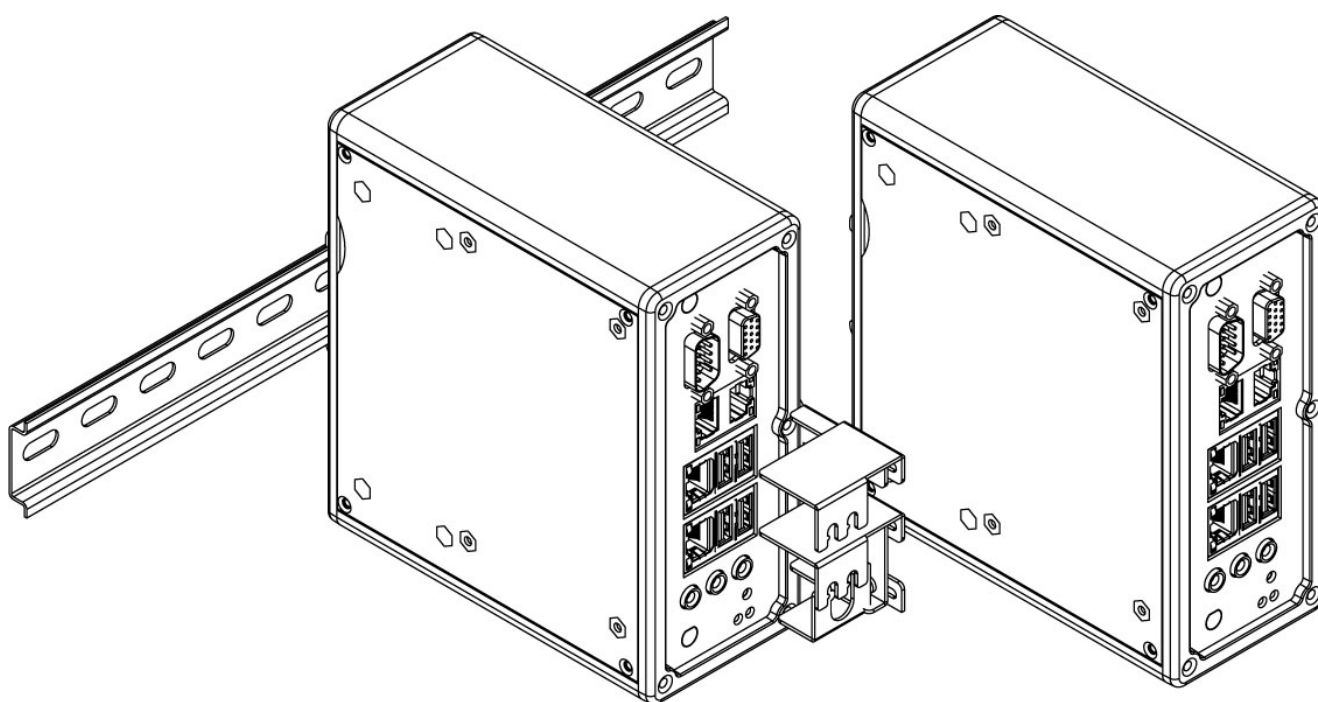# DIN Rail Box PC

IBDRW100-EL

Intel® Elkhart Lake Celeron® N6210 1.2GHz, up to 2.6 GHz

Intel® Elkhart Lake ATOM® x6425E 2.0GHz, up to 3.0 GHz

aws qualified device
internet of things

User Manual

Version 1.1

Document Part No. 91711110101Z

Contents

Preface

Copyright Notice

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Trademark Acknowledgement

Brand and product names are trademarks or registered trademarks of their respective owners.

Disclaimer

We reserve the right to make changes, without notice, to any product, including circuits and/or software described or contained in this manual in order to improve design and/or performance. We assume no responsibility or liability for the use of the described product(s) conveys no license or title under any patent, copyright, or masks work rights to these products, and make no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified. Applications that are described in this manual are for illustration purposes only. We make no representation or guarantee that such application will be suitable for the specified use without further testing or modification.

Warranty

Our warranty guarantees that each of its products will be free from material and workmanship defects for a period of one year from the invoice date. If the customer discovers a defect, we will, at his/her option, repair or replace the defective product at no charge to the customer, provide it is returned during the warranty period of one year, with transportation charges prepaid. The returned product must be properly packaged in its original packaging to obtain warranty service. If the serial number and the product shipping data differ by over 30 days, the in-warranty service will be made according to the shipping date. In the serial numbers the third and fourth two digits give the year of manufacture, and the fifth digit means the month (e. g., with A for October, B for November and C for December).

For example, the serial number 1W16Axxxxxxxx means October of year 2016.

Customer Service

We provide a service guide for any problem by the following steps: First, visit the website of our distributor to find the update information about the product. Second, contact with your distributor, sales representative, or our customer service center for technical support if you need additional assistance.

You may need the following information ready before you call:

- Product serial number
- Software (OS, version, application software, etc.)
- Description of complete problem
- The exact wording of any error messages

In addition, free technical support is available from our 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.

Advisory Conventions

Four types of advisories are used throughout the user manual to provide helpful information or to alert you to the potential for hardware damage or personal injury. These are Notes, Important, Cautions, and Warnings. The following is an example of each type of advisory.

Note:
A note is used to emphasize helpful information

Important:
An important note indicates information that is important for you to know.

Caution A Caution alert indicates potential damage to hardware and explains how to avoid the potential problem.
Attention Une alerte d'attention indique un dommage possible à l'équipement et explique comment éviter le problème potentiel.

Warning! An Electrical Shock Warning indicates the potential harm from electrical hazards and how to avoid the potential problem.
Avertissement! Un Avertissement de Choc Électrique indique le potentiel de chocs sur des emplacements électriques et comment éviter ces problèmes.

Alternating Current The Protective Conductor Terminal (Earth Ground) symbol indicates the potential risk of serious electrical shock due to improper grounding.
Mise à le terre ! Le symbole de Mise à Terre indique le risqué potentiel de choc électrique grave à la terre incorrecte.

Safety Information

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.
Avertissement! Toujours débrancher le cordon d'alimentation du chassis lorsque vous travaillez sur celui-ci. Ne pas brancher de connections lorsque l'alimentation est présente. Des composantes électroniques sensibles peuvent être endommagées par des sauts d'alimentation. Seulement du personnel expérimenté devrait ouvrir ces 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.
Attention Toujours verifier votre mise à la terre afin d'éliminer toute charge statique avant de toucher la carte CPU. Les équipements électroniques moderns sont très sensibles aux décharges d'électricité statique. Toujours utiliser un bracelet de mise à la terre comme précaution. Placer toutes les composantes électroniques sur une surface conçue pour dissiper les charge, ou dans un sac anti-statique lorsqu'elles ne sont pas dans le chassis.

Safety Precautions

For your safety carefully read all the safety instructions before using the device. Keep this user manual for future reference.

- Replacement of a battery with an incorrect type that can defeat a safeguard
- Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery, that can result in an explosion
- Leaving a battery in an extremely high temperature surrounding environment that can result in an explosion or the leakage of flammable liquid or gas
- A battery subjected to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas
- Caution: Risk of fire or explosion if the battery is replaced by an incorrect type
- Always disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
- For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
- Keep this equipment away from humidity.
- Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
- The openings on the enclosure are for air convection and to protect the equipment from overheating.

Caution Do not cover the openings!

Attention Ne couvrez pas les ouvertures!

- Before connecting the equipment to the power outlet make sure the voltage of the power source is correct.
- Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
- Never pour any liquid into an opening. This could cause fire or electrical shock.
- Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.
- All cautions and warnings on the equipment should be noted.

Caution Always ground yourself to remove any static charge before touching the board. 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.

Attention Mettez-vous toujours à la terre pour éliminer toute charge statique avant de toucher la carte. Les appareils électroniques modernes sont très sensibles aux charges électriques statiques. Par mesure de sécurité, utilisez en tout temps un bracelet antistatique. Placez tous les composants électroniques dans une surface antistatique ou dans un sac blindé antistatique lorsqu'ils ne sont pas dans le châssis.

General Guideline

It is recommended to reboot the device when some functions are defect or inactive. If it still can't solve the problems please contact your dealer or agent.

About This User Manual

This User Manual provides information about using the IBDRW100-EL Series DIN Rail Box PC. This User Manual applies to the IBDRW100-EL Series DIN Rail Box PC - IBDRW100-EL.

The documentation set for the IBDRW100-EL Series DIN Rail Box PC provides information for specific user needs, and includes:

- **User Manual** – contains detailed description on how to use the IBDRW100-EL Series DIN Rail Box PC, its components and features.

Note:
Some pictures in this guide are samples and can differ from actual product.

Chapter 1: Introduction

1.1 Product Overview

Winmate IBDRW100-EL Series is a DIN-rail mounted Fanless Box PC, which provides several serial communication ports. With a compact size and small form factor as well as front accessible I/O port. The IBDRW100-EL Series is very convenient for wiring and DIN-rail installation in the control cabinet. The wide operation temperature and Industrial serial port design makes this unit a perfect communication even in harsh and critical location. The IBDRW100-EL Series are certified to support the ecosystem of AWS IoT Greengrass giving customers more options for software integration for IoT applications.

1.2 Product Features

Highlights
- Designed for industrial automation, DIN Rail applications
- Intel Elkhart Lake N6210, 2 Core@1.2 GHz, up to 2,6 GHz (TDP=6.5W)
- Intel Elkhart Lake x6425E, 4 Core@ 2.0 GHz, up to 3.0 GHz (TDP=12W)
- 1 x RS232 / 422 / 485 communications, select thru BIOS
- 4 x LAN, 3 x USB 3.2 Gen2x1, 1 x USB 2.0
- 1 x VGA, 1 x Line out, 1 x Line in, 1 x Mic in, 1 x Power Jack
- Fanless, streamlined enclosure for highly efficient heat dissipation
- Rated for wide temperature use -20˚C to 60˚C
- Certified AWS IoT Greengrass

1.3 Accessories
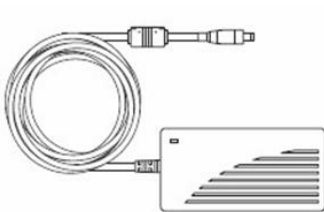
- **AC to DC 12V 84W Power Adapter (For testing only)**
  Part No. 922D084W12V1
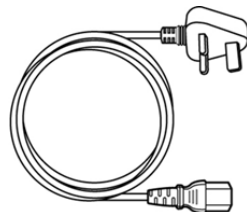
- **Power Cord**
  Varies by the country

- **Terminal Block 3 pin to 2.5 Ø Female Adapter Cable**
  Part No. 94J602G030K0

- **Open Wire Power Cable**
  Part No. 94EL02X020E0
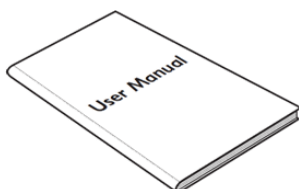
- **User Manual**
  Part No. 91711110101Z
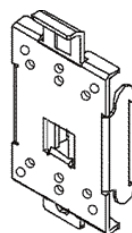
- **DIN Rail Mounting Clip**
  Part No. 90ME01000000
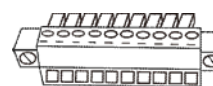
- **Terminal Block 10 pin Female Connector for DIDO x 2**
  Part No. 604530005D01
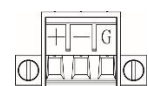
- **Terminal Block 3 pin Connector for Power**
  Part No.604520105001

1.4 Chassis Dimensions

Unit: mm

M3 Screw

26

40

65.4 ±0.5

152±0.5

139±0.5
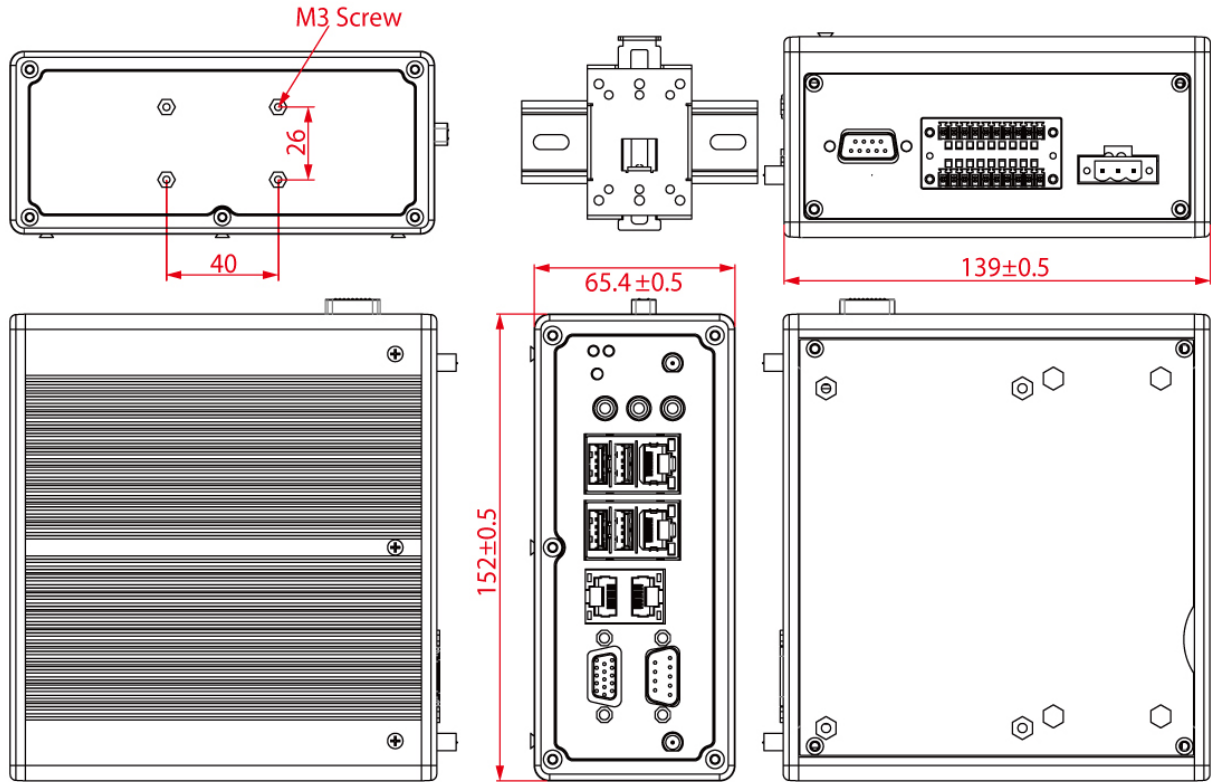
1.5 Description of Parts

Front
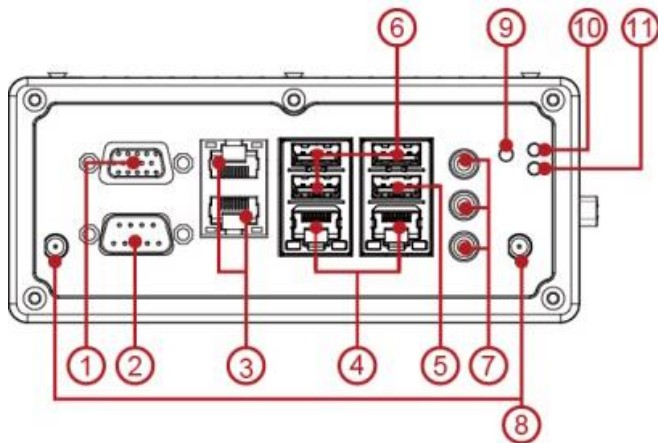
Rear
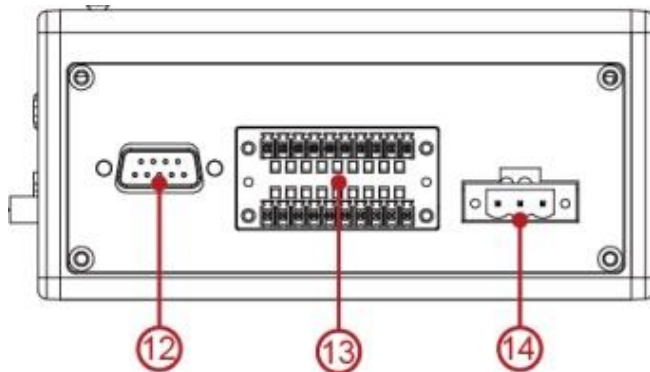
1. VGA

2. COM1 RS232 default (RS422/485 selected by BIOS setting)

3. LAN x 2

4. LAN x 2

5. USB 2.0 x 1

6. USB 3.2 Gen2x1 x 3

7. Audio Jack

8. Antenna

9. Reset button

10. Power LED

11. HDD LED

12. COM2 Isolated RS422 default (RS485 selected by jumper)

13. DIDO (9 in, 9 out)

1. 14. Power Terminal Block

Chapter 2: Hardware Installation

2.1 Connectors Description

This section describes pin assignment and signal names of IBDRW100-EL interfaces.

2.1.1 USB 3.2 Gen2x1 Connector

The IBDRW100-EL provide three USB 3.2 Gen2x1 connectors. Use USB 3.0 connector to connect external devices such as mouse or keyboard to the box computer.

Pin assignment and signal names of USB connector
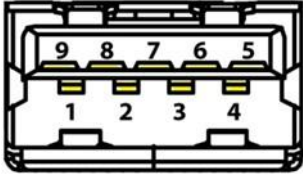
Pin №	Signal Name	Pin №	Signal Name
1	+5V	2	USB_D-
3	USB_D+	4	GND
5	STDA_SSRX-	6	STDA_SSRX+
7	GND	8	STDA_SSTX-
9	STDA_SSTX+		

2.1.2 RJ-45 for LAN Connector

The IBDRW100-EL has four LAN connectors located on the front. Ethernet ports provide a standard RJ45 jack connector with LED indicators on the front side to show its Active/ Link status and Speed status.

Pin assignment and signal names of Ethernet connector
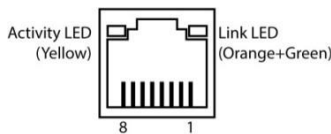
10/100 Mbps- Green
1G Mbps – Orange

Pin №	Signal Name	Pin №	Signal Name
1	TX1+	2	TX1-
3	TX2+	4	TX3+
5	TX3-	6	TX2-
7	TX4+	8	TX4-

2.1.4 VGA Connector

The IBDRW100-EL have one VGA DB15 connector. Use VGA cable to connect DIN-Rail Box Computer to external monitor.

Pin assignment and signal names of VGA connector
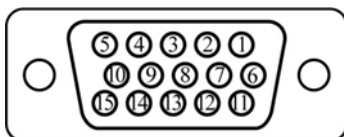
Maximum resolution (VGA)
1920 x 1200 @60 HZ

Pin №	Signal Name	Pin №	Signal Name
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	GND
7	GND	8	GND
9	+5V	10	GND
11	NC	12	SDA
13	HSYNC	14	VSYNC
15	SCL		

2.1.5 Serial Port RS-232/422/485 Connector

The IBDRW100-EL have one COM1 9-pin D-sub connectors that offer RS-232/422/485 serial communication interface ports. Default setting is RS-232, but this can be modified by BIOS.

Pin assignment and signal names of RS-232/422/485 connector
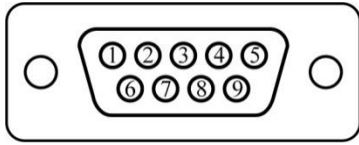
Pin №	RS-232 (Default)	RS422	RS485
1	DCD	Tx-	DATA-
2	RXD	Tx+	DATA+
3	TXD	RX+	NC
4	DTR	RX-	NC
5	GND	GND	GND
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

2.1.6 Isolated RS422/485 Connector

The IBDRW100-EL have one isolated COM2 9-pin D-sub connectors that offer RS-422/485 serial communication interface ports. Default setting is RS-422, but this can be modified by jumpers.

Pin assignment and signal names of isolated RS-422/485 connector
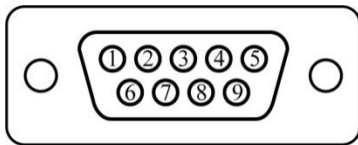
Pin №	RS422	RS485
1	Tx-	DATA-
2	Tx+	DATA+
3	RX+	NC
4	RX-	NC
5	GND	GND
6	NC	NC
7	NC	NC
8	NC	NC
9	NC	NC

2.1.7 Audio Jack

The IBDRW100-EL have has three stereo audio ports with audio jack connectors: Mic-in, Line-out, Line-in.

Pin assignment and signal names of audio jack

Color	Signal Name
BLUE	Line-in
GREEN	Line-out
PINK	Mic-in

2.1.8 DIDO Connector
Pin assignment and signal names of DIDO connector

Pin №	Signal Name	Pin №	Signal Name
1	GND	8	DINT1
2	DIO_5V	9	DINT2
3	DOUT3	10	DINT0
4	DOUT1	11	GPIO53_IN0
5	DOUT2	12	GPIO56_OUT0
6	DOUT0	13	GPIO54_IN1
7	DINT3	14	GPIO57_OUT1

2.1.9 DC Power 3pin Terminal Block
The DC power source input of the IBDRW100-EL is a 3-pin terminal block connector that supports 9-36V DC power input.

Pin assignment and signal names of DC power 3pin terminal block
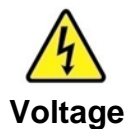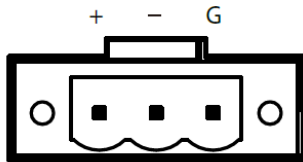
Voltage

Minimum Voltage 9V
Maximum Voltage 36V

2.2 Configuring COM2 Settings by Jumpers

Serial Port COM2 can be configured for RS-422 or RS-485 by jumpers. Jumpers are located on the motherboard. You need to open the housing in order to access the jumpers.

Caution It is recommended to use factory jumper settings. Opening the housing when it is sealed may damage the device and its parts.

Attention Il est recommandé d'utiliser la configuration d'usine de cavalier. Ouvrir le chassis lorsqu'il est scellé peut endommagé l'appareil et ses pièces.

Note: A pair of needle nose pliers may be helpful when working with jumpers. 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. Generally, you simply need a standard cable to make most connections.

The jumper setting diagram is shown below. When the jumper cap is placed on both pins, the jumper is SHORT. The illustration below shows a 3-pin jumper; pins 1 and 2 are short. If you remove the jumper cap, the jumper is OPEN.

PIN 1-2 SHORT
PIN 3 OPEN
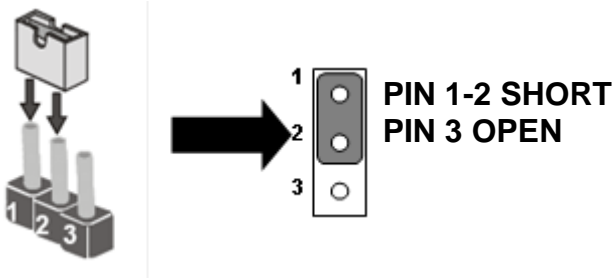
COM2 Jumper

RS422/485 Terminal Resistor (JP3, JP5)

Location	Header Type	Description	Function
JP3	Header 3*1	Terminal Resistor	1-2: Normal
JP5			2-3: Connector

※ Default: 1-2

Select RS422/485 (JP4, JP6, JP7)

Location	Header Type	Description	Function
JP4	Header 3*1	Selection RS422 / RS485	1-2: RS485
JP6			
JP7			2-3: RS422

※ Default: 1-2

JP3/JP4　　　　JP5/JP6　　　　JP7
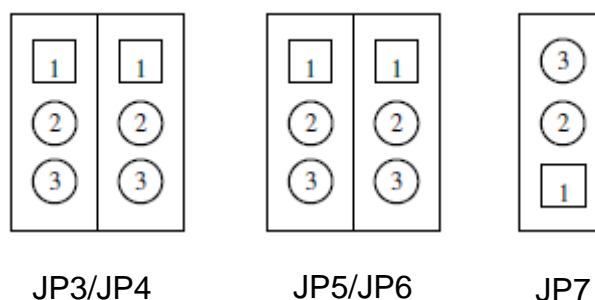
Chapter 3: Initial Setup

3.1 DIN Rail Mounting Setup

Please follow these steps to mount the IBDRW hook kit on a DIN rail

1. Screw the provided DIN-rail Kit on the rear side of the box as the diagram shown below.
2. Please make sure the stiff metal handle part is located on the top.
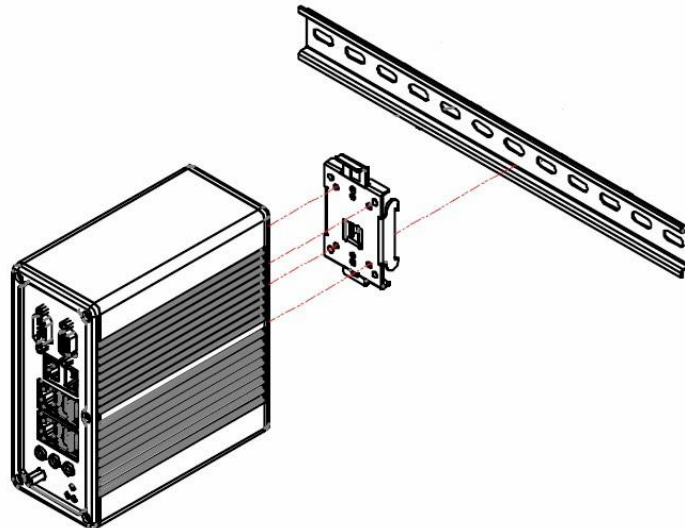
3. Press the stiff metal handle downward and insert the hook into the DIN-rail.
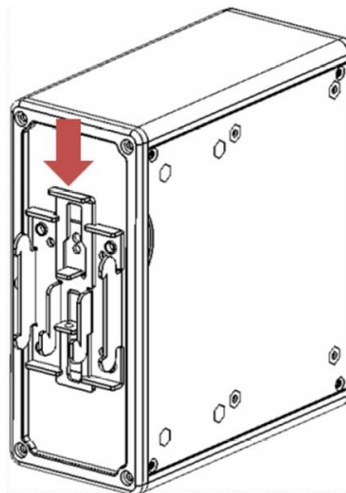
4. Release the handle so it can snap into place as shown below.
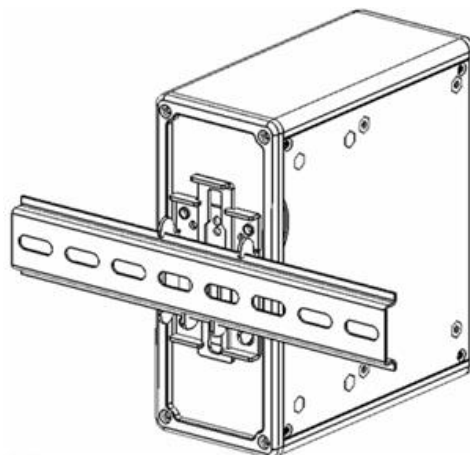
Chapter 4: Insyde BIOS Setup

4.1 BIOS Introduction

4.1.1 BIOS Setup and Boot Procedure

BIOS stand for "Basic Input Output System" and it is the most basic communication between user and the hardware. To enter BIOS Setup, the [**DEL**] key must be pressed after the USB controller has been initialized as soon as the following message appears on the monitor during Power On Self-Test (POST): "**Press DEL to run SETUP**"

Note: BIOS version update may be published after the manual is released. Please visit Winmate Download Center to check the latest version of BIOS. User may need to run BIOS setup utility for the following status:

1. Error message on screen indicate to check BIOS Setup
2. Restoring the Factory default setting
3. Modifying the specific hardware specification
4. Want to optimize the specification

4.1.2 BIOS Setup Keys

The following keys are enabled during POST:

Key	Function
Del	Enters the BIOS setup menu
F7	Display the boot menu. Lists all bootable devices that are connected to the system. With cursor ↑ and cursor ↓ and by pressing <ENTER>, select the device used for the boot
Pause	Pressing the [Pause] key stops the POST. Press any other key to resume the POST.

The following keys can be used after entering the BIOS Setup:

Key	Function
F1	General Help
F2	Previous Values
F3	Optimized Defaults
F4	Save & Exit
Esc	Exit
+/-	Change Opt.
Enter	Select or execute command
Cursor ↑	Moves to the previous item
Cursor ↓	Goes to the next item
Cursor ←	Moves to the previous item
Cursor →	Goes to the next item

4.2 BIOS Menu

4.2.1 Main

Immediately after the [DEL] key is pressed during startup to show the main BIOS setup menu:

```
InsydeH20 Setup Utility                                                    Rev. 5.0
 Main  Advanced  Security  Power  Boot  Exit

 Product Name                     IEDR.V200
 Build Date                       09/27/2022 14:49:11

 Processor Type                   Intel(R) Celeron(R) N6210 @ 1.20GHz
 System Bus Speed                 100 MHz
 System Memory Speed              3200 MHz
 Cache RAM                        1536 KB
 Total Memory                     8192 MB
 Channel A - SODIMM               8192 MB

 ▶Platform Information

 Language                         <English>

 System Time                      [01:39:59]
 System Date                      [10/03/2022]




 F1  Help          ↑/↓ Select Item       F5/F6 Change Values    F9  Setup Defaults
 Esc Exit          ←/→ Select Item       Enter Select ▶ SubMenu F10 Save and Exit
```

BIOS Setting	Description	Setting Options	Effect
Language	Select the current default language by the Insyde20	Adjustment of the language. Default: English.	Set the default language
System Time	The time is maintained by the battery when the device is turned off.	Adjustment of the time	Set the time in the format [hh:mm:ss]
System Date	This is current date setting. The time is maintained by the battery when the device is turned off	Changes to the date	Set the date in the format [mm/dd/yyyy]

4.2.2 Advanced

```
                           InsydeH20 Setup Utility                           Rev. 5.0
       Advanced

 ▶CPU Configuration                                    CPU Configuration Parameters
 ▶Power & Performance
 ▶System Agent (SA) Configuration
 ▶PCH-IO Configuration
 ▶PCH-FW Configuration












 F1  Help              ↑/↓ Select Item        F5/F6 Change Values      F9  Setup Defaults
 Esc Exit              ←/→ Select Item        Enter Select ▶ SubMenu   F10 Save and Exit
```
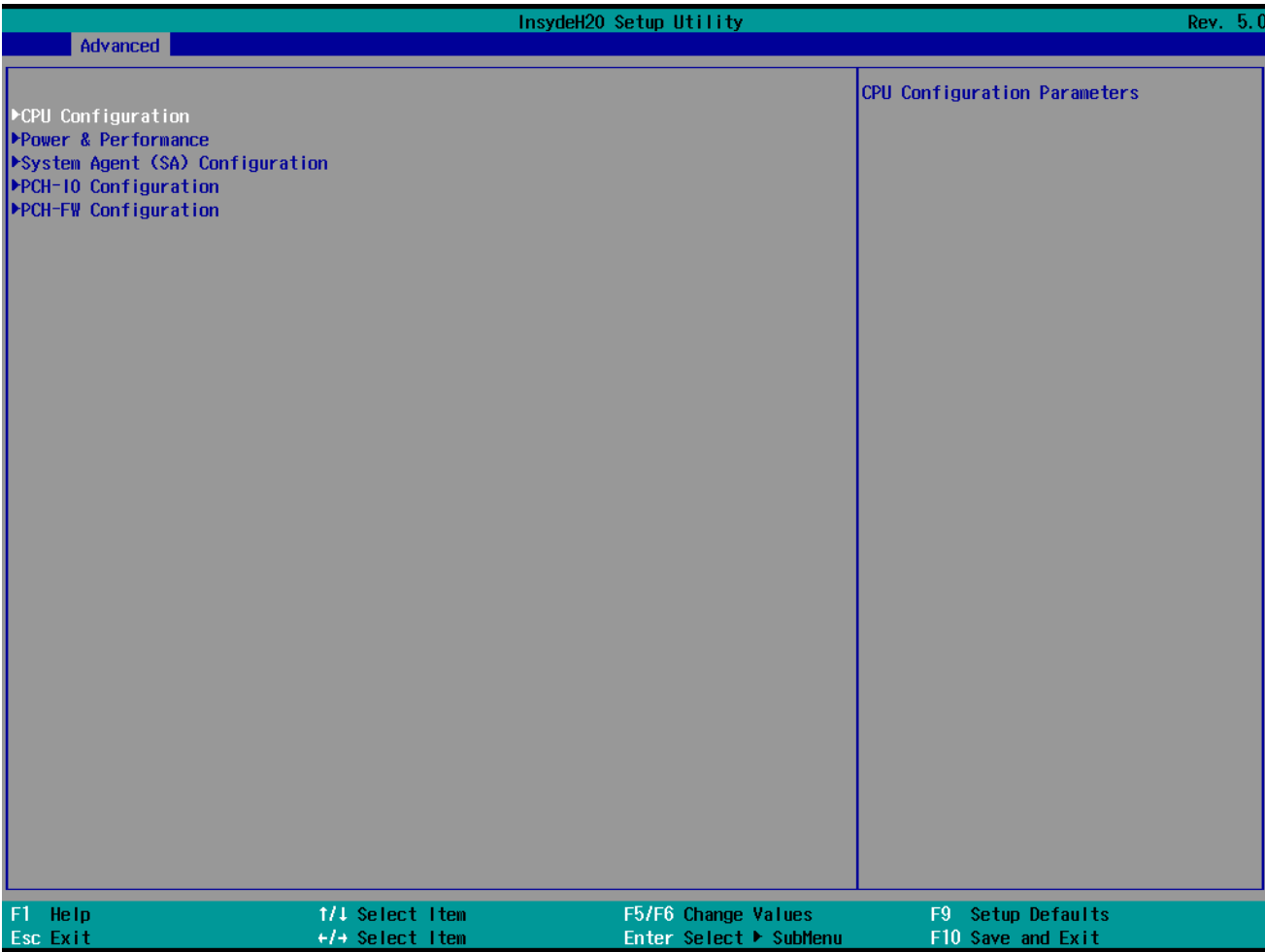
BIOS Setting	Description	Setting Option	Effect
CPU Configuration	Configures Trusted Computing parameters	Enter	Opens submenu
Power& Performance	Configures Power & Performance parameters	Enter	Opens submenu
System Agent Configuration	Configures System Agent Configuration parameters	Enter	Opens submenu
PCH-OI Configuration	Configures PCH-OI parameters	Enter	Opens submenu
PCH-FM Configuration	Configures PCH-FM parameters	Enter	Opens submenu
S10 F81968	Configures S10 F81968 parameters	Enter	Opens submenu

4.2.2.1 CPU Configuration

```
InsydeH20 Setup Utility                                                           Rev. 5.0
    Advanced

CPU Configuration                                              When enabled, a VMM can utilize the
                                                              additional hardware capabilities
Type                       Intel(R) Celeron(R) N6210 @ 1.20GHz  provided by Vanderpool Technology.
ID                         0x90661
Speed                      1200 MHz
VMX                        Supported
SMX/TXT                    Not Supported

Intel (VMX) Virtualization Technology   <Enabled>
Active Processor Cores                  <All>
AES                                     <Enabled>










F1   Help              ↑/↓ Select Item      F5/F6 Change Values      F9  Setup Defaults
Esc Exit               ←/→ Select Item      Enter Select ▶ SubMenu   F10 Save and Exit
```

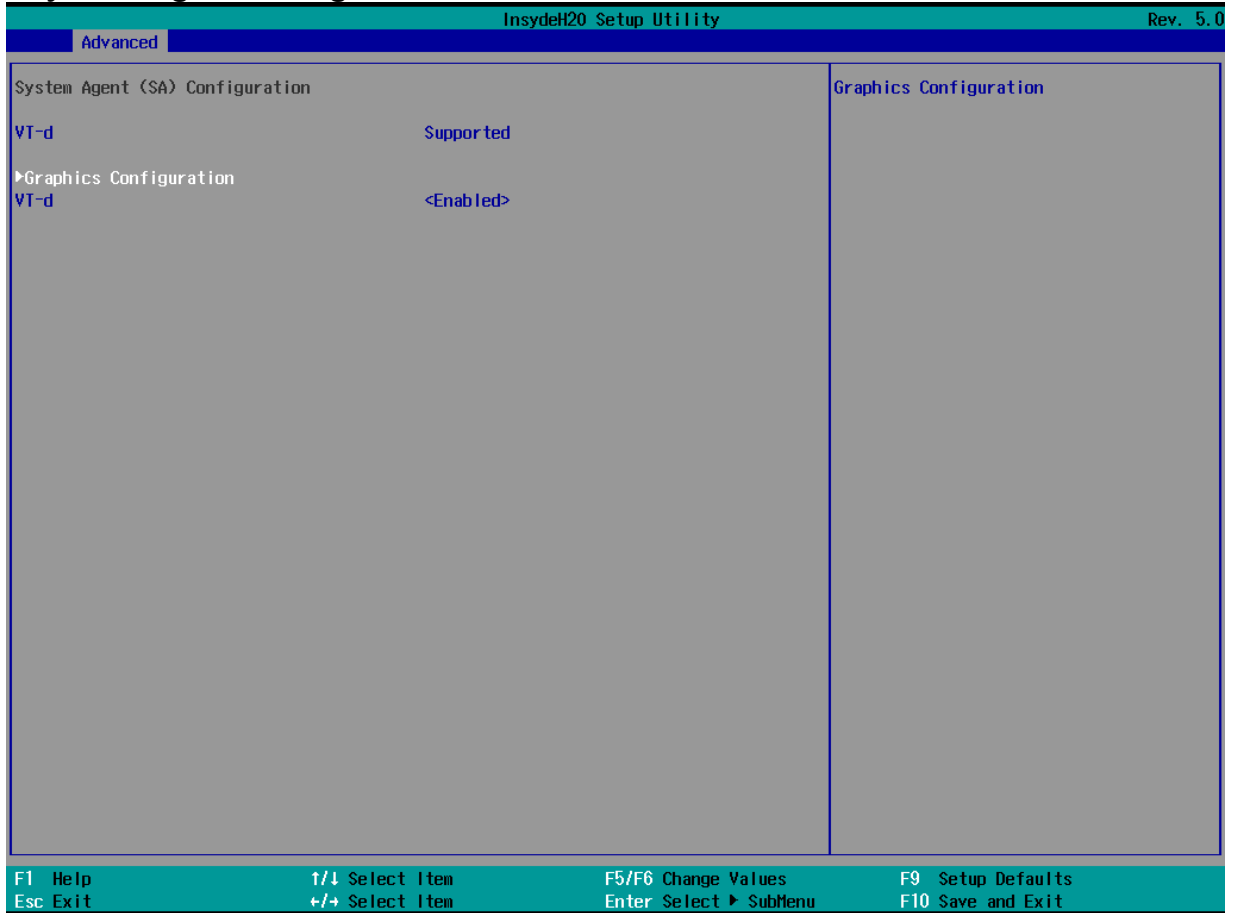| BIOS Setting	Description	Setting Option	Effect
Intel (VMX) Virtualization Technology	Enable or disable Intel Virtualization Technology.	Enable/Disable	When enabled, a VMM can utilize the additional hardware capabilities provided by Vander pool Technology.
Active Processor Cores	Number of core to enable in each processor package	All / 1 / 2/ 3	Select number of core to enable in each processor package
Hyper Threading	Intel Hyper-Threading Technology allows a single processor to execute two or more separate threads concurrently.	Enable / Disable	Enable or disable Hyper Threading
AES	Enable or disable AES (Advanced Encyption Standard)	Enable/Disable	Enable or disable AES

4.2.2.2 CPU Power Management Configuration

```
                          InsydeH20 Setup Utility                          Rev. 5.0
     Advanced

CPU - Power Management Control                             Select the performance state that the
                                                          BIOS will set starting from reset
   Boot performance mode          <Max Non-Turbo Performance>   vector.
   Intel(R) SpeedStep(tm)         <Enabled>
   Intel(R) Speed Shift Technology <Enabled>
     Turbo Mode                   <Enabled>














 F1   Help             ↑/↓ Select Item      F5/F6 Change Values      F9  Setup Defaults
 Esc  Exit             ←/→ Select Item      Enter Select ► SubMenu   F10 Save and Exit
```
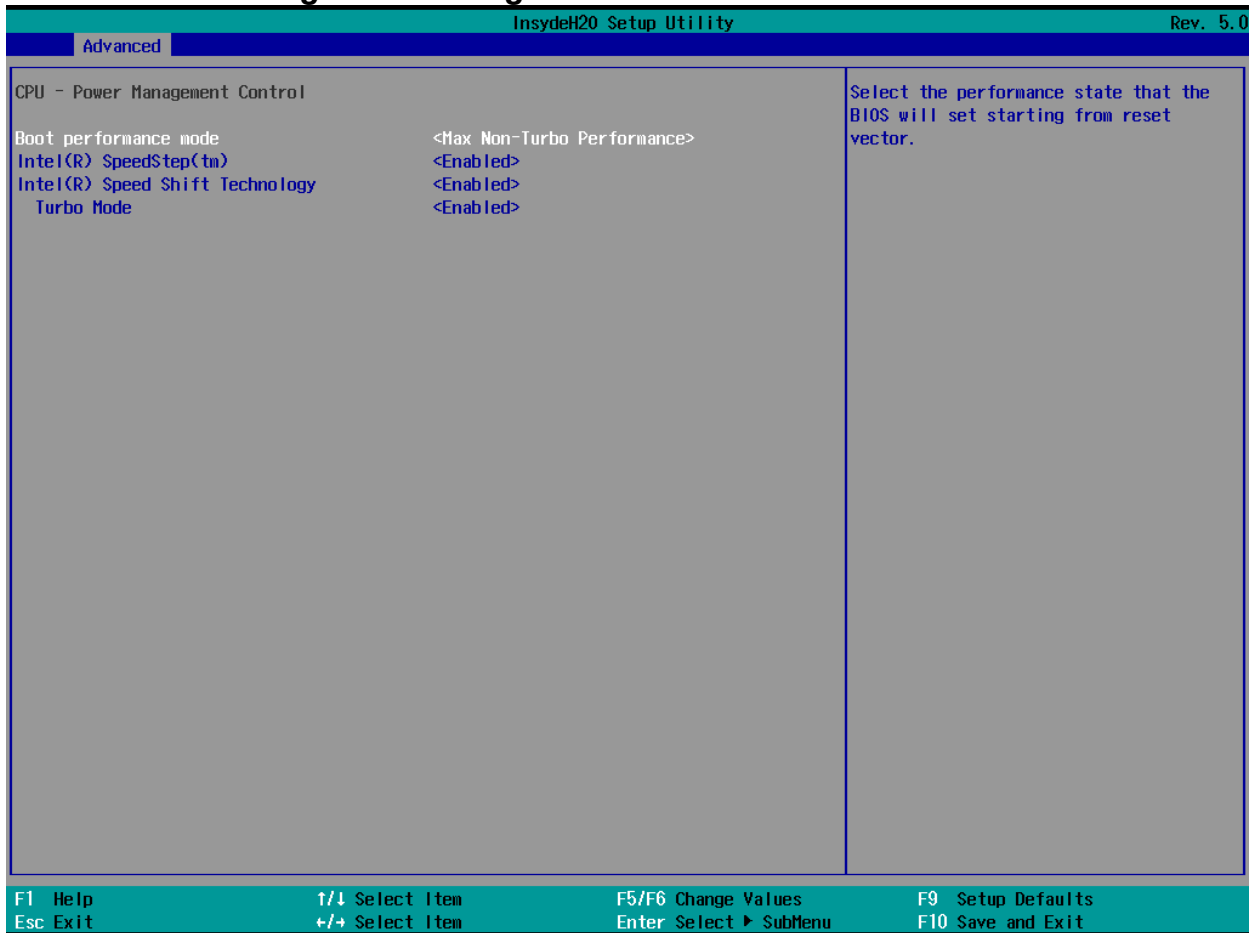
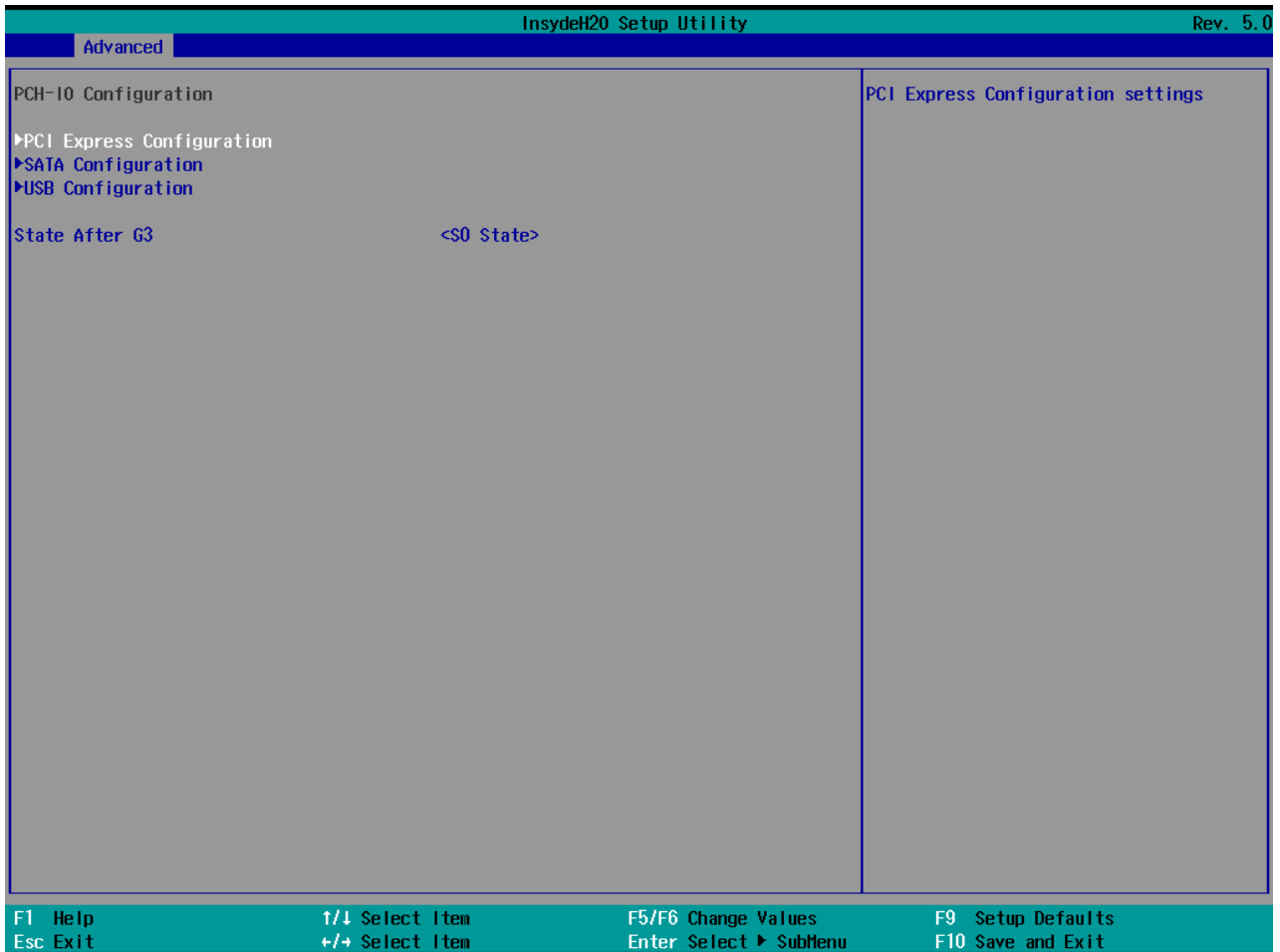| BIOS Setting	Description	Setting Option	Effect
Boot Performance Mode	Configure Boot Performance Mode parameters	-Max non-turbo performance -Max battery -Turbo Performance	Select the performance state that the BIOS will set starting from reset vector
Intel Speed Step (ta)	Configure Intel Speed Step (ta) parameters	Enabled/ Disabled	Allows more than two frequency ranges to be supported
Intel Speed Shift Technology	Configure Intel Speed Shift Technology parameters	Enabled/ Disabled	Enable/ Disable Intel Speed Shift Technology support. Enabling will expose the CPP v2 interface to allow for hardware controlled P-states
-Turbo Mode	Enable or disable Turbo Mode	Enabled/ Disabled	Enable/ Disable processor Turbo Mode (requires EMTTM enabled too). Auto means enabled, unless max turbo ratio is bigger than 16 –SKL AO W/A
C states	Enable or disable C states	Enabled/ Disabled	Enable/ Disable CPU Power Management. Allows COU to go to C

			states when it is not 100% utilized
Custom P-state Table	Configure Custom P-state Table parameters	Enter	Enters sub-menu
-Number of P-states	Select the number of custom P-states.	[Number]	Set the number of custom P-states. At least 2 states must be present

4.2.2.3 System Agent Configuration

```
                              InsydeH20 Setup Utility                          Rev. 5.0
   Advanced

 System Agent (SA) Configuration                         Graphics Configuration

 VT-d                              Supported

 ▶Graphics Configuration
 VT-d                              <Enabled>












 F1  Help              ↑/↓ Select Item      F5/F6 Change Values       F9  Setup Defaults
 Esc Exit              ←/→ Select Item      Enter Select ▶ SubMenu    F10 Save and Exit
```

BIOS Setting	Description	Setting Option	Effect
Vt-d	Intel® Virtualization Technology for Directed I/O	Enabled Disabled	Vt-d capability

4.2.2.4 PCH-IO Configuration

```
                              InsydeH2O Setup Utility                          Rev. 5.0
       Advanced

  PCH-IO Configuration                                      PCI Express Configuration settings

 ▶PCI Express Configuration
 ▶SATA Configuration
 ▶USB Configuration

  State After G3                        <S0 State>

 F1  Help              ↑/↓ Select Item        F5/F6 Change Values       F9  Setup Defaults
 Esc Exit              ←/→ Select Item        Enter Select ▶ SubMenu    F10 Save and Exit
```

BIOS Setting	Description	Setting Option	Effect
PCI Express Configuration	PCI Express clock gating enable/disable for each root port.	Enter	Opens sub-menu
SATA And RST Configuration	Enable/ Disable SATA device	Enter	Opens sub-menu
USB Configuration	Selectively enable/ disable the corresponding USB port from reporting a Device Connection to the controller.	Enter	Opens sub-menu
State After G3	System power state setting	S0 State S5 State	

Advanced

PCI Express Configuration

PCH PCI Express Clock Gating   <Platform-POR>

▶PCIe RP#1 (PCIe 0 Single-VC)
▶PCIe RP#2 (PCIe 0 Single-VC)
▶PCIe RP#3 (PCIe 0 Single-VC)
 PCIe RP#4 (PCIe 0 Single-VC)   Lane configured as USB/SATA/UFS
▶PCIe RP#5 (PCIe 1 Multi-VC)
 PCIe RP#6 (PCIe 2 Multi-VC)   Lane configured as USB/SATA/UFS
▶PCIe RP#7 (PCIe 3 Multi-VC)

▶PCIE clocks

Enable/Disable PCH PCI Express Clock
Gating (Power Management) For Each Root
Port.

F1 Help   ↑/↓ Select Item   F5/F6 Change Values   F9 Setup Defaults
Esc Exit   ←/→ Select Item   Enter Select ▶ SubMenu   F10 Save and Exit

---

Advanced

PCI Express Root Port 1   <Enabled>
Connection Type   <Slot>
ASPM   <Disabled>
L1 Substates   <Disabled>
ACS   <Enabled>
PTM   <Disabled>
DPC   <Enabled>
EDPC   <Enabled>
  URR   <Disabled>
  FER   <Disabled>
  NFER   <Disabled>
  CER   <Disabled>
  SEFE   <Disabled>
  SENFE   <Disabled>
  SECE   <Disabled>
  PME SCI   <Enabled>
  Hot Plug   <Disabled>
  Advanced Error Reporting   <Enabled>
PCIe Speed   <Auto>
  Transmitter Half Swing   <Disabled>
Detect Timeout   [0]
Extra Bus Reserved   [0]
Reserved Memory   [10]
Reserved I/O   [4]

PCH PCIe LTR Configuration
LTR   <Enabled>
  Snoop Latency Override   <Auto>
  Non Snoop Latency Override   <Auto>
  Force LTR Override   <Disabled>

LTR Lock   <Disabled>

Control the PCI Express Root Port.

F1 Help   ↑/↓ Select Item   F5/F6 Change Values   F9 Setup Defaults
Esc Exit   ←/→ Select Item   Enter Select ▶ SubMenu   F10 Save and Exit

```
                        InsydeH20 Setup Utility                         Rev. 5.0
      Advanced

 PCI Express Root Port 2          <Enabled>           Control the PCI Express Root Port.
 Connection Type                  <Slot>
 ASPM                             <Disabled>
 L1 Substates                     <Disabled>
 ACS                              <Enabled>
 PTM                              <Disabled>
 DPC                              <Enabled>
 EDPC                             <Enabled>
   URR                            <Disabled>
   FER                            <Disabled>
   NFER                           <Disabled>
   CER                            <Disabled>
   SEFE                           <Disabled>
   SENFE                          <Disabled>
   SECE                           <Disabled>
   PME SCI                        <Enabled>
   Hot Plug                       <Disabled>
   Advanced Error Reporting       <Enabled>
 PCIe Speed                       <Auto>
   Transmitter Half Swing         <Disabled>
 Detect Timeout                   [0]
 Extra Bus Reserved               [0]
 Reserved Memory                  [10]
 Reserved I/O                     [4]

 PCH PCIe LTR Configuration
 LTR                              <Enabled>
   Snoop Latency Override         <Auto>
   Non Snoop Latency Override     <Auto>
   Force LTR Override             <Disabled>

 LTR Lock                         <Disabled>


 F1  Help              ↑/↓ Select Item      F5/F6 Change Values    F9  Setup Defaults
 Esc Exit              ←/→ Select Item      Enter Select ▶ SubMenu F10 Save and Exit
```
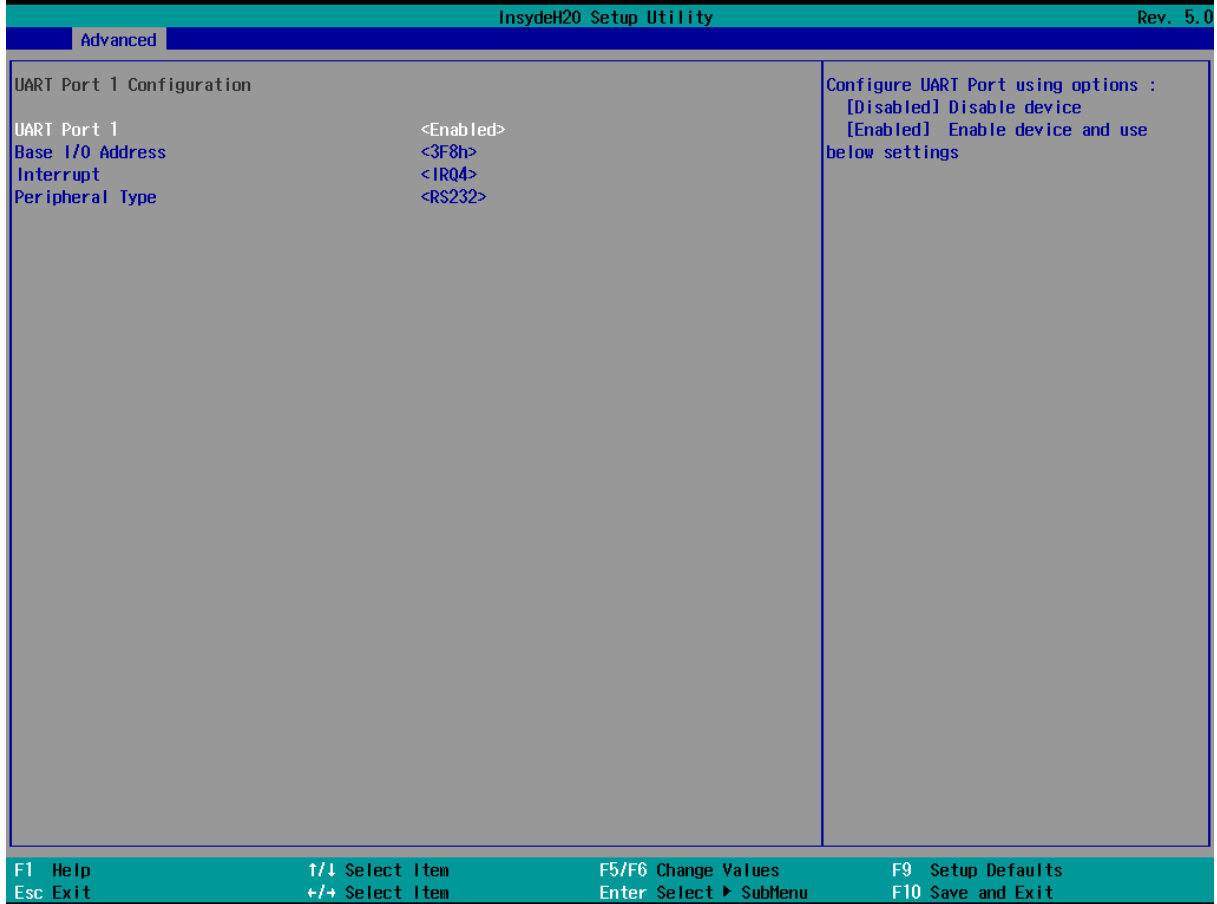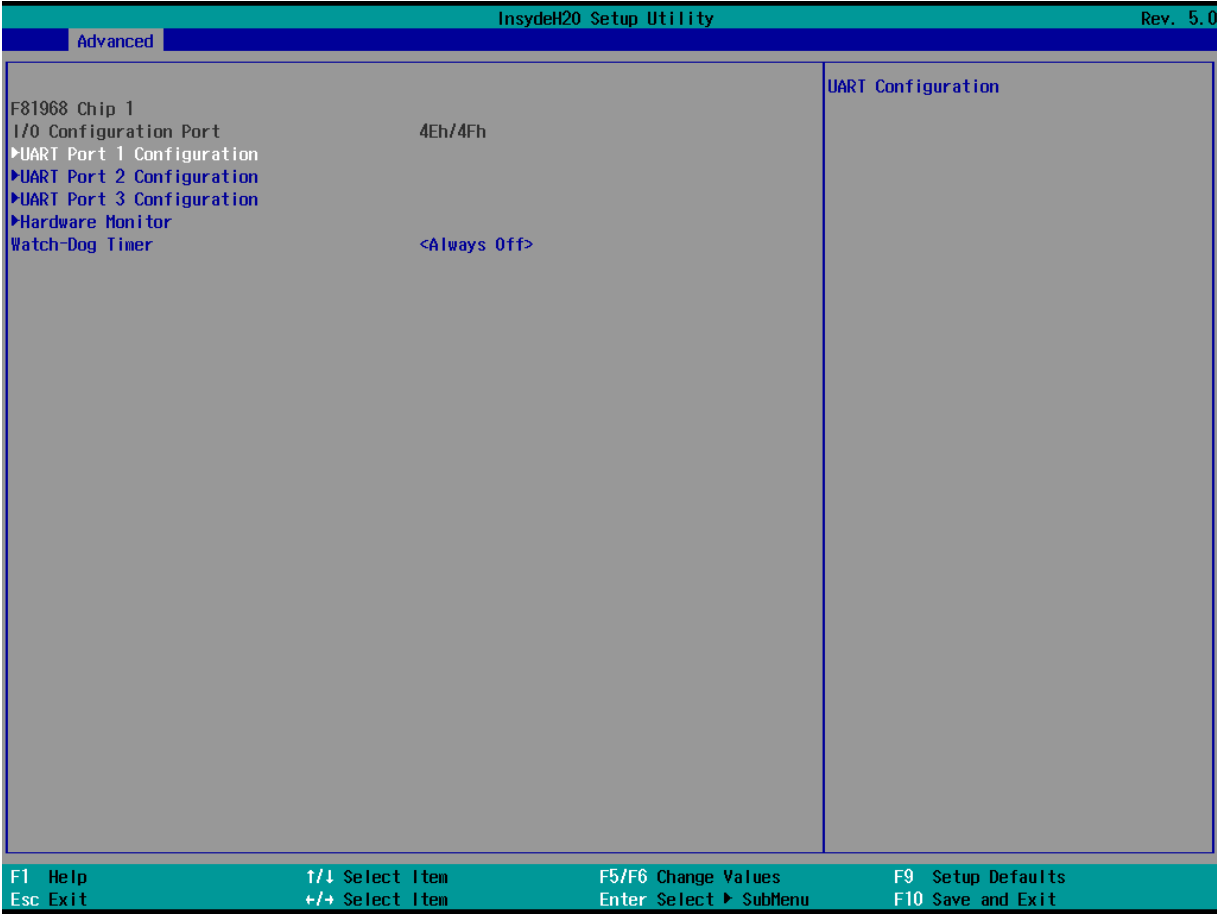
```
                        InsydeH20 Setup Utility                         Rev. 5.0
      Advanced

 PCI Express Root Port 3          <Enabled>           Control the PCI Express Root Port.
 Connection Type                  <Slot>
 ASPM                             <Disabled>
 L1 Substates                     <Disabled>
 ACS                              <Enabled>
 PTM                              <Disabled>
 DPC                              <Enabled>
 EDPC                             <Enabled>
   URR                            <Disabled>
   FER                            <Disabled>
   NFER                           <Disabled>
   CER                            <Disabled>
   SEFE                           <Disabled>
   SENFE                          <Disabled>
   SECE                           <Disabled>
   PME SCI                        <Enabled>
   Hot Plug                       <Disabled>
   Advanced Error Reporting       <Enabled>
 PCIe Speed                       <Auto>
   Transmitter Half Swing         <Disabled>
 Detect Timeout                   [0]
 Extra Bus Reserved               [0]
 Reserved Memory                  [10]
 Reserved I/O                     [4]

 PCH PCIe LTR Configuration
 LTR                              <Enabled>
   Snoop Latency Override         <Auto>
   Non Snoop Latency Override     <Auto>
   Force LTR Override             <Disabled>

 LTR Lock                         <Disabled>


 F1  Help              ↑/↓ Select Item      F5/F6 Change Values    F9  Setup Defaults
 Esc Exit              ←/→ Select Item      Enter Select ▶ SubMenu F10 Save and Exit
```

Advanced

PCI Express Root Port 5	\<Enabled>	Control the PCI Express Root Port.
Connection Type	\<Slot>	
ASPM	\<Disabled>	
L1 Substates	\<Disabled>	
ACS	\<Enabled>	
Multi-VC	\<Enabled>	
▶VC to TC Mapping		
PTM	\<Disabled>	
DPC	\<Enabled>	
EDPC	\<Enabled>	
URR	\<Disabled>	
FER	\<Disabled>	
NFER	\<Disabled>	
CER	\<Disabled>	
SEFE	\<Disabled>	
SENFE	\<Disabled>	
SECE	\<Disabled>	
PME SCI	\<Enabled>	
Hot Plug	\<Disabled>	
Advanced Error Reporting	\<Enabled>	
PCIe Speed	\<Auto>	
Transmitter Half Swing	\<Disabled>	
Detect Timeout	[0]	
Extra Bus Reserved	[0]	
Reserved Memory	[10]	
Reserved I/O	[4]	
PCH PCIe LTR Configuration		
LTR	\<Enabled>	
Snoop Latency Override	\<Auto>	
Non Snoop Latency Override	\<Auto>	
Force LTR Override	\<Disabled>	
LTR Lock	\<Disabled>	

| F1 Help | ↑/↓ Select Item | F5/F6 Change Values | F9 Setup Defaults |
| Esc Exit | ←/→ Select Item | Enter Select ▶ SubMenu | F10 Save and Exit |

Advanced

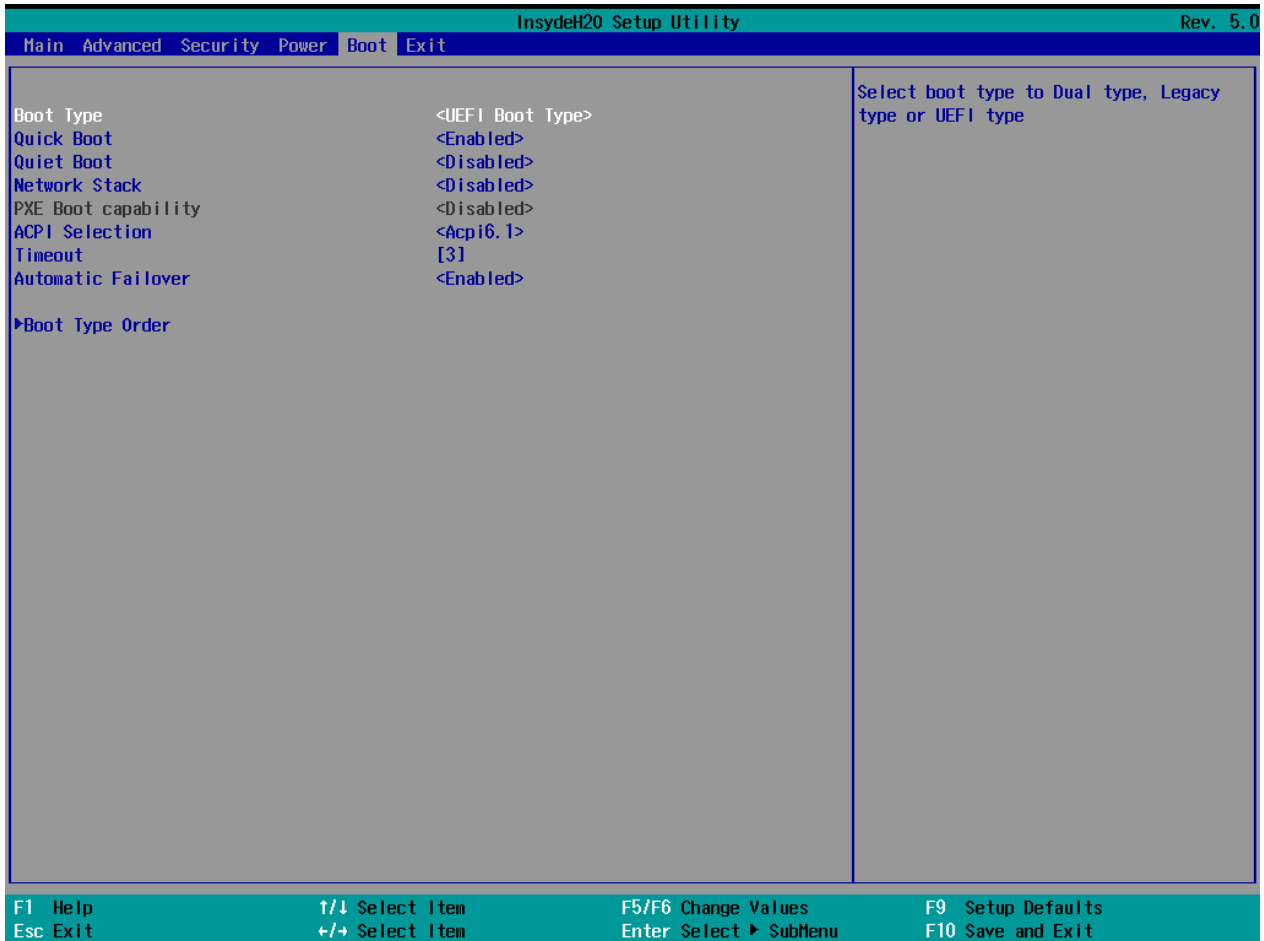| PCI Express Root Port 7 | \<Enabled> | Control the PCI Express Root Port. |
Connection Type	\<Slot>	
ASPM	\<Disabled>	
L1 Substates	\<Disabled>	
ACS	\<Enabled>	
Multi-VC	\<Enabled>	
▶VC to TC Mapping		
PTM	\<Disabled>	
DPC	\<Enabled>	
EDPC	\<Enabled>	
URR	\<Disabled>	
FER	\<Disabled>	
NFER	\<Disabled>	
CER	\<Disabled>	
SEFE	\<Disabled>	
SENFE	\<Disabled>	
SECE	\<Disabled>	
PME SCI	\<Enabled>	
Hot Plug	\<Disabled>	
Advanced Error Reporting	\<Enabled>	
PCIe Speed	\<Auto>	
Transmitter Half Swing	\<Disabled>	
Detect Timeout	[0]	
Extra Bus Reserved	[0]	
Reserved Memory	[10]	
Reserved I/O	[4]	
PCH PCIe LTR Configuration		
LTR	\<Enabled>	
Snoop Latency Override	\<Auto>	
Non Snoop Latency Override	\<Auto>	
Force LTR Override	\<Disabled>	
LTR Lock	\<Disabled>	

| F1 Help | ↑/↓ Select Item | F5/F6 Change Values | F9 Setup Defaults |
| Esc Exit | ←/→ Select Item | Enter Select ▶ SubMenu | F10 Save and Exit |

```
                              InsydeH20 Setup Utility                        Rev. 5.0
      Advanced
 SATA Configuration                                        Enable/Disable SATA Device.

 SATA Controller(s)               <Enabled>
 SATA Mode Selection              <AHCI>

 Serial ATA Port 0               <Enabled>
   Software Preserve             Unknown
   Port 0                        Empty
 Serial ATA Port 1               <Enabled>
   Software Preserve             SUPPORTED
   Port 1                        Phison SSMP064 (64.0GB)




 F1  Help              ↑/↓ Select Item       F5/F6 Change Values      F9  Setup Defaults
 Esc Exit              ←/→ Select Item       Enter Select ▶ SubMenu   F10 Save and Exit
```

```
                              InsydeH20 Setup Utility                        Rev. 5.0
      Advanced
 USB Configuration                                         Selectively Enable/Disable the
                                                           corresponding USB port from reporting a
 USB Port Disable Override        <Disable>                Device Connection to the controller.




 F1  Help              ↑/↓ Select Item       F5/F6 Change Values      F9  Setup Defaults
 Esc Exit              ←/→ Select Item       Enter Select ▶ SubMenu   F10 Save and Exit
```

4.2.2.5 *ME Firmware Configuration*

```
                              InsydeH20 Setup Utility                          Rev. 5.0
    Advanced

ME Firmware Version            15.40.27.2664                When Disabled ME will not be
ME Firmware Mode               Normal Mode                  unconfigured on RTC Clear
ME Firmware SKU                Consumer SKU
ME Firmware Status 1           0x90000255
ME Firmware Status 2           0x82100106

ME State                       <Enabled>
ME Unconfig on RTC Clear       <Enabled>










F1  Help              ↑/↓ Select Item      F5/F6 Change Values       F9  Setup Defaults
Esc Exit              ←/→ Select Item      Enter Select ▶ SubMenu    F10 Save and Exit
```

4.2.2.5 S10 *F81968 Configuration*

```
                         InsydeH20 Setup Utility                        Rev. 5.0
  Advanced

                                                         UART Configuration
 F81968 Chip 1
 I/O Configuration Port                 4Eh/4Fh
▶UART Port 1 Configuration
▶UART Port 2 Configuration
▶UART Port 3 Configuration
▶Hardware Monitor
 Watch-Dog Timer                        <Always Off>




 F1  Help              ↑/↓ Select Item      F5/F6 Change Values      F9  Setup Defaults
 Esc Exit              ←/→ Select Item      Enter Select ▶ SubMenu   F10 Save and Exit
```

```
                         InsydeH20 Setup Utility                        Rev. 5.0
  Advanced

 UART Port 1 Configuration                               Configure UART Port using options :
                                                          [Disabled] Disable device
 UART Port 1                            <Enabled>          [Enabled]  Enable device and use
 Base I/O Address                       <3F8h>           below settings
 Interrupt                              <IRQ4>
 Peripheral Type                        <RS232>




 F1  Help              ↑/↓ Select Item      F5/F6 Change Values      F9  Setup Defaults
 Esc Exit              ←/→ Select Item      Enter Select ▶ SubMenu   F10 Save and Exit
```

Advanced

UART Port 2 Configuration

UART Port 2   <Enabled>
Base I/O Address   <2F8h>
Interrupt   <IRQ3>

Configure UART Port using options :
  [Disabled] Disable device
  [Enabled] Enable device and use
below settings

F1 Help   ↑/↓ Select Item   F5/F6 Change Values   F9   Setup Defaults
Esc Exit   ←/→ Select Item   Enter Select ▶ SubMenu   F10 Save and Exit

Advanced

UART Port 3 Configuration

UART Port 3   <Enabled>
Base I/O Address   <3E8h>
Interrupt   <IRQ11>

Configure UART Port using options :
  [Disabled] Disable device
  [Enabled] Enable device and use
below settings

F1 Help   ↑/↓ Select Item   F5/F6 Change Values   F9   Setup Defaults
Esc Exit   ←/→ Select Item   Enter Select ▶ SubMenu   F10 Save and Exit

4.2.2.6 Hardware Monitor

```
                            InsydeH20 Setup Utility                          Rev. 5.0
        Advanced

 Hardware Monitor                                          0    : Stop updating
                                                          1-15: Update sensors data per specified
 Refresh Cycle                    [1]                     second

 Voltage
 3VCC                             3.312 V
 Vcore                            1.624 V
 V12S                             12.232 V
 V3S                              3.328 V
 V5S                              5.120 V
 3VSB                             3.344 V
 VBAT                             3.120 V
 5VSB                             5.184 V

 Temperature
 CPU Temperature                  42.0 °C/ 107.6 °F
 PCH Temperature                  42.0 °C/ 107.6 °F

 Fan Speed
 CPU Fan Speed                    N/A




 F1  Help              ↑/↓ Select Item       F5/F6 Change Values       F9  Setup Defaults
 Esc Exit              ←/→ Select Item       Enter Select ▶ SubMenu    F10 Save and Exit
```

4.2.4 Security

```
                          InsydeH20 Setup Utility                          Rev. 5.0
  Main  Advanced  Security  Power  Boot  Exit

  Current TPM Device                <TPM 2.0 (DTPM)>          Install or Change the password and the
  TPM State                         All Hierarchies Enabled, Owned   length of password  must be greater
  TPM Active PCR Hash Algorithm     SHA256                    than one character.
  TPM Hardware Supported Hash Algorithm   SHA1, SHA256, SHA384
  BIOS Supported Hash Algorithm     SHA1, SHA256, SHA384, SHA512, SM3_256
  TrEE Protocol Version             <1.1>
  TPM Availability                  <Available>
  TPM Operation                     <No Operation>
  Clear TPM                         [ ]

  Supervisor Password               Not Installed
  User Password                     Not Installed

  Set Supervisor Password
  Set User Password
  Set All Hdd Password
  Set All Master Hdd Password

  ▶Storage Password Setup Page




  F1  Help                ↑/↓ Select Item        F5/F6 Change Values      F9  Setup Defaults
  Esc Exit                ←/→ Select Item        Enter Select ▶ SubMenu   F10 Save and Exit
```

BIOS Setting	Description	Setting Option	Effect
TrEE Protocol Version	Choose TrEE Protocol Version	1.0 1.1	TrEE Protovol Version: 1.0 or 1.1
TPM Availability	TPM Availability configuration	Available Hidden	When hidden don't exposes TPM to 0
TPM Operation	TPM Operation configuration	[ ]	Select one of the supported operation to change TPM2state
Clear TPM	Clear TPM configuration	[ ]	Select to Clear TPM
Set Supervisor Password	Set Supervisor Password	Enter New password	Install or Change the password and the length of password must be greater than one character

4.2.5 Power

```
                              InsydeH20 Setup Utility                          Rev. 5.0
  Main  Advanced  Security  Power  Boot  Exit

                                                    Determines the action taken when the
                                                    system power is off and a PCI Power
  Wake on PME                    <Enabled>          Management Enable wake up event occurs.
  Auto Wake on S5                <Disabled>














  F1  Help              ↑/↓ Select Item      F5/F6 Change Values          F9  Setup Defaults
  Esc Exit              ←/→ Select Item      Enter Select ▶ SubMenu       F10 Save and Exit
```
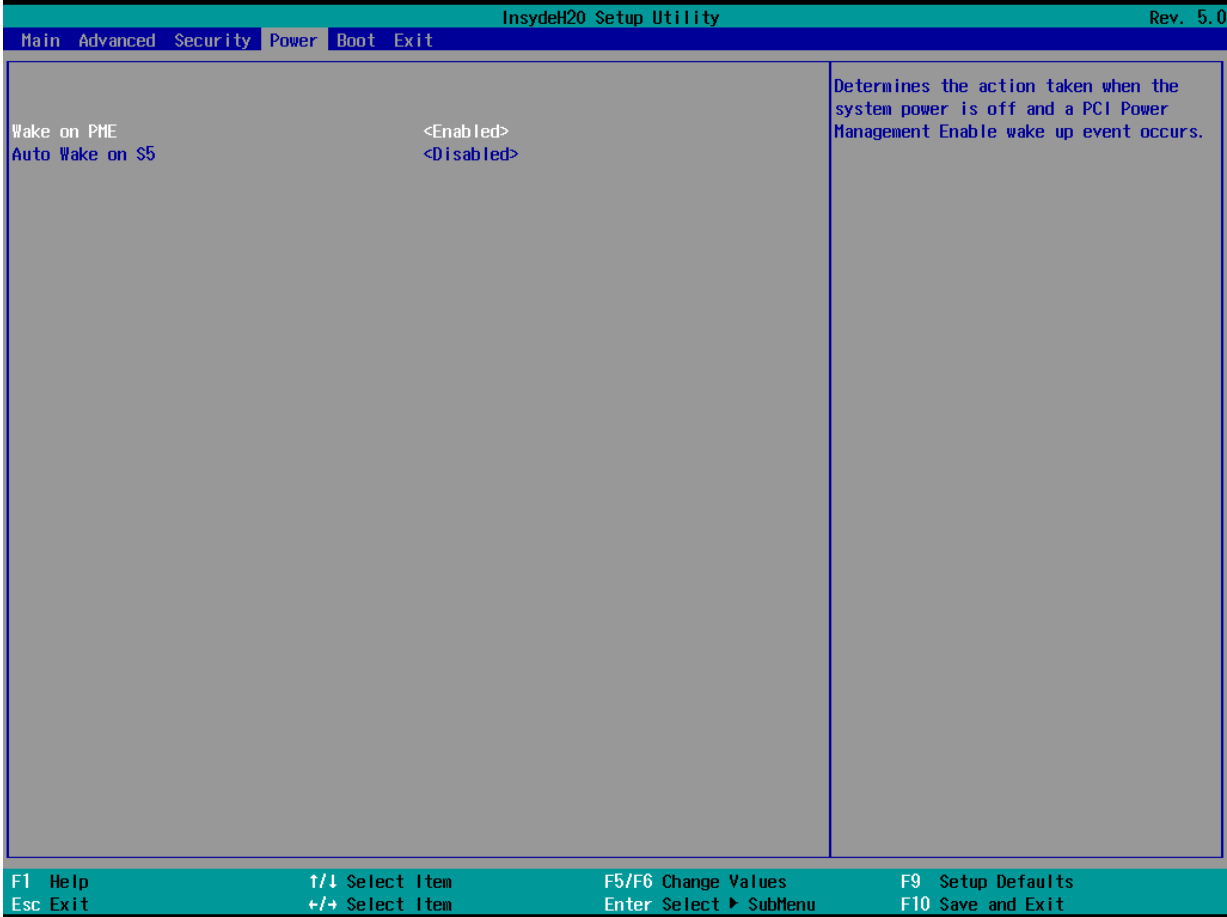
BIOS Setting	Description	Setting Option	Effect
ACPI S3	ACPI S3 configuration	Disabled Enabled	Enable/ Disable ACPI S1/S3 Sleep state
Auto Wake on S5	Auto Wake on S5 configuration	Disabled By Every Day By Every Month	Auto Wake on S5, by Day or Month or fixed time of every day

4.2.6 Boot

```
InsydeH20 Setup Utility                                                        Rev. 5.0
 Main  Advanced  Security  Power  Boot  Exit

                                                           Select boot type to Dual type, Legacy
                                                           type or UEFI type
 Boot Type                        <UEFI Boot Type>
 Quick Boot                       <Enabled>
 Quiet Boot                       <Disabled>
 Network Stack                    <Disabled>
 PXE Boot capability              <Disabled>
 ACPI Selection                   <Acpi6.1>
 Timeout                          [3]
 Automatic Failover               <Enabled>

 ▶Boot Type Order








 F1   Help              ↑/↓ Select Item        F5/F6 Change Values        F9  Setup Defaults
 Esc  Exit              ←/→ Select Item        Enter Select ▶ SubMenu     F10 Save and Exit
```

BIOS Setting	Description	Setting Option	Effect
Boot Type	Boot Type configuration	UEFI Boot Type	Select boot type to Dual type, Legacy type or UEFI type
Quick Boot	Quick Boot configuration	Enabled Disabled	Allows InsydeH20 to skip certain tests while booting. This will decrease the time needed to boot the system
Quiet Boot	Quiet Boot configuration	Enabled Disabled	Disable or enable booting in text Mode.
Timeout	Timeout	[Value]	Timeout settings
Automatic Failover		Enable	If boot to default device fail, it will directly try to boot next device
		Disable	If boot to default device fail, it will pop warning message then go to firmware UI
Boot Type Order	Boot Type Order	Enter	Opens sub-menu

4.2.7 Exit

```
                              InsydeH20 Setup Utility                         Rev. 5.0
                    Boot

 Boot Type Order

 USB
 BEV
 Hard Disk Drive
 Others

 ▶Hard Disk Drive
 ▶USB




 F1  Help                 ↑/↓ Select Item       F5/F6 Change Values      F9  Setup Defaults
 Esc Exit                 ←/→ Select Item       Enter Select ▶ SubMenu   F10 Save and Exit
```
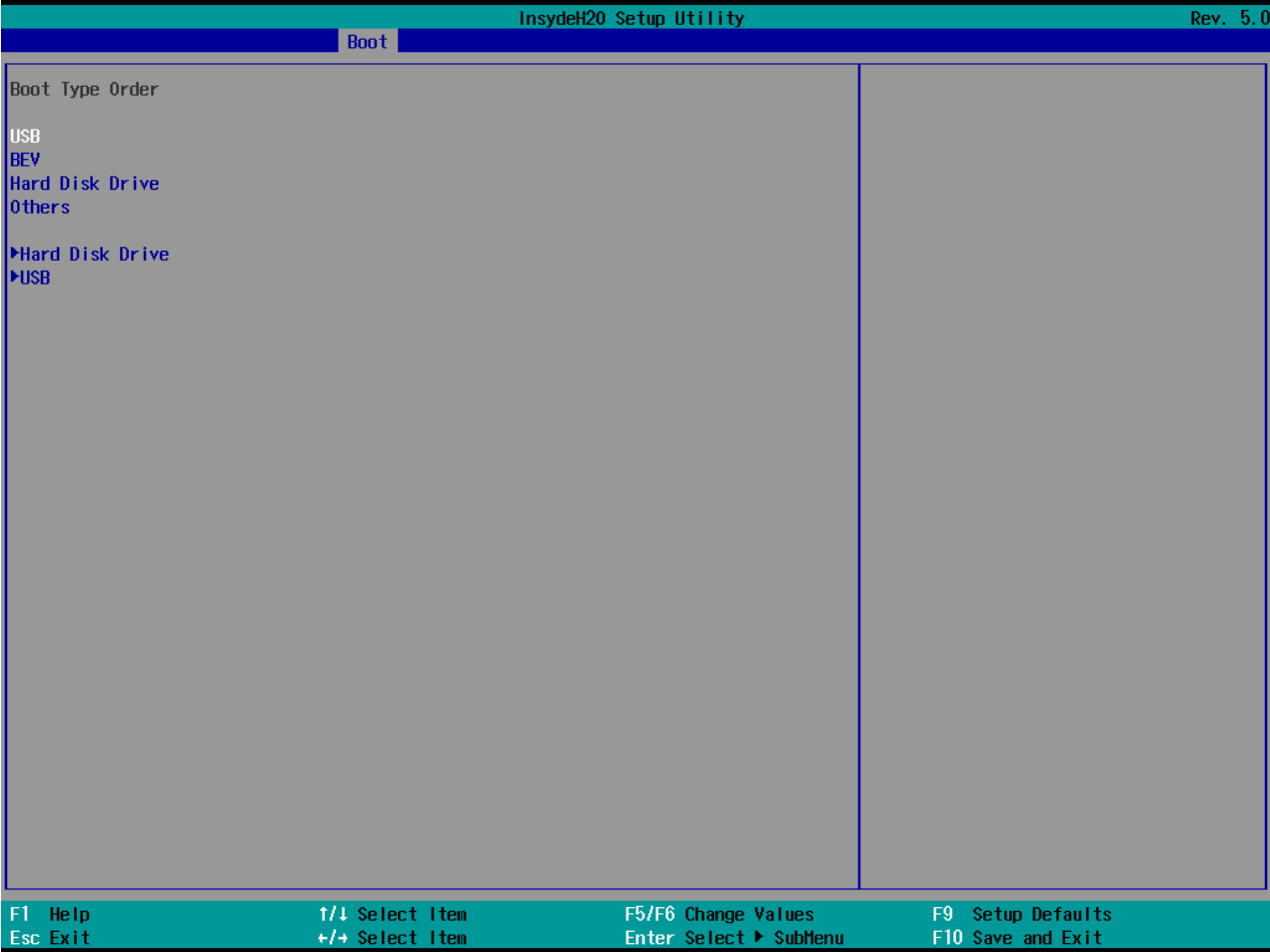
4.3 Using Recovery Wizard to Restore the System

Our system has a dedicate recovery partition stored on the hard drive of the PC to enable quick one-key recovery process. This partition occupies about **11 GB** of the storage space, and comes built-in to each IBDRW100-EL DIN-Rail Box PC.

Important:
Before starting the recovery process, be sure to backup all user data, as all data will be lost after the recovery process.

Follow the procedure below to enable quick one-key recovery procedure:

- Plug-in the AC adapter to Box PC. Make sure the Box PC stays plugged in to power source during the recovery process.
- Turn on the IBDRW100-EL DIN-Rail Box PC, and when the boot screen shows up, press the **F6** to initiate the Recovery Wizard.
- The following screen shows the Recovery Wizard. Click on "**Recovery**" button to continue.

A warning message about data loss will show up. Make sure data is backed up before recovery, and click on "Yes" to continue.
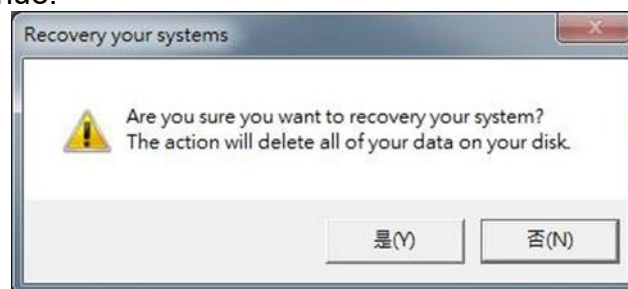
Wait till the recovery process to complete. During the recovery process, a command prompt will show up to indicate the percent of recovery process. After complete the recovery process, the system will be turned off automatically. Please restart your system manually to complete the OS initialize process.

Chapter 5: Driver Installation

Driver installation procedure described in this user manual applies to Windows 10 IoT Enterprise operating system.

5.1 Chipset Driver Installation

Follow the instructions below to complete the installation. You will quickly complete the installation.

Step 1 Open the Driver CD (included in the package) and select **Chipset** driver.
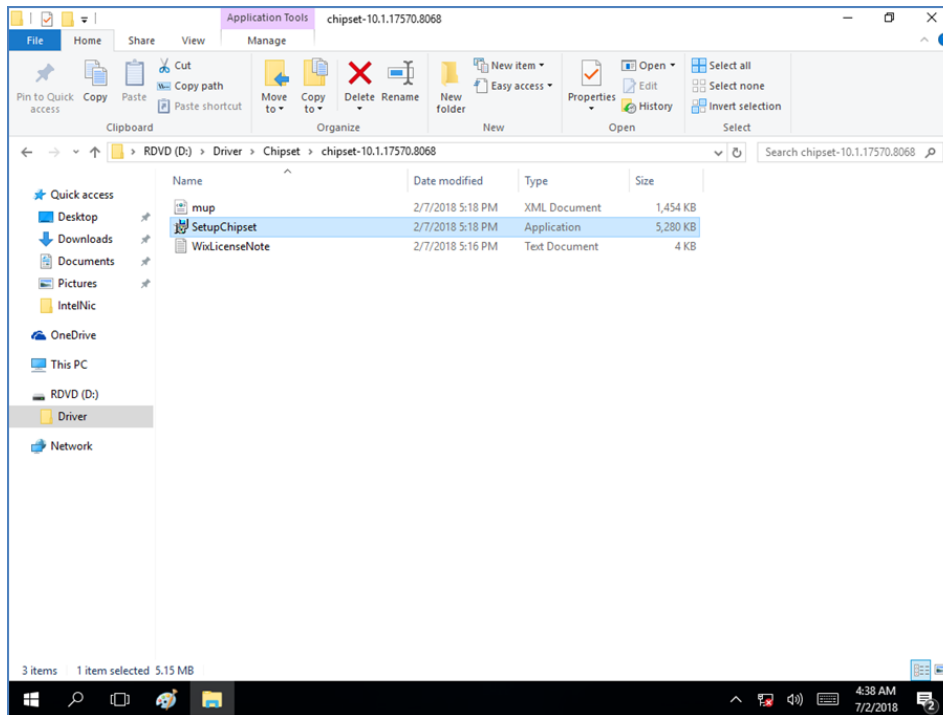
Step 2 Installation window will pop up, select **Next**.
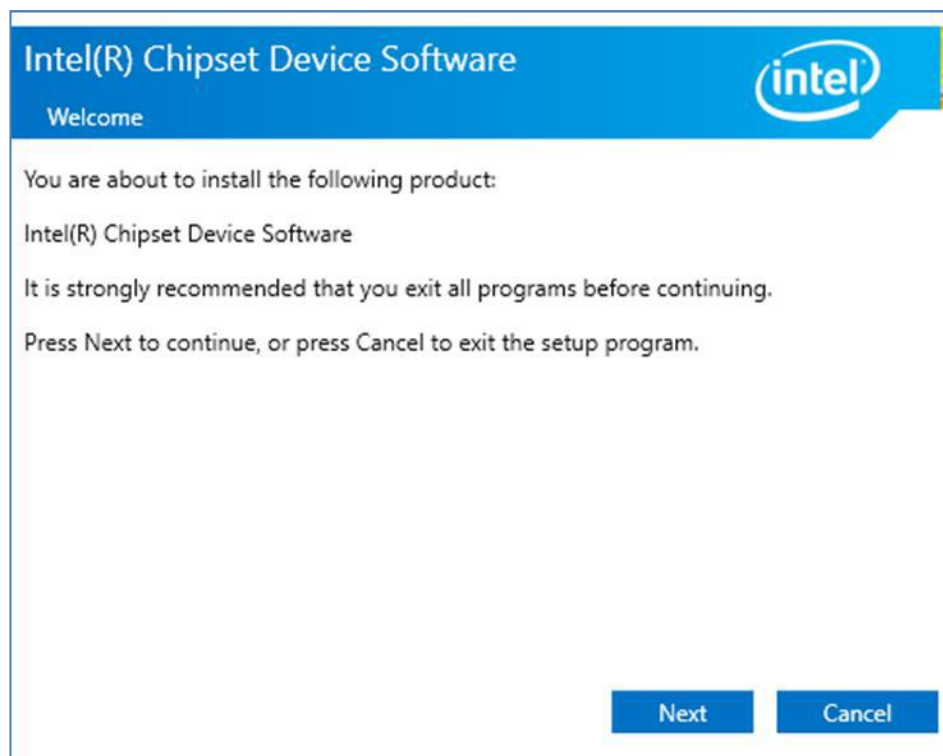
Step 3 Select **Accept** to agree with the terms of license agreement.

Step 4 Check the ReadMe file information, select **Install** to continue.
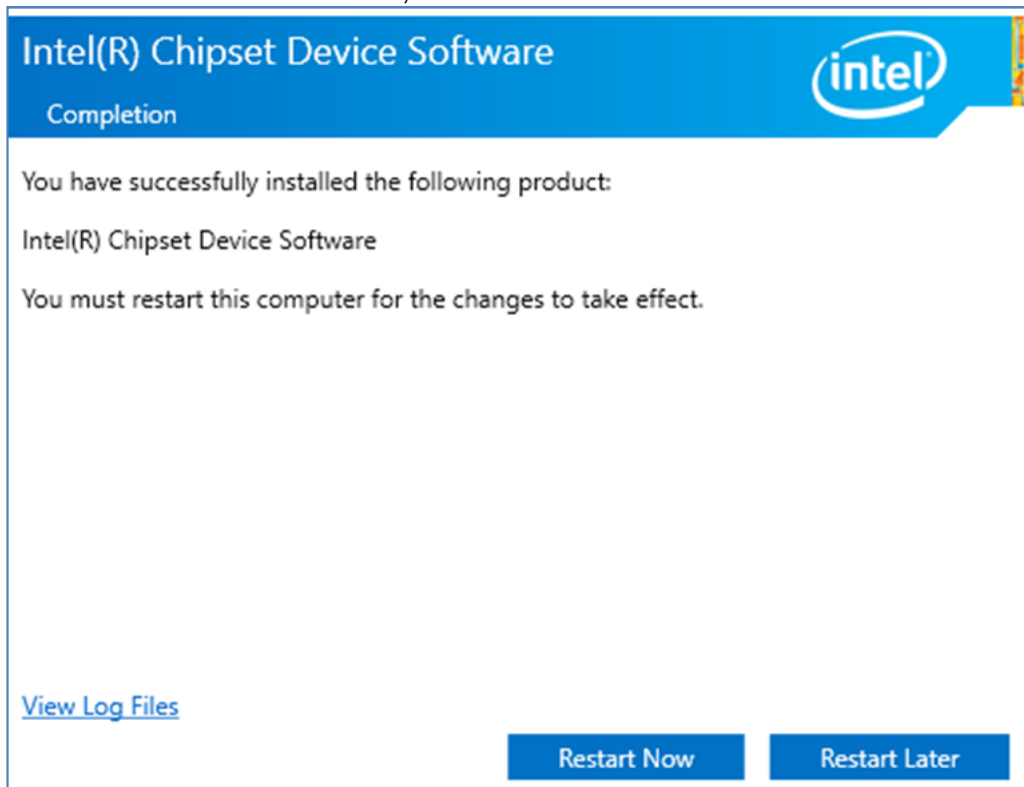
Step 5 Wait for the driver to be installed. When installation completed, select **Restart Now** to restart your computer.

5.2 Graphics Driver Installation

IBDRW100-EL DIN-Rail Box PC is equipped with Intel SoC Integrated Device. Follow the instructions below to complete the installation. You will quickly complete the installation.

Step 1 Open the Driver CD (included in the package) and select **Graphic** driver.
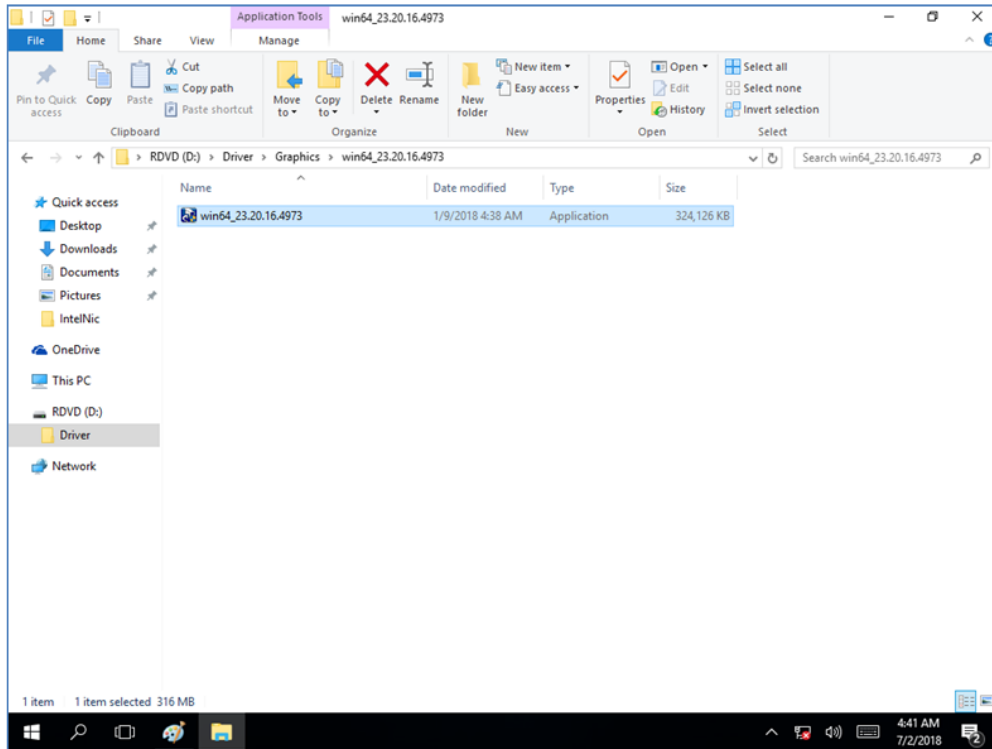
Step 2 Installation window will pop up, select **Next**.
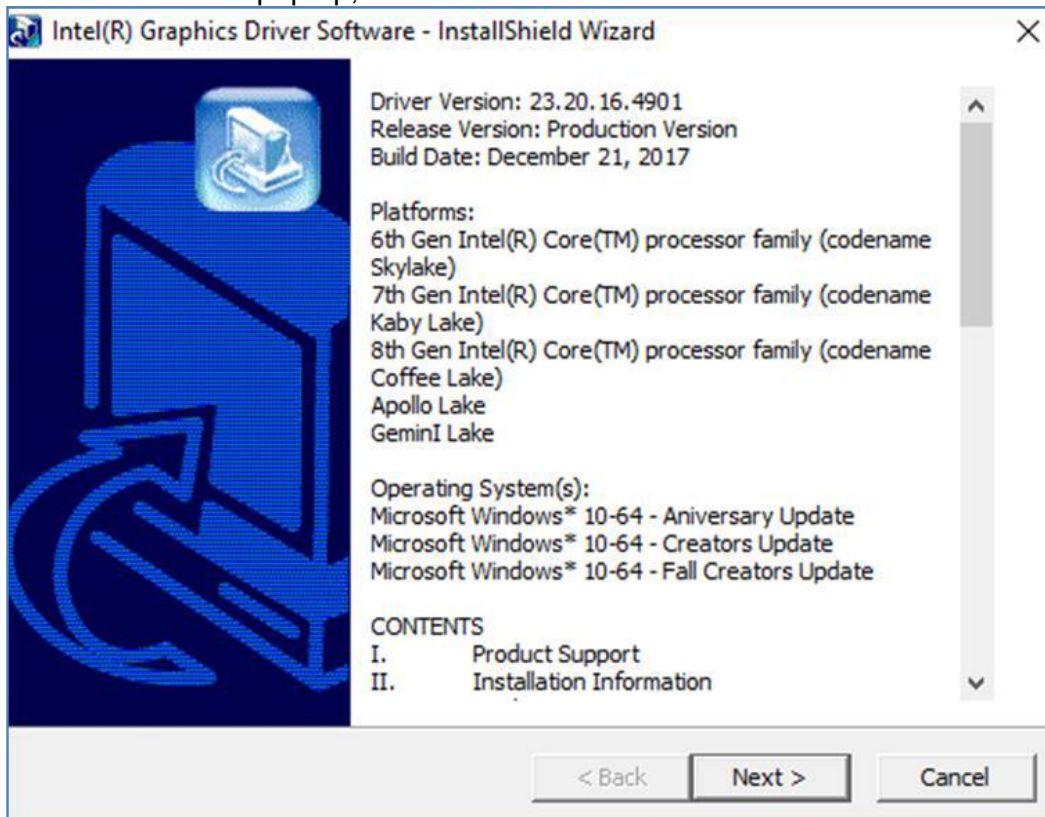
Step 3 Select Accept to agree with the terms of license agreement.
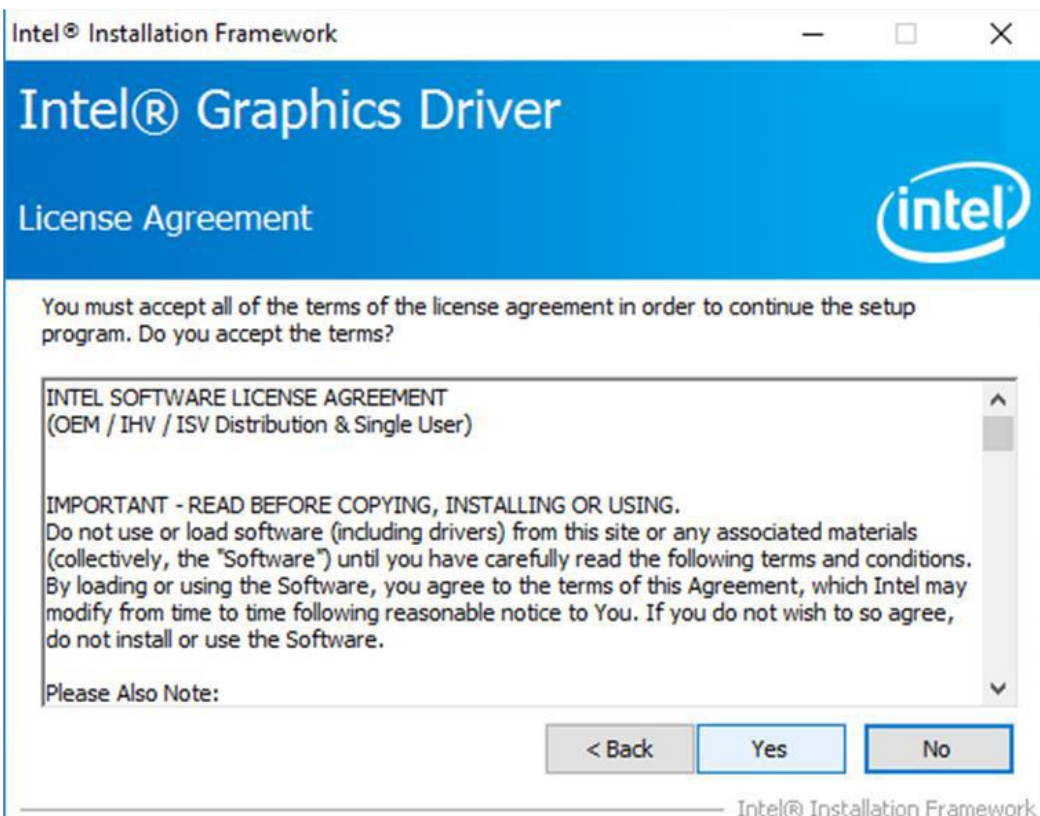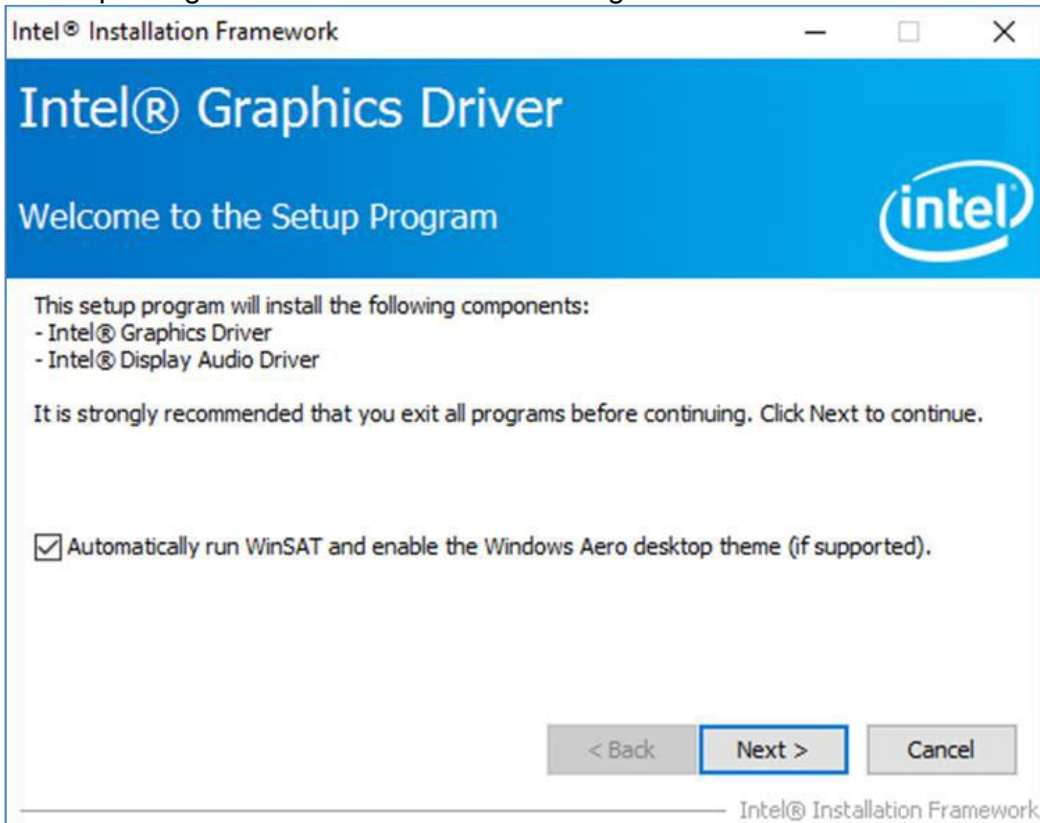
Step 4 Check the ReadMe file information, select **Next** to continue.
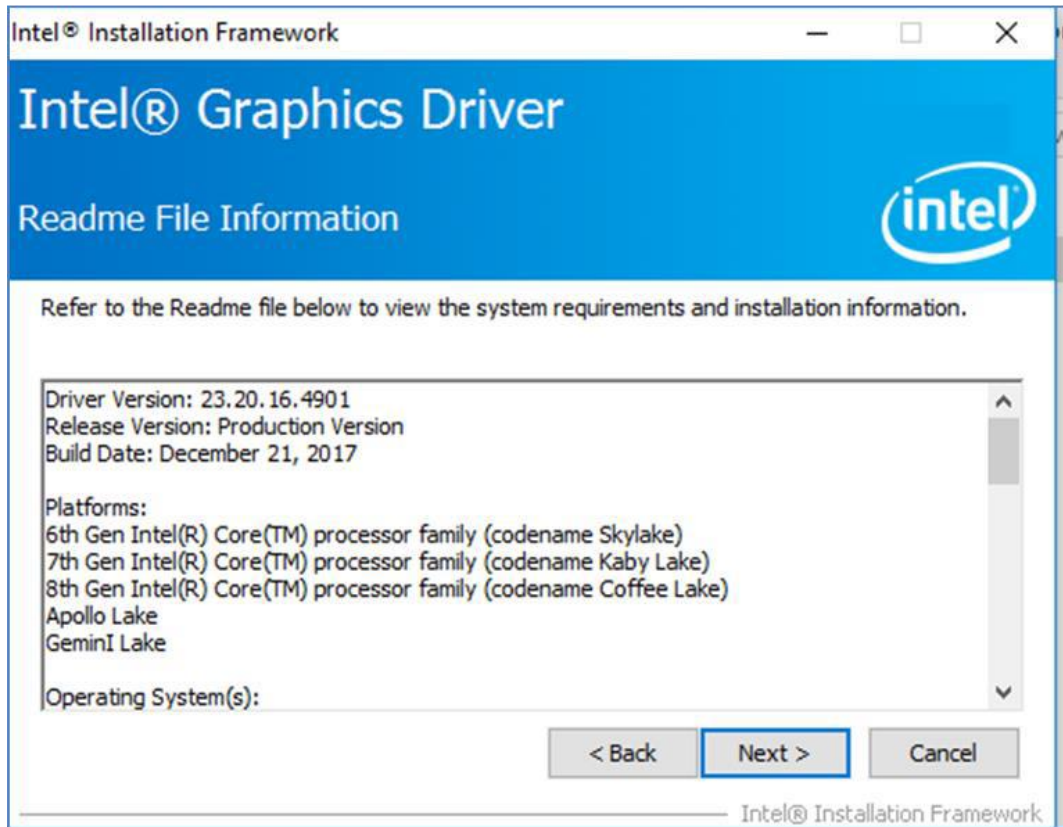
Step 5 Wait for the driver to be installed.
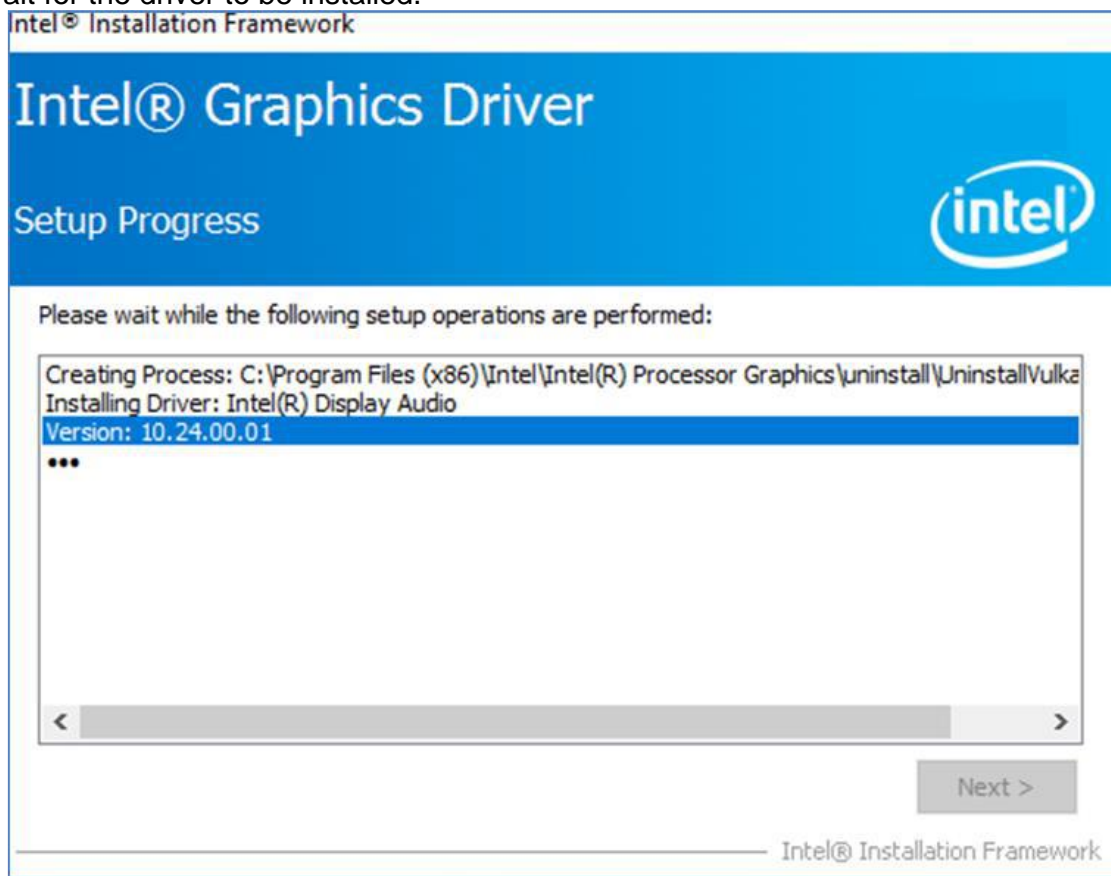
Step 6 Select **Next** to continue.
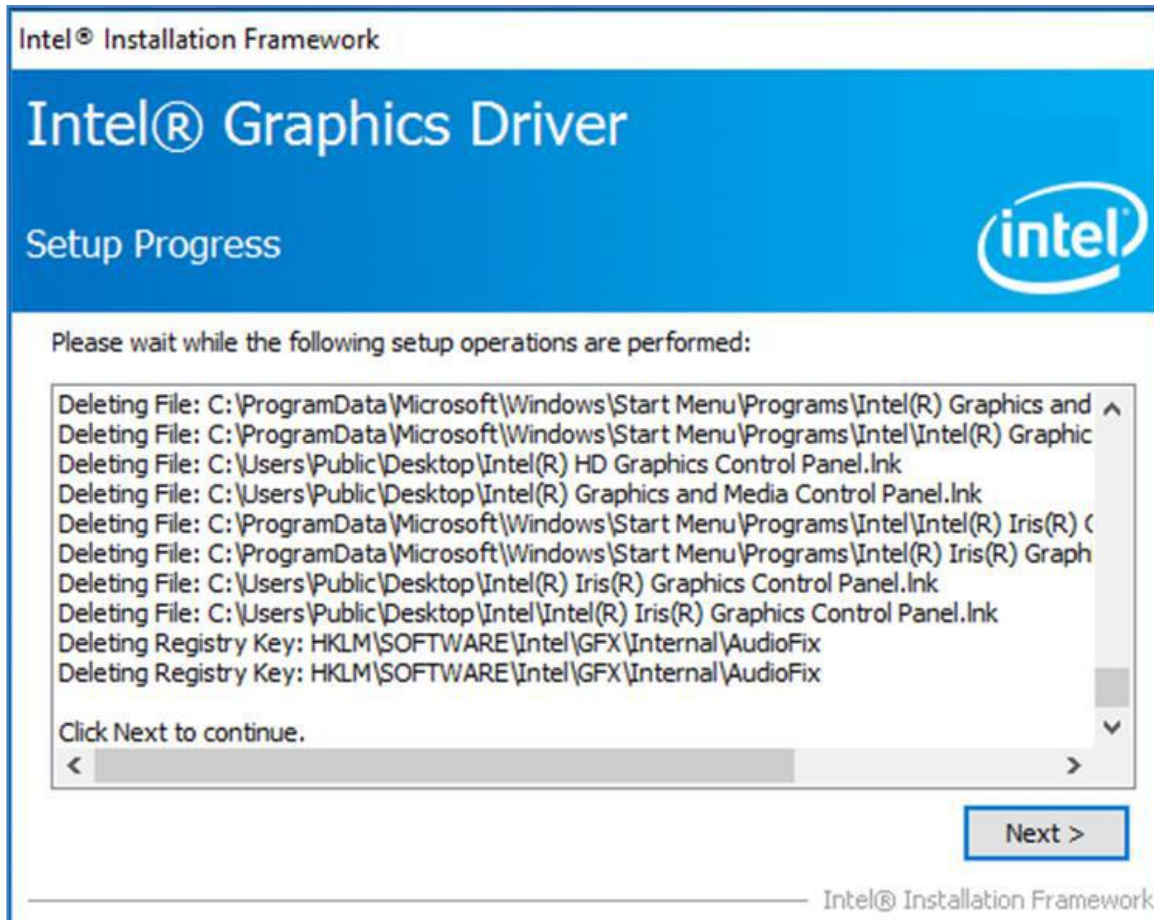
Step 6 After installation is completed, select "**Yes, I want to restart this computer now**", and click **Finish**.
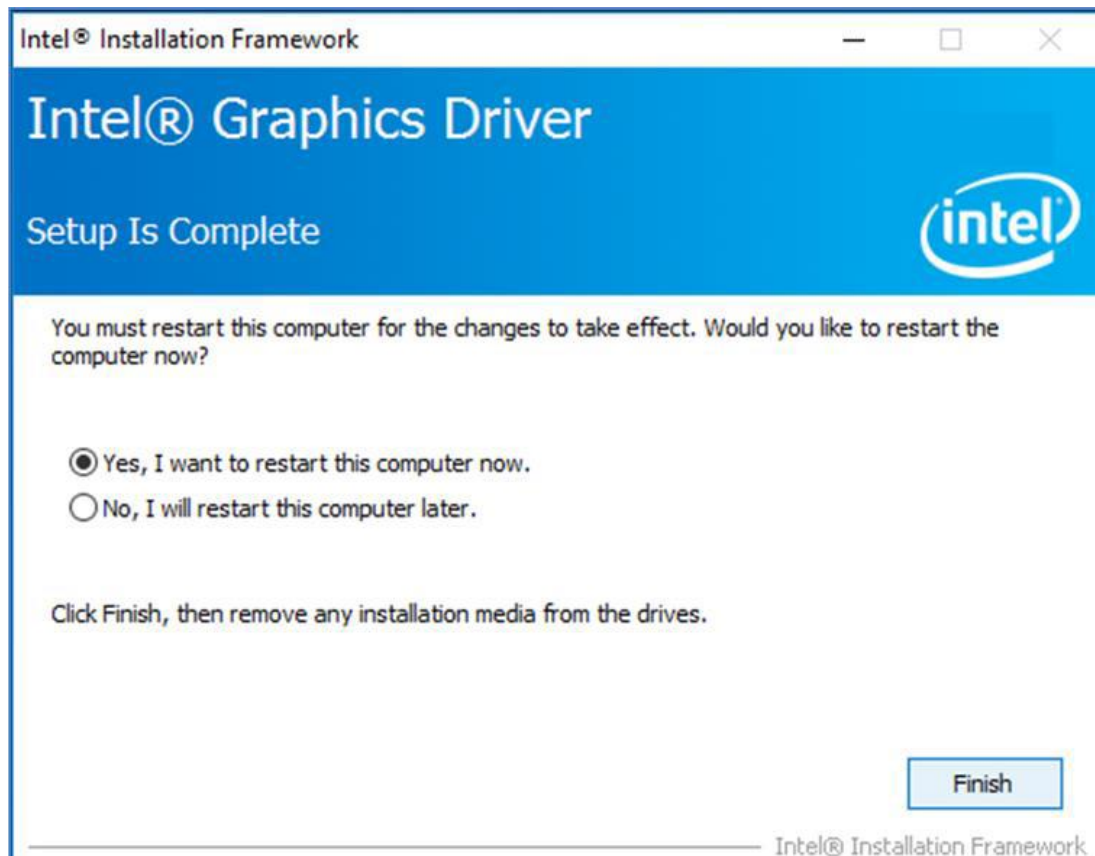
5.3 Management Engine (ME) Installation

Follow the instructions below to complete the Management Engine (ME) .Driver installation.

Step 1 Open the Driver CD (included in the package) and select **ME** driver.
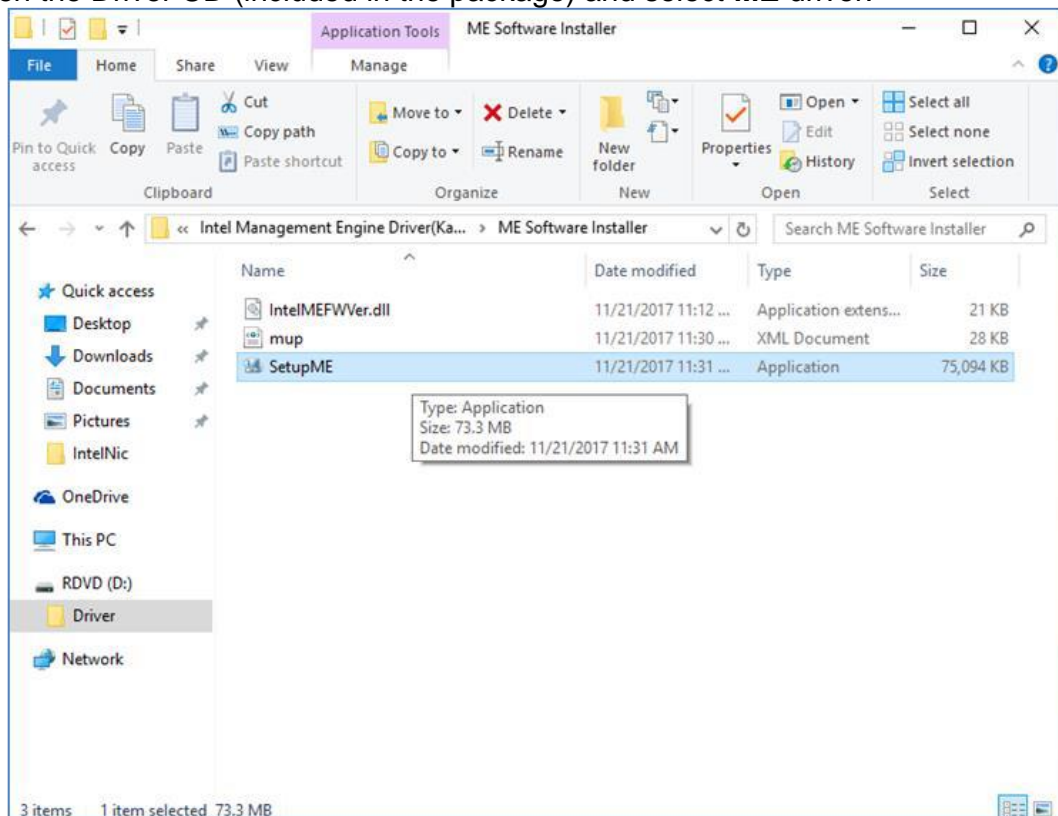
Step 2 Select **Next** to start the installation.
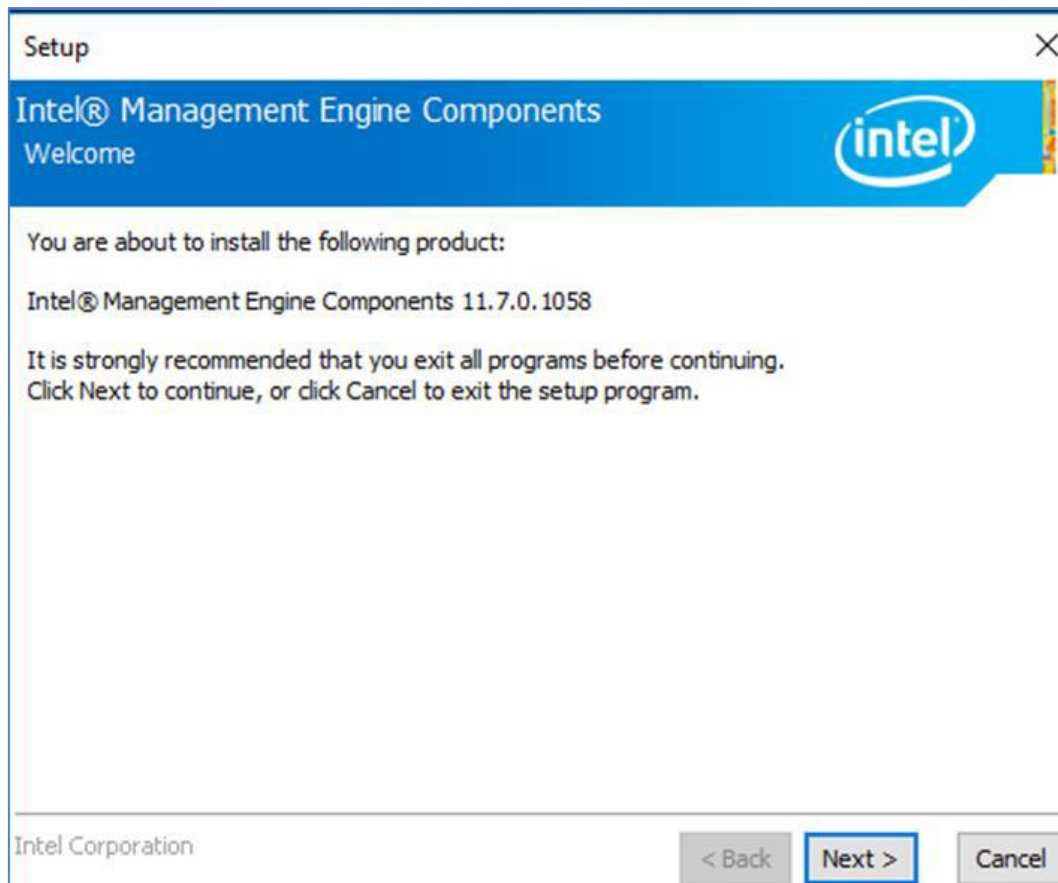
Step 3 Select **Next** to agree with the terms of license agreement.
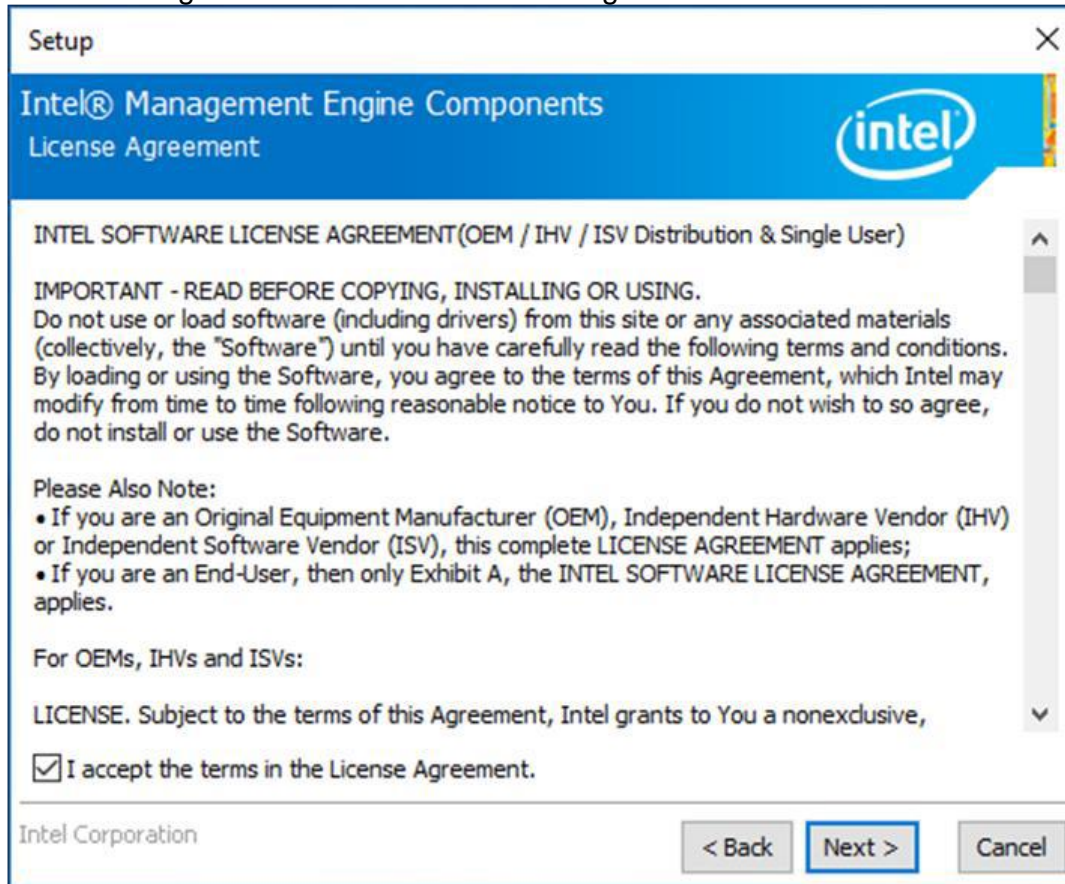
Step 4 Wait for the driver to be installed.
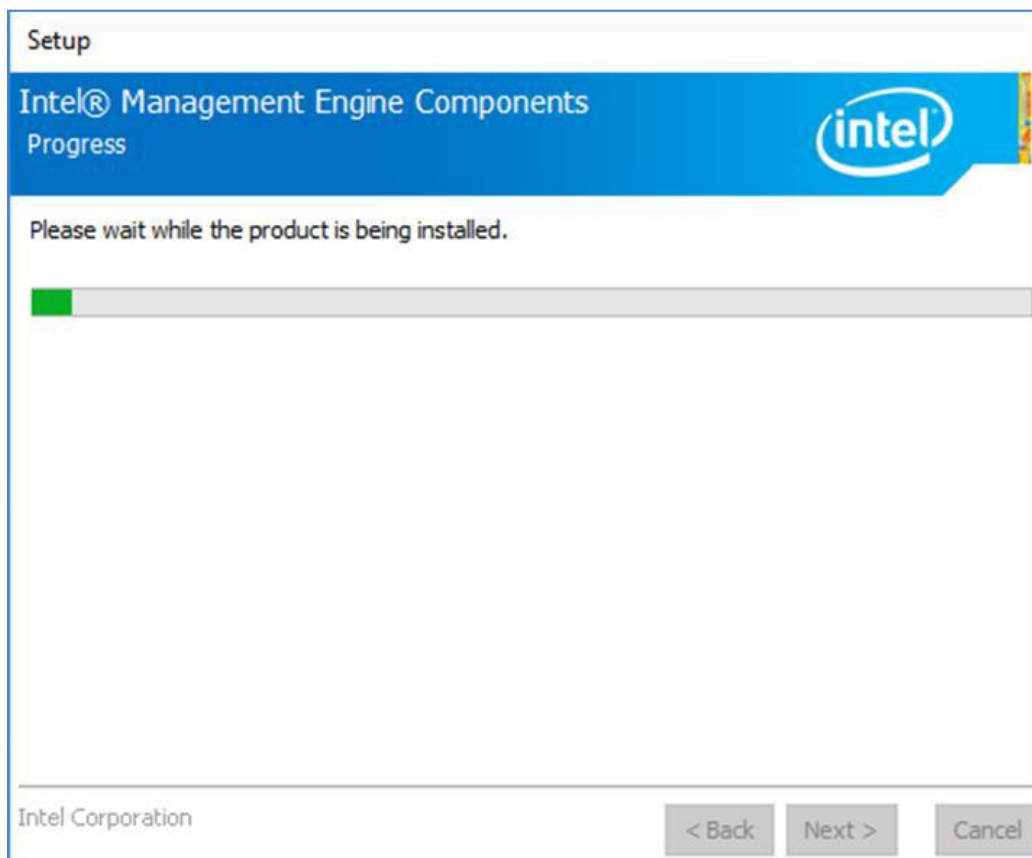
Step 5 When installation completed, select **Finish** complete installation.

Setup ✕

Intel® Management Engine Components
Completion

intel

You have successfully installed the following components:

- Intel® Management Engine Interface
- Local Management Service
- Intel® Trusted Connect Service

Click here to open log file location.

Intel Corporation

< Back   Next >   Finish
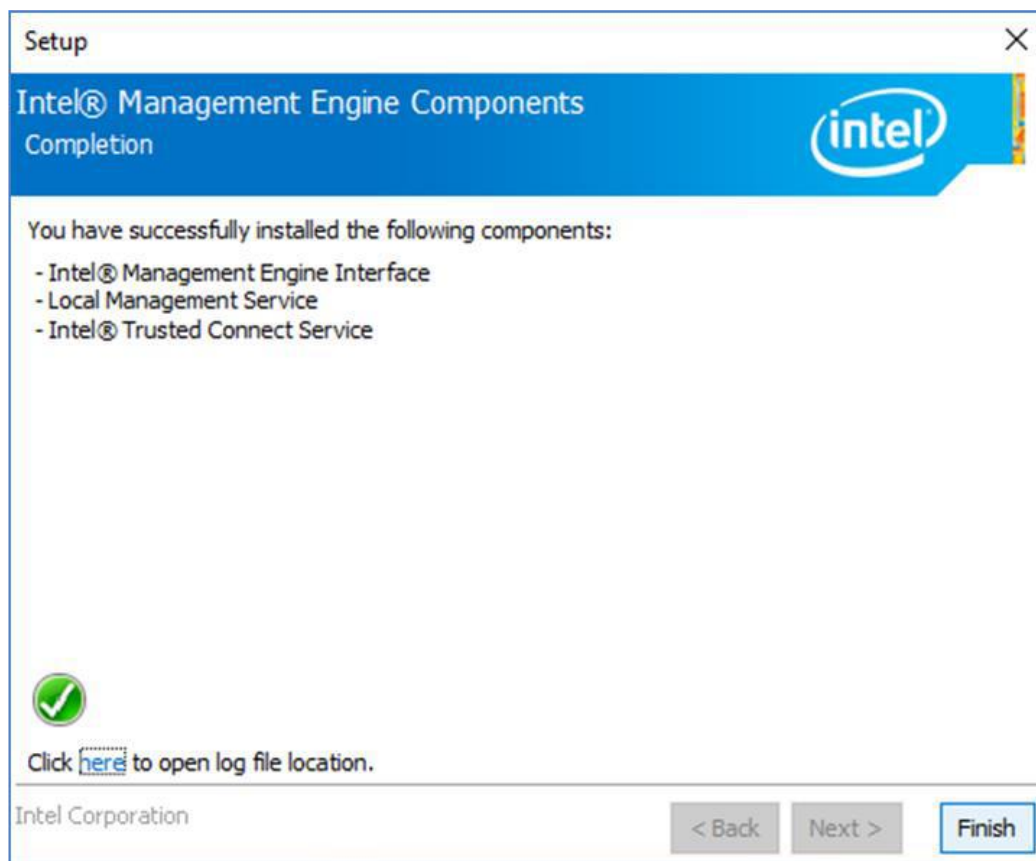
5.4 SST Driver Installation

Follow the instructions below to complete the SST Driver installation.

Step 1 Update Drivers > Browse "My computer" for driver software > Next
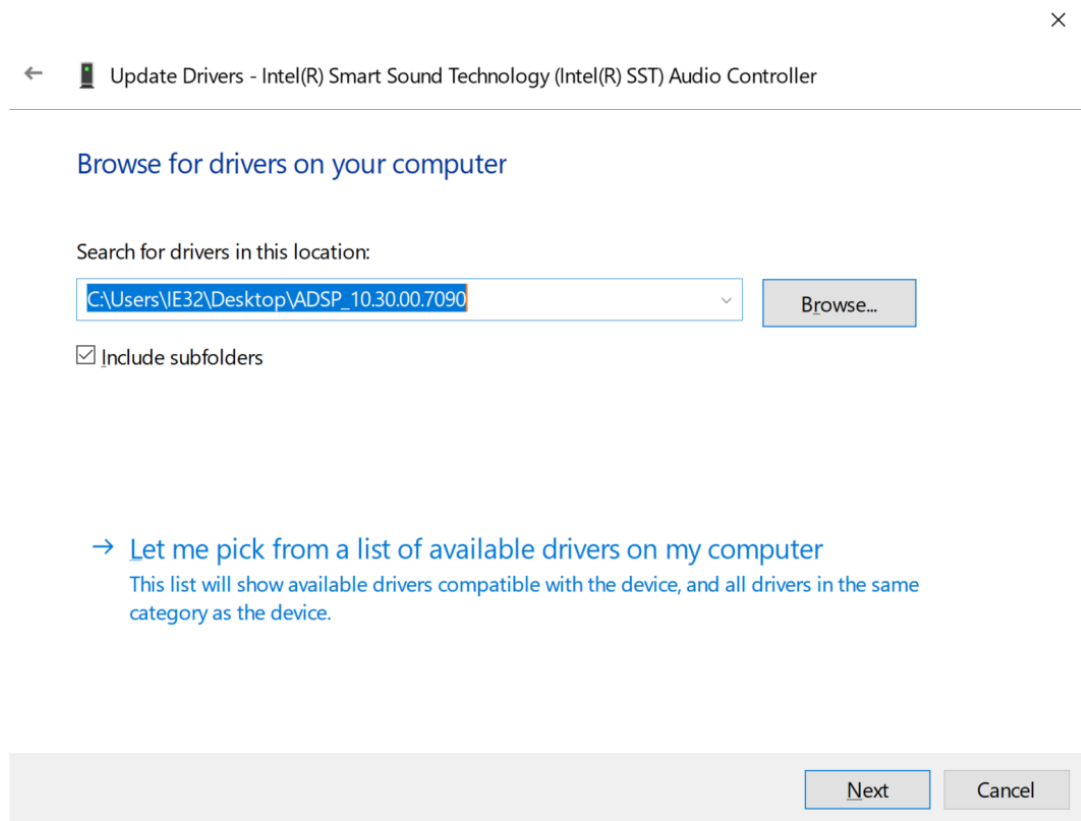
Step 2 Wait for driver installation to complete.
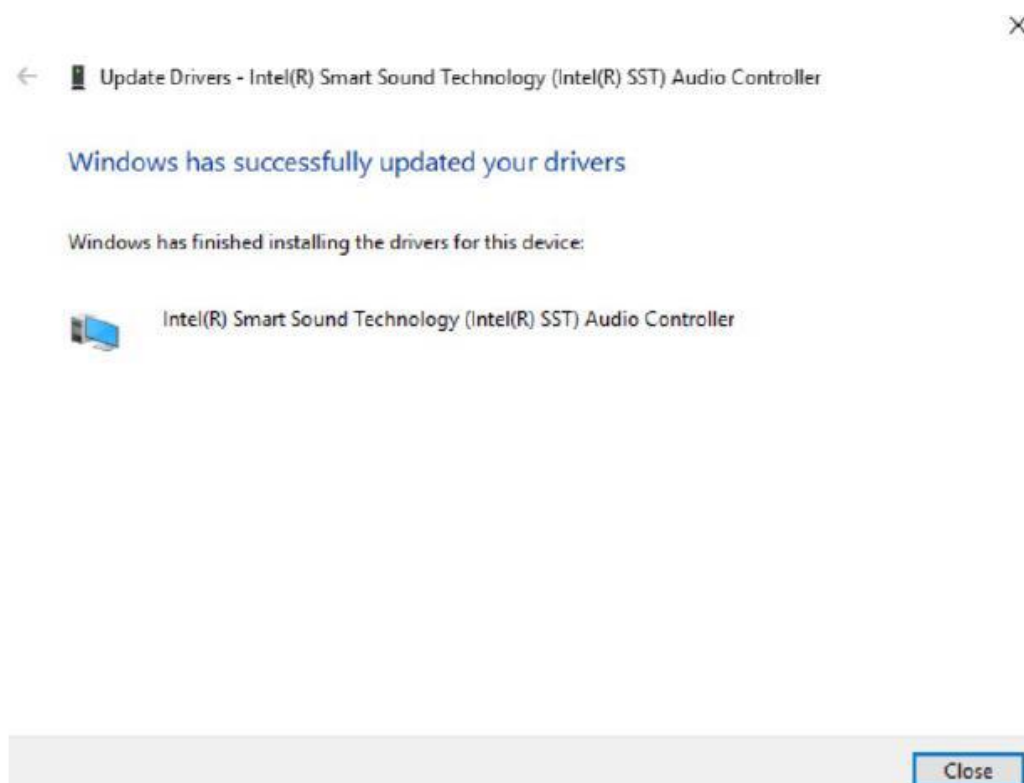
📄 Note:

This product is equipped with SST Driver, when the line-in function of Audio is used, the product will automatically enter D3 sleep mode. To solve this problem, you must enter the line in setting and turn on the sync output. When the sync output setting is turned on, the line-out will output the sound synchronously. Therefore, if you only need to use the line-in function, please turn off the volume of the line-out device. When the line-out volume is turned off, HDMI will also have no audio output. If you will not use the line-in function, please keep the Winmate default setting. When you need to use the line-in function, please follow the steps below to turn on the sync output.

STEP 1 :
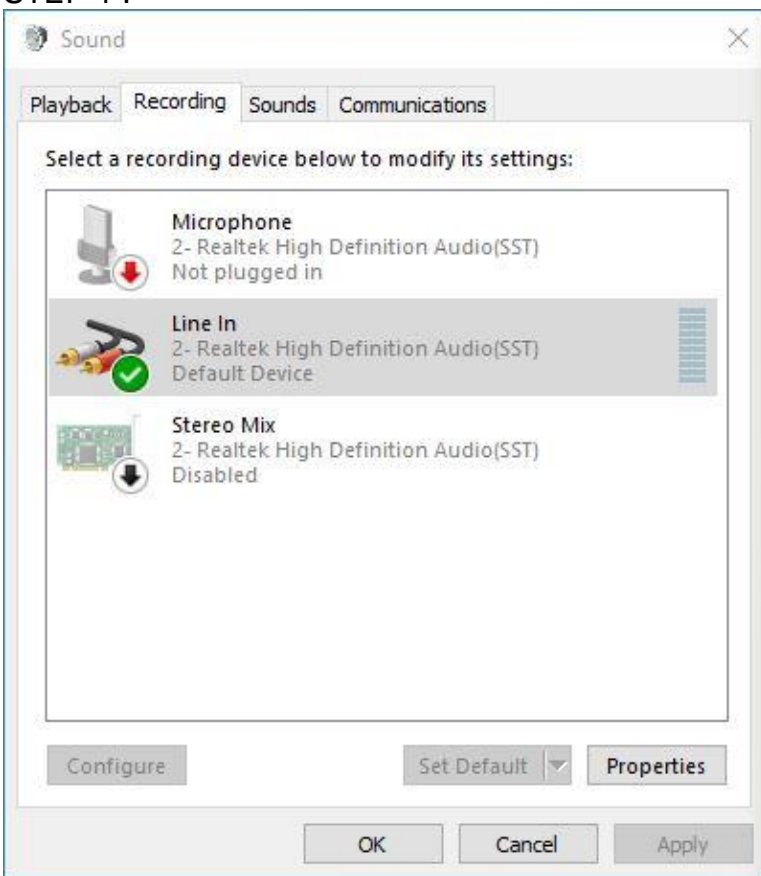
STEP 2 :

5.5 Audio Driver Installation

Follow the instructions below to complete the Audio Driver installation.

Step 1 Open the Driver CD (included in the package) and select **Audio** driver.
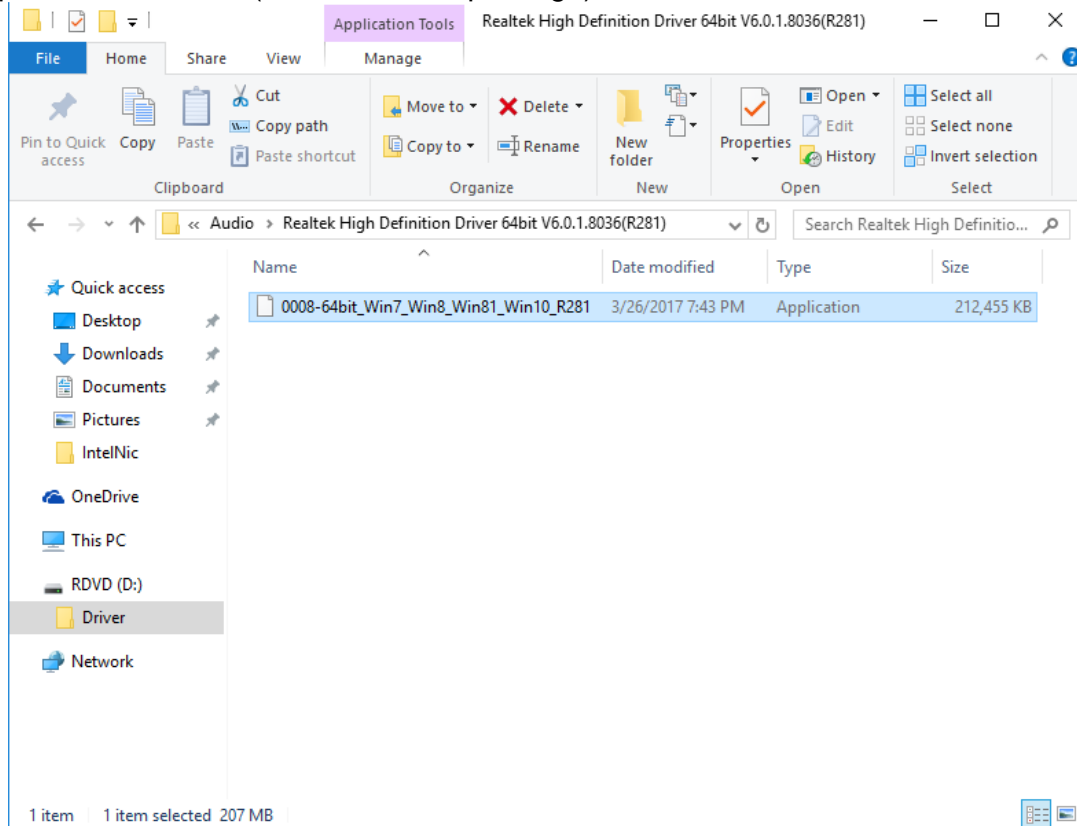
Step 2 Select **Next** to continue.
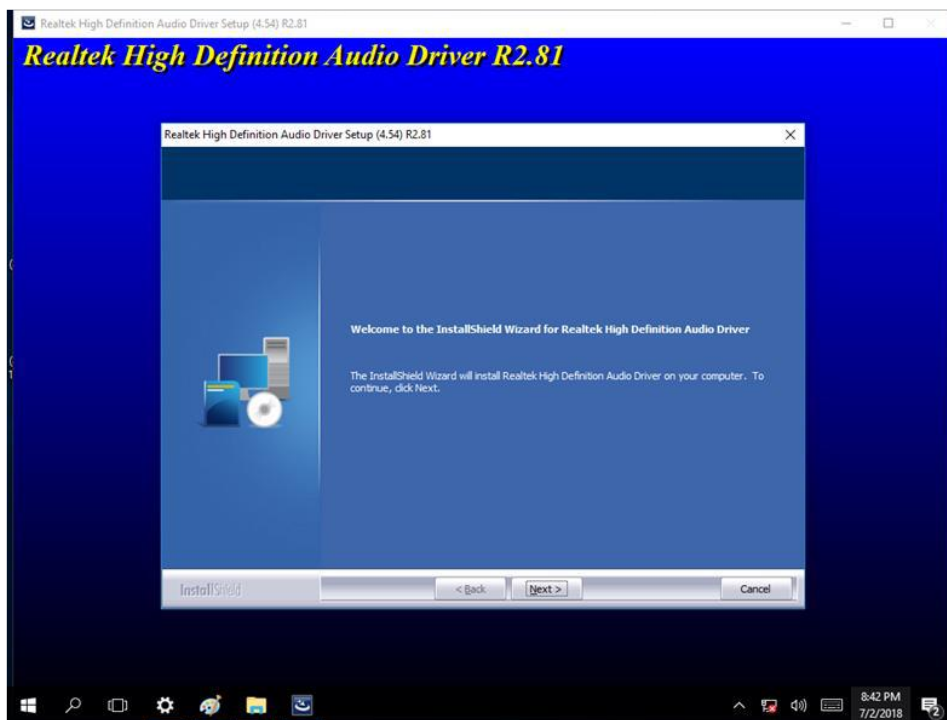
Step 3 When installation completed, select **Finish** complete installation.

5.6 Ethernet Driver Installation

Follow the instructions below to complete the Ethernet Driver installation.

Step 1 Open the Driver CD (included in the package) and select **LAN** driver.
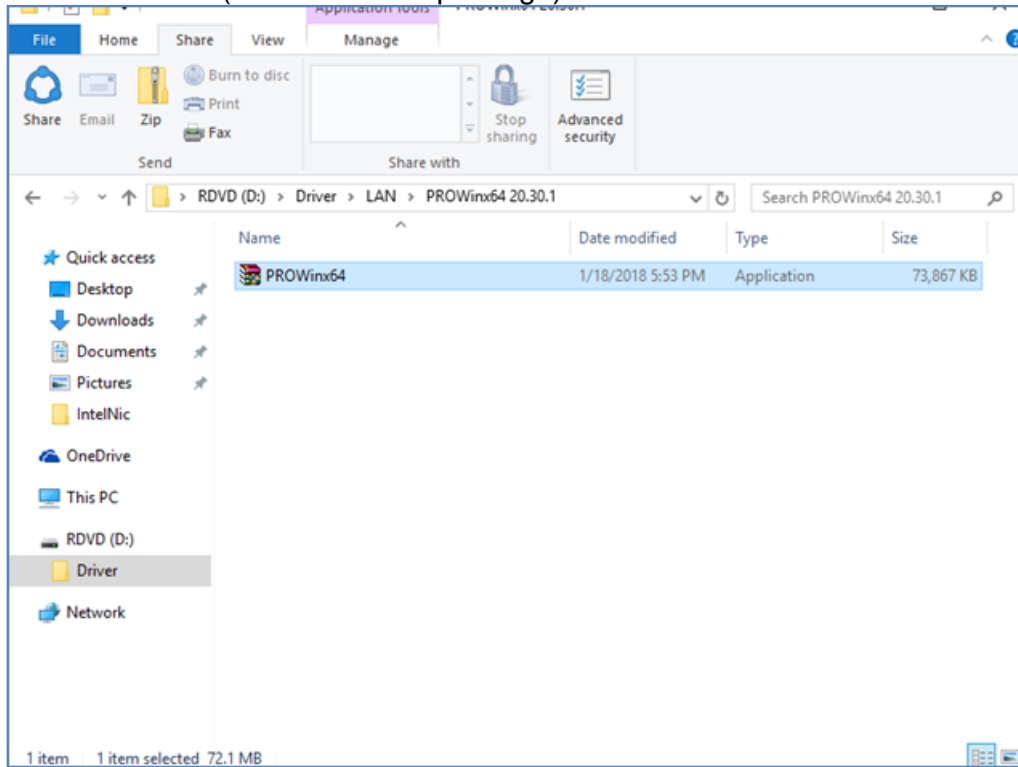
Step 2 When compression is complete, select **Next**.
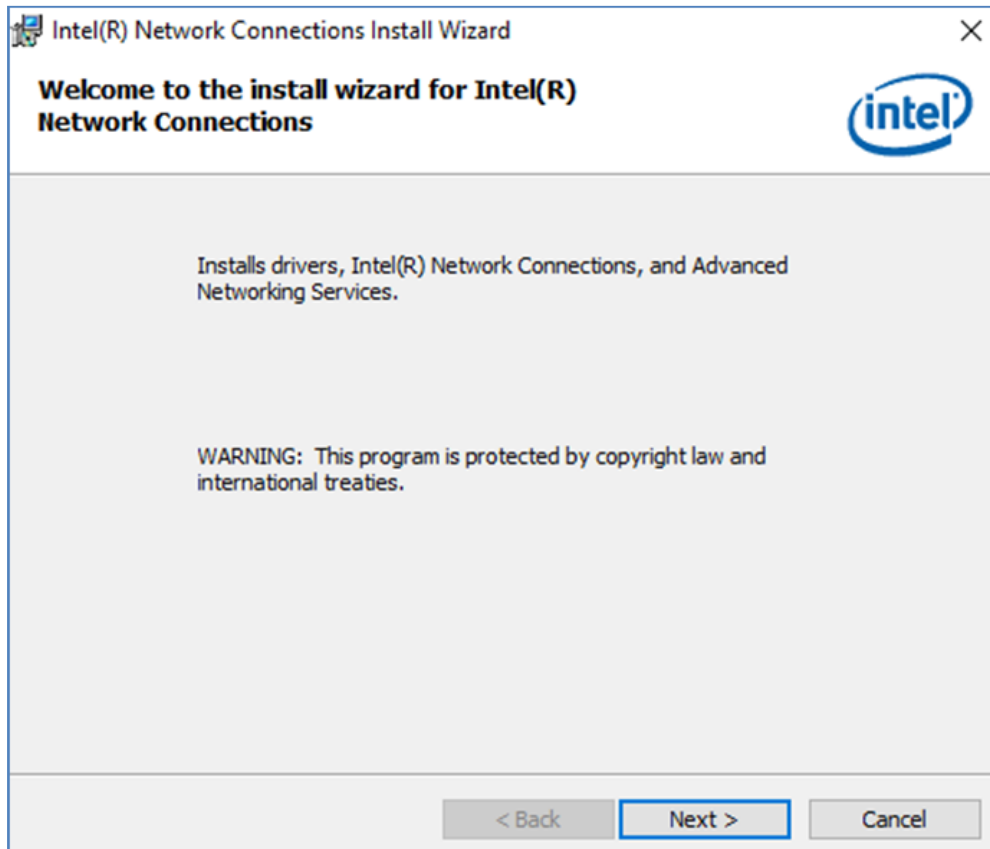
Step 3 Read the license agreement, and then select **Next**.
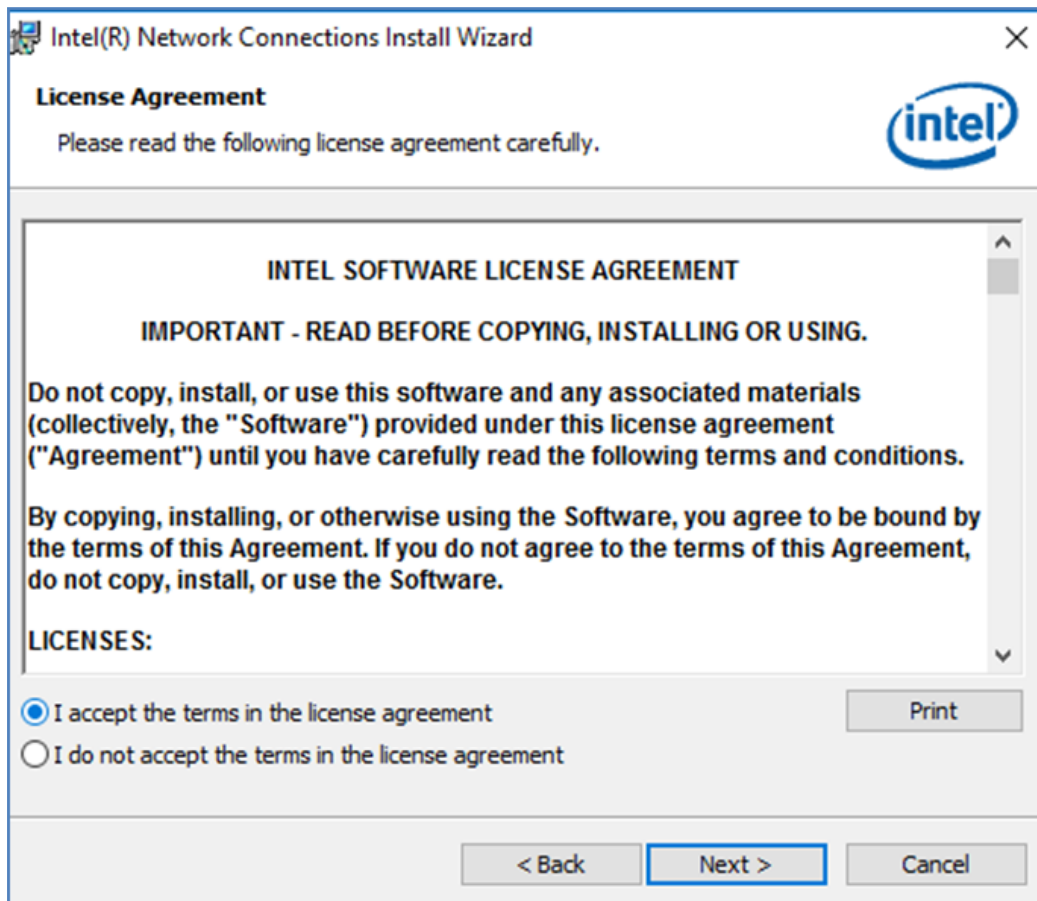
Step 4 System displays the installed packages, select **Next**.
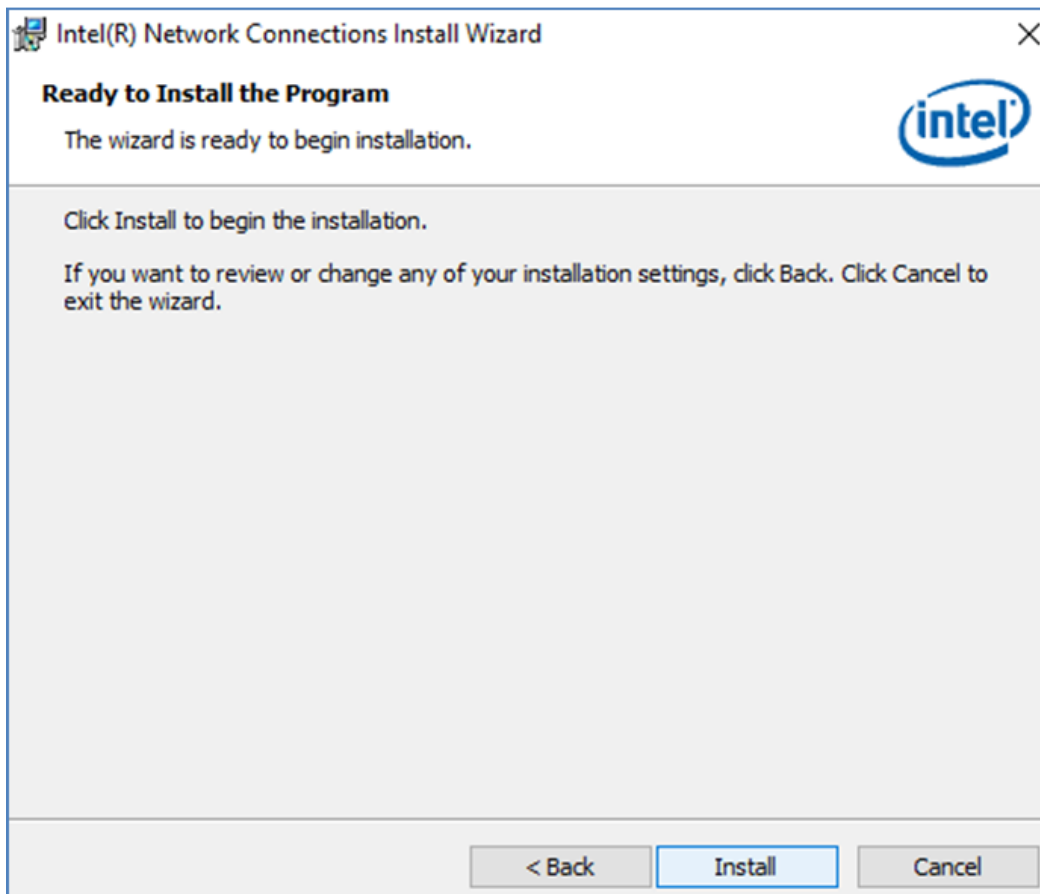
Step 5 Confirm the installation, select **Install** to start the installation.
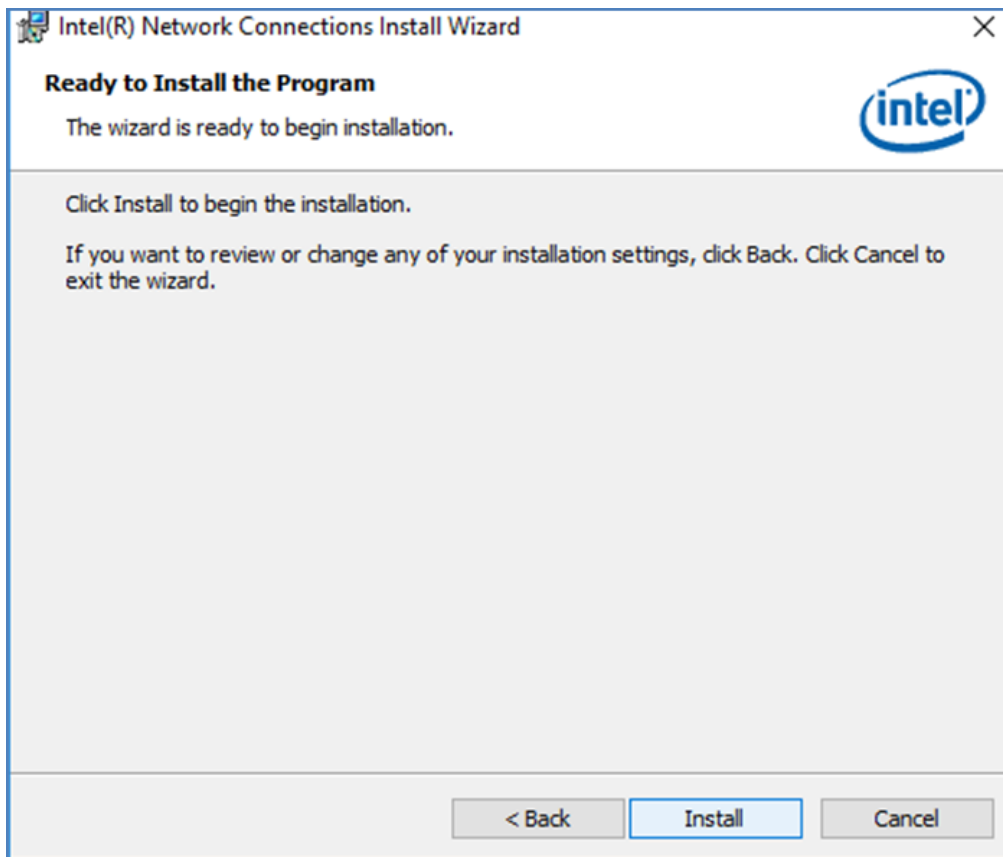
Step 6 When installation is completed, select **Finish** to close the window.
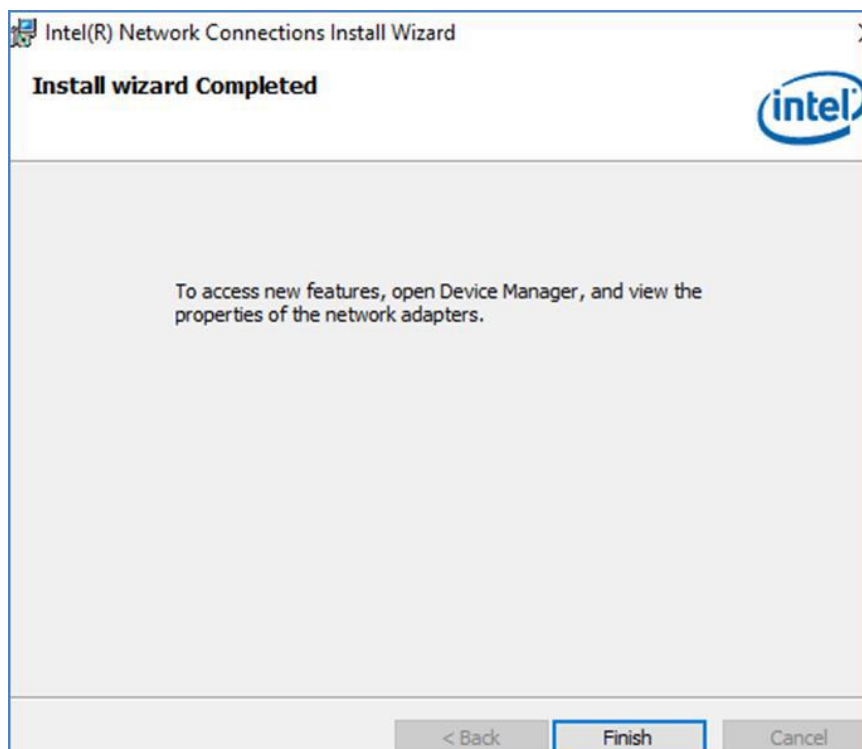
5.7 Watchdog Driver Installation

For more details about Winmate Watchdog, please download Watchdog Guide from Winmate Downloads Center:
Follow instructions below to install **Watchdog**driver.

Step 1 Type "cmd" in the run box then the cmd.exe will appear in programs.

Step 2 Right click on the cmd.exe and click on "Run as administrator" to start. Open the Driver CD (included in the package) and select Watchdog driver.
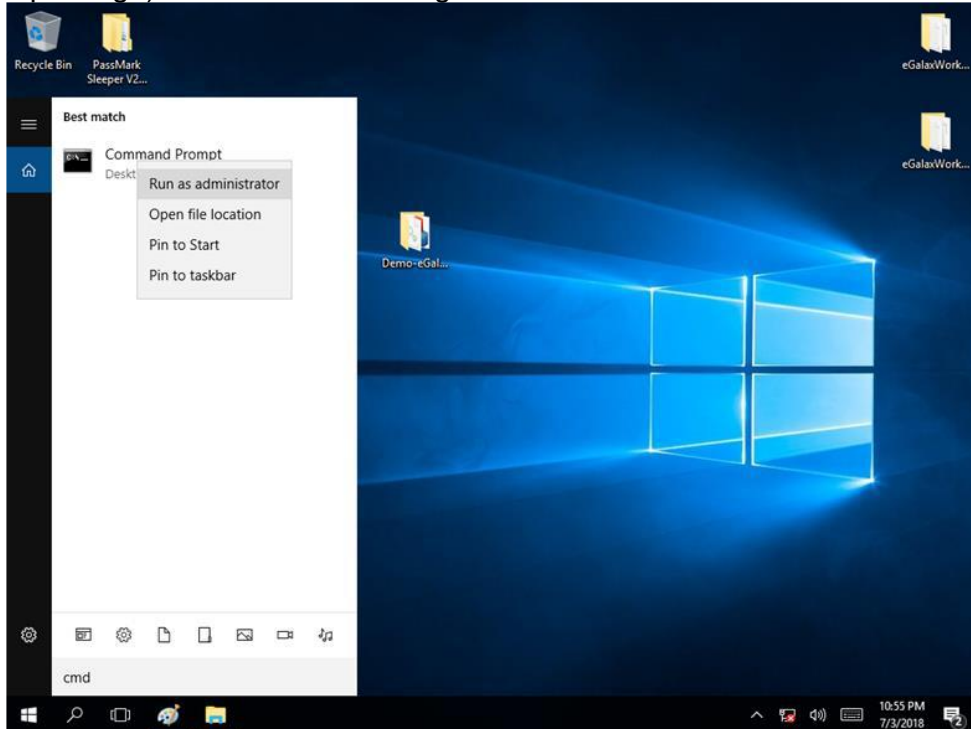
Step 3 When Windows Security dialog appear, select install to continue the Installation.
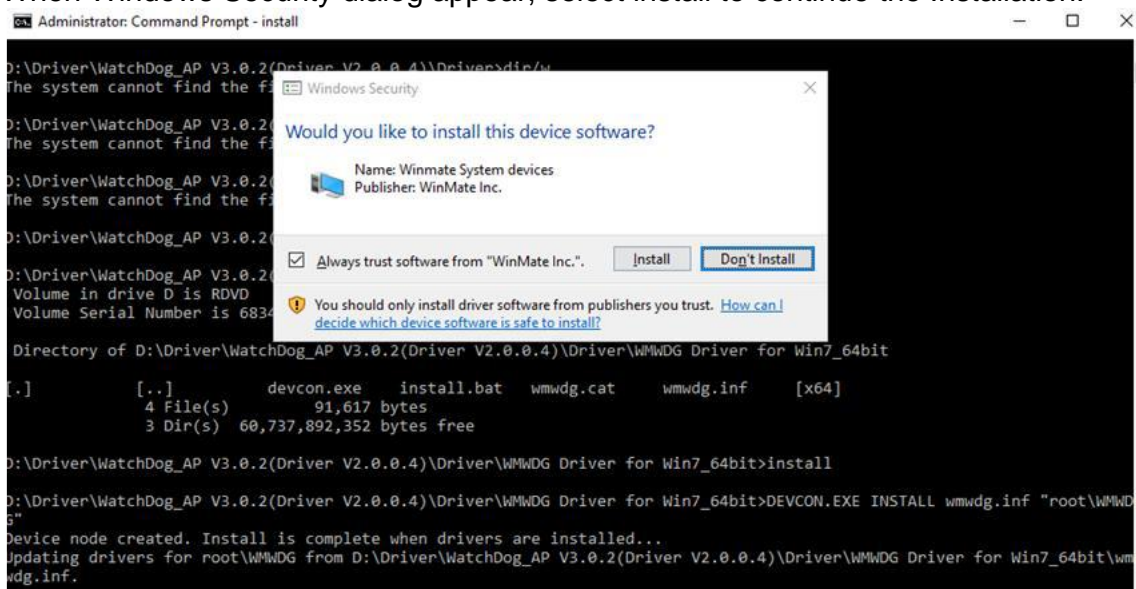
Step 4 Wait for installation to complete. When installation is complete, press any key to close.

Step 5 Open the Driver CD (included in the package) and select **Watchdog AP**.
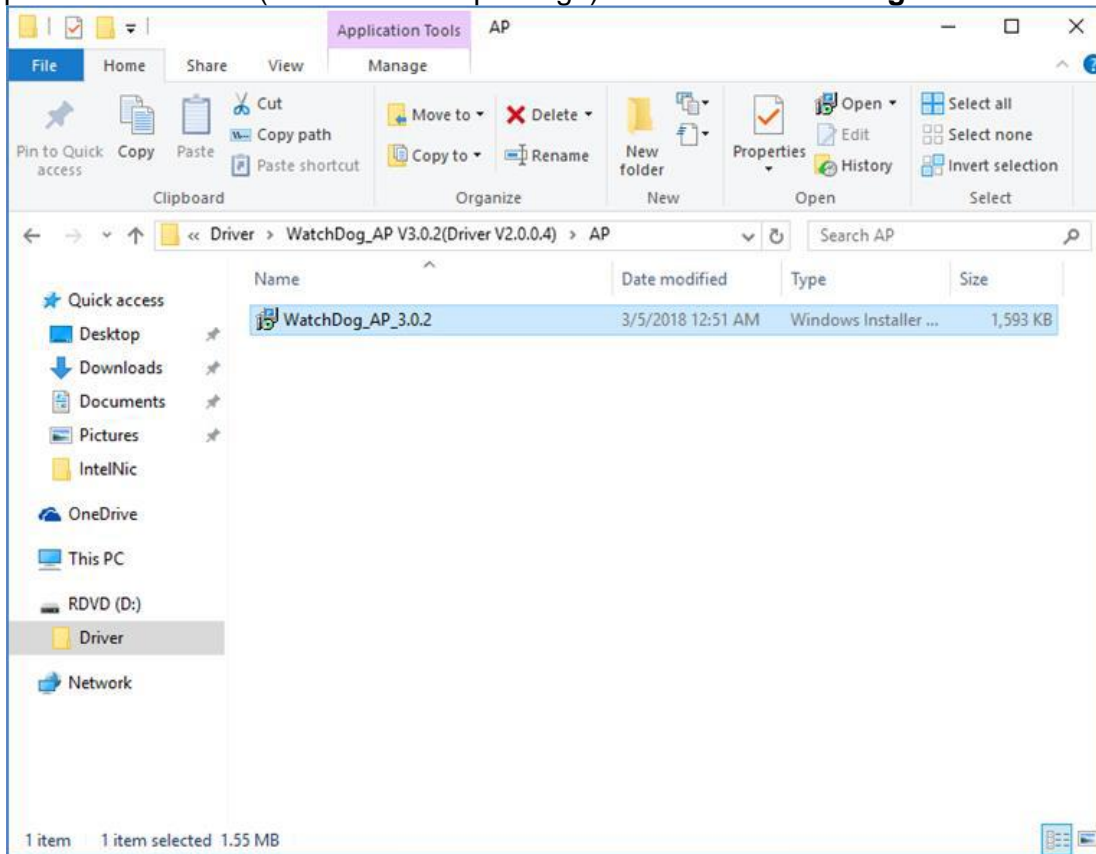
Step 6 Select **Next**.

Step 7 The installed storage location is displayed, select **Next** to continue.
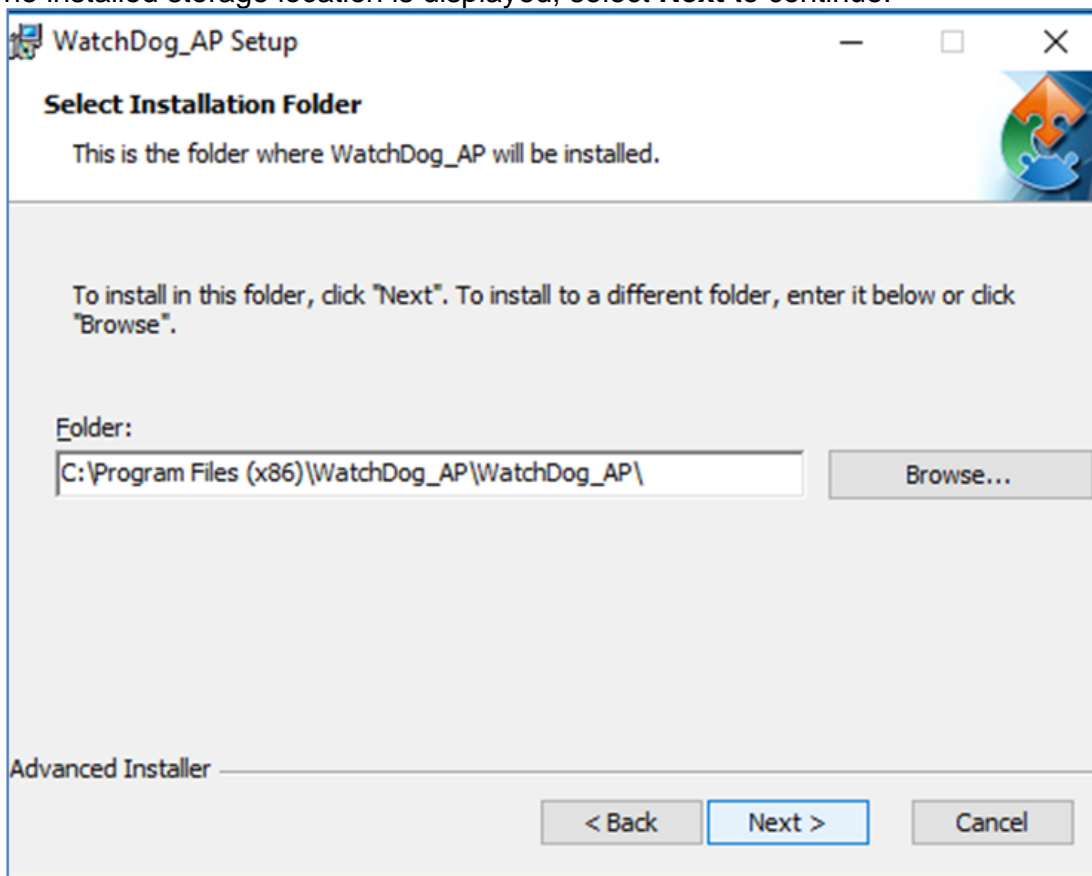
Step 8 Select **Next** to start the installation.
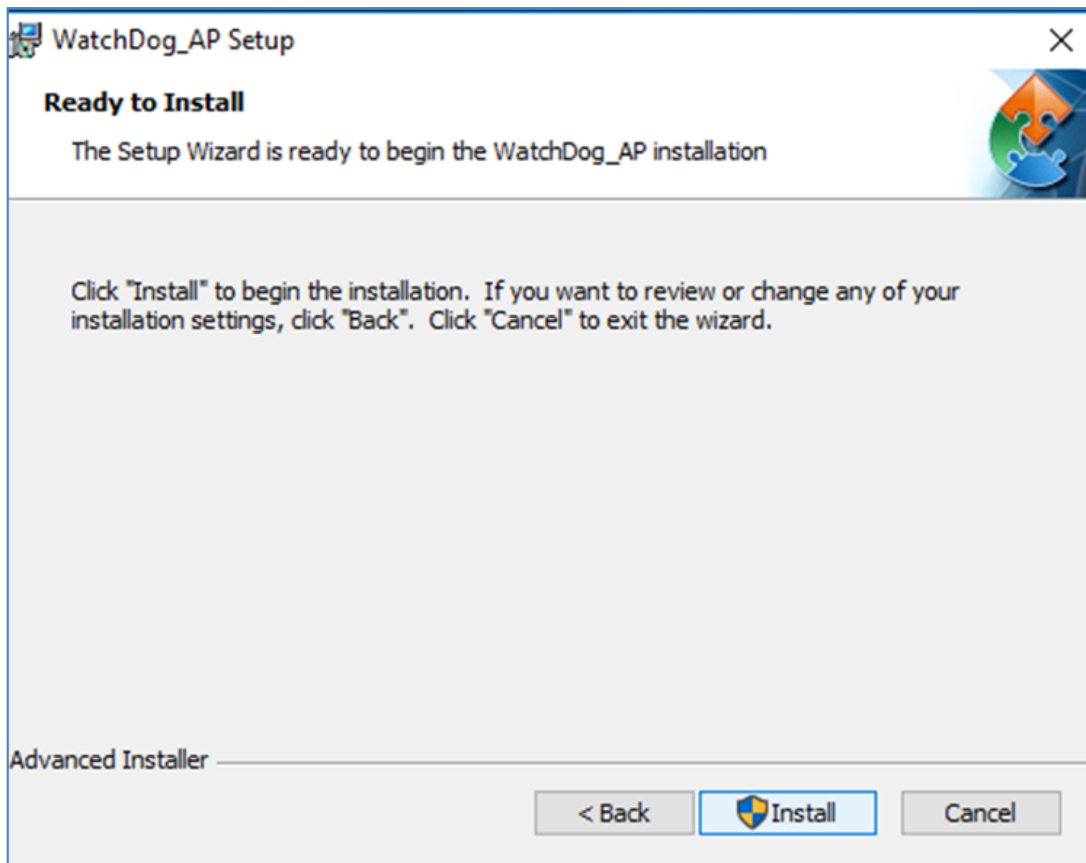
Step 9 When installation is completed, select **Finish** to close the window.
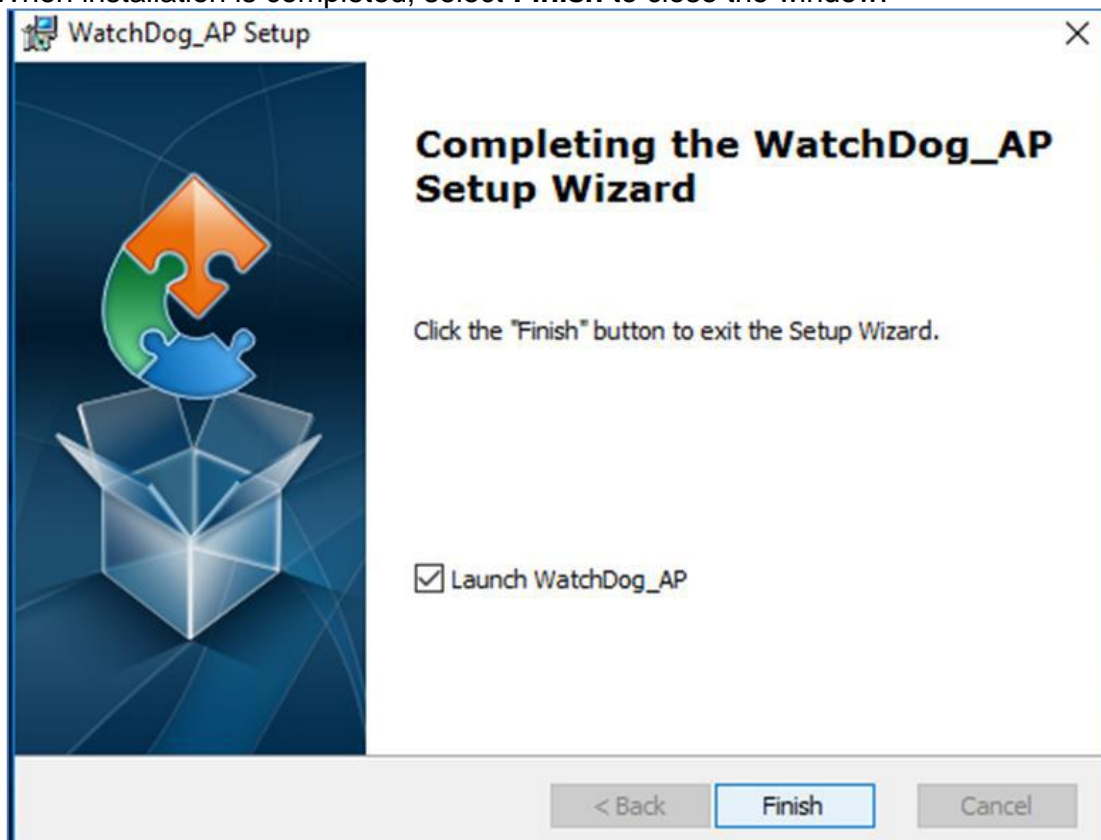
5.8 FTDI Driver Installation

Follow instructions below to install **FTDI** driver.

Step 1 Open the Driver CD (included in the package) and select **FTDI** driver.

Step 2 Right click on **"ftdibus"**

Step 3 Select **Install**

Step 4 Right click on **"ftdiports"**

Step 5 Select **Install**
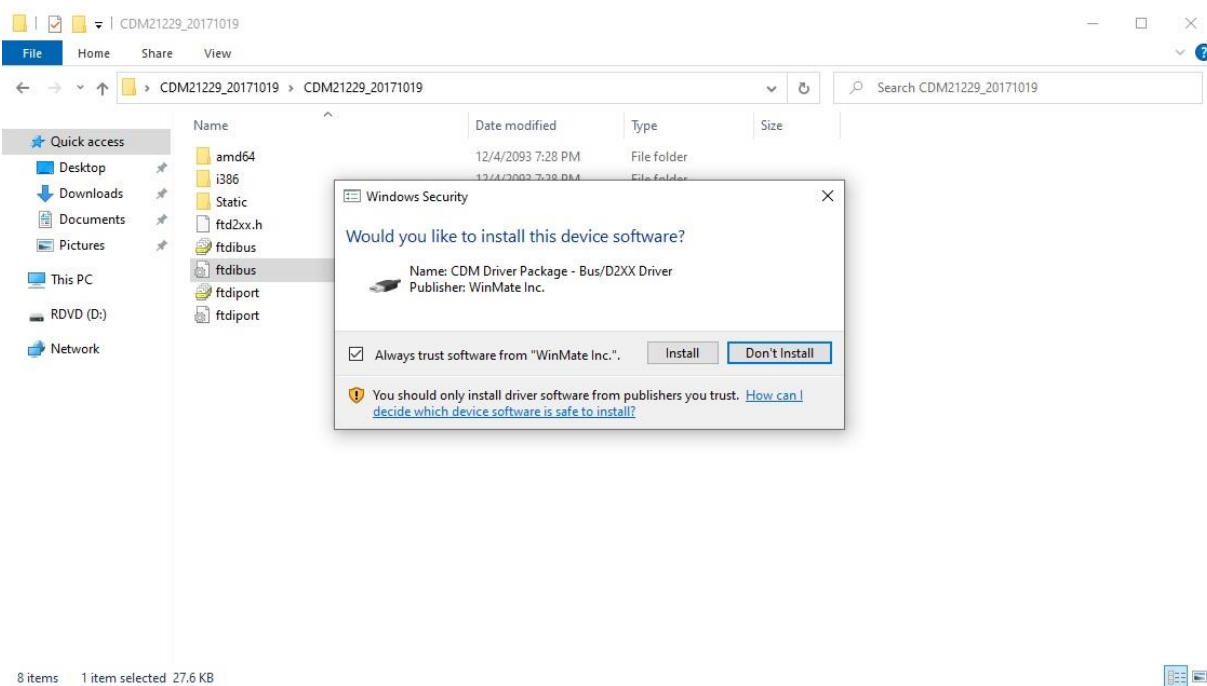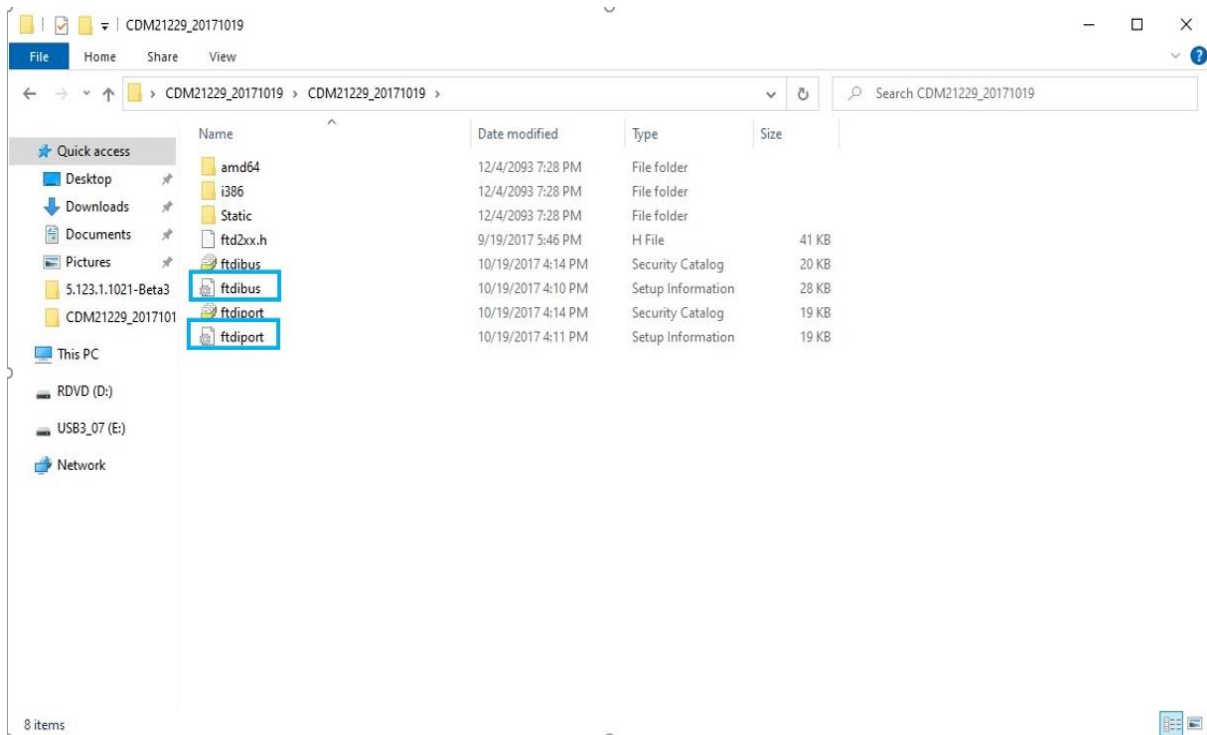
5.9 Serial IO Driver Installation

Follow instructions below to install **Serial IO** driver.

Step 1 Open the Driver CD (included in the package) and select **Serial IO** driver.

Step 2 Right click on " **iaLPSS2_GPIO2_EHL** "

Step 3 Select **Install**

Step 4 Right click on " **iaLPSS2_I2C_EHL** "

Step 5 Select **Install**

Step 6 Right click on " **iaLPSS2_SPI_EHL** "

Step 7 Select **Install**

Step 8 Right click on " **iaLPSS2_UART2_EHL** "

Step 9 Select **Install**

Step 10 Right click on " **UartSubDevice** "

Step 11 Select **Install**
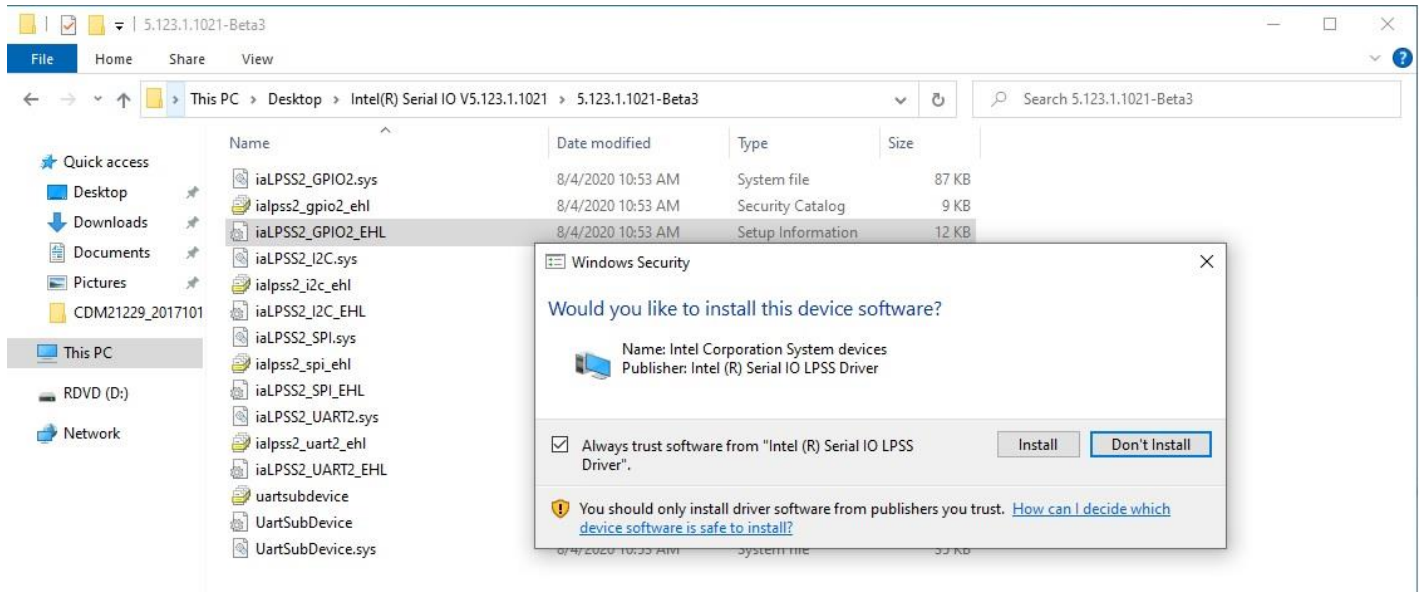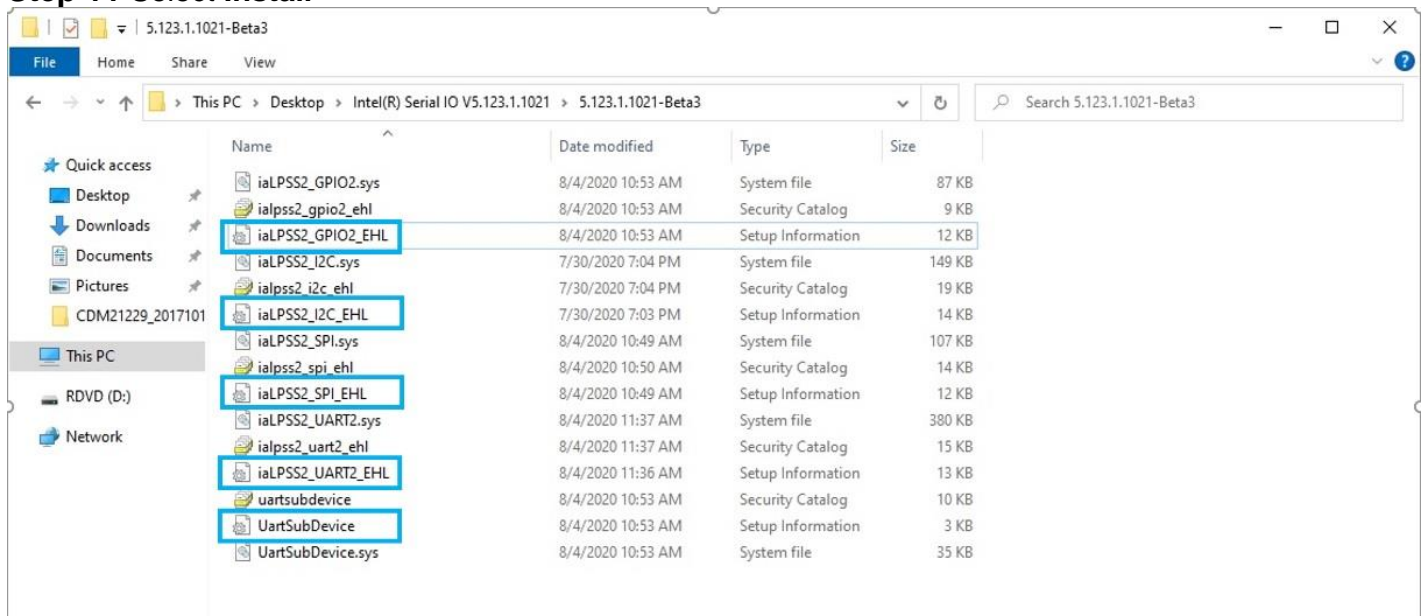
5.10 Digital IO Driver Installation

Follow instructions below to install **Digital IO** driver.

Step 1 Open the Driver CD (included in the package) and select

Winmate_PPC_Digital_IO_SDK_V2.4(IEDR)(2) driver.
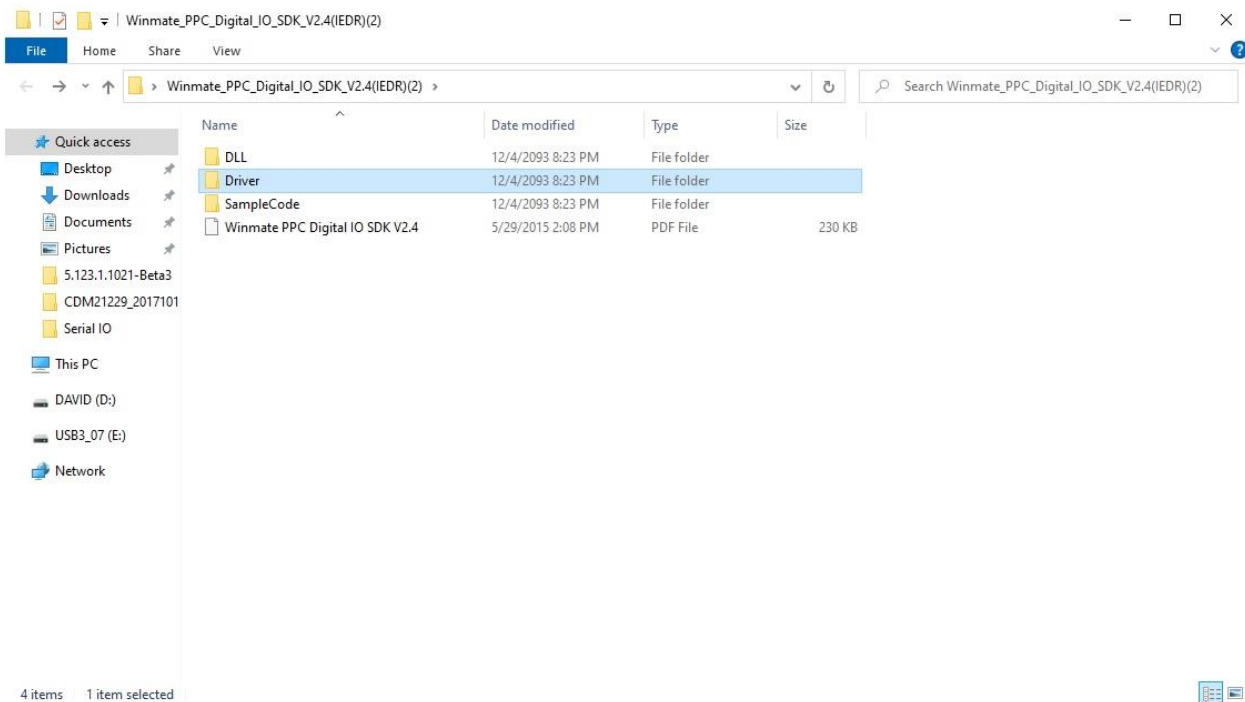
Step 2 select **5.1.0.2**
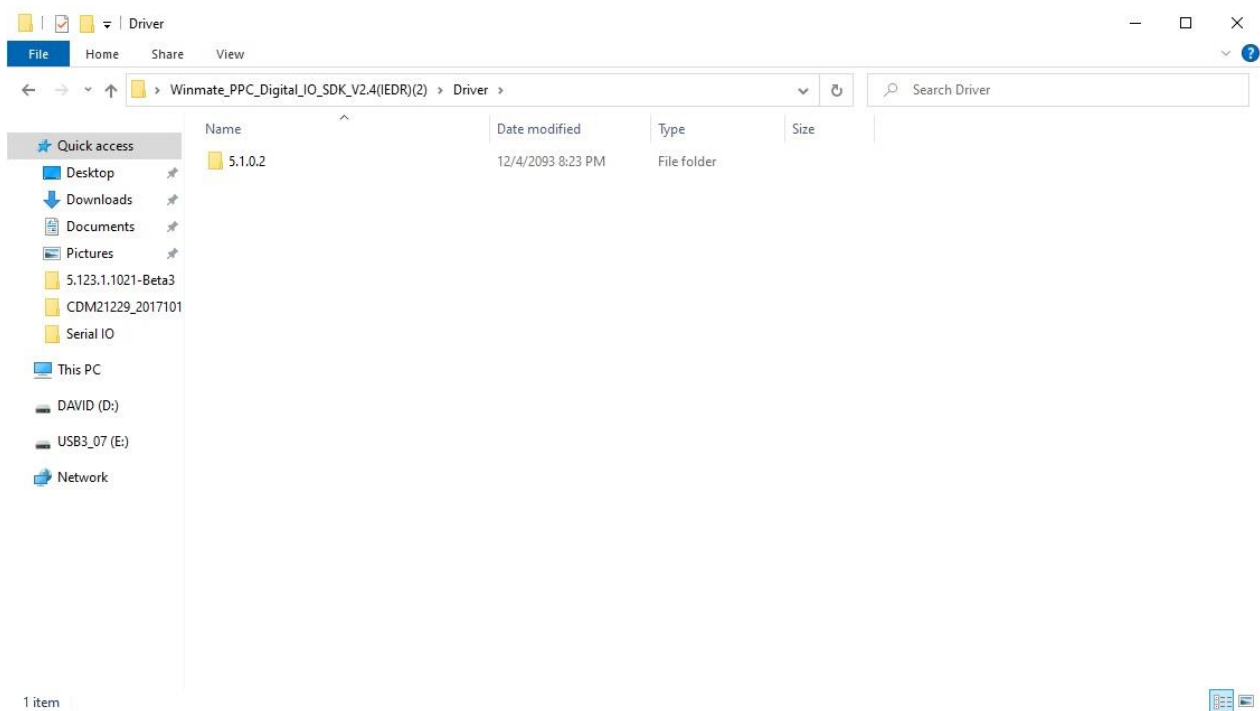
Step 3 select **WMDIO Driver for Win7_64bit**
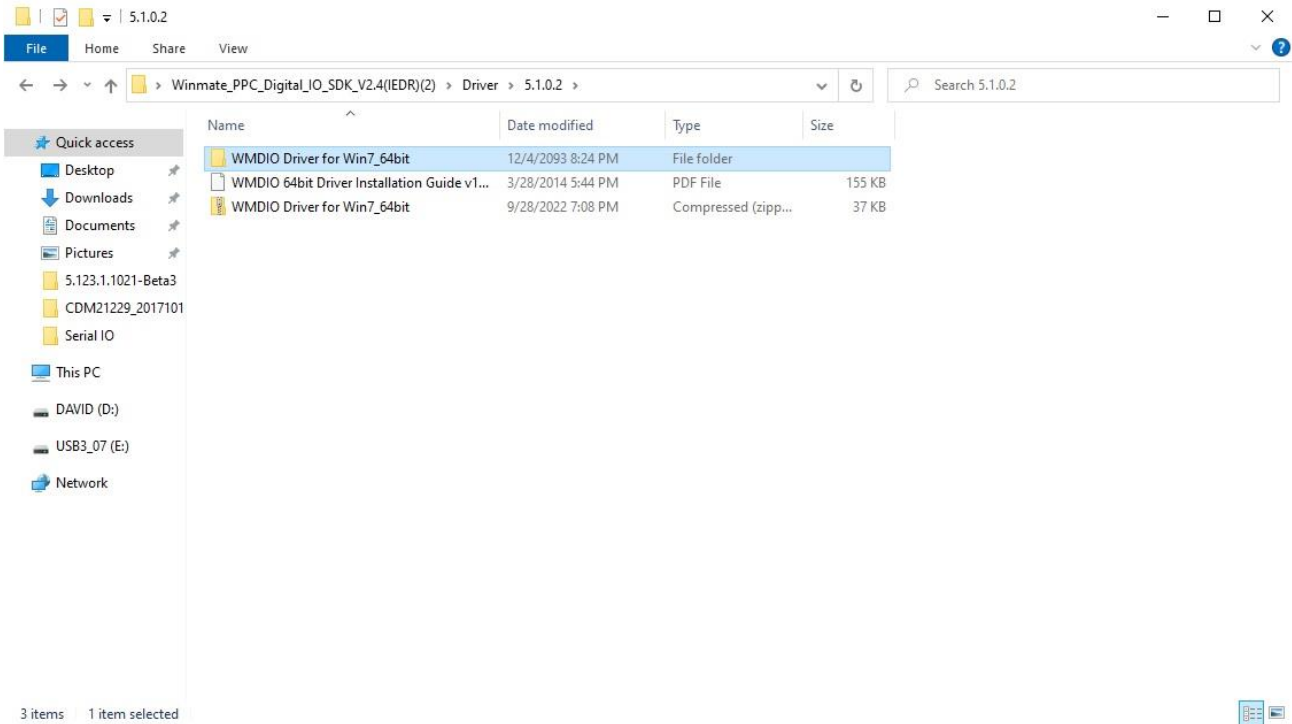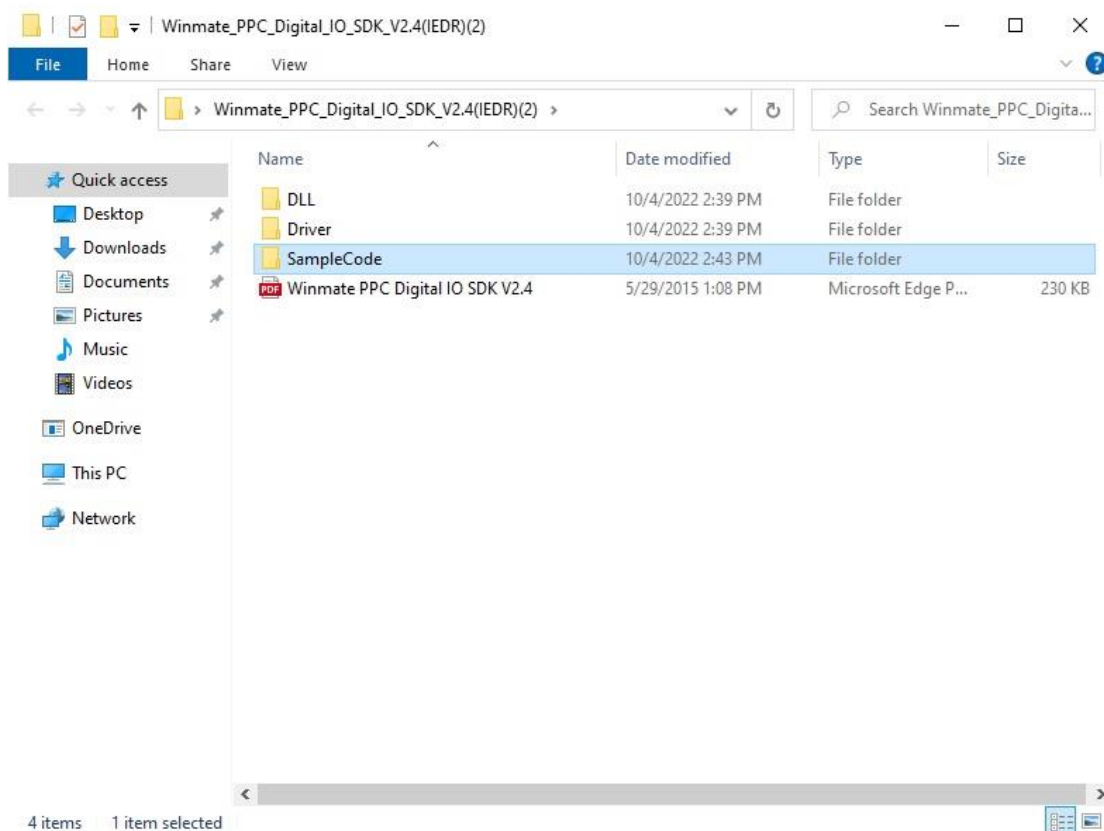

Step 4 chick **File** on the top left
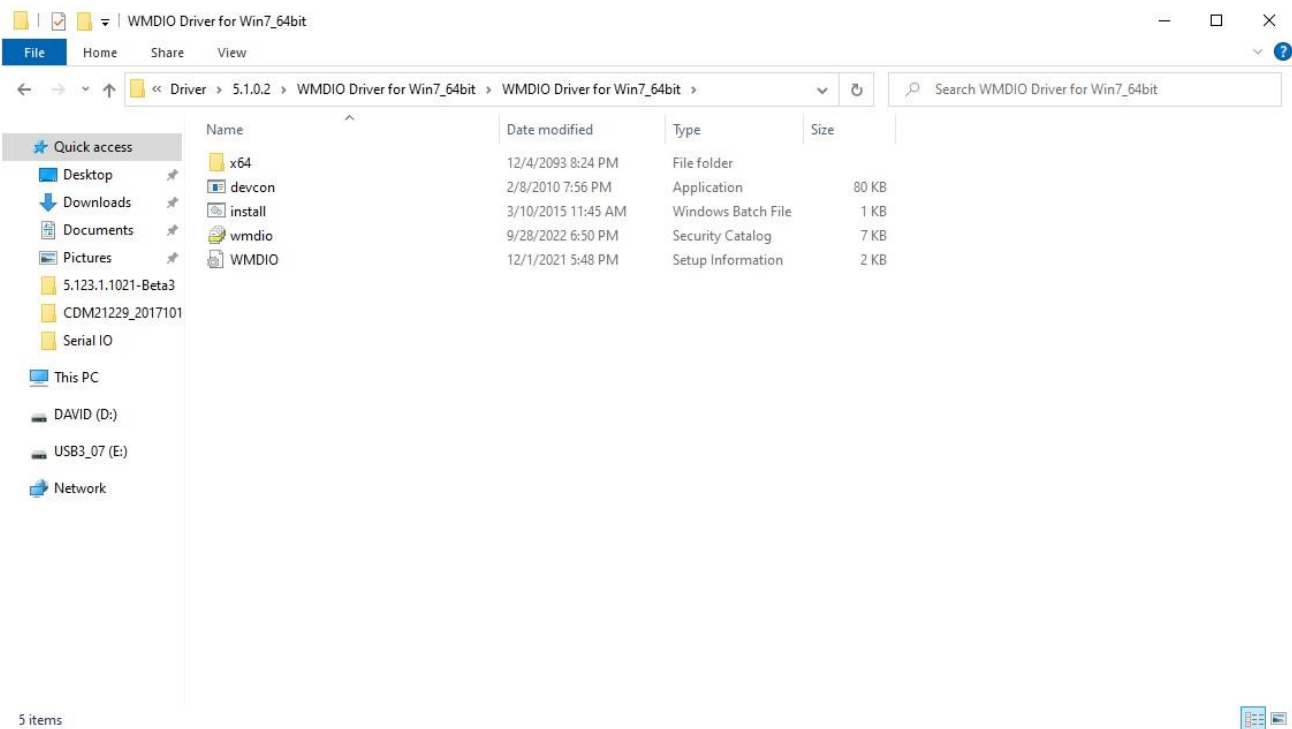
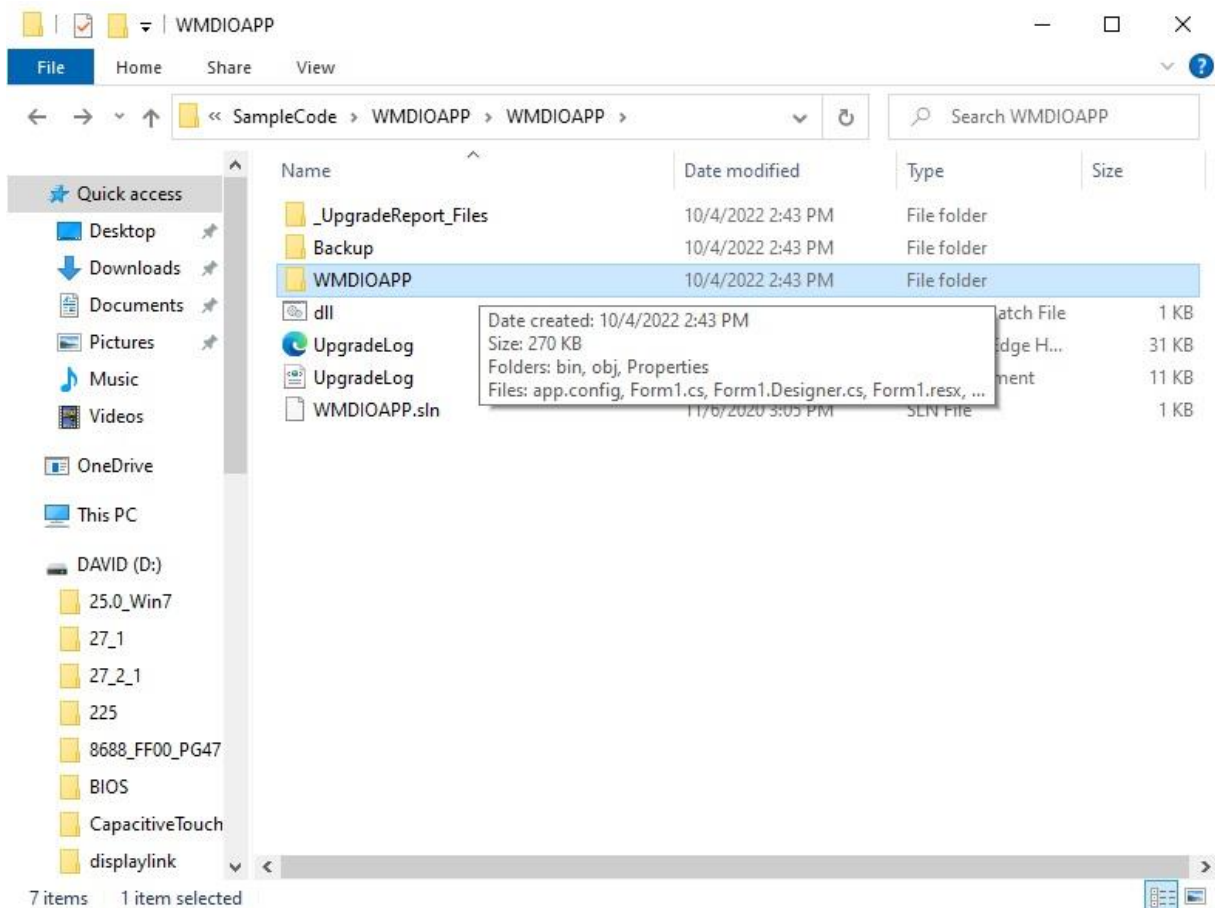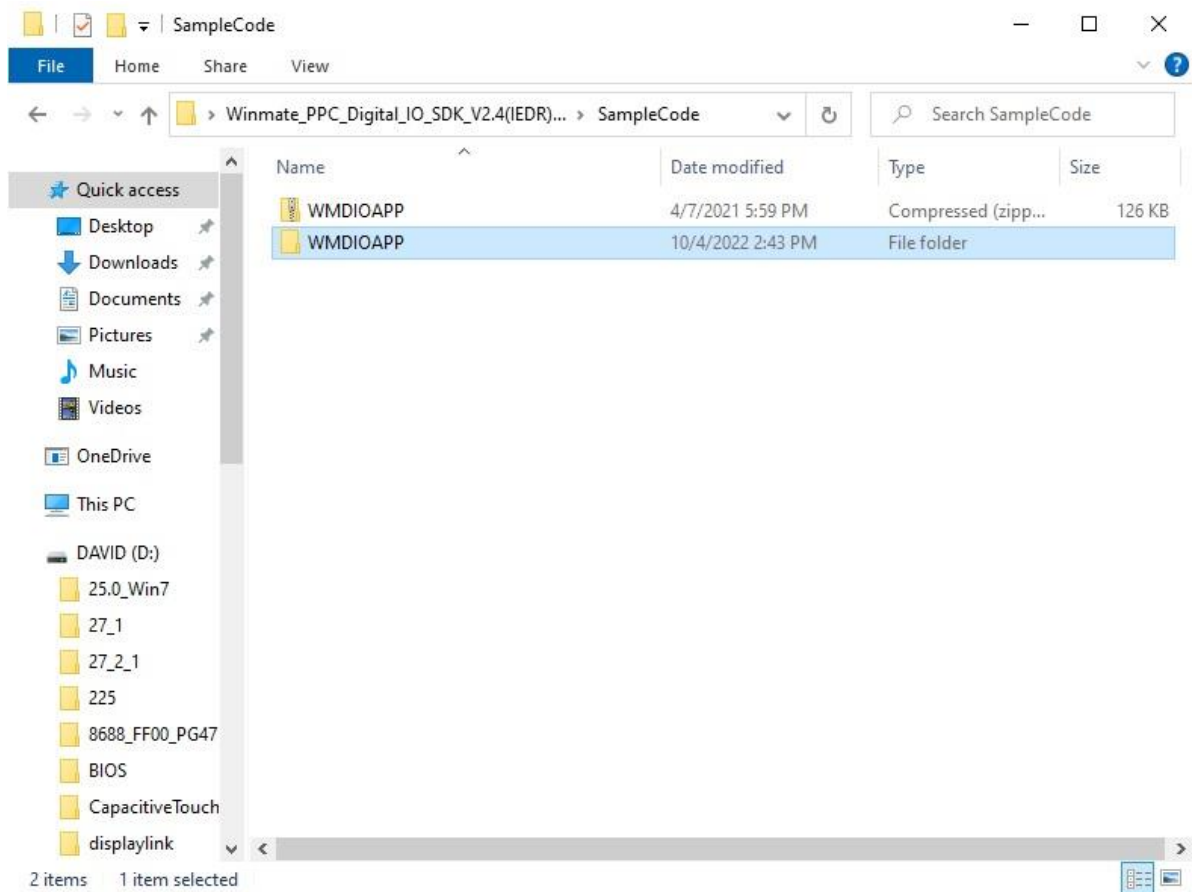**Step 5** Select **Open Windows PowerShell as administrator**
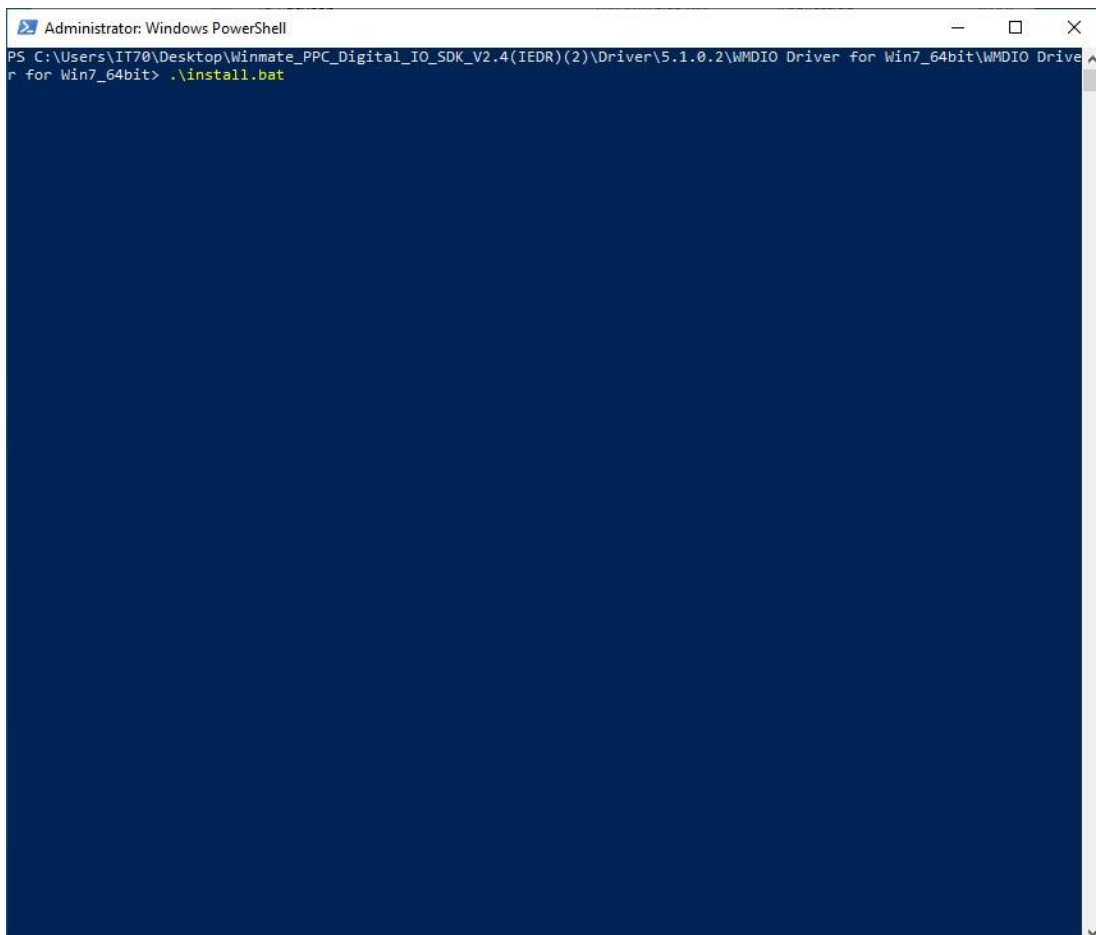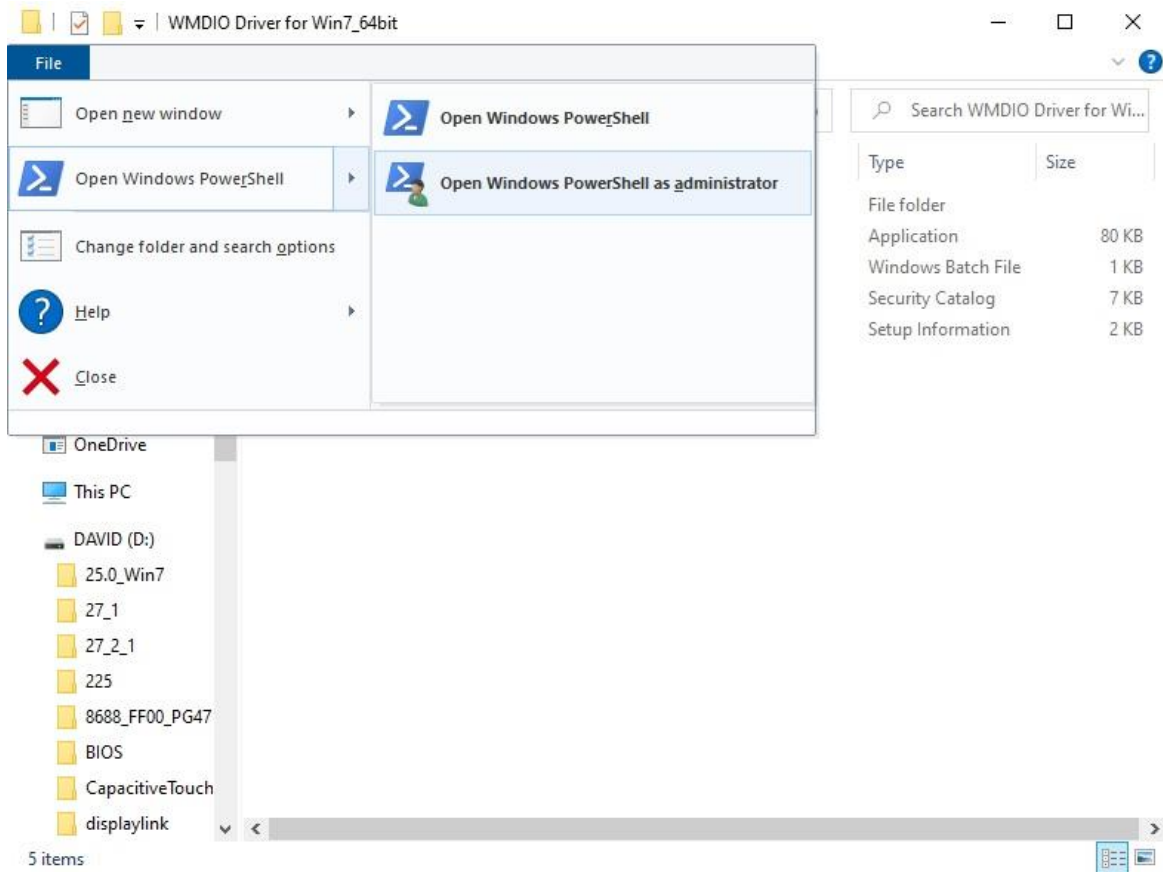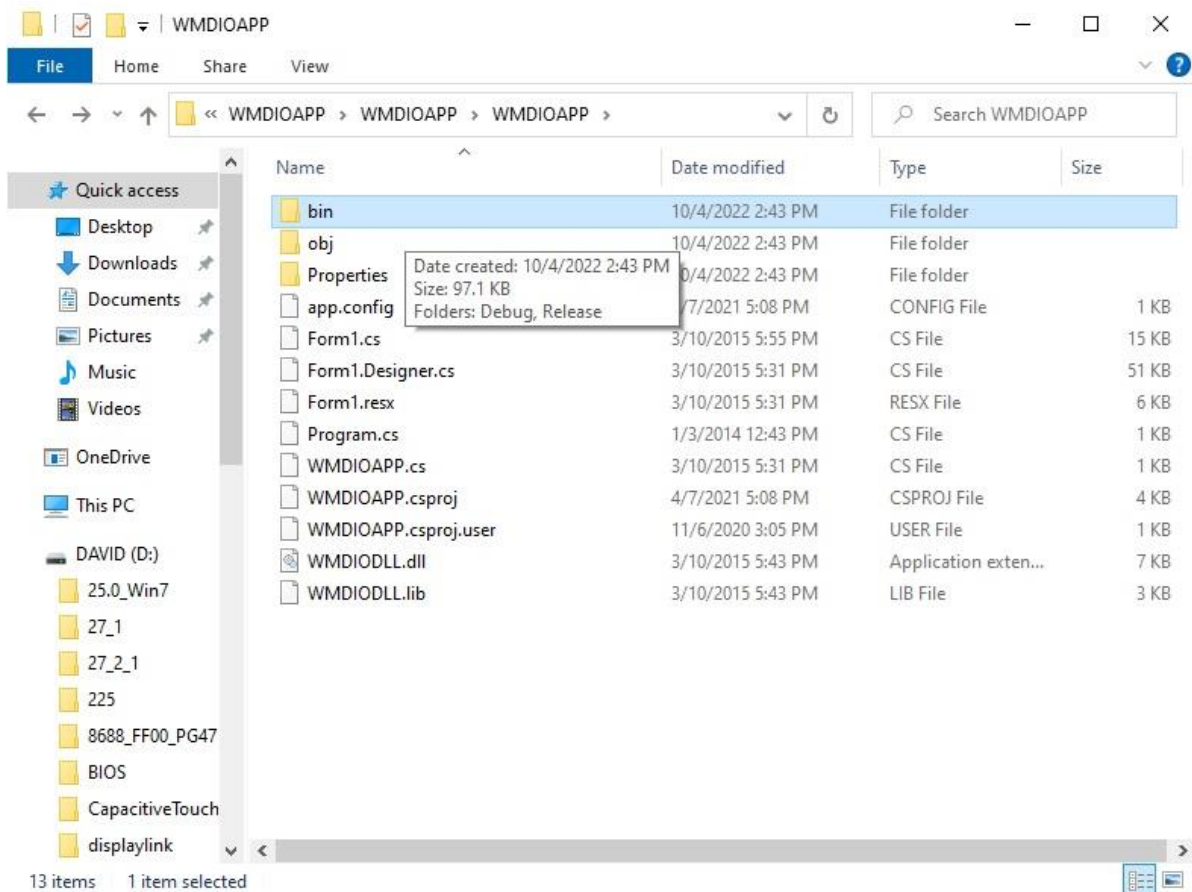
Step 6 Select **Install**
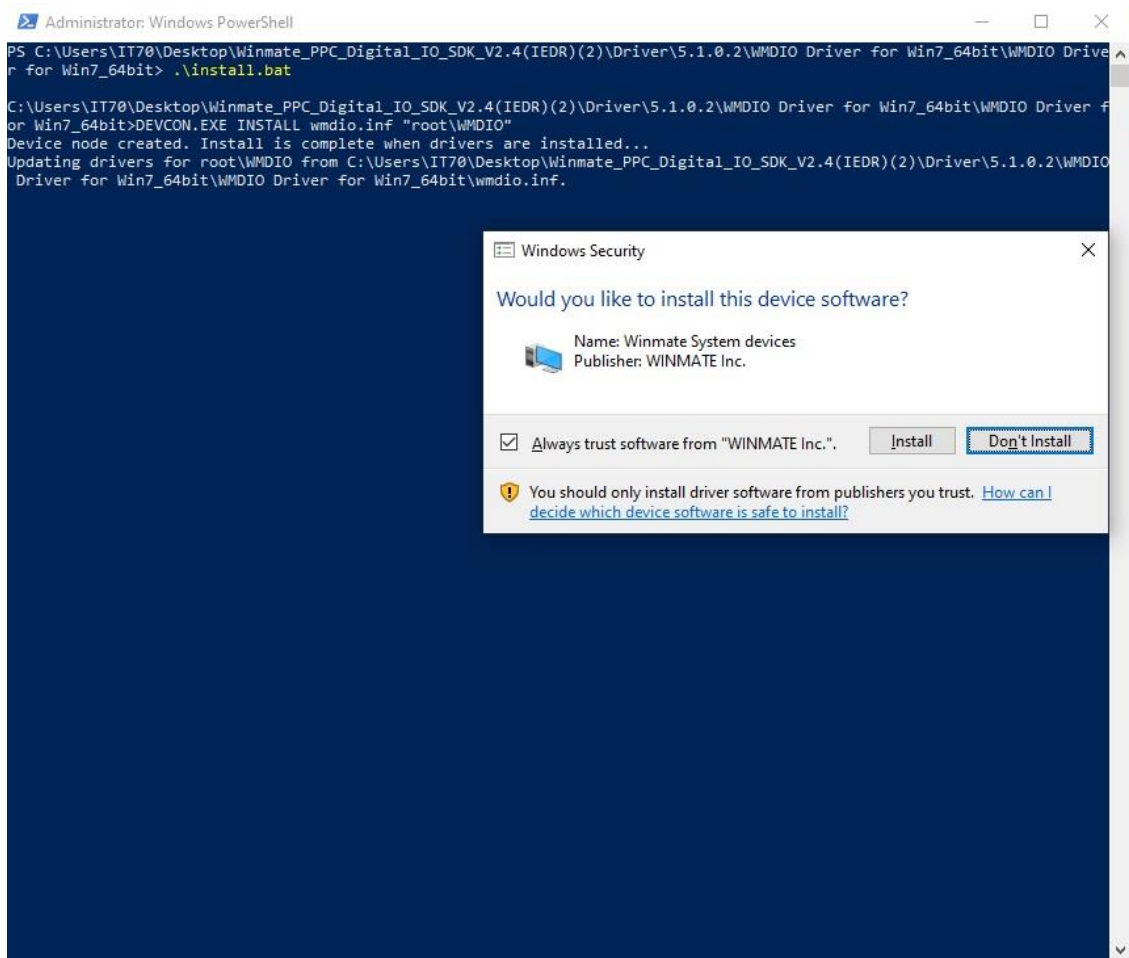
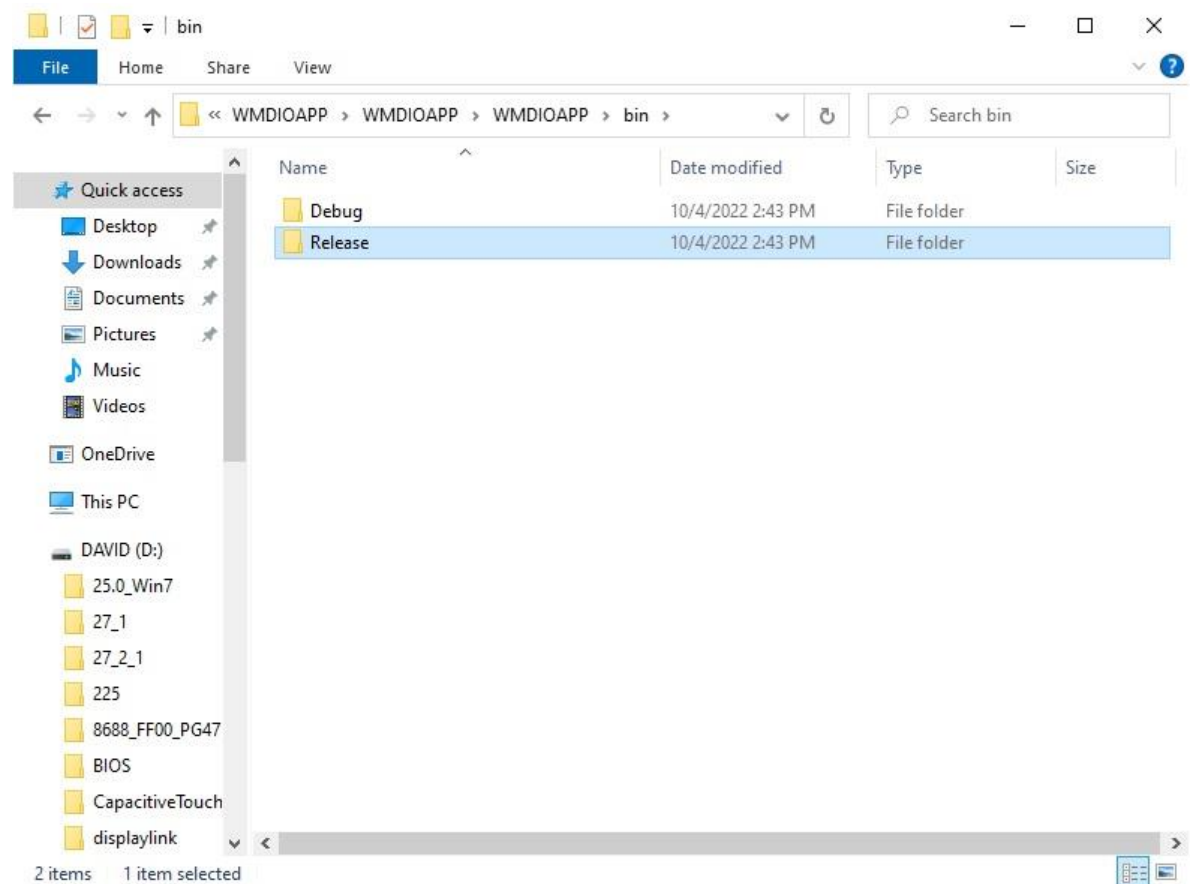**Step 7** Back to **Winmate_PPC_Digital_IO_SDK_V2.4(IEDR)(2)** and select **SampleCode**

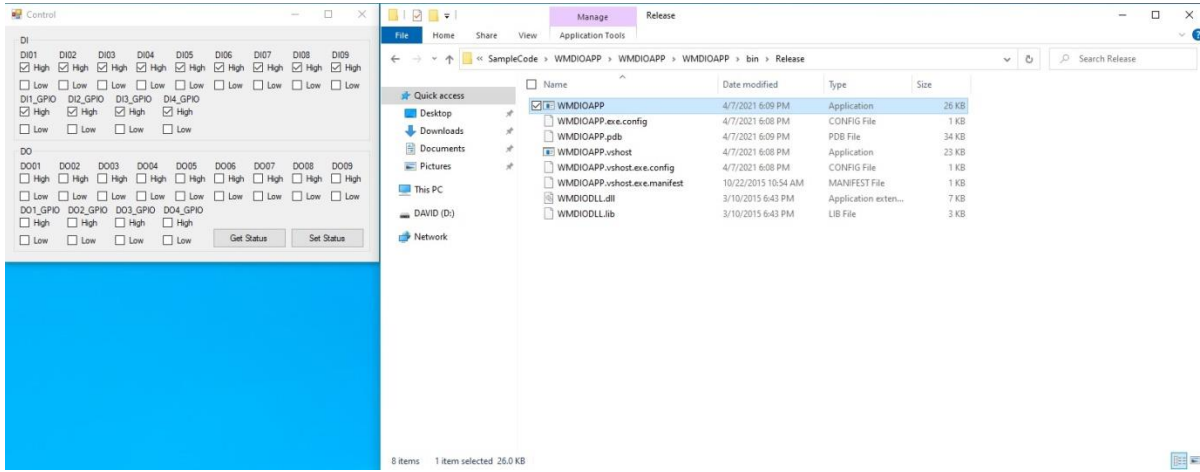**Step 8** Select **WMDIOAPP**

Step 8 Select **bin**

Step 8 Select **Release**

Step 9 Select **WMDIOAPP exe.** Then you will see the DIDO control.

Appendix

Appendix A: Hardware Specifications

Model Name		IBDRW100-EL
System Specification	CPU	Intel® Celeron® N6210 (1.5M Cache, up to 2.6GHz) Intel® ATOM® x6425E (1.5M Cache, up to 3.0GHz) (Optional)
	System Memory	1 x SO-DIMM socket DDR4-3200 Max. 16GB
	Storage	1 x SATAIII, 1 x M.2 (2242 KEY B, SATAIII)
	BIOS	Insyde BIOS
	Graphics	Intel® UHD
	LAN	Intel® LAN Chip
	OS	Windows 11 IoT Enterprise, Windows 10 IoT Enterprise, Ubuntu 22.04 LTS
Wireless Communications	WLAN	Optional 1 x M.2 (KEY E, for Wi-Fi)
	4G	Optional 4G / LTE
Interface	External I/O	3 x USB3.2 Gen2x1 1 x USB2.0 4 x RJ-45 LAN w/LED 1 x VGA 1 x RS232 (Default), RS422/485 switch by BIOS 1 x Isolated RS422(Default), RS485 Switch by jumper 1 x Audio Jack (Mic-in, Line-out, Line-in) 1 x clear CMOS & reset button 1 x DIDO(9in, 9out) 1 x DC Power 3pin Terminal Block
Keyboard and Input	Button	1 x Reset Button
	LED Indicators	Power, Storage
Power Management	Power Input	9V to 36V DC (Isolation)
	Power Consumption	20W (max.)
	AC Adapter	12V / 84W
Mechanical Specification	Dimensions	139 x 64.5 x 152 mm (5.47 x 2.54 x 5.98 inches)
	Gross Weight	1.6 kg

NOTE

1. Total usable memory will be less dependent upon actual system configuration.
2. Length measurements do not include protrusions. Weight varies with options.
3. Measured at maximum backlight and high CPU load.
4. Accessories and integrated options may vary depending on your configuration
5. All specifications are subject to change without prior notice.
6. The product shown in this datasheet is a standard model. For diagrams that contain customized or optional I/O, please contact the Winmate Sales Team for more information.

Appendix B: Approvals and Certifications

European Union

This equipment is in conformity with the requirement of the following EU legislations and harmonized standards. Product also complies with the Council directions.

Electromagnetic Compatibility Directive (2014/30/EU)
- EN55035: 2017
  - IEC61000-4-2: 2008
  - IEC61000-4-3: 2006+A1: 2007+A2: 2010
  - IEC61000-4-4: 2012
  - IEC61000-4-5: 2014+A1: 2017
  - IEC61000-4-6: 2013/COR1:2015
  - IEC61000-4-8: 2009
  - IEC61000-4-11: 2004+A1: 2017
- EN55032: 2015
- EN61000-3-2:2014
- EN61000-3-3:2013

Low Voltage Directive (2014/35/EU)
- EN 62368-1:2014

Federal Communications Commission on electromagnetic interference

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may cause harmful and (2) this device must accept any interference received, including that may cause undesired operation