

## PYTHON Family Sensor Evaluation Kit Quick Start Guide



ON Semiconductor®

[www.onsemi.com](http://www.onsemi.com)

This guide will help you get up and running using the PYTHON Family of CMOS Image Sensors with the ON Semiconductor G3 Evaluation Hardware and Sensor Studio II Software.

### Before You Start

- **Evaluation Hardware and Supported Image Sensor**

Verify that you have the required hardware for the sensor being evaluated:

- ◆ G3 FPGA board
- ◆ Imager head board for the sensor being evaluated
- ◆ Optional lens mount kit

- **Sensor Studio II Software**

The most recent version can be downloaded at [www.onsemi.com](http://www.onsemi.com)

- **USB**

USB 2.0 and USB 3.0 are supported.

- **Computer**

Windows 7 and Windows 10 64 bit, 2+ GHz processor, 8 GB RAM, USB 3.0/2.0 connection.

- **Power Supply**

12 V DC, 2 A, with 2.1 mm center positive DC power jack.

- **Cables**

2 meter USB 3.0 cable with Type A on the host end and micro 3.0 on the hardware end is included with the kit.

- **Lens**

A C/CS mount lens holder is provided with the kit. For larger optics, an F-mount is available in the optional Lens Mount Kit.

- **Table-top Tripod** (recommended)

### Install Software

Install the software by running the appropriate “setup.exe” file, and check the boxes for installing the USB 3.0 drivers if they have never been installed.

Note that the 64-bit version of the USB3 driver currently is not digitally signed. See *ReadFirst\_InstallerInstructions.pdf* document, which is part of the SensorStudio installer, for information on driver installation.

Consult *PleaseReadBeforeInstall.pdf*, which comes with the SensorStudio installer, for more information.


## Eval Board User's Manual

### Assemble Evaluation Hardware

- Install image sensor on image sensor headboard making sure that the image sensor is in the proper orientation.
- If using lens mount kit, assemble the appropriate configuration for the optic you intend to use (C or F). (see instructions provided in the kit)
- Plug the headboard into the G3 Capture Card and secure with card guide clips provided.
- If using the 1/4–20 mounting feature on the G3 Frame, ensure that your mounting screw does not contact the bottom side of the FPGA circuit board.
- **Plug in power and communications cables**  
With the Evaluation Kit powered off, insert the USB cable into your PC. Insert the power plug into the receptacle on the Imager/FPGA board. Turn on the Power. Use Device Manager to verify “Truesense USB3” seen by the system.

### Run Sensor Studio II

- **Shortcut**  
To properly configure the shortcut icon, right click, choose properties and then select the compatibility tab. Set the OS for your OS and enable “run as admin”. The latter is needed if you install Sensor Studio II in the standard Program Files area which is owned by admin.
- **Launch Program**  
Double click the Sensor Studio II desktop icon to launch the software.
- **Select Plugin**

Click the plugin button . Then choose the correct plugin in the list:

- ◆ Use PYTHON480 for PYTHON480 device
- ◆ Use PYTHON48 for PYTHON 300/500/1300/2000/5000 devices
- ◆ Use PYTHONxK for PYTHON 10K/12K/16K/25K devices
- ◆ An image display window and the control GUI will appear on the screen

- **Connect to Hardware**

- ◆ Select the “Connection” tab within the control GUI
- ◆ Click the Connect button
- ◆ The yellow indicator will change to green indicating that a connection has been established. The system is now ready to image. If there is a failure, the status box will turn red displaying an error message with more information.

### **Next Steps**

Sensor Studio II provides a number of controls to evaluate operation of the sensor, including image capture, processing, and characterization.

Additional information on these controls is included in the Sensor Studio II help system, which is available from the HELP menu by selecting “SS2 and Python Help”.

For additional help in system setup, please contact ON Semiconductor at [www.onsemi.com/imagesensors](http://www.onsemi.com/imagesensors) or by e-mail at [is-support@onsemi.com](mailto:is-support@onsemi.com).

ON Semiconductor and the ON Semiconductor logo are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). ON Semiconductor is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

The evaluation board/kit (research and development board/kit) (hereinafter the "board") is not a finished product and is as such not available for sale to consumers. The board is only intended for research, development, demonstration and evaluation purposes and should as such only be used in laboratory/development areas by persons with an engineering/technical training and familiar with the risks associated with handling electrical/mechanical components, systems and subsystems. This person assumes full responsibility/liability for proper and safe handling. Any other use, resale or redistribution for any other purpose is strictly prohibited.

The board is delivered "AS IS" and without warranty of any kind including, but not limited to, that the board is production-worthy, that the functions contained in the board will meet your requirements, or that the operation of the board will be uninterrupted or error free. ON Semiconductor expressly disclaims all warranties, express, implied or otherwise, including without limitation, warranties of fitness for a particular purpose and non-infringement of intellectual property rights.

ON Semiconductor reserves the right to make changes without further notice to any board.

You are responsible for determining whether the board will be suitable for your intended use or application or will achieve your intended results. Prior to using or distributing any systems that have been evaluated, designed or tested using the board, you agree to test and validate your design to confirm the functionality for your application. Any technical, applications or design information or advice, quality characterization, reliability data or other services provided by ON Semiconductor shall not constitute any representation or warranty by ON Semiconductor, and no additional obligations or liabilities shall arise from ON Semiconductor having provided such information or services.

The boards are not designed, intended, or authorized for use in life support systems, or any FDA Class 3 medical devices or medical devices with a similar or equivalent classification in a foreign jurisdiction, or any devices intended for implantation in the human body. Should you purchase or use the board for any such unintended or unauthorized application, you shall indemnify and hold ON Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that ON Semiconductor was negligent regarding the design or manufacture of the board.

This evaluation board/kit does not fall within the scope of the European Union directives regarding electromagnetic compatibility, restricted substances (RoHS), recycling (WEEE), FCC, CE or UL, and may not meet the technical requirements of these or other related directives.

**FCC WARNING** – This evaluation board/kit is intended for use for engineering development, demonstration, or evaluation purposes only and is not considered by ON Semiconductor to be a finished end product fit for general consumer use. It may generate, use, or radiate radio frequency energy and has not been tested for compliance with the limits of computing devices pursuant to part 15 of FCC rules, which are designed to provide reasonable protection against radio frequency interference. Operation of this equipment may cause interference with radio communications, in which case the user shall be responsible, at its expense, to take whatever measures may be required to correct this interference.

ON Semiconductor does not convey any license under its patent rights nor the rights of others.

**LIMITATIONS OF LIABILITY:** ON Semiconductor shall not be liable for any special, consequential, incidental, indirect or punitive damages, including, but not limited to the costs of requalification, delay, loss of profits or goodwill, arising out of or in connection with the board, even if ON Semiconductor is advised of the possibility of such damages. In no event shall ON Semiconductor's aggregate liability from any obligation arising out of or in connection with the board, under any theory of liability, exceed the purchase price paid for the board, if any.

For more information and documentation, please visit [www.onsemi.com](http://www.onsemi.com).

---

## PUBLICATION ORDERING INFORMATION

### LITERATURE FULFILLMENT:

Email Requests to: [orderlit@onsemi.com](mailto:orderlit@onsemi.com)

ON Semiconductor Website: [www.onsemi.com](http://www.onsemi.com)

### TECHNICAL SUPPORT

North American Technical Support:

Voice Mail: 1 800-282-9855 Toll Free USA/Canada

Phone: 011 421 33 790 2910

Europe, Middle East and Africa Technical Support:

Phone: 00421 33 790 2910

For additional information, please contact your local Sales Representative