

# Preface

In the pursuit of maintaining exponential growth in the performance of high-performance computers, the HPC community is currently targeting Exascale systems. The initial planning for Exascale already started when the first Petaflop system was delivered. Many challenges need to be addressed to reach the required performance level. Scalability, energy efficiency, and fault-tolerance need to be increased by orders of magnitude. The goal can only be achieved when advanced hardware is combined with a suitable software stack. In fact, the importance of software is rapidly growing. As a result, many international projects focus on the necessary software. The International Exascale Software Project (IESP), the European Exascale Software Initiative (EESI), and the Virtual Institute for High Productivity Supercomputing (VI-HPS) are examples. They all share the view that tools are of components of the software stack.

The Parallel Tools Workshop that took place in Dresden on September 26–27, 2011, is the fifth in a series of workshops that started in 2007 at the High Performance Computing Center Stuttgart (HLRS). The goal of this series is to bring together tool developers and users from science and industry in an interactive environment. Participants from research and developers from science and industry were invited to this interactive workshop which attracted scientists from all over the world.

This year's presentations have been in the fields of System Management, Parallel Debugging and Performance Analysis from a wide range of scientific and industrial tool developers. This includes tools from vendors such as Allinea, ClusterVision, Intel, Rogue Wave Software, and SysFera, as well as research institutions, including Technische Universität Dresden, Universität Erlangen, University of Oregon, and Rice University. Contribution from research and computer centers came from Barcelona Supercomputing Center, Research Center Jülich, Karlsruhe Institute

of Technology, Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory, Pacific Northwest National Laboratory, and the High Performance Computing Center Stuttgart.

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