

# EVBUM2294/D

## PYTHON Image Sensor Evaluation Kits



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### EVAL BOARD USER'S MANUAL

#### Description

ON Semiconductor PYTHON Image Sensor Evaluation Kits enable customers to easily and quickly evaluate the performance of the PYTHON CMOS Image Sensors without the need to develop a full camera design. When combined with ON Semiconductor Sensor Studio II software, this hardware allows full control of the image sensor's register settings and enables video recording, still image capture, and image analysis. With this level of programmability, CMOS sensor functionality such as global shutter, very fast frame rate, high NIR sensitivity, and multiple regions of interest can be rapidly evaluated.

#### Features

- Full Access to Image Sensor Register Settings
- Supports HDR Operation and ROI Readout
- USB Interface for Sensor Control, Image Capture, and Firmware Downloads
- Socketed Sensor\* for Easy Sensor Replacement
- Integrated Tripod Mount (1/4–20 thread)
- Additional Headboards (sold separately) Allow Evaluation of Multiple PYTHON Products
- Lens Mount Kit (sold separately) Provides Support for C and F Mount Lenses, Includes IR Cut Filter for Color Imaging Evaluation

#### Kit Includes

- Image Capture Board with Integral Tripod Mount
- Headboard (Sensor installed & Lens Mount affixed)
- USB 3.0 Cable (2 meter length)
- Quick Start Guide

\*Not applicable to PYTHON 480 kit

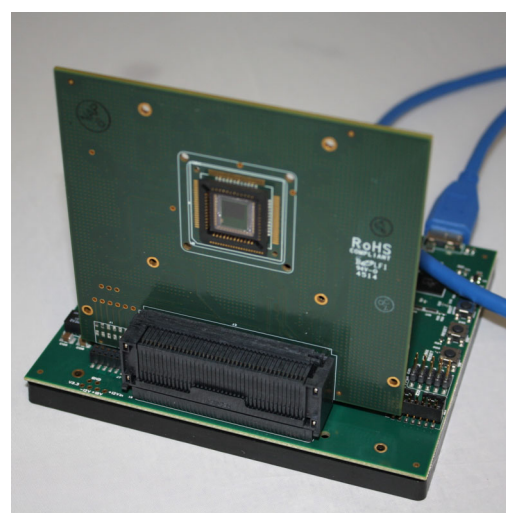


Figure 1. PYTHON Image Sensor Evaluation Board

#### GENERAL SPECIFICATIONS

| Parameter                   | Typical Value                                      |
|-----------------------------|--|
| Hardware Interfaces         | USB 3.0, USB 2.0                                   |
| Typical Data Rate (USB 3.0) | Up to 300 Mb/sec<br>(Varies with USB Adapter used) |

#### KIT SPECIFIC SPECIFICATIONS

| Evaluation Kit                                     | PYTHON 480 | PYTHON 1300 | PYTHON 5000 | PYTHON 25k |
|--|------------|-------------|-------------|------------|
| LVDS Lanes   | 1          | 4           | 8           | 32         |
| Max Frame Rate, Full Resolution (fps)              | 120        | 168         | 82          | 35         |
| Display Frame Rate, Full Resolution, USB 3.0 (fps) | 62         | 26          | 6.8         | 1.6        |
| On Board Buffer Capacity, Full Resolution (Frames) | 256        | 64          | 32          | 8          |
| Included Lens Mount                                | C mount    | C mount     | C mount     | F mount    |
| Compatible with Optional Lens Mount Kit            | No         | Yes         | Yes         | Yes        |

**ORDERING INFORMATION**

| Part Number             | Description   | Compatible Devices (Sold Separately) |
|-------------------------|---|--------------------------------------|
| NOIP1SN0480A-STI-A-GEVK | PYTHON 480 (SVGA) Monochrome Image Sensor Evaluation Kit (Image Sensor Included)    | N/A                                  |
| NOIP1SE0480A-STI-A-GEVK | PYTHON 480 (SVGA) Color Image Sensor Evaluation Kit (Image Sensor Included)         | N/A                                  |
| NOIP1SN1300A-QDI-A-GEVK | PYTHON 1300 (1.3 MP) Monochrome Image Sensor Evaluation Kit (Image Sensor Included) | PYTHON 300, PYTHON 500               |
| NOIP1SN5000A-QDI-A-GEVK | PYTHON 5000 (5.3 MP) Monochrome Image Sensor Evaluation Kit (Image Sensor Included) | PYTHON 2000 LCC                      |
| NOIP1SN025KA-GDI-A-GEVK | PYTHON 25K (26.2 MP) Monochrome Image Sensor Evaluation Kit (Image Sensor Included) | PYTHON 10K, PYTHON 12K, PYTHON 16K   |

**OPTIONAL HARDWARE ORDERING INFORMATION**

| Part Number                     | Description   | Compatible Devices (Sold Separately)                            |
|---------------------------------|---|---|
| NOIP1SN0480A-STI-HEAD-BD-A-GEVK | PYTHON 480 Monochrome Headboard (Image Sensor Included)                 | N/A   |
| NOIP1SE0480A-STI-HEAD-BD-A-GEVK | PYTHON 480 Color Headboard (Image Sensor Included)                      | N/A   |
| NOIP-48PIN-HEAD-BD-A-GEVB       | 48-Pin Headboard Only (Image Sensor Not Included)                       | PYTHON 300, PYTHON 500, PYTHON 1300                             |
| NOIP-84PIN-HEAD-BD-A-GEVK       | 84-Pin Headboard Only (Image Sensor Not Included)                       | PYTHON 2000 LCC, PYTHON 5000 LCC                                |
| NOIP-355PIN-HEAD-BD-A-GEVB      | 355-Pin Headboard Only (Image Sensor Not Included)                      | PYTHON 10K, PYTHON 12K, PYTHON 16K, PYTHON 25K                  |
| LENS-MOUNT-KIT-D-GEVK           | Lens Mount Kit to Support C and F Mount Lenses (Includes IR Cut-Filter) | All PYTHON evaluation kits and headboards other than PYTHON 480 |

**REQUIRED HARDWARE AND SOFTWARE**

**Host Computer**

- 2 GHz processor, 8 GB RAM, USB 2.0 / 3.0 interface, Windows 7 and Windows 10 Operating System (64 bit)
- Sensor Studio II software. Available for [download](http://www.onsemi.com) at [www.onsemi.com](http://www.onsemi.com).

**For Maximum Speed**

- Native USB 3.0 chipset

**Other (User Supplied)**

- +12 VDC, 2 Amp, power supply with 2.1 mm center positive DC jack
- Camera lens
- IR cut filter (required for evaluating color image sensors)
- Table-top tripod (optional)

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