

# Preface

The message passing paradigm is the most frequently used approach to develop high-performance computing applications on parallel and distributed computing architectures. Parallel Virtual Machine (PVM) and Message Passing Interface (MPI) are the two main representatives in this domain.

This volume comprises 50 selected contributions presented at the 11th European PVM/MPI Users' Group Meeting, which was held in Budapest, Hungary, September 19–22, 2004. The conference was organized by the Laboratory of Parallel and Distributed Systems (LPDS) at the Computer and Automation Research Institute of the Hungarian Academy of Sciences (MTA SZTAKI).

The conference was previously held in Venice, Italy (2003), Linz, Austria (2002), Santorini, Greece (2001), Balatonfüred, Hungary (2000), Barcelona, Spain (1999), Liverpool, UK (1998), and Krakow, Poland (1997). The first three conferences were devoted to PVM and were held in Munich, Germany (1996), Lyon, France (1995), and Rome, Italy (1994).

In its eleventh year, this conference is well established as the forum for users and developers of PVM, MPI, and other message passing environments. Interactions between these groups have proved to be very useful for developing new ideas in parallel computing, and for applying some of those already existent to new practical fields. The main topics of the meeting were evaluation and performance of PVM and MPI, extensions, implementations and improvements of PVM and MPI, parallel algorithms using the message passing paradigm, and parallel applications in science and engineering. In addition, the topics of the conference were extended to include cluster and grid computing, in order to reflect the importance of this area for the high-performance computing community.

Besides the main track of contributed papers, the conference featured the third edition of the special session “ParSim 04 – Current Trends in Numerical Simulation for Parallel Engineering Environments”. The conference also included three tutorials, one on “Using MPI-2: A Problem-Based Approach”, one on “Interactive Applications on the Grid – the CrossGrid Tutorial”, and another one on “Production Grid Systems and Their Programming”, and invited talks on MPI and high-productivity programming, fault tolerance in message passing and in action, high-performance application execution scenarios in P-GRADE, an open cluster system software stack, from PVM grids to self-assembling virtual machines, the grid middleware of the NorduGrid, next-generation grids, and the Austrian Grid initiative – high-level extensions to grid middleware. These proceedings contain papers on the 50 contributed presentations together with abstracts of the invited and tutorial speakers' presentations.

The 11th Euro PVM/MPI conference was held together with DAPSYS 2004, the 5th Austrian-Hungarian Workshop on Distributed and Parallel Systems. Participants of the two events shared invited talks, tutorials, the vendors' session, and social events, while contributed paper presentations proceeded in separate

tracks in parallel. While Euro PVM/MPI is dedicated to the latest developments of PVM and MPI, DAPSYS was a major event to discuss general aspects of distributed and parallel systems. In this way the two events were complementary to each other and participants of Euro PVM/MPI could benefit from the joint organization of the two events.

The invited speakers of the joint Euro PVM/MPI and DAPSYS conference were Jack Dongarra, Gabor Dozza, Al Geist, William Gropp, Balazs Konya, Domenico Laforenza, Ewing Lusk, and Jens Volkert. The tutorials were presented by William Gropp and Ewing Lusk, Tomasz Szepieniec, Marcin Radecki and Katarzyna Rycerz, and Peter Kacsuk, Balazs Konya, and Peter Stefan.

We express our gratitude for the kind support of our sponsors (see below) and we thank the members of the Program Committee and the additional reviewers for their work in refereeing the submitted papers and ensuring the high quality of Euro PVM/MPI. Finally, we would like to express our gratitude to our colleagues at MTA SZTAKI and GUP, JKU Linz for their help and support during the conference organization.

September 2004

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