IEI Integration Corp.

MODEL:

BIS-W19C(F)-ULT4

18.5” Medical Panel PC with Intel® Core™ i5-7300U/ Celeron® 3965U CPU, 4 GB DDR4 RAM, Wi-Fi 802.11a/b/g/n/ac, PCAP Touchscreen, 2-Megapixel Camera and Microphone

User Manual

Rev. 1.00 - April 24, 2018

RoHS Lead Free

Revision

Date	Version	Changes
April 24, 2018	1.00	Initial release

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Manual Conventions

WARNING

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously.

CAUTION

Cautionary messages should be heeded to help reduce the chance of losing data or damaging the product.

NOTE

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes.

OPERATING INSTRUCTION

Follow operating instructions or consult instructions for use.

IEC 60417-5009: STAND-BY

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1

Introduction

1.1 Overview

Figure 1-1: BIS-W19C(F)-ULT4 Medical Panel PC

The BIS-W19C(F)-ULT4 is a 7th generation Intel® Core™/Celeron® mobile CPU powered medical-grade panel PC with a rich variety of functions and peripherals. All BIS-W19C(F)-ULT4 models are designed for easy and simplified integration into bedside infotainment applications. The system comes with 4 GB of preinstalled DDR4 memory and supports a maximum of 32 GB ensuring smooth data throughputs with reduced bottlenecks and fast system access.

One isolated RS-232/422/485 serial port, four USB 3.0 ports and two USB 2.0 ports provide simplified connectivity to a variety of external peripheral devices. Wi-Fi 802.11a/b/g/n/ac high speed wireless and two RJ-45 GbE connectors allow for smooth connection of the system to an external LAN. The system also equips with one SATA interface supporting both SATA HDD and SSD.

NOTE:

The BIS-W19C(F)-ULT4 medical panel PC is intended to be used to display general purpose medical images. The device shall not be used for diagnosis purpose or life supporting system.

1.2 Model Variations

There are four models in the BIS-W19C(F)-ULT4 series. All models are preinstalled with one 4 GB DDR4 memory module and an 802.11a/b/g/n/ac Wi-Fi module. The model names and model variations are listed below.

Model	CPU	Brightness	Resolution
BIS-W19CF-ULT4-C/PC/4G	Intel® Celeron® 3965U	350 cd/m^2	1920x0180
BIS-W19CF-ULT4-i5/PC/4G	Intel® Core™ i5-7300U	350 cd/m^2	1920x0180
BIS-W19C-ULT4-C/PC/4G	Intel® Celeron® 3965U	250 cd/m^2	1366x768
BIS-W19C-ULT4-i5/PC/4G	Intel® Core™ i5-7300U	250 cd/m^2	1366x768

Table 1-1: Model Variations

1.3 Features

The BIS-W19C(F)-ULT4 features are listed below:

- 18.5” (16:9) flat-bezel LCD with LED backlight
- Anti-bacteria cover
- Projected capacitive type touchscreen
- Intel® Core™ /i5-7300U or Intel® Celeron® 3965U processor
- Preinstalled with 4 GB of DDR4 memory (system max. 32 GB)
- Two GbE RJ-45 connectors and Wi-Fi 802.11a/b/g/n/ac high speed wireless
- Two 2 W speakers
- Four USB 3.0 ports and two USB 2.0 ports
- 12 V ~ 28 V wide range DC power input
- One isolated RS-232/422/485 DB-9 connector
- IP 65 compliant front panel
- Optional Mifare RFID reader
- Optional 3-in-1 card reader (supports magnetic stripe card, smart card and fingerprint)
- Optional VoIP phone handset
- Optional handle module with 1D/2D barcode scanner and reading light

1.4 Front Panel

The front side of the BIS-W19C(F)-ULT4 is a flat-bezel panel with a TFT LCD screen surrounded by a PC+ABS plastic frame (**Figure 1-2**). The PC/monitor mode switch located below the center of the front panel allows users to switch between PC and monitor mode.

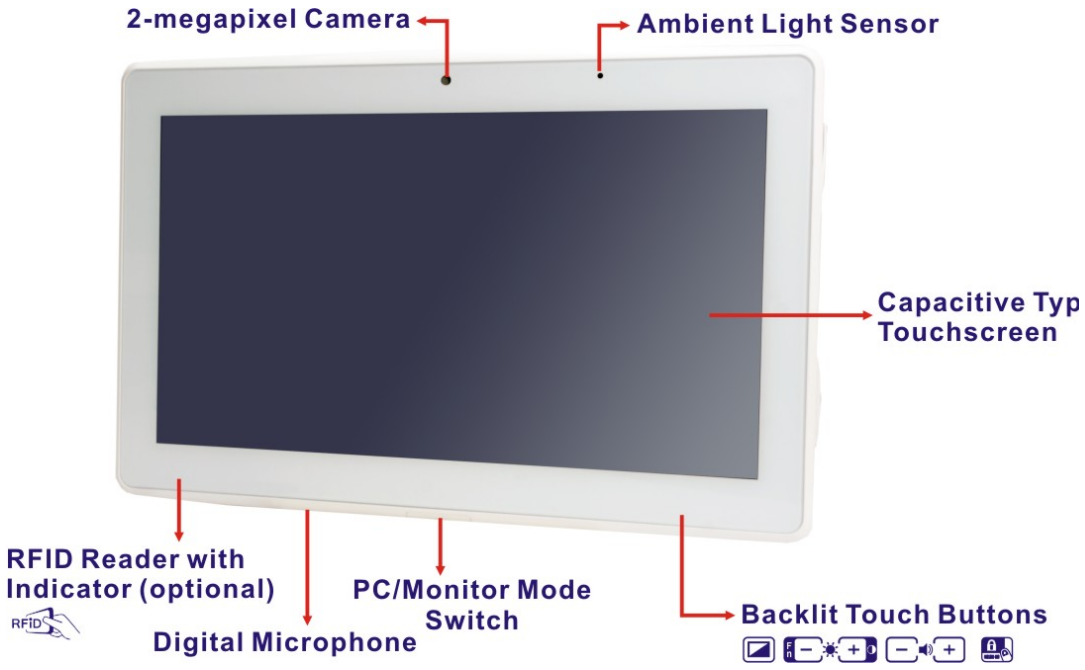


Figure 1-2: Front View

1.4.1 Backlit Touch Buttons

The front panel of the BIS-W19C(F)-ULT4 contains several backlit touch buttons that control audio volume, LCD brightness and some other system components.

Figure 1-3: Backlit Touch Buttons

The following table describes the function of each button.

Button	Function
	LCD on/off (the touch buttons blink when the LCD is turned off)
	–: Brightness down or auto dimming on/off (with function key) (minimum brightness: 5%) +: Brightness up (maximum brightness: 100%) Combination: Auto dimming on/off
	–: Volume down +: Volume up
	Touch lock for cleaning: long-press for 3 seconds to lock or unlock the touch function of the screen. The touch buttons blink when the touch function is locked. The lock will be automatically disabled after 2 minutes. ***Note:*** *Touch function of the screen is disabled in monitor mode. Long-pressing this button can lock/unlock all touch buttons.*
Note: Press the touch button for at least one second to activate it.	

Table 1-2: Touch Button Functions

1.5 Side Panels

The left side panel has two USB 2.0 ports and two audio jacks which are protected by waterproof covers. The HDMI input connector and two 2 W speakers are also located on the side panel as shown in **Figure 1-4**.

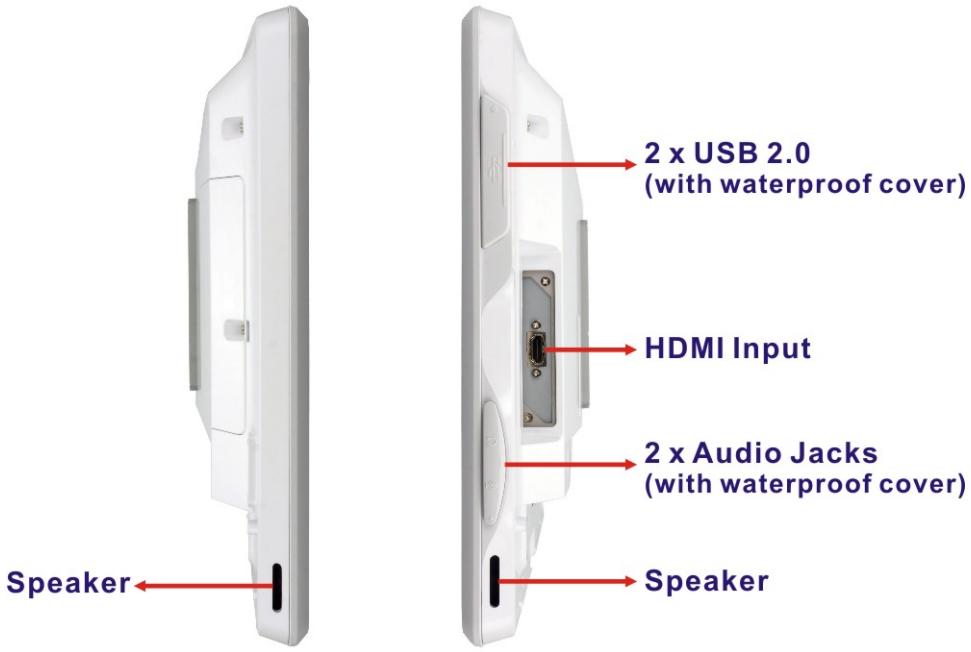


Figure 1-4: Side View

1.6 Bottom Panel

The bottom panel of the BIS-W19C(F)-ULT4 has the following connectors and switches (**Figure 1-5**):

- 1 x Barcode reader RJ-11 connector
- 1 x GbE RJ-45 connectors
- 2 x USB 3.0 connectors
- 1 x HDMI output connector
- 1 x AT/ATX switch
- 1 x Reset button

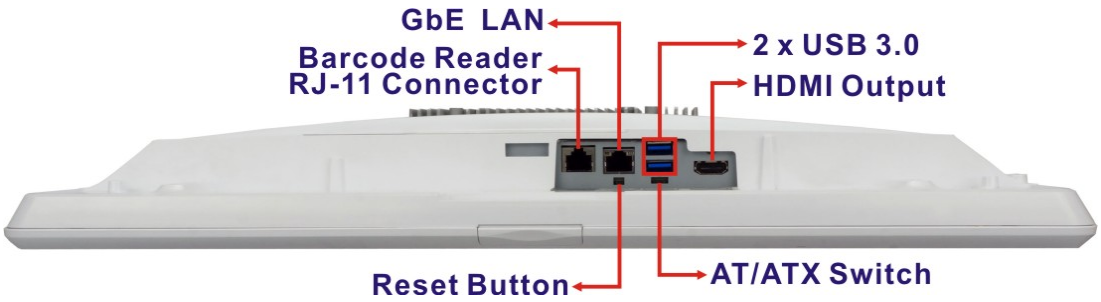


Figure 1-5: Bottom Panel

1.7 Rear Panel

The rear panel of the BIS-W19C(F)-ULT4 has a camera cover on/off switch and the following connectors (**Figure 1-6**):

- 1 x 12 V ~ 28 V DC input power jack
- 1 x 1.5 kV isolated RS-232/422/485 DB-9 connector
- 1 x GbE RJ-45 connector
- 2 x USB 3.0 connectors

In addition, the rear panel has several screw holes for VESA 75/100 mounting and optional peripheral installation, such as the handle and the handset holder.

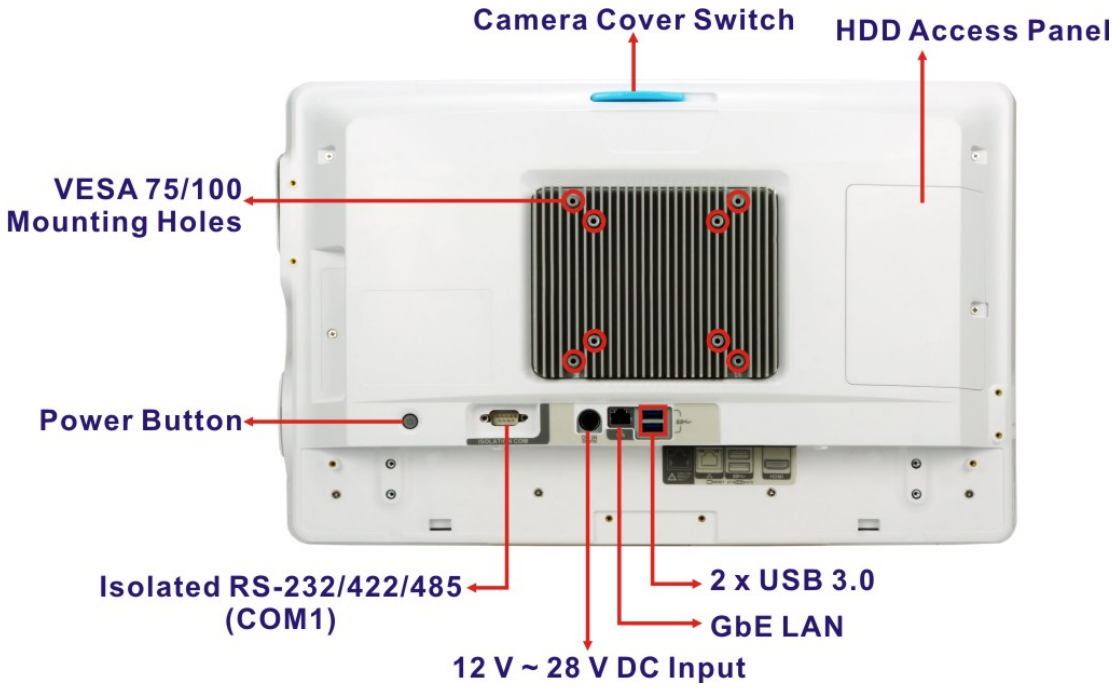


Figure 1-6: Rear View

1.8 System Specifications

The technical specifications for the BIS-W19C(F)-ULT4 systems are listed in **Table 1-3**.

Specifications	BIS-W19CF-ULT4	BIS-W19C-ULT4
LCD and Touchscreen		
LCD Size	18.5" (16:9)	
Max. Resolution	1920 (W) x 1080 (H)	1366 (W) x 768 (H)
Brightness (cd/m^2)	350	250
Contrast Ratio	1000:1	1000:1
LCD Color	16.7M (RGB 6-bit)	16.7M (RGB 8-bit)
Pixel Pitch (mm)	0.213 (H) x 0.213 (V)	0.3 (H) x 0.3 (V)
Viewing Angle (H-V)	178°/178°	170°/160°
Backlight MTBF	50,000 hrs (LED backlight)	30,000 hrs (LED backlight)
Touchscreen	Projected capacitive type with USB interface	
Touch Controller	ILITEK	
Surface Hardness	6H	
System		
CPU	Intel® Core™ i5-7300U or Intel® Celeron® 3965U	
Memory	Two 260-pin 2133/1866 MHz dual-channel non-ECC unbuffered DDR4 SO-DIMMs supported (system max. 32 GB) Preinstalled with 4 GB memory	
I/O Port	**Rear:** 1 x 1.5kV isolated COM port (DB-9) 1 x 12 V ~ 28 V DC input jack 1 x GbE LAN port (RJ-45) 2 x USB 3.0 port **Bottom:** 1 x Barcode reader connector (RJ-11) 1 x GbE LAN port (RJ-45)	

	2 x USB 3.0 port 1 x HDMI output **Side:** 2 x USB 2.0 port 1 x Audio out 1 x Mic in 1 x HDMI input
Storage	One 2.5” SATA 6Gb/s HDD bay One mSATA (reserved, PCIe Mini interface)
Audio	Two 2 W speakers
Webcam & Microphone	2-megapixel CMOS front-facing camera with auto focus and digital microphone
LED Indicator	RFID LED indicator (optional)
Other Features	
Mifare RFID	Optional Mifare 13.56 MHz card reader (with LED indicator)
Function Keys	1 x LCD on/off 1 x Brightness up 1 x Brightness down 1 x Volume up 1 x Volume down 1 x Touch lock for cleaning **Combination:** 1 x Auto dimming on/off
Light Sensor	Ambient light sensor for panel brightness adjustment
Cooling Method	Fanless
Connectivity	
Wi-Fi and Bluetooth	IEEE 802.11a/b/g/n/ac 2T2R module with Bluetooth v4.1 (M.2 2230 A-E key module)
LAN	Two GbE LAN connectors

Physical		
Construction Material	PC+ABS plastic with anti-bacterial material	
Mounting	Wall, stand and arm mounting VESA 75 mm x 75 mm or 100 mm x 100 mm	
Net Weight	6.5 kg	
Dimensions (W x H x D)	478.6 mm x 317.3 mm x 60.1 mm	
Environment		
Storage/Transportation	**Temperature**	-40ºC ~ 70ºC
	Humidity	10% ~ 95% (non-condensing)
	Pressure	700 hPa ~ 1060 hPa
Operating	**Temperature**	0ºC ~ 40ºC
	Humidity	10% ~ 95% (non-condensing)
	Pressure	700 hPa ~ 1060 hPa
Vibration	1G	
Shock	Operating Shock: 5G peak acceleration (11ms duration) Non-Operating Shock: 15G peak acceleration (11ms duration)	
IP Level	IP 65 compliant front panel	
Power		
Power Input	12 V ~ 28 V DC	
Power Adapter	120 W DARFON H1120-B0 medical-grade power adapter Input: 100 V AC ~ 240 V AC, 50 Hz ~ 60 Hz, 2.0 A ~ 1.0 A Output: 19 V ⎓ 6.31 A	
	150 W FSP FSP150M-ABA medical-grade power adapter Input: 100 V AC ~ 240 V AC, 50 Hz ~ 60 Hz, 2 A ~ 0.85 A Output: 19 V ⎓ 7.89 A	

Table 1-3: System Specifications

1.9 Dimensions

The BIS-W19C(F)-ULT4 dimensions are shown below.

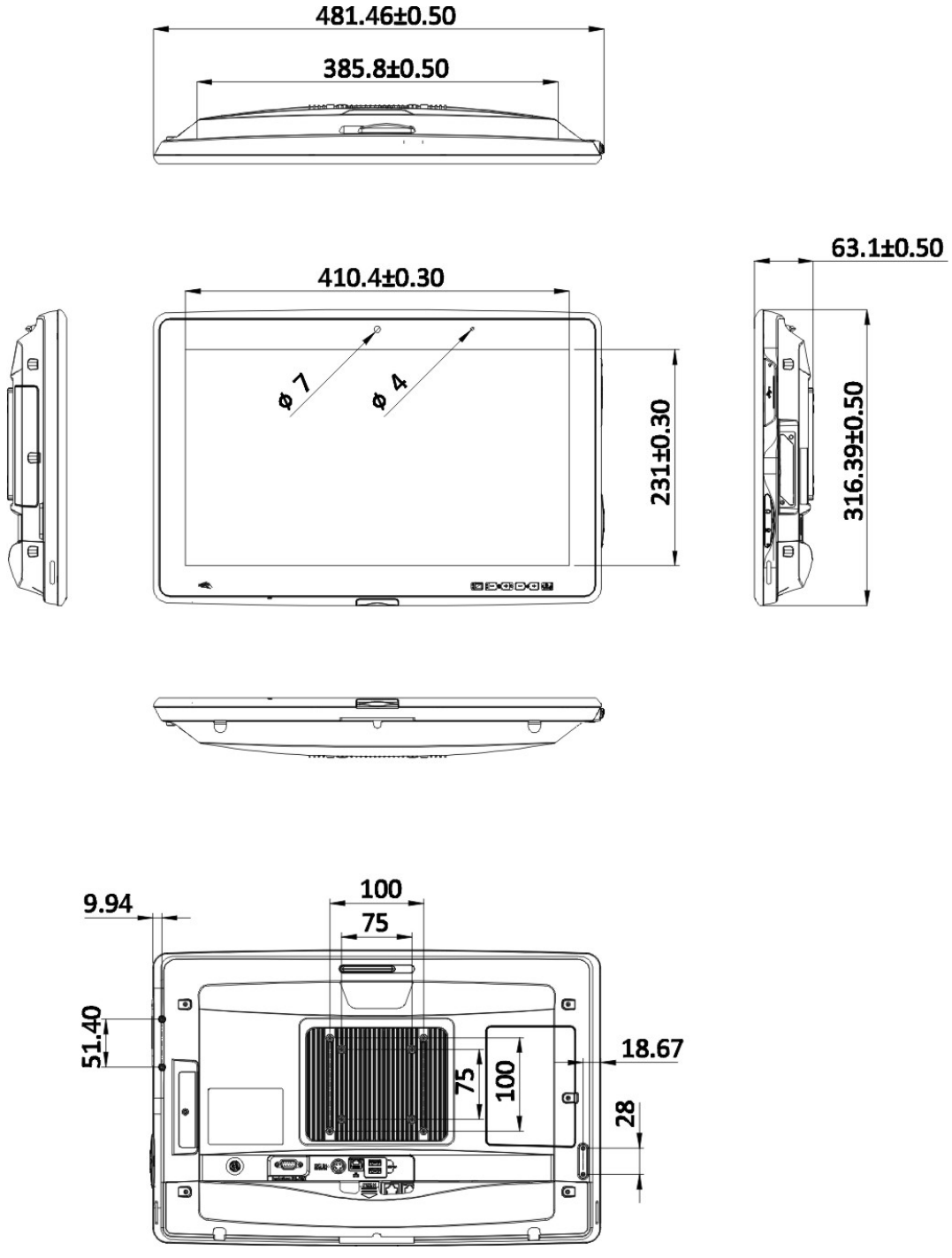


Figure 1-7: Dimensions (mm)

Chapter

2

Unpacking

2.1 Unpacking

To unpack the medical panel PC, follow the steps below:

WARNING!

The front side LCD screen has a protective plastic cover stuck to the screen. Only remove the plastic cover after the medical panel PC has been properly installed. This ensures the screen is protected during the installation process.

Step 1: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the external (second) box.

Step 2: Open the external (second) box.

Step 3: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the internal (first) box.

Step 4: Lift the monitor out of the boxes.

Step 5: Remove both polystyrene ends, one from each side.

Step 6: Pull the plastic cover off the medical panel PC.

Step 7: Make sure all the components listed in the packing list are present.

2.2 Packing List

NOTE:

If any of the components listed in the checklist below are missing, do not proceed with the installation. Contact the IEI reseller or vendor the BIS-W19C(F)-ULT4 was purchased from or contact an IEI sales representative directly by sending an email to sales@ieiworld.com.

The BIS-W19C(F)-ULT4 medical panel PC is shipped with the following components:

Quantity	Item	Image
1	BIS-W19C(F)-ULT4 medical panel PC	
1	120 W/19 V DARFON H1120-B0 medical-grade power adapter (**P/N**: 63040-580120-000-RS) **or** 150 W/19 V FSP FSP150M-ABA medical-grade power adapter (**P/N**: 63040-010150-400-RS)	 
1	Power cord (**P/N**: 32702-000200-100-RS)	
4	Pan-head screw (M3*5) for HDD installation (**P/N**: 44043-030051-RS)	

1	Quick Installation Guide	

2.3 Optional Items

The following are optional components which may be separately purchased:

Item and Part Number	Image
3-in-1 reader (smart card, magnetic card and fingerprint) (**P/N**: MEDP-CR-02-R10)	
Handle (**P/N**: MEDP-HD-R10)	
Handle with 1D/2D barcode reader and reading light (**P/N**: MEDP-HD-BR-R10)	
Handset (USB interface) and holder (**P/N**: MEDP-HS-R10)	

Item and Part Number	Image
VESA 100 wall mount kit (four M3*6 screws included) (**P/N**: AFLWK-19B)	
Arm (**P/N**: ARM-31-RS)	
Stand (**P/N**: STAND-A21-R10)	
EZ Stand with cabling hole, VESA 100 (**P/N**: MEDP-EZS-R10)	
Trusted platform module (assemble-to-order) (**P/N**: MEDP-TPM-04-R10)	
Mifare RFID reader compliant with ISO 14443A, ISO 14443B and ISO 15693 protocols (assemble-to-order) (**P/N**: MEDP-MF-RFID-04-R10)	

Item and Part Number	Image
Cable cover (**P/N**: POCP-CC04-R10)	

Chapter

3

Installation

3.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the maintenance of the BIS-W19C(F)-ULT4 may result in permanent damage to the BIS-W19C(F)-ULT4 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the BIS-W19C(F)-ULT4. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the BIS-W19C(F)-ULT4 is accessed internally, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: Before handling the board, touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring the BIS-W19C(F)-ULT4, place it on an anti-static pad. This reduces the possibility of ESD damaging the BIS-W19C(F)-ULT4.
- ***Only handle the edges of the PCB***: When handling the PCB, hold the PCB by the edges.

3.2 Installation Precautions

CAUTION:

Accessory equipment connected to the analog and digital interfaces must be in compliance with the respective nationally harmonized IEC standards (i.e. IEC 60601-1 for medical equipment.) Furthermore all configurations shall comply with the system standard in IEC 60601-1. Anyone who connects additional equipment to the signal input part or signal output part is configuring a medical system, and is therefore, responsible that the system complies with the requirements of the system standard IEC 60601-1. The unit is for exclusive interconnection with IEC 60601-1 certified equipment in the patient environment and IEC 60XXX certified equipment out-side of the patient environment.

When installing the medical panel PC, please follow the precautions listed below:

- **Manufacturer authorization**: Do not modify this equipment without authorization of manufacturer.
- **Certified Engineers**: Only certified engineers should install and modify the hardware settings.
- **Power turned off**: When installing the medical panel PC, make sure the power is off. Failing to turn off the power may cause severe injury to the body and/or damage to the system.
- **Anti-static Discharge**: If a user open the rear panel of the medical panel PC, to configure the jumpers or plug in added peripheral devices, ground themselves first and wear an anti-static wristband.
- **Near accessible outlet:** The equipment should be installed near an easily accessible outlet. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.

3.3 Installation and Configuration Steps

The following installation steps must be followed.

Step 1: Unpack the medical panel PC.

Step 2: Install an HDD.

Step 3: Install necessary accessories (handset, handle or combo reader).

Step 4: Configure the system.

Step 5: Connect peripheral devices to the medical panel PC.

Step 6: Mount the medical panel PC.

3.4 HDD Installation

To install the HDD into the system, please follow the steps below:

Step 1: Remove the retention screw from the HDD cover (**Figure 3-1**).

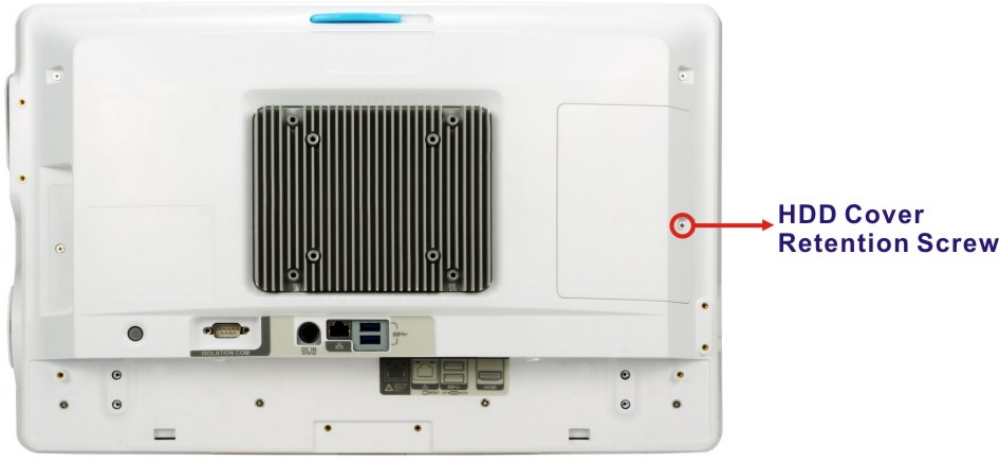


Figure 3-1: HDD Cover Retention Screw

Step 2: Remove the HDD cover.

Step 3: Remove the two HDD bracket retention screws (**Figure 3-2**) and lift the HDD bracket off the panel PC.

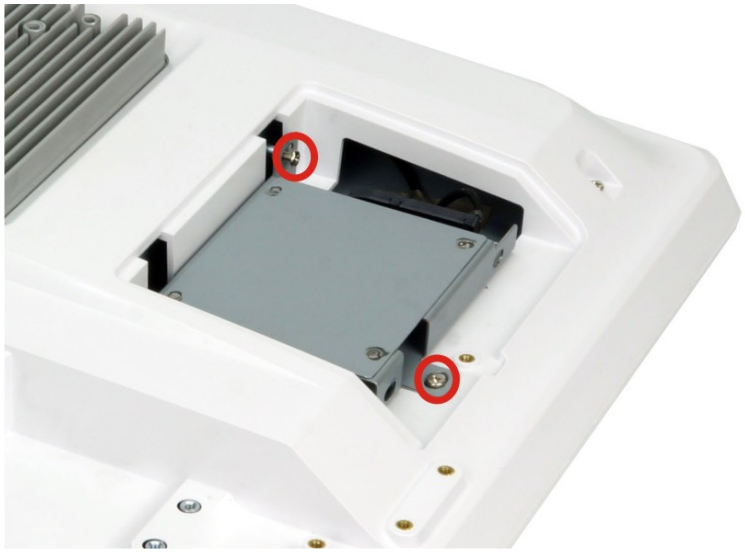


Figure 3-2: HDD Bracket Retention Screws

Step 4: Slide the HDD into the HDD bracket, aligning the four retention screw holes in the both sides of the HDD bracket with the retention screw holes on the sides of the HDD (**Figure 3-3**).

Step 5: Insert four retention screws (M3*5) into the bracket (**Figure 3-3**).

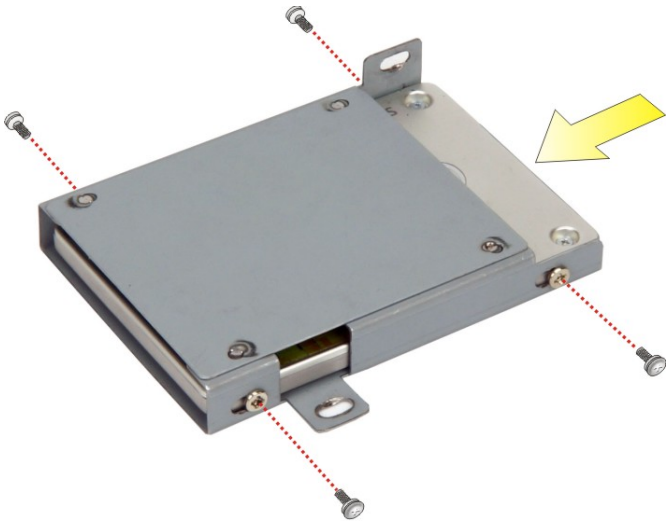


Figure 3-3: HDD Retention Screws

Step 6: Connect the SATA cable from the BIS-W19C(F)-ULT4 to the rear of the HDD. Replace the HDD bracket by securing the two retention screws previously removed (**Figure 3-4**).

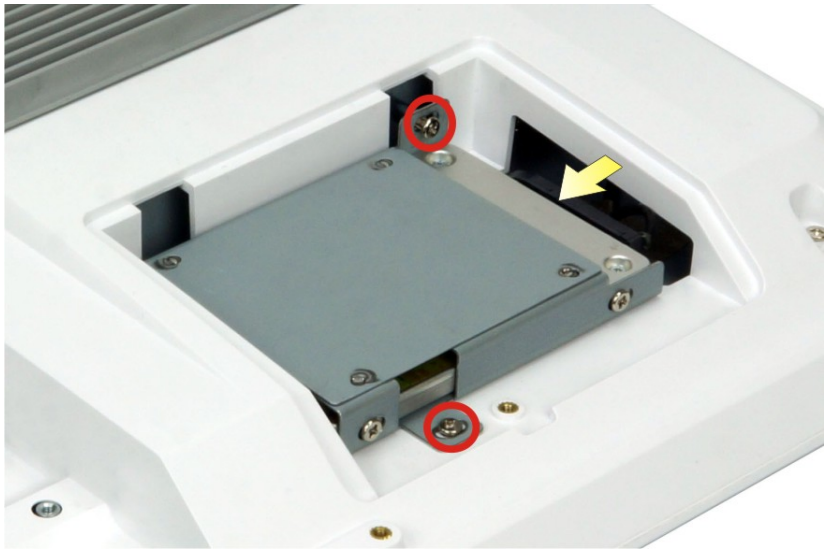


Figure 3-4: HDD Installation

Step 7: Replace the HDD cover.

3.5 Handset Installation (Optional)

An optional phone handset can be installed on the side of the BIS-W19C(F)-ULT4 to make VoIP calls. To install the handset and the holder, please follow the instruction below.

Step 1: Locate the two retention screw holes for installing the handset holder on the rear panel (**Figure 3-5**).

Step 2: Secure the handset holder with the BIS-W19C(F)-ULT4 by two retention screws (M3*8, flat head).

Figure 3-5: Handset Holder Retention Screws

Step 3: Plug the handset cord into a USB connector on the bottom panel.

Step 4: Place the handset in the holder.

Figure 3-6: Handset Installation

3.5.1 Using VoIP Handset

The VoIP handset is designed for Skype. To use the handset to place or receive a call via Skype, please follow the steps below.

Step 1: Install the Skype program (http://www.skype.com/en/).

Step 2: Select **Other** from the list of the driver menu. Double click the setup file in the **POCP-W22A-HS-R10_U-2000H** folder to install the handset driver (**Figure 3-7**).

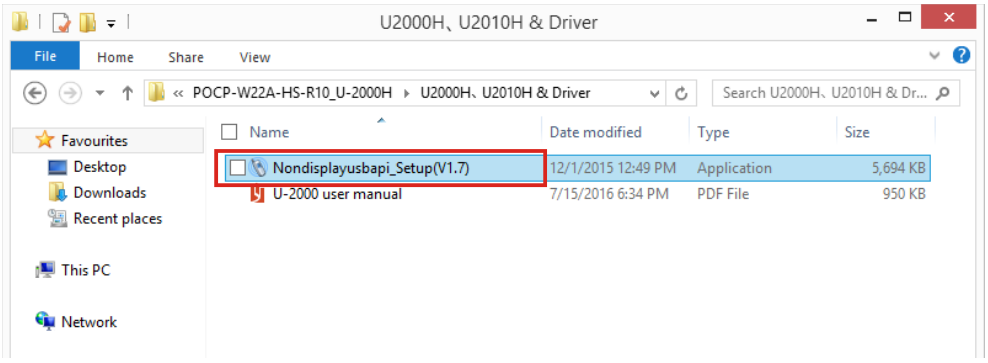


Figure 3-7: Handset Driver Folder

Step 3: Follow the step-by-step instruction of the installation wizard (**Figure 3-8**) to install the handset driver.

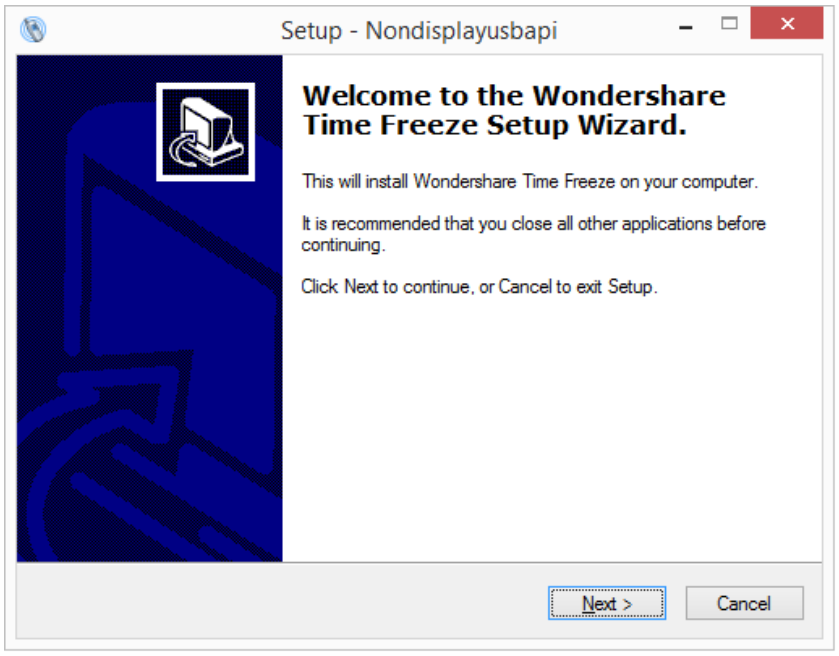


Figure 3-8: Handset Driver Installation

Step 4: Launch Skype. Press the **Allow access** button on Skype (**Figure 3-9**) to allow handset API access.

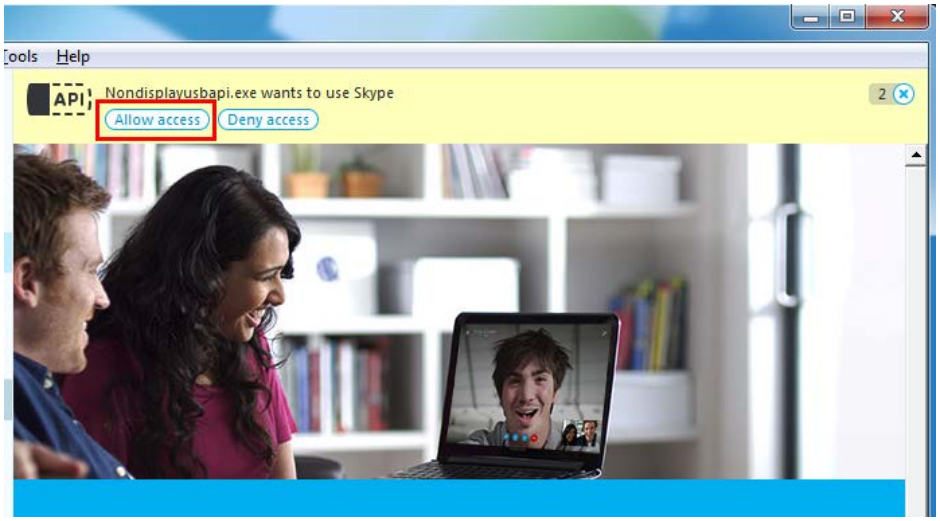


Figure 3-9: Allow API Access

API access can also be managed through **Tools → Options → Advanced settings** in Skype. See **Figure 3-10**.

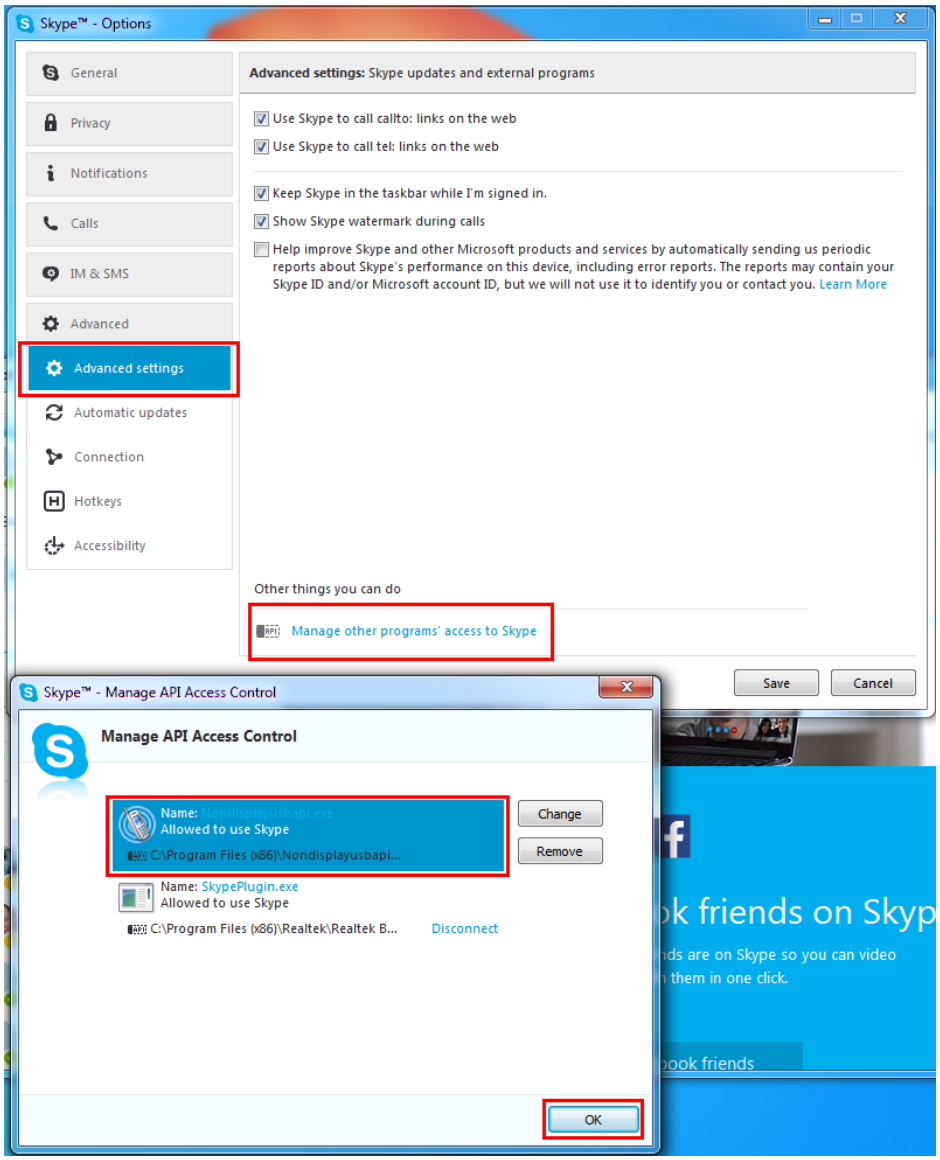


Figure 3-10: Manage Program Access to Skype

Step 5: The user can now use Skype via the handset. The function description of each button on the handset is listed in the following table.

Button	Function
	**LED indicator**: Clear – no call activity Blinking green – incoming call ringing Steady green – active call
	Hot key: No call activity – launch Skype and select menus * long-press the hot key for 2 seconds to turn off Skype Ringing – terminate the incoming call Active call – mute or unmute the handset microphone
	No call activity – scroll up through incoming and outgoing call history Active call – handset speaker volume up
	No call activity – scroll down through incoming and outgoing call history Active call – handset speaker volume down
	Place, answer or hang up a call.

Table 3-1: Handset Button Functions

3.6 Handle Installation (Optional)

An optional handle can be installed on the BIS-W19C(F)-ULT4 for the user to easily adjust the viewing angle and the position of the BIS-W19C(F)-ULT4. To install the handle, please follow the instruction below.

Step 1: Locate the retention screw holes for installing the handle on the rear panel (**Figure 3-11**). If a cable cover is installed on the rear panel, please remove it first.

Step 2: Secure the handle with the BIS-W19C(F)-ULT4 by inserting six retention screws (M3*6, flat head).

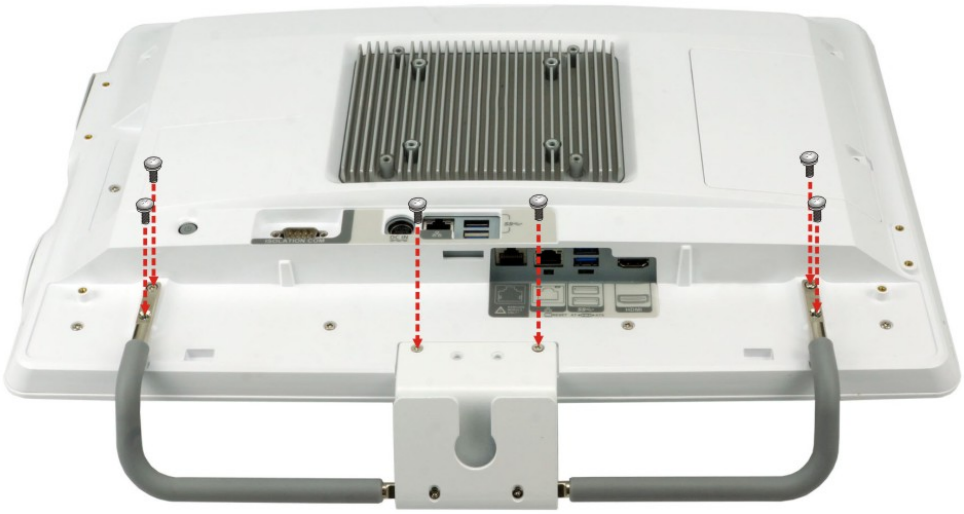


Figure 3-11: Handle Installation

3.6.1 Barcode Reader Installation

The optional handle may come with a barcode reader set which also contains a reading light with three levels of brightness. To install the barcode reader set, please follow the instruction below.

Step 1: Follow the instruction described in **Section 3.6** to install the handle.

Step 2: Insert the barcode reader set into the slot in the center of the handle. To be able to insert the barcode reader, the side with barcode reader must face toward the right side of the BIS-W19C(F)-ULT4 as shown in **Figure 3-12**.

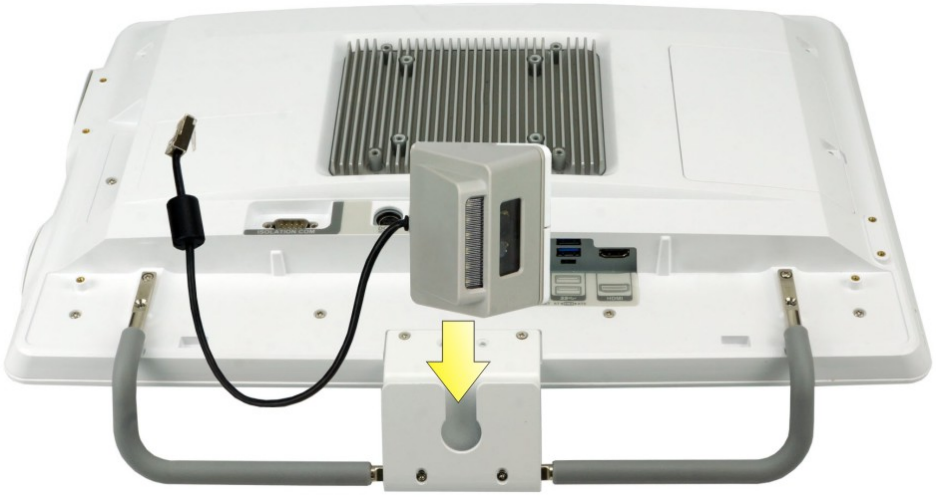


Figure 3-12: Insert Barcode Reader Set

Step 3: Push the barcode reader set all the way down, and then rotate the barcode reader anti-clockwise to a proper position (**Figure 3-13**).

Step 4: Connect the barcode reader cable to the RJ-11 connector on the bottom panel of the BIS-W19C(F)-ULT4 (**Figure 3-13**).

Figure 3-13: Install and Connect Barcode Reader Set

Step 5: Install the driver for the barcode reader by following the instructions described in **Section 5.12**.

Step 6: After driver installation is complete, push the barcode reader button to trigger the barcode reader.

Figure 3-14: Barcode Reader Button

WARNING:

Do not stare into beam of the laser light. The human eye can be damaged. Avoid that the laser beam hits reflective surfaces such as mirrors, etc. Any changes at the device are forbidden these could cause a dangerous laser light.

3.6.2 Reading Light

The barcode reader is also equipped with a reading light with 3-level of brightness. Push the reading light button to turn on or to toggle illumination brightness levels.

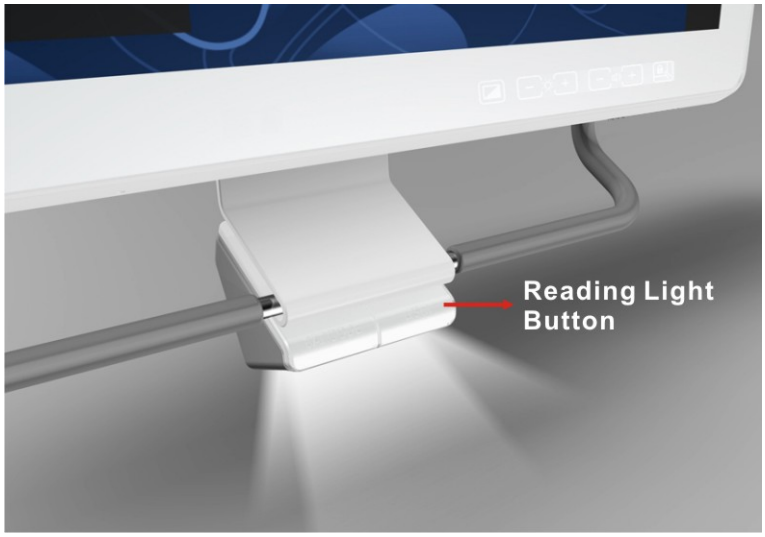


Figure 3-15: Reading Light

3.7 3-in-1 Combo Reader Installation (Optional)

The 3-in-1 combo reader is an optional item for the BIS-W19C(F)-ULT4. The combo reader combines fingerprint reader, smart card reader (SCR) and magnetic stripe reader (MSR) into one compact device.

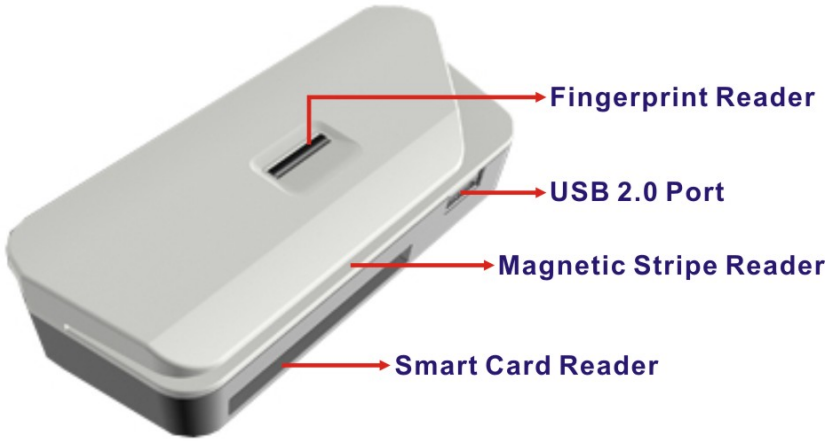


Figure 3-16: 3-in-1 Combo Reader

To install the combo reader to the BIS-W19C(F)-ULT4, please follow the steps below.

Step 1: Open the USB port cover on the side panel of the BIS-W19C(F)-ULT4.

Figure 3-17: USB Ports on the Side Panel

Step 2: Align the USB connectors on the reader with the two USB connectors on the side panel of the BIS-W19C(F)-ULT4.

Step 3: Insert and connect the USB connectors to install the combo reader.

Step 4: Secure the combo reader to the system by inserting two retention screws (M3x5L) into the rear panel of the BIS-W19C(F)-ULT4 and tightening them.

Figure 3-18: Combo Reader Installation

Step 5: Install the drivers for these three readers by following the instructions described in **Chapter 5**:

- Section **5.11.1**: SCR Driver
- Section **5.11.2**: MSR Driver
- Section **5.11.3**: Fingerprint Reader Driver

3.8 Using RFID Reader (Optional)

The BIS-W19C(F)-ULT4 may come with an optional RFID reader pre-installed inside the bottom left corner of the front panel (**Figure 1-2**). To use the RFID reader, follow the steps below.

Step 1: Install the RFID driver (refer to **Section 5.10**).

Step 2: Locate the **IRFR-100.exe** file in the following folder of the driver menu: \10.Others\POCP-MF-RFID-R10\RFID\D490. Copy the **IRFR-100.exe** program to the desktop.

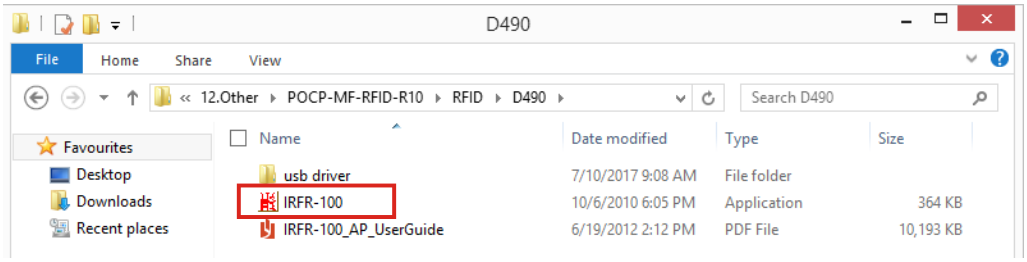


Figure 3-19: RFID Program Location

Step 3: Double click the **IRFR-100** icon on the desktop.

Figure 3-20: IRFR-100 Icon

Step 4: The IRFR-100 window appears (**Figure 3-21**).

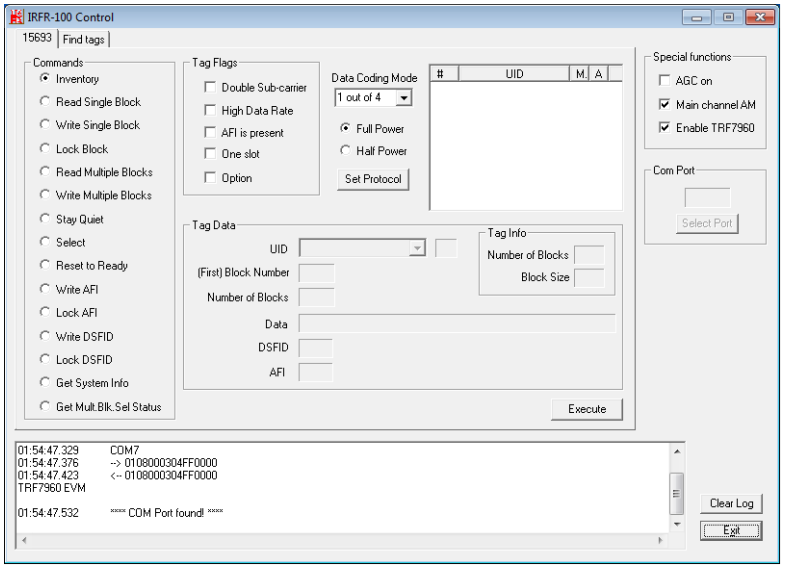


Figure 3-21: IRFR Screen

Step 5: Select the **Find tags** tab and click the **Run** button to enable the RFID reader (**Figure 3-22**).

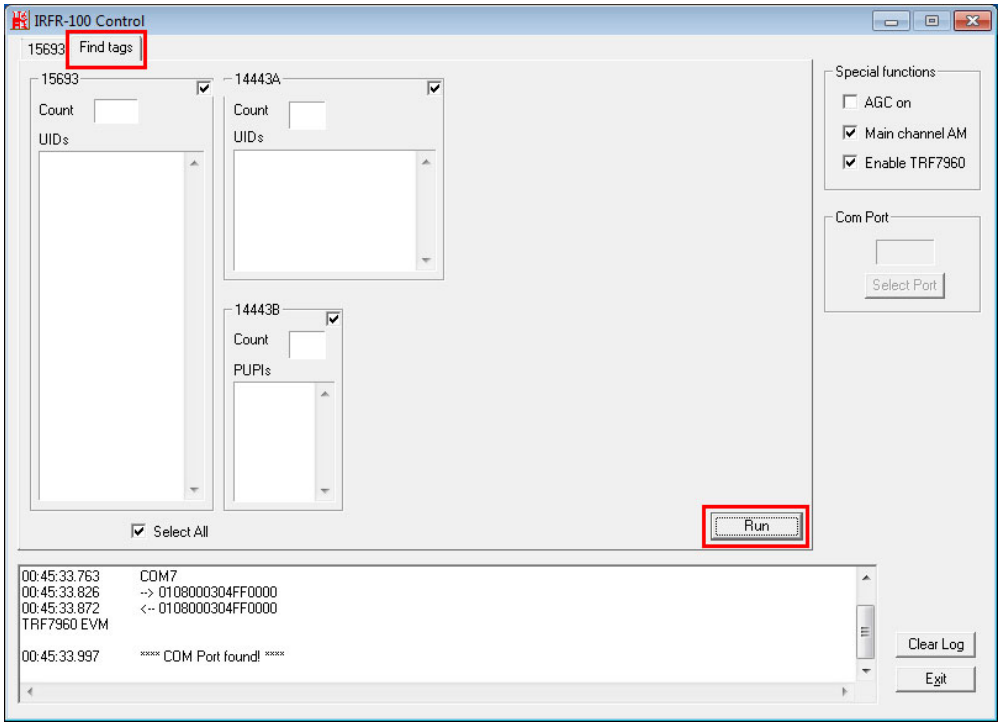


Figure 3-22: IRFR – Find Tags

Step 6: Place an RFID card near the RFID reader 

on the bottom left corner of the front panel (**Figure 1-2**) then remove it. The card number will be shown in the UIDs column (**Figure 3-23**).

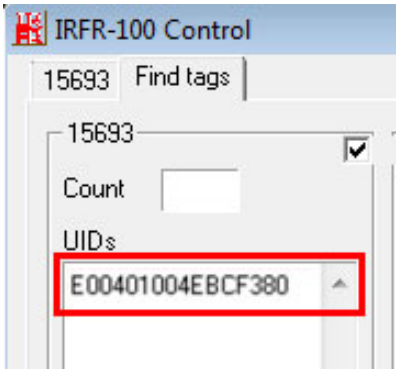


Figure 3-23: IRFR – UIDs

NOTE:

Please refer to the IRFR-100 user guide in the driver folder (IRFR-100_AP_UserGuide.pdf) for detailed instruction on how to use the IRFR-100.

3.9 RS-232/422/485 Serial Port Connection

The rear panel of the BIS-W19C(F)-ULT4 has one DB-9 male connectors for RS-232/422/485 connection. The serial communication mode is set to RS-232 by default. The pinouts of the DB-9 connector are listed below.

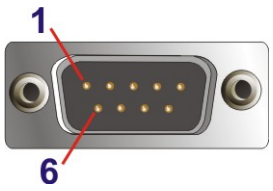
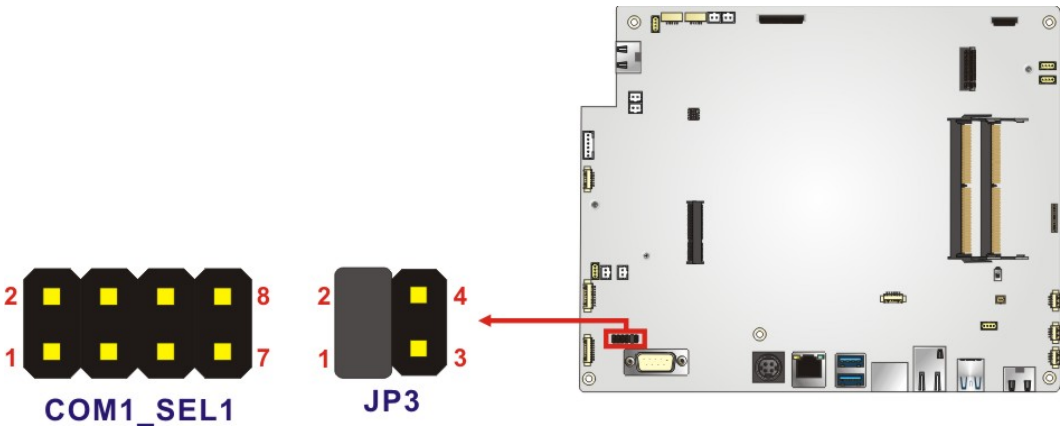
Pin	RS-232 (Default)	RS-422	RS-485	
1	DCD	TXD422-	TXD485-	
2	RX	TXD422+	TXD485+	
3	TX	RXD422+		
4	DTR	RXD422-		
5	GND			
6	DSR			
7	RTS			
8	CTS			
9	RI			

Table 3-2: RS-232/422/485 Serial Port Pinouts

The serial communication mode selection can be made through the BIOS menu and two jumpers. To change the COM1 mode, please follow the steps below.

Step 1: Remove the external rear cover and the internal aluminum cover by following the instruction described in **Section 6.4**.

Step 2: Locate the jumpers – COM1_SEL1 and JP3.



Step 3: Follow the jumper settings listed below to configure both two jumpers.

COM1_SEL1 Setting	Description
Open	RS-232 (Default)
Short 1-2, 3-4, 5-6, 7-8	RS-422/485

JP3 Setting	Description
Short 1-2	RS-232 (Default)
Short 1-2 & 3-4	RS-422
Short 3-4	RS-485

Step 4: Re-install the rear covers and power up the BIS-W19C(F)-ULT4.

Step 5: Enter BIOS setup menu. Refer to **Section 4.3.6.1** to configure the BIOS setting.

3.10 AT/ATX Mode Selection

AT or ATX power mode can be used on the BIS-W19C(F)-ULT4. The selection is made through an AT/ATX switch located on the bottom panel (**Figure 3-24**).

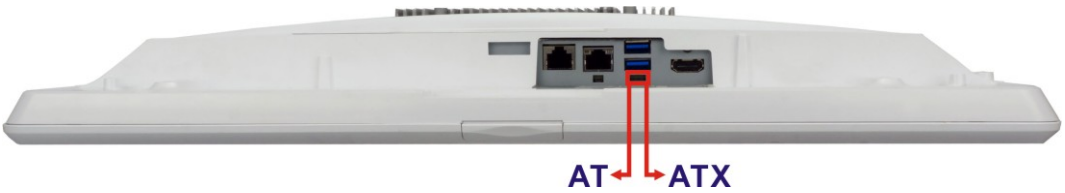


Figure 3-24: AT/ATX Switch Location

3.10.1 AT Power Mode

With the AT mode selected, the power is controlled by a central power unit rather than a power switch. The BIS-W19C(F)-ULT4 panel PC turns on automatically when the power is connected.

3.10.2 ATX Power Mode

With the ATX mode selected, the BIS-W19C(F)-ULT4 panel PC goes in a standby mode when it is turned off. The panel PC can be easily turned on via network or a power switch in standby mode.

3.11 Cable Cover Installation

An optional cable cover can be installed on the BIS-W19C(F)-ULT4 for the user to easily manage cables. To install the cable cover, please follow the instruction below.

Step 1: Insert the two small tabs on the bottom of the cable cover into the corresponding slots on the rear panel of the BIS-W19C(F)-ULT4 (**Figure 3-25**)

Step 2: Push the large tab on the top of the cable cover (as shown in **Figure 3-25)** to inset it into the slot on the bottom panel of the BIS-W19C(F)-ULT4.

Figure 3-25: Cable Cover Installation

Step 3: Secure the cable cover to the system with two retention screws (**Figure 3-26**).

Figure 3-26: Secure Cable Cover

Step 4: To remove the cable cover, push the tab inwards to release the cover (**Figure 3-27**), and lift the cover from the BIS-W19C(F)-ULT4.

Figure 3-27: Cable Cover Removal

3.12 Mounting the System

The methods of mounting the BIS-W19C(F)-ULT4 are listed below.

- Wall mounting
- Arm mounting
- Stand mounting

The mounting methods are described below.

WARNING:

Use suitable mounting apparatus and be sure to secure the screws of the mounting apparatus tightly to avoid risk of injury.

3.12.1 Wall Mounting

To mount the medical panel PC onto the wall, please follow the steps below.

Step 1: Select the location on the wall for the wall-mounting bracket.

Step 2: Carefully mark the locations of the four screw holes in the bracket on the wall.

Step 3: Drill four pilot holes at the marked locations on the wall for the bracket retention screws.

Step 4: Align the wall-mounting bracket screw holes with the pilot holes.

Step 5: Secure the mounting bracket to the wall by inserting the retention screws into the four pilot holes and tightening them (**Figure 3-28**).

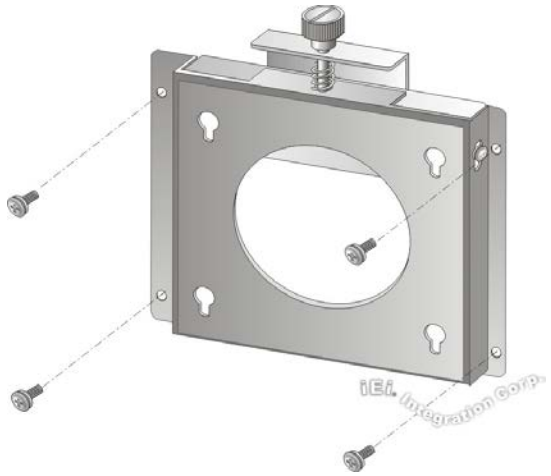
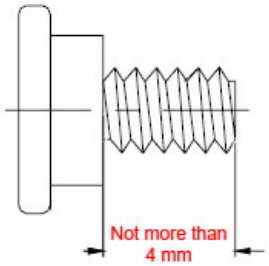


Figure 3-28: Wall-mounting Bracket

Step 6: Insert the four monitor mounting screws provided in the wall mount kit into the four screw holes on the real panel of the medical panel PC and tighten until the screw shank is secured against the rear panel (**Figure 3-29**).

WARNING:

Please use the M4 screws provided in the wall mount kit for the rear panel. If the screw is missing, the thread depth of the replacement screw should be not more than 4 mm.



Step 7: Align the mounting screws on the monitor rear panel with the mounting holes on the bracket.

Step 8: Carefully insert the screws through the holes and gently pull the monitor downwards until the monitor rests securely in the slotted holes (**Figure 3-29**).

Ensure that all four of the mounting screws fit snugly into their respective slotted holes.

NOTE:

In the diagram below the bracket is already installed on the wall.

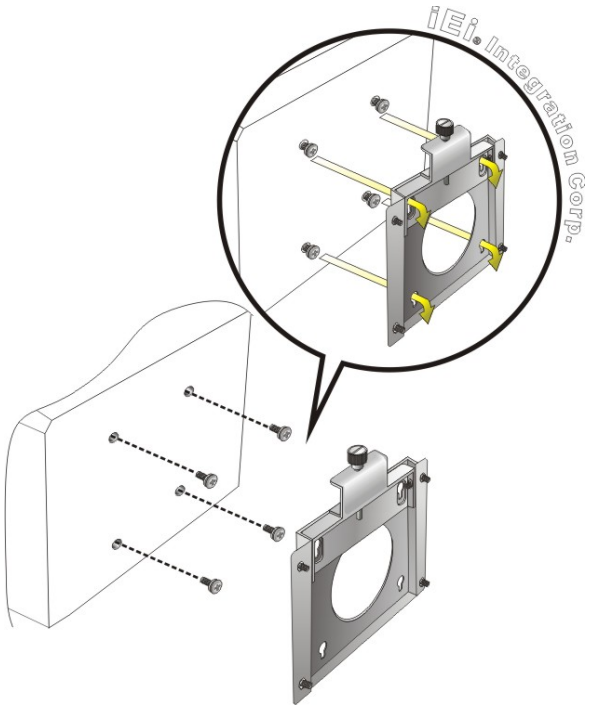


Figure 3-29: Chassis Support Screws

Step 9: Secure the panel PC by fastening the retention screw of the wall-mounting bracket (**Figure 3-30**).

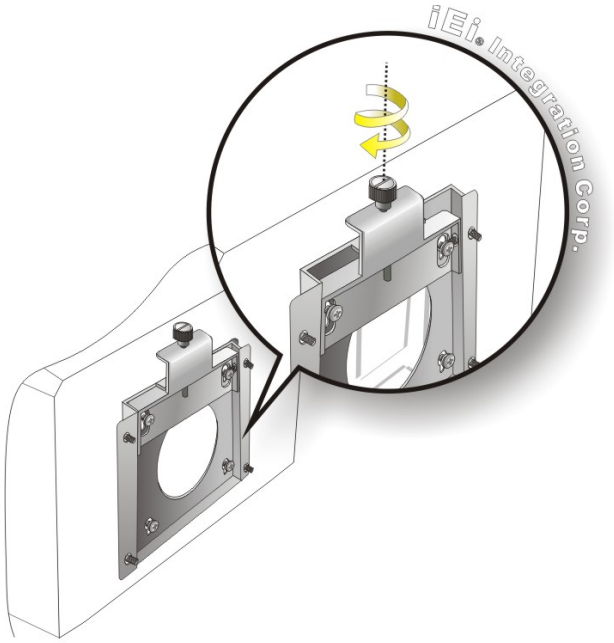


Figure 3-30: Secure the Panel PC

3.12.2 Arm Mounting

The BIS-W19C(F)-ULT4 is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 75 mm or a 100 mm interface pad. To mount the BIS-W19C(F)-ULT4 on an arm, please follow the steps below.

Step 1: The arm is a separately purchased item. Please correctly mount the arm onto the surface it uses as a base. To do this, refer to the installation documentation that came with the mounting arm.

NOTE:

When purchasing the arm please ensure that it is VESA compliant and that the arm has a 75 mm or a 100 mm interface pad. If the mounting arm is not VESA compliant it cannot be used to support the BIS-W19C(F)-ULT4 medical panel PC.

Step 2: Once the mounting arm has been firmly attached to the surface, lift the panel PC onto the interface pad of the mounting arm.

Step 3: Align the retention screw holes on the mounting arm interface with those in the panel PC (**Figure 3-31**).

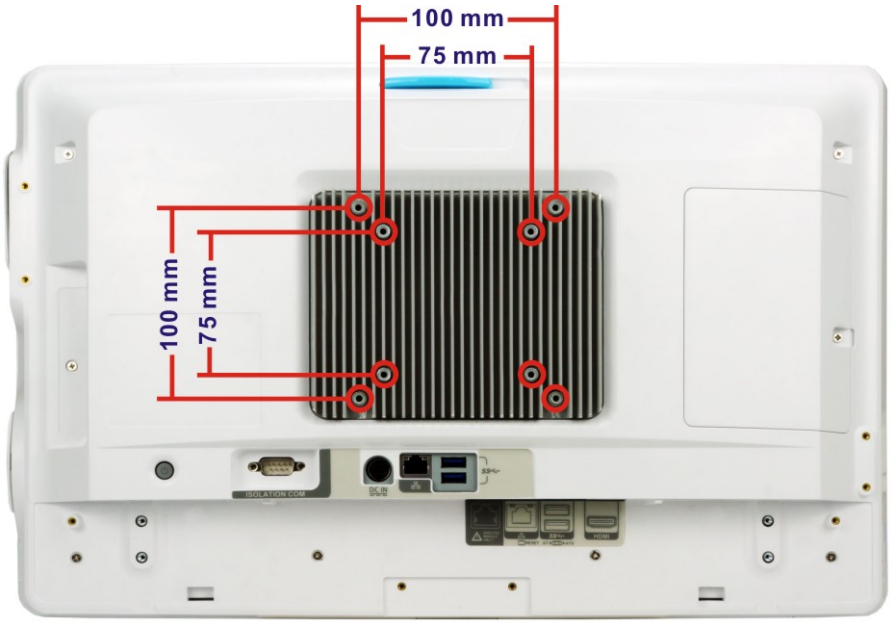


Figure 3-31: VESA 75 and VESA 100 Mounting Retention Screw Holes

Step 4: Secure the BIS-W19C(F)-ULT4 to the interface pad by inserting four retention screws through the mounting arm interface pad and into the BIS-W19C(F)-ULT4.

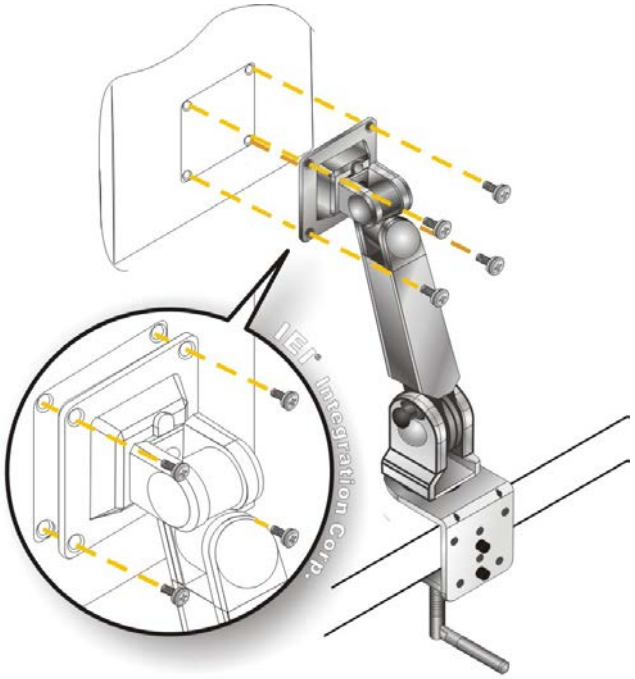


Figure 3-32: Arm Mounting

3.12.3 Stand Mounting

To mount the BIS-W19C(F)-ULT4 using the stand mounting kit, please follow the steps below.

Step 1: Locate the VESA mounting screw holes on the rear of the BIS-W19C(F)-ULT4 (**Figure 3-31**). This is where the bracket will be attached.

Step 2: Align the bracket of the stand with the screw holes.

Step 3: To secure the bracket to the BIS-W19C(F)-ULT4, insert the retention screws into the screw holes and tighten them.

NOTE:

If the EZ stand (MEDP-EZS-R10) is mounted, the handle (MEDP-HD-R10 or MEDP-HD-BR-R10) can not be installed.

3.13 Powering On the System

WARNING:

To avoid risk of electric shock, this equipment must only be connected to supply mains with protective earth.

CAUTION:

1. The FSP FSP150M-ABA / DARFON H1120-B0 power adapter came with the BIS-W19C(F)-ULT4 is a forming part of the medical device.

2. Use hospital-grade and reliable grounding power supply cord.

To power on the system, follow the steps below:

Step 1: Connect the power cord to the power adapter. Connect the other end of the power cord to a power source.

Step 2: Connect the power adapter to the power connector of the BIS-W19C(F)-ULT4.

Step 3: Locate the power button on the rear panel.

Step 4: Short press the power button to turn on the BIS-W19C(F)-ULT4.

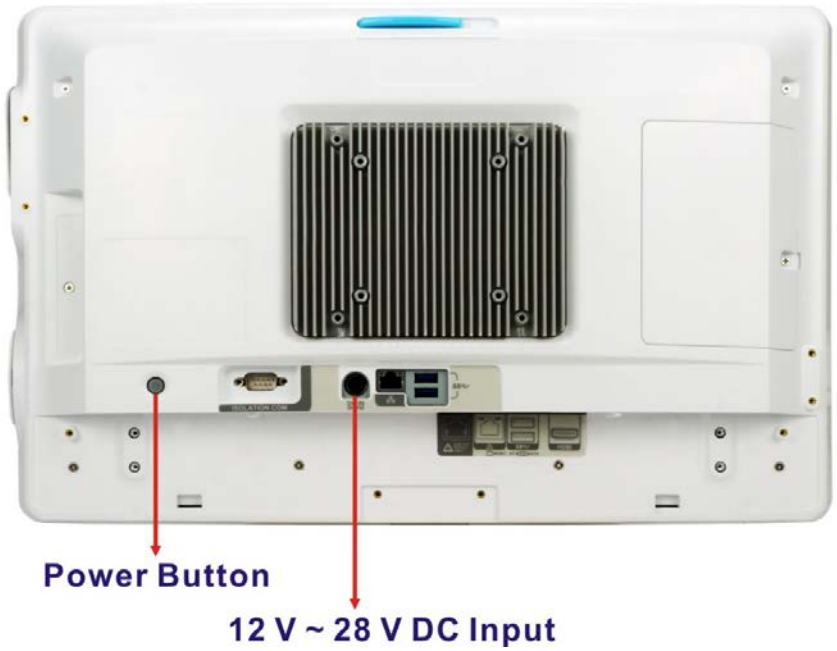


Figure 3-33: Powering On the System

3.14 Reset the System

The reset button enables user to reboot the system when the system is turned on. The reset button location is shown in **Figure 3-34**. Press the reset button to reboot the system.

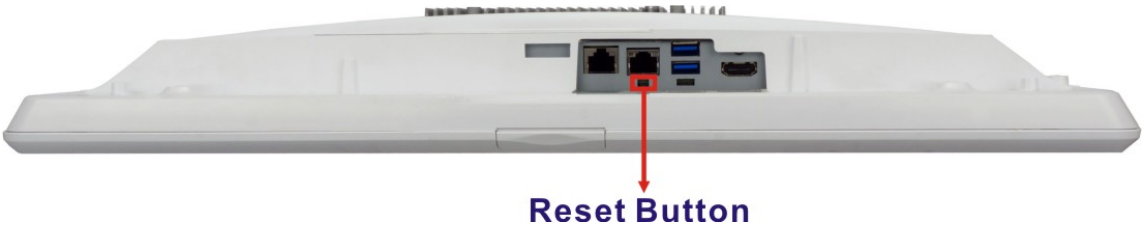


Figure 3-34: Reset Button Location

Chapter

4

BIOS Setup

4.1 Introduction

The BIOS is programmed onto the BIOS chip. The BIOS setup program allows changes to certain system settings. This chapter outlines the options that can be changed.

NOTE:

Some of the BIOS options may vary throughout the life cycle of the product and are subject to change without prior notice.

4.1.1 Starting Setup

The UEFI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. Press the **DEL** key as soon as the system is turned on or
2. Press the **DEL** key when the "**Press DEL to enter SETUP**" message appears on the screen.

If the message disappears before the **DEL** key is pressed, restart the computer and try again.

4.1.2 Using Setup

Use the arrow keys to highlight items, press **ENTER** to select, use the PageUp and PageDown keys to change entries, press **F1** for help and press **ESC** to quit. Navigation keys are shown in the following table.

Key	Function
Up arrow	Move to the item above
Down arrow	Move to the item below
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
+	Increase the numeric value or make changes

-	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Load previous values.
F3 key	Load optimized defaults
F4 key	Save changes and Exit BIOS
Esc key	Main Menu – Quit and do not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu

Table 4-1: BIOS Navigation Keys

4.1.3 Getting Help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window press **Esc** or the **F1** key again.

4.1.4 BIOS Menu Bar

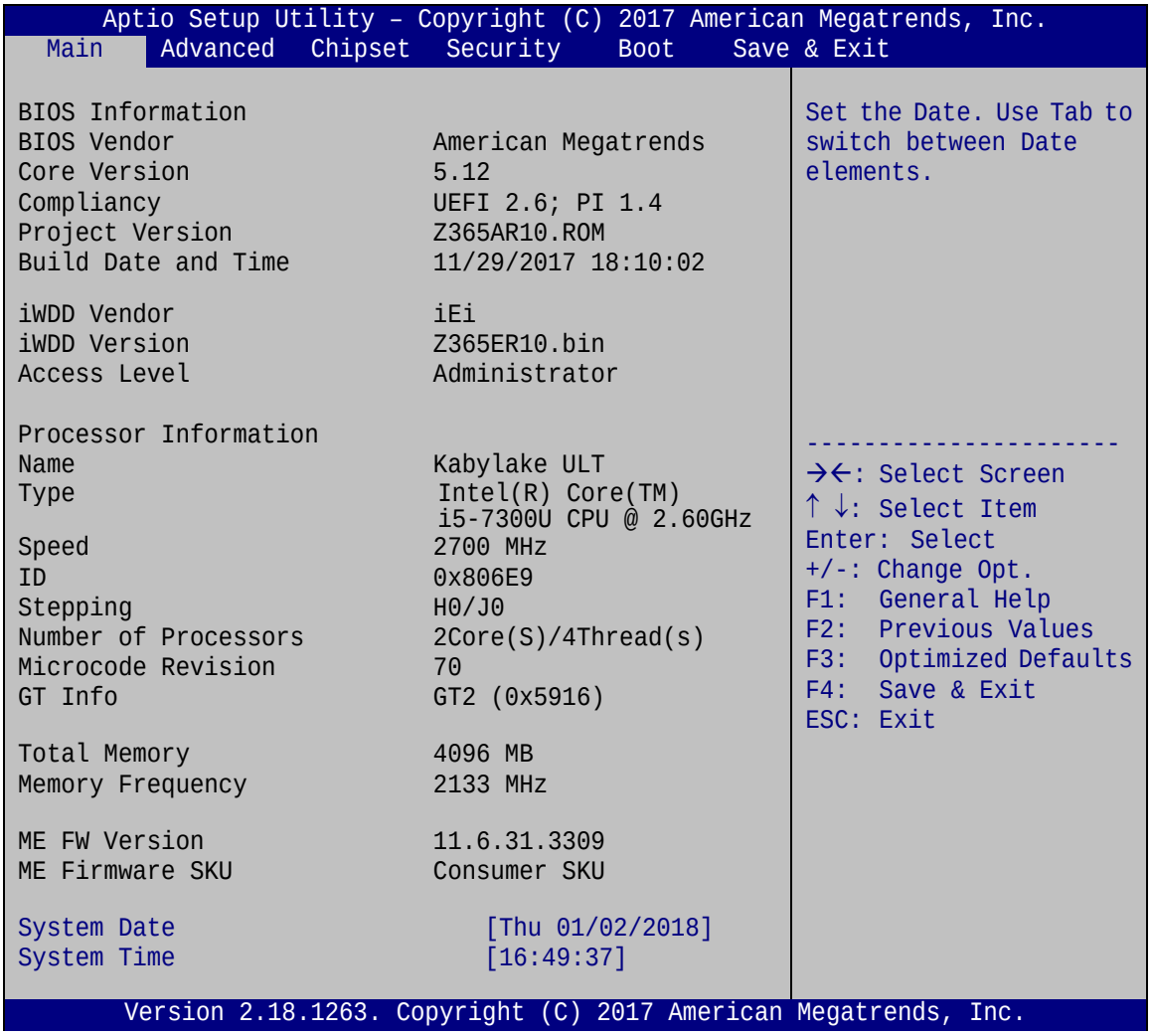
The **menu bar** on top of the BIOS screen has the following main items:

- Main – Changes the basic system configuration.
- Advanced – Changes the advanced system settings.
- Chipset – Changes the chipset settings.
- Security – Sets User and Supervisor Passwords.
- Boot – Changes the system boot configuration.
- Save & Exit – Selects exit options and loads default settings

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.

4.2 Main

The **Main** BIOS menu (**BIOS Menu 1**) appears when the **BIOS Setup** program is entered. The **Main** menu gives an overview of the basic system information.



BIOS Menu 1: Main

➔ **System Date [xx/xx/xx]**

Use the **System Date** option to set the system date. Manually enter the day, month and year.

➔ **System Time [xx:xx:xx]**

Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

4.3 Advanced

Use the **Advanced** menu (**BIOS Menu 2**) to configure the CPU and peripheral devices through the following sub-menus:

WARNING:

Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.

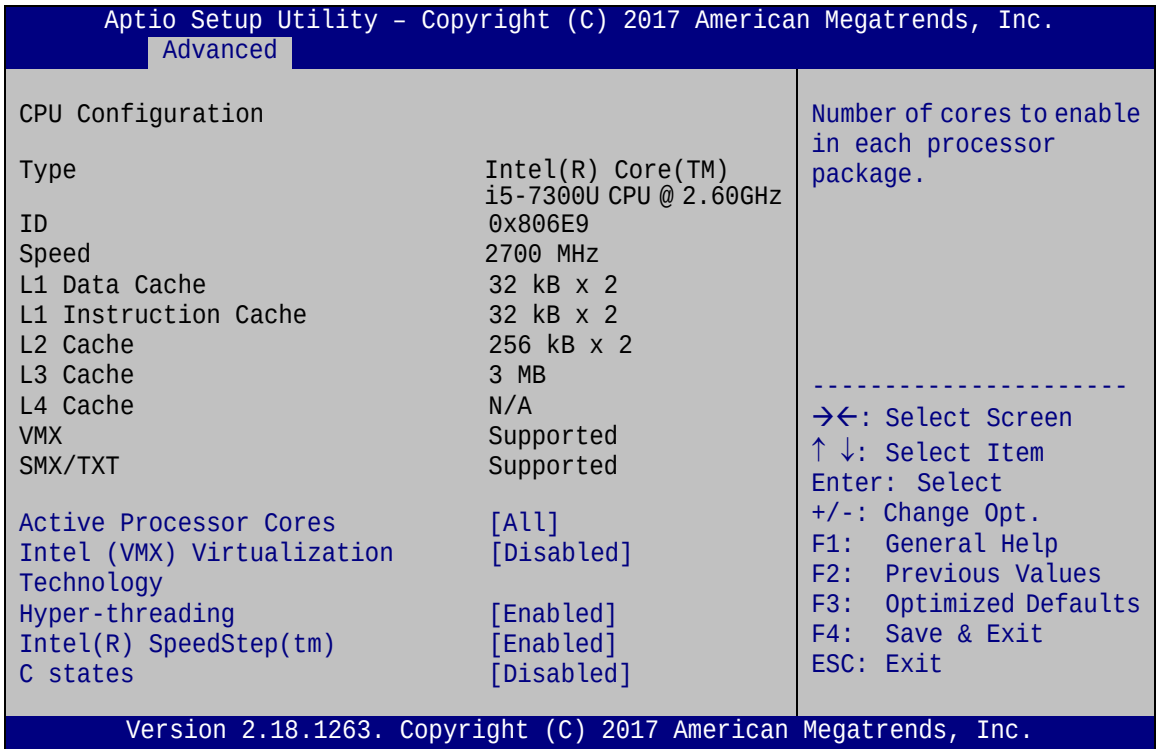
```
      Aptio Setup Utility – Copyright (C) 2017 American Megatrends, Inc.
  Main    Advanced  Chipset   Security    Boot    Save & Exit

> CPU Configuration                                CPU Configuration
> SATA Configuration                               Parameters
> Trusted Computing
> ACPI Settings
> RTC Wake Settings
> F81866 Super IO Configuration                    ----------------------
> Serial Port Console Redirection                  →←: Select Screen
> F81866 H/M Monitor                               ↑ ↓: Select Item
> NVMe Configuration                               Enter:  Select
> USB Configuration                                +/-: Change Opt.
> iEi Feature                                      F1:  General Help
                                                   F2:  Previous Values
                                                   F3:  Optimized Defaults
                                                   F4:  Save & Exit
                                                   ESC: Exit
       Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```

BIOS Menu 2: Advanced

4.3.1 CPU Configuration

Use the **CPU Configuration** (**BIOS Menu 3**) to view detailed CPU specifications and configure the CPU.



BIOS Menu 3: CPU Configuration

➔ **Active Processor Cores [All]**

Use the **Active Processor Cores** BIOS option to enable numbers of cores in the processor package.

➔	**All**	**DEFAULT**	Enable all cores in the processor package.
➔	**1**		Enable one core in the processor package.

➔ **Intel (VMX) Virtualization Technology [Disabled]**

Use the **Intel (VMX) Virtualization Technology** option to enable or disable virtualization on the system. When combined with third party software, Intel® Virtualization technology allows several OSs to run on the same system at the same time.

➔ **Disabled** **DEFAULT** Disables Intel Virtualization Technology.

➔ **Enabled** Enables Intel Virtualization Technology.

➔ **Hyper-threading [Enabled]**

Use the **Hyper-threading** option to enable or disable the Intel® Hyper-Threading Technology.

➔ **Disabled** Disable Intel® Hyper-Threading Technology

➔ **Enabled** **DEFAULT** Enable Intel® Hyper-Threading Technology

➔ **Intel® SpeedStep(tm) [Enabled]**

Use the **Intel® SpeedStep™** option to enable or disable the Intel® SpeedStep Technology.

➔ **Disabled** Disables the Intel® SpeedStep Technology.

➔ **Enabled** **DEFAULT** Enables the Intel® SpeedStep Technology.

➔ **C State [Disabled]**

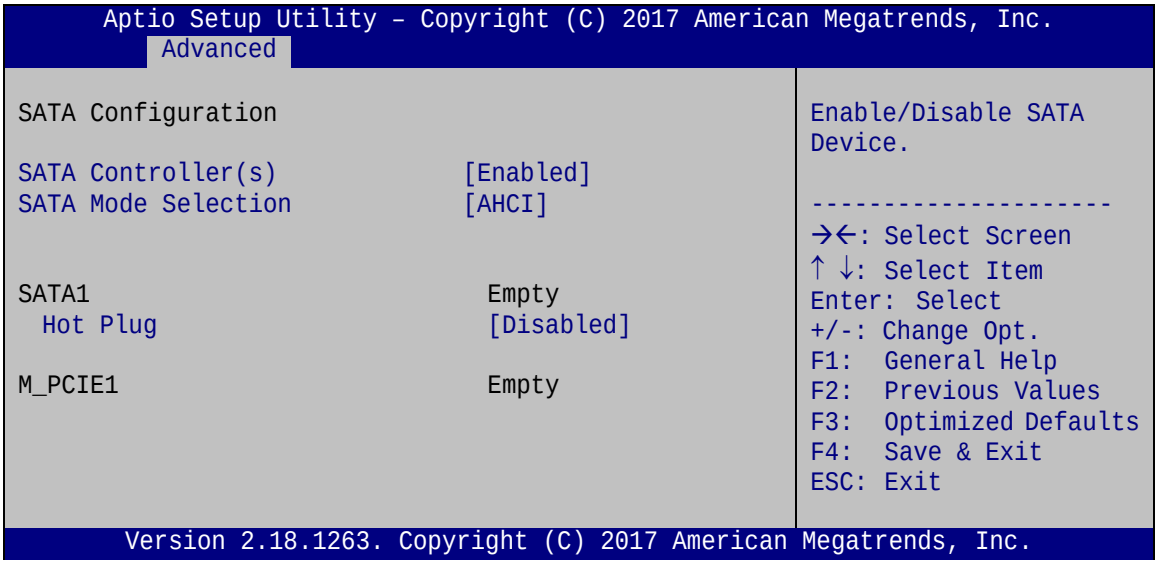
Use the **C State** option to enable or disable CPU C state.

➔ **Enabled** Enables CPU C state.

➔ **Disabled** **DEFAULT** Disables CPU C state.

4.3.2 SATA Configuration

Use the **SATA Configuration** menu (**BIOS Menu 4**) to change and/or set the configuration of the SATA devices installed in the system.



BIOS Menu 4: SATA Configuration

➔ **SATA Controller(s) [Enabled]**

Use the **SATA Controller(s)** option to configure the SATA controller(s).

➔ **Enabled** **DEFAULT** Enable the on-board SATA controller(s).

➔ **Disabled** Disable the on-board SATA controller(s).

➔ **SATA Mode Selection [AHCI]**

Use the **SATA Mode Selection** option to determine how SATA devices operate.

➔ **AHCI** **DEFAULT** Configures SATA devices as AHCI device.

➔ **Hot Plug [Disabled]**

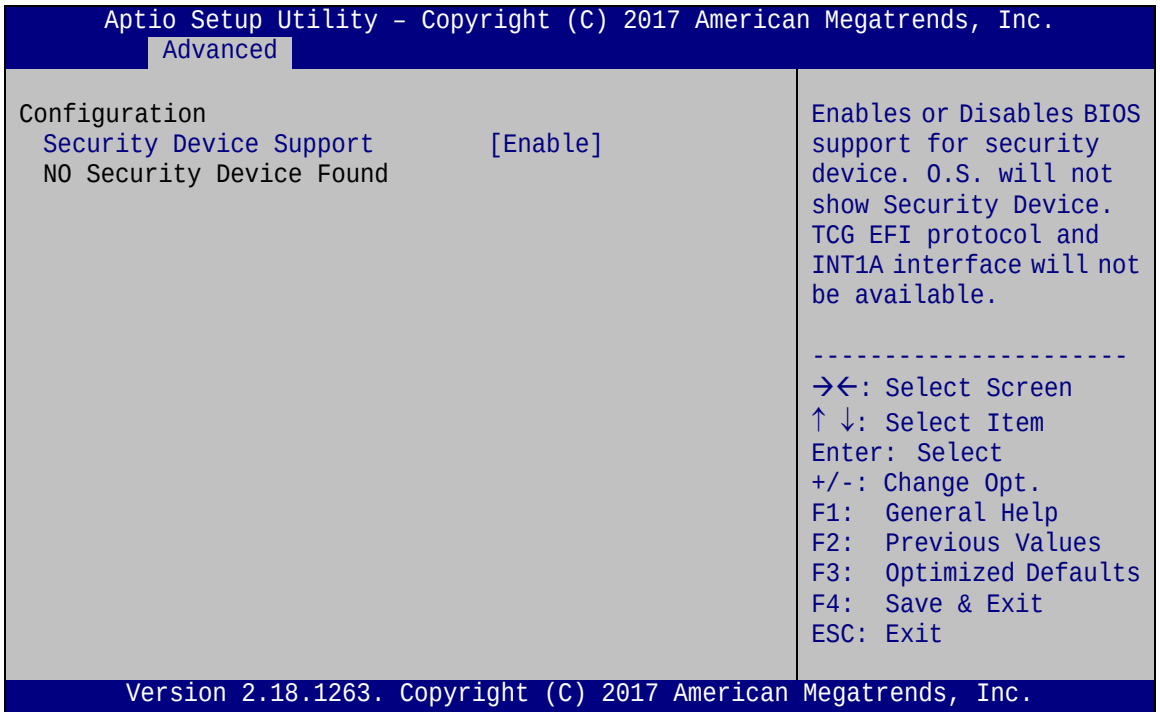
Use the **Hot Plug** option to enable or disable the SATA device hot plug.

➔ **Disabled** **DEFAULT** Disables the SATA device hot plug.

➔ **Enabled** Enables the SATA device hot plug

4.3.3 Trusted Computing

Use the **Trusted Computing** menu (**BIOS Menu 5**) to configure settings related to the Trusted Computing Group (TCG) Trusted Platform Module (TPM).



BIOS Menu 5: Trusted Computing

➔ **Security Device Support [Enable]**

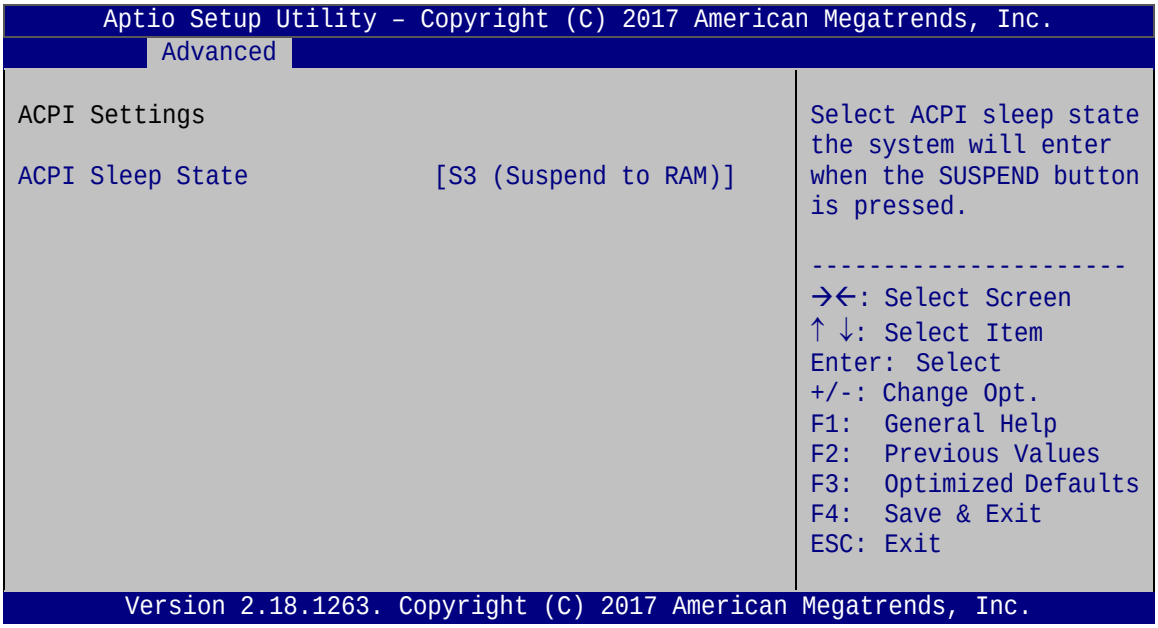
Use the **Security Device Support** option to configure support for the security devices.

➔ **Disable** Security device support is disabled.

➔ **Enable** **DEFAULT** Security device support is enabled.

4.3.4 ACPI Settings

The **ACPI Settings** menu (**BIOS Menu 6**) configures the Advanced Configuration and Power Interface (ACPI) options.



BIOS Menu 6: ACPI Settings

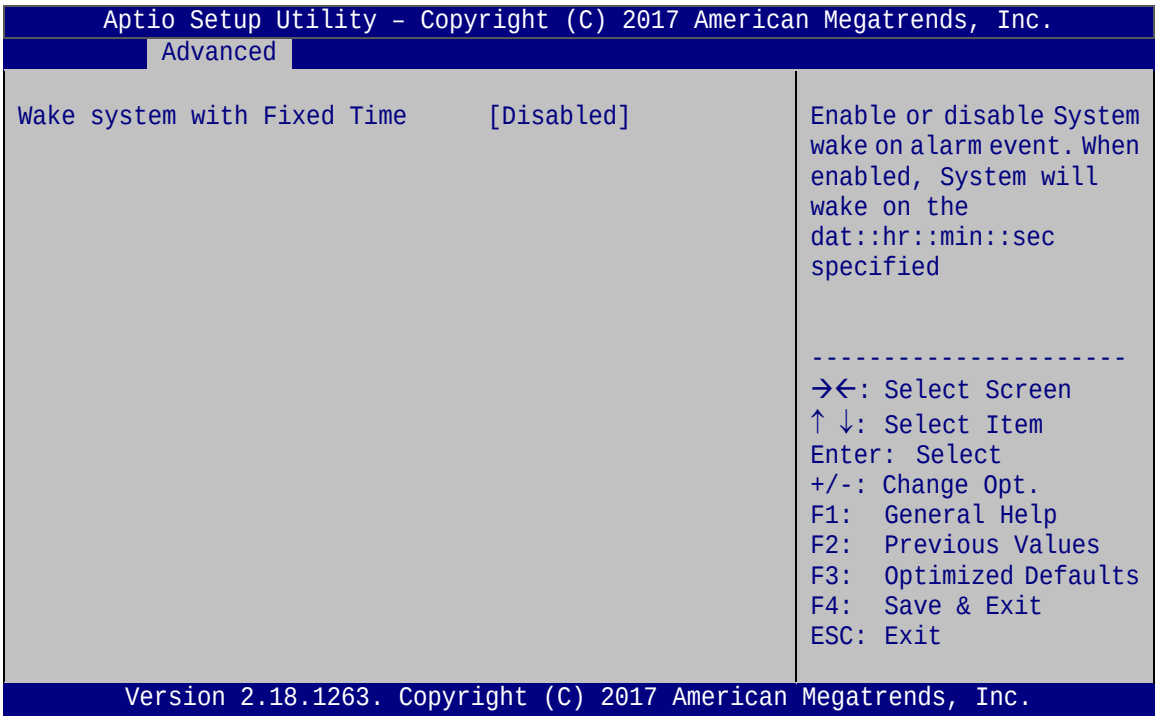
➔ **ACPI Sleep State [S3 (Suspend to RAM)]**

Use the **ACPI Sleep State** option to specify the sleep state the system enters when it is not being used.

➔ **S3 (Suspend to RAM)** **DEFAULT** The caches are flushed and the CPU is powered off. Power to the RAM is maintained. The computer returns slower to a working state, but more power is saved.

4.3.5 RTC Wake Settings

The **RTC Wake Settings** menu (**BIOS Menu 7**) configures RTC wake event.



BIOS Menu 7: RTC Wake Settings

➔ **Wake System with Fixed Time [Disabled]**

Use the **Wake System with Fixed Time** option to specify the time the system should be roused from a suspended state.

➔ **Disabled** **DEFAULT** The real time clock (RTC) cannot generate a wake event

➔	**Enabled**	If selected, the following appears with values that can be selected: *Wake up every day *Wake up date *Wake up hour *Wake up minute *Wake up second After setting the alarm, the computer turns itself on from a suspend state when the alarm goes off.

4.3.6 F81866 Super IO Configuration

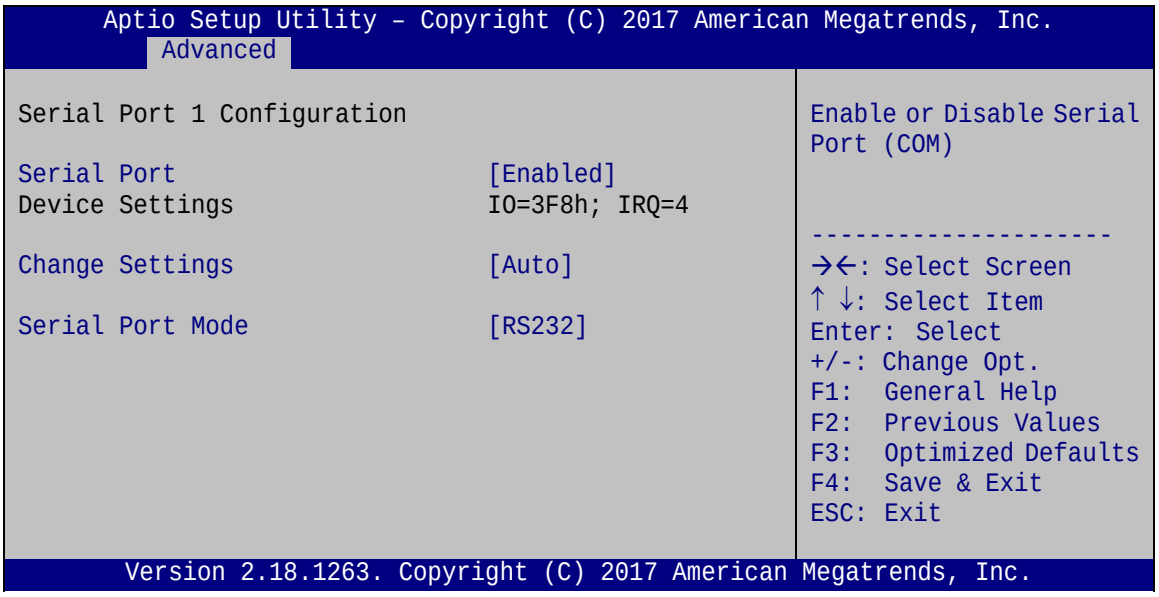
Use the **F81866 Super IO Configuration** menu (**BIOS Menu 8**) to set or change the configurations for the serial ports.

```
      Aptio Setup Utility – Copyright (C) 2017 American Megatrends, Inc.
          Advanced
 F81866 Super IO Configuration                  | Set Parameters of Serial
                                                | Port 1 (COMA)
 Super IO Chip                    F81866        |
 > Serial Port 1 Configuration                  | ---------------------
                                                | →←: Select Screen
                                                | ↑ ↓: Select Item
                                                | Enter: Select
                                                | +/-: Change Opt.
                                                | F1:  General Help
                                                | F2:  Previous Values
                                                | F3:  Optimized Defaults
                                                | F4:  Save & Exit
                                                | ESC: Exit
      Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```

BIOS Menu 8: F81866 Super IO Configuration

4.3.6.1 Serial Port 1 Configuration

Use the **Serial Port 1 Configuration** menu (**BIOS Menu 9**) to configure the serial port 1.



BIOS Menu 9: Serial Port 1 Configuration Menu

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

➔ **Disabled** Disable the serial port

➔ **Enabled** **DEFAULT** Enable the serial port

➔ **Change Settings [Auto]**

Use the **Change Settings** option to change the serial port IO port address and interrupt address.

➔ **Auto** **DEFAULT** The serial port IO port address and interrupt address are automatically detected.

➔ **IO=3F8h; IRQ=4** Serial Port I/O port address is 3F8h and the interrupt address is IRQ4

- ➔ **IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12** — Serial Port I/O port address is 3F8h and the interrupt address is IRQ3, 4, 5, 6, 7, 9, 10, 11, 12
- ➔ **IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12** — Serial Port I/O port address is 2F8h and the interrupt address is IRQ3, 4, 5, 6, 7, 9, 10, 11, 12
- ➔ **IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12** — Serial Port I/O port address is 3E8h and the interrupt address is IRQ3, 4, 5, 6, 7, 9, 10, 11, 12
- ➔ **IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12** — Serial Port I/O port address is 2E8h and the interrupt address is IRQ3, 4, 5, 6, 7, 9, 10, 11, 12

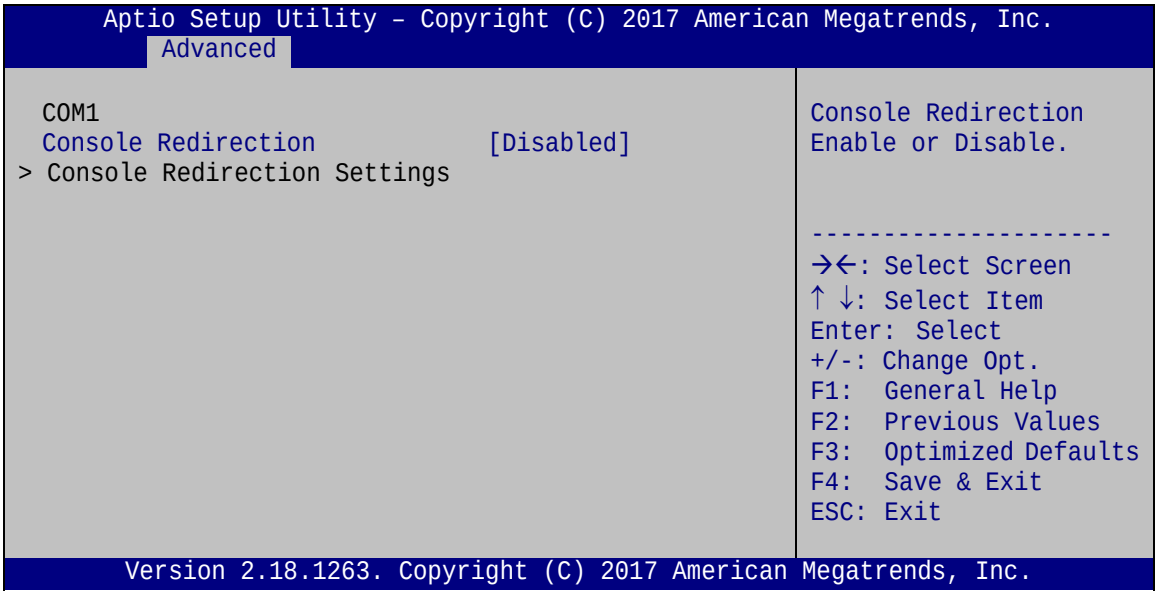
➔ **Serial Port Mode [RS232]**

Use the **Serial Port Mode** option to set the Serial Port 1 signaling mode.

- ➔ **RS232** **DEFAULT** — Configure Serial Port 1 as RS-232
- ➔ **RS422/RS485** — Configure Serial Port 1 as RS-422 or RS-485

4.3.7 Serial Port Console Redirection

The **Serial Port Console Redirection** menu (**BIOS Menu 10**) allows the console redirection options to be configured. Console redirection allows users to maintain a system remotely by re-directing keyboard input and text output through the serial port.



BIOS Menu 10: Serial Port Console Redirection

➔ **Console Redirection [Disabled]**

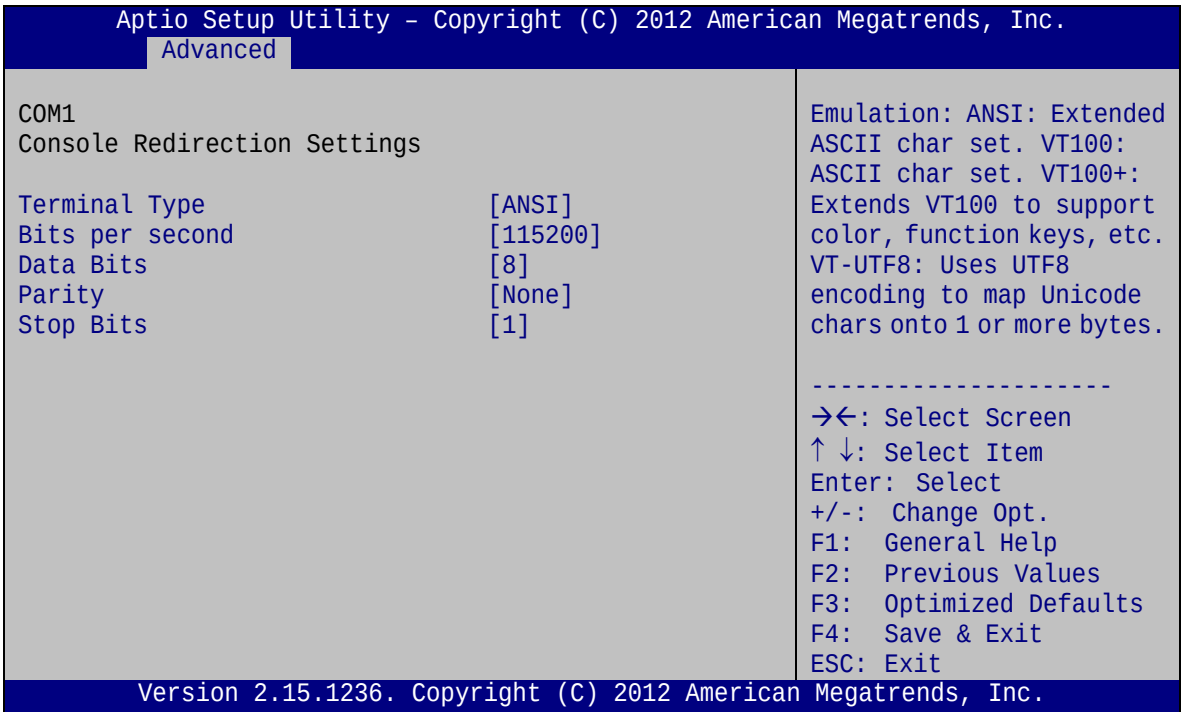
Use **Console Redirection** option to enable or disable the console redirection function.

➔ **Disabled** **DEFAULT** Disabled the console redirection function

➔ **Enabled** Enabled the console redirection function

4.3.7.1 Console Redirection Settings

Use the **Console Redirection Settings** menu (**BIOS Menu 11**) to configure console redirection settings of the specified serial port. This menu appears only when the **Console Redirection** option is enabled.



BIOS Menu 11: Console Redirection Settings

➔ **Terminal Type [ANSI]**

Use the **Terminal Type** option to specify the remote terminal type.

➔ **VT100**		The target terminal type is VT100
➔ **VT100+**		The target terminal type is VT100+
➔ **VT-UTF8**		The target terminal type is VT-UTF8
➔ **ANSI**	**DEFAULT**	The target terminal type is ANSI

➔ **Bits per second [115200]**

Use the **Bits per second** option to specify the serial port transmission speed. The speed must match the other side. Long or noisy lines may require lower speeds.

➔ **9600**	Sets the serial port transmission speed at 9600.
➔ **19200**	Sets the serial port transmission speed at 19200.
➔ **38400**	Sets the serial port transmission speed at 38400.
➔ **57600**	Sets the serial port transmission speed at 57600.

- **115200** **DEFAULT** Sets the serial port transmission speed at 115200.

Data Bits [8]

Use the **Data Bits** option to specify the number of data bits.

- **7** Sets the data bits at 7.
- **8** **DEFAULT** Sets the data bits at 8.

Parity [None]

Use the **Parity** option to specify the parity bit that can be sent with the data bits for detecting the transmission errors.

- **None** **DEFAULT** No parity bit is sent with the data bits.
- **Even** The parity bit is 0 if the number of ones in the data bits is even.
- **Odd** The parity bit is 0 if the number of ones in the data bits is odd.
- **Mark** The parity bit is always 1. This option does not provide error detection.
- **Space** The parity bit is always 0. This option does not provide error detection.

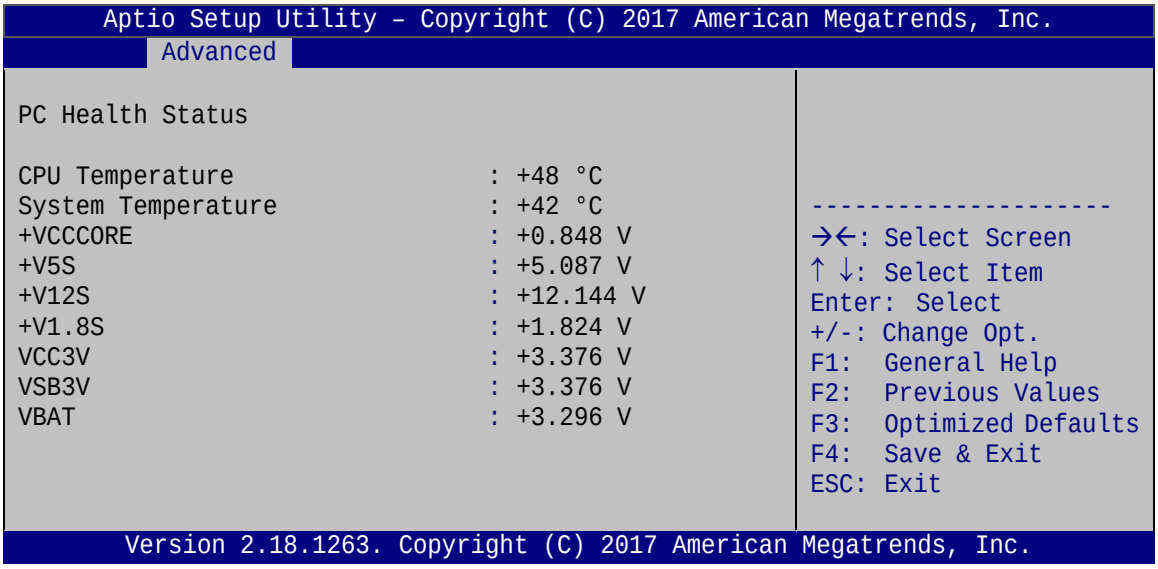
Stop Bits [1]

Use the **Stop Bits** option to specify the number of stop bits used to indicate the end of a serial data packet. Communication with slow devices may require more than 1 stop bit.

- **1** **DEFAULT** Sets the number of stop bits at 1.
- **2** Sets the number of stop bits at 2.

4.3.8 F81866 H/W Monitor

The **F81866 H/W Monitor** menu (**BIOS Menu 12**) shows the operating temperatures and voltages.



BIOS Menu 12: F81866 H/W Monitor

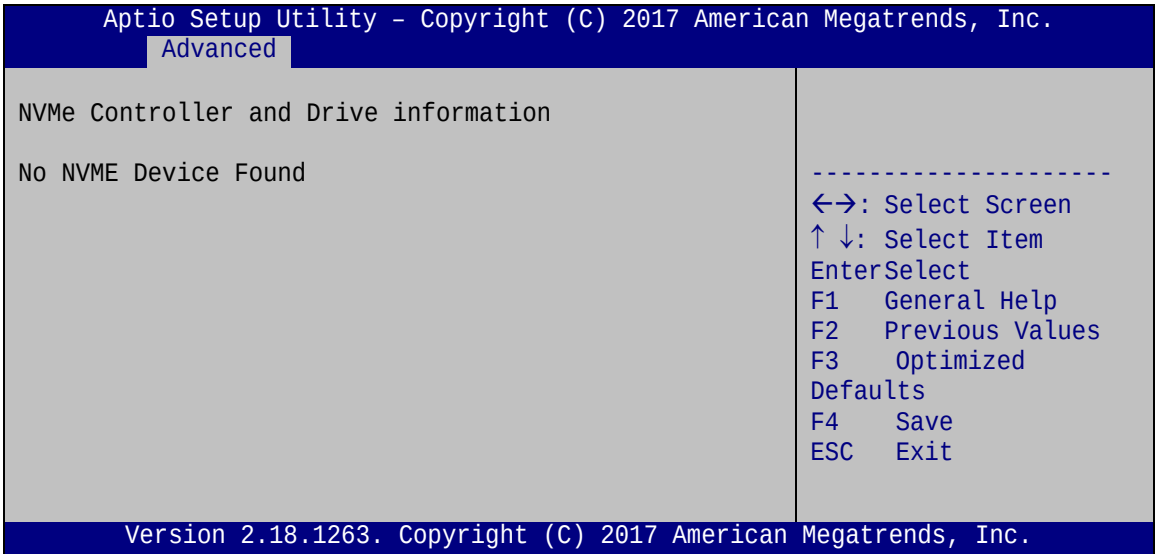
➔ **PC Health Status**

The following system parameters and values are shown. The system parameters that are monitored are:

- Temperature:
  - CPU Temperature
  - System Temperature
- Voltages:
  - +VCCCORE
  - +V5S
  - +V12S
  - +V1.8S
  - VCC3V
  - VSB3V
  - VBAT

4.3.9 NVMe Configuration

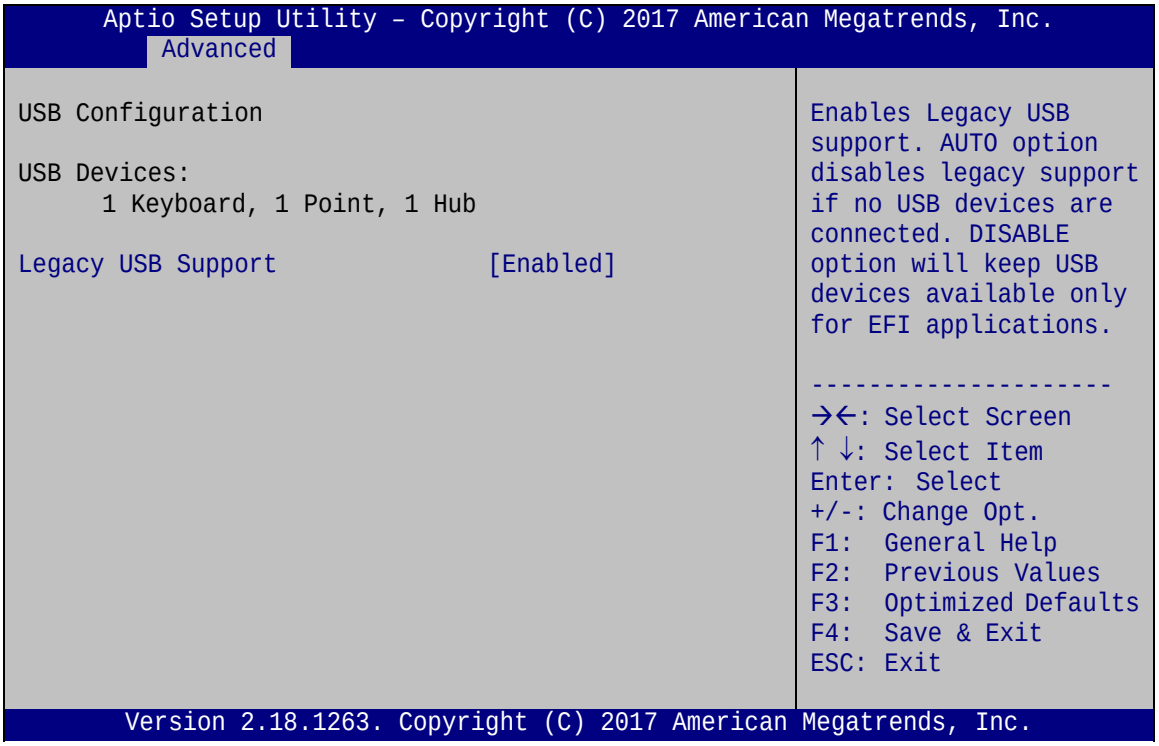
Use the **NVMe Configuration** menu (**BIOS Menu 13**) to change and/or set the configuration of the NVMe devices installed in the system.



BIOS Menu 13: NVMe Configuration

4.3.10 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 14**) to read USB configuration information and configure the USB settings.



BIOS Menu 14: USB Configuration

➔ **USB Devices**

The **USB Devices Enabled** field lists the USB devices that are enabled on the system

➔ **Legacy USB Support [Enabled]**

Use the **Legacy USB Support** BIOS option to enable USB mouse and USB keyboard support. Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB driver loaded onto the system.

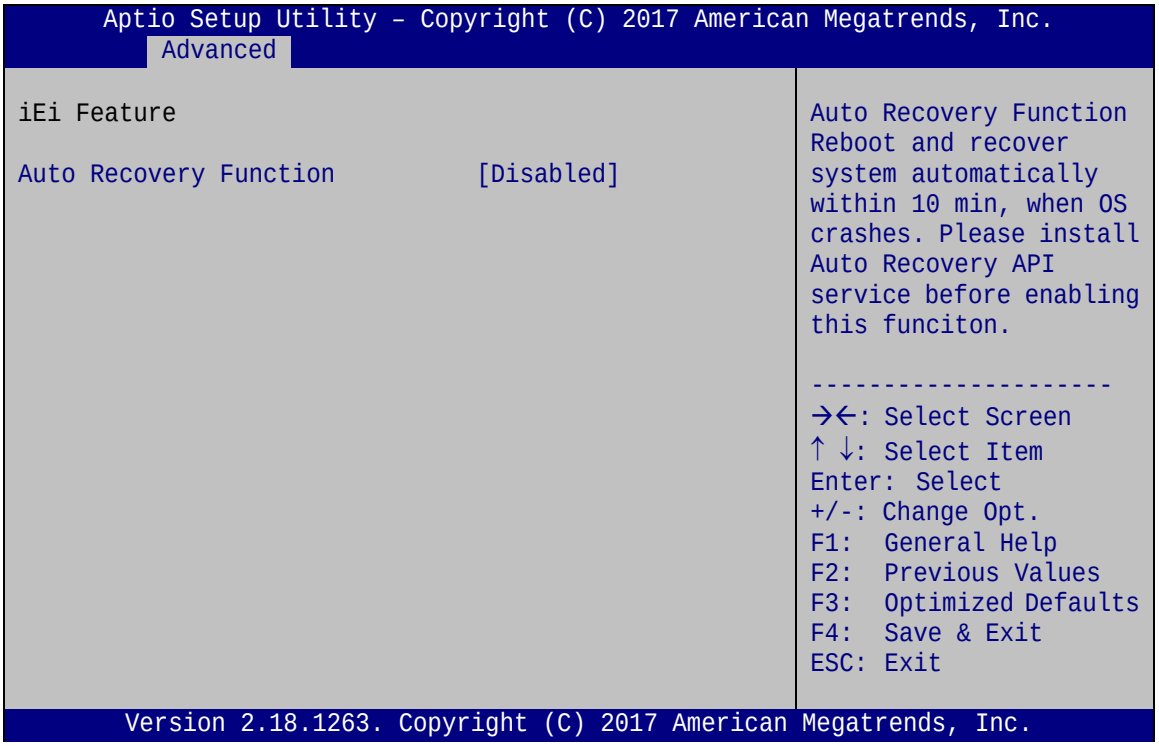
➔ **Enabled** **DEFAULT** Legacy USB support enabled

➔ **Disabled** Legacy USB support disabled

➔ **Auto** Legacy USB support disabled if no USB devices are connected

4.3.11 IEI Feature

Use the **IEI Feature** menu (**BIOS Menu 15**) to configure One Key Recovery function.



BIOS Menu 15: IEI Feature

➔ **Auto Recovery Function [Disabled]**

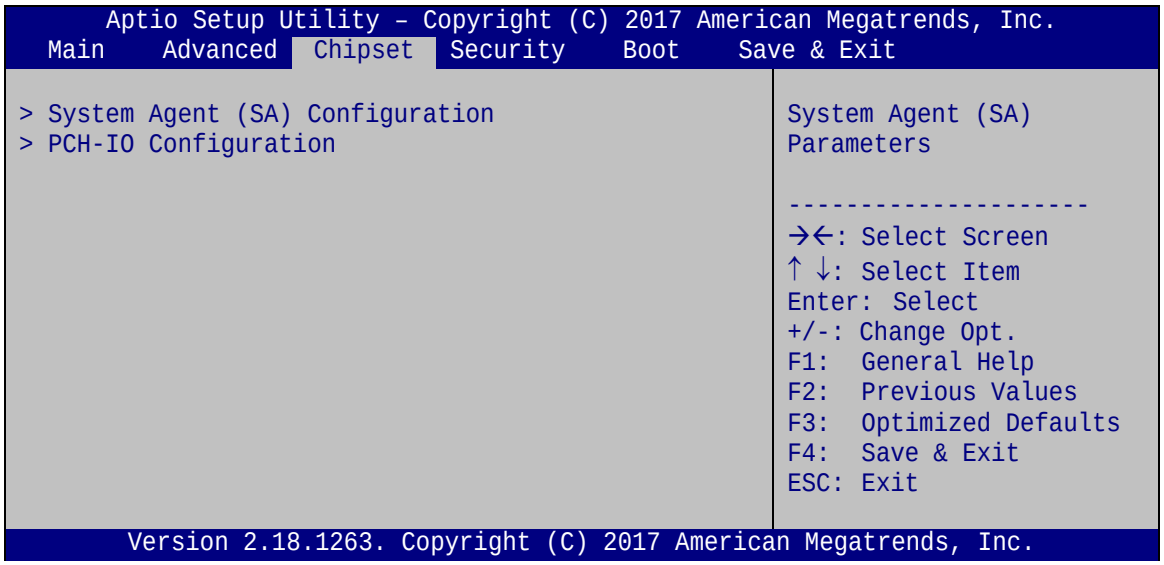
Use the **Auto Recovery Function** BIOS option to enable or disable the auto recovery function of the IEI One Key Recovery.

➔ **Disabled** **DEFAULT** Auto recovery function disabled

➔ **Enabled** Auto recovery function enabled

4.4 Chipset

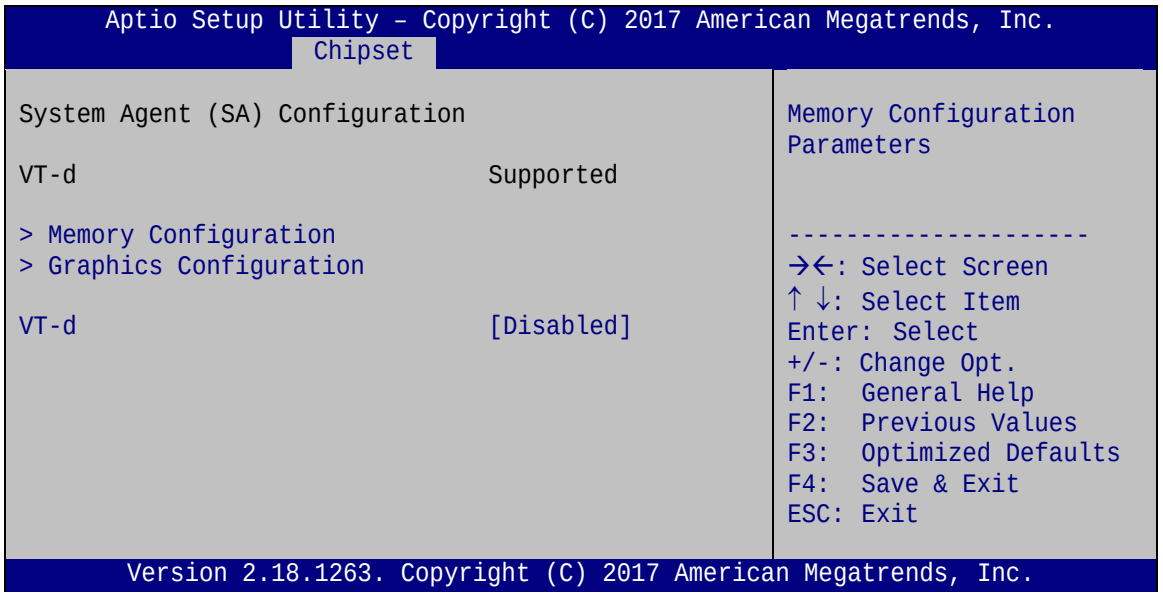
Use the **Chipset** menu (**BIOS Menu 16**) to configure the system chipset.



BIOS Menu 16: Chipset

4.4.1 System Agent (SA) Configuration

Use the **System Agent (SA) Configuration** menu (**BIOS Menu 17**) to configure the System Agent (SA) parameters.



BIOS Menu 17: System Agent (SA) Configuration

➔ **VT-d [Disabled]**

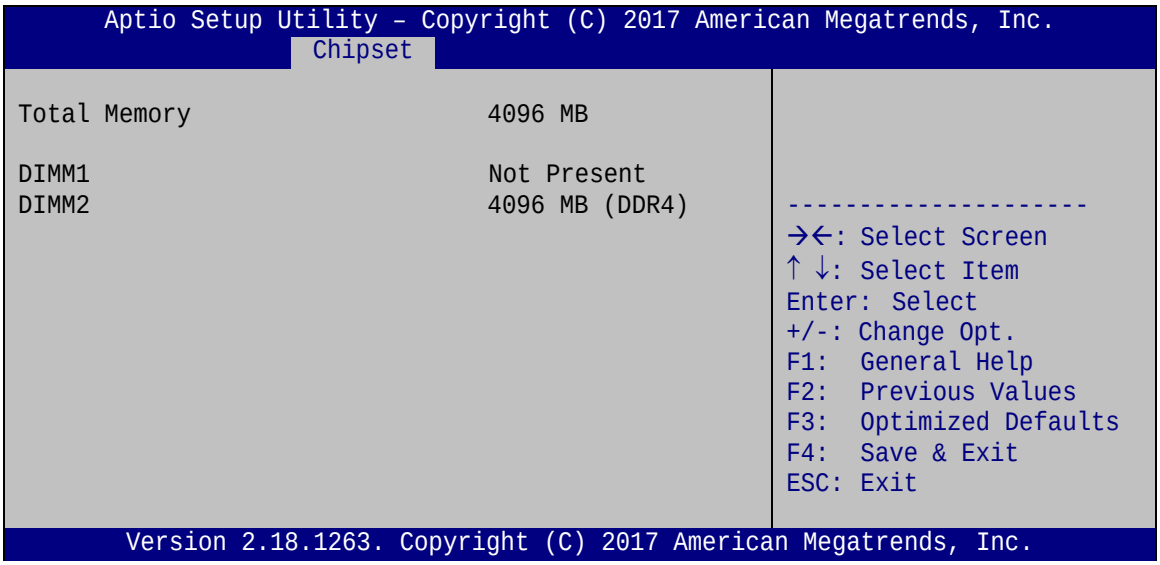
Use the **VT-d** option to enable or disable VT-d support.

➔ **Disabled** **DEFAULT** Disable VT-d support.

➔ **Enabled** Enable VT-d support.

4.4.1.1 Memory Configuration

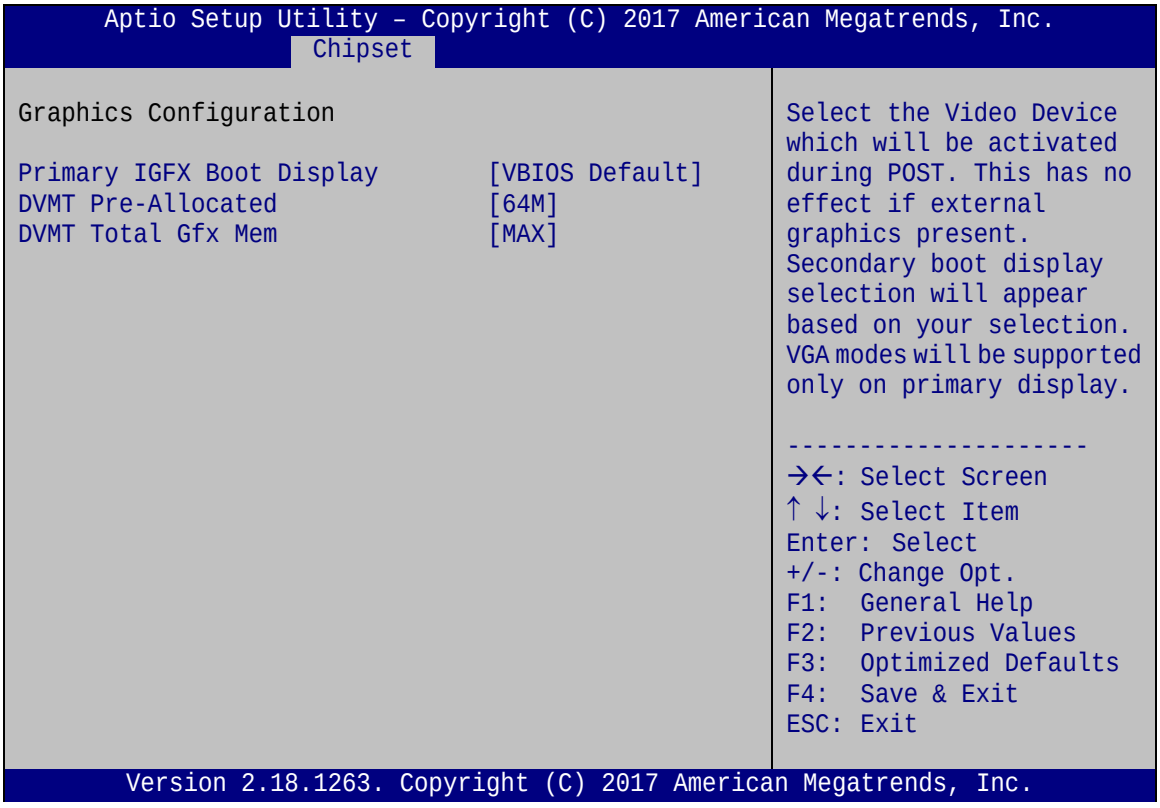
Use the **Memory Configuration** submenu (**BIOS Menu 18**) to display the memory information.



BIOS Menu 18: Memory Configuration

4.4.1.2 Graphics Configuration

Use the **Graphics Configuration** menu (**BIOS Menu 19**) to configure the graphics settings.



BIOS Menu 19: Graphics Configuration

➔ **Primary IGFX Boot Display [VBIOS Default]**

Use the **Primary IGFX Boot Display** option to select the display device used by the system when it boots.

- VBIOS Default **DEFAULT**
- HDMI
- LVDS

➔ **DVMT Pre-Allocated [64M]**

Use the **DVMT Pre-Allocated** option to set the amount of system memory allocated to the integrated graphics processor when the system boots. The system memory allocated can

then only be used as graphics memory, and is no longer available to applications or the operating system. Configuration options are listed below:

- 32M
- 64M **DEFAULT**

➔ **DVMT Total Gfx Mem [MAX]**

Use the **DVMT Total Gfx Mem** option to select DVMT5.0 total graphic memory size used by the internal graphic device. The following options are available:

- 128M
- 256M
- MAX **DEFAULT**

4.4.2 PCH-IO Configuration

Use the **PCH-IO Configuration** menu (**BIOS Menu 20**) to configure the PCH-IO chipset.

```
Aptio Setup Utility – Copyright (C) 2017 American Megatrends, Inc.
                    Chipset
Auto Power Button Status          [Enable (AT)]
HD Audio Subsystem Configuration Settings
HD Audio                          [Auto]
                                                  Control Detection of the
                                                  HD-Audio device.
                                                  Disable = HDA will be
                                                  unconditionally disabled
                                                  Enabled = HDA will be
                                                  unconditionally enabled.
                                                  Auto = HDA will be enabled
                                                  if present, disabled
                                                  otherwise.
                                                  ----------------------
                                                  →←: Select Screen
                                                  ↑ ↓: Select Item
                                                  Enter: Select
                                                  +/-: Change Opt.
                                                  F1:  General Help
                                                  F2:  Previous Values
                                                  F3:  Optimized Defaults
                                                  F4:  Save & Exit
                                                  ESC: Exit
Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```

BIOS Menu 20: PCH-IO Configuration

➔ **HD Audio [Auto]**

Use the **HD Audio** BIOS option to enable or disable the High Definition Audio controller.

➔ **Disabled**		The High Definition Audio controller is disabled.
➔ **Enabled**		The High Definition Audio controller is enabled.
➔ **Auto**	**DEFAULT**	The High Definition Audio controller will be automatically detected and enabled.

4.5 Security

Use the **Security** menu (**BIOS Menu 21**) to set system and user passwords.

```
      Aptio Setup Utility – Copyright (C) 2017 American Megatrends, Inc.
  Main    Advanced   Chipset   Security    Boot    Save & Exit

Password Description                              Set Administrator
                                                  Password
If ONLY the Administrator's password is set,
then this only limits access to Setup and is
only asked for when entering Setup.
If ONLY the User's password is set, then this
is a power on password and must be entered to
boot or enter Setup. In Setup the User will
have Administrator rights.
The password must be                              ----------------------
In the following range:                           →←: Select Screen
Maximum length                  3                 ↑ ↓: Select Item
Minimum length                  20                Enter: Select
                                                  +/-: Change Opt.
Administrator Password                            F1:  General Help
User Password                                     F2:  Previous Values
                                                  F3:  Optimized Defaults
                                                  F4:  Save & Exit
                                                  ESC: Exit
        Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```

BIOS Menu 21: Security

➔ **Administrator Password**

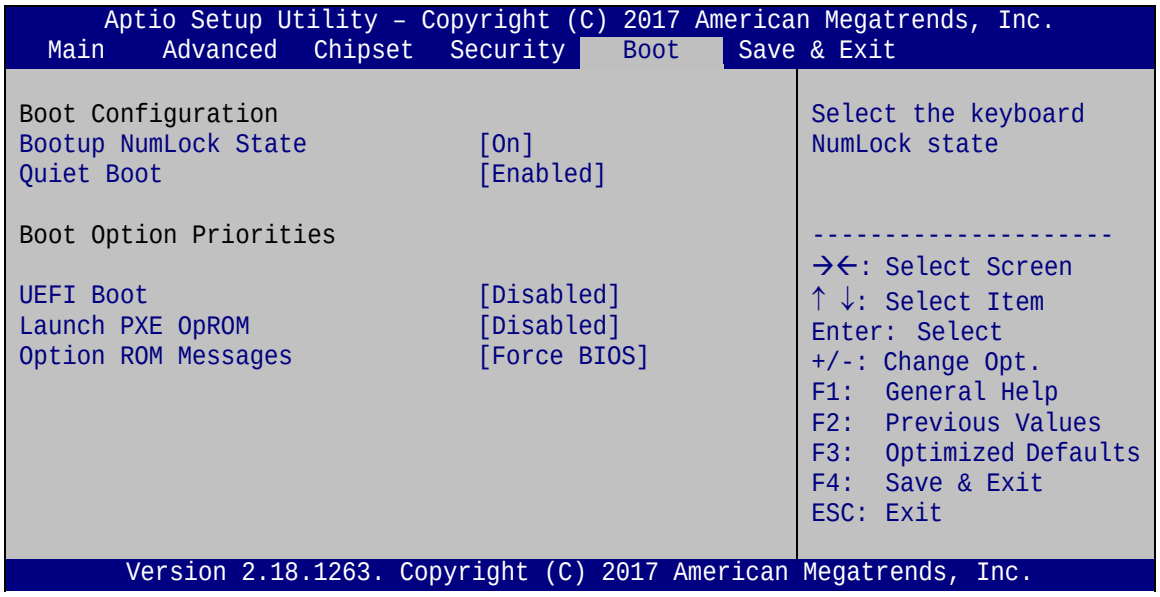
Use the **Administrator Password** field to set or change an administrator password.

➔ **User Password**

Use the **User Password** field to set or change a user password.

4.6 Boot

Use the **Boot** menu (**BIOS Menu 22**) to configure system boot options.



BIOS Menu 22: Boot

➔ Bootup NumLock State [On]

Use the **Bootup NumLock State** BIOS option to specify if the number lock setting must be modified during boot up.

➔ **On** **DEFAULT** Allows the Number Lock on the keyboard to be enabled automatically when the computer system boots up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard is lit.

➔ **Off** Does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard lights up when the Number Lock is engaged.

➔ **Quiet Boot [Enabled]**

Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

➔	**Disabled**		Normal POST messages displayed
➔	**Enabled**	**DEFAULT**	OEM Logo displayed instead of POST messages

➔ **UEFI Boot [Disabled]**

Use the **UEFI Boot** BIOS option to enable or disable UEFI boot.

➔	**Disabled**	**DEFAULT**	Disable UEFI boot.
➔	**Enabled**		Enable UEFI boot if the 1st boot device is a GPT HDD.

➔ **Launch PXE OpROM [Disabled]**

Use the **Launch PXE OpROM** option to enable or disable boot option for legacy network devices.

➔	**Disabled**	**DEFAULT**	Ignore all PXE Option ROMs
➔	**Enabled**		Load PXE Option ROMs

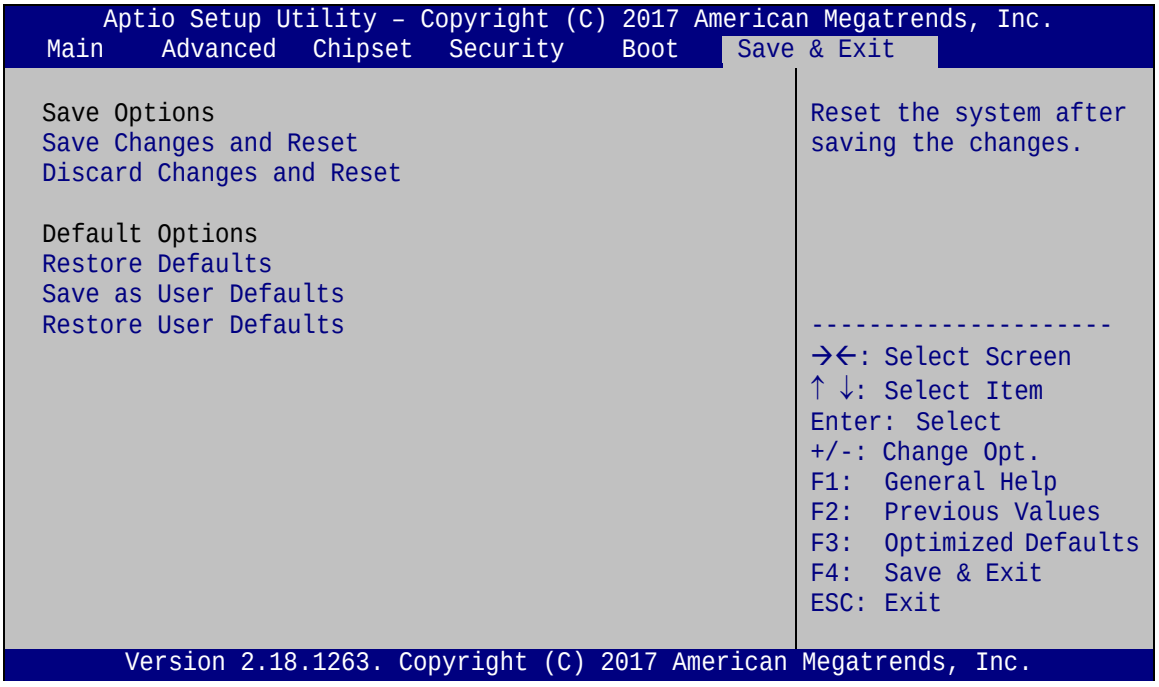
➔ **Option ROM Messages [Force BIOS]**

Use the **Option ROM Messages** option to set the Option ROM display mode.

➔	**Force BIOS**	**DEFAULT**	Sets display mode to force BIOS.
➔	**Keep Current**		Sets display mode to current.

4.7 Save & Exit

Use the **Save & Exit** menu (**BIOS Menu 23**) to load default BIOS values, optimal failsafe values and to save configuration changes.



BIOS Menu 23: Save & Exit

➔ **Save Changes and Reset**

Use the **Save Changes and Reset** option to save the changes made to the BIOS options and reset the system.

➔ **Discard Changes and Reset**

Use the **Discard Changes and Reset** option to exit the system without saving the changes made to the BIOS configuration setup program.

➔ **Restore Defaults**

Use the **Restore Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F3 key can be used for this operation.**

➔ **Save as User Defaults**

Use the **Save as User Defaults** option to save the changes done so far as user defaults.

➔ **Restore User Defaults**

Use the **Restore User Defaults** option to restore the user defaults to all the setup options.

Chapter

5

Driver Installation

5.1 Available Drivers

All the drivers for the BIS-W19C(F)-ULT4 are available on IEI Resource Download Center (https://download.ieiworld.com). Type BIS-W19C(F)-ULT4 and press Enter to find all the relevant software, utilities, and documentation.

Figure 5-1: IEI Resource Download Center

IEI provides the following drivers for Windows 7, Windows 8 and Windows 10 operating systems.

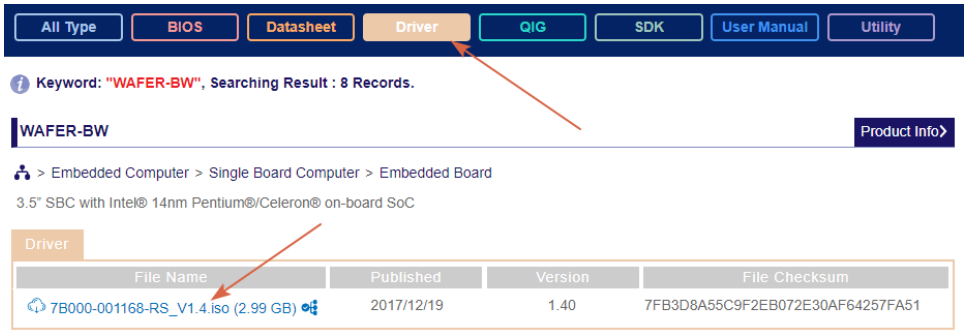
- Chipset
- VGA
- LAN
- Audio
- Intel® Serial IO
- ME (Intel® AMT)
- Wi-Fi & Bluetooth
- RFID, 3-in-1 reader and barcode reader (optional)

5.2 Driver Download

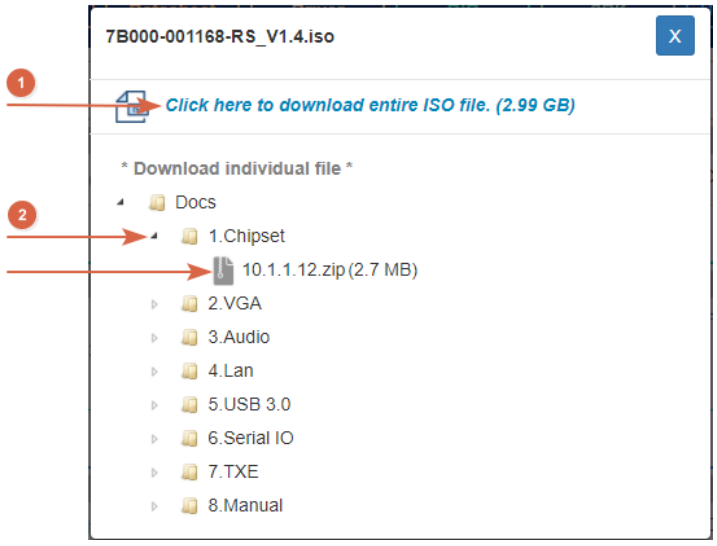
To download drivers from IEI Resource Download Center, follow the steps below.

Step 1: Go to https://download.ieiworld.com. Type BIS-W19C(F)-ULT4BIS-W19C(F)-ULT4BIS-W19C(F)-ULT4 and press Enter.

Step 2: All product-related software, utilities, and documentation will be listed. You can choose **Driver** to filter the result.



Step 3: Click the driver file name on the page and you will be prompted with the following window. You can download the entire ISO file (❶), or click the small arrow to find an individual driver and click the file name to download (❷).



NOTE:

To install software from the downloaded ISO image file in Windows 8, 8.1 or 10, double-click the ISO file to mount it as a virtual drive to view its content. On Windows 7 system, an additional tool (such as Virtual CD-ROM Control Panel from Microsoft) is needed to mount the file.

5.3 Intel® Chipset Driver

To install the chipset driver, please follow the steps below.

Step 1: Select **Chipset** from the list of the driver menu.

Step 2: Double click the setup file in the folder. The Intel® Chipset Device Software installation wizard appears.

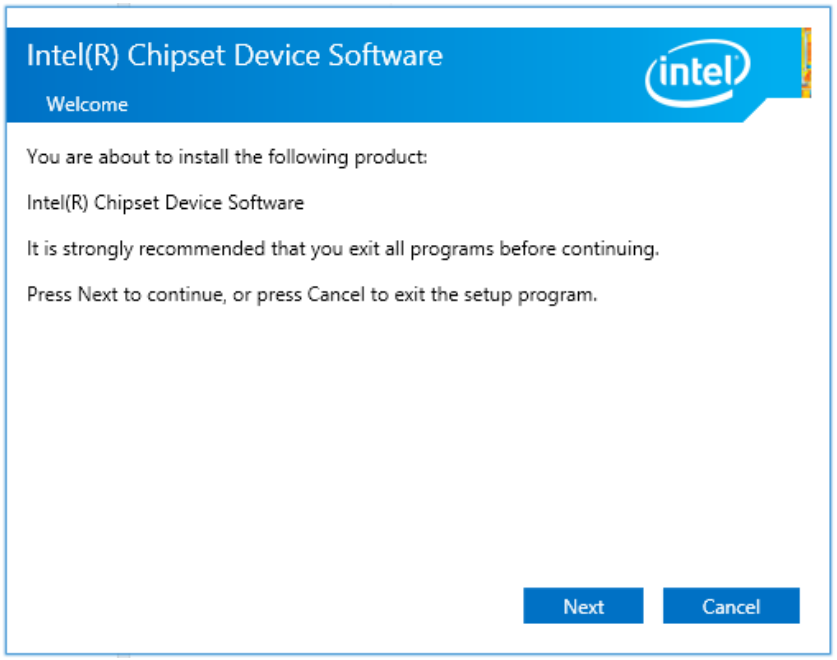


Figure 5-2: Intel® Chipset Device Software Installation Wizard

Step 3: Follow the step-by-step instruction of the installation wizard to install the driver.

5.4 Intel® Graphics Driver

To install the graphics driver, please follow the steps below.

Step 1: Select **VGA** from the list of the driver menu. Locate the driver setup file for the corresponding operating system.

Step 2: Double click the setup file in the folder. The **Intel® Graphics Driver** installation wizard appears (**Figure 5-3**).

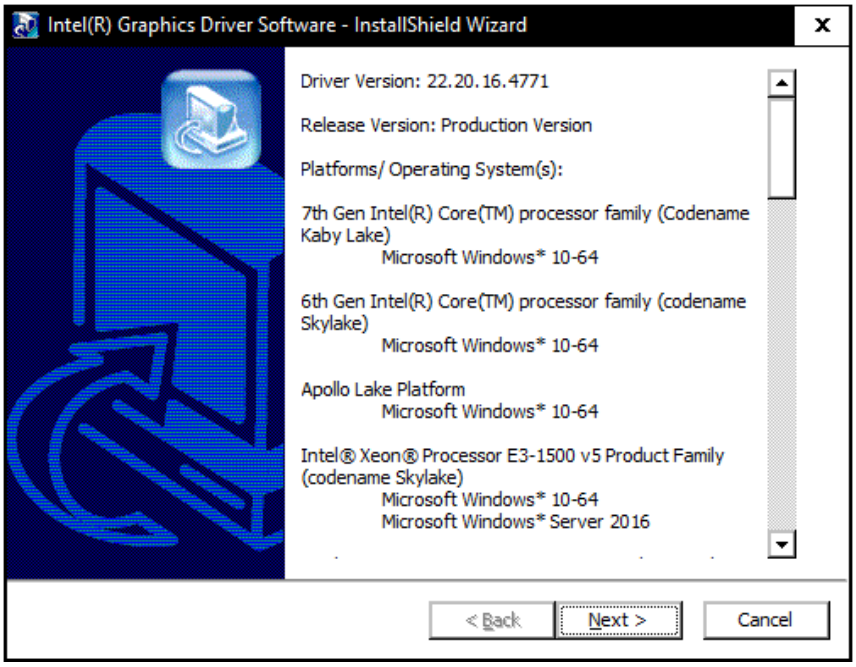


Figure 5-3: Intel® Graphics Driver Installation Wizard

Step 3: Follow the step-by-step instruction of the installation wizard to install the graphics driver.

5.5 Audio Driver

To install the driver for the speaker and the microphone, please follow the steps below.

Step 1: Select **Audio** from the list of the driver menu.

Step 2: Double click the setup file in the folder. The **InstallShield Wizard** screen appears (**Figure 5-4**).

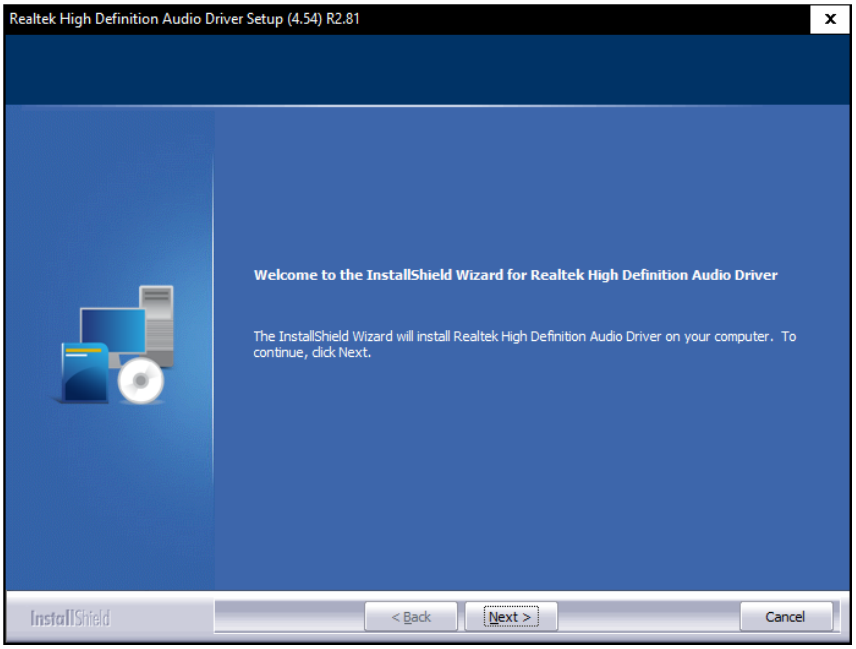


Figure 5-4: Realtek HD Audio Driver InstallShield Wizard

Step 3: Follow the step-by-step instruction of the installation wizard to install the HD Audio driver.

5.6 LAN Driver

To install the LAN driver, please follow the steps below.

Step 1: Select **LAN** from the list of the driver menu. Locate the driver setup file for the corresponding operating system.

Step 2: Double click the setup file in the folder. The **Install Wizard** screen appears (**Figure 5-4**).

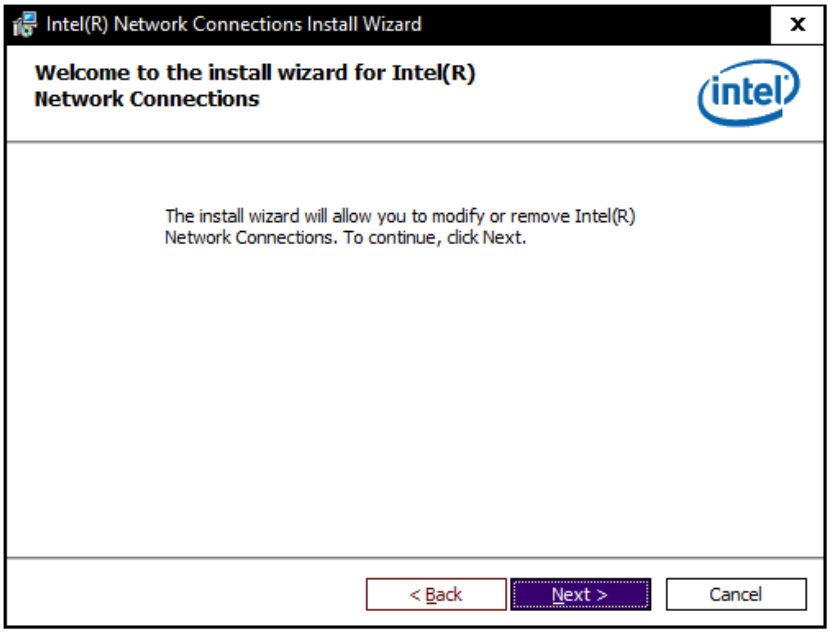


Figure 5-5: LAN Driver Installation Wizard

Step 3: Follow the step-by-step instruction of the installation wizard to install the Intel® Network Connection driver.

5.7 Intel® Management Engine

To install the Intel® Management Engine Components, please follow the steps below.

Step 1: Select **ME** from the list of the driver menu. Locate the driver setup file.

Step 2: Double click the setup file. The installation wizard window appears (**Figure 5-3**).

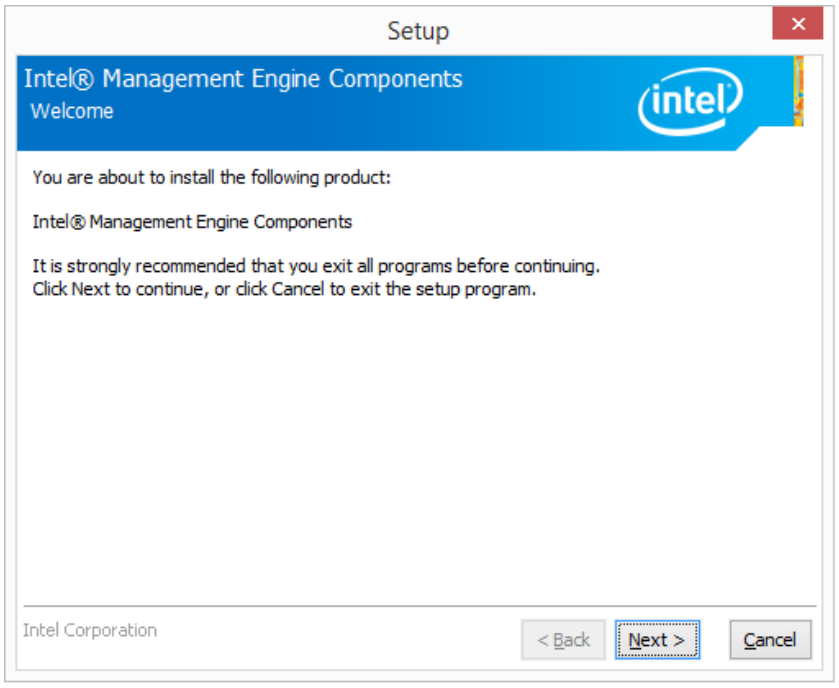


Figure 5-6: Intel® ME Components Installation Wizard

Step 3: Follow the step-by-step instruction of the installation wizard to install the Intel® Management Engine Components.

5.8 Wireless LAN Driver

To install the wireless LAN driver, please follow the steps below.

Step 1: Select **Intel WIFI & BT** from the list of the driver menu. Locate the wireless setup file.

Step 2: Double click the setup file in the folder, and then select the language for the installation. The InstallShield Wizard screen appears (**Figure 5-7**).

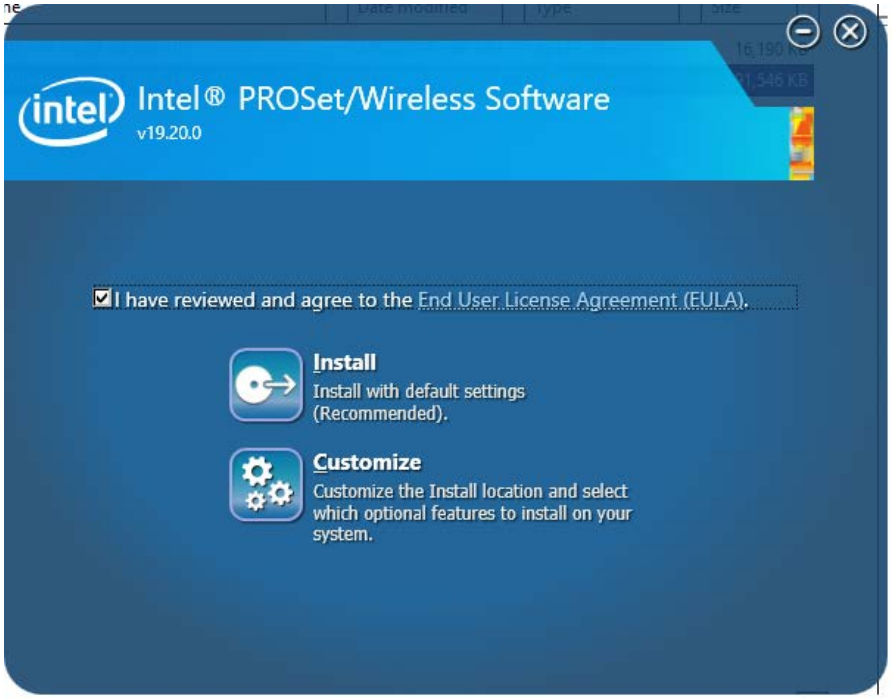


Figure 5-7: Wireless LAN InstallShield Wizard

Step 3: Check to agree the End User License Agreement and click **Install**. Follow the step-by-step instruction of the installation wizard to install the Wireless LAN driver.

5.9 Bluetooth Driver

To install the Bluetooth driver, please follow the steps below.

Step 1: Select **Intel WIFI & BT** from the list of the driver menu. Locate the BT setup file.

Step 2: Double click the setup file in the folder. The InstallShield Wizard screen appears (**Figure 5-8**).

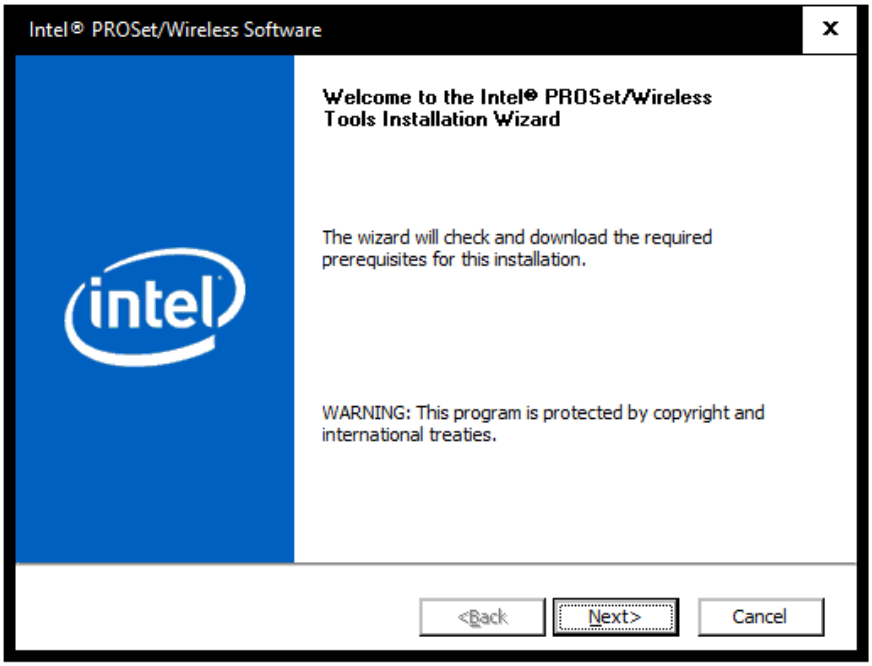


Figure 5-8: Bluetooth Driver InstallShield Wizard

Step 3: Follow the step-by-step instruction of the installation wizard to install the Bluetooth driver.

5.10 RFID Driver (Optional)

To install the RFID driver, please follow the steps below.

Step 1: Open the Device Manager window. Long press or right click **USB <-> Serial**. Select **Update Driver Software** from the pop-up window.

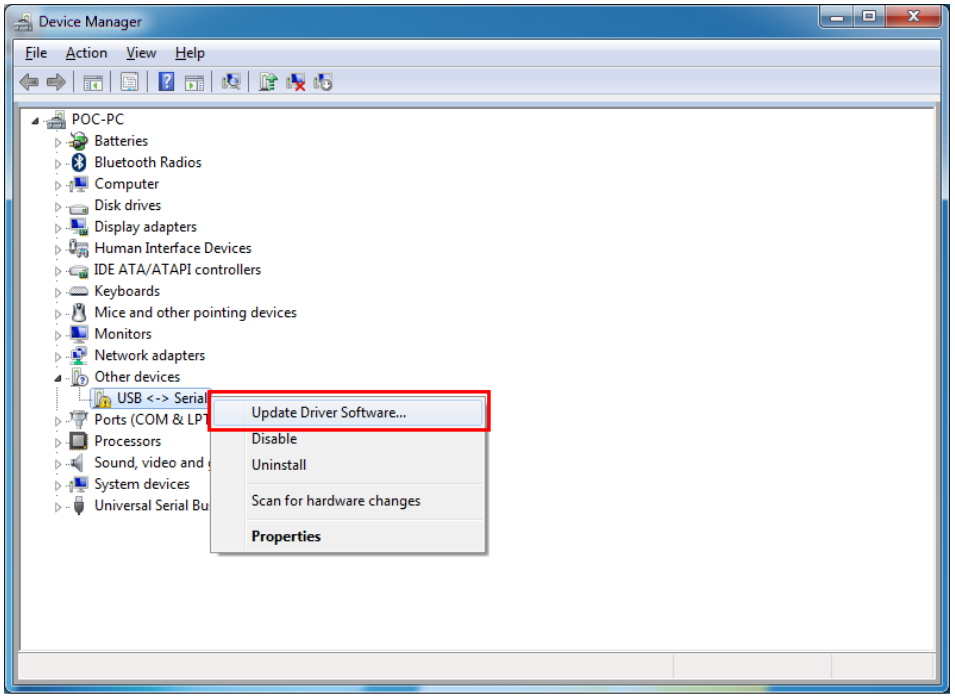


Figure 5-9: Device Manager - Update Driver Software

Step 2: The **Update Driver Software** window appears. Select **Browse my computer for driver software**.

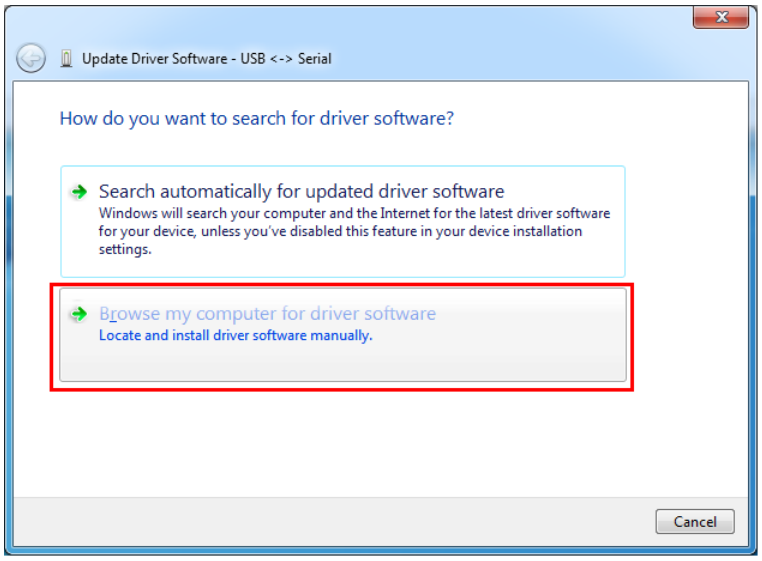


Figure 5-10: Update Driver Software Window

Step 3: The following window appears. Press/Click the **Browse** button to specify the RFID driver directory (\10.Others\POCP-MF-RFID-R10\RFID\D490). Then, press/click the **Next** button.

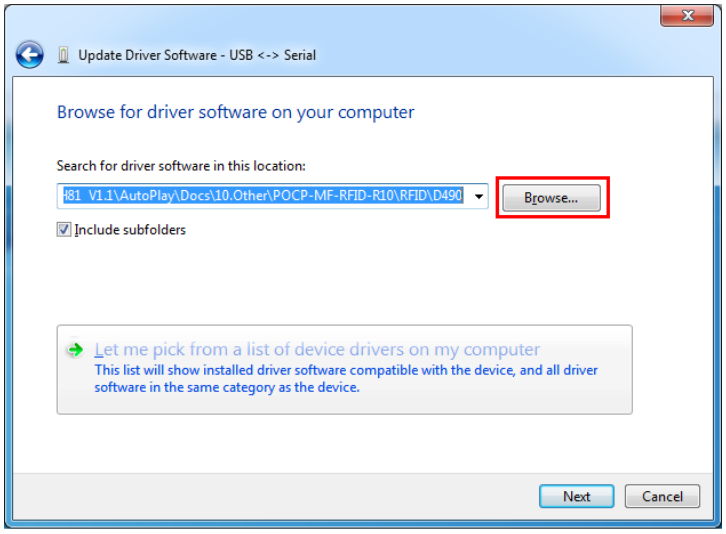


Figure 5-11: Browse for Driver Software Window

Step 4: The system starts installing the RFID driver.

Step 5: After the driver installation process is complete, a confirmation screen appears. Click **Close** to exit the program.

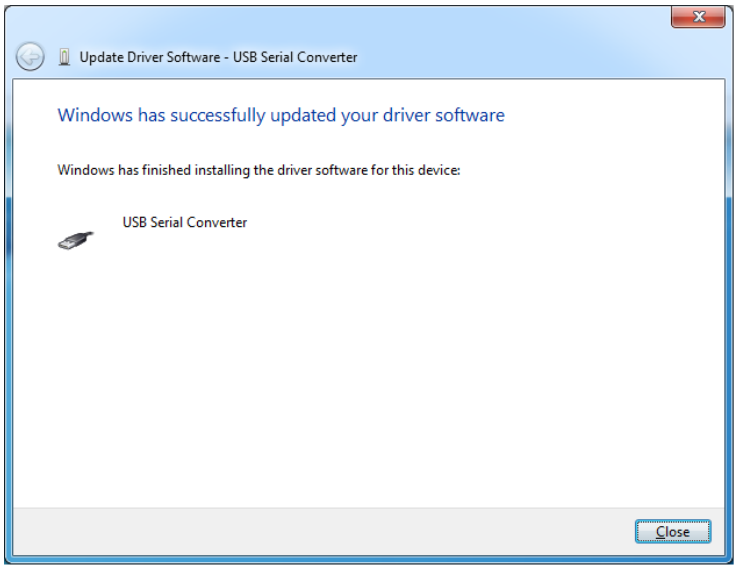


Figure 5-12: Driver Installation Complete Window

Step 6: Repeat **Step 1 ~ Step 5** to install the RFID driver again.

Step 7: The **Device Manager Window** now shows the installed RFID devices.

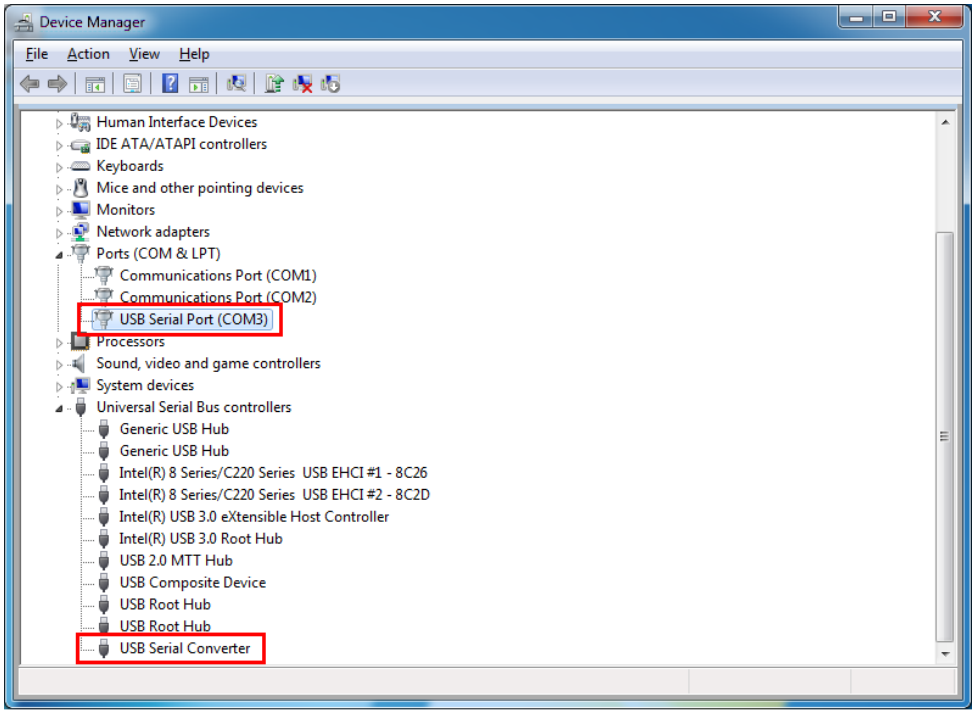


Figure 5-13: Device Manager Window – RFID Devices

5.11 3-in-1 Combo Reader Driver (Optional)

The drivers for the optional 3-in-1 combo reader are all located in the following folder of the driver file: **\10.Others\POCP-W22A-CR-R10**. Please follow the instructions below to install the drivers.

5.11.1 SCR Driver

Follow the steps below to install the SCR driver.

Step 1: Open the Device Manager window. Long press or right click **Singular VCOM Card Reader**. Select **Update Driver Software** from the pop-up window.

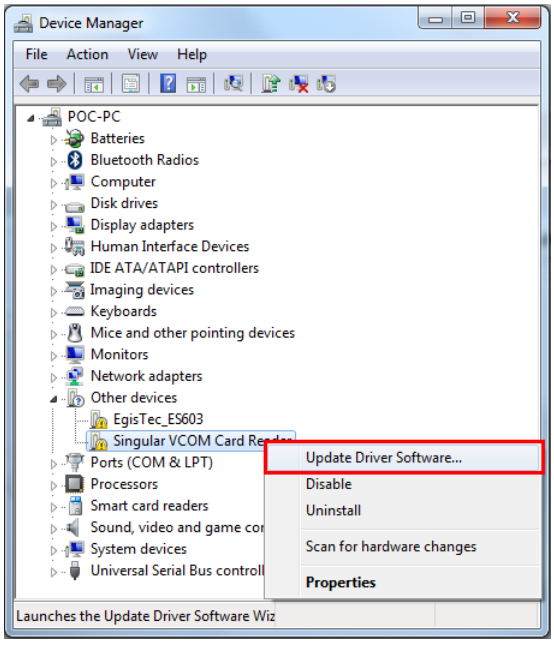


Figure 5-14: Device Manager - Update Driver Software

Step 2: The **Update Driver Software** window appears. Select **Browse my computer for driver software**.

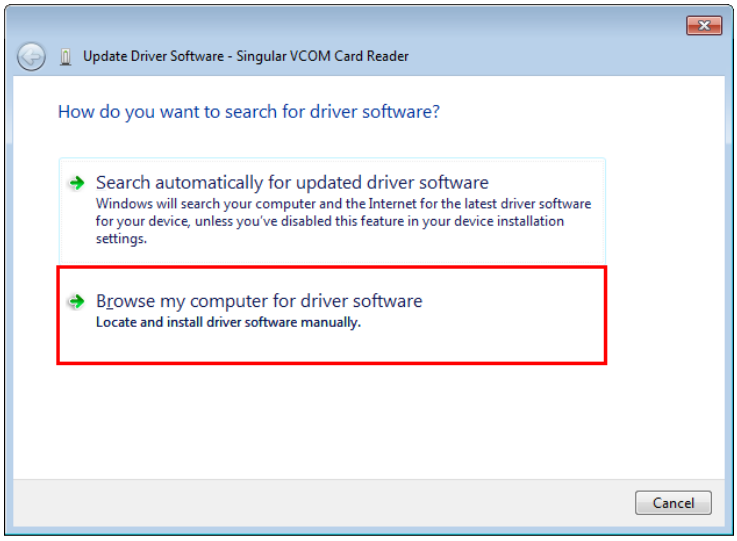


Figure 5-15: Update Driver Software Window

Step 3: The following window appears. Press/Click the **Browse** button to specify the SCR driver directory (\10.Others\POCP-W22A-CR-R10\SCR). Then, press/click the **Next** button.

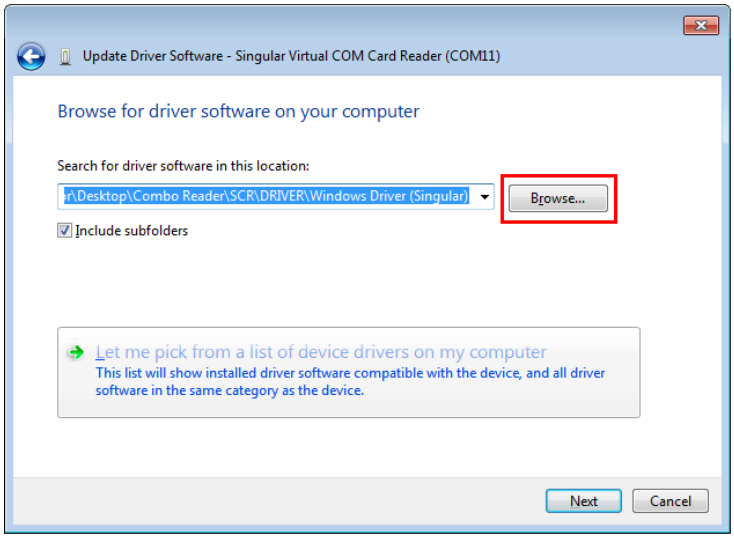


Figure 5-16: Browse for Driver Software Window

Step 4: The following window (**Figure 5-17**) appears as the driver is installed.

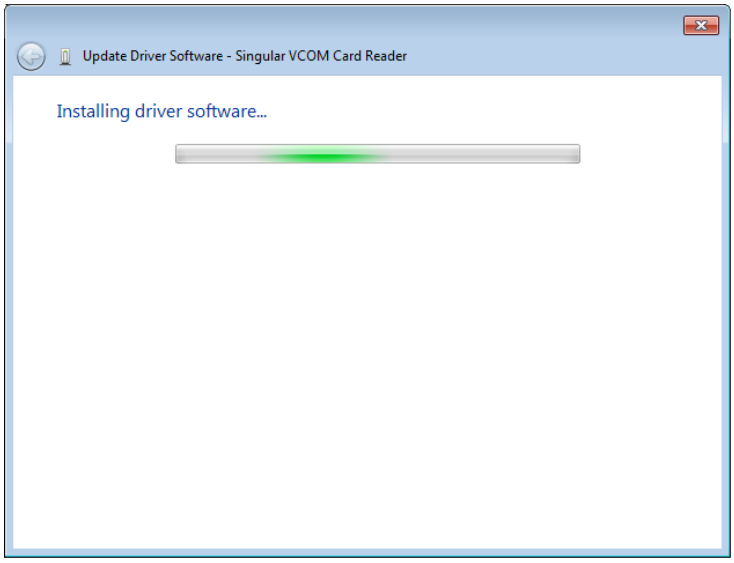


Figure 5-17: Installing Driver Window

Step 5: After the driver installation process is complete, a confirmation screen appears.

Click **Close** to exit the program.

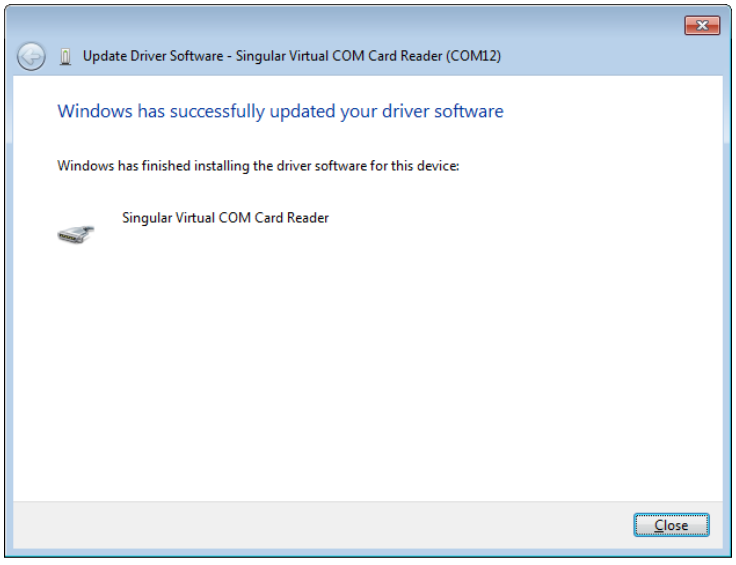


Figure 5-18: Driver Installation Complete Window

Step 6: The **Device Manager Window** now shows the installed SCR device.

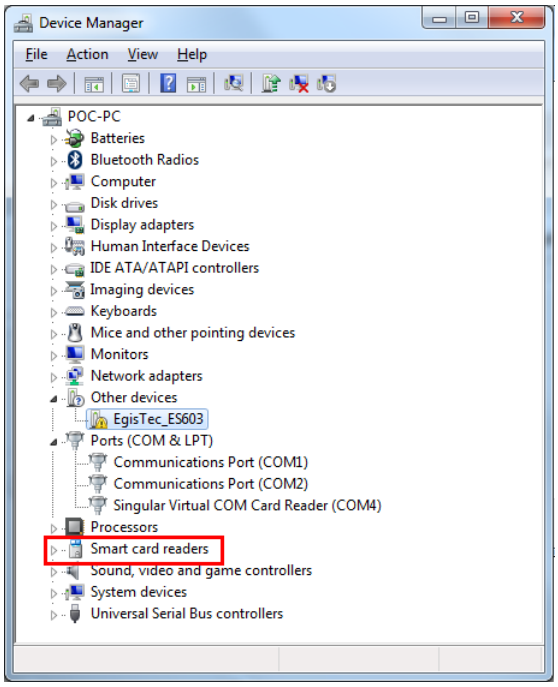


Figure 5-19: Device Manager Window – SCR Device

5.11.2 MSR Driver

Follow the steps below to install the MSR driver.

Step 1: Open the Device Manager window. Long press or right click **Singular VCOM Card Reader**. Select **Update Driver Software** from the pop-up window.

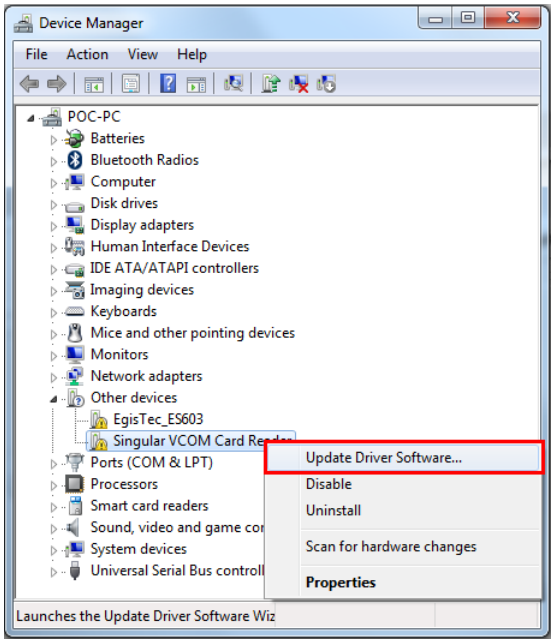


Figure 5-20: Device Manager - Update Driver Software

Step 2: The **Update Driver Software** window appears. Select **Browse my computer for driver software**.

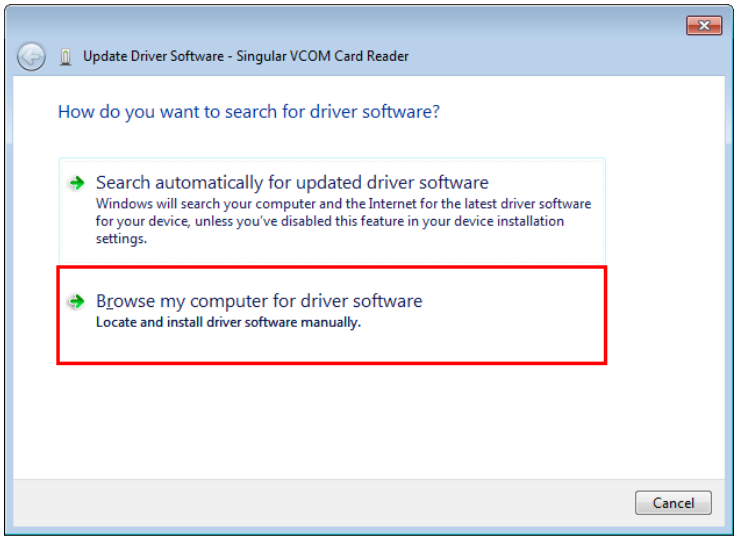


Figure 5-21: Update Driver Software Window

Step 3: The following window appears. Press/Click the **Browse** button to specify the MSR driver directory (\10.Others\POCP-W22A-CR-R10\MSR). Then, press/click the **Next** button.

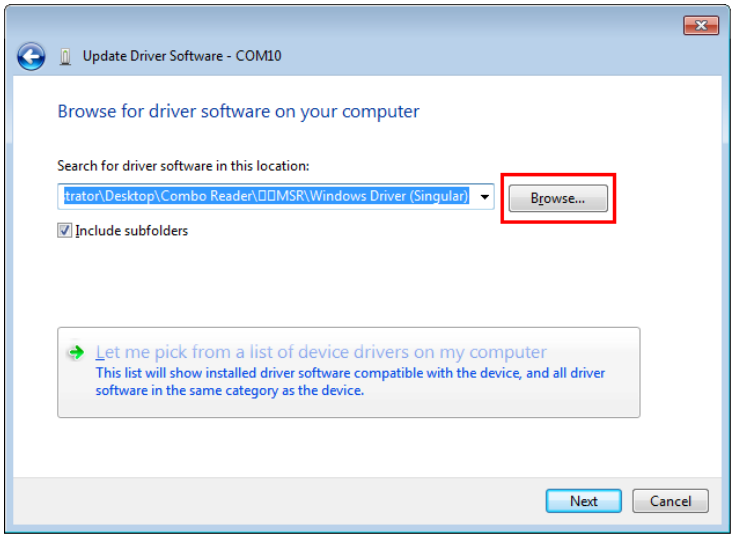


Figure 5-22: Browse for Driver Software Window

Step 4: The following window (**Figure 5-23**) appears as the driver is installed.

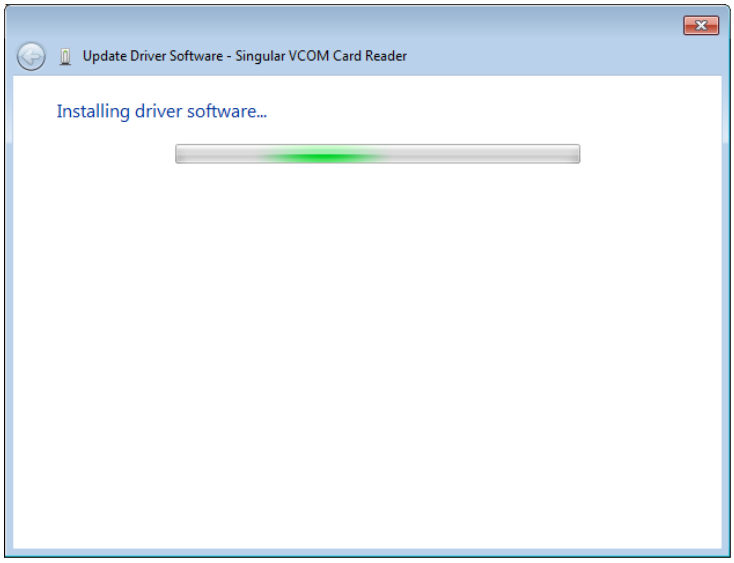


Figure 5-23: Installing Driver Window

Step 5: After the driver installation process is complete, a confirmation screen appears.

Click **Close** to exit the program.

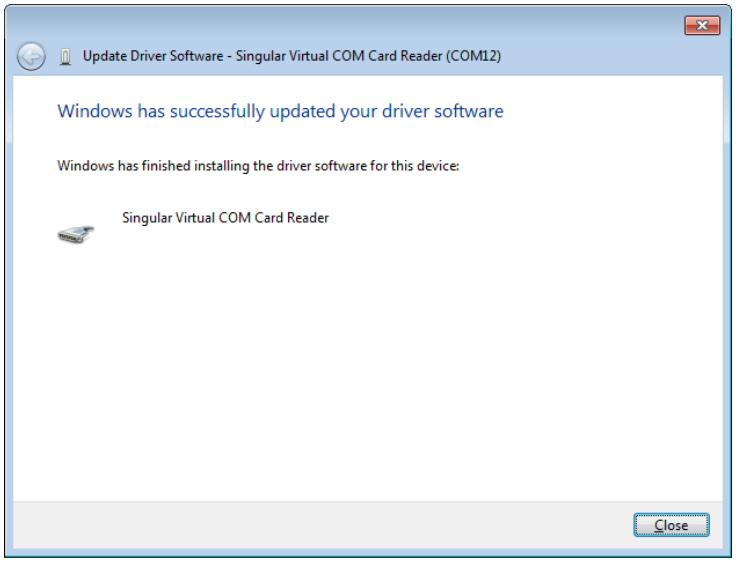


Figure 5-24: Driver Installation Complete Window

Step 6: The **Device Manager Window** now shows the installed MSR device.

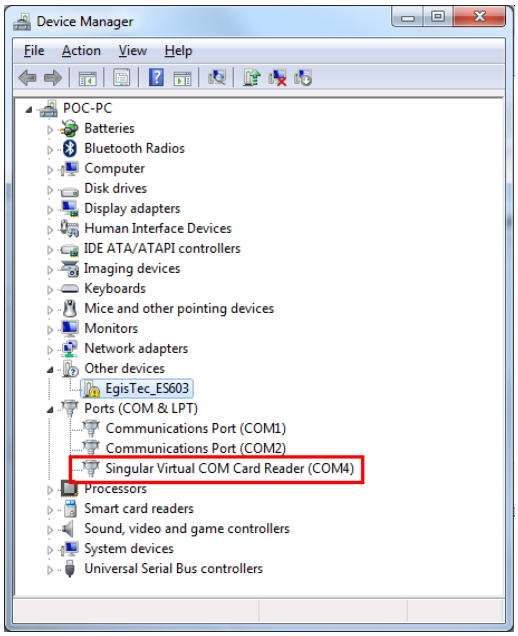


Figure 5-25: Device Manager Window – MSR Device

5.11.3 Fingerprint Reader Driver

Follow the steps below to install the fingerprint reader driver.

Step 1: Select **Other** from the list of the driver menu.

Step 2: The fingerprint reader driver is located in the following folder (**Figure 5-26**): **\10.Others\POCP-W22A-CR-R10\Finger Printer**. Double click the **setup.exe** file in this folder to install the driver.

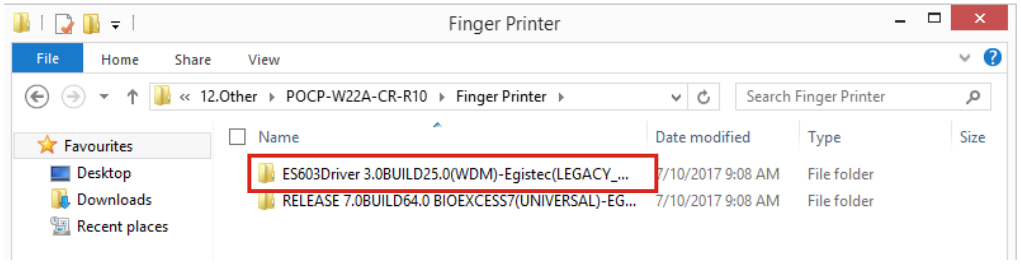


Figure 5-26: Fingerprint Reader Driver Folder

Step 3: The **Egis ES603 WDM Driver** welcome window appears.

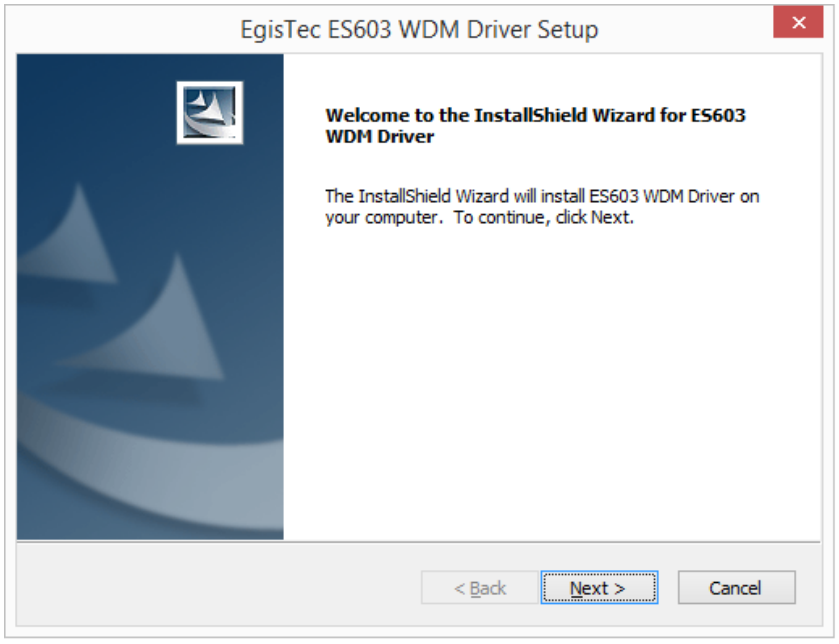


Figure 5-27: Fingerprint Reader Driver InstallShield Wizard

Step 4: Follow the step-by-step instruction of the installation wizard to install the fingerprint reader driver.

5.12 Barcode Reader Driver (Optional)

To install the barcode reader driver, please follow the steps below.

Step 1: Select **Other** from the list of the driver menu. Double click the **Install_x86.bat** file (or **Install_x64.bat** for 64-bit OS) in the **POCP-W22A-HD-BR-R10** folder shown in **Figure 5-28** to install the barcode reader driver.

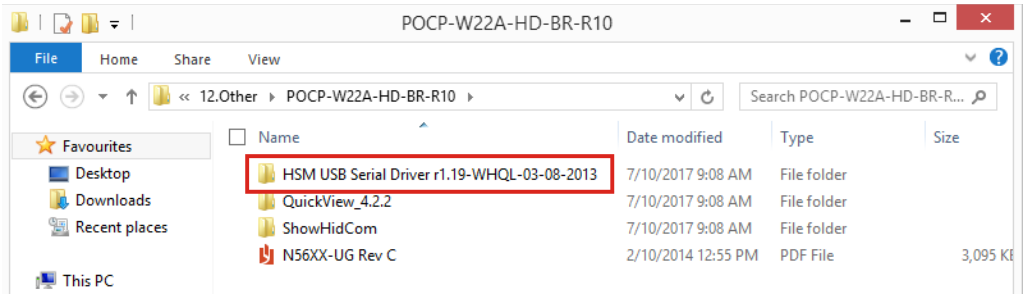


Figure 5-28: Barcode Reader Driver Folder

Step 2: The following window shows and starts installing the barcode reader driver. When the installation is complete, the window will close automatically.

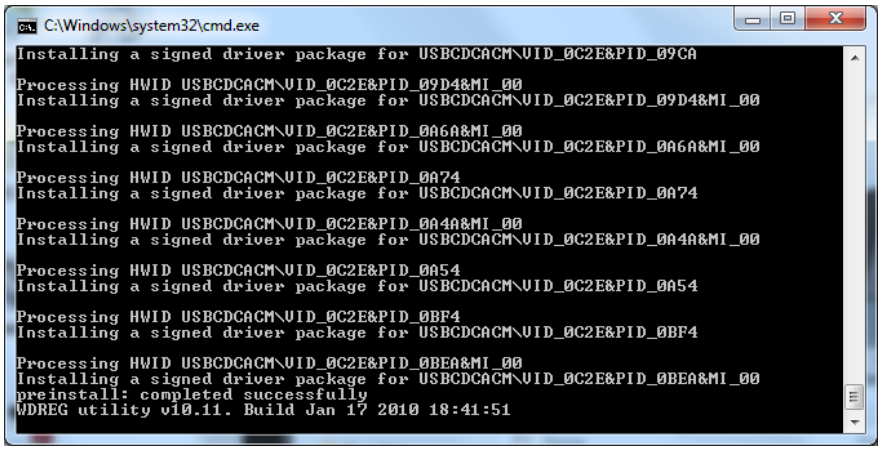


Figure 5-29: Barcode Reader Driver Installation

Step 3: The **Device Manager Window** now shows the installed barcode reader device.

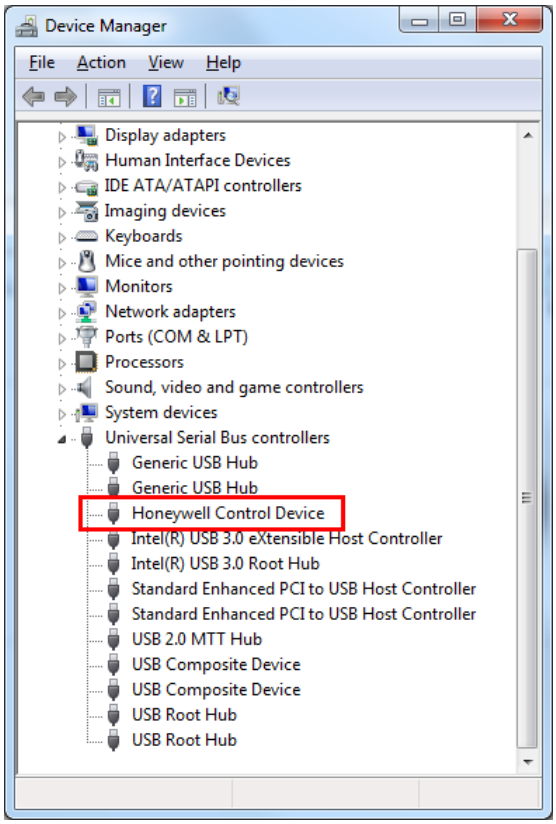


Figure 5-30: Device Manager Window – Barcode Reader Device

Chapter

6

System Maintenance

6.1 System Maintenance Introduction

If the components of the BIS-W19C(F)-ULT4 fail they must be replaced. Please contact the system reseller or vendor to purchase the replacement parts.

6.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the maintenance of the BIS-W19C(F)-ULT4 may result in permanent damage to the BIS-W19C(F)-ULT4 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the BIS-W19C(F)-ULT4. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the BIS-W19C(F)-ULT4 is accessed internally, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: - Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: - Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: - When configuring the BIS-W19C(F)-ULT4, place it on an anti-static pad. This reduces the possibility of ESD damaging the BIS-W19C(F)-ULT4.
- ***Only handle the edges of the PCB***: - When handling the PCB, hold the PCB by the edges.

6.3 Turn off the Power

WARNING:

Failing to turn off the system before opening it can cause permanent damage to the system and serious or fatal injury to the user.

Before any maintenance procedures are carried out on the system, make sure the system is turned off.

6.4 Removing the Covers

To access the BIS-W19C(F)-ULT4 internally, the HDD bracket, the plastic rear cover and the internal aluminum cover must be removed. To remove the covers, please follow the steps below.

Step 1: Remove the eight retention screws from the rear cover (**Figure 6-1**).

Figure 6-1: HDD Cover Retention Screws

Step 2: Lift the HDD cover off the BIS-W19C(F)-ULT4.

Step 3: Remove the two HDD bracket retention screws and remove the HDD bracket (**Figure 6-2**).

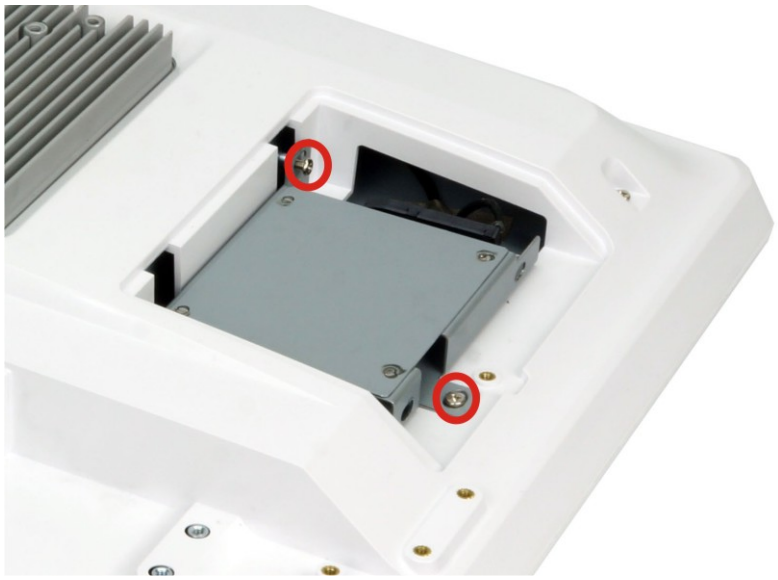


Figure 6-2: Back Cover Retention Screws

Step 4: Use a slotted screwdriver to pry off the rear cover by inserting the tip into the **right** side panel and twisting the tip until the rear cover snaps off.

Figure 6-3: Pry Off the Rear Cover

Step 5: Lift the rear cover off the BIS-W19C(F)-ULT4.

Step 6: Remove the 11 retention screws from the internal aluminum cover and disconnect the HDMI connector (**Figure 6-4**).

Figure 6-4: Aluminum Cover Retention Screws

Step 7: Lift the aluminum cover off the BIS-W19C(F)-ULT4.

6.5 SO-DIMM Replacement

The BIS-W19C(F)-ULT4 has two SO-DIMM slots, and is pre-installed with one 4 GB DDR4 SO-DIMM. To replace/install the SO-DIMM, please follow the instructions below.

Step 1: Remove the covers. See **Section 6.4**.

Step 2: Locate the SO-DIMM slots (**Figure 6-5**).

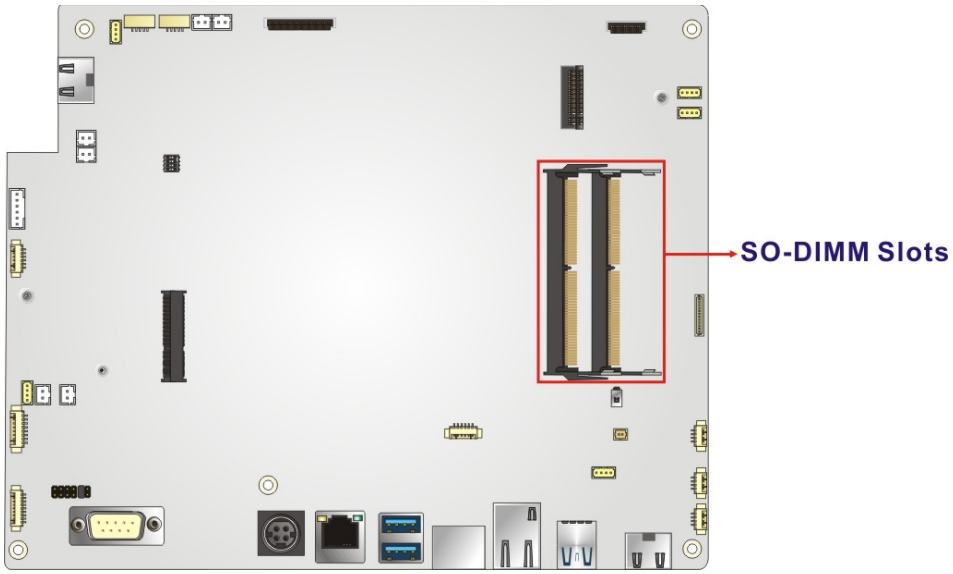


Figure 6-5: SO-DIMM Slot Locations

Step 3: To remove the SO-DIMM, push the two handles outwards. The memory module is ejected by a mechanism in the socket.

Step 4: Grasp the memory module by the edges and carefully pull it out of the socket.

Step 5: To install a new SO-DIMM, align the SO-DIMM so the notch on the memory module lines up with the notch on the memory socket (**Figure 6-6**).

Step 6: Push the SO-DIMM into the socket at an angle (**Figure 6-6**).

Step 7: Gently push downwards and the arms clip into place (**Figure 6-6**).

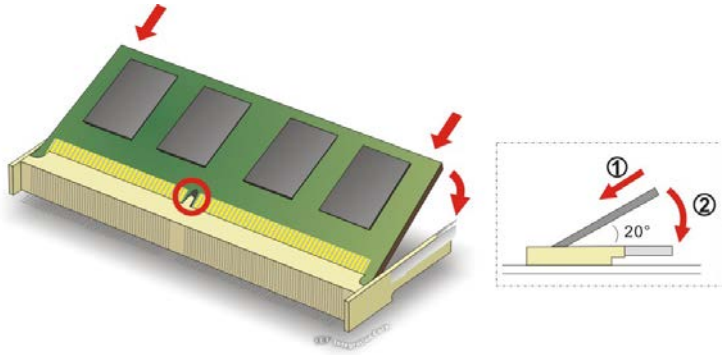


Figure 6-6: SO-DIMM Installation

6.6 PCIe Mini Card Installation

The BIS-W19C(F)-ULT4 equips with a full/half-size PCIe Mini card slot that supports mSATA. To install a PCIe Mini card into the BIS-W19C(F)-ULT4, please follow the steps below:

Step 1: Remove the covers. See **Section 6.4**.

Step 2: Locate the PCIe Mini card slot (**M_PCIE1**) on the motherboard. Remove the preinstalled retention screw on the screw pillar of the PCIe Mini slot (**Figure 6-7**).

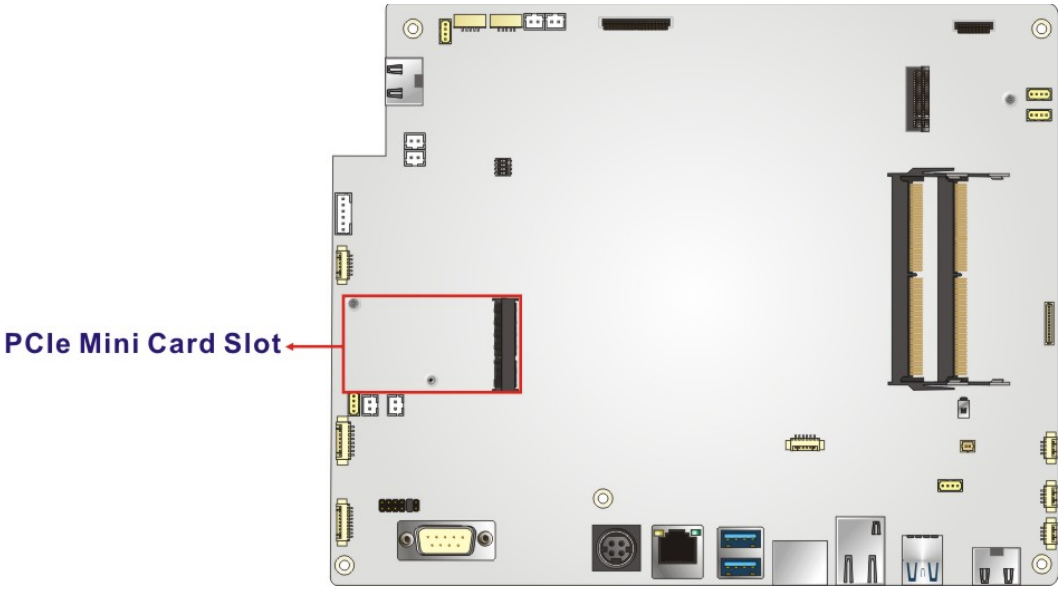


Figure 6-7: PCIe Mini Card Slot Location

Step 3: Line up the notch on the PCIe Mini card with the notch on the connector. Slide the PCIe Mini card into the socket at an angle of about 20º (Figure 6-8).

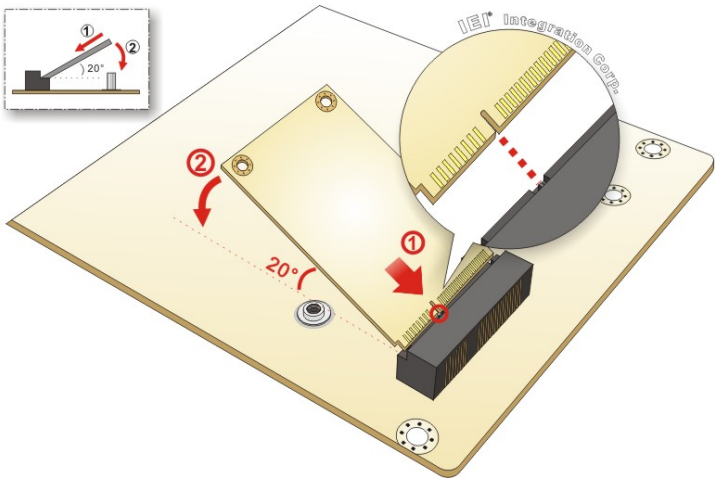


Figure 6-8: Inserting the Full-size PCIe Mini Card into the Slot

Step 4: Press the other end of the PCIe Mini card down and secure the card with the previously removed retention screw (**Figure 6-9**).

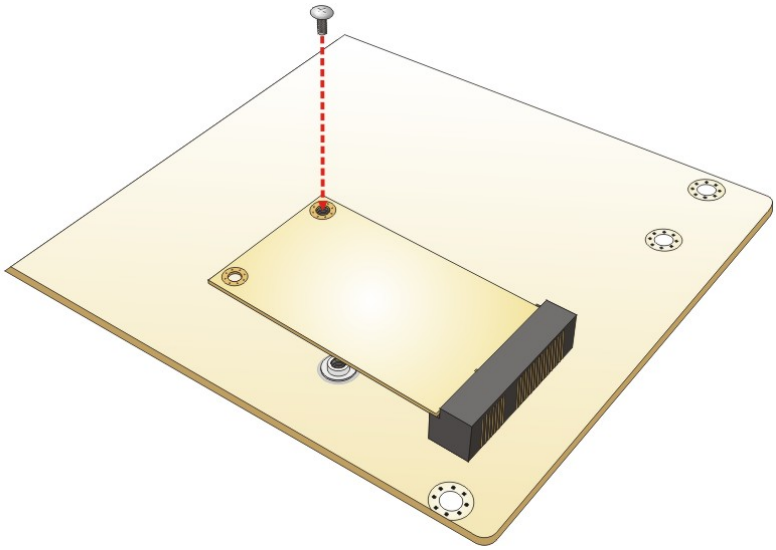


Figure 6-9: Securing the Full-size PCIe Mini Card

6.7 Reinstalling the Covers

WARNING:

Failing to reinstall the covers may result in permanent damage to the system. Please make sure all coverings are properly installed.

When maintenance procedures are complete, please make sure the internal aluminum cover, plastic rear cover and HDD cover are replaced.

Be sure to adjust the metal camera cover switch inside the system to make it align with the camera cover switch on the plastic cover when re-installing the plastic cover onto the system.

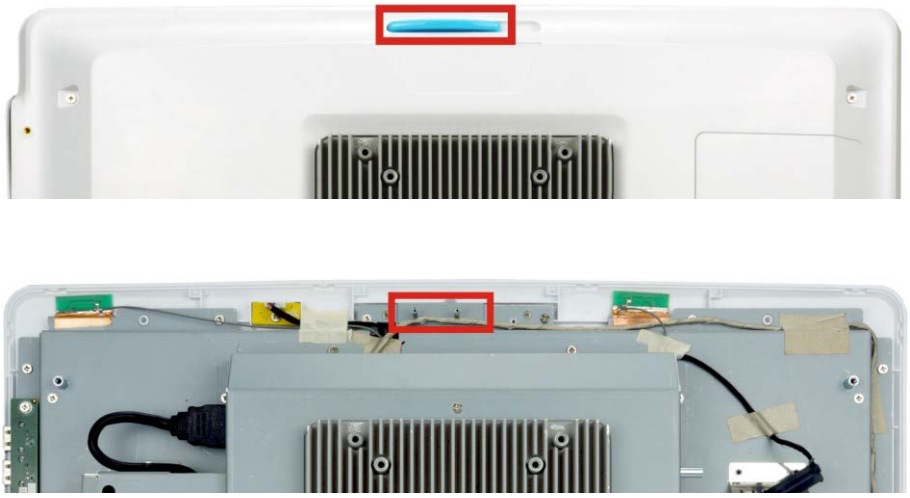


Figure 6-10: External and Internal Camera Cover Switch

6.8 Troubleshooting

If the following situations happen, contact your distributor, sales representatives or IEI customer service center for technical support.

- The HDD is installed correctly, but the BIS-W19C(F)-ULT4 is unable to boot with AC power input after pressing the power button.
- Unable to shut down the BIS-W19C(F)-ULT4 normally

Please have the following information prepared prior to reporting the abnormal situations:

- Product name and S/N
- OS, BIOS version and applications

A complete description of the abnormal situation (with photos or video if available)

Appendix

A

Regulatory Compliance

DECLARATION OF CONFORMITY

CE

This equipment is in conformity with the following EU directives:

- EMC Directive (2004/108/EC, 2014/30/EU)
- Low-Voltage Directive (2006/95/EC, 2014/35/EU)
- RoHS II Directive (2011/65/EU, 2015/863/EU)
- Medical Device Directive 93/42/EEC: EN 60601-1

If the user modifies and/or install other devices in the equipment, the CE conformity declaration may no longer apply.

If this equipment has telecommunications functionality, it also complies with the requirements of the Radio Equipment Directive 2014/53/EU.

English IEI Integration Corp declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.
Български [Bulgarian] IEI Integration Corp. декларира, че този оборудване е в съответствие със съществените изисквания и другите приложими правила на Директива 2014/53/EU.
Česky [Czech] IEI Integration Corp tímto prohlašuje, že tento zařízení je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 2014/53/EU.
Dansk [Danish] IEI Integration Corp erklærer herved, at følgende udstyr overholder de væsentlige krav c øvrige relevante krav i direktiv 2014/53/EU.
Deutsch [German] IEI Integration Corp, erklärt dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprechenden Vorgaben der Richtlinie 2014/53/EU.
Eesti [Estonian] IEI Integration Corp deklareerib seadme seadme vastavust direktiivi 2014/53/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.

Español [Spanish] IEI Integration Corp declara que el equipo cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 2014/53/EU.
Ελληνική [Greek] IEI Integration Corp ΔΗΛΩΝΕΙ ΟΤΙ ΕΞΟΠΛΙΣΜΟΣ ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 2014/53/EU.
Français [French] IEI Integration Corp déclare que l'appareil est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 2014/53/EU.
Italiano [Italian] IEI Integration Corp dichiara che questo apparecchio è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2014/53/EU.
Latviski [Latvian] IEI Integration Corp deklarē, ka iekārta atbilst būtiskajām prasībām un citiem ar to saistītajiem noteikumiem Direktīvas 2014/53/EU.
Lietuvių [Lithuanian] IEI Integration Corp deklaruoja, kad šis įranga atitinka esminius reikalavimus ir kitas 2014/53/EU Direktyvos nuostatas.
Nederlands [Dutch] IEI Integration Corp dat het toestel toestel in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2014/53/EU.
Malti [Maltese] IEI Integration Corp jiddikjara li dan prodott jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 2014/53/EU.
Magyar [Hungarian] IEI Integration Corp nyilatkozom, hogy a berendezés megfelel a vonatkozó alapvetõ követelményeknek és az 2014/53/EU irányelv egyéb elõírásainak.
Polski [Polish] IEI Integration Corp oświadcza, że wyrobu jest zgodny z zasadniczymi wymogami oraz pozostałymi st□sownymi postanowieniami D□rektywy 2014/53/EU.
Português [Portuguese] IEI Integration Corp declara que este equipamento está conforme com os requisitos □ssenciais e outras disposições da Directiva □014/53/□U.

Româna [Romanian] IEI Integration Corp declară că acest echipament este in conformitate cu cerinţele esenţiale şi cu celelalte prevederi relevante ale Directivei 2014/53/EU.
Slovensko [Slovenian] IEI Integration Corp izjavlja, da je ta opreme v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 2014/53/EU.
Slovensky [Slovak] IEI Integration Corp týmto vyhlasuje, že zariadenia spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 2014/53/EU.
Suomi [Finnish] IEI □ntegr□tion C□rp vakuuttaa□□äten että laitteet on direktiivin 2014/53/EU oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish] IEI Integration Corp förklarar □tt denna utrustningstyp står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 2014/53/EU.

FCC WARNING

This equipment complies with part 18 of the FCC Rules.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

UL CLASSIFIED

Medical general medical equipment as to electrical shock, fire and mechanical hazards only in accordance with ANSI/AAMI ES60601-1 (2005) + AMD (20112), CAN/CSA-C22.2 NO. 60601-1:14.

ROHS STATEMENT

The label on the product indicates this product conforms to European (EU) Restriction of Hazardous Substances (RoHS) that set maximum concentration limits on hazardous materials used in electrical and electronic equipment.

CHINA ROHS

The label on the product indicates the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Appendix

B

Safety Precautions

WARNING:

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the BIS-W19C(F)-ULT4.

B.1 Safety Precautions

Please follow the safety precautions outlined in the sections that follow:

B.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- ***To prevent the risk of electric shock, make sure power cord is unplugged from wall socket.*** To fully disengage the power to the unit, please disconnect the power cord from the ac outlet. Refer servicing to qualified service personnel. The AC outlet shall be readily available and accessible.
- ***Users must not allow SIP/SOPs and the patient to come into contact at the same time.***
- ***Grounding reliability*** can only be achieved when the equipment is connected to an equivalent receptacle marked “Hospital Only” or “Hospital Grade”.
- ***Follow the electrostatic precautions*** outlined below whenever the BIS-W19C(F)-ULT4 is opened.
- ***Make sure the power is turned off and the power cord is disconnected*** whenever the BIS-W19C(F)-ULT4 is being installed, moved or modified.
- ***Do not apply voltage levels that exceed the specified voltage range***. Doing so may cause fire and/or an electrical shock. Use a power cord that matches the voltage of the power outlet, which has been approved and complies with the safety standard of your particular country.

- ***Electric shocks can occur*** if the BIS-W19C(F)-ULT4 chassis is opened when the BIS-W19C(F)-ULT4 is running. To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth.
- ***Do not drop or insert any objects*** into the ventilation openings of the BIS-W19C(F)-ULT4.
- ***If considerable amounts of dust, water, or fluids enter the BIS-W19C(F)-ULT4***, turn off the power supply immediately, unplug the power cord, and contact the BIS-W19C(F)-ULT4 vendor.
- **DO NOT**:
  - Drop the BIS-W19C(F)-ULT4 against a hard surface.
  - Strike or exert excessive force onto the LCD panel.
  - Touch any of the LCD panels with a sharp object
  - In a site where the ambient temperature exceeds the rated temperature

B.1.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the BIS-W19C(F)-ULT4 may result in permanent damage to the BIS-W19C(F)-ULT4 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the BIS-W19C(F)-ULT4. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the BIS-W19C(F)-ULT4 is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- ***Self-grounding***: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.

- ***Use an anti-static pad***: When configuring or working with an electrical component, place it on an anti-static pad. This reduces the possibility of ESD damage.
- ***Only handle the edges of the electrical component***: When handling the electrical component, hold the electrical component by its edges.

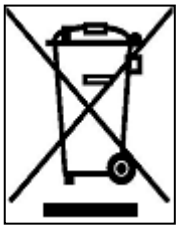
B.1.3 Product Disposal

CAUTION:

Risk of explosion if battery is replaced by an incorrect type. Only certified engineers should replace the on-board battery.

Dispose of used batteries according to instructions and local regulations.

- Outside the European Union - If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union – The device that produces less waste and is easier to recycle is classified as electronic device in terms of the European Directive 2012/19/EU (WEEE), and must not be disposed of as domestic garbage.



EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

Please follow the national guidelines for electrical and electronic product disposal.

B.1.4 Classification

- Power by Class I power supply (IEI, BIS-W19C(F)-ULT4 with FSP FSP150M-ABA / DARFON H1120-B0 power adapter)
- No Applied Part.
- No protection against the ingress of water: IPX0
- Mode of operation: Continuous Operation

The equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide: Not AP or APG Category.

B.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the BIS-W19C(F)-ULT4, please follow the guidelines below.

WARNING:

If you dropped any material or liquid such as water onto the panel PC when cleaning, unplug the power cable immediately and contact your dealer or the nearest service center. Always make sure your hands are dry when unplugging the power cable.

CAUTION:

- For safety reasons, turn-off the power switch and unplug the panel PC before cleaning.
- Do not scratch or rub the screen with a hard object.
- Never use any of the following solvents on the medical panel PC. Harsh chemicals may cause damage to the cabinet and the touch sensor.

  Thinner Spray-type cleaner, Benzene, Wax, Abrasive cleaner, Acid or Alkaline solvent.

B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the BIS-W19C(F)-ULT4, please read the details below.

- To clean the BIS-W19C(F)-ULT4,
  - remove dirt with a lightly moistened cloth. Then wipe the external chassis with a soft dry cloth.
  - use 75% ethanol alcohol to clean the external chassis.
- Cleaning frequency: follow the cleaning method guidelines of the hospital.
- Except for the LCD panel, never spray or squirt liquids directly onto any other components.
- The interior of the BIS-W19C(F)-ULT4 does not require cleaning. Keep fluids away from the BIS-W19C(F)-ULT4 interior.
- Never drop any objects or liquids through the openings of the BIS-W19C(F)-ULT4.

B.2.2 Cleaning Tools

Some components in the BIS-W19C(F)-ULT4 may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the BIS-W19C(F)-ULT4.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the BIS-W19C(F)-ULT4.
- ***Water/Ethanol alcohol*** – A cloth moistened with water or 75% ethanol alcohol can be used to clean the BIS-W19C(F)-ULT4.
- ***Using solvents*** – The use of solvents is not recommended when cleaning the BIS-W19C(F)-ULT4 as they may damage the plastic parts.
- ***Cotton swabs*** - Cotton swaps moistened with water are excellent tools for wiping hard to reach areas.
- ***Foam swabs*** - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

C

EMC Test Summary

Guidance and manufacturer's declaration – electromagnetic emissions		
The model BIS-W19C(F)-ULT4 is intended for use in the electromagnetic environment specified below. The customer or the user of the model BIS-W19C(F)-ULT4 should assure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment – guidance**
RF emissions CISPR 11		The model BIS-W19C(F)-ULT4 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11		The model BIS-W19C(F)-ULT4 is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2		
Voltage fluctuations/ flicker emissions IEC 61000-3-3		

Recommended separation distances between portable and mobile RF communications equipment and the model BIS-W19C(F)-ULT4

The model BIS-W19C(F)-ULT4 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the model BIS-W19C(F)-ULT4 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the model BIS-W19C(F)-ULT4 as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	**Separation distance according to frequency of transmitter** m		
	150 kHz to 80 MHz $d = 1,2\sqrt{P}$	**80 MHz to 800 MHz** $d = 1,2\sqrt{P}$	**800 MHz to 2,5 GHz** $d = 2,3\sqrt{P}$
0,01	0,12	0,12	0,23
0,1	0,38	0,38	0,73
1	1,2	1,2	2,3
10	3,8	3,8	7,3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Guidance and manufacturer's declaration – electromagnetic immunity			
The model BIS-W19C(F)-ULT4 is intended for use in the electromagnetic environment specified below. The customer or the user of the model BIS-W19C(F)-ULT4 should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment – guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to earth	±1 kV line(s) to line(s) ±2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5 % *U*T (>95 % dip in *U*T) for 0,5 cycle 40 % *U*T (60 % dip in *U*T) for 5 cycles 70 % *U*T (30 % dip in *U*T) for 25 cycles <5 % *U*T (>95 % dip in *U*T) for 5 sec	<5 % *U*T (>95 % dip in *U*T) for 0,5 cycle 40 % *U*T (60 % dip in *U*T) for 5 cycles 70 % *U*T (30 % dip in *U*T) for 25 cycles <5 % *U*T (>95 % dip in *U*T) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the model BIS-W19C(F)-ULT4 requires continued operation during power mains interruptions, it is recommended that the model BIS-W19C(F)-ULT4 be powered from an uninterruptible power supply or a battery.

Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE: *U*T is the a.c. mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration – electromagnetic immunity			
The model BIS-W19C(F)-ULT4 is intended for use in the electromagnetic environment specified below. The customer or the user of the model BIS-W19C(F)-ULT4 should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment – guidance**
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2,5 GHz	Vrms V/m	Portable and mobile RF communications equipment should be used no closer to any part of the model BIS-W19C(F)-ULT4, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** $d = 1,2\sqrt{P}$ $d = 1,2\sqrt{P}$ 80 MHz to 800 MHz $d = 2,3\sqrt{P}$ 800 MHz to 2,5 GHz where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m).

			Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, [a] should be less than the compliance level in each frequency range. [b] Interference may occur in the vicinity of equipment marked with the following symbol: 

NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

[a] Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the model BIS-W19C(F)-ULT4 is used exceeds the applicable RF compliance level above, the model BIS-W19C(F)-ULT4 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the model BIS-W19C(F)-ULT4.

[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than V/m.

Appendix

D

BIOS Menu Options

Appendix

E

Watchdog Timer

NOTE:

The following discussion applies to DOS. Contact IEI support or visit the IEI website for drivers for other operating systems.

The Watchdog Timer is a hardware-based timer that attempts to restart the system when it stops working. The system may stop working because of external EMI or software bugs. The Watchdog Timer ensures that standalone systems like ATMs will automatically attempt to restart in the case of system problems.

A BIOS function call (INT 15H) is used to control the Watchdog Timer.

INT 15H:

AH – 6FH Sub-function:	
AL – 2:	Sets the Watchdog Timer's period.
BL:	Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup).

Table E-1: AH-6FH Sub-function

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. When the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

NOTE:

The Watchdog Timer is activated through software. The software application that activates the Watchdog Timer must also deactivate it when closed. If the Watchdog Timer is not deactivated, the system will automatically restart after the Timer has finished its countdown.

EXAMPLE PROGRAM:

```
; INITIAL TIMER PERIOD COUNTER

;
W_LOOP:
;

        MOV     AX, 6F02H       ;setting the time-out value
        MOV     BL, 30          ;time-out value is 48 seconds
        INT     15H

;
; ADD THE APPLICATION PROGRAM HERE
;

        CMP     EXIT_AP, 1      ;is the application over?
        JNE     W_LOOP          ;No, restart the application

        MOV     AX, 6F02H       ;disable Watchdog Timer
        MOV     BL, 0           ;
        INT     15H

;
; EXIT ;
```

Appendix

F

Hazardous Materials Disclosure

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated "Environmentally Friendly Use Period" (EFUP). This is an estimate of the number of years that these substances would "not leak out or undergo abrupt change." This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the following table.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	O	O	O	O	O	O
Display	O	O	O	O	O	O
Printed Circuit Board	O	O	O	O	O	O
Metal Fasteners	O	O	O	O	O	O
Cable Assembly	O	O	O	O	O	O
Fan Assembly	O	O	O	O	O	O
Power Supply Assemblies	O	O	O	O	O	O
Battery	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006 (now replaced by GB/T 26572-2011).

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006 (now replaced by GB/T 26572-2011).

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签，此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	O	O	O	O	O	O
显示	O	O	O	O	O	O
印刷电路板	O	O	O	O	O	O
金属螺帽	O	O	O	O	O	O
电缆组装	O	O	O	O	O	O
风扇组装	O	O	O	O	O	O
电力供应组装	O	O	O	O	O	O
电池	O	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T 11363-2006 (现由 GB/T 26572-2011 取代) 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 (现由 GB/T 26572-2011 取代) 标准规定的限量要求。