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# High Performance Computing

ISC High Performance Digital 2021 International Workshops  
Frankfurt am Main, Germany, June 24 – July 2, 2021  
Revised Selected Papers

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# Preface

The ISC High Performance 2021 conference was planned to be held in Frankfurt, Germany. Due to the severe impact of COVID-19 and the travel restrictions, the 36th edition of ISC was rescheduled to be conducted online as ISC 2021 Digital during June 24 – July 2, 2021.

In the organization and realization of this second fully virtual edition of the conference series, the organizing team around Martin Schultz (TU Munich) heavily benefited from the lessons learned during ISC 2020 Digital and the countless virtual meetings everyone had experienced throughout the past year. The steep learning curve and thorough preparation to cater to the needs of HPC enthusiasts manifested in 2,051 attendees from 51 countries.

Like in previous years, ISC 2021 Digital was accompanied by the ISC High Performance workshop series. Being under the assumption that 2021 would bring back in-person meetings we, Heike Jagode and Hartwig Anzt as the ISC 2020 Digital Workshop Chair and Deputy Chair, respectively, committed to remain in our positions for the ISC 2021 edition. To make up for the virtual realization of the 2020 workshops, all 23 workshops accepted for ISC 2020 were allowed to roll over to the 2021 edition without a new call for workshop proposals. In the end, 19 workshops used that opportunity, even though the plans for an in-person meeting had to be postponed again. This extremely strong outcome reveals a significant interest and commitment of the workshop organizers, and we gratefully acknowledge their strong contributions to ISC 2021 Digital.

Like in the previous edition, the ISC workshops were composed of workshops with and without proceedings. While we had 12 workshops with proceedings, only the following nine workshops decided to publish their papers in this year's proceedings:

- Second International Workshop on the Application of Machine Learning Techniques to Computational Fluid Dynamics and Solid Mechanics Simulations and Analysis
- HPC-IODC: HPC I/O in the Data Center Workshop
- Compiler-assisted Correctness Checking and Performance Optimization for HPC
- Machine Learning on HPC Systems
- 4th International Workshop on Interoperability of Supercomputing and Cloud Technologies
- 2nd International Workshop on Monitoring and Operational Data Analytics
- 16th Workshop on Virtualization in High-Performance Cloud Computing
- Deep Learning on Supercomputers
- 5th International Workshop on In Situ Visualization

We, Hatem Ltaief and Piotr Luszczek, teamed up as Proceedings Chair and Deputy Chair, respectively, and managed the organization of the workshops' proceedings. Given all of these challenges, the quality of this year's ISC workshops proceedings is

remarkable. In total, we have 35 high-quality papers that all underwent thorough reviews. Each chapter of the book contains the accepted and revised papers for one of the workshops. For some workshops, an additional preface describes the review process and provides a summary of the outcome.

For a second time we hope that, perhaps next year, we will be able to once again host the ISC High Performance workshops in person. Until then, we want to thank our workshops committee members, organizers of workshops, and all contributors and attendees of the ISC Digital 2021 workshops, and we are proud to present the latest findings on topics related to research, development, and the application of large-scale, high-performance systems.

August 2021

Heike Jagode  
Hartwig Anzt  
Hatem Ltaief  
Piotr Luszczek

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