Elbit Systems Ltd.

Aircraft Upgrades

Elbit Systems' proven capabilities in design, manufacture and integration of advanced avionics in numerous Eastern and Western platforms, trainers and front-line fighter aircraft, ensure enhanced performance and operational capabilities: The following upgrades will be highlighted at FIDAE2012:

**F-5:** Numerous F-5 modernizations have been performed, most recently for the Brazilian Air Force, unleashing the “Tiger’s” potential, with advanced full redundant glass cockpit including 3-color displays and operational features such as HOTAS operation, MFDs, Weapon Delivery and Navigation Systems, Fire Control Radar, Electronic Warfare suites and the DASH IV Helmet.

**Training Aircraft:** Elbit Systems also has taken the lead in the Aircraft Trainers/Simulators area. Elbit Systems has designed, developed and delivered operational and tactical, virtual and embedded Trainers and Simulators to leading military forces worldwide. These sophisticated training solutions for both Eastern and Western airborne platforms are designed to maximize realism and minimize the often difficult transition to advanced, complex platforms and missions. L-39, PAMPA, Super Tucano and IAR 99 Lead-In Trainers have undergone extensive Elbit Systems’ modernizations. Elbit Systems has also made inroads into modernizing transport and surveillance aircraft, such as C-130s.
Elbit Systems CockpitNGTM to be on display, at the booth of Elbit Systems' subsidiary

AEL Sistemas:

Elbit Systems Cockpit NGTM is the result of decades of experience and expertise in creating advanced avionics concepts for the cockpits of tomorrow.

Elbit Systems Cockpit NGTM integrates a wide variety of helmet-mounted, heads-up and panoramic displays with advanced algorithms, sensor & data fusion and development tools.

It is a complete, fully customizable multi-mission cockpit that assures aircrews improved situational awareness reduced workload and enhanced flight safety.

The demonstration will include the following 2 systems:

22" Advanced Panoramic Display

Elbit Systems' 22" advanced display (PC inside), with HD resolution, is a new generation avionics designed to replace all flight instruments and screens, creating a full glass cockpit.

The 22" display combines sensor fusion with decision support system, in order to present all relevant information in a format that facilitates the pilot's work.
TARGO® -

A complete mission lifecycle Helmet Mounted Avionics (HMA) technology which transfers the aircraft’s avionics to the pilot’s helmet.

Training and Simulation

Elbit Systems builds on over three decades of experience in training and simulation programs and offers comprehensive solutions that span the full military spectrum and employ the latest technologies and training concepts. Linked together for interoperability, Elbit Systems’ training solutions replicate combat scenarios for which coordination is crucial to success.

The following System will be highlighted at FIDAE 2012:

Mission Training Center (MTC)

The "Mission Training Center" (MTC) is a unique system that enables linked training between various trainees and platforms. With this system, teams are able to train in formations of pairs and foursomes in all aspects of the operational mission.

The sessions are fully supervised by flight instructors, who may take a central part in the training process. The MTC enables integration with other training systems, such as trainers for UAV operators and ground forces, and enables to connect various remote training centers by using standard interfaces with minimal transport delay between sites. The systems’ high quality allows training sorties onboard the trainers, instead of the fighter jets.
GUIDED MUNITION

GATR – Guided Advanced Tactical Rocket

An affordable Laser Guided kit installed on 68/70 mm rockets to convert them into metric precision guided weapons.

Laser-Guided Bomb Adapter (LIZARD)

A Laser Seeker adaptation to normal "dumb" bombs for improved hit accuracy against moving targets and strong winds, featuring improved jamming rejection.

UAS

Elbit Systems’ UAVs have earned international recognition and are playing increasingly vital roles in the global war on terrorism. Military and homeland security forces worldwide are benefiting from their sophisticated capabilities and onboard systems which are taking on many of the complex challenges previously performed solely by manned aircraft. Elbit Systems' extensive experience and innovative approach to all aspects of UAV systems result in the outstanding operational solutions for Israel Defense Forces and the UK MOD. In cooperation with Thales, Elbit Systems is providing Hermes® UAV systems for the U.K. WATCHKEEPER Tactical UAV program.
The following UAS will be graphically depicted:

**Hermes® 900 Next Generation MALE UAS** – featuring over-the-horizon, persistent, multi-mission, multi-payload capabilities with class leading payload carrying capacity.

**Hermes® 450 High-performance Deployable, Multi-role Tactical UAS** - a mature, reliable, high capacity, long endurance, multi-role, multi-payload tactical UAS for versatile missions over land or sea.

**Hermes®90 Expeditionary High-performance, affordable tactical UAS** - a runway independent UAS for maneuvering forces, combining the performance of a tactical UAS with the robustness and mobility of Mini UAS to provide maneuvering forces with high-end sensor capabilities.

**Skylark® II Tactical Close-range UAS** - a close-range, silent, electrically-propelled tactical UAV designed for day and night observation, data collection and target marking at mission ranges exceeding 60 kilometers.

**Skylark® I-LE Man-portable, High-performance Mini UAV** – a man-packed or vehicle-based highly autonomous Mini UAV System for static or on-the-move operation providing minimal footprint organic high quality ISR capabilities.

*Skylark® I-LE will also be demonstrated in its full size, and operated in conjunction with*
Elbit Systems Electro-Optics Elop Ltd. (Elop), is a globally recognized multidisciplinary electro-optics systems house, with one of the richest product portfolios in the industry today.

The following electro-optic products and solutions will be highlighted:

Micro CoMPASS™ - an extremely lightweight 8” electro optical payload for small UAVs and other airborne, marine and ground platforms. It features a unique miniature cooled continuous zoom FLIR, color TV camera, laser target illuminator and optional eye-safe laser rangefinder.

Long-Range Reconnaissance and Observation System – LORROS® - a 24/7 ground long-range high quality, remote controlled reconnaissance and observation system. It is designed for medium and long range surveillance and is ideal for border and coastal surveillance, critical infrastructure protection, intelligence gathering, artillery spotting & target acquisitions, reconnaissance of illegal activities, etc.
"ENGAGER"

an Advanced Covert Remote Reconnaissance and Targeting System.
Designed for the use of intelligence, infantry and special forces units, Engager provides long-range intelligence gathering, targeting and laser-guided weapon capabilities in one compact system. Developed especially for the modern battlefield’s demands of "SWAP" (size, weight and power), this unique system increases force survivability and safety by covert remote operation day and night, meeting infantry and special forces mission profiles requirements.

LILY S

an Un-cooled Lightweight Short-range Thermal Weapon Sight (STWS) and Monocular Camera for small arms (up to 7.62 mm caliber), comprised of a single Field of View un-cooled thermal imager and a high resolution OLED display and viewer, all housed in a ruggedized and sealed housing. The LILY-S, when mounted on light weapons (like M4, AK-47 or Individual Weapon [IW] Steyr Special Purpose rifle), will enable the weapon system user to detect, acquire and engage targets during day and night and under adverse weather and atmospheric conditions.

MARS

an un-cooled, hand-held dual field of view FLIR thermal imager with target acquisition capabilities. Featuring extremely light weight and compact dimensions, it employs advanced un-cooled microbolometer technology. It incorporates an integral eye-safe laser rangefinder, digital magnetic compass and GPS. All data is transferable to BMS.
CORAL-CR & Mini Atlas –
a hand-held thermal imaging camera with targeting capabilities and precision electronic goniometer for enhanced target acquisition. It provides real-time target acquisition and target coordinate calculation as well as image and target data storage. For use by infantry, scouts and special units, as well as for security and perimeter defense.

Long View CR–
a versatile, combined day/night system for very long-range observation and target acquisition. Integrates a long-range zoom FLIR, day channel, eye-safe laser rangefinder, GPS, magnetic compass, and mounted on a goniometer (Mini Atlas). For use by intelligence and surveillance units, special forces and reconnaissance vehicles.

CORAL-Z
a hand-held 3-5μm lightweight thermal imaging camera, designed for long-range performance. The camera feature continuous IR optical and digital zoom, high resolution detector, color OLED display and adjustable binocular view.
C4I SOLUTIONS DISPLAY ROOM:

Dominator® IICS (Integrated Infantry Combat System)

An integrated infantry combat system enabling full situational awareness from the infantry battalion level down to the individual soldier. DOMINATOR ® dramatically shortens the sensor-to-shooter loop, enhancing the combat effectiveness of the dismounted soldier.

WinBMS

Weapon integrated battle management solution Enhances the connectivity and coordination of maneuvering forces at the tactical level, increasing its lethality and survivability within the battle group network warfare.

TORC2H® -

an all-in-one C2 system covering all army branches and echelons, enabling universal situational awareness as well as in-depth collaborative mission planning and management based on real-time information, and an always-updated common operational picture. TORC2H® is the only C4I solution to be fully deployed and operational in a major military organization, the IDF.
**Multi Sensor Concept**  Surveillance, Reconnaissance and Targeting: Fully-customizable ground and mobile solutions for real intelligence collection and dissemination. Comprised of a broad array of lightweight network-ready sensors and C4I systems, the various system components can be fully customized to deliver effective intelligence in a broad range of operational scenarios. The solution provides day and night observation, target detection and recognition, radar, and identification of friendly forces. All sensors are fully controlled from the Commander Terminal, with digital maps for navigation and orientation.

**Communications**

Battle-proven solutions that ensure a reliable flow of information throughout all echelons and in all combat scenarios. A complete range of products that meet the requirements of the individual soldier, through all types of vehicles and up to large systems required by HQ.

**Tadiran SDR-7200 HH** - redefining handheld tactical communications – flexible, powerful and lightweight software-defined radio

The latest in a series of combat-proven communications systems, delivering state-of-the-art voice and data communication together with C2 applications in a single, integrated and lightweight unit. Offering unprecedented ease of use, the highly intuitive user-interface delivers the elegance and simplicity of today’s leading commercial devices to the battlefield.

**Tadiran CNR-9000HDR** - a multi-adaptive, VHF/FM radio systems for tactical voice and high-speed data communication. Driven by combat experience and featuring advanced capabilities, the Tadiran CNR-9000HDR is the latest in a line of combat-proven tactical communication systems offering high-speed data in addition to reliable voice communication.
Military IP Radio (MIPR) - next generation tactical IP radio delivering high-speed broadband data communication to the battlefield. Man-packed or mounted, MIPR is a lightweight (40 Kg) tactical IP radio that delivers ultra-high bandwidth (up to 13.3 Mbps), real-time high-resolution video, images, voice and data. MIPR provides connectivity for dozens of members per network. The systems supports a variety of configurations, including point-to-point (PtP), point-to-multipoint (PtMP) and mobile ad-hoc networks (MANET).

Tadiran CNR-710 - a highly advanced, lightweight handheld VHF/FM voice and data COMSEC/ECCM radio. The lightest radio in its class, the Tadiran CNR-710 offers robust voice and message security. The radio features advanced capabilities including unique ECCM, powerful error detection and correction codes, and an innovative user interface. The radio interfaces with a wide range of peripherals and is fully compatible with the Tadiran CNR-900 and Tadiran CNR-9000 radio systems.

Tadiran THF-8000 - multi-adaptive HF radio systems for continuous long-range communication. It expands the traditional boundaries of HF communication, while maintaining user-friendliness and operational efficiency. This HF SSB/2-ISB radio system features cutting-edge technology, ensuring robust and reliable communication in even the harshest battlefield conditions.
**Tadiran VIC-500** - Advanced, reliable and customizable digital intercommunication system for fighting vehicles. It is an advanced 4th generation digital vehicular intercommunication system, meeting the most demanding operational scenarios and easily tailored to specific requirements. The Tadiran VIC-500 offers crew members reliable voice and data communication both inside and outside the vehicle.

**Tadiran PNR 1000A** - Personal Network Radio (PNR) that provides on-the-move situational awareness. Ideal for deployed combat units, the lightweight radio integrates high-quality intra-team voice communications with a C4I application computing unit. The PNR-1000 presents troops with an on-the-move situational awareness picture and a unique operational edge on the battlefield.

**MSR-R-Tactical satellite system** - Military Satellite Router (MSR) for deployed command personnel providing optimal beyond line-of-sight (BLOS) communication. A transportable satellite communication (SATCOM) solution for field commanders that can utilized in a wide range of applications including C4I, internet, video transmission, surveillance, and reconnaissance. Part of the InterSKY 4M SATCOM platform, the MSR-1000 integrates all components necessary for military broadband satellite communication into a single, portable wheeled unit enabling rapid and reliable deployment in the battlefield.
Elbit TMR™ Core Tactical Multimedia Router - Interconnecting IP and non-IP radio networks. Providing tactical data services through mobile ad-hoc networks, the Elbit TMR™ Core connects armored vehicles and mobile command posts via IP and non-IP radio networks. The military-grade router generates a unified Tactical Internet for seamless communication. In addition, it optimizes the tactical radio network environment by utilizing both standard and Elbit TIGER® routing protocols (graphic depiction).

Tadiran GRX-4000 - High-capacity, multi-interface IP and TDM radio relay.

Featuring simultaneous dual-band and dual-mode operation, the software-defined radio (SDR) relay system supports the latest IP and legacy communications protocols. Battle-proven as a high-capacity line-of-sight means of communications, the GRX-4000 offers high-quality, interference-free communications. (graphic depiction)

EW & SIGINT SOLUTIONS

Elbit Systems EW & SIGINT – Elisra, a world leader in the fields of EW, Intelligence & Communications, designs, develops, manufactures, integrates and supports advanced systems solutions for Information Warfare, including EW, Intelligence, Command, Control & Communications.

Elisra’s advanced solutions are deployed on a wide range of platforms for air, sea and land applications in over 40 countries worldwide.

The following solutions will be highlighted:
SPS-1000-V5 - Radar Warning System -
A highly sophisticated airborne self protection system offering complete threat programmability, excellent performance and reliability. The system integrates two subsystems: A Self Protection System which detects the classical radars; A Multichannel Superhet IFM Receiver which provides detection and unambiguous identification of modern CW high PRF low ERP and pulse Doppler radars.

Unified Self Protection Suite for Helicopters & Training Aircraft
The unified EW suite for helicopters and training aircraft includes advanced EW capabilities packed into a single LRU, delivering superior identification and location under challenging conditions.

The system includes the following components:

Radar Warning Receiver Family:
LWS-20 - Laser Warning System
PAWS - IR Passive Approach Warning System
SPJ-20 - Lightweight Self Protection Jammer –

Chaff/Flare Dispensers
Laser DIRCM

SIGINT Payloads for UAS
SIGINT solutions comprise of:
AES-210/V EMERALD - a fully-featured Airborne ESM/ELINT Payload for UAS, and SkyFix (COMINT/DF) systems designed to meet the full range of UAS tactical and strategic mission requirements.

RADARS

Foxtrack™ - a portable Ground Surveillance Radar System is a lightweight, compact, man-portable radar carried by two operators – soldiers, special operations forces or security personnel. It functions in a tripod-mounted configuration or installed on board a vehicle. Foxtrack™ is designed to provide surveillance at medium to long ranges (8 km for soldier and 15 km for small car). Intended to identify both people and vehicles, the system differentiates individuals and/or vehicles from their surroundings, while identifying vehicle types by their characteristics (tanks, trucks, small vehicles etc.).
SAR AND DATA LINKS

**Tactical Video Data Link (TVDL)** - a compact video and data transceiver system for attack helicopters that enables downloading broadcast-quality live-video imagery and telemetry data from UAS, and relaying this information between helicopters on operational missions, as well as to ground forces, thus greatly reducing the need for voice communications among the pilots over radio networks. Installed on hundreds of UAS, this real-time imagery exchange enables creating a common visual language between all the forces participating in the mission, avoids revealing intentions to the enemy, and contributes to more accurate and effective target engagement.

![TVDL Image](image)

**SAR – Search and Rescue Systems**

The new SAR communications solution combines the capabilities of two types of systems to deliver an integrated SAR network, capable of performing other functions as well. This system provides real-time OTH communications relay. Using a unique ID code and short-burst signals, the SAR-UAV Suite interrogates the survivor/evader’s personal survival radio, such as the PRC-434G/SV, extracts its GPS data, and relays the information, in real time, to tactical HQ, Combat Communications Centers, and peer forces on the ground.

![SAR Image](image)