

MIO-5152

Intel® Atom® x6000E series and
Intel® Celeron® N and J series 3.5" SBC

Preliminary



Features

- Atom® x6000E series and Intel® Celeron® J and N series with Quad/Dual Cores, TDP 6W/ 10W/ 12W
- Single Channel DDR4-3200 up to 32GB
- 3 independent displays via LVDS, DP1.4, and HDMI2.0 up to 4K@60Hz
- Dual GbE, 6 USB, 6 UART, TPM2.0
- CE/FCC Class B, Coastline I/O ESD 8KV/15KV Criteria A
- Support Windows 10 LTSC & Ubuntu 20.04 LTS, embedded software APIs, WISE-DeviceOn

Software APIs:



GPIO



IPC



Watch Dog
Timer



Backlight
On/Off



Brightness



Hardware
Monitor



System
Throttling



Thermal
Protection



Smart Fan



Data
Security



System
Info


Internal I/O


SATA	1 x SATA GenIII 6.0 Gbps
USB	2 x USB2.0
Serial Bus	I2C
COM Ports	2 x RS-232/422/485 (Max baud rate: 1Mbps), 4 x RS-232
GPIO	8-bit general purpose input output I/O
Audio	Realtek ALC888S, Line-in/Line-out/MIC
Inverter	12V/5V
SPI Bus	eSPI
Fan	4-wire smart fan
Front Panel Control	Power-on, Reset, Buzzer, SATA LED, CaseOpen

On MIO-5152 default HW design , SMB1 supports I2C function

I2C & SMB Pull R by Host Side

I2C from Chipset (+V1.8_DUAL)

<10> SOC_I2C_SDA_1.8  R973 0 Jumper 1/16W 0402 SMB_I2C_DAT

<10> SOC_I2C_SCL_1.8  R974 0 Jumper 1/16W 0402 SMB_I2C_CLK

I2C LS Gate (+V1.8_DUAL)

+V1.8_DUAL  R1015 0 Jumper 1/16W 0402 I2C SMB Gate

SMB from Chipset (+V3.3_DUAL)

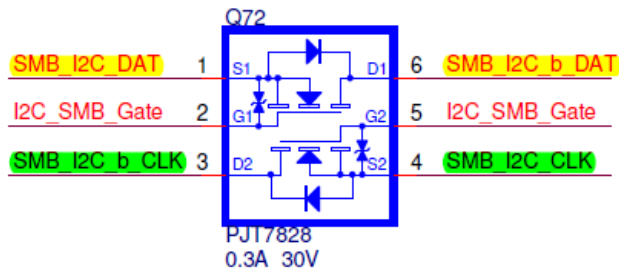
<10,23,40> SMB_DAT_RESUME <>>  R975 NL/0Jumper 1/16W 0402 SMB_I2C_DAT

<10,23,40> SMB_CLK_RESUME <>>  R976 NL/0Jumper 1/16W 0402 SMB_I2C_CLK

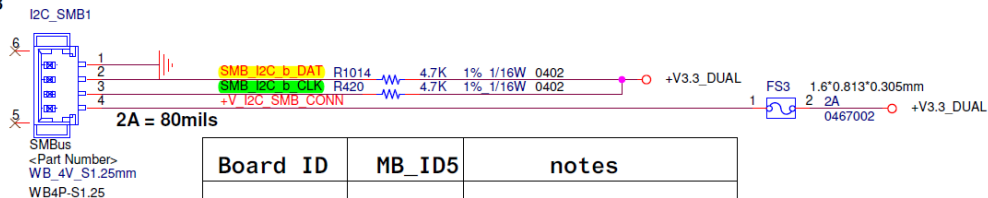
SMB LS Gate (+V3.3_DUAL)

+V3.3_DUAL  R1016 NL/0Jumper 1/16W 0402 I2C SMB Gate

I2C & SMB Level shift

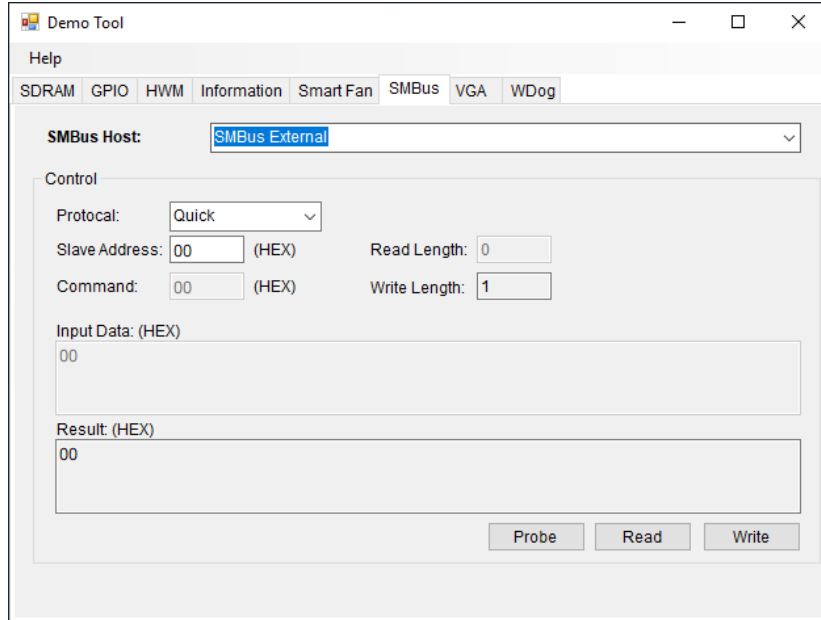


A101-3



Board ID	MB_ID5	notes
SMB	0	remove R157, add R129
I2C	1	remove R129, add R157

After installing the standard Windows SUSI API, no I2C Function page was found

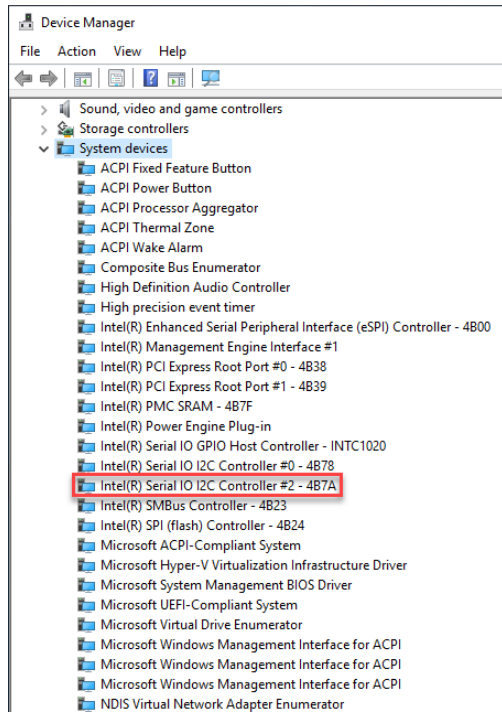
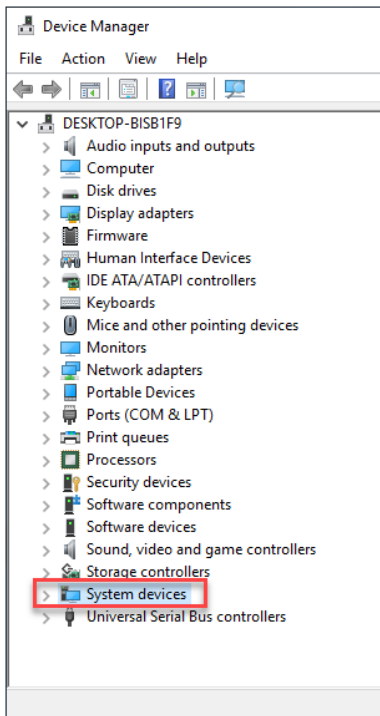


We need to through the following steps to support I2C function

- Install the I2C driver manually
- How to enable I2C

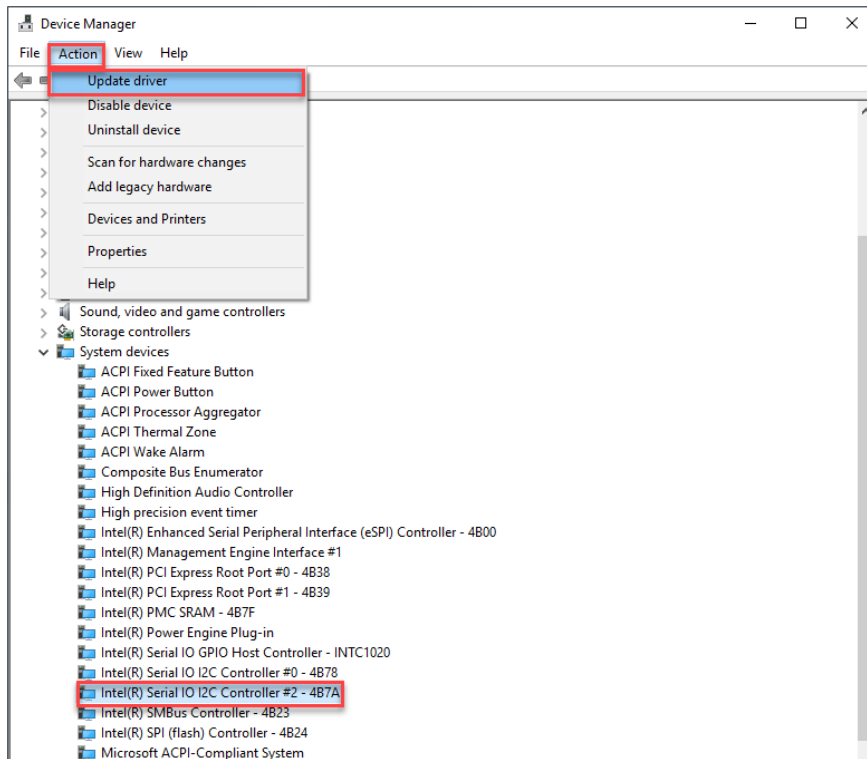
Install the I2C driver manually

Step1 . Device Manager /System devices, select Intel® Serial IO I2C Controller#2- 4B7A



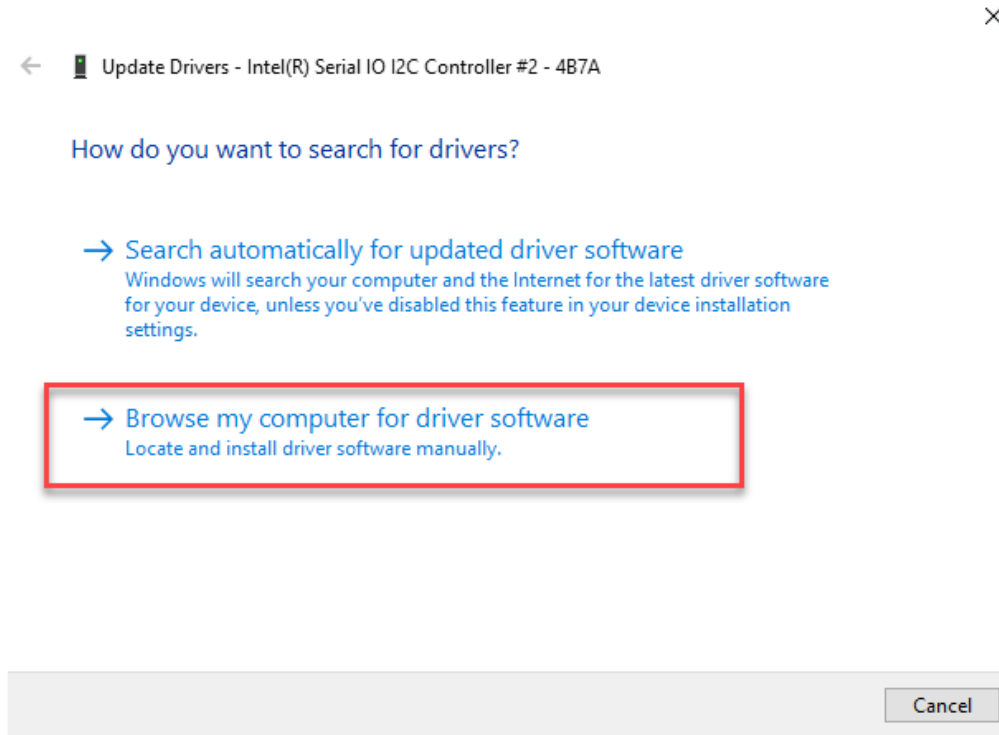
Install the I2C driver manually

Step 2. Action / Update driver



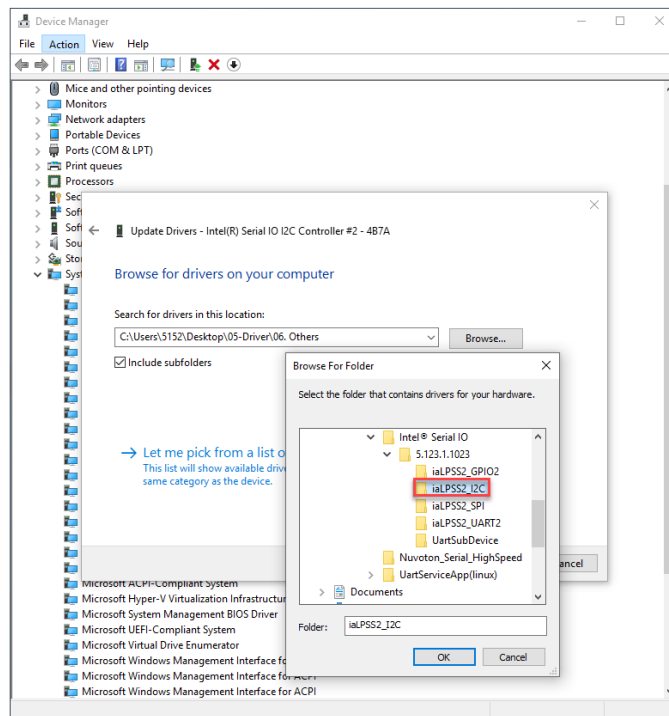
Install the I2C driver manually

Step 3. Select Browse my computer for driver software



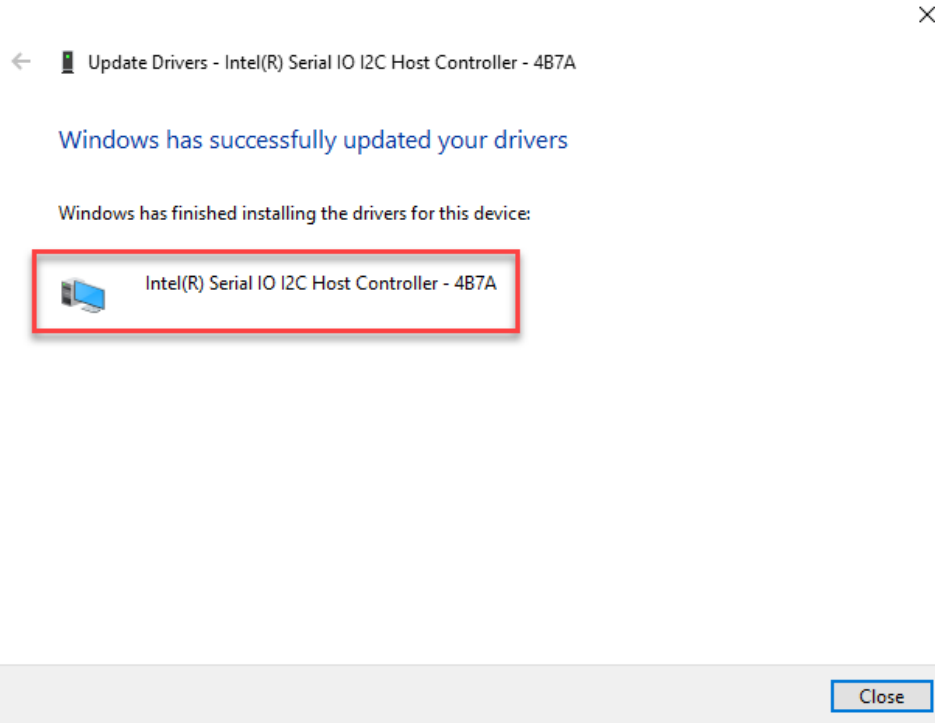
Install the I2C driver manually

Step 4. Select to the location specified by the I2C Driver



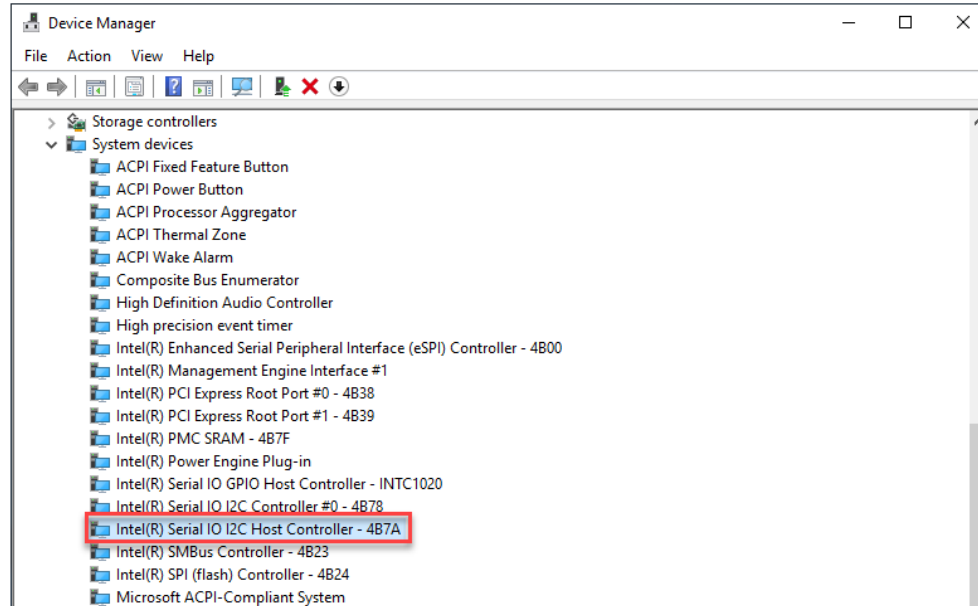
Install the I2C driver manually

I2C driver finished installing



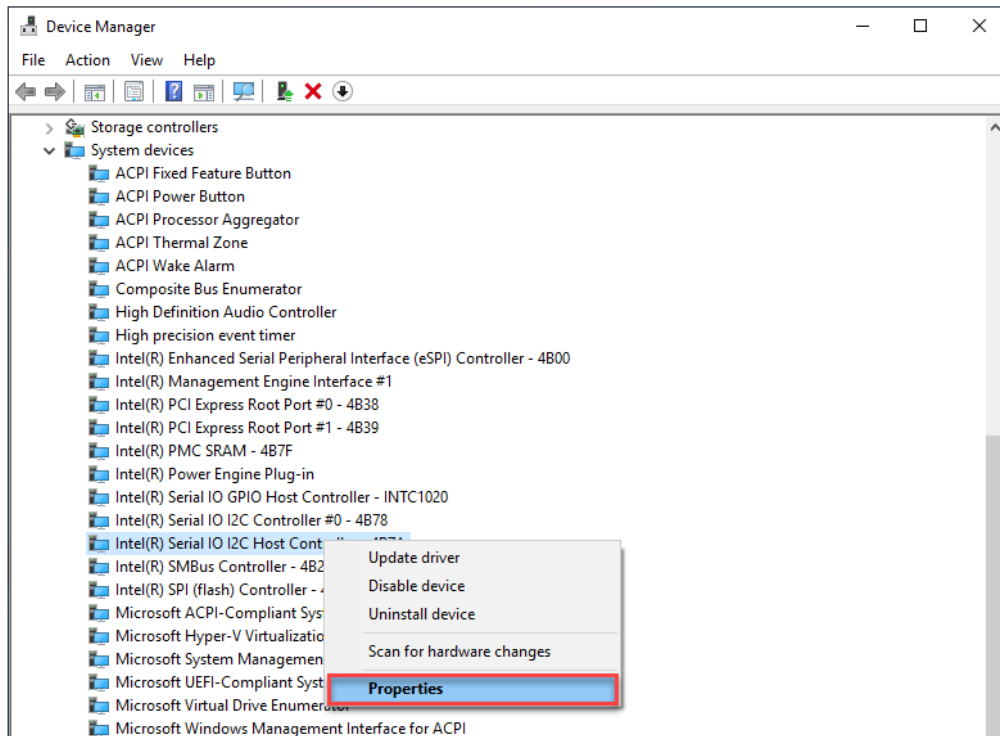
Install the I2C driver manually

The device will change to
Intel® Serial IO I2C Host Controller- 4B7A



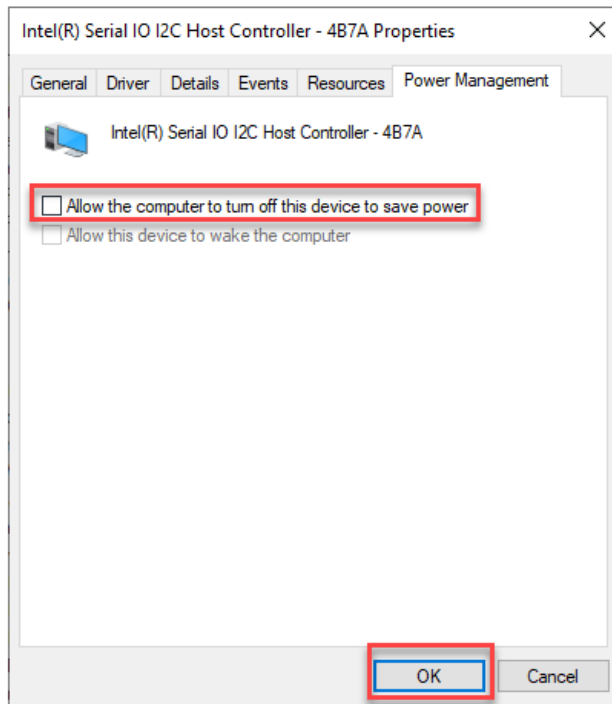
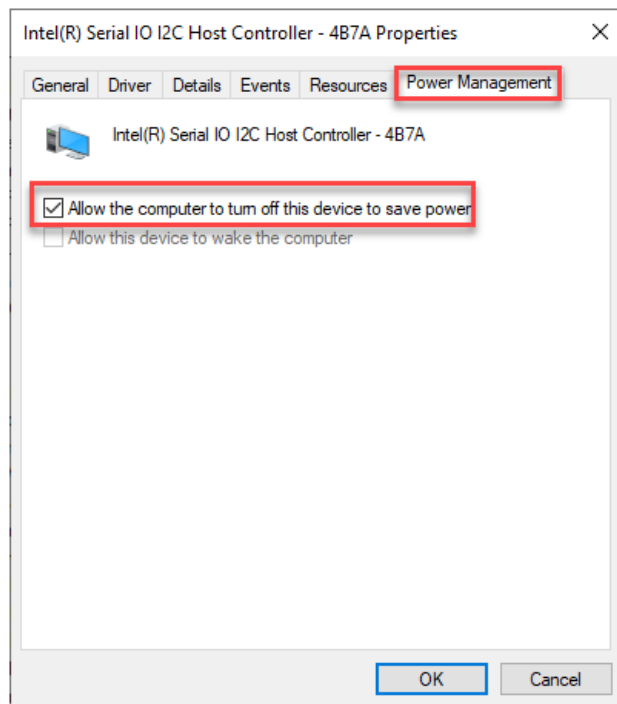
How to enable I2C

Select the Intel® Serial IO I2C Host Controller- 4B7A, and right click to select properties



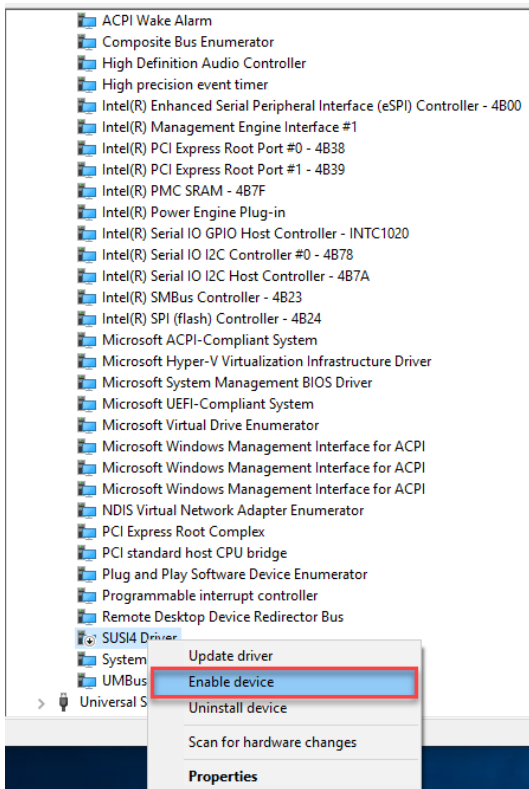
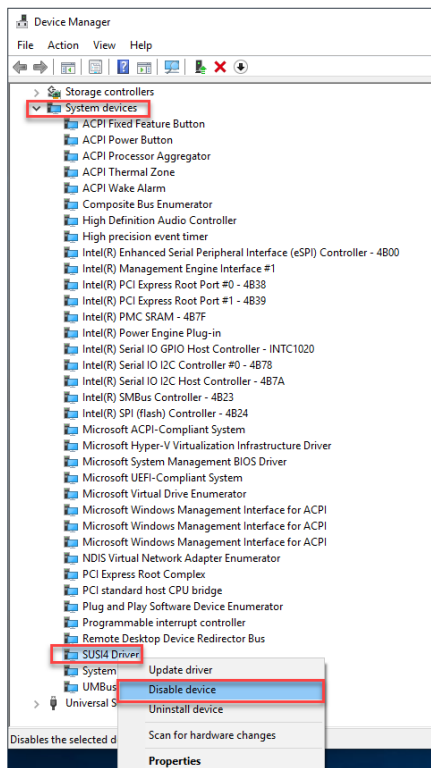
How to enable I2C

On the Power Management page, uncheck the below setting



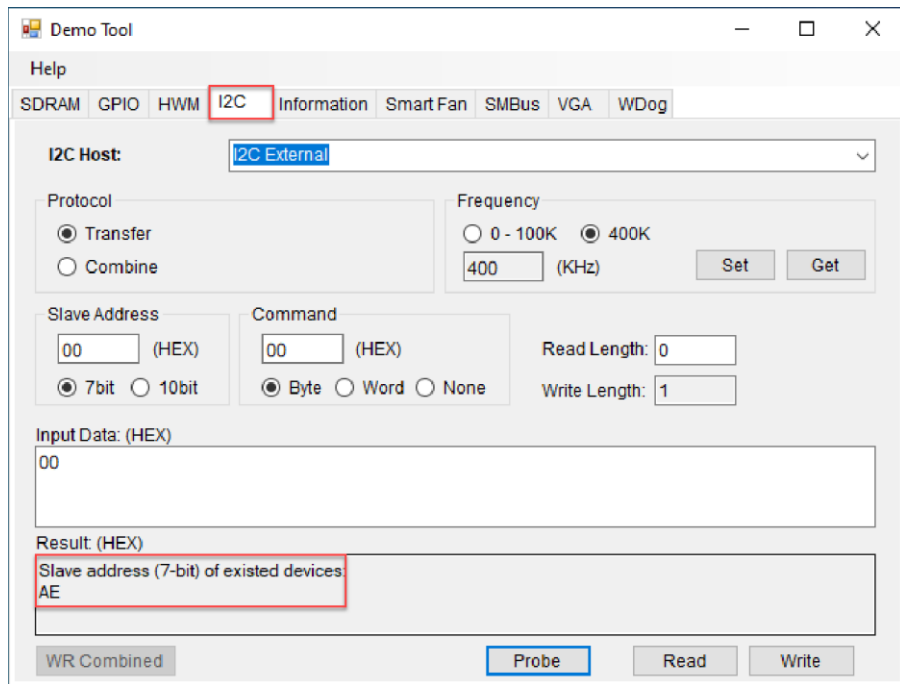
How to enable I2C

Disable the SUSI4 Driver and then Enable device



How to enable I2C

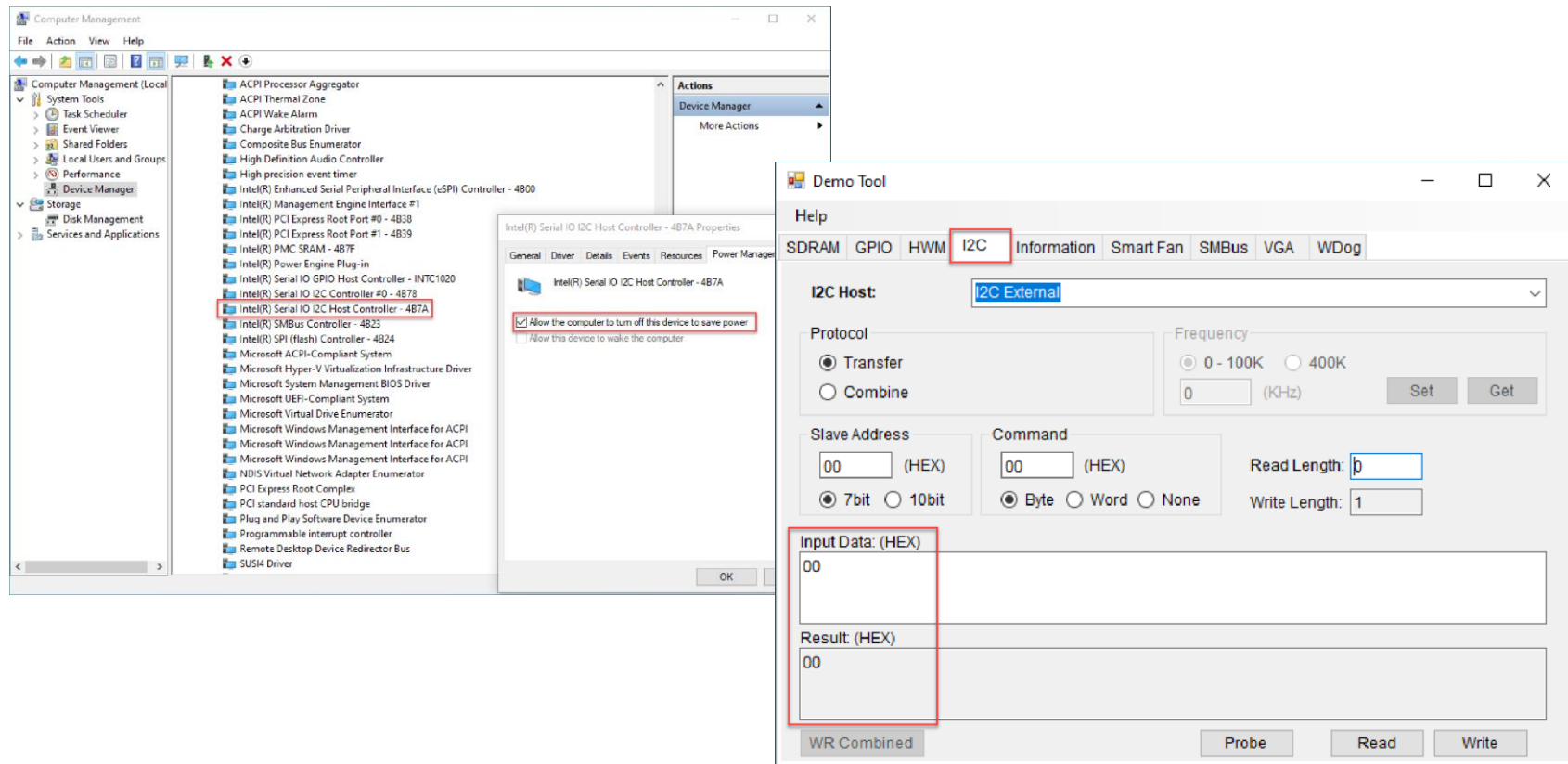
After completing the above steps, we can see the I2C function page



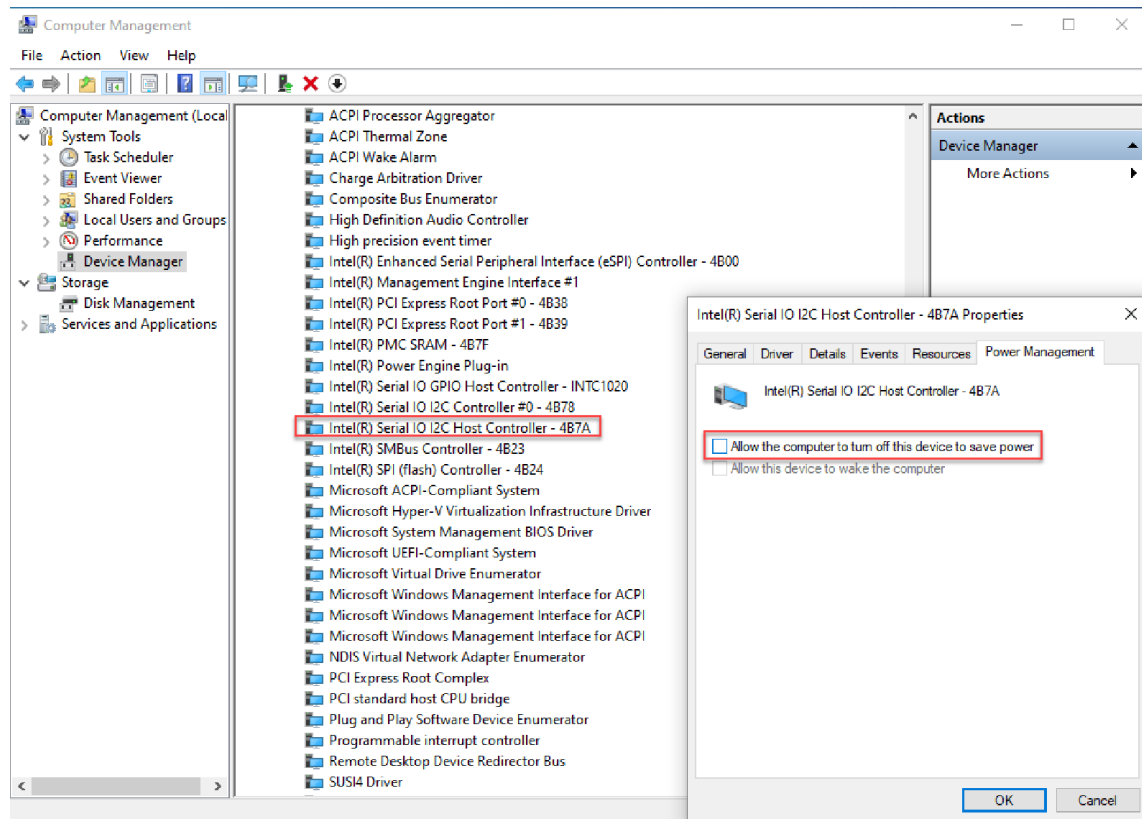
The screenshot shows the 'Demo Tool' application window. The 'I2C' tab is selected and highlighted with a red box. The configuration page includes the following elements:

- I2C Host:** A dropdown menu set to 'I2C External'.
- Protocol:** Radio buttons for 'Transfer' (selected) and 'Combine'.
- Frequency:** Radio buttons for '0 - 100K' and '400K' (selected), with a text input field showing '400' (KHz) and 'Set'/'Get' buttons.
- Slave Address:** A text input field showing '00' (HEX) and radio buttons for '7bit' (selected) and '10bit'.
- Command:** A text input field showing '00' (HEX) and radio buttons for 'Byte' (selected), 'Word', and 'None'.
- Read Length:** A text input field showing '0'.
- Write Length:** A text input field showing '1'.
- Input Data: (HEX)** A large text area containing '00'.
- Result: (HEX)** A large text area containing 'Slave address (7-bit) of existed devices: AE', which is highlighted with a red box.
- Buttons:** 'WR Combined', 'Probe' (highlighted with a blue box), 'Read', and 'Write'.

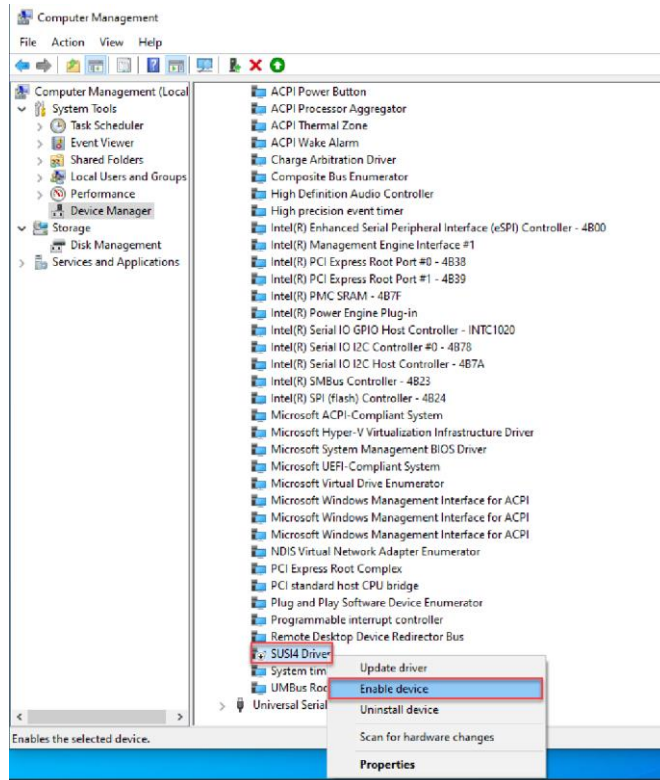
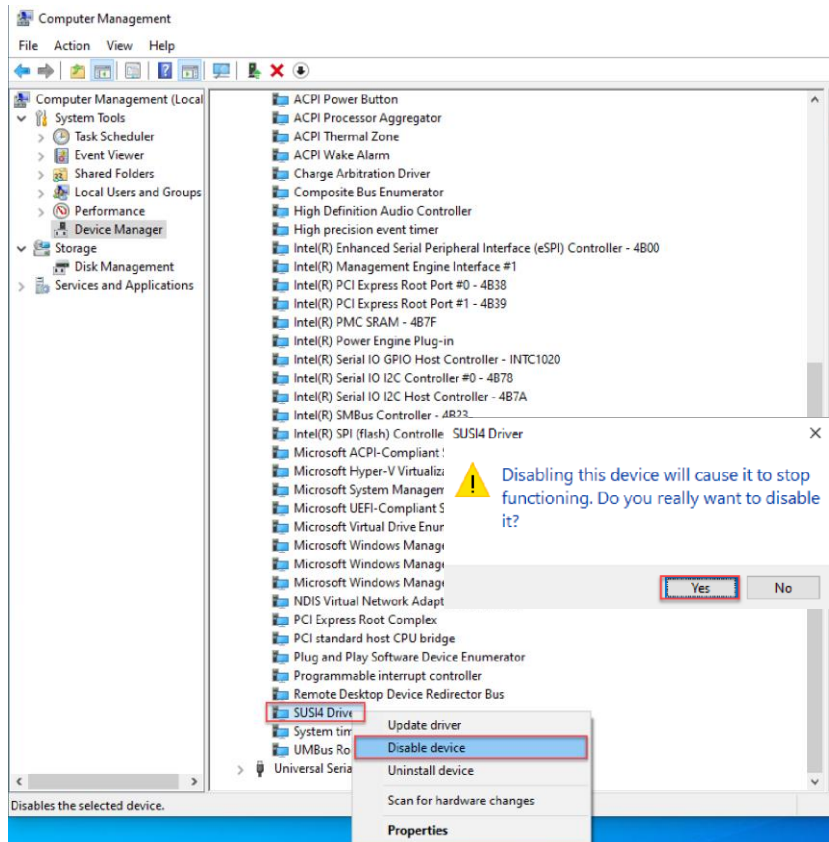
Once the system has reboot, the device will be turn off by driver behavior, and I2C cannot probe the device under SUSI.



It must be uncheck the below setting manually



Disable the SUSI4 Driver and then Enable device



After completing the above steps, the I2C can work normally

Once the system has rebooted, the above steps must be performed manually, otherwise the I2C device default will be disabled

