Preface

High Performance Scientific Computing is an interdisciplinary area that combines many fields such as mathematics, computer science and scientific and engineering applications. It is a key high-technology for competitiveness in industrialized countries as well as for speeding up development in emerging countries. High performance scientific computing develops methods for computer aided simulation and optimization of systems and processes. In practical applications in industry and commerce, science and engineering, it helps to save resources, to avoid pollution, to reduce risks and costs, to improve product quality, to shorten development times or simply to operate systems better.

Different aspects of scientific computing have been the topics of the Third International Conference on High Performance Scientific Computing held at the Hanoi Institute of Mathematics, Vietnamese Academy of Science and Technology (VAST), March 6-10, 2006. The conference has been organized by the Hanoi Institute of Mathematics, Ho Chi Minh City University of Technology, Interdisciplinary Center for Scientific Computing (IWR), Heidelberg, and its International PhD Program "Complex Processes: Modeling, Simulation and Optimization".

The conference had about 200 participants from countries all over the world. The scientific program consisted of more than 130 talks, 10 of them were invited plenary talks given by John Ball (Oxford), Vincenzo Capasso (Milan), Paolo Carloni (Trieste), Sebastian Engell (Dortmund), Donald Goldfarb (New York), Wolfgang Hackbusch (Leipzig), Satoru Iwata (Tokyo), Hans Petter Langtangen (Oslo), Tao Tang (Hong Kong) and Philippe Toint (Namur).

Topics were mathematical modelling, numerical simulation, methods for optimization and control, parallel computing, software development, applications of scientific computing in physics, chemistry, biology and mechanics, environmental and hydrology problems, transport, logistics and site location, communication networks, production scheduling, industrial and commercial problems.

This proceeding volume contains 44 carefully selected contributions referring to lectures presented at the conference. We would like to thank all contributors and referees.

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