

Roman Wyrzykowski
Jack Dongarra
Norbert Meyer
Jerzy Waśniewski (Eds.)

Parallel Processing and Applied Mathematics

6th International Conference, PPAM 2005
Poznań, Poland, September 2005
Revised Selected Papers

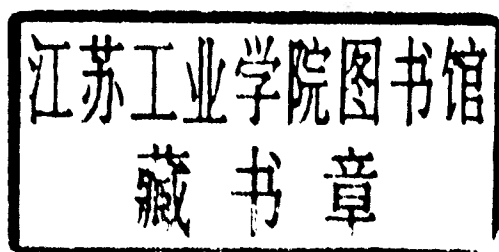


Springer

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6th International Conference, PPAM 2005
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Preface

This volume comprises the proceedings of the 6th International Conference on Parallel Processing and Applied Mathematics - PPAM 2005, which was held in Poznań, the industrial, academic and cultural center in the western part of Poland, during September 11–14, 2005. It was organized by the Department of Computer and Information Sciences of the Częstochowa University of Technology, with the help of Poznań Supercomputing and Networking Center. The main organizer was Roman Wyrzykowski.

PPAM is a biennial conference organized since 1994. Five previous events have been held in different places in Poland. The proceedings of the last two conferences were published by Springer in the *Lecture Notes in Computer Science* series (Nałęczów, 2001, vol.2328; Częstochowa, 2003, vol.3019).

The PPAM conferences have become an international forum for exchanging ideas between researchers involved in parallel and distributed computing, including theory and applications, as well as applied and computational mathematics. The focus of PPAM 2005 was on grid computing. The main idea behind this decision was to foster communication and cooperation between the grid application users, application developers and grid middleware developers, to identify the key application requirements and scenarios on the grid, to gather information about tools and toolkits, and to broaden the grid community by encouraging new users to take advantage of grid technologies.

This meeting gathered around 200 participants from 33 countries. A strict refereeing process resulted in acceptance of 130 contributed presentations, while approximately 38% of the submissions were rejected. It is worth mentioning that the conference was visited by both the research community and industry representatives.

Regular tracks of the conference covered important fields of parallel/distributed/grid computing and applied mathematics such as:

- Parallel and distributed architectures
- Parallel and distributed non-numerical algorithms
- Performance analysis, prediction and optimization
- Grid programming
- Tools and environments for clusters and grids
- Numerical and non-numerical applications of parallel/distributed/grid computing
- Evolutionary computing
- Parallel data mining
- Parallel numerics
- Mathematical and computing methods

The plenary and invited talks were presented by:

- Ben Bennett from Intel (USA)
- Jack Dongarra from the University of Tennessee and Oak Ridge National Laboratory (USA)
- Geoffrey Fox from Indiana University (USA)
- Jacek Gondzio from the University of Edinburgh, Scotland (UK)
- Rich L. Graham from Los Alamos National Laboratory (USA)
- Kate Keahey from Argonne National Laboratory (USA)
- Eric Kronstadt from IBM T.J. Watson Research Center (USA)
- Bolesław Szymański from Rensselaer Polytechnic Institute (USA)
- Ziga Turk from the University of Ljubljana (Slovenia)
- Jerzy Waśniewski from the Technical University of Denmark (Denmark)

Important and integral parts of the PPAM 2005 conference were the workshops:

- The Second Grid Application and Middleware Workshop - GAMW 2005 organized by Ewa Deelman from the USC Information Sciences Institute (USA) and Norbert Meyer from the Poznań Supercomputing and Networking Center (Poland)
- The Second Grid Resource Management Workshop - GRMW 2005 organized by Jarek Nabrzyski from the Poznań Supercomputing and Networking Center (Poland) and Ramin Yahyapour from the University of Dortmund (Germany)
- Workshop on Large Scale Computations on Grids organized by Przemysław Stpiczynski from Marie Curie-Skłodowska University in Lublin (Poland), Dana Petcu from the Western University of Timisoara (Romania), and Marcin Paprzycki from SWPS in Warsaw (Poland)
- Workshop on Scheduling for Parallel Computing organized by Maciej Drozdowski from the Poznań University of Technology (Poland)
- Workshop on Language-Based Parallel Programming Models organized by Ami Marowka from the Hebrew University (Israel)
- Workshop on Dependability of the Distributed Systems organized by Jan Kwiatkowski and Piotr Karwaczyński from the Wrocław University of Technology (Poland)
- Workshop on HPC Linear Algebra Libraries for Computers with Multilevel Memories organized by Jerzy Waśniewski from the Technical University of Denmark (Denmark)
- Workshop on Parallel Bio-Computing organized by David A. Bader from the Georgia Institute of Technology in Atlanta (USA) and Denis Trystram from ID-IMAG in Grenoble (France)

The PPAM 2005 meeting began with four half-day tutorials:

- Using CLUSTERIX: National Cluster of Linux Systems, by the CLUSTERIX Team from Czestochowa University of Technology, Poznań Supercomputing and Networking Center, Gdańsk University of Technology, and Białystok Technical University (Poland)

- Enterprise GRID Solutions: Eliminating Isolated Technology Islands with InfiniBand, by CISCO
- Scientific Programming for Heterogeneous Systems, by Alexey Lastovetsky from the University College Dublin (Ireland) and Alexey Kalinov from the Institute for System Programming in Moscow (Russia)
- Upgrading Cluster Performance with InfiniBand and the Intel MPI Library, by Tom Lehmann from Intel (USA)

The organizers are indebted to the PPAM 2005 sponsors, whose support was vital to the success of the conference. The main sponsor was Intel Corporation. The other sponsors were: IBM Corporation, Optimus S.A., Cisco Systems, and APC Corporation. We thank all members of the International Program Committee, Workshop Program Committees and additional reviewers for their diligent work in refereeing the submitted papers. Finally, we thank all of the local organizers from the Częstochowa University of Technology and Poznań Supercomputing and Networking Center, who helped us run the event very smoothly. We are especially indebted to Grażyna Kołakowska, Urszula Kroczevska, Konrad Karczewski, Jarosław Żola, from the Częstochowa University of Technology, and Maciej Stroiński, Sławomir Niwiński from Poznań Supercomputing and Networking Center.

We hope that this volume will be useful to you. We would like to invite everyone who reads it to the next conference, PPAM 2007, which will be held on the Baltic Coast in Gdańsk/Sopot (Poland) on September 9-12, 2007 (<http://ppam.pcz.pl>).

February 2006

Roman Wyrzykowski
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