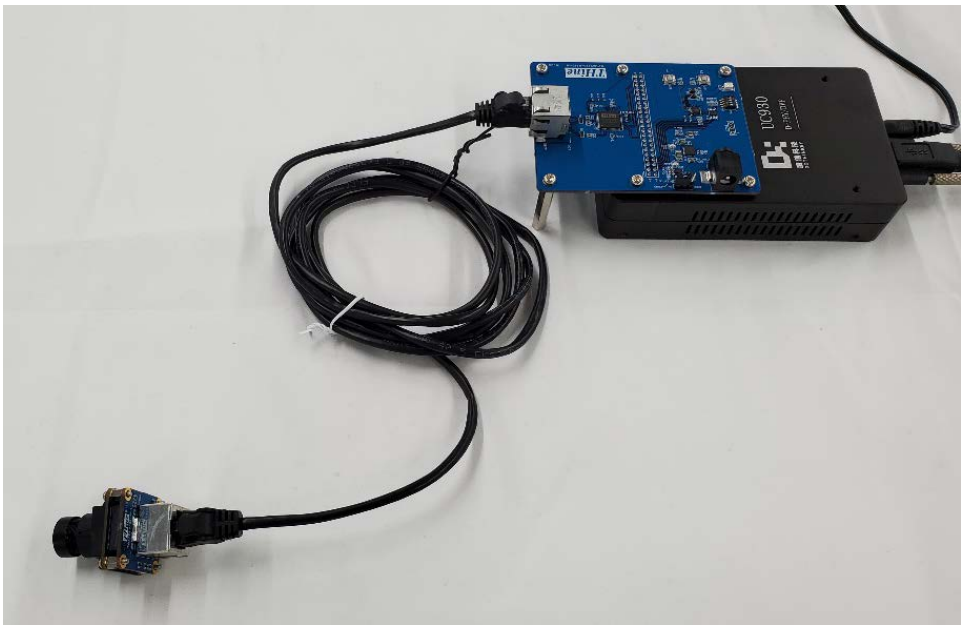
Camera SerDes Starter Kit

Quick Start Guide



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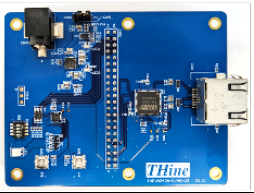
1. Items Used in This Guide

This guide uses the following [1], [2], and [3] to stream the video from the MIPI CSI-2 camera via a 2-meter-long cable.

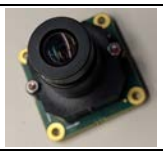
[1] THEVA24-RJ45-SET-V2

No.	Item	Description	Picture of Item
[1]- 1	Tx Board	-	
[1]-2	Rx Board	-	
[1]-3	Cable	2-meter Ethernet Cable	
[1]-4	Spacer	M2 4 mm x 4 pcs M3 30 mm x 2 pcs	
[1]-5	Screw	M2 9 mm x 4 pcs M3 4 mm x 2 pcs M3 8 mm x 4 pcs	
[1]-6	Nut	M2 x 4 pcs	
[1]-7	Document	The QR code is printed for the user registration.	-

[2] THEVA-GRABBER-V1

No.	Item	Description	Picture of Item
[2]-1	UC930	Frame Grabber	
[2]-2	USB Cable	USB 3.0 Type B to Type A Cable	
[2]-3	AC Adapter	DC 12V Output	

[3] Camera Module

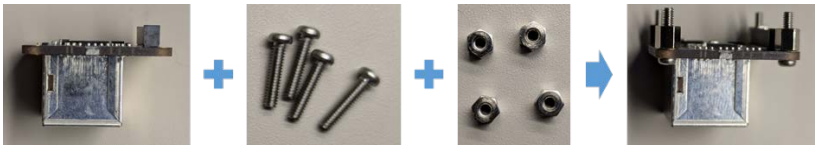
No.	Item	Description	Picture of Item
[3]-1	Camera Module	-	

[4] PC

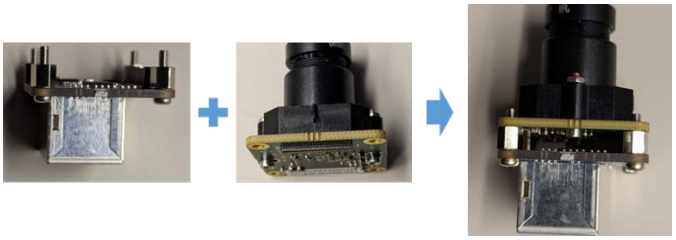
No.	Item	Description	Picture of Item
[4]-1	Windows PC	-	

2. Set up Hardware

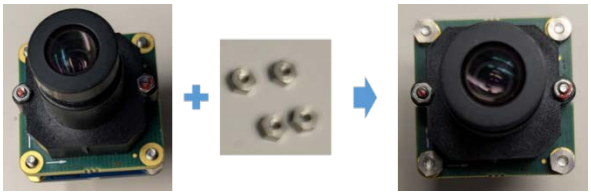
2.1 Put M2 4 mm spaces and screw with M2 9mm screws on the Tx board,



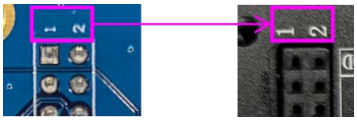
2.2 Connect the camera board with Tx board.



2.3 Tighten M2 nuts on the camera board.

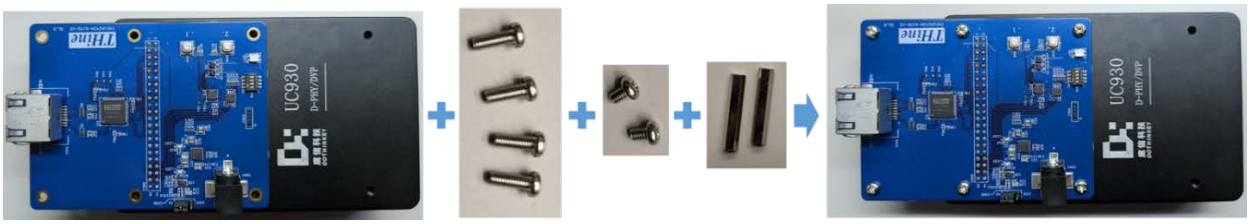


2.4 Connect Tx board on UC930.



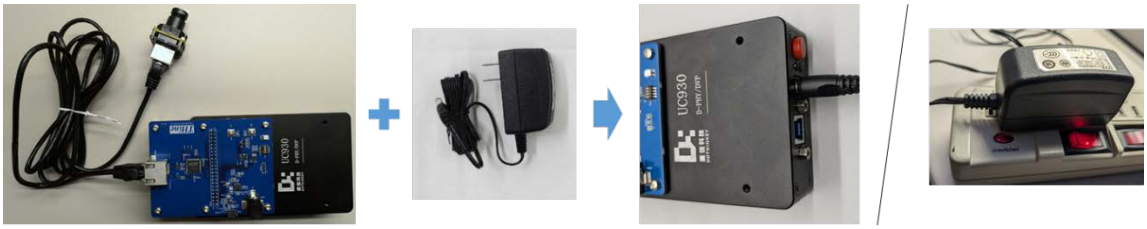
Make sure that the pin numbers between the Rx board pin header and the UC930 pin socket match.

2.5 Screw M3 8 mm screws with the Rx board and Grabber board. Set the M3 30 mm spacers on the bottom side of the Rx board and fix it on with M3 4 mm screws.

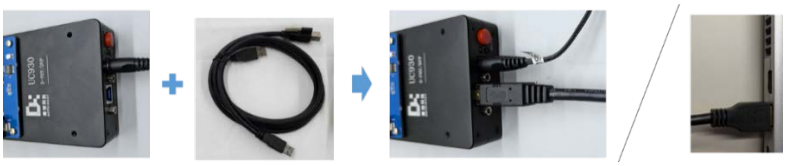


2.6 Connect Tx Board with Rx Board via Ethernet Cable

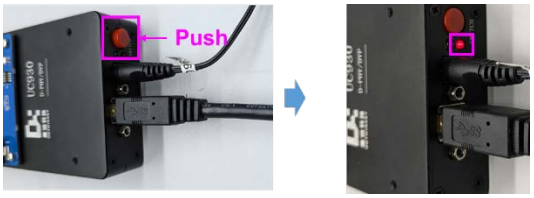
2.7 Connect AC Adapter +12 V Plug into the Jack of UC930, and Connect the Other Side to the Power Outlet



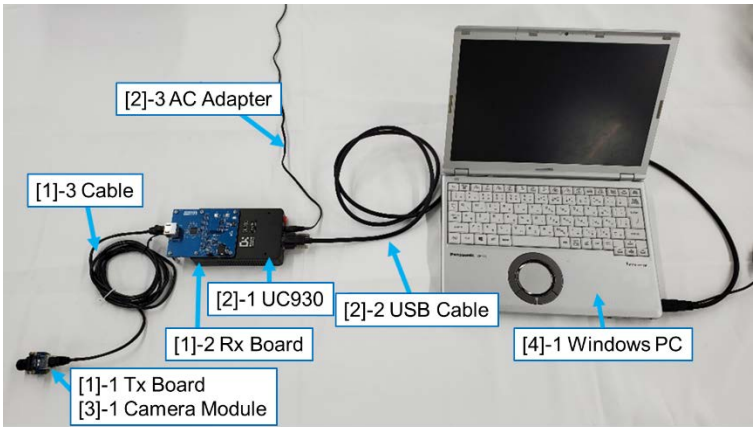
2.8 Connect USB3 Type B Connector to UC930, and Connect the Other side to PC.



2.9 Push the red button of UC930 and check red LED turns on.



The following is the hardware setup example.



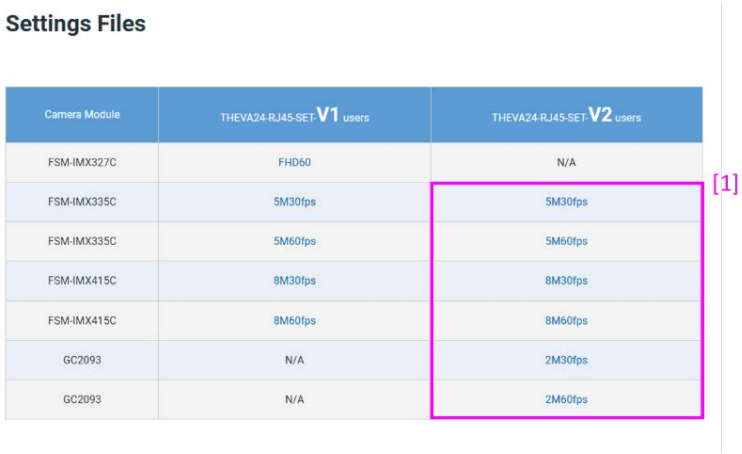
3. Get Contents Download Page URL

Go to the user registration page from the QR code printed on the welcome message in the box, and complete the registration. You will get the URL of the contents download page in the email from autoreply@kintoneapp.com.

4. Download Files

Download and unzip the setting file corresponding to your camera module, the UC930 Grabber board driver software, and the GUI tool from the download page. This guide assumes the files are saved and unzipped under the download folder, C:¥Users¥*User Name*¥Downloads¥ in the following explanation. The " *User Name*" would be the login user name.

[1] Setting File



Settings Files

Camera Module	THEVA24-RJ45-SET-V1 users	THEVA24-RJ45-SET-V2 users
FSM-IMX327C	FHD60	N/A
FSM-IMX335C	5M30fps	5M30fps
FSM-IMX335C	5M60fps	5M60fps
FSM-IMX415C	8M30fps	8M30fps
FSM-IMX415C	8M60fps	8M60fps
GC2093	N/A	2M30fps
GC2093	N/A	2M60fps

[1]

Download the setting file corresponding to the camera module you use.

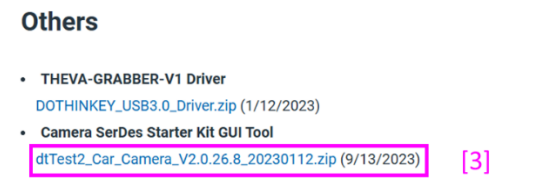
[2] UC930 Grabber Board Driver Software

Others

- **THEVA-GRABBER-V1 Driver**
  DOTHINKEY_USB3.0_Driver.zip (1/12/2023)
- **Camera SerDes Starter Kit GUI Tool**
  dtTest2_Car_Camera_V2.0.26.8_20230112.zip (9/13/2023)

[2]

[3] GUI Software Tool



Others

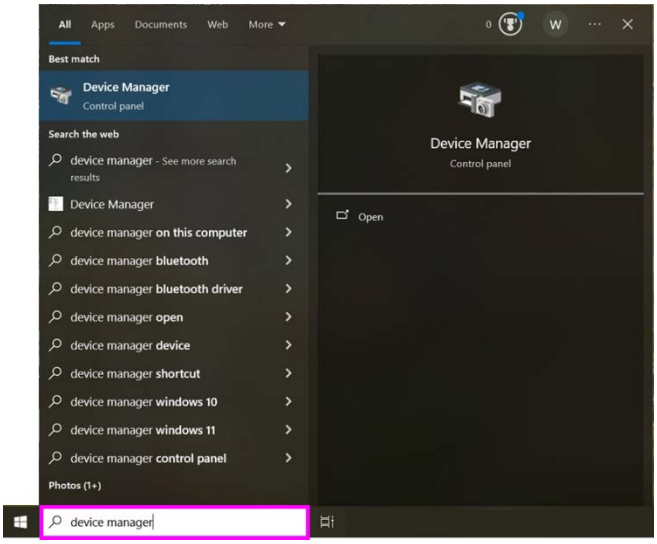
- **THEVA-GRABBER-V1 Driver**
  DOTHINKEY_USB3.0_Driver.zip (1/12/2023)
- **Camera SerDes Starter Kit GUI Tool**
  dtTest2_Car_Camera_V2.0.26.8_20230112.zip (9/13/2023)

[3]

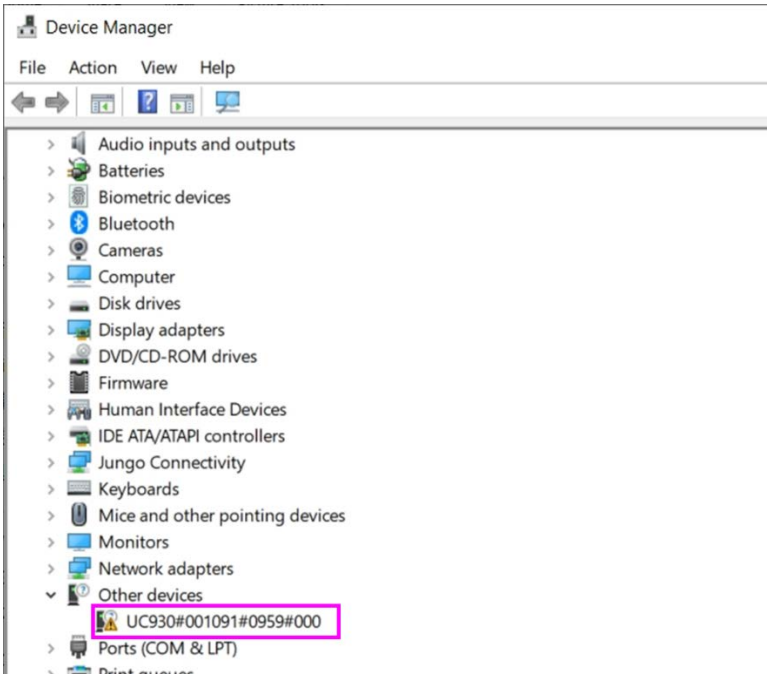
5. Install Grabber Board Driver

The driver installation is required the first time to use the UC930 Grabber board.

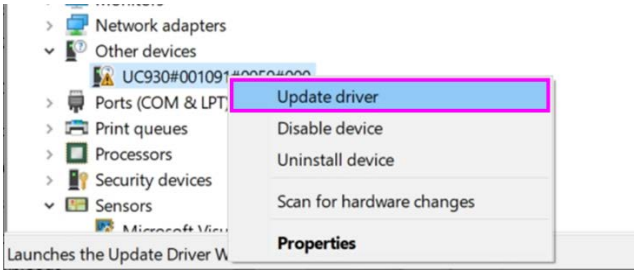
5.1. Type "device manager" into the search box as following. Type Enter key to launch the Device Manger.



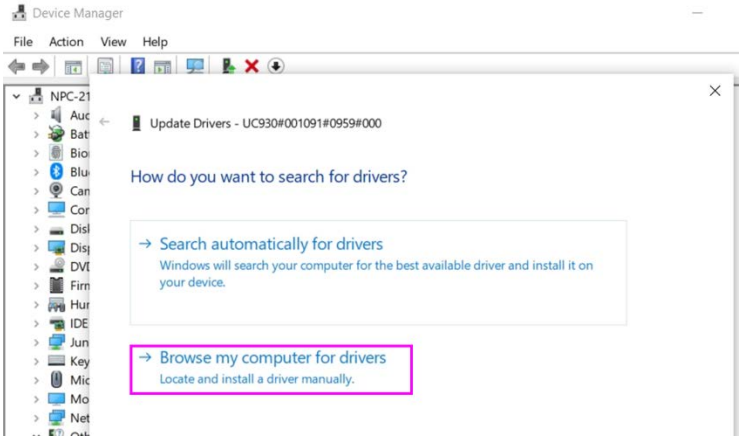
5.2. Open "Other devices" and check if the device UC930 appears. Check and redo the hardware setup if UC930 does not appear.



5.3. Click right button on the UC930 device and select "Update driver" as following.



5.4. Select "Browse my computer for drivers".

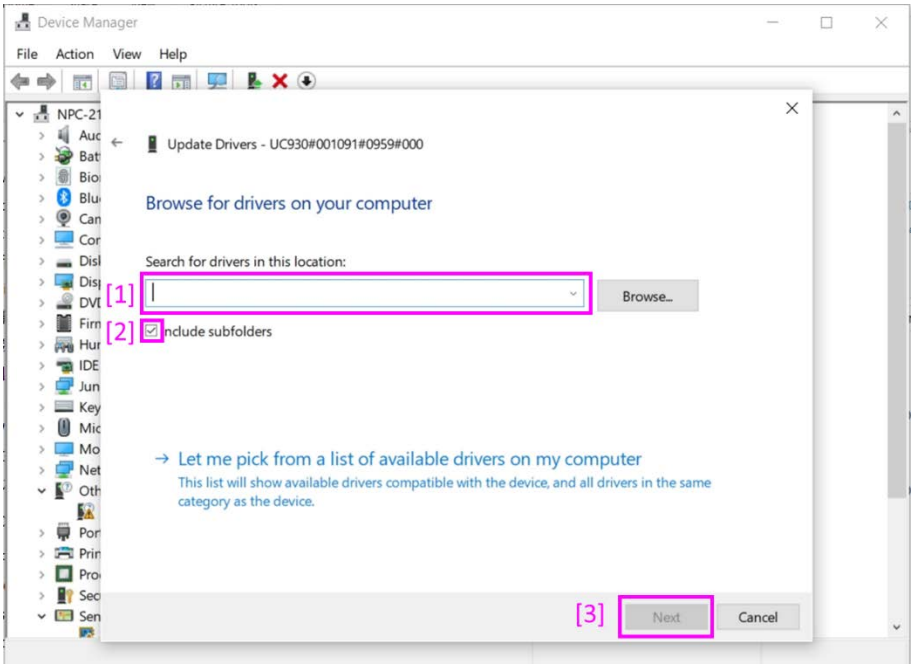


5.5. Set the Driver Browsing

[1] Copy and paste the unzipped folder path of UC930 Grabber board driver software to the search location, e.g. C:¥Users¥*User Name*¥Downloads¥DOTHINKEY_USB3.0_Driver.

[2] Check the "Include subfolders".

[3] Click the "Next" button.



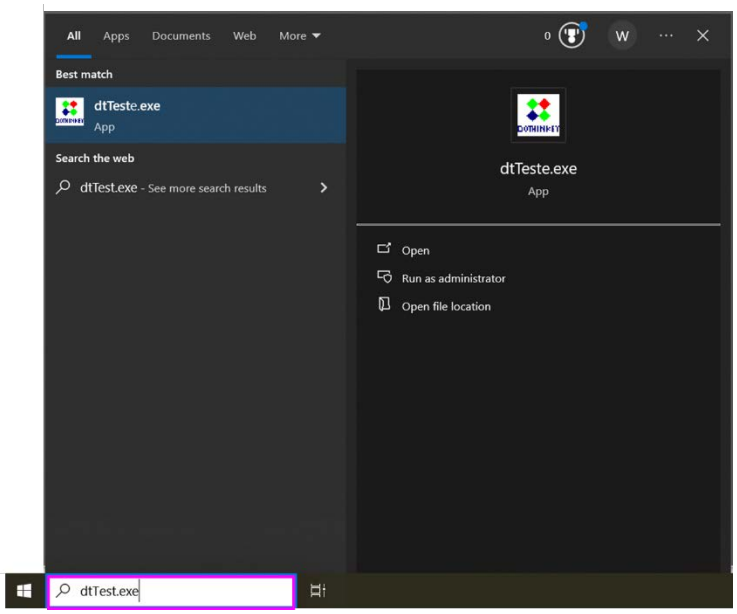
Update the Driver starts and completes if the folder location is correct and "Include subfolder" is checked.

"DOTHINLEY USB3.0 ImageKit" appears at the "Universal Serial Bus controllers" section in the Device Manger.

You can close the Device Manager.

6. Stream the Video with the Kit

Type "dtTest.exe" into the search box as following. Press Enter key to launch the GUI based software tool.



You can double click the icon of "dtTest.exe" in the unzipped folder to launch the software.

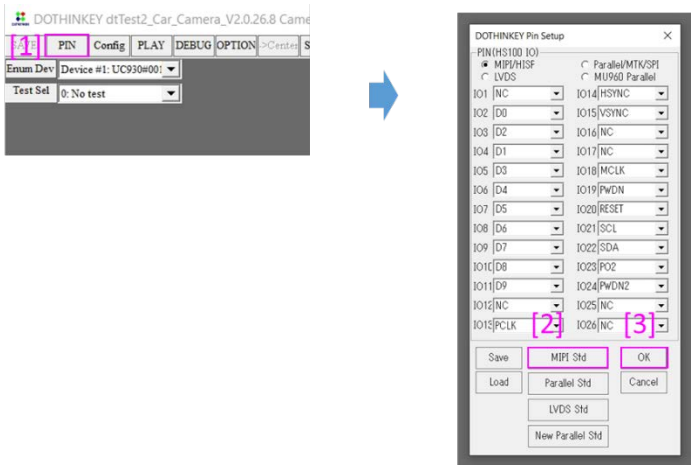
6.1. Check if the UC930 device name is shown in the "Enum Dev" box. Check and redo setup hardware and driver installation if the box is blank.

6.2. Set the I/O Pin Settings

[1] Click "PIN" button, then "DOTHINKEY Pin Setup" Window appears

[2] Click the "MIPI Std" in the Window.

[3] Click the "OK" button in the Window.



6.3. Setup Power Supply Setting

[1] Click the "OPTION" button, then "Please input password" Window appears. You do NOT need a password.

[2] Click the "OK" button in the Window, then "Option (If you use···)" Window appears.

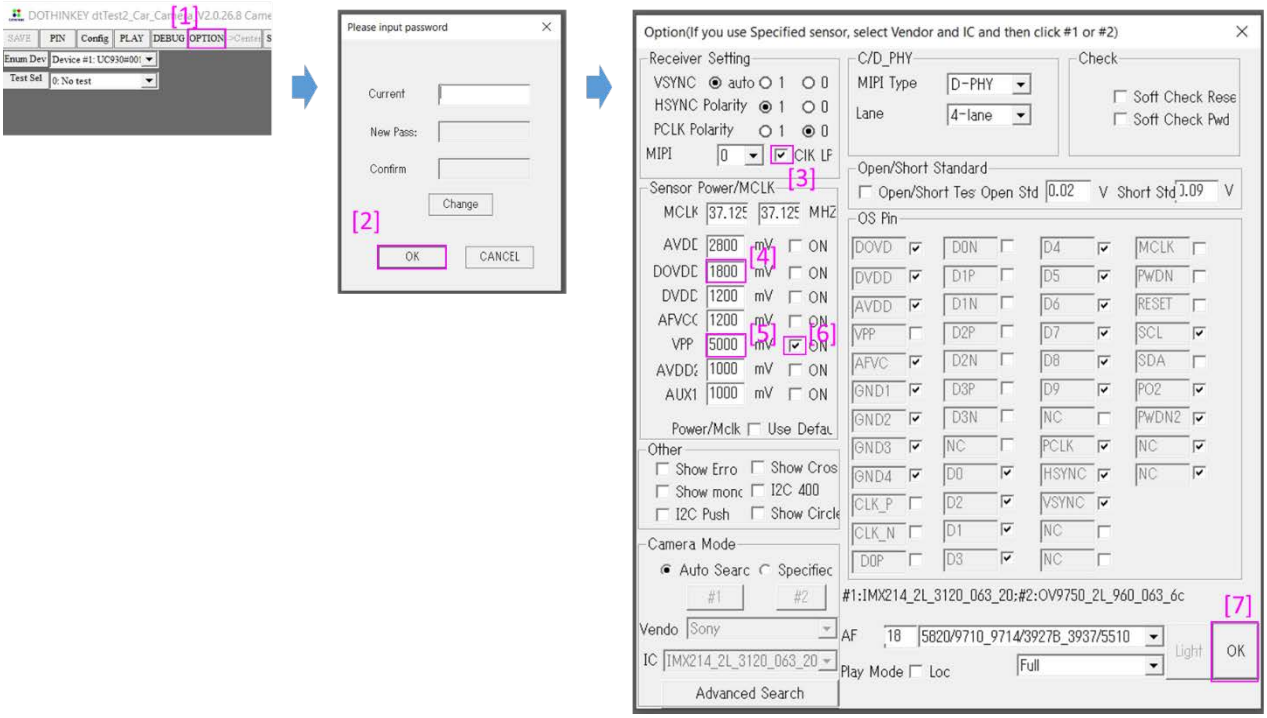
[3] Check the "CKP LP" check box in the "Option (If you use···)" Window.

[4] Type 1800 in the "DOVDC".

[5] Type 5000 in the "VPP".

[6] Check the "ON" check box of "VPP".

[7] Click the "OK" button.

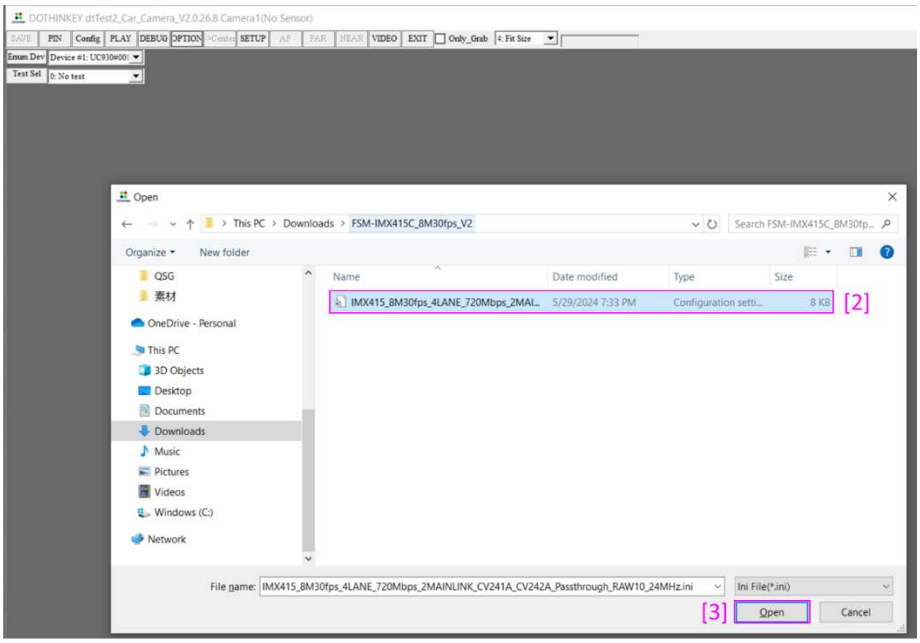


6.4. Load the Setting File

[1] Press the 'L' key on the keyboard, then Open dialog appears.

[2] Select the setting file which is in the downloaded and unzipped folder.

[3] Click "the OK" button.



6.5. Check the Video Images on the Software

The dtTest software displays the video from the camera module via this kit as the following after loading the setup file.

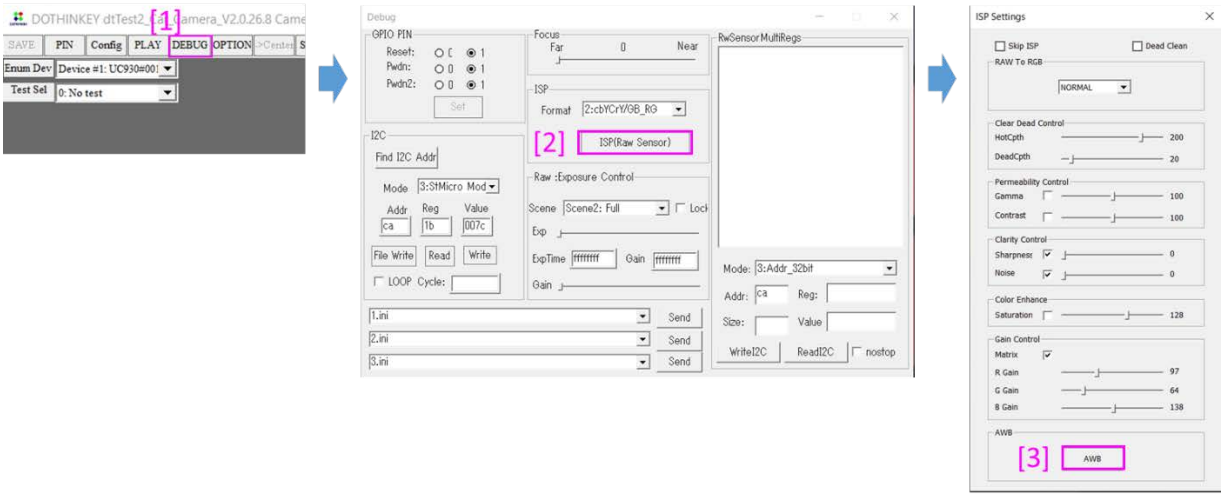
6.6. [Optional] Adjust the White Balance

You can adjust the white balance of the video from the camera.

[1] Click the "DEBUG" button ,then "Debug" Window appears.

[2] Click the "ISP(RAW Sensor)" button in the Window, then "ISP Settings" Window appears

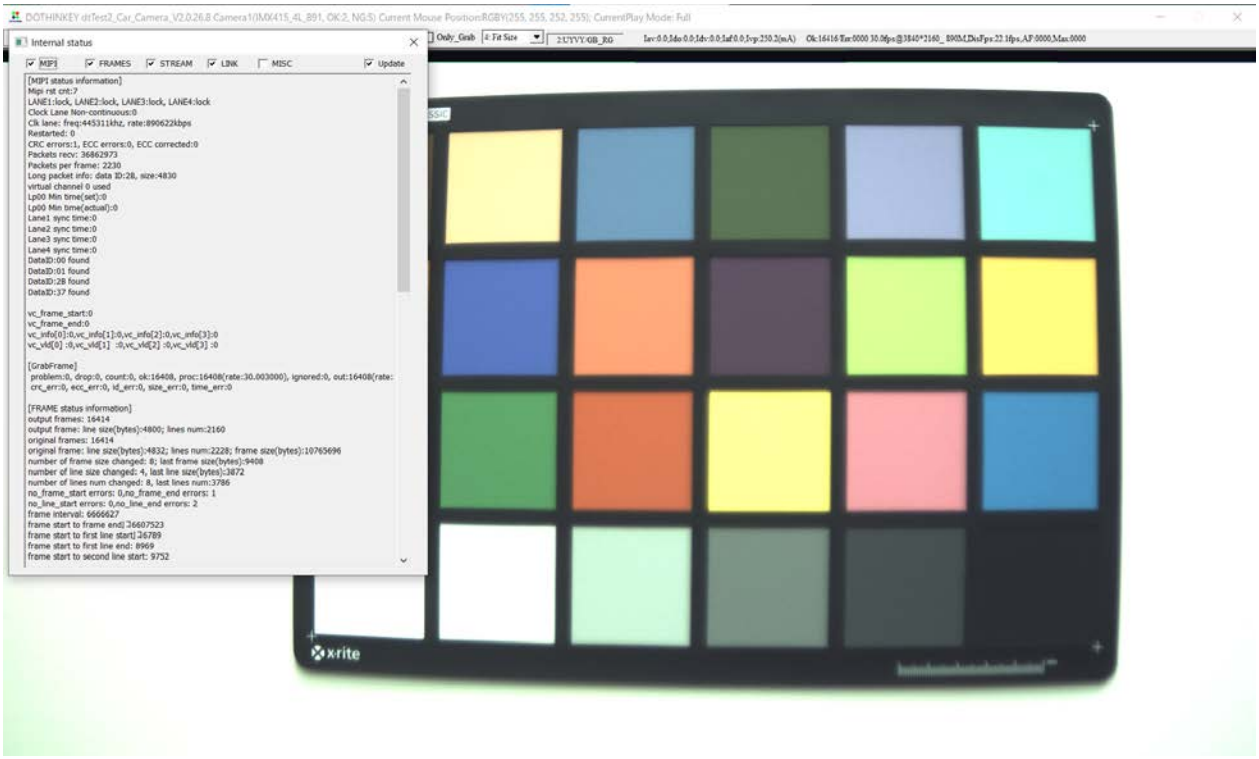
[3] Click the "AWB" button in the "ISP Settings" Window.



The streaming images change as the following after clicking AWB button.

6.7. [Optional] MIPI Signal Information

You can see the MIPI information by pressing **' I '** key on the keyboard while the dtTest streaming the images.



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