



Around Maritime Systems & Sensors (MS2)

Maritime Systems & Sensors (MS2) people are working on more than 330 programs for U.S. military customers as well as international customers in nearly 50 nations. There are more than 11,000 of us, including systems, software, mechanical, and other engineers; technicians; administrators and analysts; researchers and writers; and experts in many other fields. We are a business unit within Lockheed Martin's Electronic Systems business area.

Advanced Combat Systems Solutions Protect Sea, Land, Air, Space

MS2 provides surface, air and undersea applications for U.S. and allied forces, including radar and surveillance systems, undersea combat systems and C4I; surface combat systems and sensors; and advanced technology products including some of the most advanced ship hull forms operating today. We are the premier systems integrator of network-centric naval combat systems.

Our portfolio of capabilities includes anti-air, anti-surface, anti-submarine and electronic warfare; maritime patrol; mine warfare, weather forecasting and navigation and gravity systems. We design, integrate and manufacture ruggedized computing infrastructures. Our systems use high-performance commercial-off-the-shelf (COTS) modules and COTS-based open system architecture.

MS2 systems protect U.S. and allied assets from in the air, on the land and at sea. In the air, MS2 is working to enhance maritime patrol aircraft avionics for improved surveillance capability. We are a supplier to Lockheed Martin Aeronautics Company for the Joint Strike Fighter, providing general-purpose computer data processors. Our family of long-range, solid-state radars provide air defense and air traffic control, battlefield air defense and border surveillance. Our AN/SQQ-89 Undersea Warfare Suite combines the input of sonar, sonobuoy, and environmental sensors to provide ship commanders with an integrated picture and the fire control to act upon it. Our Aegis Weapon System defends against advanced air, surface and subsurface threats, tracking hundreds of targets simultaneously.

The MK 41 Vertical Launching System is a missile launching system used on Navy surface ships. It is installed below deck to provide surface navies the



capability to fire a variety of missiles including anti-air, anti-submarine, surface-to-surface, and strike. Designed and built at our Baltimore facility, the MK 41 is now used by eleven navies worldwide. This modular launch system has revolutionized naval warfare by expanding the mission capability of surface combatants.

Emerging Markets Draw from Core Experience

There is no more important mission than protecting the United States and its citizens at home. The same expertise MS2 provides to military customers is being pursued to increase the capabilities of U.S. civilian agencies such as the Department of Homeland Security.

Security of ports and harbors is being enhanced through our vessel traffic management systems in major U.S. ports, including New York harbor. Our Ports and Waterways Safety System (PAWSS) contract calls for installing the system in New York City, Houston/Galveston and Port Arthur, TX.

We are lead systems integrator for the critical Deepwater program, which will completely renovate the U.S. Coast Guard's fleet in order to push our borders out and increase situational awareness.

In light of the new security environment and because of significant progress made in missile defense development, President Bush has directed that fielding of initial missile defense capabilities begin in 2004-2005 to meet the near-term ballistic missile threat to our homeland, our deployed forces, and our friends and allies. Aegis-equipped ships at sea today will be the backbone of our nation's sea-based missile defense. We have demonstrated the ability of the SPY-1 radar to track exoatmospheric targets and guide a missile to intercept. The sea-based missile defense system will provide intercept capability against medium and long-range ballistic missiles and will be able to hand-off target information to other assets on the land and in the air.

MS2 is the principal development contractor for the U.S. Navy's newest attack submarine, the *Virginia* Class. This advanced submarine has maximum design flexibility to respond to changing missions and threats and can easily accommodate the addition of new technologies. Our unique approach to integrated electronic systems with COTS components allows state-of-the-art technology to be introduced continually to avoid obsolescence. This large-scale integration effort is the first of its kind for submarines.

Our patented Sea SLICE technology is a ship design that enables small waterplane-area twin hull (SWATH) ships to operate with the steadiness of a larger ship and sustain higher cruising speeds even in rough seas.



Top right: The U.S. Navy's *Virginia* Class submarine program provides the most capable underwater platform in the world.

Above: Lockheed Martin technicians and Navy personnel check an Aegis Combat System at Moorestown, New Jersey. Known as the "shield of the fleet," Aegis protects surface ships from airborne, surface and undersea threats.

This type of hull is excellent for civil government and commercial applications. Military coastal applications for Sea SLICE include command and control, surveillance, helicopter support, special operations, offshore patrol and many others.

We are in the preliminary design phase of the Littoral Combat Ship (LCS). The U.S. Navy envisions LCS as a networked, agile, fast, stealthy, inexpensive surface combatant capable of taking action against small boats, quiet diesel submarines, and mines. LCS is a radically different concept, designed as a seaframe for accommodating modular mission packages to provide focused warfighting capabilities.

Radars are Core Capability within MS2

MS2 is world-renowned for its advanced radars and surveillance systems. We provide systems meeting a wide range of strategic and tactical sensor and C4I challenges. Our state-of-the-art radar systems provide air and ground defense, surveillance and weather detection applications, battlefield air defense, border surveillance, interdiction and other special missions. Some of our long-range radars also provide detection and tracking of ballistic missiles and cueing for defensive missile systems. We also provide airborne wide-area surveillance radars and multimode radars for fighter aircraft. We have expertise across the spectrum, from HF- to X-band.

The AN/FPS-117 long-range, solid-state, L-band radar is NATO certified and proven in more locations around the world than any radar in its class. It performs superbly even in high-clutter environments.

For over five decades the U.S. Navy has depended on Lockheed Martin to provide airborne early warning (AEW) radar systems. We provide the AN/APS-145 advanced warning airborne surveillance radar currently deployed on the Navy's E-2C Hawkeye. As part of the Navy's radar modernization program, we will lead the industry team in designing and developing the next-generation radar to replace the Hawkeye's radar by 2010.

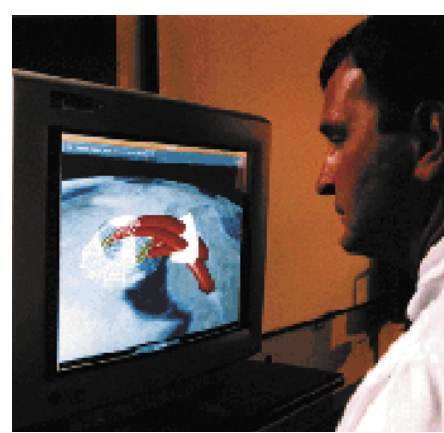
Lockheed Martin is the world leader in the design, production, turn-key delivery and support of Advanced Doppler Weather Radar Systems. We have delivered 165 WSR-88D [Next Generation Weather Radars (NEXRAD)] to the U.S. Government, Taiwan and China. This sensor system is the first integrated weather radar system incorporating advanced radar design, data processing, real-time dissemination to multiple users, networking and automated storm tracking, storm development trends and warnings.

Our AN/SPY-1 S-band phased array radar is the main sensor for the

Below: AN/TPS-77 tactical mobile radar is available on the international market for air defense, surveillance, and air traffic control use.

Bottom: NEXRAD is an advanced, nationwide network of Doppler weather radars that provide weather forecasters with new and greatly enhanced abilities to detect severe weather and accurately predict its movement.





Above: Medium Extended Air Defense System (MEADS) is ground-based and counters threats from short-range tactical ballistic missiles, cruise missiles, unmanned aerial vehicles and fixed/rotary wing aircraft.

Aegis Weapon System, which is installed in 65 percent of the U.S. Navy's surface combatants, as well as warships in Japan and Spain, and recently was selected for warships in Norway and Korea. Our newest radar – the S-Band Advanced Radar (SBAR) – provides greatly improved detection at much greater ranges, a key requirement for sea-based missile defense.

Working with the U.S. Navy and the National Severe Storms Lab, MS2 is refocusing the AN/SPY-1 radar to track storms, providing more accuracy and earlier warning to help save lives.

MS2 will provide the UHF surveillance radar and X-band multifunction fire control radar for the Medium Extended Air Defense System (MEADS). The MEADS suite of missile defense sensors provides the U.S. and its international partners with a tactical missile defense system that is mobile for battlefield operations, yet capable of successfully defending against modern tactical ballistic and low-flying cruise missiles.

Our Portable Search and Target Acquisition Radar (PSTAR) is a lightweight, portable air defense radar designed specifically for use across the full conflict continuum. It has exceptional subclutter visibility, outstanding detection capability against both fixed- and rotary-wing targets, and can operate effectively in an electronic jamming environment. To fulfill this role, PSTAR is designed with an integral IFF antenna, side-lobe cancellers, and an automated data link. PSTAR is currently in production for the U.S. Army (AN/PPQ-2) and foreign customers. Lockheed Martin SBAR technology has been selected for the Navy's next-generation destroyer, DD(X).