

# U.S. Navy-Lockheed Martin Team Conducts First At-Sea Test Of Aegis Open Architecture

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A collaborative U.S. Navy-industry team, led by Lockheed Martin, successfully demonstrated the portability of open architecture software with the Aegis Weapon System at sea during USS Bainbridge's (DDG 96) Combat Ship Systems Qualification Trials.

In the spirit of the Aegis tradition of "build a little, test a little, learn a lot," USS Bainbridge operated a SPY-1D(V) Aegis Open Architecture computer program supporting a series of live, at-sea events to detect, track, and perform successful simulated Standard Missile engagements against a variety of targets in an adverse electronic counter measures environment. The SPY-1D(V) open architecture computer program is designed to operate on multiple computing platforms and was easily installed onboard USS Bainbridge as the ship prepared to go to sea. After the exercise was completed, the deployment-certified SPY-1D(V) software configuration was reinstalled while the ship was at sea.

Aegis Open Architecture computer programs are a cornerstone for the modernization of the Navy's Aegis-equipped cruisers and destroyers. Beginning with USS Bunker Hill in 2008, Aegis Open Architecture will be introduced to the fleet. The evolution to open architecture will enable the Navy to readily incorporate software updates and the latest computing hardware in its Aegis systems, ensuring that those systems are maintained at the highest level of capability while employing low-cost, off-the-shelf solutions.

"This at-sea test is a significant milestone that clearly demonstrated the realization of the promise of Aegis Open Architecture," said Cmdr. John Ailes of the U.S. Navy's Program Executive Office for Integrated Warfare Systems. "It showed that Open SPY radar control program that was developed for SPY-1A and SPY-1B ships in support of cruiser modernization can be rapidly and easily adapted for the destroyer's SPY-1D(V) radar system."

Aegis Open Architecture is a Navy and industry collaborative initiative that includes Lockheed Martin, the Navy's Surface Warfare Center (NSWC), Dahlgren Division and the office of the Aegis Technical Representative in Moorestown. Through the collaboration of experienced Navy engineers from NSWC Dahlgren and the Aegis Technical Representative, Aegis Open Architecture efforts fully leverage community-wide Aegis expertise. Lockheed Martin also has involved its long-time Aegis software engineering partner, Computer Sciences Corporation, together with several additional business partners who provide a variety of engineering services and expertise, including: AS&T; Basic Commerce & Industries, Inc.; Chariot; DRS; Keystone; Northrop Grumman; Technology Services Corporation and Real-Time Innovations, Inc.

"This successful at-sea test represents a key milestone on the disciplined spiral approach to evolve the current Aegis software architecture and computing environments while sustaining the backbone of the Navy's surface force," said Orlando Carvalho, vice president and general manager of Lockheed Martin's Surface-Sea Based Missile Defense (SBMD) Systems business unit. "Beyond the modernization value to Aegis, we are developing Aegis Open Architecture so that the technology is transportable across all of the Navy's surface force, providing extensive commonality and linkage in a way that reduces acquisition and certification risks and cost."

Lockheed Martin's approach to open architecture is built on nearly a decade of "open system, rapid capability" deliveries to the Navy, including combat system, sonar, communications and electronic warfare capabilities. For example, Lockheed Martin's Acoustic Rapid Commercial Off-The-Shelf Insertion (ARCI) program provides open architecture solutions for the Navy's submarine force. Since 1998, more than 50 ARCI systems have been installed on 40 submarines, consistently on schedule and under budget.

The Aegis Weapon System is the world's premier naval surface defense system and is the foundation for Aegis Ballistic Missile Defense, the primary component of the sea-based element of the U.S. Ballistic Missile Defense System. The Aegis Weapon System includes the SPY-1 radar, the Navy's most advanced computer-controlled radar system. When paired with the MK-41 Vertical Launching System, it is capable of delivering missiles for every mission and threat environment in naval warfare.

The Aegis Weapon System is currently deployed on 78 ships around the globe, with more than 25 additional ships planned. In addition to the U.S. Navy, Aegis is the maritime weapon system of choice for Australia, Japan, South Korea, Norway and Spain.

Headquartered in Bethesda, MD, Lockheed Martin employs about 135,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services.

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