

UK Swift Experimentation Lab to Study Network Enabled Capabilities

Lockheed Martin has opened a state-of-the-art laboratory and experimentation facility in Farnborough, England, where it will collaborate with customers to develop solutions that address their emerging threats and operational challenges using network enabled capabilities.

The reconfigurable facility is called “Swift” because it will be used to rapidly prototype solutions to complex problems. Located in the Farnborough Aerospace Centre, the Swift lab enables Lockheed Martin and its customers to run detailed and realistic program analysis in a network enabled environment.

The Swift lab facilitates the rapid testing of new operations and scenarios through realistic “stressing” of systems and the simulation of a bandwidth-constrained environment. It is an industry-unique facility to test and evaluate transformational capabilities such as multi-intelligence information fusion, intelligence, surveillance and reconnaissance mission management, integrated situational awareness and battlefield visualization.

Through the facility’s advanced technical capabilities, Lockheed Martin will respond to its customer’s growing requirements for network enabled capabilities that improve interoperability, and develop transformational effects-based solutions.

Swift lab enables technology sharing and collaboration on integrated, networked solutions across multiple Lockheed Martin advanced laboratories, including the Corporation’s flagship laboratory, the *Center for Innovation*. Being networked to the company’s U.S. labs will help enhance cross-Atlantic exchange of ideas, technical competencies and domain expertise with experts in the U.S.

Lockheed Martin Acquires Active RFID Supplier, Savi Technology.

Lockheed Martin has acquired Savi Technology, a provider of active radio frequency identification, or RFID, solutions. The purchase enhances Lockheed Martin’s capabilities in global focused logistics.

Savi brings highly developed expertise in active RFID and other logistics technologies, networks and systems that enable customers to automatically identify the contents of shipments and track the location and status of supply chain assets.

Savi, based in Sunnyvale, Calif., has developed innovative logistics solutions that track in-transit asset shipments in a secure, accurate and timely manner.

- Its full line of hardware and software products have been implemented by the Department of Defense, international defense agencies, civil agencies and commercial enterprises to monitor cargo shipments globally.
- Savi’s products include active RFID asset tags, data rich high performance tags, sensor tags that monitor security and environmental conditions and related fixed and mobile readers. This is important for tracking container assets that many contain a lot of information about individual assets within the container. The tags can provide alerts to users if the containers have been tampered with, misdirected or experience extreme environmental conditions.
- The company’s fully integrated site and enterprise software products provide customers a complete solution for tracking shipments worldwide.

Savi has a majority interest in Savi Networks, LLC, which is building a public network infrastructure of active RFID network assets at major ports around the world. Customers who outfit their containers with Savi’s asset tags will be

able to automatically receive data on their desktops about the location and contents of their in-transit asset shipments. The data can be automatically loaded into customer supply chain applications.

The acquisition enables Lockheed Martin to meet growing requirements for “smart” logistics systems that ensure timely deliveries, enhance security and situational awareness, deliver cost savings, optimize inventory levels and improve operational performance and efficiencies.

The new organization will be a wholly owned subsidiary of the Corporation, known as Savi Technology, a Lockheed Martin Company.

JASSM Cruise Missile Weapon Data Link Development

Lockheed Martin will develop a Weapon Data Link-WDL — capability that will enable the extended-range JASSM™ system to engage mobile and time-critical targets.

The JASSM air-to-surface standoff missile system is the world’s first stealthy conventional cruise missile.

The WDL will provide the extended range JASSM missile with two-way, secure, beyond-line-of-sight-communications capability with the Combined Air Operations Center. The CAOC may send target location updates and changes to the missile while it is in flight, and the missile will report its position and status until impact.

This communications link is a key enabler of a future maritime interdiction capability in the missile.

The WDL system will use the standardized data link architecture for network-enabled weapons that was developed by a joint service advanced concept technology demonstration program. Lockheed Martin was a key participant in the program whose primary purpose was to specify, design, implement and demonstrate standardized tactical weapons communications architecture.

The U.S. Air Force and Lockheed Martin successfully demonstrated the WDL capability during flight test demonstrations conducted late last year.

First Development Flight Test

The first development flight test was successfully performed at the White Sands Missile Range in New Mexico recently.

The test is the first all-up-round flight test to verify modifications that are specific to the extended range missile configuration. This flight will be followed by a series of integrated U.S. Air Force and Lockheed Martin development and evaluation test flights to prove out the JASSM-ER missile configuration on the B-1B aircraft platform. Each flight will be an end-to-end test, with successive tests providing an increasing evaluation of the total JASSM-ER system.

“This missile provides JASSM’s proven lethality and accuracy with extended range to give the B-1B warfighter an outstanding operational capability for first-day strike of heavily defended targets,” said Air Force Lt. Col. Stephen Davis, 677th Armament System Squadron Commander at Eglin Air Force Base, FL.

Key Software, Hardware Delivered for SBIRS Missile Warning System

The Space-Based Infrared System team led by Lockheed Martin has delivered a critical payload subsystem along with software integral to the program's first geosynchronous orbit satellite.

The software will help make it possible to control and test the spacecraft's Pointing and Control Assembly. The Assembly features Lockheed Martin's patented reaction-less gimbal system, which allows the satellite to rapidly and repeatedly scan an area of interest for infrared activity while not interfering with the satellite's ability to simultaneously stare at another area.

The completed payload is scheduled to be delivered to Lockheed Martin's facilities in Sunnyvale, Calif., in mid-2007 for final spacecraft assembly, integration and test in preparation for launch in fiscal year 2008.

Spacecraft Functional Testing Progressing

The team is also in the midst of an important spacecraft test phase at Lockheed Martin's facilities in Sunnyvale, Calif. Known as Spacecraft Functional Testing this major milestone will verify the functional requirements of the geosynchronous orbit, or GEO, spacecraft.

These include functions such as electrical power, command and data handling, guidance navigation and control, and will further assure that the structure is assembled to specification.

New Ground System Capability

In a related item, Lockheed Martin has also completed development of the Highly Elliptical Orbit, or HEO, Interim Operations software for SBIRS. This is an important achievement in delivering ground system capability to operate new SBIRS HEO payloads and GEO satellites. The new capability will expedite the processing of missile warning and technical intelligence data.

Since 2001, the SBIRS ground segment has been providing the nation with missile detection, battlefield data, and technical intelligence from the consolidated Mission Control Station at Buckley Air Force Base, Colo. Air Force crews are providing support to warfighter and homeland defense initiatives, Operation Iraqi Freedom and the global war on terror.

SBIRS, with its highly sophisticated scanning and staring sensors, will provide the nation with significantly improved capabilities to detect and accurately characterize emerging missile threats. Along with missile warning, it will support other missions simultaneously, including missile defense, technical intelligence and battlespace characterization.

Lockheed Martin is currently under contract to provide two HEO payloads and two GEO satellites, as well as ground-based assets to receive and process the infrared data. The Lockheed Martin team has delivered both HEO payloads. The first GEO satellite launch is scheduled for fiscal year 2008.

F-22 Raptor Delivered to Second Operational Squadron

The 94th Fighter Squadron, famous for its historic “Hat in the Ring” insignia and legendary aviator Eddy Rickenbacker, has begun to receive F-22 Raptors from Lockheed Martin.

Two of the 5TH Generation stealthy, air dominance fighters have been assigned to the second operational squadron in the U.S. Air Force. They join F-22s flying today as part of the 1st Fighter Wing’s 27th Fighter Squadron at Langley Air Force Base, Va.

The Air Force declared initial operational capability for the Raptor late last year, and it is already flying operational missions in support of homeland defense.

The 94th Fighter Squadron legacy of being a frontline fighter unit spans from World War I to operations in the Persian Gulf Region. This unit has been a key player in the fight to gain and maintain air superiority.

In addition to the active air force, pilots with the 192nd Virginia Air National Guard in Richmond are also flying F-22 Raptors. The F-22 Raptor is currently flying at three other bases across the United States:

- Testing is conducted at Edwards Air Force Base, Calif.
- Tactics development is ongoing at Nellis Air Force Base, Nev.
- A full squadron of Raptors is based at Tyndall Air Force Base, Fla., for pilot and maintainer training.

The F-22 dominates any adversary through unmatched performance achieved through stealth, supercruise speed, agility, precision and a complete view of the battlespace achieved with the advanced sensor suite embedded in the aircraft. The Raptor will enable combat commanders to change the way wars are fought over the next 40 years.

New Integrated Weapons System for A-10C Flight Test Program

Sniper and LITENING targeting pods have been integrated into a new weapons delivery system for the U.S. Air Force’s A-10C flight-test program.

A team led by Lockheed Martin developed the new system, called Digital Stores Management System. It automates many of the weapons control functions that A-10 pilots today perform manually.

With either targeting pod, the system will vastly improve an A-10 pilot’s ability to identify targets and provide laser guidance of precision air-to-ground weapons.

The Air Force has designated the Joint Direct Attack Munitions and the Wind Corrected Munitions Dispenser guidance kits for the A-10C aircraft. Each kit converts existing free-fall bombs into accurately guided “smart” weapons, allowing pilots to attack from higher altitudes and in adverse weather conditions.

The DSMS weapons capability is the latest in a series of upgrades delivered by the Lockheed Martin Prime Team for the A-10 Precision Engagement program.

IPv6 Transition Support Offered

Lockheed Martin has created an Internet Protocol version 6 — IPv6 — Transition Support Office to assist customers in IPv6 implementation, migration and implementation.

The Transition Support Office will leverage advanced research and development in its two labs, offering support to all Lockheed Martin lines of business with IPv6-related requirements.

The Corporation has touted the IPv6 office as a corporate Center of Excellence and is investing in research and development to help shape the future of communications network architecture development.

The Office of Management and Budget has mandated that the federal government upgrade from Internet Protocol version 4 to IPv6, the next-generation internet protocol. IPv6-enables global, net-centric operations, which translate an information advantage into a decisive advantage for the warfighter.

Advanced Surveillance System for Submarines

An advanced digital imaging and processing technology is revolutionizing surveillance capabilities for U.S. Navy submarines.

ISIS — the Integrated Submarine Imaging System — was developed by Lockheed Martin in collaboration with Kollmorgen Electro Optical. Lockheed Martin engineers designed the ISIS inboard computer processing system and displays for the Navy's submarine force.

Here is how it works:

- The ISIS system replaces the optical light path of existing submarine periscopes with an advanced system that integrates new periscope mounted high-resolution cameras and fiber optic digital imagery while allowing images to continue to be viewed via the optical path. A conning officer would manipulate an outboard camera with a joystick while observing the digital video on a computer monitor;
- An onboard suite of video processing equipment allows the real time display and analysis of video images on existing submarine control room tactical displays. The image can be shared with the combat team on various displays aboard the sub;
- The ISIS system provides submarine operators with image enhancement capabilities and analysis tools for both real time and recorded imagery; supplied active and passive range finding control; and recording, storage and recall capabilities for imagery and associated data;
- Infrared cameras provide enhancements to the images which can be transmitted off the submarine to other naval and joint forces.

The system is being installed aboard the USS Hampton, making it the first U.S. Navy submarine to receive the system. ISIS will eventually become the Virginia-class submarine image processing system.

“The need to have the submarine commander or conning officer handle a traditional periscope will become part of naval history as ISIS is installed in the U.S. Navy's submarine force,” says Eric Gruenloh, Lockheed Martin's ISIS program manager.

Entire THAAD Weapon System Tested

All elements of the Terminal High Altitude Area Defense weapon system were successfully tested at the White Sands Missile Range recently. The test proved the system's capability.

The test demonstrated all major elements of the THAAD weapon system as it engaged a virtual target. These included the interceptor launch and control; kill vehicle control in response to in-flight uplinks; seeker operation; and radar acquisition, track and in-flight communications with the interceptor.

This marked the second successful THAAD developmental flight test since flight testing resumed for the program late last year. Three more test flights are scheduled to occur at the White Sands Missile Range in New Mexico before THAAD testing moves to the Pacific Missile Range Facility in Hawaii.

The THAAD weapon system is designed to defend U.S. troops, allied forces, population centers and critical infrastructure against short- to medium-range ballistic missiles. It uses hit-to-kill technology to destroy targets, and is the only weapon system that engages threat ballistic missiles at both endo- and exo-atmospheric altitudes.