

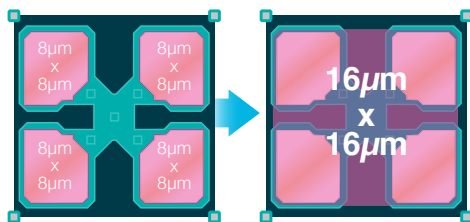


## DomiNite™ low-light image sensor

SRI International introduces the DomiNite imager. It's the first digital day and night vision imager that sees into the shadows during the day and through the darkness of the night. Designed to replace image intensifier tubes, DomiNite provides digital night vision without the need for an illuminator.

### Ultimate sensitivity with exceptional digital image quality

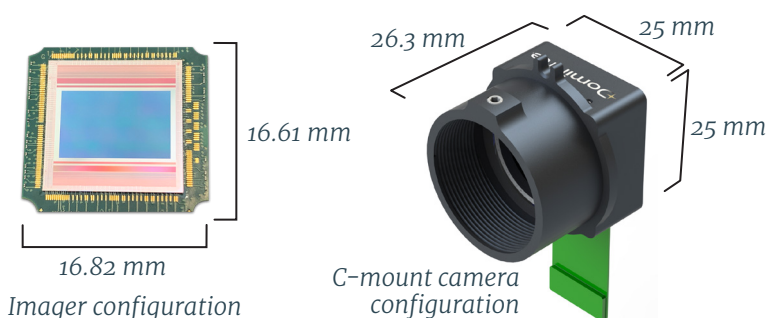
DomiNite's quad-pixel design delivers extreme sensitivity, resolution, bit-depth, dynamic range, and frame rate, all in one. Nearly two million pixels with one-electron read noise and negligible dark current, without special cooling, make the DomiNite the next step in digital low-light cameras.



Each pixel in the DomiNite imager can be noiselessly combined with its three neighbors into a superpixel that provides an additional 4x sensitivity enhancement for seeing in starlight conditions. Wide dynamic range (WDR) mode is designed to increase the dynamic range of the imager by 100x. This enables users to see into shadows during broad daylight as well as behind headlights and flares at night.

The DomiNite imager is a digital replacement for vacuum-tube technologies such as the image intensifier (I2) tube and electron bombarded sensors. Compared to these legacy technologies, the DomiNite imager enables digital HD image and video that is effective not only in starlight conditions, but also in the daytime to see into the shadows with its incredible wide dynamic range. It is designed to be lower cost than traditional tube-based technologies.

DomiNite provides 16-bits of dynamic range and sophisticated image processing algorithms. Smart vision artificial intelligence (AI) is now a real opportunity for the system integrator. Information from this low-light sensor can be fused with digital inputs from other sensors for enhanced detection, recognition and identification.



## Applications

- Handheld night vision systems
- Augmented reality
- Persistent surveillance systems
- Airborne gimballed sensor systems
- Ground vehicle situational awareness
- Autonomous vehicle navigation
- Microscopy

## Features

- Digital night vision, even in the daytime
- HD resolution, WSXGA+
- NIR-enhanced quantum efficiency
- Designed for true WDR, 120 dB wide dynamic range
- 90 frames per second
- On-chip ADC with 16-bit precision
- 8  $\mu\text{m}$  x 8  $\mu\text{m}$  pixels that can noiselessly combine or bin signal from up to four pixels at a time
- Ultra-low read noise and dark current
- Uncooled



Incredible high dynamic range even with a bright light on scene

## Specifications

Imager	
Sensor format	1", WSXGA+
Array size	1680 (H) x 1050 (V)
Pixel pitch	8 $\mu\text{m}$ / 16 $\mu\text{m}$ configurable
ADC resolution	16-bit
Read noise	0.8 e- RMS
Dark current	2 e-/pix/sec at 25° C
Full well	30,000 e-
Quantum efficiency (peak)	70%
Low-light lag	< 0.1%
Gain	1x, 3x, 48x
Power rails	Digital: 1.8 V, 1.2 V Analog: 3.3 V, 1.2 V
Interface	16-bit subLVDS @ 120 fps
Active area	13.4 mm x 8.4 mm
Shutter type	Rolling shutter
Configuration	Monochrome
Power	0.6 W
Operating temperature	-40° to 70° C
Dynamic range	120 dB

C-Mount Camera	
Dimensions (L x W x H)	25 mm x 25 mm x 32 mm
Power rails	Digital: 1.8 V, 1.2 V Analog: 5.0 V, 3.3 V
Power	< 1.5 W
Digital interface	MIPI CSI-2 (from Lattice Crosslink)
Control interface	I2C
Weight	22 g
Operating Temperature	-40° to 70° C
Frame rate (as configured)	90 fps

*All specifications preliminary*

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### Silicon Valley

(Headquarters)  
333 Ravenswood Avenue  
Menlo Park, CA 94025

### Princeton, NJ

201 Washington Road  
Princeton, NJ 08540

DomiNite POC: Eric Braddom  
[eric.braddom@sri.com](mailto:eric.braddom@sri.com)

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