

**2000 International Conference on Parallel Processing**  
**The Westin Harbour Castle • Toronto, Canada • August 21-24**

	Pier 4 room	Pier 5 room	Pier 7/8 room	Pier 9 room
<b>Monday, August 21</b>				
8:00	Workshop registration and continental breakfast (Pier 5 foyer)			
8:30	Workshop on MSA, 1-4	Workshop on PC, 1-4	Workshop on SWS, 1-4	Workshop on HPSECA, 1-4
<b>Tuesday, August 22</b>				
8:00	Registration and continental breakfast (Pier 5 foyer)			
9:00	Opening and Awards (Pier 4/5 room)			
9:30	<b>Keynote address:</b> Dr. Shoichi Noguchi, President, University of Aizu, Japan (Pier 4/5 room)			
10:30	Break (Pier 5 foyer)			
11:00	Session 1A: Application-specific	Session 1B: Interconnection networks	Session 1C: Message-passing	Workshop on HPSECA, 5
12:00	Lunch (on your own)			
1:30	Session 2A: Reuse and speculation	Session 2B: Shared-memory systems	Session 2C: Multimedia servers	Workshop on HPSECA, 6
3:00	Break (Pier 5 foyer)			
3:30	Session 3A: Adaptive systems	Session 3B: Wireless networks, I	Session 3C: Predicting parallelism	Workshop on HPSECA, 7
5:00	Recess			
7:00	Wine and cheese reception (Regatta room)			
<b>Wednesday, August 23</b>				
8:00	Registration and continental breakfast (Pier 5 foyer)			
9:00	<b>Keynote address:</b> Dr. Tilak Agerwala, Vice President, IBM Enterprise Systems Group (Pier 4/5 room)			
10:00	Break (Pier 5 foyer)			
10:30	Session 4A: Web servers	Session 4B: Wireless networks, II	Session 4C: Heterogeneous computing, I	Workshop on NBC, 1
12:00	Lunch (on your own)			
1:30	Session 5A: High-performance I/O	Session 5B: Network routing	Session 5C: Heterogeneous computing, II	Workshop on NBC, 2
3:00	Break (Pier 5 foyer)			
3:30	<b>Panel:</b> Scalable computing infrastructure for scientific and commercial applications (Pier 4/5 room)			
5:00	Recess			
7:00	Banquet dinner (Regatta room)			
<b>Thursday, August 24</b>				
8:00	Registration and continental breakfast (Pier 5 foyer)			
9:00	<b>Keynote address:</b> Dr. Zvonko Vranesic, Professor, University of Toronto (Pier 4/5 room)			
10:00	Break (Pier 5 foyer)			
10:30	Session 6A: Network computing	Session 6B: Reconfigurable networks	Session 6C: Clustering/partitioning	Workshop on WNMC, 1
12:00	Lunch (on your own)			
1:30	Session 7A: Large-scale/NUMA	Session 7B: Optical networks	Workshop on PDMS, 1	Workshop on WNMC, 2
3:00	Break (Pier 5 foyer)			
3:30	Session 8A: Scheduling	Session 8B: Mobile computing	Workshop on PDMS, 2	Workshop on WNMC, 3

**Monday, August 21**

**Sessions 1-4, Workshop on Metacomputing Systems and Applications (MSA)**

**Sessions 1-4, Workshop on Pervasive Computing (PC)**

**Sessions 1-4, Workshop on Scalable Web Services (SWS)**

**Sessions 1-4, Workshop on High Performance Scientific and Engineering Computing with Applications (HPSECA)**

**Tuesday, August 22**

**8:00-9:00 - Registration and continental breakfast**

**9:00-9:30 - Opening and awards**

**9:30-10:30 - Keynote address:** "Next Generation Network Technology and Its Impact on the Society," Professor Shoichi Noguchi, President, University of Aizu, Japan

**10:30-11:00 - Break**

**11:00-12:00 - Sessions 1A/1B/1C/Workshop on HPSECA**

**Session 1A: Application-specific mechanisms**

Session chair: Chung-Ta King

- A Problem Specific Fault Tolerance Mechanism for Asynchronous, Distributed Systems, A. Iamnitchi, I. Foster
- A Parallel Architecture for Quadtree-based Fractal Image Coding, S. Lee, S. Omachi, H. Aso

**Session 1B: Interconnection networks**

Session chair: Stephan Olariu

- Multi-Node Multicast in Multi-Dimensional Wormhole Tori and Meshes with Load Balance, M. Yang, Y. Tseng, M. Jian, C. Lin
- Multilayer VLSI Layout for Interconnection Networks, C. Yeh, E. Varvarigos, B. Parhami

**Session 1C: Message-passing**

Session chair: Wu-chun Feng

- TPO++: An object-oriented message-passing library in C++, T. Grundmann, M. Ritt, W. Rosenstiel
- Specification of Performance Problems in MPI Programs with ASL, T. Fahringer, M. Gerndt, G. Riley, J. Traeff

**Session 5, Workshop on High Performance Scientific and Engineering Computing with Applications (HPSECA)**

**12:00-1:30 - Lunch (on your own)**

**1:30-3:00 - Sessions 2A/2B/2C/Workshop on**

**HPSECA**

**Session 2A: Reuse and speculation**

Session chair: Harvey Wasserman

- Load Redundancy Removal through Instruction Reuse, J. Yang, R. Gupta
- Partial Resolution in Data Value Predictors, T. Sato, I. Arita
- Compiler Techniques for Energy Saving in Instruction Caches of Speculative Parallel Microarchitectures, S. Kim, R. Eigenmann

**Session 2B: Shared-memory systems**

Session chair: Anand Sivasubramaniam

- Non-Strict Cache Coherence: Exploiting Data-Race Tolerance in Emerging Applications, S. Tambat, S. Vajapeyam
- User-Level Dynamic Page Migration for Multiprogrammed Shared-Memory Multiprocessors, D. Nikolopoulos, T. Papatheodorou, C. Polychronopoulos, J. Labarta, E. Ayguade
- An Effective Selection Policy for Load Balancing in Software DSM, T. Liang, J. Li, C. Shieh

**Session 2C: Multimedia servers**

Session chair: Wu-chi Feng

- Solving a Media Mapping Problem in a Hierarchical Server Network with Parallel Simulated Annealing, X. Zhou, R. Lueling, L. Xie
- A Network Co-Processor-Based Approach to Scalable Media Streaming in Servers, R. Krishnamurthy, K. Schwan, R. West, M. Rosu
- A Reliable Statistical Admission Control Strategy for Interactive Video-On-Demand Servers with Interval Caching, C. Das, S. Kim

**Session 6, Workshop on High Performance Scientific and Engineering Computing with Applications (HPSECA)**

**3:00-3:30 - Break and refreshments**

**3:30-5:00 - Sessions 3A/3B/3C/Workshop on HPSECA**

**Session 3A: Adaptive systems**

Session chair: Yves Robert

- Match Virtual Machine: An Adaptive Runtime System to execute MATLAB in Parallel, M. Haldar, A. Nayak, A. Kanhere, P. Joisha, N. Shenoy, A. Choudhary, P. Banerjee
- A Comprehensive Dynamic Processor Allocation Scheme for Multiprogrammed Multiprocessor Systems, I. Kazi, D. Lilja
- ADAPT: Automated De-Coupled Adaptive Program Transformation, M. Voss, R. Eigenmann

**Session 3B: Wireless networks, I**

Session chair: Chi-Hsiang Yeh

- Depth first search and location based localized routing and QoS routing in wireless networks, I. Stojmenovic, M. Russell
- Energy-Efficient Routing Protocols in Ad-hoc Radio Net-

works, K. Nakano, S. Olariu, A. Zomaya

- Domination and Its Applications in Ad Hoc Wireless Networks with Unidirectional Links, J. Wu

### **Session 3C: Identifying and predicting parallelism**

Session chair: Tarek S. Abdelrahman

- Identifying Parallelism in Programs with Cyclic Graphs, Y. Hwang, J. Saltz
- Partitioning Loops with Variable Dependence Distances, Y. Yu, E. D'Hollander
- A General Predictive Performance Model for Wavefront Algorithms on Clusters of SMPs, A. Hoisie, O. Lubeck, H. Wasserman, F. Petrini, H. Alme

### **Session 7, Workshop on High Performance Scientific and Engineering Computing with Applications (HPSECA)**

**5:00-7:00 - Recess**

**7:00-9:00 - Wine and cheese reception**

**Wednesday, August 23**

**8:00-9:00 - Registration and continental breakfast**

**9:00-10:00 - Keynote address:** Dr. Tilak Agerwala, Vice President, IBM Enterprise Systems Group

**10:00-10:30 - Break**

**10:30-12:00 - Sessions 4A/4B/4C/Workshop on NBC**

#### **Session 4A: Web servers**

Session chair: Alok Choudhary

- Techniques for Achieving High Performance Web Servers, S. Nadimpalli, S. Majumdar
- Modeling Web Caching Schemes for Performance Studies, C. Chiang, M. Ueno, M. Liu, M. Muller
- Utilization-Based Admission Control for Real-Time Applications, D. Xuan, C. Li, R. Bettati, J. Chen, W. Zhao

#### **Session 4B: Wireless networks, II**

Session chair: Hiromi Okada

- Energy-Efficient Initialization Protocols for Ad-hoc Networks with no Collision Detection, K. Nakano, S. Olariu
- Multicast Routing Protocol by Multicast Agent in Mobile Networks, H. Shin, Y. Suh
- GPS-Based Message Broadcasting for Inter-vehicle Communication, M. Sun, W. Feng, T. Lai, K. Yamada, H. Okada, K. Fujimura

#### **Session 4C: Heterogeneous computing, I**

Session chair: Marcel Rosu

- Matrix-Matrix Multiplication on Heterogeneous Platforms, O. Beaumont, V. Boudet, F. Rastello, Y. Robert
- The Adverse Impact of the TCP Congestion-Control Mechanism in Heterogeneous Computing Systems, W. Feng, I.

Philp, P. Tinnakornsriruphap

- Reliable Matching and Scheduling of Precedence-Constraint Tasks in Heterogeneous Distributed Computing, A. Dogan, F. Ozguner

### **Session 1, Workshop on Network-Based Computing (NBC)**

**12:00-1:30 - Lunch (on your own)**

**1:30-3:00 - Sessions 5A/5B/5C/Workshop on NBC**

#### **Session 5A: High-performance I/O**

Session chair: Yuanyuan Yang

- A Scalable, Cost-Effective, and Flexible Disk System Using High-Performance Embedded-Processors, A. Tomita, N. Watanabe, Y. Takamoto, S. Inohara, F. Maciel, H. Odawara, M. Sugie
- An Efficient Algorithm for Large-Scale Matrix Transposition, J. Suh, S. Narayanan, V. Prasanna
- Design and Evaluation of Smart Disk Architecture for DSS Commercial Workloads, G. Memik, M. Kandemir, A. Choudhary

#### **Session 5B: Network routing**

Session chair: Angelos Bilas

- A Performance Model of Adaptive Routing in k-Ary n-Cubes with Matrix-Transpose Traffic, H. Sarbazi-Azad, M. Ould-Khaoua, L. Mackenzie
- Improving the Performance of Regular Networks with Source Routing, J. Flich, P. Lopez, M. Malumbres, J. Duato
- Simultaneous Multithreading-Based Routers, K. Vibhatavanij, N. Tzeng, A. Kongmunvattana

#### **Session 5C: Heterogeneous computing, II**

Session chair: Fusun Ozguner

- Optimizing Static Job Scheduling in a Network of Heterogeneous Computers, X. Tang, S. Chanson
- A Scalable Task Duplication Based Scheduling Algorithm for Heterogeneous Systems, S. Ranaweera, D. Agrawal.
- On the Design of Communication-Aware Task Scheduling Strategies for Heterogeneous Systems, J. Ordua, V. Arnau, A. Ruiz, R. Valero, J. Duato

### **Session 2, Workshop on Network-Based Computing (NBC)**

**3:00-3:30 - Break and refreshments**

**3:30-5:00 - Panel Session:** "Scalable computing infrastructure for scientific and commercial applications"

Organizer and moderator: Angelos Bilas, University of Toronto  
Panelists: Kourosh Gharachorloo, Compaq Western Research Lab; Oran Krieger, IBM T.J. Watson Research Center; Ronald G. Minnich, Los Alamos National Laboratory; Dhableswar K. Panda, Ohio State University; Thomas Sterling, California Institute of Technology; Josep Torrellas, University of Illinois

at Urbana-Champaign.

**5:00-7:00 - Recess**

**7:00-9:00 - Banquet dinner**

**Thursday, August 24**

**8:00-9:00 - Registration and continental breakfast**

**9:00-10:00 - Keynote Address:** "The NUMA Machine Experience," Zvonko Vranesic, Professor, University of Toronto

**10:00-10:30 - Break**

**10:30-12:00 - Sessions 6A/6B/6C/Workshop on WNMC**

**Session 6A: Network-based computing**

Session chair: Dhabaleswar Panda

- Issues in Designing and Implementing a Scalable Virtual Interface Architecture, S. Nagar, A. Sivasubramaniam, J. Rodriguez, M. Yousif
- Building an Adaptable, Fault Tolerant, and Highly Manageable Web Server on Clusters of Non-dedicated Workstations, C. Yang, M. Luo
- Fine-Grained Parallel VLSI Synthesis for Commercial CAD on a Network of Workstations, V. Kim, P. Banerjee, K. De

**Session 6B: Reconfigurable and adaptive networks**

Session chair: Liu Pangfen

- A Fault-Tolerant Adaptive and Minimal Routing Scheme in n-D Meshes, J. Wu
- The Double Scheme: Deadlock-free Dynamic Reconfiguration of Cut-Through Networks, R. Pang, T. Pinkston, J. Duato
- Fast Dynamic Reconfiguration in Irregular Networks, O. Lysne, J. Duato

**Session 6C: Clustering and partitioning**

Session chair: Erik D'Hollander

- On Overlapping Partitions, J. Galtier, S. Lanteri
- Evaluation of Loop Grouping Methods based on Orthogonal Projection Spaces, I. Drositis, G. Goumas, N. Koziris, P. Tsanakas, G. Papakonstantinou
- pMAFIA: A Scalable Parallel Subspace Clustering Algorithm for Massive Data Sets, H. Nagesh, S. Goil, A. Choudhary

**Session 1, Workshop on Wireless Networks and Mobile Computing (WNMC)**

**12:00-1:30 - Lunch (on your own)**

**1:30-3:00 - Sessions 7A/7B/Workshop on PDMS/Workshop on WNMC**

**Session 7A: Large-scale/NUMA systems**

Session chair: Nian Tzeng

- The NUMA Machine Multiprocessor, R. Grindley, T. Abdelrahman, S. Brown, S. Caranci, D. DeVries, B. Gamsa, A. Grbic, M. Gusat, R. Ho, O. Krieger, G. Lemieux, K. Loveless, N. Manjikian, P. McHardy, S. Srbljic, M. Stumm, Z. Vranesic, Z. Zilic
- The Thread-Based Protocol Engines for CC-NUMA Multiprocessors, H. Hsiao, C. King
- A Balanced Approach to High-Level Verification: Performance Trade-offs in Verifying Large-Scale Multiprocessors, D. Abts, M. Roberts, D. Lilja

**Session 7B: Optical networks**

Session chair: Timothy Pinkston

- Efficient protocols for permutation routing on all-optical multistage interconnection networks, Q. Gu, S. Peng
- Nonblocking WDM Multicast Switching Network, Y. Yang, J. Wang, C. Qiao
- Probabilistic Analysis of Cyclic Packet Transmission Scheduling in WDM Optical Networks, Keqin Li

**Session 1, Workshop on Parallel and Distributed Multimedia Systems (PDMS)**

**Session 2, Workshop on Wireless Networks and Mobile Computing (WNMC)**

**3:00-3:30 - Break and refreshments**

**3:30-5:00 - Sessions 8A/8B/Workshop on PDMS/Workshop on WNMC**

**Session 8A: Scheduling**

Session chair: Rudolph Eigenmann

- Runtime Parallel Incremental Scheduling of DAGs, M. Wu, W. Shu, Y. Chen
- Lower bounds on precedence-constrained scheduling for parallel processors, I. Baev, W. Meleis, A. Eichenberger
- The effectiveness of loop unrolling for modulo scheduling in clustered VLIW architectures, J. Sanchez, A. Gonzalez

**Session 8B: Mobile computing**

Session chair: Jie Wu

- A Novel Channel-Adaptive Uplink Access Control Protocol for Nomadic Computing, Y. Kwok, V. Lau
- Incremental Mining for User Moving Patterns to Improve Data Allocation in a Mobile Computing System, W. Peng, M. Chen
- Call Admission Control vs Bandwidth Reservation: Supporting QoS and Bandwidth Efficiency in Multimedia Mobile Networks, J. Jiang, T. Lai

**Session 2, Workshop on Parallel and Distributed Multimedia Systems (PDMS)**

**Session 3, Workshop on Wireless Networks and Mobile Computing (WNMC)**