

SSGN CONVERSION PROGRAM

Transforming legacy submarines into flexible launch platforms

Features

- High reliability mission critical hardware and software
- Standardized interfaces
- Open architecture framework
- Commercial-off-the-shelf (COTS) technology
- Payload Flexibility



The SSGN conversion program transformed four fleet ballistic missile submarines (SSBN) into unique and powerful platforms for combatant commanders to carry out a variety of missions.

The SSGN, with its ability to carry a large Special Operations Force, coupled with its Tomahawk strike capability and inherent stealth characteristics embodies a new level of adaptable warfare that is suited for today's littoral waters security environment. Each SSGN has 22 large diameter launch tubes, each 40-foot long and more than seven feet wide. An advantage of SSGNs' size is their ability to carry a variety of payloads, including vehicles supporting special operations forces and providing intelligence, surveillance and reconnaissance capabilities.

General Dynamics Advanced Information Systems developed the launch control system for the SSGN large tubes and integrated the launch control system, the Tomahawk Weapon Control System, the Tomahawk Communications System and Mission Distribution System into the Attack Weapon Control System. This system has been battle-tested and proven through the successful participation of USS Florida (SSGN 728) in Operation Odyssey Dawn.

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General Dynamics' Open Architecture Framework Lowers Cost and Reduces Risk for Future Payloads

The SSGN weapon control system uses an open architecture framework, which lowers costs by allowing integration of new payloads and capabilities with minimal impacts to the overall system. By adapting industry electronic standards, the General Dynamics team was able to incorporate COTS components into the launch control system. The weapon system partitions functionality allowing the missile tube to accommodate launch functions specific to a new payload. A centralized launch controller coordinates launch of multiple payloads and resolves resource contentions. The architecture uses industry standard Internet Protocol and Ethernet to provide communications between the payload controller and tube interface electronics.

Integrating New Payloads

New encapsulation methods currently under development could allow SSGNs to carry a wide variety of payloads, from future littoral warfare weaponry to unmanned underwater or aerial vehicles. The SSGN Attack Weapon Control System architecture and open computing systems facilitate the insertion of these future capabilities and equipment into SSGNs. These same features support use of the SSGN as a test platform to develop future weapons, sensors and operational concepts. General Dynamics has proven capability to safely and effectively integrate existing weapon controllers with ship and launcher systems, resulting in new capabilities on an existing platform designed to use these capabilities when needed.

A History of Reliable Systems

General Dynamics develops the most reliable fire control systems in the Navy's inventory – those of the Ohio-class ballistic missile submarines (SSBNs) – and applies its expertise and experience to build an SSGN weapon control system that has the capability and flexibility to expand into future payloads. General Dynamics' performance on these programs resulted in a record of accomplishment delivering highly reliable systems and software ahead of schedule and under budget.



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