Imperx: C5180

The C5180 features the ON Semiconductor Python NOIP1xx025KA CMOS image sensor with a native resolution of 5120 x 5120 in an APS-H optical format. The GenICam™ compliant USB3 camera delivers up to 13 frames per second in global shutter mode using the USB3 interface. CMOS technology eliminates smear columns from areas of ultra-bright intensity and specular reflections in uncontrolled lighting applications. The Imperx Cheetah line provides excellent image quality with Imperx proprietary processing. In addition, Imperx puts you in control and gives you full access to raw data without corrections. Using the simple, intuitive Graphical User Interface, you can quickly apply or remove image corrections. Flexibility and image quality make the C5180 suitable for a broad range of diverse and demanding applications. Imperx can help optimize the camera to your exacting requirements.

Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Interface</td>
<td>USB3</td>
</tr>
<tr>
<td>Resolution</td>
<td>5120 (H) x 5120 (V)</td>
</tr>
<tr>
<td>Sensor</td>
<td>Python NOIP1xx025KA, CMOS Color/Mono/ENIR</td>
</tr>
<tr>
<td>Sensor Format</td>
<td>23 mm (H) x 23 mm (V) 32.5 mm diagonal APS-H optical format</td>
</tr>
<tr>
<td>Pixel Size</td>
<td>4.5 microns square</td>
</tr>
<tr>
<td>NIR Sensitivity</td>
<td>Mono: 850 nm: 18%, 950 nm: 6% ENIR: 850 nm: 30%, 950 nm: 11%</td>
</tr>
<tr>
<td>Shutter</td>
<td>Global shutter (GS)</td>
</tr>
<tr>
<td>Fixed Pattern Noise</td>
<td>&lt;0.9 LSB</td>
</tr>
<tr>
<td>Sensor Digitization</td>
<td>10-bit</td>
</tr>
<tr>
<td>Frame Rate</td>
<td>13 fps (8-bit), 6 (10-bit)</td>
</tr>
<tr>
<td>Dynamic Range</td>
<td>59 dB</td>
</tr>
<tr>
<td>Row Overhead Time (ROT)</td>
<td>Zero</td>
</tr>
<tr>
<td>Output Bit Depth</td>
<td>8, 10-bit</td>
</tr>
<tr>
<td>Analog Gain Control</td>
<td>1x, 1.26x, 1.87x, 3.17x</td>
</tr>
<tr>
<td>Digital Gain</td>
<td>1x (0 dB) to 15.9 (24 dB) with a precision of 0.001x, Auto</td>
</tr>
<tr>
<td>AEC/AGC</td>
<td>Yes</td>
</tr>
<tr>
<td>Black Level Offset</td>
<td>Manual (-512…+511), Auto</td>
</tr>
<tr>
<td>White Balance</td>
<td>Manual, Auto, Off</td>
</tr>
<tr>
<td>Shutter Speed</td>
<td>1 μs/step, 40 μs to 1.0 s</td>
</tr>
<tr>
<td>Exposure Control</td>
<td>Off, Internal, External, Auto</td>
</tr>
<tr>
<td>Regions of Interest (ROI)</td>
<td>1 ROI</td>
</tr>
<tr>
<td>Averaging Decimation</td>
<td>1 x 2, 2 x 1, 2 x 2</td>
</tr>
<tr>
<td>Sub-sampling Decimation</td>
<td>1 x 2, 2 x 1, 2 x 2</td>
</tr>
<tr>
<td>Trigger Inputs</td>
<td>External, Pulse generator, Software</td>
</tr>
<tr>
<td>Trigger Options</td>
<td>Edge, Debounce</td>
</tr>
<tr>
<td>Trigger Modes</td>
<td>Internal, External, Software</td>
</tr>
<tr>
<td>External Inputs/Outputs</td>
<td>2 IN (OPTO, LV TTL) / 2 OUT (OPTO, TTL)</td>
</tr>
<tr>
<td>Strobe Output</td>
<td>2 strobes, programmable position and duration</td>
</tr>
<tr>
<td>Pulse Generator</td>
<td>Yes, programmable</td>
</tr>
<tr>
<td>Data Correction</td>
<td>2 LUTs pre-programmed with Gamma 0.45 Defective/hot pixel correction (static, dynamic), Flat field correction, Fixed pattern noise correction</td>
</tr>
<tr>
<td>Lens Mount</td>
<td>F-Mount (Default), M42, EF Canon (passive or active)</td>
</tr>
<tr>
<td>Supply Voltage Range</td>
<td>12 V DC (5 V – 33 V) 1.5 A inrush without enabled Canon controller</td>
</tr>
<tr>
<td>Camera Current</td>
<td>12 V DC (6.5 V – 33 V) 1.5 A inrush with enabled Canon controller</td>
</tr>
<tr>
<td>Weight</td>
<td>379 g</td>
</tr>
<tr>
<td>Vibration, Shock</td>
<td>Complies with IEC60068-2-64 and IEC60068-2-27</td>
</tr>
<tr>
<td>Environmental</td>
<td>-40 °C to +85 °C Operating, -50 °C to +90 °C Storage</td>
</tr>
<tr>
<td>Humidity</td>
<td>10% to 90% non-condensing</td>
</tr>
<tr>
<td>MTBF</td>
<td>&gt;323,000 hours @ 40 °C (Telcordia SR-332)</td>
</tr>
<tr>
<td>Military Standard</td>
<td>MIL-STD-810G</td>
</tr>
<tr>
<td>Regulatory</td>
<td>FCC Part 15 Class A, CE, RoHS</td>
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**Imperx: C5180 Applications**

The C5180 incorporates a number of unique features tailored to reduce system complexity, maximize interface bandwidth, and expand the usable operational range.

- Aerospace
- Satellites
- Surveillance
- Military and Non-Military Ground Vehicles
- Ball Grid Array
- Printed Circuit Board Inspection
- Motion Analysis
- Broadcast Television
- Telepresence
- Unmanned Aerial Vehicles
- Machine Vision
- Reconnaissance
- Intelligent Traffic Systems
- Aerial Imaging
- Open Road Tolling Systems
- Situational Awareness

**Absolute Quantum Efficiency**

![Graph showing Absolute Quantum Efficiency]

**Dimensions**

**Output Interface**
- USB3 (U3V)

**Sensor Types available**
- Monochrome
- Bayer Color
- NIR

**Lens Mounts**
- F-Mount (Default)
- M42
- EF Canon

**Accessories (Sold separately)**
- PS12V04A-Power Supply w/ 1 input and 1 output

**Hirose Connectors**

**Power and I/O Interface**

1. 12 VDC Return
2. +12V DC
3. Reserved
4. Reserved
5. OUT2 OPTO -
6. OUT1 TTL Gnd
7. OUT1 TTL Signal
8. IN1 OPTO +
9. IN2 TTL Signal
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**Gen<1>Cam Compliant Camera Configurator**

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