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Preface

ISC High Performance Computing—formerly known as the International Supercomputing Conference—was founded in 1986 as the Supercomputer Seminar. Originally organized by Hans Meuer, Professor of Computer Science at the University of Mannheim, and former director of its computer center, the 1986 edition of the seminar brought together a group of 81 scientists and industrial partners who shared an interest in high-performance computing (HPC). Since then, the annual conference has become a major international event within the HPC community, growing beyond its humble beginnings, and moving out of Mannheim into other cities throughout the years: Frankfurt, Heidelberg, Dresden, Hamburg, Leipzig, and this year back to Hamburg. Prior to the coronavirus pandemic, the conference had seen a steady increase in the number of submissions of high-quality research papers and corresponding growth in the number of conference attendees. Benefiting from the improving health indicators, ISC-HPC 2022 was again held in person in Hamburg.

The call for papers to ISC-HPC 2022 was issued in Fall 2021, inviting the researchers, developers, and practitioners alike to submit their latest results for consideration for one of the five conference tracks: (1) Architecture, Networks, and Storage; (2) HPC Algorithms and Applications; (3) Machine Learning, AI, and Emerging Technologies; (4) Performance Modeling, Evaluation, and Analysis; and (5) Programming Environments and Systems Software. In all, 53 full submissions were received from authors all over the world. The Research Papers Program Committee consisted of 71 members from 18 countries. After initial reviews were completed, a rebuttal process offered authors an opportunity to respond to reviewers' questions and help clarify issues the reviewers might have had. A virtual Program Committee meeting was held to discuss all the papers and to finalize consensus on the papers. Finally, the committee selected 18 papers for publication.

For the past several years, the ISC-HPC conference has presented an ISC-sponsored award to encourage outstanding research in HPC and to honor the overall best research paper submitted to the conference. Four years ago, this annual award was renamed in memory of the late Dr. Hans Meuer, who was general chair of the ISC-HPC conference from 1986 through 2014, and a co-founder of the TOP500 project. This year, from all research papers submitted, the Best Paper Committee selected the best paper based on its technical merit, its novelty, and impact on the HPC community. During a live ceremony, the following paper was awarded the Hans Meuer Award: *Remote OpenMP Offloading* by Atmn Patel from University of Waterloo, Canada, and Johannes Doerfert from Argonne National Laboratory, USA. The paper extended the canonical scope of OpenMP, which is traditionally confined to a shared memory domain, by utilizing the standard's modern features to offload the computational workload to GPU accelerators housed in remote cluster nodes. The Best Paper Committee appreciated the paper's unique combination of OpenMP familiarity and ease of use with accelerated and distributed computing that were accompanied by analysis of scaling capabilities. The winning paper also showed the

solution's versatility and how it could use multiple transport layers, each of which offers a different set of trade-offs between performance, portability, and scalability potential.

As the chairs of the Research Papers Committee, we would like to express our gratitude to our colleagues for submitting high-quality papers to all five ISC-HPC scientific tracks. Also, we wish to extend our thanks to the track, area, and conflict chairs, as well as the members of the Best Paper Committee, and finally to the Research Papers Committee that provided the reviews and manuscript evaluation throughout the submission stages. We hope to express our thanks in person during this year's meeting and upcoming ISC-HPC 2023.

May 2022

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