

# **EPC-BTCR /**

# **EPC-BTCRP Series**

**Ultra-Compact Fanless Embedded PC**

# **USER Manual**

**3<sup>rd</sup> Ed –02 March 2023**

## **Copyright Notice**

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# Declaration of Conformity

## CE Conformity Statement

Radio products with the CE alert marking comply with the R&TTE Directive (1999/5/EC) issued by the Commission of the European Community. Compliance with this directive implies conformity to the following European Norms (in brackets are the equivalent international standards)

- EN 60950-1 (IEC60950-1) - Product Safety

Products that contain the radio transmitter are labeled with CE alert marking and may also carry the CE logo.

## FCC Compliance Statement

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

1. The device may not cause harmful interference;
2. The device must accept any interference received, including interference that may cause undesired operation.



### **CAUTION!**

The radiated output of this device is far below the FCC radio frequency exposure limits. Nevertheless, the device shall be used in such a manner that the potential for human contact during normal operation is minimized. When connecting an external antenna to the device, the antenna shall be placed in such a manner to minimize the potential for human contact during normal operation. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation.

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This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy. 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 and correct the interference by one or more of the following measures.

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
- Consult the dealer or an experienced computer technician for help

## Technical Support and Assistance

1. Visit the Avalue website where you can find the latest information about the product.  
<http://www.avalue.com.tw>
2. Contact your distributor or sales representative for technical support if you need additional assistance. Please have the following information ready before you call:
  - Product name and serial number
  - Description of your peripherals attachments
  - Description of your software (OS, version, application software, etc.)
  - A complete description of your problems
  - The exact wording or any error messages

## Safety Instruction

Use the following safety guideline to help protect yourself and EPC.

- Do not attempt to service the EPC yourself. Always follow installation instructions closely.
- Be sure that nothing rests on the AC adaptor's power cable and that the cable is not located where it can be tripped over or stepped on.
- Do not cover the AC adaptor with papers or other items that will reduce cooling; also, do not use the AC adaptor while it is inside a carrying case. Use only the AC adaptor, power cord, and batteries that are approved for use with this EPC. Use of another type of battery or AC adaptor may cause risk of fire or explosion.
- If you use an extension cable with the AC adaptor, ensure that the total ampere rating of the products plugged in to the extension cable does not exceed the ampere rating of the extension cable.
- When you move the EPC between environments with very different temperature and/or humidity ranges, condensation may form on or within the EPC. To avoid damaging the EPC, allow sufficient time for the moisture to evaporate before using the EPC.
- When you disconnect a cable, pull on its connector or on its strain relief loop, not on the cable itself. As you pull out the connector, keep it evenly aligned to avoid bending any connector pins. Also, before you connect a cable make sure both connectors are correctly oriented and aligned.



## **Battery Safety**

### **RTC Battery Caution**

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

- Do not place the battery incorrectly as this may cause danger of explosion.
- Dispose of used batteries according to the manufacturer's instructions.
- Do not dispose of batteries in a fire. They may explode. Check with local authorities for disposal instructions.

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# CHAPTER 1

## Understanding Your EPC



Thank you for choosing Avalue EPC series product. We will start here to introduce the basics of EPC. Information described in this chapter includes: features, specification, packing list, I/O ports and appearance giving you an overall picture about your EPC fanless embedded PC.

## 1.1 Product Features

- Low Profile, Ultra Slim and Palm-Size with Stylish Construction
- Intel® Atom™ Z3735F 1.33GHz SoC with 2GB RAM, 32GB eMMC
- Onboard Wireless Technology, Getting Rid of Annoying Poor Contact & Module Card Release
- No Venting Hole, Better Dust and Pollution Particle Resistance
- Flexibility and Expandability with Rich I/O Modular Design
- Space-Saving, Easy Integration with Multiple Mounting Kits

## 1.2 Technical Specification

Specification	EPC-BTCR	EPC-BTCRP
<b>System</b>	CPU & Chipset	Intel® Atom™ Z3735F QC 1.33GHz Processor with Turbo Boost to 1.83GHz
	Memory	Onboard 2GB DDR3L 1600 MT/s
	Storage	eMMC 32GB
<b>Power</b>	Input Voltage	12 – 24 VDC
	Type	AT mode
	Battery	1 x RTC battery
<b>I/O</b>	Power	1 x DC-in Jack
	HDMI	1 x Standard HDMI 1.4b
	USB	2 x USB 2.0 1 x Micro USB 2.0
	COM	Not supported 1 x RS-232 (RJ-45) 2 x RS-485 (RJ-45) 1 x RS-422 (RJ-45)
	LAN	1 x RJ-45 2 x RJ-45
	Audio	1 x 3-pole 3.5mm Audio Jack
	DI/O	Not supported 8-bit DI, 8-bit DO (phoenix connector)
<b>Graphics</b>	Chipset	Intel HD Graphics
	Engine	Encode: up to 1080p@60FPS (H.264/JPEG/MJPEG/MVC/MPEG-2/WMV9/VC1) Decode: up to 1080p@60FPS (H.264)
<b>Audio</b>	Interface	Line-out
<b>Ethernet</b>	Speed	10/100
<b>Communication</b>	Wi-Fi	802.11 b/g/n (SIP)
	Bluetooth	Bluetooth 4.0 (SIP)
<b>Expansion</b>	SD Card	1 x Micro SD Card Slot
<b>Button</b>		1 x Power Switch (default: on)
<b>Indicator</b>		1 x LED (power)

<b>Antenna</b>		1 x Antenna Opening (SMA type)
<b>OS Support</b>	Windows	Windows 8.1, Windows 10 IoT
	Android	Android 5.1
	Linux	Ubuntu 15.10 (kernel: v3.16.7)
<b>Mechanical</b>	Construction	Aluminum Chassis
	Dimension	168.5 x 105.2 x 17.5 mm      168.5 x 105.2 x 35 mm
	Weight	535 g      765 g
	Mounting	VESA/DIN-rail/Wall Mounting Kits (optional)
<b>Environmental</b>	Temperature	Operating Temperature: 0°C ~ +55 °C (without adaptor) Operating Temperature: 0°C ~ +40 °C (with adaptor) Storage Temperature: -20°C ~ 80°C (without adaptor) Storage Temperature: -20°C ~ 50°C (with adaptor)
	Relative Humidity	10 ~ 95%@40°C (non-condensing)
	Vibration	Random, 5Grms 5-500Hz, 1Oct./min, 1hr/axis (IEC 60068-2-64 compliance)
	Shock	Half sine, 50G, 11ms (IEC 60068-2-27 compliance)
	EMC	CE/FCC Class B/VCCI
	Safety	CB

## 1.3 Checking the Delivery Package

### 1.3.1 Procedure

1. When accepting a delivery, please check the packaging for visible transport damage.
2. If any transport damage is present at the time of delivery, lodge a complaint at the shipping company in charge. Have the shipper confirm the transport damage.
3. Unpack the device at its installation location.
4. Keep the original packaging in case you have to transport the unit again.



#### **NOTICE!**

##### **Damage to the device during transport and storage!**

If a device is transported or stored without packaging, shocks, vibrations, pressure and moisture may impact the unprotected unit. A damaged packaging indicates that ambient conditions have already had a massive impact on the device. The device may be damaged. Do not dispose of the original packaging. Pack the device during transportation and storage.

### 1.3.2 Packing Contents

Before setting up the system, please check the contents of the packaging and any accessories you may have ordered for completeness and damage. If the contents of the packaging are incomplete, damaged or do not match your order, inform the responsible delivery service or contact your dealer immediately.

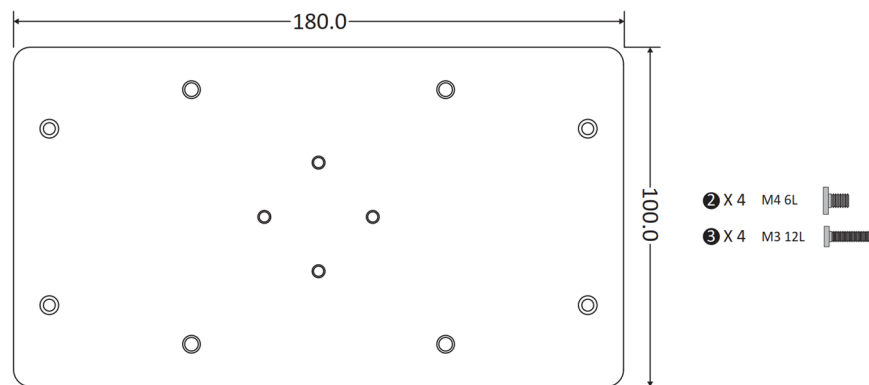
- EPC-BTCRx device
- 108 mm dipole antenna
- 40W/19V adaptor
- 0.9M US power cord
- Wall-mount brackets

### 1.4 Optional Accessories

This chapter contains the scope of accessories valid at the time these operating instructions were written.

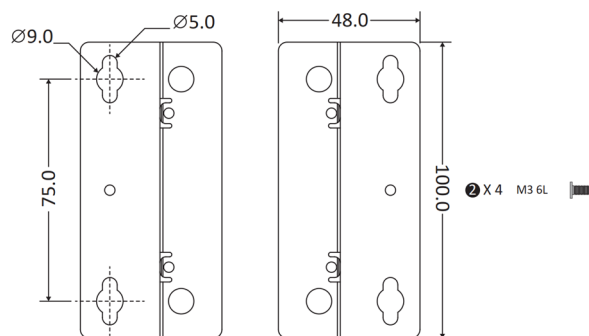
- 60W/12V adaptor with power cord
- 65W/19V adaptor with power cord
- VESA/DIN-rail mounting kits

### 1.5 Optional Mounting Kits

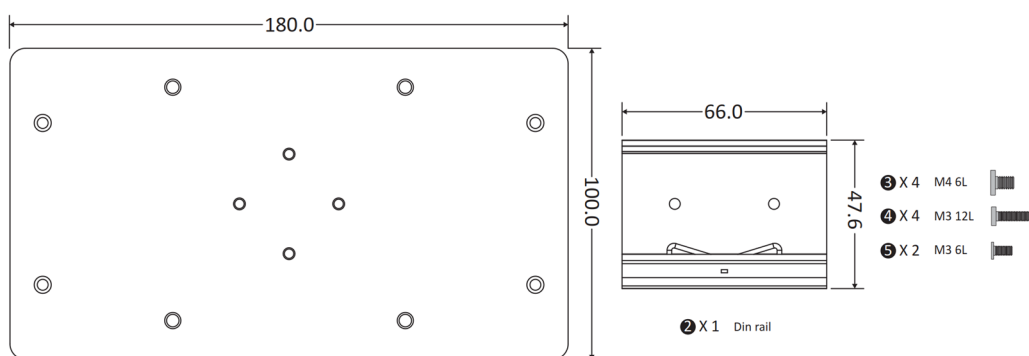


▲ Figure: VESA mount





▲ Figure: Wall mount



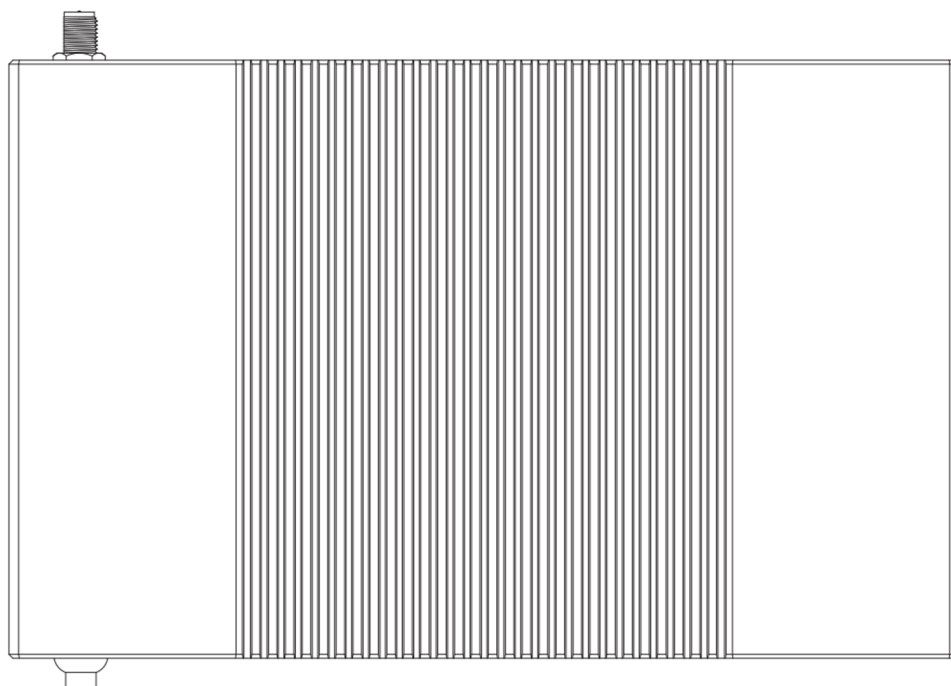
▲ Figure: DIN-rail mount

## 1.6 Permitted Mounting Positions

The following mounting position is permitted:

- Horizontal mounting position

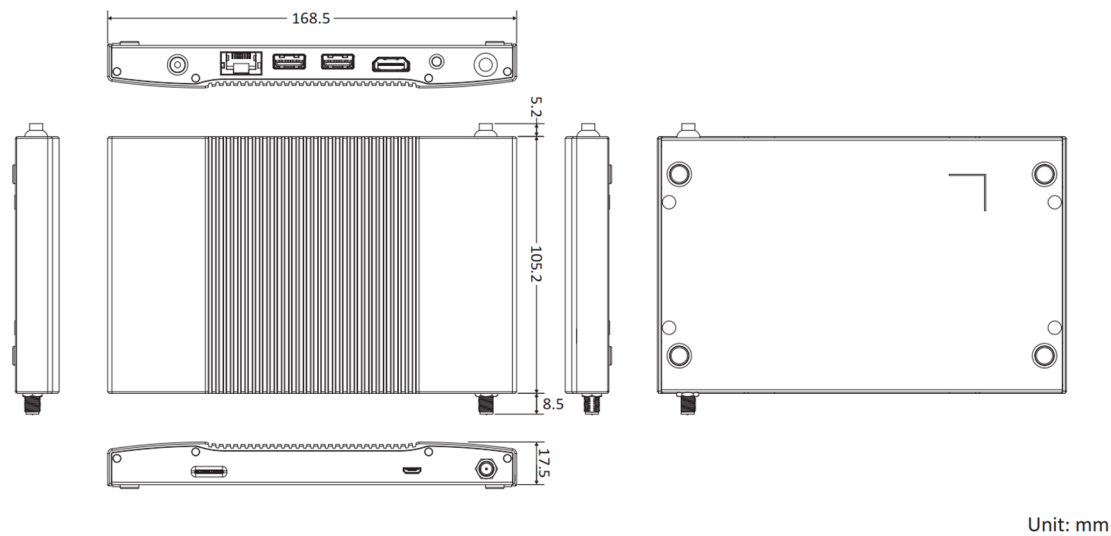
The horizontal mounting position is the preferred position.



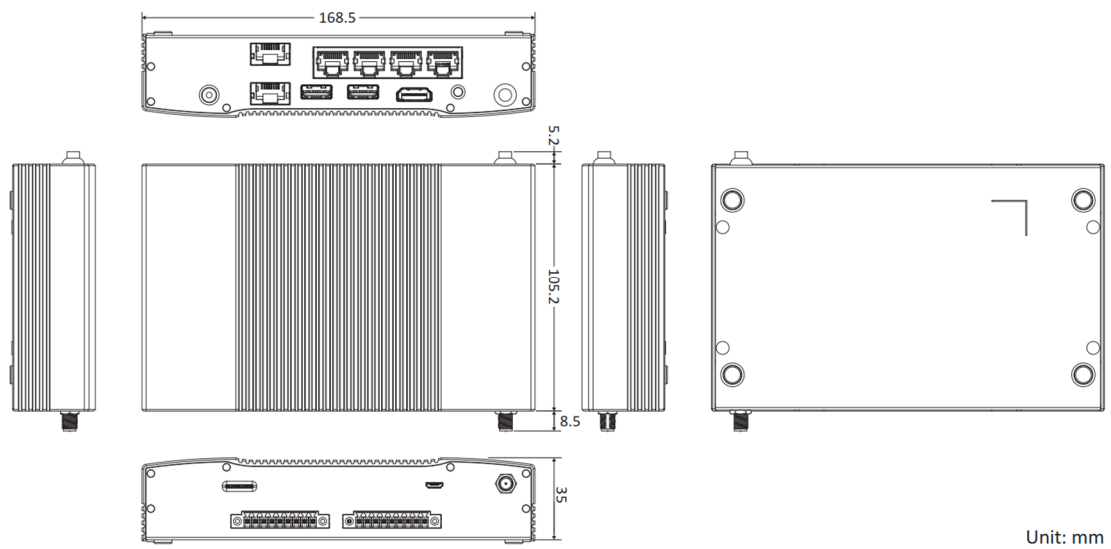
Take into consideration the permitted temperature range for operation that depends on the mounting position in accordance with the "Technical specification (Page 4)" section.

## 1.7 Exploring EPC

### 1.7.1 Chassis Dimension

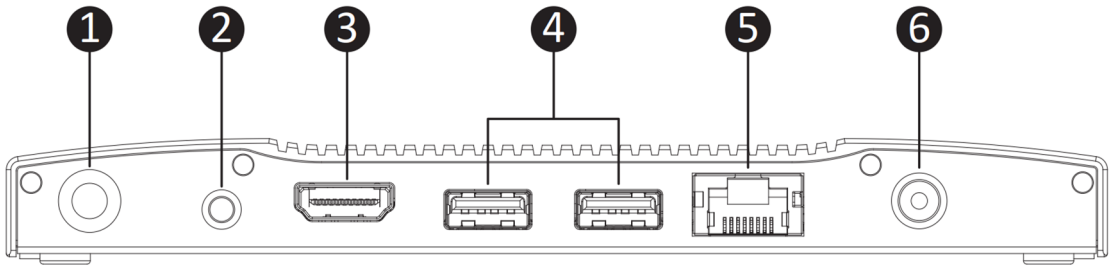


▲ Figure: EPC-BTCR Chassis Dimension



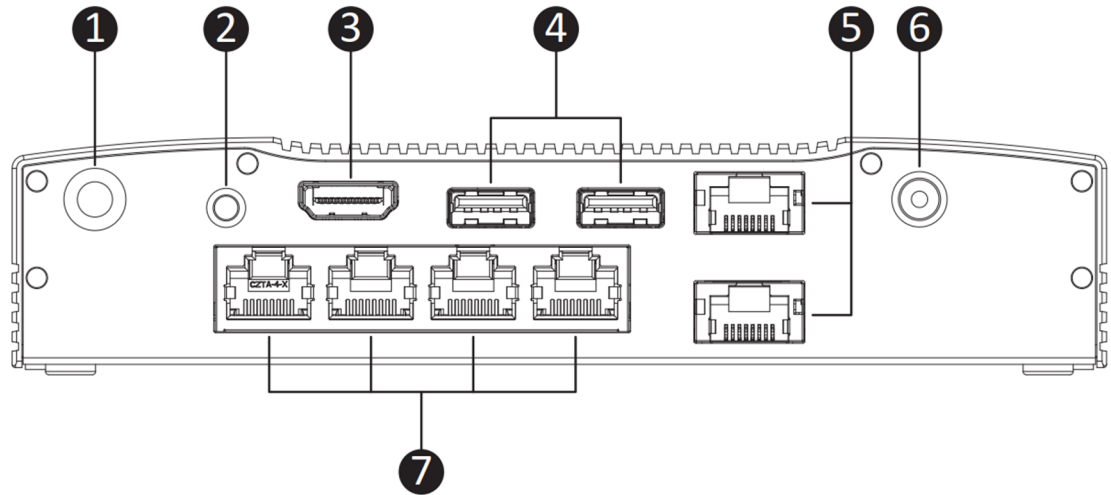
▲ Figure: EPC-BTCRP Chassis Dimension

1.7.2 Front View



▲ Figure: EPC-BTCR Front View

No.	Description
1	Power button
2	Line-out
3	HDMI1.4b
4	USB 2.0
5	LAN
6	DC-in jack



▲ Figure: EPC-BTCRP Front View

No.	Description
1	Power button
2	Line-out
3	HDMI1.4b
4	USB 2.0

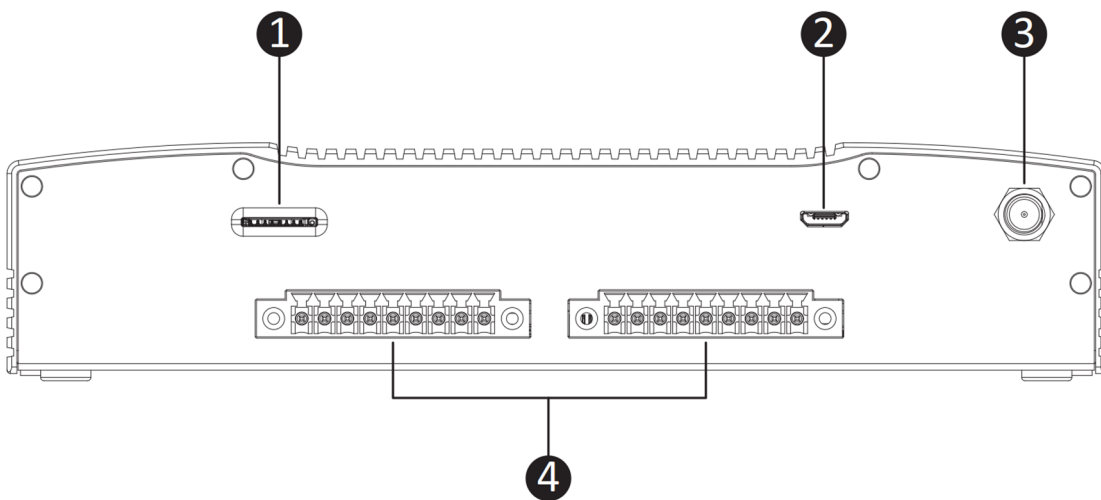
5	LAN
6	DC-in jack
7	COM port (from right to left): COM0: RS-232 COM1: RS-485 COM2: RS-485 COM3: RS-422 or 485 (default RS-485; please refer to session 2.4.2 jumper selection for RS-422 setting)

### 1.7.3 Rear View



▲ Figure: EPC-BTCR Rear View

No.	Description
1	Micro SD card slot
2	Micro USB 2.0
3	Antenna connector (SMA type)



▲ Figure: EPC-BTCRP Rear View

No.	Description
1	Micro SD card slot
2	Micro USB 2.0
3	Antenna connector (SMA type)
4	Digital Input/Output: Left phoenix connector: DI1 ~ 8 (also refer to B.6 for details) Right phoenix connector: DO1 ~ 8 (also refer to B.6 for details)

## 1.8 Ordering Information

Model	P/N	Description
<b>EPC-BTCR</b>	EPC-BTCR-W10-B1R	Ultra-Slim Fanless PC with Intel® Atom™ Win10 IoT
	EPC-BTCR-LIN-B1R	Ultra-Slim Fanless PC with Intel® Atom™ Linux Ubuntu 4.4
	EPC-BTCR-A51-B1R	Ultra-Slim Fanless PC with Intel® Atom™ Android 5.1
<b>EPC-BTCRP</b>	EPC-BTCRP-W10-B1R	Slim Fanless PC with Intel® Atom™ Win10 IoT
	EPC-BTCRP-LIN-B1R	Slim Fanless PC with Intel® Atom™ Linux Ubuntu 4.4
	EPC-BTCRP-A51-B1R	Slim Fanless PC with Intel® Atom™ Android 5.1

# **CHAPTER 2**

## **Hardware Functionality**

## 2.1 Power Connector

EPC comes with a round-headed DC-in jack that carries 12 – 24 V<sub>DC</sub> external power supply. To prevent damage to the EPC, always use the verified power adaptor provided by UniCcom.



▲ Figure: DC-in Jack

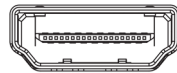


### **CAUTION!**

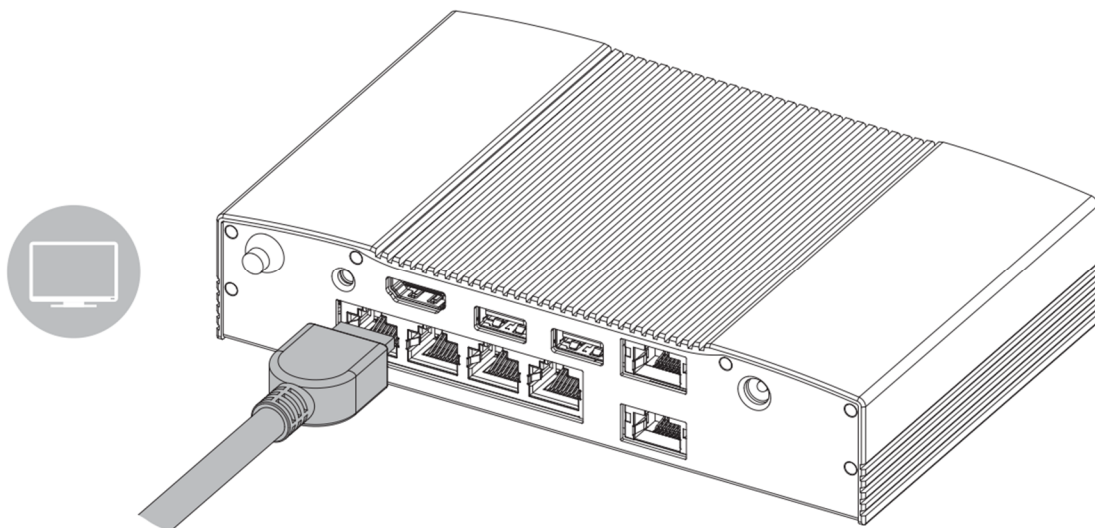
The power adaptor may become warm to hot when in use. Do not cover the adaptor and keep it away from your body.

## 2.2 HDMI 1.4b Display Port

The HDMI (High Definition Multimedia Interface) port supports a Full-HD device such as a LCD TV or a monitor to allow viewing on a larger external display. You could refer to Appendix B.3 for pin assignments.



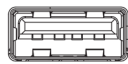
▲ Figure: HDMI Connector



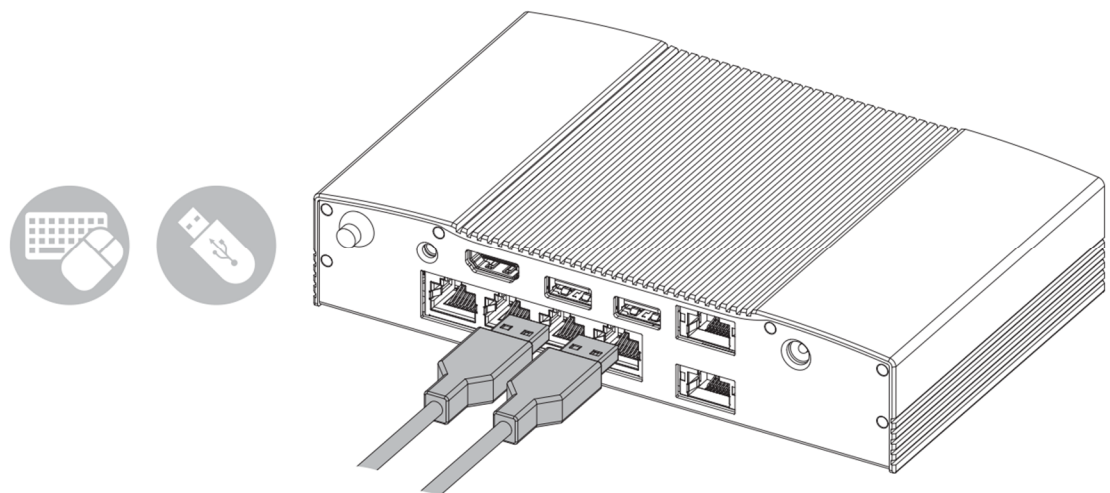
▲ Figure: Connecting display via HDMI

## 2.3 USB 2.0 Port

The USB (Universal Serial Bus) 2.0 ports are compatible with USB 1.1 devices such as keyboards, mouse, cameras, and hard disk drives. USB allows many devices to run simultaneously on a single computer with some peripherals acting as additional plug-in hubs.



▲ Figure: USB 2.0 Connector

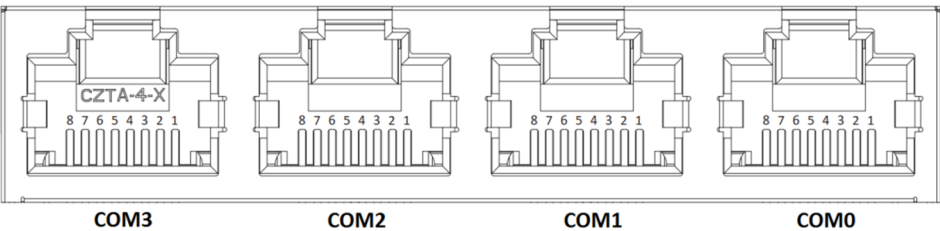


▲ Figure: Connecting USB Device via USB 2.0 Port

## 2.4 Serial COM Port

### 2.4.1 COM Port Configuration

EPC offers an 8-pin RJ-45 quad connector for serial commutation interface. Below table lists the default setting of each port:



▲ Figure: Serial COM Port

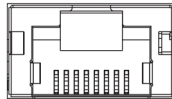
COM	Default Setting
COM0	RS-232



<b>COM1</b>	RS-485
<b>COM2</b>	RS-485
<b>COM3</b>	RS-422

## 2.5 Ethernet: LAN Port

The 8-pin RJ-45 LAN port equipped 10/100 controller which is fully IEEE 802.3 10BASE-T and 802.3u 100BASE-T compliant supports a standard Ethernet cable for connecting to a local network.



▲ Figure: 10/100 LAN Port

## 2.6 Audio Port

The supported interface with 3.5 mm audio jack in EPC is:

- Line-out



▲ Figure: Audio Jack

## 2.7 Power Button

EPC comes with a power button (default: On) with a LED on the front side to indicate On/Off status (green/light off).



▲ Figure: Power Button

## Switching on the Device

If your order is not included a preinstalled operation system (herein referred to OS), please follow your preferred OS installation guideline to install it.

Following the initial startup, the OS preinstalled on the drive is automatically configured on the device.



### **NOTICE!**

#### **Faulty installation**

If you change the default values in the BIOS Setup or if you turn off the device during installation, you disrupt the installation and the OS is not installed correctly. The operating safety of the device and the field site is at risk.

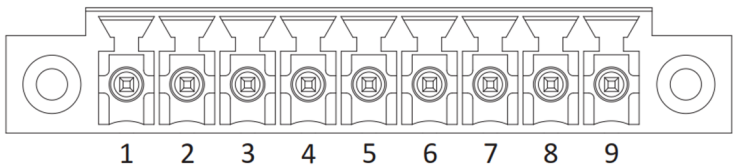
Do not switch off the device during the entire installation process. Do not change the default values in the BIOS Setup.

1. The power button default setting is “On” which means the system will automatically power on when connecting to a proper voltage input. If the device has been turned off, press the power button. The LED lights up. The device carries out a self-test. During the self-test, the following message appears:  
*Press Esc for Boot Options*
2. Wait for the message to disappear.
3. Follow the instructions on the screen.  
(The following steps are required only when switching on the device for the first time after Delivery.)
4. Make the region and language settings.
5. Type in the product key as required.
6. The installation of the operating system is complete.

## 2.8 Digital Input & Output (EPC-BTCRP only)

Only EPC Slim version supports DI/O channels designated DI0~DI8 & DO0 ~ DO8. The connector type is a plug-in screw terminal block that enables you to connect to field I/O devices directly without additional accessories. Whether the high voltage range is the triggering mode or normal mode depends on the design of the device. Quite often the logic level 1 (high voltage) is used to indicate the triggered event, but not always. The following sections describe the technical data of DI/O. Before starting using DI/O, ensure to check the connection type of your DI/O devices to connect.

### 2.8.1 Digital Input

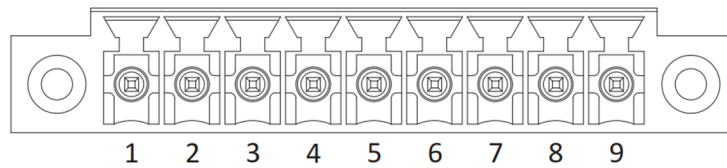


▲ Figure: Digital Input Terminal Block

Connection		
DI	Connection Design	TTL (Transistor-to-Transistor Logic) compatible logic levels Or Transistor (open collector)

			Or relay
	Voltage	Rigger (low)	Logic level 0: $< 1.5 V_{DC}$
		Normal (high)	Logic level 1: $> 3.5 V_{DC}$
	Current		--

## 2.8.2 Digital Output



▲ Figure: Digital Output Terminal Block

Connection			
DO	Connection Design		TTL (Transistor-to-Transistor Logic) compatible logic levels Or Transistor (open collector) Or relay
	Voltage	Rigger (high)	Logic level 1: $4 V_{DC}$
		Normal (low)	Logic level 0: $0.7 V_{DC}$
	Current		10 mA (max.)

## 2.9 Micro SD Card Reader

The built-in memory card reader enables your EPC to read/write data to and from a micro SD card. You could store important field site or control data in it.

### Inserting a Micro SD Card

1. Insert the micro SD card into the card slot in the rear side of your EPC.
2. Push it all the way until you heard a click, make sure it fits completely.

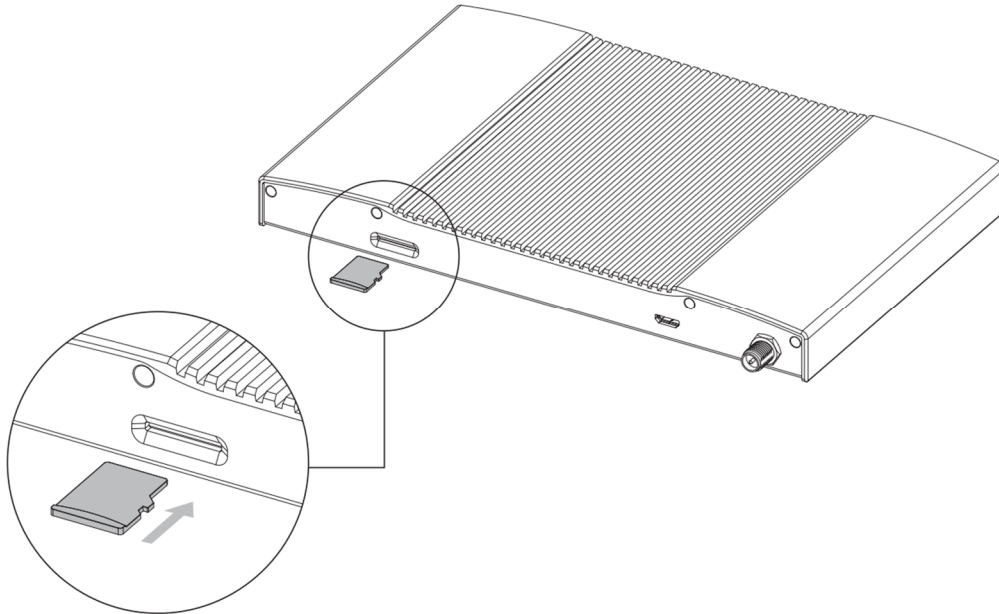
### Removing a Micro SD Card

1. To prevent data form loss, make sure there's no data writing into the micro SD card before you eject it.
2. Push the micro SD card inward a little until you hear a click, and then release it.
3. The micro SD card pops out; gently slide the card out of the card reader.

**NOTICE!**

A micro SD card fits only in a direction, and slides smoothly into the slot if inserted correctly. Do not force the card into the slot.

---



▲ Figure: Micro SD Card Insertion

# **CHAPTER 3**

## **Wireless Connections**

### 3.1 Wi-Fi Connection

Connecting to a new Wi-fi network with Windows 10 is very easy. This may be helpful when setting up a new device or if you're bringing your device to a new place. Follow these steps:

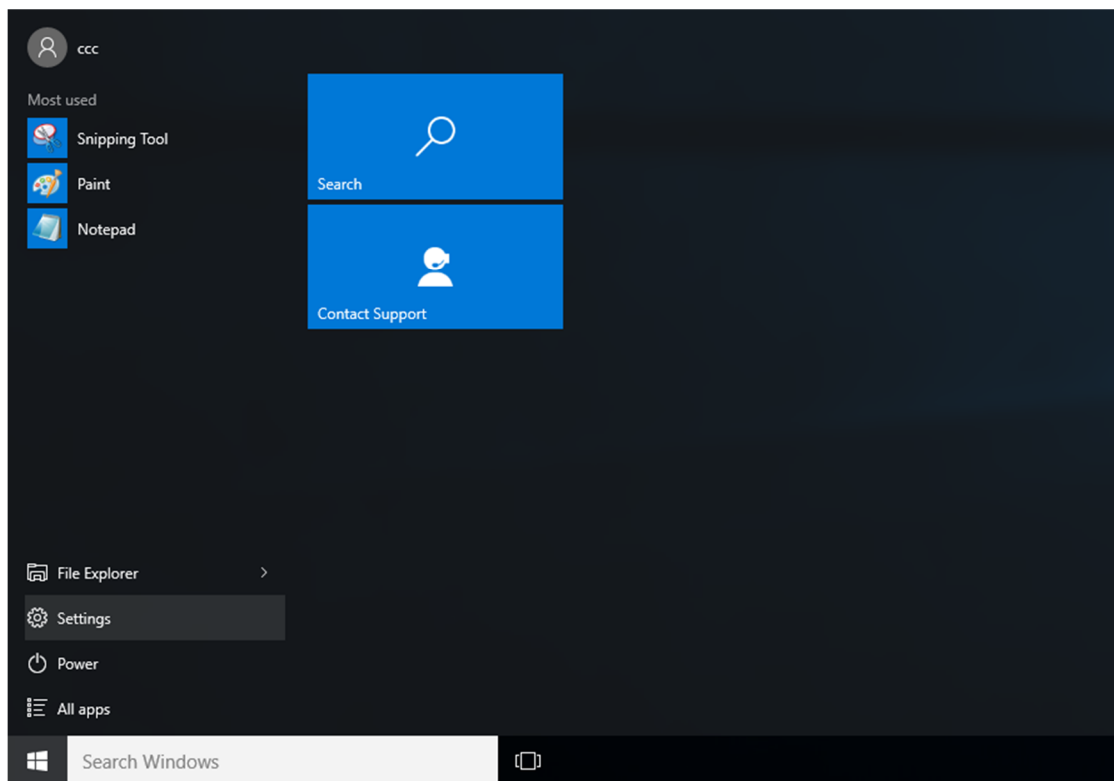


#### ***NOTICE!***

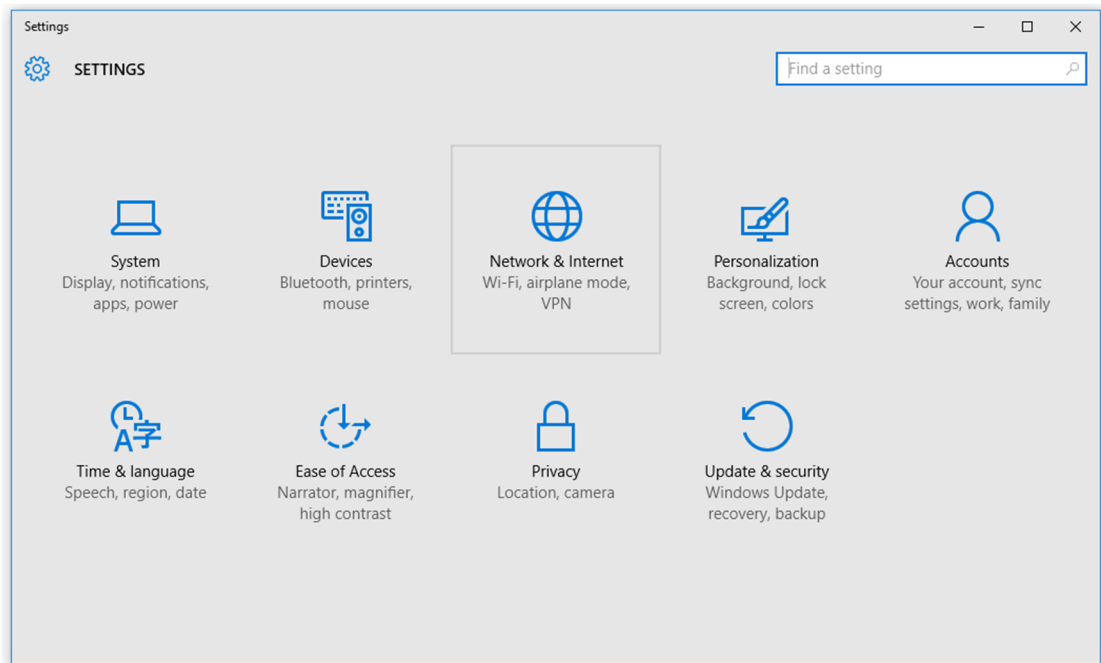
Make sure you have installed and configured the wireless network (i.e. Hot Spot) correctly; you'll notice the new wireless network icon in the system tray. To connect to your network, click the network icon in the system tray and select from one of the available networks.

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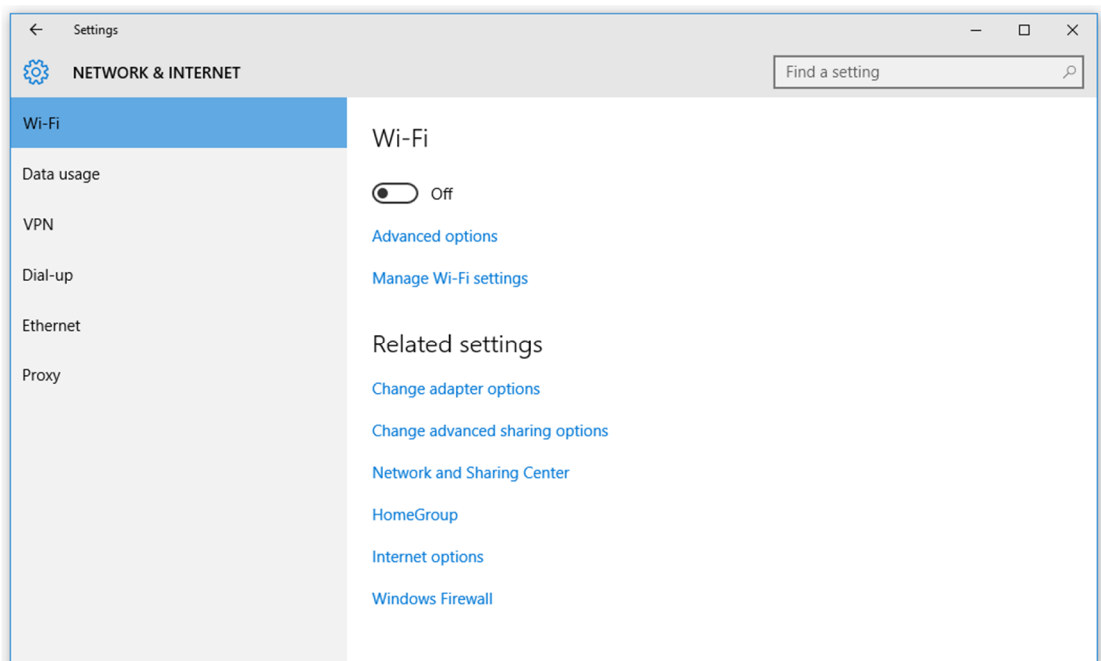
1. Click the **Start** menu > **Settings**



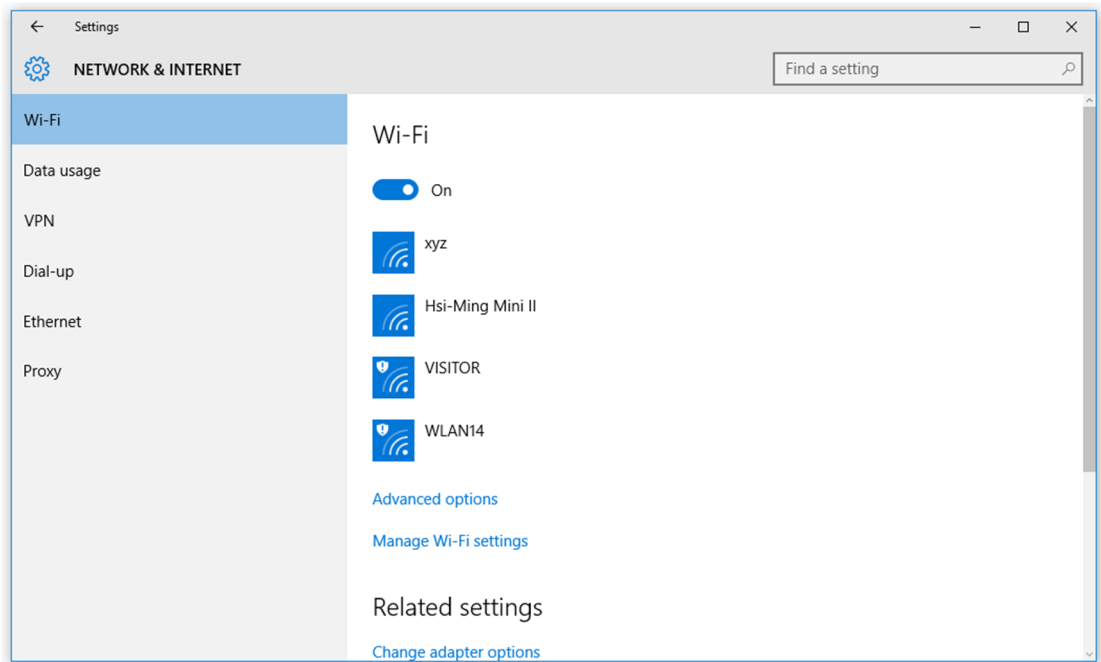
2. Click **Network & Internet**



3. Turn Wi-Fi button on



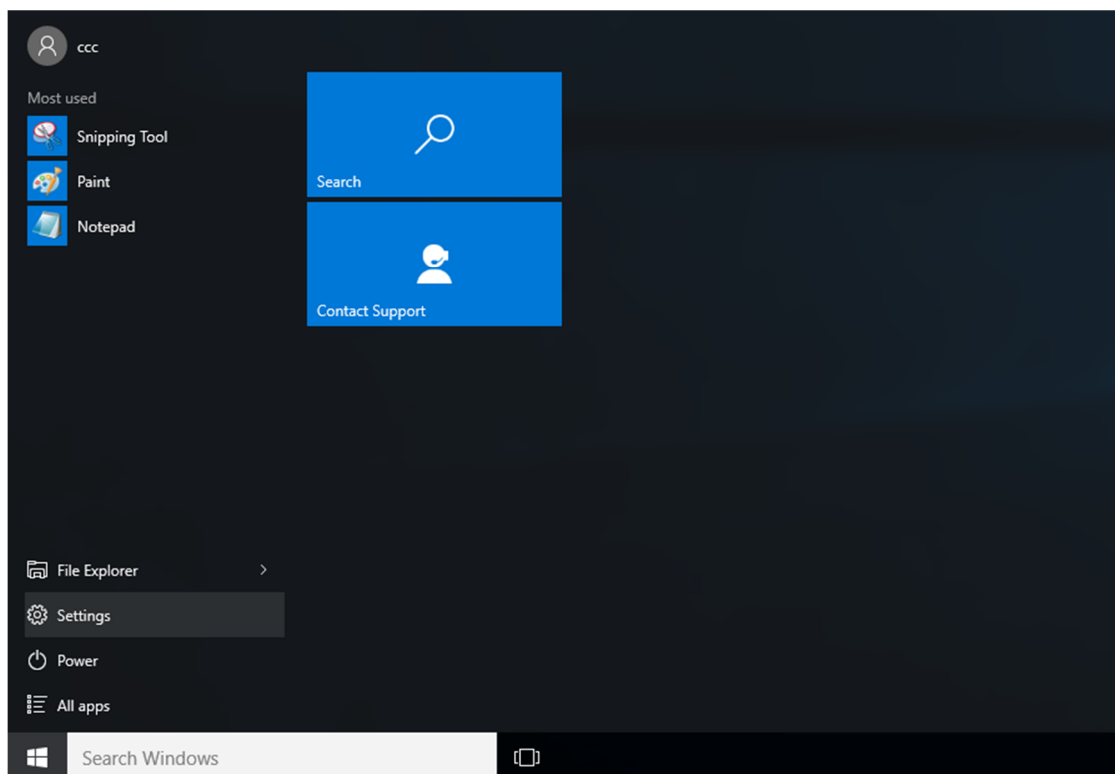
4. In the Wi-Fi section, you'll find all the wireless networks available to you, which is the same list you see in the system tray. Select one of them and enter the Wi-Fi password if needed.



### 3.2 Bluetooth Connection

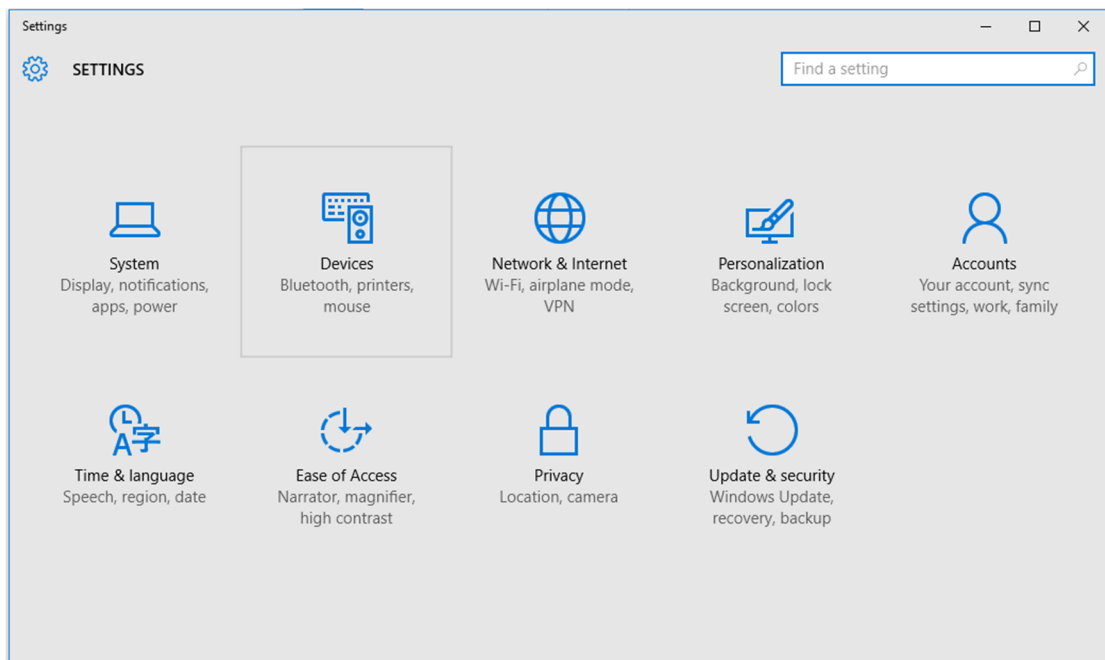
There are many different types of Bluetooth enabled devices you can add and pair to your EPC, such as mobile phones, wireless headsets, and wireless mouse devices and keyboards. Here's how to find Bluetooth settings:

1. Click the **Start** menu > **Settings**

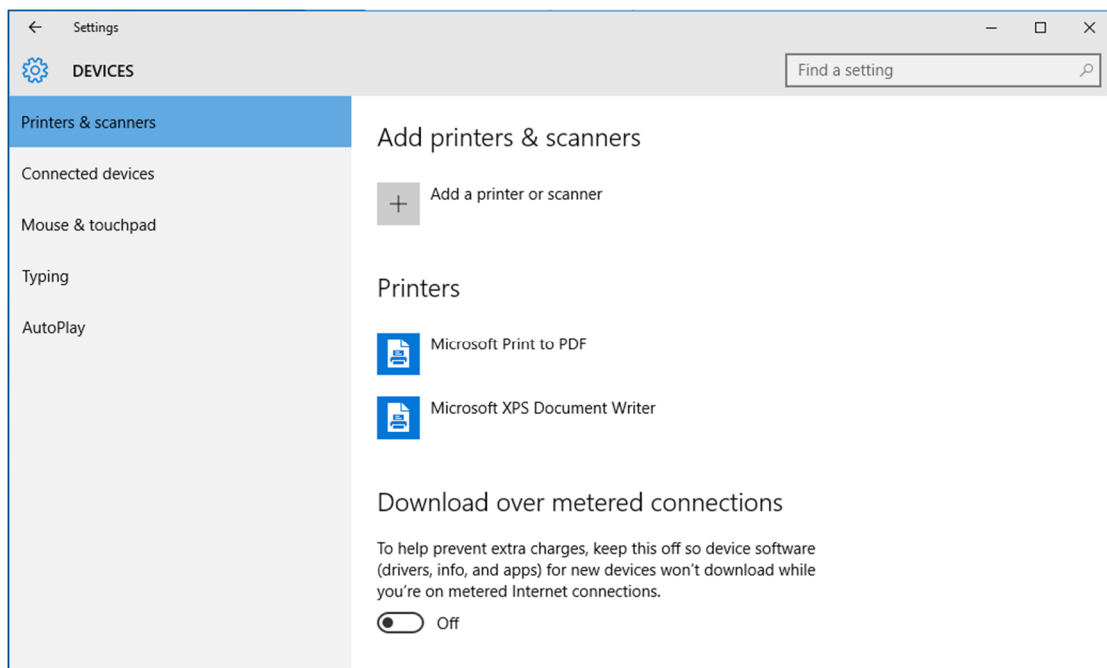




## 2. Click **Devices**



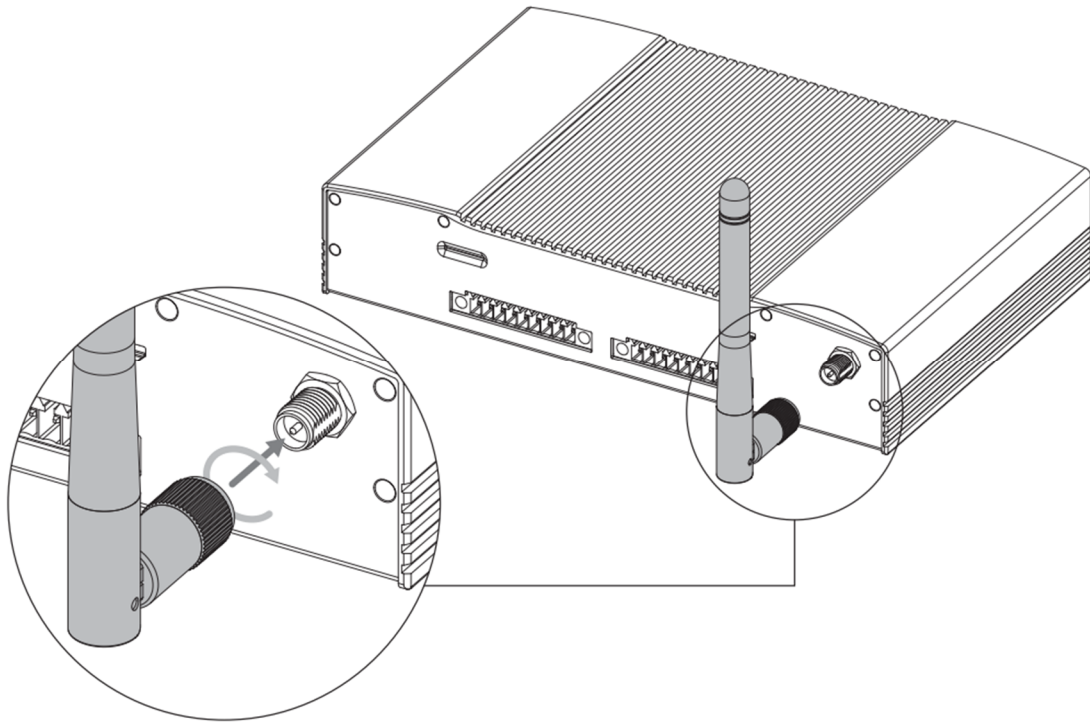
3. In the Devices section, you can find all Bluetooth devices supported. If you don't see Bluetooth listed in Devices settings, it might have Bluetooth hardware that's not recognized. Clicking on any existing device gives you the option to set that device as default or remove that device.



## 3.3 Antenna Installation

Your EPC is equipped a built-in antenna cable with SMA type connector. Find the dipole antenna in the carton and screw it in clockwise carefully. The reverse SMA plug on EPC should be fixed and try not to screw it together while installing an antenna. If RP-SMA plug is loose, please use a hex wrench to fix it, and then screw in the antenna.

Rotations of RP-SMA plug will lead to twisting that make damage to the antenna cable.



▲ Figure: SMA Type Antenna Insertion

# CHAPTER 4

## BIOS Setup (SCU)

The System Configuration Utility (SCU) is a program for configuring the BIOS (Basic Input / Output System) settings your computer.

BIOS is a type of firmware used to perform hardware initialization during the booting process on IBM PC compatible computers and to provide runtime services for OS and programs. Your computer needs the BIOS settings to recognize types of installed devices and establish special functions.

This chapter describes the operation of the SCU program.

## 4.1 Overview

The BIOS Setup program, or BIOS Setup for short, is located, together with the setup parameters, in a FLASH block on the motherboard. Change the setup parameters of the device in the BIOS Setup, e.g. system time or boot sequence.

Your device configuration is preset for operating with the included software. You should only change the default setup parameters if technical modifications to your device require different parameters.

### 4.1.1 Basic Knowledge Required

A solid background in personal computers and Microsoft operating systems is required to understand this chapter.

## 4.2 Entering the BIOS Selection Menu

### 4.2.1 Procedure

*Step 1:* Switch on or restart the device.

*Step 2:* Immediately press the “F2” button and keep it pressed after switching on the device.

## 4.3 BIOS Setup (SCU)

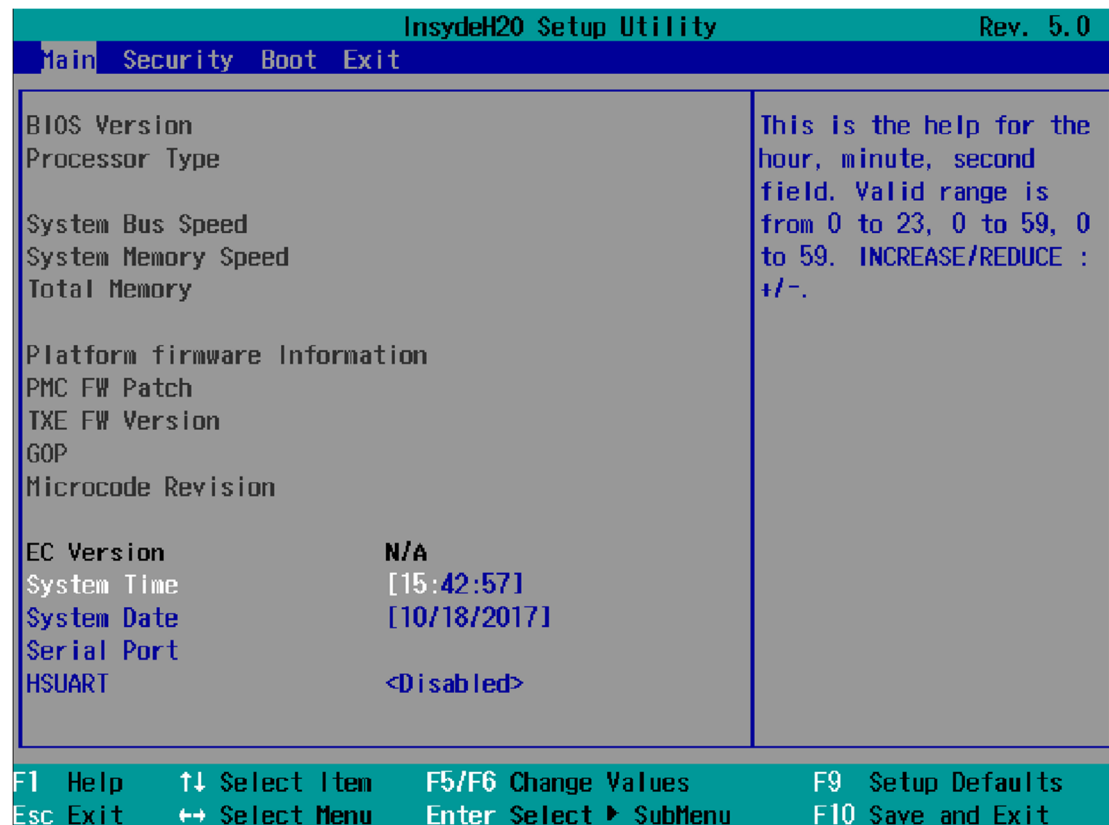
### 4.3.1 Structure of the BIOS Setup Menu

The individual setup parameters are distributed between different menus and submenus. Not all menus are included in each supplied device configuration. The following table shows the menus.

Menu	Meaning
Main	Display system information, for example, BIOS version, processor and memory
Security	Security functions, e.g., setting a password

<b>Boot</b>	Determine boot options, e.g., boot order or USB boot
<b>Exit</b>	Save and exit (see Exit menu)

The menus always have the same structure. The figure below shows an example for the "Main" menu. Device-specific information is shown blocked.



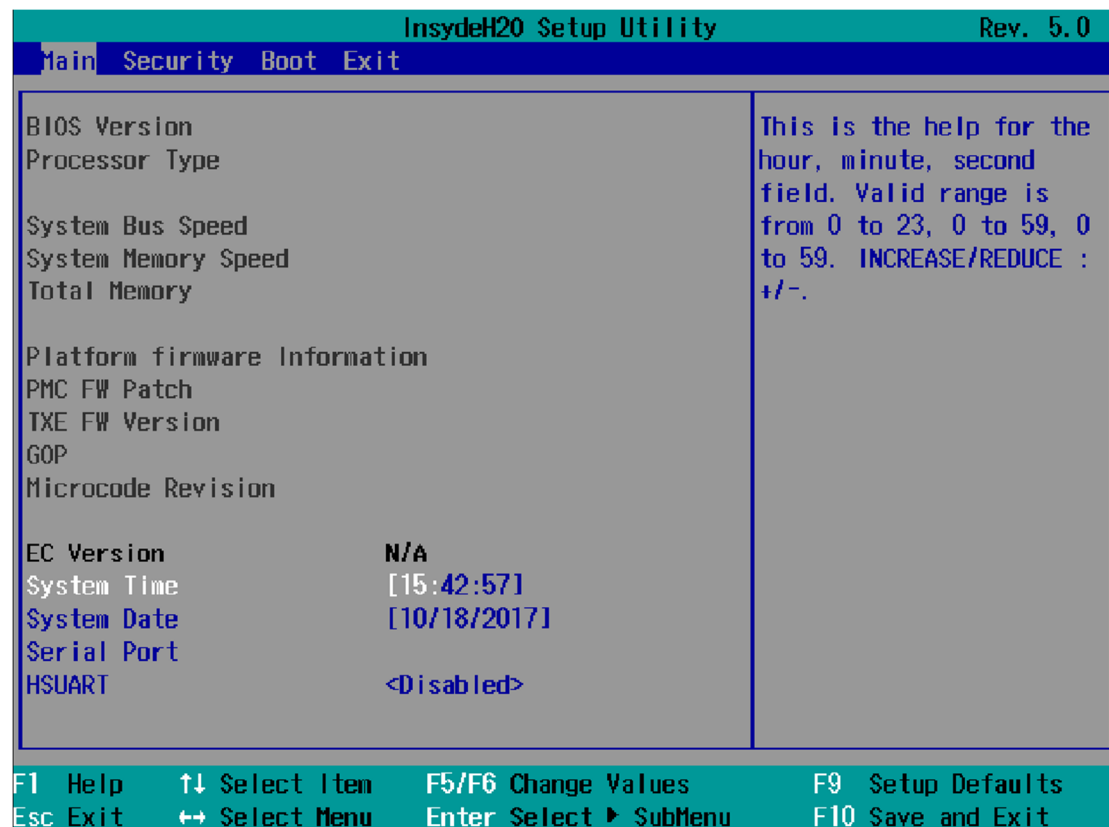
### 4.3.2 Navigation and Options Selection

Information on the keyboard is located in the bottom of the screen. A brief use of the keyboard is described:

Button	Function
←, →	Select a menu title
↑, ↓	Select a menu item or option
+, -	Change the value
Enter	1) Shows the sub-menu, if it is available. 2) Opens or closes the option window when an item has been selected.
Esc	1) Return from a submenu to the previous menu. 2) Close an open window with options.
F9	Assign the values with the default settings.

### 4.3.3 Main Menu

The "Main" menu shows the most important parameters that identify your device. You can set the date and time. The following figure shows an example for the "Main" menu.



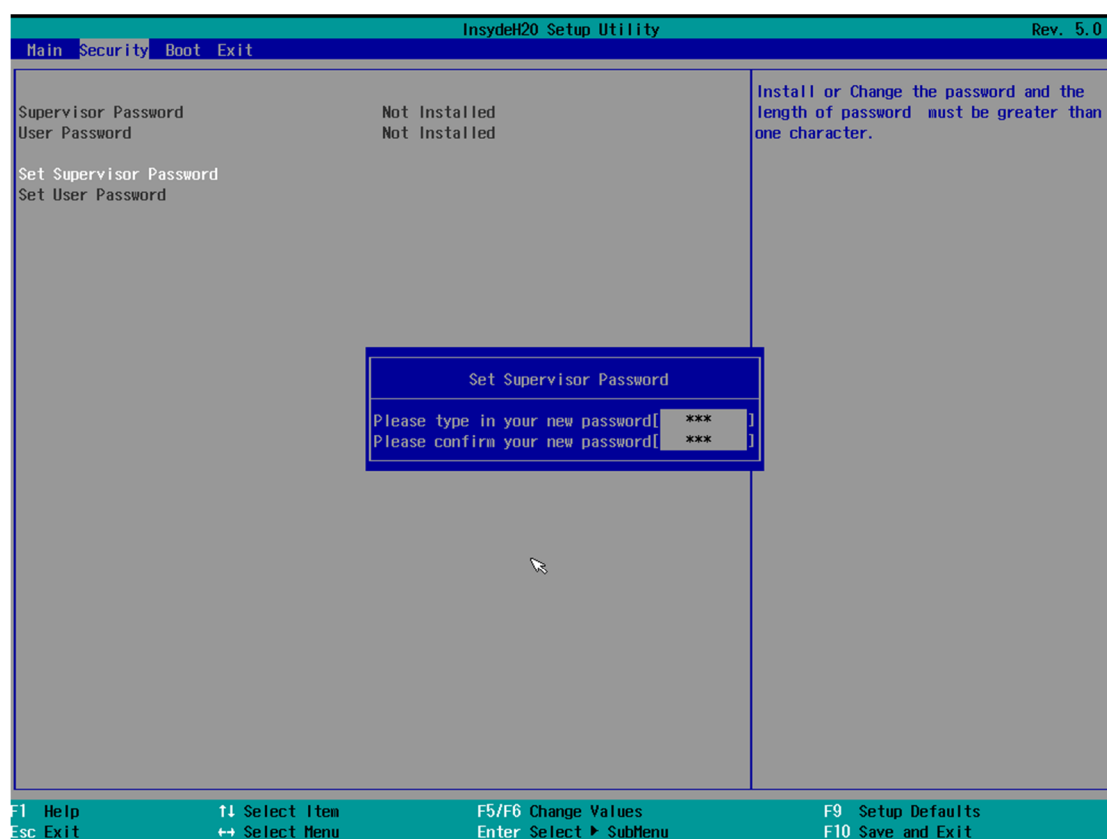
Parameter	Option	Meaning
BIOS Version	NA	Current software version of installed BIOS.
Processor Type	NA	Display the CPU model and speed.
System Bus Speed	NA	Display the auto-detected speed of the system.
System Memory Speed	NA	Display the auto-detected speed of the system memory.
Total Memory	NA	Display the total amount of detected system memory installed.
Platform firmware Information	NA	
PMC FW Patch	NA	
TXE FW Version	NA	
GOP	NA	
Microcode Revision	NA	

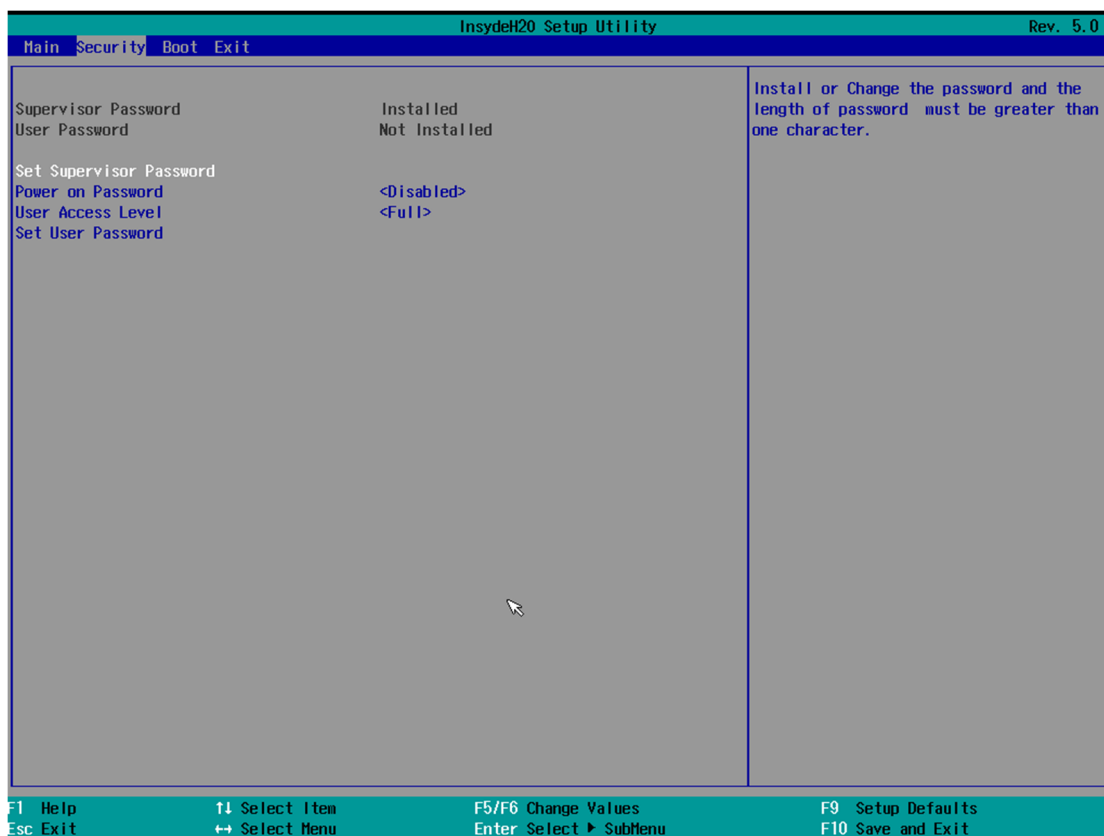
<b>EC Version</b>	NA	
<b>System Time</b>	Adjust time	Current time of the device. Format: "Hour/Minute/Second".
<b>System Date</b>	Adjust date	Current date of the device. "Month/Day/Year".
<b>Serial Port</b>	NA	
<b>HSUART</b>	Enabled	Enable the High Speed UART
	Disabled	Disable the High Speed UART

You can use the <Enter> key to move within a format, for example, from hour to minute. You can use the [+] and [-] keys to set the desired values for the date and time.

#### 4.3.4 Security Menu

The "Security" menu lets you block access to your device using passwords. The following figure shows an example for the "Security" menu.





Parameter	Option	Meaning
<b>Supervisor Password</b>	Not Installed	The general password is set (Installed) or not set (Not Installed).
	Enter Password	
<b>User Password</b>	Not Installed	The user password is set (Installed) or not set (Not Installed).
	Enter Password	
<b>Set Supervisor Password</b>	NA	Set supervisor password for full access to the BIOS Setup. A password prompt appears before the BIOS is opened. This field opens the password input dialog. This can be changed by new entry after correct input of the supervisor password.  If you input an empty password (only <Enter> key), the set password is deleted and the password prompt disabled.
<b>Set User Password</b>	NA	Set a user password to restrict access to the BIOS Setup. A password prompt appears before the BIOS is opened. This field opens the password input dialog. This can be changed by new entry after correct input of the user password.  If you input an empty password (only <Enter> key), the set password is deleted and the password prompt disabled.
The following Setup parameters are visible if "Supervisor Password" is set (Installed).		
<b>Power On Password</b>	Enabled	The password prompt appears either during booting in the



	Disabled	self-test (Enabled) or only when you open the BIOS Setup (Disabled).
<b>User Access Level</b>	View Only	Read access to the BIOS is allowed. The setup parameters cannot be changed.
	Limited	Write access to the BIOS is allowed. Only certain setup parameters can be changed.
	Full	Full access to the BIOS is allowed. All setup parameters, except for the supervisor password, can be changed.



### **NOTICE!**

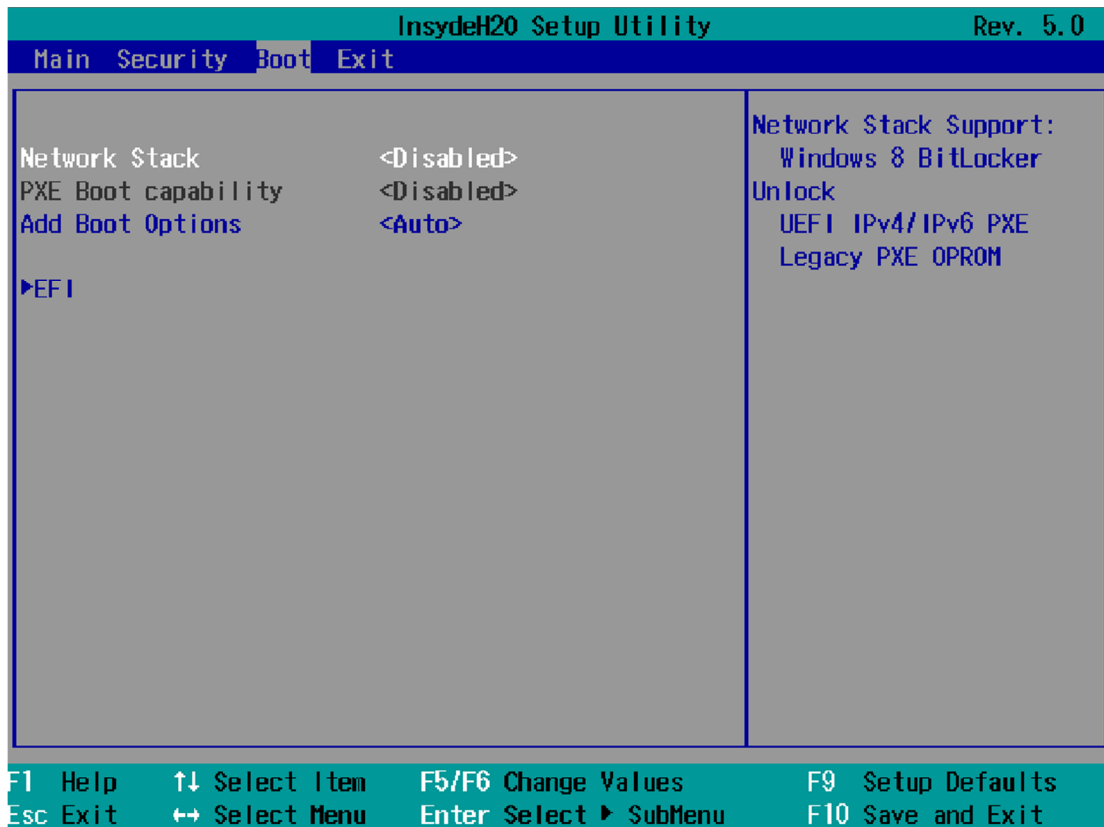
#### **Loss of the supervisor password.**

If you forget or lose the supervisor password in the Supervisor Password parameter, the device must be returned to the factory at your own cost.

- Write down the supervisor password.
- Store the supervisor password in a safe location and protect it against unauthorized access.

## **4.3.5 Boot Menu**

In the "Boot" menu, you specify the boot characteristics of the device and determine bootable device components (boot media) and boot order. The following figure shows an example for the "Boot" menu.

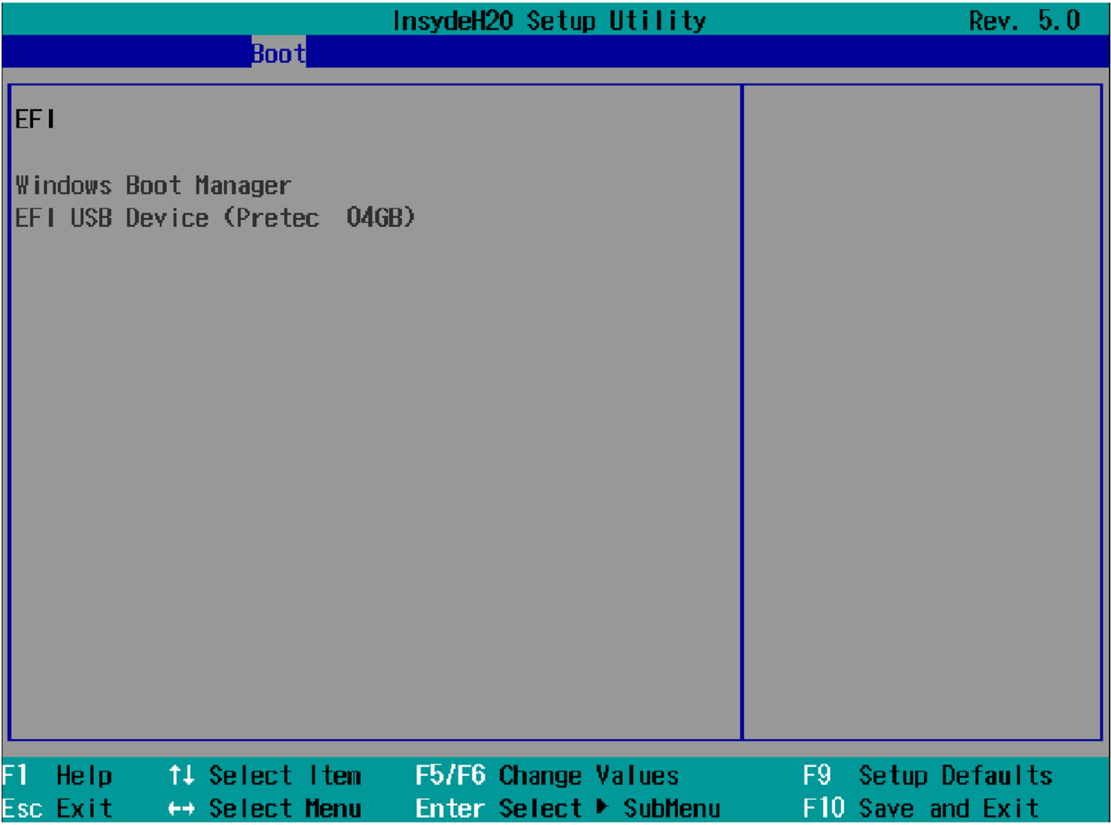


Parameter	Option	Meaning
Network Stack	Enabled	Specifies whether the UEFI Network Stack is available
	Disabled	(Enabled) or not available (Disabled) for network access using UEFI. When disabled, for example, no UEFI installation is possible via PXE.
PXE Boot Capability	Disabled	Only UEFI Network Stack is supported: PXE is not supported.
	UEFI: IPv4	Only UEFI boot media that support the Internet Protocol Version 4 are supported as PXE boot media.
	UEFI: IPv6	Only UEFI boot media that support the Internet Protocol Version 6 are supported as PXE boot media.
	UEFI: IPv4IPv6	Only UEFI boot media that support the Internet Protocol Version 4 and 6 are supported as PXE boot media.
	First	Newly detected boot media are placed at the top of the boot order.
Add Boot Options	Auto	Newly detected boot media are placed automatically in the boot order: e.g. at the top (First) for legacy boot media and

	based on the device path for UEFI boot media.
Last	Newly detected boot media are placed at the bottom of the boot order.

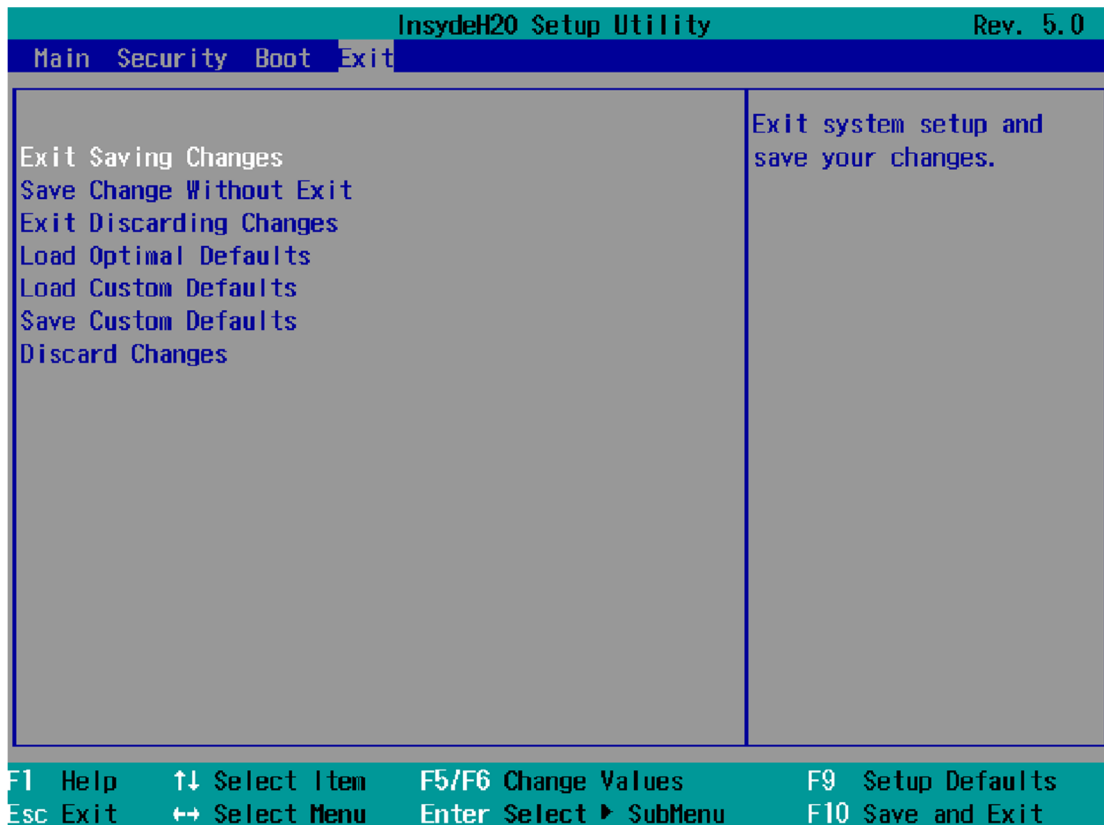
### “EFI” Submenu

Shows all EFI boot media and the currently valid Windows Boot Manager.



### 4.3.6 Exit Menu

You always exit BIOS Setup in this menu.



Parameter	Meaning
<b>Exit Saving Changes</b>	All changes are saved and the system is restarted with the new setup parameters.
<b>Save Change Without Exit</b>	All changes are saved.
<b>Exit Discarding Changes</b>	All changes are discarded and the system is restarted with the old setup parameters.
<b>Load Optimal Defaults</b>	All setup parameters are reset to the safe default values. <b>Notice:</b> The existing setup parameters are overwritten by this.
<b>Load Custom Defaults</b>	The profile must be loaded with the custom setup parameters. Requirement: The parameters are saved prior to this with "Save Custom Defaults". <b>Notice:</b> All existing setup parameters are overwritten during loading. <ul style="list-style-type: none"> <li>■ Write down the BIOS setup settings beforehand</li> <li>■ Save the BIOS setup settings as user-specific profile.</li> </ul>
<b>Save Custom Defaults</b>	The currently configured Setup parameters are saved as a custom profile (see also "Load Custom Defaults").
<b>Discard Changes</b>	All changes are discarded.



# **Appendix A**

## **Mounting Kits Installation**

## Ready to Begin?

EPC fanless embedded PC supports multiple mounting options for fitting various field site installation needs. Please read through these instructions completely to be sure you're comfortable with this easy install process. Let's follow below assembly instructions to begin.



### **CAUTIONS!**

#### **Avoid potential personal injuries and property damage!**

The wall must be capable of supporting the weight of EPC and mount combined.

- Do not use the mounting kits for any purpose not explicitly specified by manufacturer.
  - Manufacturer is not responsible for damage or injury caused by incorrect assembly or use.
- 

## Mounting Instructions

The mounting types are described in the following sections using the slim device as an example.

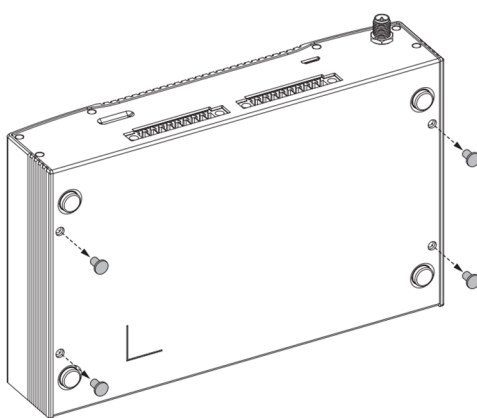
### A.1 Wall Mounting Installation

Wall mounting is suitable for horizontal mounting of the device.

#### Requirement

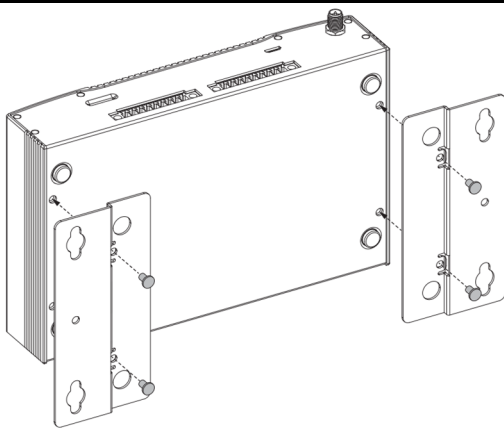
- Two mounting brackets (the mounting brackets are available in two versions - for the ultra-slim device versions and for the slim device version. The mounting bracket and four screws are included in the order variant "Wall mounting").
- A PH1 screwdriver
- Four screws

**1**



- Using a screwdriver to loosen the four screws located in the bottom of your EPC.
-

2



- Align the screw holes and put the wall mount brackets into position.
- Secure the mounting bracket with 2 screws
- Place the device with the mounting brackets onto the mounting surface.
- Screw on the device.

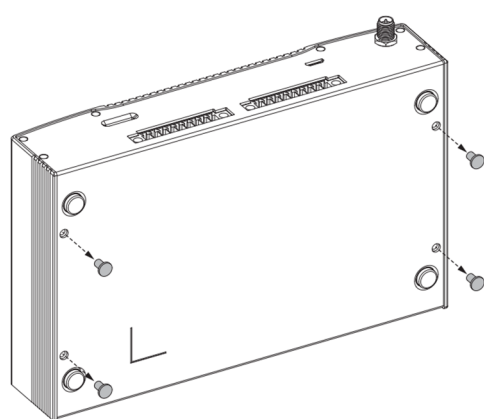
## A.2 VESA Mounting Installation

Wall mounting is suitable for horizontal mounting of the device.

### Requirement

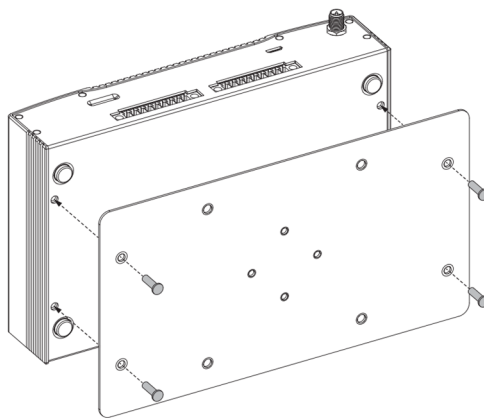
- One mounting brackets (the mounting bracket is included in the order variant "VESA mounting").
- A PH1 screwdriver
- Four screws

1



- Using a screwdriver to loosen the four screws located in the bottom of your EPC.

2



- Align the screw holes and put the VESA mount brackets into position.
- Secure the mounting bracket with 4 screws

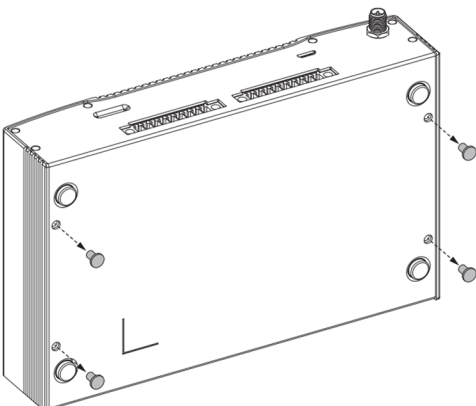
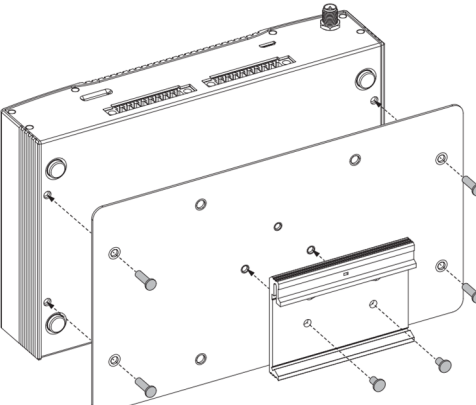
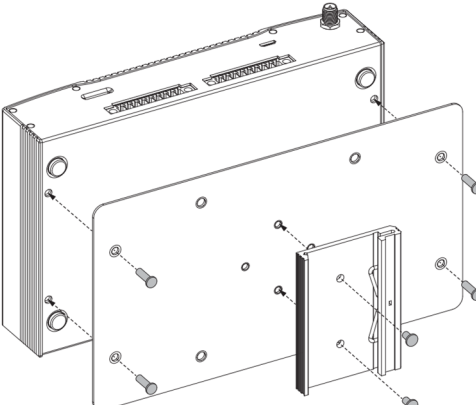


## A.3 DIN-rail Mounting Installation

Mounting on a standard rail is suitable for horizontal mounting of the device.

### Requirement

- A standard 35 mm rail. The standard rail is mounted.
- A standard rail bracket (the standard rail bracket and two screws are included in the order variant "Standard rail mounting")
- A PH1 screwdriver

1		<ul style="list-style-type: none"><li>- Using a screwdriver to loosen the four screws located in the bottom of your EPC.</li></ul>
2		<ul style="list-style-type: none"><li>- Align the screw holes and put the VESA mount brackets into position.</li><li>- Screw back the four screws.</li><li>- Place DIN-rail bracket horizontally (or vertically, check below next figure) according to the field site condition or your installation needs.</li></ul>
3		<ul style="list-style-type: none"><li>- Following the step above and turn DIN-rail bracket 90 degree.</li><li>- Press the device down and toward the standard rail until the standard rail bracket engages.</li><li>- Check whether the device is seated firmly on the standard rail</li></ul>

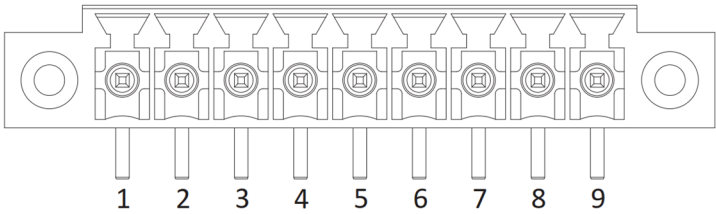
### Procedure for Dismantling

1. Press the device down until the lower rail guide frees the device.
2. Swing the device out of the rails.
3. Remove the device from the rail.

# **Appendix B**

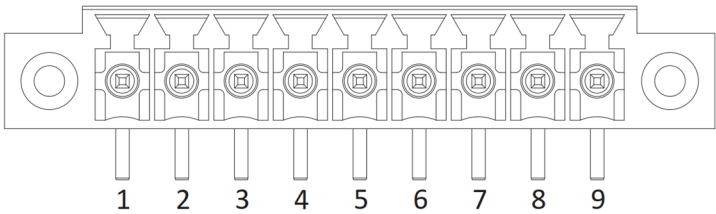
## **Pin Assignments**

**B.1 DI/O Port (phoenix connector) (EPC-BTCRP SKU only)**



**▲ Figure B.6 DI Phoenix Connector**

Pin	Name	Description
1	V <sub>CC</sub>	+5V power
2	GPI1	DI1
3	GPI2	DI2
4	GPI3	DI3
5	GPI4	DI4
6	GPI5	DI5
7	GPI6	DI6
8	GPI7	DI7
9	GPI8	DI8



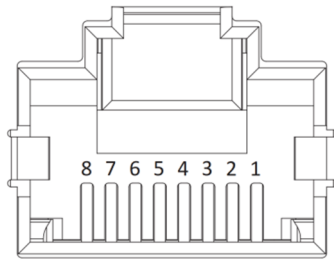
**▲ Figure B.7 DO Phoenix Connector**

Pin	Name	Description
1	GPO1	DO1
2	GPO2	DO2
3	GPO3	DO3
4	GPO4	DO4
5	GPO5	DO5

<b>6</b>	GPO6	DO6
<b>7</b>	GPO7	DO7
<b>8</b>	GPO8	DO8
<b>9</b>	GND	Signal ground

## B.2 COM Port (RJ-45) (EPC-BTCRP SKU only)

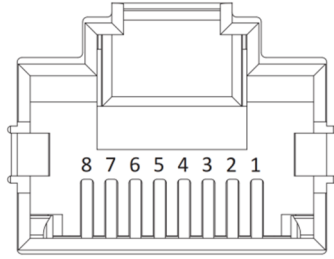
### B.2.1 COM0: RS-232



▲ Figure B.8 RS-232 Serial Port (RJ-45 connector)

Pin	Name	Description
<b>1</b>	RS232_RTS#	Request To Sent
<b>2</b>	RS232_DTR	Data Terminal Ready
<b>3</b>	RS232_TXD	Transmit Data
<b>4</b>	GND	Signal ground
<b>5</b>	RS232_DCD	Data Carrier Detected
<b>6</b>	RS232_RXD	Receive Data
<b>7</b>	RS232_DSR	Data Set Ready
<b>8</b>	RS232_CTS#	Clear To Sent

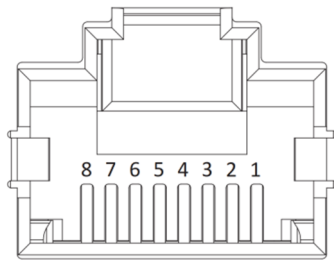
### B.2.2 COM1/2: RS-485



▲ Figure B.9 RS-485 Serial Port (RJ-45 connector)

Pin	Name	Description
1	RS485_02-	Data-
2	RS485_02+	Data+
3	NC	Not Connected
4	GND	Signal ground
5	NC	Not Connected
6	NC	Not Connected
7	NC	Not Connected
8	NC	Not Connected

### B.2.3 COM3: RS-422



▲ Figure B.10 RS-422/485 Serial Port (RJ-45 connector)

Pin	Name	Description
1	RS422TX-	Transmit Data-
2	RS422TX+	Transmit Data+
3	RS422RX-	Receive Data-
4	GND	Signal ground
5	NC	Not Connected

<b>6</b>	RS422RX+	Receive Data+
<b>7</b>	NC	Not Connected
<b>8</b>	NC	Not Connected



**Note:**

1. Specifications are subject to change without notice.
2. Limitation: CPU Intel Z3735F only has S0iX or S5 without S3 & S4.  
S0iX needs hardware support that means all of device must have S0iX support or will not wake up.  
Please strongly advice customers to not get into sleep mode, just backlight off.