

Office of Research, Development, Test, and Evaluation (RDT&E)

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RDT&E's Mission Explained

DESIGN

***new materials, technology, production processes, and systems** for current and future stockpile needs.*

ASSESS

*the stockpile's current condition annually through scientific investigation to **establish confidence** in its **safety, security, and reliability**.*

CERTIFY

***new and modified components and systems** as they enter the stockpile through vigorous testing in normal, abnormal, and hostile environments.*

These three mission responsibilities enables the U.S. to have confidence in the nuclear stockpile of today and tomorrow

Recent Accomplishments

- El Capitan – World's Fastest and Most Advanced Supercomputer
- Nuclear Weapons Innovation Process
- Stockpile Responsiveness – Establishing a Commercial Flight Capability
- Executed TWIN PEAKS subcritical experiment



How big is exascale?

Size comparison of El Capitan to other HPC.

El Capitan
>2 exaflops | 2024

Sierra
125 petaflops | 2018
Sequoia
20 petaflops | 2012
BG/L
596 teraflops | 2007
Purple
93 teraflops | 2004
White
12 teraflops | 2000
Blue Pacific
3.6 teraflops | 1998