

# THSCU101 Firmware Update User Manual

Rev. 1.30

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## Win-step 1. Obtain required files

1. Visit the following web page to obtain the Camera Extension Controller Application and THSCU101 latest firmware binary.

- <https://www.thinesolutions.com/13mp-pdaf-uvc-camera>

### Software, Firmware

- [Camera Extension Controller](#)

[1]

- [THSCU101 Firmware Binary](#)

[2]

- [THSCU101 Firmware Programming Tool for Mac](#)

#### [1] Camera Extension Controller Application (PC Software)

THSCU101\_UVC\_Cam\_Ext\_Ctrl\_v\_1\_2.exe as of Apr. 1, 2024

[https://www.thinesolutions.com/s/THSCU101\\_UVC\\_Cam\\_Ext\\_Ctrl\\_v\\_1\\_2.exe](https://www.thinesolutions.com/s/THSCU101_UVC_Cam_Ext_Ctrl_v_1_2.exe)

#### [2] THSCU101 Latest Firmware Binary

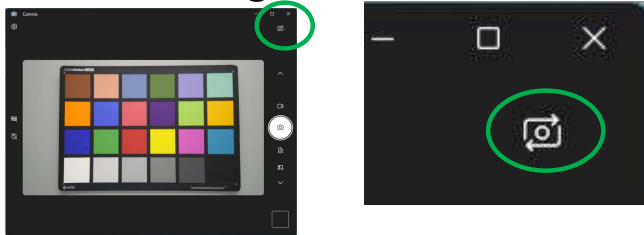
THSCU101\_FW\_Binary.zip as of Apr. 1, 2024

[https://www.thinesolutions.com/s/THSCU101\\_FW\\_Binary.zip](https://www.thinesolutions.com/s/THSCU101_FW_Binary.zip)

2. Copy the THSCU101\_UVC\_Cam\_Ext\_Ctrl\_v\_1\_2.exe and THSCU101\_FW\_Binary.zip to your desktop.
3. Unzip THSCU101\_FW\_Binary.zip.

## Win-step 2. Check the firmware version

1. Connect the THSCU101 to your PC with USB cable
2. Launch Windows Camera App
3. Click the “Change camera” icon in the Windows Camera App to select THine Solutions THEIA-CAM. Then THSCU101 starts to stream images.



4. Launch Camera Extension Controller  
Double click Camera Extension Controller Application.  
**DO NOT minimize or close the Windows Camera App.**

5. Enter “40”

```
Found CX3_HID Device #5: VID: 0x04B4 PID: 0x00C3
THSCU101 UVC Camera Extension Controller menu: Select the number
```

```
40 : Get CX3/ISP firmware versions
```

```
99 : Exit
```

```
40
```

6. CX3 and THP7312 firmware versions are displayed

```
40
CX3 Firmware Version = 1.58          CX3 firmware version of your THSCU101
CX3 Build Date(Year/Month/Date) = 2023/9/15
THP7312 Firmware version = 3.69     THP7312 firmware version of your THSCU101
THSCU101 UVC Cam Ext Ctrl version = 1.2
```

7. Check the versions are identical to the ones on README.txt in the THSCU101\_FW\_Binary folder.

```
$ Folder Name
THSCU101_FW_Binary
```

```
----
$ File Name | Revision Number
THSCU101_FW_Binary.img | CX3 1.54, THP7312 3.69
                        CX3 firmware version    THP7312 firmware version
```

8. Follow the next 2 pages if the THSCU101 has older firmware.

## Win-step 3. Delete the firmware from THSCU101

1. Connect the THSCU101 to your PC with USB cable
2. Launch Windows Camera App and start streaming image with THSCU101.

3. Launch Camera Extension Controller

Double click Camera Extension Controller Application.

DO NOT minimize or close the Windows Camera App.

4. Enter “77” in to the Camera Extension Controller.

```
THSCU101 UVC Camera Extension Controller menu: Select the number
1 : Set exposure compensation
2 : Set flicker cancel priority
. . .
```

```
77 : Erase firmware (DO NOT USE IF NOT HAVING FIRMWARE)
99 : Exit
77
```

5. Enter “77” again. Then the firmware in THSCU101 is deleted.

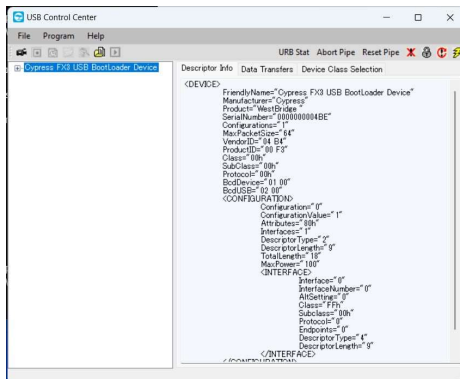
```
After erasing, you have to program the firmware binary into Flash ROM
Are you sure to erase firmware from Flash ROM ?
0 : Return to TOP menu, 77 : Execute Erasing Selectable settings
77
```

6. Check if the Windows Camera Application software stops the image streaming from THSCU101.

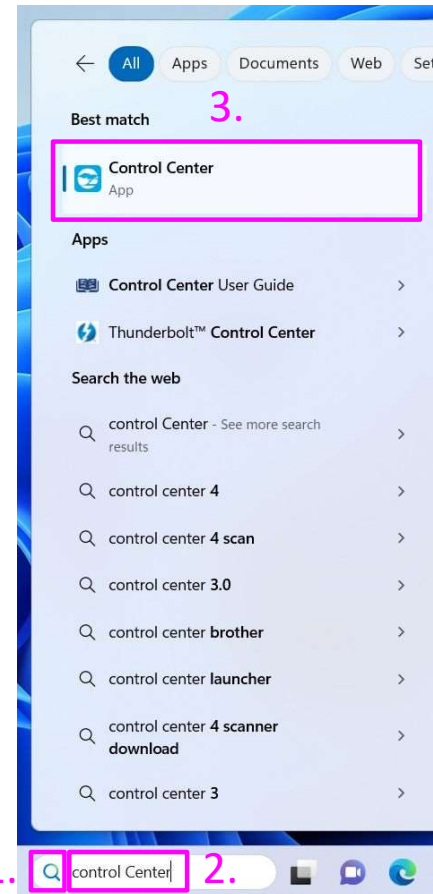
- The Windows Camera Application software might switch the images from another camera pre-installed on your PC when the software deletes the firmware binary.

# Win-step 4. Program the firmware into THSCU101

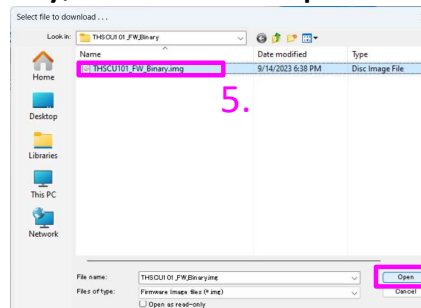
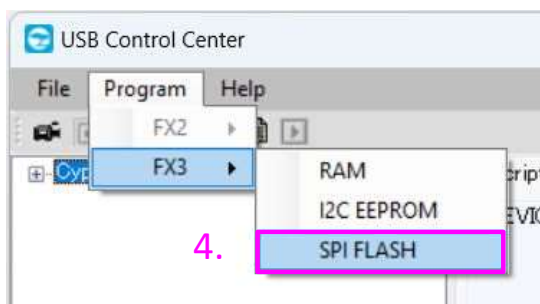
1. Click the search box at bottom of the Desktop.
2. Type "Control Center".
3. Press Enter key to launch the "Control Center" if Control Center appears.
  - Please see Appendix "[EZ-USB FX3 SDK Installation](#)" if EZ-USB FX3 SDK is not installed.



Control Center

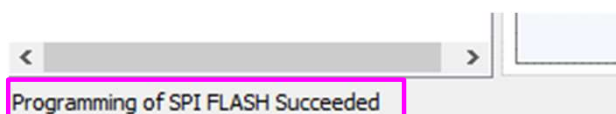


4. Click Program→FX3→SPI Flash
  - Please see Appendix "[CX3 Driver Installation](#)" if there is no "Cypress FX3 USB BootLoader Device" in the Control Center.
5. Select the latest firmware binary, then click open.



Click "Open"

6. Confirm "Programming of SPI FLASH Succeeded" is displayed on the bottom left corner of "Control Center".



7. Disconnect and reconnect THSCU101.
  - THSCU101 boots up with the new firmware.

## Mac-step 1. Obtain required files

1. Visit the following web page to obtain the Camera Extension Controller Application and THSCU101 latest firmware binary.

- <https://www.thinesolutions.com/13mp-pdaf-uvc-camera>

### Software, Firmware

- [Camera Extension Controller](#)

[1]

- [THSCU101 Firmware Binary](#)

[2]

- [THSCU101 Firmware Programming Tool for Mac](#)

#### [1] Camera Extension Controller Application (PC Software)

THSCU101\_UVC\_Cam\_Ext\_Ctrl\_v\_1\_2.exe as of Apr. 1, 2024

[https://www.thinesolutions.com/s/THSCU101\\_UVC\\_Cam\\_Ext\\_Ctrl\\_v\\_1\\_2.exe](https://www.thinesolutions.com/s/THSCU101_UVC_Cam_Ext_Ctrl_v_1_2.exe)

#### [2] THSCU101 Latest Firmware Binary

THSCU101\_FW\_Binary.zip as of Apr. 1, 2024

[https://www.thinesolutions.com/s/THSCU101\\_FW\\_Binary.zip](https://www.thinesolutions.com/s/THSCU101_FW_Binary.zip)

2. Copy the THSCU101\_UVC\_Cam\_Ext\_Ctrl\_v\_1\_2.exe and THSCU101\_FW\_Binary.zip to your desktop.
3. Unzip THSCU101\_FW\_Binary.zip.

Mac-step 2. Check the firmware version

## You need a Windows PC to confirm the firmware version of THSCU101

- Follow the instruction of “[Win-step 2. Check the firmware version](#)”

You can skip this step and proceed to following steps if it is difficult to use a Windows PC (\*).

(\*) Firmware updates must be done with a Windows PC unless the firmware version is "CX3 Firmware: 1.36 and THP7312 Firmware: 3.49" or later.



## Mac-step 3. Delete firmware from THSCU101

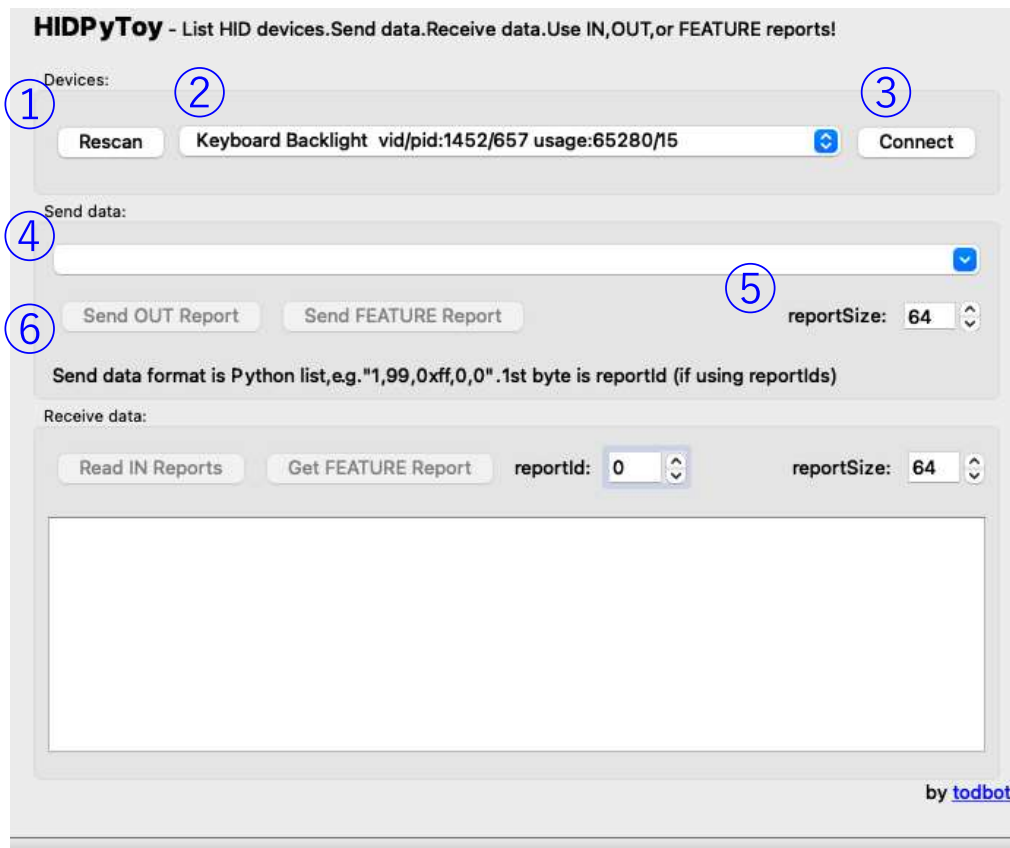
### 1. Connect THSCU101 to Mac

### 2. Launch HIDPyToy

- Download from following URL if you do not have <https://github.com/todbot/hidpytoy/releases/tag/v0.1>

### 3. Set following

- ① Click Rescan
- ② Click if “Cypress CX3-UVC ...” is listed in drop down
- ③ Click Connect
- ④ Type 0,3,0x4D in Send data filed
- ⑤ Change reportSize 3
- ⑥ Click Send OUT Report



4. Confirm “Sending 3-byte OUT report:[0,3,77]” is displayed on the bottom left corner of HIDPyToy if the firmware is deleted.

## Mac-step 4. Program firmware into THSCU101

### [Preparation]

1. Build download\_usb which programs the firmware into THSCU101 according to the guide in Appendix “[Build the tool on Mac](#)”. (Required only at the first time)
2. Put the latest firmware binary into the same folder with the tool, download\_usb.

### [Program the firmware into THSCU101]

1. Connect THSCU101 to Mac via USB cable
2. Launch Terminal
3. Change the directory to the one where the tool and the firmware are in.
4. Program the firmware into THSCU101 with following command  

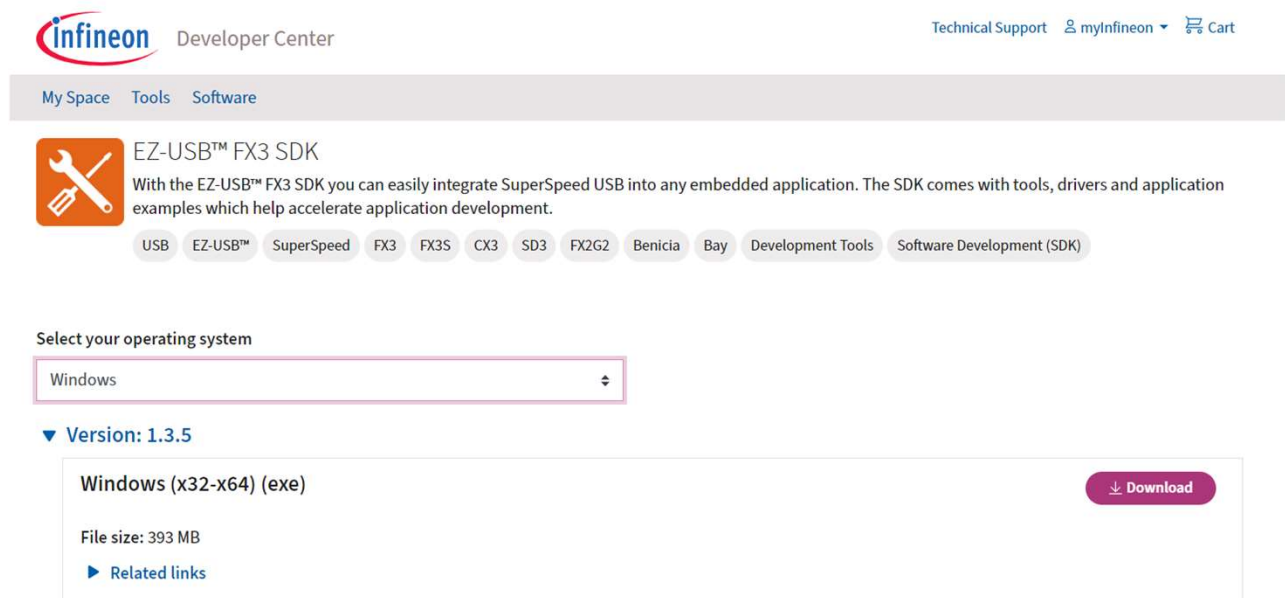
```
./download_usb -t "SPI" -i THSCU101_CX3_1_36_ISPFW_03_49.img
```
5. Confirm “Firmware programming to SPI completed” is displayed on Terminal if the firmware programming is done.

# Appendix

- EZ-USB FX3 SDK Installation
- CX3 Driver Installation
- Build the tool for Mac

# EZ-USB FX3 SDK Installation

1. Download “EZ-USB FX3 Software Development Kit” for windows from Cypress
  - <https://softwaretools.infineon.com/tools/com.ifx.tb.tool.ezusbfx3sdk>
    - Select “Windows” in the Select your operating system dropdown menu.
    - Select “Windows (x32-x64) (exe)”, then click “Download” button.



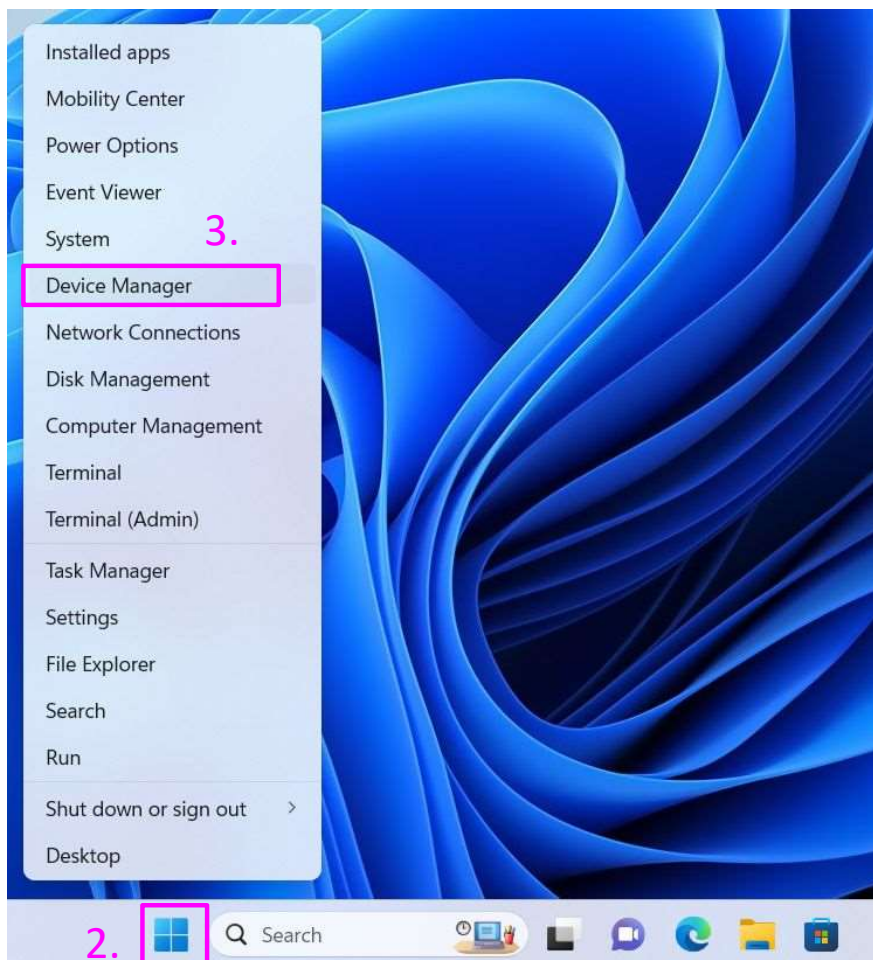
2. Install the “EZ-USB FX3 Software Development Kit” to your PC.
  - Double click ezusbfx3sdk\_1.3.5\_Windows\_x32-x64.exe to launch installer.
  - Install “EZ-USB FX3 Software Development Kit” according to installer instructions.
    - Select installation type “Typical”.

# CX3 Driver Installation (1/4)

1. Make sure the THSCU101 firmware is deleted.
  - Connect THSCU101 which the firmware binary is deleted.
  - Launch the Camera Extension Controller software to check if the software shows the “Did not find CX3\_HID Device...” and “Connect CX3\_HID Device... and try again”.

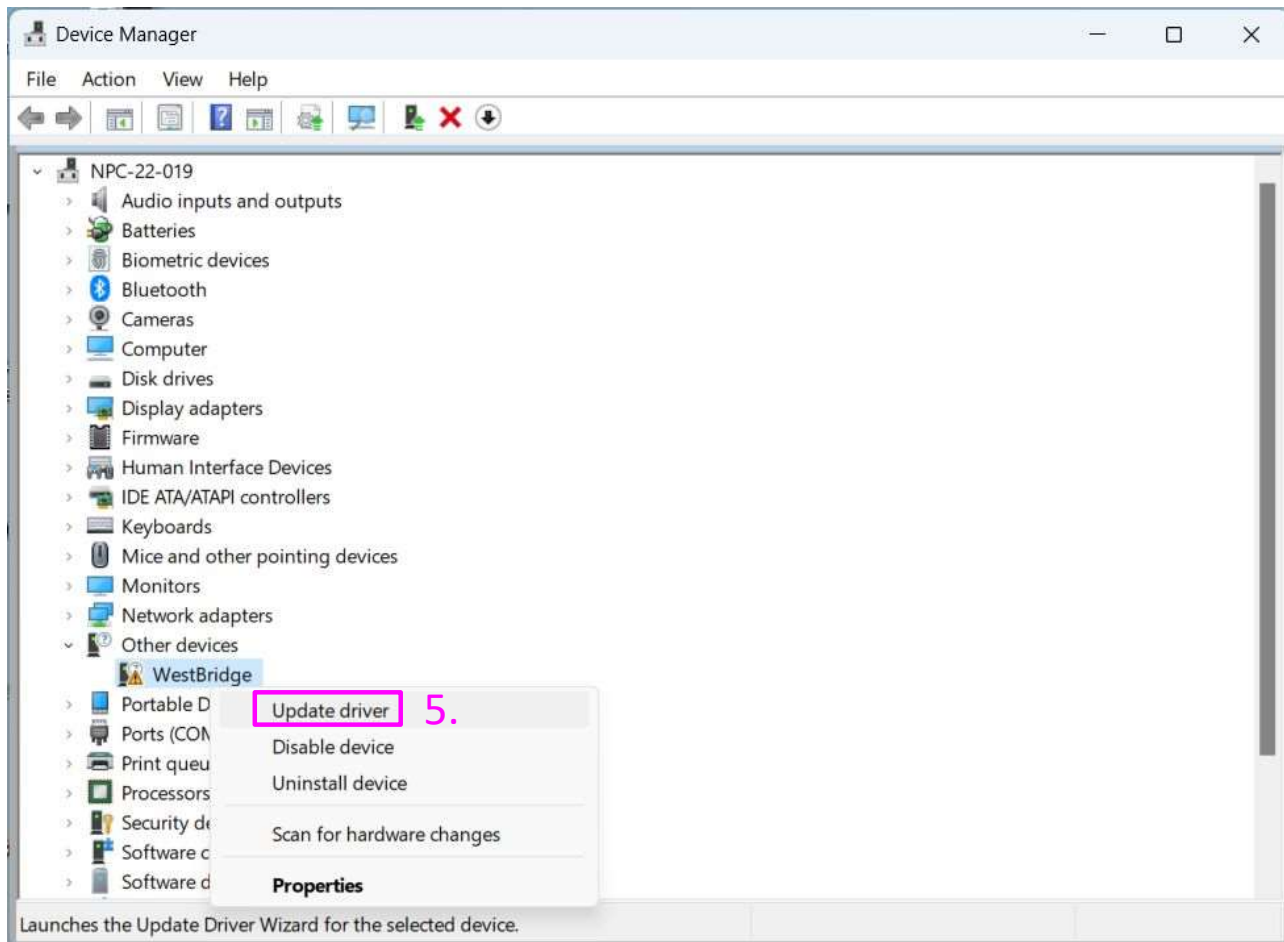
Did not find CX3\_HID Device...  
Connect CX3\_HID Device...and try again  
THSCU101 UVC Camera Extension Controller menu: Select the number

- Delete the firmware binary with the steps explained in “[Win-step 3. Delete the firmware from THSCU101](#)”
2. Right-click the Start icon at bottom of the Desktop.
  3. Click the “Device Manager” as follows.



## CX3 Driver Installation (2/4)

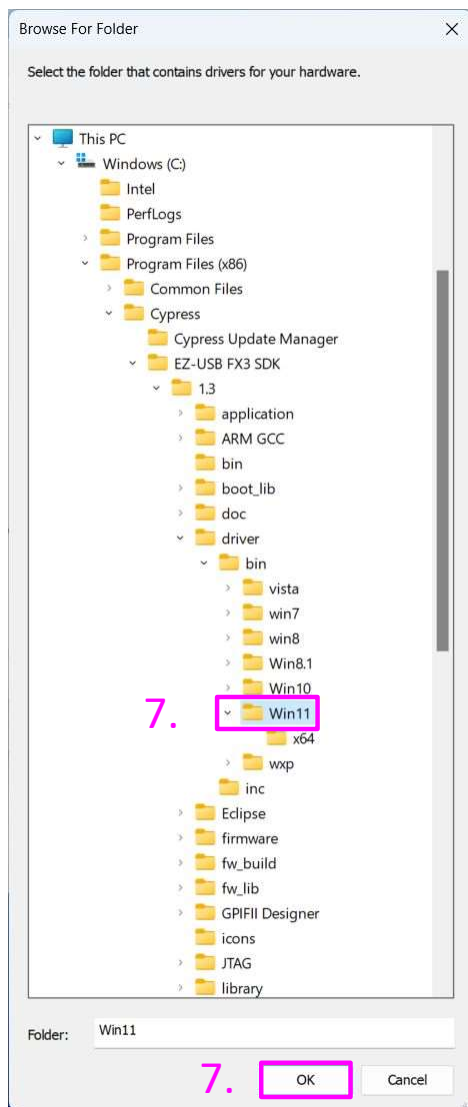
4. Check if there is a “WestBridge” under the “Other devices”.
5. Right click on the “WestBridge” and select “Update Drivers”.



6. Select “Browse my computer for drivers”.

# CX3 Driver Installation (3/4)

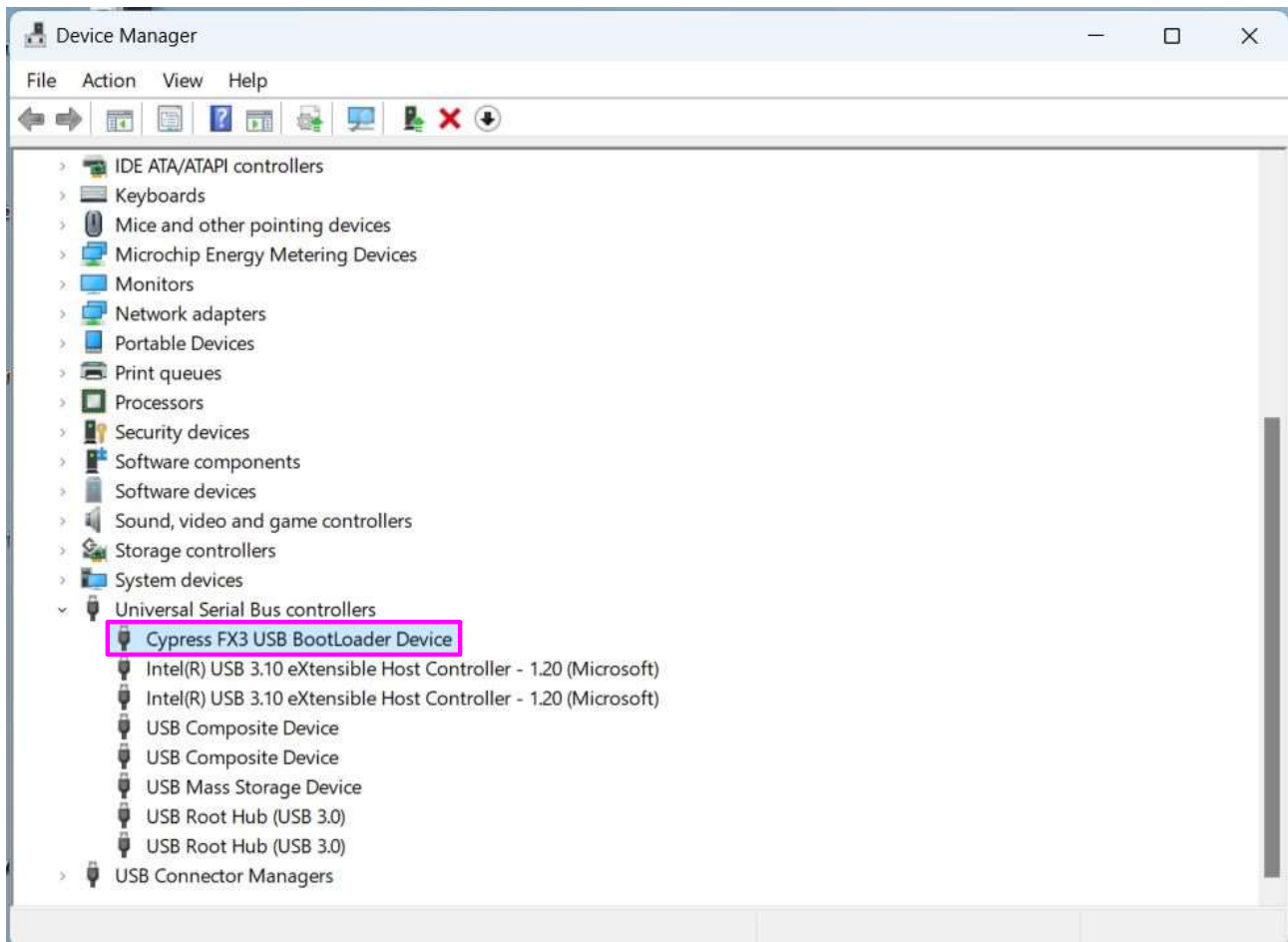
7. Select the driver located at “C:\Program Files (x86)\Cypress\EZ-USB FX3 SDK\1.3\driver\bin\Win11” as follows. And click “OK” button.



8. Check the “Include subfolders” check box.
9. Click “Next” button.

# CX3 Driver Installation (4/4)

10. Check if the “Cypress FX3 USB BootLoader Device” is listed under the “Universal Serial Bus controllers” as follows.



11. Check if there is “Cypress FX3 USB BootLoader Device” in the Control Center and if you can click Program→FX3→SPI Flash.
- You might need to reboot your PC to recognize THSCU101 in the Control Center after you finish the CX3 driver installation steps.



## Build the tool for Mac

1. Unzip ProgrammingTool.zip, ProgrammingTool folder is generated.
2. Launch Terminal
3. Install homebrew from <https://brew.sh/>
4. Install libusb with following command in Terminal

```
brew install libusb
```

5. Change the directory of Terminal to ProgrammingTool.
6. Build the tool (download\_usb) to program the firmware into THSCU101 with following command.

```
gcc -I /opt/homebrew/include/ -o download_usb  
download_usb.c -L /opt/homebrew/lib/ -l usb-1.0
```

Set the library path to the gcc options according your Mac folder structure.

7. Check download\_usb is generated in ProgrammingTool folder.