2010 Ninth International Symposium on Parallel and Distributed Computing

(ISPDC 2010)

Istanbul, Turkey
7 – 9 July 2010
Table of Contents

Message from the ISPDC 2010 Chairs ................................................................. viii
ISPDC 2010 Committees .................................................................................... ix

Models and Algorithms

Optimizing the Reliability of Pipelined Applications under Throughput Constraints .............................................................................................................. 1
Anne Benoit, Hinde Lilia Bouziane, and Yves Robert

Algorithm for Mapping Multilayer BP Networks onto the SpiNNaker Neuromorphic Hardware ................................................................................................. 9

Decomposition Based Algorithm for State Prediction in Large Scale Distributed Systems ........................................................................................................ 17
Mihai Istin, Andreea Vișan, Florin Pop, and Valentin Cristea

Operational Semantics of the Marte Repetitive Structure Modeling Concepts for Data-Parallel Applications Design ................................................................. 25
Abdoulaye Gamatié, Vlad Rusu, and Éric Rutten

Interconnection Topologies

Butterfly Automorphisms and Edge Faults .......................................................... 33
Meghanad D. Wagh and Khadidja Bendjillali

Cost Performance Analysis in Multi-level Tree Networks .................................. 41
Kijeung Choi and Thomas G. Robertazzi
GPU Programming

Pretty Good Accuracy in Matrix Multiplication with GPUs ................................. 49
  Matthew Badin, Lubomir Bic, Michael Dillencourt, and Alexandru Nicolau
Exploiting the Power of GPUs for Multi-gigabit Wireless Baseband Processing .................................. 56
  Taskin Kocak and Nicholas Hinitt
NQueens on CUDA: Optimization Issues ................................................................. 63
  Frank Feinbube, Bernhard Rabe, Martin von Löwis, and Andreas Polze
Parallel Cycle Based Logic Simulation Using Graphics Processing Units .................. 71
  Alper Sen, Baris Aksanli, Murat Bozkurt, and Meith Mert
Parallel ID Shadow-Map Decompression on GPU ..................................................... 79
  Engin Deniz Diktas and Ali Vahit Sahiner

Grids and P2P Systems

Realizing Optimization Opportunities for Distributed Applications in the Middleware Layer by Utilizing IndiGO Framework ............................................ 85
  Valery Kolesnikov
Practical Uniform Peer Sampling under Churn ......................................................... 93
  Roberto Baldoni, Marco Platania, Leonardo Querzoni, and Sirio Scipioni
Improving Grid Fault Tolerance by Means of Global Behavior Modeling ................ 101
  Jesús Montes, Alberto Sánchez, and Maria S. Pérez
Toward a Reliable Distributed Data Management System ........................................... 109
  Ismail Akturk, Xiaqi Wang, and Teyfik Kosar

Multicores

Early Performance Evaluation of New Six-Core Intel® Xeon® 5600 Family Processors for HPC ................................................................. 117
  Pawel Gepner, Michal F. Kowalik, David L. Fraser, and Kazimierz Waclowski
Energy Minimization on Thread-Level Speculation in Multicore Systems ................ 125
  Peng Li and Song Guo
Resource-Aware Compiler Prefetching for Many-Cores ............................................. 133
  George C. Caragea, Alexandros Tzannes, Fuat Keceli, Rajeev Barua, and Uzi Vishkin

Networks and Distributed Systems

DSL-Lab: A Low-Power Lightweight Platform to Experiment on Domestic Broadband Internet .......................................................... 141
  Gilles Fedak, Jean-Patrick Gelas, Thomas Herault, Victor Intesta, Derrick Kondo,
  Laurent Lefevre, Paul Malécot, Lucas Nussbaum, Ala Rezmerita, and Olivier Richard
Fast Neighbor Discovery with Lightweight Termination Detection in Heterogeneous Cognitive Radio Networks ........................................... 149
  Yanyan Zeng, Neeraj Mittal, S. Venkatesan, and R. Chandrasekaran
SKAIT: A Parameterized Key Assignment Scheme for Wireless Networks ................................................. 157
   Ramon Novales, Neeraj Mittal, and Kamil Sarac
A Distributed Wakening Based Target Tracking Protocol for Wireless Sensor Networks ................................................................. 165
   Aysegul Alaybeyoglu, Orhan Dogdeviren, Aylin Kantarci, and Kayhan Erciyes
Prediction of Distributed Systems State Based on Monitoring Data ................................................................. 173
   Adriana Draghici, Alexandru Costan, and Valentin Cristea

Scientific Computing
Performance Models for the Spike Banded Linear System Solver .................................................................................. 181
   Murat Manguoglu, Faisal Saied, Ahmed Sameh, and Ananth Grama
Numerical Analysis of a Dual-Sediment Transport Model Applied to Lake Okeechobee, Florida ............................................................. 189
   Stuart R. Clark, Wenjie Wei, and Xing Cai

Web Services and Multi-agent Systems
Decentralised and Adaptive Collaboration in Multi-agent Systems .................................................................................. 195
   Emre Çakar and Christian Müller-Schloer
Application of the ESB Architecture for Distributed Monitoring of the SLA Requirements ............................................................. 203
   Kornel Skalkowski, Jakub Sendor, Renata Slota, and Jacek Kitowski
A Method for Distributing Scheduling Heuristics Inside Service Oriented Environments Using a Nature-Inspired Approach .................................................................................. 211
   Marc E. Frincu

Author Index ......................................................................................................................................................... 219