NSWC Crane Strategic Missions Center

INTEGRATED MISSILE DEFENSE

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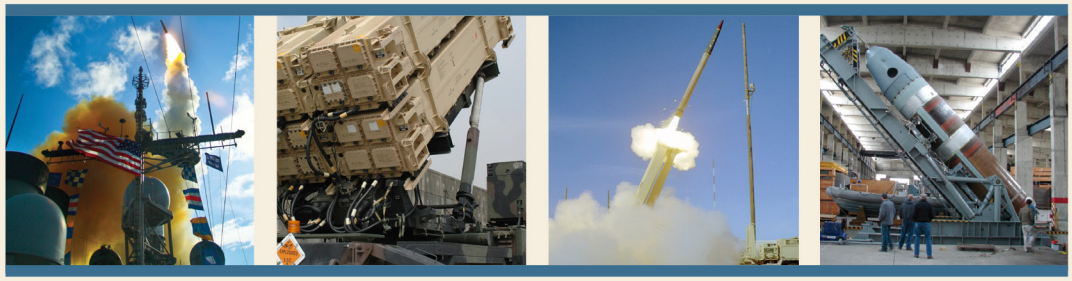

Strategic Missions Center at Naval Surface Warfare Center, Crane Division (NSWC Crane) provides the Warfighter with a full range of capabilities and technologies to alter an adversary's will and ability to attack the U.S. and its interests.

NSWC Crane's focus on Integrated Missile Defense allows for the development, deployment and sustainment of the technologies that ensure strategic systems are fully reliable and always available for defending the homeland.

Supporting the Warfighter

Integrated Missile Defense (IMD) provides the technologies necessary for the military to respond accurately to a detected threat. Once a perceived threat is realized, technologies supported by IMD are used to determine the nature of the threat, its path and most importantly—how to best respond.

Strong, ready and available missile defense systems are imperative to national defense response. Systems such as Terminal High Altitude Area Defense (THAAD), Standard Missile-3 (SM-3), Ground-based Midcourse Defense (GMD), and Patriot Advanced Capability-3 (PAC-3) enable the Warfighter to defend the U.S. and its interests against aggression.

Strategic Missions professionals provide nationally recognized leadership in areas such as power systems, miniature and micro-miniature electronics, Anti-Tamper (AT) technology as well as failure and material analysis. All of these capabilities ensure the nation's unmatched strategic defense.

Products and Success Stories

Strategic Missions experts provide engineering support in critical technologies to Missile Defense Agency (MDA) missile programs including GMD, Targets and Countermeasures, SM-3, THAAD. They also provide specialized engineering support to the Director of Engineering and Mission Assurance Offices for the Agency.

Strategic Missions engineers have been active members, and continue to support, Parts and Materials Engineering boards responsible for setting requirements for high reliability parts that enter the missile and sensor weapons systems for the agency. NSWC Crane also provides the necessary engineering in trusted electronics to MDA with expertise in Anti Tamper Technologies, Anti-Counterfeit Parts and Supply Chain Management risk mitigation strategies including the leadership for the implementation of an Agency wide Anti-Counterfeit Parts Program recognized as a best practice within the Department of Defense.

Strategic Missions engineers and scientists also supported MDA by creating a non-invasive scanning process for Ground Safing Device Arm/Disarm (GSD/AD) switches, saving the government millions in inspection and removal costs. Through a distinctive Computed Tomography (CT) x-ray scan process, Foreign Object Debris (FOD) - such as wire clippings, cloth ties or adhesives- is identified inside GSD/AD switches without physically opening the switch. This innovative process, which was adopted and implemented by MDA prime contractors, continues to maintain an increased reliability in the switches at a lower cost.

Because of its recognized expertise and leadership, Naval Sea Systems Command (NAVSEA) designated NSWC Crane as the Technical Warrant Holder (TWH) for the Navy's AT policy and processes. The aim of the Navy's AT Technical Authority is to prevent or delay reverse engineering, which can result in the development of countermeasures to U.S. systems, transfer of technical information and unauthorized enhancements to a system. By integrating protective measures during the development phase of a program, reverse engineering can be reduced.

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Customers and Partners

NSWC Crane continues to ensure that our nation's Ballistic Missile Defense (BMD) system is fully reliable and always available to defend the homeland.

NSWC Crane is a technical resource for multiple customers in radar support, ensuring the customer has a focused, risk-biased approach to identifying the significant elements, phases, operations and/or technical concerns for its systems.

Partnerships with leading organizations supplement the Center's expertise, including:

- *Alliant Tech Systems*
- *Vanderbilt University*
- *Penn State University*
- *Lockheed Martin*
- *Orbital Sciences Corporations*
- *Purdue University*
- *Boeing*
- *Indiana University*
- *Texas A&M*

Leadership, Facilities and Capabilities

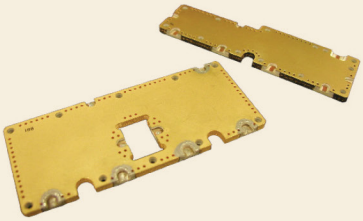
NSWC Crane operates the Department of Defense's (DoD) largest, full-spectrum power system facility. The 131,000 square-foot plant utilizes $27.6 million of state-of-the-art research, development, test and evaluation equipment—all dedicated to power sources, from researching new materials and processes; to evaluating and testing all types of batteries, fuel cells and uninterruptible power supplies; to assessing converters, inverters and chargers.

Following a recommendation to the U.S. House and Senate Armed Services Committee, NSWC Crane was appointed the DoD's Executive Agent (EA) of Printed Circuit Board (PrCB) Technologies in fall 2009. Appointment was made in support of the DoD's National Research Council Committee's concerns that many manufacturers were leaving the U.S. and that the DoD would have to rely on products produced on foreign-soils for use in its defense systems.

As the PrCB EA, NSWC Crane provides unbiased, engineering analysis and independent tests and evaluations as well as coordination of proactive oversight of potential PrCB issues. The EA assignment provides the DoD with a single, trusted resource to oversee and address potential problems and ensure all PrCB components function properly.

In addition to NSWC Crane's recognized power source leadership and facilities, NSWC Crane also offers:

- *NAVSEA's only secured laboratory dedicated to AT Technology*
- *DoD's most complete manufacturing site for Printed Circuit Boards*
- *High Energy Density Battery Testing*
- *Failure and Material Analysis Laboratory*



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