

Jiannong Cao
Wolfgang Nejdl
Ming Xu (Eds.)

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Preface

Welcome to the proceedings of APPT 2005: the 6th International Workshop on Advanced Parallel Processing Technologies. APPT is a biennial workshop on parallel and distributed processing. Its scope covers all aspects of parallel and distributed computing technologies, including architectures, software systems and tools, algorithms, and applications. APPT originated from collaborations by researchers from China and Germany and has evolved to be an international workshop. APPT 2005 was the sixth in the series. The past five workshops were held in Beijing, Koblenz, Changsha, Ilmenau, and Xiamen, respectively.

The Program Committee is pleased to present the proceedings for APPT 2005. This year, APPT 2005 received over 220 submissions from researchers all over the world. All the papers were peer reviewed by two to three Program Committee members on their relevance, originality, significance, technical quality, and presentation. Based on the review result, 55 high-quality papers were selected to be included in the proceedings. The papers in this volume represent the forefront of research on parallel processing and related fields by researchers from China, Germany, USA, Korea, India, and other countries. The papers accepted cover a wide range of exciting topics, including architectures, software, networking, and applications.

The excellent program was the result of the hard work and the collective effort of many people and organizations. We would like to express our special thanks to the Architecture Professional Committee of the China Computer Federation (APC-CCF), the Hong Kong Polytechnic University, the National University of Defense Technology, China, and the Harbin Institute of Technology, China. We would like to thank the general chair, Prof. Xingming Zhou, and the general co-chairs, Prof. Xiaodong Zhang and Prof. David Bader, for their great support. Thanks to all members of the Program Committee and all the other reviewers for the time and hard work they put into the thorough reviewing of the large number of papers. We appreciate the keynote speakers, Prof. Francis C.M. Lau and Prof. Kurt Rothermel, for their strong support of the program. We would also like to express our gratitude to Springer for its assistance in putting the proceedings together. Last but not least, our thanks go to the Local Organizing Committee for the great job it did in making the local arrangements and organizing an attractive social program. Without their dedicated help and diligent work, the workshop would not have been so successful.

We would like to take this opportunity to thank all the authors, many of whom traveled great distances to participate in this workshop and make their

valuable contributions. We hope that all participants enjoyed the program and found it worthwhile. We warmly welcome any comments and suggestions to improve our work.

August 2005

Jiannong Cao
Wolfgang Nejdl
Ming Xu

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Table of Contents

Keynote Speech

Research Issues in Adapting Computing to Small Devices <i>Francis C.M. Lau</i>	1
Mobile Context-Aware Systems – Linking the Physical and Digital World <i>Kurt Rothermel</i>	2

Architecture

A Data Transformations Based Approach for Optimizing Memory and Cache Locality on Distributed Memory Multiprocessors <i>Xia Jun, Xue-Jun Yang</i>	3
A Fetch Policy Maximizing Throughput and Fairness for Two-Context SMT Processors <i>Caixia Sun, Hongwei Tang, Minxuan Zhang</i>	13
A Loop Transformation Using Two Parallel Region Partitioning Method <i>Sam Jin Jeong, Jung Soo Han</i>	23
Criticality Based Speculation Control for Speculative Multithreaded Architectures <i>Rahul Nagpal, Anasua Bhowmik</i>	31
Design and Implementation of Semantic Caching Coherency Control Scheme Toward Distributed Environment <i>Hai Wan, Lei Li</i>	41
Energy Efficient United L2 Cache Design with Instruction/Data Filter Scheme <i>Zhiqiang Ma, Zhenzhou Ji, Mingzeng Hu, Yi Ji</i>	52
Improving Latency Tolerance of Network Processors Through Simultaneous Multithreading <i>Bo Liang, Hong An, Fang Lu, Rui Guo</i>	61

RIMP: Runtime Implicit Predication
 YuXing Tang, Kun Deng, XiaoDong Wang, Yong Dou,
 XingMing Zhou 71

Static Partitioning vs Dynamic Sharing of Resources in Simultaneous
MultiThreading Microarchitectures
 Chen Liu, Jean-Luc Gaudiot 81

Algorithm and Theory

Autonomous-Centered Problem Allocation Oriented to Cooperation
 Xiping Liu, Wanchun Dou, Guihai Chen, Shijie Cai,
 Jiashan Tang 91

Contention-Free Communication Scheduling for Irregular Data
Redistribution in Parallelizing Compilers
 Kun-Ming Yu, Chi-Hsiu Chen, Ching-Hsien Hsu, Chang Wu Yu,
 Chiu Kuo Liang 101

Experiments on Asynchronous Partial Gauss-Seidel Method
 Hiroshi Nishida, Hairong Kuang 111

Improved Program Dependence Graph and Algorithm for Static Slicing
Concurrent Programs
 Jianyu Xiao, Deyun Zhang, Haiquan Chen, Hao Dong 121

Parallelisation of Sequential Programs by Invasive Composition and
Aspect Weaving
 Mikhail Chalabine, Christoph Kessler 131

Revisiting the Election Problem in Asynchronous Distributed Systems
 SungUoon Bauk 141

Scheduling Scheme with Fairness and Adaptation in the Joint
Allocation of Heterogeneous Resources
 Yu Hua, Chanle Wu, Mengxiao Wu 151

Solving the Symmetric Tridiagonal Eigenproblem Using MPI/OpenMP
Hybrid Parallelization
 Yonghua Zhao, Jiang Chen, Xuebin Chi 164

Trust Management with Safe Privilege Propagation
 Gang Yin, Huai-min Wang, Tao Liu, Ming-feng Chen,
 Dian-xi Shi 174

Vector Space Based on Hierarchical Weighting: A Component Ranking Approach to Component Retrieval	
<i>Gui Gui, Paul D. Scott</i>	184

System and Software

A High Availability Mechanism for Parallel File System	
<i>Hu Zhang, Weiguo Wu, Xiaoshe Dong, Depei Qian</i>	194
A User-Guided Semi-automatic Parallelization Method and Its Implementation	
<i>Chuliang Weng, Zhongguo Chen, Xinda Lu, Minglu Li, Yong Yin</i>	204
CAPU: Enhancing P2P File Sharing System with Capacity Aware Topology	
<i>Hongliang Yu, Weimin Zheng, Dongsheng Wang, Haitao Dong, Lu Li</i>	214
Implementing Component Persistence in CCM Based on StarPSS	
<i>Jingbin An, Yan Jia, Zhiying Wang</i>	226
Load Balancing Design Issues on Prefetch-Based DSM Systems	
<i>Hsiao-Hsi Wang, Kuan-Ching Li, Kuo-Jen Wang, Ssu-Hsuan Lu, Chun-Chieh Yang</i>	234
Task Assignment for Network Processor Pipelines Using GA	
<i>Shoumeng Yan, Xingshe Zhou, Lingmin Wang, Fan Zhang, Haipeng Wang</i>	244
Test-Suite Reduction Using Genetic Algorithm	
<i>Xue-ying Ma, Bin-kui Sheng, Cheng-qing Ye</i>	253

Grid Computing

A Constellation Model for Grid Resource Management	
<i>Yinfeng Wang, Xiaoshe Dong, Xiuqiang He, Hua Guo, Fang Zheng, Zhongsheng Qin</i>	263
An Effective Information Service Architecture in Grid Environment	
<i>Huashan Yu, Yin Luo, Xingguo Zhu, Xiaoming Li</i>	273

An Efficient Data Management System with High Scalability for
ChinaGrid Support Platform
*Hai Jin, Wenjun Gong, Song Wu, Muzhou Xiong, Li Qi,
Chengwei Wang* 282

CGSP: An Extensible and Reconfigurable Grid Framework
Yongwei Wu, Song Wu, Huashan Yu, Chunming Hu 292

Early Experience of Remote and Hot Service Deployment with
Trustworthiness in CROWN Grid
*Hailong Sun, Yanmin Zhu, Chunming Hu, Jinpeng Huai,
Yunhao Liu, Jianxin Li* 301

Grid Developing Environment in CGSP System
Weimin Zheng, Lisen Mu, Qing Wang, Yongwei Wu 313

Grid Job Support System in CGSP
Jinpeng Huai, Yu Wan, Yong Wang, Haifeng Ou 323

JFreeSim: A Grid Simulation Tool Based on MTMSMR Model
Hai Jin, Jin Huang, Xia Xie, Qin Zhang 332

OOML-Based Ontologies and Its Services for Information Retrieval in
UDMGrid
Xixi Luo, Xiaowu Chen 342

Networking

A Hybrid Integrated QoS Multicast Routing Algorithm in IP/DWDM
Optical Internet
Xingwei Wang, Jia Li, Min Huang 353

An Efficient Distributed Broadcasting Algorithm for Ad Hoc Networks
Qiang Sun, Layuan Li 363

Chaos-Based Dynamic QoS Scheme and Simulating Analysis
Qigang Zhao, Qunzhan Li 373

Dynamic Delaunay Triangulation for Wireless Ad Hoc Network
Ming Li, XiCheng Lu, Wei Peng 382

Energy Efficient Multipath Routing in Large Scale Sensor Networks
with Multiple Sink Nodes
Yuequan Chen, Edward Chan, Song Han 390

FLC: A Novel Dynamic Buffer Tuner for Shortening Service Roundtrip Time over the Internet by Eliminating User-Level Buffer Overflow on the Fly <i>Wilfred W.K. Lin, Allan K.Y. Wong, Tharam S. Dillon</i>	400
Intelligent Congestion Avoidance in Differentiated Service Networks <i>Farzad Habibipour, Ahmad Faraahi, Mehdi Ghily</i>	409
Rule-Based Anomaly Detection of Inter-domain Routing System <i>Peidong Zhu, Xin Liu, Mingjun Yang, Ming Xu</i>	417
Transaction of Web Services Based on Struts <i>Gong-Xuan Zhang, Ping-Li Wang, Wen Chen</i>	427
 Applied Technologies	
A Method of Aggregate Query Matching in Semantic Cache for Massive Database Applications <i>Jianyu Cai, Yan Jia, Shuqiang Yang, Peng Zou</i>	435
A Parallel Modular Exponentiation Scheme for Transformed Exponents <i>Chin-Chen Chang, Yeu-Pong Lai</i>	443
Content Selection Model for Adaptive Content Delivery <i>Chen Ding, Shutao Zhang, Chi-Hung Chi</i>	453
Dynamic Service Provisioning for Multiplayer Online Games <i>Jens Müller, Rafael Schwerdt, Sergei Gorlatch</i>	461
Principal Component Analysis for Distributed Data Sets with Updating <i>Zheng-Jian Bai, Raymond H. Chan, Franklin T. Luk</i>	471
Priority Conscious Transaction Routing in a Real-Time Shared Disks Cluster <i>Kyungoh Ohn, Sangho Lee, Haengrae Cho</i>	484
Probabilistic Continuous Update Scheme in Location Dependent Continuous Queries <i>Song Han, Edward Chan</i>	494
SIP-Based Adaptive Multimedia Transmissions for Wired and Wireless Networks <i>Weijia Jia, Man-Ching Yuen</i>	505

WM+: An Optimal Multi-pattern String Matching Algorithm Based
on the WM Algorithm
 Xunxun Chen, Binxing Fang, Lei Li, Yu Jiang 515

Author Index 525

Research Issues in Adapting Computing to Small Devices

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Abstract. Advances in pervasive and mobile technologies are making computing available to us at anytime anywhere. Availability however does not automatically mean it is in a form that implies ease of use. Usability in the mobile world amounts to a set of problems that are not so much preceded in the history of computing. Handheld mobile devices that are thin-lean-mean for instance present challenges that require fundamental changes in the way computation is carried out, its architecture, or its supporting environment. A practical goal is to minimize these changes, which calls for automatic or semi-automatic adaptation of existent computing to the small devices. We discuss the issues and research challenges of “X adapting to Y”, where X includes content, data, code, computation, GUI, and so on, and the changes in semantics and/or syntax due to the adaptation are to satisfy the constraints of Y. Some experiments we have carried out for content and code adaptation provide some useful illustration.