PRISM Module User Guide

(Premier Reference Image Sensor Module)

UM70099/D

Purpose

The purpose of this guide is to help the PRISM module user access the module documents, adapter documents, DevWareX install setup file and a driver supported list for eco-system platform partners.

NOTE: PRISM modules are offered from **onsemi** as prototype modules not meant for customer production shipments. Customer can work with **onsemi** Distribution partners for equivalent mass production versions of these modules.

PRISM Module Documents

The user can access design files from the PRISM folder in the Image Sensor portal located at **onsemi** website.

How to access Image Sensor Portal:

- Register for MyON at www.**onsemi**.com
- Go to the Service Section
- Select Image Sensor Portal
- Fill out request form
- Select Request Access
- Get access approval with NDA

1. There will contain the design files as:
   - Hardware Design Documents:
     - PRISM_Module_2D_Drawing.pdf
     - PRISM_Module_Schematic.pdf
     - PRISM_Module_Schematic.dsn
     - PRISM_Module_layout.brd
     - PRISM_Module_Gerber.zip
     - PRISM_Module_BOM.xlsx
   - PRISM module data sheet
   - Sensor ini file for OPTM or EEPROM
   - AP1302 Calibrated xml File

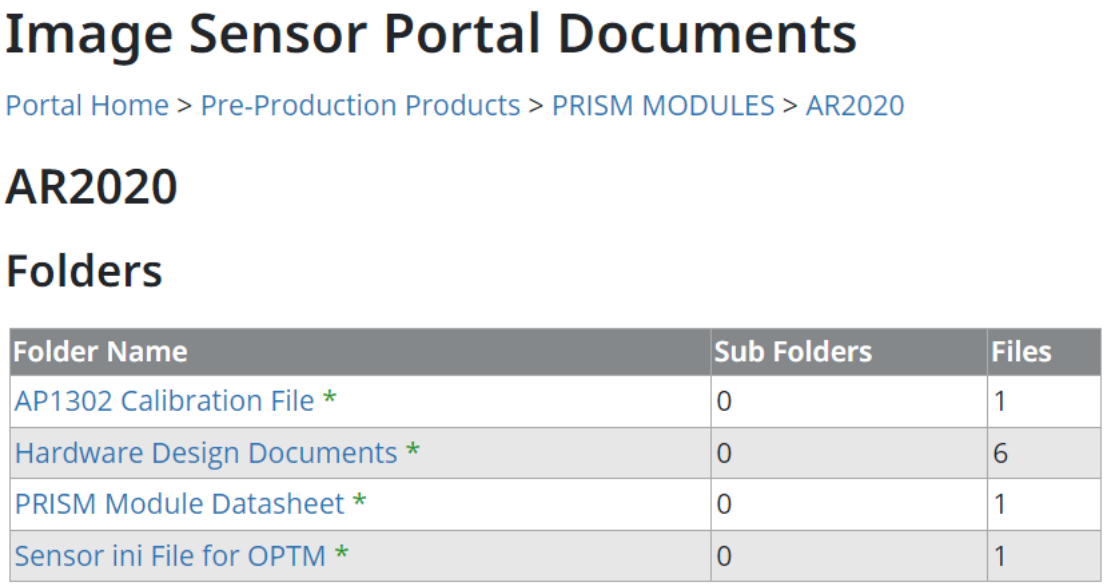

Figure 1. Example of AR2020 PRISM Documents in Image Sensor Portal

2. There is OTPM or EEPROM to store the module information for each PRISM module, please refer the OTPM/EEPROM standard for general information: AND90264/D
3. PRISM module OPN list as below:
   - ARX383: PRISM1M-ARX383CSSM130110-GEVB
   - AR0145: PRISM1M-AR0145CSSM130110-GEVB
   - AR0235: PRISM1M-AR0235CSSM130110-GEVB
   - AR0544: PRISM1M-AR0544CSSC130110-GEVB

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- AR0830:
  PRISM1M-AR0830CSSC130110-GEVB
- AR2020:
  PRISM1M-AR2020CSSC130110-GEVB
- AR0822:
  PRISM1M-AR0822NPSC130110-GEVB
- AR0246:
  PRISM1M-AR0246NPSC130110-GEVB
- AR1223:
  PRISM1M-AR1223NPSC130110-GEVB

onsemi DEMO3 System for PRISM

onsemi offers many kinds of adapters to use with the PRISM module. The DEMO3 system is the hardware being used, it contained the hardware parts:

1. Demo3 Baseboard, OPN: AGB1N0CS-GEVK
2. AP1302 Headboard, OPN:
   AP1302CSSL00SMGAH3-GEVB
3. PRISM DEMO3 ADAPTER MIPI HISPI BOARD,
   OPN: PRISM1-ADPTR-DM3D1-GEVB
   a. User manual of PRISM DEMO3 adapter board can be found here.
4. Hardware overview of whole system:

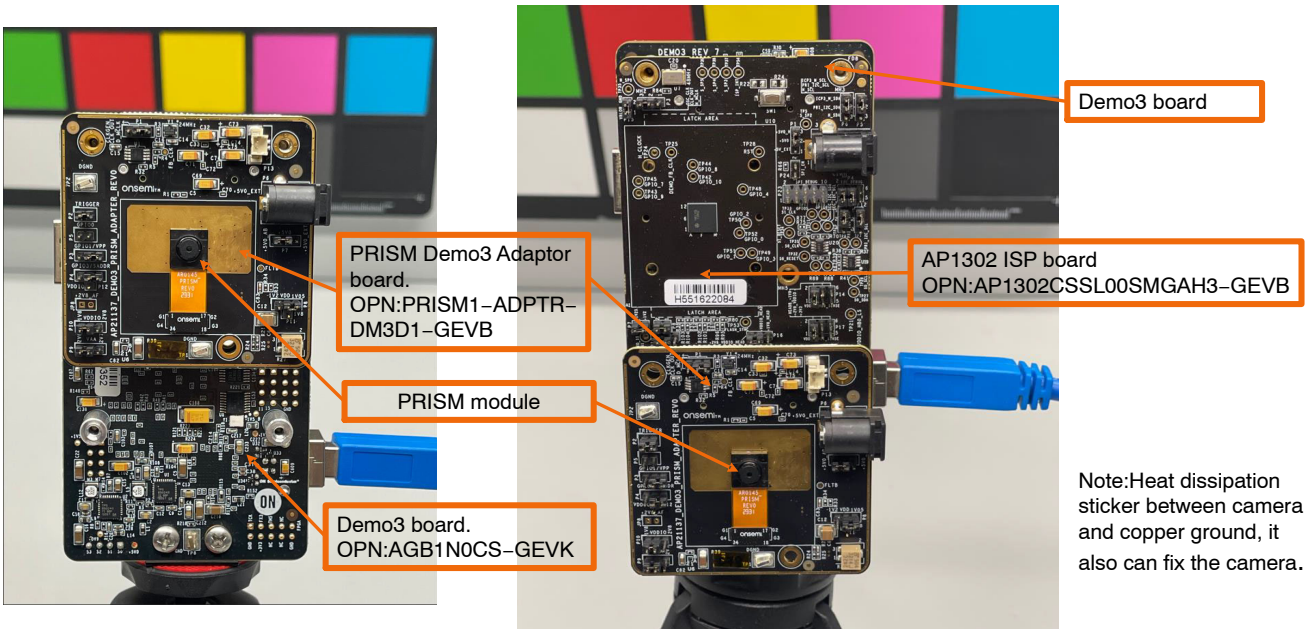


Figure 2. Hardware System Overview

5. PRISM DEMO3 adapter power jumper selection

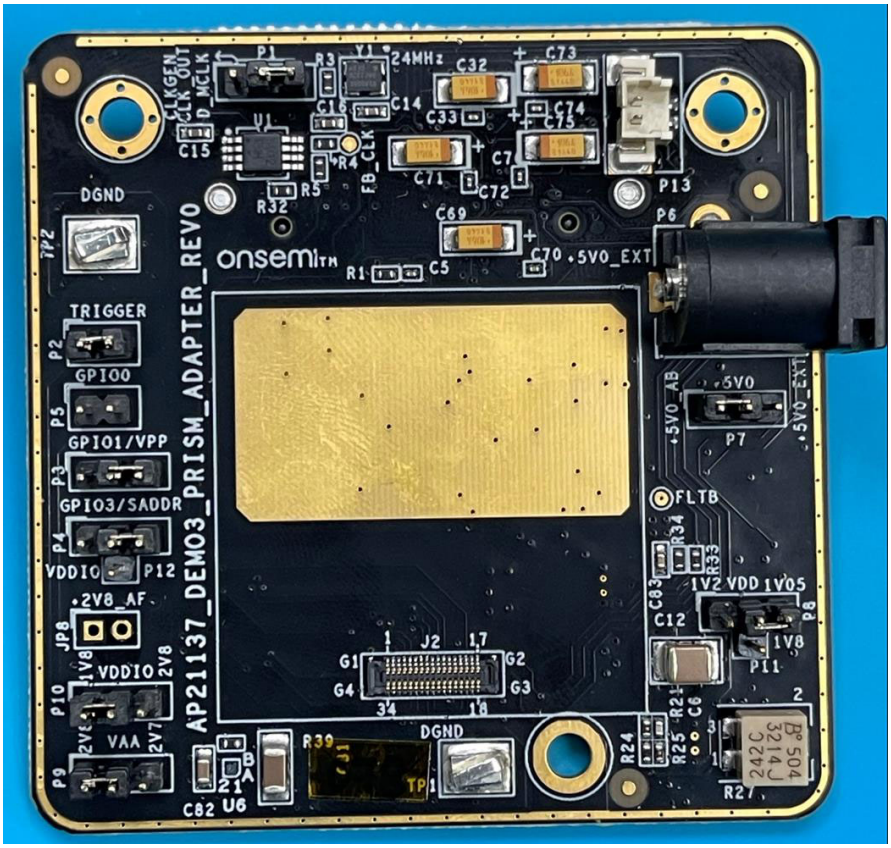


Figure 3. Top Side View of PRISM DEMO3 Adapter

Table 1. PRISM DEMO3 ADAPTER POWER JUMPER SELECTION TABLE

	VDD_P8	VDD_P9	VDD_P10	GPIO1_3	GPIO3_4
AR1335	1.2 V	2.7 V	1.8 V	Please connect accordingly based on the defined use case for GPIO1.	Please connect accordingly based on the defined use case for GPIO3.
AR0144	1.2 V	2.8 V	1.8 V		
AR0234	1.2 V	2.8 V	1.8 V		
AR0822	1.05 V	2.8 V	1.8 V		
AR0544	1.05 V	2.8 V	1.8 V		
AR0830	1.05 V	2.8 V	1.8 V		
AR2020	1.05 V	2.8 V	1.8 V		
AR1223	1.05 V	2.8 V	1.8 V		
ARX383	1.2 V	2.8 V	1.8 V		
AR0145	1.2 V	2.8 V	1.8 V		
AR0235	1.25 V	2.8 V	1.8 V		
AR0246	1.05 V	2.8 V	1.8 V		
ARX3A0	1.2 V	2.7 V	1.8 V		

6. DevWareX install file download from: DevWare in the MyOn Image Sensor Portal.

Example to Bring up PRISM by DevWareX

1. Attached PRISM module to PRISM adapter (follow Figure 1 to make sure PRISM power jumper is set correctly)
2. Plugin PRISM adapter to DEMO3 base board.
3. Connect USB3.0 cable to PC
4. Lunch DevWareX on your PC
5. Select “Detect” when the Startup Choices manual popup (you may not need to manual select if the software has auto detection enabled). If you see the warning ”Could not locate matching sensor data...”, download the sensor specific installer from MyON Image Sensor Portal and install it.

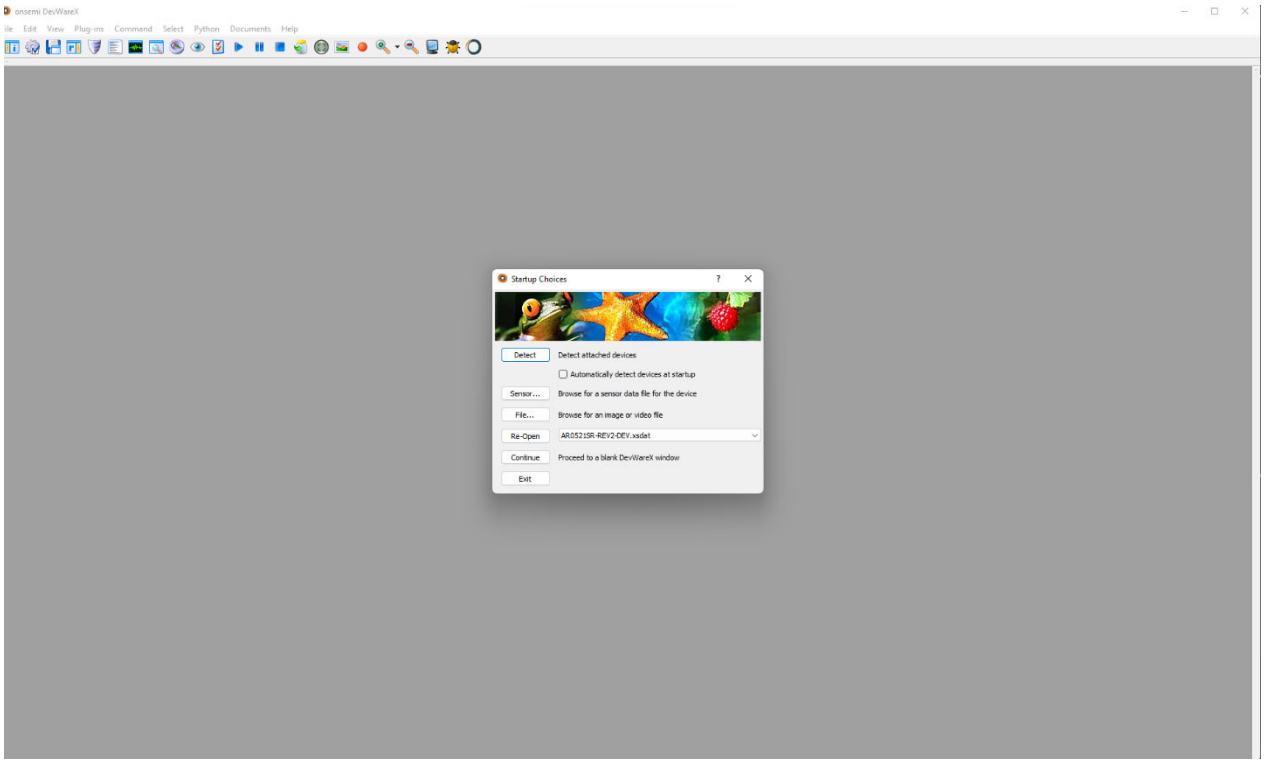
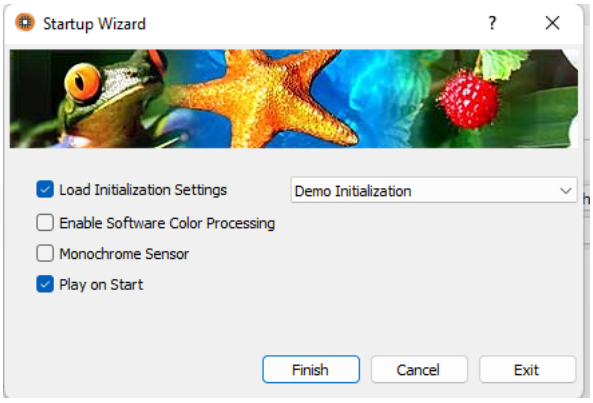


Figure 4. Detect Sensor

6. Select default setting at the “Startup Wizard” window



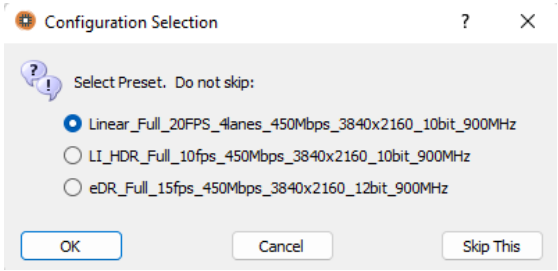


Figure 5. Sensor Setting Select

7. Preview image and evaluate the performance.
   If you see the warning ”Could not locate matching sensor data...”, download the sensor specific installer from MyON Image Sensor Portal.

NOTE: If you see the image orientation is upside down, double check the camera drawing from the module Data Sheet and perform sensor’s mirror/flip setting if required.

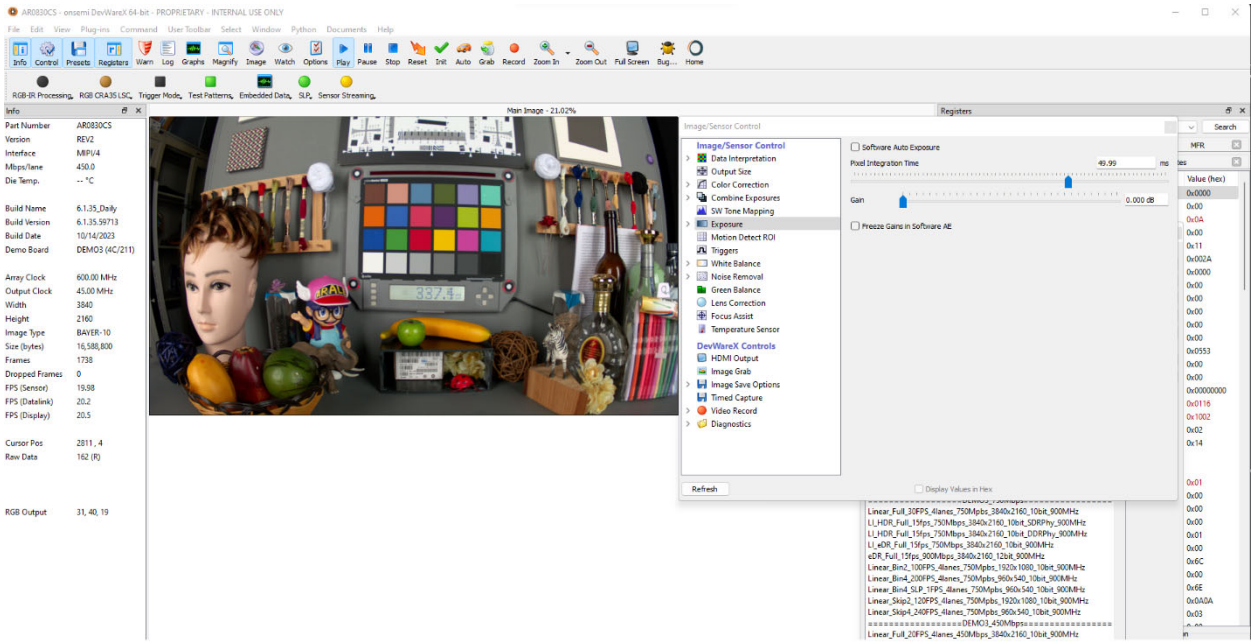


Figure 6. Image Preview

8. Detail support how to play and develop with DevWareX please refer below link: DevWareX

Driver Support List for Eco-system Platform.

1. **onsemi** has developed many adapter boards to eco-system partner’s SOC platform, user can order the board from **onsemi**, the supported list of the adapter as below:

Table 2.

Items	Description	OPN
1	PRISM Adaptor to NXP™ i.MX9 EVB	PRISM1-ADPTR-NXPM1-GEVK
2	PRISM Adaptor to NXP i.MX8 EVB	PRISM1-ADPTR-NXPM2-GEVK
3	PRISM/IAS adapter to Qualcomm® RB5 platform	PRISM1-ADPTR-QCMM1-GEVB
4	PRISM/IAS adapter to NVIDIA® Jetson Nano™ platform	PRISM1-ADPTR-NVDM1-GEVB

2. Below is an example to connect PRISM module to NXP i.mx93 and NVIDIA Jetson Nano.

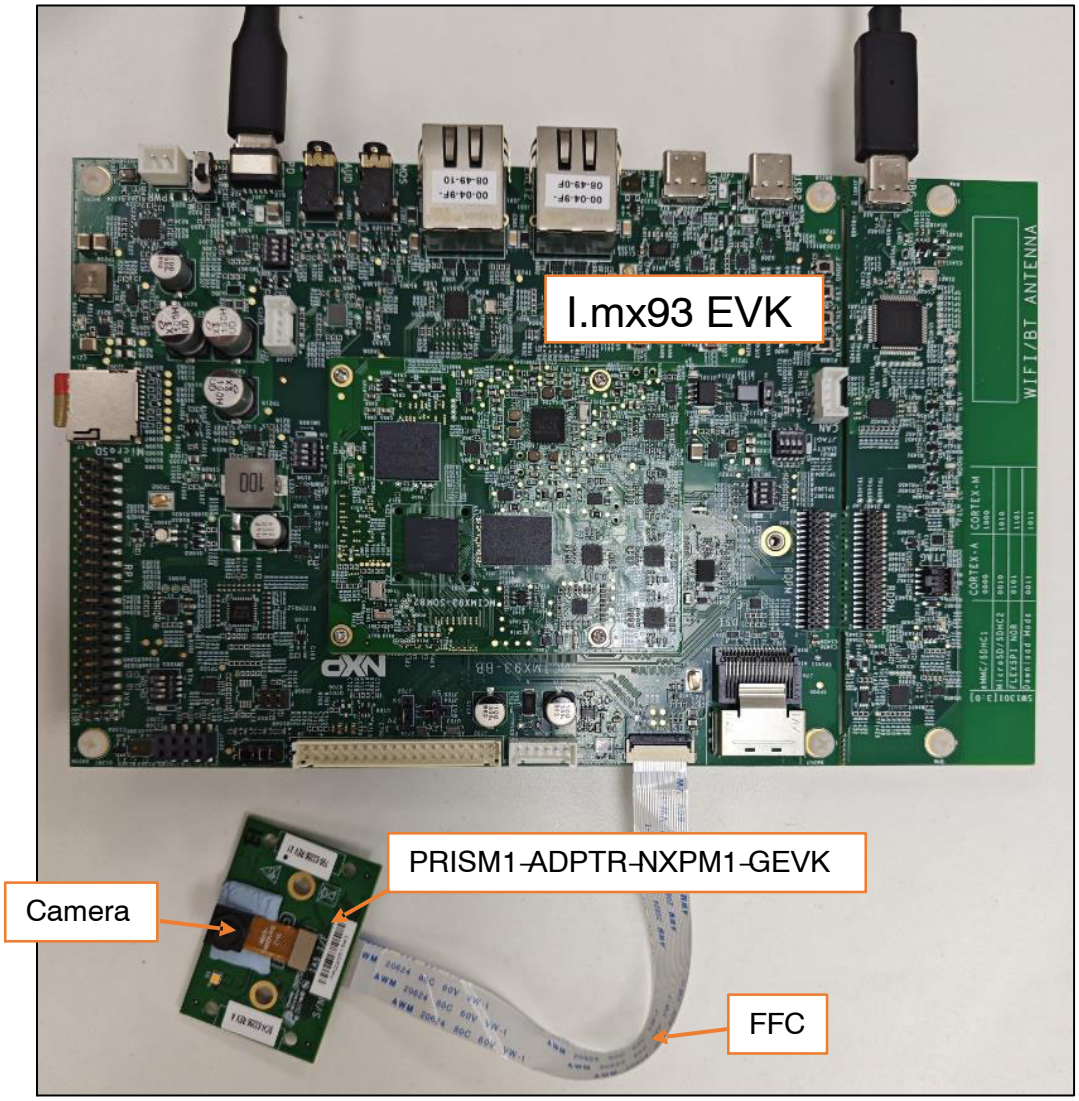


Figure 7. PRISM Module to NXP i.mx93 EVK

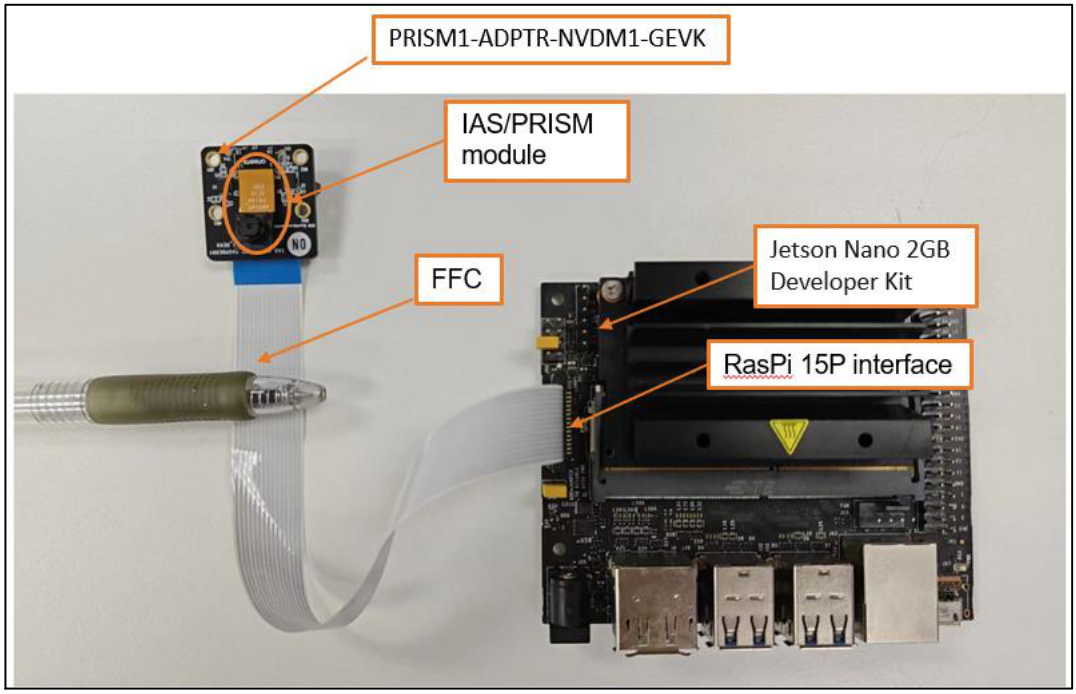


Figure 8. PRISM Module to NVIDIA Jetson Nano EVK

Contact sales for available partner drivers.

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REVISION HISTORY

Revision	Description of Changes	Date
2	Updated Figure 2 and ”Example to Bring up PRISM by DevWareX” section.	06/04/2021

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