Hans P. Zima · Kazuki Joe
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4th International Symposium, ISHPC 2002
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Proceedings

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Preface

I wish to welcome all of you to the International Symposium on High Performance Computing 2002 (ISHPC 2002) and to Kansai Science City, which is not far from the ancient capitals of Japan: Nara and Kyoto. ISHPC 2002 is the fourth in the ISHPC series, which consists, to date, of ISHPC '97 (Fukuoka, November 1997), ISHPC '99 (Kyoto, May 1999), and ISHPC 2000 (Tokyo, October 2000). The success of these symposia indicates the importance of this area and the strong interest of the research community. With all of the recent drastic changes in HPC technology trends, HPC has had and will continue to have a significant impact on computer science and technology. I am pleased to serve as General Chair at a time when HPC plays a crucial role in the era of the IT (Information Technology) revolution.

The objective of this symposium is to exchange the latest research results in software, architecture, and applications in HPC in a more informal and friendly atmosphere. I am delighted that the symposium is, like past successful ISHPCs, comprised of excellent invited talks, panels, workshops, as well as high-quality technical papers on various aspects of HPC. We hope that the symposium will provide an excellent opportunity for lively exchange and discussion about directions in HPC technologies and all the participants will enjoy not only the symposium but also their stay in Kansai Science City.

This symposium would not have been possible without the great help of many people who have devoted a tremendous amount of time and effort. I thank all those who have worked diligently to make ISHPC 2002 a great success. In particular I would like to thank Organizing Chair Takashi Arisawa of JAERI-KRE and the Organizing Committee members for their significant contribution to the planning and organization of ISHPC 2002. I would also like to thank the Program Chair Hans Zima of the University of Vienna/Jet Propulsion Laboratory/CalTech, Program Co-chair Mateo Valero of UPC (architecture track), William Gropp of Argonne National Laboratory (software track), Yoshitoshi Kunieda of Wakayama University (applications track), and the program committee members for their contribution to a technically excellent symposium program. Thanks are due to Workshop Chair Mitsuhisa Sato of the University of Tsukuba and Yoshiki Seo of NEC for organizing workshops on timely selected topics.

A last note of thanks goes to the Kayamori Foundation of Information Science Advancement, NEC, Fujitsu, Japan IBM, Japan SGI, KGT, Sumisho Electronics, and Mitsubishi Space Software for sponsoring the symposium.

May 2002 Masaaki Shimasaki

Foreword

The 4th International Symposium on High Performance Computing (ISHPC 2002, Kansai Science City, Japan, May 15–17, 2002), has been thoughtfully planned, organized, and supported by the ISHPC Organizing Committee and collaborative organizations.

The ISHPC 2002 program consists of three keynote speeches, several invited talks, workshops on OpenMP and HPF, two panel discussions, and several technical sessions covering theoretical and applied research topics on high performance computing which are representative of the current research activity in industry and academia. Participants and contributors to this symposium represent a cross section of the research community and major laboratories in this area, including the Kansai Research Establishment of the Japan Atomic Energy Research Institute, the Japan Society for Simulation Technology, SIGARCH and SIGHPC of the Information Processing Society Japan, and the Society for Massively Parallel Processing.

All of us on the program committee wish to thank the authors who submitted papers to ISHPC 2002. We received 57 technical contributions from 17 countries. Each paper received at least 3 peer reviews and, based on the evaluation process, the program committee selected 18 regular (12-page) papers. Since several additional papers received favorable reviews, the program committee recommended a poster session comprised of short papers. A total of 12 contributions were selected as short (8-page) papers for presentation in the poster session and inclusion in the proceedings.

The program committee also recommended two awards for regular papers: a distinguished paper award and a best student paper award. The distinguished paper award has been given to "Language and Compiler Support for Hybrid-Parallel Programming on SMP Clusters" by Siegfried Benkner and Viera Sipkova, and the best student paper award has been given to "Parallelizing Merge Sort onto Distributed Memory Parallel Computers" by Minsoo Jeon.

ISHPC 2002 has collaborated closely with two workshops: the second International Workshop on OpenMP: Experiences and Implementations (WOMPEI 2002) organized by Mitsuhisa Sato of the University of Tsukuba, and the first HPF International Workshop: Experiences and Progress (HiWEP 2002) organized by Yoshiki Seo of NEC. Invitation based submission was adopted by both workshops. The ISHPC 2002 program committee decided to include all papers of WOMPEI and HiWEP in the proceedings of ISHPC 2002.

We hope that the final program is of significant interest to the participants and serves as a launching pad for interaction and debate on technical issues among the attendees.

May 2002 Hans Zima

Foreword to WOMPEI

OpenMP is an emerging industry standard interface for shared memory programming of parallel computer applications. OpenMP allows applications written for the shared memory programming model to be portable to a wide range of parallel computers.

WOMPEI 2002 follows a series of workshops on OpenMP, such as WOMPAT 2001, EWOMP 2001, and WOMPEI 2000. This is the second OpenMP workshop held in Japan. It is part of the cOMPunity initiative to disseminate and exchange information about OpenMP.

The workshop consists of 2 invited talks, from SPEC HPG and OpenMP ARB, and 10 contributed papers. They report on some of the current research and development activities including tools and compilers for OpenMP, as well as experiences in the use of the language. We are also very pleased to have a joint panel discussion with HiWEP 2002 on "the parallel programming interface of the future."

We would like to thank the ISHPC Organizing Committee for giving us the opportunity to organize WOMPEI as part of the symposium. We would also like to thank the Program Committee, the cOMPunity, and the OpenMP ARB for their support. We hope that the program will be of interest to the OpenMP community and will serve as a forum for discussion on technical and practical issues related to OpenMP.

Mitsuhisa Sato
Eduard Ayguade

Foreword to HiWEP 2002

High Performance Fortran is a data parallel language that makes it possible to program efficient parallel codes for distributed memory parallel systems with minimal effort. Last year, several vendors started to provide long-awaited compilers that could be used for real parallelization with the help of JAHPF efforts. In the HUG 2000 meeting held in Tokyo in October 2000, many successful results using HPF were presented.

This workshop, HiWEP 2002, addresses recent progress in HPF software and experiences with programming in HPF and other distributed-parallel programming paradigms. HiWEP 2002 is organized as a workshop in association with ISHPC 2002 and consists of one keynote address, one invited talk, six contributed papers, and several short talks. We would like to thank the ISHPC 2002 Organizing Committee for giving us this opportunity. We are also very glad to have a joint panel discussion with WOMPEI on the future of parallel programming interfaces.

Kunihiko Watanabe
Yoshiki Seo
Yasuo Okabe

Organization

ISHPC 2002 is organized by the ISHPC Organizing Committee in cooperation with the Kansai Research Establishment of the Japan Atomic Energy Research Institute, the Japan Society for Simulation Technology, SIGARCH and SIGHPC of the Information Processing Society Japan, and the Society for Massively Parallel Processing.

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