

# **2012 IEEE 18th Pacific Rim International Symposium on Dependable Computing**

**(PRDC 2012)**

**Niigata, Japan  
18 – 19 November 2012**



**IEEE Catalog Number: CFP12245-PRT  
ISBN: 978-1-4673-4849-2**

# 2012 IEEE 18th Pacific Rim International Symposium on Dependable Computing

## PRDC 2012

### Table of Contents

Message from the Organizing Committee Chairs.....	vii
Organizing Committee.....	ix
Program Committee.....	x
Steering Committee.....	xi
Invited Talks.....	xii

---

#### Component-Based Systems

From Design for Adaptation to Component-Based Resilient Computing.....	1
<i>Miruna Stoicescu, Jean-Charles Fabre, and Matthieu Roy</i>	
CDA: A Cloud Dependability Analysis Framework for Characterizing System Dependability in Cloud Computing Infrastructures.....	11
<i>Qiang Guan, Chi-Chen Chiu, and Song Fu</i>	
Identification of Minimal Unacceptable Combinations of Simultaneous Component Failures in Information Systems.....	21
<i>Kumiko Tadano, Fumio Machida, Jiangwen Xiang, and Yoshiharu Maeno</i>	

#### Security

A Middleware for Exactly-Once Semantics in Request-Response Interactions.....	31
<i>Naghmeh Ivaki, Filipe Araujo, and Raul Barbosa</i>	
A Secure Framework for Monitoring Operating Systems Using SPEs in Cell/B.E.....	41
<i>Kenichi Kourai and Takuya Nagata</i>	
Code Reuse Prevention through Control Flow Lazily Check.....	51
<i>Linbo Chen, Jianhui Jiang, and Danqing Zhang</i>	

## **Software Systems**

Safety Trigger Conditions for Critical Autonomous Systems .....	61
<i>Amina Mekki-Mokhtar, Jean-Paul Blanquart, Jérémie Guiochet, David Powell, and Matthieu Roy</i>	
Entropy-Based Detection of Incipient Faults in Software Systems .....	70
<i>Salvador DeCelles and Nagarajan Kandasamy</i>	
Safety Verification of Asynchronous Consensus Algorithms with Model Checking .....	80
<i>Tatsuya Noguchi, Tatsuhiko Tsuchiya, and Tohru Kikuno</i>	

## **Hardware Reliability**

Analysis of SER Improvement by Radiation Hardened Latches .....	89
<i>Ken Yano, Takanori Hayashida, and Toshinori Sato</i>	
A Built-in Circuit for Self-Repairing Mesh-Connected Processor Arrays by Direct Spare Replacement .....	96
<i>Itsuo Takanami and Tadayoshi Horita</i>	
Multi-chip NoCs for Automotive Applications .....	105
<i>Tomohiro Yoneda, Masashi Imai, Naoya Onizawa, Atsushi Matsumoto, and Takahiro Hanyu</i>	

## **Networking**

Performance Modeling and Analysis of On-chip Networks for Real-Time Applications .....	111
<i>Masashi Imai and Tomohiro Yoneda</i>	
A BDD-Based Approach to Reliability Optimal Module Allocation in Networks .....	121
<i>Tatsuhiko Tsuchiya</i>	

## **Fault Diagnosis**

A Dependable Processor by Using Built-in Self Test to Tolerate Periodical Transient Faults under Highly Electromagnetic Environment .....	127
<i>Aromhack Saysanasongkham, Masahiko Negishi, Masayuki Arai, and Satoshi Fukumoto</i>	
Diagnosis for Bridging Faults on Clock Lines .....	135
<i>Yoshinobu Higami, Hiroshi Takahashi, Shin-Ya Kobayashi, and Kewal K. Saluja</i>	

<b>Author Index</b> .....	145
---------------------------	-----