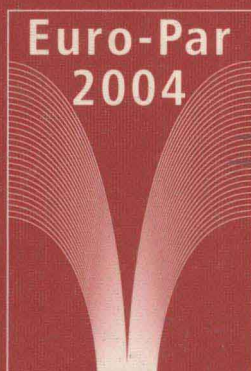


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Marco Danelutto
Domenico Laforenza
Marco Vanneschi (Eds.)

Euro-Par 2004 Parallel Processing

10th International Euro-Par Conference
Pisa, Italy, August/September 2004
Proceedings



 Springer

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Euro-Par 2004

Parallel Processing

10th International Euro-Par Conference
Pisa, Italy, August 31- September 3, 2004
Proceedings

Volume Editors

Marco Danelutto, Marco Vanneschi
University of Pisa, Department of Computer Science
Via F. Buonarroti 2, 56127 Pisa, Italy
E-mail: {marcod,vannesch}@di.unipi.it

Domenico Laforenza
High Performance Computing Laboratory, ISTI, CNR
Via G. Moruzzi 1, 56126 Pisa, Italy
E-mail: Domenico.Laforenza@isti.cnr.it

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Preface

Euro-Par Conference Series

Euro-Par is an annual series of international conferences dedicated to the promotion and advancement of all aspects of parallel computing. The major themes can be divided into the broad categories of hardware, software, algorithms and applications for parallel computing. The objective of Euro-Par is to provide a forum within which to promote the development of parallel computing both as an industrial technique and an academic discipline, extending the frontier of both the state of the art and the state of the practice. This is particularly important at a time when parallel computing is undergoing strong and sustained development and experiencing real industrial take-up. The main audience for, and participants at, Euro-Par are seen as researchers in academic departments, government laboratories and industrial organizations. Euro-Par's objective is to be the primary choice of such professionals for the presentation of new results in their specific areas. Euro-Par also targets applications demonstrating the effectiveness of parallelism. This year's Euro-Par conference was the tenth in the conference series. The previous Euro-Par conferences took place in Stockholm, Lyon, Passau, Southampton, Toulouse, Munich, Manchester, Paderborn and Klagenfurt. Next year the conference will take place in Lisbon. Euro-Par has a permanent Web site hosting the aims, the organization structure details as well as all the conference history: <http://www.europar.org>. Currently, the Euro-Par conference series is sponsored by the Association for Computing Machinery (ACM) in cooperation with SIGACT, SIGARCH and SIGMM, by the International Federation for Information Processing (IFIP) in cooperation with IFIP WG 10.3, and by the Institute of Electrical and Electronics Engineers (IEEE) in cooperation with TCPP.

Euro-Par 2004 at Pisa, Italy

Euro-Par 2004 was organized by the University of Pisa, Department of Computer Science and by the National Research Council Institute of Information Science and Technologies (ISTI), also located in Pisa. The conference took place at the "Palazzo dei Congressi" (the Conference Center of Pisa University). A number of tutorials and invited talks extended the regular scientific program. The tutorials and the invited talks covered major themes in the current high-performance parallel computing scenarios:

- The full-day tutorial "Open Source Middleware for the Grid: Distributed Objects and Components in ProActive", by Denis Caromel (OASIS, INRIA Sophia Antipolis, France) covered major aspects in the implementation of middleware supporting the development of grid applications through suitable, open-source, component-based middleware.

- The half-day tutorial “Achieving Usability and Efficiency in Large-Scale Parallel Computing Systems” by Fabrizio Petrini and Kei Davis (Los Alamos National Laboratory, USA) went through the techniques used to set up high-performance clusters exploiting the most recent and advanced interconnection technology.
- The half-day tutorial “Grid Resource Management and Scheduling”, by Ramin Yahyapour (University of Dortmund, Germany) presented an overview of the state of the art and experiences in Grid resource management and scheduling.
- The invited talk by Dennis Gannon (Indiana University, USA) “Building Grid Applications and Portals: An Approach Based on Components, Web Services and Workflow Tools” dealt with advanced techniques for building grid applications.
- The invited talk by Manuel Hermenegildo (Technical University of Madrid and University of New Mexico) “Some Techniques for Automated, Resource-Aware Distributed and Mobile Computing in a Multi-paradigm Programming System” dealt with advanced techniques for distributed and mobile computing.
- The invited talk by Mateo Valero (DAP-UPC Barcelona, Spain) “Kilo-instruction Processors” was about innovative processor technology aimed at reducing the problems raised by memory access latency.
- Last but not least, the invited talk by Murray Cole (School of Informatics, Edinburgh, UK) “Why Structured Parallel Programming Matters” was focused on the relevance and effectiveness of structured parallel programming with respect to performance, correctness and productivity.

The tutorials all took place on Tuesday, 31st of August. Two invited talks were scheduled for the beginning of the regular scientific program of the conference, on Wednesday, 1st of September, and two were scheduled for the end, on Friday, 3rd of September.

Euro-Par 2004 Statistics

Euro-Par 2004 followed the classic Euro-Par conference format and consisted of a number of topics. Each topic was supervised by a committee of four persons: a global chair, a local chair and two vice chairs. This year the conference ran 19 different topics. In addition to classic Euro-Par topics, the High-Performance Bioinformatics topic was introduced for the first time. A Demo Session topic included in the conference program after the positive experience of Euro-Par 2003 received a very small number of submissions. It was eventually canceled from the conference program and the accepted submissions were moved to another, related topic. The overall call for papers was closed in early February 2004 and attracted a total of 352 submissions; 124 papers were accepted after a refereeing process that collected an average 3.6 referee reports per paper, for a grand total of more than 1300 referee reports that involved more than 600 different reviewers; 105 papers

were accepted as regular papers, 15 as research notes, and 4 as distinguished papers. Eventually, 2 papers were withdrawn by the authors, and therefore 122 papers are actually included in these proceedings. Papers were submitted from 39 different countries, according to the corresponding author country. Papers were accepted from 27 different countries. The major number of accepted papers came from the USA (22 papers), France and Spain (15 papers each), and Germany and Italy (13 papers each).

Acknowledgments

Different institutions and a number of individuals contributed to Euro-Par 2004 in different ways. The University of Pisa, its Computer Science Department, the National Research Council (CNR) and the ISTI (Institute of Information Science and Technologies) were the main conference institutional sponsors. A number of different industrial sponsors gave their contributions and/or participated in organizing the industrial booths at the conference location. Their names and logos are all collected on the Euro-Par 2004 conference Web site: <http://www.di.unipi.it/europar04>. A special thanks is due to the authors of the submitted papers as well as to the topic committee members and to the reviewers who overall contributed to making this conference possible. Also, the organizing committee thanks the Euro-Par steering committee for the continuous support during the conference organization. Special support was provided by Christian Lengauer, chair of the steering committee and by Harald Kosch, co-organizer of the 2003 Euro-Par conference. A special thanks is for the local organization team, Sonia Campa, Nicola Tonello, Marco Aldinucci, Massimo Coppola, Tiziano Fagni, Alessandro Paccosi, Antonio Panciatici, Diego Puppini, and Fabrizio Silvestri, and for the NORCI team, which solved many problems related to the conference organization and set up.

We all hope that the attendees had a pleasant stay in Pisa at the Euro-Par 2004 conference!

Pisa, June 2004

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Euro-Par 2004 was organized by the University of Pisa, Department of Computer Science and by the Italian National Research Council Institute of Information Science and Technologies.

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