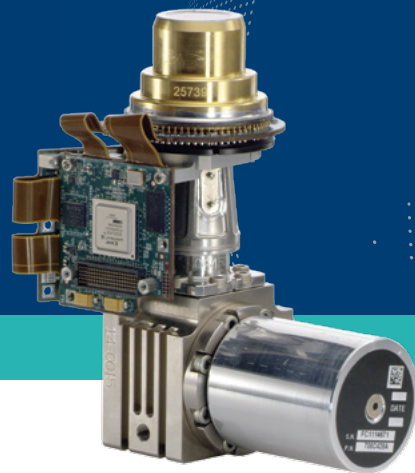




Blackbird

MWIR InSb detector, 1920 x 1536
10µm pitch, Digital ROIC

Defense Applications



General Description

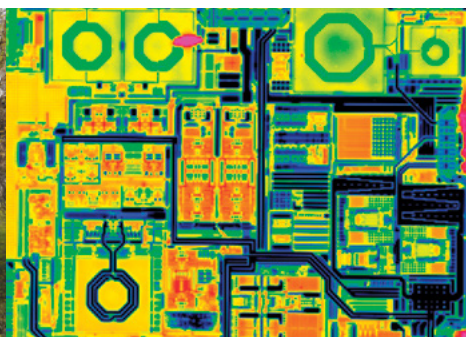
Blackbird is a state-of-the-art MWIR detector, which is an extension to the High Definition family of detectors at SCD. It includes a 3 Mega-pixel FPA in 1920x1536 pixels format and 10µm pitch. The new FPA is based on SCD's mature InSb technology and on a digital readout circuit implemented in advanced CMOS process. The FPA is very similar in size to SCD's SXGA format Hercules detector and can actually be packaged in the same Dewar. This yields a very large format detector with outstanding image quality, high frame rate, and relatively compact size.

Applications

- Persistent surveillance
- Long/medium range Surveillance & Targeting
- IRST
- MWS
- Thermography

Main Features

- High sensitivity: Low readout noise, Low dark current, High Quantum Efficiency
- Range of gain possibilities
- High frame rate: ≥ 90 Hz in full frame
- Simple electronic interface



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Typical Performance

| Parameter | Value |
|--|--|
| Detector type | InSb 2D array |
| FPA spectral range | 1÷5.4 μm |
| Format | 1920x1536 |
| Pitch | 10 μm |
| Integration modes | ITR, IWR, others |
| Integration capacitors and their Floor Noise (FN) * | 0.4Me- ; FN = 60e- 0.7Me- ; FN = 90e- (ITR mode only) 2.5Me- ; FN = 370e- 4.5Me- ; FN = 950e- |
| Maximum frame rate (full format, 4 video ports) | ≥ 90 F/s |
| Video output | Digital output, 4 / 2 / 1 ports** (LVDS, 32:4 Channel link) |
| Digital signal resolution | 13 bit |
| Readout mode | Normal / 2x2 Binning |
| Readout direction | Bottom-up / Left-Right |
| Windowing | Flexible: at 2 row steps |
| NETD (2.5Me- Cap.) | < 25mK at 70% well fill capacity |
| Local Residual Non Uniformity | 0.04% STD/DR at 10-90% well fill capacity |
| IDCA optical parameters *** | F/3, spectral range: 3.6÷4.9 μm (defined by cold filter) |
| Cooler options | Full specification: 1W cooler Reduced specification (e.g. 1920x1080 format, 60Hz): 0.75W cooler |
| Dimensions (with Ricor K543 1W integral rotary cooler) | Weight – approx. 1.1Kg Length (optical axis) – 150 mm |

* ITR and IWR modes are possible unless otherwise noted. Floor noise is specified in IWR mode. Floor noise in ITR mode expected to be equal or lower than IWR mode.

** Full frame output is enabled with 1, 2 or 4 video ports. Compared to 4 ports the 2 or 1 video ports enable lower power consumption while max. frame rate is reduced.

*** Other optical configurations are Possible.

Specifications are subject to changes without further notice