IEI Integration Corp.

MODEL:

AFL3-W10A/12A/W15A-AL

Flat Bezel Panel PC with Intel® Celeron® J3455 Quad-Core CPU, Touchscreen, Dual USB 3.2 Gen 1, Dual GbE LAN, Serial Ports, HDMI, HD Audio, Wi-Fi, Bluetooth, Optional PoE and RoHS

User Manual

Rev. 1.02 - November 29, 2021

RoHS Lead Free

Revision

Date	Version	Changes
November 29, 2021	1.02	Added Windows 11 support in Table 1-2.
January 9, 2020	1.01	Modified the specification of the M.2 B+M-key slot (Table 1-2).
July 22, 2019	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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Introduction

1.1 Overview

Figure 1-1: AFL3-W10A/12A/W15A-AL Panel PC

The AFL3-W10A/12A/W15A-AL series is a quad-core Intel® Celeron® processor J3455 powered flat bezel panel PC with a rich variety of functions and peripherals. The flat-bezel design is ideal for easy and simplified integration into various applications.

The Intel® Celeron® J3455 is a SoC (System-on-Chip) that ensures optimal memory, graphics, and peripheral I/O support. The system comes with 4.0 GB of DDR3L SO-DIMM memory ensuring smooth data throughputs with reduced bottlenecks and fast system access.

Two serial ports, two external USB 3.2 Gen 1 ports and two external USB 2.0 ports ensure simplified connectivity to a variety of external peripheral devices. Wi-Fi capabilities and two RJ-45 Ethernet connectors provide the system with smooth connection to an external LAN. Moreover, one of the Ethernet connectors is capable to support PoE by installing the optional PoE module.

1.2 Model Variations

The model numbers and model variations are listed below.

Model	Size	2.5" HDD Bay	VESA Mount	E-Window
AFL3-W10A-AL-J2/P/PC/4G	10.1"	No	75	No
AFL3-12A-AL-J2/P/PC/4G	12.1"	Yes	75 & 100	Yes
AFL3-W15A-AL-J2/P/PC/4G	15.6"	Yes	75 & 100	Yes

Table 1-1: Model Variations

1.3 Features

The AFL3-W10A/12A/W15A-AL features are listed below:

- Flat-bezel LCD with LED backlight
- Intel® Celeron® processor J3455 (2.0 GHz, quad-core)
- Preinstalled with 4 GB of DDR3L memory (system max. 8 GB)
- Anti-glare/anti-UV projected capacitive type touchscreen
- Wi-Fi 802.11a/b/g/n/ac high speed wireless and Bluetooth v4.1
- Two PCIe GbE RJ-45 connectors
- Two internal speakers
- Two USB 2.0 ports and two USB 3.2 Gen 1 ports
- One RS-232/422/485 serial port by D-sub 9 connector
- One RS-232 serial port by RJ-45 connector
- Optional RFID reader
- Optional magnetic stripe card reader
- 9 V–30 V wide range DC power input; optional PoE support
- IP 64 compliant front panel

1.4 Front Panel

The front side of the AFL3-W10A/12A/W15A-AL is a flat-bezel panel with a TFT LCD screen surrounded by a PC/ABS plastic frame (**Figure 1-2**).
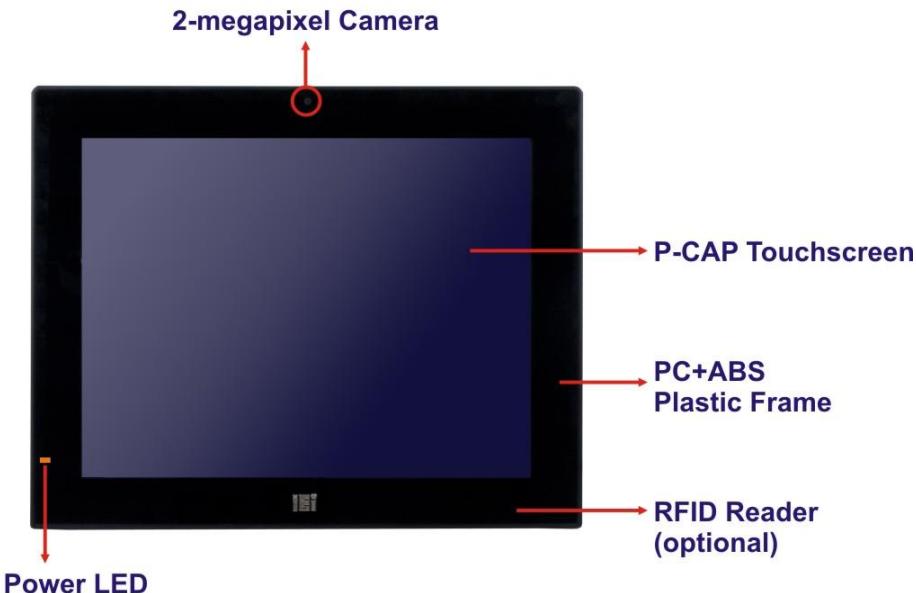
Figure 1-2: Front View

There is a power LED indicator located on the front panel. The status descriptions of the power LED indicator are listed below.

- **Off:** power cord not attached or power supply failure
- **Solid amber:** the system is connected to a power source and is ready to be turned on.
- **Solid green:** the system is turned on.

1.5 Rear Panel

The rear panel provides access to retention screw holes that support VESA mounting. See **Figure 1-3** and **Figure 1-4**.

Figure 1-3: AFL3-W10A-AL Rear View

Figure 1-4: AFL3-12A-AL/AFL3-W15A-AL Rear View

1.6 Bottom Panel

The bottom panel of the AFL3-W10A/12A/W15A-AL has the following connectors and switches (**Figure 1-5**).
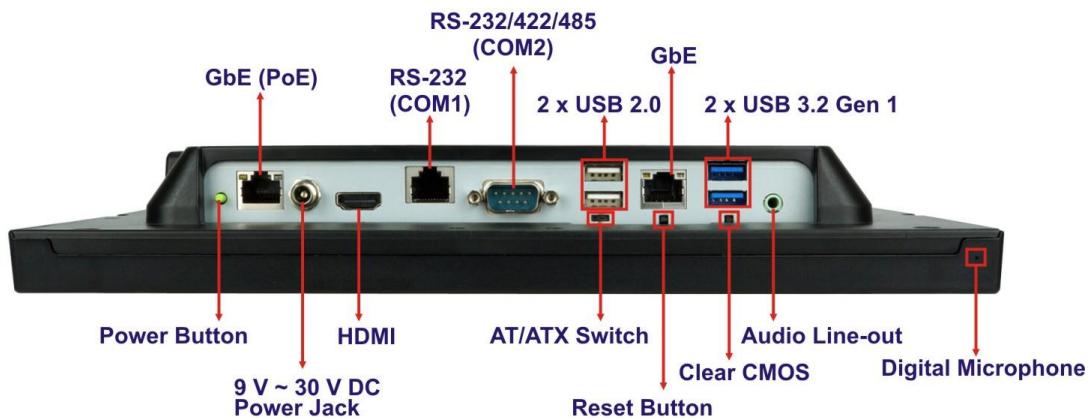
Figure 1-5: Bottom Panel

1.7 System Specifications

The technical specifications for the AFL3-W10A/12A/W15A-AL systems are listed below.

Specification	AFL3-W10A-AL	AFL3-12A-AL	AFL3-W15A-AL
LCD Size	10.1"	12.1"	15.6" (16:9)
Max. Resolution	1280 (W) x 800 (H)	1024 (W) x 768 (H)	1366 (W) x 768 (H)
Brightness (cd/m^2)	350	500	300
Contrast Ratio	800:1	700:1	500:1
Viewing Angle (H-V)	170° / 170°	160° / 160°	170° / 160°
Backlight MTBF	15,000 hrs	50,000 hrs	50,000 hrs
Backlight	LED	LED	LED
Touchscreen	Anti-glare/Anti-UV projected capacitive		
Touch Controller	Capacitive type: EETI EXC 3188		
CPU (SoC)	Intel® Celeron® processor J3455 (up to 2.3 GHz, quad-core)		
Memory	One 204-pin 1866 MHz DDR3L SO-DIMM slot preinstalled with 4 GB SDRAM (system max. 8 GB)		
Ethernet	Two Intel® I211 PCIe GbE controllers		
Storage	One M.2 B+M key 2242 card slot (USB and SATA signals) for SSD installation One 2.5" SATA 3Gb/s HDD bay		
Audio	Realtek ALC888 HD Audio codec		
Internal Speaker	Two 2 W	Two 3 W	Two 3 W
Camera	2-megapixel with low light function		
Wireless	One 802.11a/b/g/n/ac wireless LAN module (via M.2 A-key 2230 slot with PCIe/USB signal) supports Bluetooth v4.1		

RFID Reader	MIFARE 13.56 MHz card reader (optional)		
Card Reader	Magnetic stripe card reader (optional)		
Construction Material	PC+ABS plastic		
VESA Mount	75 mm x 75 mm	75 mm x 75 mm 100 mm x 100 mm	75 mm x 75 mm 100 mm x 100 mm
Mounting	Panel, wall, rack, stand or arm mounting		
Front Panel Color	Black C		
Net/Gross Weight	1.06 kg / 2.58 kg	1.92 kg / 3.95 kg	3.3 kg / 5.6 kg
Dimensions (W x H x D) (mm)	261.7 x 180.3 x 42.6	303.4 x 243.4 x 44.4	395.9 x 250.2 x 53.0
Operating Temperature	-20ºC ~ 50ºC		
Storage Temperature	-20ºC ~ 60ºC		
Humidity	10% ~ 95% (non-condensing)		
IP Level	IP 64 compliant front panel		
Safety/EMC	CE, FCC class A		
ErP	ErP 2009/125/EC		
Power Supply	36 W power adapter	60 W power adapter	60 W power adapter
Input:	100 V ~ 240 V AC, 50 Hz ~ 60 Hz		
Output:	12 V DC, 3 A	12 V DC, 5 A	12 V DC, 5 A
Power Requirement	9 V ~ 30 V DC		
Power Consumption	27 W, 12 V @ 2.25 A	43 W, 12 V @ 3.5 A	50 W, 12 V @ 4.16 A
	(with Intel® Celeron® J3455 CPU and 4 GB 1866 MHz DDR3L memory)		
PoE (PD)	Optional, single channel		
Expansion	N/A	One M.2 B+M key 2242 slot (support USB/SATA signals)	

Supported OS	Microsoft Windows 10 / Windows 11, Linux
I/O Ports and Switches	1 x Audio line-out port
	1 x RS-232/422/485 serial port (DB-9 connector)
	1 x RS-232 serial port (RJ-45 connector)
	2 x GbE LAN (RJ-45 connector)
	2 x USB 3.2 Gen 1 (5 Gb/s) connectors
	2 x USB 2.0 connectors
	1 x HDMI output connector
	1 x Power button
	1 x AT/ATX switch
	1 x Reset button
	1 x Clear CMOS button
	1 x 9 V ~ 30 V DC input jack

Table 1-2: System Specifications

1.8 Dimensions

The following sections list the dimensions of each model.

1.8.1 AFL3-W10A-AL Dimensions

The AFL3-W10A-AL dimensions are shown below.
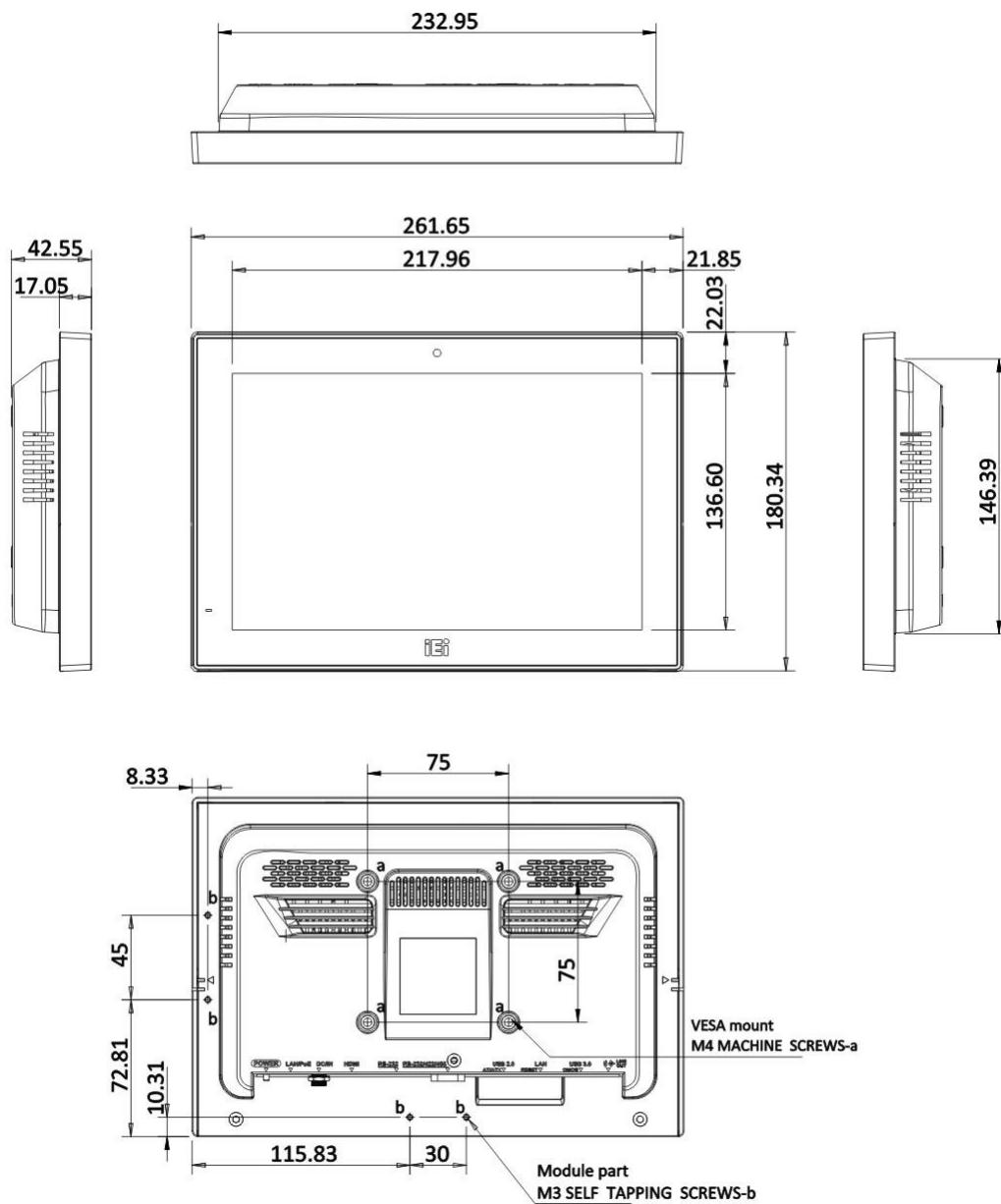
Figure 1-6: AFL3-W10A-AL Dimensions (mm)

1.8.2 AFL3-12A-AL Dimensions

The AFL3-12A-AL dimensions are shown below.
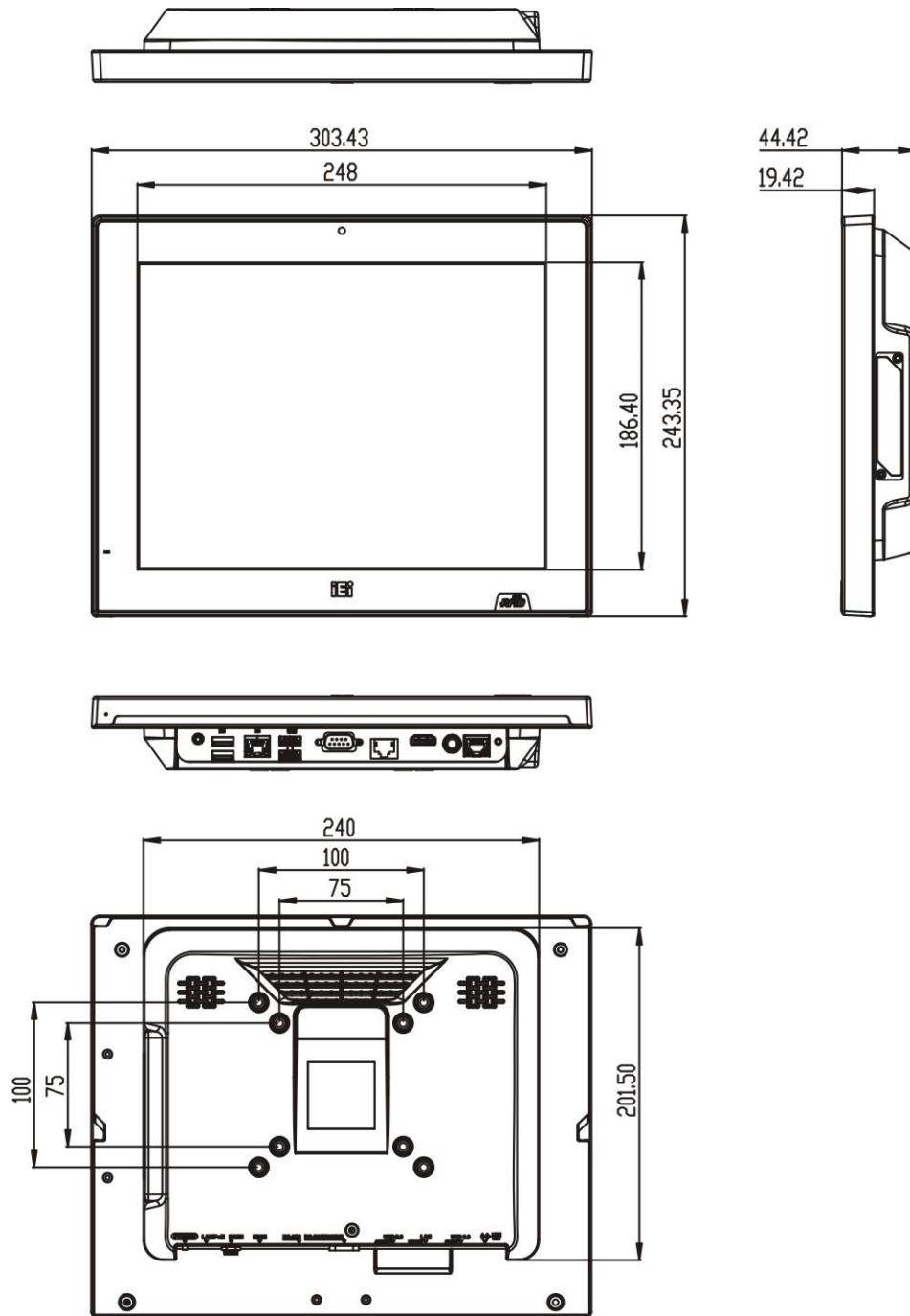
Figure 1-7: AFL3-12A-AL Dimensions (mm)

1.8.3 AFL3-W15A-AL Dimensions

The AFL3-W15A-AL dimensions are shown below.
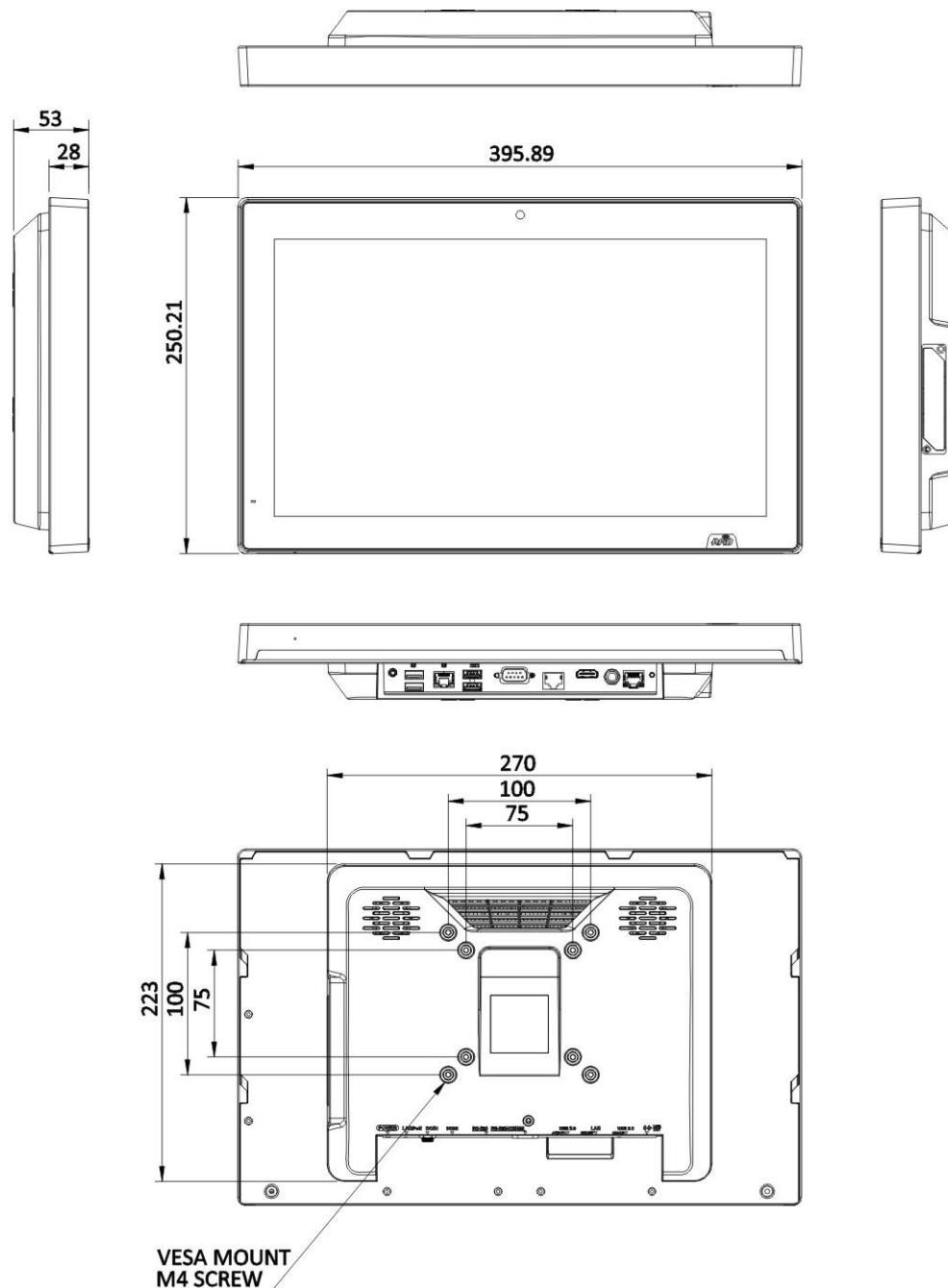
Figure 1-8: AFL3-W15A-AL Dimensions (mm)

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.

2.2 Packing List

NOTE:

If any of the components listed in the checklist below are missing, do not proceed with the installation. Contact the IEI reseller or vendor the AFL3-W10A/12A/W15A-AL was purchased from or contact an IEI sales representative directly.

The AFL3-W10A/12A/W15A-AL panel PC is shipped with the following components:

Quantity	Item	Image
1	AFL3-W10A/12A/W15A-AL panel PC	
1	36 W power adapter for AFL3-W10A-AL	
1	60 W power adapter for AFL3-12A-AL and AFL3-W15A-AL	
1	Power cord	
1	RJ-45 to DB-9 COM port cable	
1	Thermal pad for M.2 SSD module	

4	Screws (M4*6) for VESA mounting	
4	Screws (M3*4) for HDD installation	
	Backup screws for rear panel installation	

2.3 Optional Items

The following are optional components which may be separately purchased:

Item and Part Number	Image
PoE module kit (**P/N**: AFL3-PD-BT01-KIT01-R10)	
RFID reader kit	
VESA 75 wall mount kit (**P/N**: AFLWK-12)	
VESA 100 wall mount kit (**P/N**: AFLWK-19B)	
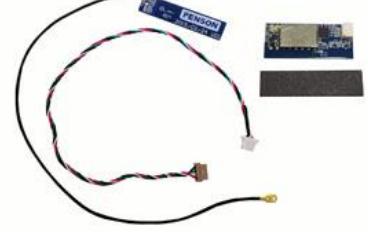
Item and Part Number	Image
Panel mounting kit for 10.1" and 12.1" SKUs (**P/N**: AFL3PK-08A-R10)	
Panel mounting kit for 15.6" SKU (**P/N**: AFL3PK-W15A-R10)	
Rack mounting kit (10.1": AFL3RK-W10A-R10 12.1": AFL3RK-12A-R10 15.6": AFL3RK-W15A-R11)	
Arm (**P/N**: ARM-11-RS)	
Arm (**P/N**: ARM-31-RS)	
Stand for VESA 75/VESA 100 (**P/N**: STAND-C12-R10)	

Item and Part Number	Image
LCD monitor stand with adjustable hinge (10.1": VSTAND-A10 12.1": VSTAND-A12)	
Magnetic card reader (**P/N**: AFL3P-W10MSR-U-R10)	
Barcode scanner (**P/N**: AFL3-2D-R11)	

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

Chapter

3

Installation

3.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the maintenance of the AFL3-W10A/12A/W15A-AL may result in permanent damage to the AFL3-W10A/12A/W15A-AL and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the AFL3-W10A/12A/W15A-AL. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the AFL3-W10A/12A/W15A-AL 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 AFL3-W10A/12A/W15A-AL, place it on an anti-static pad. This reduces the possibility of ESD damaging the AFL3-W10A/12A/W15A-AL.
- *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.

▪ **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 Installation and Configuration Steps

The following installation steps must be followed.

Step 1: Unpack the panel PC.

Step 2: Install an M.2 SSD or an HDD.

Step 3: (Optional) Install a PoE module.

Step 4: Configure the system.

Step 5: Connect peripheral devices to the panel PC.

Step 6: Mount the panel PC.

3.4 Removing the Back Cover

To access the panel PC internally, the back cover must be removed. To remove the back cover, please follow the steps below.

Step 1: Remove the retention screws from the back cover. Two types of screw are used for securing the back cover of the 12.1" and 15.6" models. See the following diagrams for detail. Be aware of this for reinstalling the back cover.

Figure 3-1: AFL3-W10A-AL Back Cover Retention Screws

Figure 3-2: AFL3-12A-AL Back Cover Retention Screws

o

Figure 3-3: AFL3-W15A-AL Back Cover Retention Screws

Step 2: Slide the back cover toward the I/O panel until it is disengaged from the locking mechanism. Then, lift the back cover off the chassis. See **Figure 3-4**.

Figure 3-4: Remove the Back Cover

3.4.1 Reinstalling the Back Cover

To install the back cover, slide the back cover toward the top cover until the external and internal locking mechanisms are both clipped into place. Then, secure the back cover with the previously removed screws. Please be aware of the type of screws when fastening the back cover of the 12.1" and 15.6" models (refer to Figure 3-2 and Figure 3-3).

![WARNING icon] **WARNING:**

Over-tightening back cover screws will crack the plastic frame. Maximum torque for cover screws is 5 kg-cm (0.36 lb-ft/0.49 Nm).

The following diagram shows the differences of the internal locking mechanism of the two models.
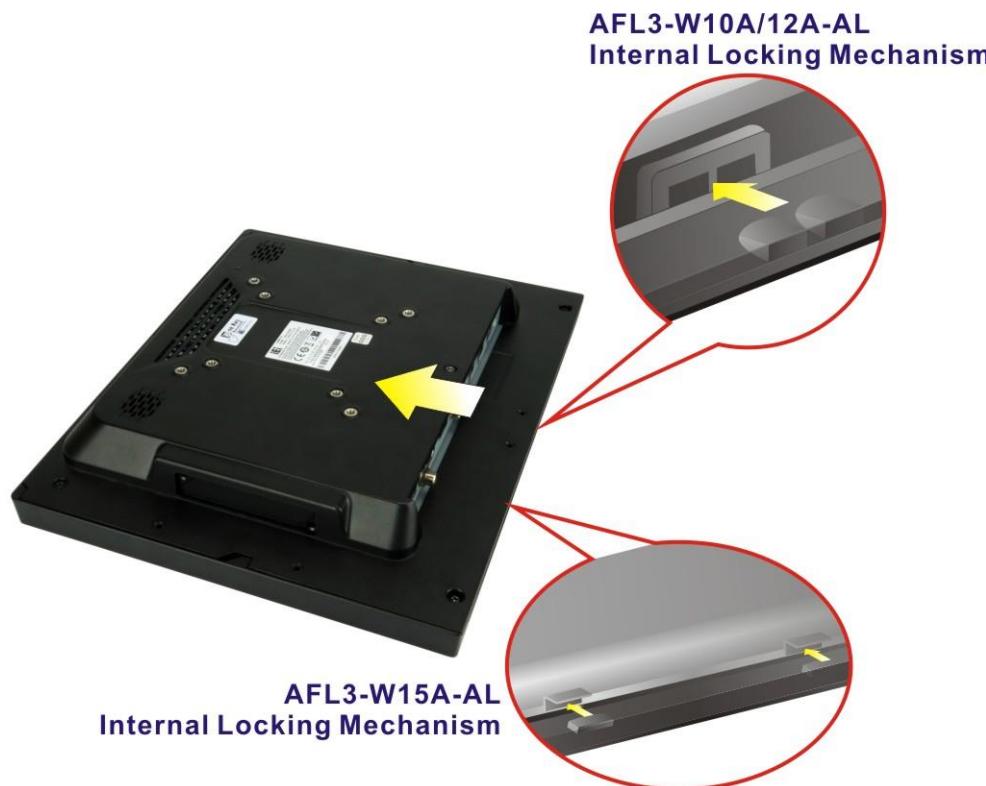
Figure 3-5: Internal Locking Mechanism

3.5 M.2 SSD Installation

To install an M.2 SSD into the AFL3-W10A/12A/W15A-AL, please follow the steps below:

Step 1:   Remove the plastic back cover. See **Section 3.4** above.

Step 2:   Locate the M.2 B-key 2242 slot. Remove the preinstalled retention screw on the

screw pillar of the M.2 slot as shown in **Figure 3-6**.
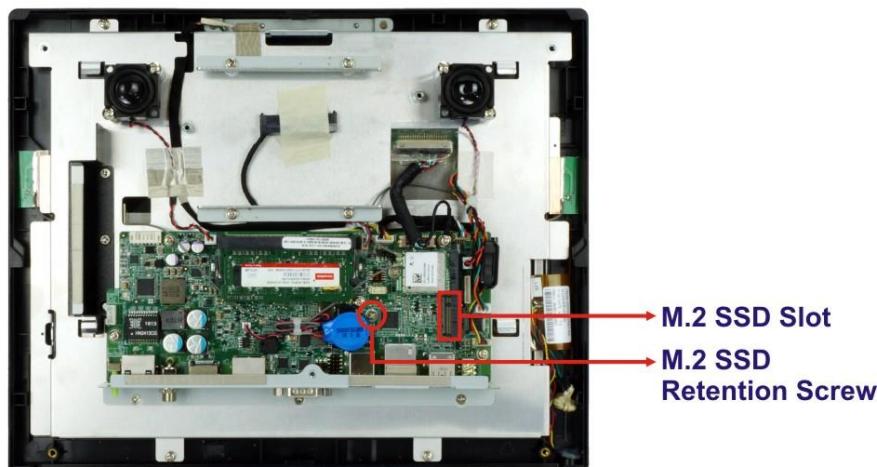
Figure 3-6: M.2 Slot Location

Step 3: Line up the notch on the M.2 SSD with the notch on the connector. Slide the M.2 SSD into the socket at an angle of about 20º (**Figure 3-7**).

Step 4: Secure the M.2 SSD with the retention screw. Push the other end of the M.2 SSD down and secure the card with the previously removed retention screw (**Figure 3-7**).
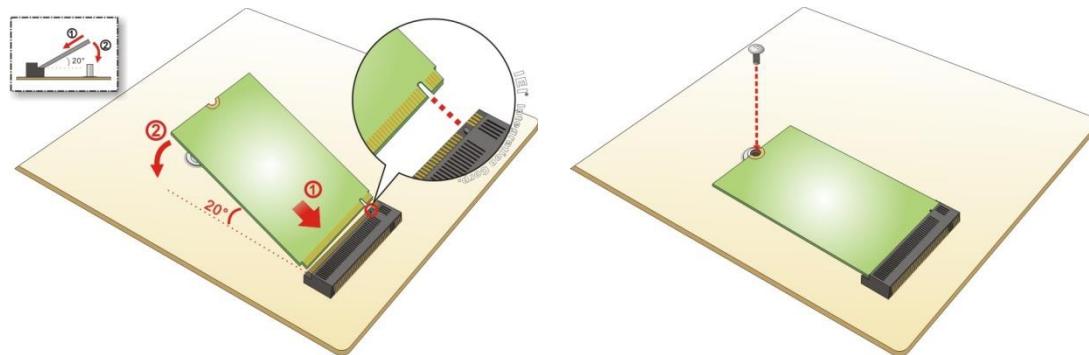
Figure 3-7: M.2 SSD Installation

Step 5: **IMPORTANT!** Attach the thermal pad come with the system onto the SSD module. The sticky side must face down.

Step 6: Reinstall the back cover and secure it using the retention screws.

3.6 HDD Installation

![NOTE icon] **NOTE:**

The HDD drive bay is only available in the 12.1" and 15.6" models. For the 10.1" model, please install M.2 SSD as the storage device.

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

Step 1: Remove the plastic back cover. See **Section 3.4** above.

Step 2: Remove the four HDD bracket retention screws as shown below, and lift both HDD brackets off the panel PC.
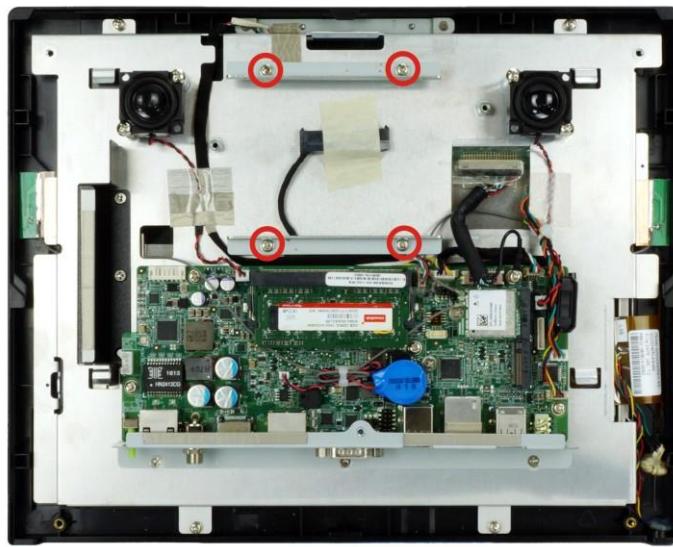
Figure 3-8: HDD Bracket Retention Screws

Step 3: Attach the HDD brackets to the HDD. To do this, align the two retention screw holes in the side of an HDD bracket with the retention screw holes on one side of the HDD. Insert two retention screws into the HDD bracket to secure it. Follow the same procedure to secure the other HDD bracket to the HDD (**Figure 3-9**).

Figure 3-9: HDD Retention Screws

Step 4: Connect the SATA cable to the rear of HDD from the motherboard.

Step 5: Install the HDD into the AFL3-W10A/12A/W15A-AL by aligning the retention screw holes in the HDD brackets with the retention screw holes on the chassis. Insert the four retention screws.

Figure 3-10: HDD Installation

Step 6: Replace the plastic back cover.

3.7 PoE Module Installation (Optional)

A PoE module (32 V ~ 57 V input, 12 V output) must be installed and connected before start using the panel PC as a PoE powered device (PD). To install the optional PoE module, follow the steps below.

> **NOTE:**
>
> Installing the PoE module in the 12.1" and 15.6" models will occupy the space for 2.5" HDD installation. Use an M.2 SSD module (B-key 2242) as the storage device when PoE module installation is required.

Step 1: Remove the plastic back cover. See **Section 3.4** above.

Step 2: Connect the two cables came with the PoE module to the corresponding connectors on the module.
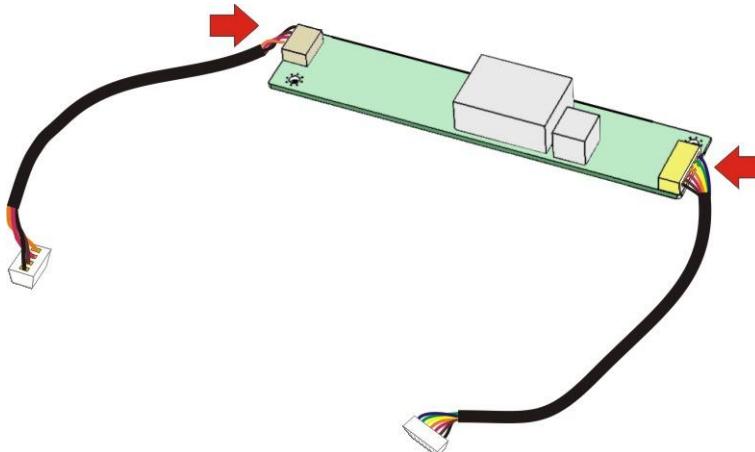
Figure 3-11: PoE Module – Cable Connection

Step 3: The space for installing the PoE module is located inside the chassis, above the motherboard. Secure the PoE module to the panel PC by using two retention screws as shown in Figure 3-12.

Step 4: Connect the two cables to the connectors on the motherboard as shown below.
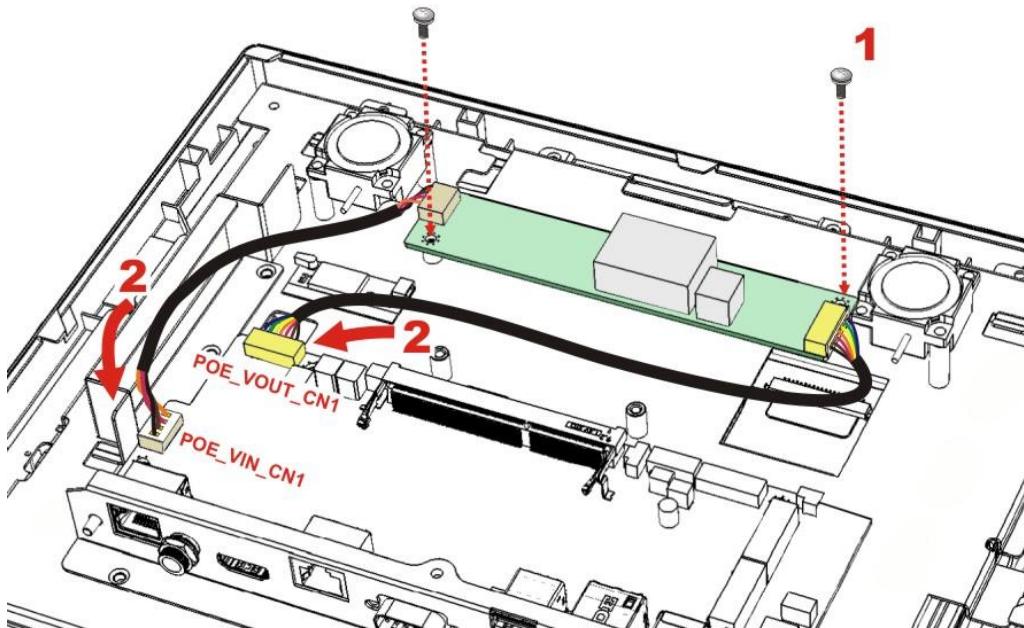
Figure 3-12: PoE Module Installation

3.8 RFID Reader Kit Installation (Optional)

The optional RFID reader provided by IEI supports ISO15693, ISO14443A/B, Felica, Mifare, Tag-it, ST LRI 1K and ST M24LRXX protocols.

To install the RFID reader kit, follow the steps below.
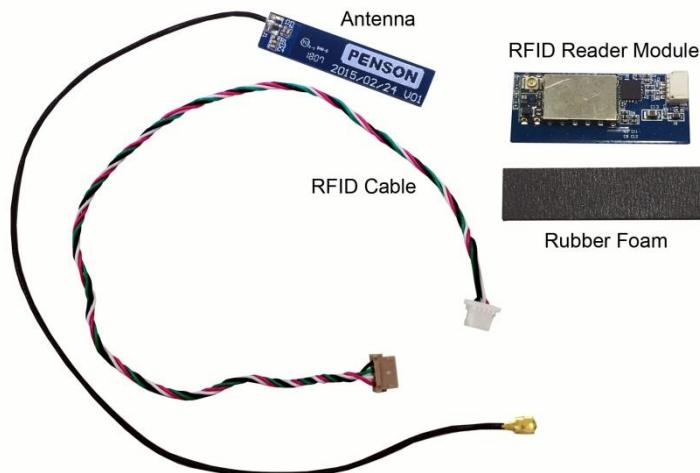
Figure 3-13: RFID Reader Kit

Step 1: Remove the plastic back cover. See **Section 3.4** above.

Step 2: Connect the white connector of the RFID cable to the 4-pin connector on the RFID reader module.

Step 3: Peel off the backing from the RFID reader module and stick the rubber foam on it.

Step 4: Refer to the following diagrams. Insert the antenna connector into the hole to make the antenna cable go underneath the metal sheet and come out from another hole where the RFID reader module will be installed. Tweezers is needed to pull the antenna cable out of the hole.

Step 5: Connect the antenna cable to the antenna connector (U.FL) on the RFID reader module.

Step 6: Route the cable as shown in the following diagrams and connect the brown

connector of the RFID cable to the RFID connector (RFID_USB) on the system

motherboard.

Step 7: Peel off the backing from the rubber foam and stick it to the system as shown in

the following diagrams.

Step 8: Peel off the backing from the antenna and attach the antenna to the system as

shown in the following diagrams.
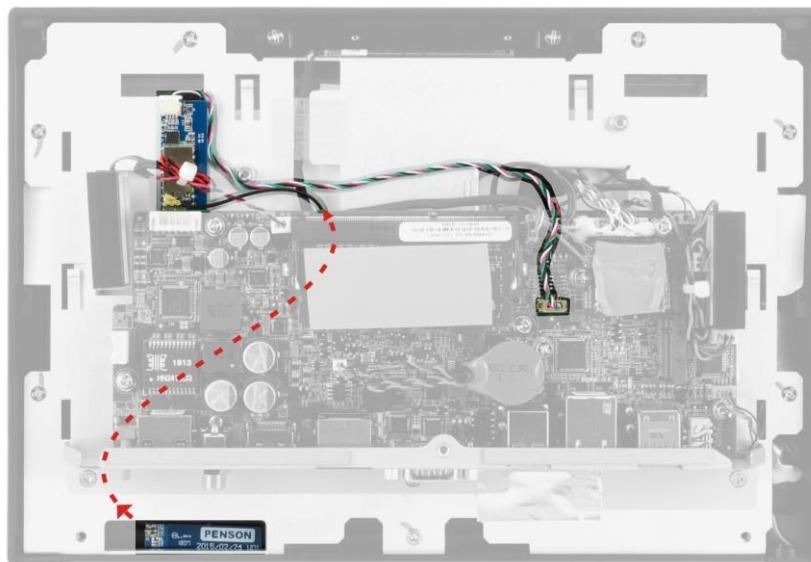
Figure 3-14: AFL3-W10A-AL RFID Reader Installation
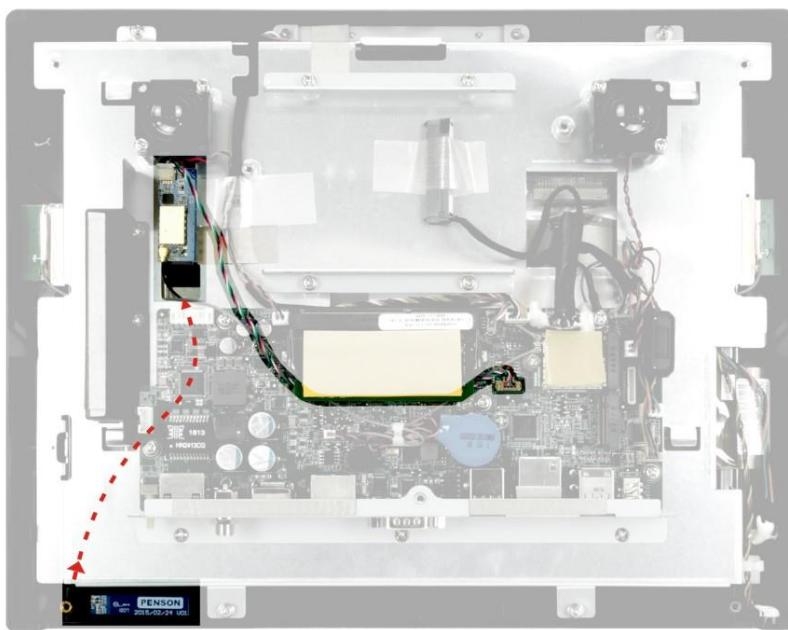
Figure 3-15: AFL3-12A-AL RFID Reader Installation
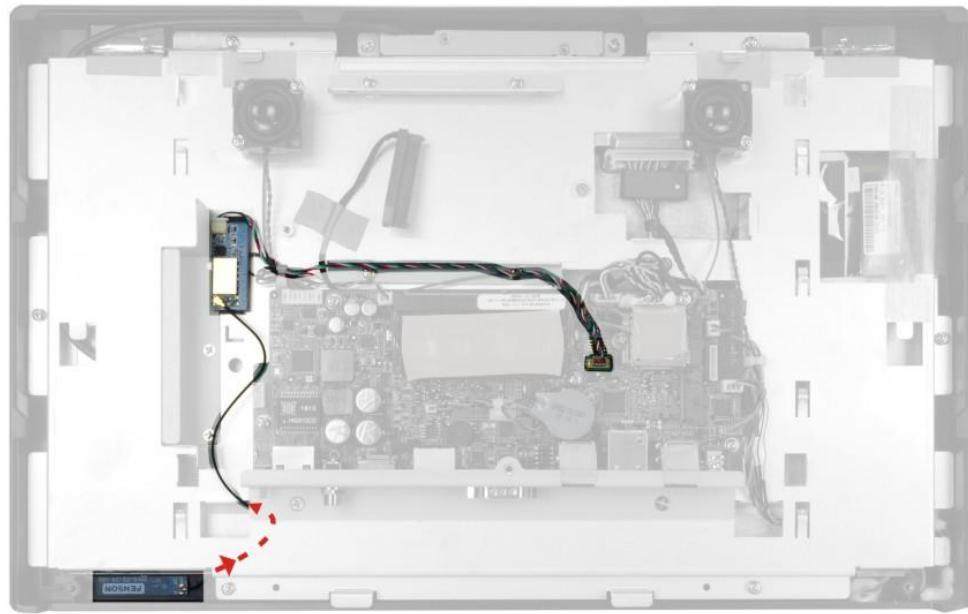
Figure 3-16: AFL3-W15A-AL RFID Reader Installation

3.9 AT/ATX Mode Selection

AT or ATX power mode can be used on the AFL3-W10A/12A/W15A-AL. The selection is made through an AT/ATX switch located on the bottom panel (**Figure 3-17**).
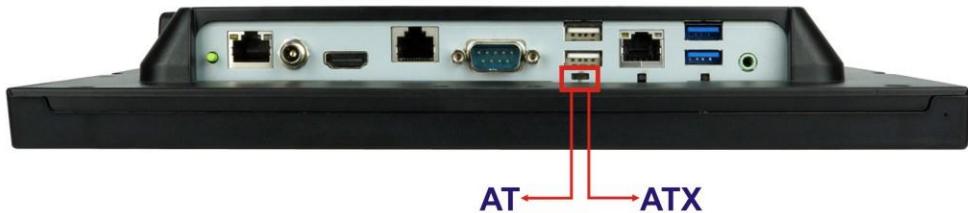
Figure 3-17: AT/ATX Switch Location

3.10 COM2 RS-232/422/485 Selection

The bottom panel of the AFL3-W10A/12A/W15A-AL has one D-sub 9 male connectors for RS-232/422/485 connection. The serial communication mode selection can be made through the BIOS options. Please refer to **Section 4.3.2.1.2** for detail information.

3.10.1 COM2 Pinouts

The pinouts of COM2 are detailed below.

Pin	RS-232	RS-422	RS-485	
1	DCD	TXD422-	TXD485-	
2	RX	TXD422+	TXD485+	
3	TX	RXD422+		
4	DTR	RXD422-		
5	GND			
6	DSR			
7	RTS			
8	CTS			
9	RI			
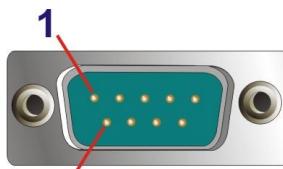
Table 3-1: RS-232/422/485 Serial Port Pinouts

3.10.2 COM2 Pin 9 Selection

The JP2 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 3-2**.

JP2	Description
Short 1-2	COM2 RI Pin use +5 V
Short 3-4	COM2 RI Pin use RI (Default)
Short 5-6	COM2 RI Pin use +12 V

Table 3-2: DB-9 Serial Port Pin 9 Setting Jumper Settings

The DB-9 Serial Port Pin 9 Setting jumper location is shown in **Figure 3-18** below.
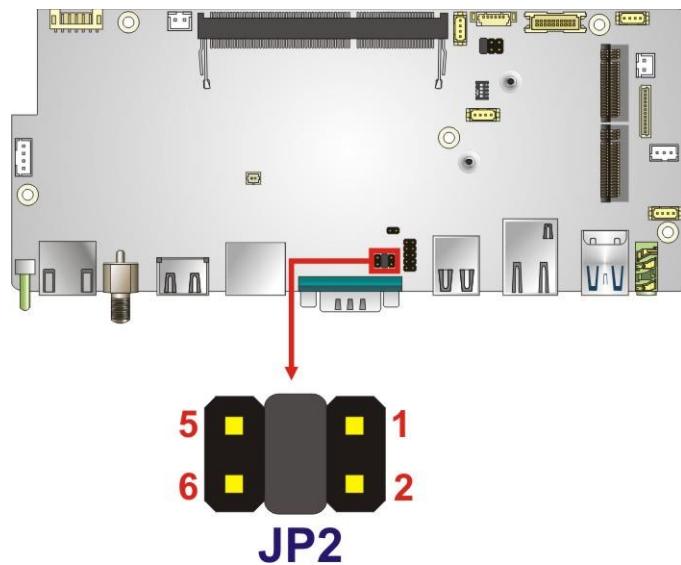
Figure 3-18: DB-9 Serial Port Pin 9 Setting Jumper Location

3.11 COM1 Connection

The COM1 port 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 AFL3-W10A/12A/W15A-AL panel PC.

Step 1: **Locate the RJ-45 connector**. The location of the RJ-45 serial port connector is shown in **Chapter 1**. The RJ-45 connector for the serial port can be identified easily as the RJ-45 for the network has two LEDs on the port, while the connector for the serial cable don't.

Step 2: **Insert the RJ-45 to D-sub 9 cable.** See **Figure 3-19**.
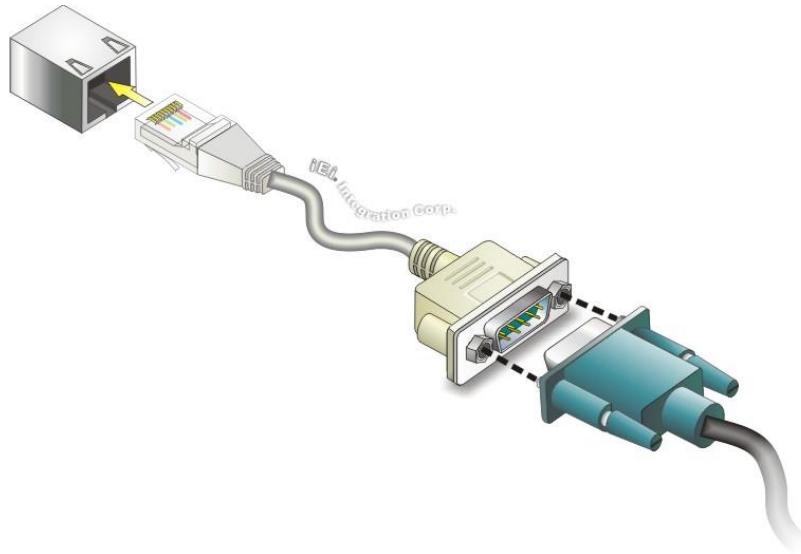
Figure 3-19: Serial Device Connector

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.

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.

The D-sub 9 connector pinouts of the RJ-45 to DB-9 cable are listed below.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NDCD1	6	NDSR1
2	NRX1	7	NRTS1
3	NTX1	8	NCTS1
4	NDTR1	9	NRI1
5	GND		
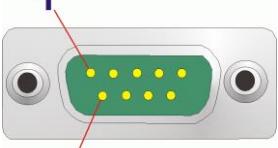
Table 3-3: DB-9 Serial Port (COM1) Pinouts

3.12 Flash Descriptor Security Override

The Flash Descriptor Security Override jumper (J_TXE1) allows to enable or disable the ME firmware update. Refer to **Figure 3-20** and **Table 3-4** for the jumper location and settings.

Setting	Description
Open	Disabled (default)
Short	Enabled

Table 3-4: Flash Descriptor Security Override Jumper Settings
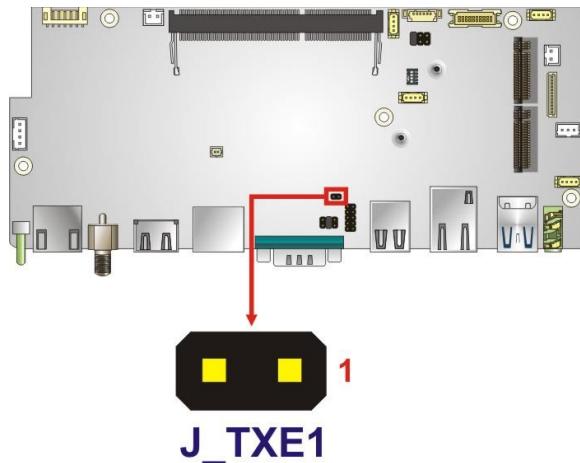
Figure 3-20: Flash Descriptor Security Override Jumper Location

To update the ME firmware, please follow the steps below.

Step 1: Before turning on the system power, short the Flash Descriptor Security

Override jumper.

Step 2: Update the BIOS and ME firmware, and then turn off the system power.

Step 3: Remove the metal clip on the Flash Descriptor Security Override jumper.

Step 4: Restart the system. The system will reboot 2 ~ 3 times to complete the ME firmware update.

3.13 Mounting the System

The methods of mounting the AFL3-W10A/12A/W15A-AL are listed below.

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

The mounting methods are described below.

3.13.1 Wall Mounting

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

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

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

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

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

Step 5: Secure the mounting-bracket to the wall by inserting the retention screws into the four pilot holes and tightening them (**Figure 3-21**).
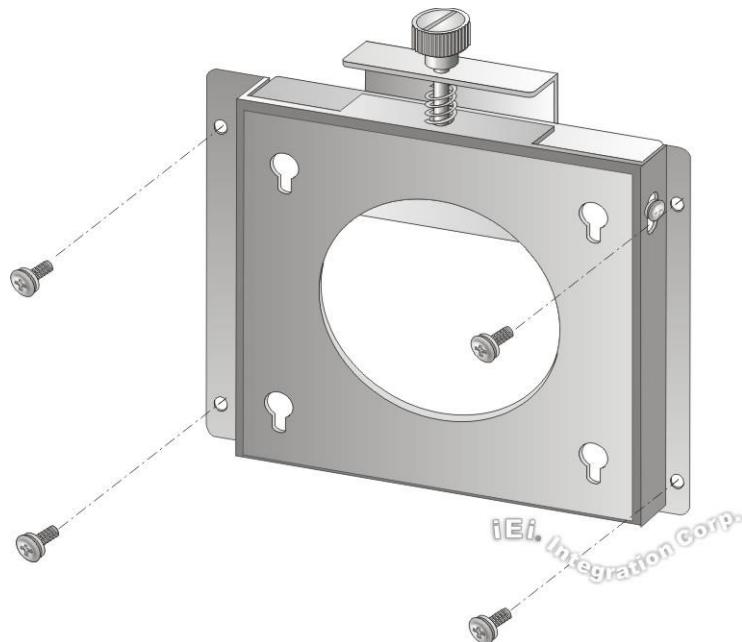
Figure 3-21: Wall-mounting Bracket

Step 6: Insert the four monitor mounting screws provided in the wall mount kit into the four screw holes on the real panel of the panel PC and tighten until the screw shank is secured against the rear panel (**Figure 3-22**).

![WARNING icon] **WARNING:**

Please use the M4 screws provided in the wall mount kit for the rear panel. If the screw is missing, the thread depth of the replacement screw should be not more than 4 mm.
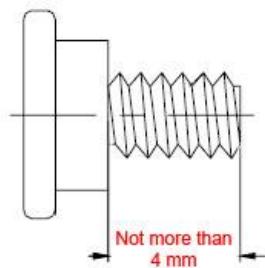
Step 7: Align the mounting screws on the monitor rear panel with the mounting holes on the bracket.

Step 8: Carefully insert the screws through the holes and gently pull the monitor downwards until the monitor rests securely in the slotted holes (**Figure 3-22**). Ensure that all four of the mounting screws fit snugly into their respective slotted holes.

![NOTE icon] **NOTE:**

In the diagram below the bracket is already installed on the wall.
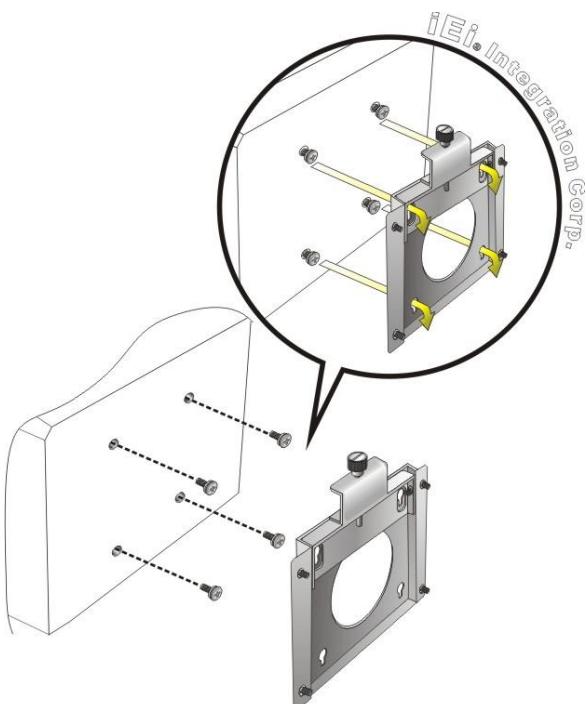
Figure 3-22: Chassis Support Screws

Step 9: Secure the panel PC by fastening the retention screw of the wall-mounting bracket (**Figure 3-23**).
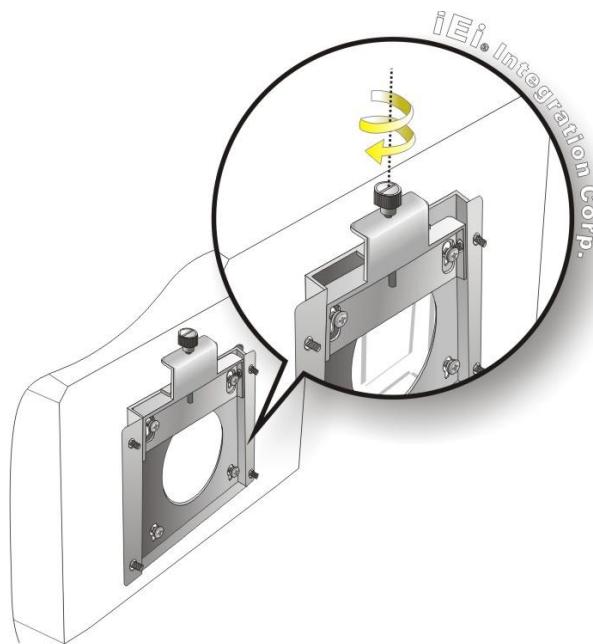
Figure 3-23: Secure the Panel PC

3.13.2 Panel Mounting

To mount the AFL3-W10A/12A/W15A-AL panel PC into a panel, please follow the steps below.

Step 1:   Select the position on the panel to mount the panel PC.

Step 2:   Cut out a section corresponding to the size shown below. The size must be smaller then the outer edge.
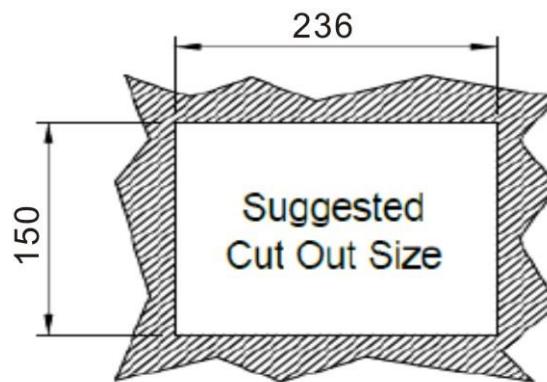
Figure 3-24: AFL-W10A-AL Cutout Dimensions
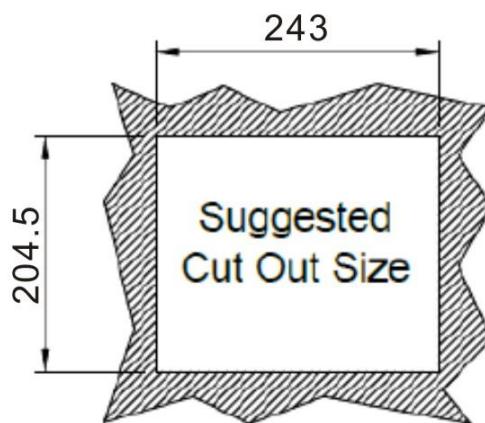
Figure 3-25: AFL-12A-AL Cutout Dimensions
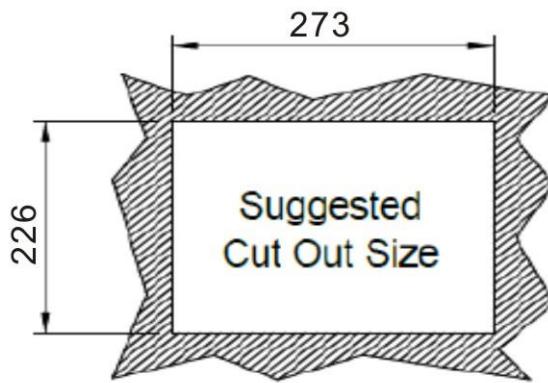
Figure 3-26: AFL-W15A-AL Cutout Dimensions

Step 1: Slide the panel PC through the hole until the frame is flush against the panel.

Step 2: Insert a M5*50 screw into the screw hole on the side of the panel mounting bracket. Then, install the following components onto the screw in sequence. See **Figure 3-27**.

Sequence	Item	Photo	Instruction
1	Spring		Install a spring onto the screw.
2	Nut		Tighten a nut until the spring is compressed enough for plastic cap.
3	Plastic cap		Tighten a plastic cap onto the end of screw thread.

Step 3: Repeat **Step 4** to install the other three screws into the sides of the two panel mounting brackets.
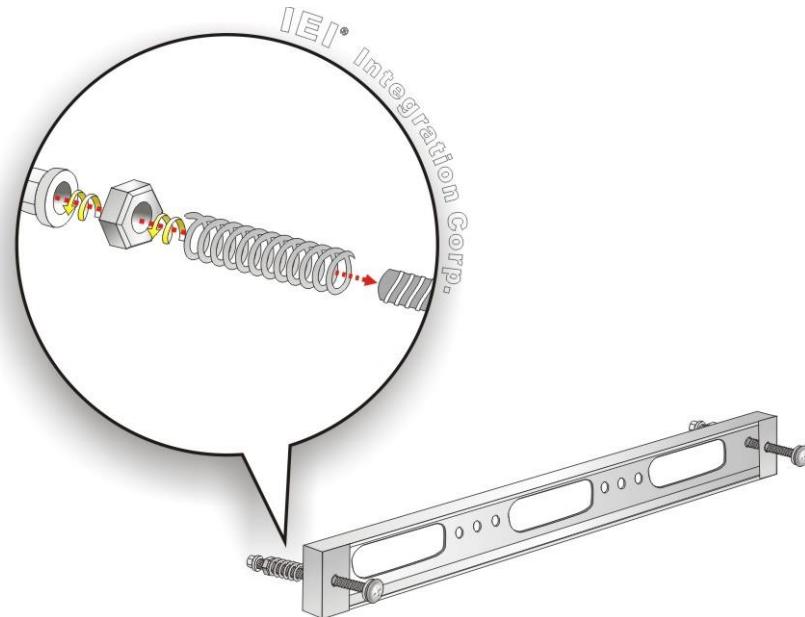
Figure 3-27: Panel Mounting Kit Installation

Step 4: Align the panel mounting bracket screw holes with the VESA mounting holes on the rear of the panel PC.

Step 5: Secure the two panel mounting brackets to the rear of the panel PC by inserting the four retention screws into the VESA mounting holes and tightening them (**Figure 3-28**).

NOTE:

The panel mounting kit described in this section is an optional item. To purchase it, please contact an IEI sales representative.
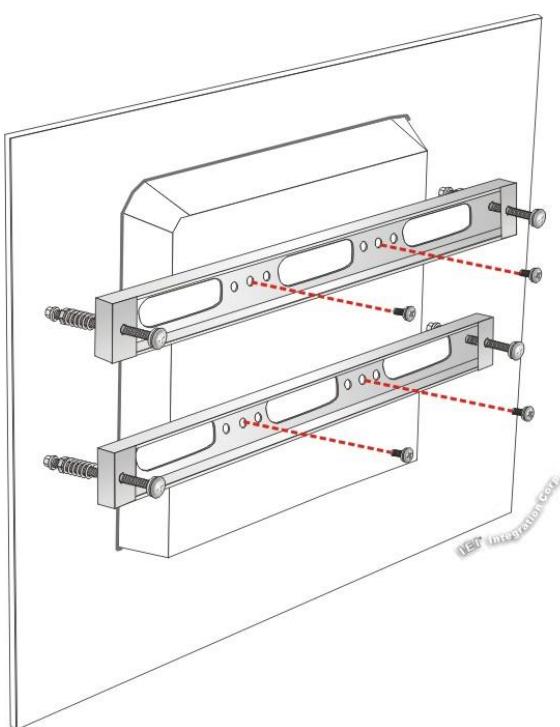
Figure 3-28: Securing Panel Mounting Brackets

3.13.3 Cabinet and Rack Installation

The AFL3-W10A/12A/W15A-AL 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 icon] **NOTE:**

When purchasing the cabinet/rack installation bracket, make sure it is compatible with both the AFL3-W10A/12A/W15A-AL panel PC and the rack/cabinet into which the AFL3-W10A/12A/W15A-AL is installed.

Step 1: Slide the rear chassis of the AFL3-W10A/12A/W15A-AL panel PC through the rack/cabinet bracket until the frame is flush against the front of the bracket (**Figure 3-29**).
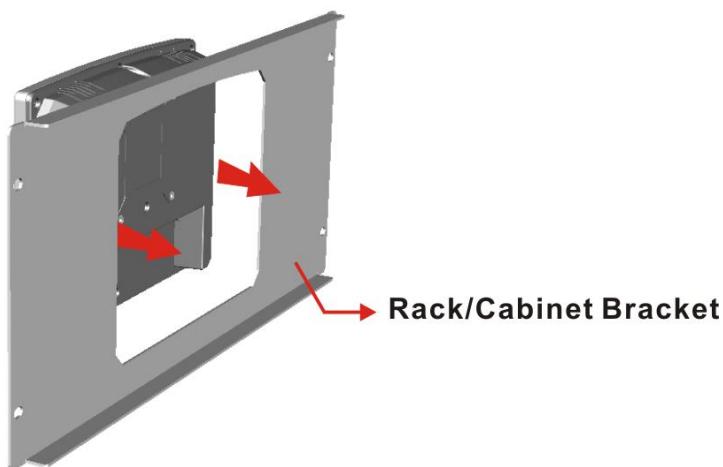
Figure 3-29: Rack/Cabinet Bracket Installation

Step 2: Insert a M5*50 screw into the screw hole on the side of the rack mounting

bracket. Then, install the following components onto the screw in sequence.

See **Figure 3-27**.

Sequence	Item	Photo	Instruction
1	Spring		Install a spring onto the screw.
2	Nut		Tighten a nut until the spring is compressed enough for plastic cap.
3	Plastic cap		Tighten a plastic cap onto the end of screw thread.

Step 3: Repeat **Step 4** to install the other three screws into the sides of the two rack

mounting brackets.
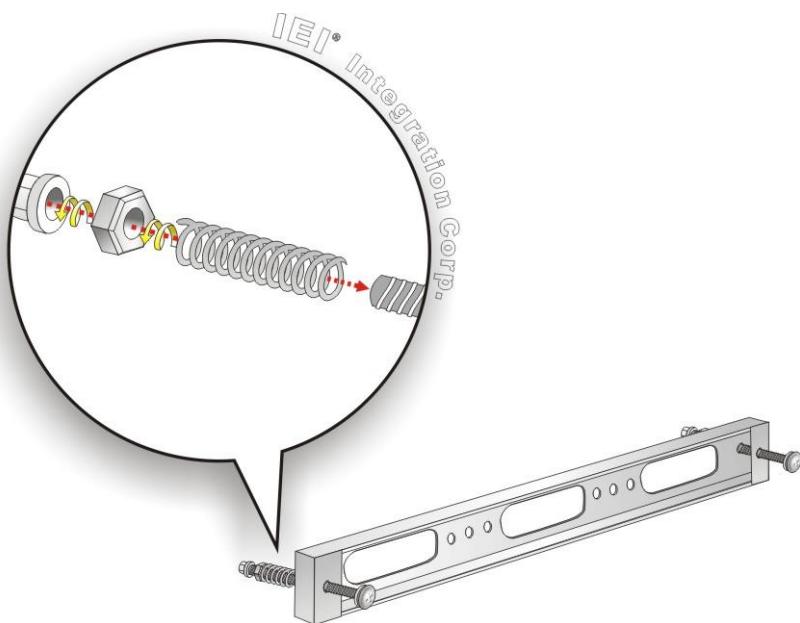
Figure 3-30: Rack Mounting Kit Installation

Step 4: Align the rack mounting bracket screw holes with the VESA mounting holes on the rear of the panel PC.

Step 5: Secure the two rack mounting brackets to the rear of the panel PC by inserting the four retention screws into the VESA mounting holes and tightening them (**Figure 3-31**).

![NOTE icon] **NOTE:**

The rack mounting kit described in this section is an optional item. To purchase it, please contact an IEI sales representative.
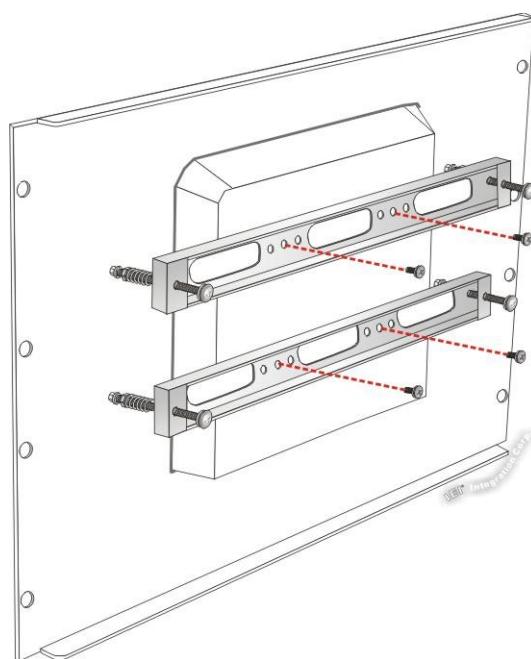
Figure 3-31: Securing Rack Mounting Brackets

Step 6: Slide the panel PC with the attached rack/cabinet bracket into a rack or cabinet (**Figure 3-32**).
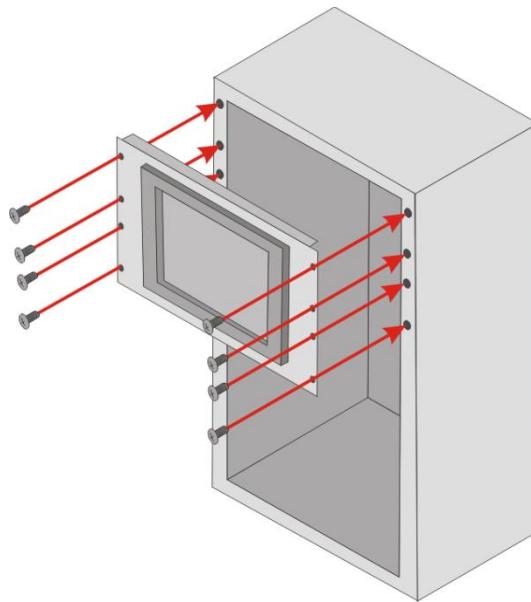
Figure 3-32: Install into a Rack/Cabinet

Step 7: Once the 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 3-32**).

3.13.4 Arm Mounting

The AFL3-W10A/12A/W15A-AL is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 75 mm or a 100 mm interface pad. To mount the AFL3-W10A/12A/W15A-AL on an arm, please follow the steps below.

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

NOTE:

When purchasing the arm please ensure that it is VESA compliant and that the arm has a 75 mm or a 100 mm interface pad. If the mounting arm is not VESA compliant it cannot be used to support the AFL3-W10A/12A/W15A-AL panel PC.

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

Step 3: Align the retention screw holes on the mounting arm interface with those in the panel PC (**Figure 3-33** and **Figure 3-34**).

Figure 3-33: Arm Mounting Retention Screw Holes (10.1")
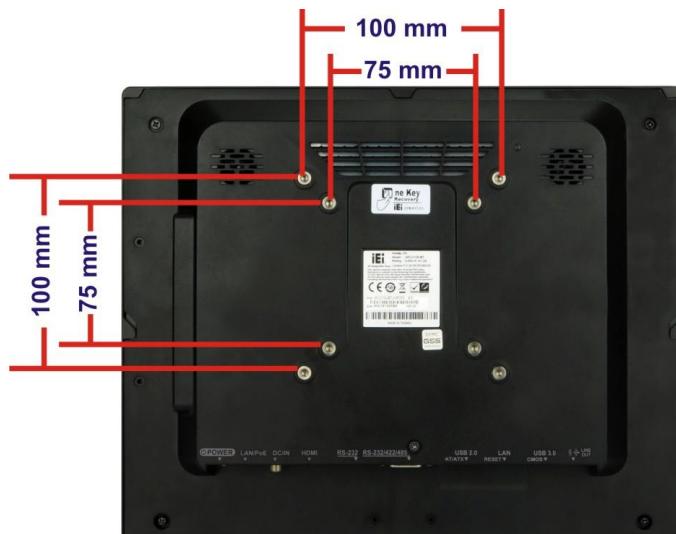
Figure 3-34: Arm Mounting Retention Screw Holes (12.1")

Step 4:   Secure the AFL3-W10A/12A/W15A-AL to the interface pad by inserting four

retention screws through the mounting arm interface pad and into the

AFL3-W10A/12A/W15A-AL.
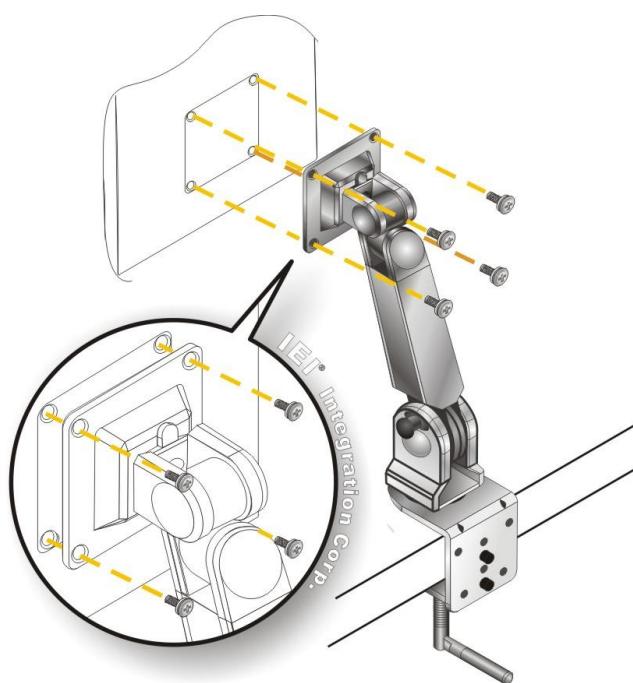
Figure 3-35: Arm Mounting

3.13.5 Stand Mounting

To mount the AFL3-W10A/12A/W15A-AL using the stand mounting kit, please follow the steps below.

Step 1: Locate the screw holes on the rear of the AFL3-W10A/12A/W15A-AL. This is where the bracket will be attached.

Step 2: Align the bracket with the screw holes.

Step 3: To secure the bracket to the AFL3-W10A/12A/W15A-AL insert the retention screws into the screw holes and tighten them.
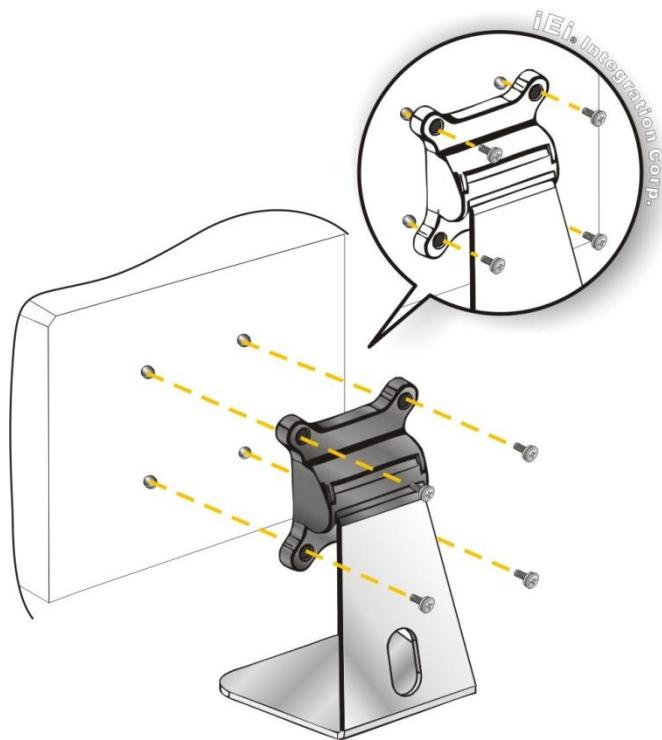
Figure 3-36: Stand Mounting (Stand-A/Bxx)

3.13.6 V-Stand Mounting (10.1" and 12.1" Models Only)

To mount the AFL3-W10A-AL or the AFL3-12A-AL using the optional V-Stand mounting kit, please follow the steps below.

Step 1: Carefully mark the locations of the four V-Stand screw holes on the mounting area. Drill four pilot holes at the marked locations for the V-Stand retention screws.
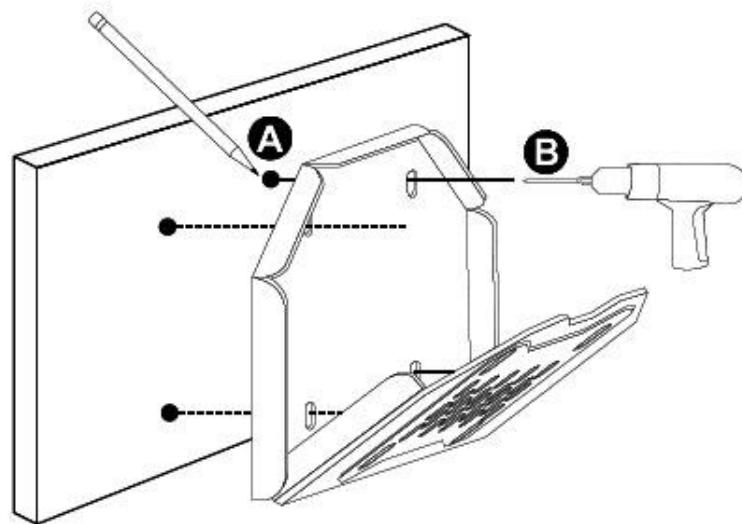
Figure 3-37: Drill Pilot Holes for V-Stand

Step 2: Align the screw holes on the V-Stand with the VESA mount screw holes on the system rear panel.

Step 3: Insert the four VESA mount screws into the four screw holes on the system rear panel. Adjust the V-Stand to a proper position.

Step 4: Tighten until the screw shank is secured against the rear panel.
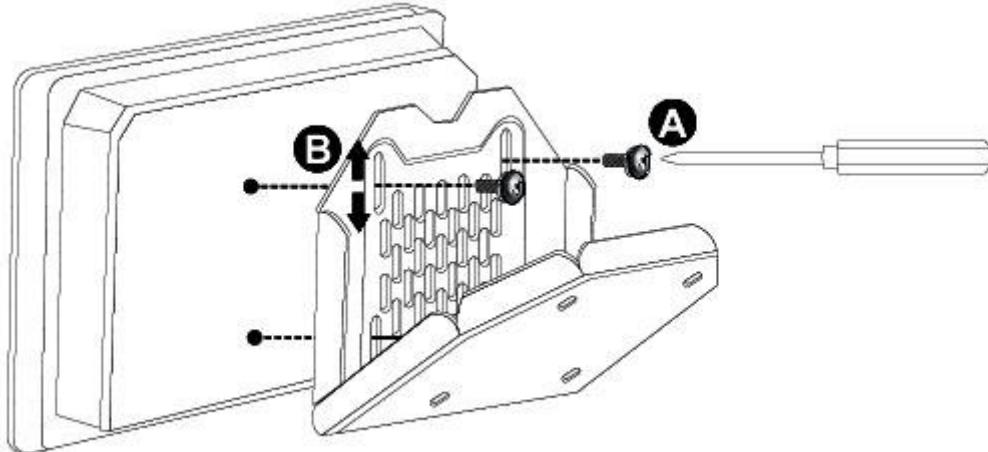
Figure 3-38: Secure V-Stand to System

Step 5: Align the V-Stand screw holes with the pilot holes on the mounting area. Mount the V-Stand by inserting the retention screws into the four pilot holes and tightening them.

Step 6: Adjust the V-Stand to have a best viewing angle to operate the system.
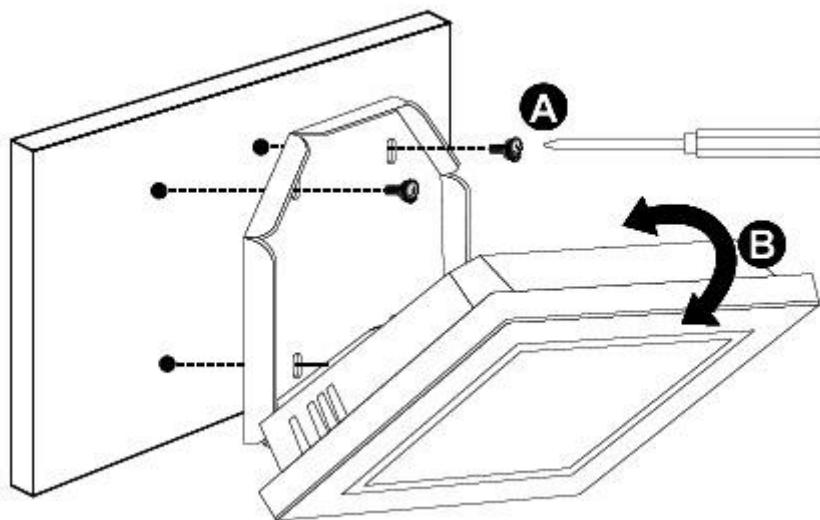
Figure 3-39: Secure V-Stand to Mounting Area

3.14 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 AFL3-W10A/12A/W15A-AL.

Step 3: Locate the power button on the I/O panel.

Step 4: Hold down the power button until the power LED on the front panel turns on in green.

Figure 3-40: Powering On the System

3.15 Clear CMOS

If the AFL3-W10A/12A/W15A-AL fails to boot due to improper BIOS settings, the clear CMOS button 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. The clear CMOS button location is shown in **Figure 3-41**.

Figure 3-41: Clear CMOS Button Location

3.16 Reset the System

The reset button enables user to reboot the system when the system is turned on. The reset button location is shown in **Figure 3-42**. Press the reset button to reboot the system.

Reset Button

Figure 3-42: Reset Button Location

3.17 Software Installation

All the drivers for the AFL3-W10A/12A/W15A-AL are available on IEI Resource Download Center (https://download.ieiworld.com). Type the model name and press **Enter** to find all the relevant software, utilities, and documentation.
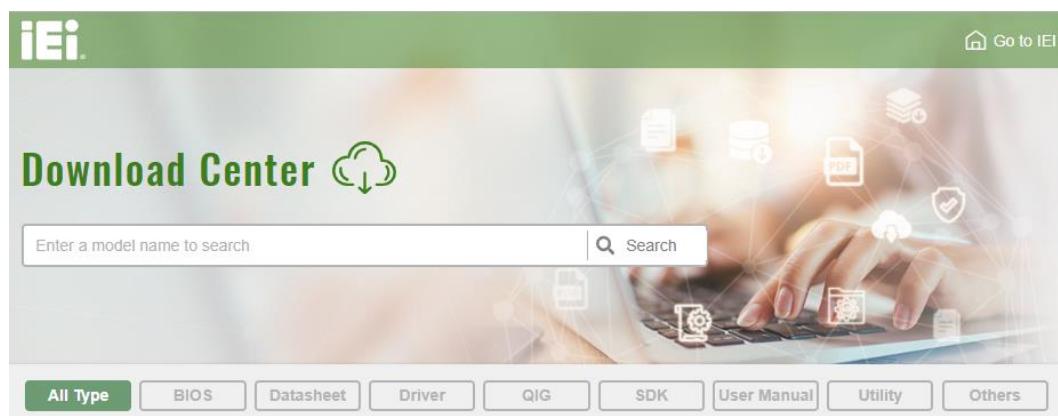
Figure 3-43: IEI Resource Download Center

> **NOTE:**
>
> The panel PC with projected capacitive type touchscreen and Windows 7 (or later) OS does not require touch driver installation. This is because there is a HID touch digitizer built-in driver in Windows 7 or later.

3.17.1 Driver Download

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

Step 1: Go to https://download.ieiworld.com. Type the model name and press Enter.

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

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

```
┌─────────────────────────────────────────────────────┐
│ 7B000-001168-RS_V1.4.iso                        [ X ]│
│                                                      │
│ ❶    Click here to download entire ISO file. (2.99 GB)│
│                                                      │
│      * Download individual file *                    │
│      ◢  📁 Docs                                       │
│ ❷       ◢  📁 1.Chipset                               │
│              📄 10.1.1.12.zip (2.7 MB)                │
│         ▷  📁 2.VGA                                   │
│         ▷  📁 3.Audio                                 │
│         ▷  📁 4.Lan                                   │
│         ▷  📁 5.USB 3.0                               │
│         ▷  📁 6.Serial IO                             │
│         ▷  📁 7.TXE                                   │
│         ▷  📁 8.Manual                                │
└─────────────────────────────────────────────────────┘
```
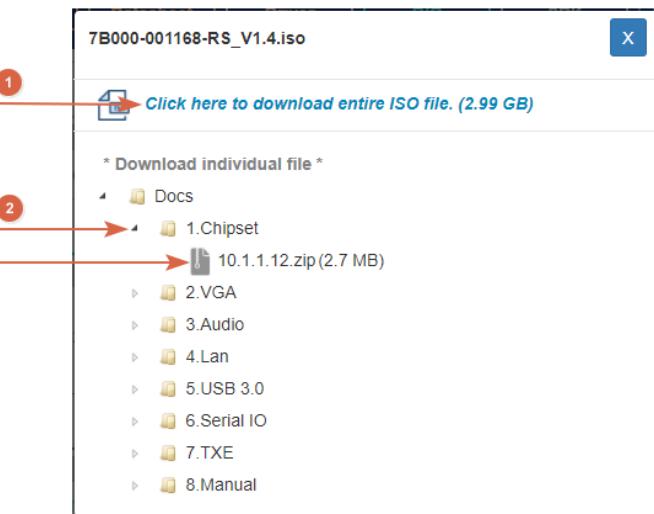
NOTE:

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

Chapter

4

BIOS Setup

4.1 Introduction

A licensed copy of the BIOS is preprogrammed into the ROM BIOS. The BIOS setup program allows users to modify the basic system configuration. This chapter describes how to access the BIOS setup program and the configuration options that may be changed.

NOTE:

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

4.1.1 Starting Setup

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

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

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

4.1.2 Using Setup

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

Key	Function
Up arrow	Move to the item above
Down arrow	Move to the item below

Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
+	Increase the numeric value or make changes
-	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Load previous values.
F3 key	Load optimized defaults
F4 key	Save changes and Exit BIOS
Esc key	Main Menu – Quit and do not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu

Table 6-1: BIOS Navigation Keys

4.1.3 Getting Help

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

4.1.4 Unable to Reboot after Configuration Changes

If the computer cannot boot after changes to the system configuration are made, CMOS defaults. Use the clear CMOS button described in **Section 3.15**.

4.1.5 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.
- Security – Sets User and Supervisor Passwords.
- Boot – Changes the system boot configuration.

▪ Save & Exit – Selects exit options and loads default settings

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

4.2 Main

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

```
        Aptio Setup Utility – Copyright (C) 2019 American Megatrends, Inc.
    Main    Advanced   Chipset   Security    Boot    Save & Exit

  BIOS Information                                          Set the Date. Use Tab to
  BIOS Vendor                      American Megatrends      switch between Data
  Core Version                     5.12                     elements.
  Compliency                       UEFI 2.5; PI 1.4
  Project Version                  Z574AR12.ROM
  Build Date and Time              05/06/2019 11:52:01

  iWDD Vendor                      iEi
  iWDD Version                     Z574ER10.bin

  Platform firmware Information
  BXT SOC                          B1                       ----------------------
  MRC Version                      0.56
  PUNIT FW                         2E                       ←→: Select Screen
  PMC FW                           03.29                    ↑ ↓: Select Item
  TXE FW                           3.1.50.2238              EnterSelect
  ISH FW                           4.1.0.3364               +/-: Change Opt.
  GOP                              0.0.0036                 F1:  General Help
                                                            F2:  Previous Values
  Memory Information                                        F3:  Optimized Defaults
  Total Memory                     4096 MB                  F4:  Save & Exit
  Memory Speed                     1600 MHz                 ESC: Exit

  Access Level                     Administrator

  System Date                      [Wed 03/27/2019]
  System Time                      [14:26:28]

        Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

BIOS Menu 1: Main

➔ **System Date [xx/xx/xx]**

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

➔ **System Time [xx:xx:xx]**

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

4.3 Advanced

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

⚡ **WARNING:**

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

```
      Aptio Setup Utility – Copyright (C) 2019 American Megatrends, Inc.
   Main   Advanced  Chipset  Security   Boot   Save & Exit

> ACPI Settings                                      System ACPI Parameters.
> F81866 Super IO Configuration
> iWDD H/M Monitor
> USB Configuration
> CPU Configuration                                  ---------------------
> RTC Wake Settings
> Power Saving Configuration                         ←→: Select Screen
> Serial Port Console Redirection                    ↑↓: Select Item
> iEi Feature                                        EnterSelect
                                                     +/-: Change Opt.
                                                     F1:  General Help
                                                     F2:  Previous Values
                                                     F3:  Optimized Defaults
                                                     F4:  Save & Exit
                                                     ESC: Exit
       Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

BIOS Menu 2: Advanced

4.3.1 ACPI Settings

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

```
         Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
              Advanced

 ACPI Settings                                       Select the highest ACPI
                                                     sleep state the system
 ACPI Sleep State            [S3 (Suspend to RAM)]   will enter, when the
                                                     SUSPEND button is
                                                     pressed.

                                                     ---------------------

                                                     ←→: Select Screen
                                                     ↑↓: Select Item
                                                     Enter Select
                                                     +/-: Change Opt.
                                                     F1:  General Help
                                                     F2:  Previous Values
                                                     F3:  Optimized Defaults
                                                     F4:  Save & Exit
                                                     ESC: Exit
         Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

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

4.3.2 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) 2019 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                          --------------------
                                                       ←→: Select Screen
Case Open Detection              [Disabled]            ↑ ↓: Select Item
                                                       Enter Select
                                                       +/-: Change Opt.
                                                       F1:  General Help
                                                       F2:  Previous Values
                                                       F3:  Optimized Defaults
                                                       F4:  Save & Exit
                                                       ESC: Exit
          Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```
BIOS Menu 4: F81866 Super IO Configuration

➔ **Case Open Detection [Disabled]**

Use the **Case Open Detection** option to enable or disable case open detection.

➔ **Disabled**   DEFAULT   Disable case open detection

➔ **Enabled**   Enable case open detection

4.3.2.1 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) 2019 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               [IO=3F8h; IRQ=4]       ←→: Select Screen
                                                     ↑ ↓: Select Item
                                                     Enter Select
                                                     +/-: Change Opt.
                                                     F1:  General Help
                                                     F2:  Previous Values
                                                     F3:  Optimized Defaults
                                                     F4:  Save & Exit
                                                     ESC: Exit
     Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

BIOS Menu 5: Serial Port n Configuration Menu

4.3.2.1.1 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.

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

   ➔ **IO=3F8h;**   Serial Port I/O port address is 3F8h and the
      IRQ=3, 4, 10   interrupt address is IRQ3, 4, 10

➔ **IO=2F8h;**   Serial Port I/O port address is 2F8h and the

  IRQ=3, 4, 10   interrupt address is IRQ3, 4, 10

➔ **IO=3E8h;**   Serial Port I/O port address is 3E8h and the

  IRQ=3, 4, 10   interrupt address is IRQ3, 4, 10

➔ **IO=2E8h;**   Serial Port I/O port address is 2E8h and the

  IRQ=3, 4, 10   interrupt address is IRQ3, 4, 10

4.3.2.1.2 Serial Port 2 Configuration

➔ **Serial Port [Enabled]**

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

➔ **Disabled**   Disable the serial port

➔ **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.

➔ **IO=2F8h; IRQ=3**   DEFAULT   Serial Port I/O port address is 2F8h and the
                                  interrupt address is IRQ3

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

  IRQ=3, 4, 10   interrupt address is IRQ3, 4, 10

➔ **IO=2F8h;**   Serial Port I/O port address is 2F8h and the

  IRQ=3, 4, 10   interrupt address is IRQ3, 4, 10

➔ **IO=3E8h;**   Serial Port I/O port address is 3E8h and the

  IRQ=3, 4, 10   interrupt address is IRQ3, 4, 10

➔ **IO=2E8h;**   Serial Port I/O port address is 2E8h and the

  IRQ=3, 4, 10   interrupt address is IRQ3, 4, 10

➔ **Transfer Mode [RS232]**

Use the **Transfer Mode** option to select the Serial Port 2 signaling mode.

➔ **RS422**   Serial Port 6 signaling mode is RS-422

➔ **RS232**   DEFAULT   Serial Port 6 signaling mode is RS-232

➔ **RS485**   Serial Port 6 signaling mode is RS-485

4.3.3 iWDD H/W Monitor

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

```
       Aptio Setup Utility – Copyright (C) 2019 American Megatrends, Inc.
          Advanced

PC Health Status

System temperature                    :+35 °C

CPU_CORE                              :+0.865 V         --------------------
+5V                                  :+5.005 V         ←→: Select Screen
+12V                                 :+11.741 V        ↑ ↓: Select Item
+DDR                                 :+1.348 V         EnterSelect
+5VSB                                :+4.991 V         +/-: Change Opt.
+3.3V                                :+3.296 V         F1:  General Help
+3.3VSB                              :+3.311 V         F2:  Previous Values
                                                       F3:  Optimized Defaults
                                                       F4:  Save & Exit
                                                       ESC: Exit
         Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

BIOS Menu 6: iWDD H/W Monitor

➔ **Hardware Health Status**

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

- ▪ System Temperature
- ▪ Voltages:
  - ○ CPU_CORE
  - ○ +5V

o   +12V

o   +DDR

o   +5VSB

o   +3.3V

o   +3.3VSB

4.3.4 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 7**) to read USB configuration information and configure the USB settings.

```
     Aptio Setup Utility – Copyright (C) 2019 American Megatrends, Inc.
        Advanced

USB Configuration                              Enables Legacy USB
                                               support. AUTO option
USB Devices:                                   disables legacy support
      1 Keyboard, 1 Mouse, 1 Point             if no USB devices are
                                               connected. DISABLE
Legacy USB Support              [Enabled]      option will keep USB
                                               devices available only
                                               for EFI applications.

                                               --------------------
                                               ←→: Select Screen
                                               ↑ ↓: Select Item
                                               Enter Select
                                               +/-: Change Opt.
                                               F1:  General Help
                                               F2:  Previous Values
                                               F3:  Optimized Defaults
                                               F4:  Save & Exit
                                               ESC: Exit
        Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```
BIOS Menu 7: USB Configuration

➔   **USB Devices**

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

➔   **Legacy USB Support [Enabled]**

Use the **Legacy USB Support** BIOS option to enable USB mouse and USB keyboard support. Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is fully booted with all

USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB driver loaded onto the system.

➔ **Enabled** DEFAULT Legacy USB support enabled

➔ **Disabled** Legacy USB support disabled

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

4.3.5 CPU Configuration

Use the **CPU Configuration** (**BIOS Menu 8**) to view detailed CPU specifications and configure the CPU.

```
      Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
         Advanced

 CPU Configuration                                          Enable/Disable Intel
                                                            SpeedStep
 Intel(R) Celeron(R) CPU J3455 @ 1.50GHz
 CPU Signature                    506C9
 Microcode Patch                  2E
 Max CPU Speed                    1500 MHz
 Min CPU Speed                    800 MHz
 Processor Cores                  4
 Intel HT Technology              Not Supported            ---------------------
 Intel VT-x Technology            Supported

                                                           ←→: Select Screen
 L1 Data Cache                    24 KB x 4                ↑↓: Select Item
 L1 Code Cache                    32 KB x 4                Enter Select
 L2 Cache                         1024 KB x 2              +/-:  Change Opt.
 L3 Cache                         Not Present              F1:  General Help
                                                           F2:  Previous Values
 EIST                             [Enabled]                F3:  Optimized Defaults
 C-States                         [Disabled]               F4:  Save & Exit
 Intel Virtualization Technology  [Disabled]               ESC: Exit
 VT-d                             [Disabled]

       Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```
BIOS Menu 8: CPU Configuration

➔ **EIST [Enabled]**

Use the **EIST** option to enable or disable the Intel® Speed Step Technology.

➔ **Disabled** Disables the Intel® Speed Step Technology.

➔ **Enabled** **DEFAULT** Enables the Intel® Speed Step Technology.

➔ **C-States [Disabled]**

Use the **C-States** option to enable or disable the C-states.

➔ **Disabled** **DEFAULT** Disables the C-state

➔ **Enabled** Enables the C-state

➔ **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.

➔ **VT-d [Disabled]**

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

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

➔ **Enabled** Enable VT-d support.

4.3.6 RTC Wake Settings

The **RTC Wake Settings** menu (**BIOS Menu 9**) configures RTC wake event.

```
       Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
          Advanced

Wake system with Fixed Time        [Disabled]              Enable or disable System
                                                           wake on alarm event. When
                                                           enabled, System will wake
                                                           on the dat::hr::min::sec
                                                           specified

                                                           ---------------------

                                                           ←→: Select Screen
                                                           ↑ ↓: Select Item
                                                           Enter Select
                                                           F1   General Help
                                                           F2   Previous Values
                                                           F3   Optimized Defaults
                                                           F4   Save
                                                           ESC  Exit
          Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

BIOS Menu 9: RTC Wake Settings

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

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

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

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

4.3.7 Power Saving Configuration

Use the **Power Saving Configuration** menu (**BIOS Menu 10**) to configure system to reduce power consumption in system off state.

```
     Aptio Setup Utility – Copyright (C) 2019 American Megatrends, Inc.
        Advanced

Power Saving Configuration                              Enable or Disable to
                                                        reduce power consumption
Power Saving Function              [Disabled]           in system off state.


                                                        --------------------

                                                        ←→: Select Screen
                                                        ↑ ↓: Select Item
                                                        Enter Select
                                                        F1   General Help
                                                        F2   Previous Values
                                                        F3    Optimized
                                                        Defaults
                                                        F4    Save
                                                        ESC   Exit
     Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

BIOS Menu 10: Power Saving Configuration

➔ **Power Saving Function(ERP) [Disabled]**

Use the **Power Saving Function** BIOS option to enable or disable the power saving function.

➔ **Disabled**   DEFAULT   Power saving function is disabled.

➔ **Enabled**   Power saving function is enabled. It will reduce power consumption when the system is off.

4.3.8 Serial Port Console Redirection

The **Serial Port Console Redirection** menu (**BIOS Menu 11**) 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) 2019 American Megatrends, Inc.
        Advanced

  COM1                                          Console Redirection
   Console Redirection               [Disabled]  Enable or Disable.
 > Console Redirection Settings

  COM2                                          --------------------
   Console Redirection               [Disabled] ←→: Select Screen
 > Console Redirection Settings                 ↑ ↓: Select Item
                                                Enter Select
  Legacy Console Redirection                    +/-: Change Opt.
 > Legacy Console Redirection Settings           F1:  General Help
                                                F2:  Previous Values
                                                F3:  Optimized Defaults
                                                F4:  Save & Exit
                                                ESC: Exit
        Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

BIOS Menu 11: Serial Port Console Redirection

➔ **Console Redirection [Disabled]**

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

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

➔ **Enabled**   Enabled the console redirection function

4.3.8.1 Legacy Console Redirection Settings

The **Legacy Console Redirection Settings** menu (**BIOS Menu 12**) allows the legacy console redirection options to be configured.
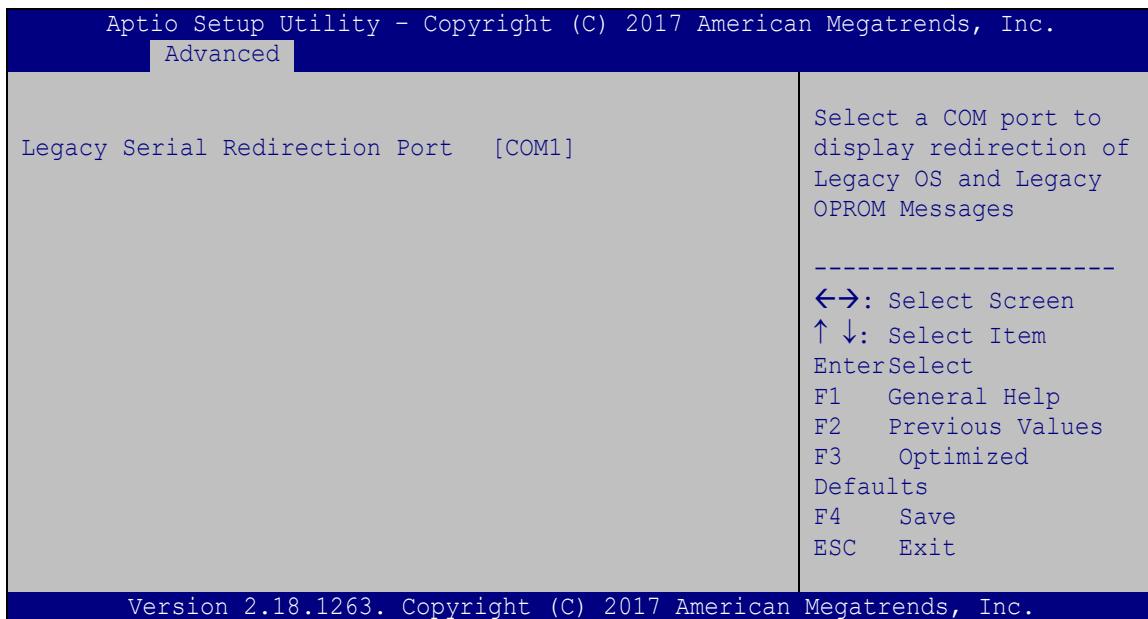
```
Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
    Advanced

Legacy Serial Redirection Port   [COM1]          Select a COM port to
                                                 display redirection of
                                                 Legacy OS and Legacy
                                                 OPROM Messages

                                                 ---------------------
                                                 ←→: Select Screen
                                                 ↑ ↓: Select Item
                                                 Enter Select
                                                 F1   General Help
                                                 F2   Previous Values
                                                 F3   Optimized
                                                 Defaults
                                                 F4   Save
                                                 ESC  Exit

    Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```
BIOS Menu 12: Legacy Console Redirection Settings

➔ **Legacy Serial Redirection Port [COM1]**

Use the **Legacy Serial Redirection Port** option to specify a COM port to display redirection of legacy OS and legacy OPROM messages. The options include:

- COM1   DEFAULT
- COM2

4.3.9 iEi Feature

Use the **iEi Feature** menu (**BIOS Menu 13**) to configure One Key Recovery function.

```
         Aptio Setup Utility – Copyright (C) 2019 American Megatrends, Inc.
            Advanced

iEi Feature                                              Auto Recovery Function
                                                         Reboot and recover
Auto Recovery Function            [Disabled]             system automatically
                                                         within 10 min, when OS
                                                         crashes. Please install
                                                         Auto Recovery API
                                                         service before enabling
                                                         this function.
                                                         ---------------------
                                                         →←: Select Screen
                                                         ↑ ↓: Select Item
                                                         Enter: Select
                                                         +/-:  Change Opt.
                                                         F1:   General Help
                                                         F2:   Previous Values
                                                         F3:   Optimized Defaults
                                                         F4:   Save & Exit
                                                         ESC: Exit
         Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

BIOS Menu 13: iEi Feature

➔ **Auto Recovery Function [Disabled]**

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

➔ **Disabled**   DEFAULT   Auto recovery function disabled

➔ **Enabled**   Auto recovery function enabled

4.4 Chipset

Use the **Chipset** menu (**BIOS Menu 14**) 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) 2019 American Megatrends, Inc.
   Main    Advanced   Chipset   Security    Boot    Save & Exit

> North Bridge                                    North Bridge Parameters
> South Bridge

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

      Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```
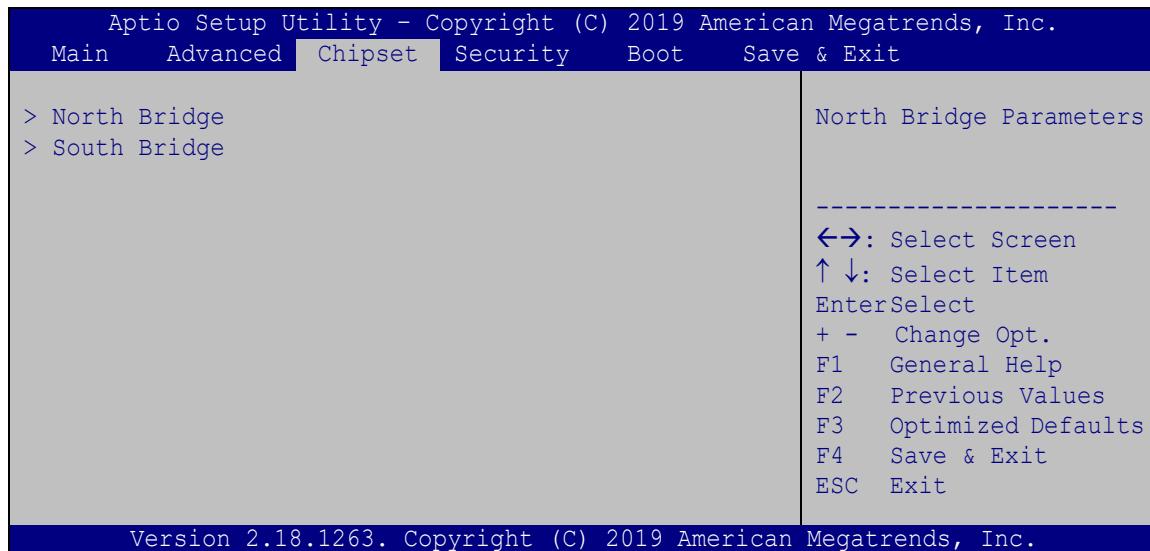
BIOS Menu 14: Chipset

4.4.1 North Bridge Configuration

Use the **North Bridge** menu (**BIOS Menu 15**) to configure the north bridge chipset.

```
         Aptio Setup Utility – Copyright (C) 2019 American Megatrends, Inc.
                      Chipset

> Intel IGD Configuration                              Intel IGD Configuration
> LCD Control

Memory Information                                     --------------------
                                                       ←→: Select Screen
Total Memory                    4096 MB (LPDDR3)       ↑ ↓: Select Item
On Board Memory                 4096 MB (LPDDR3)       Enter Select
                                                       + -  Change Opt.
                                                       F1   General Help
                                                       F2   Previous Values
                                                       F3   Optimized Defaults
                                                       F4   Save & Exit
                                                       ESC  Exit

         Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

BIOS Menu 15: North Bridge Configuration

4.4.1.1 Internal IGD Configuration

Use the Internal IGD Configuration (**BIOS Menu 16**) menu to set the integrated graphics.

```
         Aptio Setup Utility – Copyright (C) 2019 American Megatrends, Inc.
                      Chipset

IGD Configuration                                      Enable: Enable
                                                       Integrated Graphics
Primary Display                 [IGD]                  Device (IGD) when
DVMT Pre-Allocated              [256M]                 selected as the Primary
DVMT Total Gfx Mem              [MAX]                  Video Adaptor. Disable:
                                                       Always disable IGD
                                                       --------------------
                                                       ←→: Select Screen
                                                       ↑ ↓: Select Item
                                                       Enter Select
                                                       + -  Change Opt.
                                                       F1   General Help
                                                       F2   Previous Values
                                                       F3   Optimized Defaults
                                                       F4   Save & Exit
                                                       ESC  Exit

         Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

BIOS Menu 16: Internal IGD Configuration

➔ **Primary Display [IGD]**

Use the **Primary Display** option to select the graphics controller used as the primary boot device. Configuration option is listed below:

▪ **IGD**   DEFAULT

➔ **DVMT Pre-Allocated [256MB]**

Use the **DVMT Pre-Allocated** option to set the amount of system memory allocated to the integrated graphics processor when the system boots. The system memory allocated can then only be used as graphics memory, and is no longer available to applications or the operating system. Configuration options are listed below:

▪ 64M
▪ 128M
▪ 256M   DEFAULT
▪ 512M

➔ **DVMT Total Gfx Mem [MAX]**

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

▪ 128M
▪ 256M
▪ MAX   DEFAULT

4.4.1.2 LCD Control

Use the **LCD Control** submenu (**BIOS Menu 17**) to select a display device which will be activated during POST.

```
         Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
                             Chipset

 LCD Control                                           Select the Video Device
                                                       which will be activated
 Primary IGFX Boot Display          [Auto]             during POST. This has no
                                                       effect if external
 LVDS Panel Detect                  [INSTALLED]        graphics present.
                                                       Secondary boot display
 Panel Setting                                         selection will appear
                                                       based on your selection.
 Backlight Control Mode             [LED]              VGA modes will be
 Backlight Control Type             [PWM]              supported only on
                                                       primary display.

                                                       --------------------
                                                       ←→: Select Screen
                                                       ↑ ↓: Select Item
                                                       EnterSelect
                                                       +/-:  Change Opt.
                                                       F1:  General Help
                                                       F2:  Previous Values
                                                       F3:  Optimized Defaults
                                                       F4:  Save & Exit
                                                       ESC: Exit
         Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

BIOS Menu 17: LCD Control

➔ **Primary IGFX Boot Display [Auto]**

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

- ▪ **Auto**   DEFAULT
- ▪ **LVDS**
- ▪ **HDMI1**

➔ **Backlight Control Mode [LED]**

Use the **Backlight Control Mode** option to specify the backlight control mode. Configuration option is listed below.

▪ LED   DEFAULT

➔ **Backlight Control Type [PWM]**

Use the **Backlight Control Type** option to specify the backlight control type. Configuration option is listed below.

▪ PWM   DEFAULT

4.4.2 South Bridge Configuration

Use the **South Bridge Configuration** menu (**BIOS Menu 15**) to configure the south bridge chipset.

```
        Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
                        Chipset

Auto Power Button Function      [Disable (ATX)]      HD-Audio Configuration
> HD-Audio Configuration                             Settings
> PCI Express Configuration
> SATA Configuration
                                                     --------------------
Restore AC Power Loss           [Last State]         ←→: Select Screen
                                                     ↑ ↓: Select Item
USB Power SW1                    [+5V DUAL]           Enter Select
                                                     +/-:  Change Opt.
                                                     F1:   General Help
                                                     F2:   Previous Values
                                                     F3:   Optimized Defaults
                                                     F4:   Save & Exit
                                                     ESC: Exit
         Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

BIOS Menu 18: 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.

➔ **USB Power SW1 [+5V DUAL]**

Use the **USB Power SW1** BIOS option to configure whether to provide power to the external USB 3.0 connectors when the system is in S3/S4 sleep state. This option is valid only when the above **Power Saving Function** BIOS option (see Section 4.3.7) is disabled.

➔ **+5V DUAL** DEFAULT   Power is provided to the external USB 3.0 connectors when the system is in S3/S4 sleep state

➔ **+5V**   Power is not provided to the external USB 3.0 connectors when the system is in S3/S4 sleep state

4.4.2.1 HD-Audio Configuration

Use the **HD-Audio Configuratio**n menu (**BIOS Menu 19**) to configure the HD Audio.

```
     Aptio Setup Utility – Copyright (C) 2019 American Megatrends, Inc.
                 Chipset

HD-Audio Configuration                               Enable/Disable HD-Audio
HD-Audio Support                   [Enable]          Support


                                                     --------------------
                                                     ←→: Select Screen
                                                     ↑ ↓: Select Item
                                                     Enter Select
                                                     F1    General Help
                                                     F2    Previous Values
                                                     F3     Optimized
                                                     Defaults
                                                     F4     Save
                                                     ESC   Exit

     Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```
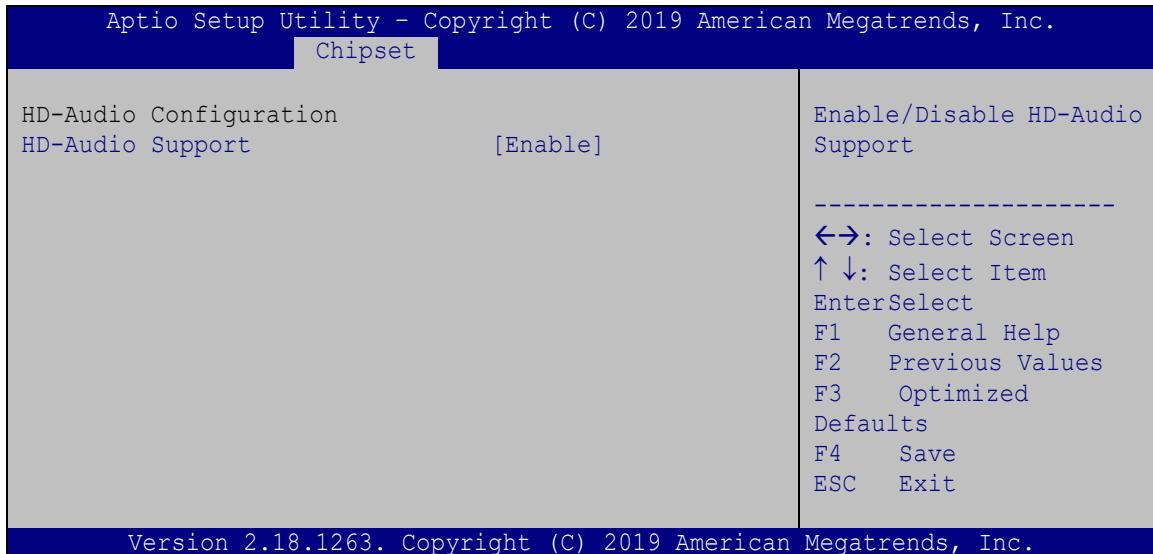
BIOS Menu 19: HD-Audio Configuration

➔ **HD-Audio Support [Enable]**

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

➔ **Disable**   The onboard High Definition Audio controller is disabled

➔ **Enable**   DEFAULT   The onboard High Definition Audio controller is detected automatically and enabled

4.4.2.2 PCI Express Configuration

Use the **PCI Express Configuratio**n menu (**BIOS Menu 20**) to configure the PCI Express.

```
       Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
              Chipset

PCI Express Configuration                          Compliance Mode
> M2_AKEY1                                          Enable/Disable


                                                    --------------------
                                                    ←→: Select Screen
                                                    ↑↓: Select Item
                                                    EnterSelect
                                                    F1   General Help
                                                    F2   Previous Values
                                                    F3    Optimized
                                                    Defaults
                                                    F4    Save
                                                    ESC   Exit

       Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```
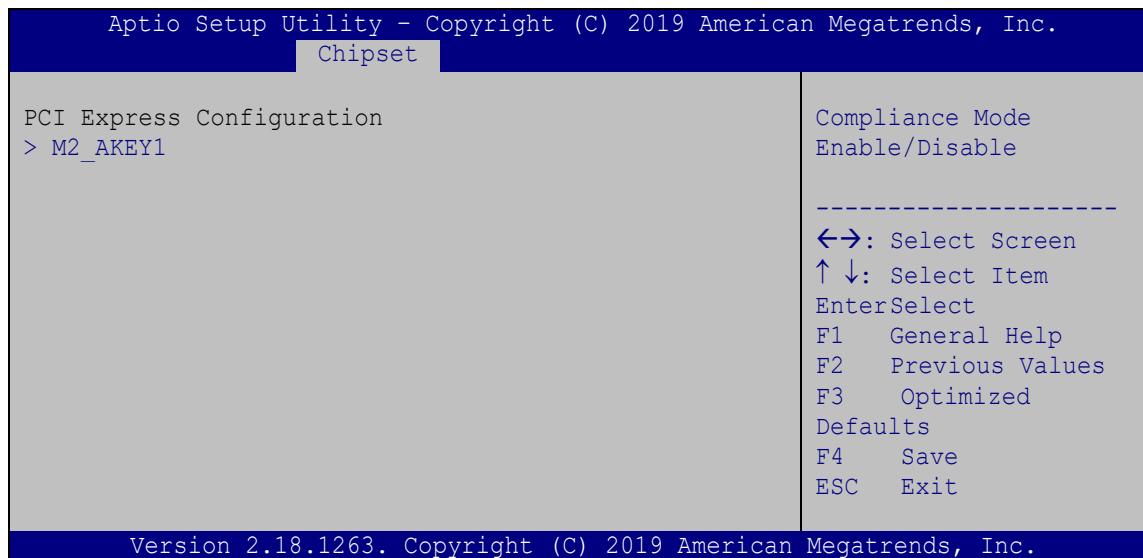
BIOS Menu 20: PCI Express Configuration

4.4.2.2.1 M2_AKEY1

```
Aptio Setup Utility – Copyright (C) 2019 American Megatrends, Inc.
                         Chipset

PCIe Speed                        [Auto]          Select PCI Express port
                                                  speed.

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

     Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```
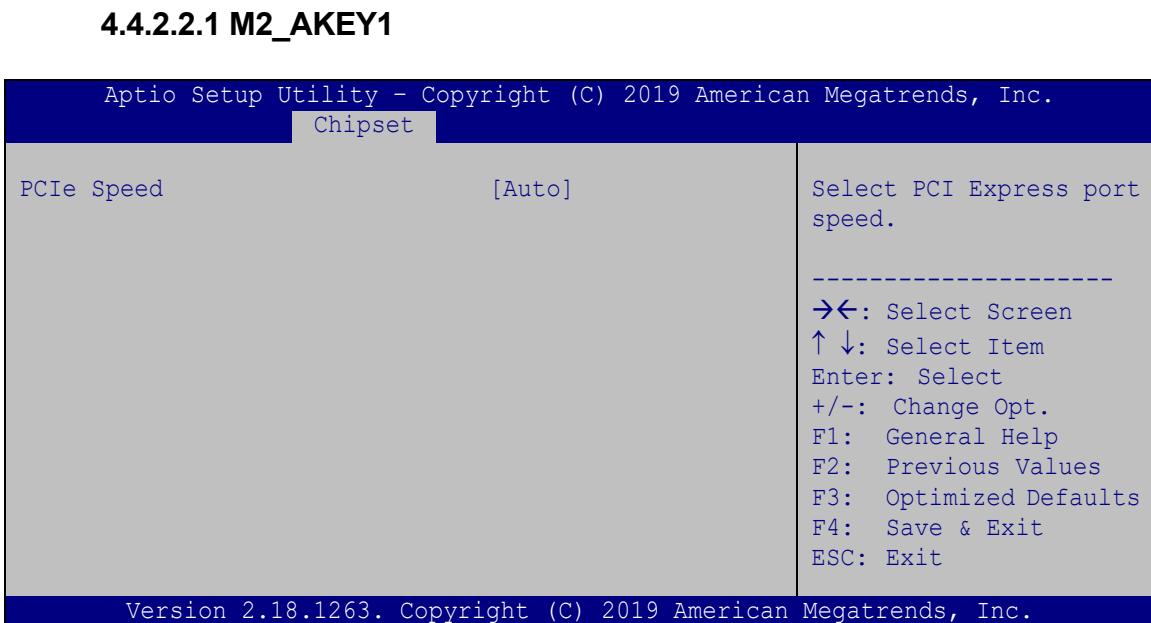
BIOS Menu 21: M2_AKEY1

➔ **PCIe Speed [Auto]**

Use this option to select the support type of the PCI Express slot. The following options are available:

- Auto   **Default**
- Gen1
- Gen2

4.4.2.3 SATA Configuration

Use the **SATA Configuration** menu (**BIOS Menu 22**) to change and/or set the configuration of the SATA devices installed in the system.

```
        Aptio Setup Utility – Copyright (C) 2019 American Megatrends, Inc.
                      Chipset

SATA Configuration                                       Enables or Disables the
STAT Controller                    [Enable]              Chipset SATA Controller.
SATA Mode Selection                [AHCI]                The Chipset SATA
                                                         controller supports the
  SATA1                            Empty                 2 black internal SATA
                                                         ports (up to 3Gb/s
  M2_1                             Empty                 supported per port).

                                                         ---------------------

                                                         ←→: Select Screen
                                                         ↑↓: Select Item
                                                         Enter Select
                                                         F1   General Help
                                                         F2   Previous Values
                                                         F3    Optimized
                                                         Defaults
                                                         F4    Save
                                                         ESC   Exit
        Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

BIOS Menu 22: SATA Configuration

➔ **STAT Controller [Enable]**

Use the **STAT Controller(s)** option to enable or disable the SATA device.

➔ **Enable**　　　DEFAULT　　Enables the SATA device.

➔ **Disable**　　　　　　　　Disables the SATA device.

➔ **SATA Mode Selection [AHCI]**

Use the **SATA Mode Selection** option to configure SATA devices as AHCI devices.

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

4.5 Security

Use the **Security** menu (**BIOS Menu 23**) to set system and user passwords.

```
         Aptio Setup Utility – Copyright (C) 2019 American Megatrends, Inc.
  Main    Advanced   Chipset   Security    Boot    Save & Exit

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

       Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```
   BIOS Menu 23: Security

➔ **Administrator Password**

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

➔ **User Password**

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

4.6 Boot

Use the **Boot** menu (**BIOS Menu 24**) to configure system boot options.

```
         Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
   Main    Advanced   Chipset   Security    Boot    Save & Exit

 Boot Configuration                                      Select the keyboard
 Bootup NumLock State             [On]                   NumLock state
 Quiet Boot                       [Enabled]
 Launch PXE OpROM                 [Disabled]
 Option ROM Messages              [Force BIOS]           --------------------
 UEFI Boot                        [Disabled]             ←→: Select Screen
                                                         ↑↓: Select Item
 Boot Option Priorities                                  Enter Select
                                                         +/-: Change Opt.
                                                         F1:  General Help
                                                         F2:  Previous Values
                                                         F3:  Optimized Defaults
                                                         F4:  Save & Exit
                                                         ESC: Exit

         Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

BIOS Menu 24: Boot

➔ **Bootup NumLock State [On]**

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

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

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

➔ **Quiet Boot [Disabled]**

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

➔ **Launch PXE OpROM [Disabled]**

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

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

➔ **Enabled**   Load PXE Option ROMs

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

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

➔ **Force BIOS**   DEFAULT   Sets display mode to force BIOS.

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

➔ **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.

4.7 Save & Exit

Use the **Save & Exit** menu (**BIOS Menu 25**) to load default BIOS values, optimal failsafe values and to save configuration changes.

```
      Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
  Main    Advanced   Chipset    Boot    Security  Save & Exit

 Save Changes and Reset                              Reset the system after
 Discard Changes and Reset                           saving the changes.

 Restore Defaults
 Save as User Defaults
 Restore User Defaults

                                                     --------------------
                                                     ←→: Select Screen
                                                     ↑ ↓: Select Item
                                                     Enter Select
                                                     +/-: Change Opt.
                                                     F1:  General Help
                                                     F2:  Previous Values
                                                     F3:  Optimized Defaults
                                                     F4:  Save & Exit
                                                     ESC: Exit
       Version 2.18.1263. Copyright (C) 2019 American Megatrends, Inc.
```

BIOS Menu 25: Save & Exit

➔ **Save Changes and Reset**

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

➔ **Discard Changes and Reset**

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

➔ **Restore Defaults**

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

➔ **Save as User Defaults**

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

➔ **Restore User Defaults**

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

Chapter

5

System Maintenance

5.1 System Maintenance Introduction

If the components of the AFL3-W10A/12A/W15A-AL fail they must be replaced. Please contact the system reseller or vendor to purchase the replacement parts. Back cover removal instructions for the AFL3-W10A/12A/W15A-AL are described below.

5.2 Anti-static Precautions

⚠ WARNING:

Failure to take ESD precautions during the maintenance of the AFL3-W10A/12A/W15A-AL may result in permanent damage to the AFL3-W10A/12A/W15A-AL and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the AFL3-W10A/12A/W15A-AL. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the AFL3-W10A/12A/W15A-AL 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 AFL3-W10A/12A/W15A-AL, place it on an anti-static pad. This reduces the possibility of ESD damaging the AFL3-W10A/12A/W15A-AL.
- **Only handle the edges of the PCB**: - When handling the PCB, hold the PCB by the edges.

5.3 Turn off the Power

![WARNING icon] **WARNING:**

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

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

5.4 WLAN Card Replacement

The AFL3-W10A/12A/W15A-AL has one WLAN card slot. To replace the WLAN card, follow the instructions below.

Step 1: Follow all anti-static procedures. See **Section 5.2**.

Step 2: Turn off the power. See **Section 5.3**.

Step 3: Remove the plastic back cover. See **Section 3.4** above.

**Step 4:** Locate the WLAN card (**Figure 5-1**).
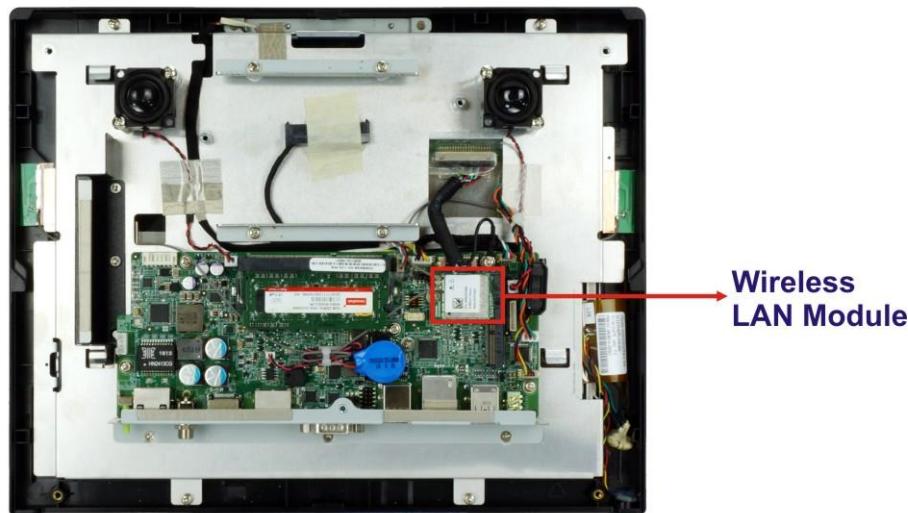
Figure 5-1: WLAN Card Location

Step 5: Disconnect the antenna cables on the WLAN module and remove the retention screw to release the WLAN card.

Step 6: Grasp the WLAN card by the edges and carefully pull it out of the socket.

Step 7: Install a new WLAN card by inserting the card into the slot at an angle.

Step 8: Push the WLAN card down and secure it with the previously removed retention screw.

Step 9: Connect the antenna cables.

Step 10: Replace the back cover and secure it using the previously removed retention screws.

5.5 Reinstalling the Cover

WARNING:

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

When maintenance procedures are complete, please make sure the plastic back cover is replaced. Detailed instruction is described in Section 3.4.1.

Chapter

6

Interface Connectors

6.1 Peripheral Interface Connectors

The AFL3-W10A/12A/W15A-AL 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.
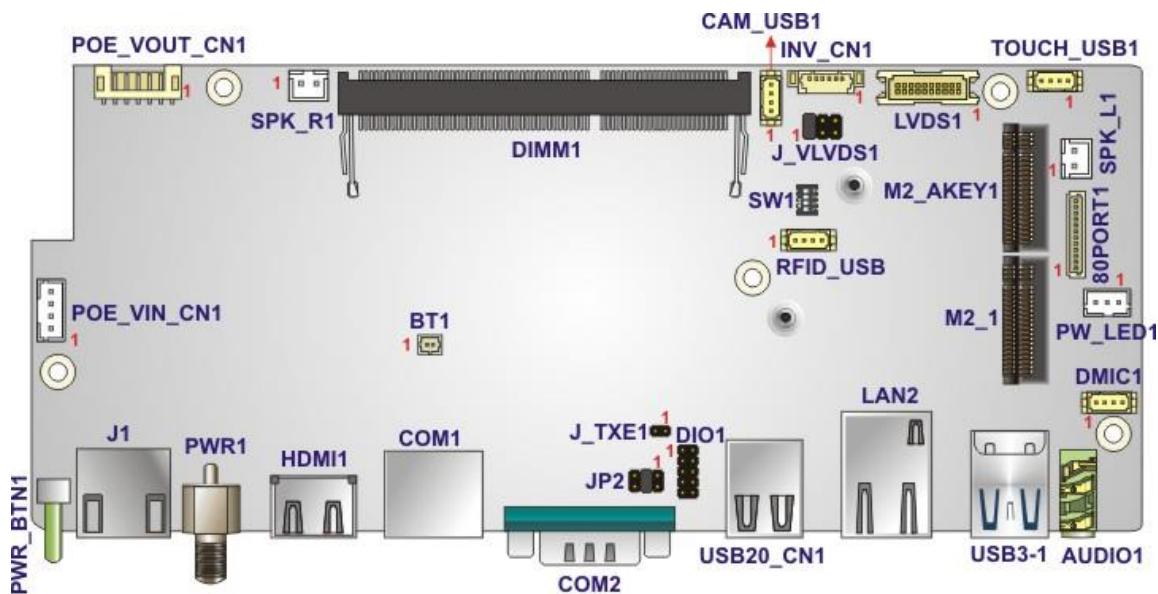


Figure 6-1: Main Board Layout Diagram (Front Side)
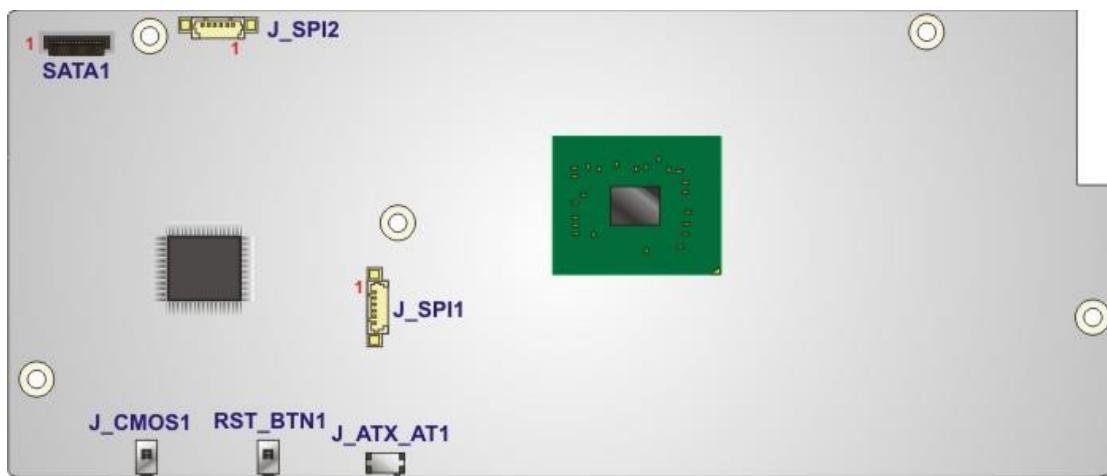
Figure 6-2: Main Board Layout Diagram (Solder Side)

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-AL. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
Battery connector	2-pin wafer	BT1
Debug port connector	12-pin wafer	80PORT1
Digital I/O connector	10-pin header	DIO1
Inverter connector	6-pin wafer	INV_CN1
LVDS connector	20-pin crimp	LVDS1
Microphone connector	4-pin wafer	DMIC1
M.2 A-key slot	M.2 A-key	M2_AKEY1
M.2 B-key slot	M.2 B-key	M2_1
PoE power output	7-pin wafer	POE_VOUT_CN1
PoE power input	4-pin wafer	POE_VIN_CN1
Power LED connector	3-pin wafer	PW_LED1
Reset button	Push button	RST_BTN1
SATA connector	20-pin connector	SATA1
Speaker connector, left	2-pin wafer	SPK_L1
Speaker connector, right	2-pin wafer	SPK_R1
SPI Flash connector	6-pin wafer	J_SPI1
SPI Flash connector, EC	6-pin wafer	J_SPI2
USB 2.0 connector	4-pin wafer	TOUCH_USB1
USB 2.0 connector	4-pin wafer	CAM_USB
USB 2.0 connector	4-pin wafer	RFID_USB

Table 6-1: Peripheral Interface Connectors

6.2.1 Battery Connector (BT1)

PIN NO.	DESCRIPTION
1	+3V
2	GND

Table 6-2: Battery Connector (BT1) Pinouts

6.2.2 Debug Port Connector (80PORT1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V(Reserved)	7	LPC_AD1
2	+3.3V	8	LPC_AD0
3	GND	9	LPC_FRAME_N
4	LPC_SERIRQ	10	PLT_RST#
5	LPC_AD3	11	LPC_CLOCK
6	LPC_AD2	12	GND

Table 6-3: Debug Port Connector (80PORT1) Pinouts

6.2.3 Digital I/O Connector (DIO1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC +5V
3	Output 3	4	Output 2
5	Output 1	6	Output 0
7	Input 3	8	Input 2
9	Input 1	10	Input 0
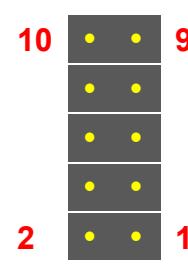
Table 6-4: Digital I/O Connector (DIO1) Pinouts

6.2.4 Inverter Connector (INV_CN1)

PIN NO.	DESCRIPTION
1	+12V
2	+12V
3	Backlight ON/OFF
4	Backlight Brightness Control
5	GND
6	GND

Table 6-5: Inverter Connector (INV_CN1) Pinouts

6.2.5 LVDS Connector (LVDS1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	A1M_L	4	A0M_L
5	A1P_L	6	A0P_L-
7	GND	8	GND
9	CLK1M_L	10	A2M_L
11	CLK1P_L	12	A2P_L
13	GND	14	GND
15	A3M_L	16	EC judge LVDS
17	A3P_L	18	+VCC_LCD
19	GND	20	+VCC_LCD

Table 6-6: LVDS Connector (LVDS1) 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 M.2 A-Key Slot (M2_AKEY1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+V3.3A
3	USB+	4	+V3.3A
5	USB-	6	NC
7	GND	8	Module Key
9	Module Key	10	Module Key
11	Module Key	12	Module Key
13	Module Key	14	Module Key
15	Module Key	16	NC
17	NC	18	GND
19	NC	20	NC
21	NC	22	NC
23	GND	24	GND
25	NC	26	NC
27	NC	28	NC
29	GND	30	GND
31	NC	32	NC
33	GND	34	NC
35	PCIE_TX+	36	GND
37	PCIE_TX-	38	NC
39	GND	40	NC
41	PCIE_RX+	42	NC

43	PCIE_RX-	44	NC
45	GND	46	NC
47	CLK_PCIE+	48	NC
49	CLK_PCIE-	50	NC
51	GND	52	BUF_PLT_RST#
53	PCIE_CLKREQ#	54	Pull Up +V3.3A
55	PCIE_WAKE#	56	Pull Up +V3.3A
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	GND	64	NC
65	NC	66	NC
67	NC	68	NC
69	GND	70	NC
71	NC	72	+V3.3A
73	NC	74	+V3.3A
75	GND		

Table 6-8: M.2 A-Key Slot (M2_AKEY1) Pinouts

6.2.8 M.2 B-Key Slot (M2_1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC3
3	GND	4	VCC3
5	GND	6	N/C
7	USB_+DATA6	8	N/C
9	USB_-DATA6	10	N/C
11	N/C	20	N/C
21	N/C	22	N/C
23	GND	24	N/C
25	N/C	26	N/C
27	N/C	28	N/C

29	USB3_RX2_N	30	N/C
31	USB3_RX2_P	32	N/C
33	GND	34	N/C
35	USB3P0_TXDNM2	36	N/C
37	USB3P0_TXDPM2	38	GND
39	GND	40	N/C
41	M1_SATA_RX1+_C	42	N/C
43	M1_SATA_RX1-_C	44	N/C
45	GND	46	N/C
47	M1_SATA_TX1-_C	48	N/C
49	M1_SATA_TX1+_C	50	N/C
51	GND	52	N/C
53	N/C	54	GND
55	N/C	56	N/C
57	GND	58	N/C
59	N/C	60	N/C
61	N/C	62	N/C
63	GND	64	N/C
65	N/C	66	N/C
67	Reset	68	N/C
69	N/C	70	VCC3
71	GND	72	VCC3
73	GND	74	VCC3
75	GND		

Table 6-9: M.2 B-Key Slot (M2_1) Pinouts

6.2.9 PoE Power Output Connector (POE_VOUT_CN1)

PIN NO.	DESCRIPTION
1	+12V
2	+12V
3	+12V

4	N/A
5	GND
6	GND
7	GND

Table 6-10: PoE Power Output Connector (POE_VOUT_CN1) Pinouts

6.2.10 PoE Power Input Connector (POE_VIN_CN1)

PIN NO.	DESCRIPTION
1	POE VIN +48V~+55V
2	POE VIN +48V~+55V
3	POE VIN +48V~+55V
4	POE VIN +48V~+55V

Table 6-11: PoE Power Input Connector (POE_VIN_CN1) Pinouts

6.2.11 Power LED Connector (PW_LED1)

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

Table 6-12: Power LED Connector (PW_LED1) Pinouts

6.2.12 SATA Connector (SATA1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	11	+5V
2	GND	12	NC
3	GND	13	NC
4	GND	14	GND
5	GND	15	SATA_RXP0

6	GND	16	SATA_RXN0
7	+5V	17	GND
8	+5V	18	SATA_TXN0
9	+5V	19	SATA_TXP0
10	+5V	20	GND

Table 6-13: SATA Connector (SATA1) Pinouts

6.2.13 Speaker Connector, Left (SPK_L1)

PIN NO.	DESCRIPTION
1	SPK_OUT_L+
2	SPK_OUT_L-

Table 6-14: Left Speaker Connector (SPK_L1) Pinouts

6.2.14 Speaker Connector, Right (SPK_R1)

PIN NO.	DESCRIPTION
1	SPK_OUT_R+
2	SPK_OUT_R-

Table 6-15: Right Speaker Connector (SPK_R1) Pinouts

6.2.15 SPI Flash Connector (J_SPI1)

PIN NO.	DESCRIPTION
1	+3.3V
2	SPI_CS
3	SPI_SO_SW
4	SPI_CLK_SW
5	SPI_SI_SW
6	GND

Table 6-16: SPI Flash Connector (J_SPI1) Pinouts

6.2.16 SPI Flash Connector, EC (J_SPI2)

PIN NO.	DESCRIPTION
1	+3.3V
2	SPI_CS
3	SPI_SO_SW
4	SPI_CLK_SW
5	SPI_SI_SW
6	GND

Table 6-17: EC SPI Flash Connector (J_SPI2) Pinouts

6.2.17 USB 2.0 Connector (TOUCH_USB1)

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

Table 6-18: USB 2.0 Connector (TOUCH_USB1) Pinouts

6.2.18 USB 2.0 Connector (CAM_USB)

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

Table 6-19: USB 2.0 Connector (CAM_USB) Pinouts

6.2.19 USB 2.0 Connector (RFID_USB)

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

Table 6-20: USB 2.0 Connector (RFID_USB) 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
Audio line-out jack	Audio jack	AUDIO1
Ethernet connector	RJ-45	LAN2
Ethernet connector with PoE	RJ-45	J1
HDMI connector	HDMI	HDMI1
Power button	Push button	PWR_BTN1
Power connector	Power jack	PWR1
RS-232 serial port	RJ-45	COM1
RS-232/422/485 serial port	D-sub 9	COM2
USB 2.0 connectors	USB 2.0	USB20_CN1
USB 3.2 Gen 1 connectors	USB 3.2 Gen 1 port	USB3-1

Table 6-21: Rear Panel Connectors

6.3.1 Audio Line-out Jack (AUDIO1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	ANALOG_GND	8	NC
2	ANALOG_GND	7	JD_FRONT
3	LINE_OUTR	6	NC
5	NC	4	LINE_OUTL
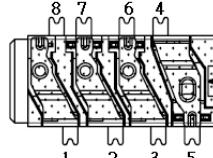
Table 6-22: Audio Line-out Jack (AUDIO1) Pinouts

6.3.2 Ethernet Connectors (J1 & LAN2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MDIA0+	5	MDIA2-
2	MDIA0-	6	MDIA1-
3	MDIA1+	7	MDIA3+
4	MDIA2+	8	MDIA3-
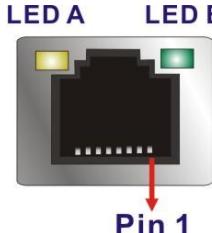
Table 6-23: Ethernet Connectors (J1 & LAN2) Pinouts

LED	Description	LED	Description
A	on: linked blinking: data is being sent/received	B	off: 10 Mb/s green: 100 Mb/s orange: 1000 Mb/s

Table 6-24: Ethernet Connector LEDs

6.3.3 Power Connector (PWR1)
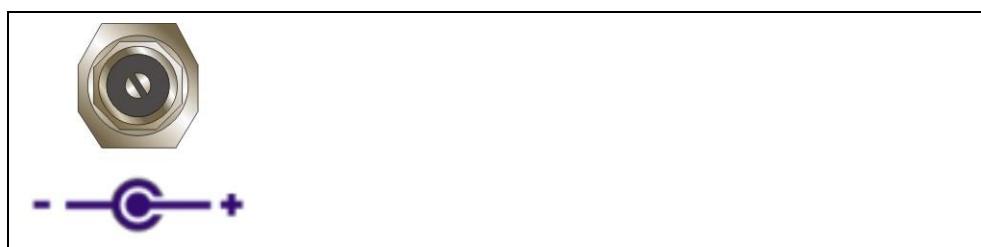
Table 6-25: Power Connector (PWR1) Pinouts

6.3.4 HDMI Connector (HDMI1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	HDMI_DATA2	2	GND
3	HDMI_DATA2#	4	HDMI_DATA1
5	GND	6	HDMI_DATA1#
7	HDMI_DATA0	8	GND
9	HDMI_DATA0#	10	HDMI_CLK
11	GND	12	HDMI_CLK#
13	N/C	14	N/C
15	HDMI_SCL	16	HDMI_SDA
17	GND	18	+5V
19	HDMI_HPD	20	HDMI_GND
21	HDMI_GND	22	HDMI_GND
23	HDMI_GND		
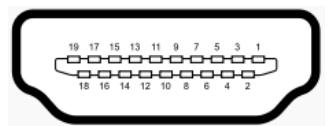
Table 6-26: HDMI Connector (HDMI1) Pinouts

6.3.5 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
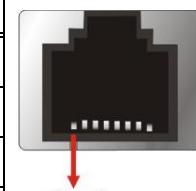
Table 6-27: RS-232 RJ-45 Serial Port (COM1) Pinouts

6.3.6 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		
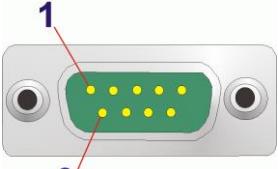
Table 6-28: RS-232/422/485 DB-9 Serial Port (COM2) Pinouts

6.3.7 USB 2.0 Connectors (USB20_CN1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	POWER	5	Power
2	DATA0-	6	DATA1-
3	DATA0+	7	DATA1+
4	GND	8	GND

Table 6-29: USB 2.0 Connectors (USB20_CN1) Pinouts

6.3.8 USB 3.2 Gen 1 Connectors (USB3-1)

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+
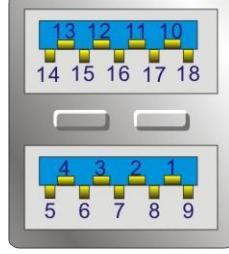
Table 6-30: USB 3.2 Gen 1 Connectors (USB3-1) Pinouts

6.4 Preconfigured Jumper Settings

⚠️ **CAUTION:**

The following jumpers are preconfigured for the AFL3-W10A/12A/W15A-AL. Users should not change these jumpers (**Table 6-31**). It is only for reference.

Jumper Name	Type	Label
LVDS voltage selection	6-pin header	J_VLVDS1
LVDS panel resolution selection	DIP switch	SW1

Table 6-31: Preconfigured Jumpers

6.4.1 LVDS Panel Voltage Selection Jumper (J_VLVDS1)

Pin	Description
Short 1-2	+3.3 V (Default)
Short 3-4	+5 V
Short 5-6	+12 V

Table 6-32: LVDS Voltage Selection Jumper (J_VLVDS1) Settings

6.4.2 LVDS Panel Resolution Selection Jumper (SW1)

* ON=0, OFF=1

SW1 (4-3-2-1)	Description
0000	800x600 18-bit
0001	1024x768 18-bit
0010	1024x768 24-bit
0011	1280x768 18-bit
0100	1280x800 18-bit

SW1 (4-3-2-1)	Description
0101	1280x960 18-bit
0110	1280x1024 48-bit
0111	1366x768 18-bit
1000	1366x768 24-bit
1001	1440x960 48-bit
1010	1400x1050 48-bit
1011	1600x900 48-bit
1100	1680x1050 48-bit
1101	1600x1200 48-bit
1110	1920x1080 48-bit
1111	1920x1200 48-bit

Table 6-33: LVDS Panel Resolution Selection Jumper (SW1) Settings

Appendix

A

Regulatory Compliance

DECLARATION OF CONFORMITY $C\epsilon$

This equipment is in conformity with the following EU directives:

- EMC Directive (2014/30/EU)
- Low-Voltage Directive (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 zařízení je ve shodě se základními požadavky a dašími 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 2□14/53/EU.
Deutsch [German]
I□I Integration Corp, erklärt dieses Gerät entspricht □en 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 q□e l'appareil est conforme aux □xigences □ssentielles et aux autres dispositions pertinentes de la directive 2014/53/EU.

Italiano [Italian]

IEI Integration Corp dichiara che questo apparecchio è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2014/53/EU.

Latviski [Latvian]

IEI Integration Corp deklarē, ka iekārta atbilst būtiskajām prasībām un citiem ar to saistītajiem noteikumiem Direktīvas 2014/53/EU.

Lietuvių [Lithuanian]

IEI Integration Corp deklaruoja, kad šis įranga atitinka esminius reikalavimus ir kitas 2014/53/EU Direktyvos nuostatas.

Nederlands [Dutch]

IEI Integration Corp dat het toestel toestel in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2014/53/EU.

Malti [Maltese]

IEI Integration Corp jiddikjara li dan prodott jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 2014/53/EU.

Magyar [Hungarian]

IEI Integration Corp nyilatkozom, hogy a berendezés megfelel a vonatkozó alapvetõ követelményeknek és az 2014/53/EU irányel□ egyéb elõírásainak.

Polski [Polish]

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

Português [Portuguese]

IEI Integration Corp declara que este equipamen□o está conforme com os requisitos essenciais e outras disposições da Directiva 2014/□3/EU.

Româna [Romanian]

IEI Integration Corp declară că acest echipament este in conformitate cu cerinţele esenţiale şi cu celelalte prevederi relevante ale Directivei 2014/53/EU.

Slovensko [Slovenian]

IEI Integration Corp izjavlja, da je ta opreme v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 2014/53/EU.

Slovensky [Slovak]

IEI Integration Corp týmto vyhlasuje, že zariadenia spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 2014/53/EU.

Suomi [Finnish]

I⬚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.

CHINA ROHS

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

Appendix

B

Safety Precautions

⚠ **WARNING:**

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the AFL3-W10A/12A/W15A-AL.

B.1 Safety Precautions

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

B.1.1 General Safety Precautions

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

- *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 AFL3-W10A/12A/W15A-AL 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 AFL3-W10A/12A/W15A-AL 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 AFL3-W10A/12A/W15A-AL.

- ▪ *If considerable amounts of dust, water, or fluids enter the* **device**, turn off the power supply immediately, unplug the power cord, and contact the AFL3-W10A/12A/W15A-AL 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

B.1.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the AFL3-W10A/12A/W15A-AL may result in permanent damage to the AFL3-W10A/12A/W15A-AL and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the AFL3-W10A/12A/W15A-AL. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the AFL3-W10A/12A/W15A-AL is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- ▪ *Wear an anti-static wristband*: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- ▪ *Self-grounding*: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- ▪ *Use an anti-static pad*: When configuring or working with an electrical component, place it on an anti-static pad. This reduces the possibility of ESD damage.
- ▪ *Only handle the edges of the electrical component*: When handling the electrical component, hold the electrical component by its edges.

B.1.3 Product Disposal

> ⚠️ **CAUTION:**
>
> Risk of explosion if battery is replaced by an incorrect type. Only certified engineers should replace the on-board battery.
>
> Dispose of used batteries according to instructions and local regulations.

- Outside the European Union–If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union–The device that produces less waste and is easier to recycle is classified as electronic device in terms of the European Directive 2012/19/EU (WEEE), and must not be disposed of as domestic garbage.
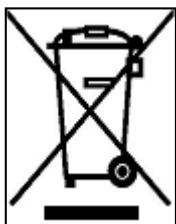
EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

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

B.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the AFL3-W10A/12A/W15A-AL, 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.

B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the AFL3-W10A/12A/W15A-AL, 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.

B.2.2 Cleaning Tools

Some components in the AFL3-W10A/12A/W15A-AL 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 AFL3-W10A/12A/W15A-AL.

- ***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 swaps 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

C

BIOS Menu Options

Appendix

D

Watchdog Timer

NOTE:

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

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

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

INT 15H:

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

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

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

NOTE:

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

EXAMPLE PROGRAM:

; INITIAL TIMER PERIOD COUNTER

;

W_LOOP:

;

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

;

; ADD THE APPLICATION PROGRAM HERE

;

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

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

;

; EXIT ;

Appendix

E

Error Beep Code

E.1 PEI Beep Codes

Number of Beeps	Description
1	Memory not Installed
1	Memory was installed twice (InstallPeiMemory routine in PEI Core called twice)
2	Recovery started
3	DXEIPL was not found
3	DXE Core Firmware Volume was not found
4	Recovery failed
4	S3 Resume failed
7	Reset PPI is not available

E.2 DXE Beep Codes

Number of Beeps	Description
1	Invalid password
4	Some of the Architectural Protocols are not available
5	No Console Output Devices are found
5	No Console Input Devices are found
6	Flash update is failed
7	Reset protocol is not available
8	Platform PCI resource requirements cannot be met

NOTE:

If you have any question, please contact IEI for further assistance.

Appendix

F

Hazardous Materials Disclosure

F.1 RoHS II Directive (2015/863/EU)

The details provided in this appendix are to ensure that the product is compliant with the RoHS II Directive (2015/863/EU). The table below acknowledges the presences of small quantities of certain substances in the product, and is applicable to RoHS II Directive (2015/863/EU).

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)	Bis(2-ethylhexyl) phthalate (DEHP)	Butyl benzyl phthalate (BBP)	Dibutyl phthalate (DBP)	Diisobutyl phthalate (DIBP)
Housing	O	O	O	O	O	O	O	O	O	O
Printed Circuit Board	O	O	O	O	O	O	O	O	O	O
Metal Fasteners	O	O	O	O	O	O	O	O	O	O
Cable Assembly	O	O	O	O	O	O	O	O	O	O
Fan Assembly	O	O	O	O	O	O	O	O	O	O
Power Supply Assemblies	O	O	O	O	O	O	O	O	O	O
Battery	O	O	O	O	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 Directive (EU) 2015/863.

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 Directive (EU) 2015/863.

F.2 China RoHS

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

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

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	O	O	O	O	O	O
印刷电路板	O	O	O	O	O	O
金属螺帽	O	O	O	O	O	O
电缆组装	O	O	O	O	O	O
风扇组装	O	O	O	O	O	O
电力供应组装	O	O	O	O	O	O
电池	O	O	O	O	O	O
O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11364-2014 與 GB/T26572-2011 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/T11364-2014 與 GB/T26572-2011 标准规定的限量要求。						