"SCD's partnership with DRDO enables the 'Make in India' vision to come true"

SCD, a supplier of IR components, enables the local industry in India to leverage SCD worldwide's leading technology into indigenous local EOIR systems, says **KOBI ZAUSHNIZER**, SCD's VP Business Development & Marketing, to GEOPOLITICS

What are the business opportunities that SemiConductor Devices (SCD), views in India?
Mainly in the armored modernisation programmes, man portable programmes, missile seekers for man portable and platform launch, border security with long range reconnaissance, rotary platform protection and situational awareness

How can SCD support the semiconductor fabrication industry in India?
SCD is a supplier of IR components which support the 'Make in India' initiative. By enabling the local industry in India leverage SCD worldwide leading technology into indigenous local EOIR systems.

Kindly update on the wide range of cooled and uncooled infrared detectors offered by SCD?
SCD is a world leader in all IR wavelength detectors: In cooled detector we are providing MWIR and LWIR cooled detector base on InSb; HOT and T2SL technology; SCD cooled MWIR detectors includes today 10-micron pitch pixel size with HD array for wide field of view application in HD resolution and long DRI capabilities. Our solution includes also the most advanced low SWaP-C detectors which is the only solution to the Indian army requirements. In uncooled solution, we are supporting both LWIR microbolometres as well as SWIR InGaAs. The InGaAs SWIR detectors can provide the Indian Army, Navy and Air Force an advance solution for long-range surveillance at the most adverse weather conditions as well as low light-level night image as a digital replacer for Image Intensifier.

Please elaborate on what the planned SCD FAB 2020 entails?
Increase fabrication capacity, supporting new technologies fabrication such as HD sensors, increase products' quality.

How is the company preparing for the increased demand for EO/IR systems based on the SWIR spectrum?
This is part of our FAB 2020 programme as well as investing in new products road map.

SCD has been selected to lead the Israeli national Smart Imaging consortium, supported by the Israeli Innovation Authority (MAGNET Consortium Programme). What will be the key areas of work in the programme?
Adding special function capability at the FPA level which will enable better target detection and reduce the total system power requirements as well as system cost. We are providing the IR sensors to the AI technology which is coming to the systems level.

What explains the increased demand for High-Definition MWIR detectors for various applications?
The requirements for long range DRI in wide FOV in application such as situational awareness and counter UAV.

Kindly elaborate on SCD's existing partnerships with DRDO, DPSUs and Indian private sector defence industries?
SCD is working for the last 20 years with the DRDO labs and the local industries in India. Our partnership enables the DRDO to field successfully EOIR systems to the end user with very good feedback. This partnership enables the 'Make in India' vision come true.

BIRDEYE 650D: SMALL PLATFORM WITH BIG POTENTIAL

As a world pioneer in the field of Unmanned Aerial Systems (UAS) since the 1970s, Israel Aerospace Industries (IAI) has miniaturized and automated UAS systems to provide the tactical user with organic UAS assets that are agile, compact, lean and capable to deliver battlefield intelligence, surveillance, target acquisition and reconnaissance (ISTAR) in real time.

While users at the national security levels, air forces and navies often operate large UAS that fly missions for days over very long distances, the land forces operations require systems with different capabilities. While uncompromising on ISR performance, military tactical users, law enforcement and counter-terror units, border and coast guards need much small UAS that can be operated by the troops as organic assets. They need systems that can deploy anywhere the unit may go and be ready to move on short notice and be independent of an airstrip for its operation.

Small Tactical Unmanned Aircraft Systems (STUAS) often operate at medium altitude and short range where they are least noticed by adversaries. Key to this category are the new generation of multi-sensor payloads are light and compact to fit into STUAS and deliver imagery at the same level, or even better than their bigger brothers.

The BirdEye 650D Aerial Vehicle

Introduced in 2016, BirdEye 650D answers all those requirements, and more. A blended body 'flying wing' design with four-meter wingspan, BirdEye 650D weighs only around 30 kg but carries six kilograms of useful payload, fueled and equipped for a 15-hour missions. Powered by a small gasoline fueled engine, it can soar to altitude of 15,000 ft, dash at 80 knots maximum air speed or loiter over the target at half that speed, securely linked with the control unit up to 150 km.

Aerial Segment

Different types of payloads can be used, including a mix of EO/IR and other types. Specific payload functions and performance may vary according to the user preference, but often includes full stabilization of multiple sensors, wide and narrow field of view, and various automation functions such as moving target trackers.

With minimal visual and acoustic signature, the drone looks to the naked eye like a bird of prey when flying at 3,000 ft above ground, therefore, it can be deployed without drawing suspicion on the ground.

The drone is also designed for automatic rail launch and safe retrieval at a designated point, even on rough terrain or at a small clear in a jungle. Using a belly placed parachute that opens on the terminal descent, the parachute flips the drone on its back, protecting the payload from ground impact.

Ground Segment

Designed for operation with ground forces, BirdEye 650D has a small logistical footprint, as the whole system requires one vehicle and trailer to operate, with the trailer providing the storage, preflight procedures and catapult launching. The trailer accommodates three air vehicles, a service and test bench, lift and accessories and a pneumatic rail launcher.

The trailer is designed for quick field deployments, as it takes up to 60 minutes to set up or tear down. Undergoing extensive user tests, the 650D have passed a recent evaluation with flying colors. That test included using numerous field deployments, air mobility missions with internal and sling loads. Using a trailer to support the system enables users to deploy the system using standard logistical tucks, rather than dedicated vehicle platforms.

The unit is manned by three persons operating mission command, control, communications and logistics in dismounted configuration or form the vehicle's cabin. Mission automation and autonomy make BirdEye 650D simple to launch, fly, control and retrieve. The ground control system employs automatic mission modes and functions that support mission planning and operations. Once launched on the mission, the drone follows the preplanned flight path or conduct a semi-autonomous flight that adapts to changing conditions or mission developments, to cover new points of interest defined by the user.

The primary mission for STUAS platform such as the BirdEye 650D is intelligence, surveillance, target acquisition, and reconnaissance comprising multi-sensor EOIR payloads and signal interception. Other missions carried out by the BirdEye 650D are coastal security and homeland defense. On such missions the drone can be launched from ships at sea, carry out a long patrol up to 150 km from the shore, then, lands on the coastline. The drone also proves highly effective in homeland security, border protection and emergency response, being able to quickly deploy and conduct long surveillance missions in response to emerging needs.

Argentine is one of the countries using the BirdEye 650D for border security. On such missions, drones are launched automatically from forward bases, to conduct routine missions along borders, sending live video streams to the guard posts, upon the completion of their missions the drones are retrieved automatically at the designated points nearby.

On other missions the drone can operate mapping, monitor oil, gas and electrical distribution lines, manage water reservoir and pollution over land and sea, and perform rapid surveillance of disaster areas.

Since the completion of development in 2016 over 400 BirdEye 650D systems have been sold to customers worldwide, including Brazil, Argentina and Vietnam. As the world pioneer in the field of unmanned aerial systems (UAS) more than 50 customers use IAI's UAS, from large Medium Altitude Long Endurance drones to STUAS that have flown over 1,800,000 operational flight hours.