Los Alamos announces details of new Crossroads supercomputer

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LOS ALAMOS, N.M., Sept. 30, 2020—The Alliance for Computing at Extreme Scale (ACES), a partnership between Los Alamos National Laboratory and Sandia National Laboratories, announced the details of a $105 million contract awarded to Hewlett Packard Enterprise (HPE) to deliver Crossroads, a next-generation supercomputer to be sited at Los Alamos.

“This machine will advance our ability to study the most complex physical systems for science and national security. We look forward to its arrival and deployment,” said Jason Pruet, Los Alamos’ Program Director for the Advanced Simulating and Computing (ASC) Program.

Crossroads will replace the existing Trinity supercomputer and will be used by scientists at Lawrence Livermore, Los Alamos, and Sandia National Laboratories to support the Stockpile Stewardship Program, current and planned weapons Life Extension Program activities, and future predictive weapons research and calculations.

Crossroads will be composed of the HPE Cray EX Supercomputer which includes the Cray Shasta architecture with next-generation liquid cooling capabilities and the HPE Slingshot interconnect. It will also feature Intel’s® future Xeon Sapphire Rapids processors with an advanced memory architecture that will enable much faster data movement. Crossroads will have four times greater overarching system performance and enable easier code portability than its predecessor Trinity system.

“Sandia is pleased to be part of the ACES team, and we anticipate that the Crossroads supercomputer will be highly efficient at running the largest physics and engineering calculations in support of our nation’s nuclear deterrent,” said S. Scott Collis, Director of the Center for Computing Research at Sandia National Laboratories.

Crossroads is funded by the Department of Energy National Nuclear Security Administration (NNSA) ASC program.

“Crossroads will serve the needs of the weapons community in performing ever more complex calculations that underpin the success of our nation’s Stockpile Stewardship Program,” said Thuc Hoang, Acting Director of NNSA ASC program.

“HPE has a long history in designing a number of HPC systems for the NNSA, and today’s announcement further builds on our commitment to deliver powerful and diverse architectures required for critical research missions in maintaining the reliability and security of the nation’s nuclear stockpile,” said Bill Mannel, vice president and general manager of HPC at HPE. “In this collaboration with Los Alamos National Laboratory

and Sandia National Laboratories, we are significantly advancing existing resources for NNSA research with the HPE Cray EX supercomputer, which combines the Cray Shasta architecture and industry-leading HPC software and networking interconnect. We are also quadrupling performance with combined technologies featuring advanced compute, I/O, memory, networking and software to enable faster and more efficient performance for current and future projects."

About Sandia National Laboratories

Sandia National Laboratories is a multimission laboratory operated by National Technology and Engineering Solutions of Sandia LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration. Sandia Labs has major research and development responsibilities in nuclear deterrence, global security, defense, energy technologies and economic competitiveness, with main facilities in Albuquerque, New Mexico, and Livermore, California.

About Hewlett Packard Enterprise

Hewlett Packard Enterprise is the global edge-to-cloud platform-as-a-service company that helps organizations accelerate outcomes by unlocking value from all of their data, everywhere. Built on decades of reimagining the future and innovating to advance the way we live and work, HPE delivers unique, open and intelligent technology solutions, with a consistent experience across all clouds and edges, to help customers develop new business models, engage in new ways, and increase operational performance.