Table of Contents
The 4th International Symposium on Parallel and Distributed Computing
ISPDC 2005

General Chairman’s Forward ............................................................................................................. x
Committees....................................................................................................................................... xi

Keynote Speakers

A New Era in Computing: Moving Services onto Grid................................................................. 3
I. Foster

New Challenges in Parallel Organizations ..................................................................................... 5
E. Alba

Presentations

From Grid Technologies (in 6th of IST RTD 2002-2006) to Knowledge Utility ......................... 8
V. R. Obozinski

E-NEXT: Network of Excellence—Emerging Network Technologies.......................................... 9
D. Grigoras

SESSION 1: Scheduling
Session Chair: Isaac Sherson, University of California, Irvine, USA

Task Scheduling for Dynamic SMP Clusters with Communication on the Fly for Bounded Number of Resources................................................................. 13
L. Masko

Java Byte Code Scheduling Based on the Most-Often-Used-Paths in Programs with Branches ........................................................................................................... 21

Performance Effective Task Scheduling Algorithm for Heterogeneous Computing System .......... 28
E. Ilavarasan, P. Thambidurai, and R. Mahilmannan

SESSION 2: Grid and Peer-to-Peer Computing (1)
Session Chair: Dana Petcu, Western University of Timisoara, Romania
Cellular Nonlinear Network Grids – A New Grid Computing Approach ..................................................39
  R. Kunz

Towards Scalable Grid Replica Optimization Framework .............................................................................43
  M. Ciglan and L. Hluchy

A Comparative Simulation Analysis of P2P System Architectures ..............................................................51
  A. Mahanta and T. Theeramunkong

Adaptive Window Scheduling for a Hierarchical Agent System ..................................................................58
  H. Dail and F. Desprez

Enforcing Consistency during the Adaptation of a Parallel Component .........................................................66
  J. Buisson, F. André, and J.-L. Pazat

GMRES Method on Lightweight GRID System .........................................................................................74
  H. He, G. Bergere, and S. Petiton

SESSION 3: Monitoring, Scheduling and Load Balancing
Session Chair: Dan Grigoras, University College Cork, Ireland

A Strategyproof Mechanism for Scheduling Divisible Loads in Distributed Systems ..................................83
  D. Grosu and T. E. Carroll

Load Balancing Algorithm in Cluster-Based RNA Secondary Structure Prediction ..................................91
  G. Tan, S. Feng, and N. Sun

Ghost Process: A Sound Basis to Implement Process Duplication Migration and Checkpoint/Restart in Linux
Clusters ................................................................................................................................................... 97
  G. Vallée, R. Lottiaux, D. Margery, C. Morin, and J.-Y. Berthou

Load Balancing with Migration Based on Synchronizers in PS-GRADE Graphical Tool ..........................105
  M. Tudruj, J. Borkowski, and D. Kopaniński

Measuring and Improving Quality of Parallel Application Monitoring Based on Global States .............113
  J. Borkowski
SESSION 4: Optimization, Scientific Computing and Applications
Session Chair: Thierry Priol, INRIA Research Director

A Distributed Algorithm for the Maximum Flow Problem .......................................................... 131
T. L. Pham, I. Lavallee, M. Bui, and S. H. Do

A Distributed Prime Sieving Algorithm Based on Scheduling by Multiple
Edge Reversal ......................................................................................................................... 139
G. Paillard, C. Lavault, and F. França

A Compiler-Directed Energy Saving Strategy for Parallelizing Applications
in On-Chip Multiprocessors ............................................................................................... 147
J. Chen, Y. Dong, X.-J. Yang, and D. Wu

Towards Massively Parallel Numerical Computations Based on Dynamic
SMP Clusters with Communication on the Fly ........................................................................ 155
M. Tudruj and L. Masko

SSOR Preconditioned Conjugate Gradient Algorithm in Dynamic SMP
Clusters with Communication on the Fly ................................................................................ 163
B. Butrylo, M. Tudruj, L. Masko, L. Nicolas, C. Vollaire

SESSION 5: Mobile & Agent-based Computing
Session Chair: Bertil Folliot, University of Paris 6, France

Towards Introducing Code Mobility on J2ME ........................................................................ 173
L. L. Petrea and D. Grigoras

A Component-Based Software Infrastructure for Ubiquitous Computing ............................. 183
A. Flissi, C. Gransart, and P. Merle

Service Driven Mobile Ad hoc Networks Formation and Management ................................ 191
D. Grigoras and M. Riordan

Embedded Cost Model in Mobile Agents for Large Scale Query
Optimization .......................................................................................................................... 199
M. Hussein, F. Morvan, and A. Hameurlain
Designing Agent Based Travel Support System

*M. Gordon and M. Paprzycki*

---

**SESSION 6: Grid and Peer-to-Peer Computing (2)**

**Session Chair: Pr. Wang, University of HOHI, China**

---

An Efficient Load Balancing Scheme for Grid-Based High Performance Scientific Computing

*A. Kejariwal and A. Nicolau*

---

A Study of Meta-Scheduling Architectures for High Throughput Computing: Pull Versus Push

*V. Garonne, A. Tsaregorodtsev, and E. Caron*

---

Scheduling Scheme Based on Dedication Rate in Volunteer Computing Environment


---

Data Distribution for Failure Correlation Management in a Peer to Peer Storage System

*C. Randriamaro, O. Soyez, G. Utard, and F. Wlazinski*

---

Collaborative Data Distribution with BitTorrent for Computational Desktop Grids

*B. Wei, G. Fedak, and F. Cappello*

---

Managing MPICH-G2 Jobs with WebCom-G

*P. J. O'Dowd, A. Patil, and J. P. Morrison*

---

**SESSION 7: Distributed Algorithms and Databases**

**Session Chair: El-Ghazali Talbi, Polytech'lille, France**

---

A New Join Algorithm for Cluster-Based Database Systems

*K. Imasaki and S. Dandamudi*

---

Evolutionary Tuning for Distributed Database Performance

*A. Gog and H.-A. Grebla*

---

Progressive Clustering for Database Distribution on a Grid

*V. Fiolet and B. Tourse*
Extending OBDD Graphs for Composite Event Matching in Content-Based Pub/Sub Systems

G. Xu, W. Xu, and T. Huang

Coordination of Components in a Distributed Discrete-Event System

A. Khoumsi

Parallel Jess

D. Petcu

SESSION 8: Communications, Fault Tolerance and Security
Session Chair: Marek Tudruj, Polish Academy of Sciences, Poland

On the Implementation and Evaluation of Berkeley Sockets on Maestro2 Cluster Computing Environment

R. Guapo, S. Yamagiwa, and L. Sousa

Active Zero-Copy: A Performance Study of Non-Deterministic Messaging

S. Yamagiwa, K. Aoki, and K. Wada

An Artificial Immune System for Efficient Comparison-Based Diagnosis of Multiprocessor Systems

M. Elhadef

A Memory-Effective Fault-Tolerant Routing Strategy for Direct Interconnection Networks

M. E. Gómez, P. López, and J. Duato

Author Index