OFT7W-ADLN

Intel® Processor N50

User's Manual

Edition 0.1 – February, 2025

FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1) this device may not cause harmful interference, and
2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the measures listed below:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Notice

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

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To receive the latest version of the user's manual; please visit our Web site at:
http://www.bcmcom.com.

If you still cannot find the answer, gather all the information or questions that apply to your problem, and with the product close at hand, call your dealer. Our dealers are well trained and ready to give you the support you need to get the most from your BCM products. In fact, most problems reported are minor and are able to be easily solved over the phone.
In addition, free technical support is available from BCM engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us.

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This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by BCM, or which have been subject to misuse, abuse, accident or improper installation. BCM assumes no liability under the terms of this warranty as a consequence of such events. Because of BCM high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If any of BCM products is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details. If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU type and speed, BCM products model name, hardware & BIOS revision number, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.
4. Carefully pack the defective product, a complete Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.

Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Manual Objectives

This manual describes in detail the BCM OFT07W-ADLN system.

We strongly recommend that you study this manual carefully before attempting to interface with OFT07W-ADLN or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

If you have any suggestions or find any errors concerning this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

Safety Precautions

Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!



Always ground yourself to remove any static charge before touching the mainboard. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Document Amendment History

Revision	Date	Comment
0.1	Feb, 2025	Beta Release

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1. Getting Started

1.1 Safety Precautions

Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!



Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

1.2 Packing List

Before installation, please ensure all the items listed in the following table are included in the package.

Item	Description	Q'ty
	OFT07W-ADLN	1



If any of the above items is damaged or missing, contact your retailer.

Purposes and Applications

OFT07W-ADLN is used the Intel® IOTG Alder Lake-N Processor, which has stronger performance and lower power consumption. it also inherits from OFT-series strength, Modularized, Flexible Expansion, Reliability and Stability.
OFT series have been passed stricter vibration and shock testing. It can be used on extreme environment like manufacture or factory. Typical applications are HMI, Automation, POI, KIOSK.

Unpacking

To unpack the flat bezel panel PC, follow the steps below.
WARNING!
The front side LCD screen has a protective plastic cover stuck to the screen. Only remove the plastic cover after the fiat bezel panel PC has been properly installed. This ensures the screen is protected during the installation process.

Step 1: Carefully cut the tape sealing the box. Only cut deep enough to break the tape.
Step 2: Open the outside box.
Step 3: Carefully cut the tape sealing the box. Only cut deep enough to break the tape.
Step 4: Open the inside box.
Step 5: Lift the panel PC out of the boxes.
Step 6: Remove the peripheral parts box from the main box.

1.3 System Specifications

System Information	
SBC	JRX12 Motherboard
Processor	Intel® IOTG Alder Lake-N Processor 6W N50
CPU Cooler (Type)	Passive
System Memory	Onboard 8GB LPDDR5
Microphone	A-MIC in (1x3P, pitch 2.0 wafer ; 90D)
Speaker	1x4P, pitch 2.0 wafer; 90D
Camera	2x5P, pitch 2.0 wafer ; 90D ; USB camera with DMIC
Wireless LAN	802.11a/b/g/n/ac/ax MIMO 2x2, BL-M8852BP4
Bluetooth	BT5.2, BL-M8852BP4
Operating System	Windows11 2024 21H2 / Windows10 2021 21H2 LTSC / Ubuntu 24.04 compatible
Micro SD slot	Micro SD slot
Storage	
Other Storage Device	Onboard 64GB eMMC
Panel	
LCD Panel	KD070D30-31NB-A030 (MIPI) 800x1280, 350 Nits
Touch Screen	WGJ0701012A-GDA-A1_800x1280
Touch Controller	ILI 2132
Rear I/O	
Head phone jack	1x TRS, LEFT/RIGHT/GROUND
HDMI	1x HDMI 2.0a Type A up to 4096x2304@60fps
USB Port	2x USB 3.0 Type A
LAN Port	RJ-45 10/100/1000
Physical button	1 x Power button
DC in Connector	1 x 12V~24V wide range x 5A ; lock jack (AT / ATX optional by jumper)
Onboard I/O	
DC-in wafer	2x2P, pitch 2.0 wafer; 90D
Display interface	1 x MIPI-DSI (for K&D, KD101N89-40NI-B042)
M.2 Socket	M.2 Key-E 2230 for WIFI&BT Module (PCIE V2.1 Gen2 / USB2.0)
SD Socket	1 x Micro SD slot
USB2.0	1x5P, pitch 2.0 wafer; 90D
USB2.0 + DMIC	2x5P, pitch 2.0 wafer; 90D ; USB camera with DMIC
i2C	2x5P, pitch 2.0 wafer; 90D

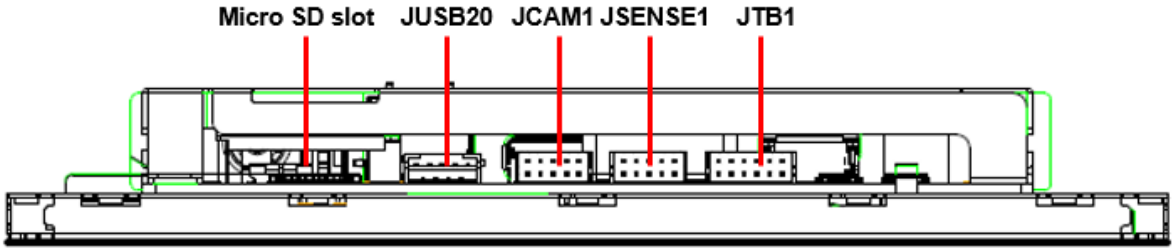
Touch Key	2x6P, pitch 2.0 pin wafer; 90D
Touch Panel	i2C, FFC type; 90D
	1xUSB, FFC type; 90D
COM port	1 x RS-485/232(Default) – 2wires with 5V ; 2x5P pitch 2.0 wafer (RS232/485 by BIOS setting and connector)
Speaker	stereo 2Wx2/4ohm ; 1x4P, pitch 2.0 wafer; 90D
RTC	1 x CR-2032 w/ cable 107mm (220mAh/3.0V) -20°C~70°C 1x2P, pitch 1.25 pin wafer; 90D
GPIO extender	2 x 10P pitch 1.0 wafer; 90D
A-MIC	1x3P pitch 2.0 wafer; 90D
LED	1xSMT LED (for system power), color is green and near the edge of the board
Others	Thermal solution (for 6W CPU, N50/N200/x7211E)
Power Requirement	
DC Input Voltage	+12~24V DC input, 5A
Power Mode	AT / ATX optional by jumper
Power Button	1x Power button
Power Connector Type	1 x 12V~24V wide range x 5A ; lock jack
Mechanical	
Dimension	183.1x115.85x24.3 mm
Weight	520g
Cooling Solution	Fanless
Operating Temperature	0°C ~ 40°C
Operating Humidity	40°C @ 95% relative humidity, non-condensing
Storage Temperature	-20°C ~ 60°C



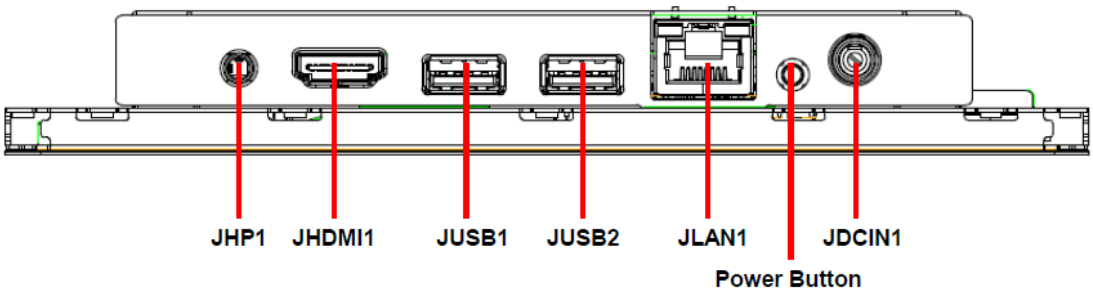
Note: Specifications are subject to change without notice.

1.4 System Overview

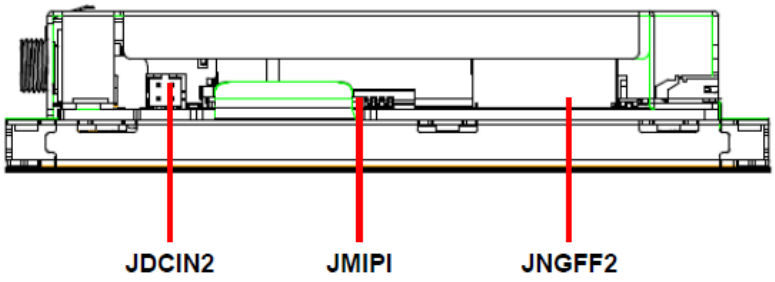
1.4.1 Top View



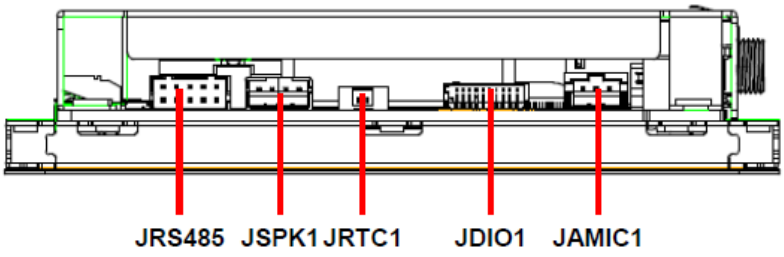
1.4.2 Bottom View



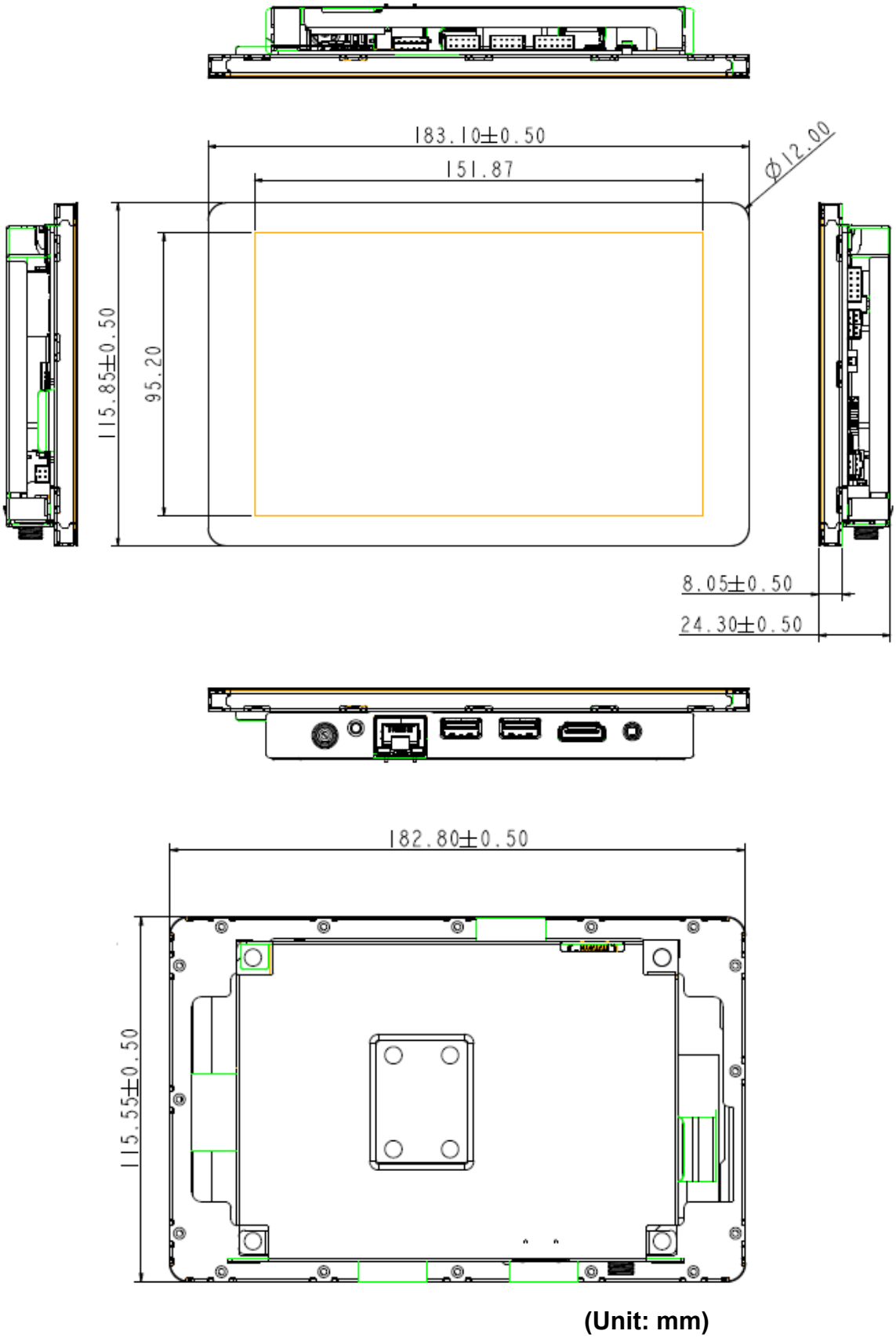
1.4.3 Left View



1.4.4 Right View



1.4 System Dimensions



(Unit: mm)

2 Hardware Configuration

For advanced information, please refer to:

1- JRX12 Motherboard included in this manual.



Note: If you need more information, please visit our website:

www.bcmcom.com

2.1 Powering On the System

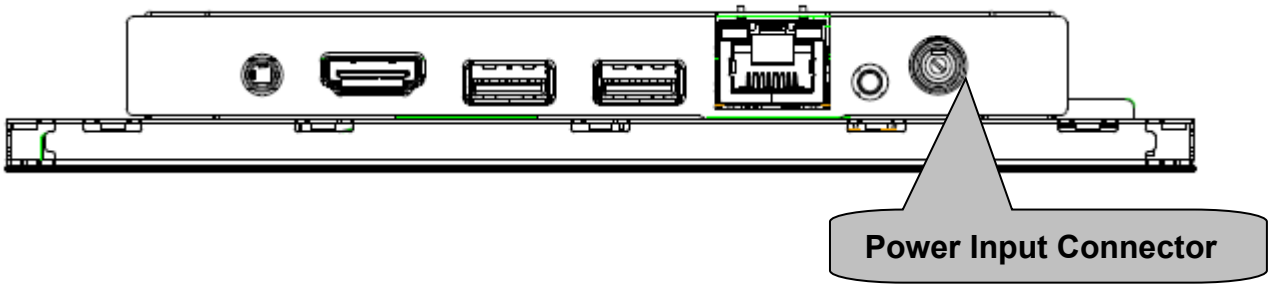
To power on the system, follow the steps below.

Step 1: Connect the power cord to the power adapter. Connect the other end of the power cord to a power source. Ensure to connect the power cord to a socket-outlet with earthing connection.

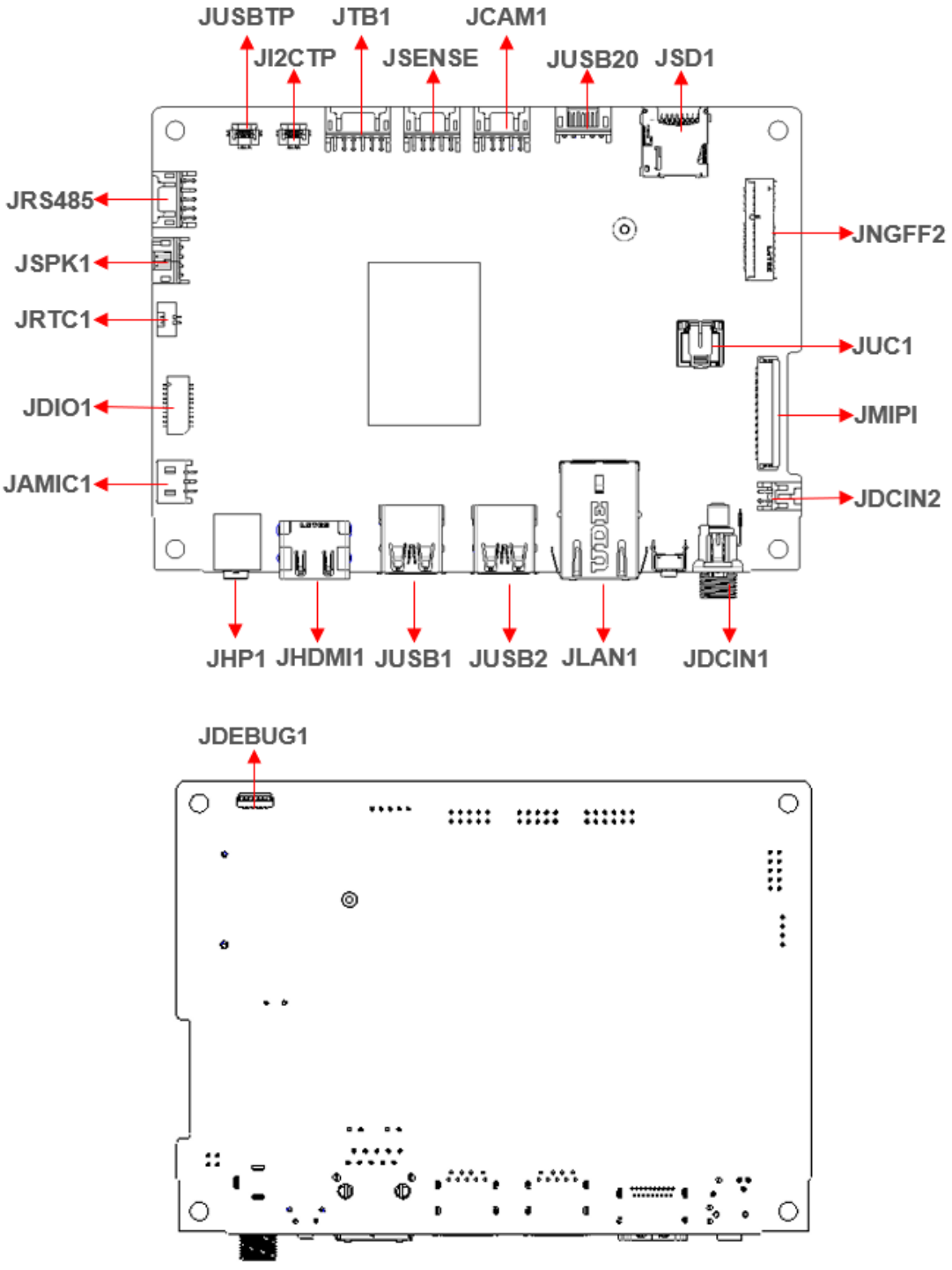
Step 2: Connect the power adapter to the power connector of the product.

Step 3: Locate the power button on the product.

Step 4: Switch on the power button can turn on the system. Keep holding the power button on can force shutdown the PC.



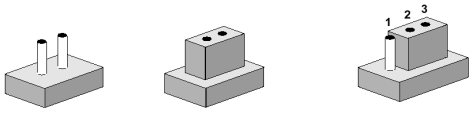
2.2 JRX12 Motherboard Overview



2.3 JRX12 Jumper and Connector List

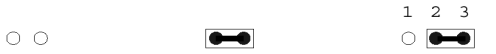
You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip. To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



Open Closed Closed 2-3

The jumper settings are schematically depicted in this manual as follows:



Open Closed Closed 2-3

A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board’s jumpers and connectors.

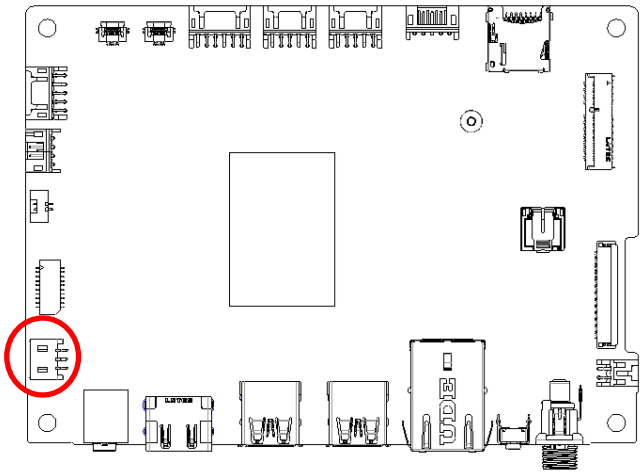
Connectors

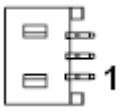
Label	Function	Note
JUSBTP	USB Touch connector	
JI2CTP	I2C connector	
JAMIC1	A-MIC connector	3 x 1 wafer, pitch 2.00 mm
JDIO1	General purpose I/O connector	10 x 2 wafer, pitch 1.00 mm
JRTC1	RTC battery connector	2 x 1 wafer, pitch 1.25 mm
JSPK1	Speaker interface	4 x 1 wafer, pitch 2.00 mm
JRS485	RS-485 connector	5 x 2 wafer, pitch 2.00 mm
JTB1	Touch button board connector	6 x 2 wafer, pitch 2.00 mm
JSENSE	Sensor connector	5 x 2 wafer, pitch 2.00 mm
JCAM1	Camera connector	5 x 2 wafer, pitch 2.00 mm
JUSB20	USB connector	1 x 5P pitch 2.0 wafer

JSD1	Micro SD card slot	1 x Micro SD slot
JNGFF2	M.2 E-Key	1 x M.2 2230 Key E
JUC1	BIOS ROM Socket	
JMIPI	MIPI Port	40 x 1 FPC, pitch 0.30 mm
JDCIN2	DC Power-in connector	2 x 2P pitch wafer
JDCIN1	DC Power-in connector	1 x 12V~24V wide range x 5A ; lock jack
JLAN1	RJ-45 Ethernet connector	1 x 10/100/1000 Mbps
JUSB1/2	USB 3.0 connector	2 x type A
JHDMI1	HDMI connector	1 x type A 2.0a up to 4096x2304@60fps
JHP1	Audio line-out connector	1 x TRS, LEFT/RIGHT/GROUND

2.4 JRX12 Jumpers & Connectors settings

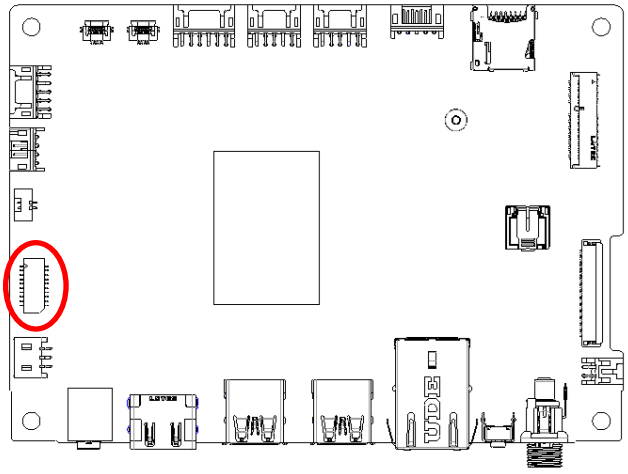
2.4.1 A-MIC connector (JAMIC1)

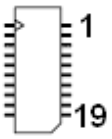




Signal	PIN
MIC_JD#	3
AMIC_IN	2
GNDA	1

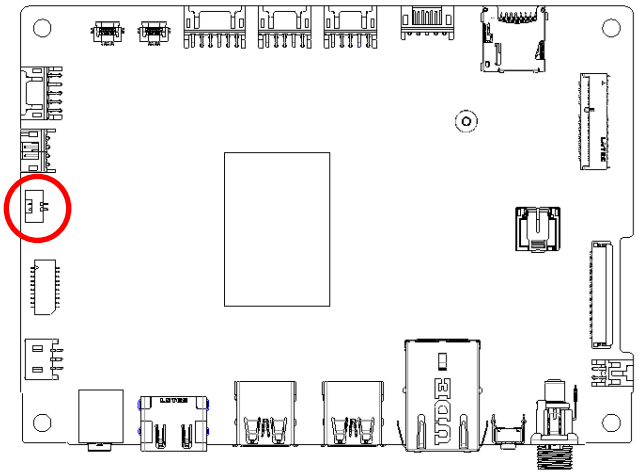
2.4.2 General purpose I/O connector (JDIO1)





Signal	PIN	PIN	Signal
DIO_GP20	2	1	DIO_GP10
DIO_GP21	4	3	DIO_GP11
DIO_GP22	6	5	DIO_GP12
DIO_GP23	8	7	DIO_GP13
DIO_GP24	10	9	DIO_GP14
DIO_GP25	12	11	DIO_GP15
DIO_GP26	14	13	DIO_GP16
DIO_GP27	16	15	DIO_GP17
I2C_1_LV_SCL	18	17	I2C_1_LV_SDA
GND	20	19	+V5S_DIO

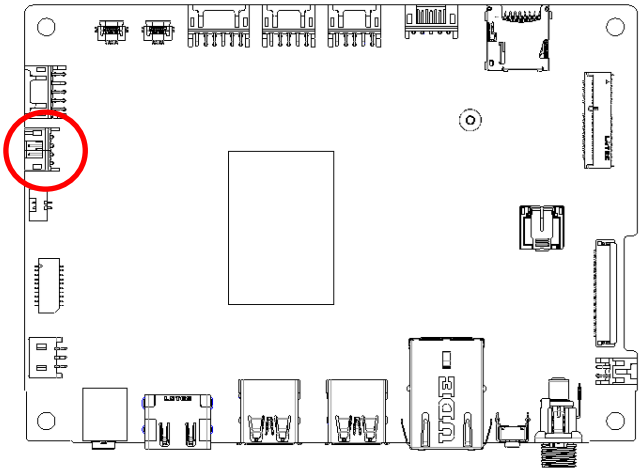
2.4.3 RTC Battery connector (JRTC1)





Signal	PIN
+RTCBATT	1
GND	2

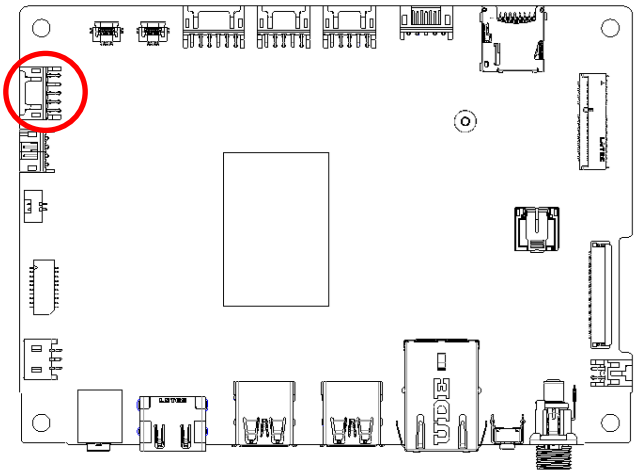
2.4.4 Speaker connector (JSPK1)

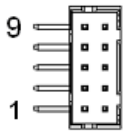




Signal	PIN
SPK_L+	1
SPK_L-	2
SPK_R+	3
SPK_R-	4

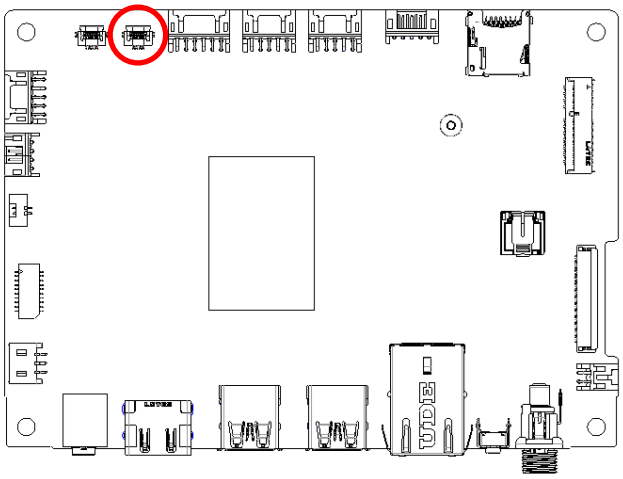
2.4.5 RS232/RS-485 connector (JRS485)

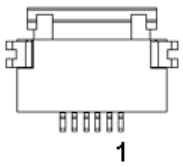




Signal	PIN	PIN	Signal
GND	9	10	GND
NC	7	8	NC
+3.3V	5	6	NC
485TX+	3	4	232-RXD
485TX-	1	2	232-TXD

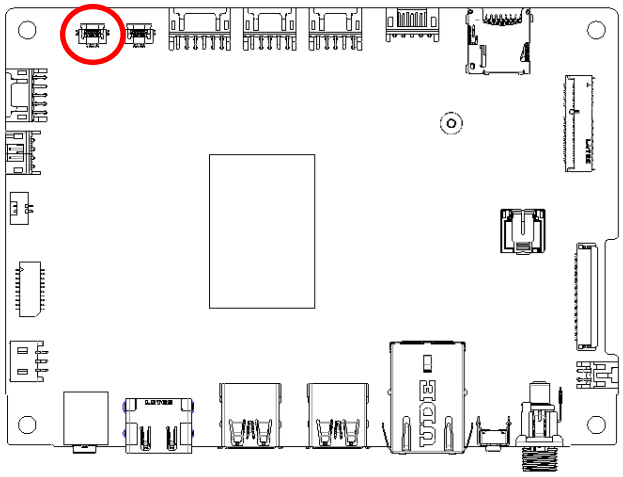
2.4.6 I2C connector (JI2CTP)

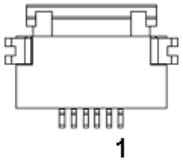




Signal	PIN
TOUCH_RST#_R	1
I2C_5_SDA_R	2
I2C_5_SCL_R	3
TOUCH_INT#_R	4
GND	5
+3.3VA_I2CTP	6

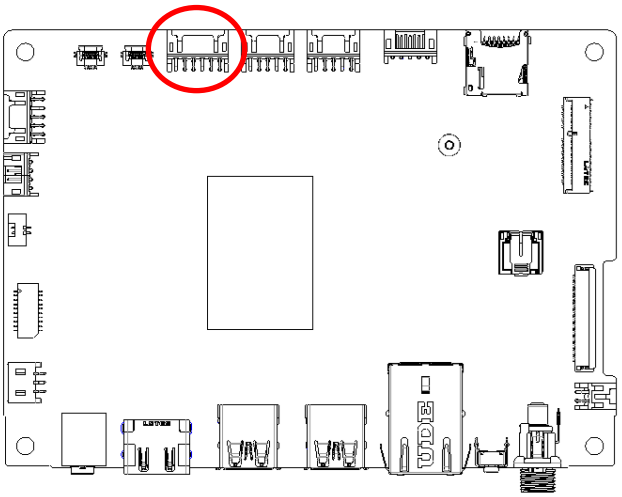
2.4.7 USB Touch connector (JUSBTP)

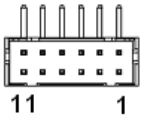




Signal	PIN
+5V_TOUCH	1
USB2_P5_N_L	2
USB2_P5_P_L	3
GND	4
GND	5
NC	6

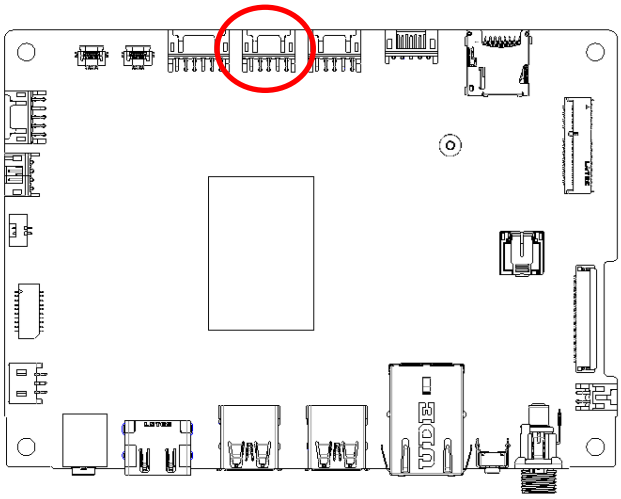
2.4.8 Touch button board connector (JTB1)

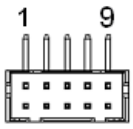




Signal	PIN	PIN	Signal
GND	2	1	+PWR_JTB1 (5V)
BU1_TV_3V	4	3	RSTBTN
VOL_DOWN_3V	6	5	VOL_UP_3V
BU_BR+_3V	8	7	PWRBTN_3V
BU7_3V	10	9	BU_BR-_3V
LED_ORANGE_R	12	11	LED_GREEN_R

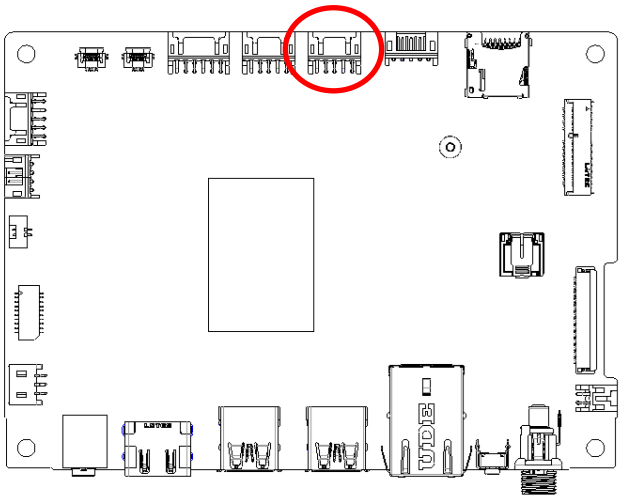
2.4.9 Sensor connector (JSENSE)

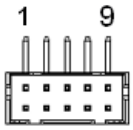




Signal	PIN	PIN	Signal
+3VS_SEN_CONN	9	10	+3VS_SEN_CONN
I2C_1_SCL_3.3V_CONN	7	8	I2C_0_SCL_3.3V_CONN
I2C_1_SDA_3.3V_CONN	5	6	I2C_0_SDA_3.3V_CONN
SENSE1_IRQ	3	4	SENSE0_IRQ
GND	1	2	GND

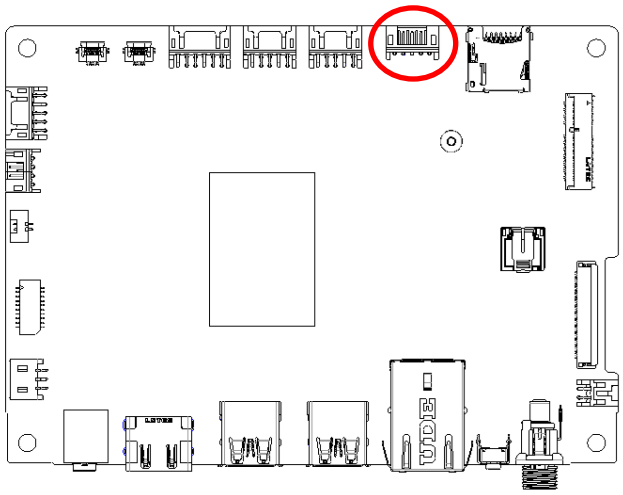
2.4.10 Camera connector (JCAM1)

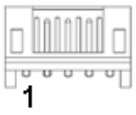




Signal	PIN	PIN	Signal
+CAM_VCC	9	10	+DMIC_VCC
USB2_P6_N_R	7	8	CAM_DMIC_CLK_R
USB2_P6_P_R	5	6	CAM_DMIC_DAT_R
GND	3	4	GND
GND	1	2	GND

2.4.11 USB Touch connector (JUSB20)





Signal	PIN
+5V_USB	5
USB2_P4_N_R	4
USB2_P4_P_R	3
GND	2
GND	1

3. Drivers Installation

All the drivers are available on BCM website (https://www.bcmcom.com). Type the model name and press Enter to find all the relevant software, utilities, and documentation.

Note:
The panel PC with projected capacitive type touchscreen and Windows 10 (or later) OS does not require touch driver installation. This is because there is a HID touch digitizer built-in driver in Windows 10 or later.

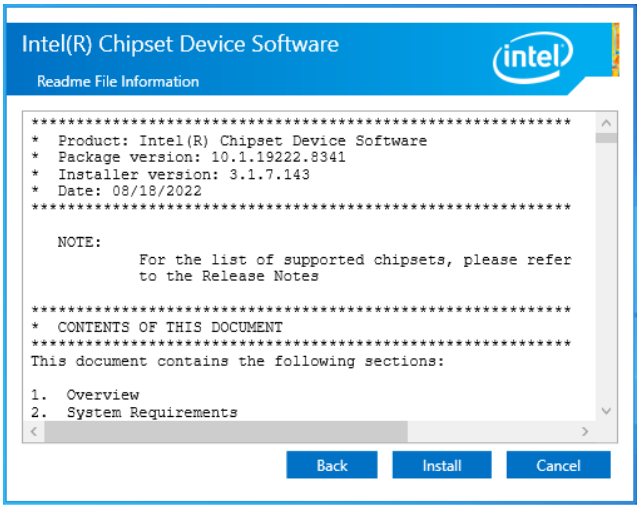


Note: Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.

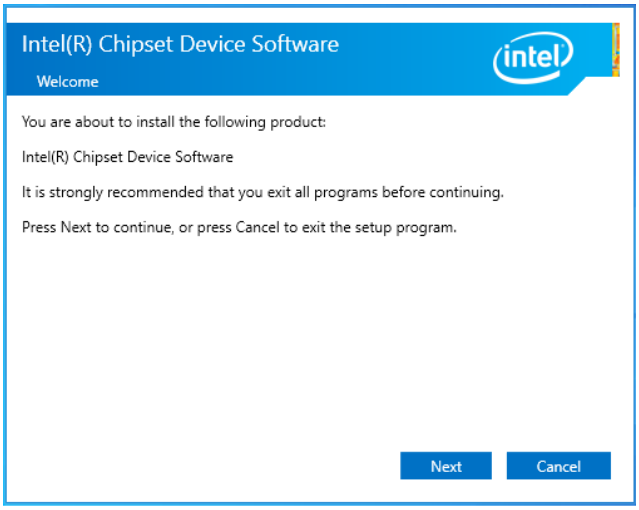
4.1 Install Chipset Driver

All drivers can be found on the BCM Website: www.bcmcom.com.

Note: The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



Step 3. Click **Install**.



Step1. Click **Next**.



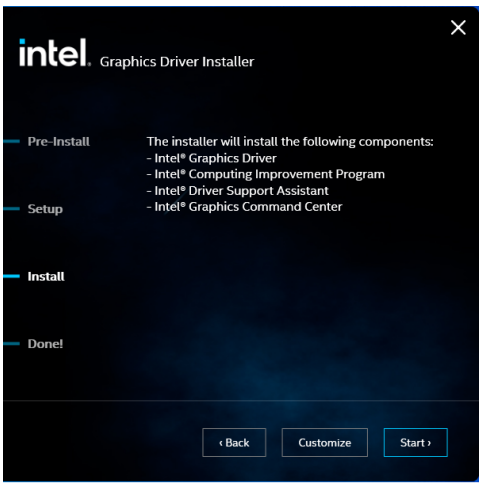
Step 4. Click **Restart**.



Step 2. Click **Accept**.

4.2 Install VGA Driver

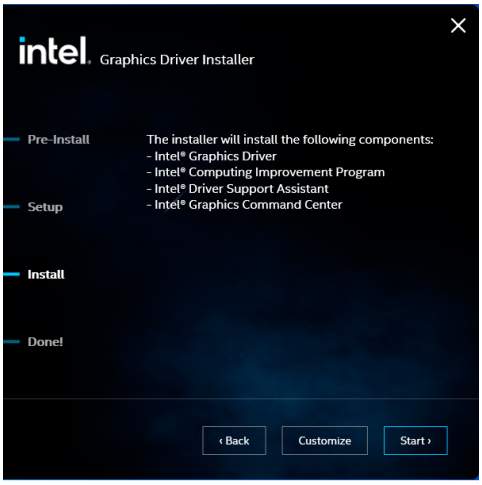
Note: The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



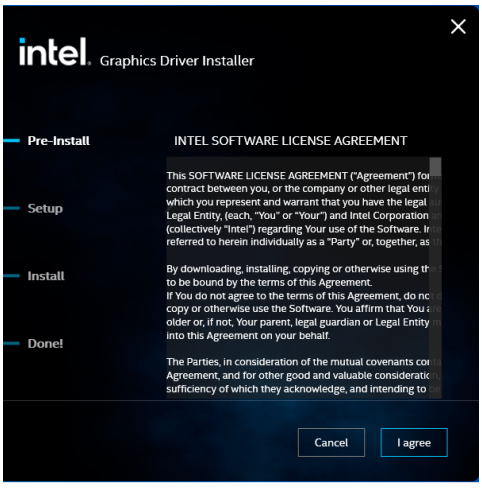
Step 3. Click **Start.**



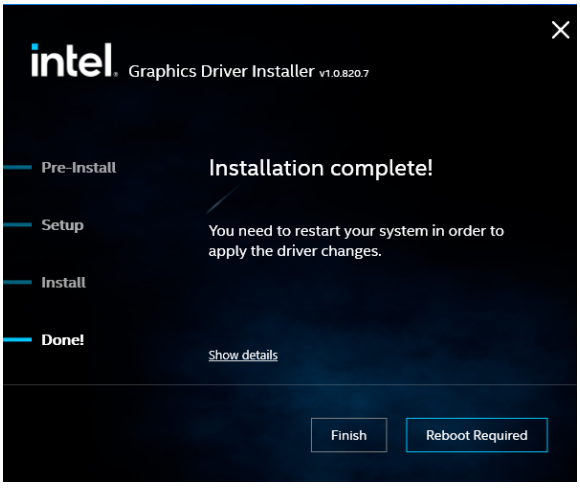
Step 1. Click **Begin installation**.



Step 4. Installing.



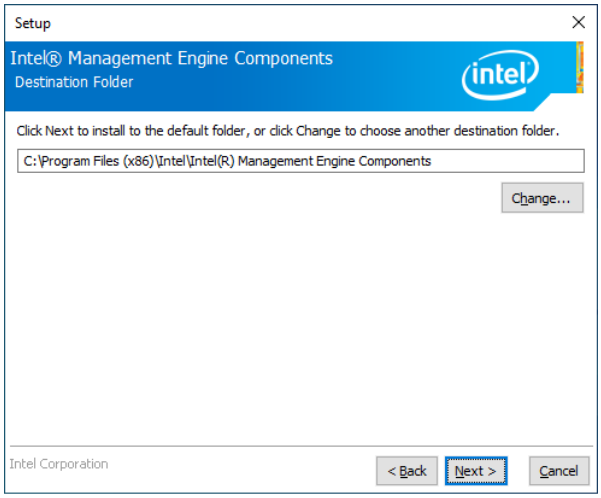
Step 2. Click **I agree**.



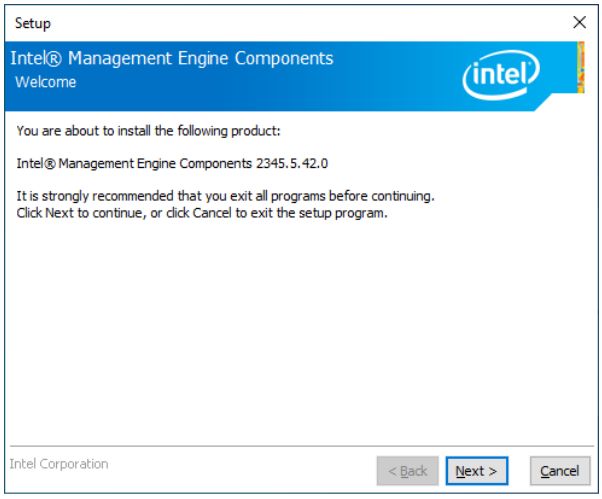
Step 5. Click **Finish** to complete setup.

4.3 Install ME Driver

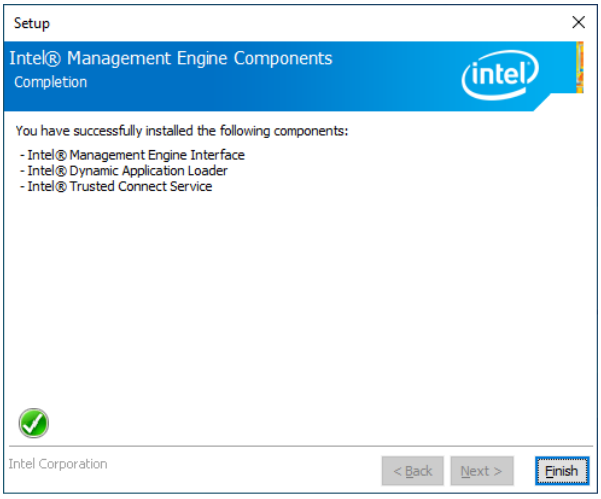
Note: The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



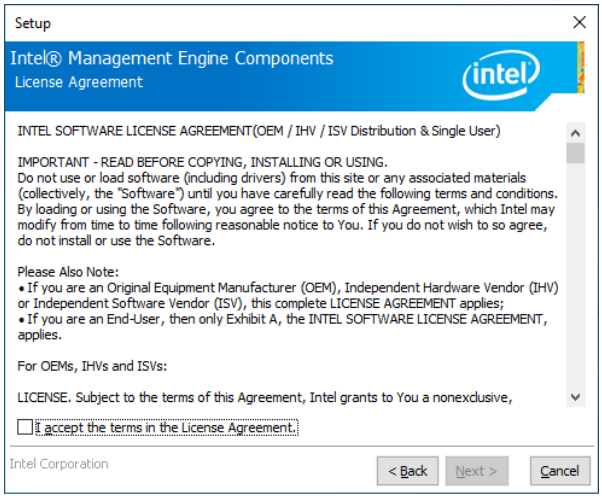
Step 3. Click **Next**.



Step 1. Click **Next** to continue setup.



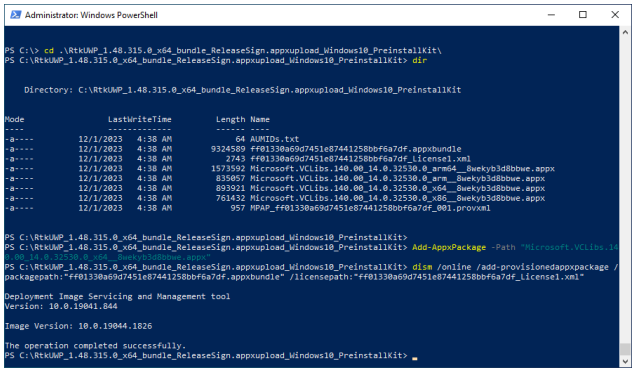
Step 4. Click **Finish** to complete setup.



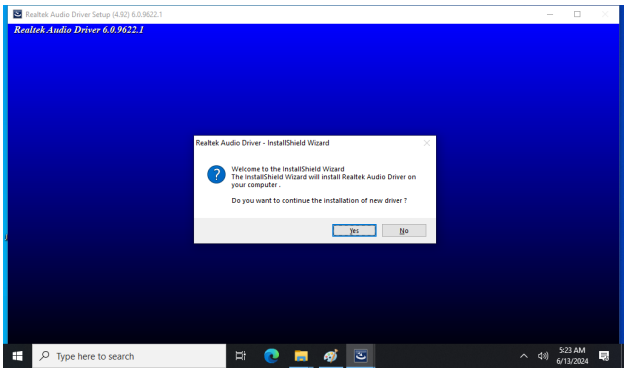
Step 2. Click **Next**.

4.4 Install Audio Driver

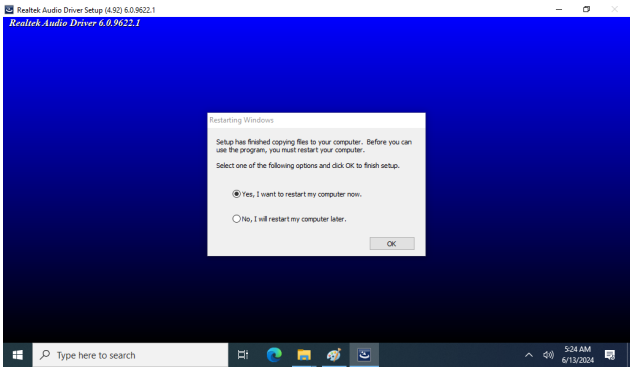
Note: The installation procedures and screen shots in this section are based on Windows 10 operation system.



Step 3. Installing.



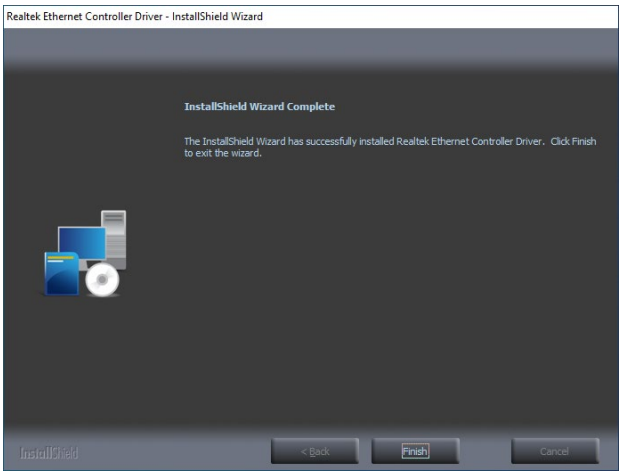
Step 1. Click **YES.**



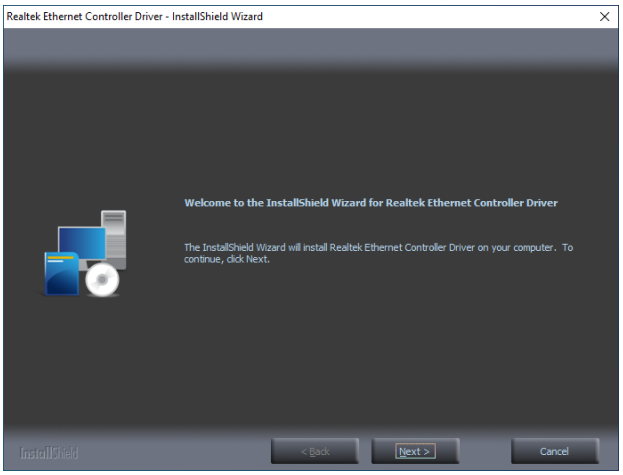
Step 2. Click **OK**.

4.5 Install LAN Driver

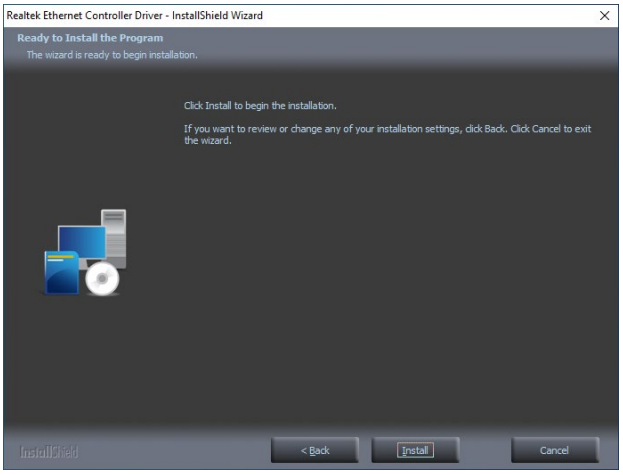
Note: The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



Step 3. Click **Finish** to complete setup.



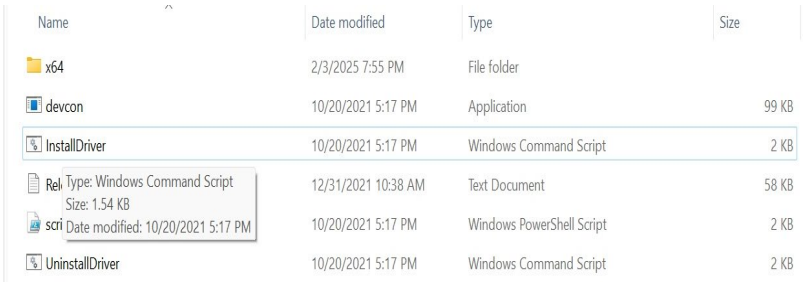
Step 1. Click **Install Drivers and Software**.



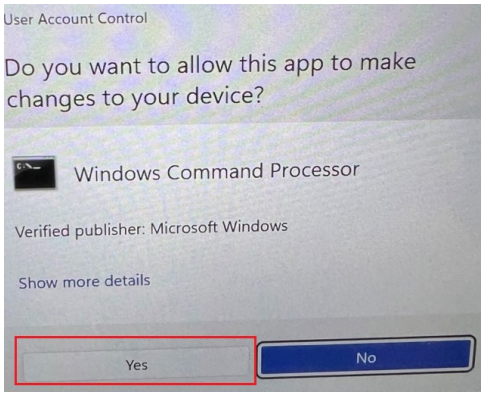
Step 2. Click **Next**.

4.6 Install Bluetooth Driver

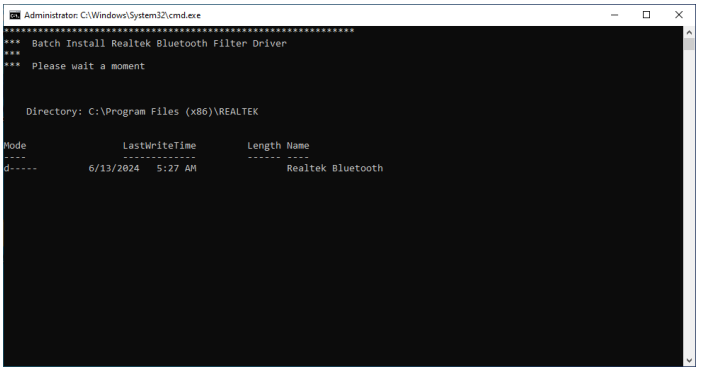
Note: The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



Step 1. Click **InstallDriver**



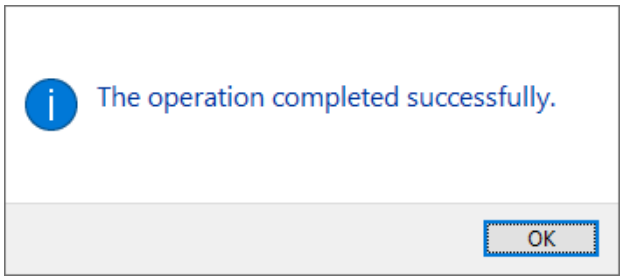
Step 2. Select **'Yes'** at the prompt.



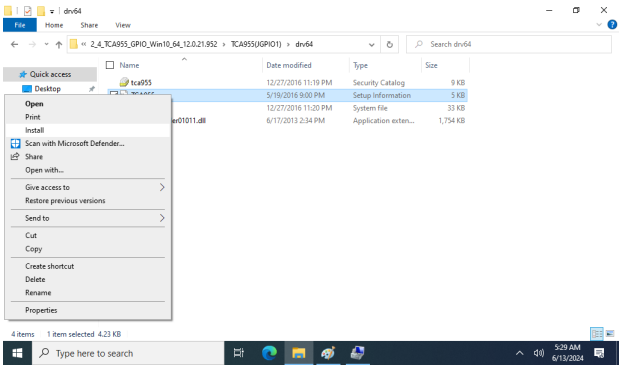
Step 3. Installing will auto start and complete in background.

4.7 Install GPIO Driver

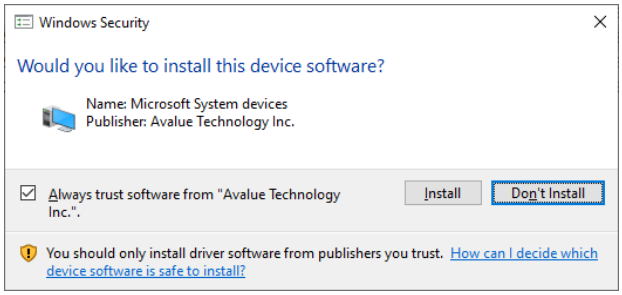
Note: The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



Step 3. Click **OK**.



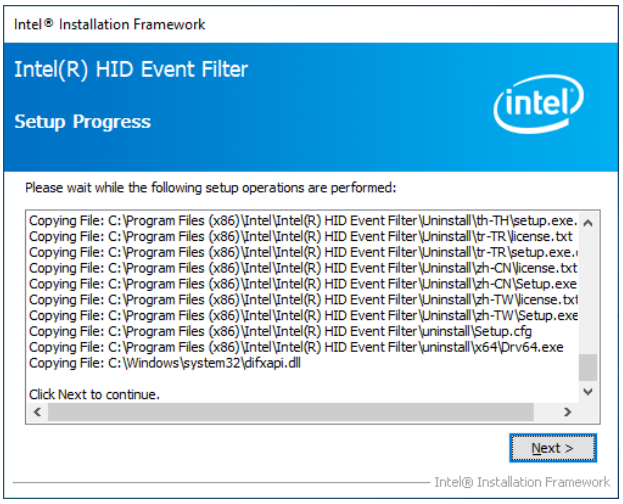
Step 1. Click **Install**.



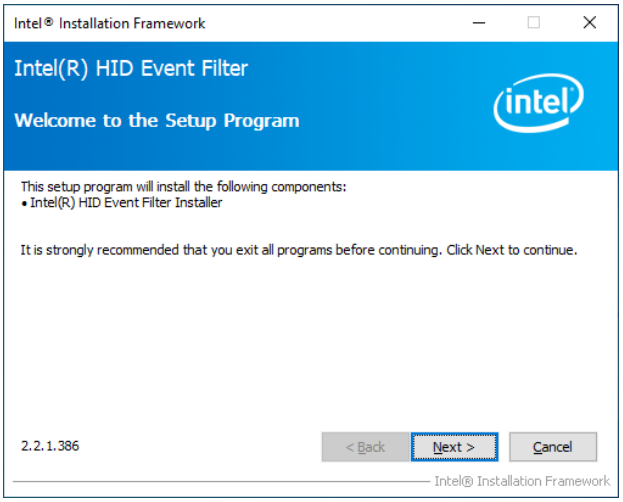
Step 2. Click **Install**.

4.8 Install HID Driver

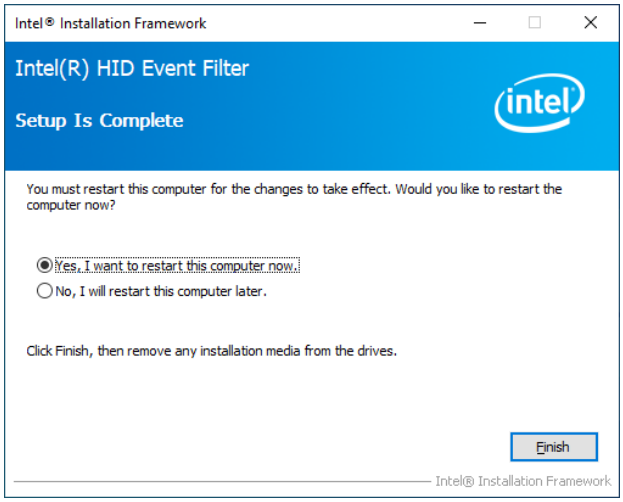
Note: The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



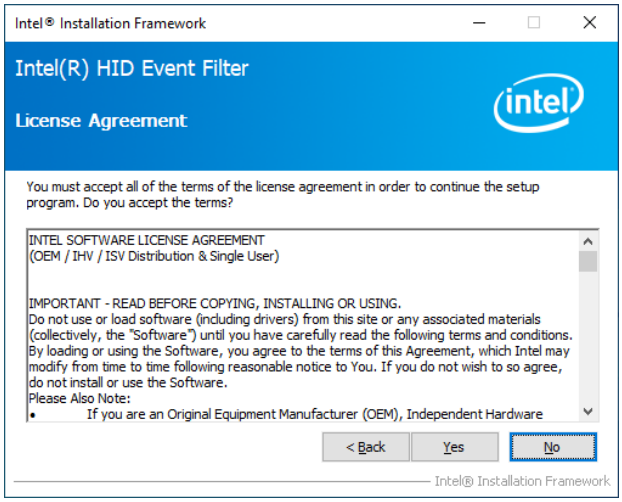
Step 3. Click **Next.**



Step 1. Click **Next.**



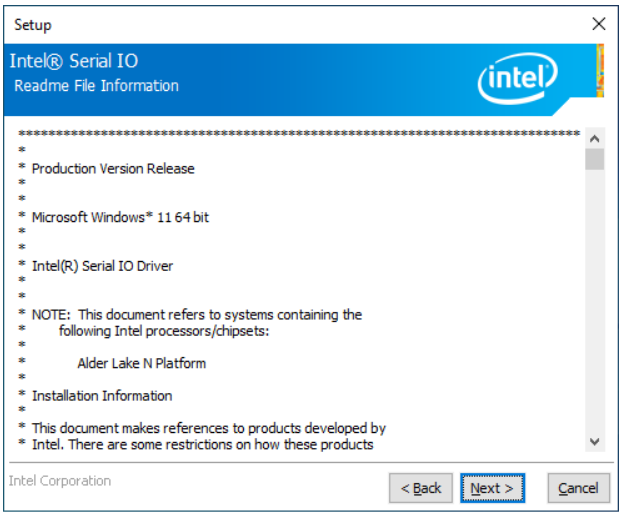
Step 4. Click **Finish** to complete setup.



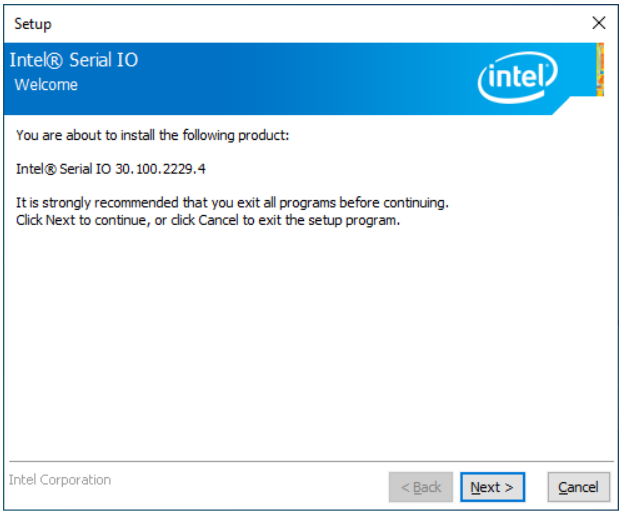
Step 2. Click **YES**.

4.9 Install SIO Driver

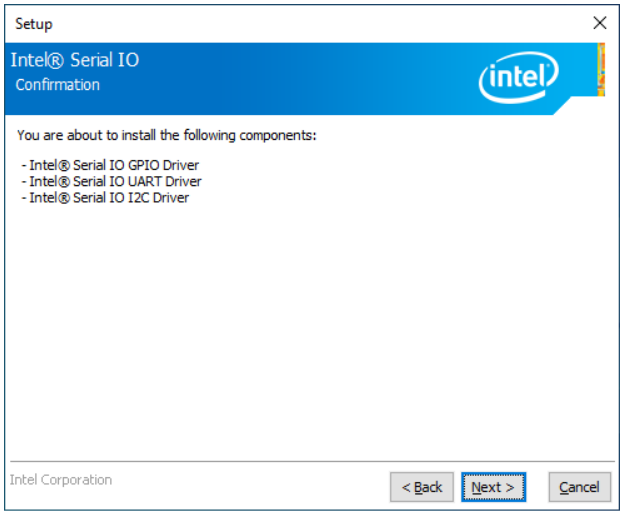
Note: The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



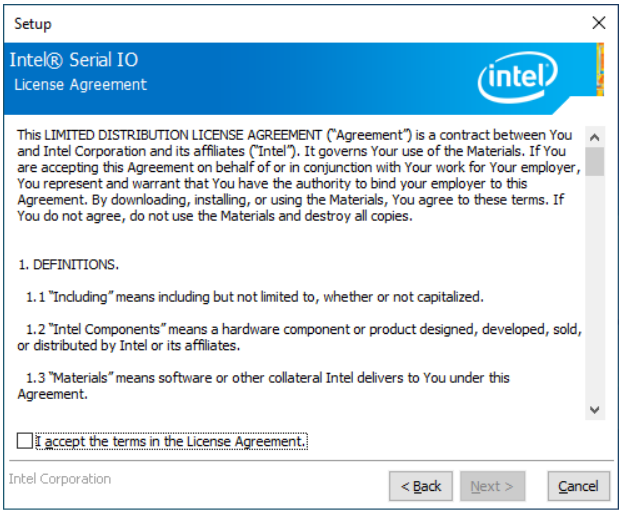
Step 3. Click **Next.**



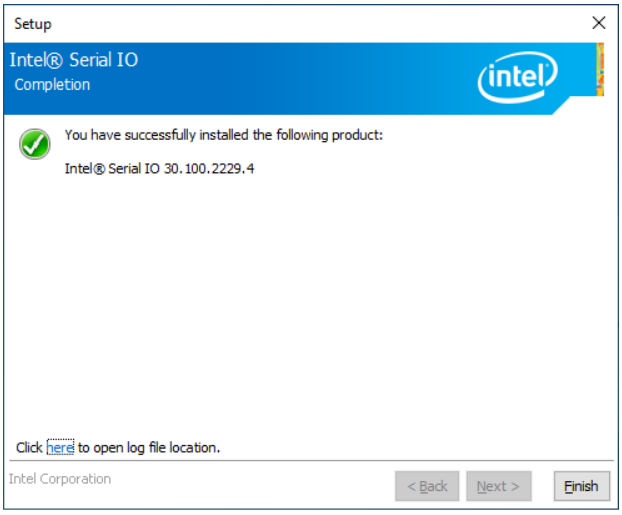
Step 1. Click **Next.**



Step 4. Click **Next.**



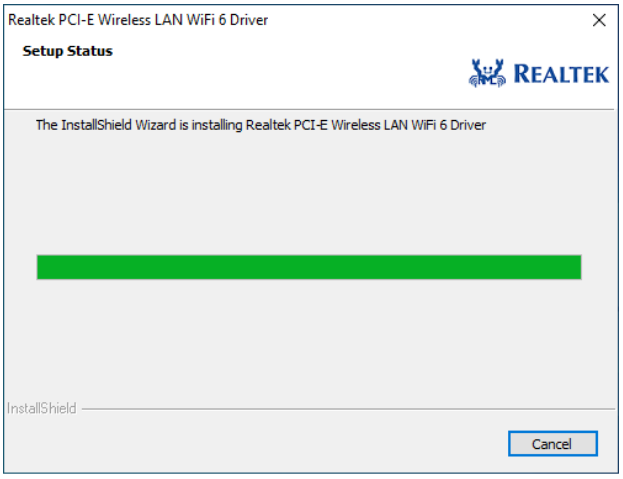
Step 2. Click **YES**.



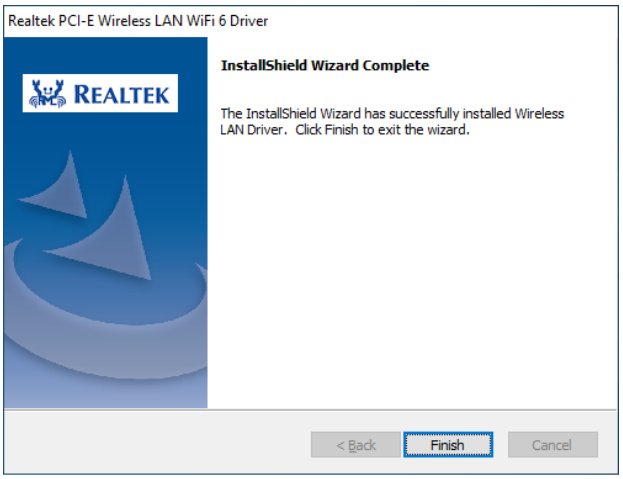
Step 5. Click **Finish** to complete setup.

4.10 Install wifi Driver

Note: The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



Step 1. Click **Next.**



Step 2. Click **Finish** to complete setup.