

The 2002 International Conference on Parallel Processing

The Renaissance Vancouver Hotel • Vancouver • Canada • August 18-21, 2002

Advance Program

Sunday, August 18

8:00	Workshop registration and continental breakfast			
8:00	Workshops: WTCP/ WON	Workshop: DCADL	Workshop: HPSECA	Workshop: HPSECA

Monday, August 19

8:00	Conference and workshop registration and continental breakfast			
9:00	Opening remarks and awards			
9:30	Keynote address by William Pulleyblank, IBM Research			
10:30	Break and refreshments			
11:00	Session 1A: Instruction-Level Parallelism	Session 1B: Parallelizing Compilers	Session 1C: Grid Computing	Workshop: WAHN
12:00	Lunch (on your own)			
1:30	Session 2A: Interconnection Networks	Session 2B: Programming Environments	Session 2C: Clusters: Systems	
3:00	Break and refreshments			
3:30	Session 3A: Networks and Routers	Session 3B: Systems & Infrastructures	Session 3C: Storage Systems	
5:00	Recess			
7:00	Wine and cheese reception			

Tuesday, August 20

8:00	Conference and workshop registration and continental breakfast			
9:00	Keynote address by Ian Foster, Argonne National Labs			
10:00	Break and refreshments			
10:30	Session 4A: Network Routing I	Session 4B: Programming Methodologies	Session 4C: Web Servers	Workshop: SRMCC
12:00	Lunch (on your own)			
1:30	Session 5A: Algorithms I	Session 5B: Task Scheduling	Session 5C: Clusters: Programming	
3:00	Break and refreshments			
3:30	Panel: Is parallel processing dead, or are we just missing the boat?			
5:00	Recess			
7:00	Banquet dinner			

Wednesday, August 21

8:00	Conference and workshop registration and continental breakfast			
9:00	Keynote address by John Gustafson, Sun Microsystems			
10:00	Break and refreshments			
10:30	Session 6A: Network Routing II	Session 6B: Wireless/Mobile Computing	Session 6C: Middleware Systems	Workshop: CRTPC
12:00	Lunch (on your own)			
1:30	Session 7A: Algorithms II	Session 7B: Communications	Session 7C: Multimedia Servers	
3:00	Break and refreshments			
3:30	Session 8A: Applications	Session 8B: Parallel Job Scheduling	Session 8C: High-Performance Compilers	

Sunday, August 18

7:00-8:00 – Registration (*Harbourside Foyer*)

8:00-9:00 – Breakfast (*Harbourside Foyer*)

8:00-3:00 – Workshop on Trusted Computing Paradigms (WTCP) (*Port of Vancouver*)

8:00-3:00 – Workshop on Distributed Computing Architectures for Digital Libraries (DCADL) (*Port of Singapore*)

8:00-6:00 – Workshop on High Performance Scientific and Engineering Computing with Applications (HPSECA) (*Port of New York and Harbourside Ballroom I*)

3:30-9:00 – Workshop on Optical Networks (WON) (*Port of Vancouver*)

Monday, August 19

8:00-9:00 – Registration and breakfast (*Harbourside Foyer*)

9:00-9:30 – Opening remarks and awards (*Harbourside Ballroom I*)

9:30-10:30 – Keynote address: Proteins, Petaflops and Algorithms. Dr. William Pulleyblank, IBM Research, USA (*Harbourside Ballroom I*)

10:30-11:00 – Break (*Harbourside Foyer West*)

11:00-7:00 – Workshop on Ad-hoc Networks (WAHN) (*Harbourside Ballroom I*)

11:00-12:00 – Sessions 1A/1B/1C (*Port of Vancouver/Port of Singapore/Port of New York*)

Session 1A: Instruction-Level Parallelism

Session chair: Mabo Ito

- Hardware Schemes for Early Register Release, T. Monreal, V. Viñals, A. González, M. Valero
- Out of Order Instruction Fetch with Multiple Sequencers, P. Oberoi, G. Sohi

Session 1B: Parallelizing Compilers

Session chair: Rudi Eigenmann

- Exploiting Locality in the Run-time Parallelization of Irregular Loops, M. Martín, D. Singh, J. Touriño, F. Rivera
- Analysis of Memory Hierarchy Performance of Block Data Layout, N. Park, B. Hong, V. Prasanna

Session 1C: Grid Computing

Session chair: José Fortes

- Integrating Trust into Grid Resource Management Systems, F. Azzedin, M. Maheswaran
- A System for Monitoring and Management of Computational Grids, W. Smith

12:00-1:30 – Lunch (on your own)

1:30-3:00 – Sessions 2A/2B/2C (*Port of Vancouver/Port of Singapore/Port of New York*)

Session 2A: Interconnection Networks

Session chair: Chi-Hsiang Yeh

- Hypercube Network Fault Tolerance: A Probabilistic Approach, J. Chen, I. Kanj, G. Wang
- A Class of Multistage Conference Switching Networks for Group Communication, Y. Yang, J. Wang
- A New Mechanism for Congestion and Deadlock Resolution, Y. Song, T. Pinkston

Session 2B: Programming Environments

Session chair: José Moreira

- ZEN: A Directive-based Language for Automatic Experiment Management of Distributed and Parallel Programs, R. Prodan, T. Fahringer
- Dead Timestamp Identification in Stampede, N. Harel, H. Mandviwala, K. Knobe, U. Ramachandran
- Iterative Grid-based Computing Using Mobile Agents, H. Kuang, L. Bic, M. Dillencourt

Session 2C: Clusters: Systems

Session chair: Warren Smith

- Design, Implementation, and Evaluation of Reliable Transmission in System Area Networks, J. Tang, A. Bilas
- Beyond S-DSM: Shared State for Distributed Systems, D.-Q. Chen, C. Tang, X. Chen, S. Dwarkadas, M. Scott
- Honey, I Shrank the Beowulf!, W. Feng, M. Warren, E. Weigle

3:00-3:30 – Break (*Harbourside Foyer West*)

3:30-5:00 – Sessions 3A/3B/3C (*Port of Vancouver/Port of Singapore/Port of New York*)

Session 3A: Networks and Routers

Session chair: Yuanyuan Yang

- Randomized Broadcast Channel Access Algorithms for Ad Hoc Networks, Z. Cai, M. Lu, X. Wang
- BPA: A Fast Packet Scheduling Algorithm for Real-Time Switched Ethernet Networks, J. Wang, B. Ravindran
- Design and Evaluation of Scalable Switching Fabrics for High-Performance Routers, N.-F. Tzeng, R. Batchu

Session 3B: Systems and Infrastructures

Session chair: Jonathan Schaeffer

- The Tracefile Testbed – A Community Repository for Identifying and Retrieving HPC Performance Data, K. Ferschweiler, S. Harrah, D. Keon, M. Calzarossa, D. Tessera, C. Pancake
- EMPOWER: A Scalable Framework for Network Emulation, P. Zheng, L. Ni
- Linux/SimOS - A Simulation Environment for Evaluating High-Speed Communication Systems, C. Won, B. Lee, C. Yu, S. Moh, Y.-Y. Kim, K. Park

Session 3C: Storage Systems

Session chair: *Wu-Chun Feng*

- Introducing SCSI-To-IP Cache for Storage Area Networks, X. He, Q. Yang, M. Zhang
- Enhancing Write I/O Performance of Disk Array RM2 Tolerating Double Disk Failures, Y. Nam, D.-W. Kim, T.-Y. Choe, C. Park
- An Online Heuristic for Data Placement in Computer Systems with Active Disks, S. Adabala, J. Fortes

5:00-7:00 – Recess

7:00-9:00 – Wine and cheese reception (*Vistas*)

Tuesday, August 20

8:00-9:00 – Registration and breakfast (*Harbourside Foyer*)

9:00-10:00 – Keynote address: An Open Grid Services Architecture for Distributed Systems Integration. Dr. Ian Foster, Argonne National Labs, USA (*Harbourside Ballroom I*)

10:00-10:30 – Break (*Ballroom Foyer West*)

10:30-3:00 – Workshop on Scheduling and Resource Management for Cluster Computing (SRMCC) (*Harbourside Ballroom I*)

10:30-12:00 – Sessions 4A/4B/4C (*Port of Vancouver/Port of Singapore/Port of New York*)

Session 4A: Network Routing I

Session chair: *Jianer Chen*

- Fault-Tolerant Routing in 2D Tori Using Limited-Global-Safety Information, D. Xiang, A. Chen
- Routing Permutations with Link-Disjoint and Node-Disjoint Paths in a Class of Self-Routable Networks, Y. Yang, J. Wang
- Fault-Tolerant and Deadlock-Free Routing in 2-D Meshes Using Rectilinear-Monotone Polygonal Fault Blocks, J. Wu, D. Wang

Session 4B: Programming Methodologies

Session chair: *Michael Voss*

- Pattern-based Parallel Programming, S. Bromling, S. MacDonald, J. Anvik, J. Schaeffer, D. Szafron, K. Tan
- WebGOP: A Framework for Architecting and Programming Dynamic Distributed Web Applications, J. Cao, X. Ma, A. Chan, J. Lu
- Region Synchronization in Message Passing Systems, G. Singh, Y. Su

Session 4C: Web Servers

Session chair: *Chu-Sing Yang*

- Streaming Media Caching Algorithms for Transcoding Proxies, X. Tang, F. Zhang, S. Chanson
- Popularity-Based PPM: An Effective Web Prefetching Technique for High Accuracy and Low Storage, X. Chen, X. Zhang

- Load Balancing in Distributed Web Server Systems with Partial Document Replication, L. Zhuo, C.-L. Wang, F. Lau

12:00-1:30 – Lunch (on your own)

1:30-3:00 – Sessions 5A/5B/5C (*Port of Vancouver/Port of Singapore/Port of New York*)

Session 5A: Algorithms I

Session chair: *Timothy Pinkston*

- Partitioning Unstructured Meshes for Homogeneous and Heterogeneous Parallel Computing Environments, P.-Z. Lee, J.-J. Wu, C.-H. Chang
- Distributed Game-Tree Search Using Transposition Table Driven Work Scheduling, A. Kishimoto, J. Schaeffer
- Space and Time Efficient Parallel Algorithms and Software for EST Clustering, A. Kalyanaraman, S. Aluru, S. Kothari

Session 5B: Task Scheduling

Session chair: *Jie Wu*

- A Lower-Bound Algorithm for Minimizing Network Communication in Real-Time Systems, C. Ekelin, J. Jonsson
- LDBS: A Duplication Based Scheduling Algorithm for Heterogeneous Computing Systems, A. Doğan, F. Özgüner
- An Efficient Fault-tolerant Scheduling Algorithm for Real-time Tasks with Precedence Constraints in Heterogeneous Systems, X. Qin, H. Jiang, D. Swanson

Session 5C: Clusters: Programming

Session chair: *Angelos Bilas*

- Efficient Global Object Space Support for Distributed JVM on Clusters, W. Fang, C.-L. Wang, F. Lau
- A Secure Protocol for Computing Dot-Products in Clustered and Distributed Environments, I. Ioannidis, A. Grama, M. Atallah
- A Technique for Adaptation to Available Resources on Clusters Independent of Synchronization Methods Used, U. Rencuzogullari, S. Dwarkadas

3:00-3:30 – Break (*Ballroom Foyer West*)

3:30-5:00 – Panel: Is parallel processing dead, or are we just missing the boat? (*Harbourside Ballroom I*)

Organizer and moderator: *Rudi Eigenmann*

Panelists: *José Moreira*, IBM; *Xiaodong Zhang*, NSF; *Gurindar Sohi*, University of Wisconsin, *Ananth Grama*, Purdue University; *Satoshi Sekiguchi*, NIAIST, Japan.

5:00-7:00 – Recess

7:00-9:00 – Banquet dinner (*Vistas*)

Wednesday, August 21

8:00-9:00 – Registration and breakfast (*Harbourside Foyer*)

9:00-10:00 – Keynote address: The Cost of the Single System Image. Dr. John Gustafson, Sun Microsystems, USA (*Harbourside Ballroom I*)

10:00-10:30 – Break (*Ballroom Foyer West*)

10:30-5:00 – Workshop on Compile/Runtime Techniques for Parallel Computing (CRTPC) (*Harbourside Ballroom I*)

10:30-12:00 – Sessions 6A/6B/6C (*Port of Vancouver/Port of Singapore/Port of New York*)

Session 6A: Network Routing II

Session chair: Fusun Özgüner

- Dynamic Hybrid Routing (DHR) in Mobile Ad Hoc Networks, S. Park, B. VanVoorst
- Effective Methodology for Deadlock-Free Minimal Routing in InfiniBand Networks, J. C. Sancho, A. Robles, J. Flich, P. López, J. Duato
- On-Line Permutation Routing on WDM All-Optical Networks, Q.-P. Gu

Session 6B: Wireless/Mobile Computing

Session chair: Saday Sadayappan

- Dynamic Service Composition for Wireless Web Access, S.-N. Chuang, A. Chan, J. Cao
- MOBY – A Mobile Peer-to-Peer Service and Data Network, T. Horozov, A. Grama, V. Vasudevan, S. Landis
- Performance Comparison of Location Areas and Reporting Centers Under Aggregate Movement Behavior Mobility Models, H. Wang, G. Fan, J. Zhang

Session 6C: Middleware Systems

Session chair: Edwin Sha

- Neuron: A Wide-Area Service Discovery Infrastructure, H.-C. Hsiao, C.-T. King
- ART: Robustness of Meshes and Tori for Parallel and Distributed Computation, C.-H. Yeh, B. Parhami
- Engineering CORBA-Based Systems for High Performance, W.-K. Wu, S. Majumdar

12:00-1:30 – Lunch (on your own)

1:30-3:00 – Sessions 7A/7B/7C (*Port of Vancouver/Port of Singapore/Port of New York*)

Session 7A: Algorithms II

Session chair: Ananth Grama

- A Distributed Algorithm for Knot Detection in a Distributed Graph, D. Manivannan, M. Singhal
- An Optimal Randomized Ranking Algorithm on the k-channel Broadcast Communication Model, K. Nakano

- Computational Geometry On The OTIS-Mesh Optoelectronic Computer, C.-F. Wang, S. Sahni

Session 7B: Communications

Session chair: Brain VanVoorst

- Worst Case Analysis of a Greedy Multicast Algorithm in k-ary n-cubes, S. Fujita
- A Best-Effort Communication Protocol for Real-Time Broadcast Networks, L. Ramaswamy, B. Ravindran
- Reliable MAC Layer Multicast in IEEE 802.11 Wireless Networks, M.-T. Sun, L. Huang, A. Arora, T.-H. Lai

Session 7C: Multimedia Servers

Session chair: Shikharesh Majumdar

- MAC Layer Protocols for Real-Time Traffic in Ad-hoc Wireless Networks, A. Pal, A. Doğan, F. Özgüner
- Optimal Video Replication and Placement on a Cluster of Video-on-Demand Servers, X. Zhou, C.-Z. Xu
- A Selection Technique for Replicated Multicast Video Servers, A. Hiromori, H. Yamaguchi, K. Yasumoto, T. Higashino, K. Taniguchi

3:00-3:30 – Break (*Ballroom Foyer West*)

3:30-5:00 – Sessions 8A/8B/8C (*Port of Vancouver/Port of Singapore/Port of New York*)

Session 8A: Applications

Session chair: Tarek Abdelrahman

- Minimal Sensor Integrity: Computing Vulnerability in Sensor Grids, R. Kannan, S. Sarangi, S. Ray, S. Iyengar
- Multithreaded Isorendering on SMPs Using Span-Space Buckets, P. Sulatycke, K. Ghose

Session 8B: Parallel Job Scheduling

Session chair: Sartaj Sahni

- Self-adapting Backfilling Scheduling for Parallel Systems, B. Lawson, E. Smirni, D. Puiu
- Power Aware Scheduling for AND/OR Graphs in Multi-Processor Real-Time Systems, D. Zhu, N. AbouGhazaleh, D. Mossé, R. Melhem
- Selective Preemption Strategies for Parallel Job Scheduling, R. Kettimuthu, V. Subramani, S. Srinivasan, T. Gopalsamy, D. Panda, P. Sadayappan

Session 8C: High-Performance Compilers

Session chair: Juan Touriño

- Optimal Code Size Reduction for Software-Pipelined Loops on DSP Applications, Q. Zhuge, Z. Shao, E. Sha
- Software Caching using Dynamic Binary Rewriting for Embedded Devices, C. Huneycutt, J. Fryman, K. Mackenzie