



MODEL:

PPC-F08B/F10B-BT

**Industrial Panel PC with Intel® Celeron® Processor J1900,
Touchscreen, Dual PCIe Mini, USB 3.0,
RS-232/422/485, Dual PCIe GbE, 9 V ~ 30 V DC-in
IP 65 Compliant Front Panel and RoHS Compliant**

User Manual

Revision

Date	Version	Changes
December 13, 2017	1.03	Updated Section 1.9: Specifications Updated Section 2.3: Optional Items Updated Section 3.11.2: Panel Mounting
August 8, 2016	1.02	Added Section 3.8: Wireless LAN Module Installation (Optional)
June 27, 2016	1.01	Added Section 3.15: OS Installation Updated Chapter 5: BIOS Setup
June 17, 2015	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.



HOT SURFACE

This symbol indicates a hot surface that should not be touched without taking care.

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Chapter

1

Introduction

1.1 Overview



Figure 1-1: PPC-F08B/F10B-BT Series Panel PC

The PPC-F08B/F10B-BT series is a quad-core Intel® Celeron® processor J1900 powered flat bezel panel PC with a rich variety of functions and peripherals. The rugged and trendy design can be applied in harsh industrial environments and enriches aesthetic experience at the same time.

The Intel® Celeron® processor J1900 is a SoC (System-on-Chip) that ensures optimal memory, graphics, and peripheral I/O support. The major external device connections include USB 3.0, USB 2.0, RS-232/422/485 serial ports, audio line-out jack and two GbE connectors. Furthermore, the PPC-F08B/F10B-BT has two full-size/half-size PCIe Mini card slots, allowing installation of a wide variety of PCIe Mini cards, such as Wi-Fi modules and mSATA modules.

PPC-F08B/F10B-BT Panel PC

1.2 Model Variations

The PPC-F08B/F10B-BT series is preinstalled with Intel® Celeron® processor J1900, which has a 10 W TDP. The model numbers and model variations are listed below.

Model	Size	Touchscreen	HDD Bay	USB 2.0 Ports
PPC-F08B-BT-J1/2G/R	8"	Resistive type	No	No
PPC-F10B-BT-J1/2G/R	10.4"	Resistive type	One	Two

Table 1-1: Model Variations

1.3 Features

Some of the features of the PPC-F08B/F10B-BT panel PC include:

- Robust aluminum IP 65 compliant front bezel
- Aesthetic ultra-thin bezel for seamless panel mount installation
- Supports 2 GHz quad-core Intel® Celeron® processor J1900
- Preinstalled with one 2 GB DDR3L SO-DIMM (system max. 8 GB)
- Two full-size/half-size PCIe Mini card slots (one supports mSATA SSD)
- Rich I/O interfaces, including one RS-232, one RS-232/422/485, two USB 3.0, two USB 2.0 and audio line-out jack
- Optional wireless LAN module
- RoHS compliant

1.4 Front Panel

The front side of the PPC-F08B/F10B-BT (**Figure 1-2**) is a flat panel LCD screen surrounded by an aluminum frame.

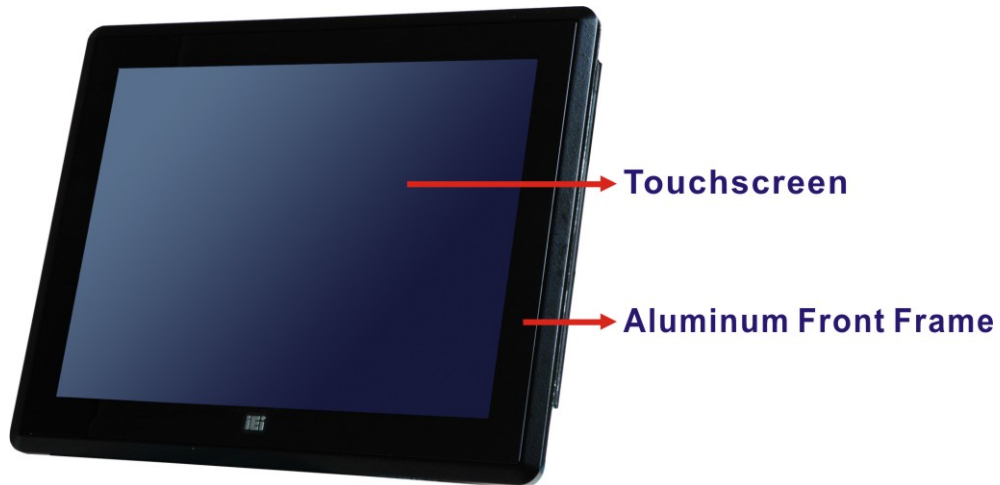


Figure 1-2: Front View

1.5 Rear Panel

The rear panel has a fan vent, several VESA mounting holes and retention screws. The VESA mounting holes are circled in the following diagrams.



Figure 1-3: PPC-F08B-BT Rear View

PPC-F08B/F10B-BT Panel PC

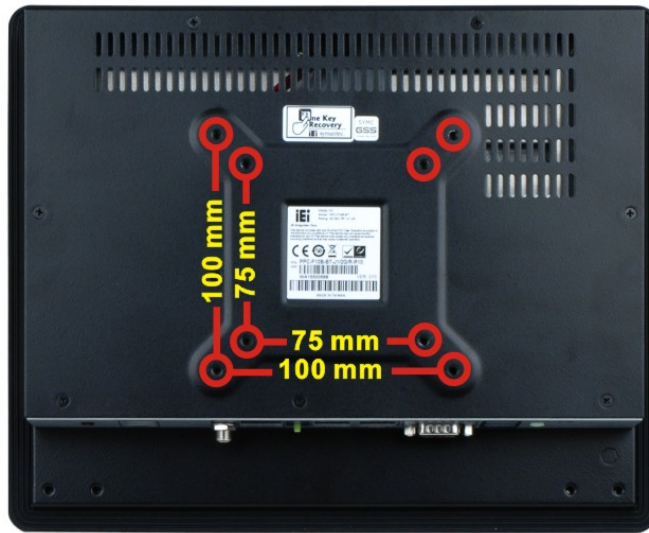


Figure 1-4: PPC-F10B-BT Rear View

1.6 Bottom Panel

The bottom panel has the following interfaces:

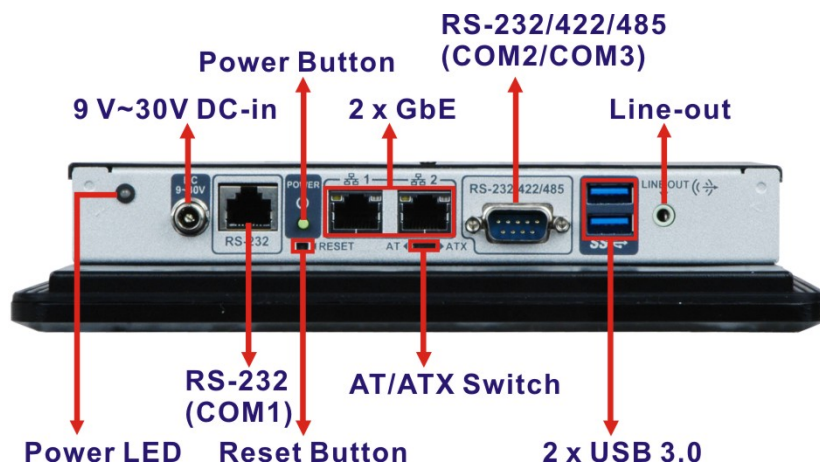


Figure 1-5: PPC-F08B-BT Bottom Panel

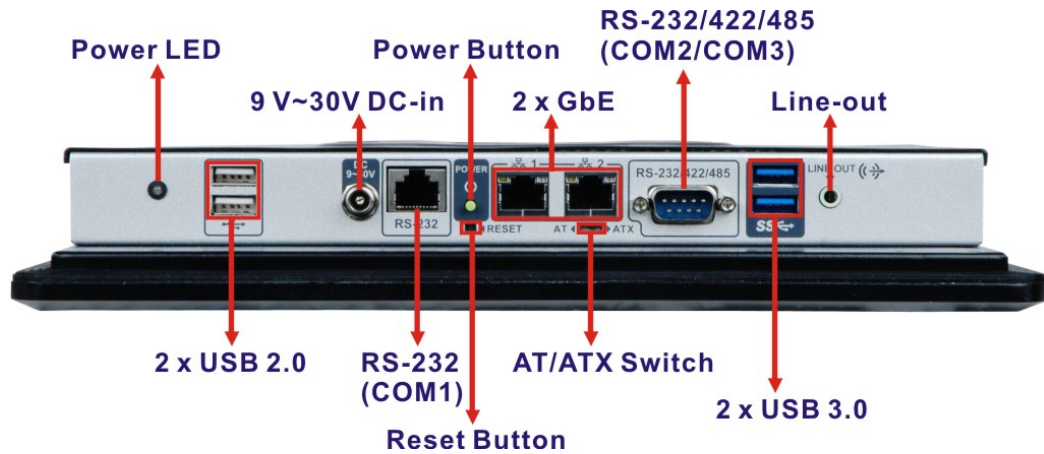


Figure 1-6: PPC-F10B-BT Bottom Panel



WARNING:

Before installing the operating system, the user must enter the **Boot** BIOS menu first and choose which operating system will be installed. Otherwise the USB 2.0 and USB 3.0 ports cannot be used for OS installation. Please refer to **Section 5.6**.

1.7 Top Panel

The top panel has two knockout holes for optional wireless antennas.



Figure 1-7: PPC-F10B-BT Top View

PPC-F08B/F10B-BT Panel PC

1.8 Dimensions

1.8.1 PPC-F08B-BT Dimensions

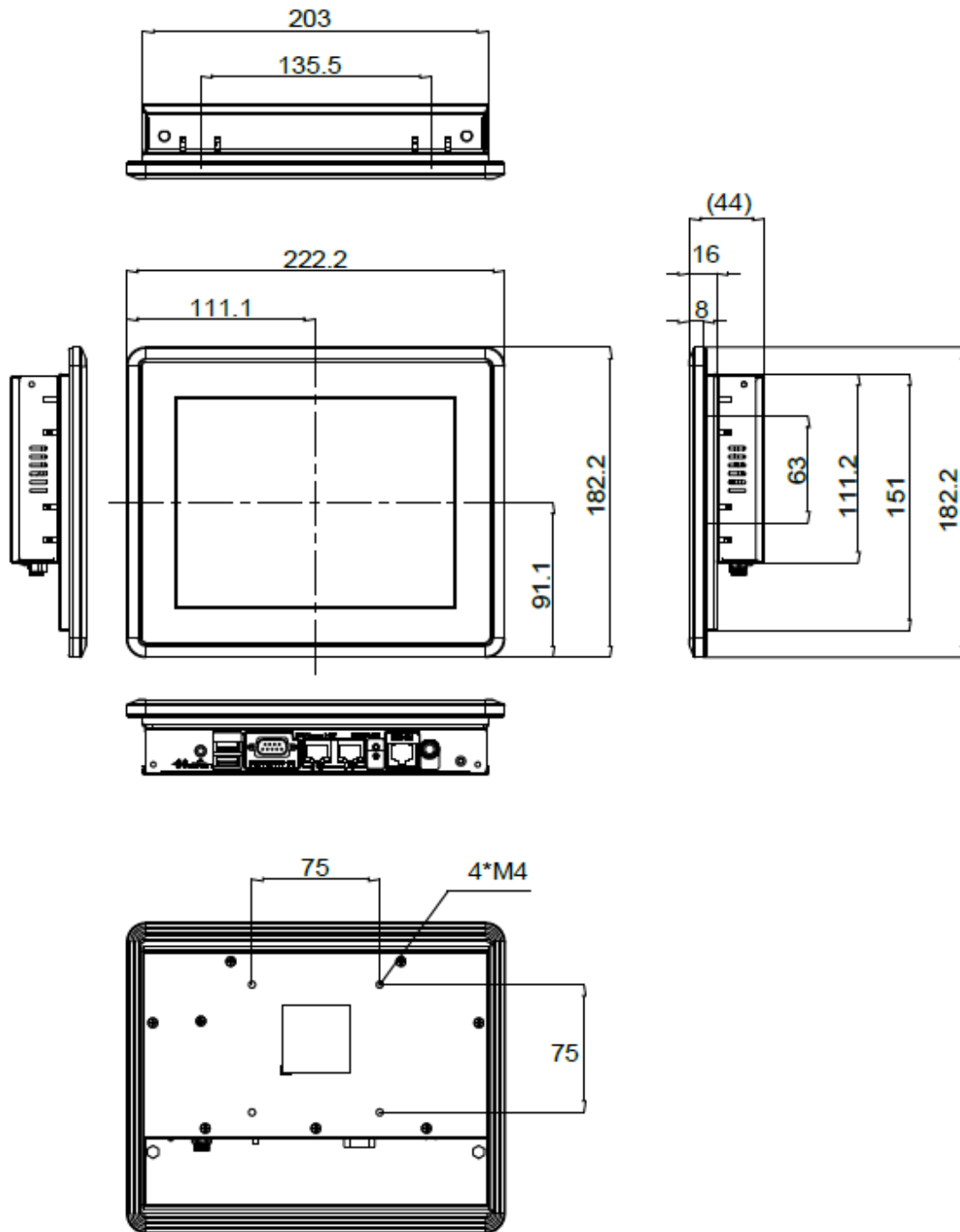


Figure 1-8: PPC-F08B-BT Dimensions (mm)

1.8.2 PPC-F10B-BT Dimensions

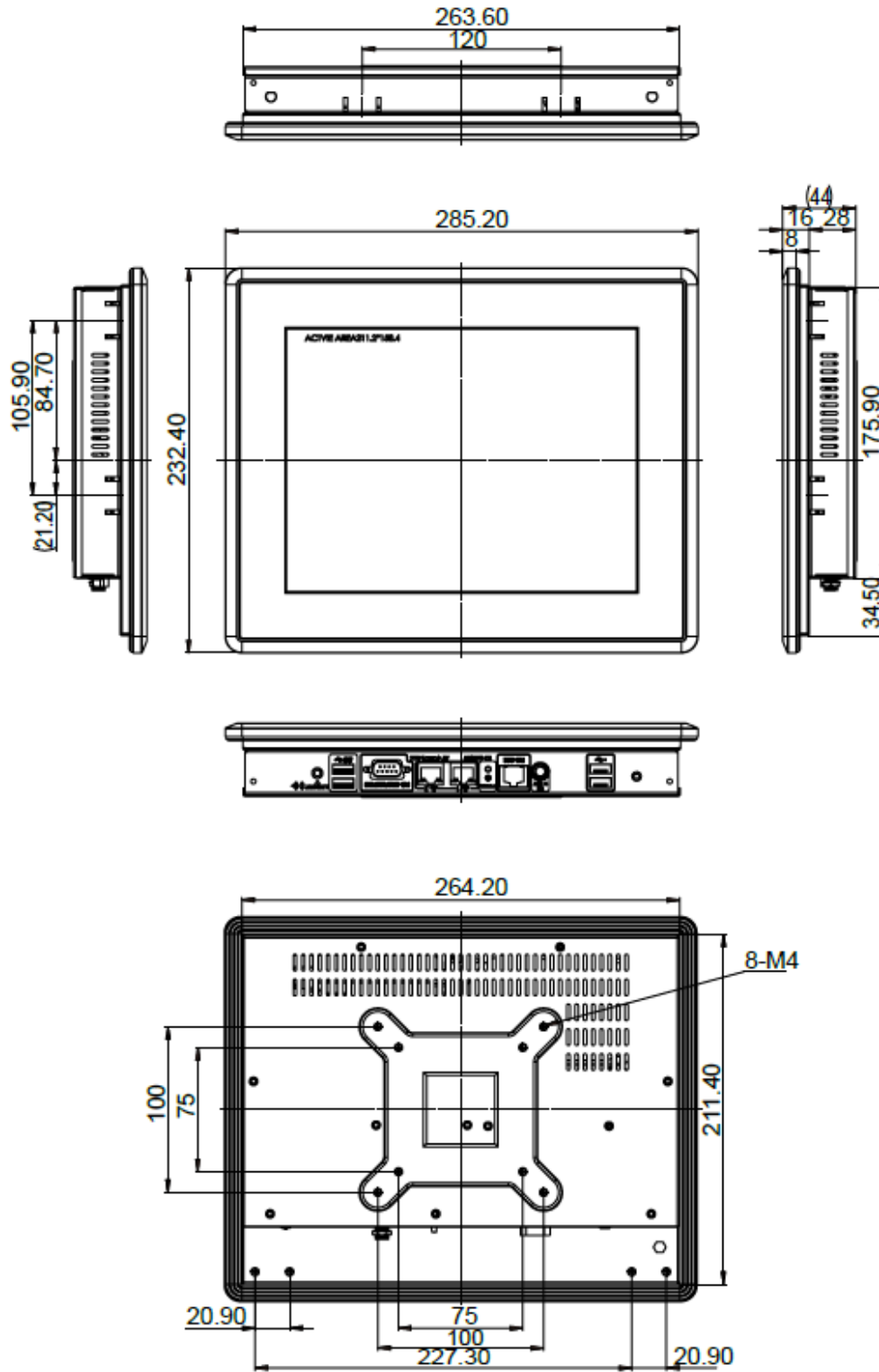


Figure 1-9: PPC-F10B-BT Dimensions (mm)

PPC-F08B/F10B-BT Panel PC

1.9 Specifications

The technical specifications for the PPC-F08B/F10B-BT system are listed in **Table 1-2**.

	PPC-F08B-BT	PPC-F10B-BT
LCD Display	8" (4:3)	10.4" (4:3)
Max. Resolution	800 (W) x 600 (H)	800 (W) x 600 (H)
Brightness	500 cd/m ²	400 cd/m ²
Contrast Ratio	500:1	700:1
LCD Color	262K	16.2M
Pixel Pitch (mm)	0.2025 x 0.0675	0.264 x 0.264
Viewing Angle (H-V)	140°/120°	160°/140°
Backlight MTBF	50,000 hours	30,000 hours
SBC Model	AFL3MB2-BT-R10	
CPU (SoC)	2 GHz quad-core Intel® Celeron® processor J1900	
Memory	Preinstalled one 2 GB DDR3L SO-DIMM (system max. 8 GB)	
Touchscreen	5-wire resistive type Surface hardness: 3H Touch controller: PenMount DMC9000	
Ethernet	2 x Realtek RTL8111E GbE controller	
Wireless	Optional 802.11a/b/g/n/ac Wi-Fi PCIe Mini module	
Audio Codec	Realtek ALC892 HD Audio codec	
Drive Bay	N/A	One 2.5" HDD/SSD drive bay
Expansion	One half-size PCIe Mini card slot One full-size/half-size PCIe Mini card slot supports mSATA module	
Mounting	VESA 75 mm x 75 mm Panel, wall, rack, stand and arm	VESA 75 mm x 75 mm VESA 100 mm x 100 mm Panel, wall, rack, stand and arm
Construction Material	Aluminum front cover and sheet metal rear cover	

	PPC-F08B-BT	PPC-F10B-BT
Enclosure Color	Black C	
I/O Ports, Switches and Buttons	2 x GbE (RJ-45) 2 x USB 3.0 1 x RS-232 (RJ-45) 1 x RS-232/422/485 (DB-9) 1 x Audio line-out jack 1 x Power jack 1 x Power button 1 x Reset button 1 x AT/ATX switch	2 x GbE (RJ-45) 2 x USB 3.0 2 x USB 2.0 1 x RS-232 (RJ-45) 1 x RS-232/422/485 (DB-9) 1 x Audio line-out jack 1 x Power jack 1 x Power button 1 x Reset button 1 x AT/ATX switch
Power Input	9 V – 30 V DC	
Power Adapter	36W power adapter Input: 90V - 264V AC, 50/60Hz Output: 12V DC	
Power Consumption	28 W	34 W
Operating Temperature (with air flow)	-10°C – 50°C	
Storage Temperature	-20°C – 60°C	
Humidity	10% – 95%, non-condensing	
IP Level	IP 65 compliant front panel	
Safety and EMC	CE, FCC Class A	
Dimensions (H x W x D)	182.2 mm x 222.2 mm x 44.0 mm	232.4 mm x 285.2 mm x 44.0 mm
Net Weight	1.17 kg	1.77 kg

Table 1-2: System Specifications

Chapter

2

Unpacking

2.1 Unpacking

To unpack the 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 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 panel PC.
 - Step 7:** Make sure all the components listed in the packing list are present.

PPC-F08B/F10B-BT Panel PC

2.2 Packing List

The PPC-F08B/F10B-BT panel PC is shipped with the following components:













Quantity	Item	Image
1	PPC-F08B/F10B-BT panel PC	
1	Power adapter (36 W, 12 V DC input)	
1	Power cord (part number varies by regions)	
1	RJ-45 to DB-9 COM port cable	
4	Screws for VESA mounting	
2	Screws for mSATA module installation	
4	Screws for HDD installation (PPC-F10B-BT only)	
1	Touch pen	
1	User manual and driver CD	
1	One Key Recovery CD	

Table 2-1: Packing List

If any of the above items are missing or damaged, contact the distributor or sales representative immediately.

2.3 Optional Items

The following are optional components which may be separately purchased:

Item and Part Number	Image
Arm (P/N: ARM-11-RS)	
Panel mount kit for PPC-F08B-BT (P/N: FPK-07-R10)	
Panel mount kit for PPC-F10B-BT (P/N: FPK-09-R10)	
Stand (P/N: STAND-100-RS)	
Stand for VESA 75 (P/N: STAND-B08)	
Stand for VESA 75/VESA 100 (P/N: STAND-C12-R10)	

PPC-F08B/F10B-BT Panel PC



Item and Part Number	Image
VESA 75 wall mount kit (P/N: AFLWK-12)	
Wi-Fi kit (P/N: EMB-WIFI-KIT01-R20)	

Table 2-2: Optional Items

Chapter

3

Installation

PPC-F08B/F10B-BT Panel PC

3.1 Anti-static Precautions



WARNING:

Failure to take ESD precautions during the maintenance of the EP series may result in permanent damage to the EP series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the PPC-F08B/F10B-BT. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the PPC-F08B/F10B-BT 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 PPC-F08B/F10B-BT, place it on an anti-static pad. This reduces the possibility of ESD damaging the PPC-F08B/F10B-BT.
- ***Only handle the edges of the PCB:*** When handling the PCB, hold the PCB by the edges.

3.2 Installation Precautions

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

- **Power turned off:** When installing the 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.
- **Certified Engineers:** Only certified engineers should install and modify onboard functionalities.

- **Mounting:** The PPC-F08B/F10B-BT is a heavy device. When mounting the system onto a rack, panel, wall or arm, please make sure that at least two people are assisting with the procedure.
- **Anti-static Discharge:** If a user open the rear panel of the panel PC, to configure the jumpers or plug in added peripheral devices, ground themselves first and wear an anti-static wristband.

3.3 Preinstalled Components

The following components are all preinstalled.

- Motherboard
- TFT LCD
- Touchscreen
- DDR3L memory module

Preinstalled OEM customizations may include the following.

- Wireless LAN module
- mSATA/HDD

3.4 Installation and Configuration Steps

The following installation steps must be followed.

- Step 1:** Unpack the PPC-F08B/F10B-BT.
- Step 2:** Install mSATA module.
- Step 3:** Configure the system.
- Step 4:** Mount the PPC-F08B/F10B-BT panel PC.
- Step 5:** Connect peripheral devices to the bottom panel of the PPC-F08B/F10B-BT.
- Step 6:** Configure the system.

PPC-F08B/F10B-BT Panel PC

3.5 Removing the Back Cover

To remove the back cover, remove the back cover retention screws on the back cover. Lift the cover up to remove. The following diagrams show the back cover screw locations of each model.



Figure 3-1: PPC-F08B-BT Back Cover Retention Screws

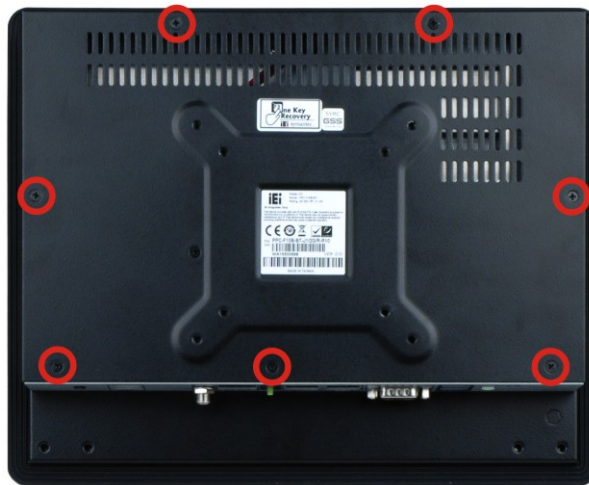


Figure 3-2: PPC-F10B-BT Back Cover Retention Screws

3.6 mSATA Module Installation

One of the PCIe Mini card slots on the motherboard of the PPC-F08B/F10B-BT supports mSATA module. To install an mSATA module, please follow the steps below.

- Step 1:** Remove the back cover. See **Section 3.5**.
- Step 2:** Locate the full-size PCIe Mini card slot. Remove the preinstalled retention screw on the screw pillar of the PCIe Mini card slot as shown in **Figure 3-3**.

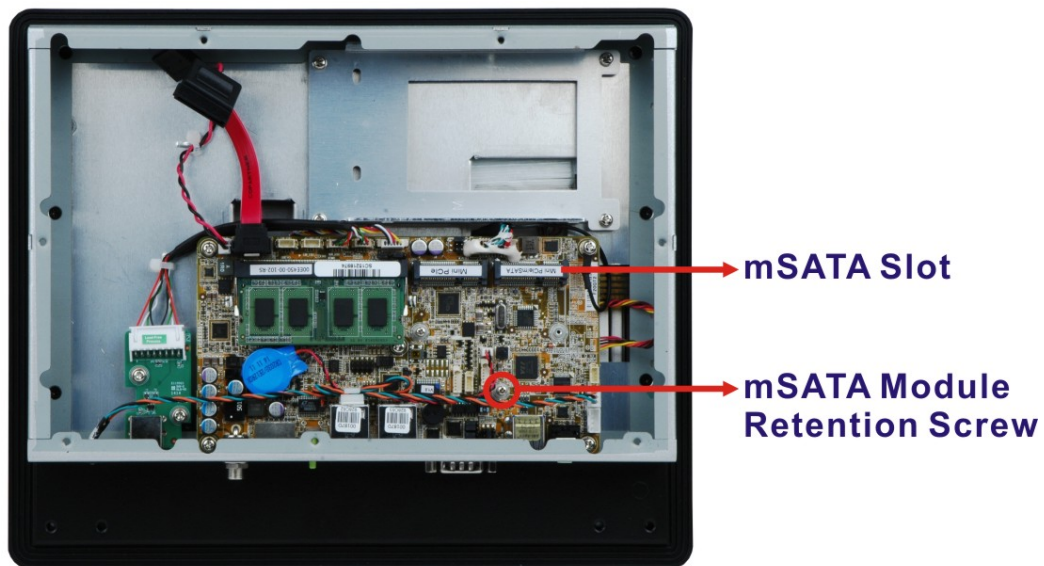


Figure 3-3: mSATA Module Slot Location

- Step 3:** Line up the notch on the mSATA module with the notch on the connector. Slide the PCIe Mini card into the socket at an angle of about 20°.
- Step 4:** Secure the mSATA module with the retention screw. Push the other end of the mSATA module down and secure the module with the previously removed retention screw (**Figure 3-4**).

PPC-F08B/F10B-BT Panel PC

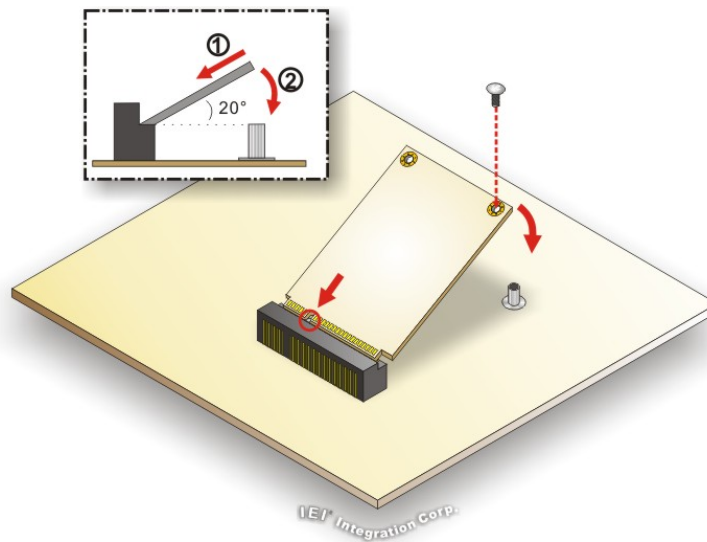


Figure 3-4: mSATA Module Installation

Step 5: Replace the back cover and secure it with retention screws.

3.7 HDD Installation (PPC-F10B-BT Only)

The PPC-F10B-BT has a 2.5" HDD bay inside the chassis. To install an HDD into the PPC-F10B-BT, please follow the steps below:

Step 1: Remove the back cover. See **Section 3.5**.

Step 2: Remove the HDD bracket from the PPC-F10B-BT. The HDD bracket is secured on the panel PC with four retention screws (**Figure 3-5**). Remove the four retention screws and lift the bracket off the panel PC.

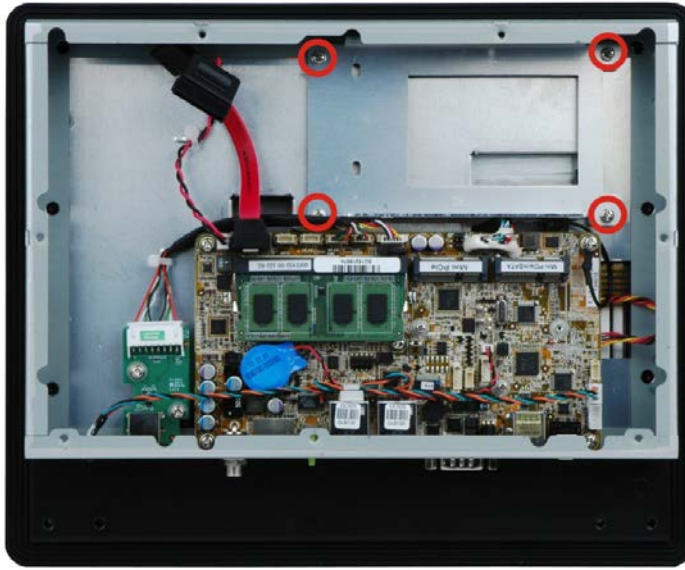


Figure 3-5: PPC-F10B-BT HDD Bracket Retention Screws

Step 3: Attach the hard drive to the bracket and secure the hard drive to the bracket with four retention screws (**Figure 3-6**).



Figure 3-6: HDD Retention Screws

Step 4: Connect the SATA cable and the SATA power cable to the rear of the HDD.

Step 5: Reinstall the HDD bracket into the PPC-F10B-BT and fasten the four hard drive bracket screws (**Figure 3-7**)

PPC-F08B/F10B-BT Panel PC

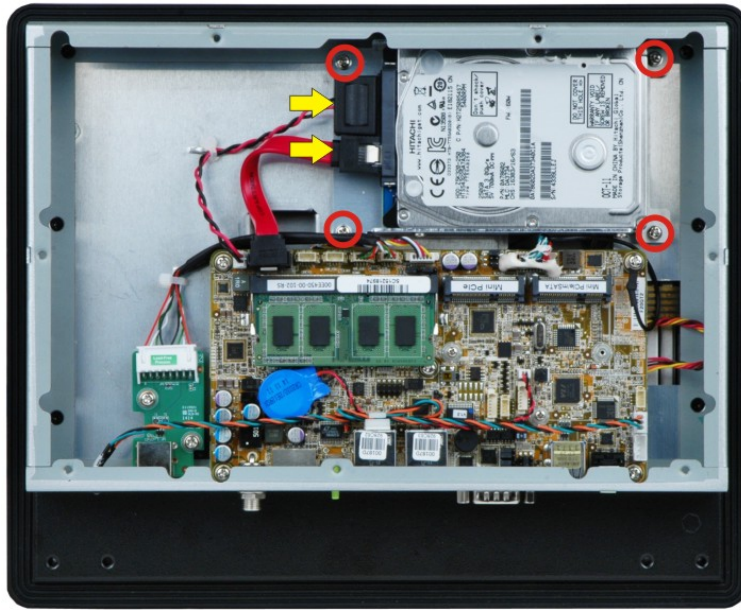


Figure 3-7: PPC-F10B-BT HDD Installation

Step 6: Replace the back cover and secure it with retention screws.

3.8 Wireless LAN Module Installation (Optional)

To install the optional wireless LAN (WLAN) module, please follow the steps below.

Step 1: Remove the back cover. See **Section 3.5**.

Step 2: Remove the two knockouts for antenna installation. The two knockouts are located on the top panel of the PPC-F08B/F10B-BT.



Figure 3-8: Knockouts on Top Panel for Wireless Antennas

Step 3: Locate the PCIe Mini slot (**Figure 3-9**).

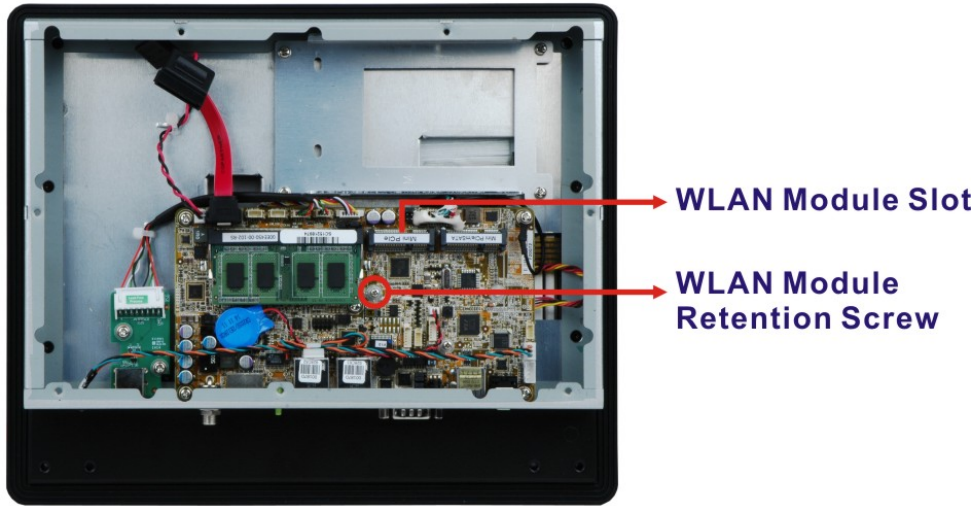


Figure 3-9: PCIe Mini Slot Location

Step 4: Line up the notch on the WLAN module with the notch on the slot. Slide the WLAN module into the slot at an angle of about 20° (**Figure 3-10**).

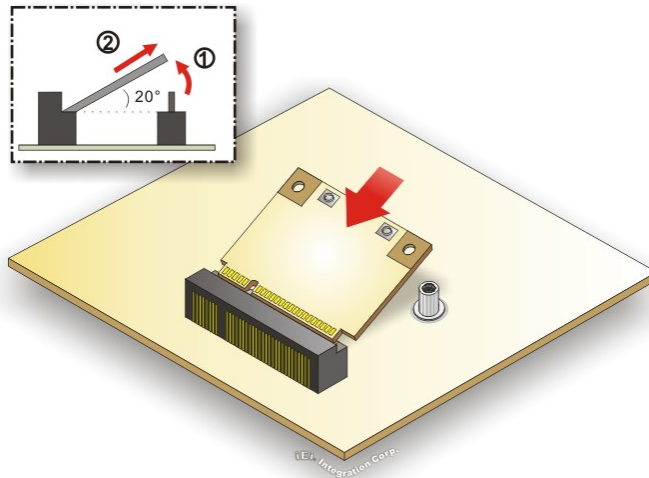


Figure 3-10: Inserting the WLAN Module

PPC-F08B/F10B-BT Panel PC

Step 5: Secure the WLAN module with two retention screws.

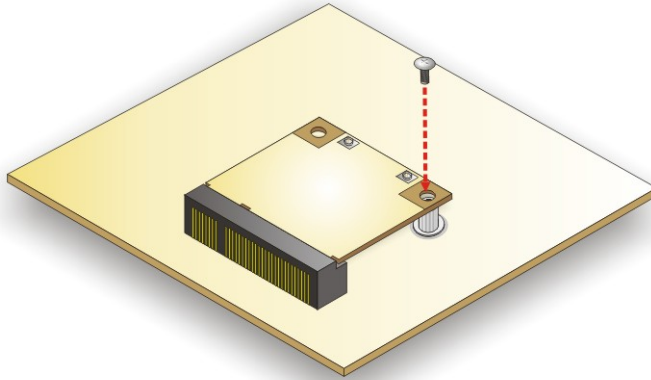


Figure 3-11: Securing WLAN Module

Step 6: Connect the two RF cables to the antenna connectors on the WLAN module (Figure 3-12).

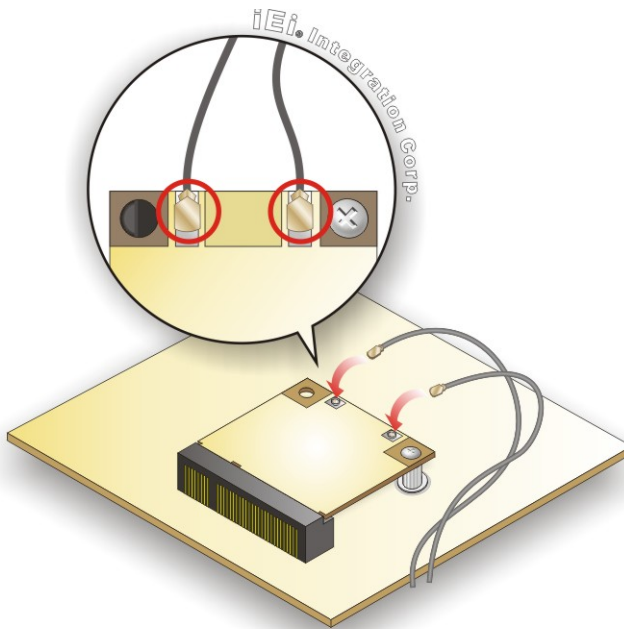


Figure 3-12: Connecting RF Cables

- Step 7:** Remove the nut and washer from the SMA connector at the other end of the RF cable.
- Step 8:** Insert the SMA connector to the antenna connector holes on the top panel.
- Step 9:** Secure the SMA connector by inserting the washer and tightening it with nut.
- Step 10:** Install the external antenna.

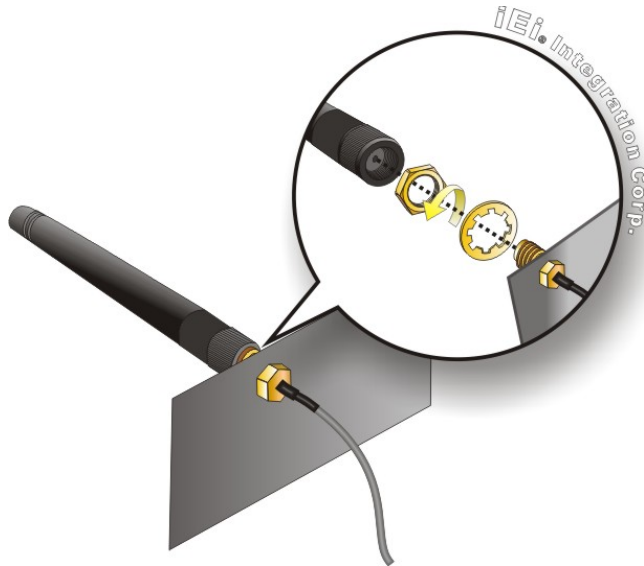


Figure 3-13: Securing SMA Connector and External Antenna Installation

3.9 Serial Port Configuration and Connection

The PPC-F08B/F10B-BT series has two serial ports, including one RS-232/422/484 port and one RS-232 port. The port locations are shown in **Figure 3-14**. The jumper settings and pinouts of the serial ports are listed in the following sections.

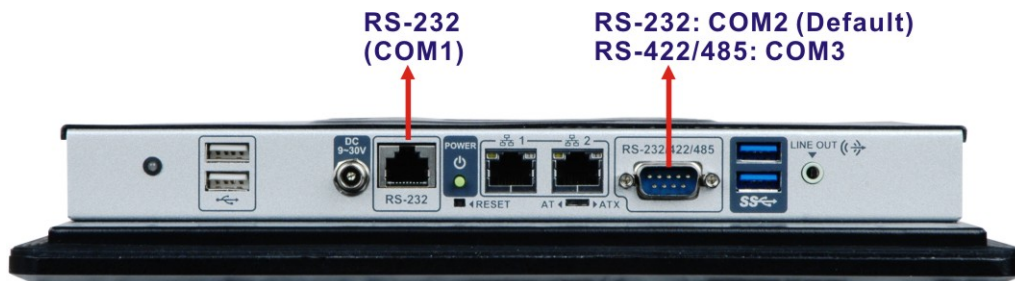


Figure 3-14: PPC-F10B-BT Serial Port Locations

PPC-F08B/F10B-BT Panel PC

3.9.1 RS-232/422/485 Serial Port Pinouts

The RS-232/422/485 serial port pinouts are listed in the following table.

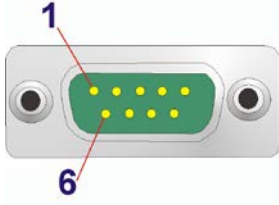
Pin No.	RS-232 (COM2)	RS-422 (COM3)	RS-485 (COM3)	
1	DCD	TX-	Data-	
2	RXD	TX+	Data+	
3	TXD	--	--	
4	DTR	--	--	
5	GND	--	--	
6	DSR	RX-	--	
7	RTS	RX+	--	
8	CTS	--	--	
9	RI	--	--	

Table 3-1: RS-232/422/485 Serial Port Pinouts

3.9.2 RS-232/422/485 Serial Port Selection

The JP4 jumper sets the communication protocol used by the DB-9 serial communication port as RS-232, RS-422 or RS-485. Please note that when the DB-9 serial port is set to RS-422/485, the DB-9 port becomes COM3. The RS-232/422/485 serial port selection settings are shown in **Table 3-2**.

JP4	Description	DB-9 Serial Port Number
Short 1-2	RS-232 (Default)	COM2
Short 4-5	RS-232 (Default)	COM2
Short 7-8	RS-232 (Default)	COM2
Short 10-11	RS-232 (Default)	COM2
Short 2-3	RS-422/485	COM3
Short 5-6	RS-422/485	COM3
Short 8-9	RS-422/485	COM3
Short 11-12	RS-422/485	COM3

Table 3-2: RS-232/422/485 Selection Jumper Settings

The RS-232/422/485 selection jumper location is shown in **Figure 3-15**.

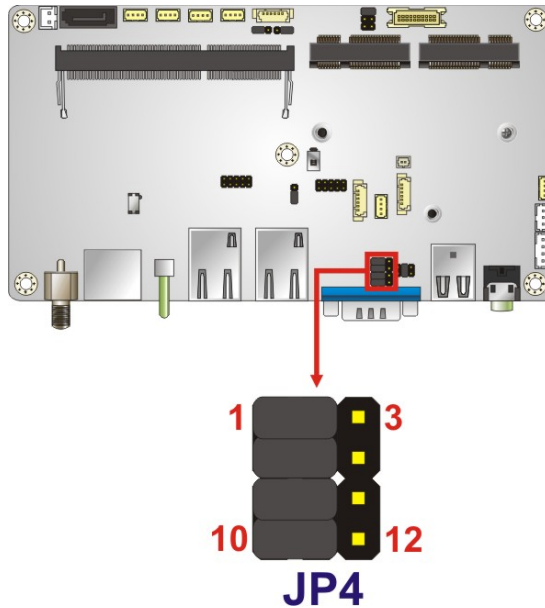


Figure 3-15: RS-232/422/485 Selection Jumper Location

3.9.3 RS-232/422/485 Serial Port Pin 9 Selection

The JP5 jumper configures pin 9 on the DB-9 serial port. Pin 9 on the COM2 DB-9 connector can be set as the ring (RI) signal, +5 V or +12 V. The jumper selection options are shown in **Table 3-3**.

JP5	Description
Short 1-2	COM2 RI Pin use +12 V
Short 3-4	COM2 RI Pin use RI (Default)
Short 5-6	COM2 RI Pin use +5 V

Table 3-3: COM2 Serial Port Pin 9 Setting Jumper Settings

The COM2 Serial Port Pin 9 Setting jumper location is shown in **Figure 3-16** below.

PPC-F08B/F10B-BT Panel PC

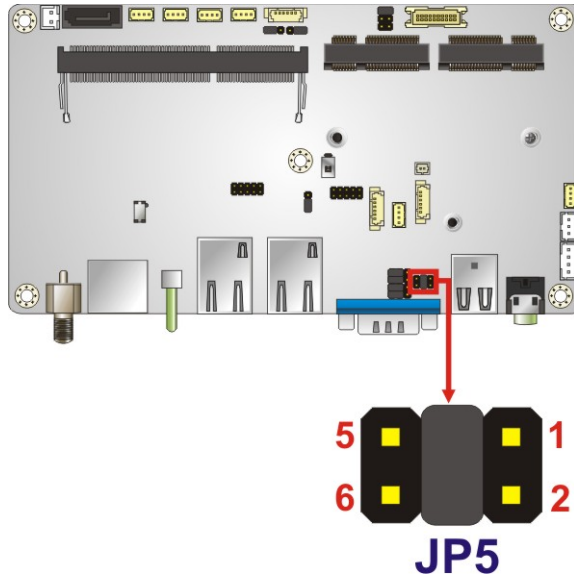


Figure 3-16: COM2 Serial Port Pin 9 Setting Jumper Location

3.9.4 RS-232 Serial Port Pinouts

The pinouts of the RS-232 serial port (COM1) are listed in the following table.

Pin No.	Description	Pin No.	Description
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

Table 3-4: RS-232 Serial Port (COM1) Pinouts

3.9.5 RS-232 Serial Port Connection

The RS-232 port (COM1) is a RJ-45 serial device connector on the bottom panel. The COM1 port connects to a cable with a standard D-sub 9 connector at the other end (cables included). Follow the steps below to connect a serial device to the PPC-F08B/F10B-BT panel PC.

- Step 1:** Locate the RJ-45 connector. The location of the RJ-45 serial port connector is shown in Chapter 2. The RJ-45 connectors for the serial ports can be identified easily as the RJ-45 for the network has two LEDs on the port, while the connectors for the serial cables don't.
- Step 2:** Insert the RJ-45 to D-sub 9 cable.
- Step 3:** Insert the serial connector. Insert the D-sub 9 connector of a serial device into the D-sub 9 connector on the cable. See **Figure 3-17**.

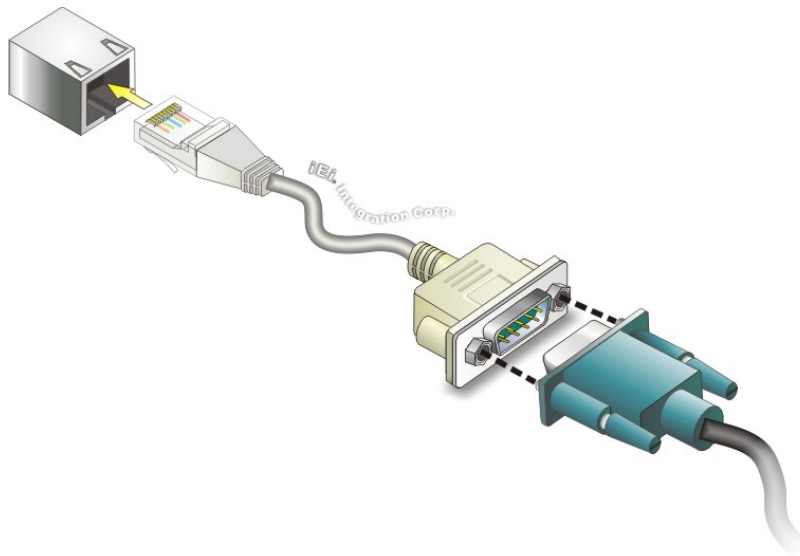


Figure 3-17: Serial Device Connector

- Step 4:** Secure the connector. Secure the serial device connector to the external interface by tightening the two retention screws on either side of the connector.

PPC-F08B/F10B-BT Panel PC

3.10 AT/ATX Mode Selection

AT and ATX power modes can both be used on the PPC-F08B/F10B-BT panel PC. The selection is made through an AT/ATX switch on the I/O interface panel. The switch is shown below.

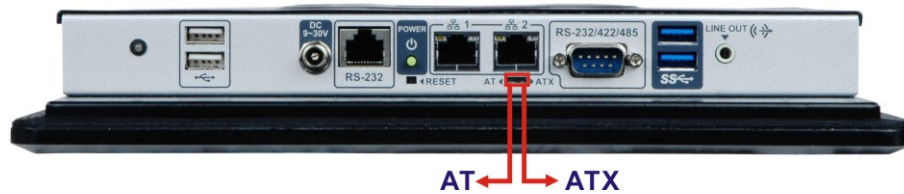


Figure 3-18: AT/ATX Mode Selection

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 PPC-F08B/F10B-BT panel PC turns on automatically when the power is connected. The AT mode benefits a production line to control multiple panel PCs from a central management center and other applications including:

- ATM
- Self-service kiosk
- Plant environment monitoring system
- Factory automation platform
- Manufacturing shop flow

3.10.2 ATX Power Mode

With the ATX mode selected, the PPC-F08B/F10B-BT 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. Remote power control is perfect for advertising applications since the broadcasting time for each panel PC can be set individually and controlled remotely. Other possible application includes

- Security surveillance
- Point-of-Sale (POS)
- Advertising terminal

3.11 Mounting the System



WARNING!

When mounting the PPC-F08B/F10B-BT panel PC, it is advisable to have more than one person help with the installation to prevent accidental damage to the panel and avoid personal injury.

The methods of mounting the PPC-F08B/F10B-BT are:

- Wall mounting
- Panel mounting
- Rack mounting
- Arm mounting
- Stand mounting

The mounting methods are described in the following sections.

3.11.1 Wall Mounting

To mount the PPC-F08B/F10B-BT panel PC onto a wall, please follow the steps below.

Step 1: Attach the wall mounting kit to the mounting surface with the included screws.

Make sure it is attached securely.

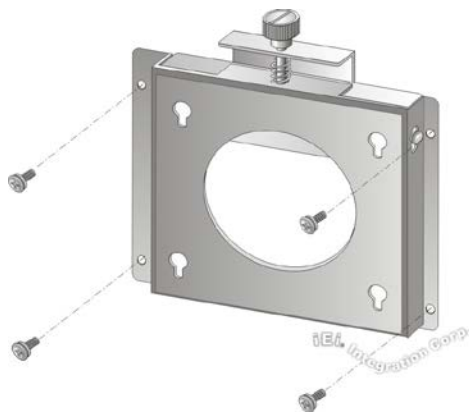


Figure 3-19: Attach Wall Mounting Kit to the Wall

PPC-F08B/F10B-BT Panel PC

Step 2: Screw the mounting screws to the mounting holes on the rear of the PPC-F08B/F10B-BT.

Step 3: Hook the PPC-F08B/F10B-BT into the mounting holes on the wall mounting kit.

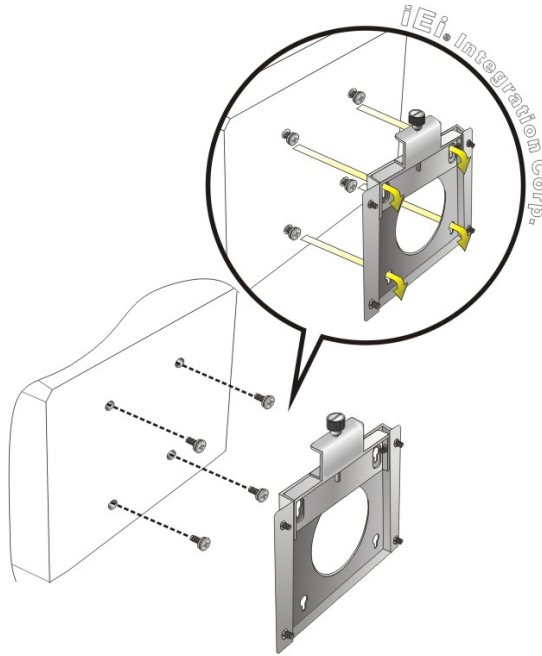
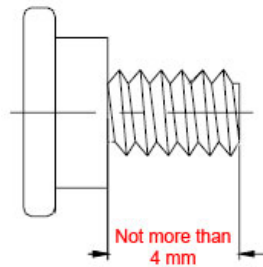


Figure 3-20: Hook Onto Wall Mounting Kit



WARNING:

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



Step 4: Tighten the top screw on the wall mounting kit to securely hold the PPC-F08B/F10B-BT in place. After this screw is tightened, the PPC-F08B/F10B-BT should not be able to move.

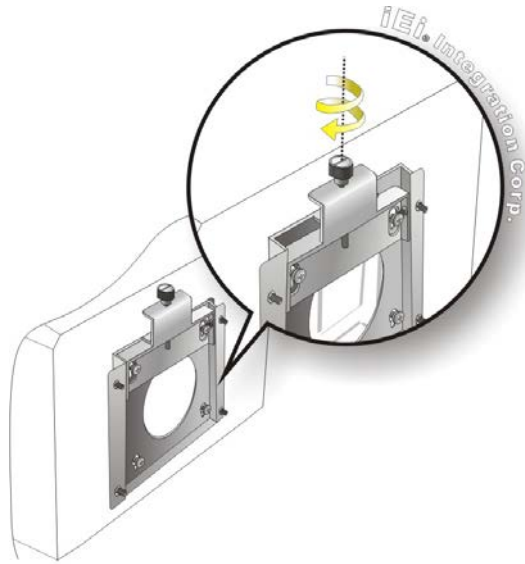


Figure 3-21: Tighten Retention Screw

3.11.2 Panel Mounting

To mount the PPC-F08B/F10B-BT panel PC into a panel, please follow the steps below.

Step 1: [PPC-F10B-BT Only] Install two mounting brackets onto the rear panel of the PPC-F10B-BT (Figure 3-22).

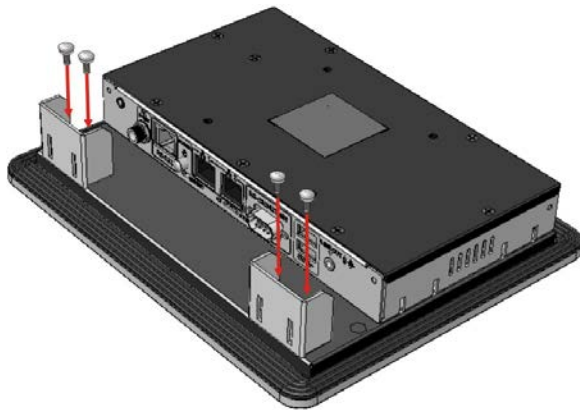


Figure 3-22: PPC-F10B-BT Mounting Bracket Installation

PPC-F08B/F10B-BT Panel PC

- Step 2:** Select the position on the panel to mount the PPC-F08B/F10B-BT.
- Step 3:** Cut out a section of the panel that corresponds to the rear panel dimensions of the PPC-F08B/F10B-BT. The recommended cutout sizes are shown below (Figure 3-23 and Figure 3-24).

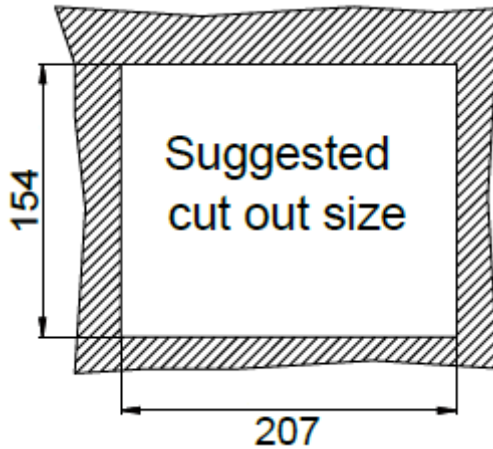


Figure 3-23: PPC-F08B-BT Panel Cutout Dimensions

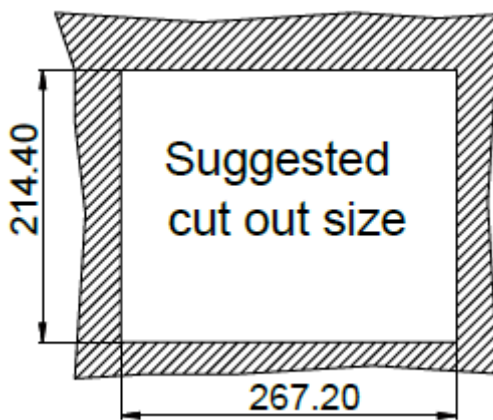


Figure 3-24: PPC-F10B-BT Panel Cutout Dimensions

- Step 4:** Slide the PPC-F08B/F10B-BT through the hole until the aluminum frame is flush against the panel.

Step 5: Insert the mounting clamps into the mounting brackets and pre-formed holes along the edges of the PPC-F08B/F10B-BT, behind the aluminum frame (Figure 3-25).

Step 6: Tighten the screws that pass through the mounting clamps until the plastic caps at the front of all the screws are firmly secured to the panel (Figure 3-25).

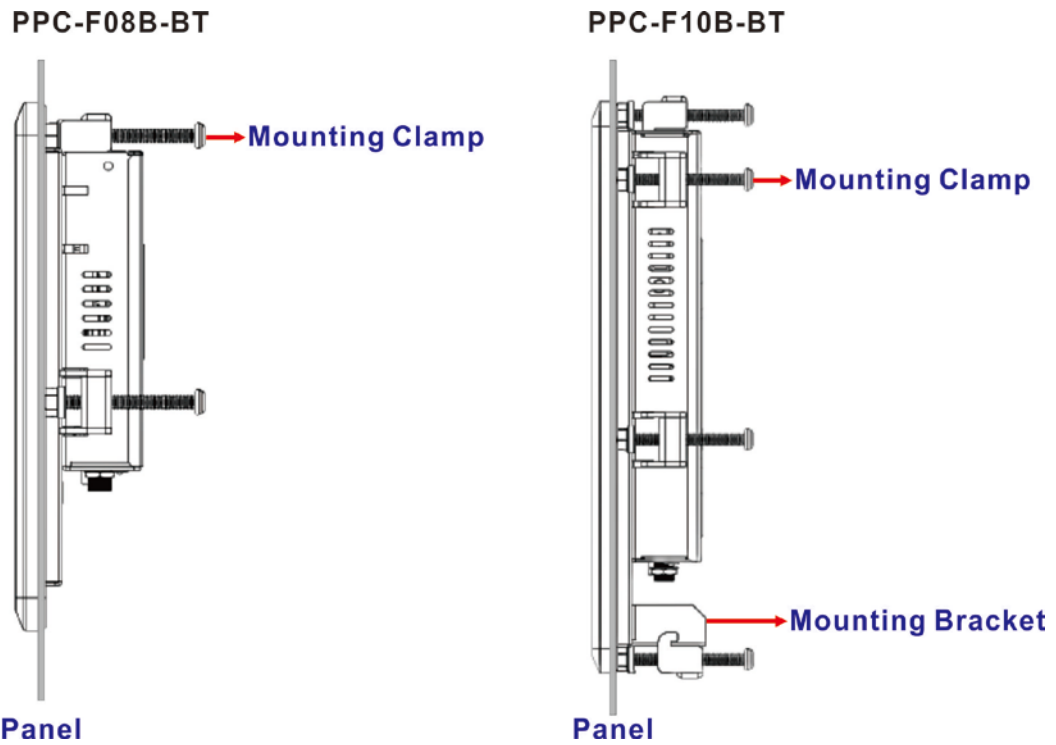


Figure 3-25: Tighten the Mounting Clamp Screws

PPC-F08B/F10B-BT Panel PC

3.11.3 Rack Mounting

The PPC-F08B/F10B-BT flat panel PC can be installed into a cabinet or rack. The installation procedures are similar to the panel mounting installation. To do this, please follow the steps below:



NOTE:

When purchasing the cabinet/rack installation bracket, make sure it is compatible with both the PPC-F08B/F10B-BT flat panel PC and the rack/cabinet into which the PPC-F08B/F10B-BT is installed.

Step 1: [PPC-F10B-BT Only] Install two mounting brackets onto the rear panel of the PPC-F10B-BT (**Figure 3-22**).

Step 2: Slide the rear of the PPC-F08B/F10B-BT flat panel PC through the rack/cabinet bracket until the aluminum frame is flush against the front of the bracket (**Figure 3-26**).

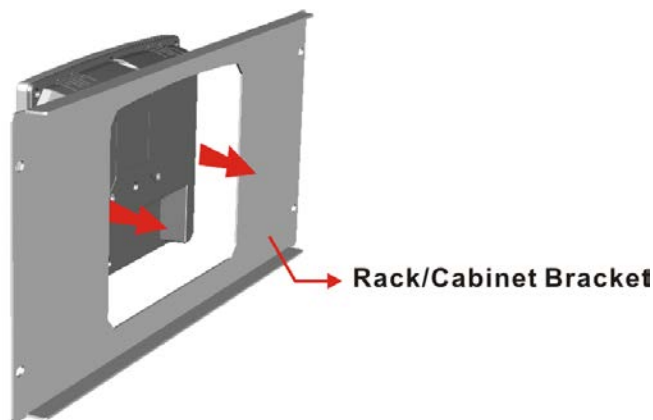


Figure 3-26: The Rack/Cabinet Bracket

Step 3: Insert the mounting clamps into the mounting brackets and pre-formed holes along the edges of the PPC-F08B/F10B-BT, behind the aluminum frame (**Figure 3-27**).

Step 4: Tighten the screws that pass through the mounting clamps until the plastic caps at the front of all the screws are firmly secured to the bracket (**Figure 3-27**).

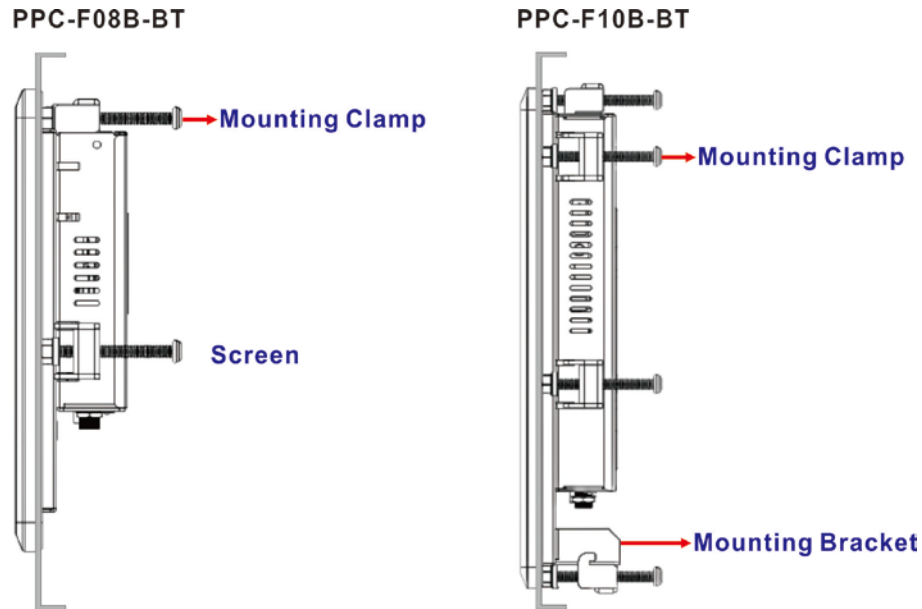


Figure 3-27: Secure the Rack/Cabinet Bracket

Step 5: Slide the PPC-F08B/F10B-BT with the attached rack/cabinet bracket into a rack or cabinet (**Figure 3-28**).

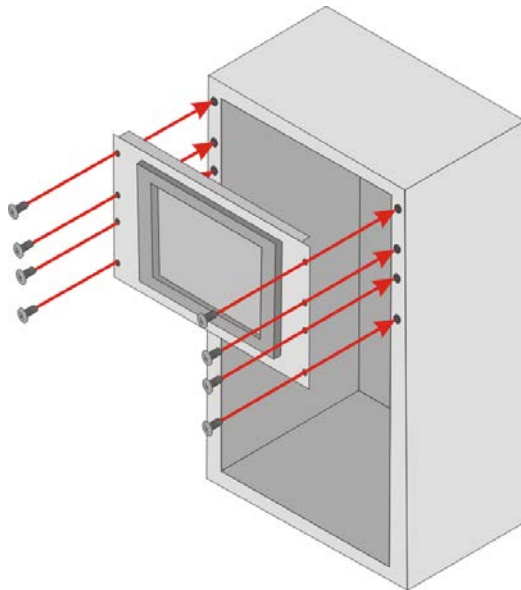


Figure 3-28: Install into a Rack/Cabinet

PPC-F08B/F10B-BT Panel PC

Step 6: Once the flat panel PC with the attached rack/cabinet bracket has been properly inserted into the rack or cabinet, secure the front of the rack/cabinet bracket to the front of the rack or cabinet (**Figure 3-28**).

3.11.4 Arm Mounting

The PPC-F08B/F10B-BT is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 75 mm or 100 mm interface pad. To mount the PPC-F08B/F10B-BT 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 100 mm interface pad. If the mounting arm is not VESA compliant, it cannot be used to support the PPC-F08B/F10B-BT panel PC.

Step 2: Once the mounting arm has been firmly attached to its surface, lift the PPC-F08B/F10B-BT 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 PPC-F08B/F10B-BT panel PC. The arm mounting retention screw holes of the PPC-F08B/F10B-BT panel PC are shown in **Figure 1-3** and **Figure 1-4**.

Step 4: Secure the PPC-F08B/F10B-BT to the interface pad by inserting four retention screws through the mounting arm interface pad and into the PPC-F08B/F10B-BT panel PC.

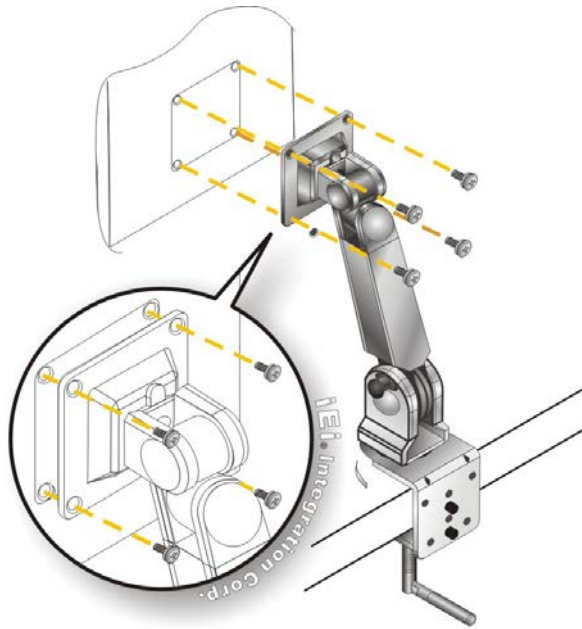


Figure 3-29: Arm Mounting (ARM-11-RS)

3.11.5 Stand Mounting

To mount the PPC-F08B/F10B-BT using the stand mounting kit, please follow the steps below.

- Step 1:** Locate the screw holes on the rear of the PPC-F08B/F10B-BT. This is where the bracket will be attached. The mounting screw holes of the PPC-F08B/F10B-BT panel PC are shown in **Figure 1-3** and **Figure 1-4**.
- Step 2:** Align the bracket with the screw holes.
- Step 3:** To secure the bracket to the PPC-F08B/F10B-BT, insert the retention screws into the screw holes and tighten them.

PPC-F08B/F10B-BT Panel PC

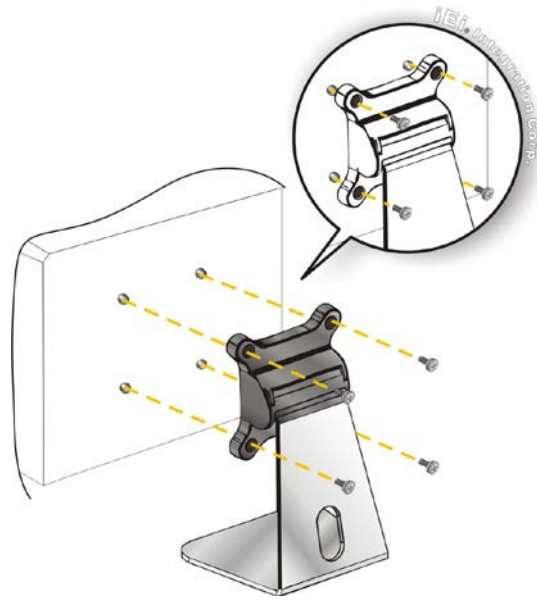


Figure 3-30: Stand Mounting (Stand-B08)

3.12 Powering On the System

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 PPC-F08B/F10B-BT.
- Step 3:** Locate the power button on the I/O panel.
- Step 4:** Hold down the power button until the power LED turns on in green.

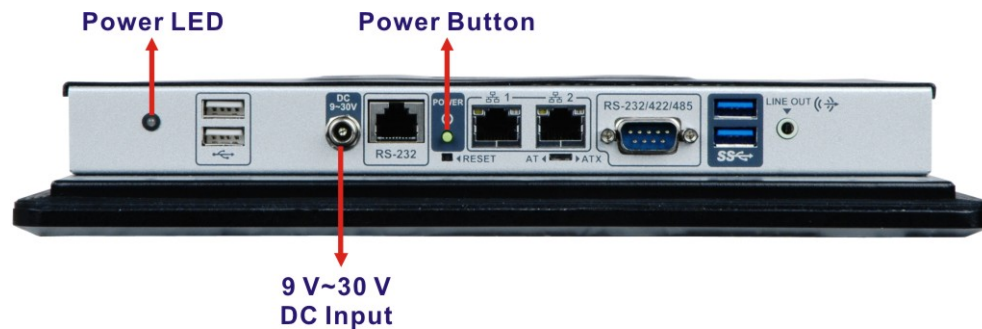


Figure 3-31: Powering On the System

3.13 Reset the System

The reset button enables users to reboot the system when the system is turned on. The reset button location is shown in **Figure 3-32**. Press the reset button to reboot the system.

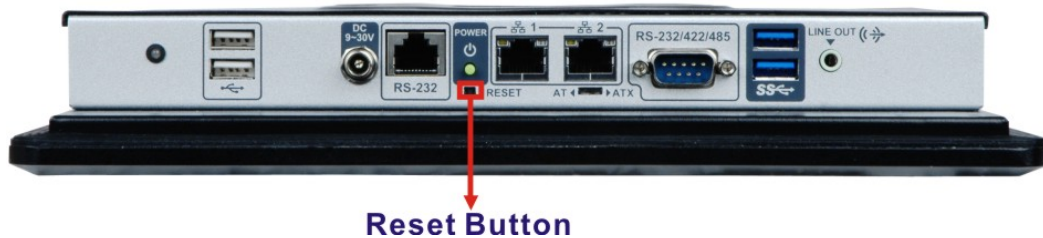


Figure 3-32: Reset Button Location

3.14 Clear CMOS

If the PPC-F08B/F10B-BT fails to boot due to improper BIOS settings, the clear CMOS jumper clears the CMOS data and resets the system BIOS information. To do this, push the clear CMOS button for three seconds, then restart the system. To access the clear CMOS button, the back cover must be removed. Please refer to **Section 3.5** for back cover removal instruction. The clear CMOS button location is shown in **Figure 3-33**.

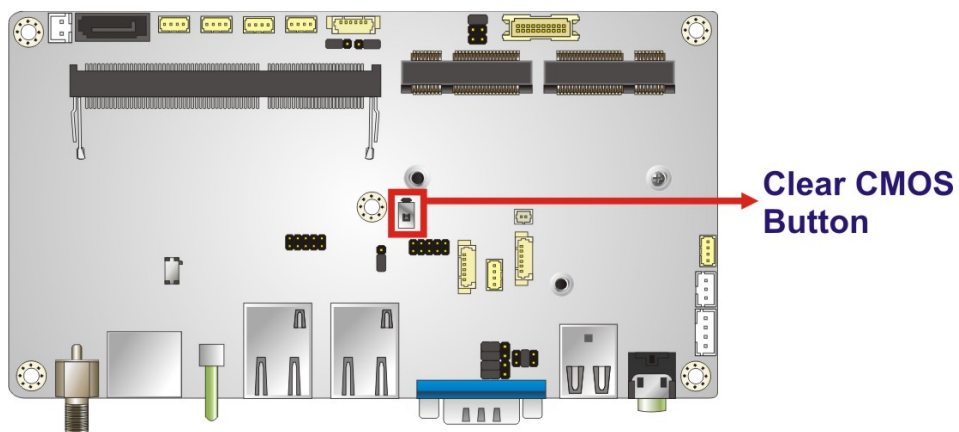


Figure 3-33: Clear CMOS Button Location

3.15 OS Installation



WARNING:

Before installing the operating system, the user must enter the **Boot** BIOS menu first and choose which operating system will be installed. Otherwise the USB 2.0 and USB 3.0 ports cannot be used for OS installation. Please refer to **Figure 3-34** and **Section 5.6**.

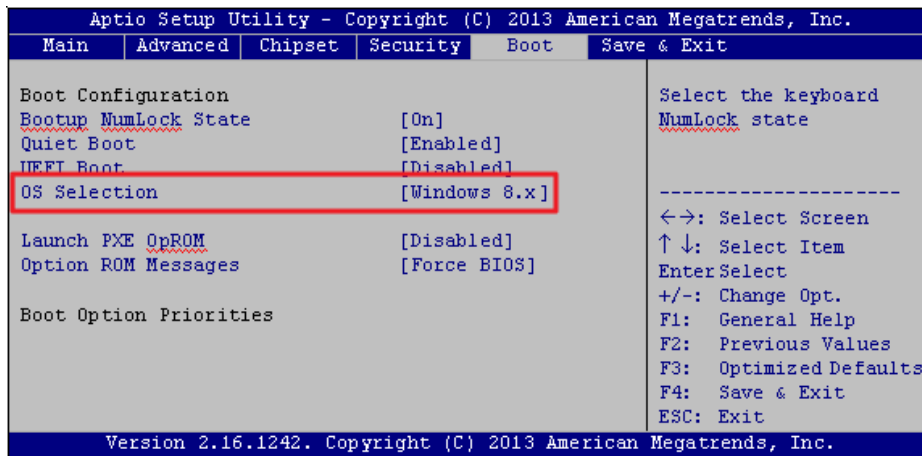


Figure 3-34: BIOS Option – OS Selection

3.16 Driver Installation

**NOTE:**

The content of the CD may vary throughout the life cycle of the product and is subject to change without prior notice. Visit the IEI website or contact technical support for the latest updates.

All the drivers for the PPC-F08B/F10B-BT are on the utility CD that came with the system. The utility CD contains drivers for Windows 7 and Windows 8 operating systems. Please select the corresponding drivers for the system.

The following drivers can be installed on the **Windows 7** operating system:

- Chipset
- I/O driver
- Graphics (Intel® EMGD)
- TXE
- USB 3.0
- LAN
- Audio
- Keypad AP

The following drivers can be installed on the **Windows 8** operating system:

- Chipset
- Serial I/O driver (64-bit only)
- TXE
- Graphics
- LAN
- Audio
- Keypad AP

PPC-F08B/F10B-BT Panel PC

3.16.1 Keypad AP

Keypad AP is an OSD control tool developed by IEI. After the installation, the Keypad AP can be accessed by clicking the  icon on the notification area. It allows users to control screen brightness and audio volume.



Figure 3-35: Keypad AP

Chapter

4

System Maintenance

PPC-F08B/F10B-BT Panel PC



WARNING:

Take Anti-Static precautions whenever maintenance is being carried out on the system components. Failure to take anti-static precautions can cause permanent system damage. For more details on anti-static precautions, please refer to **Section 3.1**.

4.1 System Maintenance Overview



NOTE:

When doing maintenance operations on the system, please follow the instructions in this chapter. Failure to follow these instructions may lead to personal injury and system damage.

To preserve the working integrity of the PPC-F08B/F10B-BT, the system must be properly maintained. If internal components need replacement, the proper maintenance procedures must be followed to ensure the system can continue to operate normally.

4.2 SO-DIMM Replacement Procedure



WARNING!

Users are not advised to attempt to repair or replace any internal or external components of the PPC-F08B/F10B-BT other than those listed below. If any other components fail or need replacement, contact the IEI reseller or vendor you purchased the PPC-F08B/F10B-BT from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@ieiworld.com.

**WARNING:**

Using incorrectly specified SO-DIMM may cause permanently damage the PPC-F08B/F10B-BT. Please make sure the purchased SO-DIMM complies with the memory specifications of the PPC-F08B/F10B-BT.

To replace a SO-DIMM into a SO-DIMM socket, please follow the steps below.

Step 1: Remove the back cover by removing the retention screws. See Section 3.5.

Step 2: Locate the SO-DIMM. (Figure 4-1).

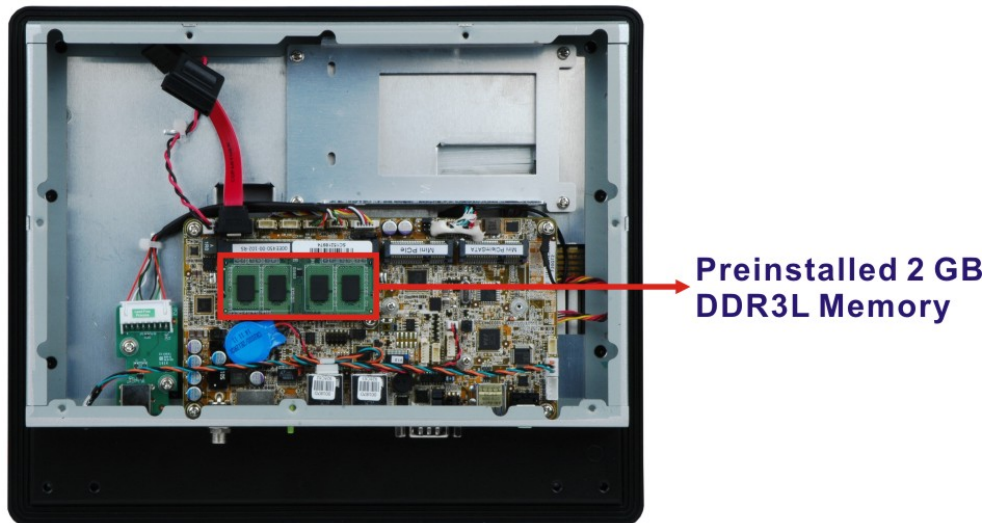


Figure 4-1: SO-DIMM Location

Step 3: Release the arms on the SO-DIMM socket to remove the SO-DIMM.

Step 4: Align the notch on the memory with the notch on the memory socket. Insert the SO-DIMM in at a 20° angle. (Figure 4-2).

Step 5: Push the SO-DIMM downwards until the arms of the SO-DIMM socket clip into place and secure the SO-DIMM in the socket (Figure 4-2).

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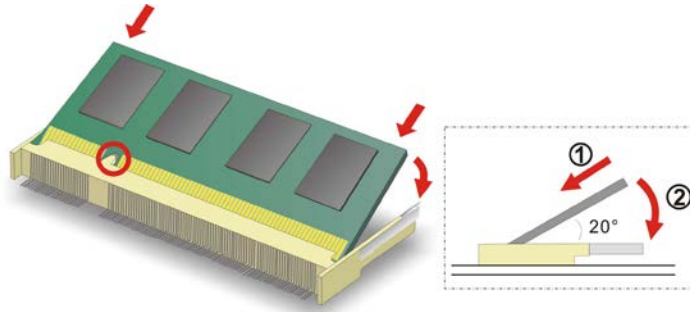


Figure 4-2: SO-DIMM Installation

Step 6: Reinstall the back cover.

Chapter

5

BIOS Setup

PPC-F08B/F10B-BT Panel PC

5.1 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.

5.1.1 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 **DELETE** or **F2** key as soon as the system is turned on or
2. Press the **DELETE** or **F2** key when the “**Press DELETE or F2 to enter SETUP**” message appears on the screen.

If the message disappears before the **DELETE** or **F2** key is pressed, restart the computer and try again.

5.1.2 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

Key	Function
+	Increase the numeric value or make changes
-	Decrease the numeric value or make changes
Page up	Move to the next page
Page down	Move to the previous page
Esc	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
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2	Load previous values
F3	Load optimized defaults
F4	Save changes and Exit BIOS

Table 5-1: BIOS Navigation Keys

5.1.3 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.

5.1.4 Unable to Reboot after Configuration Changes

If the computer cannot boot after changes to the system configuration are made, press the Clear CMOS button on the bottom panel to clear the CMOS data and reset the system BIOS information. The location of the CMOS button is shown in **Figure 3-33**.

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5.1.5 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.
- Boot – Changes the system boot configuration.
- Security – Sets User and Supervisor Passwords.
- 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.

5.2 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.

```

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Main  Advanced  Chipset  Security  Boot  Save & Exit
-----
BIOS Information
BIOS Vendor                American Megatrends
Core Version                5.009
Compliancy                 UEFI 2.3; PI 1.2
Project Version            Z299AM11.ROM
Build Date and Time        07/20/2015 15:53:14

CPU Configuration
Microcode Patch            829
BayTrial SoC              C0 Stepping

Memory Information
Total Memory                2048 MB (LPDDR3)

TXE Information
Sec RC Version             00.05.00.00
TXE FW Version             01.00.02.1060

System Date                 [Wed 06/02/2015]
System Time                 [16:49:37]

Access Level                Administrator

-----
Set the Date. Use Tab to
switch between Data
elements.

-----
<=>: Select Screen
↑ ↓: Select Item
Enter>Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
    
```

BIOS Menu 1: Main

→ BIOS Information

The **BIOS Information** lists a brief summary of the BIOS. The fields in **BIOS Information** cannot be changed. The items shown in the system overview include:

- **BIOS Vendor:** Installed BIOS vendor
- **Core Version:** Current BIOS version
- **Compliance:** Current compliant version
- **Project Version:** the board version
- **Build Date:** Date the current BIOS version was made

→ CPU Information

The **CPU Information** lists a brief summary of the CPU. The fields in **CPU Information** cannot be changed. The items shown in the system overview include:

- **Microcode Patch:** Installed microcode patch
- **BayTrail SoC:** CPU stepping level

→ Memory Information

The Memory Information lists the total memory of the system.

→ TXE Information

The **TXE Information** lists a brief summary of Intel® Trusted Execution Engine (TXE). The fields in **TXE Information** cannot be changed. The items shown in the system overview include:

- **Sec RC Version:** Current sec reference code version
- **TXE FW Version:** Current Intel® TXE firmware version

→ System Date [xx/xx/xx]

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

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→ System Time [xx:xx:xx]

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

5.3 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) 2013 American Megatrends, Inc.
Main  Advanced  Chipset  Security  Boot  Save & Exit
-----
> ACPI Settings                System ACPI Parameters.
> F81866 Super IO Configuration
> F81866 H/M Monitor
> RTC Wake Settings
> Serial Port Console Redirection
> iEi Feature
> CPU Configuration
> IDE Configuration
> USB Configuration

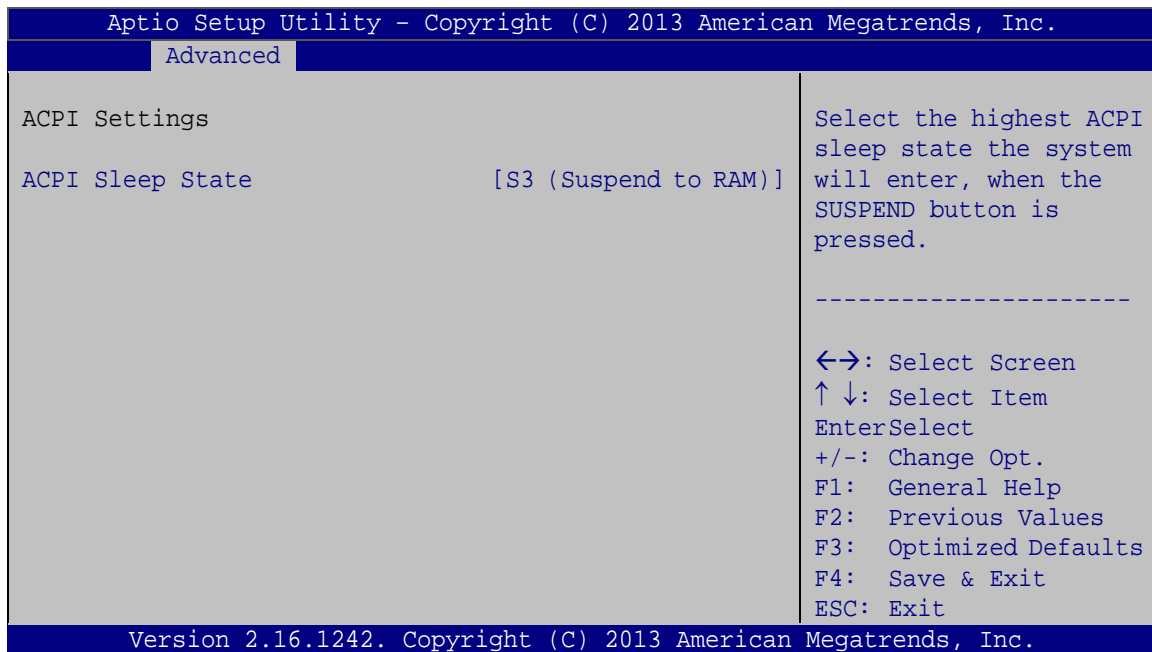
-----
<->: Select Screen
↑ ↓: Select Item
Enter>Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
    
```

BIOS Menu 2: Advanced

5.3.1 ACPI Settings

The **ACPI Settings** menu (**BIOS Menu 3**) configures the Advanced Configuration and Power Interface (ACPI) options.



BIOS Menu 3: 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 DEFAULT RAM)** 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.

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5.3.2 F81866 Super IO Configuration

Use the **F81866 Super IO Configuration** menu (**BIOS Menu 4**) to set or change the configurations for the serial ports.

```

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
  Advanced
F81866 Super IO Configuration                               Set Parameters of Serial
                                                           Port 1 (COMA)
Super IO Chip                                             F81866
> Serial Port 1 Configuration
> Serial Port 2 Configuration
> Serial Port 3 Configuration
> Serial Port 4 Configuration
> Serial Port 5 Configuration
-----
<-->: Select Screen
↑ ↓: Select Item
EnterSelect
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
    
```

BIOS Menu 4: F81866 Super IO Configuration

5.3.2.1 Serial Port n Configuration

Use the **Serial Port n Configuration** menu (**BIOS Menu 5**) to configure the serial port n.

```

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
  Advanced
Serial Port 1 Configuration                               Enable or Disable Serial
                                                           Port (COM)
Serial Port                                             [Enabled]
Device Settings                                         IO=3F8h; IRQ=4
Change Settings                                         [Auto]
-----
<-->: Select Screen
↑ ↓: Select Item
EnterSelect
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
    
```

BIOS Menu 5: Serial Port n Configuration Menu

5.3.2.1.1 Serial Port 1 Configuration

→ 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** Serial Port I/O port address is 3F8h and the interrupt address is IRQ3, 4
- **IO=2F8h;
IRQ=3, 4** Serial Port I/O port address is 2F8h and the interrupt address is IRQ3, 4
- **IO=3E8h;
IRQ=3, 4** Serial Port I/O port address is 3E8h and the interrupt address is IRQ3, 4
- **IO=2E8h;
IRQ=3, 4** Serial Port I/O port address is 2E8h and the interrupt address is IRQ3, 4

5.3.2.1.2 Serial Port 2 Configuration

→ Serial Port [Enabled]

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

- **Disabled** Disable the serial port

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→ **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=2F8h; IRQ=3 | | Serial Port I/O port address is 2F8h and the interrupt address is IRQ3 |
| → | IO=3F8h;
IRQ=3, 4 | | Serial Port I/O port address is 3F8h and the interrupt address is IRQ3, 4 |
| → | IO=2F8h;
IRQ=3, 4 | | Serial Port I/O port address is 2F8h and the interrupt address is IRQ3, 4 |
| → | IO=3E8h;
IRQ=3, 4 | | Serial Port I/O port address is 3E8h and the interrupt address is IRQ3, 4 |
| → | IO=2E8h;
IRQ=3, 4 | | Serial Port I/O port address is 2E8h and the interrupt address is IRQ3, 4 |

5.3.2.1.3 Serial Port 3 Configuration

→ **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=3E8h; IRQ=10** Serial Port I/O port address is 3E8h and the interrupt address is IRQ10
- **IO=3F8h; IRQ=10, 11** Serial Port I/O port address is 3F8h and the interrupt address is IRQ10, 11
- **IO=2F8h; IRQ=10, 11** Serial Port I/O port address is 2F8h and the interrupt address is IRQ10, 11
- **IO=3E8h; IRQ=10, 11** Serial Port I/O port address is 3E8h and the interrupt address is IRQ10, 11
- **IO=2E8h; IRQ=10, 11** Serial Port I/O port address is 2E8h and the interrupt address is IRQ10, 11
- **IO=2F0h; IRQ=10, 11** Serial Port I/O port address is 2F0h and the interrupt address is IRQ10, 11
- **IO=2E0h; IRQ=10, 11** Serial Port I/O port address is 2E0h and the interrupt address is IRQ10, 11

5.3.2.1.4 Serial Port 4 Configuration

→ **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.

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- | | |
|--|--|
| <p>➔ IO=2E8h; IRQ=7</p> | <p>Serial Port I/O port address is 2E8h and the interrupt address is IRQ7</p> |
| <p>➔ IO=3F8h;
IRQ=3, 4, 5, 6, 7,
9, 10, 11, 12</p> | <p>Serial Port I/O port address is 3F8h and the interrupt address is IRQ3, 4, 5, 6, 7, 9, 10, 11, 12</p> |
| <p>➔ IO=2F8h;
IRQ=3, 4, 5, 6, 7,
9, 10, 11, 12</p> | <p>Serial Port I/O port address is 2F8h and the interrupt address is IRQ3, 4, 5, 6, 7, 9, 10, 11, 12</p> |
| <p>➔ IO=3E8h;
IRQ=3, 4, 5, 6, 7,
9, 10, 11, 12</p> | <p>Serial Port I/O port address is 3E8h and the interrupt address is IRQ3, 4, 5, 6, 7, 9, 10, 11, 12</p> |
| <p>➔ IO=2E8h;
IRQ=3, 4, 5, 6, 7,
9, 10, 11, 12</p> | <p>Serial Port I/O port address is 2E8h and the interrupt address is IRQ3, 4, 5, 6, 7, 9, 10, 11, 12</p> |
| <p>➔ IO=2F0h;
IRQ=3, 4, 5, 6, 7,
9, 10, 11, 12</p> | <p>Serial Port I/O port address is 2F0h and the interrupt address is IRQ3, 4, 5, 6, 7, 9, 10, 11, 12</p> |
| <p>➔ IO=2E0h;
IRQ=3, 4, 5, 6, 7,
9, 10, 11, 12</p> | <p>Serial Port I/O port address is 2E0h and the interrupt address is IRQ3, 4, 5, 6, 7, 9, 10, 11, 12</p> |

5.3.2.1.5 Serial Port 5 Configuration

➔ **Serial Port [Enabled]**

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

- | | |
|---|--------------------------------|
| <p>➔ Disabled</p> | <p>Disable the serial port</p> |
| <p>➔ Enabled DEFAULT</p> | <p>Enable the serial port</p> |

→ **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=2F0h; IRQ=10		Serial Port I/O port address is 2F0h and the interrupt address is IRQ10
→ 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
→ IO=2F0h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12		Serial Port I/O port address is 2F0h and the interrupt address is IRQ3, 4, 5, 6, 7, 9, 10, 11, 12
→ IO=2E0h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12		Serial Port I/O port address is 2E0h and the interrupt address is IRQ3, 4, 5, 6, 7, 9, 10, 11, 12

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5.3.3 F81866 H/W Monitor

The F81866 H/W Monitor menu (**BIOS Menu 6**) shows the operating temperatures and voltages.

```

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Advanced
PC Health Status
CPU temperature           :+40 °C
System temperature       :+41 °C

CPU_CORE                 :+0.872 V
+5V                      :+5.087 V
+12V                     :+12.144 V
+DDR                     :+1.372 V
+5VSB                    :+5.040 V
+3.3V                    :+3.344 V
+3.3VSB                  :+3.360 V

-----
<->: Select Screen
↑ ↓: Select Item
EnterSelect
+/-: Change Opt.
F1:  General Help
F2:  Previous Values
F3:  Optimized Defaults
F4:  Save & Exit
ESC: Exit

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

```

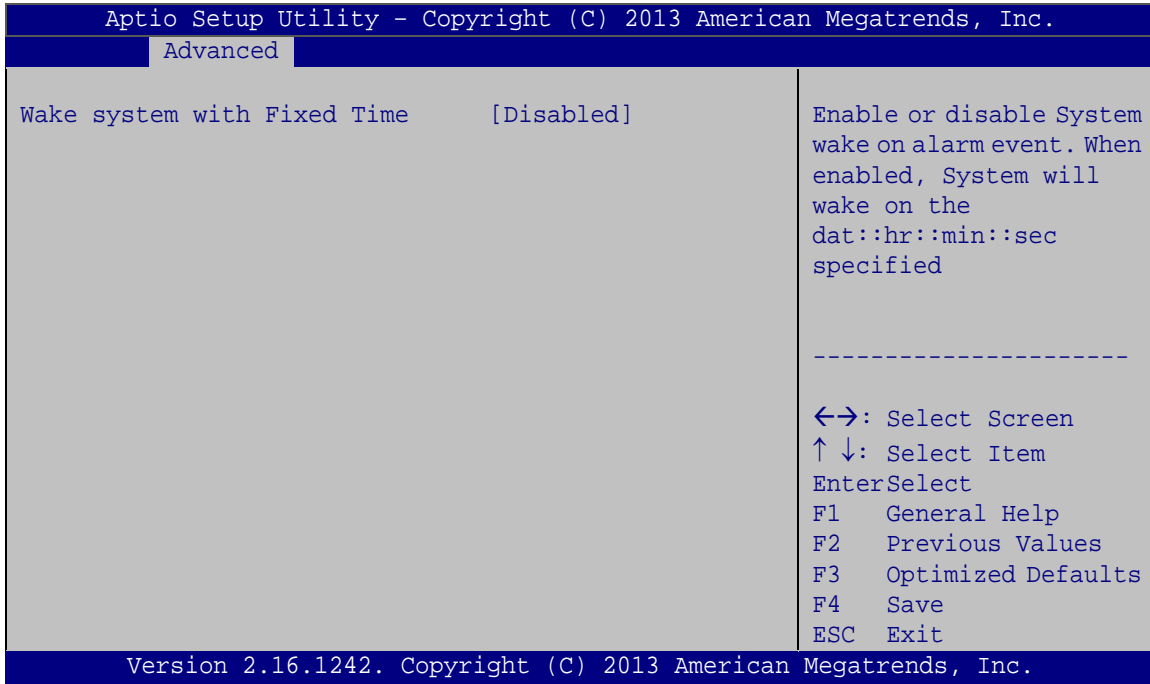
BIOS Menu 6: F81866 H/W Monitor→ **Hardware Health Status**

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

- CPU Temperature
- System Temperature
- Voltages:
 - CPU_CORE
 - +5V
 - +12V
 - +DDR
 - +5VSB
 - +3.3V
 - +3.3VSB

5.3.4 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

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➔ **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.

5.3.5 Serial Port Console Redirection

The **Serial Port Console Redirection** menu (**BIOS Menu 8**) 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.

```

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
  Advanced
COM1
Console Redirection          [Disabled]
> Console Redirection Settings
                               Console Redirection
                               Enable or Disable.

COM2
Console Redirection          [Disabled]
> Console Redirection Settings
-----
<->: Select Screen
↑ ↓: Select Item
EnterSelect
+/-: Change Opt.
F1:  General Help
F2:  Previous Values
F3:  Optimized Defaults
F4:  Save & Exit
ESC: Exit

COM3
Console Redirection          [Disabled]
> Console Redirection Settings

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
  
```

BIOS Menu 8: Serial Port Console Redirection

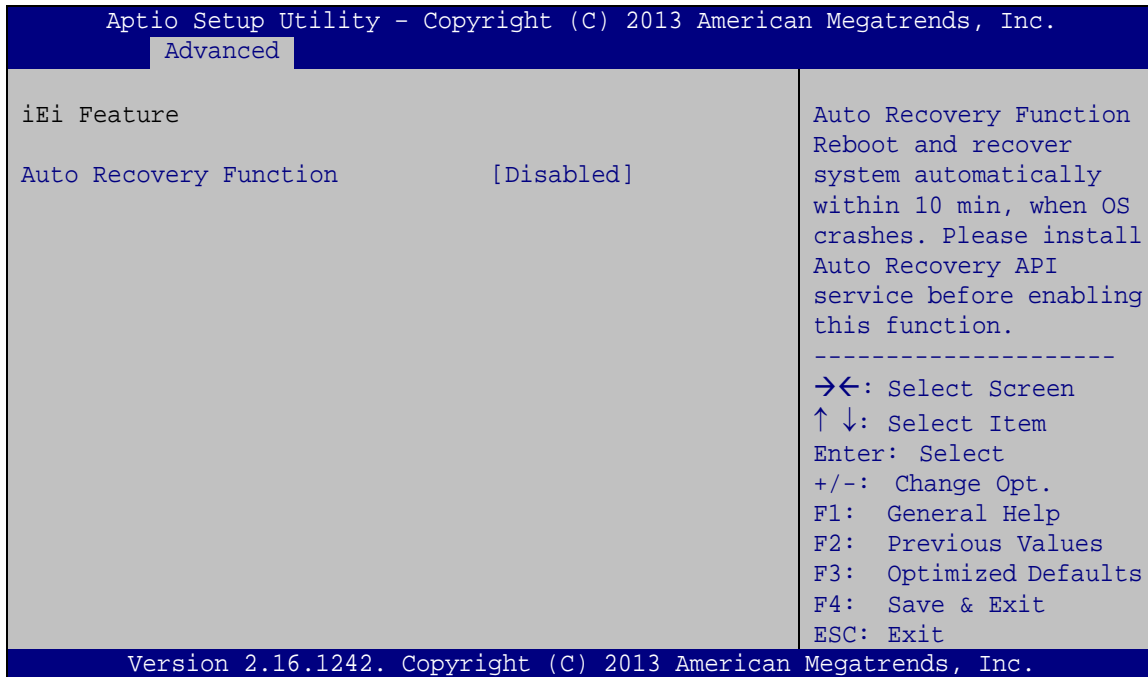
➔ **Console Redirection [Disabled]**

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

5.3.6 iEi Feature

Use the **iEi Feature** menu (**BIOS Menu 9**) to configure One Key Recovery function.



BIOS Menu 9: 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

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5.3.7 CPU Configuration

Use the **CPU Configuration (BIOS Menu 10)** to view detailed CPU specifications and configure the CPU.

```

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
  Advanced
CPU Configuration
Intel(R) Celeron(R) CPU J1900 @ 1.99GHz
CPU Signature           30678
Microcode Patch        829
Max CPU Speed          1990 MHz
Min CPU Speed          1334 MHz
Processor Cores        4
Intel HT Technology     Not Supported
Intel VT-x Technology   Supported

L1 Date Cache          24 kB x 4
L1 Code Cache          32 kB x 4
L2 Cache               1024 kB x 2
L3 Cache               Not Present
64-bit                 Supported

Intel Virtualization Technology [Disabled]
EIST                   [Enabled]

When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology

-----
<->: Select Screen
↑ ↓: Select Item
Enter>Select
+/-: Change Opt.
F1:  General Help
F2:  Previous Values
F3:  Optimized Defaults
F4:  Save & Exit
ESC: Exit

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
  
```

BIOS Menu 10: CPU Configuration

The CPU Configuration menu lists the following CPU details:

- CPU Signature: Lists the CPU signature value.
- Microcode Patch: Lists the microcode patch being used.
- Max CPU Speed: Lists the maximum CPU processing speed.
- Min CPU Speed: Lists the minimum CPU processing speed.
- Processor Cores: Lists the number of the processor core
- Intel HT Technology: Indicates if Intel HT Technology is supported by the CPU.
- Intel VT-x Technology: Indicates if Intel VT-x Technology is supported by the CPU.
- L1 Data Cache: Lists the amount of data storage space on the L1 cache.
- L1 Code Cache: Lists the amount of code storage space on the L1 cache.

- L2 Cache: Lists the amount of storage space on the L2 cache.
- L3 Cache: Lists the amount of storage space on the L3 cache.
- 64-bit: Indicates if 64-bit OS is supported by the CPU.

→ **Intel Virtualization Technology [Disabled]**

Use the **Intel 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.

→ **EIST [Enabled]**

Use the **EIST** option to enable or disable Enhanced Intel SpeedStep® Technology (EIST).

- **Disabled** Disables Enhanced Intel SpeedStep® Technology.
- **Enabled** **DEFAULT** Enables Enhanced Intel SpeedStep® Technology.

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5.3.8 IDE Configuration

Use the **IDE Configuration** menu (**BIOS Menu 11**) to change and/or set the configuration of the SATA devices installed in the system.

```

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
  Advanced
IDE Configuration
Serial-ATA(SATA)      [Enabled]
SATA Mode             [IDE mode]

SATA1
Not Present

SATA2
Not Present

Enable/Disable Serial
ATA
-----
<->: Select Screen
↑ ↓: Select Item
Enter>Select
+/-: Change Opt.
F1  General Help
F2  Previous Values
F3  Optimized Defaults
F4  Save & Exit
ESC  Exit

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

```

BIOS Menu 11: IDE Configuration

→ Serial-ATA (SATA) [Enabled]

Use the **Serial-ATA (SATA)** option to enable or disable the serial ATA controller.

- **Enabled** **DEFAULT** Enables the on-board SATA controller.
- **Disabled** Disables the on-board SATA controller.

→ SATA Mode [IDE Mode]

Use the **SATA Mode** option to configure SATA devices as normal IDE devices.

- **IDE Mode** **DEFAULT** Configures SATA devices as normal IDE device.
- **AHCI Mode** Configures SATA devices as AHCI device.

5.3.9 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 12**) to read USB configuration information and configure the USB settings.

```

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
  Advanced
USB Configuration
USB Devices:
  1 Keyboard, 2 Hubs
Legacy USB Support          [Enabled]
-----
<=>: Select Screen
↑↓: Select Item
Enter>Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

```

BIOS Menu 12: 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

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

5.4 Chipset

Use the **Chipset** menu (**BIOS Menu 13**) to access the North Bridge, South Bridge, and Integrated Graphics configuration menus.



WARNING!

Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.

```

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Main   Advanced  Chipset  Security  Boot   Save & Exit
-----
> North Bridge
> South Bridge

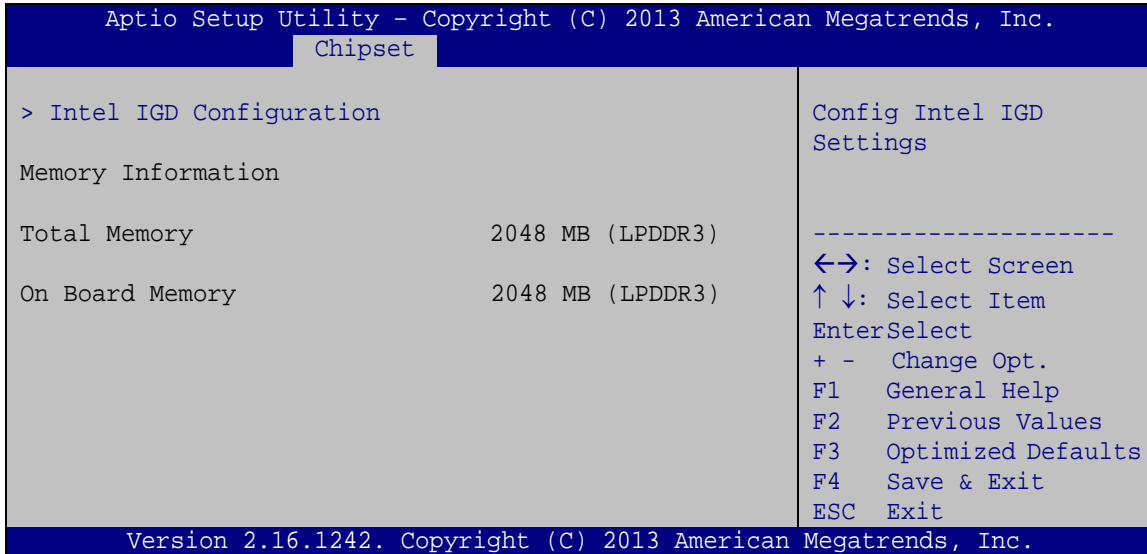
North Bridge Parameters
-----
<->: Select Screen
↑ ↓: Select Item
Enter>Select
+ - Change Opt.
F1  General Help
F2  Previous Values
F3  Optimized Defaults
F4  Save & Exit
ESC Exit

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
    
```

BIOS Menu 13: Chipset

5.4.1 North Bridge Configuration

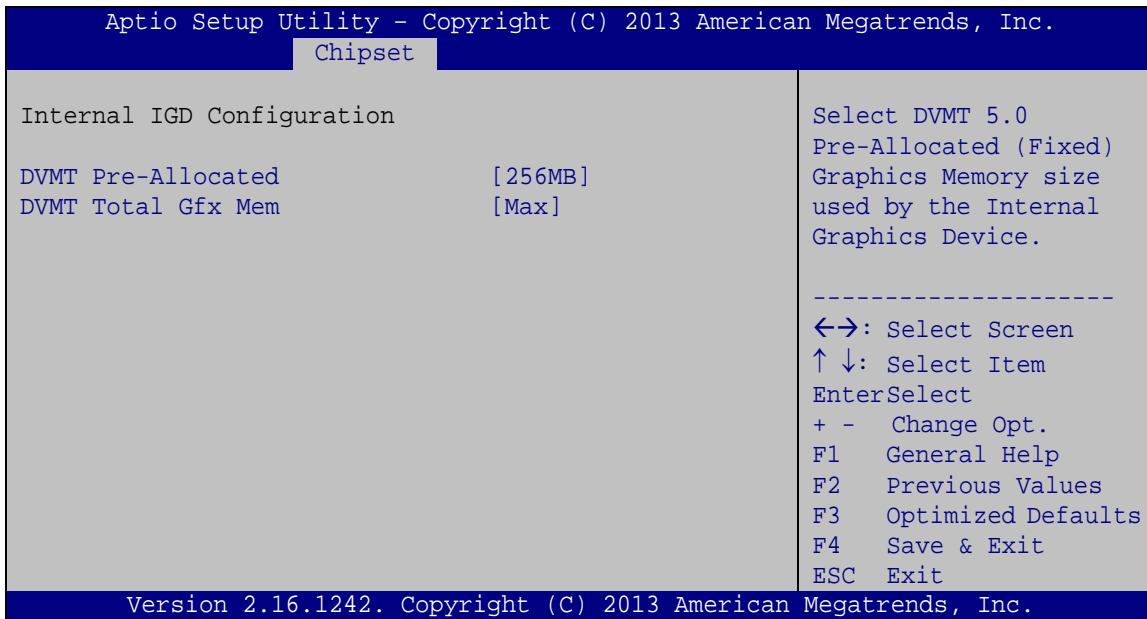
Use the **North Bridge** menu (**BIOS Menu 14**) to configure the north bridge chipset.



BIOS Menu 14: North Bridge Configuration

5.4.1.1 Internal IGD Configuration

Use the Internal IGD Configuration (**BIOS Menu 15**) menu to set the integrated graphics.



BIOS Menu 15: Internal IGD Configuration

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→ DVMT Pre-Allocated [256M]

Use the **DVMT Pre-Allocated** option to specify the amount of system memory that can be used by the internal graphics device.

→	64M		64 MB of memory used by internal graphics device
→	128M		128 MB of memory used by internal graphics device
→	256M	DEFAULT	256 MB of memory used by internal graphics device
→	512M		512 MB of memory used by internal graphics device

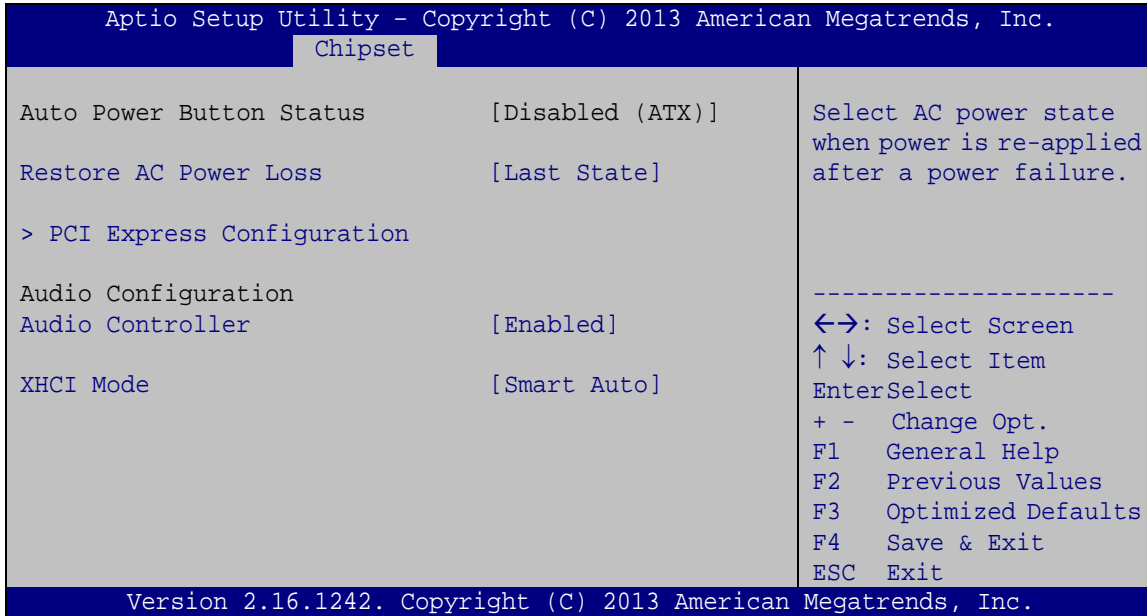
→ DVMT Total Gfx Mem [Max]

Use the **DVMT Total Gfx Mem** option to specify the maximum amount of memory that can be allocated as graphics memory. Configuration options are listed below.

- 128MB
- 256MB
- Max **DEFAULT**

5.4.2 South Bridge Configuration

Use the **South Bridge** menu (**BIOS Menu 16**) to configure the south bridge chipset.



BIOS Menu 16: South Bridge Configuration

→ Restore on AC Power Loss [Last State]

Use the **Restore on AC Power Loss** BIOS option to specify what state the system returns to if there is a sudden loss of power to the system.

- **Power Off** The system remains turned off
- **Power On** The system turns on
- **Last State** **DEFAULT** The system returns to its previous state. If it was on, it turns itself on. If it was off, it remains off.

→ Audio Controller [Enabled]

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

- **Disabled** The High Definition Audio controller is disabled.

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→ **Enabled** **DEFAULT** The High Definition Audio controller is enabled.

→ **XHCI Mode [Smart Auto]**

Use the **XHCI Mode** BIOS option to configure the USB xHCI (USB 3.0) controller.

→ **Enabled** Enable the xHCI controller. USB 3.0 ports behave as USB 3.0 ports.

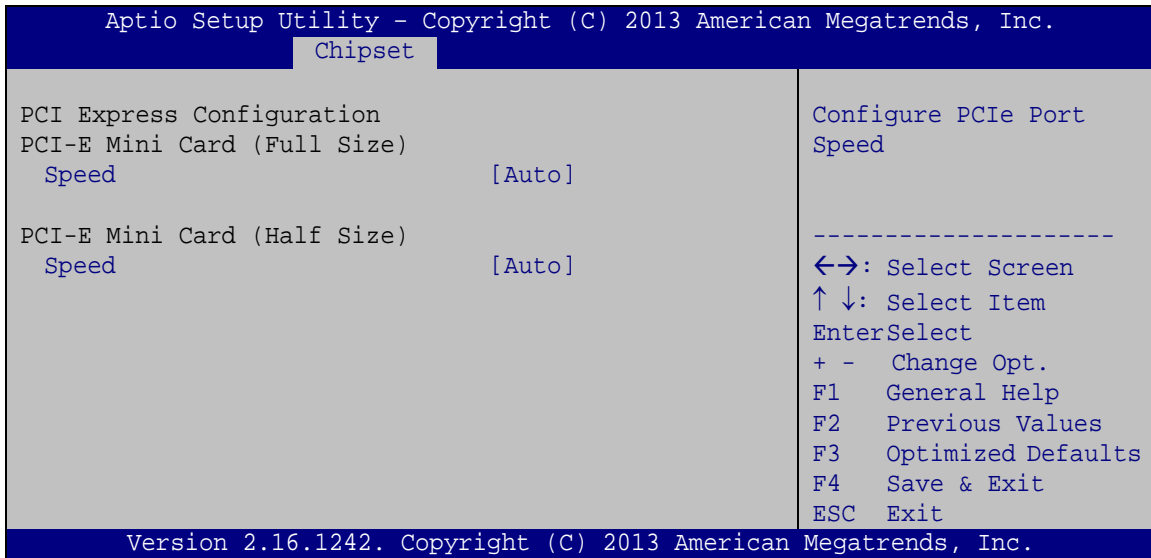
→ **Smart** **DEFAULT** Allow the use of USB 3.0 devices prior to OS boot.
Auto USB 3.0 ports function as USB 3.0 ports even during a reboot.

**NOTE:**

If the system is running Windows 7 operating system, the USB 3.0 driver must be installed to support USB 3.0.

5.4.2.1 PCI Express Configuration

Use the **PCI Express Configuration** submenu (**BIOS Menu 17**) to configure the PCI Express slots.



BIOS Menu 17: PCI Express Configuration

→ Speed [Auto]

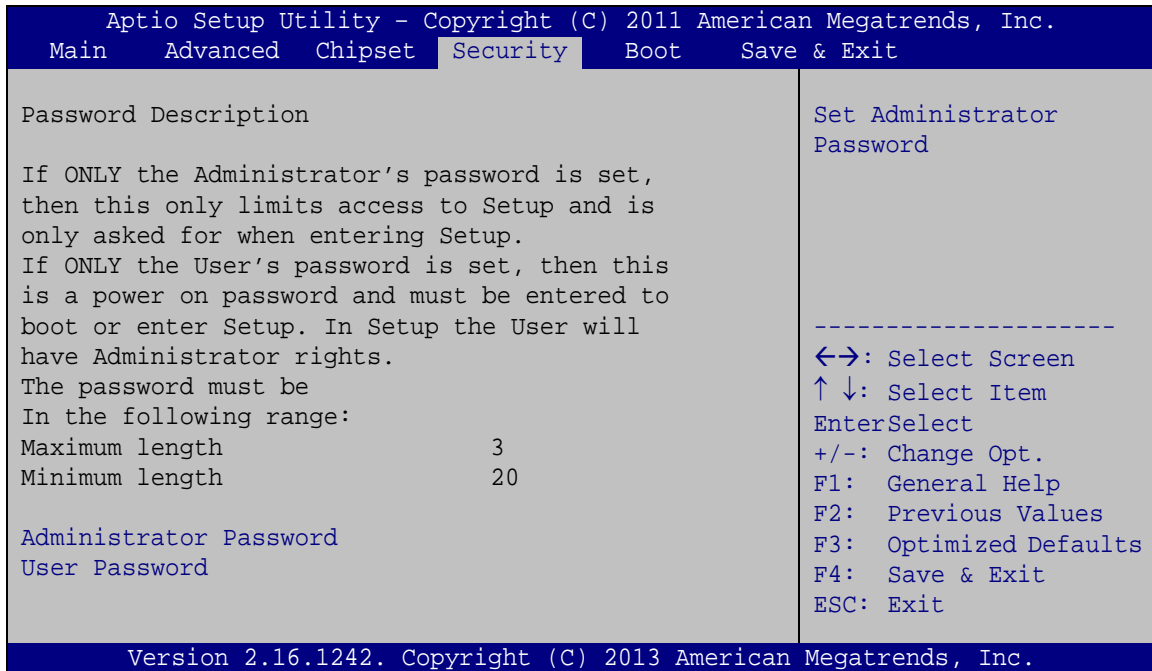
Use the **Speed** option to configure the PCIe Mini card slot speed.

- Auto **DEFAULT**
- Gen 2
- Gen 1

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5.5 Security

Use the **Security** menu (**BIOS Menu 18**) to set system and user passwords.

**BIOS Menu 18: Security**→ **Administrator Password**

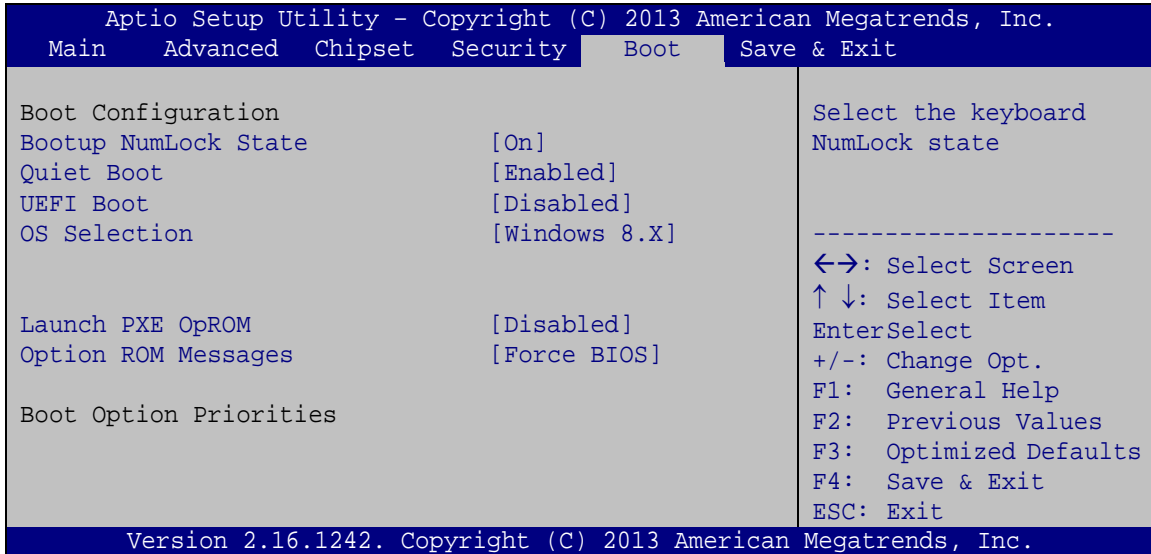
Use the **Administrator Password** field to set or change an administrator password.

→ **User Password**

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

5.6 Boot

Use the **Boot** menu (**BIOS Menu 19**) to configure system boot options.



BIOS Menu 19: 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.

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→ 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.

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

→ OS Selection [Windows 8.x]

Use the **OS Selection** BIOS option to select an operating system (OS) before installing OS.

- **Windows 8.x** **DEFAULT** The system will be installed with Windows 8.x operating system.
- **Windows 7** The system will be installed with Windows 7 operating system.



WARNING:

Before installing the operating system, the user must enter the **Boot** BIOS menu and choose which operating system will be installed. Otherwise the USB 2.0 and USB 3.0 ports cannot be used for OS installation.

→ **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** **DEFAULT** Sets display mode to force BIOS.
BIOS

→ **Keep** Sets display mode to current.
Current

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5.7 Save & Exit

Use the **Save & Exit** menu (**BIOS Menu 20**) to load default BIOS values, optimal failsafe values and to save configuration changes.

```

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Main   Advanced  Chipset   Boot     Security  Save & Exit
-----
Save Changes and Reset
Discard Changes and Reset

Restore Defaults
Save as User Defaults
Restore User Defaults

Reset the system after
saving the changes.

-----
<->: Select Screen
↑ ↓: Select Item
Enter>Select
+/-: Change Opt.
F1:  General Help
F2:  Previous Values
F3:  Optimized Defaults
F4:  Save & Exit
ESC: Exit

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

```

BIOS Menu 20: 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

6

Interface Connectors

6.1 Peripheral Interface Connectors

The PPC-F08B/F10B-BT panel PC motherboard comes with a number of peripheral interface connectors and configuration jumpers. The connector locations are shown in **Figure 6-1** and **Figure 6-2**. The Pin 1 locations of the on-board connectors are also indicated in the diagram below. The connector pinouts for these connectors are listed in the following sections.

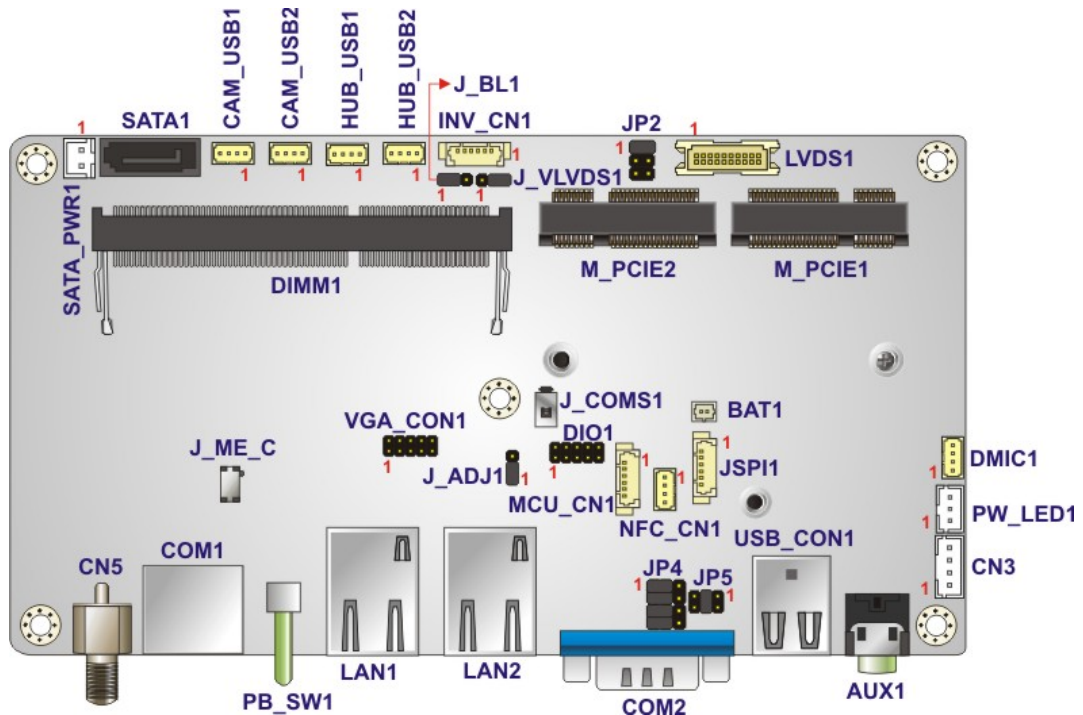


Figure 6-1: Main Board Layout Diagram (Front Side)

PPC-F08B/F10B-BT Panel PC

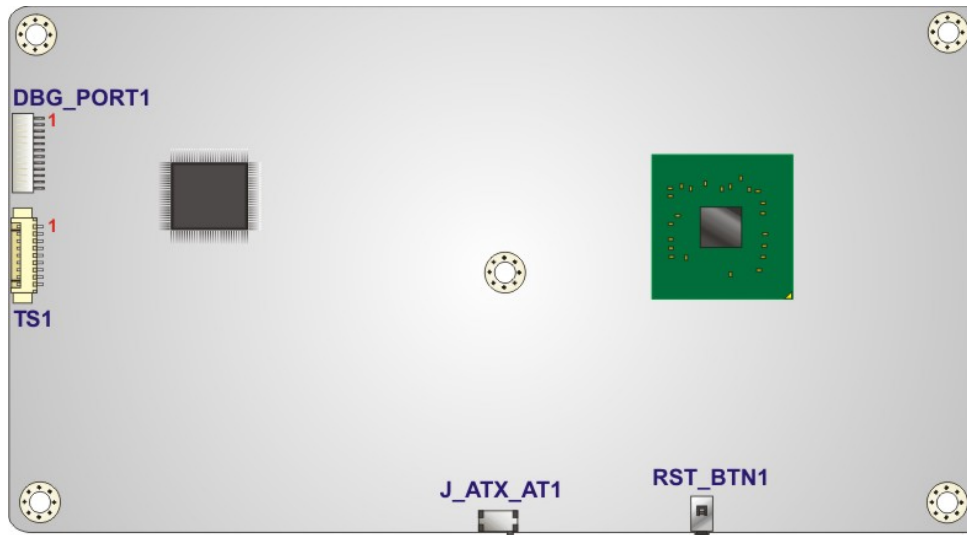


Figure 6-2: Main Board Layout Diagram (Solder Side)

6.2 Internal Peripheral Connectors

Internal peripheral connectors are found on the motherboard and are only accessible when the motherboard is outside of the chassis. The table below shows a list of the peripheral interface connectors on the AFL3MB2-BT. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
Battery connector	2-pin wafer	BAT1
Digital I/O connector	10-pin header	DIO1
Inverter connector	6-pin wafer	INV_CN1
LVDS connector	20-pin crimp	LVDS1
MCU connector	6-pin wafer	MCU_CN1
Microphone connector	4-pin wafer	DMIC1
PCIe Mini card slot	Full-size PCIe Mini slot	M_PCIE1
PCIe Mini card slot	Half-size PCIe Mini slot	M_PCIE2
Power LED connector	3-pin wafer	PW_LED1

Connector	Type	Label
SATA connector	7-pin connector	SATA1
SATA power connector	2-pin wafer	SATA_PWR1
Speaker connector	4-pin wafer	CN3
SPI Flash connector	6-pin wafer	JSPI1
TTL serial connector (COM4)	4-pin wafer	NFC_CN1
USB 2.0 connector	4-pin wafer	HUB_USB1
USB 2.0 connector	4-pin wafer	HUB_USB2
USB connector	4-pin wafer	CAM_USB2
VGA connector	10-pin header	VGA_CON1
Webcam connector	4-pin wafer	CAM_USB1

Table 6-1: Peripheral Interface Connectors

6.2.1 Battery Connector (BAT1)

PIN NO.	DESCRIPTION
1	+3V
2	GND

Table 6-2: Battery Connector (BAT1) Pinouts

6.2.2 Digital I/O Connector (DIO1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC +5V
3	DGPO3	4	DGPO2
5	DGPO1	6	DGPO0
7	DGPI3	8	DGPI2
9	DGPI1	10	DGPI0

Table 6-3: Digital I/O Connector (DIO1) Pinouts

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6.2.3 Inverter Connector (INV_CN1)

PIN NO.	DESCRIPTION
1	+12V
2	+12V
3	BLON
4	Brightness
5	GND
6	GND

Table 6-4: Inverter Connector (INV_CN1) Pinouts

6.2.4 LVDS Connector (LVDS1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	LVDSA0+	4	LVDSA0-
5	LVDSA1+	6	LVDSA1-
7	LVDSA2+	8	LVDSA2-
9	LVDSACLK+	10	LVDSACLK-
11	LVDSA3+	12	LVDSA3-
13	GND	14	GND
15	NC	16	NC
17	VCC	18	VCC
19	VCC	20	VCC

Table 6-5: LVDS Connector (LVDS1) Pinouts

6.2.5 MCU Connector (MCU_CN1)

PIN NO.	DESCRIPTION
1	MCLR
2	+5V
3	GND
4	ICSPCLK

5	ICSPDAT
6	NC

Table 6-6: MCU Connector (MCU_CN1) Pinouts

6.2.6 Microphone Connector (DMIC1)

PIN NO.	DESCRIPTION
1	DMIC_CLK
2	DMIC_DATA
3	+3.3V
4	GND

Table 6-7: Microphone Connector (DMIC1) Pinouts

6.2.7 PCIe Mini Connector, Full-Size (M_PCIE1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	WAKE#	2	VCC3
3	NC	4	GND
5	NC	6	VCC1.5
7	CLKREQ#	8	NC
9	GND	10	NC
11	REFCLK0-	12	NC
13	REFCLK0+	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	NC
21	GND	22	PERST#
23	PERn0	24	VCC3_AUX
25	PERp0	26	GND
27	GND	28	VCC1.5
29	GND	30	SMB_CLK
31	PETn0	32	SMB_DATA
33	PETp0	34	GND
35	GND	36	USB_DATA1-

PPC-F08B/F10B-BT Panel PC

37	GND	38	USB_DATA1 +
39	VCC3_AUX	40	GND
41	VCC3_AUX	42	NC
43	NC	44	NC
45	NC	46	NC
47	NC	48	VCC1.5
49	NC	50	GND
51	Reserved	52	VCC3

Table 6-8: PCIe Mini Connector (M_PCIE1) Pinouts

6.2.8 PCIe Mini Connector, Half-Size (M_PCIE2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	WAKE#	2	VCC3
3	Reserved	4	GND
5	Reserved	6	VCC1.5
7	CLKREQ#	8	NC
9	GND	10	NC
11	REFCLK1-	12	NC
13	REFCLK1+	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	NC
21	GND	22	PERST#
23	PERn2	24	VCC3_AUX
25	PERp2	26	GND
27	GND	28	VCC1.5
29	GND	30	SMB_CLK
31	PETn2	32	SMB_DATA
33	PETp2	34	GND
35	GND	36	NC
37	GND	38	NC
39	VCC3_AUX	40	GND

41	VCC3_AUX	42	NC
43	NC	44	NC
45	NC	46	NC
47	NC	48	VCC1.5
49	NC	50	GND
51	Reserved	52	VCC3

Table 6-9: PCIe Mini Connector (M_PCIE2) Pinouts

6.2.9 Power LED Connector (PW_LED1)

PIN NO.	DESCRIPTION
1	PW_LED +5V
2	GND
3	SUS PW LED +5V

Table 6-10: Power LED Connector (PW_LED1) Pinouts

6.2.10 SATA Connector (SATA1)

PIN NO.	DESCRIPTION
1	GND
2	STXP_0
3	STXN_0
4	GND
5	SRXN_0
6	SRXP_0
7	GND

Table 6-11: SATA Connector (SATA1) Pinouts

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6.2.11 SATA Power Connector (SATA_PWR1)

PIN NO.	DESCRIPTION
1	+5V
2	GND

Table 6-12: SATA Power Connector (SATA_PWR1) Pinouts

6.2.12 Speaker Connector (CN3)

PIN NO.	DESCRIPTION
1	AUD_OUTL+
2	AUD_OUTL-
3	AUD_OUTR-
4	AUD_OUTR+

Table 6-13: Speaker Connector (CN3) Pinouts

6.2.13 SPI Flash Connector (JSPI1)

PIN NO.	DESCRIPTION
1	+1.8V
2	SPI_CS
3	SPI_SO
4	SPI_CLK
5	SPI_SI
6	GND

Table 6-14: SPI Flash Connector (JSPI1) Pinouts

6.2.14 TTL Serial Connector, COM4 (NFC_CN1)

PIN NO.	DESCRIPTION
1	+5V
2	SIN4

3	SOUT4
4	GND

Table 6-15: TTL Serial Connector, COM4 (NFC_CN1) Pinouts

6.2.15 USB 2.0 Connector (HUB_USB1)

PIN NO.	DESCRIPTION
1	+5V
2	DATA4+
3	DATA4-
4	GND

Table 6-16: USB 2.0 Connector (HUB_USB1) Pinouts

6.2.16 USB 2.0 Connector (HUB_USB2)

PIN NO.	DESCRIPTION
1	+5V
2	DATA3+
3	DATA3-
4	GND

Table 6-17: USB 2.0 Connector (HUB_USB2) Pinouts

6.2.17 VGA Connector (VGA_CON1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RED	2	DDCDA
3	GREEN	4	DDCLK
5	BLUE	6	GND
7	HSYNC	8	GND
9	VSYNC	10	GND

Table 6-18: VGA Connector (VGA_CON1) Pinouts

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6.2.18 USB Connector (CAM_USB2)

PIN NO.	DESCRIPTION
1	+5V
2	DATA3+
3	DATA3-
4	GND

Table 6-19: USB Connector (CAM_USB2) Pinouts

6.2.19 Webcam Connector (CAM_USB1)

PIN NO.	DESCRIPTION
1	+5V
2	DATA2+
3	DATA2-
4	GND

Table 6-20: Webcam Connector (CAM_USB1) Pinouts

6.3 External Interface Panel Connectors

The table below lists the rear panel connectors on the AFL2MB-15A motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
Ethernet connector	RJ-45	LAN1
Ethernet connector	RJ-45	LAN2
Power button	Push button	PB_SW1
Power connector	Power jack	CN5
RS-232 serial port	RJ-45	COM1
RS-232/422/485 serial port	D-sub 9	COM2
USB 3.0 connectors	USB 3.0 port	USB_CON1

Table 6-21: Rear Panel Connectors

6.3.1 Ethernet Connectors (LAN1 & LAN2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MDI0+	10	MDI3-
2	MDI0-	11	+3.3Vsus
3	MDI1+	12	ACT-1
4	MDI1-	13	LINNK1000 +3.3sus
5	N/A	14	LINNK1000 +3.3sus
6	N/A	15	GND
7	MDI2+	16	GND
8	MDI2-	17	N/A
9	MDI3+	18	N/A

Table 6-22: Ethernet Connectors (LAN1 & LAN2) Pinouts

6.3.2 Power Connector (CN5)



Table 6-23: Power Connector (CN5) Pinouts

6.3.3 RS-232 RJ-45 Serial Port (COM1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NDCD1	5	NTX1
2	NDSR1	6	NCTS1
3	NRX1	7	NDTR1
4	NRTS1	8	NRI1

Table 6-24: RS-232 RJ-45 Serial Port (COM1) Pinouts

PPC-F08B/F10B-BT Panel PC

6.3.4 RS-232/422/485 DB-9 Serial Port (COM2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NDCD2	6	NDSR2
2	NRX2	7	NRTS2
3	NTX2	8	NCTS2
4	NDTR2	9	NRI2
5	GND		

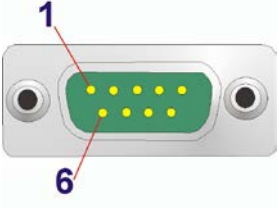


Table 6-25: RS-232/422/485 DB-9 Serial Port (COM2) Pinouts

6.3.5 USB 3.0 Connectors (USB_CON1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5Vsus	10	+5Vsus
2	DATA1-	11	DATA2-
3	DATA1+	12	DATA2+
4	GND	13	GND
5	SSRX1-	14	SSRX2-
6	SSRX1+	15	SSRX2+
7	GND	16	GND
8	SSTX1-	17	SSTX2-
9	SSTX1+	18	SSTX2+

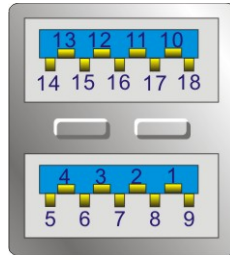


Table 6-26: USB 3.0 Connectors (USB_CON1) Pinouts

6.4 Preconfigured Jumper Settings



CAUTION:

The following jumpers are preconfigured for the PPC-F08B/F10B-BT. Users should not change these jumpers (**Table 6-27**). It is only for reference.

Jumper Name	Type	Label
Backlight voltage selection	3-pin header	J_BL1
Inverter power selection	6-pin header	JP2
LVDS voltage selection	3-pin header	J_VLVDS1
Panel PWM power selection	3-pin header	J_ADJ1
Serial port selection	12-pin header	JP4

Table 6-27: Preconfigured Jumpers

6.4.1 Backlight Voltage Selection Jumper (J_BL1)

PIN	DESCRIPTION
Short 1-2	+3.3 V (Default)
Short 2-3	+5 V

Table 6-28: Backlight Voltage Selection Jumper (J_BL1) Settings

6.4.2 Inverter Power Selection Jumper (JP2)

PIN	DESCRIPTION
Short 1-2	+12 V (Default)
Short 3-4	+5 V
Short 5-6	+3.3 V

Table 6-29: Inverter Power Selection Jumper (JP2) Settings

6.4.3 LVDS Panel Voltage Selection Jumper (J_VLVDS1)

PIN	DESCRIPTION
Short 1-2	+3.3 V
Short 2-3	+5 V (Default)

Table 6-30: LVDS Voltage Selection Jumper (J_VLVDS1) Settings

PPC-F08B/F10B-BT Panel PC**6.4.4 Panel PWM Power Selection Jumper (J_ADJ1)**

PIN	DESCRIPTION
Short 1-2	+3.3V (Default)
Short 2-3	+5V

Table 6-31: Panel PWM Power Selection Jumper (J_ADJ1) Settings

Appendix

A

Regulatory Compliance

DECLARATION OF CONFORMITY

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)

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 zařizení 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 og 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 alapvető követelményeknek és az 2014/53/EU irányelv egyéb előírásainak.

Polski [Polish]

IEI Integration Corp oświadcza, że wyrobu jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 2014/53/EU.

Português [Portuguese]

IEI Integration Corp declara que este equipamento está conforme com os requisitos essenciais e outras disposições da Directiva 2014/53/EU.

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Româna [Romanian]

IEI Integration Corp declară că acest echipament este în conformitate cu cerințele esențiale și 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]

I□ Integration Corp vakuuttaa täten että laitteet on direktiivin 2014/53/EU oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.

Svenska [Swedish]

IEI Integration Corp förklarar att 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 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Federal Communication Commission Interference Statement

This equipment has been assembled with components that 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 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 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 radio/TV technician for help.

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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

BIOS Configuration Options

B.1 BIOS Configuration Options

Below is a list of BIOS configuration options described in **Chapter 5**.

<input type="checkbox"/>	BIOS Information	54
<input type="checkbox"/>	CPU Information.....	54
<input type="checkbox"/>	Memory Information	54
<input type="checkbox"/>	TXE Information	54
<input type="checkbox"/>	System Date [xx/xx/xx].....	54
<input type="checkbox"/>	System Time [xx:xx:xx].....	55
<input type="checkbox"/>	ACPI Sleep State [S3 (Suspend to RAM)].....	56
<input type="checkbox"/>	Serial Port [Enabled].....	58
<input type="checkbox"/>	Change Settings [Auto].....	58
<input type="checkbox"/>	Serial Port [Enabled].....	58
<input type="checkbox"/>	Change Settings [Auto].....	59
<input type="checkbox"/>	Serial Port [Enabled].....	59
<input type="checkbox"/>	Change Settings [Auto].....	59
<input type="checkbox"/>	Serial Port [Enabled].....	60
<input type="checkbox"/>	Change Settings [Auto].....	60
<input type="checkbox"/>	Serial Port [Enabled].....	61
<input type="checkbox"/>	Change Settings [Auto].....	62
<input type="checkbox"/>	Hardware Health Status.....	63
<input type="checkbox"/>	Wake System with Fixed Time [Disabled]	64
<input type="checkbox"/>	Console Redirection [Disabled]	66
<input type="checkbox"/>	Auto Recovery Function [Disabled].....	66
<input type="checkbox"/>	Intel Virtualization Technology [Disabled]	68
<input type="checkbox"/>	EIST [Enabled].....	68
<input type="checkbox"/>	Serial-ATA (SATA) [Enabled].....	69
<input type="checkbox"/>	SATA Mode [IDE Mode].....	69
<input type="checkbox"/>	USB Devices	70
<input type="checkbox"/>	Legacy USB Support [Enabled].....	70
<input type="checkbox"/>	DVMT Pre-Allocated [256M]	73
<input type="checkbox"/>	DVMT Total Gfx Mem [Max].....	73
<input type="checkbox"/>	Restore on AC Power Loss [Last State].....	74
<input type="checkbox"/>	Audio Controller [Enabled]	74

<input type="checkbox"/>	XHCI Mode [Smart Auto]	75
<input type="checkbox"/>	Speed [Auto].....	76
<input type="checkbox"/>	Administrator Password	77
<input type="checkbox"/>	User Password	77
<input type="checkbox"/>	Bootup NumLock State [On].....	78
<input type="checkbox"/>	Quiet Boot [Enabled]	79
<input type="checkbox"/>	UEFI Boot [Disabled]	79
<input type="checkbox"/>	OS Selection [Windows 8.x].....	79
<input type="checkbox"/>	Launch PXE OpROM [Disabled]	80
<input type="checkbox"/>	Option ROM Messages [Force BIOS].....	80
<input type="checkbox"/>	Save Changes and Reset	81
<input type="checkbox"/>	Discard Changes and Reset	81
<input type="checkbox"/>	Restore Defaults	81
<input type="checkbox"/>	Save as User Defaults	82
<input type="checkbox"/>	Restore User Defaults	82

Appendix

C

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 PPC-F08B/F10B-BT.

C.1 Safety Precautions

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

C.1.1 General Safety Precautions

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

- **Follow the electrostatic precautions** outlined below whenever the device is opened.
- **Make sure the power is turned off and the power cord is disconnected** whenever the PPC-F08B/F10B-BT is being installed, moved or modified.
- **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.
- **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 PPC-F08B/F10B-BT chassis is opened when it is running. To avoid risk of electric shock, this device must only be connected to a supply mains with protective earth.
- **Do not drop or insert any objects** into the ventilation openings of the PPC-F08B/F10B-BT.

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- **If considerable amounts of dust, water, or fluids enter the device**, turn off the power supply immediately, unplug the power cord, and contact the PPC-F08B/F10B-BT vendor.
- **DO NOT:**
 - Drop the device 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

C.1.2 Anti-static Precautions



WARNING:

Failure to take ESD precautions during the installation of the PPC-F08B/F10B-BT may result in permanent damage to the PPC-F08B/F10B-BT and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the PPC-F08B/F10B-BT. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the PPC-F08B/F10B-BT 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.

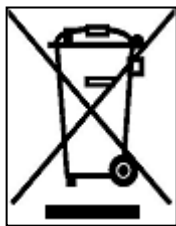
C.1.3 Product Disposal

**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.

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C.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the PPC-F08B/F10B-BT, please follow the guidelines below.



WARNING:

- For safety reasons, turn-off the power and unplug the panel PC before cleaning.
 - 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.
-

C.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the PPC-F08B/F10B-BT, please read the details below.

- Except for the LCD panel, never spray or squirt liquids directly onto any other components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.
- The interior of the device does not require cleaning. Keep fluids away from the device interior.
- Be cautious of all small removable components when vacuuming the device.
- Never drop any objects or liquids through the openings of the device.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the device.
- Avoid eating, drinking and smoking within vicinity of the device.

C.2.2 Cleaning Tools

Some components in the PPC-F08B/F10B-BT 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 PPC-F08B/F10B-BT.

- **Cloth** – Although paper towels or tissues can be used, a soft, clean piece of

cloth is recommended when cleaning the device.

- **Water or rubbing alcohol** – A cloth moistened with water or rubbing alcohol can be used to clean the device.
- **Using solvents** – The use of solvents is not recommended when cleaning the device as they may damage the plastic parts.
- **Vacuum cleaner** – Using a vacuum specifically designed for computers is one of the best methods of cleaning the device. Dust and dirt can restrict the airflow in the device and cause its circuitry to corrode.
- **Cotton swabs** – Cotton swabs moistened with rubbing alcohol or 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

D

Watchdog Timer

**NOTE:**

The following discussion applies to DOS environment. IEI support is contacted or the IEI website visited for specific drivers for more sophisticated operating systems, e.g., Windows and Linux.

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, Watchdog Timer either performs a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

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 D-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. While 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.

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**NOTE:**

When exiting a program it is necessary to disable the Watchdog Timer, otherwise the system resets.

Example program:

```

; INITIAL TIMER PERIOD COUNTER
;
W_LOOP:

    MOV     AX, 6F02H      ;setting the time-out value
    MOV     BX, 05        ;time-out value is 5 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     BX, 0        ;
    INT     15H

;
; EXIT ;

```

Appendix

E

Hazardous Materials Disclosure

PPC-F08B/F10B-BT Panel PC

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	○	○	○	○	○	○
显示	○	○	○	○	○	○
印刷电路板	○	○	○	○	○	○
金属螺帽	○	○	○	○	○	○
电缆组装	○	○	○	○	○	○
风扇组装	○	○	○	○	○	○
电力供应组装	○	○	○	○	○	○
电池	○	○	○	○	○	○

○: 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。