ASC Timeline

In FY 1996, ASCI Red was delivered. Red, the world's first teraOPS supercomputer, has since been upgraded to more than 3-teraOPS.

In FY 1998, ASCI Blue Pacific and ASCI Blue Mountain were delivered. These platforms were the first 3-teraOPS systems in the world.

In FY 2000, ASCI successfully demonstrated the first-ever three dimensional (3-D) simulation of a nuclear weapon primary explosion and the visualization capability to analyze the results; ASCI successfully demonstrated the first-ever 3-D hostile-environment simulation; and ASCI accepted delivery of ASCI White, a 12.3-teraOPS supercomputer.

In FY 2001, ASCI successfully demonstrated simulation of a 3-D nuclear weapon secondary explosion; ASCI delivered a fully functional, problem solving environment for ASCI White; ASCI demonstrated high-bandwidth distance computing among the three national laboratories; and ASCI demonstrated the initial validation methodology for early primary behavior. Lastly, ASCI completed the 3-D analysis for a stockpile-to-target sequence (STS) for normal environments.

In FY 2002, ASCI demonstrated 3-D system simulation of a full-system (primary and secondary) thermonuclear weapon explosion, and ASCI completed the 3-D analysis for an STS abnormal-environment crash-and-burn accident involving a nuclear weapon.

In FY 2003, ASCI delivered a nuclear safety simulation of a complex, abnormal, explosive initiation scenario; ASCI demonstrated the capability of computing electrical responses of a weapons system in a hostile (nuclear) environment; and ASCI delivered an operational 20-teraOPS platform on the ASCI Q machine.

In FY 2004, ASC provided simulation codes with focused model validation to support the annual certification of the stockpile and to assess manufacturing options. ASC supported the life-extension refurbishments of the W76 and W80, in addition to the W88 pit certification. ASC also provided the simulation capabilities to design various nonnuclear experiments and diagnostics.

In FY 2005, ASC identified and documented Stockpile Stewardship Program requirements to move beyond a 100-teraOPS computing platform to a petaOPS-class system; ASC delivered a metallurgical structural model for aging to support pit-lifetime estimations, including spiked-plutonium alloy.

By FY 2006, ASC will deliver the capability to perform nuclear performance simulations and engineering simulations related to the W76/W80 LEPs to assess performance over relevant operational ranges, with assessments of uncertainty levels for selected sets of simulations. The deliverables of this milestone will be demonstrated through 2-D and 3-D physics and engineering simulations. The engineering simulations will analyze system behavior in abnormal thermal environments and mechanical response of systems to hostile blasts. Additionally, confidence measures and methods for uncertainty quantification will be developed to support weapons certification Level 1 milestones.

By FY 2007, ASC will support the completion of the W76-1 and W88 warhead certification, using quantified design margins and uncertainties.

By FY 2008, ASC will deliver the codes for experiment and diagnostic design to support the CD-4 approval on the National Ignition Facility (NIF). In addition, a high-capability platform will be sited.

By FY 2009, a modern baseline of all enduring stockpile systems will be completed, using FY07 and FY08 ASC code releases.

In FY 2010 and beyond, ASC will continue to deliver codes for experiment and diagnostic design to support the indirect-drive ignition experiments on the NIF.

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