Challenges of Exascale Computing

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Abstract

The U.S. Department of Energy established in 2016 the Exascale Computing Project (ECP) – a joint project of the DOE Office of Science (DOE-SC) and the DOE National Nuclear Security Administration (NNSA) – that will result in an exascale ecosystem and prepare mission critical scientific and engineering applications to take ad-vantage of that ecosystem. To achieve this mission the ECP conducts the project activities in a holistic co-design manner, involving developers of applications, middleware, vendors of HPC systems, and the facilities that will acquire and operate the exascale systems. This presentation will describe the goals of the Exascale Computing Project ECP, its approach to achieving them, and its current status, with special emphasis on the challenges to be overcome, both technical and those that arise in the co-design process. Please join us to learn about the challenges and opportunities of achieving exascale computing and the progress to date from the perspective of the U.S. Exascale Computing Project.

Bio

Paul Messina is the Director of U.S. Exascale Computing Project and Argonne Distin-guished Fellow at Argonne National Laboratory. ECP is a collaborative effort of two U.S. Department of Energy organizations the Office of Science (DOE-SC) and the National Nuclear Security Administration (NNSA). Previously, Paul Messina served as Distin-guished Senior Computer Scientist at Argonne and as Adviser to the Director General at CERN (European Organization for Nuclear Research). Additional information about Paul Messina can be found at https://www.alcf.anl.gov/staff-directory/paul-c-messina

Faculty Host: Manish Parashar, in collaboration with RDI2