M-Series HMI

12"/15"/15.6"/17"/19"/ 21.5"/23.8" P-CAP touchscreen
Intel® Tiger Lake UP3 Core™ i5-1135G7 2.4 GHz, up to 4.2 GHz

Multifunctional

Model No.: R12ITWS-MHM2
R15ITWS-MHC3
W15ITWS-MHA4
R17ITWS-MHM1
R19ITWS-MHA1
W22ITWS-MHA3
W24ITWS-MHA2

User Manual

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

Contents

Preface

Copyright Notice

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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 1W17Axxxxxxxx means October of year 2017.

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

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

ALTERNATING CURRENT / MISE À LE TERRE!
The Protective Conductor Terminal (Earth Ground) symbol indicates the potential risk of serious electrical shock due to improper grounding.
Le symbole de Mise à Terre indique le risqué potential de choc électrique grave à la terre incorrecte.

Safety Information

WARNING! / AVERTISSEMENT!

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.

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/ ATTENTION

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.

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.

- 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/ATTENTION

Do not cover the openings! *Ne pas couvrir 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.

*Let service personnel check the equipment in case any of the following problems appear:

- o The power cord or plug is damaged.
- o Liquid has penetrated the equipment.
- o The equipment has been exposed to moisture.
- o The equipment does not work well or cannot get to work according to the user manual.
- o The equipment has been dropped and damaged.
- o The equipment has obvious signs of breakage.

- Do not leave this equipment in an uncontrolled environment where the storage temperature is below -20°C (-4°F) or above 60°C (140°F). It may damage the equipment.

CAUTION/ATTENTION
Use the recommended mounting apparatus to avoid risk of injury.
Utiliser l'appareil de fixation recommandé pour éliminer le risque de blessure.

WARNING! / AVERTISSEMENT!
Only use the connection cords that come with the product. When in doubt, please contact the manufacturer.
Utiliser seulement les cordons d'alimentation fournis avec le produit. Si vous doutez de leur provenance, contactez le manufacturier.

WARNING! / AVERTISSEMENT!
Always ground yourself against electrostatic damage to the device.
Toujours vérifier votre mise à la terre afin que l'équipement ne se décharge pas sur vous.

- Cover workstations with approved anti-static material. Use a wrist strap connected to a work surface and properly grounded tools and equipment.
- Use anti-static mats, heel straps, or air ionizer for added protection.
- Handle electrostatic-sensitive components, PCB's and assemblies by the case or the edge of the board.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting and removing connectors or test equipment.
- Keep the work area free of non-conductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Use filed service tools, such as cutters, screwdrivers, and vacuum cleaners that are conductive.
- Always put drivers and PCB's component side on anti-static foam.

Important Information

Federal Communications Commission Radio Frequency Interface Statement

This device complies with part 15 FCC rules.
Operation is subject to the following two conditions:
- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class "B" digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This

equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at him own expense.

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 60950-1:2006/A11:2009/A1:2010/A12:2011/ A2:2013

About This User Manual

This User Manual provides information about using the Winmate® M-Series HMI with Intel® Core™ i5-1145G7 processor. The documentation set contains detailed description on how to use the HMI, its components and features.

NOTE
Some pictures in this guide are samples and can differ from the actual product.

Chapter 1: Introduction

Thank you for purchasing Winmate® M-Series HMI. M-Series HMI is designed to provide versatile and cost-effective solution for your industrial needs. P-CAP multi- touch screen equipped with industrial motherboard offers various input/ output connectors. Intel® Core ™ i5-1145G7 processor onboard with fanless cooling system assures steady performance and silent functioning.

M-Series HMI perfectly fits in applications where total costs of ownership (TCO) and quick recovery of failure is important. The flexible system design provides easy access to components and can be serviced by local maintenance team.

Versatile, easy-to-service and upgradable M-Series HMI is the best solution for industrial and building automation.

1.1 Product Features
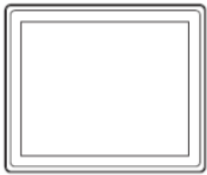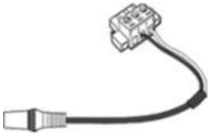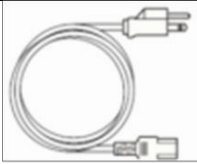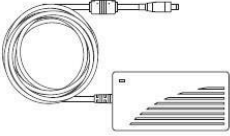
Winmate® M-Series HMI (Skylake) has the following features:

- 12"/ 15"/15.6"/ 17"/ 19"/ 21.5"/ 23.8"
- Intel® Core ™ i5-1135G7 2.4 GHz, up to 4.2 GHz
- Signature true flat display screen with edge-to-edge design
- Aluminum, anti-corrosion treated housing
- Superior Sealing with front IP65 protection against dust and water
- Projected Capacitive Multi Touch (P-CAP)
- Fanless cooling system
- Support wide range 9-29V DC input
- Internal M.2 NVMe SSD
- One Quick & Easy Removable 2.5" SSD Bay Slot
- Support PCIe x4 Card

1.2 Package Contents

Carefully remove the box and unpack your HMI device. Please check if all the items listed below are inside your package. If any of these items are missing or damaged contact us immediately.

Standard factory shipment list:

HMI Device	Quick Start Guide (Hardcopy)	Driver CD	Mounting Clips & Screws **12" HMI – 8 pcs** **15" HMI – 12 pcs** **17"/ 19" HMI – 14 pcs** **21.5" HMI – 16 pcs**
3-pin Terminal Block	Power Cord	AC Adapter (12V/120W)	

1.3 I/O Layout
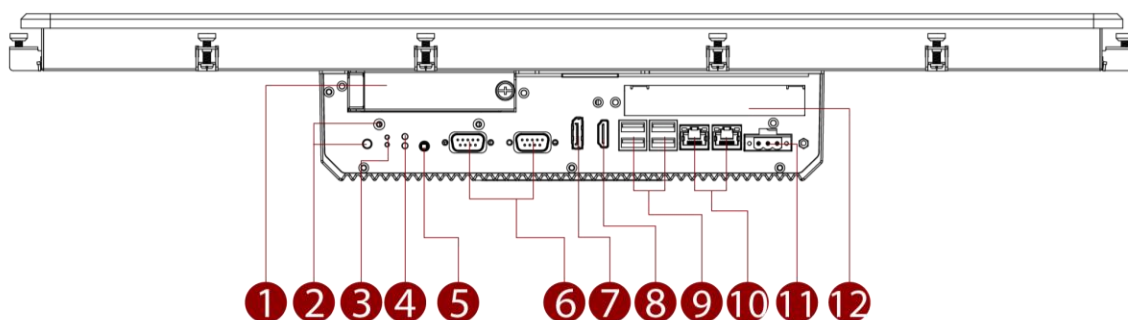
❶ Removable HDD/ SSD Slot	**❺** Audio	**❾** USB Type-A
❷ Reset Button/ Power Switch	**❻** COM	**❿** LAN
❸ LED Indicators	**❼** DP	**⓫** Power Input
❹ HDD Indicators	**❽** HDMI	**⓬** PCIe Slot Cover

NOTE
1. This is a simplified drawing and some components are not marked in detail.
2. 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.
3. All specifications are subject to change without prior notice.

1.4 Power Button

M-Series HMI has a Power On/ Off button on the front side.

1.5 Reset Button

M-Series HMI has a Reset Button located on the front side. Press reset button to reboot the computer forcibly.

1.6 LED Indicator

M-Series HMI provides one HDD LED indicator for status monitoring.

LED Indicator:

LED Indicator	Color	Description
HDD	Off	Slot is empty; drive is not yet discovered by the system.
	Green	HDD operating normally.

1.7 Dimensions

This section contains mechanical drawing of the HMI devices. Notice that this is a simplified drawing and some components are not marked in detail.

1.7.1 Dimensions 12"

Unit: mm
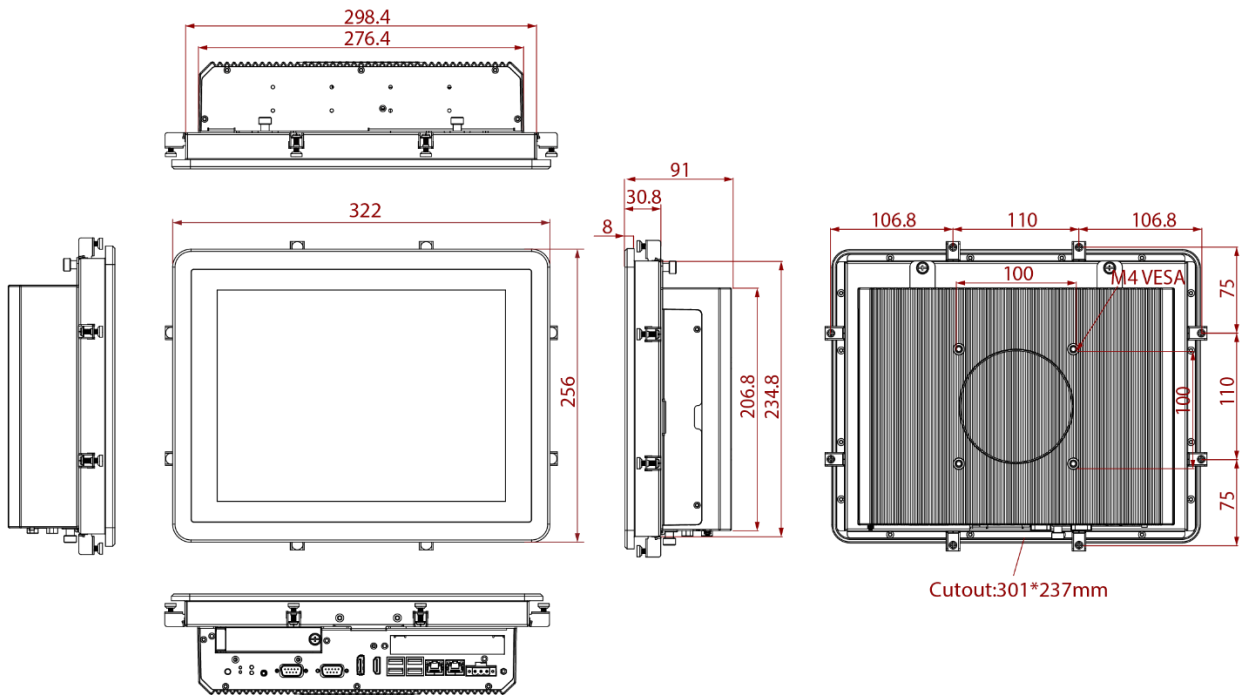
1.7.2 Dimensions 15"

Unit: mm

Cutout:342*261mm
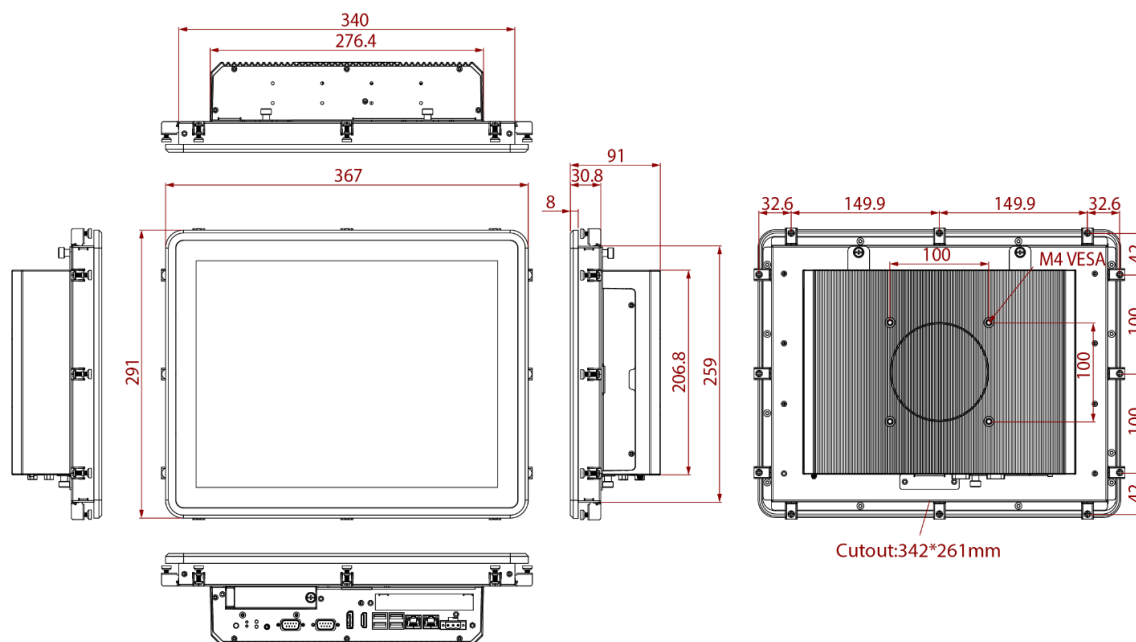
1.7.3 Dimensions 15.6"

Unit: mm

Cutout: 338*227mm

❶ Removable HDD/SSD Slot DP		❼ DP	
❷ Reset Button		❽ HDMI	
❸ LED Indicators		❾ USB Type-A	
❹ HDD Indicators		❿ LAN	
❺ Audio		⓫ Power Input	
❻ COM		⓬ PCIe Slot Cover	
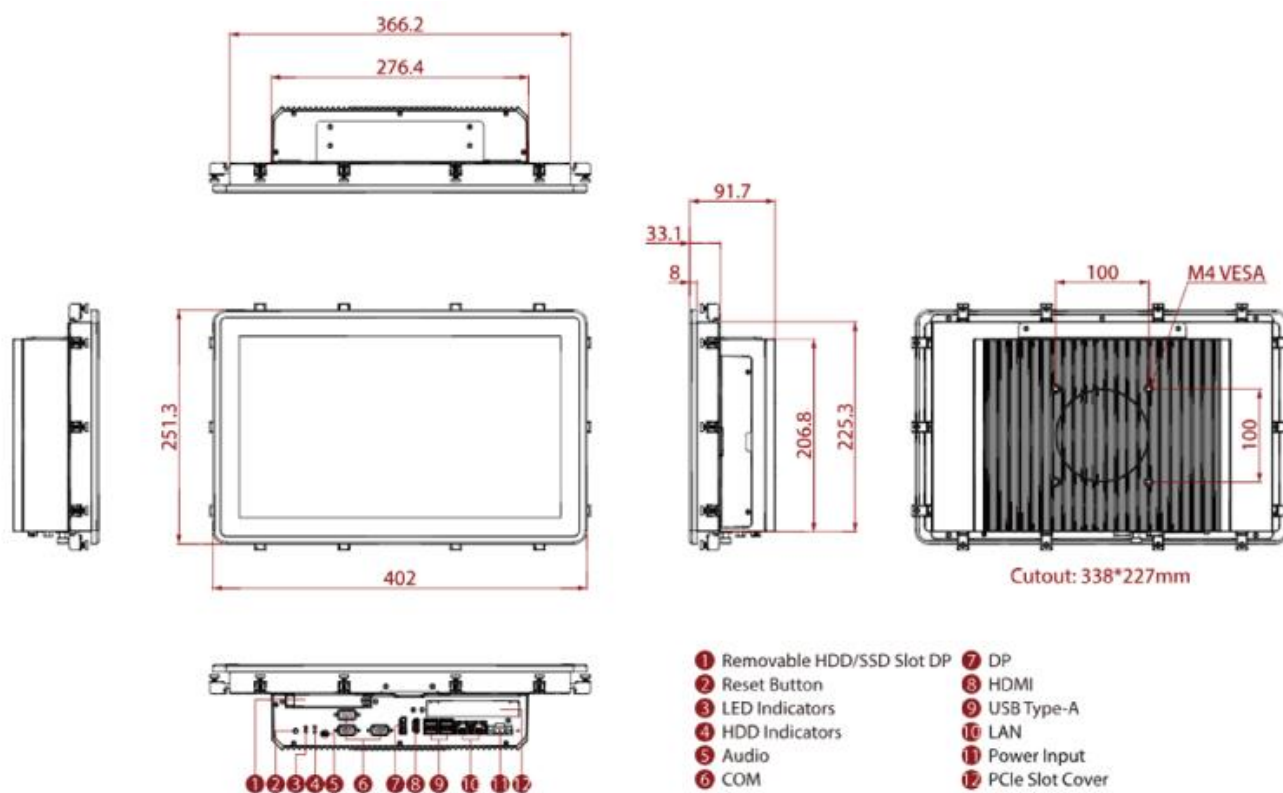
1.7.4 Dimensions 17"

Unit: mm
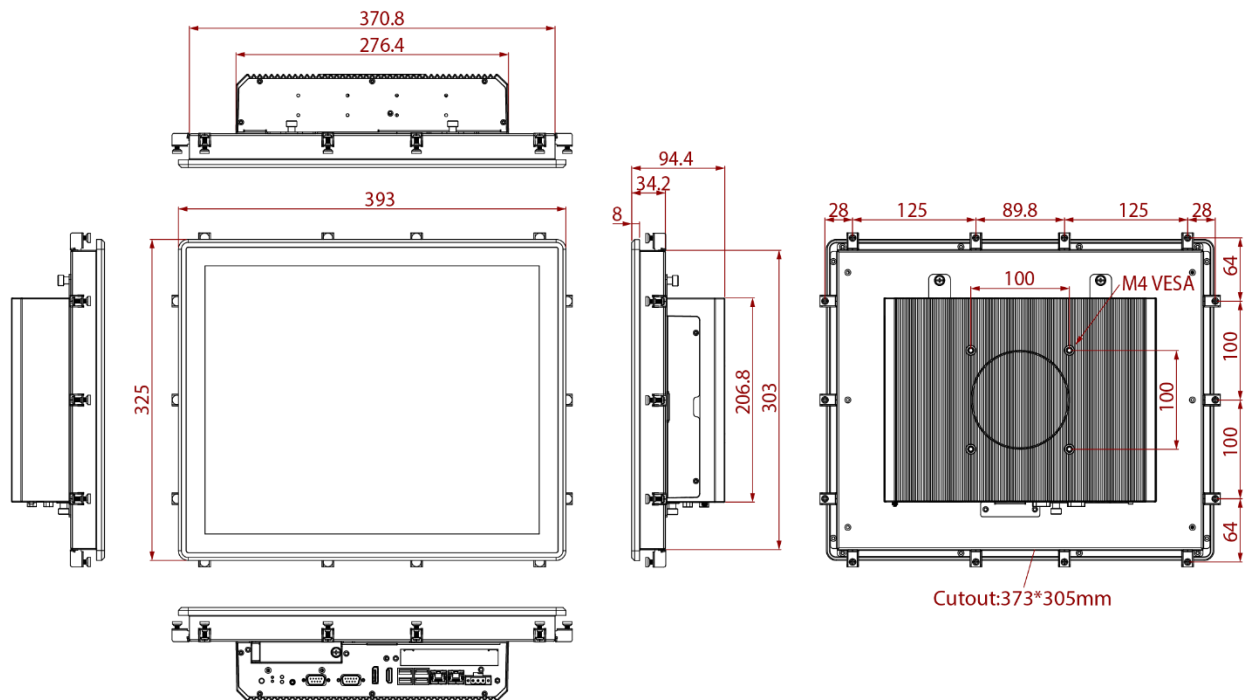
1.7.5 Dimensions 19"

Unit: mm
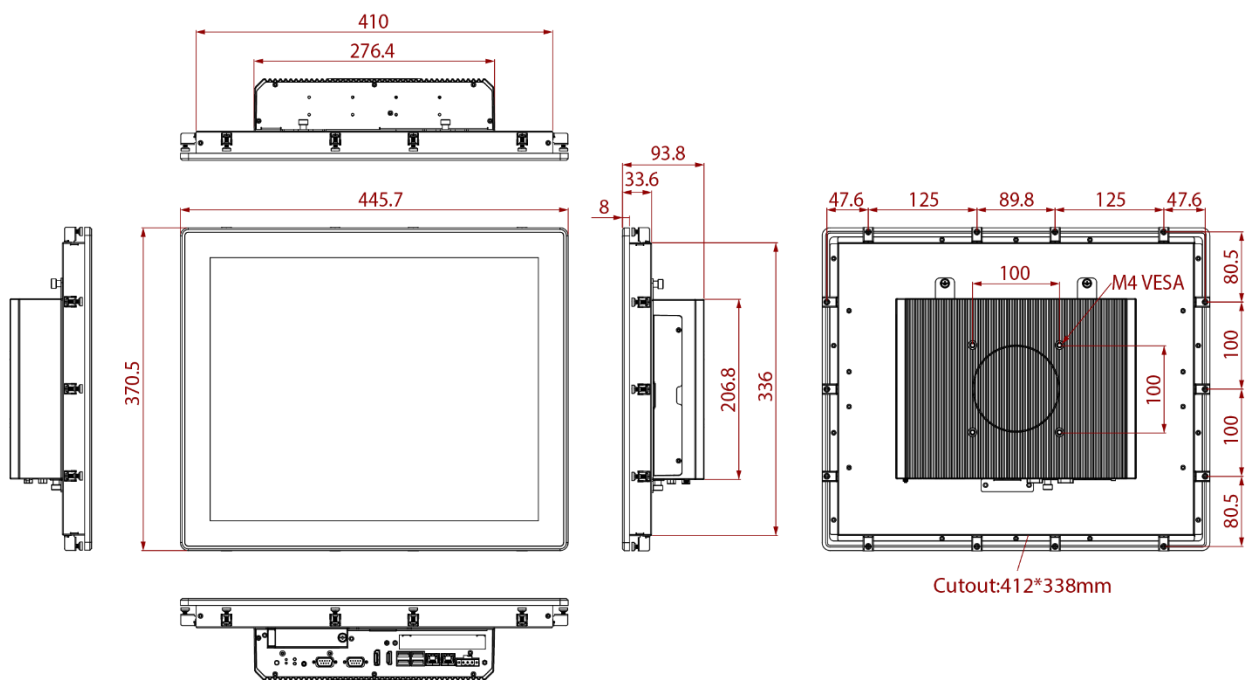
1.7.6 Dimensions 21.5"

Unit: mm
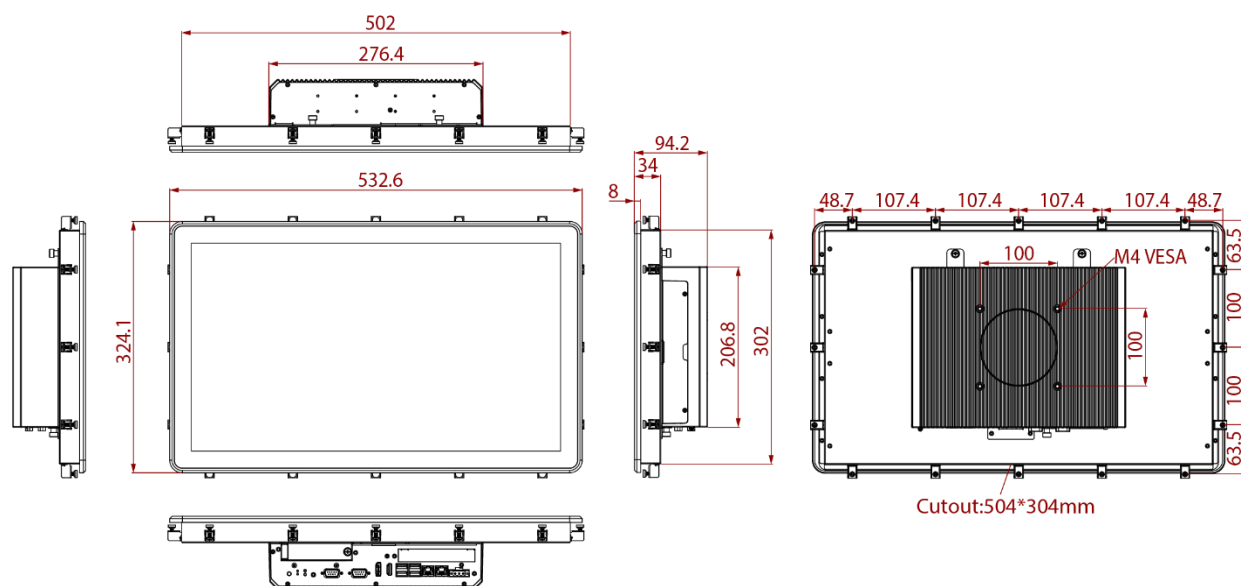
1.7.7 Dimensions 23.8"

Unit: mm
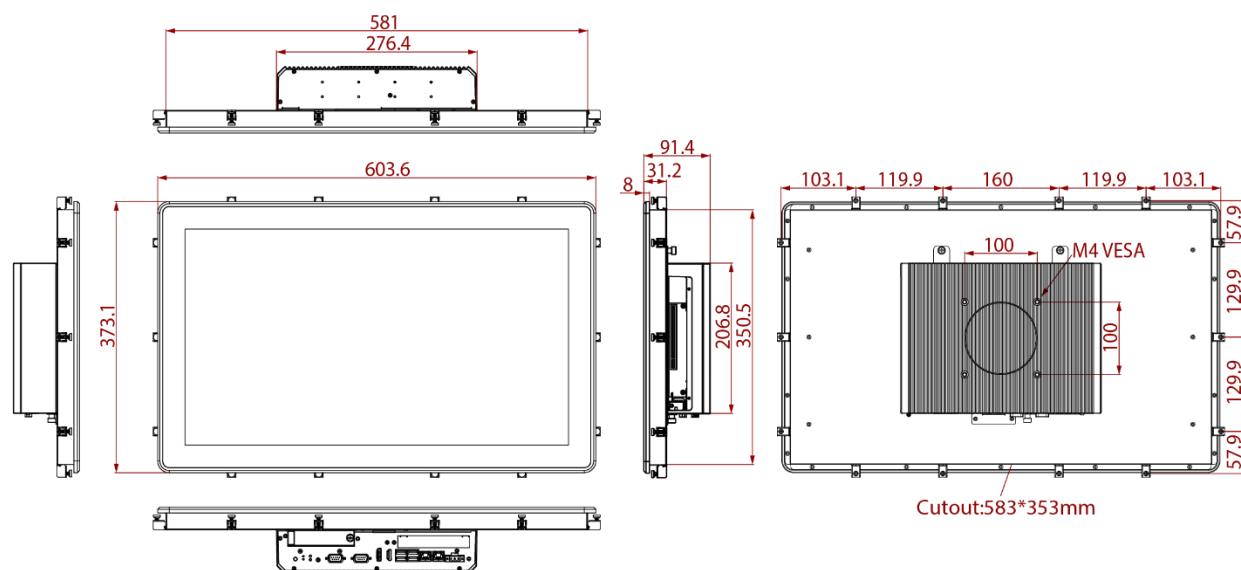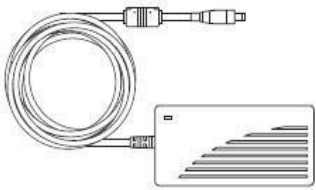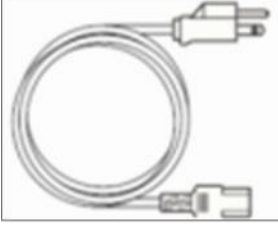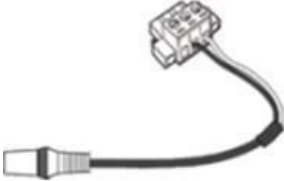
Chapter 2: Getting Started

This chapter provides information on how to connect the HMI device to the source of power, connector pinouts and the guideline to turn on/off the HMI device.

2.1 Powering On

This section explains how to power on the HMI device. Pay attention to the precautions

2.1.1 AC Adapter Components

AC Adapter (12V/120W)	Power Cord	3-Pin Terminal Block to DC Jack

Safety Precautions:

- Do not use the adapter in a high moisture environment
- Never touch the adapter with wet hands or foot
- Allow adequate ventilation around adapter while using
- Do not cover the adapter with paper or other objects that will reduce cooling
- Do not use the adapter while it is inside a carrying case
- Do not use the adapter if the cord is damaged
- There are NO serviceable parts inside
- Replace the unit if it is damaged or exposed to excess moisture

While using the AC Adapter always:

- Plug-in the power cord to easy accessible AC outlet
- Plug-in the AC adapter to a grounded outlet

ALTERNATING CURRENT / MISE À LE TERRE!
This product must be grounded. Use only a grounded AC outl Install the additional PE ground wire if the local installati regulations require it.
Ce produit doit être mis à la terre. Utiliser seulement un cordon d'alimentation avec mise à la terre. Si les règlements locaux le requiert, installer des câbles de mise à la terre supplémentaires.

2.1.2 Power Considerations

HMI device operates on external DC power. Use the AC adapter included in the package.

CAUTION/ATTENTION

Use only the AC adapter included in your package (Rating: Output 12V/10A). Using other AC adapters may damage the device.

Utiliser seulement le convertisseur AC inclu avec votre appareil (Puissance: Sortie 12V10A). Utiliser d'autres convertisseurs pourraient endommager l'appareil.

2.1.3 Connecting the Power

Connecting to AC Power Source

To connect the HMI to AC power source:

1. Plug one end of the terminal block cable firmly to the DC IN Jack.
2. Plug the other end of the terminal block plug to the AC adapter.
3. Connect the AC adapter to the power cord.
4. Plug the power cord to a working AC outlet. The device will boot automatically.
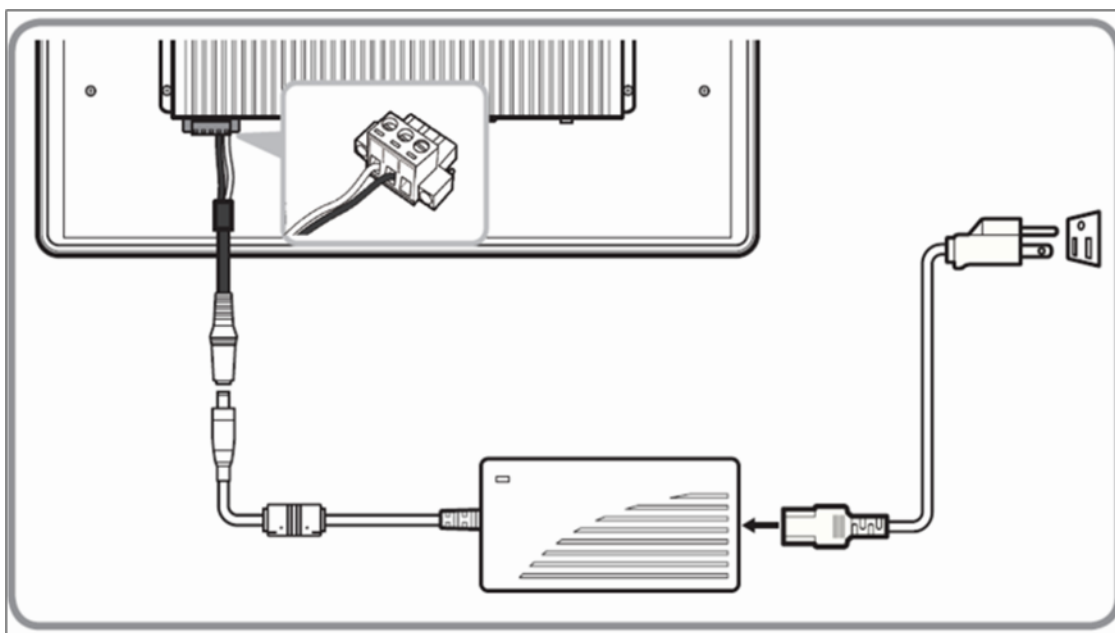
Connecting to DC Power Source

To connect the HMI to DC power source:

1. Insert the exposed wires of the DC Power Cable to the appropriate connectors on the terminal block plug.
2. Plug the terminal block plug firmly to the DC IN Jack.
3. Connect the other end of the DC power cable (wires with lug terminals that are labeled "+" and "–" to the terminals of the 9~29V DC Power Source. Ensure that the power connections maintain the proper polarity.
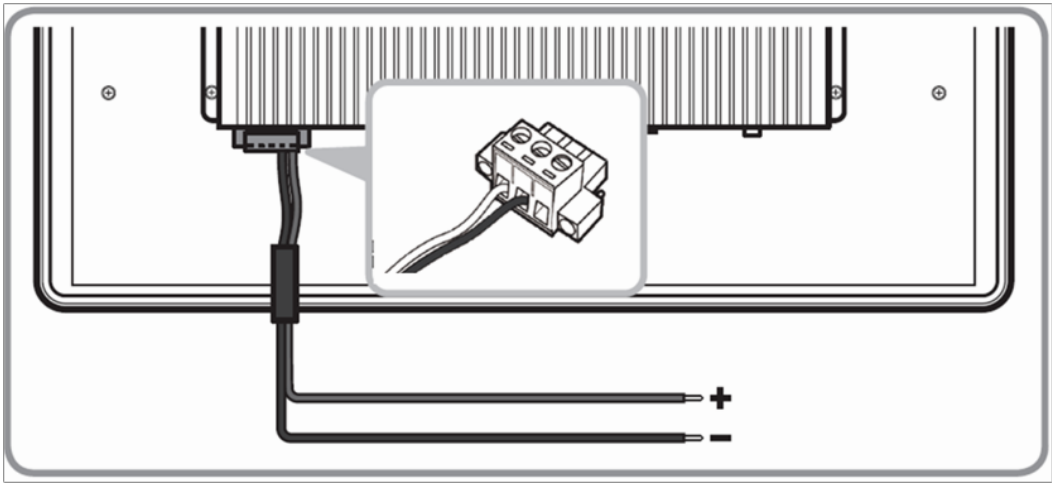
NOTE

Power cords vary in appearance by region and country.

2.2 Connector Description

This section includes I/O side connectors and its pinouts.

2.2.1 Isolated DC in Connector
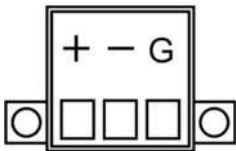
Voltage

Minimum Voltage 9V
Maximum Voltage 29V

M-Series HMI has a 3pin terminal block that accepts 9~29V DC input.

2.2.2 Mic In, Line In and Line Out
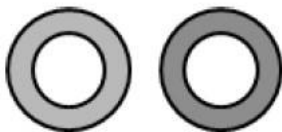
Color	Signal Name
1	Mic in
2	Line Out

2.2.3 Serial Port Connector

The M-Series HMI uses D-SUB 9pin connector to connect serial interfaces.
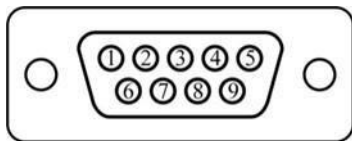
Pin No	RS-232 (Default)	RS- 422	RS- 485
1	DCD	TxD-	D-
2	RXD	TxD+	D+
3	TXD	RxD+	NC
4	DTR	RxD-	NC
5	GN	GND	GND
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

Serial port settings can be configured for RS-232, RS-422 or RS-485 by BIOS setting.

2.2.4 USB 3.2 Gen.1 Connector

The I M-Series HMI has four USB 3.2 Gen.1 ports. Use USB3 connectors to connect external devices such as mouse or keyboard to the device.
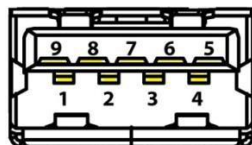
Pin No	Signal Name	Pin No	Signal Name
1	+5V	2	USB_D-
3	USB_D+	4	GND
5	STDA_SSRX-	6	STDA_SSRX+
7	GND_DRAIN	8	STDA_SSTX-
9	STDA_SSTX+		

2.2.5 Display Port Output Connector

The M-Series HMI has Display Port connector. Use Display Port cable to connect the display to the PC system.
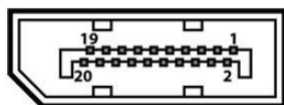
Pin No	Signal Name	Pin No	Signal Name
1	Lane 0+	2	GND
3	Lane 0-	4	Lane 1+
5	GND	6	Lane 1-
7	Lane 2+	8	GND
9	Lane 2-	10	Lane 3+
11	GND	12	Lane 3-
13	AUC_EN_N	14	GND
15	AUX+	16	GND
17	AUX-	18	Hot Plug
19	GND	20	+3.3V

2.2.6 HDMI Output Connector

Use HDMI A Type19-pin female output connector to connect the HMI device to an external display.
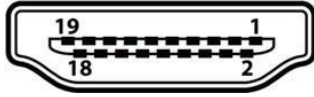
Pin No	Signal Name	Pin No	Signal Name
1	TMDS_DATA2+	2	GND
3	TMDS_DATA2-	4	TMDS_DATA1+
5	GND	6	TMDS_DATA1-
7	TMDS_DATA0+	8	GND
9	TMDS_DATA0-	10	TMDS_CLOCK+
11	GND	12	TMDS_CLOCK-
13	CEC	14	NC
15	DDC_CLOCK	16	DDC_DATA
17	GND	18	5V
19	Hot Plug Detect		

2.2.7 Giga LAN Connector

The M-Series HMI equipped with two RJ45 10/100/1000 Mbps Ethernet interface for connecting to the internet.
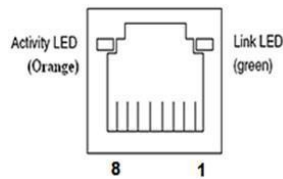
Pin No	Signal Name	Pin No	Signal Name
1	TX1+	2	TX1-
3	TX2+	4	TX2-
5	TX3+	6	TX3-
7	TX4+	8	TX4-

2.3 Turning On and Off

The unit is configured to **Power ON** when the HMI device is connected to the power source.
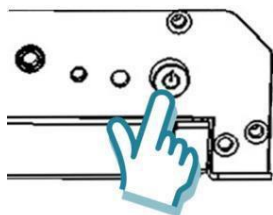
Press the **Power** button to restart the machine when the unit has been shut down.

If the system hangs, press the Reset button (beside the power button) to restart the device.

You can **Turn OFF** the HMI device with the Windows power settings:

1. Tap **Start** > **Shut down**.
2. Wait for your HMI device to completely turn off before disconnecting the power cord *(if necessary).*

Configuring Serial Port Settings

COM1 and COM 2 Serial Ports can be configured for RS-232, RS-422 or RS-485 thru BIOS setting.

CAUTION/ ATTENTION

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

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.

Chapter 3: Operating the Device

In this chapter you will find instructions on how to use multi-touch on the Windows- based HMI device.

3.1 Operating System

M-series HMI support Windows 10 IoT Enterprise operating system.
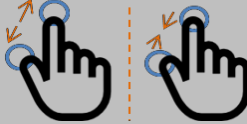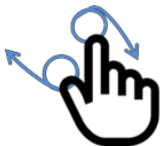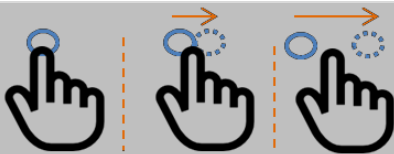
IMPORTANT
The device is shipped with the OS System according to your order.
Contact us if you have any questions regarding OS settings.

3.2 Multi-Touch

The touchpad supports the core gestures for Windows.

Gesture	Windows Usage	Gesture Action	Action
Tap/ Double-tap	Click / Double-click	Click or double- click	
Panning with Inertia	Scrolling	Drag one or two fingers up and down	
Selection/Drag *(left to right with one finger)*	Mouse-drag/ Selection	Drag one finger left/right	
Zoom	Zoom (default to CTRL key + scroll wheel)	Move two fingers apart/ toward each other	
Rotate	No system default unless handled by Application (using WM_Gesture API)	Move two fingers in opposite directions *or* Use one finger to pivot around another	
Two-Finger tap	N/A - Exposed through Gesture API, used by Application discretion	Tap two fingers at the same time (where the target is the midpoint between fingers)	

Gesture	Windows Usage	Gesture Action	Action
Press and Hold	Right-click	Press, wait for blue-ring animation to complete, then release	
Flicks	Default: Pan Up/ Down/ Back, and Forward	Make quick drag gestures in the described direction	

* Reference from Microsoft®

3.3 Adjusting Display Brightness

1. In the Windows 10 IoT Enterprise, user can adjust the resolution or adjust brightness. All these functions are managed in the control panel.

2. Tap **Start** **>** **Control Panel** > **Appearance and Personalization** > **Display**> **Adjust Brightness**.
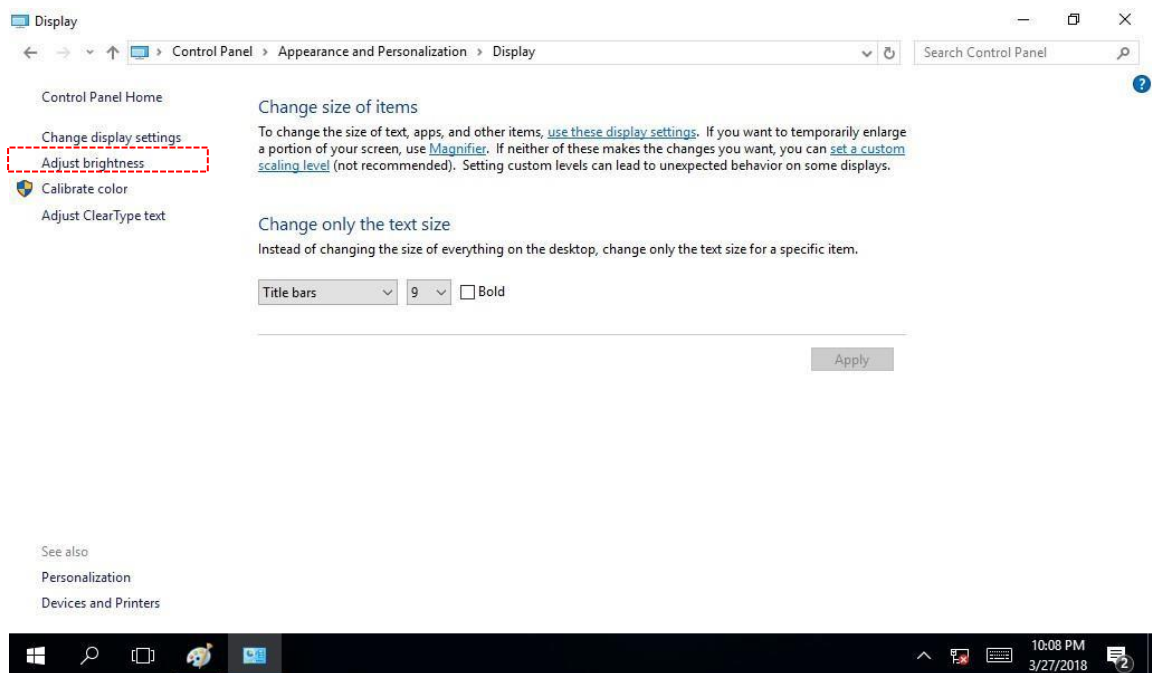
Chapter 4: Insyde BIOS SETUP

BIOS Setup Utility is a program for configuration basic Input / Output system settings of the computer for optimum use. This chapter provides information on how to use BIOS setup, its functions and menu.

4.1 When and How to Use BIOS Setup

To enter the BIOS setup, you need to connect an external USB keyboard, external monitor and press Del key when the prompt appears on the screen during start up. The prompt screen shows only few seconds so need press Del key quickly.

> **IMPORTANT**
> Updated BIOS version may be published after the manual released. Check the latest version of BIOS on the website.

You may need to run BIOS setup utility for reasons listed below:

1. Error message on screen indicates to check BIOS setup
2. Restoring the factory default settings.
3. Modifying the specific hardware specifications
4. Necessity to optimize specifications

BIOS Navigation Keys

The following keys are enabled during POST:

Key	Function
Del	Enters the BIOS setup menu.
ESC	Display the boot menu front page. The boot manager listed all bootable devices that are connected to the system. With cursor ↑ and cursor ↓ thus, by pressing <ENTER>, select the device used for the boot.

The following Keys can be used after entering the BIOS Setup.

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

For items marked ► press **<Enter>** for more options.

> **NOTE**
> You can press the F1, F2, F3, F4, –/+, and Esc keys by connecting a USB keyboard to your computer.

4.2 BIOS Functions

4.2.1 Main Menu

The Main menu displays the basic information about your system including BIOS version, processor RC version, system language, time, and date. When you enter BIOS setup, the first menu that appears on the screen is the main menu. It contains the system information including BIOS version, processor RC version, system language, time, and date.
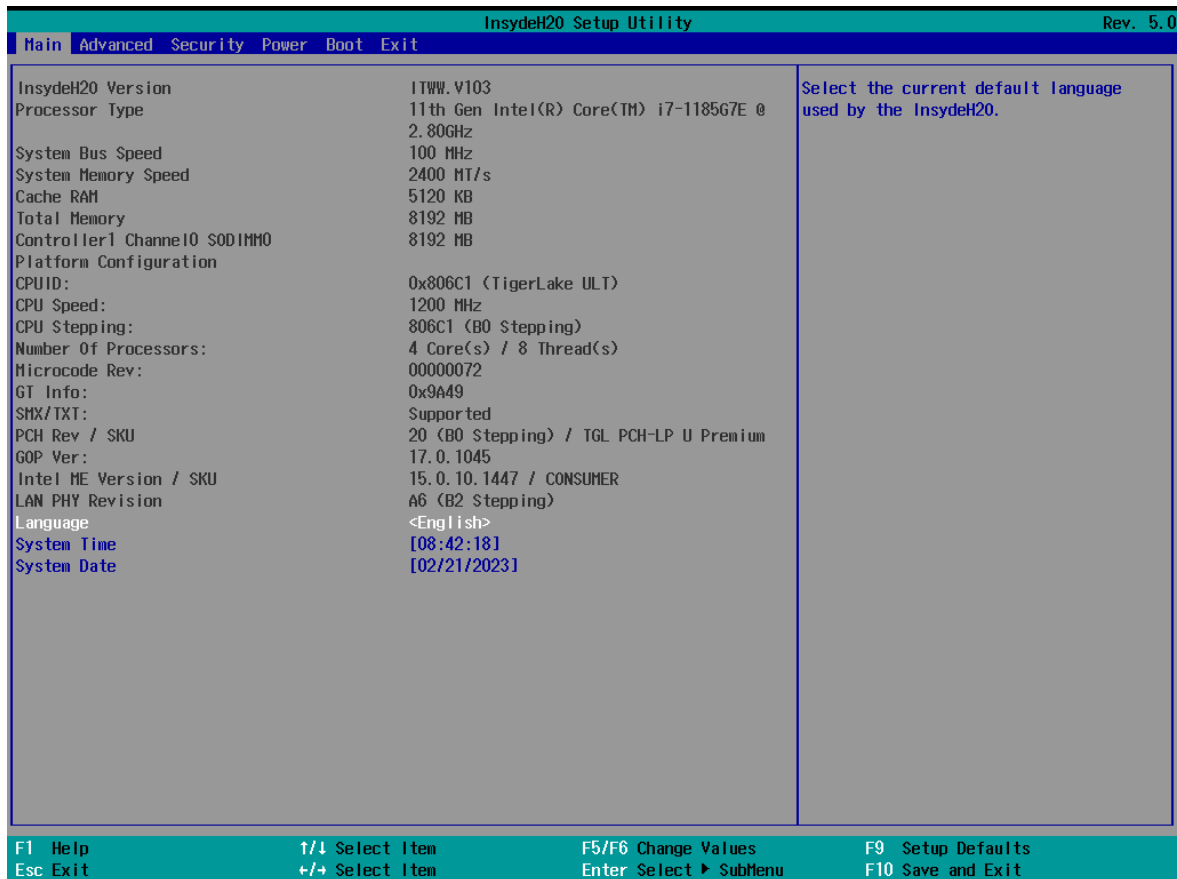
BIOS Setting	Description	Setting Option	Effect
Language	Displays the system language. [English] is set up by default.	Adjustment of the language	Set the language in other language. The language in this device is English.
System Time	This is current time setting. The time is maintained by the battery when the device is turned off.	Date and time changes.	Set the time in the format: [hh/mm/ss]
System Date	This is current date setting.	Date and time changes.	Set the date in the format [mm/dd/yyyy];

4.2.2 Advanced

Select the Advanced Tab from the setup menu to enter the advanced BIOS setup screen. You can select any of the items on the left frame of the screen to go to the sub menu for the item, such as CPU Configuration. You can use the <Arrow> keys enter all advanced BIOS setup options. The advanced BIOS setup menu is shown below. The submenus described on the following pages.

CAUTION / ATTENTION

Handle advanced BIOS settings page with caution. Any changes can affect the operation of your computer.

Gérez la page des paramètres avancés du BIOS avec prudence. Tout changement peut affecter le fonctionnement de votre ordinateur.
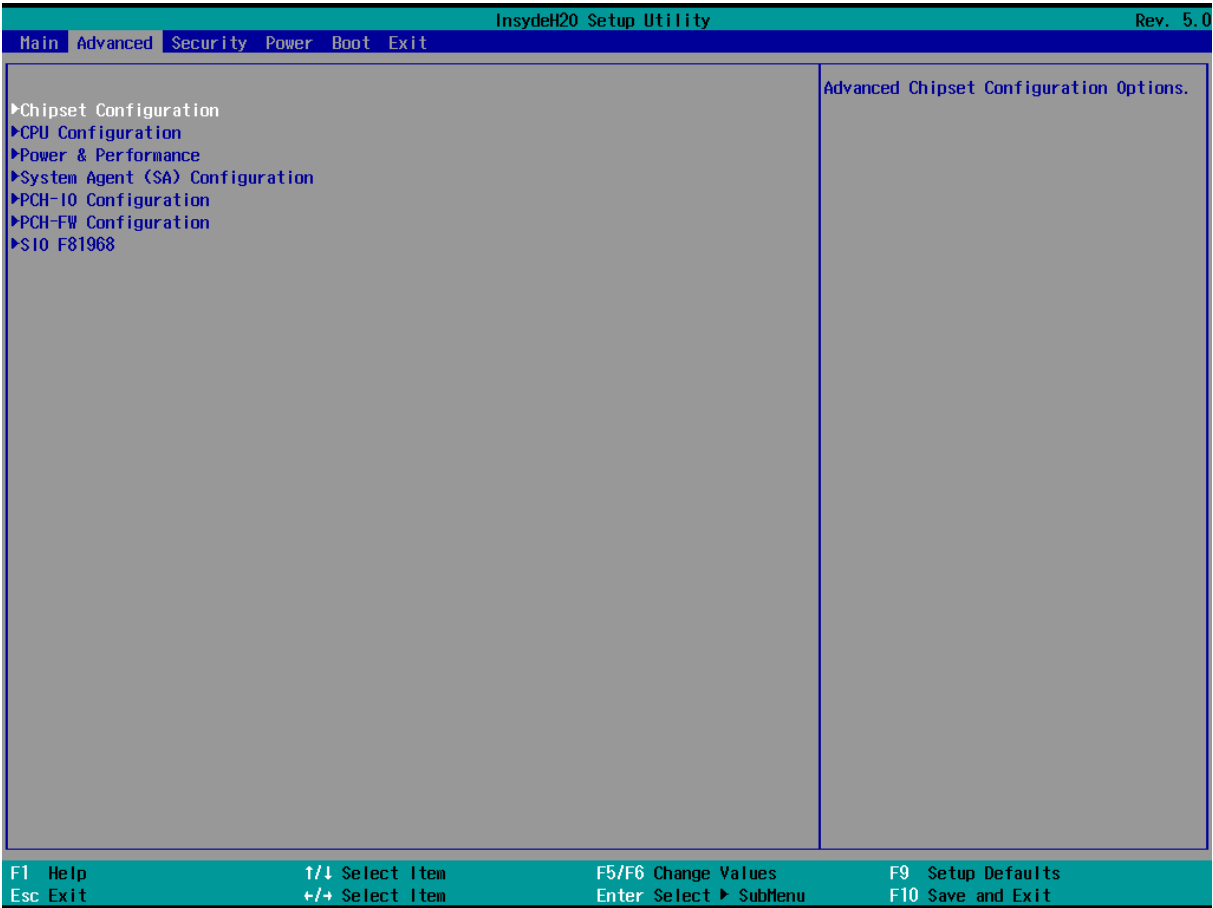
BIOS Setting	Description	Setting Option	Effect
CPU Configuration	Configures Trusted Computing parameters	Enter	Opens submenu
Power & Performance	Configures Power & Performance parameters	Enter	Opens submenu
System Agent Configuration	Configures System Agent Configuration parameters	Enter	Opens submenu
PCH-OI Configuration	Configures PCH-OI parameters	Enter	Opens submenu
PCH-FM Configuration	Configures PCH-FM parameters	Enter	Opens submenu
SIO F81968	SIO 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                         11th Gen Intel(R) Core(TM) i7-1185G7E @     provided by Vanderpool Technology.
                              2.80GHz
 ID                           0x806C1
 Speed                        1200 MHz
 VMX                          Supported
 SMX/TXT                      Supported

 Intel (VMX) Virtualization Technology    <Enabled>
 Active Processor Cores                   <All>
 Hyper-Threading                          <Enabled>
 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 (VMM) Virtualization Technology	Enable or disable Intel Virtualization Technology.	Enable/Disable	When enabled, a VMM can utilized the additional hardware capabilities provided by Vanderpool 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
AES	Enable or disable AES (Advanced Encryption Standard)	Enable/Disable	Enable or disable AES

4.2.2.2 Power & Performance

```
                            InsydeH20 Setup Utility                          Rev. 5.0
        Advanced

Power & Performance                                       CPU - Power Management Control Options

▶CPU - Power Management Control




















 F1  Help                  ↑/↓ Select Item        F5/F6 Change Values       F9  Setup Defaults
 Esc Exit                  ←/→ Select Item        Enter Select ▶ SubMenu    F10 Save and Exit
```
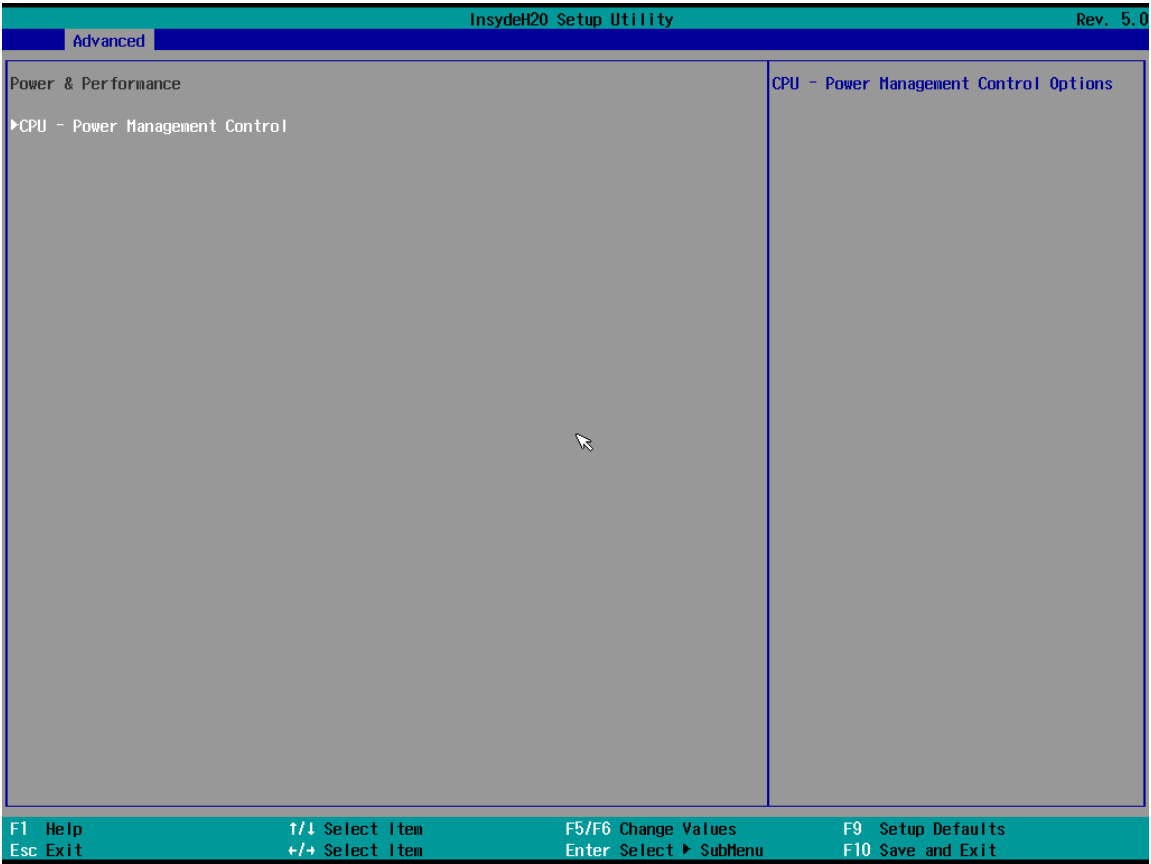
BIOS Setting	Description	Setting Option	Effect
CPU – Power Management Control	Configure CPU – Power Management Control parameters	Enter	Enters sub-menu

```
                              InsydeH2O 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              <Turbo Performance>      vector.
 Intel(R) SpeedStep(tm)             <Enabled>
 Intel(R) Speed Shift Technology    <Enabled>
   Turbo Mode                       <Enabled>
 C states                           <Disabled>




 F1  Help              ↑/↓ Select Item      F5/F6 Change Values     F9  Setup Defaults
 Esc Exit              ←/→ Select Item      Enter Select ▶ SubMenu  F10 Save and Exit
```
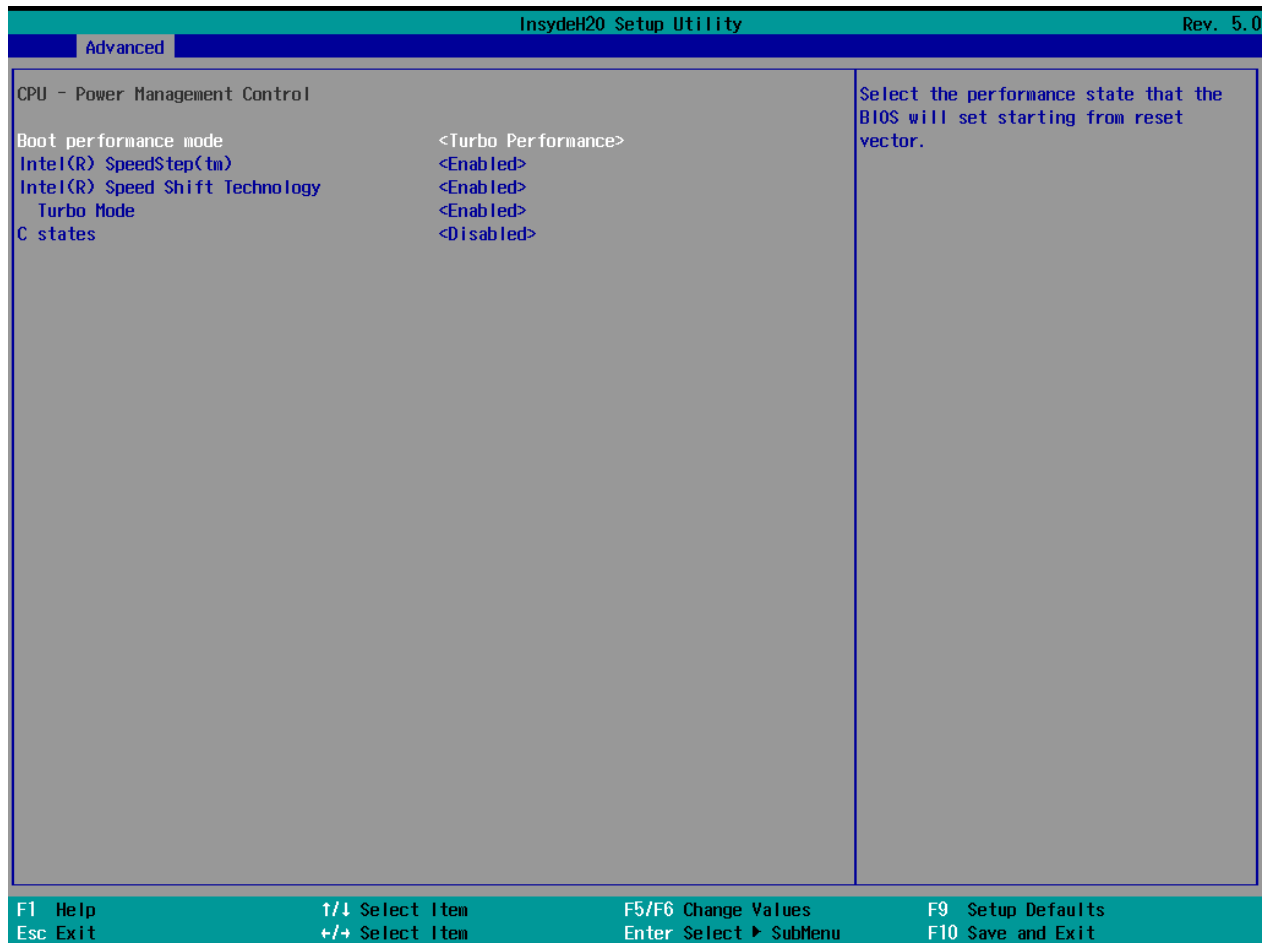
BIOS Setting	Description	Setting Option	Effect
Boot Performance Mode	Configure Boot Performance Mode parameters	- Max non-turbo performance - Max battery - Turbo Performance	Select the performance state that the BIOS will set starting from reset vector
Intel SpeedStep (ta)	Configure Intel SpeedStep (ta) 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

4.2.2.2.1 How to Enable/Disable Turbo Mode

```
                              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            <Turbo Performance>       vector.
 Intel(R) SpeedStep(tm)           <Enabled>
 Intel(R) Speed Shift Technology  <Enabled>
   Turbo Mode                     <Enabled>
 C states                         <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

 Power & Performance                                        CPU - Power Management Control Options

 ▶CPU - Power Management Control














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

4.2.2.3 System Agent (SA) Configuration
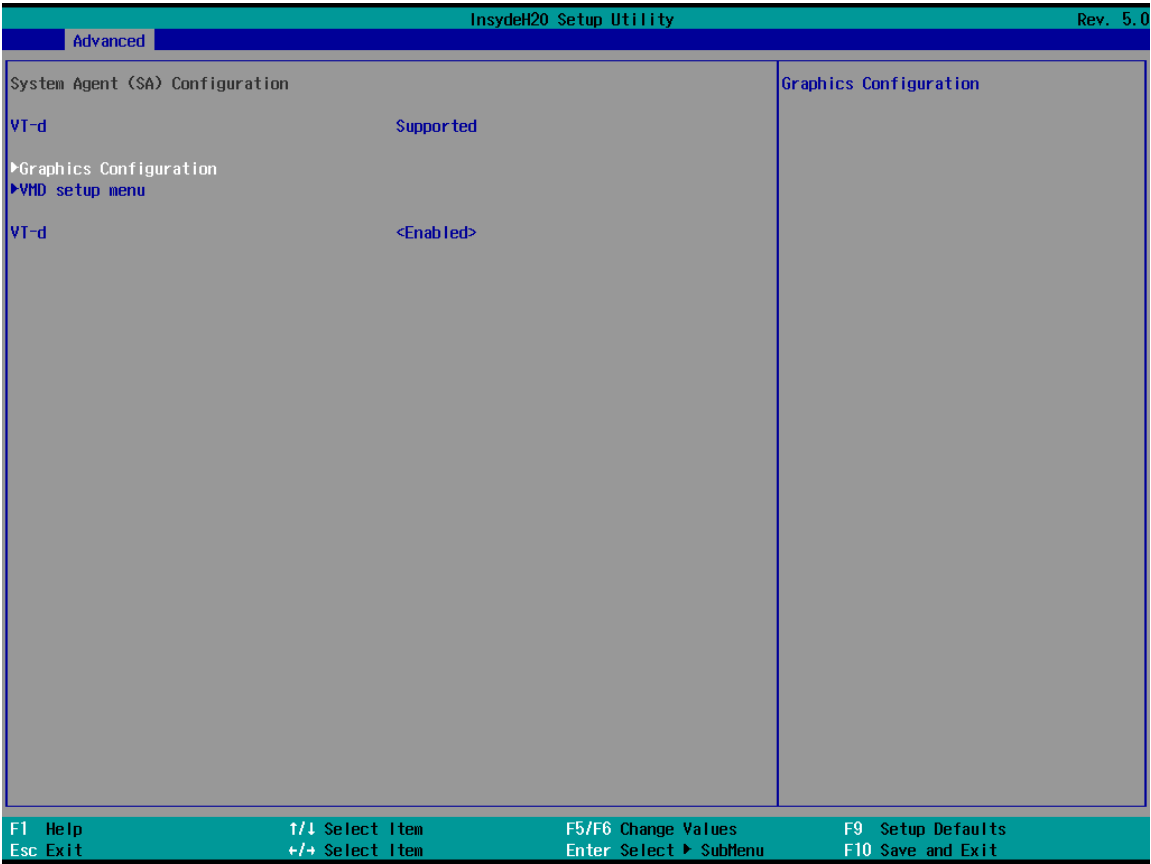
BIOS Setting	Description	Setting Option	Effect
Graphics Configuration	Configure Graphics Configuration parameters	Enter	Opens sub-menu
PEG Port Configuration	Configure PEG Port Configuration parameters	Enter	Opens sub-menu
Vt-d	Intel® Virtualization Technology for Directed I/O	Enabled Disabled	Vt-d capability

4.2.2.4 PCH-IO Configuration
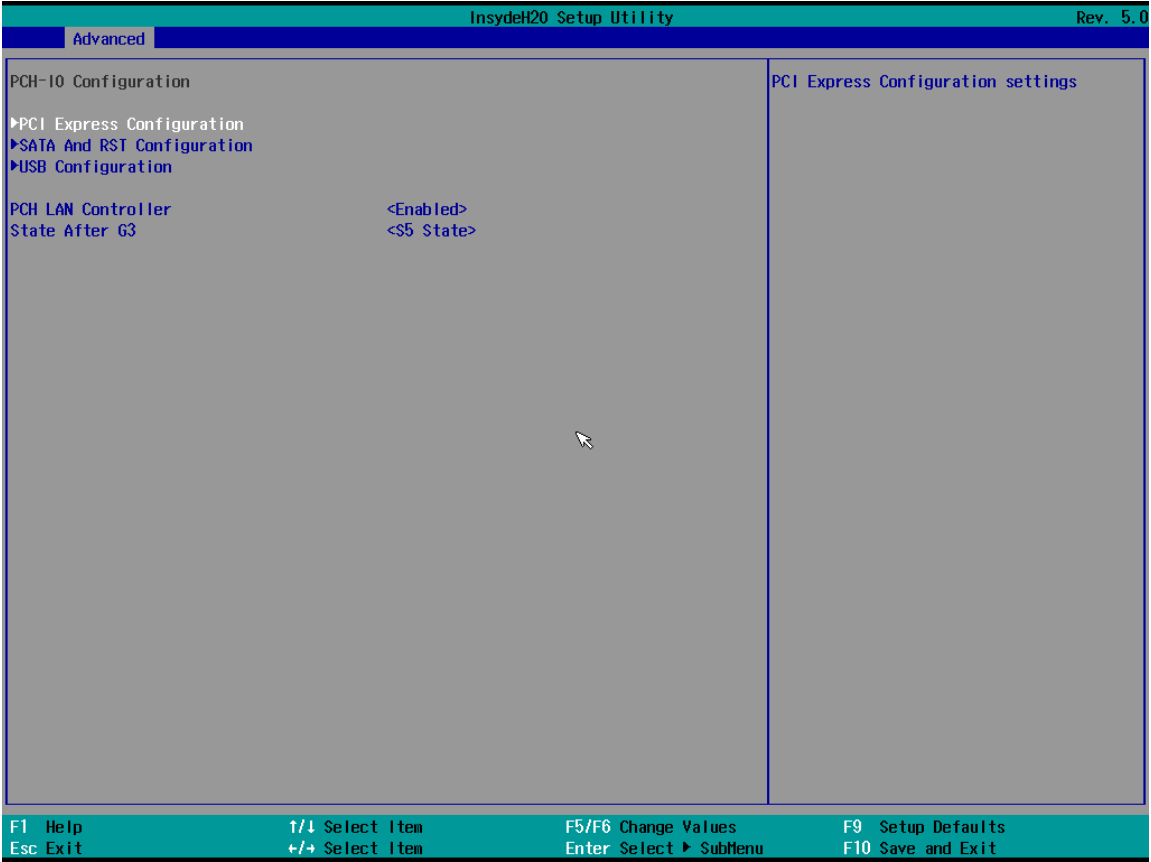
```
                              InsydeH20 Setup Utility                          Rev. 5.0
        Advanced

 PCH-IO Configuration                                    PCI Express Configuration settings

 ▶PCI Express Configuration
 ▶SATA And RST Configuration
 ▶USB Configuration

 PCH LAN Controller                      <Enabled>
 State After G3                          <S5 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
State After G3	State After G3 configuration	S0 State	Auto power on after power failure
		S5 State	keep power off after power failure

4.2.2.4.1 State After G3
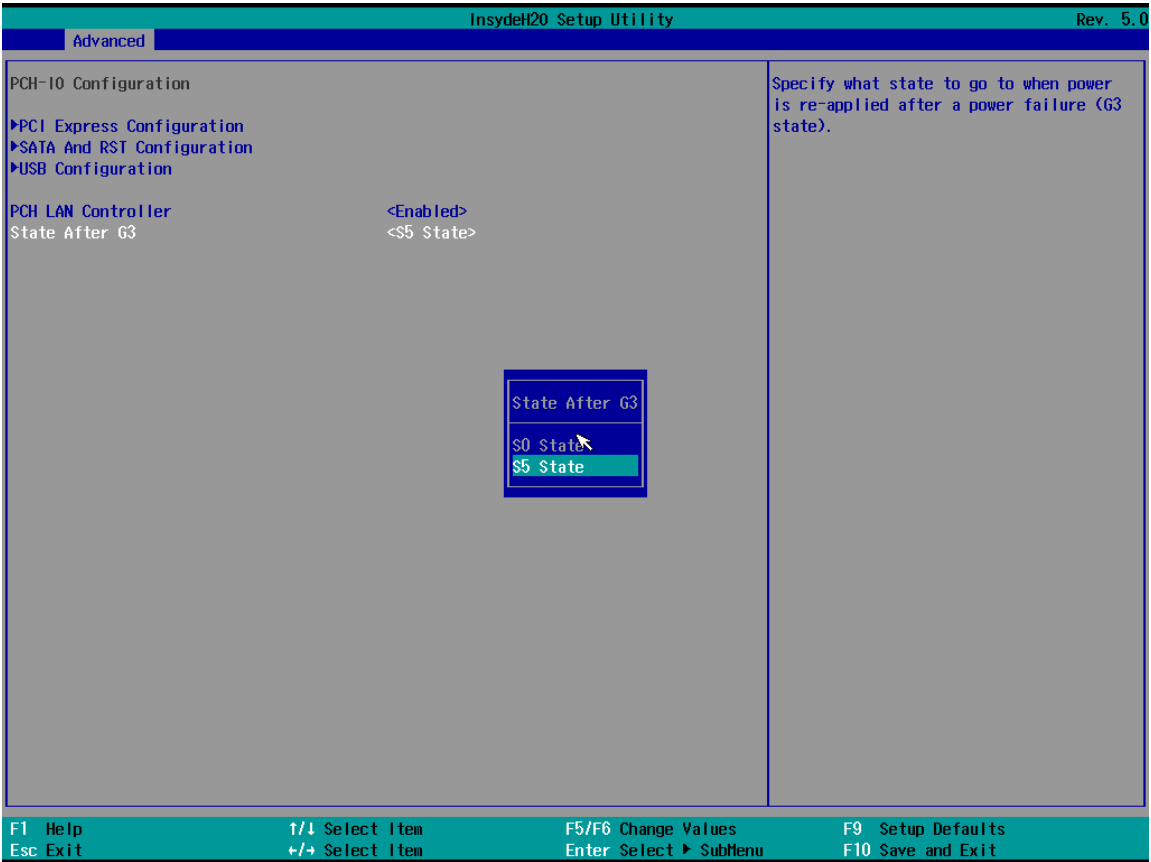
BIOS Setting	Description	Setting Option	Effect
State After G3	State After G3 configuration	S0 State S5 State	Specify what state to go to when power is re-applied after a power failure (G3 state)

4.2.2.5 PCH-FW Configuration

```
                              InsydeH2O Setup Utility                              Rev. 5.0
    Advanced

 ME Firmware Version          15.0.10.1447              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         0x30850116

 ME State                     <Enabled>
 ME Unconfig on RTC Clear     <Disabled>
 Comms Hub Support            <Disabled>
 JHI Support                  <Disabled>
 Core Bios Done Message       <Enabled>

 ▶Firmware Update Configuration
 ▶PTT 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
ME State	ME State configuration	Disabled Enabled	When Disabled ME will be put into ME Temporarily Disabled Mode
Manageability Features State	Manageability Features State configuration	Disabled Enabled	Enable/ Disable Intel Manageability Features
Note: this option disabled/ enables Manageability Features support in FW. To disable support platform must be in an unprovisioned state first.
AMT BIOS Features	AMT BIOS Features	Disabled Enabled	Enable/ Disable Intel Active Management Technology BIOS Extension.
Note: iAMT H/W Is always enabled. This option just controls the BIOS Extension execution.
AMT Configuration	AMT Configuration	Enter	Opens sub-menu
ME Unconfig on RTC Clear State	ME Unconfig on RTC Clear State	Disabled Enabled	Disabling this option will cause ME not to unconfigure on RST clear
Comms Hub Support	Comms Hub Support	Disabled Enabled	Enable/Disable support for Comms Hub

BIOS Setting	Description	Setting Option	Effect
JHI Support	JHI Support	Disabled Enabled	Enable/Disable Intel DAL Host Interface Service (JHI)
Core BIOS Done Message	Core BIOS Done Message	Disabled Enabled	Enable /Disable Core BIOS Done message sent to ME
Firmware Update Configuration	Firmware Update Configuration	Enter	Opens sub-menu
PTT Configuration		Enter	Opens sub-menu
ME Debug Configuration			

4.2.2.6 SIO F81968

```
                        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
▶UART Port 4 Configuration
▶UART Port 5 Configuration
▶UART Port 6 Configuration
▶Hardware Monitor
Watch-Dog Timer                     <Always Off>
▶GPIO Group 0 Configuration
▶GPIO Group 7 Configuration




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>
Clock Source                        <1.8432 MHz>




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 2 Configuration                          Configure UART Port using options :
                                                       [Disabled] Disable device
  UART Port 2                      <Enabled>           [Enabled]  Enable device and use
  Base I/O Address                 <2F8h>            below settings
  Interrupt                        <IRQ3>
  Peripheral Type                  <RS232>
  Clock Source                     <1.8432 MHz>








  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
Serial Port 1~ Serial Port 6	Configure Serial port settings	Disable	No configuration
		Enable	User configuration
		Auto	EFI/OS chooses configuration
WDT	Watchdog Timer configuration	Disable Enable	Enable or disable Watchdog Timer
Hardware Monitor	Hardware Monitor	Enter	Opens sub-section
GPIO Group 0 Configuration	GPIO Group 0 Configuration	Enter	Opens sub-section
GPIO Group 7 Configuration	GPIO Group 1 Configuration	Enter	Opens sub-section

4.2.2.6.1 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                             3.344 V
   Vcore                            1.312 V
   V12S                             12.232 V
   V3S                              3.360 V
   V5S                              5.171 V
   3VSB                             3.360 V
   VBAT                             3.152 V
   5VSB                             5.160 V

   Temperature
   CPU                              41.0 °C/ 105.8 °F
   PCH                              50.0 °C/ 122.0 °F

   Fan Speed
   FANIN1                           N/A




   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
FANIN1 Mode	FAN1 Mode configuration	Manual Linear Stage	Select FAN1 Mode configuration

4.2.2.6.2 GPIO Configuration

```
                            InsydeH20 Setup Utility                          Rev. 5.0
       Advanced

  GPIO00                         <Enabled>
    Direction                    <Output>
      Output Type                <Push Pull>
      PEI Phase Output Value     <High>
      DXE Phase Output Value     <High>

  GPIO01                         <Enabled>
    Direction                    <Output>
      Output Type                <Push Pull>
      PEI Phase Output Value     <High>
      DXE Phase Output Value     <High>

  GPIO02                         <Enabled>
    Direction                    <Output>
      Output Type                <Push Pull>
      PEI Phase Output Value     <High>
      DXE Phase Output Value     <High>

  GPIO03                         <Enabled>
    Direction                    <Output>
      Output Type                <Push Pull>
      PEI Phase Output Value     <High>
      DXE Phase Output Value     <High>

  GPIO04                         <Enabled>
    Direction                    <Output>
      Output Type                <Push Pull>
      PEI Phase Output Value     <High>
      DXE Phase Output Value     <High>
    Polarity                     <Normal>




  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
Internal Resistance	Internal Resistance configuration	Push Pull Open Drain	User can pull internal resistance push-pull / open-drain
Input/ Output Mode	GPIO pin configuration	Input Output	Set GPIO pin is input or output

4.2.3 Security

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

                                                      TrEE Protocol Version: 1.0 or 1.1
 Current TPM Device              <TPM 2.0 (DTPM)>
 TPM State                       All Hierarchies Enabled, Owned
 TPM Active PCR Hash Algorithm   SHA1, SHA256, SHA384
 TPM Hardware Supported Hash Algorithm   SHA1, SHA256, SHA384
 BIOS Supported Hash Algorithm   SHA1, SHA256, 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
```
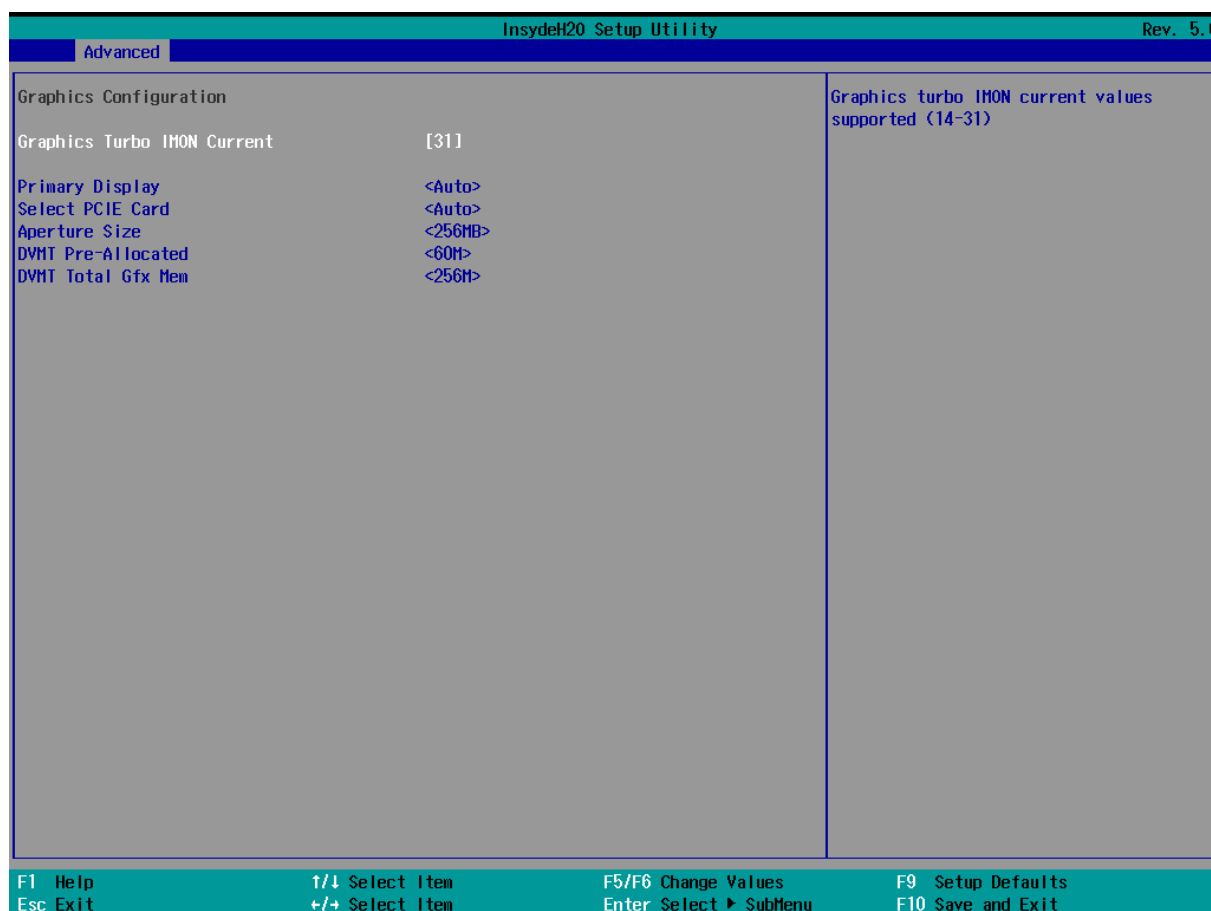
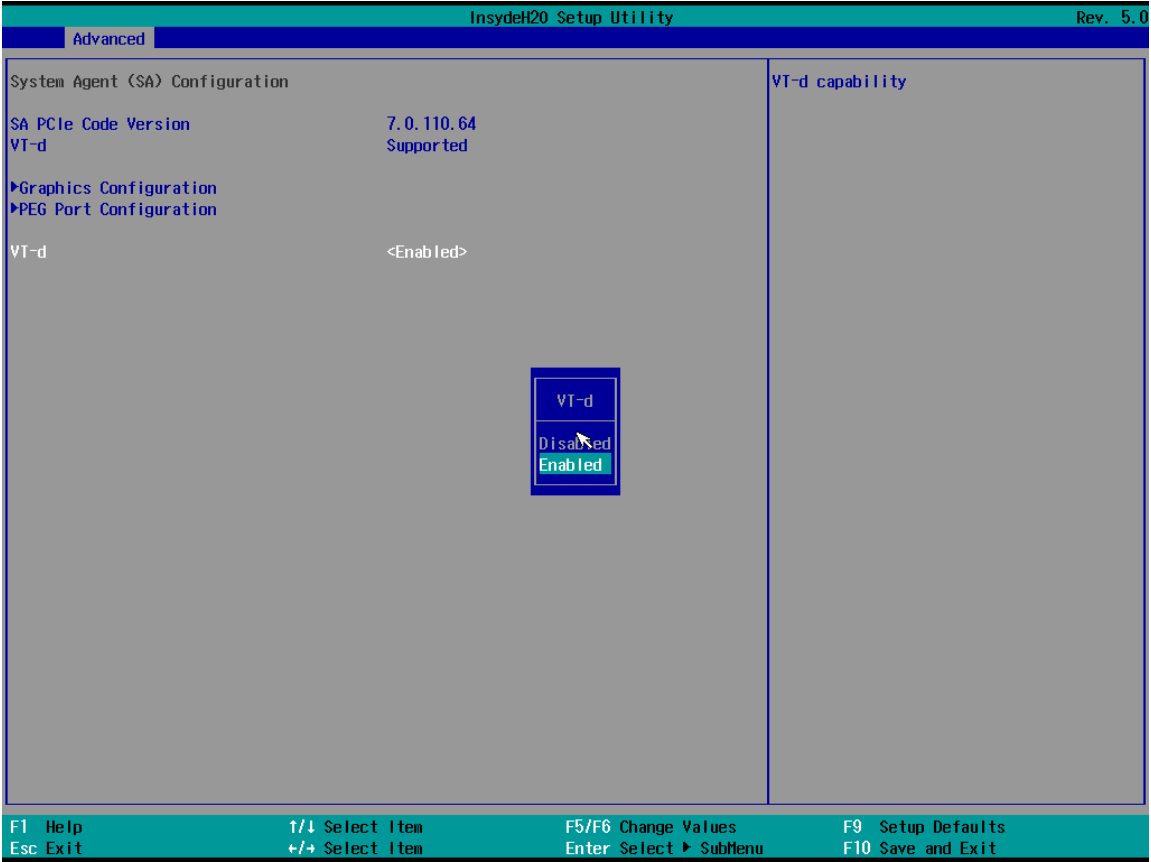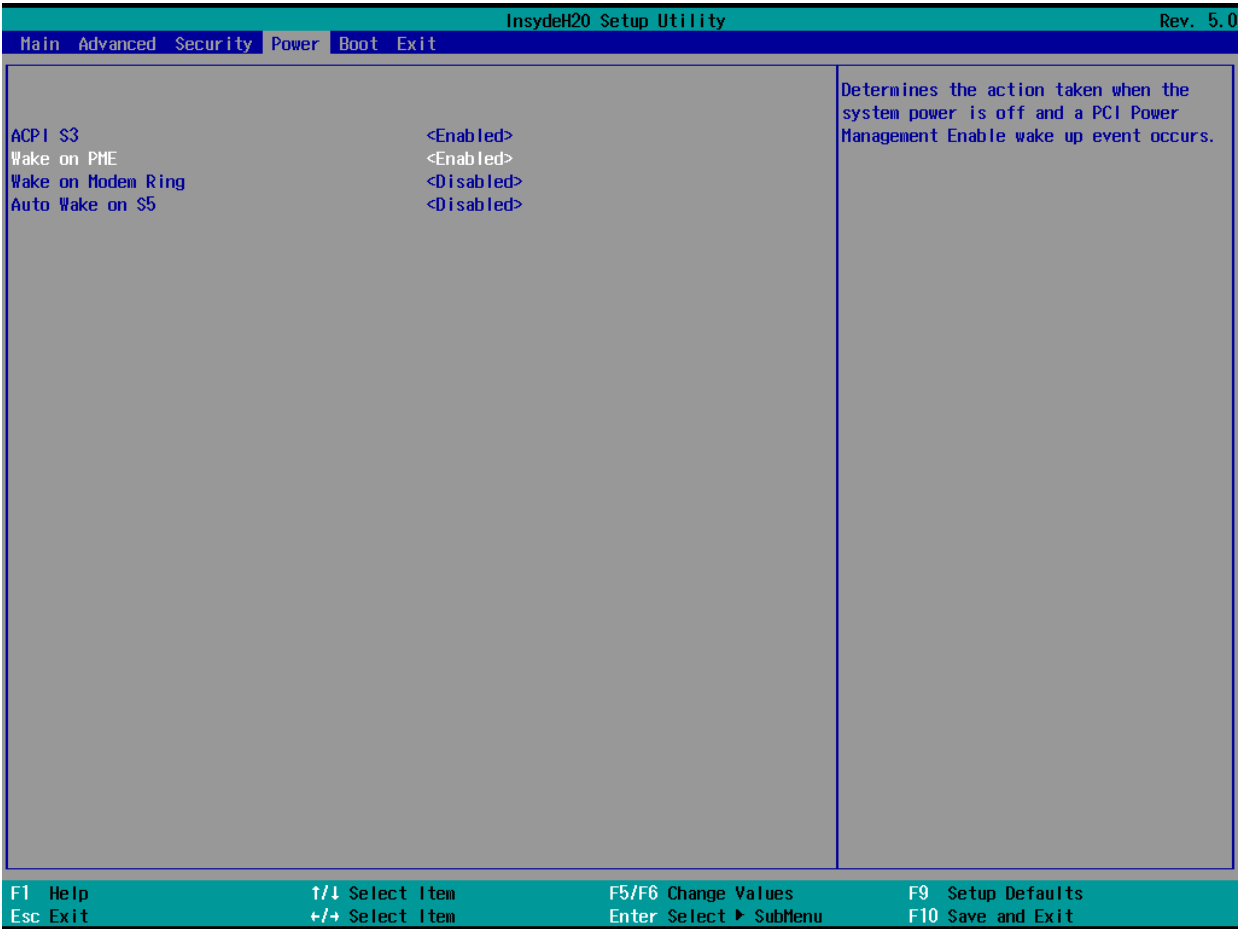| BIOS Setting	Description	Setting Option	Effect
TrEE Protocol Version	Choose TrEE Protocol Version	1.0 1.1	TrEE Protocol Version: 1.0 or 1.1
TPM Availability	TPM Availability configuration	Available Hidden	When hidden don't exposes TPM to 0
TPM Operation	TPM Operation configuration	[ ]	Select one of the supported operations 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

4.2.3.1 Graphic Configuration

```
                              InsydeH20 Setup Utility                        Rev. 5.0
     Advanced

  Graphics Configuration                                    Graphics turbo IMON current values
                                                            supported (14-31)
  Graphics Turbo IMON Current            [31]

  Primary Display                        <Auto>
  Select PCIE Card                       <Auto>
  Aperture Size                          <256MB>
  DVMT Pre-Allocated                     <60M>
  DVMT Total Gfx Mem                     <256M>




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

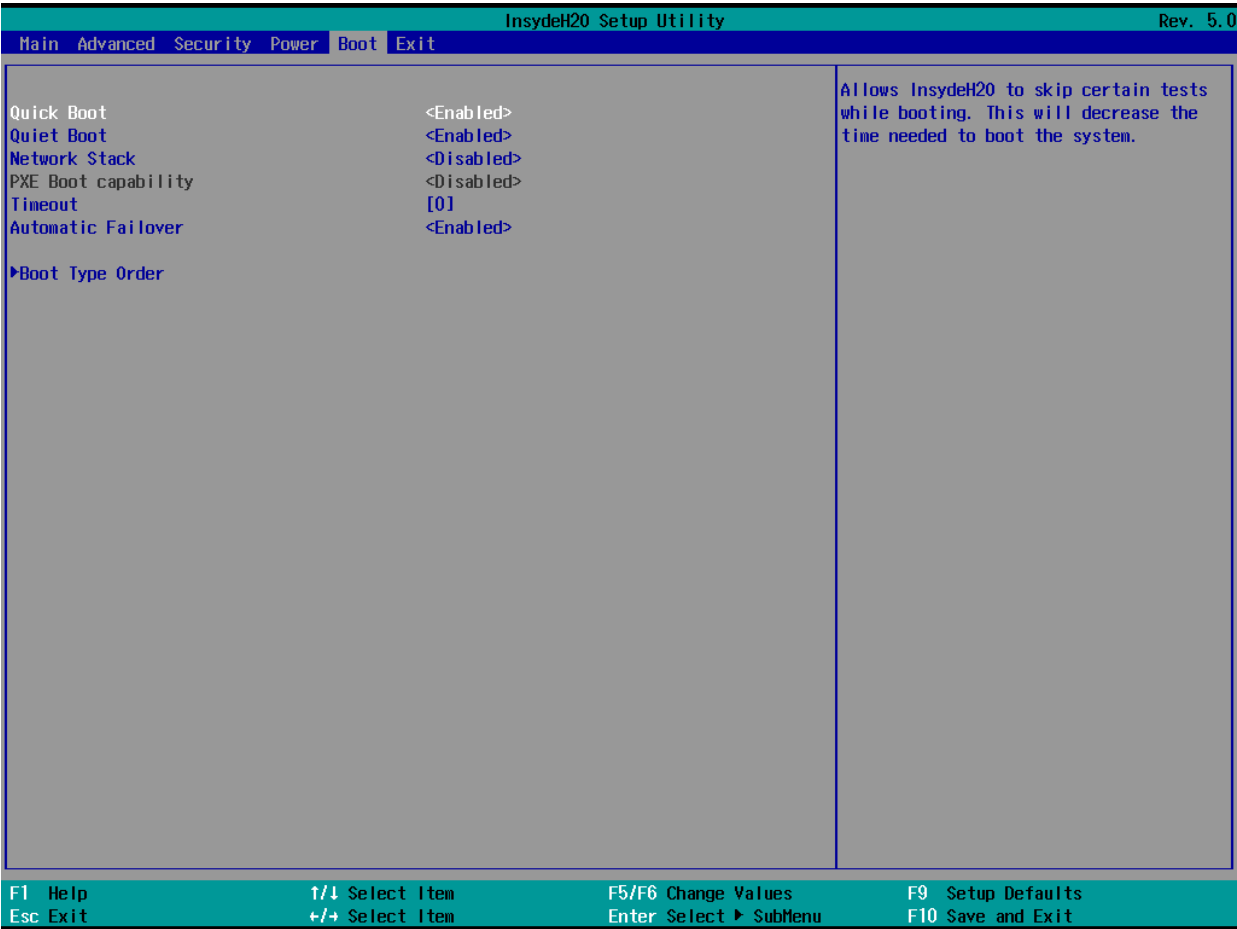| BIOS Setting	Description	Setting Option	Effect
Graphics Turbo IMON Current	Graphics Turbo IMON Current values supported	14-31	Select Graphics Turbo IMON Current values supported
Primary Display	Select Primary Display	Auto IGFX PEG PCI	Select which of IGFX/PEG/ PCI Graphics device should be primary display or select SG for Switchable Gfx
Aperture Size	Select the aperture size	128MB 256MB 512MB 1024MB 2048 MB	Select the aperture size *Note: Above 4MB MMIO BIOS assignment is automatically enabled when selecting 2048MB aperture. To use this feature please disable CSM port*
DVMT Pre-Allocated	Select DVMT Pre-Allocated	0M~60M	Select DVMT 5.0 Pre-Allocated (Fixed) Graphic Memory size used by Internal Graphic Device
DVMT Total Gfx Mem	Select DVMT Total Gfx Mem	256M 128M MAX	Select DVMT 5.0 Total Graphic Memory size used by the Internal Graphic Device

4.2.3.2 VT-d

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

4.2.4 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
  ACPI S3                         <Enabled>           Management Enable wake up event occurs.
  Wake on PME                     <Enabled>
  Wake on Modem Ring              <Disabled>
  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

4.2.5 Boot

```
                                    InsydeH2O Setup Utility                        Rev. 5.0
  Main  Advanced  Security  Power  Boot  Exit

                                                        Allows InsydeH2O to skip certain tests
  Quick Boot                        <Enabled>           while booting. This will decrease the
  Quiet Boot                        <Enabled>           time needed to boot the system.
  Network Stack                     <Disabled>
  PXE Boot capability               <Disabled>
  Timeout                           [0]
  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
```

```
                                    InsydeH2O Setup Utility                        Rev. 5.0
                                Boot

  Boot Type Order

  Hard Disk Drive
  BEV
  USB
  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
```

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.
Network Stack	Network Stack configuration	Disabled Enabled	Network Stack Support: Windows 8 Bitlocker Unlock UEFI IPv4/ IPv6 PXE Legacy PXE OPROM
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

4.2.6 Exit

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

                                                         Exit system setup and save your changes.
 Exit Saving Changes
 Save Change Without Exit
 Exit Discarding Changes
 Load Optimal Defaults
 Load Custom Defaults
 Save Custom Defaults
 Discard Changes












 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 Computer

NOTE

Before starting the recovery process, make sure to backup all user data. The data will be lost after the recovery process.

To enable quick one-key recovery procedure:

1. Plug-in the AC adapter to the series computer. Make sure the computer stays plugged in to power source during the recovery process.
2. Turn on the computer, and when the boot screen shows up, press the **F6** to initiate the Recovery Wizard.
3. The following screen shows the Recovery Wizard. Click **Recovery** button to continue.

4. A warning message about data loss will show up. Make sure the data is backed up before recovery, and click Yes to continue.

5. During the recovery process, a command prompt will show up to indicate the percent of recovery process complete and then the computer will turn off automatically. Please restart your computer manually again.

4.4 How to Enable Watchdog

To enable Watchdog, you need to download Winmate Watchdog utility. Find more information on Watchdog in "Watchdog Guide" that you can download from Winmate Download Center or File Share. Refer to the User Manual for more details.

To enable watchdog in Watchdog AP follow the instructions below:

1. On the right bottom side of the desktop screen, click 🔼 **triangle button** to show hidden icons.
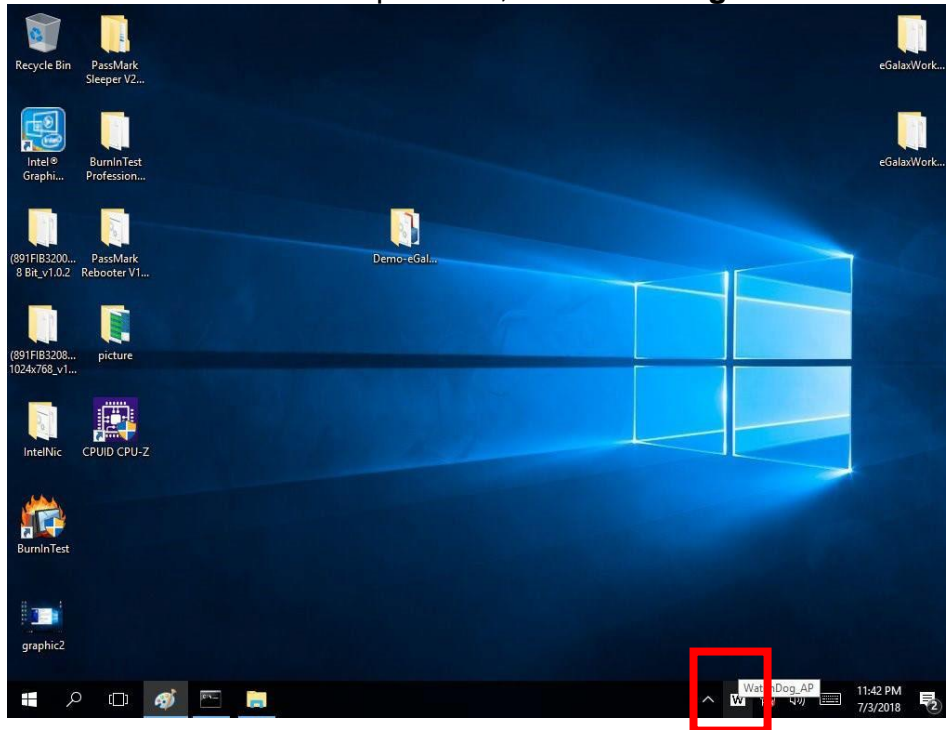
2. Click **W** icon to open Watchdog utility.

3. In Watchdog utility window set countdown time and periodically feed time, or disable watchdog.
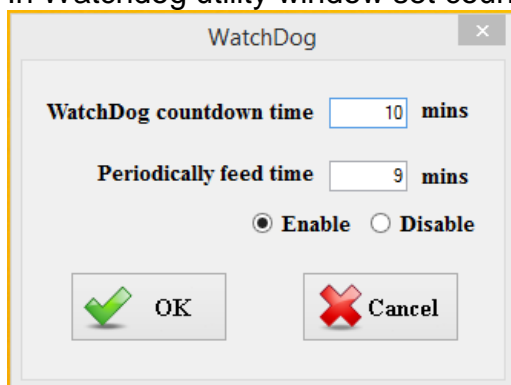
Example

Every 10 min watchdog will monitor the system, in case any error occurs the system will restart automatically when the countdown time reaches 0.

Every 9 min watchdog timer will be reset to 10 min.

Setting	Description
Watchdog Countdown Time	The system automaticity restarts when this countdown time reaches zero. *Default: 10 min*
Periodically Feed Time	To set a cycle time to automatically reset watchdog timer. *Default: 9 min*
Enable / Disable	Enable or disable watchdog. *Default: Enable*

Chapter 5: Driver Installation

This chapter provides instructions on how to install drivers.

NOTE

Touch driver installation:

- For Windows operating system (Win7/Win8/Win10 or above), the touch driver is already available.
- For other operation system, such as Linux, please download and install the touch driver. User may check the Kernel version and contact Winmate to get the suitable touch driver.
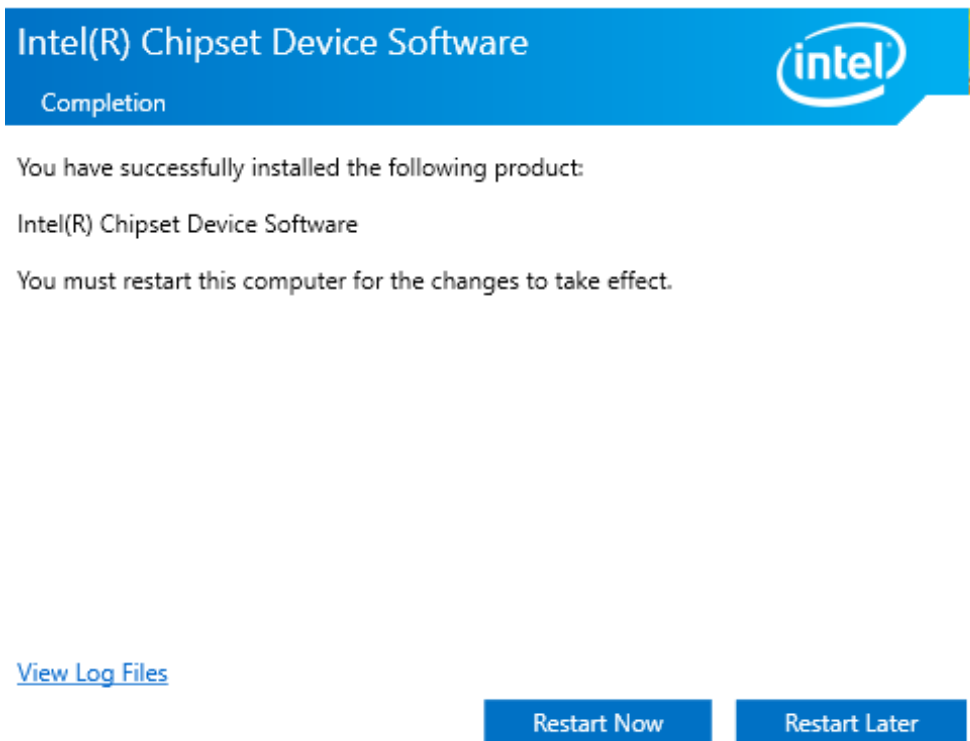
5.1 Chipset Driver Installation

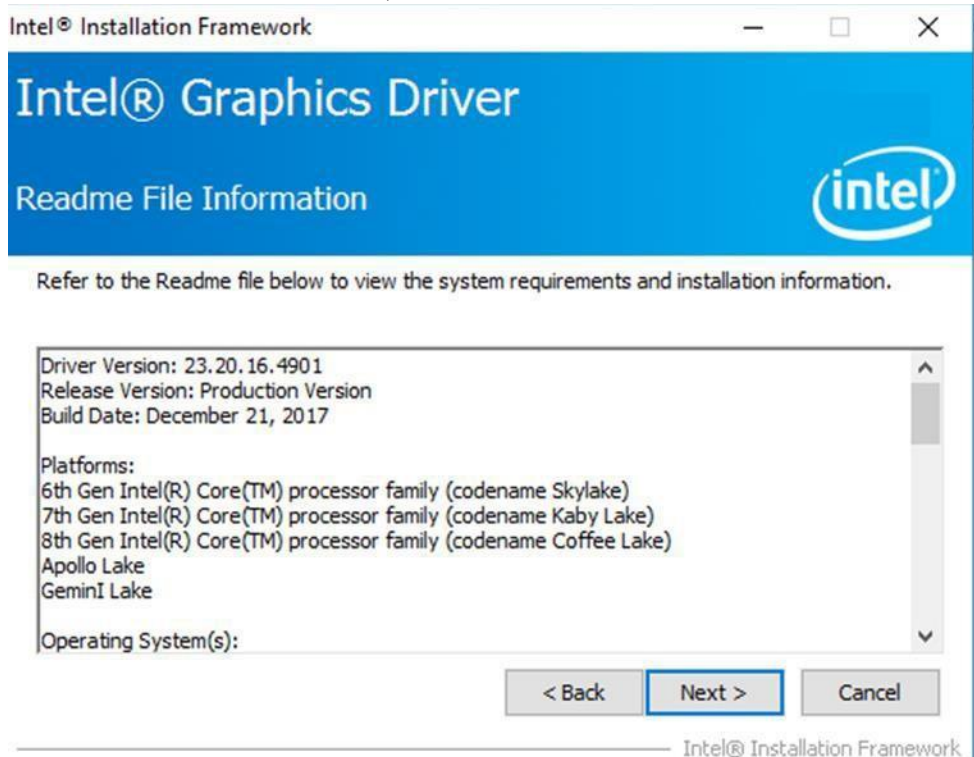1. Follow instructions below to install Chipset driver.
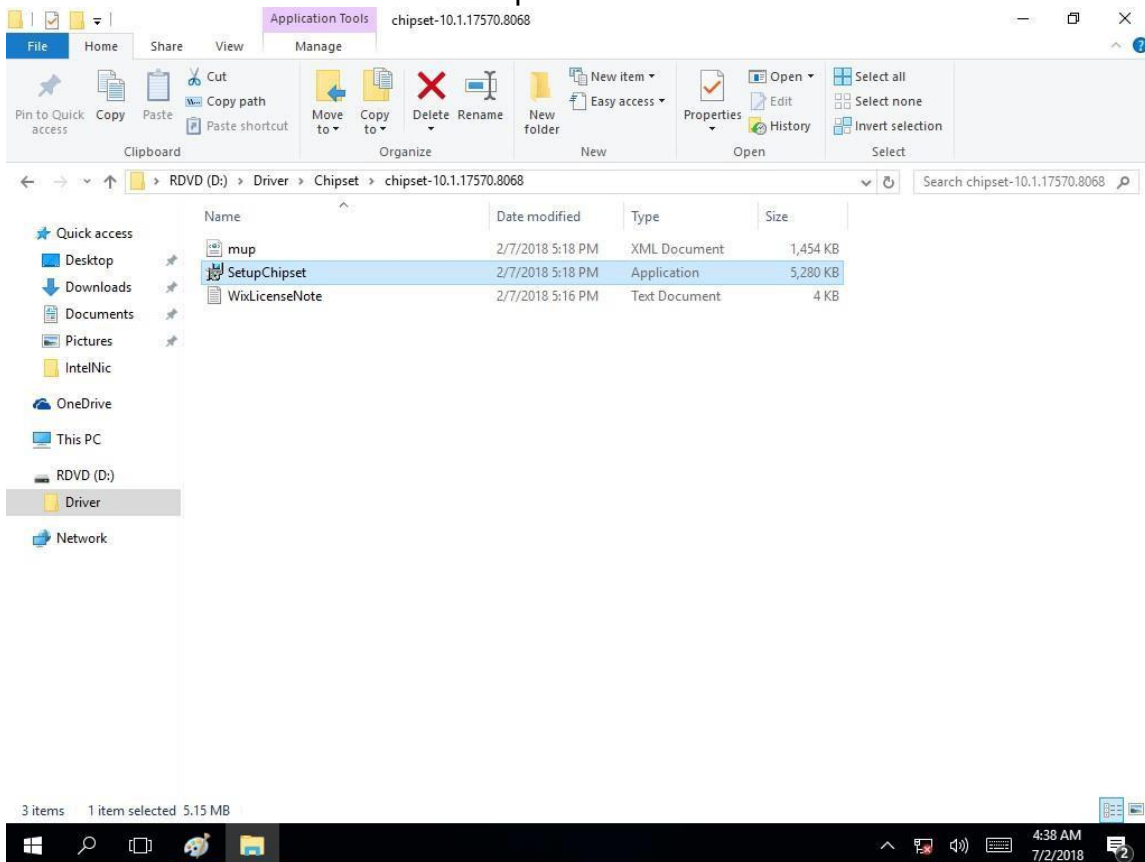
2. Installation window will pop up, select **Next**.
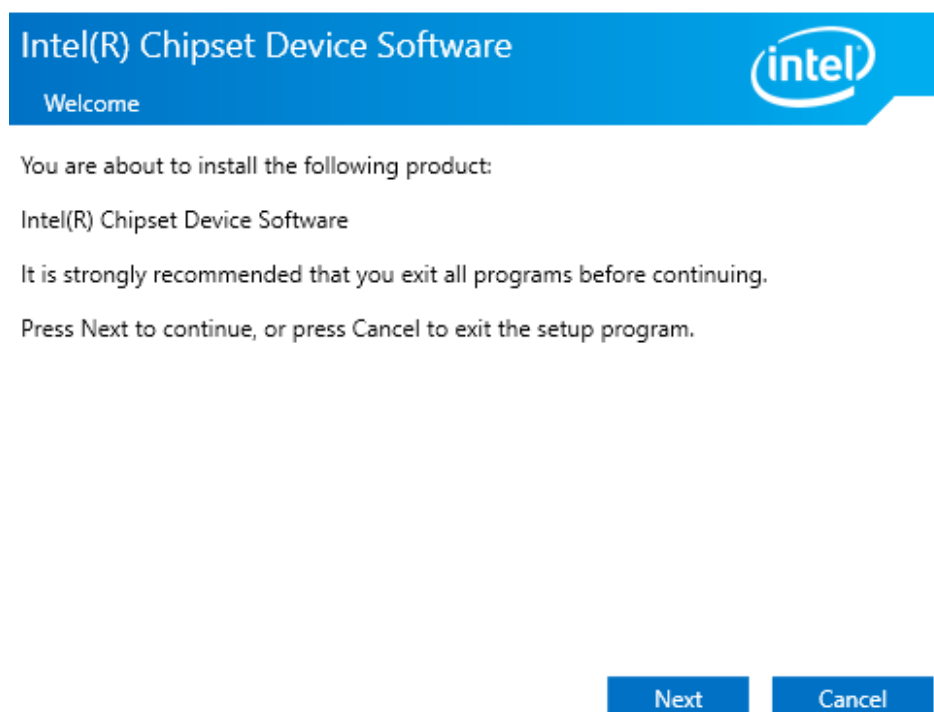
3. Select **Accept** to agree with the terms of license agreement.
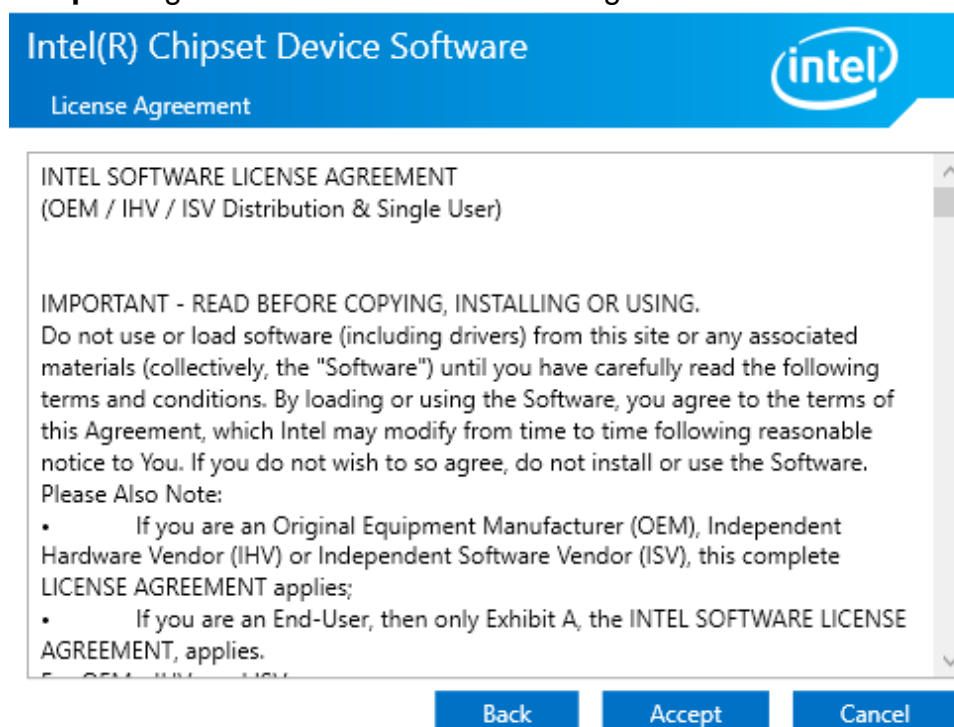
4. Check the ReadMe file information, select **Install** to continue.

5. Wait for the driver to be installed. When installation completed, select **Restart Now** to restart your computer.

5.2 Graphic Driver Installation

Follow instructions below to install Graphic driver.

1. Open the Driver CD (included in the package) and select **Graphic** driver.
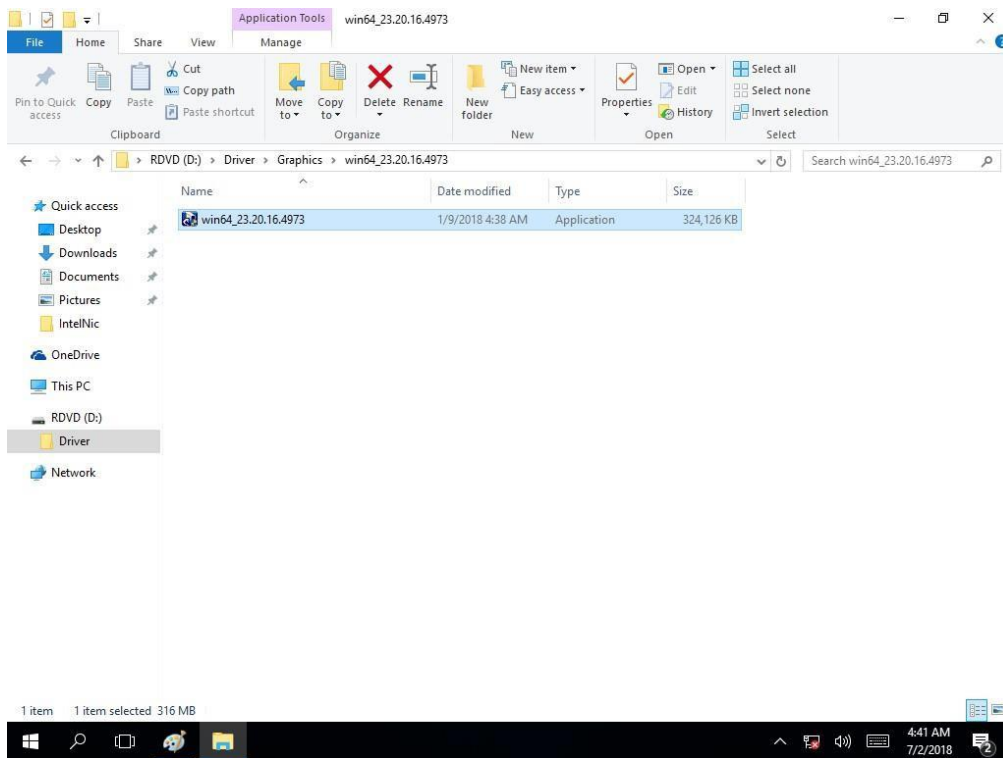
2. Installation window will pop up, select **Next**.
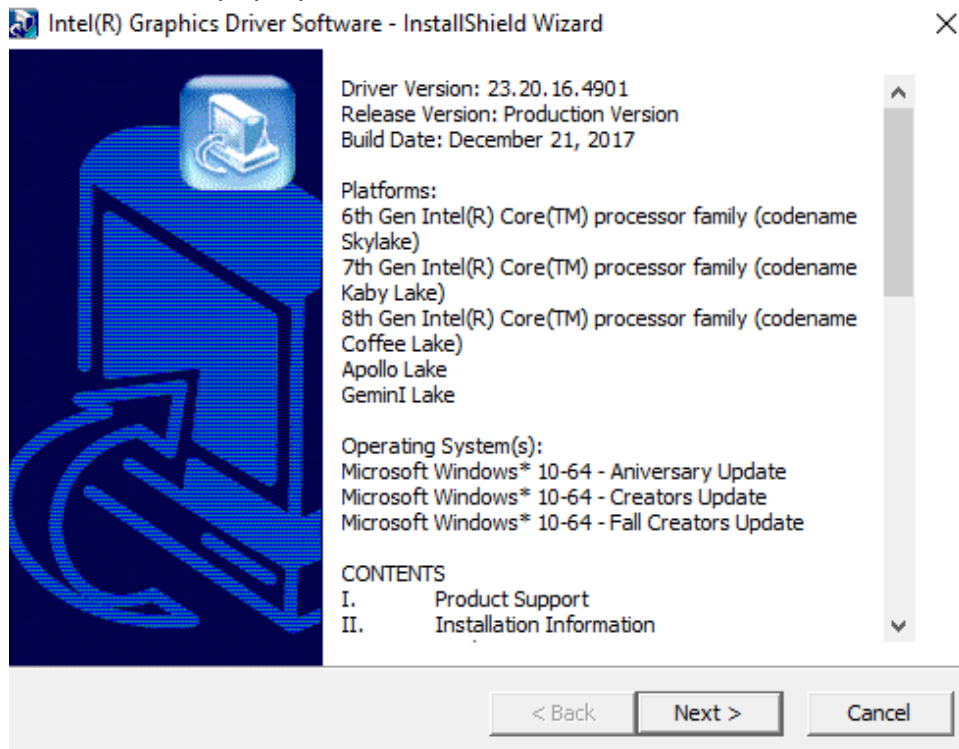
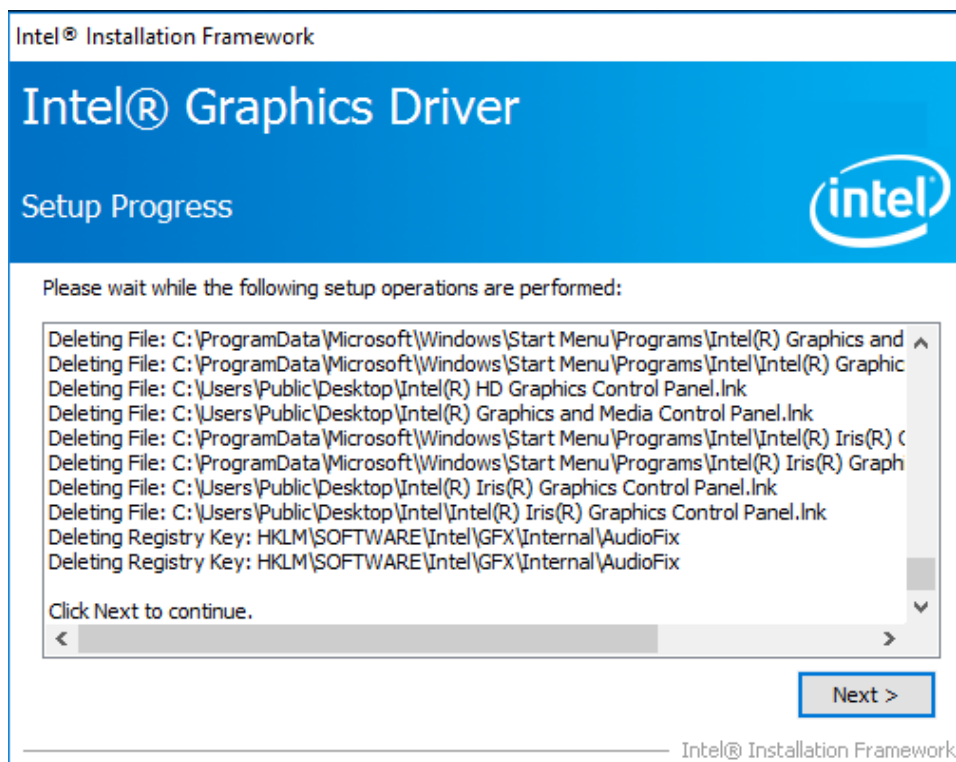3. Select **Accept** to agree with the terms of license agreement.
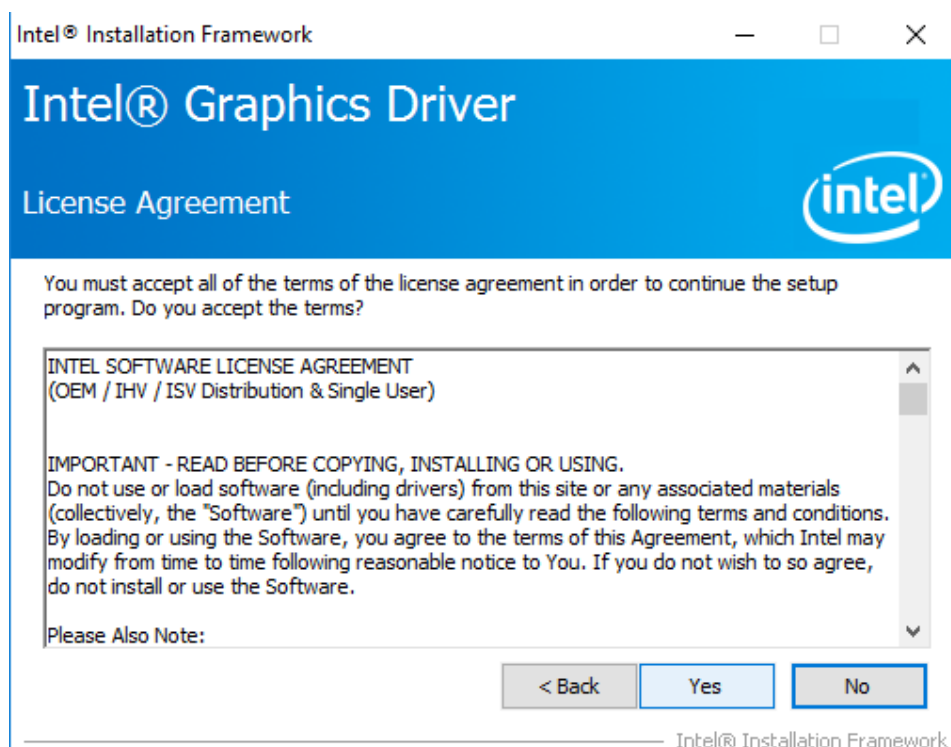
4. Check the ReadMe file information, select **Next** to continue.

5. Wait for the driver to be installed.
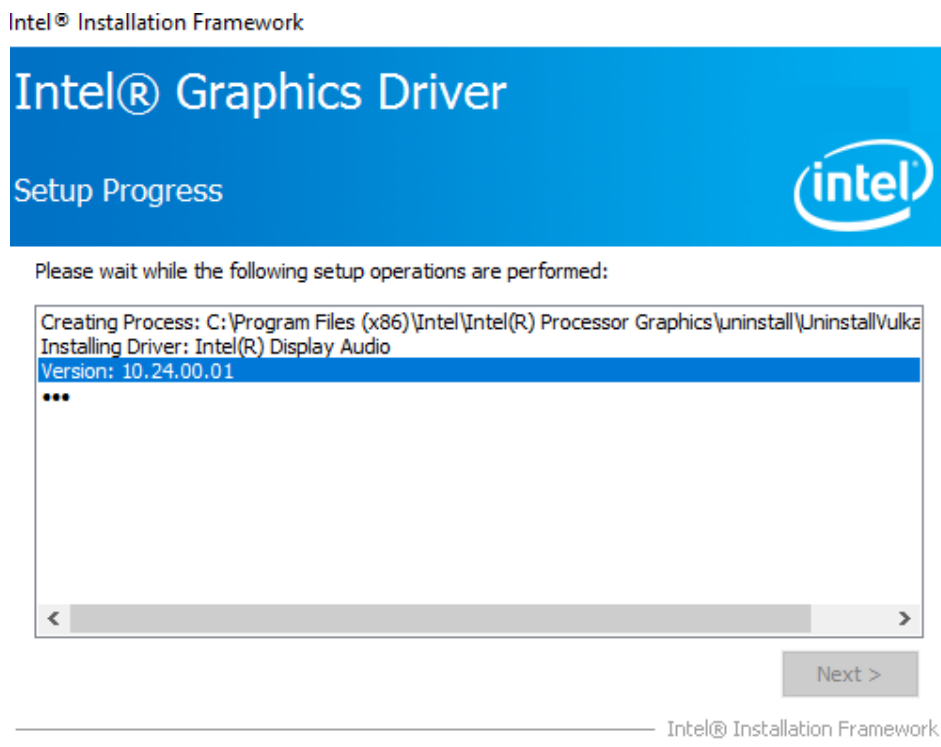
6. Select **Next** to continue.

7. After installation is completed, select "**Yes, I want to restart this computer now**", and click **Finish**.
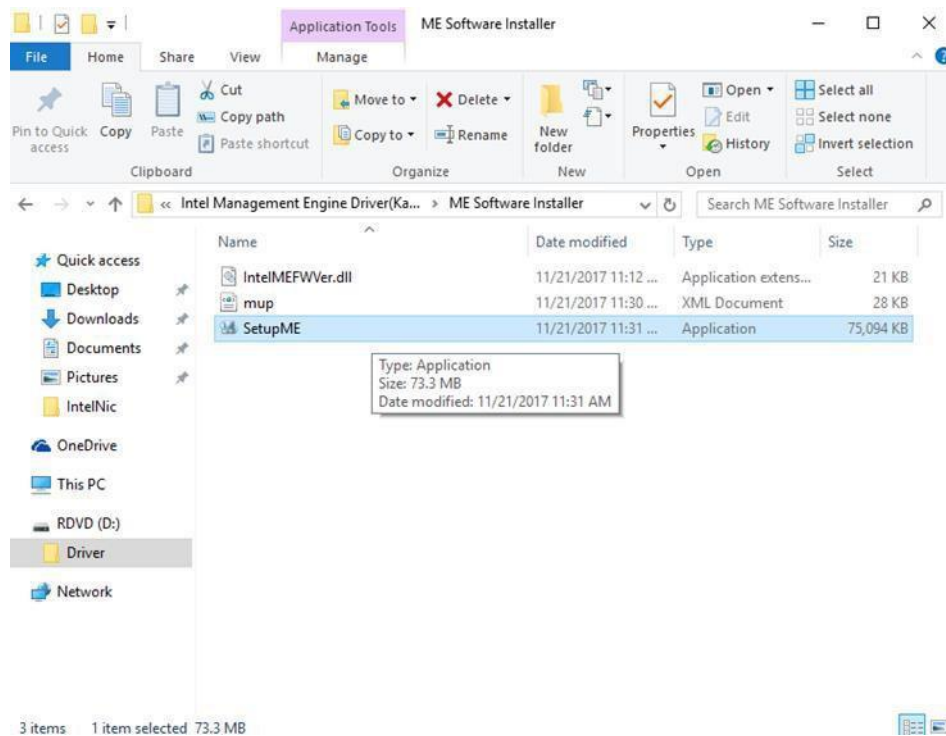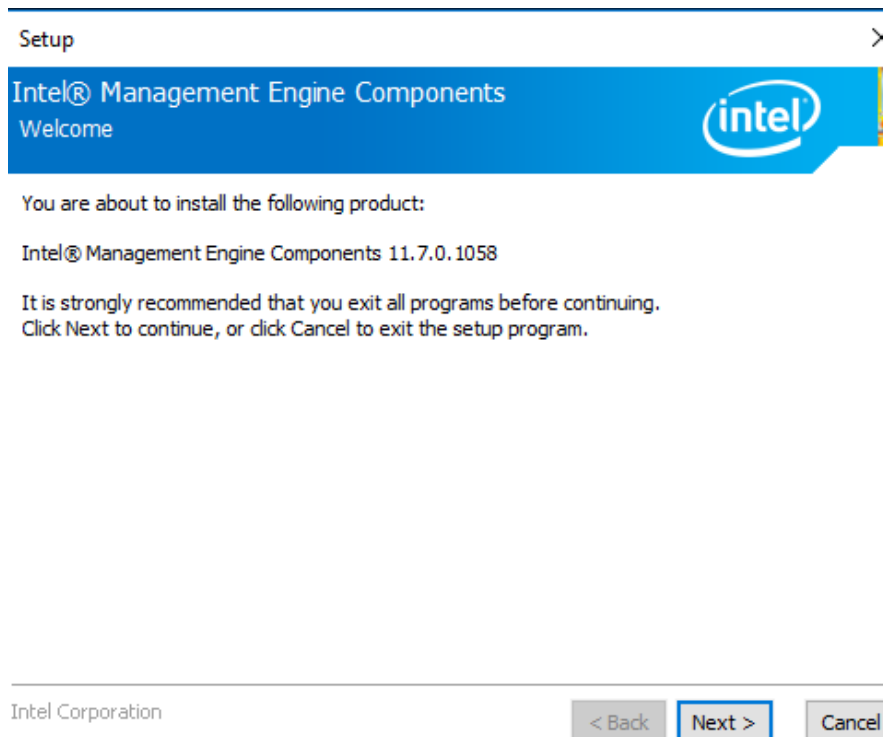
5.3 Management Engine (ME)

Follow instructions below to install Management Engine (ME).

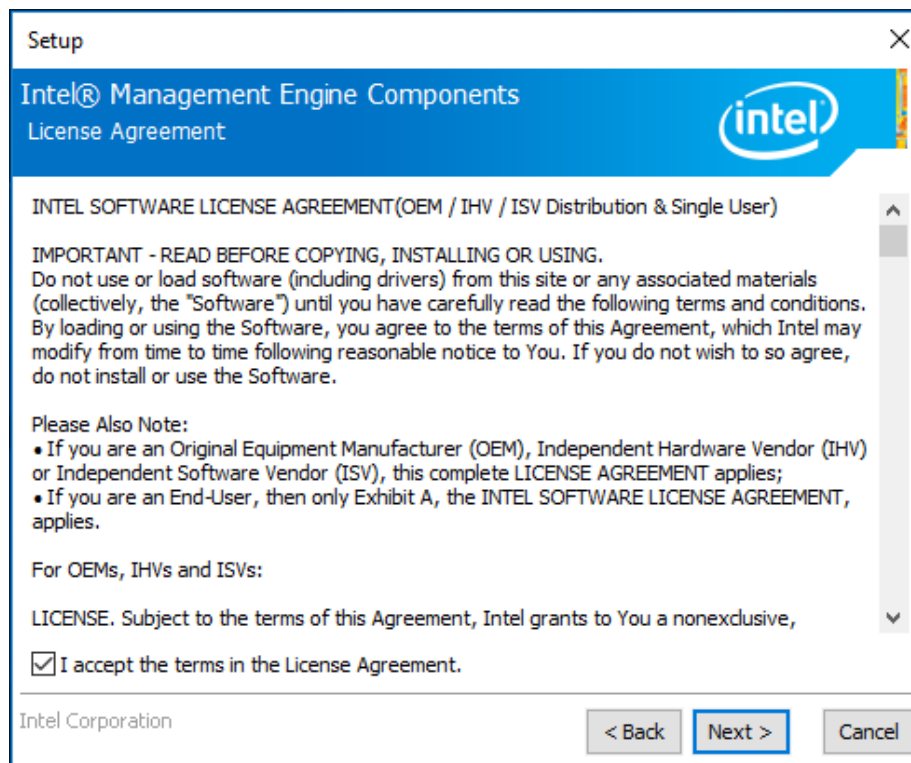1. Open the Driver CD (included in the package) and select **ME** driver.

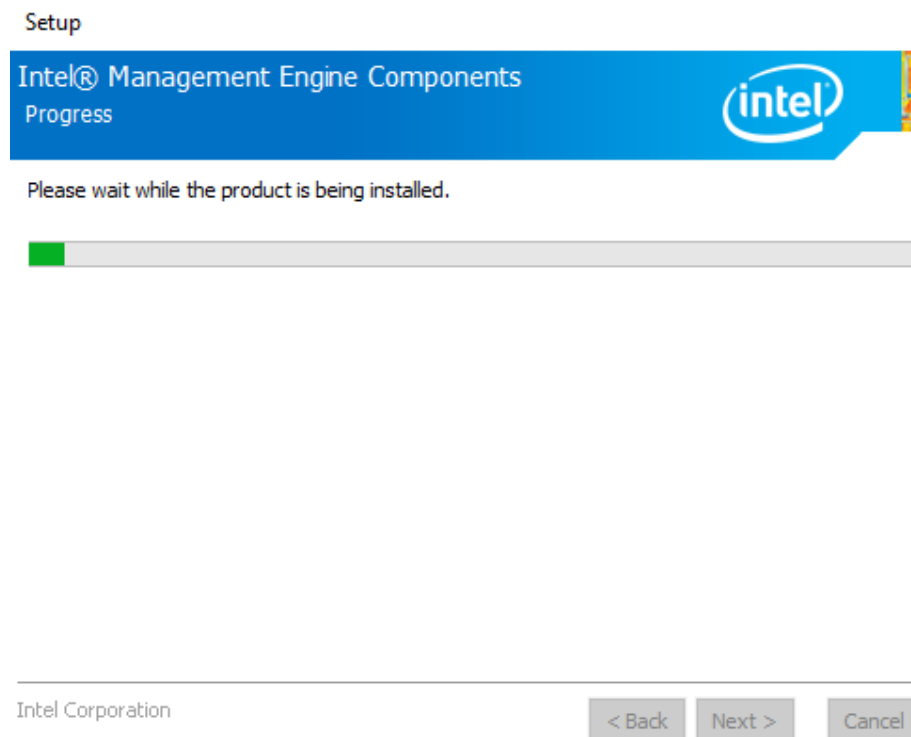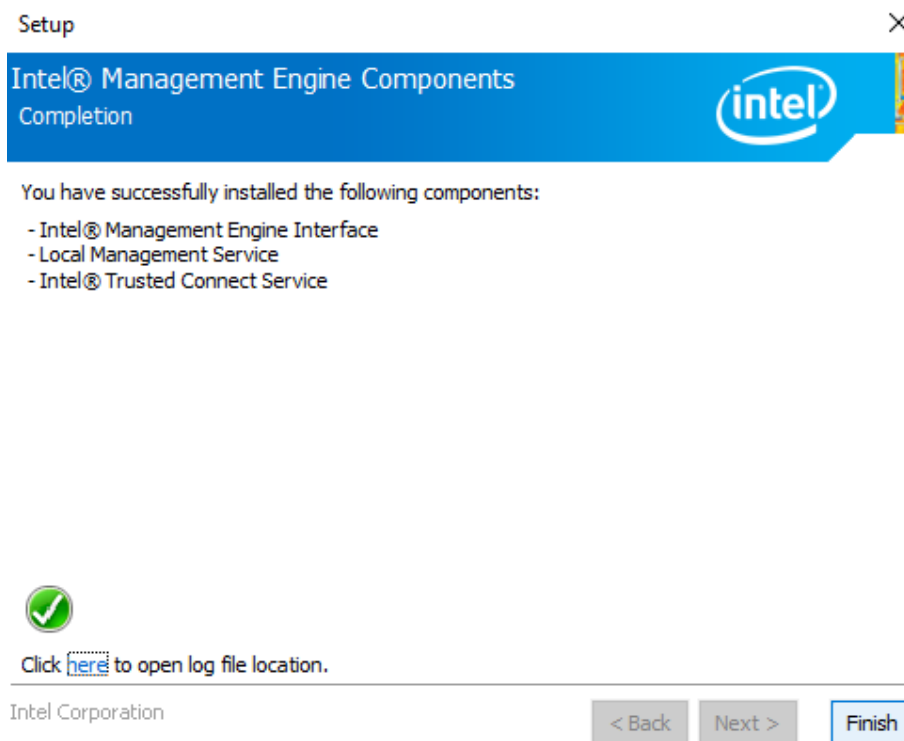

2. Select **Next** to start the installation.

3. Select **Next** to agree with the terms of license agreement.

4. Wait for the driver to be installed.

5. When installation completed, select **Finish** complete installation.

5.4 Intel GNA Driver

For Intel 11th Gen Intel CPU which are required to install the Intel Gaussian and Neural Accelerator (GNA) driver, please refer to the instructions below to complete the process.

1. Open the Driver CD (included in the package) and select **Intel GNA** driver.

2. In the folder, find "gna.inf" and right click on "gna.inf" and select "Install".
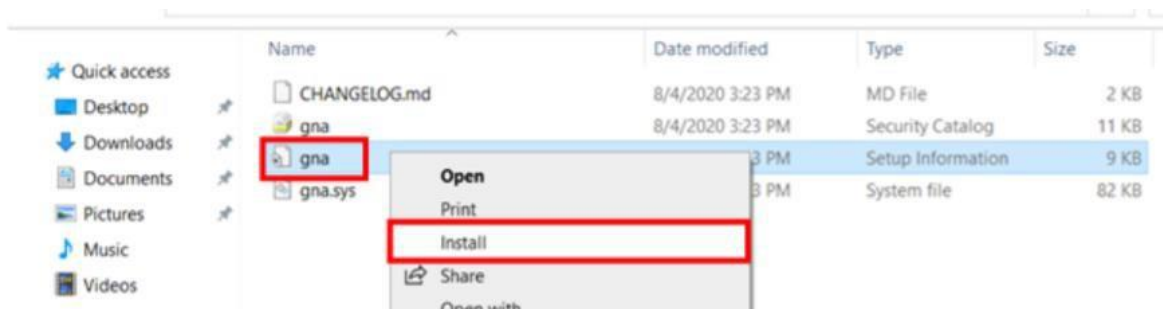
3. Once the installation completes, the following message will show up
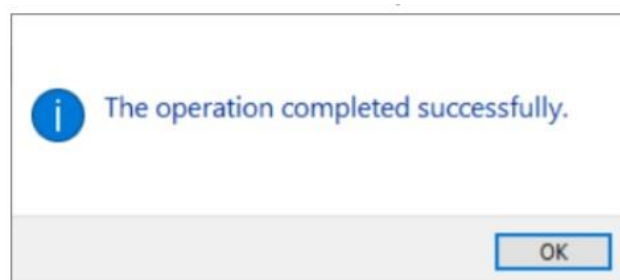
5.5 Intel Serial IO Driver

This utility installs the originally shipped version of the Intel Serial IO GPIO Host Controller driver.
1. Open the Driver CD (included in the package) and select **Serial IO** driver.
2. Locate the **SetupSerialIO.exe** file.
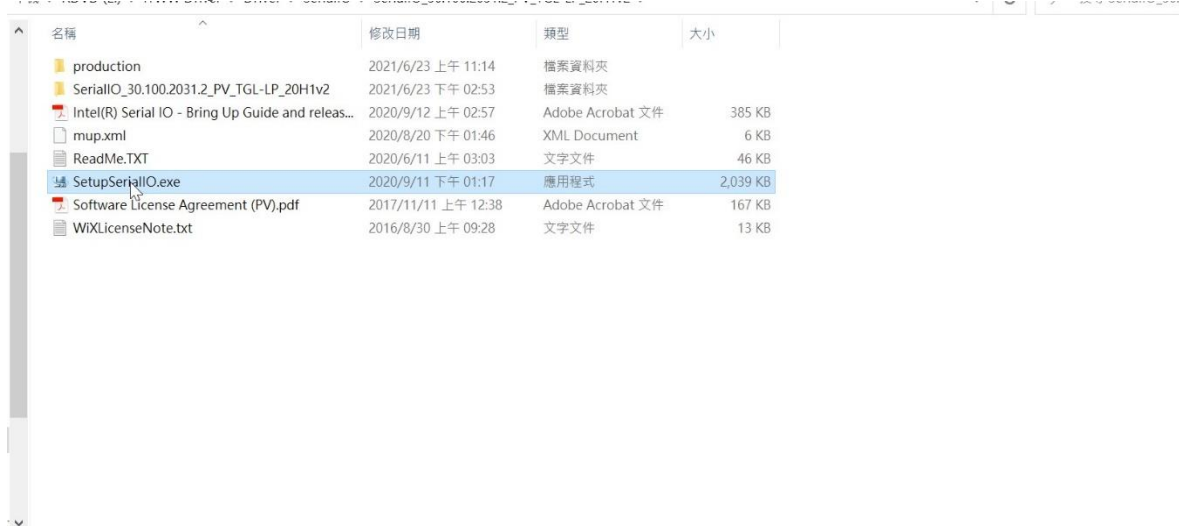
3. Right click on the executable and select 'Run as administrator' option from the menu to start the installer and then click on 'Yes' button in User Account Control pop-up window
4. On welcome screen, click **Next** button to continue the installation.
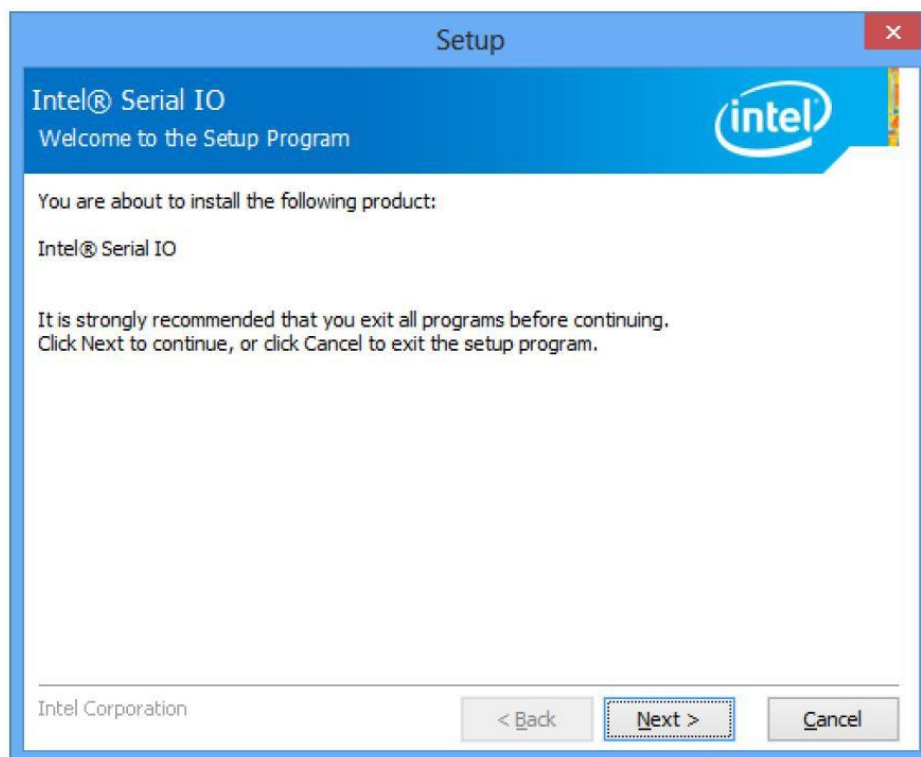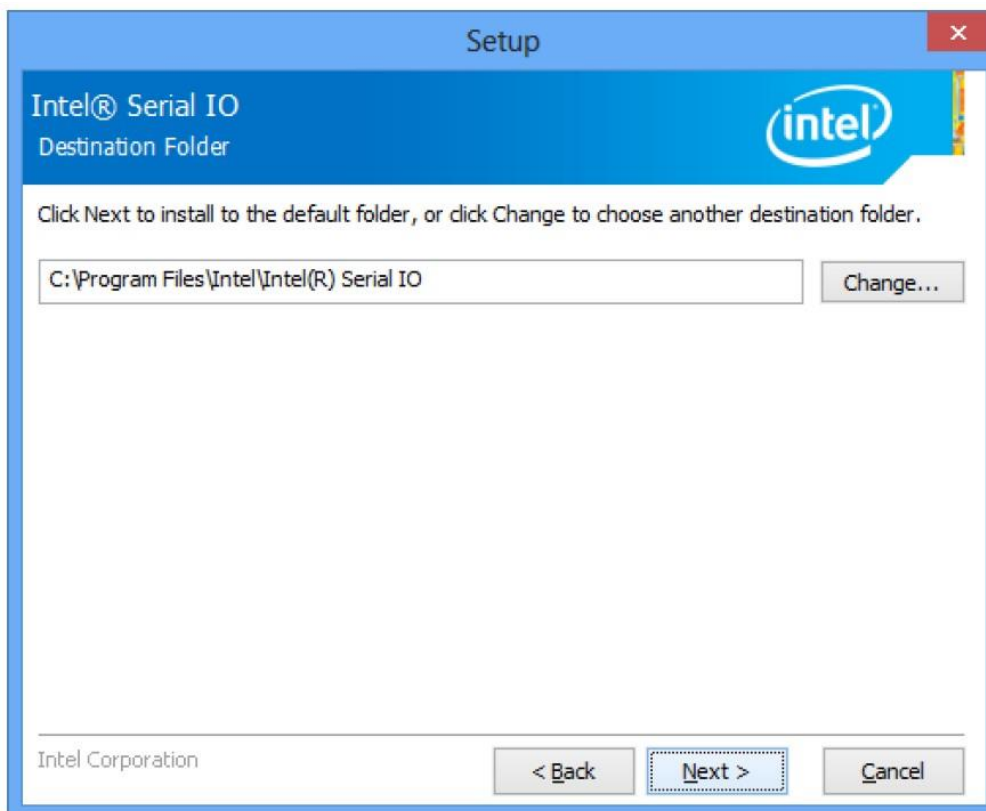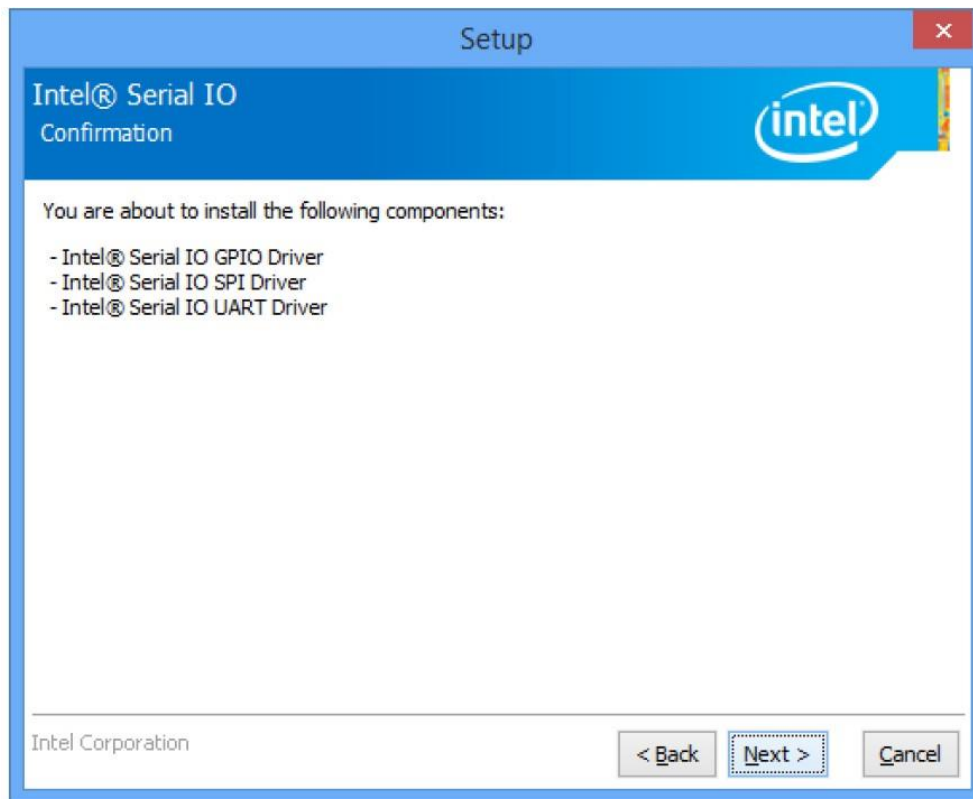
5.   After successful installation, you should see setup completion screen. Click on **Finish** button to complete the installation.
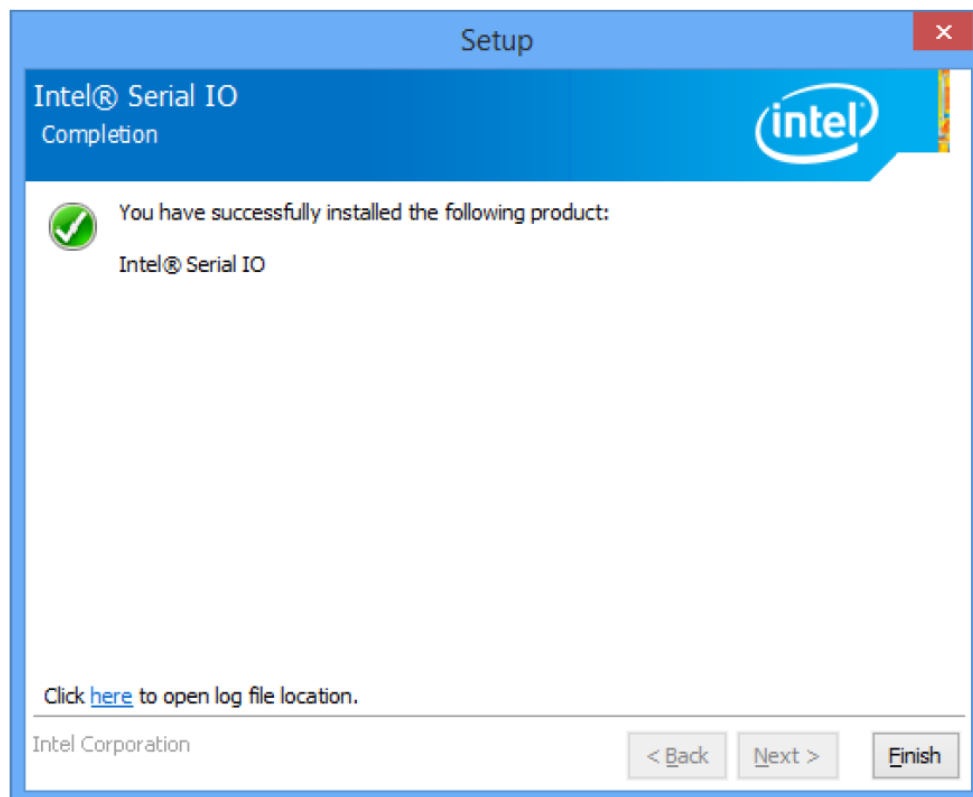
5.6 Audio Driver Installation

Follow instructions below to install Audio driver.

1. Open the Driver CD (included in the package) and select **Audio** driver.
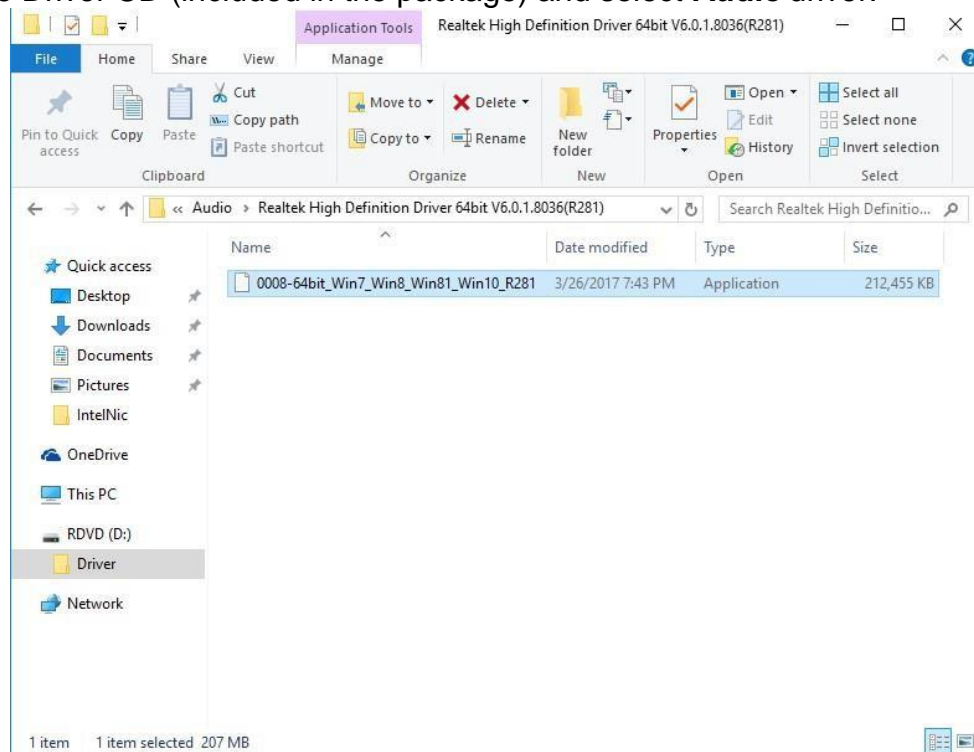
2. Select **Next** to continue.

3. When installation completed, select **Finish** to complete installation.

5.7 LAN Driver Installation

Follow instructions below to install LAN driver.

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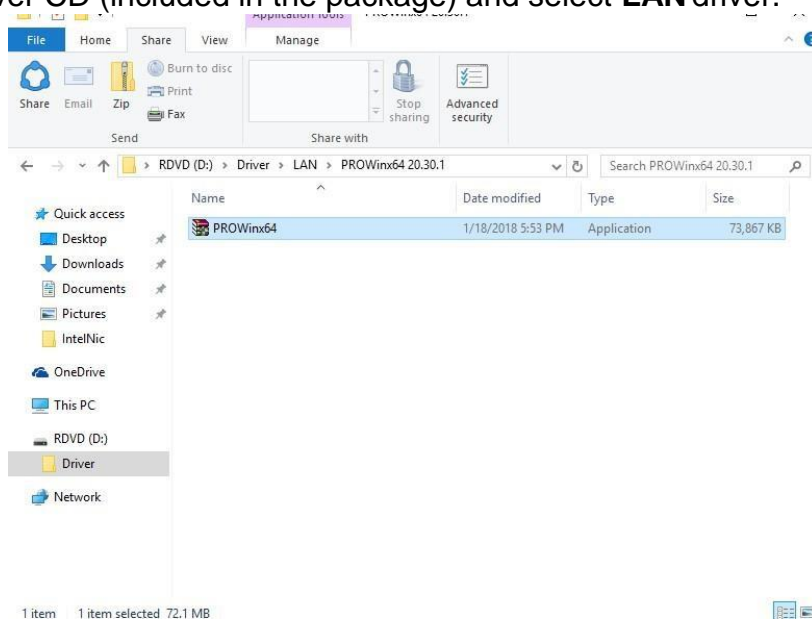
2. When compression is complete, select **Next**.
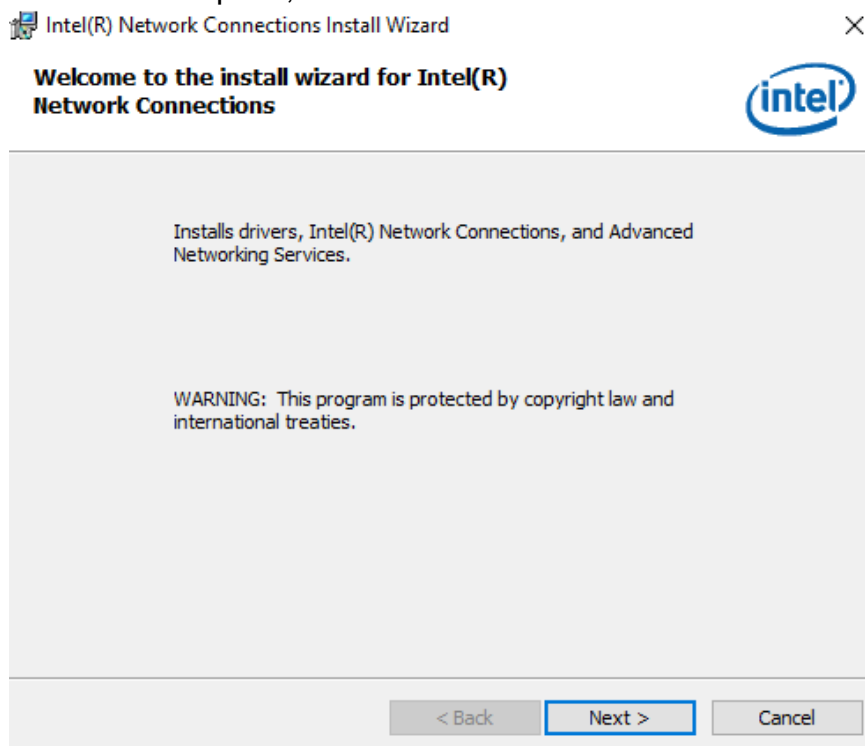
3. Read the license agreement, and then select **Next**.
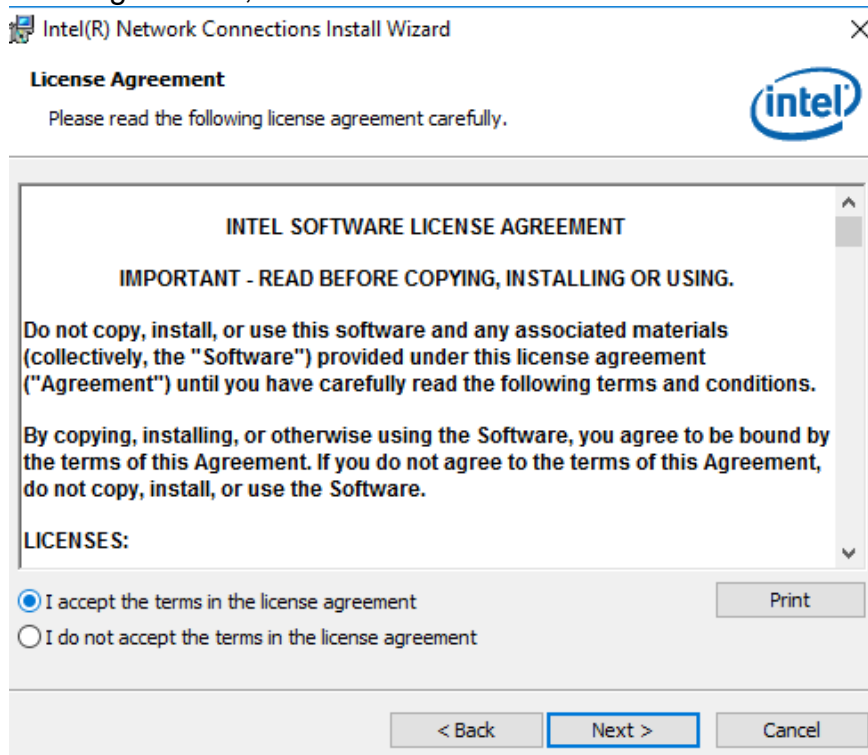
4. System displays the installed packages, select **Next**.
5. Confirm the installation, select **Install** to start the installation.
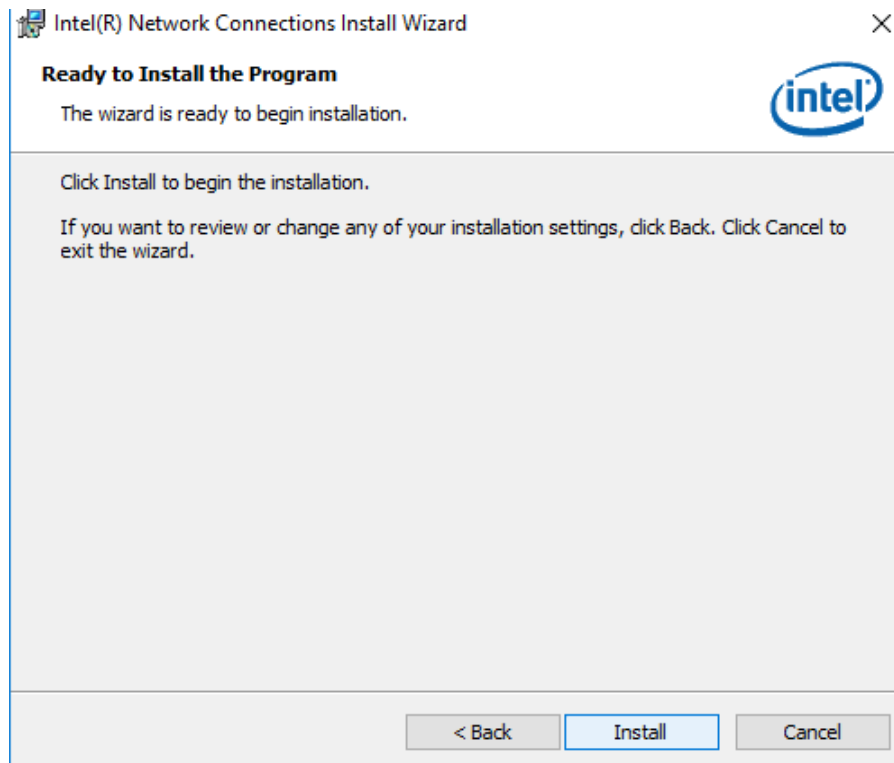
6. When installation is completed, select **Finish** to close the window.
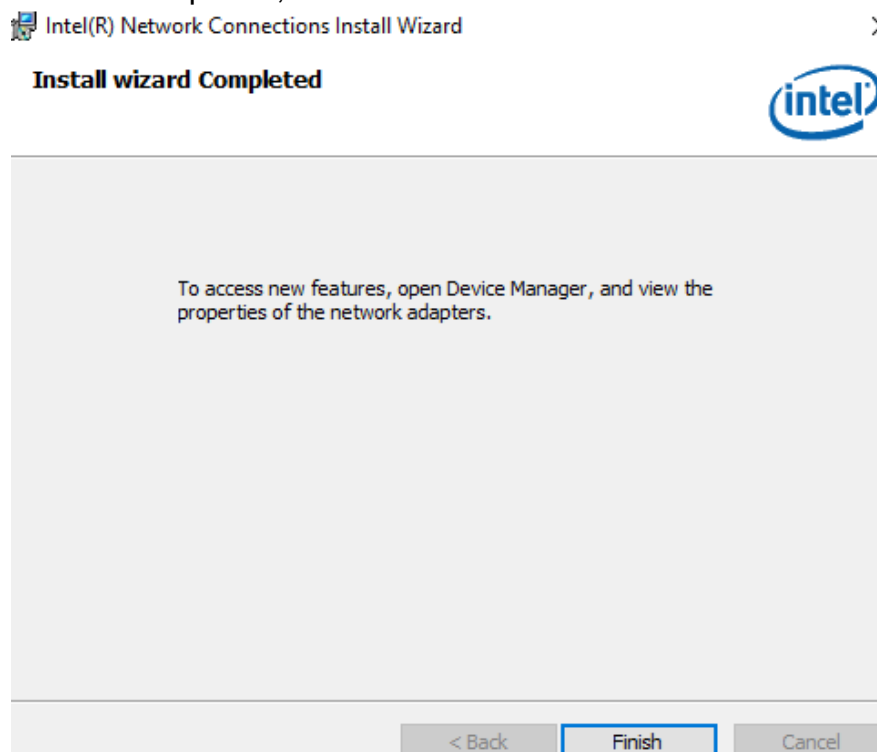
5.8 WatchDog Driver Installation

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

1. Type "cmd" in the run box then the cmd.exe will appear in programs.
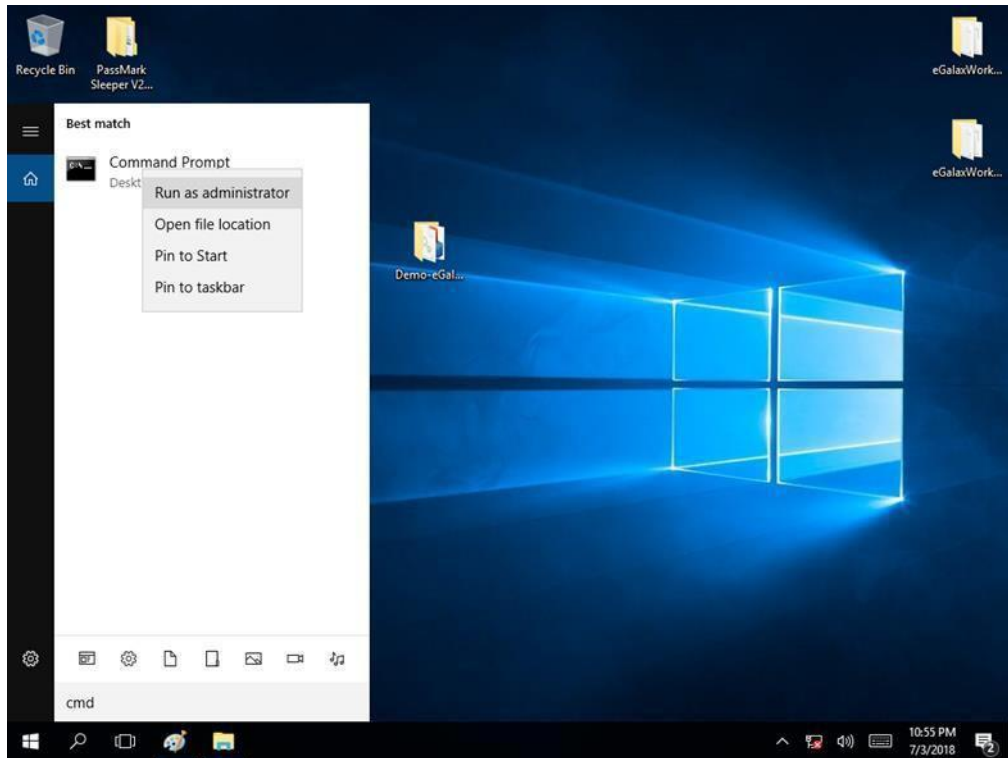
2. Right click on the cmd.exe and click on "Run as administrator" to start
3. Open the Driver CD (included in the package) and select Watchdog driver.
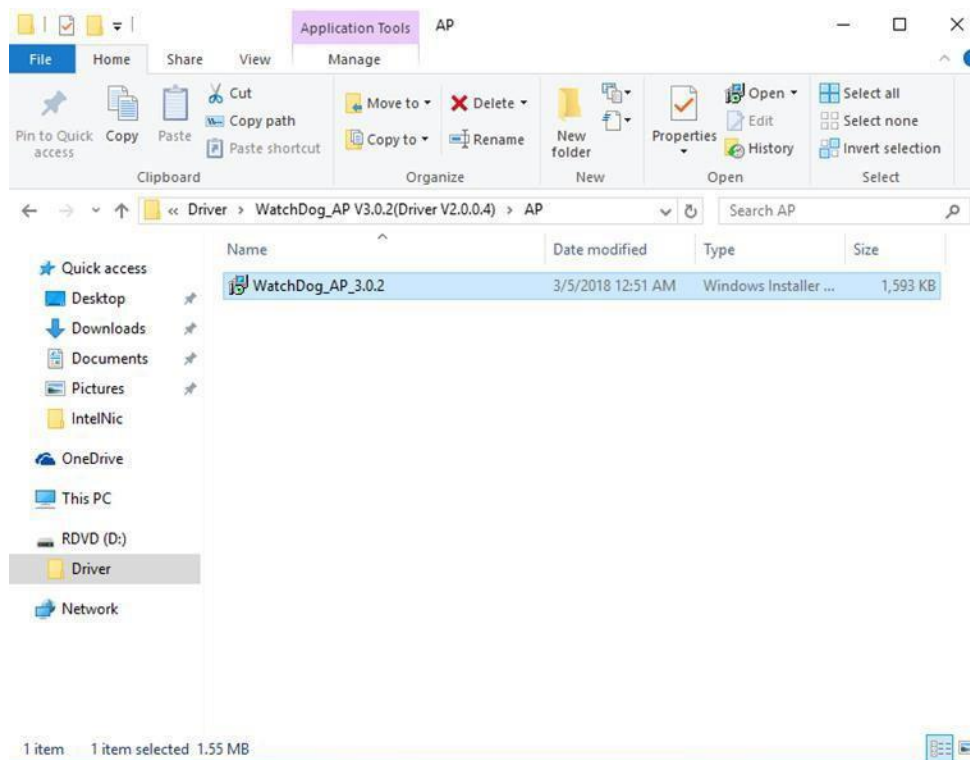
4. When Windows Security dialog appear, select **install** to continue the installation.
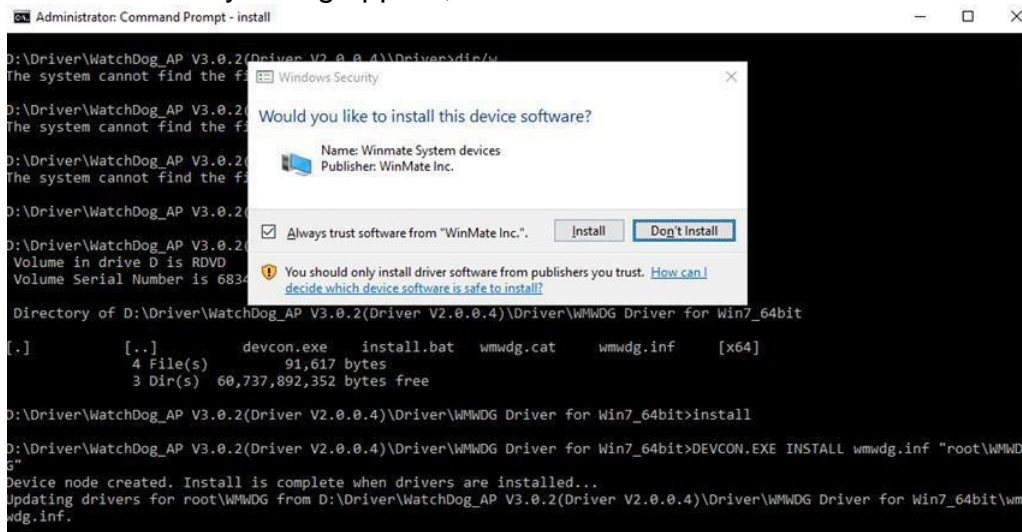
5. Wait for installation to complete. When installation is complete, press any key to close.
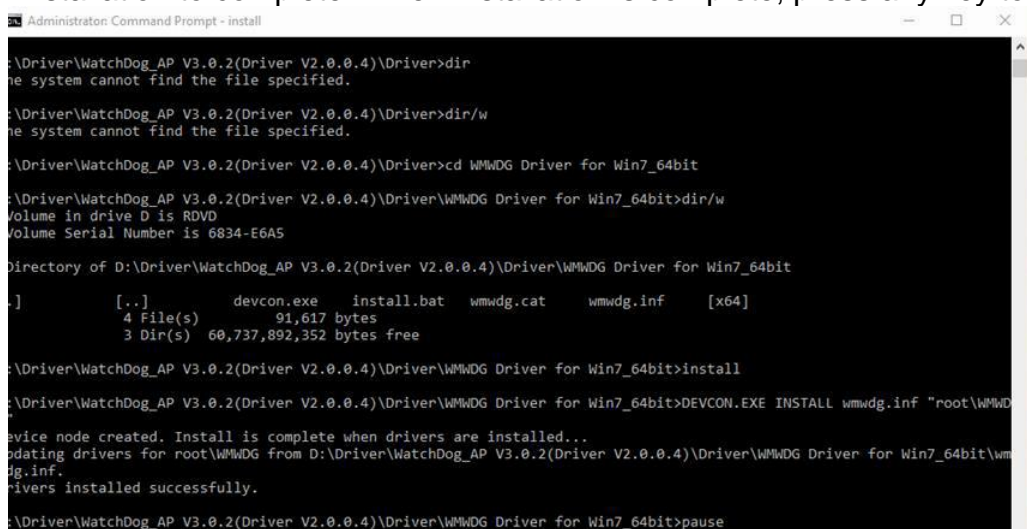
6. Open the Driver CD (included in the package) and select **Watchdog AP**.

7. Select **Next**.

8. The installed storage location is displayed, select **Install** to continue.
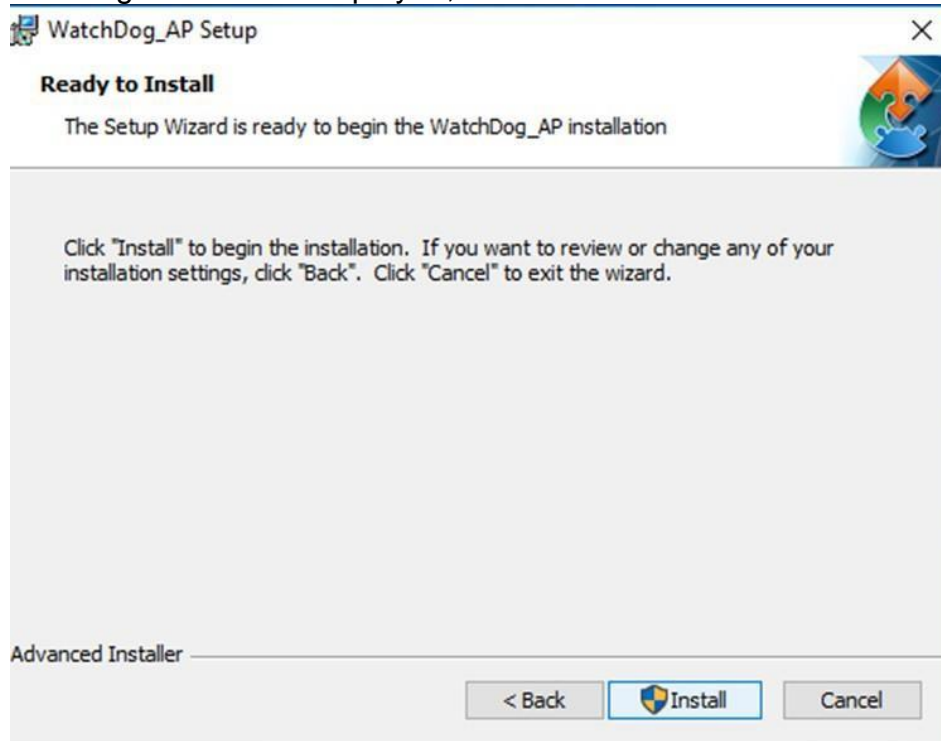
9. Select **Next** to start the installation.

10. When installation is completed, select **Finish** to close the window.

5.9 Digital IO Driver Installation

Follow instructions below to install **Digital IO** driver.
1. Type "cmd" in the run box then the cmd.exe will appear in programs.
2. Right click on the cmd.exe and click on "Run as administrator" to start
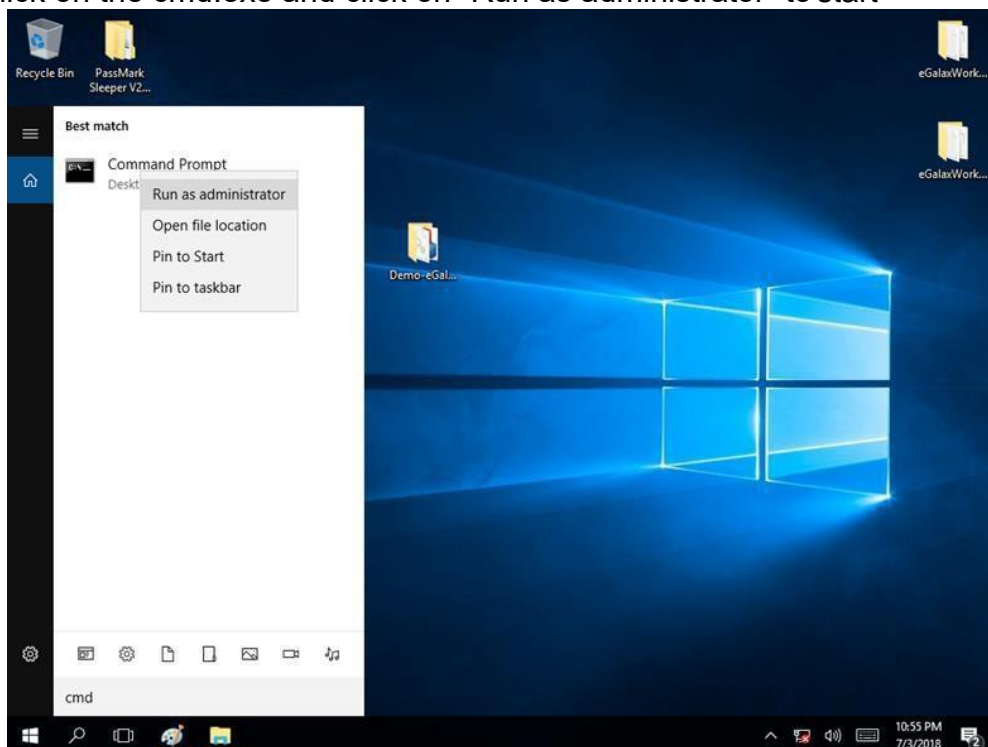
3. Open the Driver CD (included in the package) and select Digital IO driver.
4. When Windows Security dialog appear, select **install** to continue the installation.
5. Wait for installation to complete. When installation is complete, press any key to close.

6. Open the Driver CD (included in the package) and select **Digital IO AP**.

Chapter 6: Mounting

This chapter provides mounting guide for all available mounting options. Pay attention to cautions and warning to avoid any damages.

WARNING! / AVERTISSEMENT!

Follow mounting instructions and use recommended mounting hardware to avoid the risk of injury.

Suivez les instructions de montage et d'utilisation recommandé le matériel de montage pour éviter le risque de blessure.

6.1 Cable Mounting Considerations

For a nice look and safe installation, make sure cables are neatly hidden behind the HMI device. Refer to Chapter 2, section 2.1 for the cable installation instruction.

WARNING! / AVERTISSEMENT!

Observe all local installation requirements for connection cable type and protection level.

Suivre tous les règlements locaux d'installations, de câblage et niveaux de protection.

WARNING! / AVERTISSEMENT!

Turn off the device and disconnect other peripherals before installation.

Éteindre l'appareil et débrancher tous les périphériques avant l'installation.

ALTERNATING CURRENT / MISE À LE TERRE!

To prevent electrical shock, the Safety Ground location on the rear must be bonded to the local earth ground through a minimum 12 AWG wire as short as possible

Pour éviter les chocs électriques, l'emplacement de la prise terre à l'arrière doit être lié à terre locale, à travers un 12 AWG minimum et aussi court que possible.

6.2 Safety Precautions

Observe the following common safety precautions before installing the HMI device:

- Use separate, non-intersecting paths to route power and networking wires. If power wiring and device wiring paths must be crossed make sure the wires are perpendicular at the intersection point.
- Keep the wires separated according to the interface. Wires that share similar electrical characteristics must be bundled together.
- Do not bundle input wiring with output wiring. Keep them separate.

  When necessary, it is strongly advised that you label wiring to all devices in the system.

M-series HMI devices come with different mounting options suitable for most of the industrial and commercial applications.
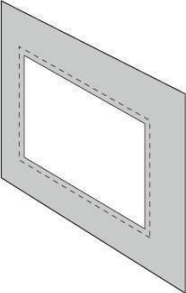
6.3 Panel Mounting

Panel mounting solution allows installing the HMI device onto the wall.
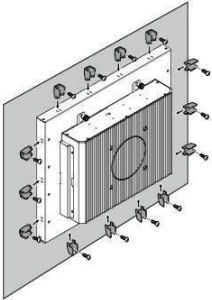
Cutout dimensions (W x D in mm)					
12"	**15"**	**17"**	**19"**	**21.5"**	**23.8"**
301 x 237	342 x 261	373 x 311	412 x 338	504 x 304	583x353
Mounting Clips					
8 pcs	12 pcs	12 pcs	14 pcs	16 pcs	16 pcs
Screws					
Short screws: 15mm M4					
Long screws: 30mm M4					
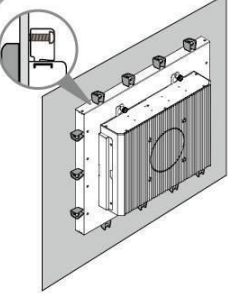
1 Prepare a cutout on a fixture according to the cutout dimensions.
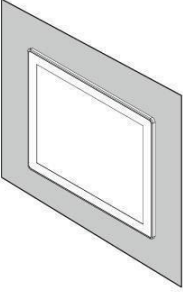
2 Select the mounting holes according to the wall thickness of the fixture and secure the mounting clips onto four sides of the HMI device.

3 Secure the HMI to the fixture by screws.

4 Connect power and other peripherals to the HMI unit.

NOTE

Use either short (15mm) or long (30mm) screws based on the thickness of the wall.

6.3.1 VESA Mounting

M-Series HMI comes with VESA mount holes on the rear side. Follow instructions below to mount the unit with VESA Mount bracket (not supplied by Winmate).

VESA Plate Dimensions	Screw Hole Diameter	Compatibility
100 x 100 mm	VESA M4 x 5 mm	Swing arms mounting kits

Mounting Instruction:

1.   Screw VESA Bracket to the fixture (ex. stand or wall) with M4 VESA screws.
2.   Place the device on VESA bracket (not supplied by Winmate).
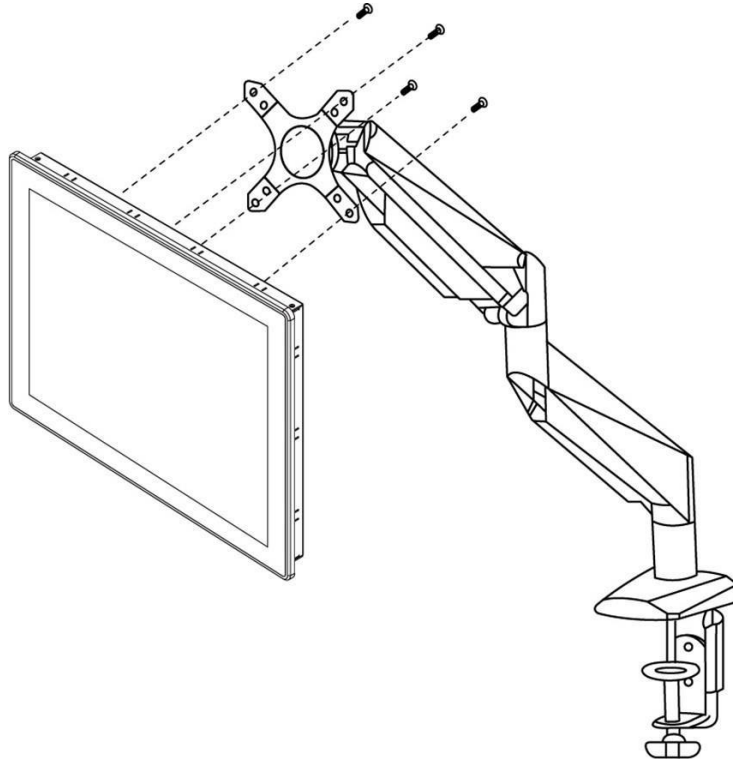
Chapter 7: Technical Support

This chapter includes directory to technical support and Software Developing Kit (SDK). If any problem occurs fill in problem report form enclosed and immediately contact us.

7.1 Software Developer Support

Winmate provides the following development kits (SDK) for M-Series HMI with Intel® Core i5-1135G7 Tiger Lake UP3 processor:

Item	File Type	Description
1	Watchdog SDK & AP	Watchdog SDK and AP

You can find SDK in the driver CD that comes in the package with the HMI device. Also, you can download SDK and Drivers from Winmate Download Center.

Winmate Download Center

https://www.winmate.com > Support > Download Center > Multi-Touch PPC > M- Series HMI Core i5 1135G7

7.2 Problem Report Form

M-Series HMI (Multifunctional Design)

Customer name:	
Company:	
Tel.:	Fax:
E-mail:	Date:

Product Serial Number:

Problem Description: Please describe the problem as clearly as possible. Detailed description of the occurred problem will allow us to find the best solution to solve the problem as soon as possible.

Appendix

Appendix A: Product Specifications

Model Name						
	R12ITWS- MHM2	R15ITWS- MHC3	R17ITWS- MHM1	R19ITWS- MHA1	W22ITWS- MHA3	W24ITWS- MHA2
Size	12.1"	15"	17"	19"	21.5"	23.8"
Active Display Area	245.76x184.3 mm	304.10x228.10 mm	337.92x270.336 mm	376.32x301.06 mm	476.64x268.11 mm	527.04x296.46 mm
Resolution	1024 x 768	1024 x 768	1280 x 1024	1280 x 1024	1920 x 1080	1920 x 1080
Brightness	500 nits	300 nits	350 nits	400 nits	250 nits	250 nits
Contrast Ratio	700:1(typ.)	2000:1 (typ.)	1000:1 (typ.)	1000:1 (typ.)	3000:1 (typ.)	3000:1(typ.)
View Angles	89,89,89,89	88,88,88,88	85,85,80,80	85,85,80,80	89,89,89,89	89,89,89,89
Touch	Projected Capacitive Multi Touch Screen	Projected Capacitive Multi Touch Screen	Projected Capacitive Multi Touch Screen	Projected Capacitive Multi Touch Screen	Projected Capacitive Multi Touch Screen	Projected Capacitive Multi Touch Screen
Processor	Intel® Tiger Lake Core™ i5-1135G7, 2.4GHz (turbo up to 4.2GHz)	Intel® Tiger Lake Core™ i5- 1135G7, 2.4GHz (turbo up to 4.2GHz)	Intel® Tiger Lake Core™ i5-1135G7, 2.4GHz (turbo up to 4.2GHz)	Intel® Tiger Lake Core™ i5- 1135G7, 2.4GHz (turbo up to 4.2GHz)	Intel® Tiger Lake Core™ i5- 1135G7, 2.4GHz (turbo up to 4.2GHz)	Intel® Tiger Lake Core™ i5- 1135G7, 2.4GHz (turbo up to 4.2GHz)
System Memory	2 x SODIMM, DDR4 3200 MHz, 4GB 8GB(Optional) 16GB (Optional) 32GB (Optional)	2 x SODIMM, DDR4 3200 MHz, 4GB 8GB(Optional) 16GB (Optional) 32GB (Optional)	2 x SODIMM, DDR4 3200 MHz, 4GB 8GB(Optional) 16GB (Optional) 32GB (Optional)	2 x SODIMM, DDR4 3200 MHz, 4GB 8GB(Optional) 16GB (Optional) 32GB (Optional)	2 x SODIMM, DDR4 3200 MHz, 4GB 8GB(Optional) 16GB (Optional) 32GB (Optional)	2 x SODIMM, DDR4 3200 MHz, 4GB 8GB(Optional) 16GB (Optional) 32GB (Optional)
Storage	1 x M.2 2280 NVMe SSD, 64GB up to 4TB 2 x 2.5" Removable 256GB SSD up to 512GB (Optional)	1 x M.2 2280 NVMe SSD, 64GB up to 4TB 2 x 2.5" Removable 256GB SSD up to 512GB (Optional)	1 x M.2 2280 NVMe SSD, 64GB up to 4TB 2 x 2.5" Removable 256GB SSD up to 512GB (Optional)	1 x M.2 2280 NVMe SSD, 64GB up to 4TB 2 x 2.5" Removable 256GB SSD up to 512GB (Optional)	1 x M.2 2280 NVMe SSD, 64GB up to 4TB 2 x 2.5" Removable 256GB SSD up to 512GB (Optional)	1 x M.2 2280 NVMe SSD, 64GB up to 4TB 2 x 2.5" Removable 256GB SSD up to 512GB (Optional)
Ethernet controller	Intel® Ethernet Controller I211•AT + Intel® Ethernet Connection I219•LM	Intel® Ethernet Controller I211•AT + Intel® Ethernet Connection I219•LM	Intel® Ethernet Controller I211•AT + Intel® Ethernet Connection I219•LM	Intel® Ethernet Controller I211•AT + Intel® Ethernet Connection I219•LM	Intel® Ethernet Controller I211•AT + Intel® Ethernet Connection I219•LM	Intel® Ethernet Controller I211•AT + Intel® Ethernet Connection I219•LM
Audio	1 x Audio Combo Connector (Mic in / Line Out)	1 x Audio Combo Connector (Mic in / Line Out)	1 x Audio Combo Connector (Mic in / Line Out)	1 x Audio Combo Connector (Mic in / Line Out)	1 x Audio Combo Connector (Mic in / Line Out)	1 x Audio Combo Connector (Mic in / Line Out)
Expansion Port	1 x mPCIe slot 1 x PCIe x16 slot (x4 signal) 1 x M.2 2230 Key E slot for WiFi 1 x M.2 2280 Key M slot for NVMe SSD Swappable 2.5" HDD/SSD Bay Slot	1 x mPCIe slot 1 x PCIe x16 slot (x4 signal) 1 x M.2 2230 Key E slot for WiFi 1 x M.2 2280 Key M slot for NVMe SSD Swappable 2.5" HDD/SSD Bay Slot	1 x mPCIe slot 1 x PCIe x16 slot (x4 signal) 1 x M.2 2230 Key E slot for WiFi 1 x M.2 2280 Key M slot for NVMe SSD Swappable 2.5" HDD/SSD Bay Slot	1 x mPCIe slot 1 x PCIe x16 slot (x4 signal) 1 x M.2 2230 Key E slot for WiFi 1 x M.2 2280 Key M slot for NVMe SSD Swappable 2.5" HDD/SSD Bay Slot	1 x mPCIe slot 1 x PCIe x16 slot (x4 signal) 1 x M.2 2230 Key E slot for WiFi 1 x M.2 2280 Key M slot for NVMe SSD Swappable 2.5" HDD/SSD Bay Slot	1 x mPCIe slot 1 x PCIe x16 slot (x4 signal) 1 x M.2 2230 Key E slot for WiFi 1 x M.2 2280 Key M slot for NVMe SSD Swappable 2.5" HDD/SSD Bay Slot

Model Name						
	R12ITWS- MHM2	R15ITWS- MHC3	R17ITWS- MHM1	R19ITWS- MHA1	W22ITWS- MHA3	W24ITWS- MHA2
Input/ Output						
IO Port	1 x Dc in 2 x RS232/422/485 1 x Audio Combo Connector 4 x USB 3.2 Gen.1 (Type•A) 1 x DP1.4 1x HDMI 2.0 (Optional) 2 x Giga LAN RJ45 Connector 1 x LED Indicator for storage	1 x Dc in 2 x RS232/422/485 1 x Audio Combo Connector 4 x USB 3.2 Gen.1 (Type•A) 1 x DP1.4 1x HDMI 2.0 (Optional) 2 x Giga LAN RJ45 Connector 1 x LED Indicator for storage	1 x Dc in 2 x RS232/422/485 1 x Audio Combo Connector 4 x USB 3.2 Gen.1 (Type•A) 1 x DP1.4 1x HDMI 2.0 (Optional) 2 x Giga LAN RJ45 Connector 1 x LED Indicator for storage	1 x Dc in 2 x RS232/422/485 1 x Audio Combo Connector 4 x USB 3.2 Gen.1 (Type•A) 1 x DP1.4 1x HDMI 2.0 (Optional) 2 x Giga LAN RJ45 Connector 1 x LED Indicator for storage	1 x Dc in 2 x RS232/422/485 1 x Audio Combo Connector 4 x USB 3.2 Gen.1 (Type•A) 1 x DP1.4 1x HDMI 2.0 (Optional) 2 x Giga LAN RJ45 Connector 1 x LED Indicator for storage	1 x Dc in 2 x RS232/422/485 1 x Audio Combo Connector 4 x USB 3.2 Gen.1 (Type•A) 1 x DP1.4 1x HDMI 2.0 (Optional) 2 x Giga LAN RJ45 Connector 1 x LED Indicator for storage
Button	1 x Power Button with LED Indicator 1 x Reset Button	1 x Power Button with LED Indicator 1 x Reset Button	1 x Power Button with LED Indicator 1 x Reset Button	1 x Power Button with LED Indicator 1 x Reset Button	1 x Power Button with LED Indicator 1 x Reset Button	1 x Power Button with LED Indicator 1 x Reset Button
Mechanical Specification						
Cooling	Fanless design	Fanless design	Fanless design	Fanless design	Fanless design	Fanless design
Mounting	Panel/ VESA	Panel / VESA	Panel / VESA	Panel / VESA	Panel / VESA	Panel / VESA
Environmental Consideration						
Operating Temp.	0°C to +50°C	0°C to +50°C	0°C to +50°C	0°C to +50°C	0°C to +50°C	0°C to +50°C
Operating Humidity	10% to 90% (noncondensing)	10% to 90% (noncondensing)	10% to 90% (noncondensing)	10% to 90% (noncondensing)	10% to 90% (noncondensing)	10% to 90% (noncondensing)
IP Rating	Front IP65	Front IP65	Front IP65	Front IP65	Front IP65	Front IP65
Power Specifications						
Power Input	1 x 9~29V DC, 3Pin Terminal Block	1 x 9~29V DC, 3Pin Terminal Block	1 x 9~29V DC, 3Pin Terminal Block	1 x 9~29V DC, 3Pin Terminal Block	1 x 9~29V DC, 3Pin Terminal Block	1 x 9~29V DC, 3Pin Terminal Block
Power Adapter	100~240V AC to DC Adapter	100~240V AC to DC Adapter	100~240V AC to DC Adapter	100~240V AC to DC Adapter	100~240V AC to DC Adapter	100~240V AC to DC Adapter

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