

2008 Second International Workshop on High-Performance Reconfigurable Computing Technology and Applications

(HPRCTA 2008)

**Austin, Texas, USA
16 November 2008**



**IEEE Catalog Number: CFP0815F-PRT
ISBN: 978-1-4244-2826-7**

TABLE OF CONTENTS

Architecture of a Vertically Stacked Reconfigurable Computer	1
<i>Daniel S. Stevenson, Robert O. Conn</i>	
Scalable FPGA-Array for High-Performance and Power-Efficient Computation Based on Difference Schemes	7
<i>Kentaro Sano, Wang Luzhou, Yoshiaki Hatsuda, Satoru Yamamoto</i>	
Evaluating FPGAs for Floating-Point Performance	16
<i>Dave Strenski, Jim Simkins, Richard Walke, Ralph Wittig</i>	
Hardware Task Scheduling Optimizations for Reconfigurable Computing	22
<i>Miaoqing Huang, Harald Simmler, Proshanta Saha, Tarek El-Ghazawi</i>	
MPI as an Abstraction for Software-Hardware Interaction for HPRCs	32
<i>Manuel Saldana, Arun Patel, Christopher Madill, Daniel Nunes, Danyao Wang, Henry Styles, Andrew Putnam, Ralph Wittig, Paul Chow</i>	
Virtualizing and Sharing Reconfigurable Resources in High-Performance Reconfigurable Computing Systems	42
<i>Esam El-Araby, Ivan Gonzalez, Tarek El-Ghazawi</i>	
Massively Parallelized Quasi-Monte Carlo Financial Simulation on a FPGA Supercomputer	50
<i>Xiang Tian, Khaled Benkrid</i>	
Performance Potential of Molecular Dynamics Simulations on High Performance Reconfigurable Computing Systems	58
<i>Matt Chiu, Martin C. Herbordt, Martin Langhammer</i>	
Floating Point Based Cellular Automata Simulations Using a Dual FPGA-Enabled System	68
<i>S. Murtaza, A. G. Hoekstra, P. M. A. Sloot</i>	
Implementing Phase Unwrapping Using Field Programmable Gate Arrays or Graphics Processing Units: A Comparison	76
<i>Sherman Braganza, Miriam Leeser</i>	
Author Index	