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High Performance Computing – HiPC 2005

12th International Conference
Goa, India, December 18-21, 2005
Proceedings

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Message from the Program Chair

Welcome to Goa and the 12th International Conference on High Performance Computing!

This year, we were delighted to receive 362 submissions to this conference from more than 30 different countries, including (besides India!) countries in North and South America, Europe, Asia, Africa, and Australia. This is a major increase compared with last year (253 submissions from 25 countries). Eventually, 50 submissions from 12 different countries were selected for presentation at the conference and publication in the conference proceedings.

This sharp increase in the number of submissions meant we had to adapt the regular selection process used in previous years. First, all submitted papers were carefully considered by the Program Chair and Vice-Chairs to check their consistency with the minimal syntactic requirements for acceptance. At the end of this first stage, we were left with 271 submissions, which were further considered by the Program Committee. Each of these papers was reviewed by three Program Committee members. As many as 785 reviews were collected (2.90 per paper on average) and each paper was discussed at the online Program Committee meeting. Finally, 50 out of 271 (18.5%) were accepted for presentation and publication in the proceedings.

Among them, two outstanding papers were selected as “Best Papers”; one focusing on the Systems Software area (“Preemption Adaptivity in Time-Published Queue-Based Spin Locks,” by Bijun He, William N. Scherer III, and Michael L. Scott) and the other focusing on the Architecture area (“Criticality Driven Energy Aware Speculation for Speculative Multithreaded Processors,” by Rahul Nagpal and Anasua Bhowmik). They will be presented in a separate plenary session, and each paper will be awarded a prize sponsored by InfoSys.

Here is a general summary of the results with respect to the origin of the submissions:

Submission origin	Reviewed	Accepted	Acceptance rate
Overall	362	50	13.8%
India	56.4%	28%	6.9%
Asia except India	19.3%	10%	7.1%
North America (mainly USA)	14.4%	46%	44%
Elsewhere (mainly Europe)	9.9%	16%	22%
Total	100%	100%	

These figures show that the selection process was highly competitive. We are pleased to accommodate ten (parallel) technical sessions of high-quality contributed papers, plus the special plenary “Best Papers” session. In addition, this year’s conference also features a poster session, industrial exhibits, five keynote addresses, five tutorials and four workshops.

It has been a pleasure putting together this program with the help of five excellent Program Vice-Chairs and their 70 Program Committee members. The hard work of all the Program Committee members has been deeply appreciated. I especially wish

to acknowledge the dedicated effort put forth by the Vice-Chairs: Michael A. Bender (Algorithms), Zhiwei Xu (Applications), José Duato (Architecture), M. Cristina Pinotti (Communication Networks), and Satoshi Matsuoka (System Software). Without their help and timely work, the quality of this program would not be as high nor would the process have run so smoothly.

I thank the other organizers who have contributed to assembling this program, including those who organized the keynotes, tutorials, workshops, awards, poster session, industry exhibits, and those who performed the administrative functions that have been essential to the success of this conference. The work of Sushil K. Prasad in putting together the conference proceedings is also acknowledged, as well as the support provided by Kamesh Madduri and Vaddadi Chandu, Ph.D. students at Georgia Institute of Technology, and Vipin Sachdeva, M.S. student at the University of New Mexico, in assisting with the EDAS online paper submission and evaluation software. Last, but certainly not least, I express heart-felt thanks to our General Co-chairs, Manish Parashar and V. Sridhar; Steering Chair, Viktor Prasanna; and to the Vice-General Chair, Rajendra V. Boppana; for all their useful advice.

Lastly, I thank the Conference General Co-chairs for allowing me to serve our community as the Program Chair of this high-quality international conference. It has been my pleasure to correspond with so many of you, and I personally welcome you to Goa. As you can see from these proceedings, we have made considerable effort to select and assemble the highest-quality technical program for this year's meeting. Please enjoy the informative and stimulating presentations and your entire experience at HiPC 2005 including the food and beautiful coastal scenery in this culturally-rich location of Goa, India!

December 2005

David A. Bader

Message from the General Co-chairs and the Vice General Chair

On behalf of the organizers of the 12th International Conference on High Performance Computing (HiPC), it is our pleasure to welcome you to the paradise state of Goa.

The HiPC 2005 technical program includes technical paper sessions interspersed with keynotes from leading HPC researchers, a poster paper session, an industry session with presentations from leading HPC companies, a HPC user community meeting, an exhibition, tutorials on hot topics in computing and networking, and several workshops focusing on emerging areas. We do hope you find the conference and these proceedings exciting and rewarding.

This year, the HiPC call for papers, once again, received an overwhelming response with a record number of submissions from across the globe. For this, we would like to specially thank David Bader, Program Chair, who, with remarkable dedication, put together an outstanding technical program consisting of the papers that appear in these proceedings. We would also like to thank the program committee for their efforts in assembling such an excellent program and the authors who submitted the high quality material from which that program was selected. We would like to especially thank the presenters of the keynotes, posters and tutorials, the organizers of the workshops, and all the participants, who complete the program.

Arranging an exciting meeting with a high quality technical program is easy when one is working with an excellent and dedicated team and can build on the practices and levels of excellence established by a quality research community. HiPC 2005 would not have been possible without the tremendous efforts of the many volunteers. We would like to acknowledge the critical contributions of each one. We would specially like to thank Viktor Prasanna, Chair of the HiPC Steering Committee, for his leadership, sage guidance, and untiring dedication. This year we were lucky to have a number of new volunteers joining us. We would like to welcome you to the team and thank you – your efforts are critical to the continued success of this conference.

We would like to gratefully acknowledge our academic and industrial sponsors including IEEE Computer Society, ACM SIGARCH, EATCS, IFIP, BHU, Infosys, Satyam, HP, IBM, Cray, Dell, and Sun. We would also like to acknowledge the local support we have received from Cidade De Goa, Goa Chamber of Commerce and Industry, National Institute of Oceanography, and Goa University.

Once again, we welcome you to Goa and HiPC 2005.

December 2005

Manish Parashar
V. Sridhar
Rajendra V Boppana

Message from the Steering Chair

It is my pleasure to welcome you to the 12th International Conference on High Performance Computing and to Goa, a unique city with its blend of Indian and Portuguese culture. First, I would like to single out the contribution of David Bader, Program Chair, for his enthusiasm, commitment and attention to details in putting together an excellent technical program. We received a record number of submissions this year, surpassing our previous high set last year. I am grateful to David for his efforts and thoughtful inputs in putting together the program.

2005 marks a year in transition. We have several new volunteers who continue the rich tradition set by HiPC over the years. Manish Parashar, General Co-chair, took responsibility for the overall meeting organization. He identified several new volunteers as well as handling local arrangements in Goa. I would like to welcome Rajendra Boppana, Vice General Chair, Rajeev Thakur, Poster/Presentation Chair, Anu Bourgeois, Student Scholarships Co-chair, Rajeev Raje, Publicity Co-chair, and Viraj Bhat, Cyber Chair, to the “HiPC family.” The continued efforts of Rajeev Muralidhar of Intel India and Ramamurthy Badrinath of HP India are gratefully acknowledged.

The technical program was expanded through committed efforts from several volunteers. Ramamurthy Badrinath, with assistance from Venkat Ramana of Hinditron Infosystems, put together the first HPC Users’ Group meeting. Frank Baetke of HP organized a panel entitled “Processors, Instruction Sets, Operating Systems – Challengers and Survivors”.

I would like to thank all our volunteers for their tireless efforts. The meeting would not have been possible without the enthusiastic commitment of these individuals.

Major financial support for the meeting was provided by several leading IT companies in India. I would like to acknowledge the following individuals and their organizations for their support: N.R. Narayana Murthy, Infosys, India; Kris Gopalakrishnan, Infosys, India; Harish Grama, IBM India; P. Gopalakrishnan, IBM Solutions Research Center, India; Venkat Ramana, Hinditron Infosystems; Dinkar Sitaram and Faisal Paul, HP India; V. Sridhar, Satyam; Raghuram Tupuri, AMD; Raj Yavatkar and Kumar Ranganathan, Intel.

Finally, I would like to thank Animesh Pathak at USC for his continued assistance and enthusiasm in organizing the meeting.

December 2005

Viktor K. Prasanna

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Table of Contents

Keynote Addresses

Data Confidentiality in Collaborative Computing <i>Mikhail Atallah</i>	1
Productivity in High Performance Computing <i>James C. Browne</i>	2
A New Approach to Programming and Prototyping Parallel Systems <i>Kunle Olukotun</i>	4
The Changing Challenges of Collaborative Algorithmics <i>Arnold L. Rosenberg</i>	5
Quantum Physics and the Nature of Computation <i>Umesh Vazirani</i>	6

Plenary Session - Best Papers

Preemption Adaptivity in Time-Published Queue-Based Spin Locks <i>Bijun He, William N. Scherer III, Michael L. Scott</i>	7
Criticality Driven Energy Aware Speculation for Speculative Multithreaded Processors <i>Rahul Nagpal, Anasua Bhowmik</i>	19

Session I - Algorithms

Search-Optimized Suffix-Tree Storage for Biological Applications <i>Srikanta J. Bedathur, Jayant R. Haritsa</i>	29
Cost-Optimal Job Allocation Schemes for Bandwidth-Constrained Distributed Computing Systems <i>Preetam Ghosh, Kalyan Basu, Sajal K. Das</i>	40
A Fault Recovery Scheme for P2P Metacomputers <i>Keith Power, John P. Morrison</i>	51

A Distributed Location Identification Algorithm for Ad hoc Networks Using Computational Geometric Methods <i>Koushik Sinha, Atish DattaChowdhury</i>	62
A Symmetric Localization Algorithm for MANETs Based on Collapsing Coordinate Systems <i>Srinath Srinivasa, Sanket Patil</i>	73

Session II - Applications

Performance Study of LU Decomposition on the Programmable GPU <i>Fumihiko Ino, Manabu Matsui, Keigo Goda, Kenichi Hagihara</i>	83
PENCAPS: A Parallel Application for Electrode Encased Grounding Systems Project <i>Marco Aurélio S. Birchal, Maria Helena M. Vale, Silvério Visacro</i> ...	95
Application of Reduce Order Modeling to Time Parallelization <i>Ashok Srinivasan, Yanan Yu, Namas Chandra</i>	106
Orthogonal Decision Trees for Resource-Constrained Physiological Data Stream Monitoring Using Mobile Devices <i>Haimonti Dutta, Hillol Kargupta, Anupam Joshi</i>	118
Throughput Computing with Chip MultiThreading and Clusters <i>Mukund Buddhikot, Sanjay Goil</i>	128

Session III - Architecture

Supporting MPI-2 One Sided Communication on Multi-rail InfiniBand Clusters: Design Challenges and Performance Benefits <i>Abhinav Vishnu, Gopal Santhanaraman, Wei Huang, Hyun-Wook Jin, Dhableswar K. Panda</i>	137
High Performance RDMA Based All-to-All Broadcast for InfiniBand Clusters <i>S. Sur, U.K.R. Bondhugula, A. Mamidala, H.-W. Jin, D.K. Panda</i>	148
Providing Full QoS Support in Clusters Using Only Two VCs at the Switches <i>A. Martínez, F.J. Alfaro, J.L. Sánchez, J. Duato</i>	158

Offloading Bloom Filter Operations to Network Processor for Parallel Query Processing in Cluster of Workstations <i>V. Santhosh Kumar, M.J. Thazhuthaveetil, R. Govindarajan</i>	170
---	-----

A High-Speed VLSI Array Architecture for Euclidean Metric-Based Hausdorff Distance Measures Between Images <i>N. Sudha, E.P. Vivek</i>	180
---	-----

Session IV - Applications

Sensor Selection Heuristic in Sensor Networks <i>Vaishali P. Sadaphal, Bijendra N. Jain</i>	190
--	-----

Mobile Pipelines: Parallelizing Left-Looking Algorithms Using Navigational Programming <i>Lei Pan, Ming Kin Lai, Michael B. Dillencourt, Lubomir F. Bic</i>	201
--	-----

Distributed Point Rendering <i>Ramgopal Rajagopalan, Sushil Bhakar, Dhrubajyoti Goswami, Sudhir P. Mudur</i>	213
---	-----

An Intra-task DVS Algorithm Exploiting Program Path Locality for Real-Time Embedded Systems <i>G. Sudha Anil Kumar, G. Manimaran</i>	225
---	-----

Advanced Resource Management and Scheduling of Workflow Applications in JavaSymphony <i>Alexandru Jugravu, Thomas Fahringer</i>	235
--	-----

Session V - Systems Software

Using Clustering to Address Heterogeneity and Dynamism in Parallel Scientific Applications <i>Xiaolin Li, Manish Parashar</i>	247
--	-----

Data and Computation Abstractions for Dynamic and Irregular Computations <i>Sriram Krishnamoorthy, Jarek Nieplocha, P. Sadayappan</i>	258
--	-----

XCAT-C++: Design and Performance of a Distributed CCA Framework <i>Madhusudhan Govindaraju, Michael R. Head, Kenneth Chiu</i>	270
--	-----

The Impact of Noise on the Scaling of Collectives: A Theoretical Approach
Saurabh Agarwal, Rahul Garg, Nisheeth K. Vishnoi 280

Extensible Parallel Architectural Skeletons
Mohammad Mursalin Akon, Ajit Singh, Dhrubajyoti Goswami, Hon Fung Li 290

Session VI - Communication Networks

An Efficient Distributed Algorithm for Finding Virtual Backbones in Wireless Ad-Hoc Networks
B. Paul, S.V. Rao, S. Nandi 302

A Novel Battery Aware MAC Protocol for Minimizing *Energy* × *Latency* in Wireless Sensor Networks
M. Dhanaraj, S. Jayashree, C. Siva Ram Murthy 312

On the Power Optimization and Throughput Performance of Multihop Wireless Network Architectures
G. Bhaya, B.S. Manoj, C. Siva Ram Murthy 322

A Novel Solution for Time Synchronization in Wireless Ad Hoc and Sensor Networks
Archana Sekhar, B.S. Manoj, C. Siva Ram Murthy..... 333

An Algorithm for Boundary Discovery in Wireless Sensor Networks
Jitender S. Deogun, Saket Das, Haitham S. Hamza, Steve Goddard 343

Session VII - Architecture

A Low-Complexity Issue Queue Design with Speculative Pre-execution
Won W. Ro, Jean-Luc Gaudiot 353

Performance and Power Evaluation of an Intelligently Adaptive Data Cache
Domingo Benítez, Juan Carlos Moure, Dolores Isabel Rexachs, Emilio Luque 363

Neural Confidence Estimation for More Accurate Value Prediction
Michael Black, Manoj Franklin 376

The Potential of On-Chip Multiprocessing for QCD Machines <i>Gianfranco Bilardi, Andrea Pietracaprina, Geppino Pucci, Fabio Schifano, Raffaele Tripiccione</i>	386
---	-----

Low-Power 32bit×32bit Multiplier Design with Pipelined Block-Wise Shutdown <i>Yong-Ju Jang, Yoan Shin, Min-Cheol Hong, Jae-Kyung Wee, Seongsoo Lee</i>	398
--	-----

Session VIII - Communication Networks

Performance Analysis of User-Level PIM Communication in the Data Intensive Architecture (DIVA) System <i>Sumit Dharampal Mediratta, Jeffrey Draper</i>	407
--	-----

Improved Point-to-Point and Collective Communication Performance with Output-Queued High-Radix Routers <i>Sameer Kumar, Craig Stunkel, Laxmikant V. Kalé</i>	420
--	-----

A Clustering and Traffic-Redistribution Scheme for High-Performance IPsec VPNs <i>Pan-Lung Tsai, Chun-Ying Huang, Yun-Yin Huang, Chia-Chang Hsu, Chin-Laung Lei</i>	432
---	-----

WDM Multistage Interconnection Networks Architectures for Enhancing Supernetworks Switching Infrastructure <i>Haitham S. Hamza, Jitender S. Deogun</i>	444
--	-----

Learning-TCP: A Novel Learning Automata Based Congestion Window Updating Mechanism for Ad hoc Wireless Networks <i>B. Venkata Ramana, C. Siva Ram Murthy</i>	454
--	-----

Session IX - Algorithms

Design and Implementation of the HPCS Graph Analysis Benchmark on Symmetric Multiprocessors <i>David A. Bader, Kamesh Madduri</i>	465
---	-----

Scheduling Multiple Flows on Parallel Disks <i>Ajay Gulati, Peter Varman</i>	477
---	-----

Snap-Stabilizing Detection of Cutsets <i>Alain Cournier, Stéphane Devismes, Vincent Villain</i>	488
--	-----

Scheduling Divisible Loads with Return Messages on Heterogeneous Master-Worker Platforms
Olivier Beaumont, Loris Marchal, Yves Robert 498

Session X - Systems and Networks

A Grid Authentication System with Revocation Guarantees
Babu Sundaram, Barbara M. Chapman 508

Integrating a New Cluster Assignment and Scheduling Algorithm into an Experimental Retargetable Code Generation Framework
K. Vasanta Lakshmi, Deepak Sreedhar, Easwaran Raman, Priti Shankar 518

Cooperative Instruction Scheduling with Linear Scan Register Allocation
Khaing Khaing Kyi Win, Weng-Fai Wong 528

iSCSI Analysis System and Performance Improvement of iSCSI Sequential Access in High Latency Networks
Saneyasu Yamaguchi, Masato Oguchi, Masaru Kitsuregawa 538

Author Index 549