

# Trinity supercomputer now fully operational

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Now one of the fastest supercomputers in the United States, the Trinity Supercomputer Phase II project was completed during the summer of 2017, and the computer became fully operational during an unclassified “open science” run. The computer has now transitioned to classified mode.

The Trinity supercomputer is designed to provide increased computational capability for the NNSA Nuclear Security Enterprise in support of increasing geometric and physics fidelities in nuclear weapons simulation codes, while maintaining expectations for total time to solution. The capabilities of Trinity are required for supporting the NNSA Stockpile Stewardship program’s certification and assessments to ensure that the nation’s nuclear stockpile is safe, secure and effective.

With an expected operational lifetime through 2020, Trinity is an approximately 41.5 petaflop (41.5 million billion calculations per second, peak performance) supercomputer based on the Cray XC40 architecture. It consists of 19,420 compute nodes utilizing two

processor architectures, Intel Xeon Haswell and Intel Xeon Phi Knights Landing. It is a water-cooled system with a power requirement of about 10 megawatts.

The Trinity project is managed and operated by Los Alamos National Laboratory and Sandia National Laboratories under the Alliance for Computing at Extreme Scale (ACES) partnership. The system is located at the Nicholas Metropolis Center for Modeling and Simulation at Los Alamos and covers approximately 5,200 square feet of floor space.

For more about open science on Trinity, see [Computer learns how to imagine the future](#).

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