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International Special Session on Current Trends in Numerical Simulation for Parallel Engineering Environments

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6^{th} International Special Session on

Current Trends in Numerical Simulation for Parallel Engineering Environments

New Directions and Work-in-Progress

ParSim 2007

In today's world, the use of parallel programming and architectures is essential for simulating practical problems in engineering and related disciplines. Remarkable progress in CPU architecture (multi- and manycore, SMT, transactional memory, virtualization support, etc.), system scalability, and interconnect technology continues to provide new opportunities, as well as new challenges for both system architects and software developers. These trends are paralleled by progress in parallel algorithms, simulation techniques, and software integration from multiple disciplines.

In its 6^{th} year ParSim continues to build a bridge between computer science and the application disciplines and to help with fostering cooperations between the different fields. In contrast to traditional conferences, emphasis is put on the presentation of up-to-date results with a shorter turn-around time. This offers the unique opportunity to present new aspects in this dynamic field and discuss them with a wide, interdisciplinary audience. The EuroPVM/MPI conference series, as one of the prime events in parallel computation, serves as an ideal surrounding for ParSim. This combination enables the participants to present and discuss their work within the scope of both the session and the host conference.

This year, ten papers with authors in ten countries were submitted to ParSim, and after a quick turn-around, yet thorough review process we decided to accept three of them for publication and presentation during the ParSim session. These three papers show the use of simulation in a range of different application fields including earthquake and turbulence simulation. At the same time, they also address computer science aspects and discuss different parallelization strategies, programming models and environments, as well as scalability. We are confident that this provides an attractive program and that ParSim will yet again be an informal setting for lively discussions and for fostering new collaborations.

Several people contributed to this event. Thanks go to Jack Dongarra, the EuroPVM/MPI general chair, and to Thomas Hérault and Franck Cappello, the PC chairs, for their support to continue the ParSim series at EuroPVM/MPI 2007. We would also like to thank the numerous reviewers, who provided us with their reviews in such a short amount of time (in most cases in just a few days) and thereby helped us to maintain the tight schedule. Last, but certainly not least, we would like to thank all those who took the time to submit papers and hence made this event possible in the first place.

We are confident that this session will fulfill its purpose to provide new insights from both the engineering and the computer science side and encourages interdisciplinary exchange of ideas and cooperations. We hope that this will continue ParSim's tradition at EuroPVM/MPI.

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