



# Blackbird SXGA Video Core

MWIR InSb / XBN (HOT) Video Core,  
1280 x 1024 Format, 10µm pitch, Digital ROIC

Defense Applications



## General Description

The Blackbird SXGA Video Core is an SCD, state-of-the-art, MWIR High Definition Detector, which integrates SCD's latest technology of 10µm pixels and video processing capabilities. This 1280x1024 FPA is based on SCD's mature InSb / XBN technology and includes a digital readout circuit implemented in an advanced CMOS process. The FPA overall size is ~70% larger than SCD's PelicanD VGA, 15µm format detector. Nevertheless, it is packaged in the same dimensions of the Pelican D Dewar. The proximity electronic board supports video processing capabilities with low power consumption. This yields a large format detector with outstanding image quality, high frame rate, and 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
- Compact and ruggedized Dewar
- Range of gain possibilities
- High frame rate: up to 60 Hz in full frame and all video processing
- Simple electronic interface - Legacy based camera link interface
- Option for 1280x720 Video Format for HD-SDI 720P support
- Video Core capabilities:
  - Non Uniformity Correction (NUC)
  - Bad-Pixel Replacement (BPR)
  - Automatic Exposure / Gain Control (AGC)
  - Dynamic Range Compression (DRC)
  - Auto Focus support (Q-Factor)
  - Digital Zoom
  - Graphical Overlay support
  - Pseudo-color Look-Up-Tables
  - Spatial & Temporal Noise reduction





## Typical Performance

Parameter	InSb - Typical Value	XBn (HOT) - Typical Value
Detector type	InSb 2D array	XBn 2D array
FPA Temperature	80°K	150°K
FPA spectral range	1÷5.4µm	1÷4.2µm
Format	1280×1024	1280×1024
Pitch	10x10µm	10x10µm
Integration modes	ITR, IWR, others	ITR, IWR, others
Integration capacitors and their Floor Noise (FN) *	0.3Me- ; FN = 60e-	0.3Me- ; FN = 80e-
	0.5Me- ; FN = 90e- (ITR mode only)	0.5Me- ; FN = 120e- (ITR mode only)
	2.0Me- ; FN = 260e- ITR / 380e- IWR	2.0Me- ; FN = 340e- ITR / 500e- IWR
	3.5Me- ; FN = 950e- (ITR mode only)	3.5Me- ; FN = 1200e- (ITR mode only)
Maximum frame rate	60Hz Full Frame, Full video processing	60Hz Full Frame, Full video processing
Video output	Camera Link Digital output	Camera Link Digital output
Digital signal resolution	13 bit	13 bit
Readout mode	Normal / 2x2 Binning	Normal / 2x2 Binning
Readout direction	Bottom-up / Left-Right	Bottom-up / Left-Right
Windowing	Support SXGA / 720P (1280x720)	Support SXGA / 720P (1280x720)
NETD (2Me- Cap.)	< 25mK at 70% well fill capacity	< 25mK at 70% well fill capacity
Residual Non Uniformity	< 0.05% STD/DR at 10-80% well fill capacity	< 0.05% STD/DR at 10-80% well fill capacity
IDCA optical parameters	F/2, F/3.4, F/4 spectral range: 3.6÷4.9µm (Others per customer request)	F/1.5, F/2, F/3.4, F/4 spectral range: 3.6÷4.2µm (Others per customer request)
Cooler options	Rotary 0.5W cooler (standard) Others, optional per request	Rotary 0.5W cooler (standard) Others, optional per request
Dimensions	Weight – approx. 720 Gm Length (optical axis) – 140 mm	Weight – approx. 720 Gm Length (optical axis) – 140 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.

Specifications are subject to change without further notice