang and Yiqin Liu

Implementation Scheme Research of Inquiry Learning Based on the Course and Problems ..................................................................................................................1664
Yanping Xiao

Faculty Training of Computer Hardware Courses Based on University-enterprise Cooperation .................................................1668
Honglun Hou, Ping Pan, Tianzhou Chen, and Minghui Wu

Design of Basic Computer Teaching Mode Based on Blended Learning ..................................................................................1673
Hongxia Xie and Qingjiang Zhong

The Android Application Development College Challenge ..........................................................................................................1677
Bin Peng, Jinming Yue, and Chen Tianzhou

The Study and Practice of Students’ Research Teams Training .................................................................................................1682
Chen Jinfei and Yang Cheng

Research and Design of Mobile Video Recording System .....................................................................................................1687
Li Qingsheng and Wang Jipeng

Information Technology Education and Innovation (2)

The Design and Research of On-line Judge System Based on Multi-core ..................................................................................1691
Chen Lei, Xueyong Yu, XueDuo Meng, and Weiqiang Xu

The Practice and Discovery on Independent Colleges’ Scientific Research Management System .........................................................1695
Chen Jinfei and Yang Cheng

Finding Facet Content on Web by Position Inverted Index ...........................................................................................................1699
Canghong Jin, Honglun Hou, Minghui Wu, and Jing Ying

Heuristic Routing Protocol Research on Opportunistic Networks ..........................................................................................1704
Qiang Zhou, Yanbin Fan, and Changjiang Wei
An Approach to Model 3D Stratum Surface with High Quality Self-adaptive Mesh .........................................................1708
   Lin Liu, Xiaoxia Dai, Lin Sun, and Zebing Wang

The Research and Amelioration of Pattern-matching Algorithm in Intrusion Detection System .........................................................................................................................................................................................1712
   Pei-fei Wu and Hai-juan Shen

Local Resource Accessing Mechanism on Multiple Mobile Platform ...............................................................................1716
   Wei Shi, Minghui Wu, Shuoping Wang, Min Guo, Bin Peng, Bin Ouyang, and Tianzhou Chen

Application Policy Security Mechanisms of Android System .................................................................................................1722
   Lin Sun, ShuTao Huang, YunWu Wang, and MeiMei Huo

ESA-2012: The Third International Symposium on Advances in Embedded Systems and Applications

Embedded Systems Architecture, Model and Algorithm

Software Design and Implementation of Data Breakpoint in Embedded System .................................................................1726
   Xuhui Chen, Hongyun Yang, Jia Chen, and Ping Zhu

Design and Implementation of Embedded Hardware and Software Architecture in an Unmanned Airship .........................................................................................................................................................................................1730
   Tuan Anh Nguyen, Seulki Lee, and Jong Sou Park

Study on Integrated Modeling Methods toward Co-simulation of Cyber-Physical System .................................................................................................................................................................................................1736
   Yuying Wang, Xingshe Zhou, and Dongfang Liang

An Efficient Reconfigurable Architecture Design and Implementation of Image Contrast Enhancement Algorithm .........................................................................................................................................................................................1741
   Wen-Chieh Chen, Shih-Chia Huang, and Trong-Yen Lee

Enhanced Schedulability Analysis of Hard Real-time Systems on Power Manageable Multi-core Platforms .........................................................................................................................................................................................1748
   Da He and Wolfgang Mueller

Noise Filtering, Channel Modeling and Energy Utilization in Wireless Body Area Networks .................................................................................................................................................................................................1754
   B. Manzoor, N. Javaid, A. Bibi, Z.A. Khan, and M. Tahir

Evaluation of Visual Aid Enhancement Algorithms for Real-time Embedded Systems .............................................................1762
   R.M. Gibson, S.G. McMeekin, A. Ahmadinia, N.C. Strang, and G. Morison

Automating Academic Tasks (AAT) - An Agent Based Approach ............................................................................................1770
   Umar Manzoor, Samia Nefiti, Janita Irfan, and Muhammad Murtaza

Indirect Adaptive Fuzzy-Neural Control of Robot Manipulator .................................................................................................1776
   Hai-Jun Rong
Software, Design and Applications

Scene-adaptive Moving Detection with Machine Learning Based on Clustering .........................................................1782
  Tao Hu, Minghui Zheng, Jun Li, and Li Zhu

Energy-Efficient Scheduling of Real-time Tasks with Abortable Critical Sections ....................................................1788
  Jun Wu and Kai-Long Kao

An Investigation of the Effect of Cloud Computing on Network Management .........................................................1794
  John Panneerselvam, Lu Liu, Richard Hill, Yongzhao Zhan, and Weining Liu

Supporting Audio Streaming in Application Cloud for Embedded Systems ...........................................................1800
  Jian-Hong Liu, Jing Chen, Yu-Chin Tsai, Yi-Chuan Tai, and Chen-Hao Shih

GPU Acceleration on Embedded Devices. A Power Consumption Approach .........................................................1806
  Guilherme Calandrini, Alfredo Gardel, Pedro Revenga, and José Luis Lázaro

Author Index ..................................................................................................................................................................1813