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HPC-AI Advisory Council and ISC Group Announce Winners of 10th Annual ISC Student Cluster Competition

13 undergraduate teams demonstrated advanced mastery of complex disciplines and more

SUNNYVALE, CA – Jul. 9 2021 – The HPC-AI Advisory Council (HPCAIAC) in collaboration with the ISC Group revealed the top performers in the 10th annual ISC Student Cluster Competition. Remaining an all remote competition for a second year, the annual global competition culminated with an award ceremony broadcast as part of the virtual ISC High Performance conference proceedings this week. The four teams to garner top awards for 2021 included: Universitat Politècnica de Catalunya (UPC, Catalonia/Spain), *Fan Favorite*; Sun Yat-Sen University (SYSU, China), *Honorable Mention*; Jinan University (JNU, China) *Third Place*; Nanyang Technological University (NTU, Singapore), *Second Place*; and the first team to win two major awards in an ISC competition, earning both the highest overall Linpack and overall competition scores, Tsinghua University (TU, China) returned as the 2021 ISC SCC first place winner.

The international competition brought together 13 teams across seven locations around the world, with a total of seventy-two students completing the 2021 competition:

Team	Location
UHEI: Universität Heidelberg	Germany
CIUK: University of Edinburgh	UK
CHPC: Centre for High Performance Computing	South Africa

HPCAIAC, ISC, 2020 SCC Awards

NCKU: National Cheng Kung University	Taiwan
NTHU: National Tsing Hua University	Taiwan
STU: ShanghaiTech University	China
USTC: University of Science and Technology	China
XJTU: Xi'an Jiaotong University	China

Aligned with the ISC High Performance conference digital-delivery, organizers rebooted the second year of the all remote SCC, garnering added support from Canada's University of Toronto, SciNet Supercomputing Centre with the ongoing support of the National Supercomputing Centre (NSCC) Singapore. The prestigious institutions provided generous allocations of supercomputer system time to the teams on their highly utilized and in-demand production resources.

Immersed in mentoring to become proficient on each center's resources and competition challenges, teams competed using the same system configurations at both centers and depended on their combined skills and knowledge to tackle the competitions complex challenges. In addition to standard High Performance LINPACK (HPL), HPC Challenge (HPCC), and High Performance Conjugate Gradient (HPCG) micro-benchmarks, the new HPC applications and coding challenge introduced were: Weather Research and Forecasting Model (WRF); classic molecular dynamics with focus on materials modeling (LAMMPS); atomic scale quantum mechanical simulations and density-functional theory (GPAW); and a de novo metagenome short read-assembler (MHM2). Focused on MPI profiler, the coding challenge required teams to perform deep analysis of GPAW and WRF inputs and MPI _alltoally profiler calls of differing amounts of data sent to/received from all processes as well as adding heatmap support for the web GUI and several other challenges.

The all remote members and competitors competed across time zones for five weeks. Awards were based on the three highest cumulative team scores that calculated the combined score from the application runs, innovation and team interviews.

Surprising the experts and judges responsible for developing the competition challenges and refereeing team interviews and final scoring, the 2021 student competitors were lauded for their advanced capabilities and collaborative spirit and for several unique community contributions: upstream open source bug fixes; use of forgotten option already being rewritten for WRF; code integration to enhance profiler (analyze/trace); as well as completing all the challenges including the two bonus tasks.

“The competition exposes undergraduates to graduate level expectations and experiences,” said Gilad Shainer, chairman of the HPC-AI Advisory Council. “Teams are not only performing comparably, they’re already contributing back to the community. The capabilities they’re developing here as students, graduates and our future are inspiring.”

Marking the official end of the competition, preparations are already underway for the opening of the next call for participation in August and annual roster reveal in November.

For more information: www.hpcadvisorycouncil.com/events/student-cluster-competition

About ISC Group

The ISC Group organizes ISC High Performance, the world’s oldest and Europe’s premier conference and networking event for the international HPC community. More: www.isc-hpc.com

About HPC-AI Advisory Council

Founded in 2008, The HPC-AI Advisory Council (HPCAIAC) is a community benefit organization with over 400 members committed to promoting HPC and AI through education and outreach. More: www.hpcadvisorycouncil.com

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