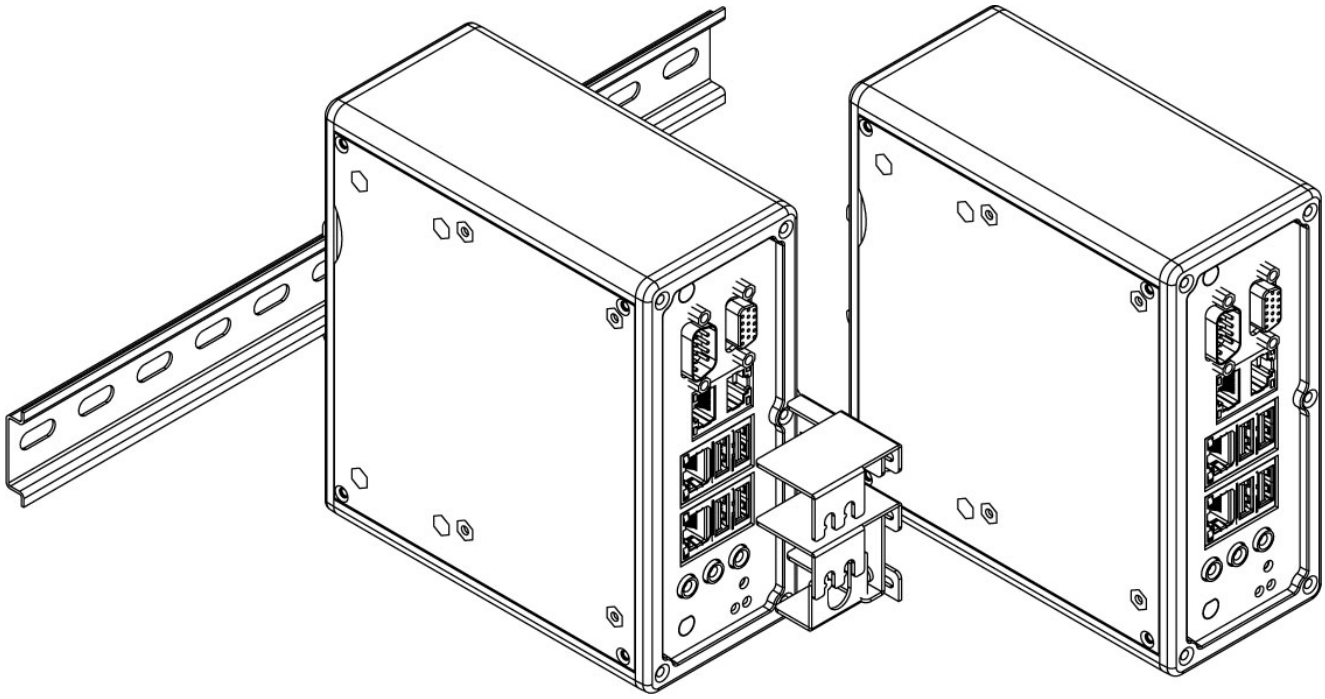
# DIN Rail Box PC

## IBDRW100-P/ IBDRW100-EX-P

Intel ® Pentium® Processor N4200 1.1 GHz, up to 2.56 GHz



aws qualified device internet of things

# User Manual

Version 1.4
Document Part No. 917111101106

Please read this instructions carefully before using this product, and save this manual for future use.

# Contents

# Preface

## Copyright Notice



## Trademark Acknowledgement



## 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 potential 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-P Series DIN Rail Box PC. This User Manual applies to the IBDRW100-P Series DIN Rail Box PC - IBDRW100-P/ IBDRW100-EX-P.

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

- **User Manual** – contains detailed description on how to use the IBDRW100-P 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

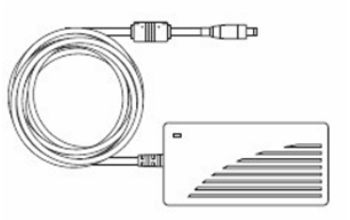
Winmate IBDRW100-P Series is a DIN-rail mounted Fanless Box PC, which provides several serial communication ports. With a compact size and small form factor as well as front accessible I/O port. The IBDRW100-P Series is very convenient for wiring and DIN-rail installation in the control cabinet. The wide operation temperature and Industrial serial port design makes this unit a perfect communication even in harsh and critical location. IBDRW100-EX-P Series is Class 1 Division 2 certified DIN Rail Box PC for hazardous location deployment and for CID2 certified Box PC requires special enclosure box. The IBDRW100-P 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

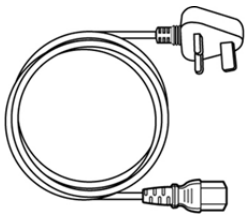
- Class 1, Division 2 device certified for hazardous area (IBDRW100-EX-P)
- Designed for industrial automation, DIN Rail applications
- Intel® Apollo Lake N4200, 4 Core @1.1GHz up to 2.56GHz (TDP=6W)
- Intel® Apollo Lake E3950, 4 Core @1.6GHz up to 2.0GHz (TDP=12W)(Optional)
- Intel® Apollo Lake E3940, 4 Core @1.6GHz up to 1.8GHz (TDP=9.5W)(Optional)
- Intel® Apollo Lake E3930, 2 Core @1.3GHz up to 1.8GHz (TDP=6.5W)(Optional)
- 1 x RS232 / 422 / 485 communications, select thru BIOS
- 4 x Giga LAN, 3 x USB 3.0, 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 (IBDRW100-EX-P -40˚C to 70˚C)
- Certified AWS IoT Greengrass

## 1.3 Accessories



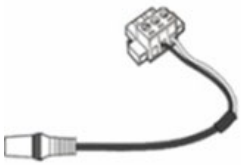
- **AC to DC 12V 36W Power Adapter (For testing only)**

Part No. 922D036W12V6



- **Power Cord**

Varies by the country

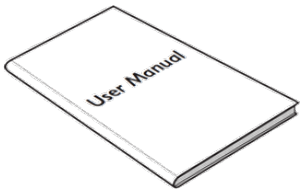


- **Terminal Block 3 pin to 2.5 Ø Female Adapter Cable**

Part No. 94J602G030K0

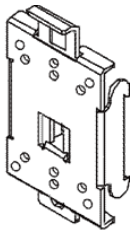
- **Open Wire Power Cable**

Part No. 94EL02X020E0



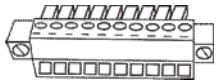

- **User Manual**

Part No. 917111101106



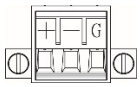
- **DIN Rail Mounting Clip**

Part No. 90ME01000000



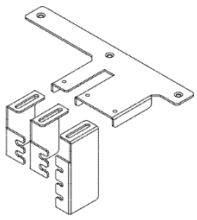
- **Terminal Block 10 pin Female Connector for DIDO x 2**

Part No. 604530005D01




- **Terminal Block 3 pin Connector for Power**

Part No.604520105001

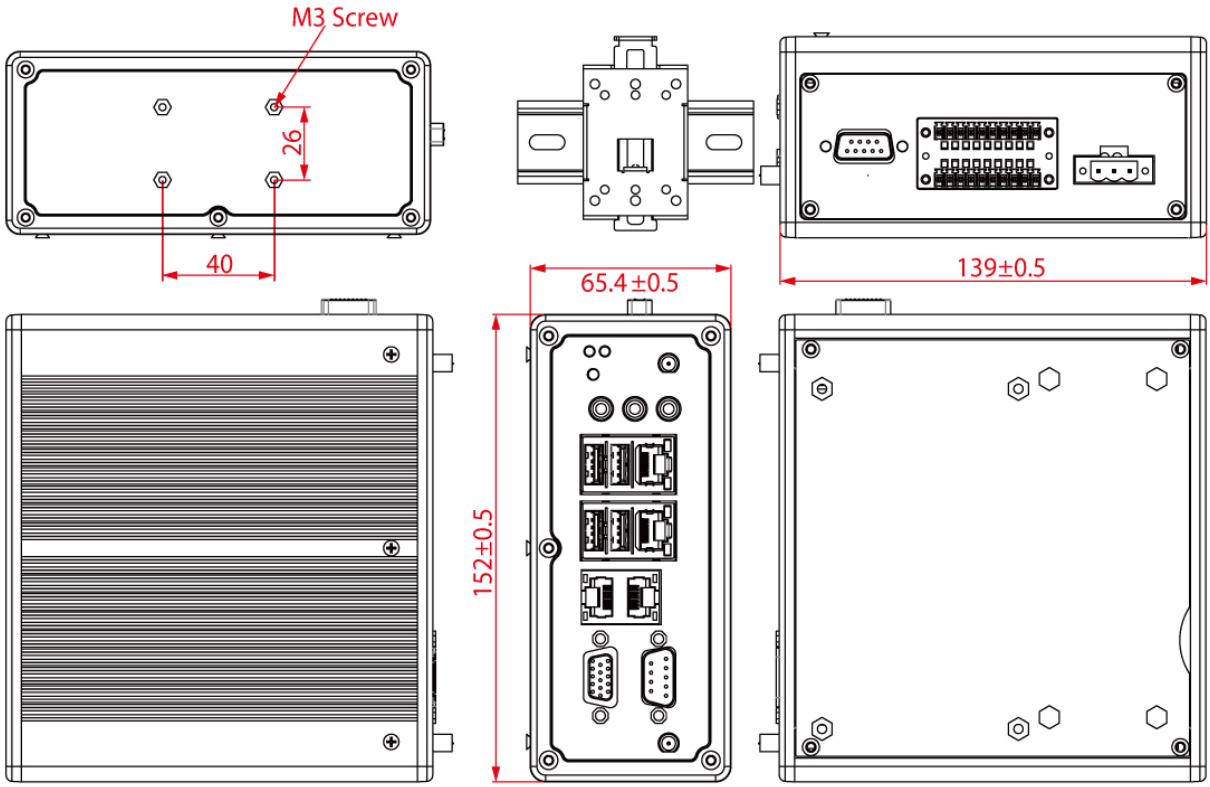


- **Cable Holder Kit**
  **(For IBDRW100-P-EX only)**

Part No. 98K000A000E0

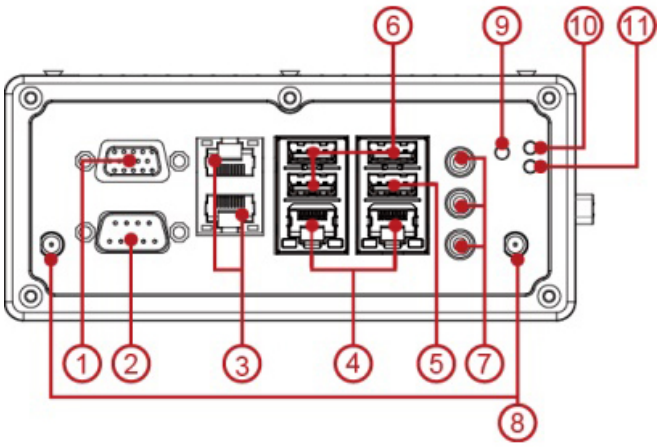
## 1.4 Chassis Dimensions

*Unit: mm*

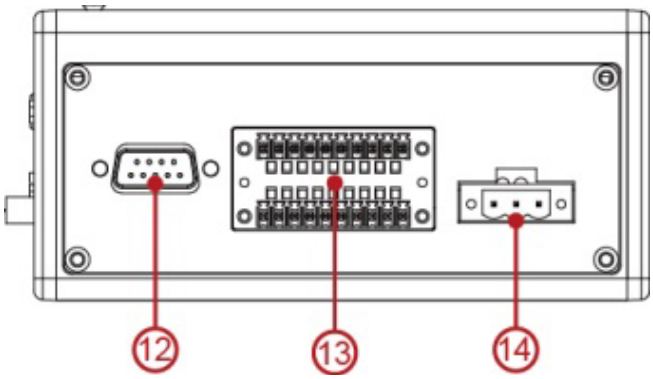



## 1.5 Description of Parts

### 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 3.0 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)
14. Power Terminal Block

# Chapter 2: Hardware Installation

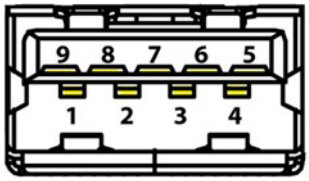
## 2.1 Connectors Description

This section describes pin assignment and signal names of IBDRW100-P/ IBDRW100-EX-P interfaces.

### 2.1.1 USB 3.0 Connector

The IBDRW100-P/ IBDRW100-EX-P provide three USB 3.0 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 USB 2.0 Connector

The IBDRW100-P/ IBDRW100-EX-P provide one USB 2.0 connectors. Use USB 2.0 connector to connect external devices such as mouse or keyboard to the box computer.

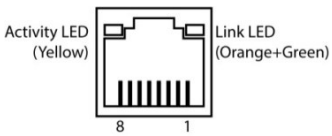
*Pin assignment and signal names of USB connector*


| Pin № | Signal Name | Pin № | Signal Name |
|---|---|---|---|
| 1 | +5V | 2 | Data- |
| 3 | Data+ | 4 | GND |

### 2.1.3 RJ-45 for GigaLAN Connector

The IBDRW100-P/ IBDRW100-EX-P has four GigaLAN connectors located on the front. Ethernet ports provide a standard RJ45 10/100/1000 Mbps 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*



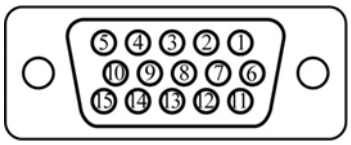

*10/100 Mbps- Green 1G Mbps – Orange*

| 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-P/ IBDRW100-EX-P 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*



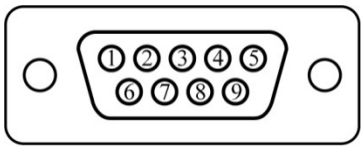

*Maximum resolution (VGA)*
*1920 x 1200 @60 HZ*

| 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-P/ IBDRW100-EX-P 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*

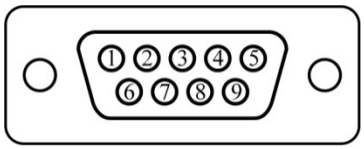



| Pin № | RS-232 (Default) | RS422 | RS485 |
|---|---|---|---|
| 1 | DCD | Tx- | DATA- |
| 2 | RXD | Tx+ | DATA+ |
| 3 | TXD | RX+ | NC |
| 4 | DTR | RX- | NC |
| 5 | GND | GND | GND |
| 6 | DSR | NC | NC |
| 7 | RTS | NC | NC |
| 8 | CTS | NC | NC |
| 9 | RI | NC | NC |

### 2.1.6 Isolated RS422/485 Connector

The IBDRW100-P/ IBDRW100-EX-P 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

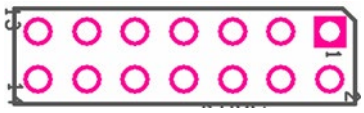
The IBDRW100-P/ IBDRW100-EX-P have has three stereo audio ports with audio jack connectors: Mic-in, Line-out, Line-in.

*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*

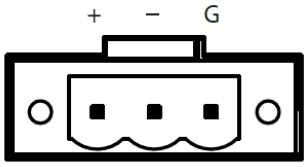


| Pin № | Signal Name | Pin № | Signal Name |
|---|---|---|---|
| 1 | GND | 8 | DINT1 |
| 2 | DIO_5V | 9 | DINT2 |
| 3 | DOUT3 | 10 | DINT0 |
| 4 | DOUT1 | 11 | GPIO53_IN0 |
| 5 | DOUT2 | 12 | GPIO56_OUT0 |
| 6 | DOUT0 | 13 | GPIO54_IN1 |
| 7 | DINT3 | 14 | GPIO57_OUT1 |

### 2.1.9 DC Power 3pin Terminal Block

The DC power source input of the IBDRW100-P/ IBDRW100-EX-P 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

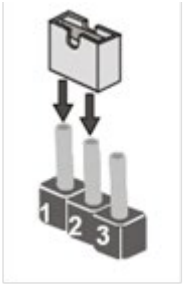
## 2.2 Configuring COM2 Settings by Jumpers

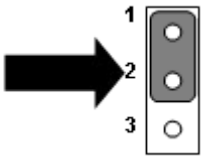
Serial Port COM2 can be configured for RS-422 or RS-485 by jumpers. Jumpers are located on the motherboard. You need to open the housing in order to access the jumpers.

**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)

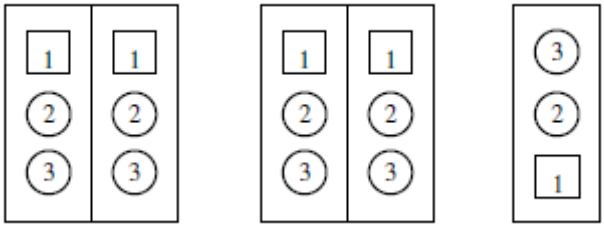
| Location | Header Type | Description | Function |
|---|---|---|---|
| JP3<br>JP5 | Header 3*1 | Terminal Resistor | 1-2: Normal |
| | | | 2-3: Connector |

※ Default : 1-2

Select RS422/485 (JP4, JP6, JP7)

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

※ Default : 1-2



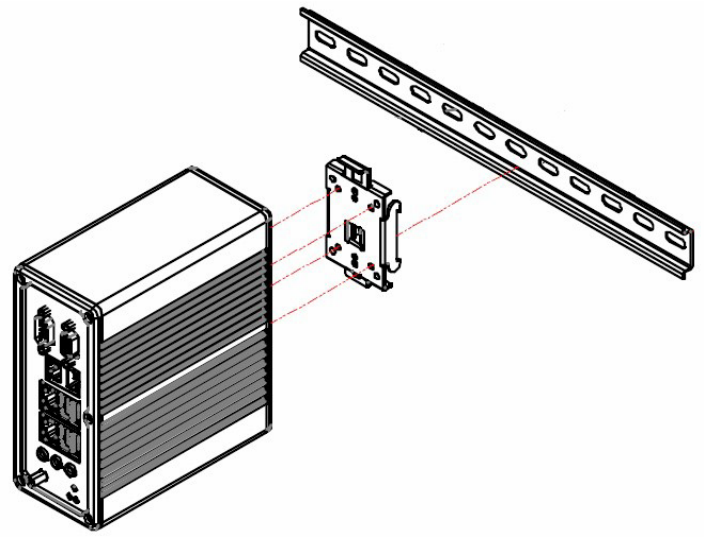

JP3/JP4 JP5/JP6 JP7

# Chapter 3: Initial Setup

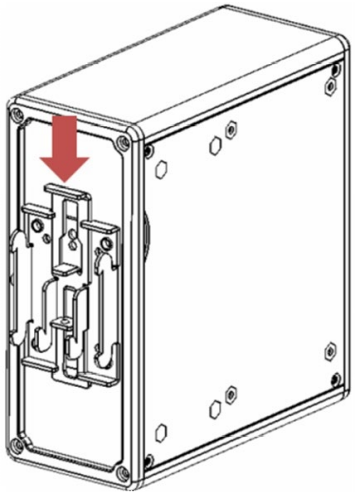
## 3.1 DIN Rail Mounting Setup

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

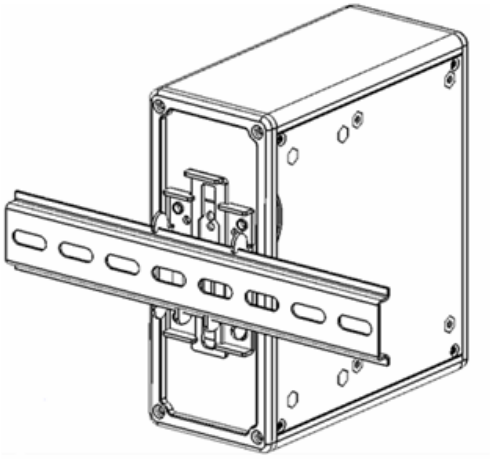
1. Screw the provided DIN-rail Kit on the rear side of the box as the diagram shown below.
2. Please make sure the stiff metal handle part is located on the top.



3. Press the stiff metal handle downward and insert the hook into the DIN-rail.



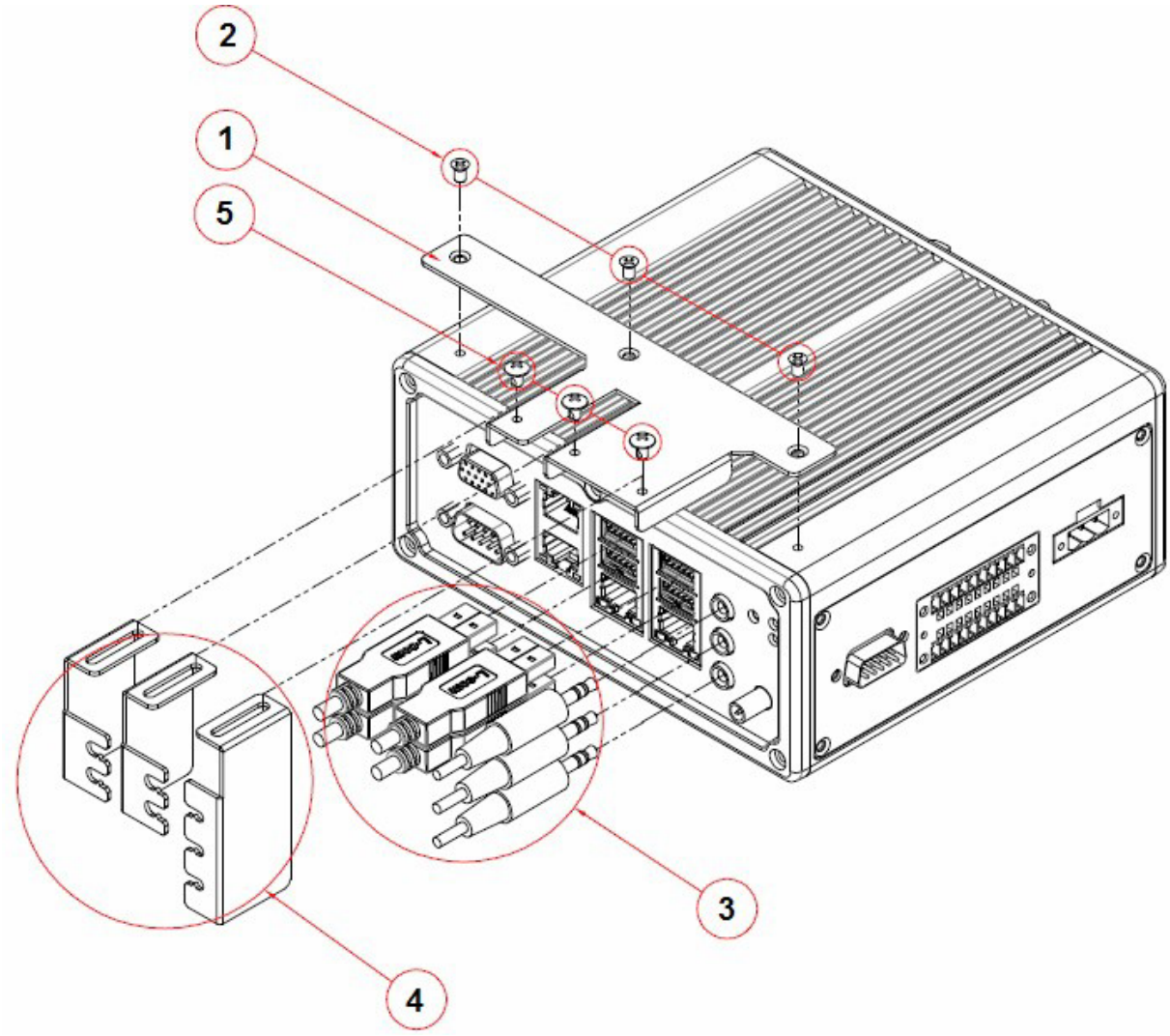
4. Release the handle so it can snap into place as shown below.



### 3.2 Cable Arm Bracket Installation

Notice that cable arm bracket is an accessory of IBDRW100-EX-P.

In hazardous locations, sparks caused by the movement from a cable and connector which is even slightly loose could lead to a disaster and to prevent this, cable arm bracket can be used to secure some LAN, USB and Audio connectors. Follow these steps to complete the installation.




1. Find the cable arm bracket in the package, including the plate, bracket / holder, and screws.
2. Install the plate on the top of the box and screw it tightly.
3. Plug all the necessary cables into the connectors.
4. Place the cable arm bracket according to the picture and then attach the bracket / holders to the plate and then screw it for securing the installed cables.

# 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. |

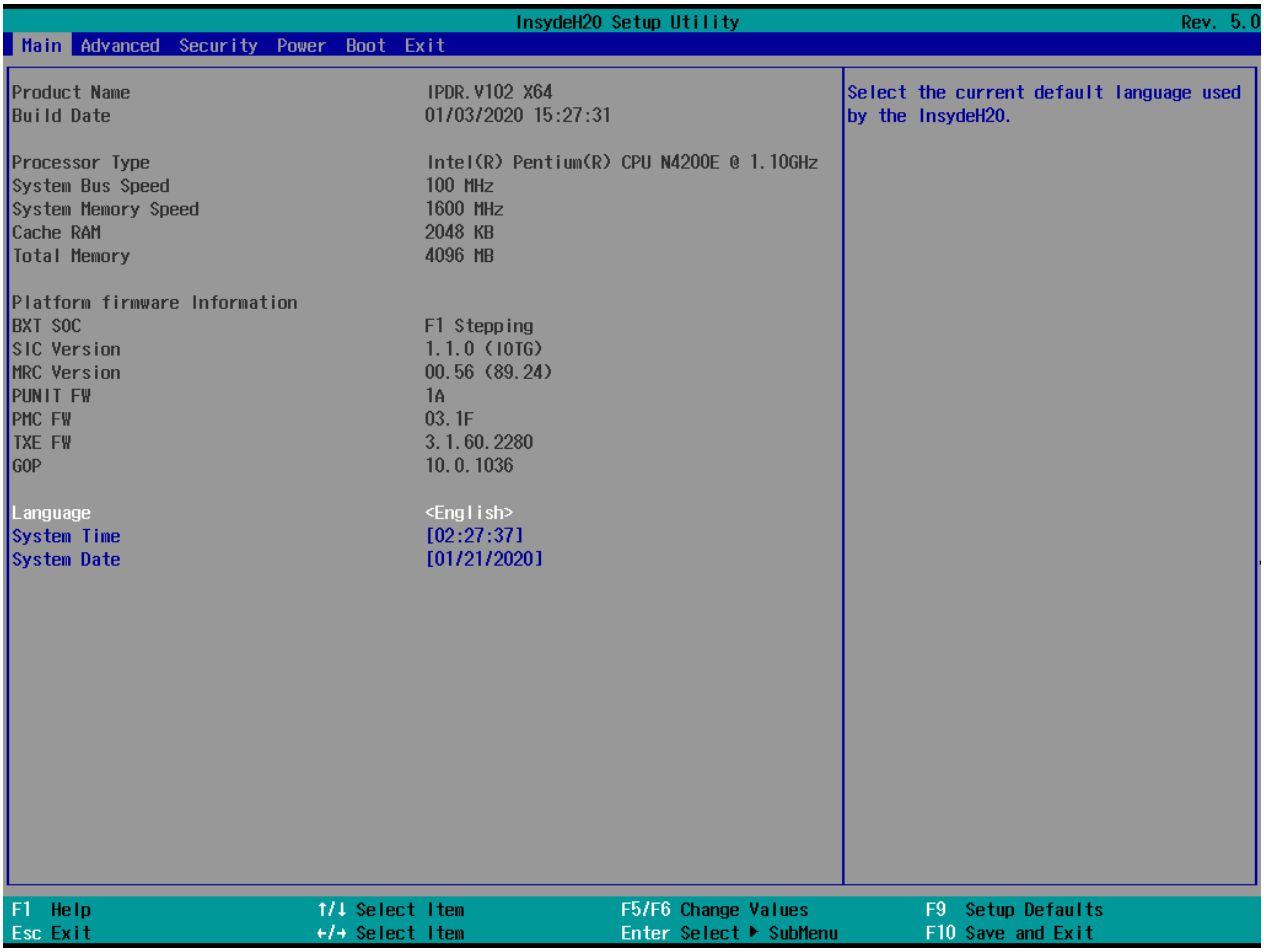
The following keys can be used after entering the BIOS Setup:

| 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

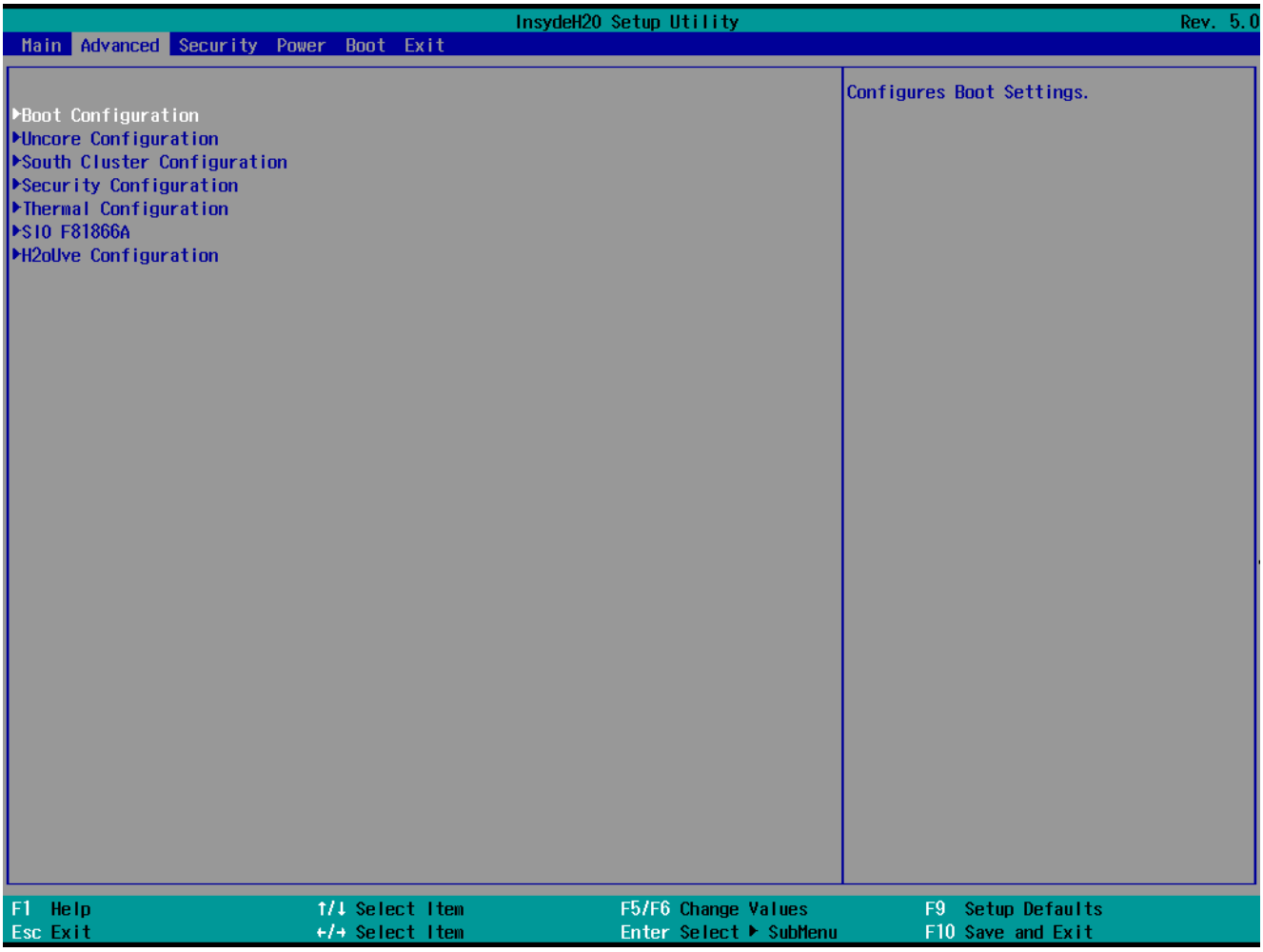
### 4.2.1 Main

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



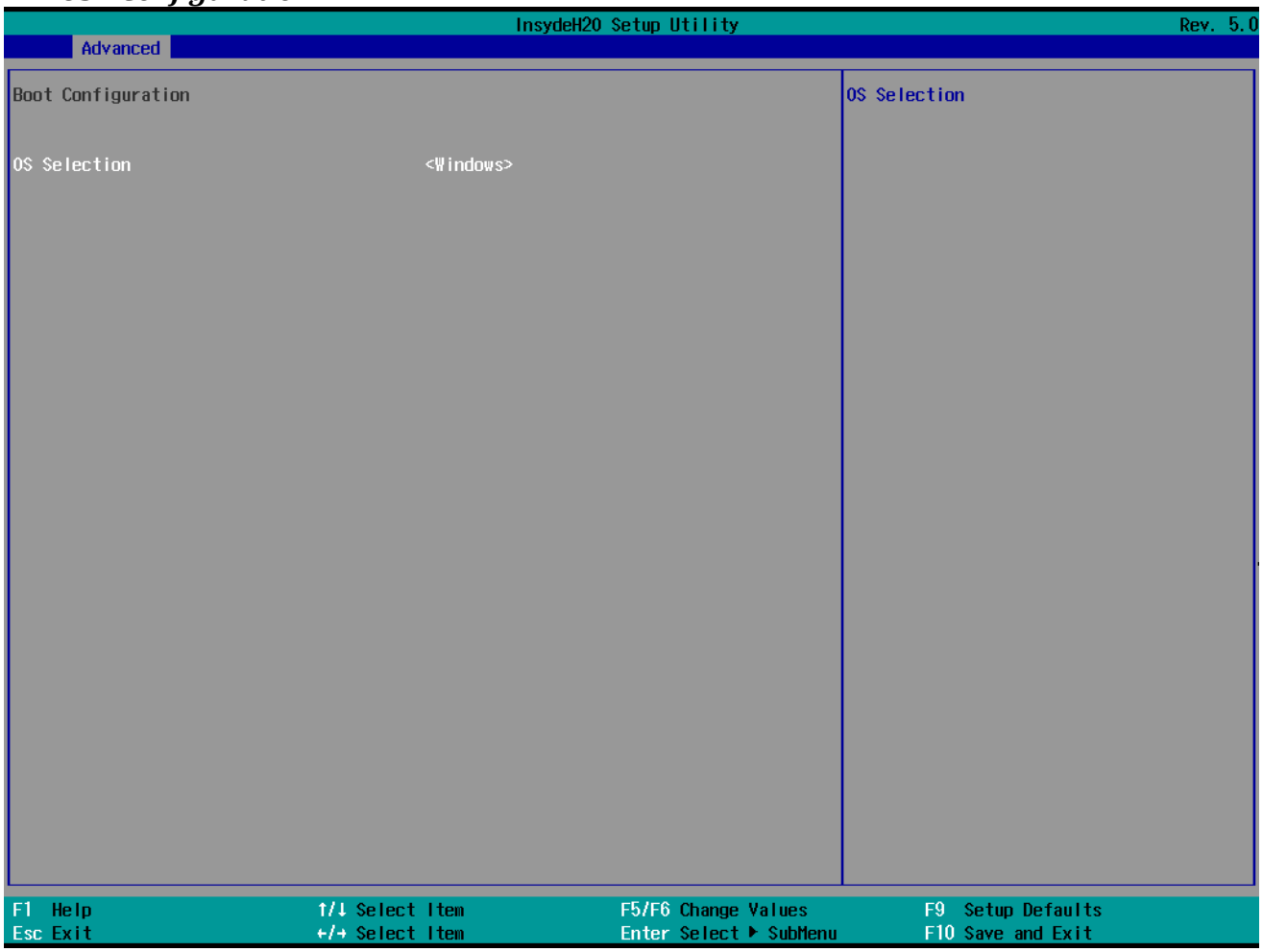

| BIOS Setting | Description | Setting Options | Effect |
|---|---|---|---|
| Language | Select the current default language by the Insyde20 | Adjustment of the language. Default: English. | Set the default language |
| System Time | The time is maintained by the battery when the device is turned off. | 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



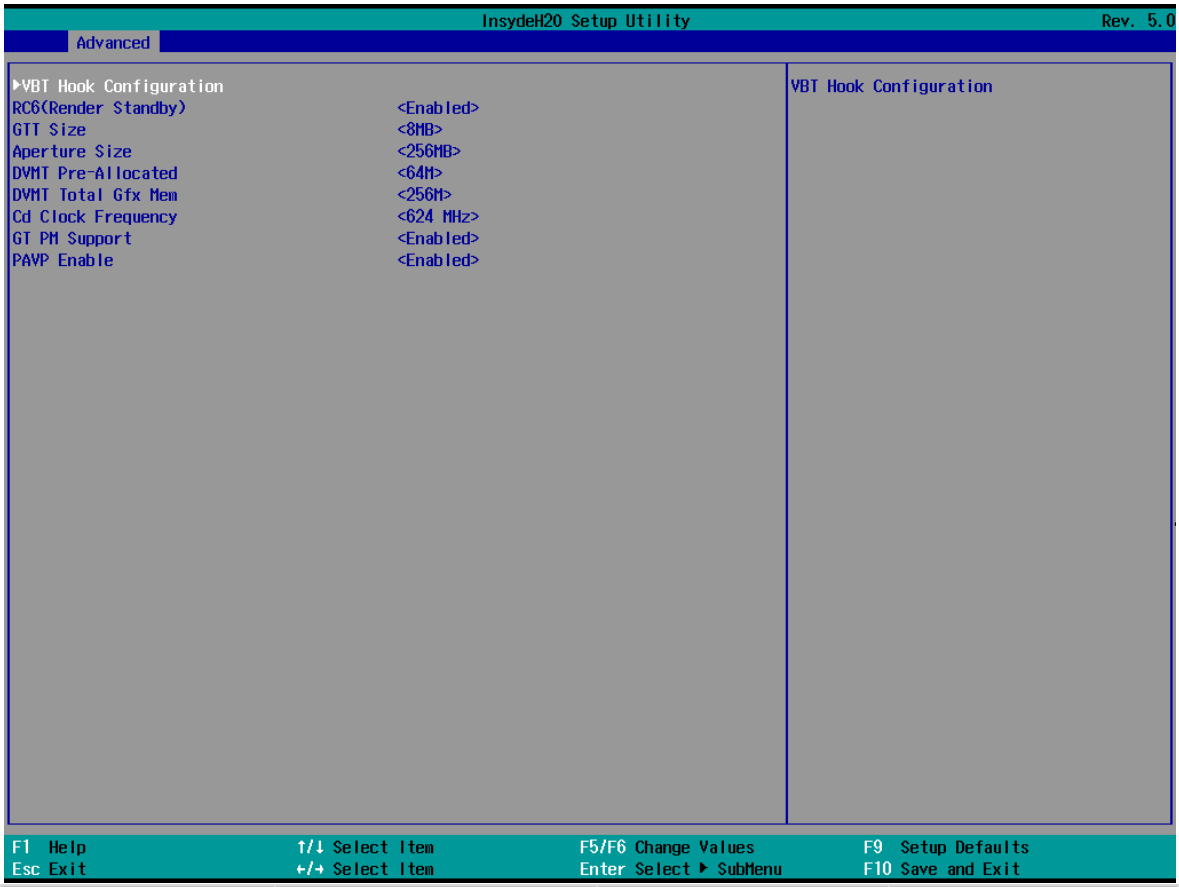

| BIOS Setting | Description | Setting Option | Effect |
|---|---|---|---|
| Boot Configuration | Setting Boot configuration parameters | Enter | Opens submenu |
| Uncore Configuration | Setting Uncore configuration parameters | Enter | Opens submenu |
| South Cluster Configuration | Setting South Cluster Configuration parameters | Enter | Opens submenu |
| Security Configuration | Setting Security Configuration parameters | Enter | Opens submenu |
| Thermal Configuration | Setting Thermal Configuration parameters | Enter | Opens submenu |
| S10 F81866A | Setting S10 F81866A parameters | Enter | Opens submenu |
| H2oUve Configuration | Setting H2oUve Configuration parameters | Enter | Opens submenu |

#### *4.2.2.1 USB Configuration*



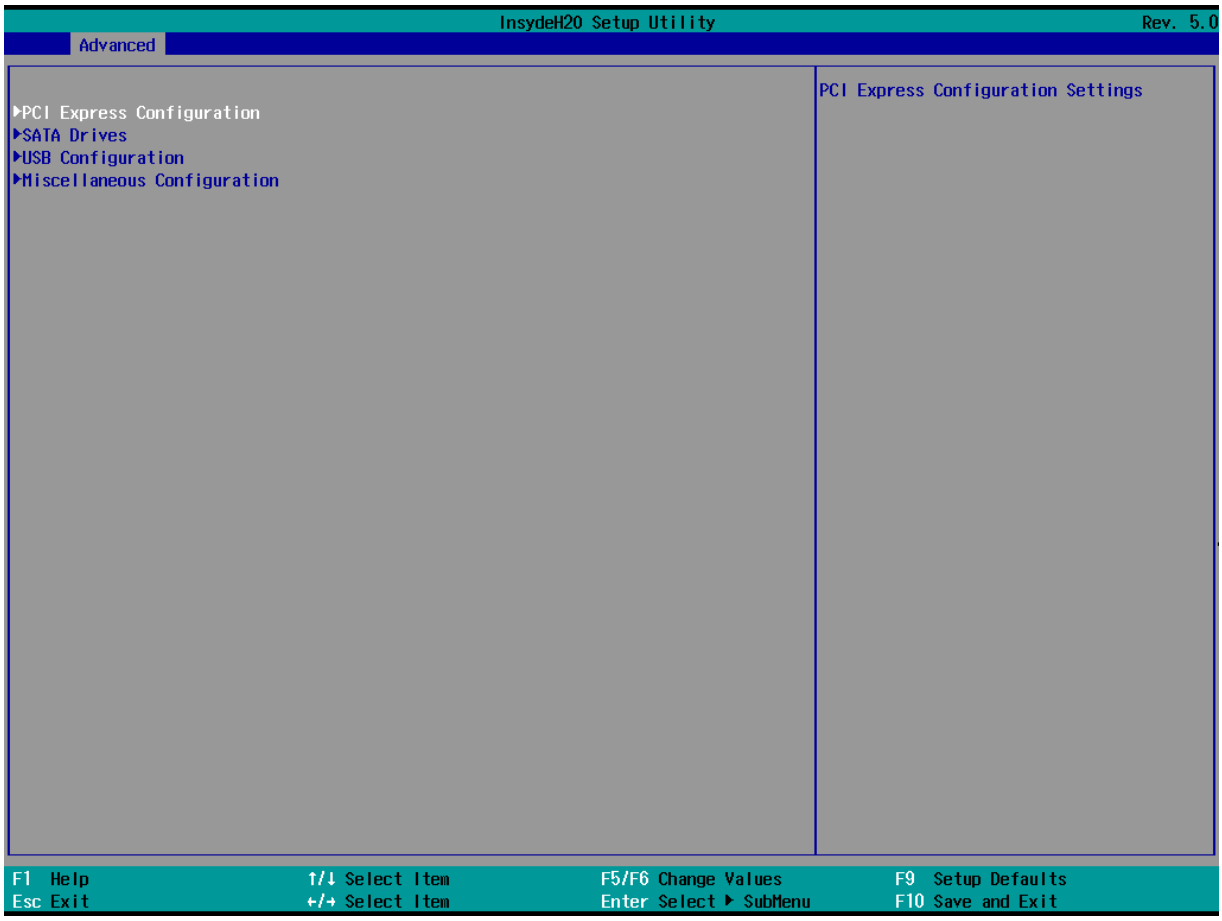

| BIOS Setting | Description | Setting Option | Effect |
|---|---|---|---|
| OS Selection | OS selection | Windows/ Linux | Select OS. Default: Based on your order. |

### *4.2.2.2 Uncore Configuration*



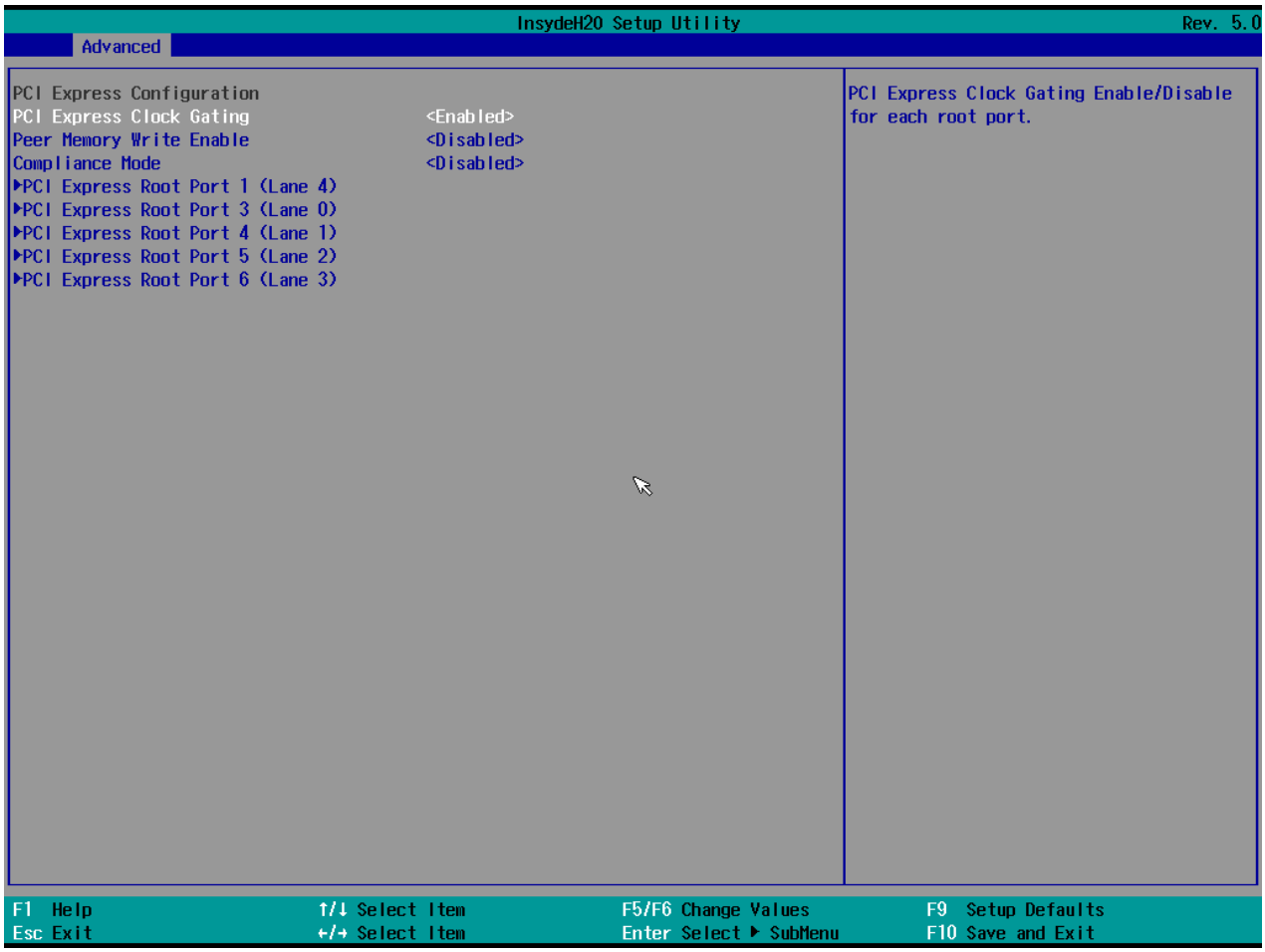

| BIOS Setting | Description | Setting Option | Effect |
|---|---|---|---|
| VBT Hook Configuration | VBT Hook Configuration | Enabled/ Disabled | Enables or disables VBT Hook configuration |
| GTT Size | Select GTT (Graphics Translation Table) Size | 2MB / 4MB / **8MB** | Select GTT Size. |
| Aperture Size | Use this item to set the total size of Memory that must be left to the GFX Engine | 128MB / **256MB** / 512MB | Select Aperture Size. |
| DVMT Pre-Allocated | Select DVMT5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphic Device | 32M / **64M** / 96M / 128M /160M / 192M / 224M / 256M /288M / 320M / 352M / 384M /416M / 448M / 480M / 512M | Select DVMT Pre-Allocated. |
| DVMT Total Gfx Mem | Select the size of DVMT (Dynamic Video Memory) 5.0 that the Internal Graphics Device will use | 128M / **256M** / MAX | Select DVMT Total Gfx Mem. |
| Cd Clock Frequency | Select Cd Clock Frequency | **624 MHz** | Select Cd Clock Frequency. Default: 624 MHz |
| GT PM Support | Setting GT PM Support parameters | **Enabled**/ Disabled | Enables or disables GT PM Support |
| PAVP Enable | Setting PAVP parameters | **Enabled**/ Disabled | Enables or disables PAVP |

### *4.2.2.3 South Cluster Configuration*

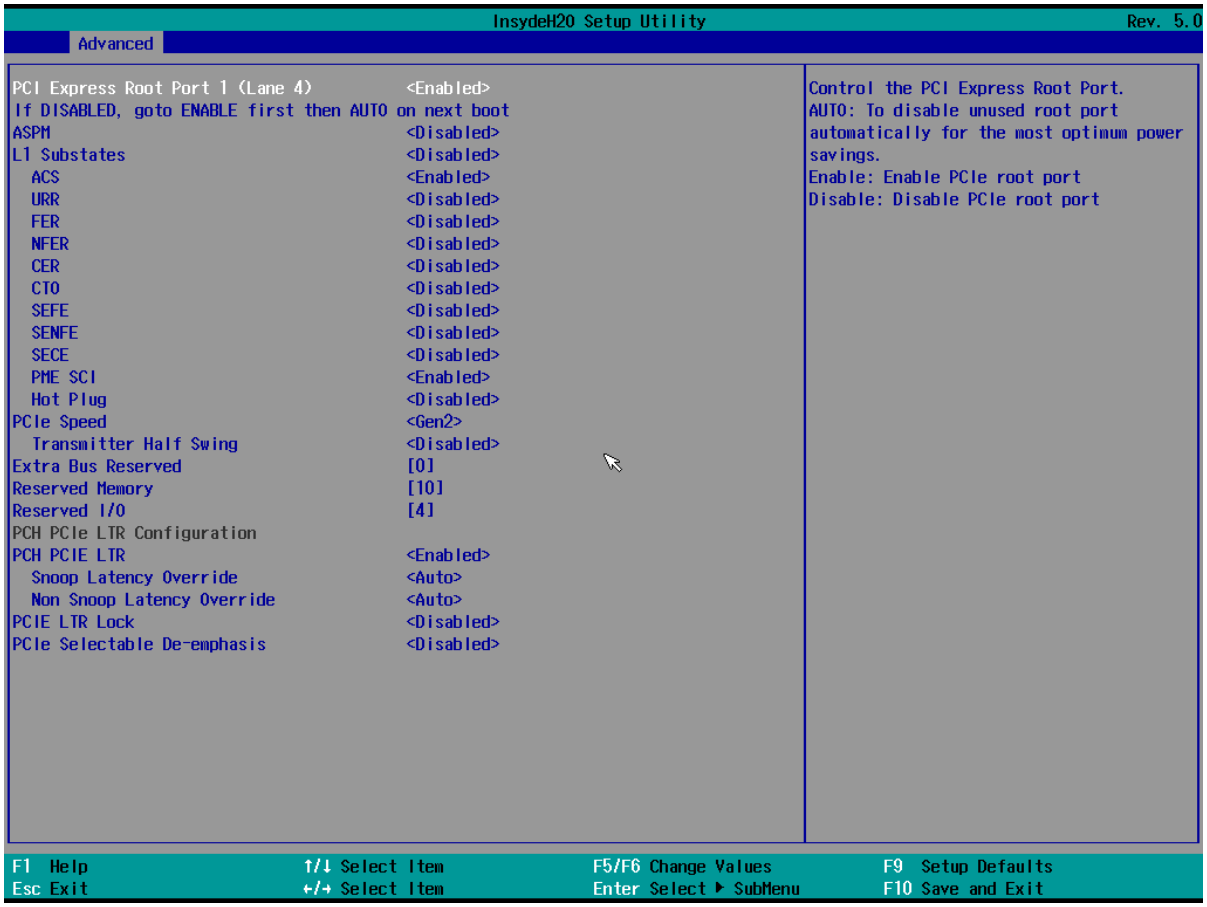


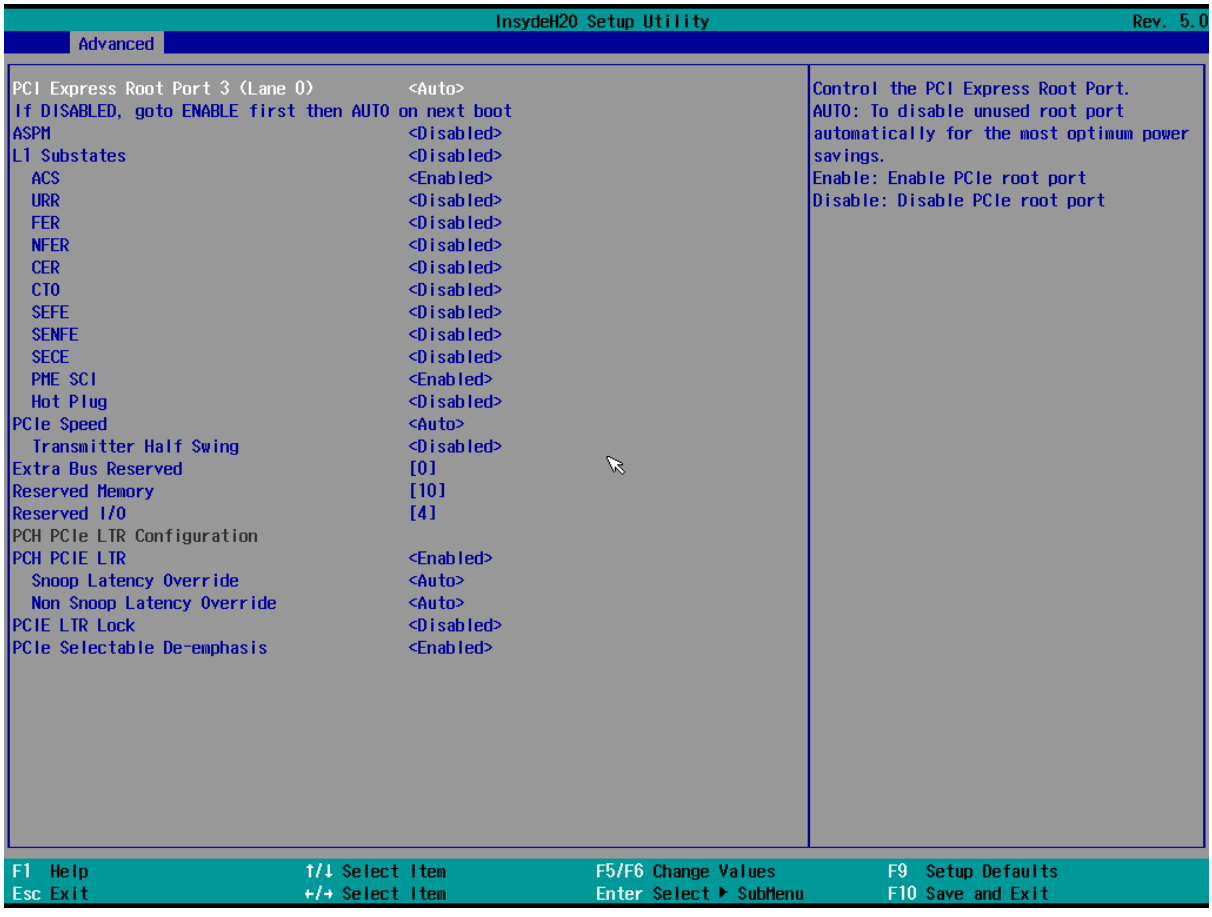

| BIOS Setting | Description | Setting Option | Effect |
|---|---|---|---|
| PCI Express Configuration | PCI Express Configuration Settings | Enter | Opens sub-menu |
| SATA Drives | SATA Drives Settings | Enter | Opens sub-menu |
| USB Configuration | USB Configuration Settings | Enter | Opens sub-menu |
| Miscellaneous Configuration | Miscellaneous Configuration Settings | Enter | Opens sub-menu |

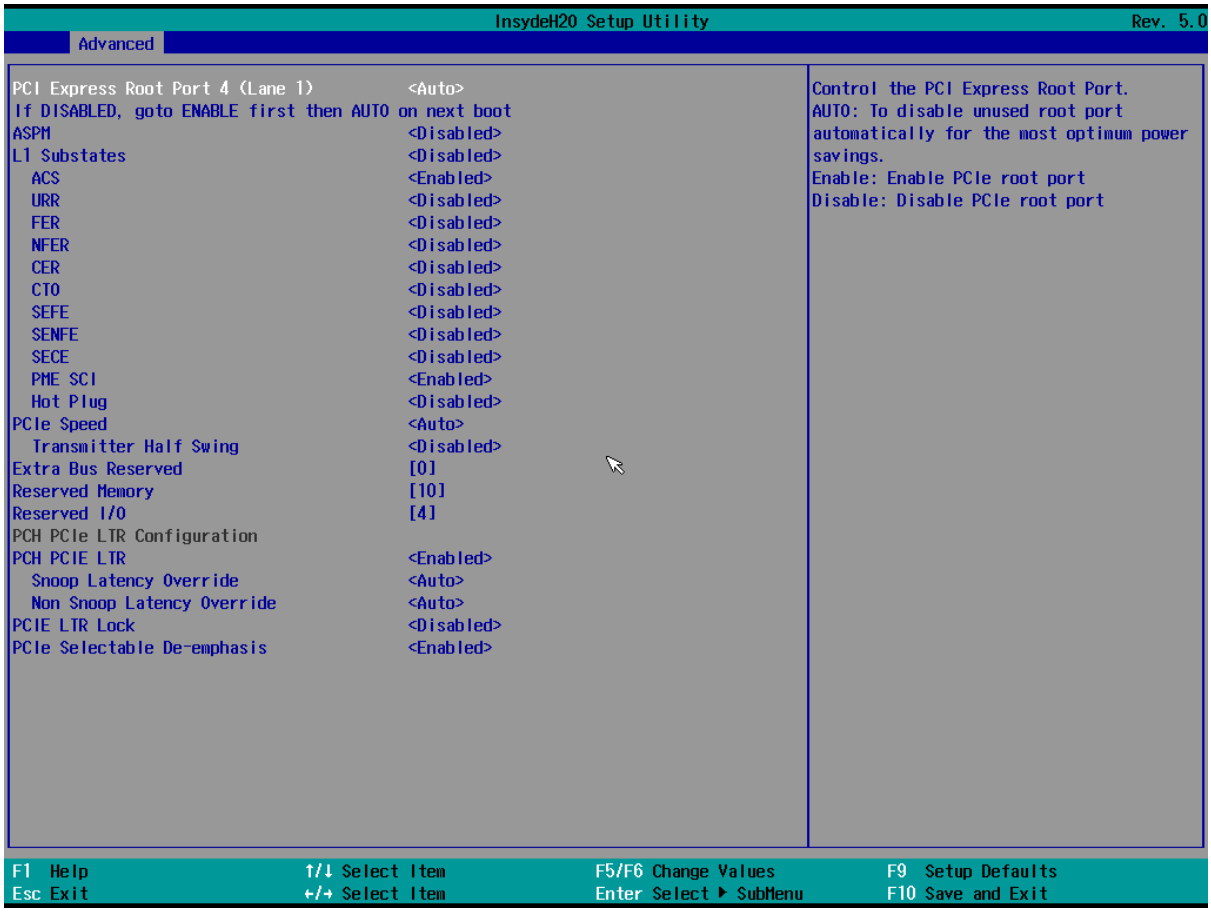
### *4.2.3.3.1 PCI Express Configuration*

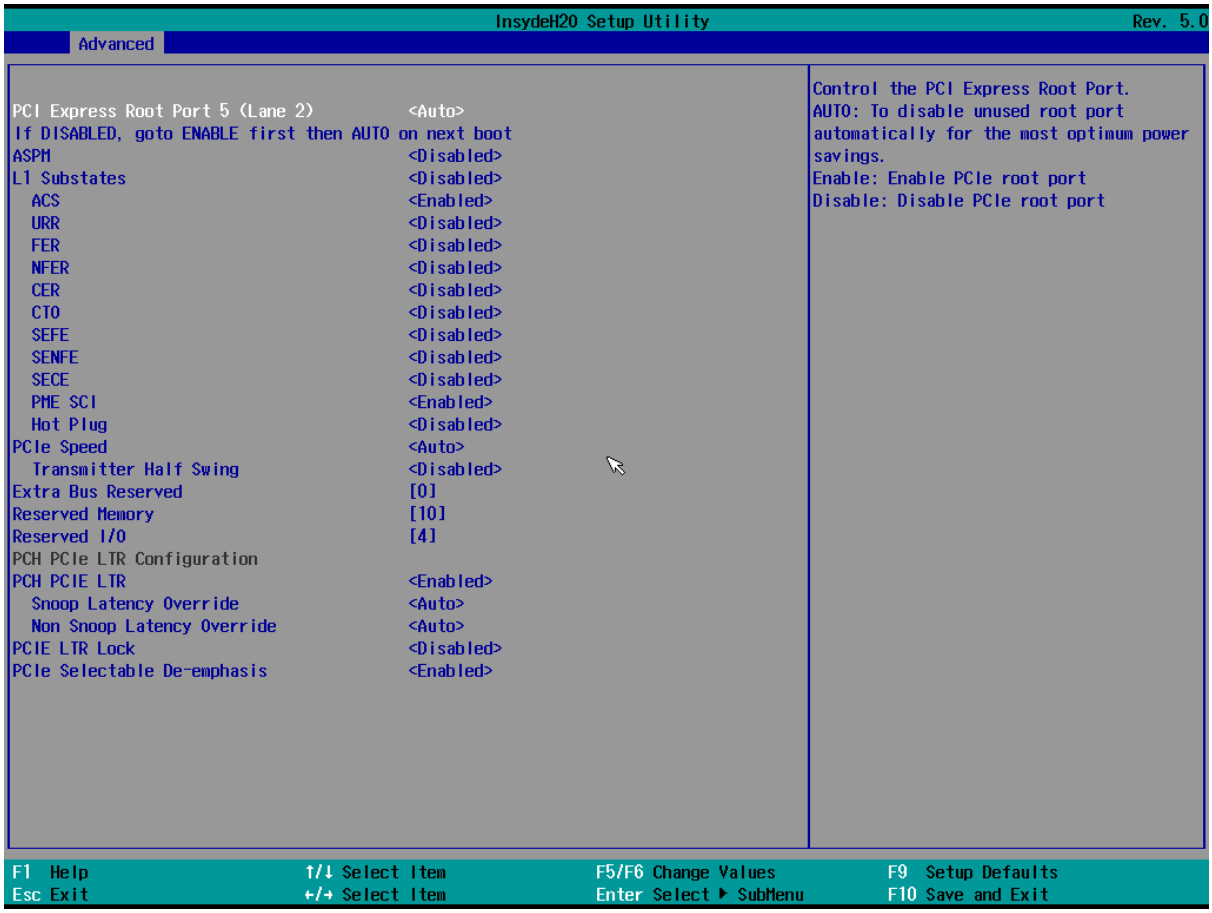


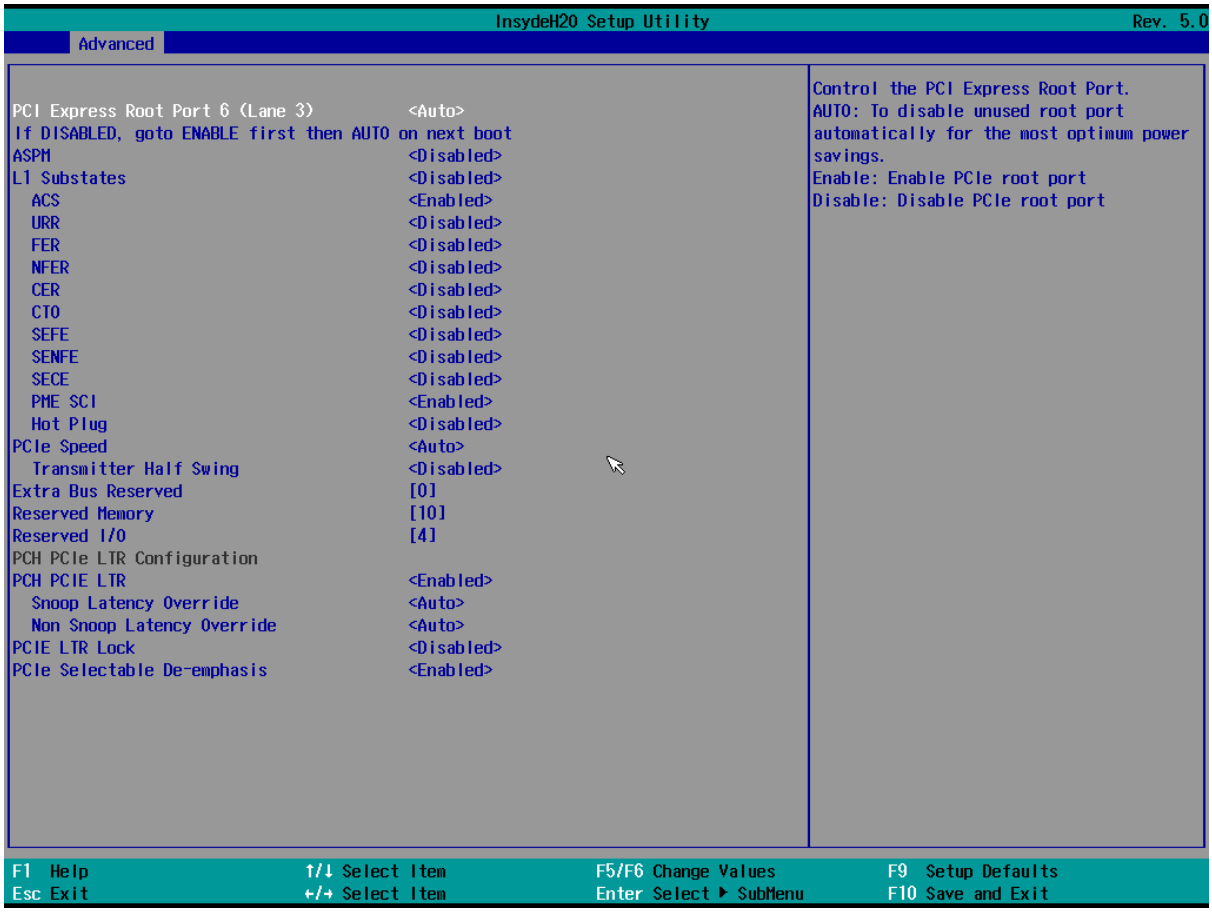

| BIOS Setting | Description | Setting Option | Effect |
|---|---|---|---|
| PCI Express Clock Gating | PCI Express Clock Gating Enable/ Disable for each root port | **Enabled**/ Disabled | Enables or disables PCI Express Clock Gating |
| Peer Memory Write Enable | Controls Peer-to-Peer Memory Read Decoding | Enabled/ **Disabled** | Enables or disables Peer Memory Write Enable |
| Compliance Mode | Enables or disables Compliance Mode for this PCIe port. | Enabled/ **Disabled** | Enables or disables Compliance Mode |
| PCI Express Root Port 2 (Lane 5) | Control the PCI Express Root Port | Auto | To disable unused root port automatically for the most optimum power savings. |
| | | Enable | Enable PCI Root Port |
| | | Disable | Disable PCI Root Port |
| PCI Express Root Port 4 (Lane 1) | Control the PCI Express Root Port | Auto | To disable unused root port automatically for the most optimum power savings. |
| | | Enable | Enable PCI Root Port |
| | | Disable | Disable PCI Root Port |


InsydeH20 Setup Utility
Rev. 5.0
Advanced
PCI Express Root Port 1 (Lane 4) <Enabled>
If DISABLED, goto ENABLE first then AUTO on next boot
ASPM <Disabled>
L1 Substates <Disabled>
ACS <Enabled>
URR <Disabled>
FER <Disabled>
NFER <Disabled>
CER <Disabled>
CTO <Disabled>
SEFE <Disabled>
SENFE <Disabled>
SECE <Disabled>
PME SCI <Enabled>
Hot Plug <Disabled>
PCIe Speed <Gen2>
Transmitter Half Swing <Disabled>
Extra Bus Reserved [0]
Reserved Memory [10]
Reserved I/O [4]
PCH PCIe LTR Configuration
PCH PCIE LTR <Enabled>
Snoop Latency Override <Auto>
Non Snoop Latency Override <Auto>
PCIE LTR Lock <Disabled>
PCIe Selectable De-emphasis <Disabled>
Control the PCI Express Root Port.
AUTO: To disable unused root port automatically for the most optimum power savings.
Enable: Enable PCIe root port
Disable: Disable PCIe root port
F1 Help ↑/↓ Select Item F5/F6 Change Values F9 Setup Defaults
Esc Exit ←/→ Select Item Enter Select ▶ SubMenu F10 Save and Exit

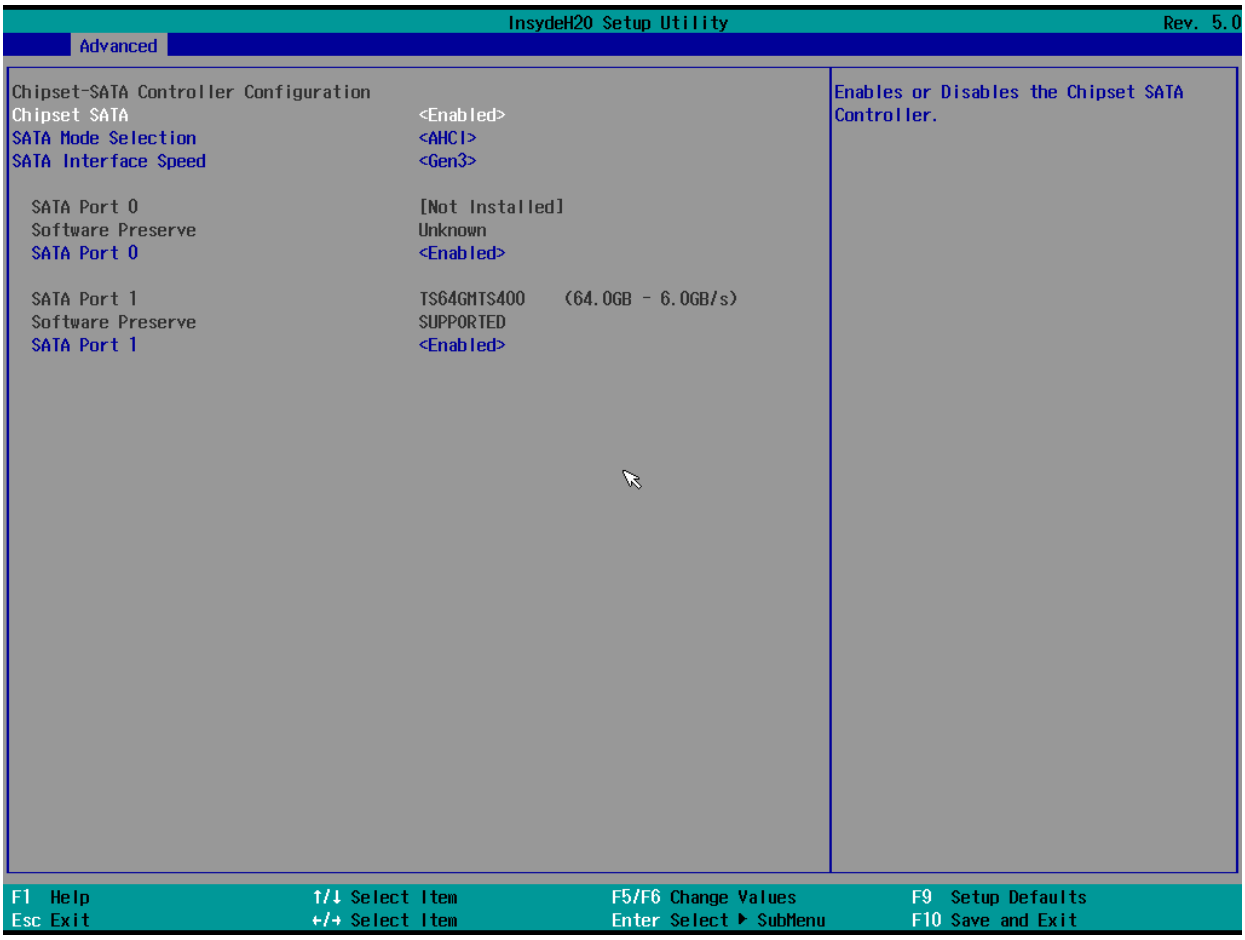

InsydeH20 Setup Utility
Rev. 5.0
Advanced
PCI Express Root Port 3 (Lane 0) <Auto>
If DISABLED, goto ENABLE first then AUTO on next boot
ASPM <Disabled>
L1 Substates <Disabled>
ACS <Enabled>
URR <Disabled>
FER <Disabled>
NFER <Disabled>
CER <Disabled>
CTO <Disabled>
SEFE <Disabled>
SENFE <Disabled>
SECE <Disabled>
PME SCI <Enabled>
Hot Plug <Disabled>
PCIe Speed <Auto>
Transmitter Half Swing <Disabled>
Extra Bus Reserved [0]
Reserved Memory [10]
Reserved I/O [4]
PCH PCIe LTR Configuration
PCH PCIE LTR <Enabled>
Snoop Latency Override <Auto>
Non Snoop Latency Override <Auto>
PCIE LTR Lock <Disabled>
PCIe Selectable De-emphasis <Enabled>
Control the PCI Express Root Port.
AUTO: To disable unused root port automatically for the most optimum power savings.
Enable: Enable PCIe root port
Disable: Disable PCIe 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 4 (Lane 1) <Auto>
If DISABLED, goto ENABLE first then AUTO on next boot
ASPM <Disabled>
L1 Substates <Disabled>
ACS <Enabled>
URR <Disabled>
FER <Disabled>
NFER <Disabled>
CER <Disabled>
CTO <Disabled>
SEFE <Disabled>
SENFE <Disabled>
SECE <Disabled>
PME SCI <Enabled>
Hot Plug <Disabled>
PCIe Speed <Auto>
Transmitter Half Swing <Disabled>
Extra Bus Reserved [0]
Reserved Memory [10]
Reserved I/O [4]
PCH PCIe LTR Configuration
PCH PCIE LTR <Enabled>
Snoop Latency Override <Auto>
Non Snoop Latency Override <Auto>
PCIE LTR Lock <Disabled>
PCIe Selectable De-emphasis <Enabled>
Control the PCI Express Root Port.
AUTO: To disable unused root port automatically for the most optimum power savings.
Enable: Enable PCIe root port
Disable: Disable PCIe 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 5 (Lane 2) <Auto>
If DISABLED, goto ENABLE first then AUTO on next boot
ASPM <Disabled>
L1 Substates <Disabled>
ACS <Enabled>
URR <Disabled>
FER <Disabled>
NFER <Disabled>
CER <Disabled>
CTO <Disabled>
SEFE <Disabled>
SENFE <Disabled>
SECE <Disabled>
PME SCI <Enabled>
Hot Plug <Disabled>
PCIe Speed <Auto>
Transmitter Half Swing <Disabled>
Extra Bus Reserved [0]
Reserved Memory [10]
Reserved I/O [4]
PCH PCIe LTR Configuration
PCH PCIE LTR <Enabled>
Snoop Latency Override <Auto>
Non Snoop Latency Override <Auto>
PCIE LTR Lock <Disabled>
PCIe Selectable De-emphasis <Enabled>
Control the PCI Express Root Port.
AUTO: To disable unused root port automatically for the most optimum power savings.
Enable: Enable PCIe root port
Disable: Disable PCIe root port
F1 Help ↑/↓ Select Item F5/F6 Change Values F9 Setup Defaults
Esc Exit ←/→ Select Item Enter Select ▶ SubMenu F10 Save and Exit

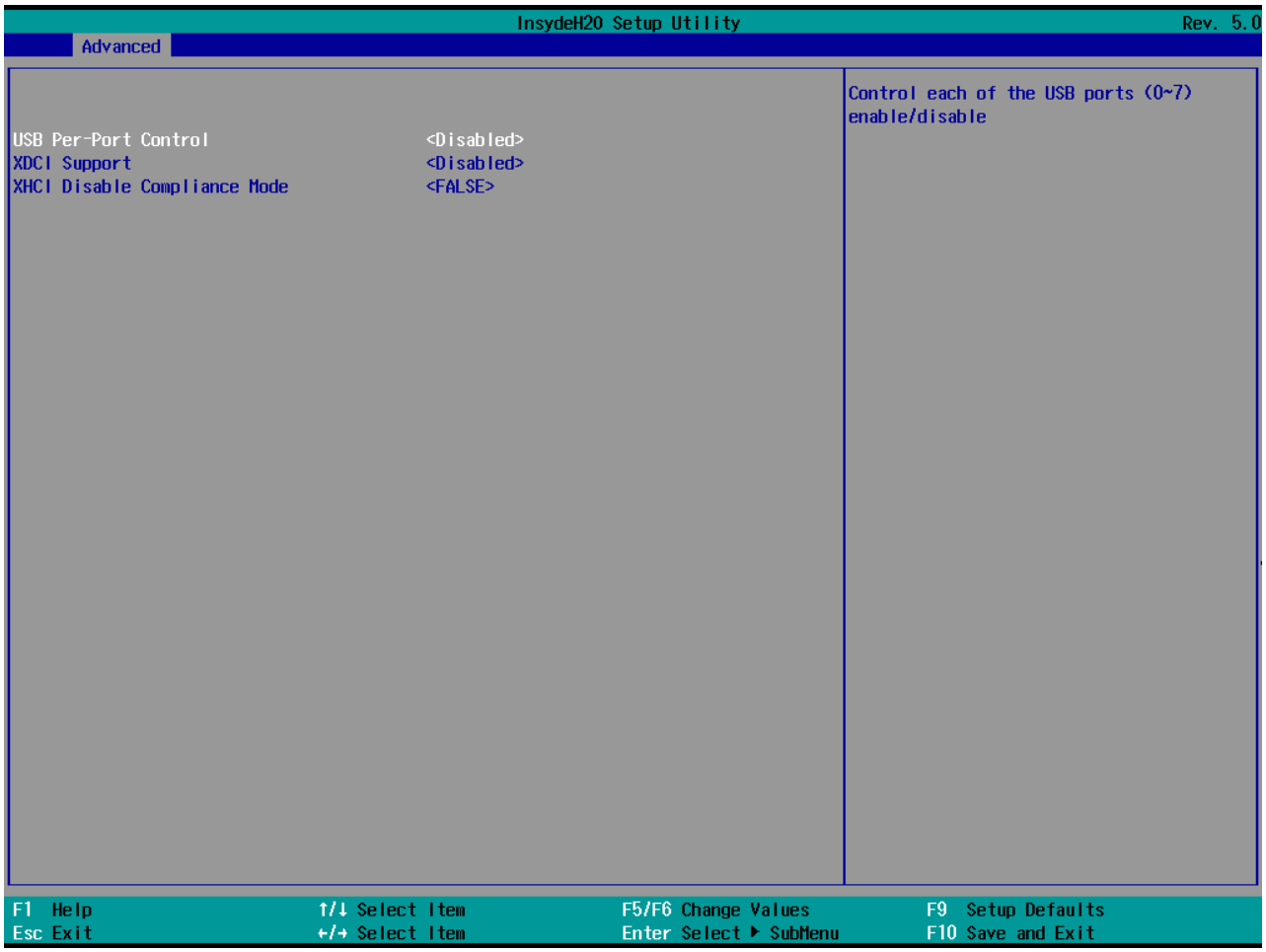

InsydeH20 Setup Utility
Rev. 5.0
Advanced
PCI Express Root Port 6 (Lane 3) <Auto>
If DISABLED, goto ENABLE first then AUTO on next boot
ASPM <Disabled>
L1 Substates <Disabled>
ACS <Enabled>
URR <Disabled>
FER <Disabled>
NFER <Disabled>
CER <Disabled>
CTO <Disabled>
SEFE <Disabled>
SENFE <Disabled>
SECE <Disabled>
PME SCI <Enabled>
Hot Plug <Disabled>
PCIe Speed <Auto>
Transmitter Half Swing <Disabled>
Extra Bus Reserved [0]
Reserved Memory [10]
Reserved I/O [4]
PCH PCIe LTR Configuration
PCH PCIE LTR <Enabled>
Snoop Latency Override <Auto>
Non Snoop Latency Override <Auto>
PCIE LTR Lock <Disabled>
PCIe Selectable De-emphasis <Enabled>
Control the PCI Express Root Port.
AUTO: To disable unused root port automatically for the most optimum power savings.
Enable: Enable PCIe root port
Disable: Disable PCIe root port
F1 Help
Esc Exit
↑/↓ Select Item
←/→ Select Item
F5/F6 Change Values
Enter Select ▶ SubMenu
F9 Setup Defaults
F10 Save and Exit

### *4.2.3.3.2 Chipset-SATA Controller Configuration*



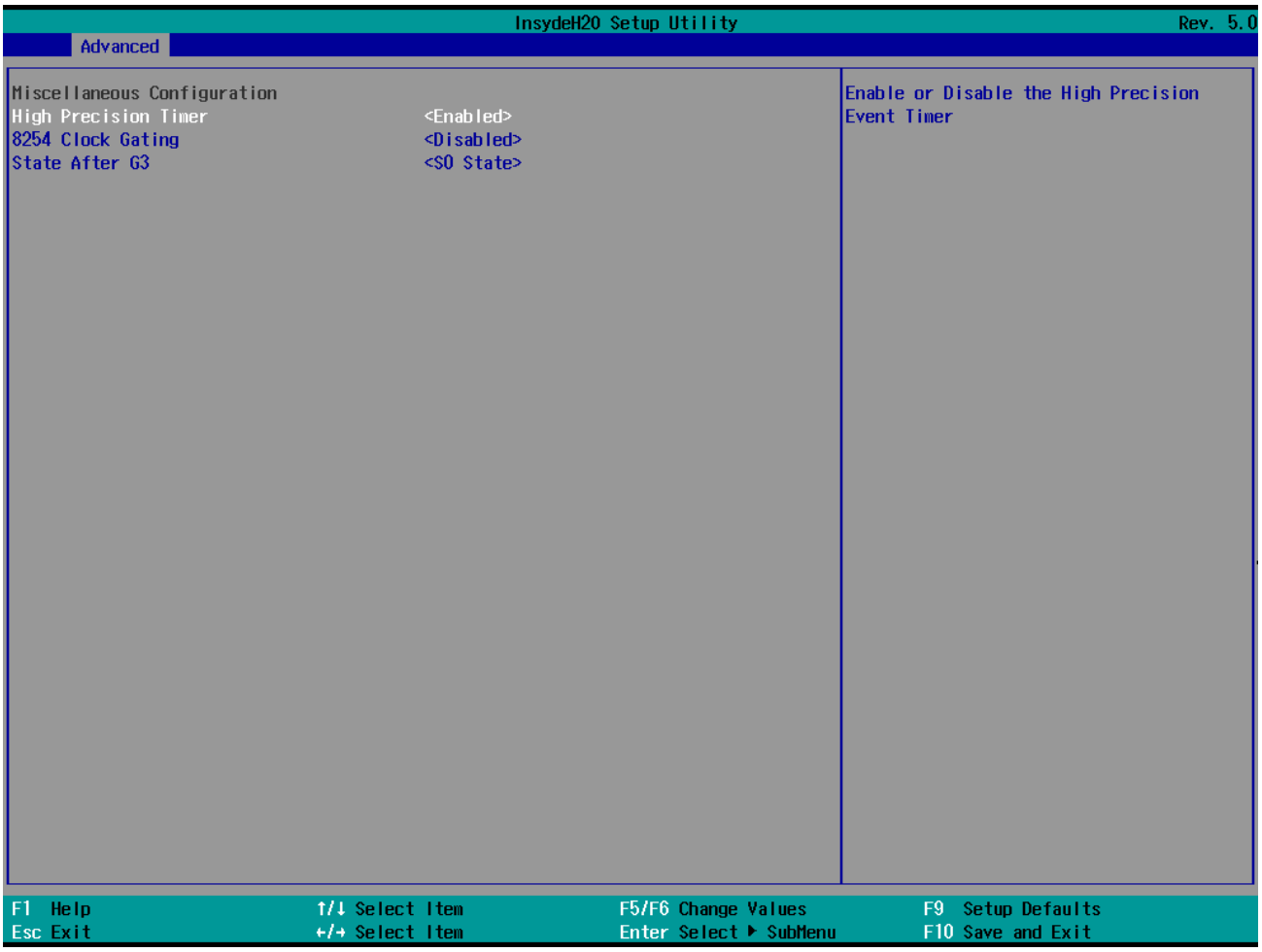

| BIOS Setting | Description | Setting Option | Effect |
|---|---|---|---|
| Chipset SATA | Enables or disables the Chipset SATA Controller | **Enabled**/ Disabled | Enables or disables the Chipset SATA Controller |
| SATA Mode Selection | Select SATA Mode | **AHCI** | Advanced Host Controller Interface (AHCI) mode enables the use of advanced features on SATA drives |
| | | IDE | In IDE mode, the hard drive is set to run as an IDE or Parallel ATA (PATA) hard drive. |
| | | RAID | RAID mode allows several hard disk drives to function as one storage area (the array) to provide either data redundancy (backup security) or faster performance (striped reading/writing data from or to the disk drives). |
| SATA Interface Speed | Select SATA Interface Speed | Gen1/ Gen2/ **Gen3** | Select SATA Interface Speed |
| SATA Port 0 | Enables or disables SATA Port 0 function | **Enabled**/ Disabled | Enables or disables SATA Port 0 function |

*4.2.3.3.3 USB Configuration*



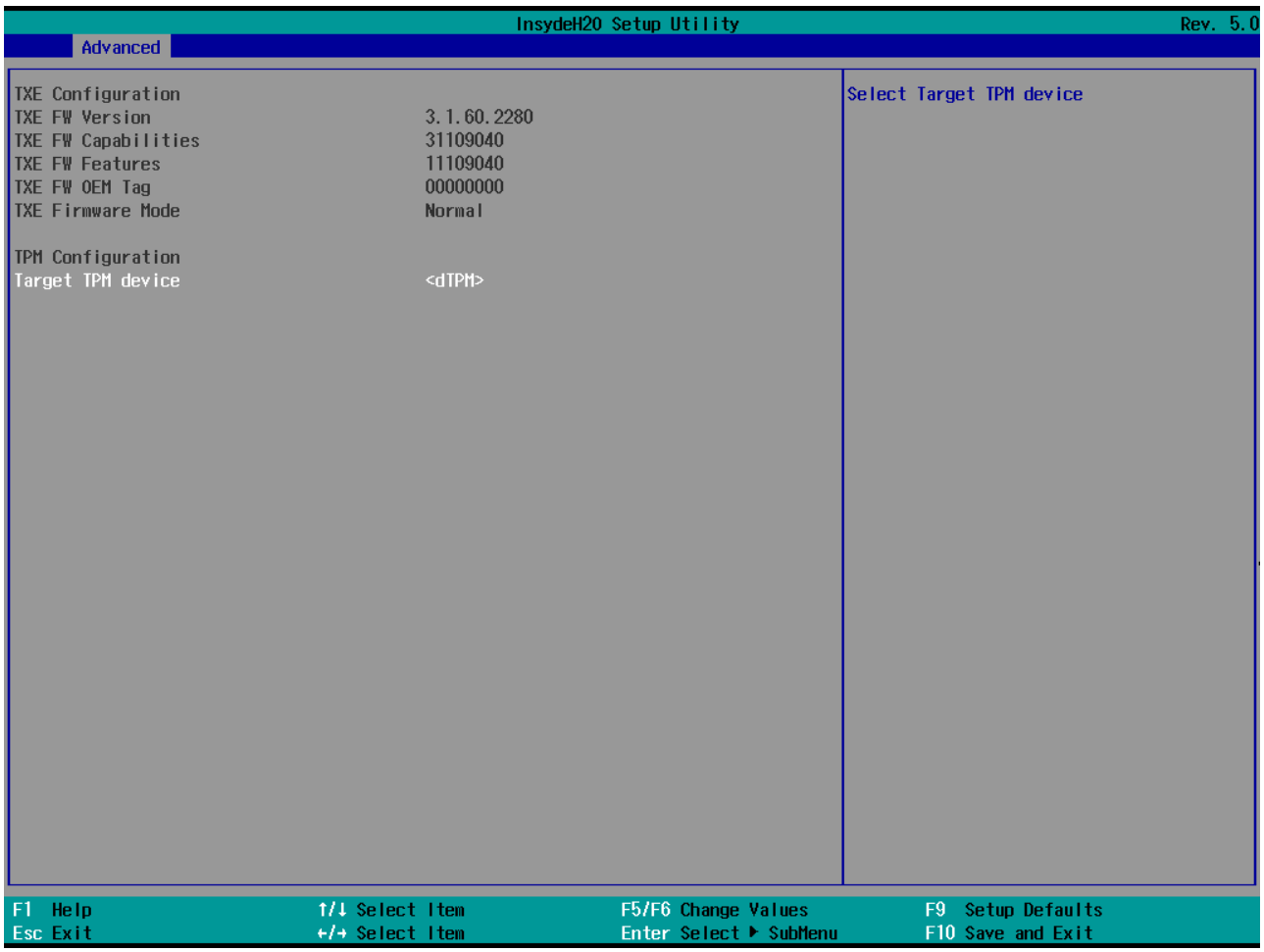

| BIOS Setting | Description | Setting Option | Effect |
|---|---|---|---|
| USB Per-Port Control | Control each of the USB port (0~7) enable/disable | Enabled/ **Disabled** | Enables or disables each of the USB port |
| XDCI Support | Disable the XDCI support or enable PCI Mode. | Enabled/ **Disabled** | Enables or disables XDCI Support |
| XMCI Disable Compliance Mode | XMCI Disable Compliance Mode settings | TRUE/ **FALSE** | Enables or disables |

### *4.2.3.3.4 Miscellaneous Configuration*



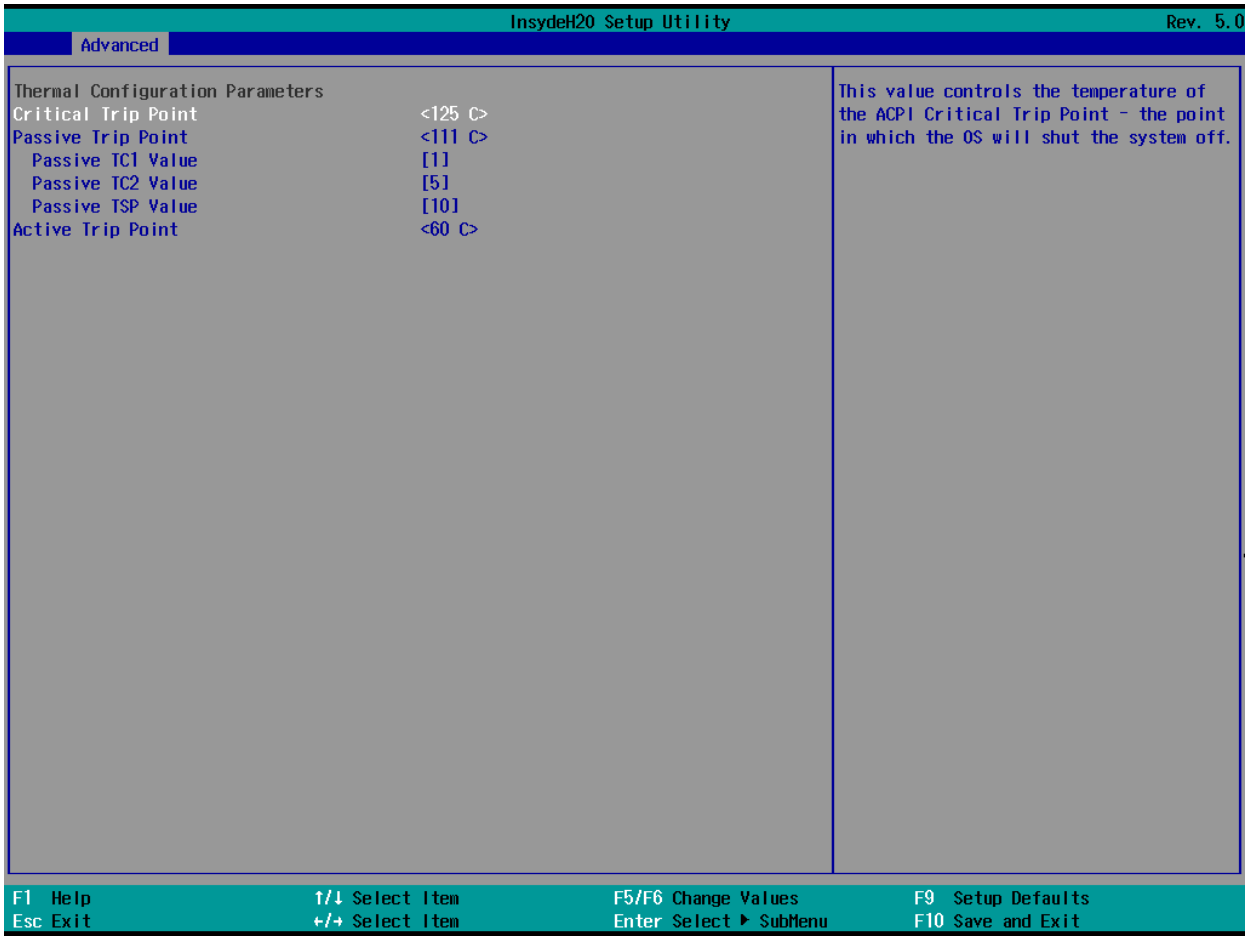

| BIOS Setting | Description | Setting Option | Effect |
|---|---|---|---|
| High Precision Timer | High Precision Timer settings | **Enabled**/ Disabled | Enable or disable the High Precision Timer |
| 8254 Clock Gating | 8254 Clock Gating settings | Enabled/ **Disabled** | Enable or disable8254 Clock Gating |
| State After G3 | State After G3 settings | **S0 State**/ S5 State | S0 = auto power on after power failure<br>S5 = keep power off after power failure |

### *4.2.3.4 Security Configuration*



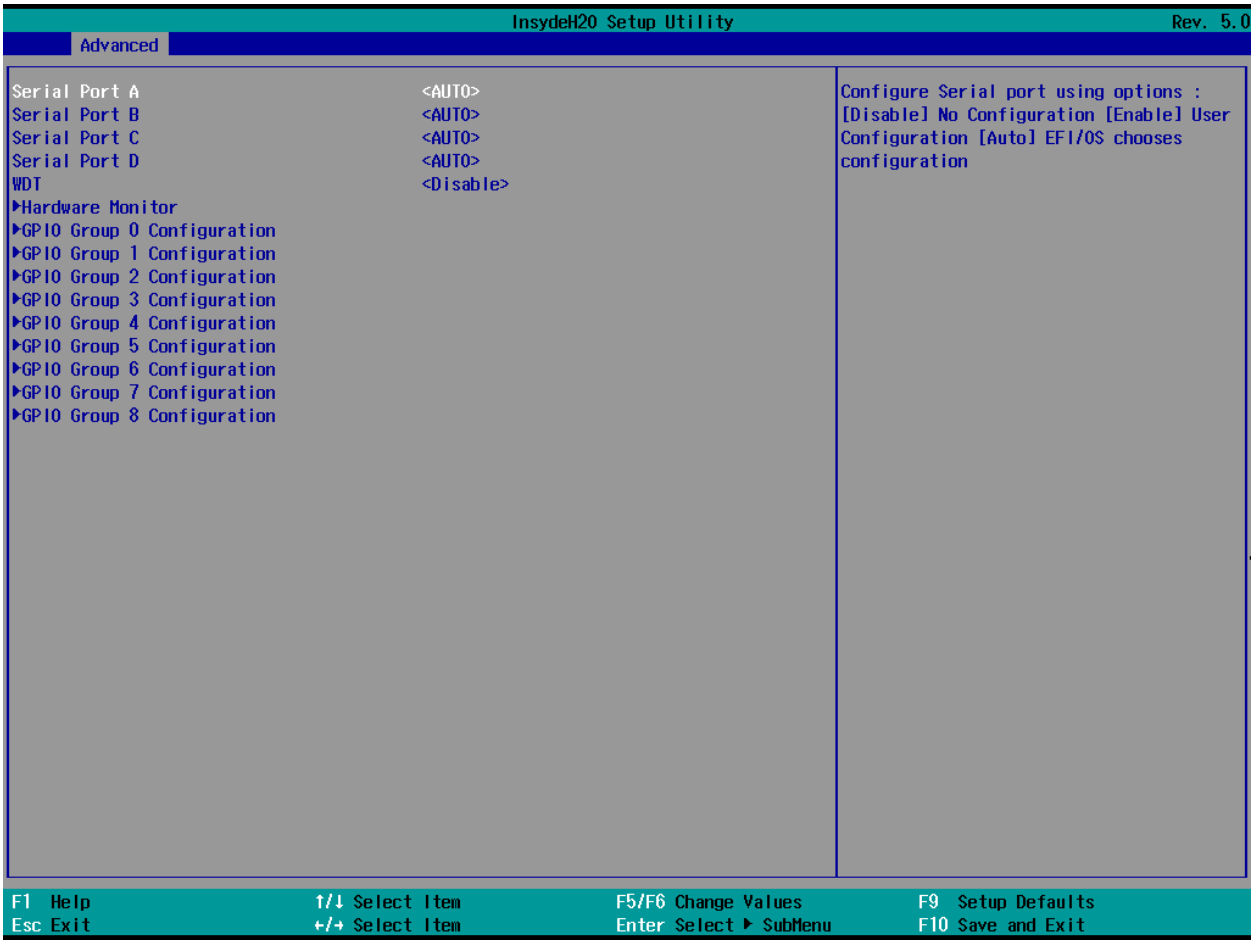

| BIOS Setting | Description | Setting Option | Effect |
|---|---|---|---|
| Target TPM device | Select Target TPM device | **dTPM** | Select Target TPM device |

### *4.2.3.5 Thermal Configuration*



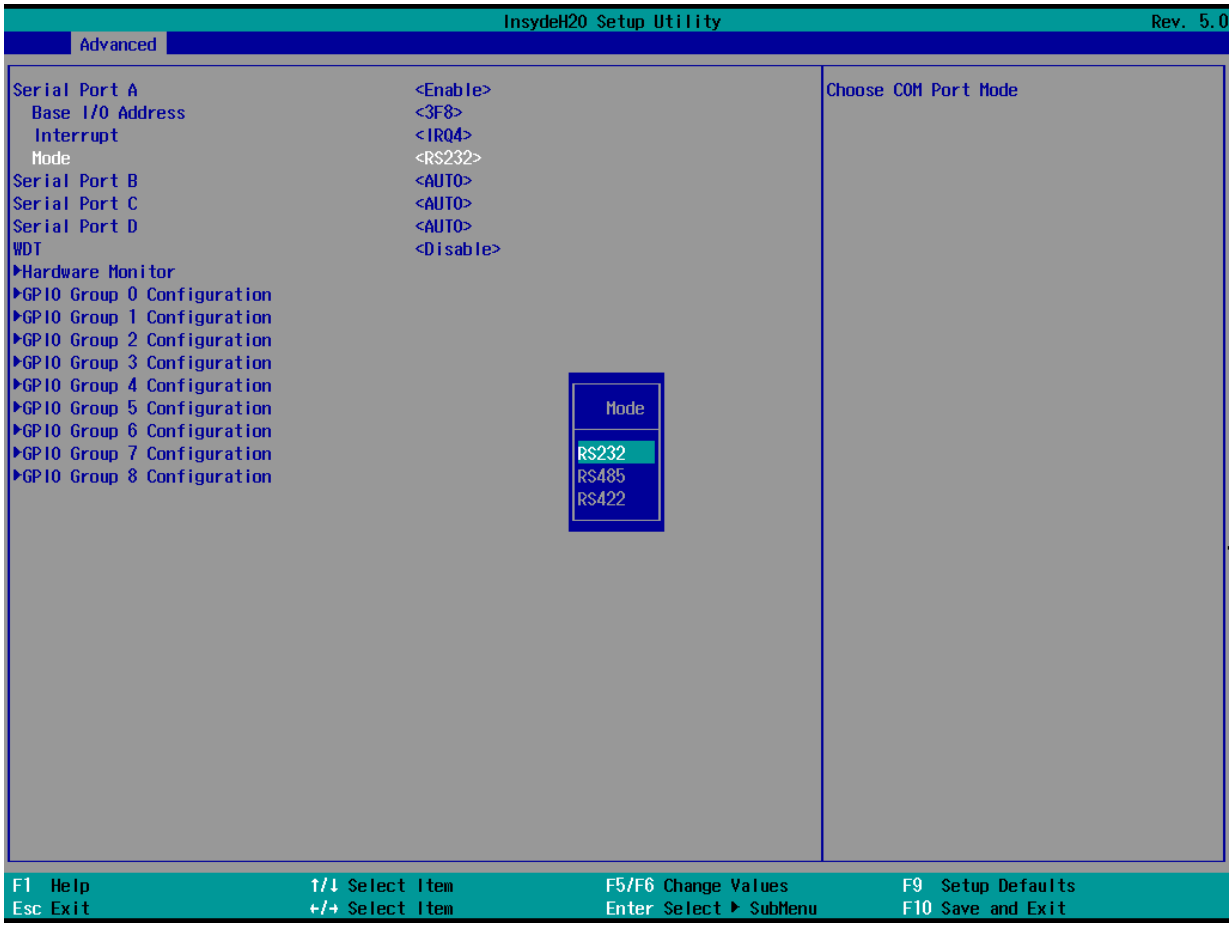

| BIOS Setting | Description | Setting Option | Effect |
|---|---|---|---|
| Critical Trip Point | This value controls the temperature of the ACPI Critical Trip Point – the point in which the OS will shut the system off | **125 C** | Set the point in which the OS will shut the system off |
| Passive Trip Point | This value controls the temperature of the ACPI Passive Trip Point - the point in which the OS will begin throttling the processor. | Disabled, 15C, 23C, 31C, 39C, 47C, 55C, 63C, 71C, 79C, 87C, 95C, 103C, **111C**, 119C | Set the point in which the OS will begin throttling the processor |
| Passive TC1 Value | This value sets the TC1 value for the ACPI Passive Cooling Formula. | **1**~16 | Sets the TC1 value for the ACPI Passive Cooling Formula. |
| Passive TC2 Value | This value sets the TC2 value for the ACPI Passive Cooling Formula. | 1~16, **default 5** | Sets the TC2 value for the ACPI Passive Cooling Formula. |
| Passive TSP Value | It represents in tenths of a second how often the OS will read the temperature when passive cooling is enabled. | 2~32, **default 10** | This item sets the TSP value for the ACPI Passive Cooling Formula. |
| Active Trip Point | This value controls the temperature of the ACPI Active Trip Point - the point in which the OS will turn the processor fan on low. | **Default 60 C** | Set the the point in which the OS will turn the processor fan on Low. |

#### *4.2.3.6 S10 F81866A*

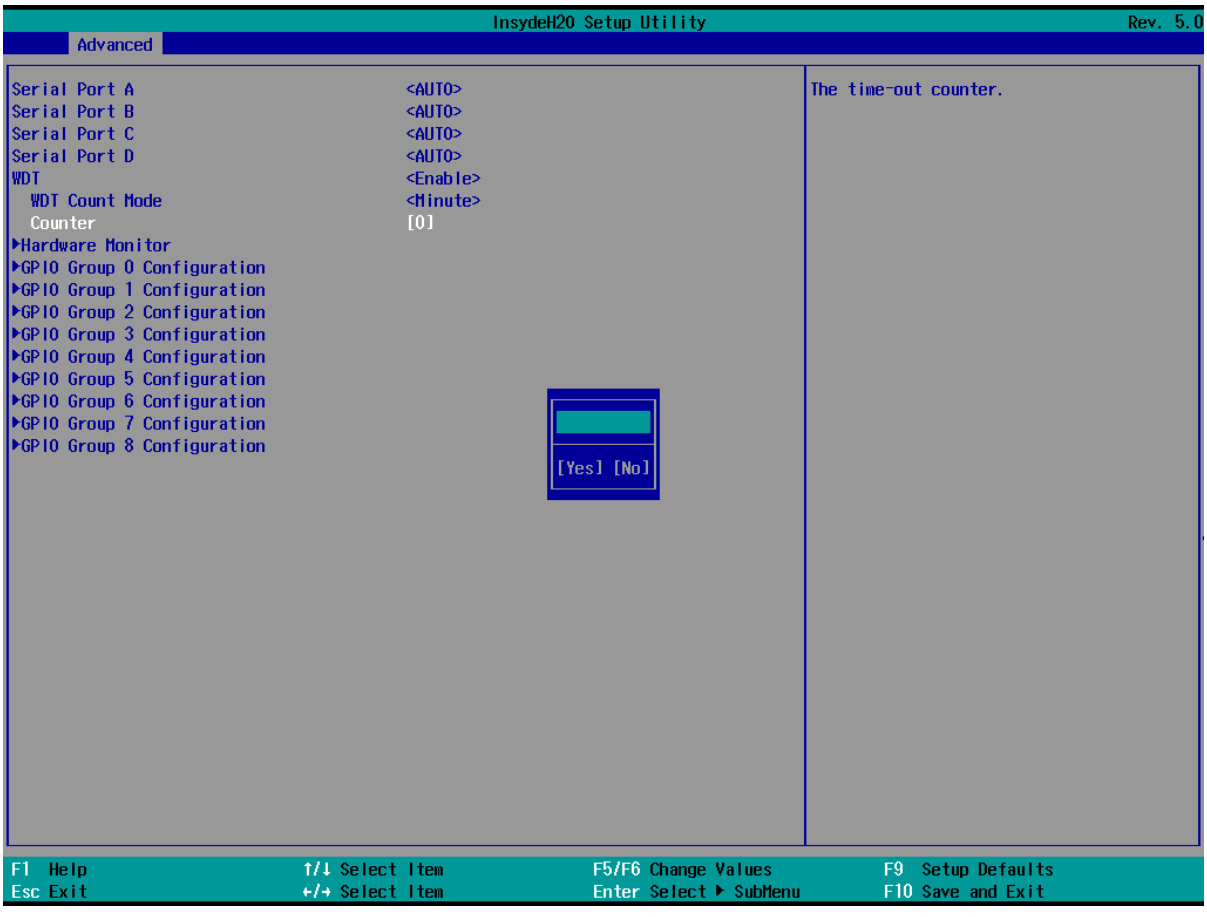



| BIOS Setting | Description | Setting Option | Effect |
|---|---|---|---|
| Serial Port A ~ Serial Port D | Configure Serial port settings.<br>**Default settings:**<br>Serial Port A: AUTO<br>Serial Port B: AUTO<br>Serial Port C: AUTO<br>Serial Port D: DISABLE | Disabled | No configuration |
| | | Enabled | User configuration |
| | | Auto | EFI/ OS chooses configuration |
| WDT | Time-out controller settings | Enabled / **Disabled** | Enables or disables Time-out controller |
| Hardware Monitor | Hardware Monitor settings | Enter | Opens sub-menu |
| GPIO Group 0~8 Configuration | GPIO Group 0~8 Configuration settings | Enter | Opens sub-menu |

## Serial Port

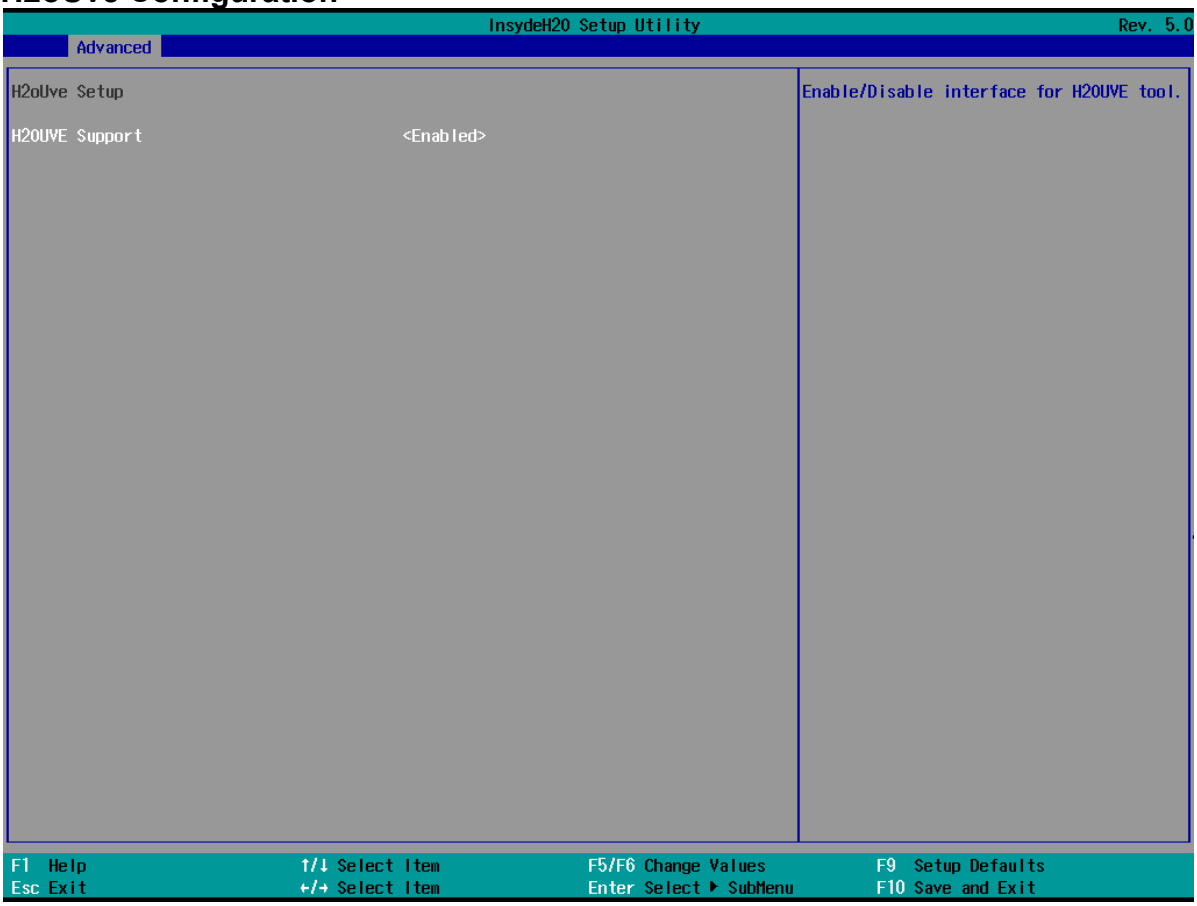



## WDT



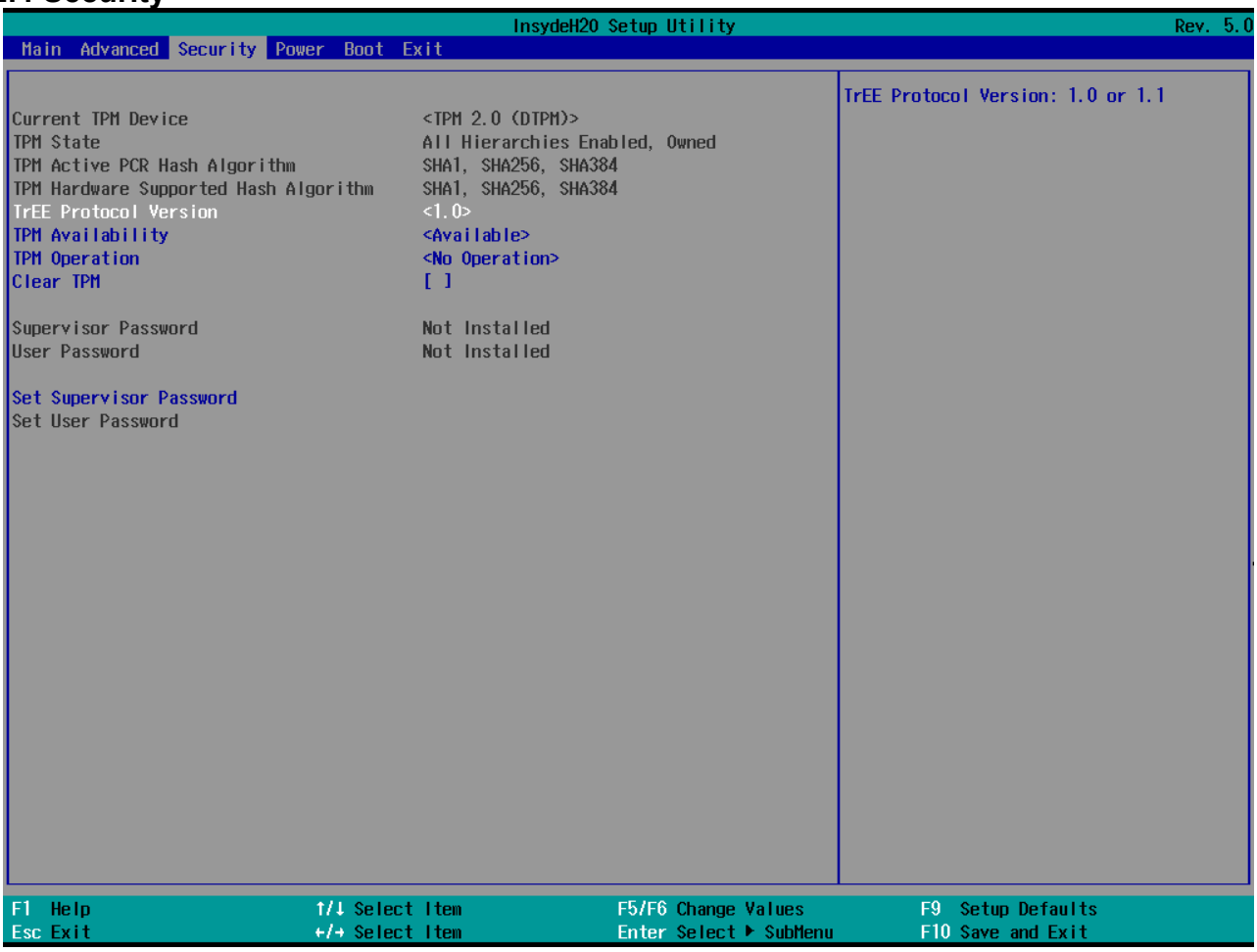
Hardware Monitor


### 4.2.3 H2oUve Configuration



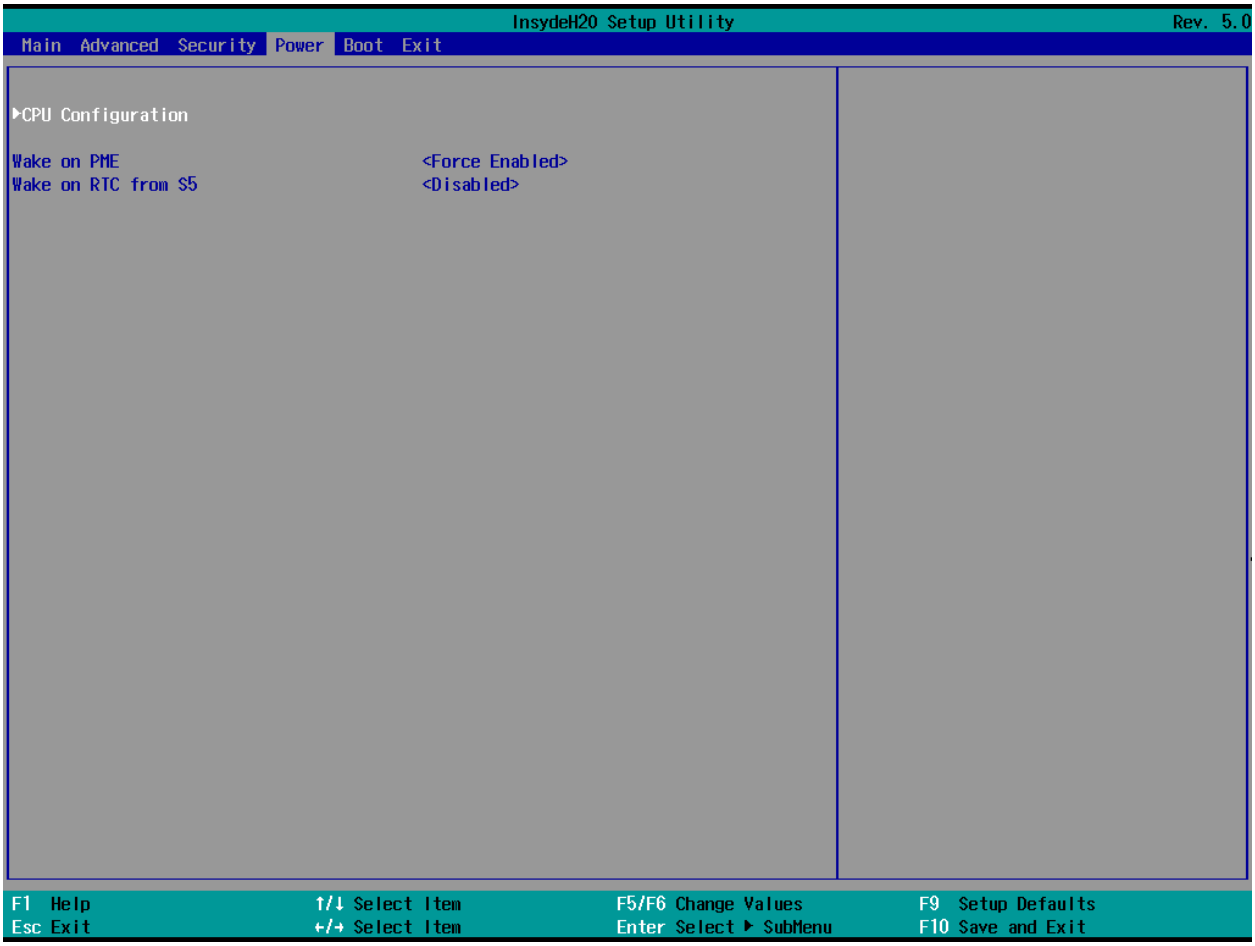

| BIOS Setting | Description | Setting Option | Effect |
|---|---|---|---|
| H2OUVE Support | H2OUVE tool interface settings | **Enabled**/ Disabled | Enables or disables interface for H2OUVE tool |

### 4.2.4 Security

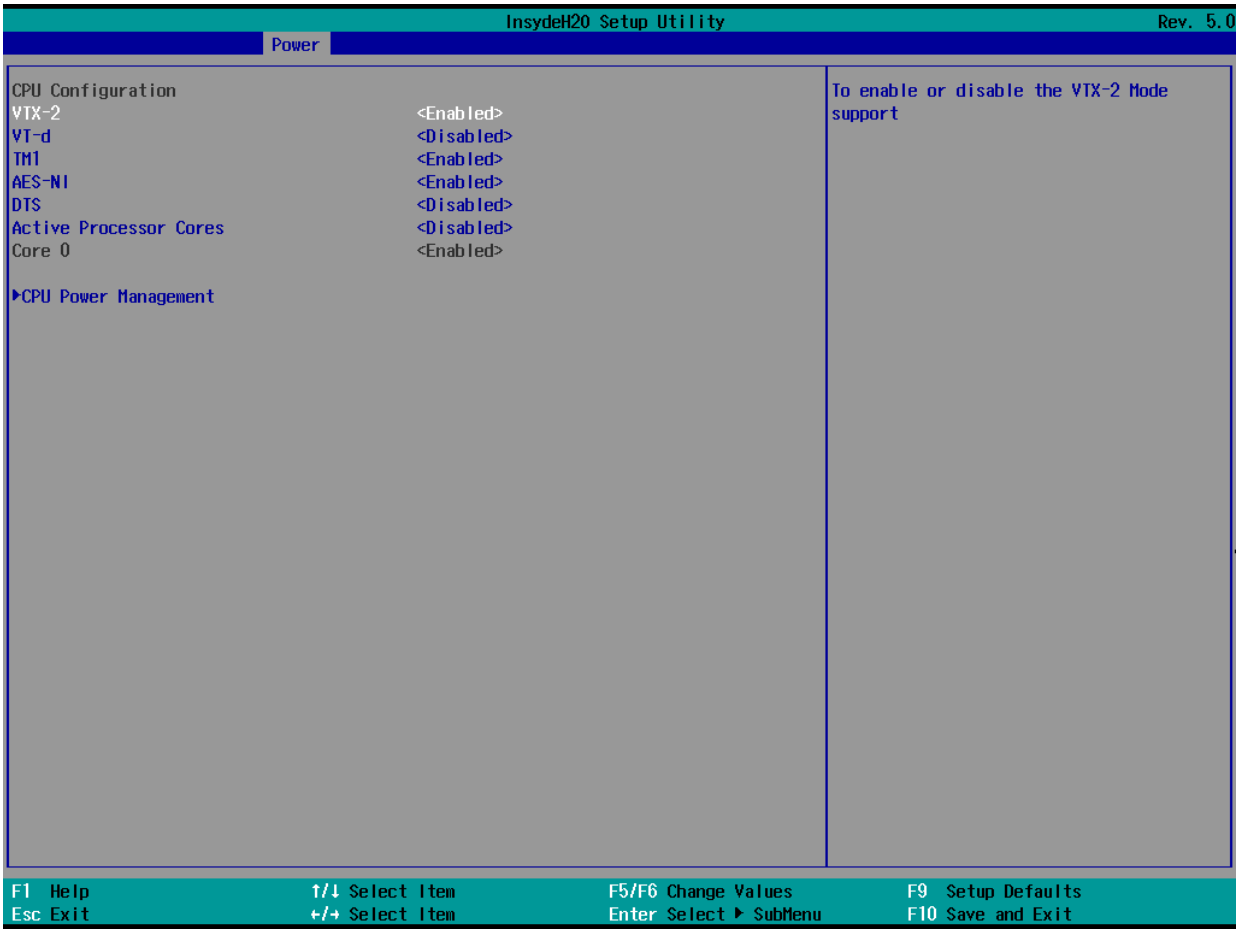



| BIOS Setting | Description | Setting Option | Effect |
|---|---|---|---|
| TrEE Protocol Version | TrEE Protocol Version | **1.0** or 1.1 | TrEE Protocol Version |
| TPM Availability | Configure TPM Availability settings | **Available** | Set TPM Availability |
| TPM Operation | Configure TPM Operation settings | **No Operation** | Set TPM Operation |
| Clear TPM | Clear TPM | **[ ]** | Clear TPM |
| Set Supervisor Password | Set Supervisor Password | Enter | Opens sub-menu |

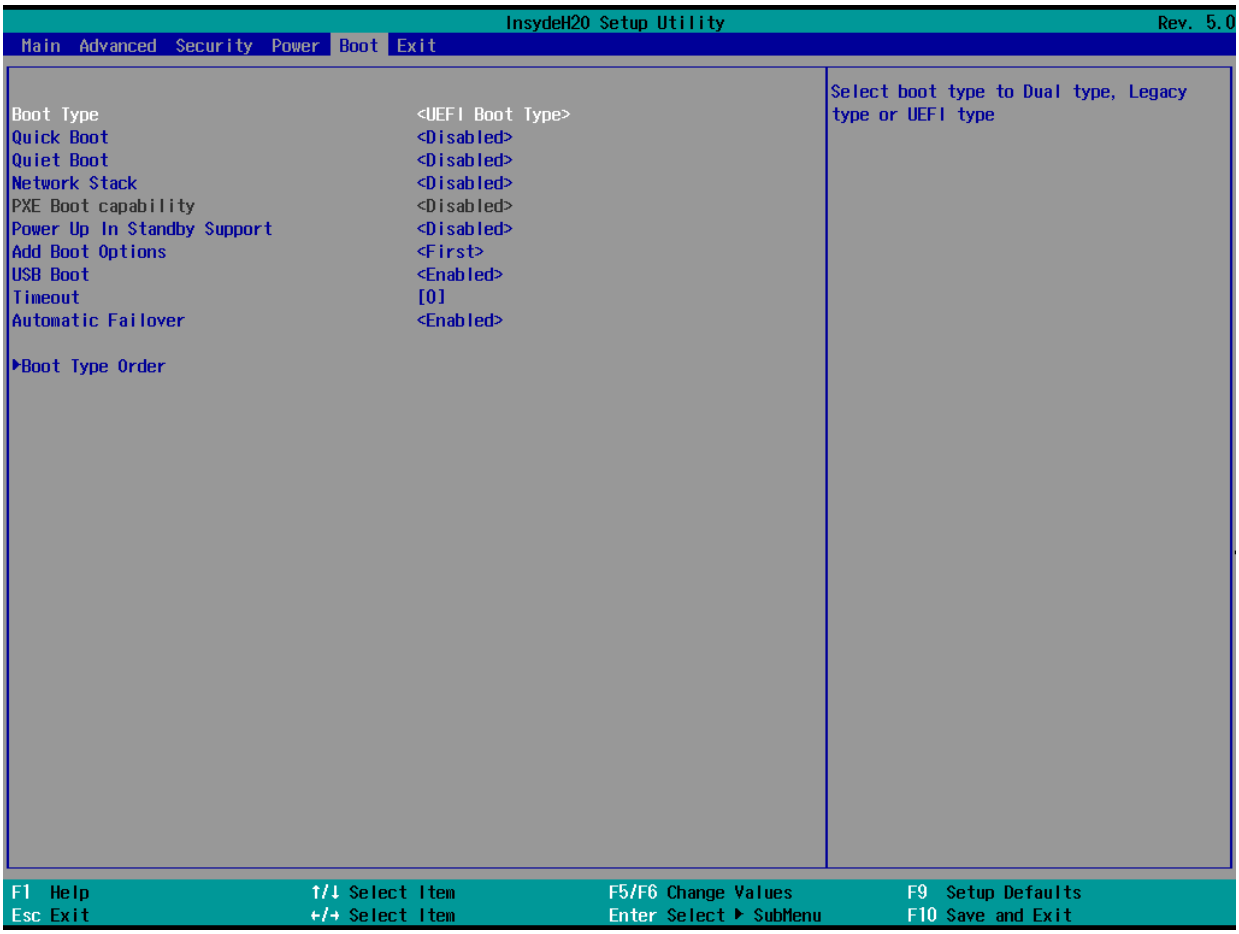
### 4.2.5 Power



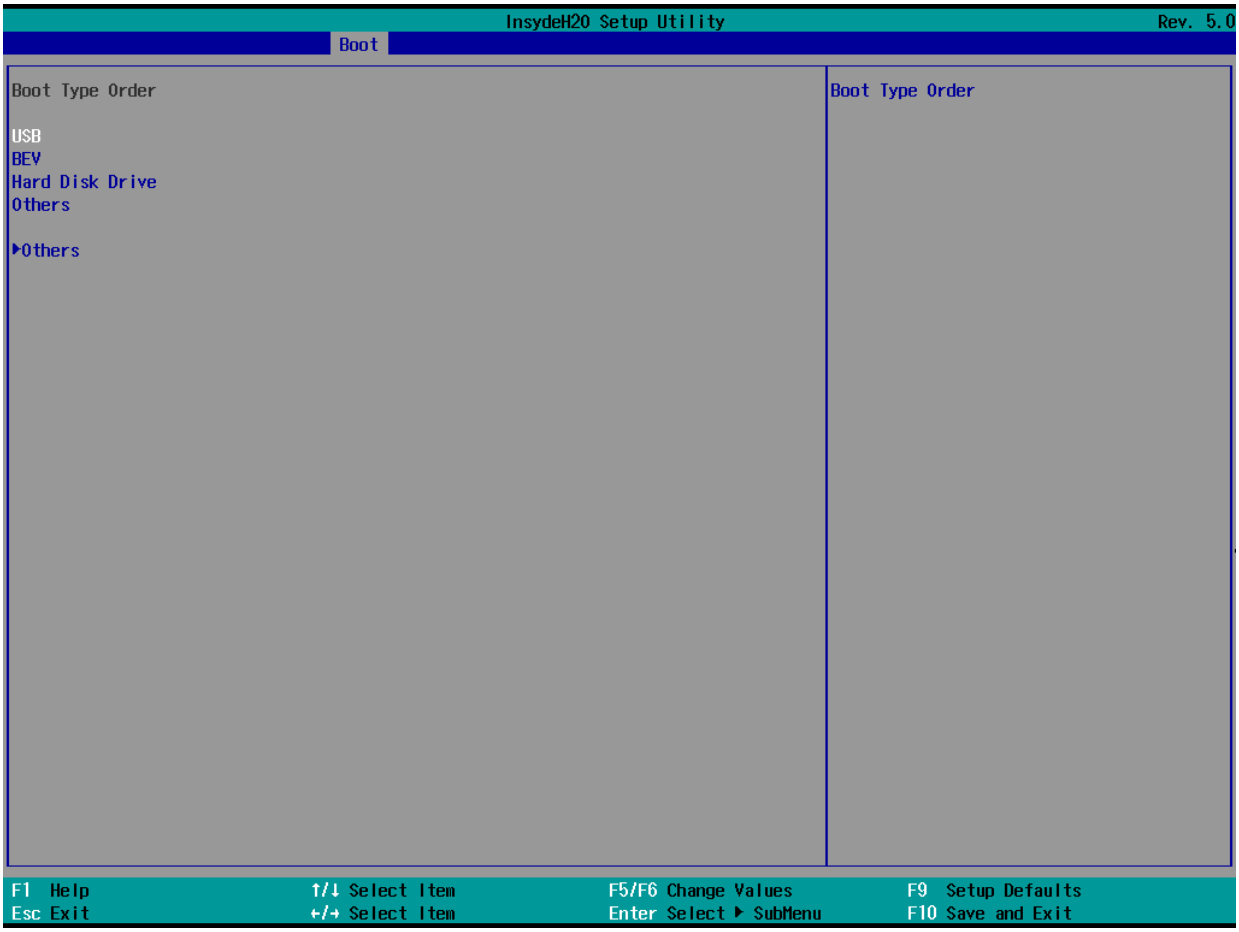

| BIOS Setting | Description | Setting Option | Effect |
|---|---|---|---|
| CPU Configuration | Setting CPU Configuration parameters | **Enter** | Opens sub-menu |
| Wake on PME | Power Management Even from S5 state | **Force Enable** | Power Management Even after S5 state |
| Wake on RTC from S5 | Wake on RTC from S5 state | Enabled/ **Disabled** | Wake on RTC from S5 state |


InsydeH20 Setup Utility
Rev. 5.0
Power
CPU Configuration
VTX-2 <Enabled>
VT-d <Disabled>
TM1 <Enabled>
AES-NI <Enabled>
DTS <Disabled>
Active Processor Cores <Disabled>
Core 0 <Enabled>
▶CPU Power Management
To enable or disable the VTX-2 Mode support
F1 Help ↑/↓ Select Item F5/F6 Change Values F9 Setup Defaults
Esc Exit ←/→ Select Item Enter Select ▶ SubMenu F10 Save and Exit

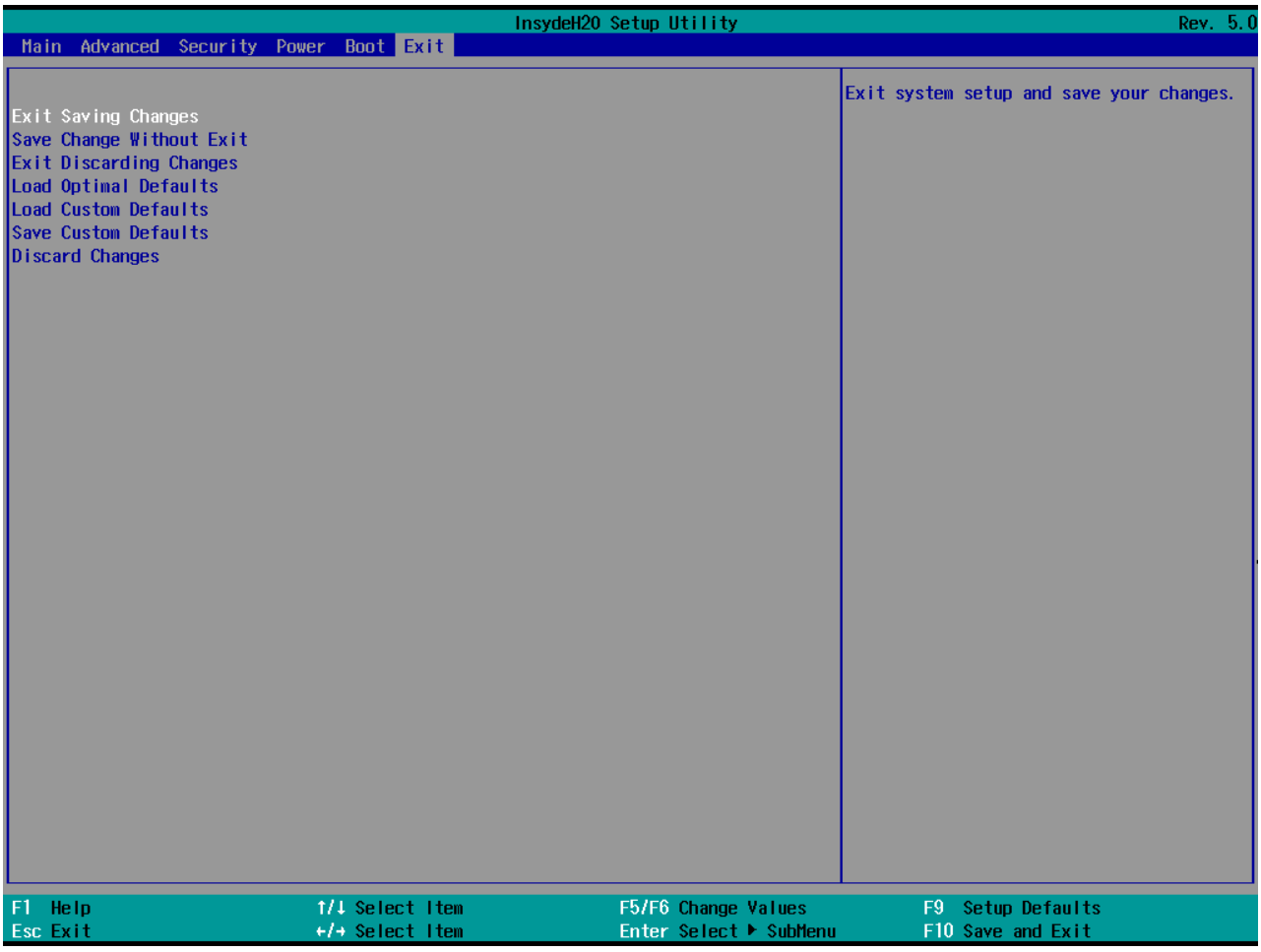
### 4.2.6 Boot


InsydeH20 Setup Utility
Rev. 5.0
Main Advanced Security Power Boot Exit
Boot Type <UEFI Boot Type>
Quick Boot <Disabled>
Quiet Boot <Disabled>
Network Stack <Disabled>
PXE Boot capability <Disabled>
Power Up In Standby Support <Disabled>
Add Boot Options <First>
USB Boot <Enabled>
Timeout [0]
Automatic Failover <Enabled>
▶Boot Type Order
Select boot type to Dual type, Legacy type or UEFI type
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 | Select boot type to Dual type, Legacy type or UEFI type | Dual/ Legacy **UEFI** | 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 |
| Quite Boot | Quiet Boot configuration | Enabled/ **Disabled** | Disable or enable booting in text Mode. |
| Network Stack | Network Stack configuration | Enabled/ **Disabled** | Network Stack Support:<br>• Windows 8 Bitlocker Unlock<br>• UEFI IPv4/ IPv6 PXE<br>• Legacy PXE OPROM |
| Power Up In Standby Support | Power Up In Standby Support | Enabled/ **Disabled** | Enables or disables Power Up In Standby Support |
| Add Boot Options | Boot Options settings | **First** | Boot Options settings |
| USB Boot | USB Boot settings | **Enabled/** Disabled | Enables or disables USB Boot |
| Timeout | Timeout settings | [Value] | Set Timeout |
| Automatic Failover | Automatic Failover settings | **Enabled/** Disabled | Enables or disables Automatic Failover |
| Boot Type Order | Select Boot Type Order | **Enter** | Opens sub-menu |


InsydeH20 Setup Utility
Rev. 5.0
Boot
Boot Type Order
USB
BEV
Hard Disk Drive
Others
▶Others
Boot Type Order
F1 Help
Esc Exit
↑/↓ Select Item
←/→ Select Item
F5/F6 Change Values
Enter Select ▶ SubMenu
F9 Setup Defaults
F10 Save and Exit

### 4.2.7 Exit


InsydeH20 Setup Utility
Rev. 5.0
Main Advanced Security Power Boot Exit
Exit Saving Changes
Save Change Without Exit
Exit Discarding Changes
Load Optimal Defaults
Load Custom Defaults
Save Custom Defaults
Discard Changes
Exit system setup and save your changes.
F1 Help
Esc Exit
↑/↓ Select Item
←/→ Select Item
F5/F6 Change Values
Enter Select ▶ SubMenu
F9 Setup Defaults
F10 Save and Exit

| BIOS Setting | Description | Setting Option | Effect |
|---|---|---|---|
| Exit Saving Options | Exit system setup and save your changes | Enter | Opens sub-menu |
| Save Change Without Exit | Save changes without exit system setup | Enter | Opens sub-menu |
| Exit Discarding Changes | Exit system setup and discard your changes | Enter | Opens sub-menu |
| Load Optimal Defaults | Load optimal system defaults | Enter | Opens sub-menu |
| Load Custom Defaults | Load custom system defaults | Enter | Opens sub-menu |
| Save Custom Defaults | Save custom defaults | Enter | Opens sub-menu |
| Discard Changes | Discard changes | Enter | Opens sub-menu |

## 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-P/ IBDRW100-EX-P 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-P/ IBDRW100-EX-P 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.

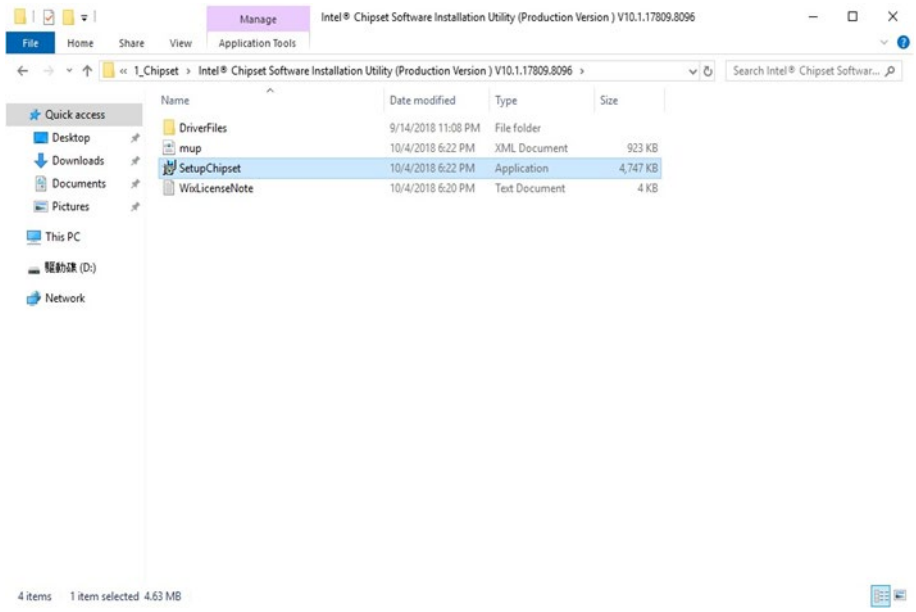
# Chapter 5: Driver Installation

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.

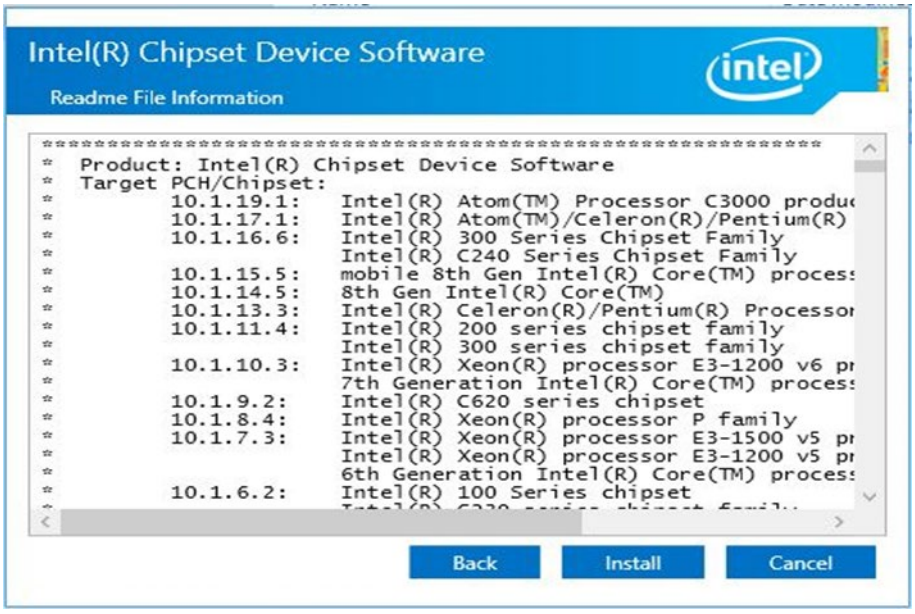
**Step 1** Insert the CD that comes with the IBDRW100-P/ IBDRW100-EX-P DIN-Rail Box PC. Open the file "**Chipset Driver**". Click **SetupChiset**.



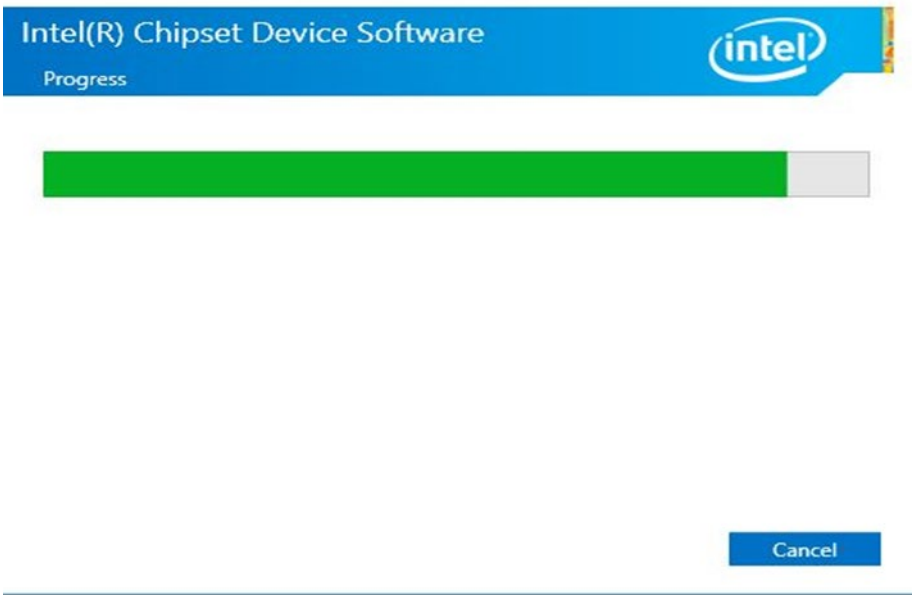

**Step 2** Click **Next** to install driver.

**Step 4** Check the **License Agreement** and click **Accept** to continue.


**Step 5** Check **Readme File** Information and click **Install** to continue.




**Step 7** Wait for the system to install the driver.

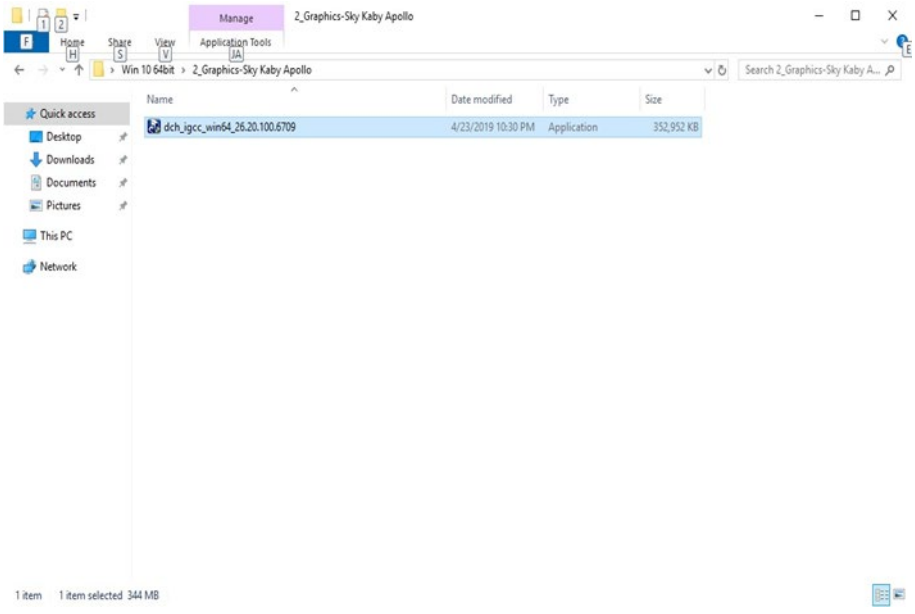


**Step 8** Installation is complete. You must restart this computer to the changes to take effect. Click **Restart Now**.

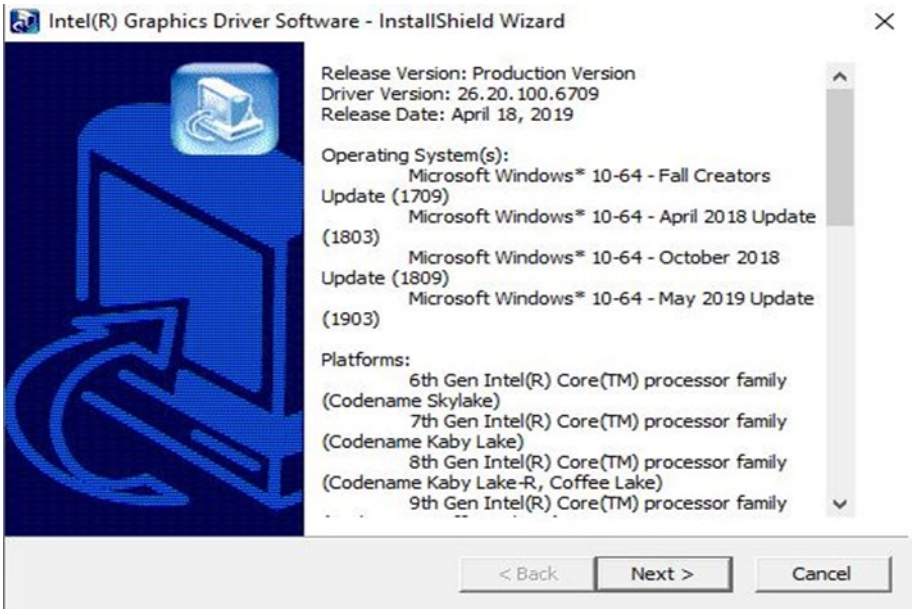

## 5.2 Graphics Driver Installation

IBDRW100-P/ IBDRW100-EX-P 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.

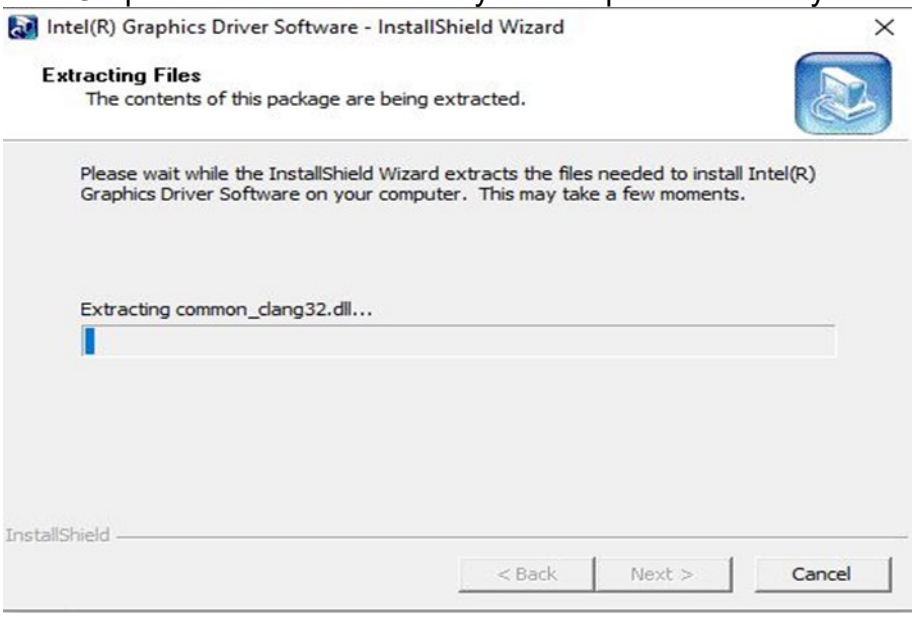
**Step 1** Insert the CD that comes with the IBDRW100-P/ IBDRW100-EX-P DIN-Rail Box PC.



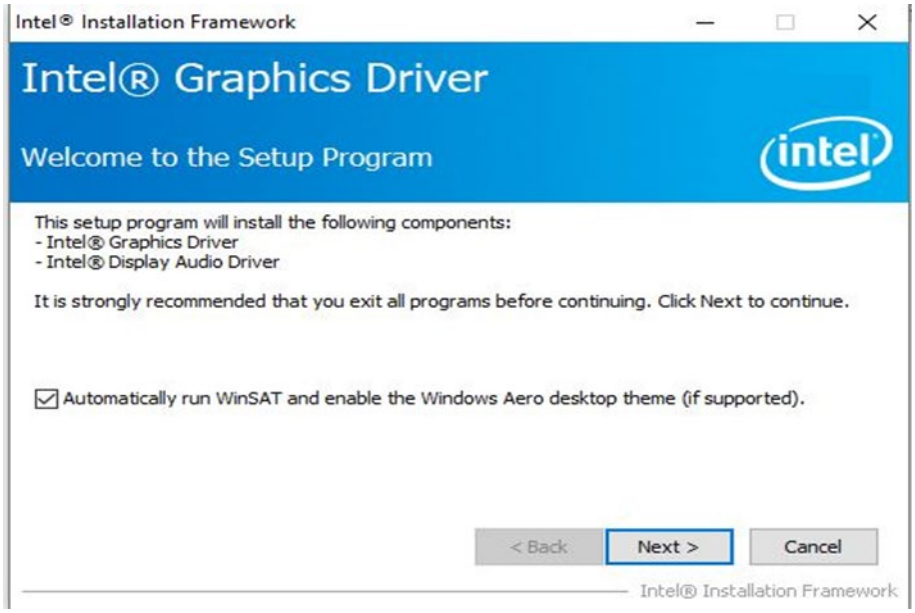
**Step 2** Click **Next** to continue.



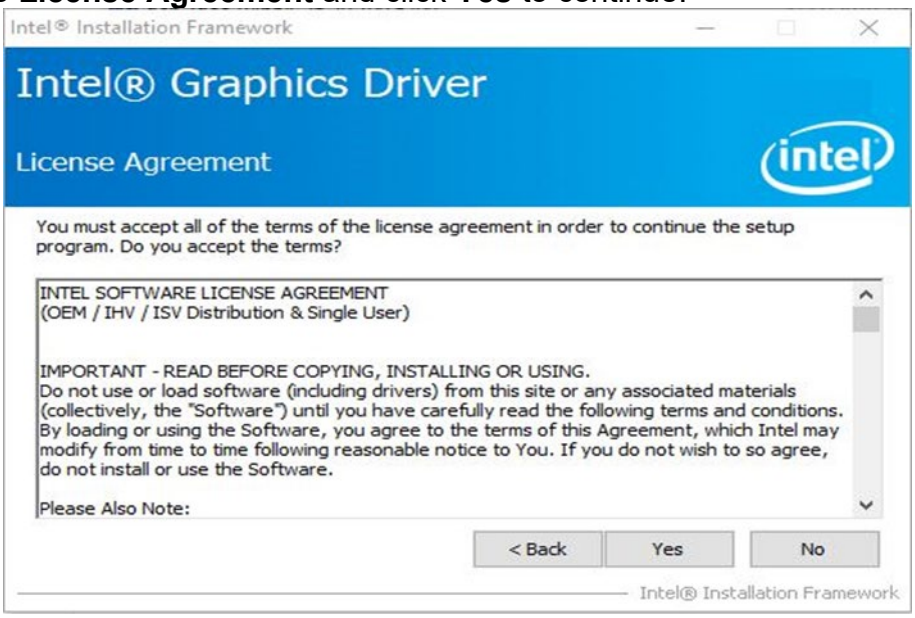

**Step 3** The system is extracting files. Please wait while the InstallShield Wizard extracts the files needed to install Intel Graphics Driver Software to your computer. This may take few moments.



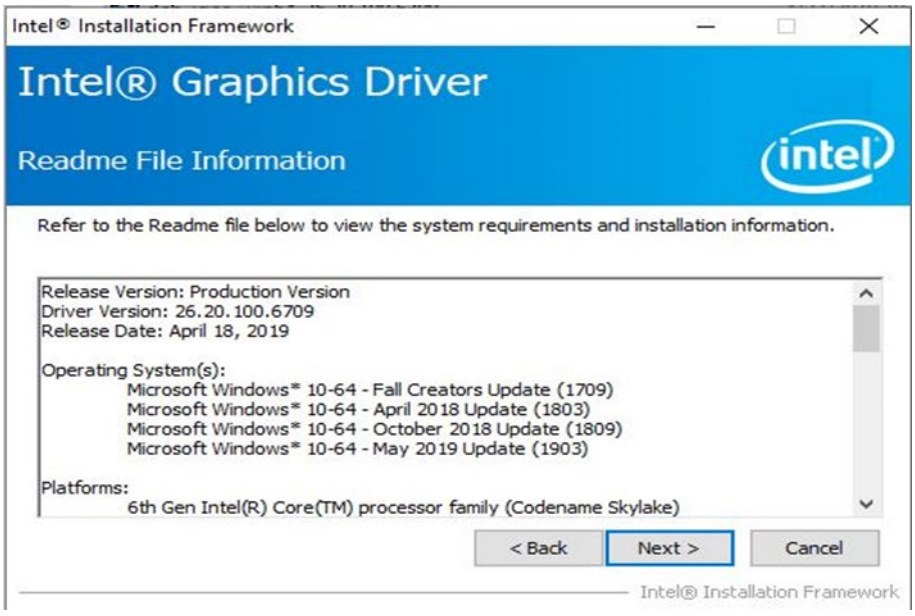

**Step 4** Select automatically run WinSAT and enable the Windows Aero desktop theme (if supported) and click **Next**.



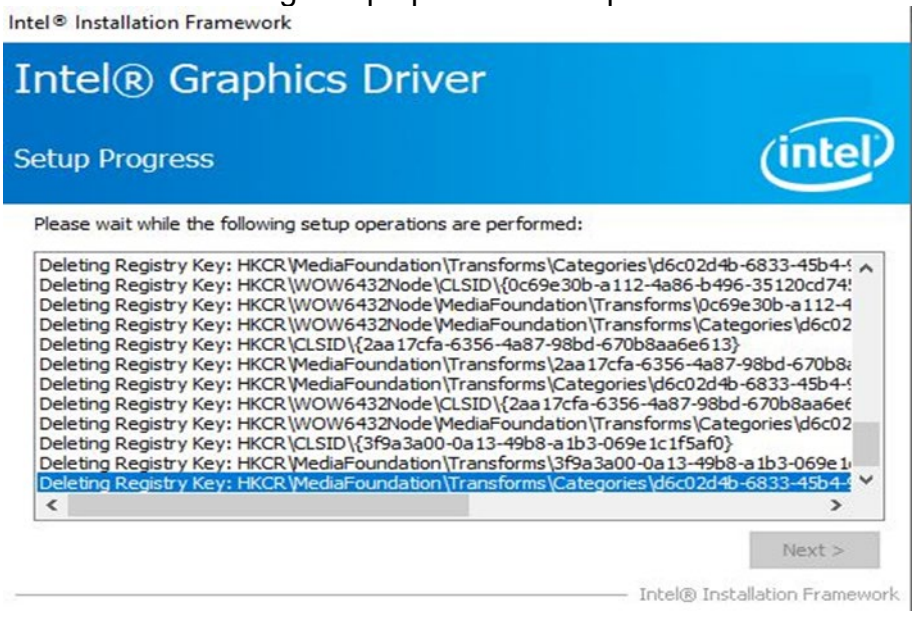
**Step 5** Check the **License Agreement** and click **Yes** to continue.



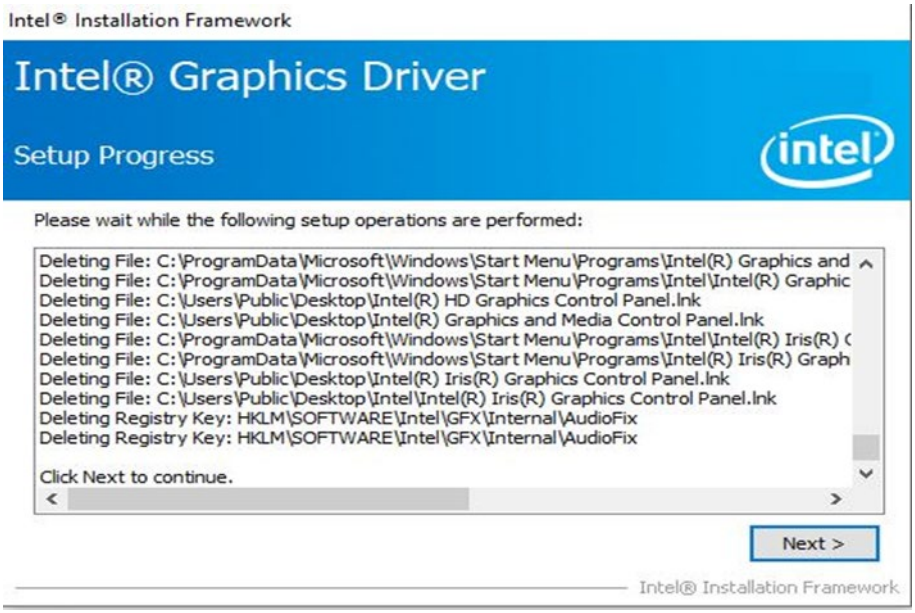

**Step 6** Check **Readme File Information** and click **Install** to continue.



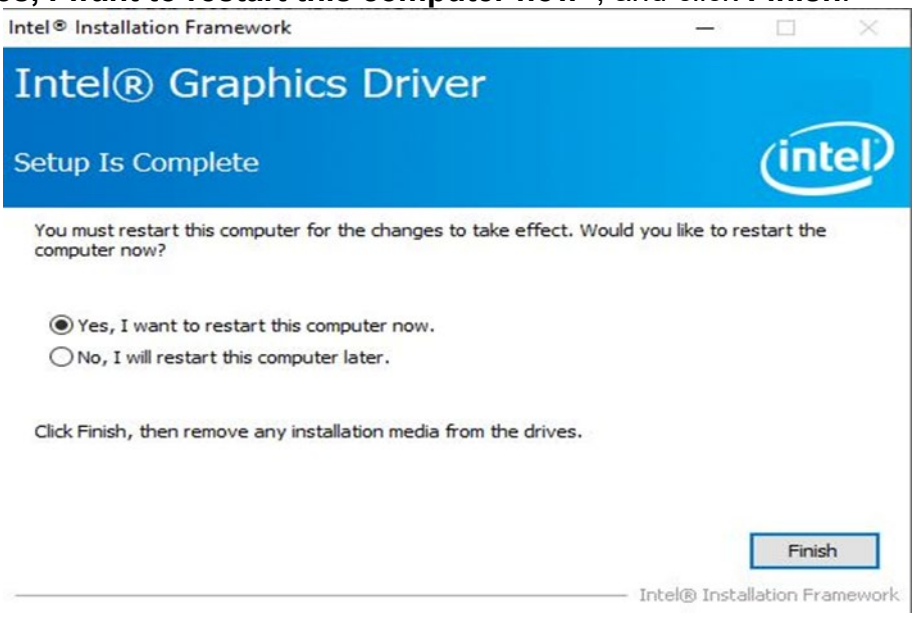

**Step 6** Please wait while the following setup operations are performed.



**Step 7** Click **Next** to continue.



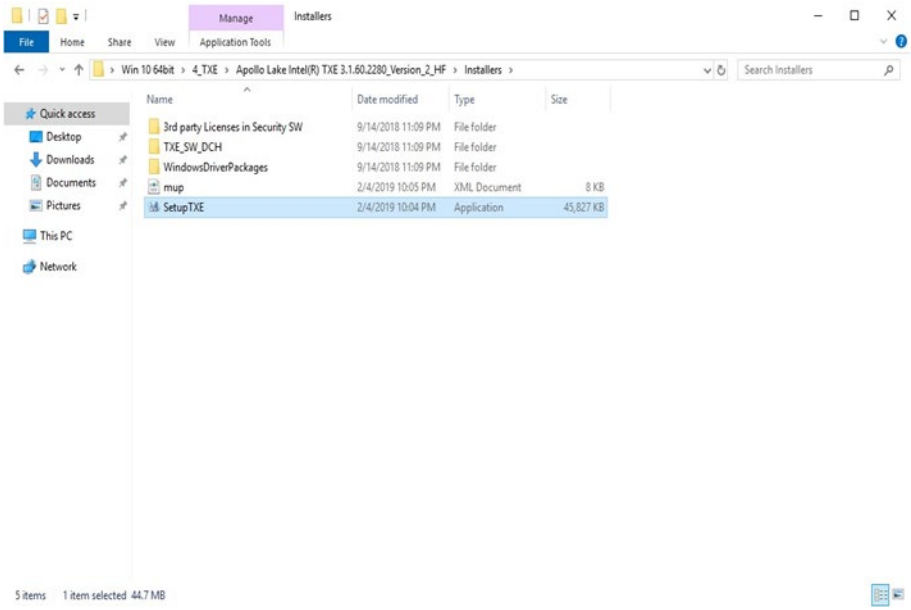

**Step 7** Select "**Yes, I want to restart this computer now"**, and click **Finish**.



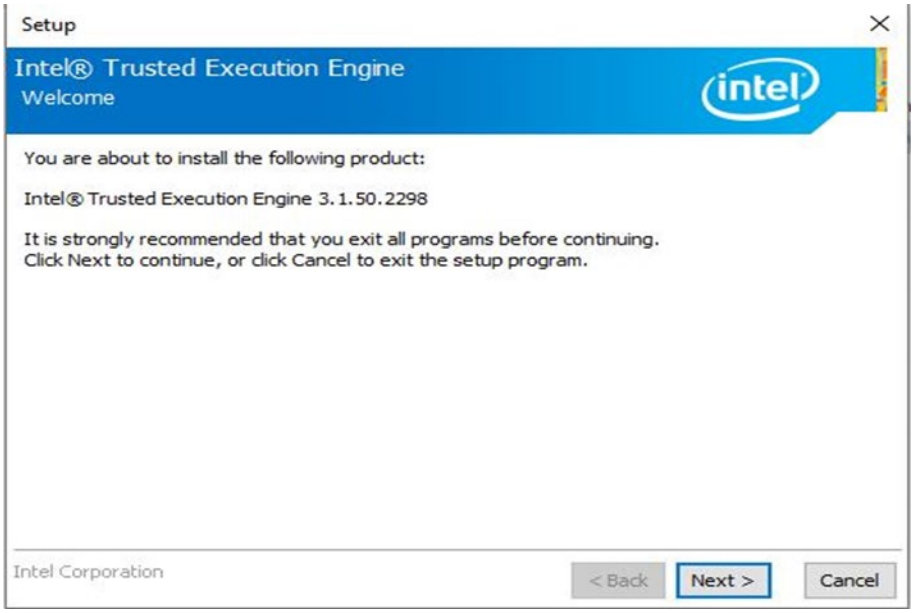
## 5.3 TXE Driver Installation

Follow the instructions below to complete the TXE Driver installation.

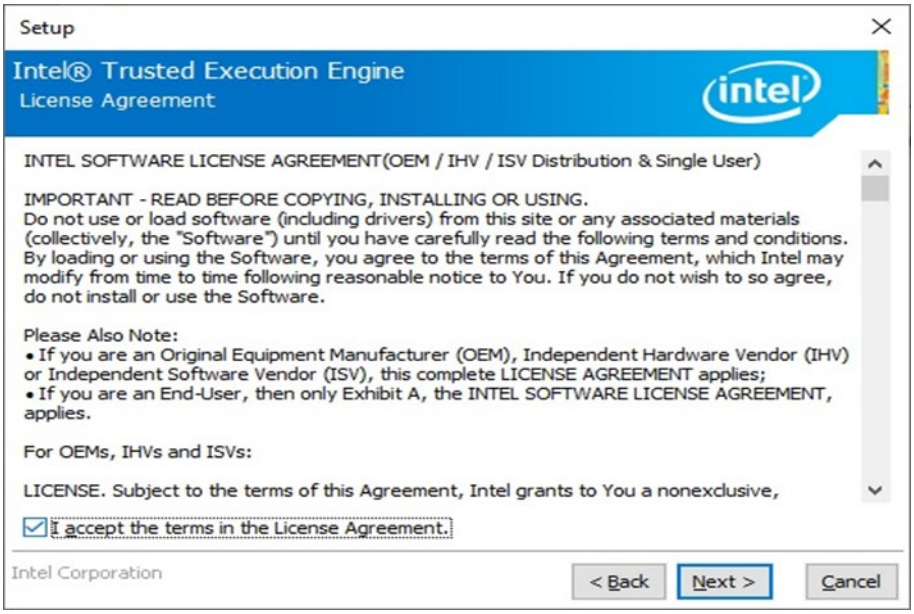
**Step 1** Insert the CD that comes with the IBDRW100-P/ IBDRW100-EX-P DIN-Rail Box PC. Click **SetupTXE.**



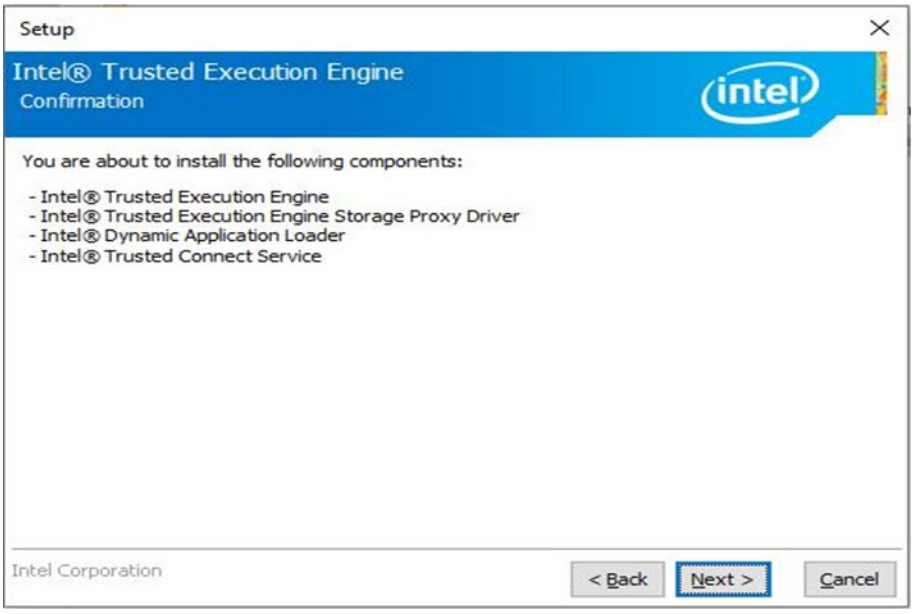

**Step 2** Click **Next** to continue.



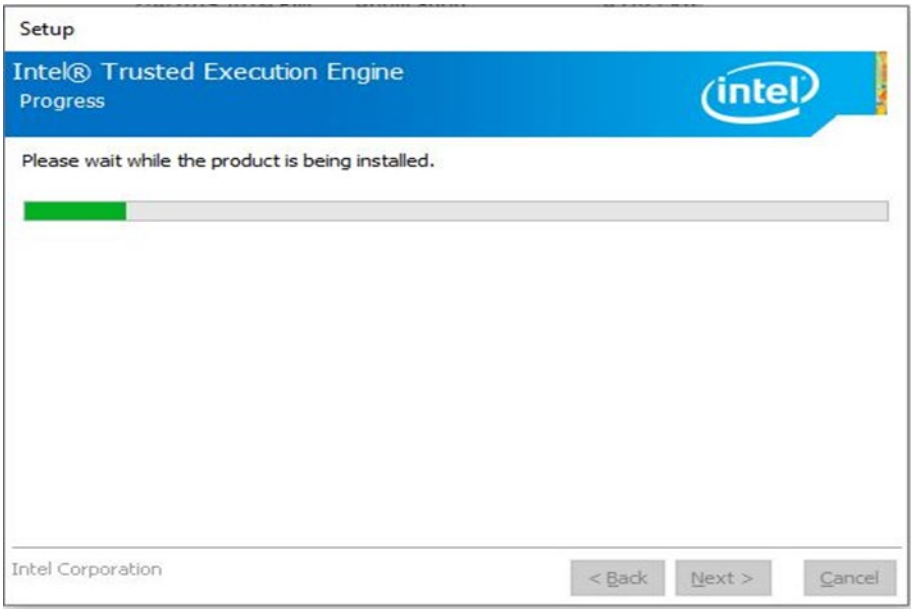
**Step 3** Check the **License Agreement**, select "**I accept the terms in the License Agreement**" and click **Next** to continue.



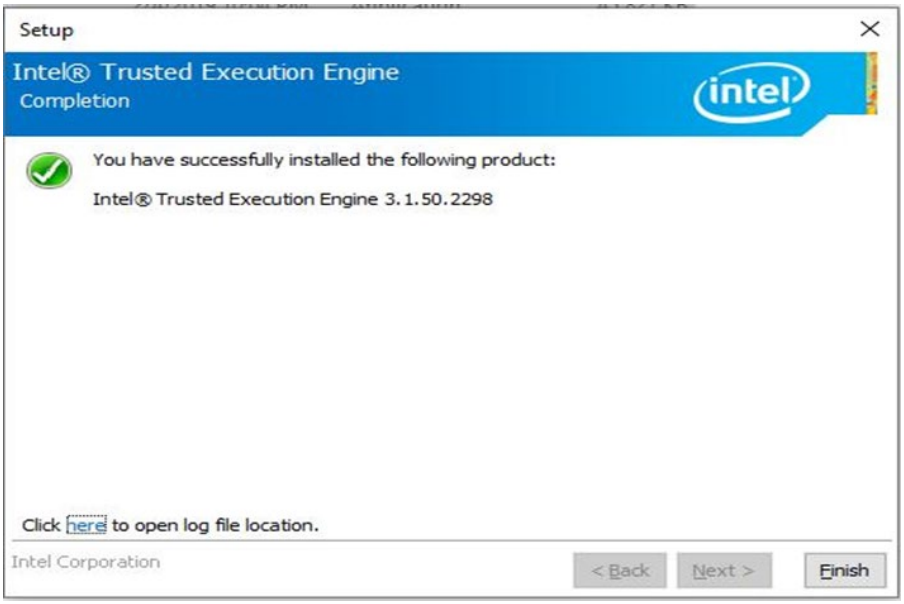

**Step 4** Click **Next** to continue.




**Step 5** Please wait while the product is being installed.



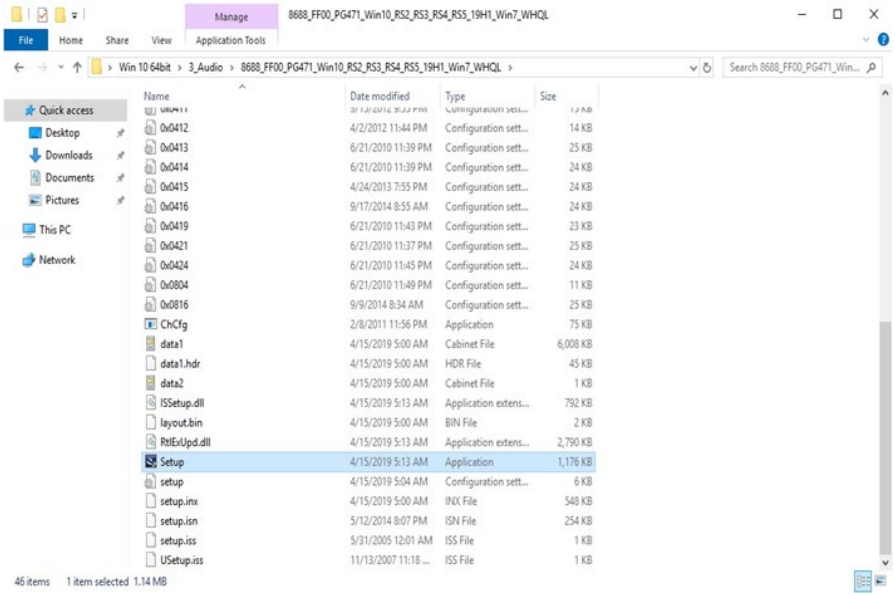
**Step 6** Click **Next** to exit installation window.



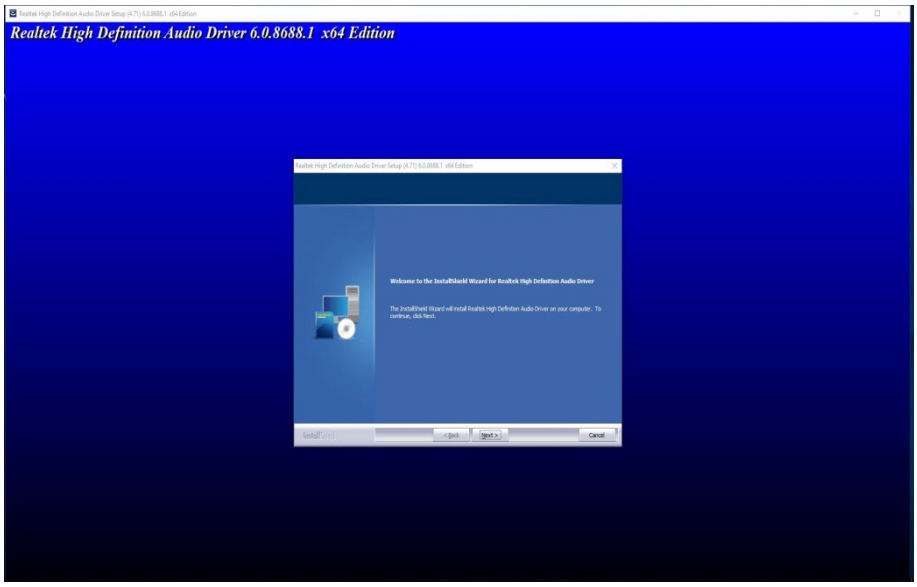

## 5.4 Audio Driver Installation

Follow the instructions below to complete the Audio Driver installation.

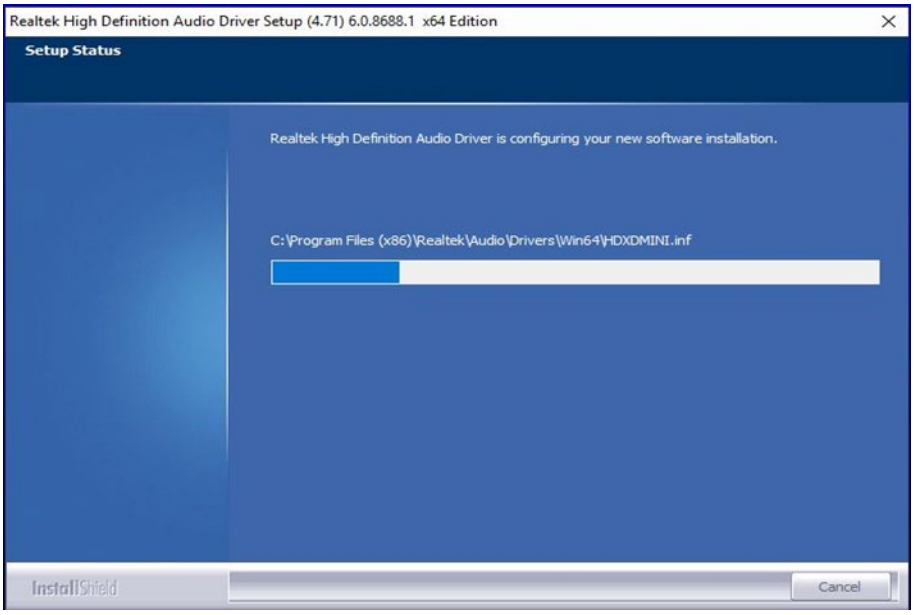
**Step 1** Insert the CD that comes with the IBDRW100-P/ IBDRW100-EX-P DIN-Rail Box PC. Open **Audio** folder. Click **Setup.**



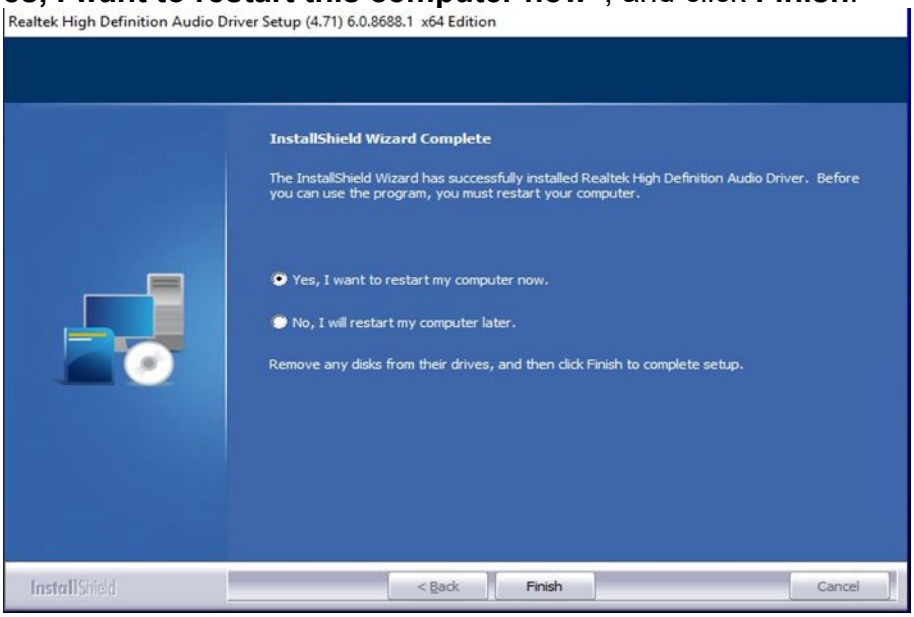
**Step 2** Click **Next** to continue.




**Step 3** Wait for the system to install files.



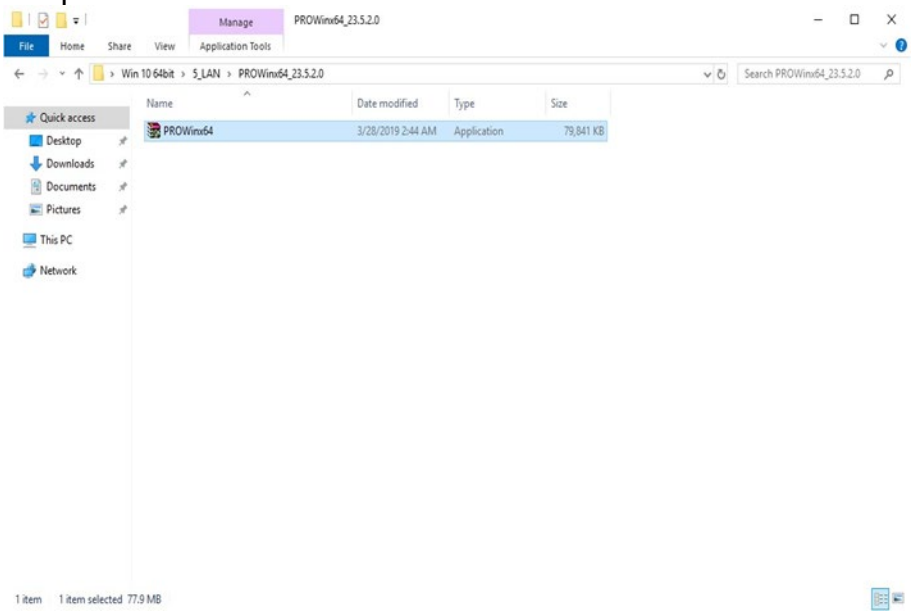

**Step 4** Select "**Yes, I want to restart this computer now"**, and click **Finish**.



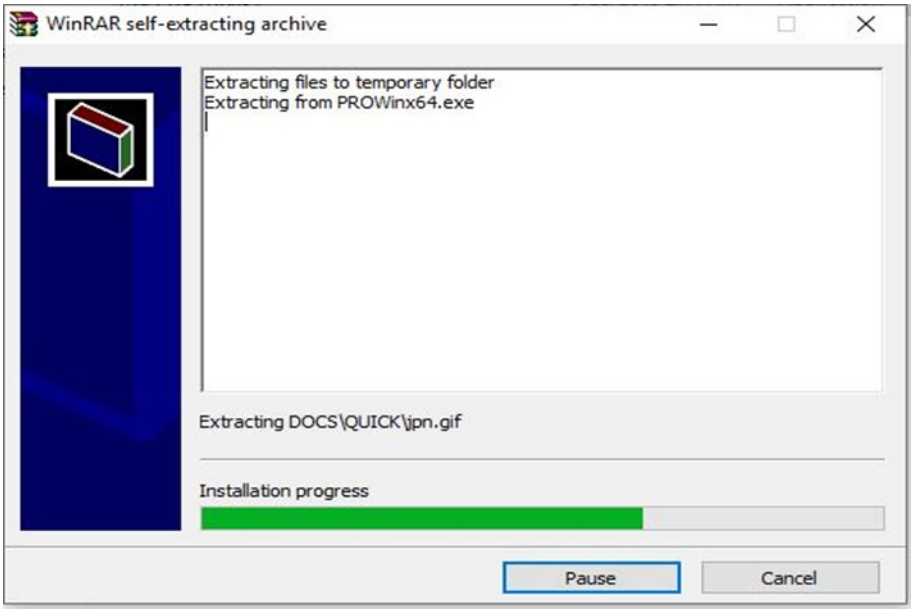
## 5.5 LAN Driver Installation

Follow the instructions below to complete the LAN Driver installation.

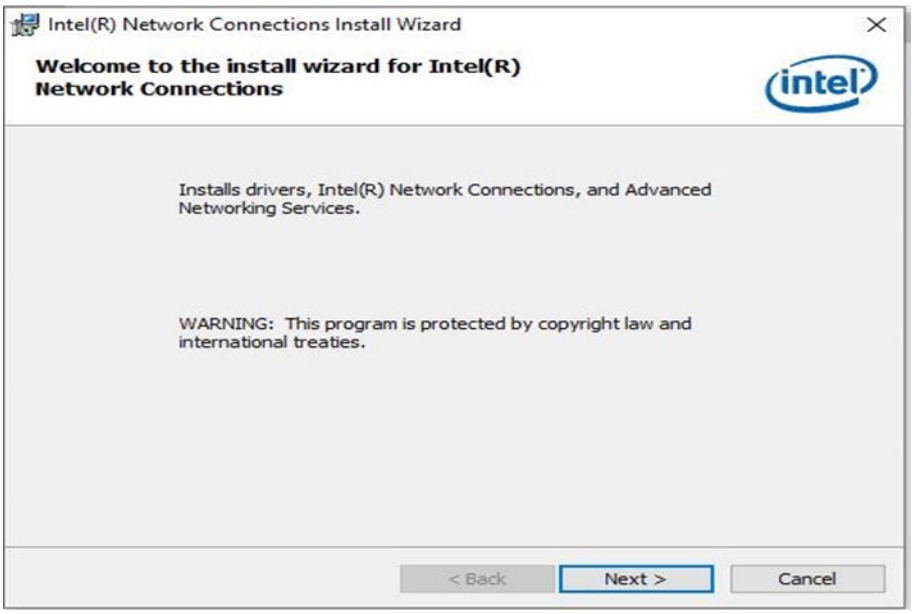
**Step 1** Insert the CD that comes with the IBDRW100-P/ IBDRW100-EX-P DIN-Rail Box PC. Open **LAN** folder. Open archived file.



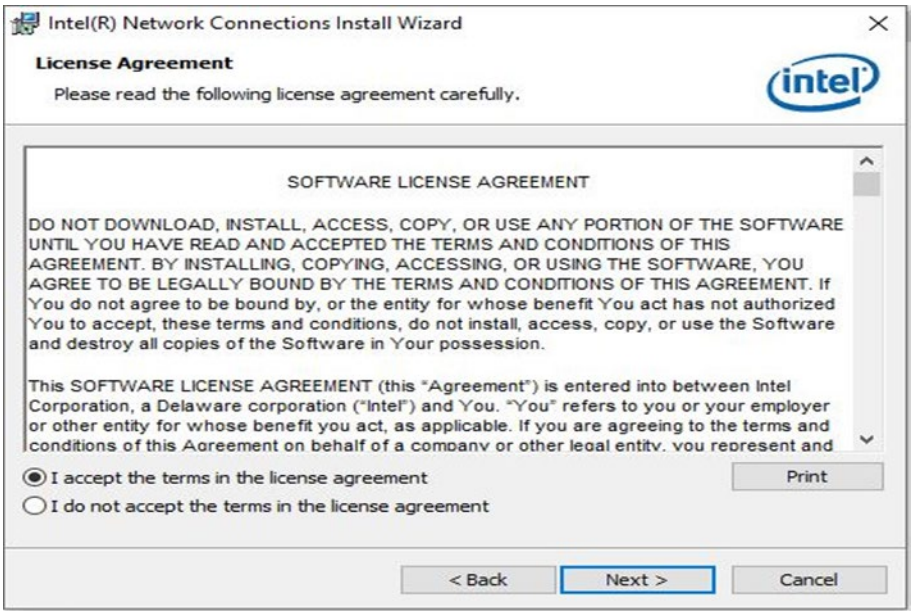

**Step 2** Installation is in progress.



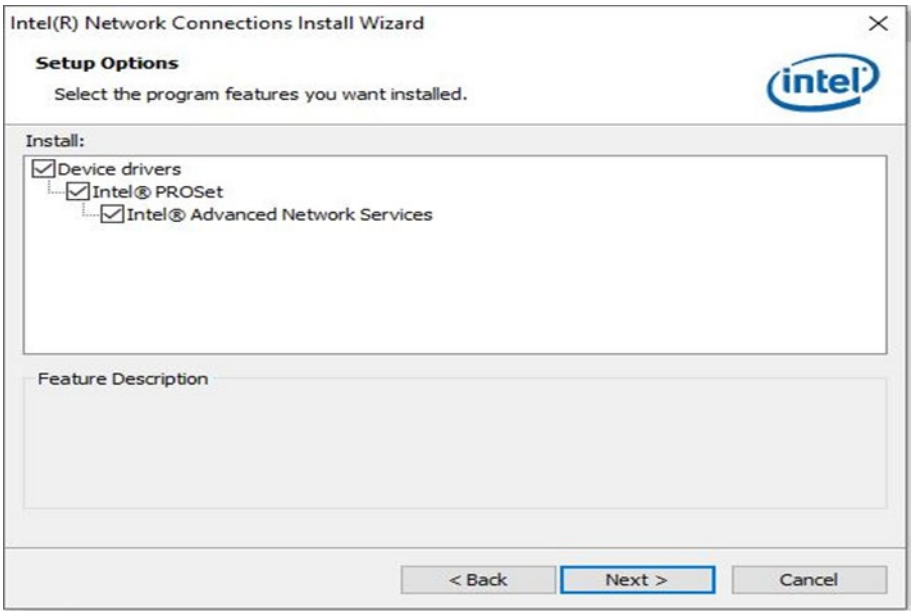
**Step 3** Click **Next** to continue.



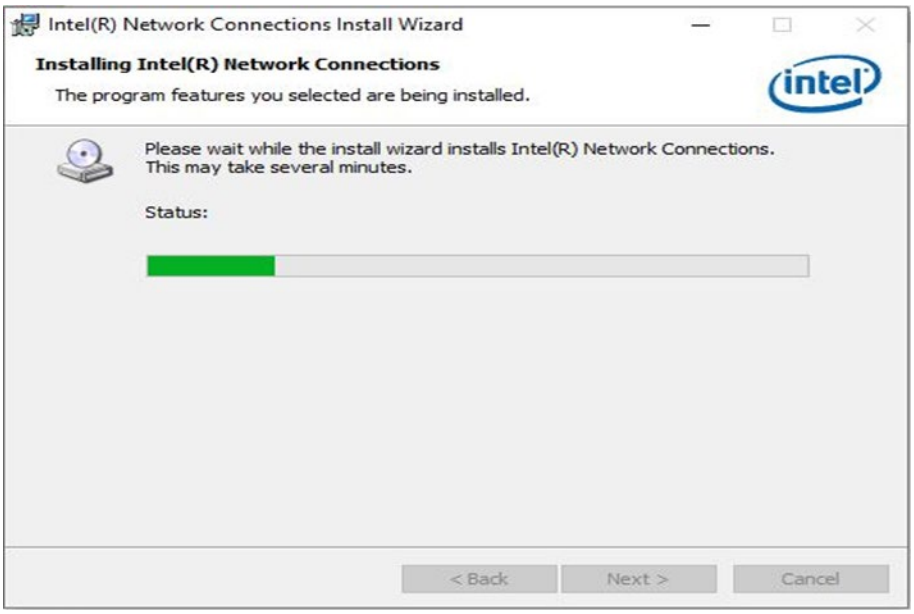

**Step 4** Check the **License Agreement**, select "**I accept the terms in the License Agreement**" and click **Next** to continue.



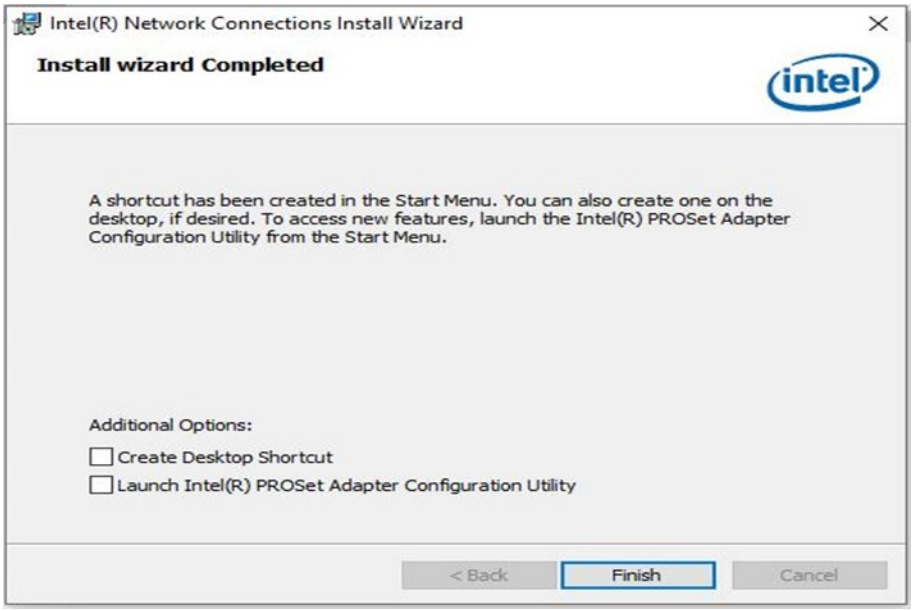

**Step 5** Click **Next** to continue.



**Step 6** Wait for the system to install files.



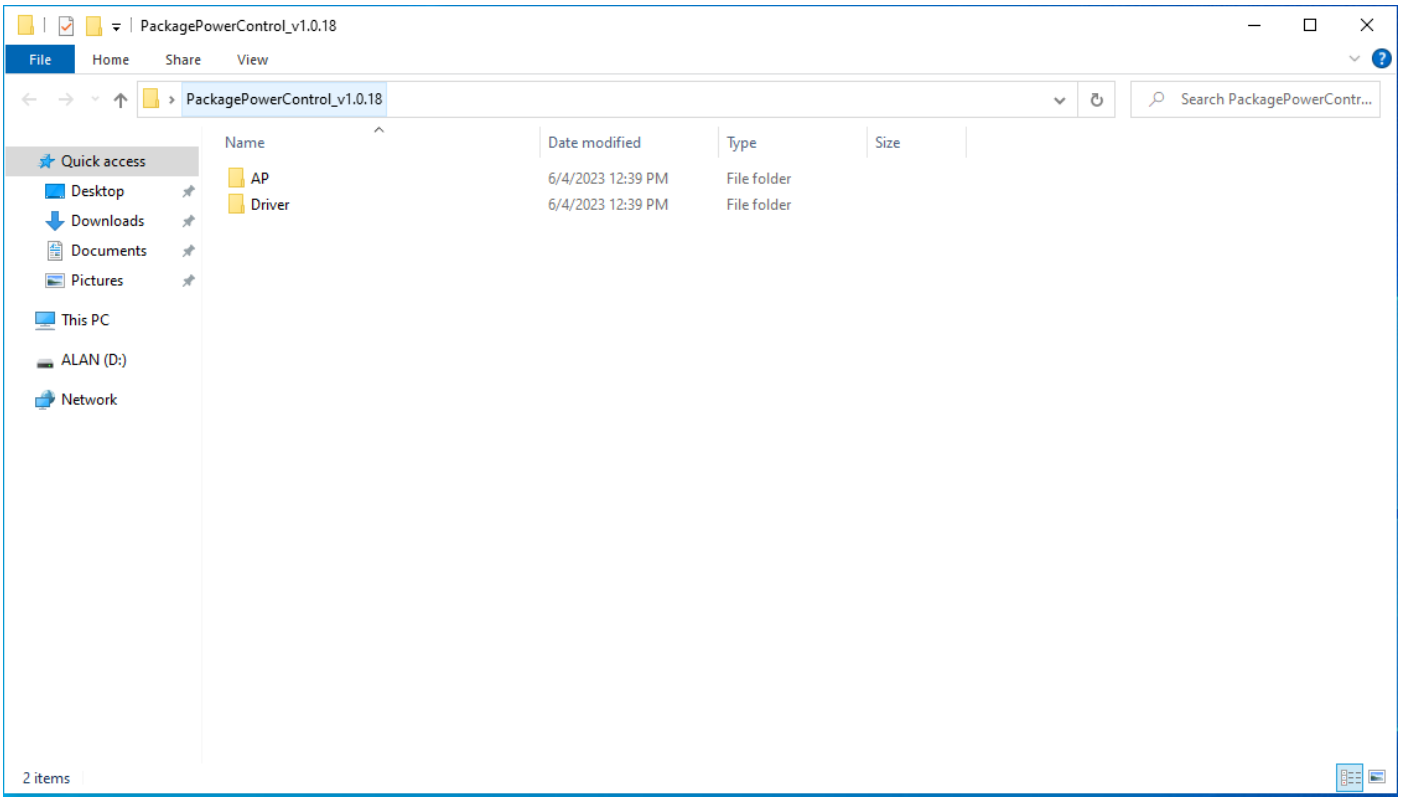

**Step 7** Click **Finish** to exit installation window.

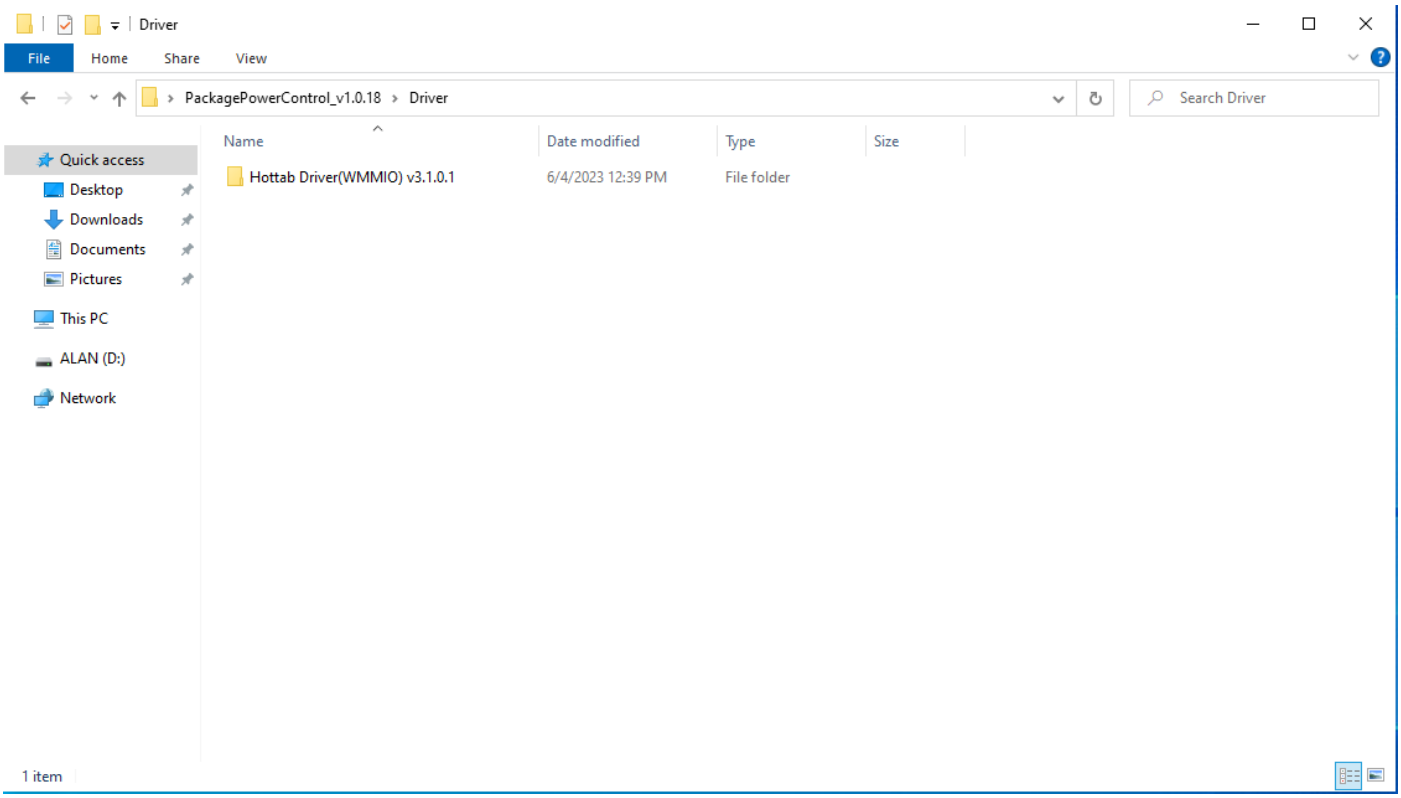


## 5.6 Thermal Control AP

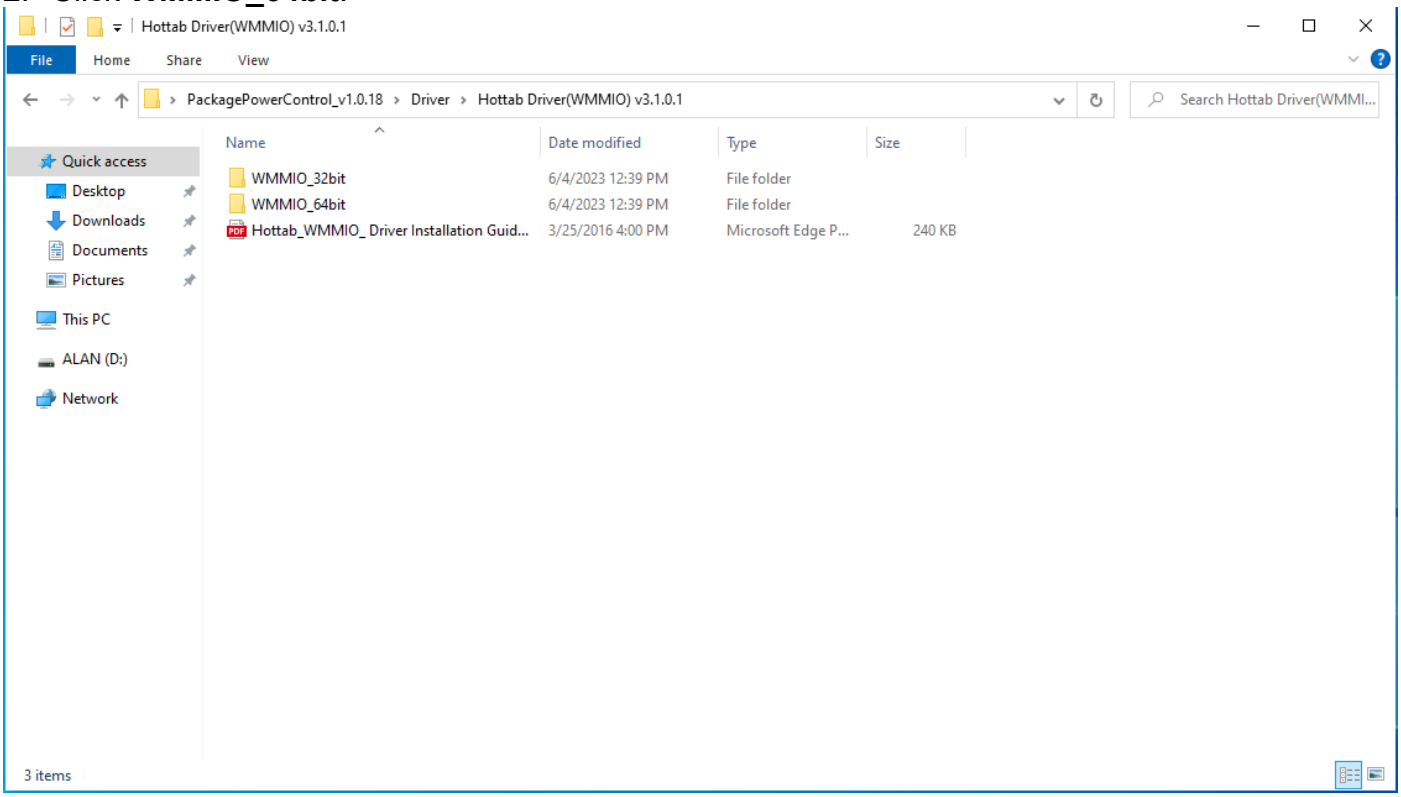
Follow instructions below to install Thermal Control AP.

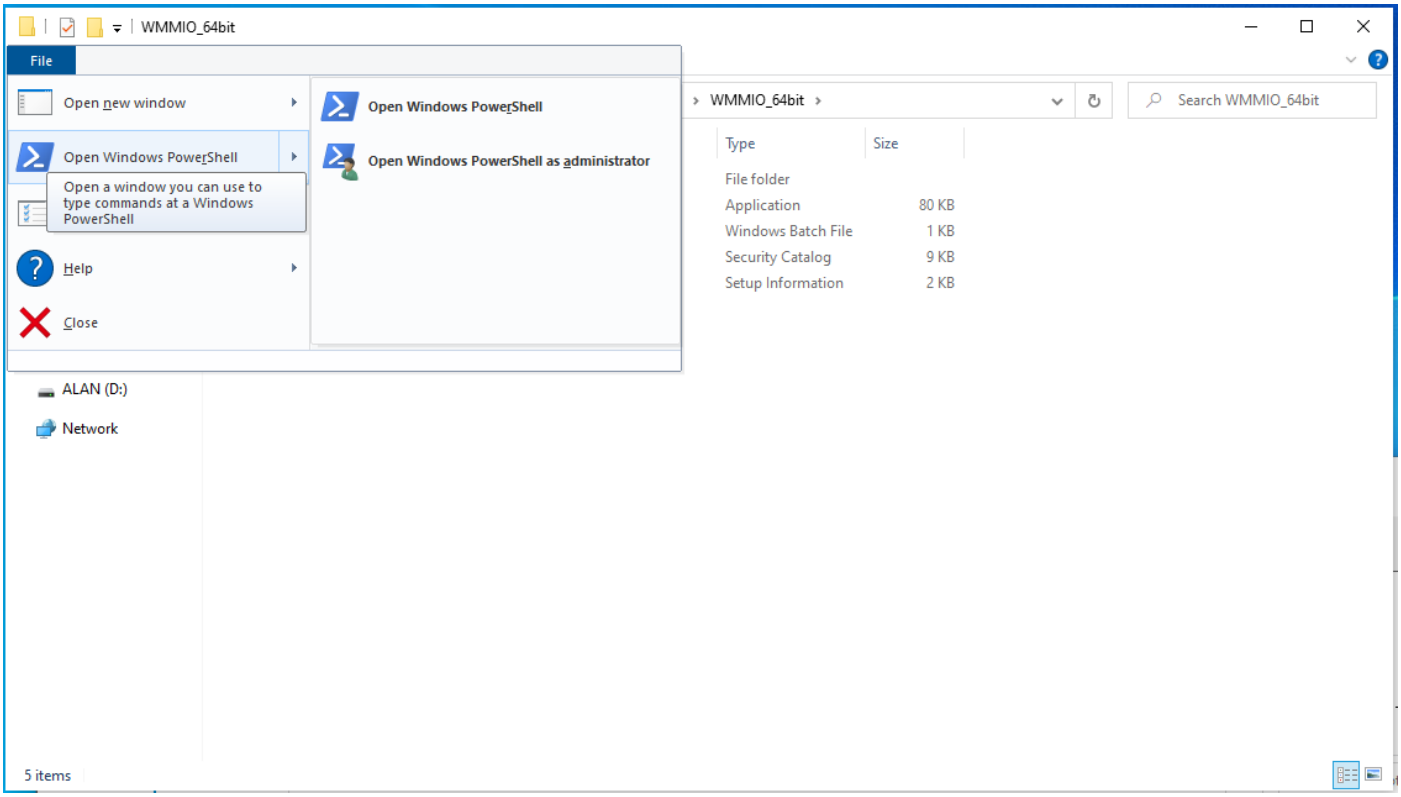
1. Click **Driver**.

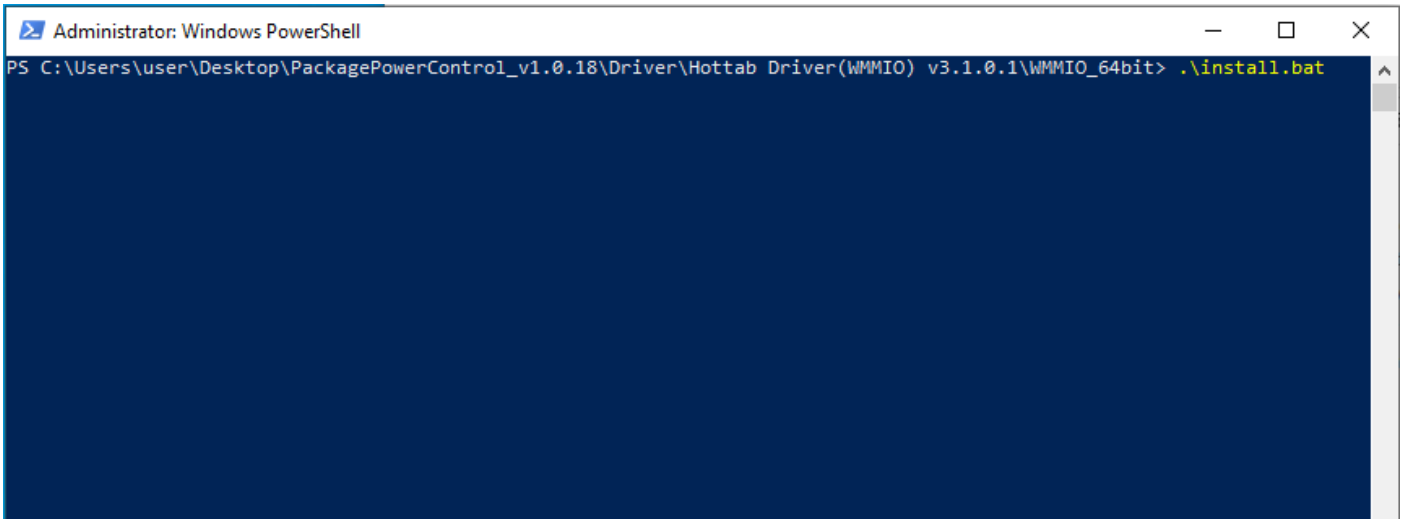


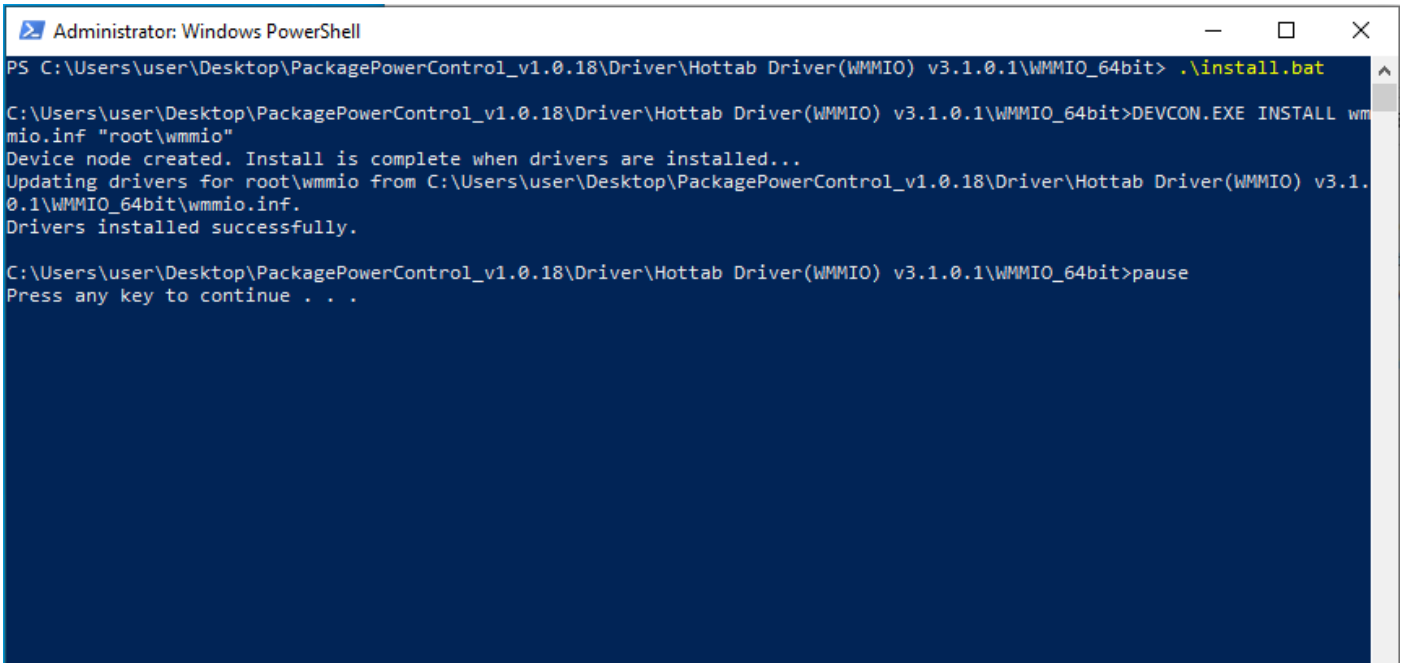



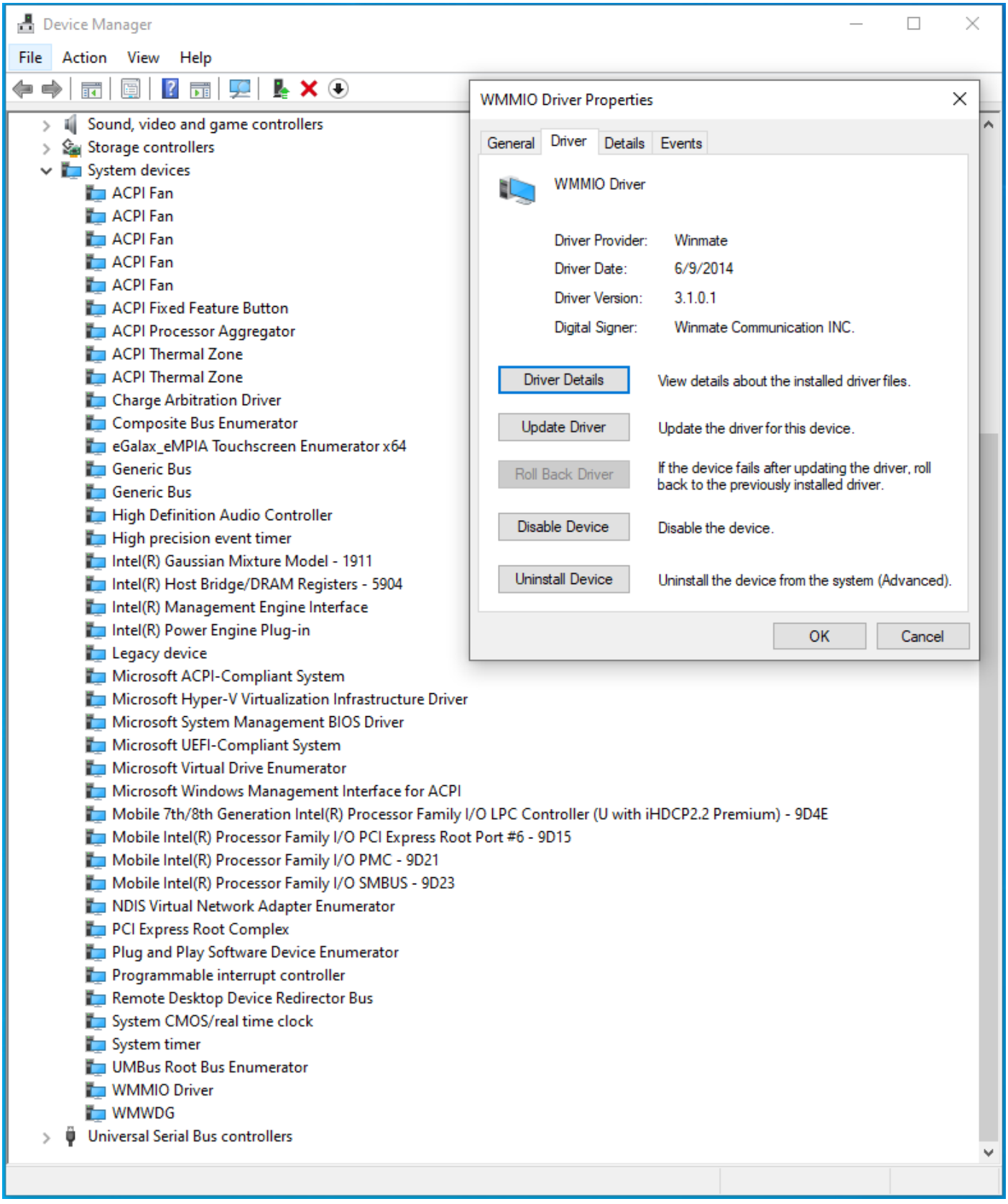
2. Click **WMMIO_64bit**.



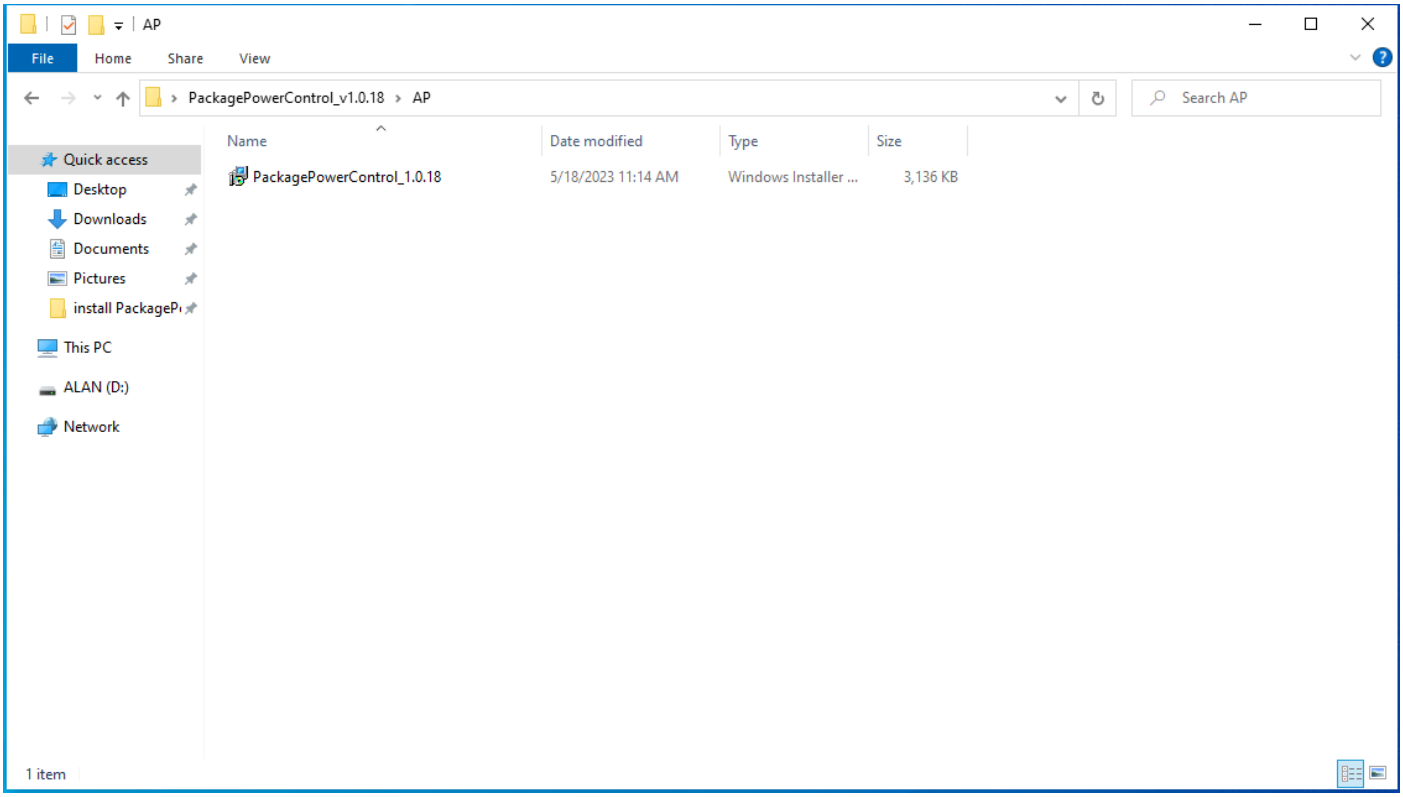



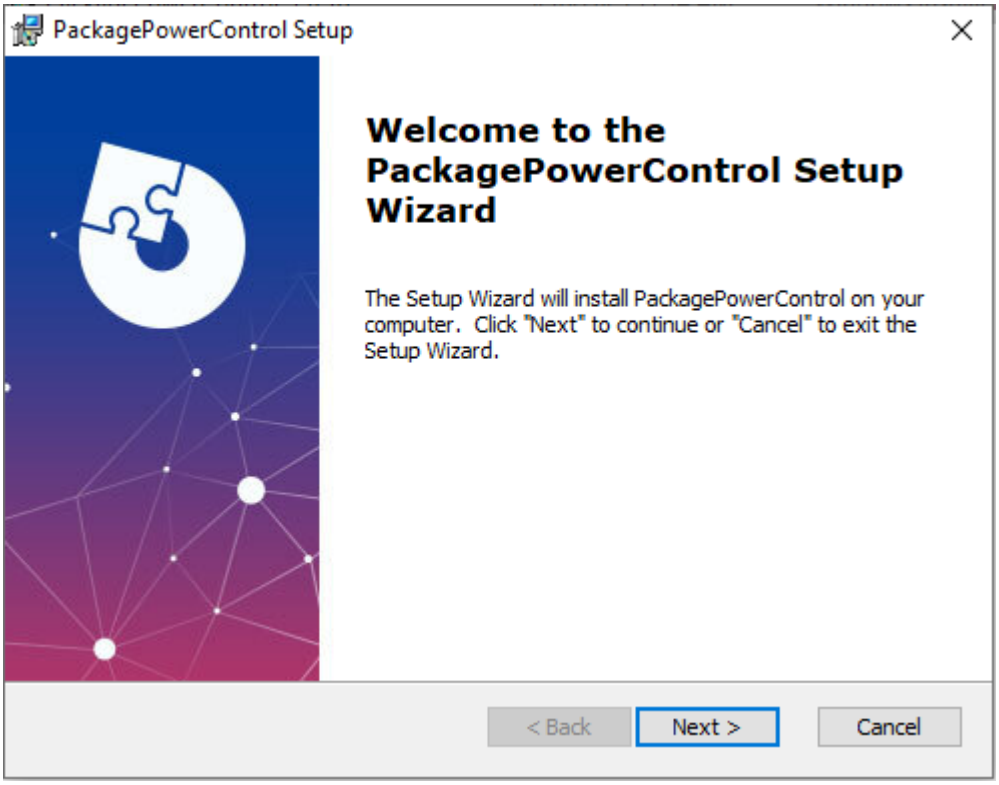

Administrator: Windows PowerShell
PS C:\Users\user\Desktop\PackagePowerControl_v1.0.18\Driver\Hottab Driver(WMMIO) v3.1.0.1\WMMIO_64bit> .\install.bat

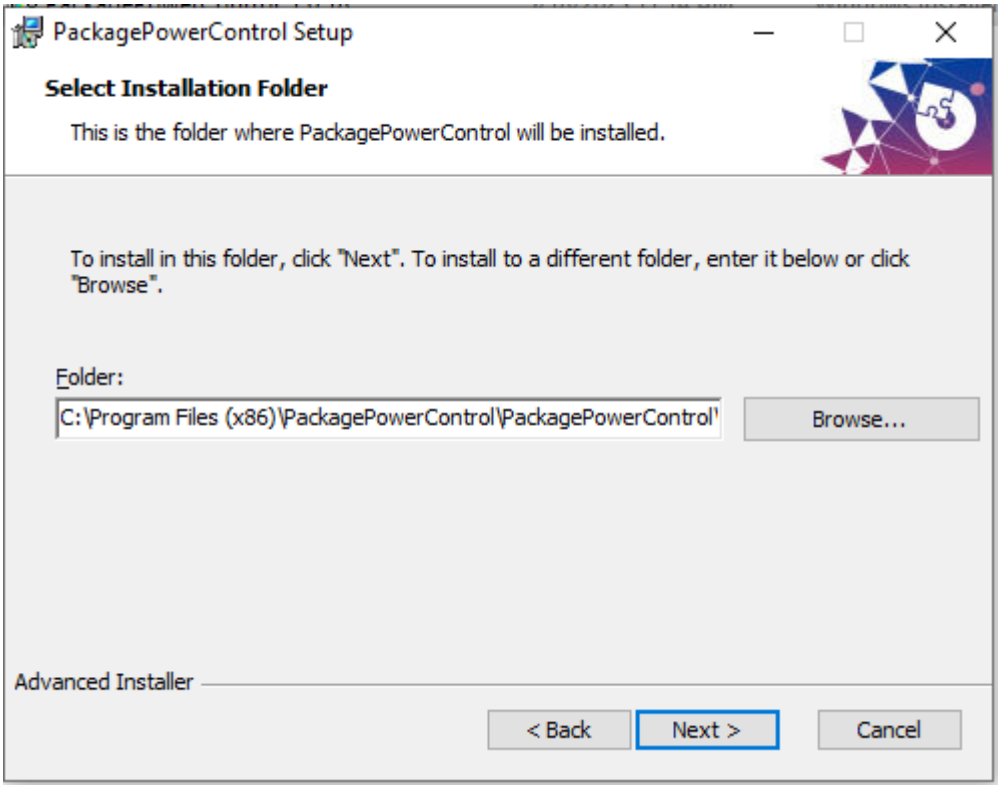

Administrator: Windows PowerShell
PS C:\Users\user\Desktop\PackagePowerControl_v1.0.18\Driver\Hottab Driver(WMMIO) v3.1.0.1\WMMIO_64bit> .\install.bat
C:\Users\user\Desktop\PackagePowerControl_v1.0.18\Driver\Hottab Driver(WMMIO) v3.1.0.1\WMMIO_64bit>DEVCON.EXE INSTALL wmmio.inf "root\wmmio"
Device node created. Install is complete when drivers are installed...
Updating drivers for root\wmmio from C:\Users\user\Desktop\PackagePowerControl_v1.0.18\Driver\Hottab Driver(WMMIO) v3.1.0.1\WMMIO_64bit\wmmio.inf.
Drivers installed successfully.
C:\Users\user\Desktop\PackagePowerControl_v1.0.18\Driver\Hottab Driver(WMMIO) v3.1.0.1\WMMIO_64bit>pause
Press any key to continue . . .

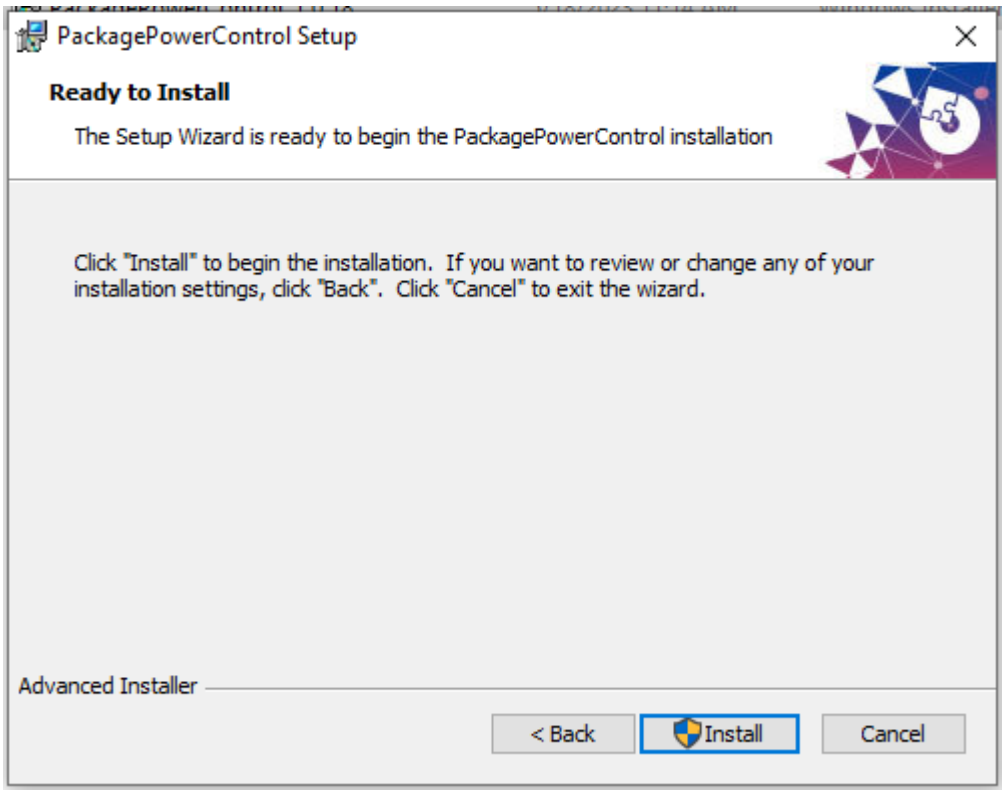

Device Manager
File Action View Help
Sound, video and game controllers
Storage controllers
System devices
ACPI Fan
ACPI Fan
ACPI Fan
ACPI Fan
ACPI Fan
ACPI Fixed Feature Button
ACPI Processor Aggregator
ACPI Thermal Zone
ACPI Thermal Zone
Charge Arbitration Driver
Composite Bus Enumerator
eGalax_eMPIA Touchscreen Enumerator x64
Generic Bus
Generic Bus
High Definition Audio Controller
High precision event timer
Intel(R) Gaussian Mixture Model - 1911
Intel(R) Host Bridge/DRAM Registers - 5904
Intel(R) Management Engine Interface
Intel(R) Power Engine Plug-in
Legacy device
Microsoft ACPI-Compliant System
Microsoft Hyper-V Virtualization Infrastructure Driver
Microsoft System Management BIOS Driver
Microsoft UEFI-Compliant System
Microsoft Virtual Drive Enumerator
Microsoft Windows Management Interface for ACPI
Mobile 7th/8th Generation Intel(R) Processor Family I/O LPC Controller (U with iHDCP2.2 Premium) - 9D4E
Mobile Intel(R) Processor Family I/O PCI Express Root Port #6 - 9D15
Mobile Intel(R) Processor Family I/O PMC - 9D21
Mobile Intel(R) Processor Family I/O SMBUS - 9D23
NDIS Virtual Network Adapter Enumerator
PCI Express Root Complex
Plug and Play Software Device Enumerator
Programmable interrupt controller
Remote Desktop Device Redirector Bus
System CMOS/real time clock
System timer
UMBus Root Bus Enumerator
WMMIO Driver
WMWDG
Universal Serial Bus controllers
WMMIO Driver Properties
General Driver Details Events
WMMIO Driver
Driver Provider: Winmate
Driver Date: 6/9/2014
Driver Version: 3.1.0.1
Digital Signer: Winmate Communication INC.
Driver Details
View details about the installed driver files.
Update Driver
Update the driver for this device.
Roll Back Driver
If the device fails after updating the driver, roll back to the previously installed driver.
Disable Device
Disable the device.
Uninstall Device
Uninstall the device from the system (Advanced).
OK
Cancel

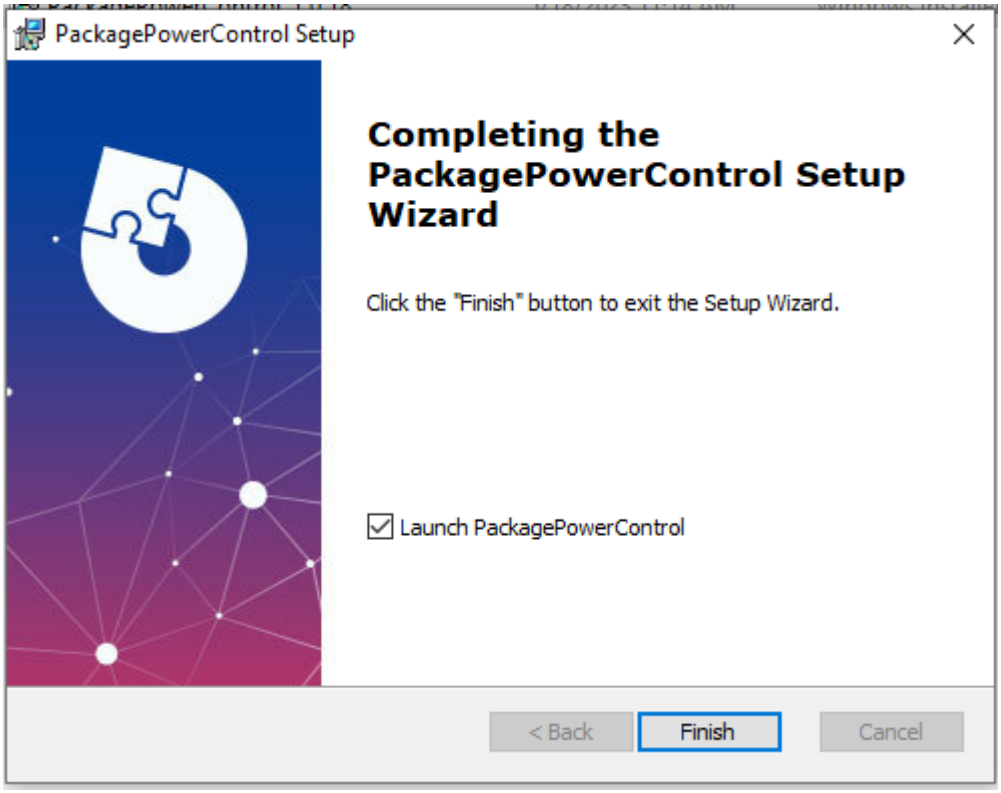
3. Click **AP**.

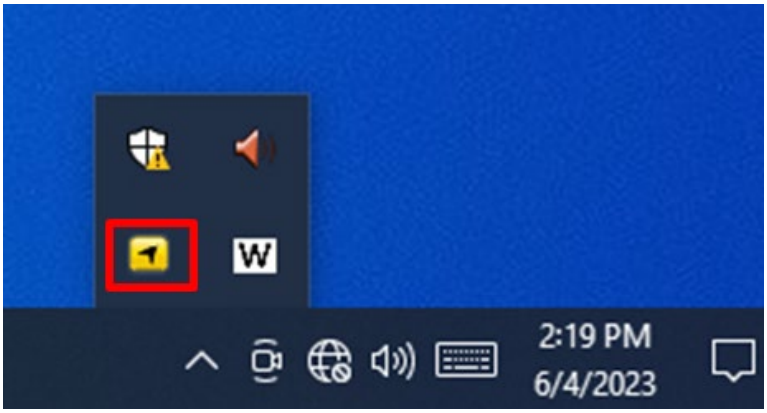

AP
File
Home
Share
View
PackagePowerControl_v1.0.18 › AP
Search AP
Quick access
Desktop
Downloads
Documents
Pictures
install PackageP
This PC
ALAN (D:)
Network
Name
Date modified
Type
Size
PackagePowerControl_1.0.18
5/18/2023 11:14 AM
Windows Installer ...
3,136 KB
1 item


PackagePowerControl Setup
Welcome to the PackagePowerControl Setup Wizard
The Setup Wizard will install PackagePowerControl on your computer. Click "Next" to continue or "Cancel" to exit the Setup Wizard.
< Back
Next >
Cancel


PackagePowerControl Setup
Select Installation Folder
This is the folder where PackagePowerControl will be installed.
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".
Folder:
C:\Program Files (x86)\PackagePowerControl\PackagePowerControl\
Browse...
Advanced Installer
< Back
Next >
Cancel


PackagePowerControl Setup
Ready to Install
The Setup Wizard is ready to begin the PackagePowerControl installation
Click "Install" to begin the installation. If you want to review or change any of your installation settings, click "Back". Click "Cancel" to exit the wizard.
Advanced Installer
< Back
Install
Cancel


PackagePowerControl Setup
Completing the PackagePowerControl Setup Wizard
Click the "Finish" button to exit the Setup Wizard.
Launch PackagePowerControl
< Back
Finish
Cancel


2:19 PM
6/4/2023

# Appendix

## Appendix A: Hardware Specifications

| | | Model Name | |
|---|---|---|---|
| | | IBDRW100-P | IBDRW100-EX-P |
| System Specification | CPU | Intel® Pentium® N4200 1.1GHz, up to 2.56GHz | Intel® Pentium® E3950 1.6GHz, up to 2.0GHz |
| | System Memory | SO-DIMM socket DDR3L-1866 Max. 8GB | SO-DIMM socket DDR3L-1866 Max. 8GB |
| | Storage | 1 x SATAIII, 1 x M.2 (2242 KEY B, SATAIII) | 1 x SATAIII, 1 x M.2 (2242 KEY B, SATAIII) |
| | BIOS | Insyde BIOS | Insyde BIOS |
| | Graphics | Intel® HD Graphics 505 | Intel® HD Graphics 505 |
| | LAN | 4 x Giga LAN (Intel® I210-IT Gigabit-LAN Controller) | 4 x Giga LAN (Intel® I210-IT Gigabit-LAN Controller) |
| | Audio | Realtek HD Audio Codec | Realtek HD Audio Codec |
| | OS | Windows 10 IoT Enterprise, Ubuntu 18.04 LTS | Windows 10 IoT Enterprise, Ubuntu 18.04 LTS |
| Wireless Communications | WLAN | Optional 1 x M.2 (KEY E, for Wi-Fi ) | Optional 1 x M.2 (KEY E, for Wi-Fi) |
| | 4G | Optional 4G / LTE | Optional 4G / LTE |
| Interface | External I/O | 3 x USB 3.0<br>1 x USB 2.0<br>4 x RJ-45 for Giga LAN w/LED<br>1 x VGA<br>1 x RS232 (Default), RS422/485 switch by BIOS<br>1 x Isolated RS422(Default), RS485 Switch by jumper<br>1 x Audio Jack (Mic-in, Line-out, Line-in)<br>1 x clear CMOS & reset button<br>1 x DIDO(9in, 9out)<br>1 x DC Power 3pin Terminal Block | 3 x USB 3.0<br>1 x USB 2.0<br>4 x RJ-45 for Giga LAN w/ LED<br>1 x VGA<br>1 x RS232 (Default), RS422/485 switch by BIOS<br>1 x Isolated RS422(Default), RS485 Switch by jumper<br>1 x Audio Jack (Mic-in, Line-out, Line-in)<br>1 x clear CMOS & reset button<br>1 x DIDO(9in, 9out)<br>1 x DC Power 3pin Terminal Block |
| Keyboard and Input | Button | 1 x Reset Button | 1 x Reset Button |
| | LED Indicators | Power, Storage | Power, Storage |
| Power Management | Power Input | 12V DC (isolation) | 12V DC (isolation) |
| | Power Consumption | 20W (max.) | 30W (max.) |
| | AC Adapter | 12V / 36W | 12V / 36W |
| Mechanical Specification | Dimensions | 139 x 64.5 x 152 mm (5.47 x 2.54 x 5.98 inches) | 139 x 64.5 x 152 mm (5.47 x 2.54 x 5.98 inches) |
| | Gross Weight | 6 kg (13.23 lbs) | 6 kg (13.23 lbs) |

| | | Model Name | |
|---|---|---|---|
| | | **IBDRW100-P** | **IBDRW100-EX-P** |
| **Mechanical Specification** | Net Weight | 6.5 kg (14.33 lbs) | 6.5 kg (14.33 lbs) |
| | Mounting | DIN Rail | DIN Rail |
| | Cooling | Fanless | Fanless |
| **Environment Specification** | Operating Temp. | -20˚ to 60˚C (-4˚ to 140˚F) | -40˚ to 70˚C (-40˚ to 158˚F) , when powered by suitable DC source rated<br>-40˚ to 40˚C (-40˚ to 104˚F) , when powered by adaptor. |
| | Storage Temp. | -40˚ to 70˚C (-40˚ to 158˚F) | -40˚ to 70˚C (-40˚ to 158˚F) |
| | Operating Humidity | 5% to 95% RH, non-condensing | 5% to 95% RH, non-condensing |
| | Shock | MIL-STD-810F/G Method 516.6 | MIL-STD-810F/G Method 516.6 |
| | Vibration | MIL-STD-810F/G Method 514.6 | MIL-STD-810F/G Method 514.6 |
| **Approvals and Certifications** | Ordinary Location Safety | CSA C22.2 No. 62368-1-14 UL 62368-1 | CSA C22.2 No. 62368-1-14 UL 62368-1 |
| | Hazardous Location Safety | N/A | Class I, Division 2, Groups A, B, C, D T4 (when max. ambient = 70°C)<br>Class I, Division 2, Groups A, B, C, D T5 (when max. ambient = 40°C) |
| | IoT | AWS IoT Greengrass Certified | AWS IoT Greengrass Certified |

## Appendix B: Approvals and Certifications

Refer the following descriptions for various approvals and certifications.

N.A. Safety for Information Technology Equipment **(For IBDRW100-EX-P)**

Certification by Underwriter Laboratories to CSA C22.2 No. 62368-1-14 standard and equivalent UL 62368-1 Standard

N.A. Safety for HazLoc **(For IBDRW100-EX-P)**

Class I, Division 2, Groups A, B, C, D T4 (when max. ambient = 70°C)
Class I, Division 2, Groups A, B, C, D T5 (when max. ambient = 40°C)

Certification by Underwriter Laboratories to CAN/CSA C22.2 NO. 213-17 standard and equivalent UL 121201 Ed.9 Standard

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)**

- EN55024: 2010/ A1: 2015
  - IEC61000-4-2: 2009
  - IEC61000-4-3: 2006+A1: 2007+A2: 2010
  - IEC61000-4-4: 2012
  - IEC61000-4-5: 2014
  - IEC61000-4-6: 2014
  - IEC61000-4-8: 2010
  - IEC61000-4-11: 2004
- EN55032: 2012/AC:2013
- EN61000-3-2:2014
- EN61000-3-3:2013

**Low Voltage Directive (2014/35/EU)**

- EN 62368-1

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

# Notes

# Notes

Winmate Inc.
9F, No.111-6, Shing-De Rd., San-Chung District,
New Taipei City 24158, Taiwan, R.O.C
www.winmate.com