IEI Technology Corp.

MODEL:

AFOLUX 915B Series

All-in-one Intel® Pentium or Intel® Celeron Panel PC
TFT LCD, Wireless LAN, Bluetooth, Touch Screen
RoHS Compliant, IP 64 Protection

User Manual

Rev. 1.00 December 2007

RoHS Lead Free

Revision

Date	Version	Changes
December 2007	1.00	Initial release

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WARNING!

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously. Warnings are easy to recognize. The word “warning” is written as “**WARNING**,” both capitalized and bold and is followed by text. The text is the warning message. A warning message is shown below:

WARNING:

This is an example of a warning message. Failure to adhere to warning messages may result in permanent damage to the AFL-915 series or personal injury to the user. Please take warning messages seriously.

CAUTION!

Cautionary messages should also be heeded to help reduce the chance of losing data or damaging the AFL-915 series. Cautions are easy to recognize. The word “caution” is written as “**CAUTION**,” both capitalized and bold and is followed. The italicized text is the cautionary message. A caution message is shown below:

CAUTION:

This is an example of a caution message. Failure to adhere to cautions messages may result in permanent damage to the AFL-915 series. Please take caution messages seriously.

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. Notes are easy to recognize. The word “note” is written as “**NOTE**,” both capitalized and bold and is followed by text. The text is the cautionary message. A note message is shown below:

NOTE:

This is an example of a note message. Notes should always be read. Notes contain critical information about the AFL-915 series. Please take note messages seriously.

Packing List

NOTE:

If any of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the AFL-915 series from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

The items listed below should all be included in the AFL-915 series package.

- 1 x Power cord
- 1 x Power adapter
- 1 x Touch pen
- 1 x User Manual and driver CD
- 1 x Touch screen pen
- 1 x HDD cable
- 1 x Panel mounting kit (optional)
- 1 x Wall mounting kit (optional)
- 1 x 128MB CompactFlash® card with Windows CE 5.0 pre-installed (optional)
- 1 x 128MB CompactFlash® card with Windows Embedded CE 6.0 pre-installed (optional)
- 1 x 1GB CompactFlash® card with Windows XPE pre-installed (optional)

Images of the above items are shown in Chapter 3 on page 34.

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Introduction

1.1 General Overview

Figure 1-1: AFL-915

The AFL-915 series flat panel PC is a flexible, multi-functional and powerful flat panel PC that can be applied in diverse operational environments and implemented in multi-faceted applications. The AFL-915 series comes fully kitted with a high-performance motherboard and a host of other peripheral interface connectors. The integrated wireless LAN module provides a wireless connection to a network and the Bluetooth module ensures an uninterrupted wireless connection to connected Bluetooth devices. The flexible AT/ATX power mode selection allows the AFOLUX series to meet multiple application requirements. The AFL-915 series is designed for ease of use and easy installation.

1.1.1 Model Variations

The models of the AFL-915 series are listed in **Table 1-1**.

	AFL-15B-915	AFL-17B-915	AFL-19B-915
Brightness	350cd/m^2	300cd/m^2	300cd/m^2

	AFL-15B-915	AFL-17B-915	AFL-19B-915
LCD	15”	17”	19”
Memory	512 MB DDR2		
Wireless	Yes		
Bluetooth	Yes		
Touchscreen	Yes		
GPRS	No	No	Optional

Table 1-1: Model Variations

1.1.2 Applications

The AFL-915 series all-in-one panel PC is designed for multiple applications. Its durability and strength makes it an ideal choice for public access computers. Some possible applications include:

- Vehicle Interior device
  - Truck PC
  - Logistic car PC
- General computing
  - PC based testing center
  - Distance learning
- Industrial applications
  - Plant environment monitoring system
  - Factory automation platform
  - Manufacturing shop flow
  - Equipment and device control
- Home and building automation
  - Digital surveillance system
  - E-home platform
  - Home IA control terminal
- Self-Service Kiosk

- Receptionist kiosk in hotel and business premises
- Self registration terminal in hospital and airport
- Ticket vending machine for transportation use

1.1.3 Standard Features

Some of the standard features of the AFL-915 series flat panel PC include:

- Fanless Design
- Rugged mechanism design with ABS/PC case
- IP 64 dustproof and waterproof front panel
- 512MB DDR2 memory
- Bluetooth connectivity
- Wireless LAN
- eSATA port
- Dual 10/100Mbps Ethernet support
- Simplified installation process
- RoHS compliance

1.2 External Overview

The AFL-915 series is a flat panel PC. The monitor and all internal components are enclosed in an aluminum chassis. An ABS/PC plastic cover surrounds the aluminum chassis. VESA compliant screw holes in the rear panel allow the AFOLUX to be attached to any VESA compliant mounting. The access panel at the bottom of the AFOLUX gives access to a VGA port, four USB ports, an eSATA port, two Ethernet ports, two RS-232/422/485 ports, an audio jack, power input and power switch.

1.2.1 Front Panel

The front side of the AFL-915 series is a flat panel TFT LCD screen surrounded by an ABS/PC plastic frame.

Figure 1-2: Front View

1.2.2 Rear Panel

The rear panel provides access to retention screw holes that support the wall mounting. Refer to **Figure 1-3**.

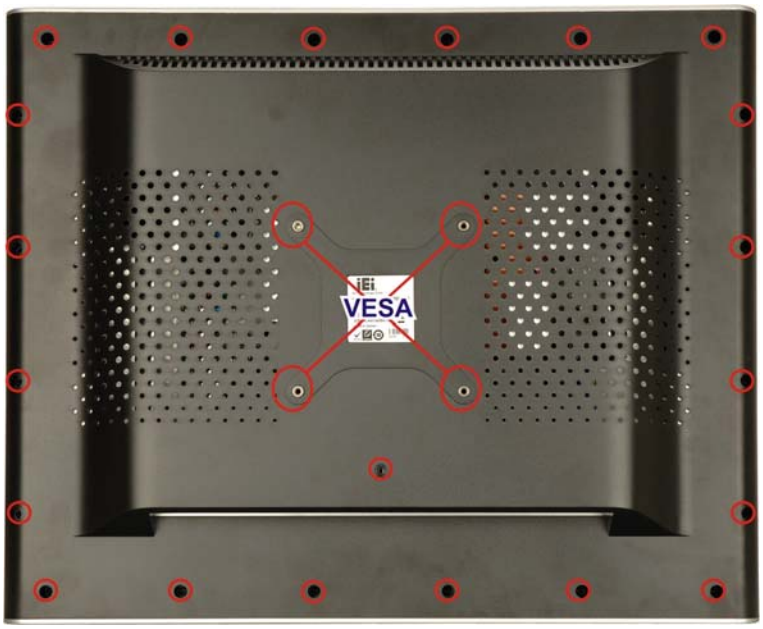

Figure 1-3: AFL-915 Rear View

1.2.3 Bottom Panel

The bottom panel of the AFL-915 series has the following I/O interfaces (**Figure 1-4**):

- 2 x RS-232/422/485 serial port connector
- 1 x AC power adapter connector
- 2 x RJ-45 10/100/1000Mbps Ethernet connectors
- 4 x USB 2.0 connectors
- 1 x Power switch
- 1 x eSATA port
- 1 x VGA port

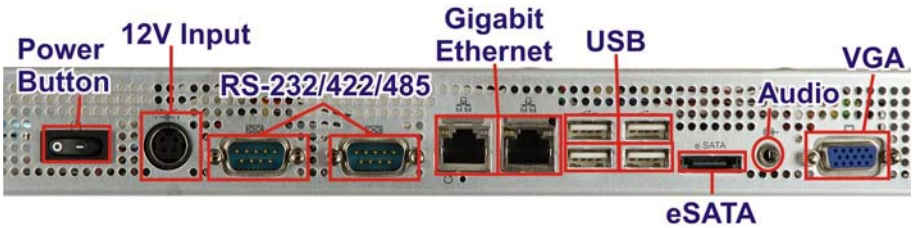

Figure 1-4: AFL-915 Series External Peripheral Connectors

1.3 Internal Overview

The AFL-915 includes the following parts inside the aluminum internal cover.

- 512 MB DDR2 SO-DIMM
- Antennas
- Backlight inverter
- Bluetooth module
- CompactFlash® disk (optional)
- GPRS module (optional)
- Hard drive (optional)
- Two speakers
- Wireless LAN card

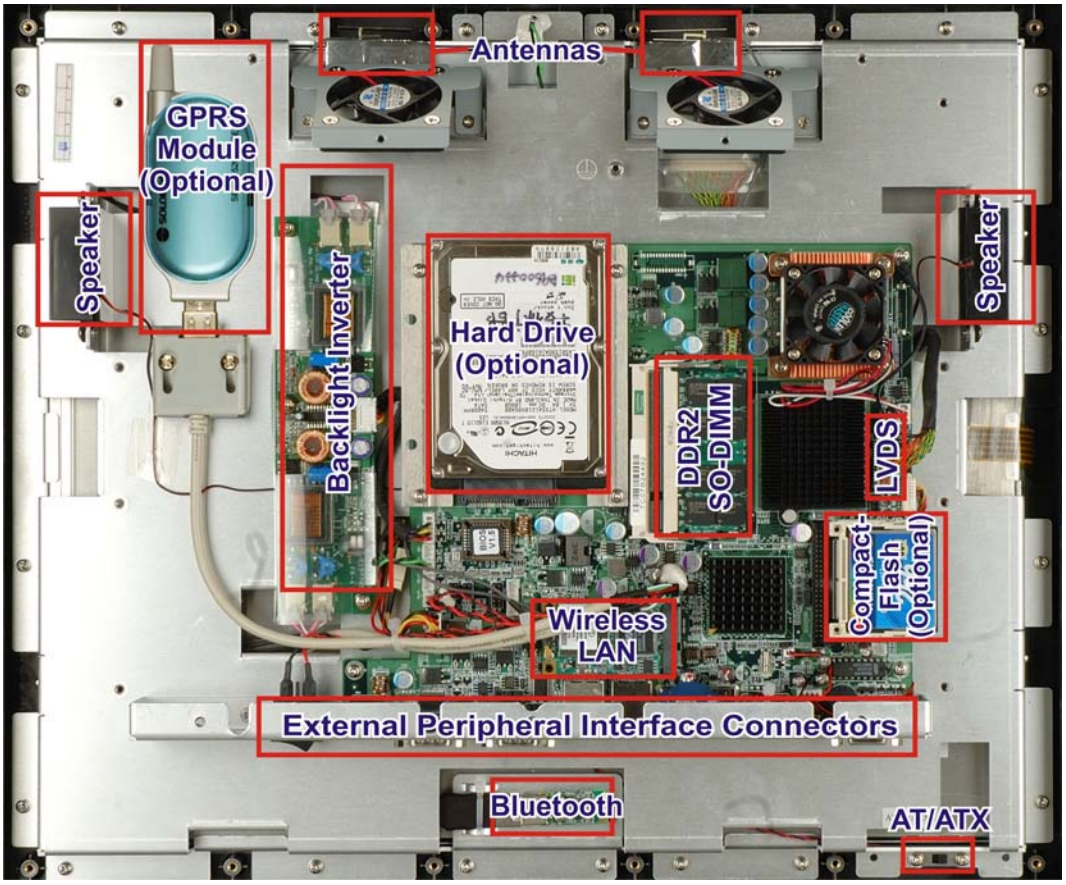

Figure 1-5: Internal Overview

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Chapter

2

Specifications

2.1 Introduction

The AFL-915 series flat panel PC has the following preinstalled components:

- 1 x Motherboard
- 1 x TFT LCD screen
- 1 x Touch screen panel
- 1 x Inverter
- 1 x Wireless LAN module
- 1 x DDR2 memory module
- 1 x Bluetooth module
- 1 x AT/ATX switch
- 2 x Speakers

The technical specifications for the system, and some of these components, are shown in the sections below.

2.2 System Specifications

The technical specifications for the AFL-915 series systems are listed in **Table 2-1.**

SPECIFICATION	15 inch	17 inch	19 inch
LCD Size	15″	17″	19″
Max Resolution	1024 x 768	1280 x 1024	1280 x 1024
Brightness (cd/m^2)	350	300	300
Contrast Ratio	700:1	800:1	800:1
LCD Color	262K	16.7M	16.7M
Pixel Pitch (mm)	0.297 (H) x 0.297 (V)	0.264 (H) x 0.264 (V)	0.294 (H) x 0.294 (V)
Viewing Angle (H-V)	140 / 125	160 / 160	160 / 160
Backlight MTBF	50,000 hours		
SBC Model	AFLMB-9152-R10		
CPU	Intel® Celeron M 1 GHz with 512 KB L2 Cache		
Memory	One 200-pin 512 MB dual-channel DDR2 SO-DIMM		

SPECIFICATION	15 inch	17 inch	19 inch
I/O Ports	1 x eSATA port 2 x RS-232/422/485 2 x RJ-45 4 x USB 2.0 1 x Power switch 1 x Reset button 1 x VGA port 1 x Audio		
Storage	1 x 2.5" SATA 1 x CompactFlash® Type I/II		
Speakers	2 x 1.5 W	2 x 1.5 W	2 x 3 W
Expansion	1 x PCIe Mini Wireless LAN Module		
Construction Material	ABS + PC Plastic front frame		
LED Functions	1 x Power on/off LED		
Mounting	VESA MIS-D mount for panel, wall, rack (not for 19 inch model), stand and arm mounting		
Front Panel Color	Silver		
Dimensions (W x H x D) (mm)	393.06 x 308.06 x 74.6	428 x 350 x 76	469.94 x 382.46 x 78.35
Operating Temperature	0°C ~ 40°C (0°C ~ 45°C with CompactFlash® or SSD HDD)		
Storage Temperature	-20°C ~ 60°C		
Net Weight	3.7 kg	5.4 kg	5.8 kg
IP Level	IP 64		
EMC	CE, FCC, CCC, CB		
Safety	UL, CCC		
Touch Screen	Resistive Type 5 Wire (touch controller IC is on board)		
Power Input	12 V		
Power Consumption	38 W	52 W	54 W

Table 2-1: AFL-915 series System Specifications

2.3 Dimensions

2.3.1 AFL-15B-915 Dimensions

The dimensions of the AFL-15B-915 flat panel PC are shown in **Figure 2-1** below.

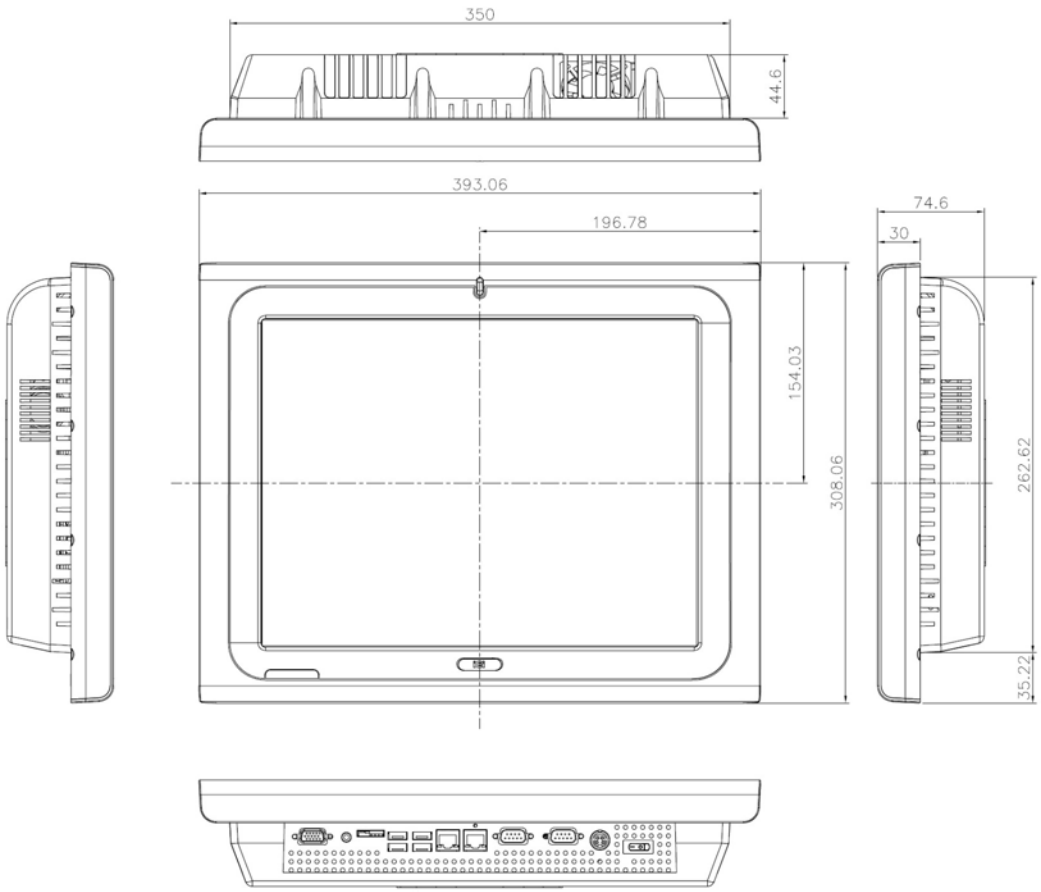

Figure 2-1: AFL-15B-915 Front Dimensions (units in mm)

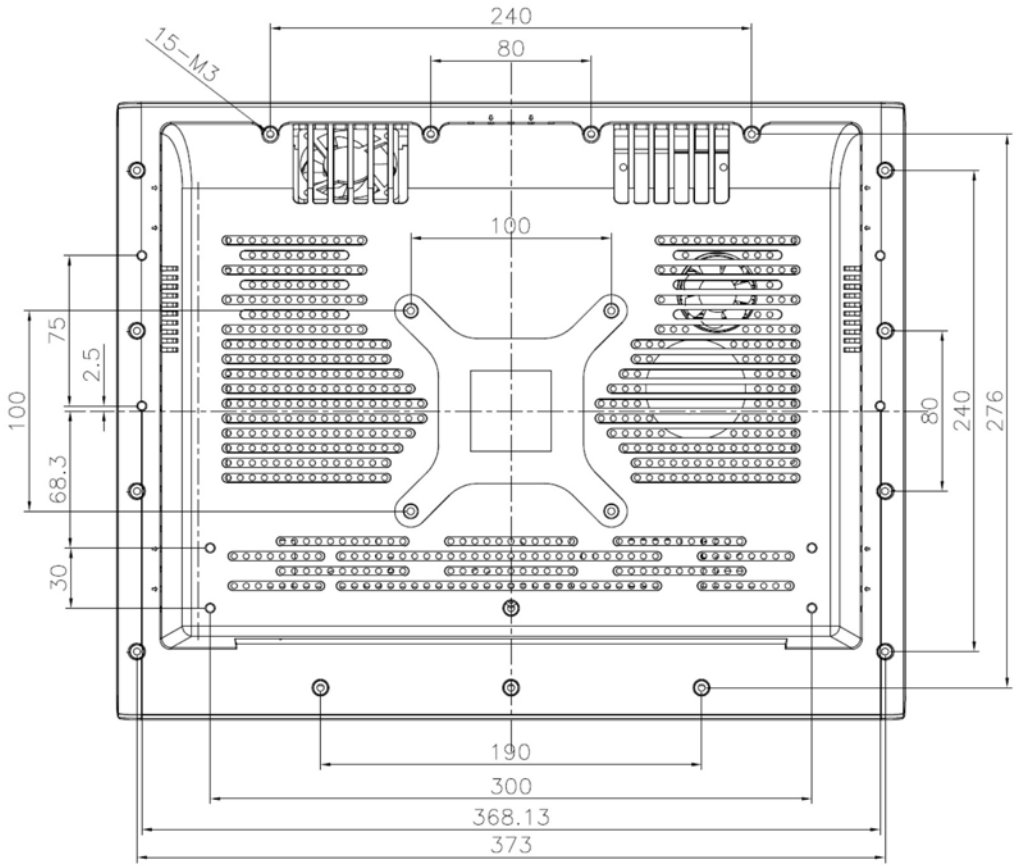

Figure 2-2: AFL-15B-915 Rear Dimensions (units in mm)

2.3.2 AFL-17B-915 Dimensions

The dimensions of the AFL-17B-915 flat panel PC are shown in **Figure 2-3** below.

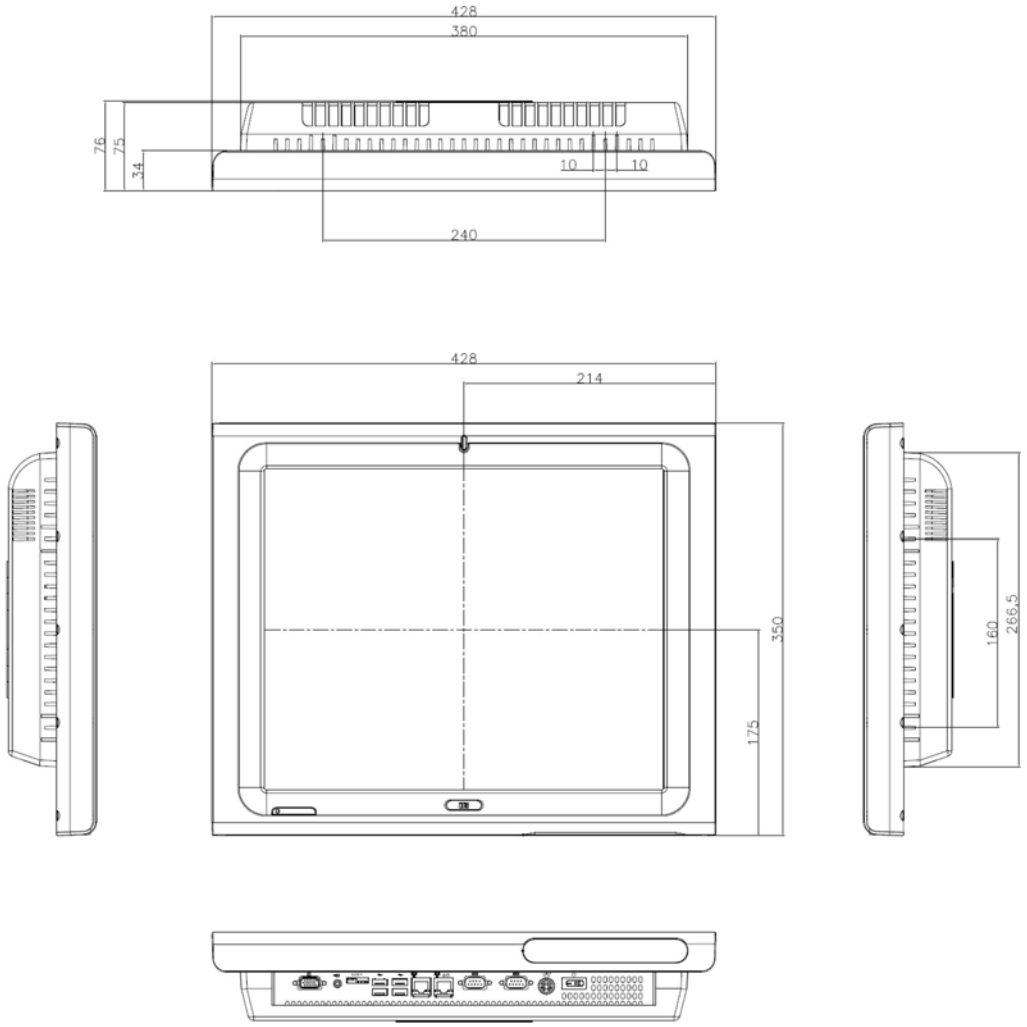

Figure 2-3: AFL-17B-915 Front Dimensions (units in mm)

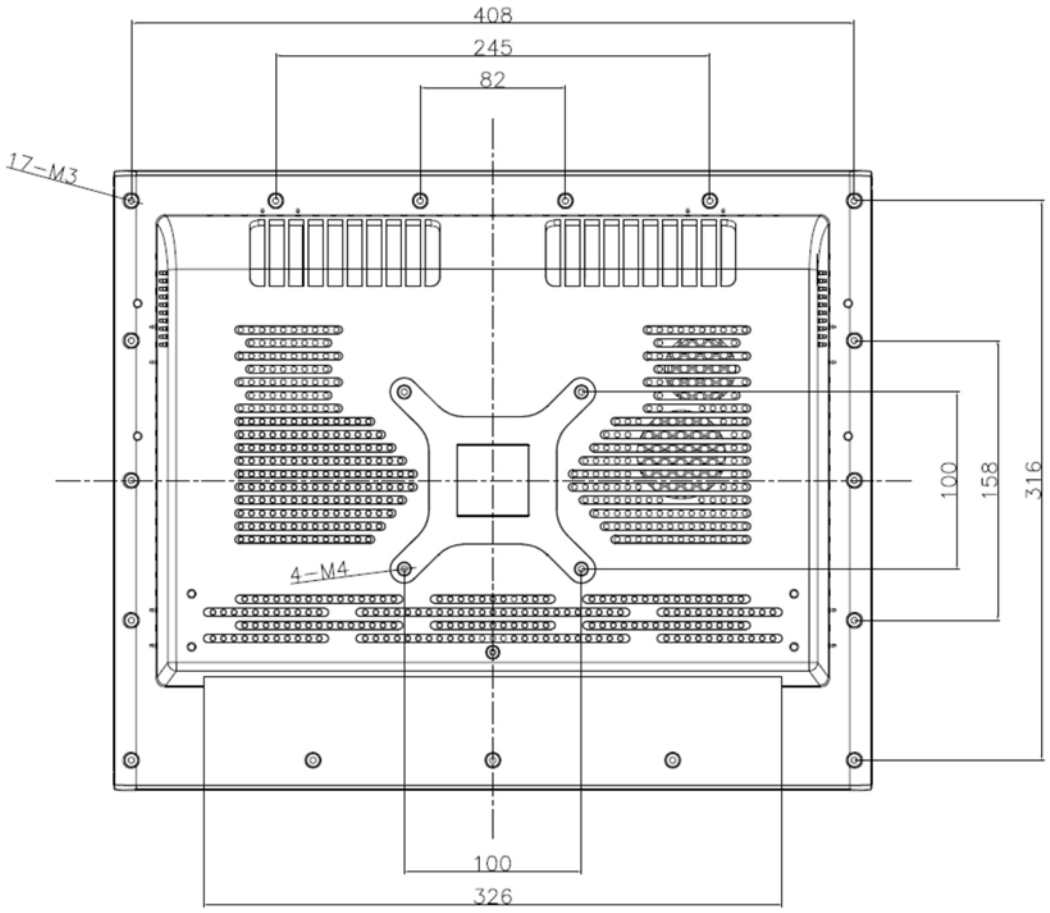

Figure 2-4: AFL-17B-915 Rear Dimensions (units in mm)

2.3.3 AFL-19B-915 Dimensions

The dimensions of the AFL-19B-915 flat panel PC are shown in **Figure 2-3** below.

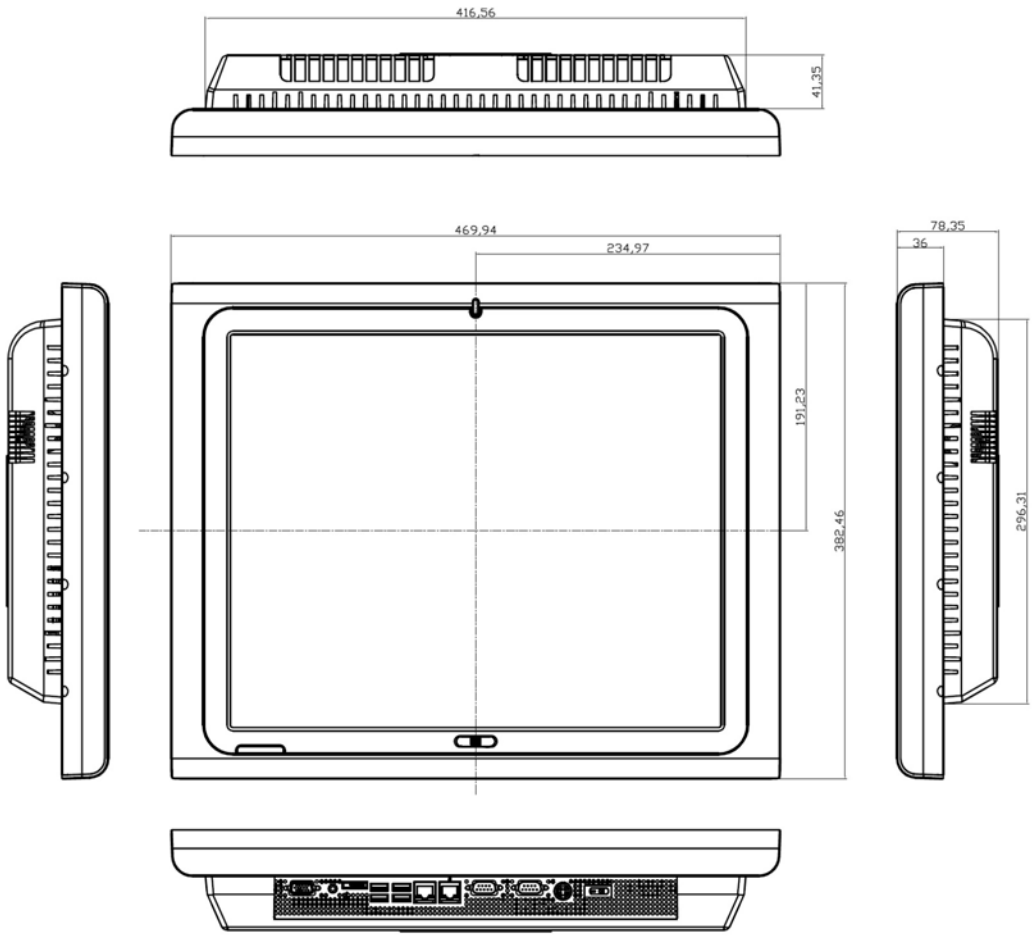

Figure 2-5: AFL-19B-915 Front Dimensions (units in mm)

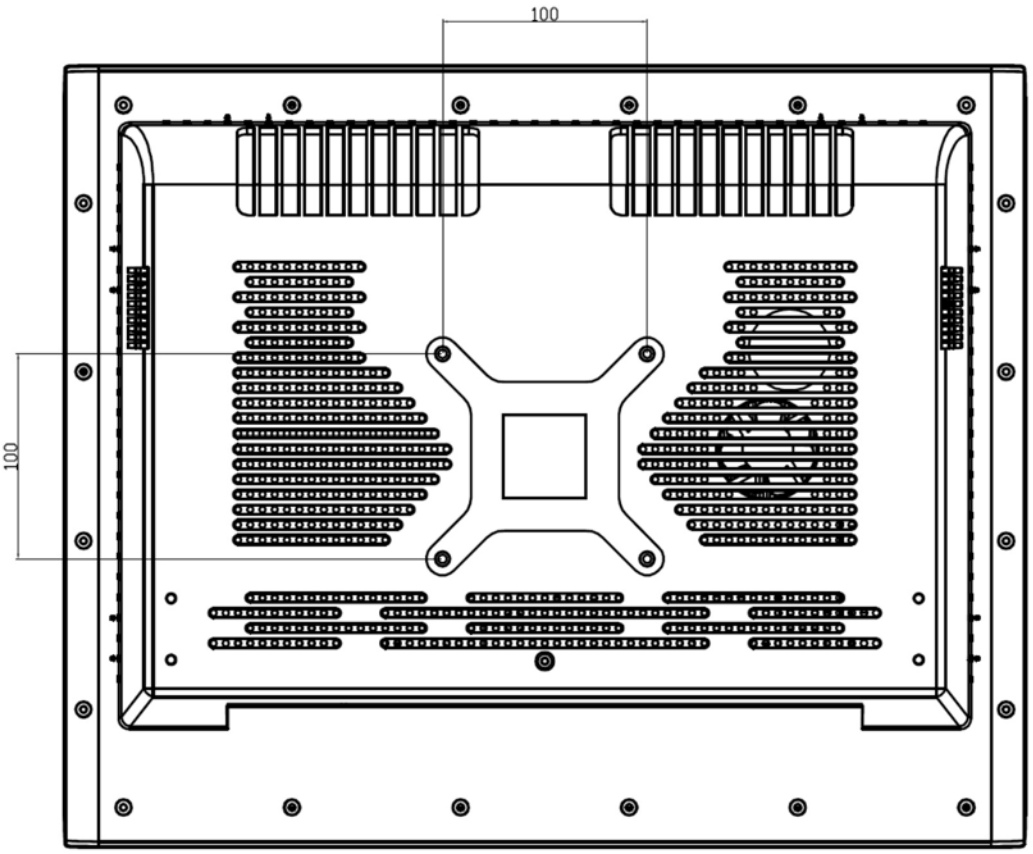

Figure 2-6: AFL-19B-915 Rear Dimensions (units in mm)

2.4 CPU Support

The AFLMB-9152-R10 motherboard comes with a socket M CPU socket and supports Intel® Pentium® M and Intel® Celeron® M processors up to 2.0 GHz. Two models are offered with the processor pre-installed.

- 1.5 GHz Intel® Pentium® M
- 1.6 GHz Intel® Celeron® M

Some of the specifications of these mobile processors are listed below:

- Mobile optimized architecture
- Low power technologies

2.5 System Chipset

The AFLMB-9152-R10 motherboard is comprised of an Intel® 915GM Express Northbridge chipset and an Intel® ICH6M Southbridge chipset.

2.5.1 Intel® 915GM Express Overview

The Intel® 915GM Northbridge chipset has the Generation 3.1 Intel Integrated Graphics Engine and the Intel® Graphics Media Accelerator 950 (Intel® GMA 950). The integrated graphics and memory controller hub (GMCH) facilitates the flow of information primarily between the following four interfaces:

- Front Side Bus (FSB)
- System Memory Interface
- Graphics Interface
- Direct Media Interface (DMI)

2.5.2 Intel® ICH6M Overview

The Intel® ICH6M Southbridge chipset is connected to the Intel® 915GM Northbridge GMCH through the chip-to-chip Direct Media Interface (DMI). Some of the features of the Intel® ICH6M are listed below.

- Complies with PCI Express Base Specification, Revision 1.0a
- Complies with PCI Local Bus Specification, Revision 2.3 and supports 33MHz PCI operations
- Supports ACPI Power Management Logic
- Contains:
  - Enhanced DMA controller
  - Interrupt controller
  - Timer functions
- Integrated SATA host controller with DMA operations interfaced to two SATA connectors
- Integrated IDE controller supports Ultra ATA 100/66/33
- Supports the four USB 2.0 devices with four UHCI controllers and one EHCI controller

- Complies with System Management Bus (SMBus) Specification, Version 2.0
- Supports Audio Codec ’97 (AC’97) Revision 2.3
- Supports Intel® High Definition Audio
- Contains Low Pin Count (LPC) interface
- Supports Firmware Hub (FWH) interface

2.6 Graphics Support

The Intel® 915GM Northbridge chipset has an integrated graphics engine that supports the following display devices:

- Analog CRT
- Digital LVDS
- TV-Out
- SDVO ports

Only the Analog CRT and SDVO interfaces are used in the AFL-915 series.

2.6.1 Intel® 915GM Analog CRT Support

A DB-15 VGA connector on the external peripheral interface connector panel is interfaced to the Intel® 915GM graphics engine. The Intel® 915GM internal graphics engine, with an integrated 400MHz RAMDAC and hot plug CRT support, supports analog CRT monitors with the following features:

- Supports max DAC frequency up to 400 MHz
- 24-bit RAMDAC support
- DDC2B compliant
- Up to 2048 x 1536 mode support

2.6.2 Chrontel CH7308A SDVO / LVDS Support

A 30-pin LVDS crimp connector is connected to the Chrontel CH7308A chipset, which is connected to the Intel® 945GM through the SDVO interface.

- 18/24-bit outputs
- Up to 140 megapixels per second

2.7 Memory

WARNING:

Only install DDR2 memory. Installing DDR memory can cause irreparable damage to the system.

The AFL-915 series panel PCs come with a single 512 GB DDR2 SO-DIMM pre-installed. The Intel® 915GM Northbridge chipset supports two DDR2 SO-DIMMs with the following features:

- Two 200-pin DDR2 SO-DIMMs
- DDR2 only (**DO NOT** install a DDR DIMM)
- 64-bit wide
- Single-channel or dual-channel
- Capacities of 256MB, 512MB, 1GB or 2GB
- Transfer speeds of 400MHz, 533MHz or 667MHz
- 64-bit wide channel

The memory socket is shown in Figure 2-7.

Figure 2-7: 200-pin DDR2 SO-DIMM Sockets

2.8 Storage

There are a few storage options available

2.8.1 CompactFlash®

The CompactFlash® socket supports standard CompactFlash® Type I and CompactFlash® Type II cards. The chipset flash interface is multiplexed with an IDE interface and can be connected to an array of industry standard NAND Flash or NOR Flash devices. The CompactFlash® slot location is shown below.

Figure 2-8: CompactFlash® Slot

2.8.2 SATA Hard Drive

The integrated SATA controller on the ICH6M Southbridge supports two SATA drives with independent DMA operations. One SATA port is implemented internally for the internal 2.5” SATA hard drive. The second SATA port is implemented on the external connector panel through an eSATA connector. SATA controller specifications are listed below.

- Supports two SATA drives
- Supports 1.5Gb/s data transfer speeds
- Supports Serial ATA Specification, Revision 1.0a

Figure 2-9: SATA Hard Drive Slot

2.9 Bluetooth Module Specifications

The AFL-915 series are all integrated with a Bluetooth module. The Bluetooth module enables the transmission between various peripheral devices through a Bluetooth network.

Figure 2-10: Bluetooth Module

The peripheral devices may include:

- Headsets
- Barcode readers
- PDAs
- Printers
- Cell phones
- Keyboards and mice

The technical specifications of the Bluetooth module are listed in **Table 2-2**.

Specification	Bluetooth Module
Standard	Bluetooth v2.0
Frequency Band	2.402GHz~2.480GHz unlicensed ISM band
Modulation Method	GFSK for 1Mbps π/4-DQPSK for 2Mbps 8-DPSK for 3Mbps
Spread Spectrum	FHSS (Frequency Hopping Spread Spectrum)
RF Output Power	Class 2 (under 4dBm)
Antenna Terminal	50 Ohms
DC Power	DC 3.3V or DC 5V
I/O Interface	USB 2.0 interface
Two GPIO Interface	LED link indicator interface
Dimensions	35mm x 11mm
Operating System	Windows XP, Windows 2000, Windows 98SE, Windows Me

Table 2-2: Bluetooth Module Specifications

2.10 Optional GPRS Module Specifications

The GPRS module is one of the OEM options for the AFL-915 series.

Figure 2-11: GPRS Module

The technical specifications of the GPRS module are listed in **Table 2-3**.

Specification	GPRS Module
EDG/GPRS/GSM Air Interface	Quad-band operation GSM850, EGSM 900, DCS 1800, PCS 1900
	GSM Power Class 4 (2W) for 850/900 bands GSM Power Class 1 (1W) for 1800/1900 bands
	EDFE class E2 (+27dBm in 850/900 bands, +26dBm in 1800/1900 bands)

Specification	GPRS Module
	GSM/GPRS Rel '97; PCS 1900 Rel '98; EGPRS Rel '99 compliant
EGPRS/GPRS (PS) Feature Set	GPRS Class 10, coding schemes 1-4
	EDGE Class 10, Multi-slot classes 1-9
	GPRS/EGPRS Class B type 1 MT
	Link Adaptation
	Incremental redundancy (IR)
USB Interface	USB 2.0 +5VDC
SIM Card Interface	3.0V interface
Temperature	-30°C ~ +65°C
Humidity	Up to 95%, non-condensing
Dimensions	109.3mm x 42.7mm x 17.7mm
Operating System	Windows 2000/XP Home/XP Professional

Table 2-3: GPRS Module Specifications

2.11 Wireless LAN Module

The IEEE 802.11a/b/g compliant wireless module is pre-installed in the system and provides wireless connectivity at up to 54Mbps. The wireless module is interfaced to the system chipset through the USB interface in the PCIe Mini slot.

Figure 2-12: Wireless LAN Module

Some of the features of the wireless module are listed below.

- Compliant with IEEE 802.11a, 802.11b and 802.11g standards
- USB 2.0 interface (via the PCIe Mini slot)
- VIA® Solomon VT6656 wireless LAN controller

2.12 Ethernet Controller Specifications

The Broadcom BCM5787M PCI Express (PCIe) GbE controller is a 10/100/1000BASE-T Ethernet LAN controller. The BCM5787M combines a triple-speed IEEE 802.3 compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver, a PCIe bus interface, and an on-chip buffer memory.

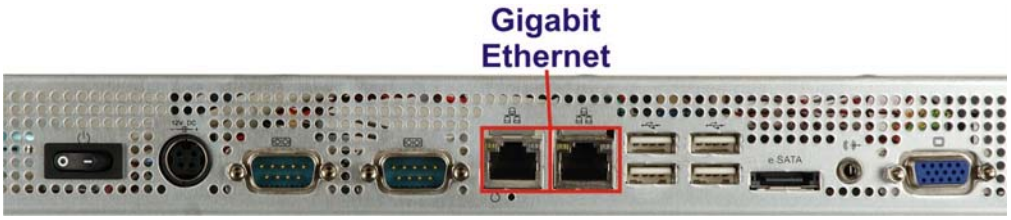

Figure 2-13: Ethernet

Some of the BCM5787 controller features are listed below:

- Integrated 10/100/1000BASE-T transceiver
- Automatic MDI crossover function
- PCIe v1.0a
- 10/100/1000BASE-T full/half-duplex MAC
- Wake on LAN support meeting the ACPI requirements
- Statistics for SNMP MIB II, Ethernet-like MIB, and Ethernet MIB (802.3z, clause 30)
- Serial EEPROM or serial flash support
- JTAG support

2.13 Flat Panel Screen Specifications

The AFL-915 series come with a TFT LCD monitor at the front of the flat panel PC (see **Figure 1-2**). The specifications for the LCD monitor are shown in **Table 2-4** below.

SPECIFICATION	15 inch	17 inch	19 inch
Panel Type	G150XG01 V.1 / AUO 15" Color TFT LCD.	M170EG01 VD / AUO 17" Color TFT LCD.	M190EG02 V4 / AUO 19" Color TFT LCD

SPECIFICATION	15 inch	17 inch	19 inch
Active Area (H x V) (mm)	304.128 x 228.096	337.920 x 270.336	376.32 x 301.06
Physical Size (W x H x D) (mm)	326.5 x 253.5 x 12.0	358.5 x 296.5 x 15.8	396 x 324 x 16.3
Pixel H x V	1024 x 768	1280 x 1024	
Brightness	350 (cd/m^2)	300 (cd/m^2)	300 (cd/m^2)
Pixel Pitch (mm)	0.297	0.264	0.294.
LCD Color	16.2M/262K	Native 16.7M Colors (RGB 6-bit driver)	Native 16.7M Colors (RGB 6-bit driver + FRC data).
Electrical Interface	Single-channel LVDS	Dual-channel LVDS	
Contrast Ratio	700:1	800:1.	
Optical Response Time	8 msec	5 msec	
Viewing Angle (H / V) (degrees)	140 / 125	160 / 160	
Backlight	2 lamp design with CCFL (Cold cathode Fluorescent Lamp)		
Nominal Input Voltage	3.3V.	5.0V	
Typical Power Consumption	8.9W (64 Gray Bar Pattern , exclude inverter)	25.8W (PDD=6 W, PCFL=19.8 W, ICFL=7.5mA)	24.71W (PDD=5.11W, PCFL=19.6 W @Lamp=7.5mA).
Backlight MTBF	50000 (hrs).		
Operating Temperature	0~+65 (℃)	0~+50 (℃)	
Operating Humidity	8~90 %RH	5~90 %RH	
Storage Temperature	-20~+65 (℃)	-20~+60 (℃)	
Storage Humidity	8~90 %RH	5~90 %RH	
Shock (Non-Operating)	50G, 20ms, Half-sine wave.		
Vibration (Non-Operating)	1.5G, 10~200~10Hz, Sine wave 30mins/axis, 3 direction.		

Table 2-4: TFT LCD Monitor Specifications

2.14 Touch Screen Specifications

The AFL-915 series come with an analog resistive type touch panel. **Table 2-5** lists the touch panel specifications.

SPECIFICATION	15 inch	17 inch	19 inch
Control Board	Chipset on Board the AFLMB-9152-R10 (DMC9000)		
Sensor Model	PANJIT 75200-1150508B-RS, 5-wire Analog Resistive Type Touch Panel.	PANJIT 75200-1171505A-RS, 5-wire Analog Resistive Type Touch Panel.	PANJIT 75200-1190503A-RS, 5-wire Analog Resistive Type Touch Panel.
Glass Dimensional Outline (W x L x T) (mm)	257.5 x 333.6 x 2.9	365.0 x 295.08 x 2.9	330.0 x 404.6 x 2.8
Viewing Area (W x H) (mm)	308.2 x 232.1	342.05 x 275.45	381.30 x 306.05
Active Area (W x H)	304.1 x 228.1	339.0 x 272.40	376.30 x 301.05
Total Transmission	78%.		
Maximum Voltage	7V.		
Connector Type	FPC.		
Operating Temperature	-10~50 (℃).		
Operating Humidity	20%~90 %RH.		
Storage Temperature	-20~70 (℃).		
Storage Humidity	20%~90 %RH.		

Table 2-5: Touch Panel Specifications

2.15 Inverter

The AFL-915 series come with a backlight converter that connects to the LCD screen.

Figure 2-14: Inverter

Table 2-5 lists the inverter specifications.

SPECIFICATION	15 inch	17 inch	19 inch
Model	HWA YOUN 7F700-QF117V117IS-RS, DC to AC inverter	EMAX 7F700-PLCD2817418-RS, DC to AC inverter	EMAX 7F700-PLCD2817418-RS, DC to AC inverter
Input Voltage/Current	12V / 360mA	12V / 2500mA.	12V / 2500mA.
Frequency	43KHz.	47KHz.	47KHz.
Output Voltage	690V / 5mA.	760V / 7.6mA.	760V / 7.6mA.
Operating Temperature	-20℃ ~ +85℃	0℃ ~ 50℃	0℃ ~ 50℃
Operating Humidity	20% ~ 90% RH at 0℃ ~ 55℃	20% ~ 95% RH at 0℃ ~ 50℃	20% ~ 95% RH at 0℃ ~ 50℃
Storage Temperature	-30℃ ~ +105℃	-20℃ ~ +70℃	-20℃ ~ +70℃
Storage Humidity	20% ~ 95% RH at 20℃ ~ 80℃	20% ~ 95% RH at 20℃ ~ 70℃	20% ~ 95% RH at 20℃ ~ 70℃

Table 2-6: Backlight Inverter Specifications

2.16 Motherboard Specifications

The AFL-915 series come with an AFLMB-9152-R10 motherboard pre-installed. The technical specifications of the motherboard are listed in **Table 2-7**.

Specification	AFLMB-9152-R10
CPU	Intel® Celeron M 1 GHz

Specification	AFLMB-9152-R10
System Chipset	Intel 915GM
BIOS	Award BIOS Label
System Memory	2 X DDR2 SO-DIMM 400/533 up to 2GB
Ethernet	Mini PCIe (Wireless LAN Module)
I/O	2 x RS232 2 x RS232/RS422/485 COM Port 1 x IDE for Master (44pin) 1 x CFII for Slave 7 x USB 2.0 2 x LAN BCM5787 Gigabit LAN 1 x Internal SATA 1 x eSATA 1 x VGA 1 x Audio
Super I/O	IT8712F
Digital I/O	4 DI / 4 DO from Super IO IT8712F
Touch Screen Controller	DMC9000
Audio	AC'97 Realtek ALC655 with AMP TDA1517P
Display	CRT integrated in 915GM -- D-Sub connector Support panel resolution from VGA through UXGA (1600 x 1200) Supports dual-channel 24bit LVDS output from Chrontel CH7308A
Power	12V only ATX support (12V for LCD)
Dimensions	195(mm) x 230(mm)

Table 2-7: Motherboard Specifications

2.17 OEM Options

For a Some of the peripheral device connectors listed below are not connected to any devices. These connectors are reserved for OEM customizations. For a customized option, please contact the vendor, reseller, or IEI sales representative.

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Chapter

3

Installation

3.1 Installation Precautions

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

- **Power turned off**: When installing the flat panel PC, make sure the power is off. Failing to turn off the power may cause severe injury to the body and/or damage to the system.
- **Certified Engineers**: Only certified engineers should install and modify onboard functionalities.
- **Mounting**: The flat panel PC is a heavy device. When mounting the system onto a rack, panel, wall or arm please make sure that at least two people are assisting with the procedure.
- **Anti-static Discharge**: If a user open the rear panel of the flat panel PC, to configure the jumpers or plug in added peripheral devices, ground themselves first and wear and anti-static wristband.

3.2 Preinstalled Components

The following components are all preinstalled.

- Motherboard
- Backlight inverter
- TFT LCD screen
- 512MB DDR2 memory module
- Resistive type touch screen panel
- Wireless LAN module
- Bluetooth module
- AT/ATX power switch

Preinstalled OEM customizations may include the following.

- Different DDR2 memory module
- 2.5” SATA hard disk drive
- GPRS module (19 inch model only)

Installation of some of the components is described in **the following sections.**

3.3 Installation and Configuration Steps

The following installation steps must be followed.

Step 1: Unpack the flat panel PC

Step 2: Install the CompactFlash® card (optional)

Step 3: Install the GPRS (optional)

Step 4: Install the hard drive (optional)

Step 5: Mount the flat panel PC

Step 6: Connect peripheral devices

Step 7: Configure the system

3.4 Unpacking

To unpack the flat 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 flat 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 to cut the tape 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 to cut the tape 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 flat panel PC.

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

3.4.1 Packing List

The AFL-915 series flat panel PC is shipped with the following components:

Quantity	Item	Image
Standard		
1	AFL-915 series panel PC	
1	Power adapter	
1	Power cord	
1	User manual CD and driver CD	
1	Touch pen	
1	SATA cable	
1	Screw kit	

Quantity	Item	Image
Optional		
1	128MB CompactFlash® card with Windows CE 5.0 pre-installed and SDK	
1	1GB CompactFlash® card with Windows XPE pre-installed	

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

3.5 CompactFlash® Card Installation

The AFL- 915 series has one CompactFlash® Type I/II slot inside the rear panel. To install the CF card, follow the instructions below.

Step 1: Remove the retention screws (**Figure 3-1**) and lift the cover off the flat panel PC.

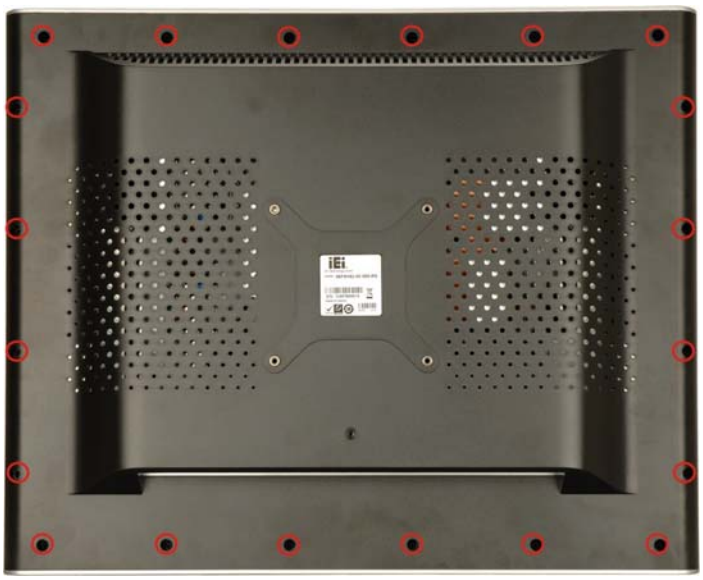


Figure 3-1: Back Cover Retention Screws

Step 2: Locate the CF slot. Align the CF card with the guides on the slot. Insert a CF card into the slot (**Figure 3-2**).

Figure 3-2: CF Card Location

Step 3: Replace the plastic back cover and fasten the retention screws.

3.6 GPRS Module Installation

The GPRS module attaches to a USB type A receptacle located under the back cover of the AFL-915. To install the GPRS module, follow the instructions below.

Step 1: Remove the plastic back cover.

Step 2: Remove the aluminum cover.

Step 3: Locate the GPRS USB socket.

Step 4: Slide the GPRS module into the slot.

Step 5: Insert the GPRS module into the USB type A receptacle.

Figure 3-3: CF Card Location

Step 6: Replace the plastic black cover.

Software drivers for the GPRS module are included with the GPRS module.

3.7 HDD Installation

To install the hard drive, please follow the steps below:

Step 1: Disconnect the system power cable.

Step 2: Remove the plastic back cover. See **Section 3.5** above.

Step 3: Remove the eight round head retention screws and three flat head retention screws securing the internal aluminum cover (**Figure 3-4**).

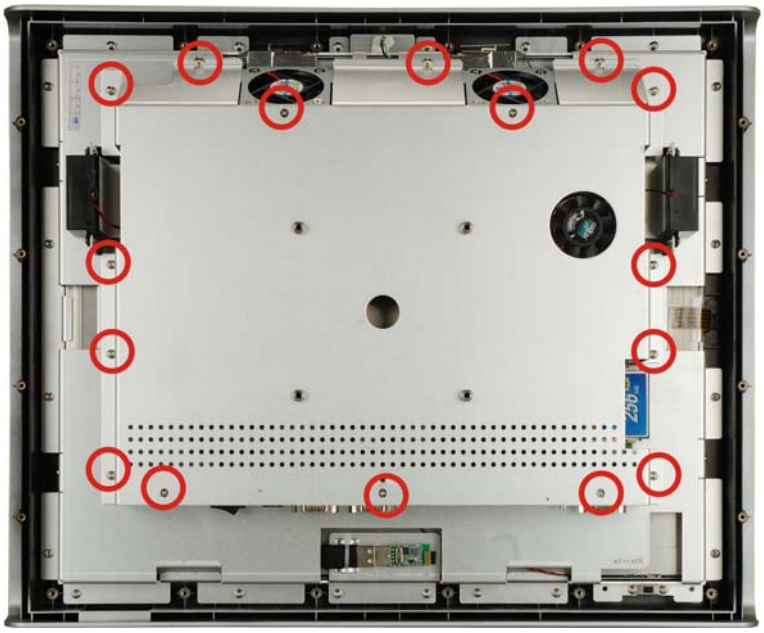


Figure 3-4: Aluminum Back Cover Retention Screws

Step 4: Lift the aluminum cover to remove.

Step 5: Remove the four HDD bracket retention screws (**Figure 3-5**) and lift the HDD bracket off the panel PC.

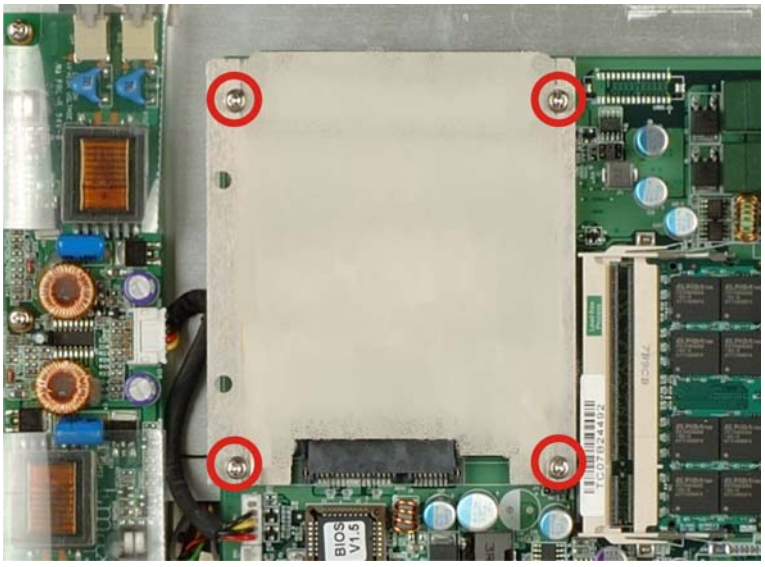


Figure 3-5: AFL-915 Hard Drive Bracket Retention Screws

Step 6: Attach the hard drive to the hard drive bracket. To do this, align the four retention screw holes on the hard drive with the screw holes on the hard drive bracket. Fasten four flat head retention screws to secure the hard drive to the bracket (**Figure 3-6**).

Figure 3-6: Hard Drive Retention Screws

Step 7: Reinstall the hard drive bracket. Slide the hard drive bracket into its original position, making sure the SATA connectors on the hard drive connect with the SATA connectors on the motherboard.

Figure 3-7: Hard Drive Retention Screws

Step 8: Fasten the hard drive bracket screws.

Step 9: Replace the aluminum back cover to the chassis.

Step 10: Replace the plastic back cover.

3.8 AT/ATX Mode Selection

AT and ATX power modes can both be used on the AFL-915 series. The selection is made through an AT/ATX switch on the aluminum chassis inside the plastic back cover (**Figure 3-8**). To select AT mode or ATX mode, follow the steps below.

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

Step 2: Locate the AT/ATX switch at the bottom right on the aluminum chassis (**Figure 3-8**).

Figure 3-8: AT/ATX Switch Location

Step 3: Adjust the AT/ATX switch.

Step 4: Replace the plastic back cover.

3.8.1 AT Power Mode

With the AT mode selected, the power is controlled by a central power unit rather than a power switch. The AFL-915 series panel PC turns on automatically when the power is connected. The AT mode benefits a production line to control multiple panel PCs from a central management center and other applications including:

- ATM
- Self-service kiosk

- Plant environment monitoring system
- Factory automation platform
- Manufacturing shop flow

3.8.2 ATX Power Mode

With the ATX mode selected, the AFL-915 series panel PC goes in a standby mode when it is turned off. The panel PC can be easily turned on via network or a power switch in standby mode. Remote power control is perfect for advertising applications since the broadcasting time for each panel PC can be set individually and controlled remotely. Other possible applications include:

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

3.9 Mounting the System

WARNING!

When mounting the flat panel PC onto an arm, onto the wall or onto a panel, it is better to have more than one person to help with the installation to make sure the panel PC does not fall down and get damaged.

The four methods of mounting the AFL-915 series are listed below.

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

The four mounting methods are described below.

3.9.1 Wall Mounting

To mount the flat 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 brackets screw holes 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 3-9**).

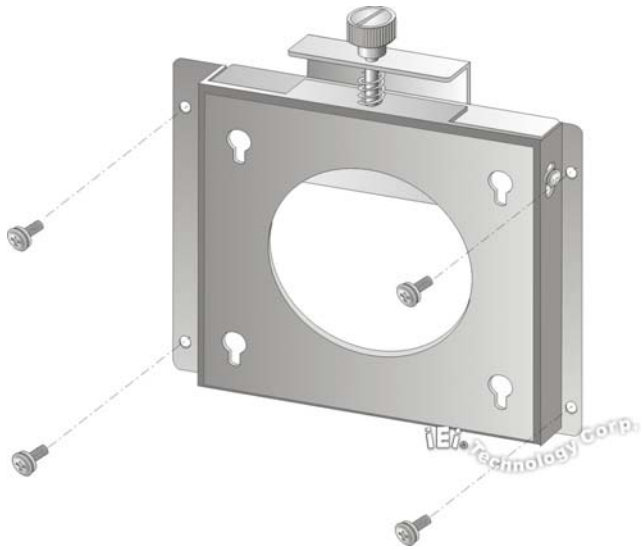


Figure 3-9: Wall-mounting Bracket

Step 6: Insert the four monitor mounting screws provided in the wall mounting kit into the four screw holes on the real panel of the flat panel PC and tighten until the screw shank is secured against the rear panel (**Figure 3-10**).

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 3-10**). Ensure that all four of the mounting screws fit snuggly into their respective slotted holes.

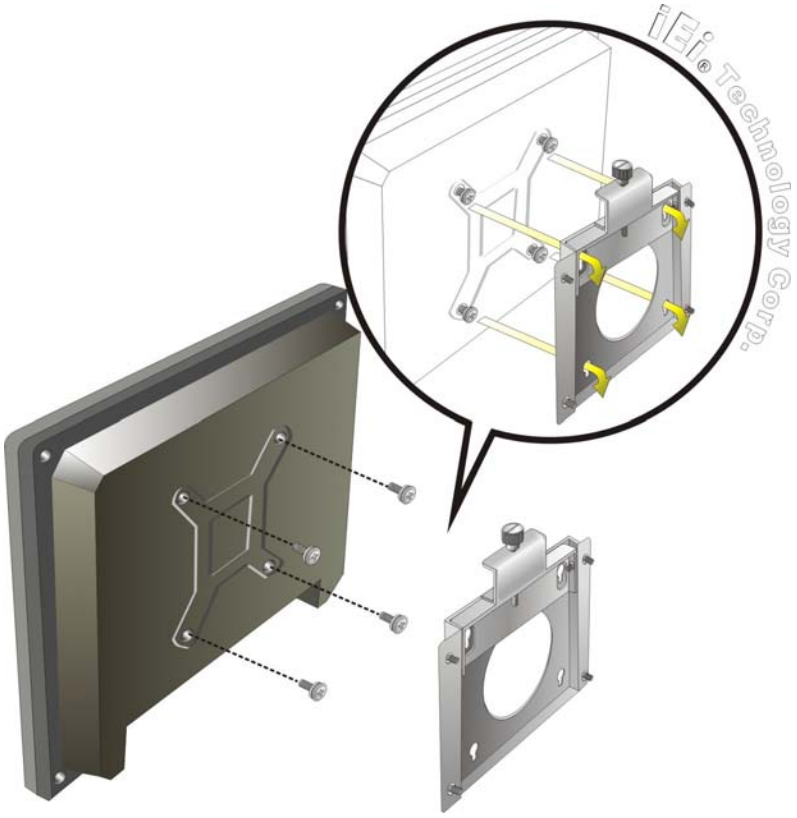


Figure 3-10: Chassis Support Screws

NOTE:

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

Step 9: Secure the panel PC by fastening the retention screw of the wall-mounting bracket. (**Figure 3-11**).

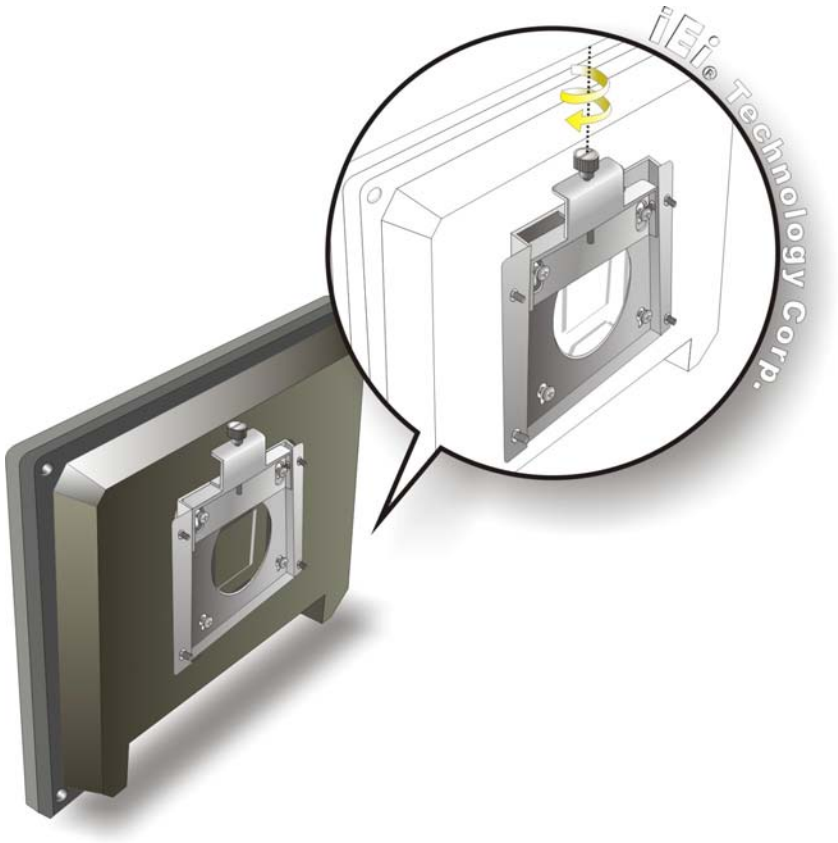


Figure 3-11: Secure the Panel PC

3.9.2 Panel Mounting

To mount the AFL-915 series flat panel PC into a panel, please follow the steps below.

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

Step 2: Cut out a section from the panel that corresponds to the rear panel dimensions of the flat panel PC. Take care that the panel section that is cut out is smaller than the overall size of the metal frame that surrounds the flat panel PC but just large enough for the rear panel of the flat panel PC to fit through (Figure 3-12**,** Figure 3-13 and Figure 3-14).

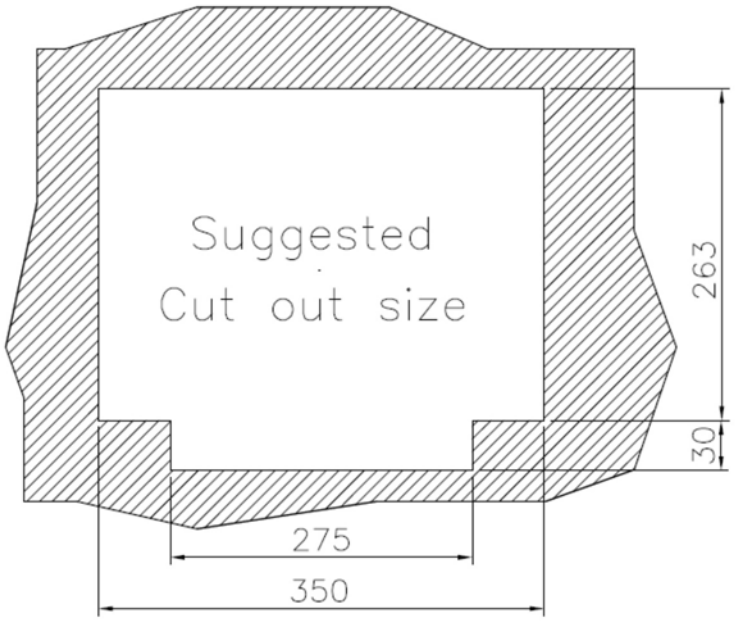


Figure 3-12: AFL-15B-915 Cutout Dimensions (units in mm)

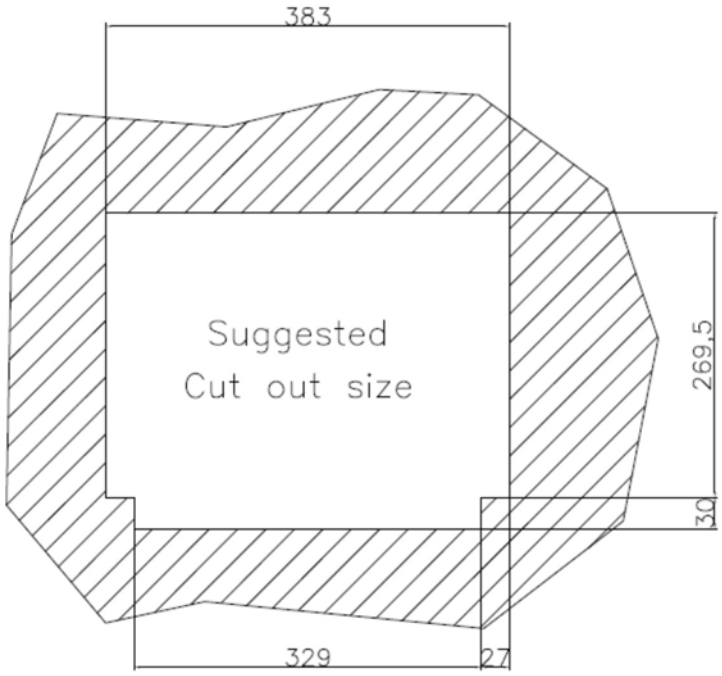


Figure 3-13: AFL-17B-915 Cutout Dimensions (units in mm)

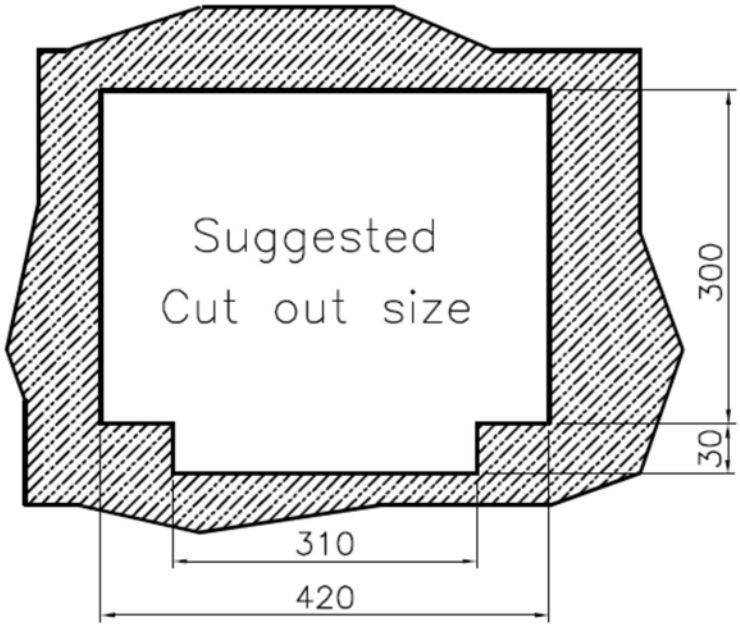


Figure 3-14: AFL-19B-915 Cutout Dimensions (units in mm)

Step 3: Slide the flat panel PC through the hole until the aluminum frame is flush against the panel.

Step 4: Insert the panel mounting clamps into the pre-formed holes along the edges of the chassis, behind the aluminum frame.

Step 5: Tighten the screws that pass through the panel mounting clamps until the plastic caps at the front of all the screws are firmly secured to the panel (**Figure 3-15**).

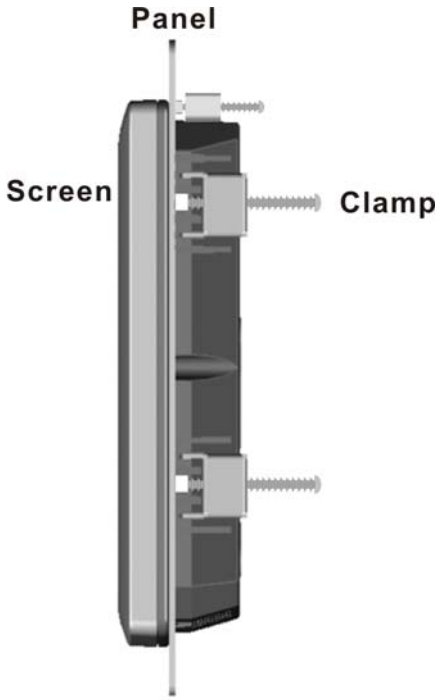


Figure 3-15: Tighten the Panel Mounting Clamp Screws

3.9.3 Arm Mounting

The AFL-915 series is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 100mm interface pad. To mount the AFO-915 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 100mm interface pad. If the mounting arm is not VESA compliant it cannot be used to support the AFO-915 series flat panel PC.

Step 2: Once the mounting arm has been firmly attached to the surface, lift the flat 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 flat panel PC, as shown in **Figure 3-16**.

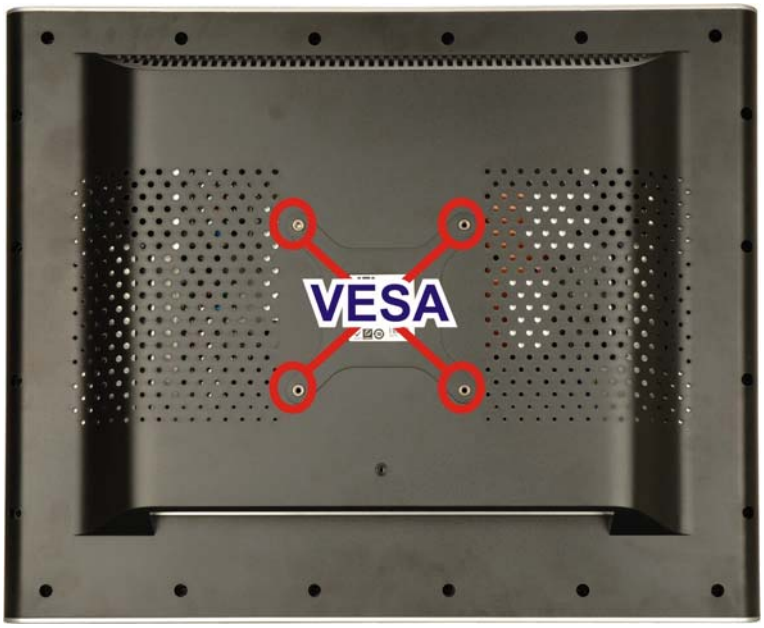


Figure 3-16: Arm Mounting Retention Screw Holes

Step 4: Secure the flat panel PC to the interface pad by inserting four retention screws through the bottom of the mounting arm interface pad and into the flat panel PC.

3.9.4 Cabinet and Rack Installation

The AFL-915 series flat panel PC can be installed into a cabinet or rack. The installation procedures are similar to the panel mounting installation. To do this, please follow the steps below:

NOTE:

When purchasing the cabinet/rack installation bracket, make sure it is compatible with both the AFL-915 series flat panel PC and the rack/cabinet into which the AFL-915 series is installed.

Step 1: Slide the rear of the AFL-915 series flat panel PC through the rack/cabinet bracket until the aluminum frame is flush against the front of the bracket (**Figure 3-17**).

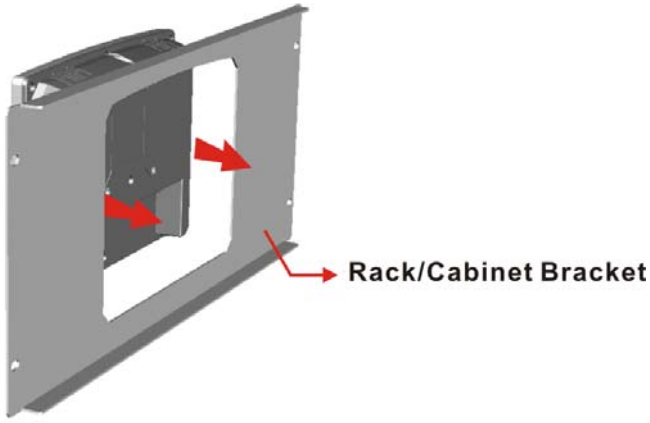


Figure 3-17: The Rack/Cabinet Bracket

Step 2: Insert the rack mounting clamps into the pre-formed holes along the edges of the flat panel PC, behind the ABS/PC plastic frame.

Step 3: Tighten the screws that pass through the rack mounting clamps until the plastic caps at the front of all the screws are firmly secured to the bracket (**Figure 3-18**).

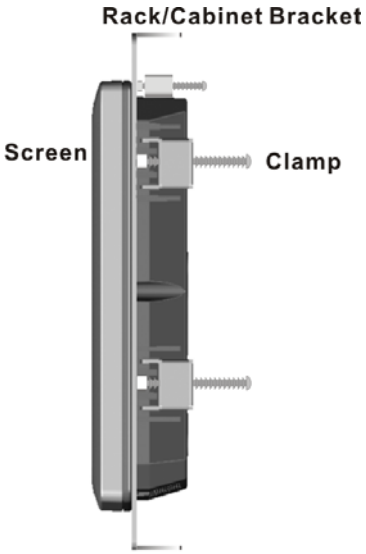


Figure 3-18: Secure the Rack/Cabinet Bracket

Step 4: Slide the flat panel PC with the attached rack/cabinet bracket into a rack or cabinet (**Figure 3-19**).

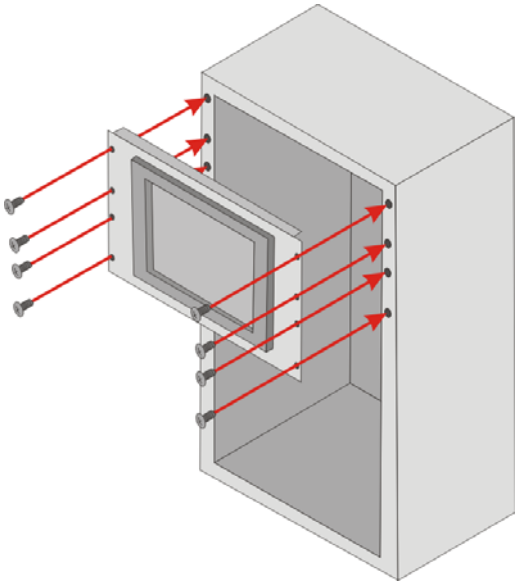


Figure 3-19: Install into a Rack/Cabinet

Step 5: Once the flat panel PC with the attached rack/cabinet bracket has been properly inserted into the rack or cabinet, secure the front of the rack/cabinet bracket to the front of the rack or cabinet (**Figure 3-19**).

3.10 Bottom Panel Connectors

All the external peripheral interface connectors are located at the bottom of the rear panel on the AFL-915 panel PC.

3.10.1 LAN Connection

There are two external RJ-45 LAN connectors. The RJ-45 connectors enable connection to an external network. To connect a LAN cable with an RJ-45 connector, please follow the instructions below.

Step 1: **Locate the RJ-45 connectors** on the bottom panel of the AFL-915 Series.

Step 2: **Align the connectors.** Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the bottom panel of the AFL-915 series. See **Figure 3-20**.

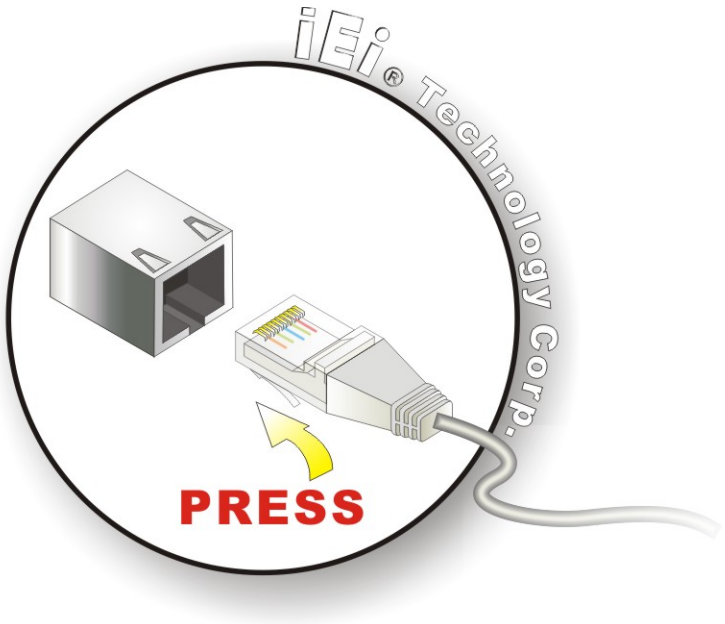


Figure 3-20: LAN Connection

Step 3: **Insert the LAN cable RJ-45 connector.** Once aligned, gently insert the LAN cable RJ-45 connector into the onboard RJ-45 connector.

3.10.2 Serial Device Connection

The AFL-915 Series has two single female DB-9 connectors on the bottom panel for a serial device. Follow the steps below to connect a serial device to the AFL-915 Series panel PC.

Step 1: **Locate the DB-9 connector**. The location of the DB-9 connector is shown in **Chapter 2**.

Step 2: **Insert the serial connector**. Insert the DB-9 connector of a serial device into the DB-9 connector on the bottom panel. See **Figure 3-21**.

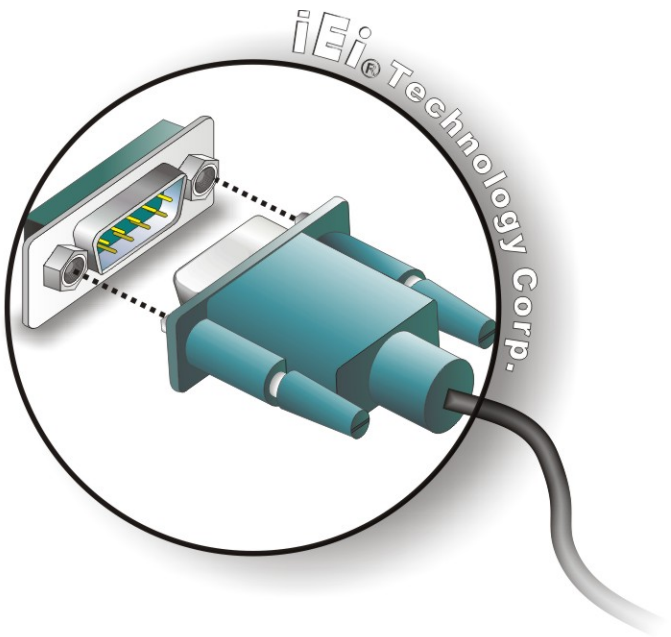


Figure 3-21: Serial Device Connector

Step 3: **Secure the connector**. Secure the serial device connector to the external interface by tightening the two retention screws on either side of the connector.

3.10.3 USB Device Connection

There are four external USB 2.0 connectors. All connectors are perpendicular to the AFL-915 series. To connect a USB 2.0 or USB 1.1 device, please follow the instructions below.

Step 1: **Locate the USB connectors**. The locations of the USB connectors are shown in **Chapter 2**.

Step 2: **Align the connectors.** Align the USB device connector with one of the connectors on the bottom panel. See **Figure 3-22**.

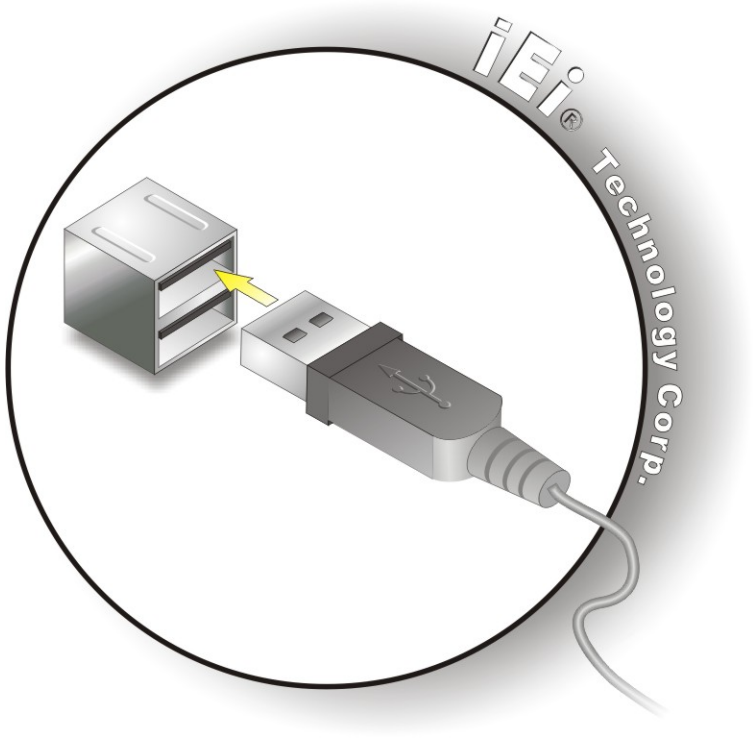


Figure 3-22: USB Device Connection

Step 3: **Insert the device connector.** Once aligned, gently insert the USB device connector into the onboard connector.

3.10.4 VGA Monitor Connection

The AFL-915 has a single female DB-15 connector on the external peripheral interface panel. The DB-15 connector is connected to a CRT or VGA monitor. To connect a monitor to the AFL-915, please follow the instructions below.

Step 1: **Locate the female DB-15 connector**. The location of the female DB-15 connector is shown in **Chapter 3**.

Step 2: **Align the VGA connector**. Align the male DB-15 connector on the VGA screen cable with the female DB-15 connector on the external peripheral interface.

Step 3: **Insert the VGA connector** Once the connectors are properly aligned with the insert the male connector from the VGA screen into the female connector on the AFL-915. See **Figure 3-23**.

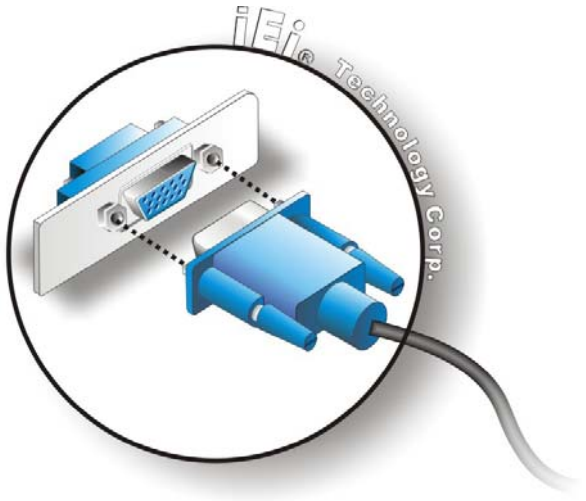


Figure 3-23: VGA Connector

Step 4: **Secure the connector**. Secure the DB-15 VGA connector from the VGA monitor to the external interface by tightening the two retention screws on either side of the connector.

Chapter

4

System Maintenance

4.1 Introduction

If the components of the AFL-915 series fail they must be replaced, such as the wireless LAN module or the motherboard. Please contact the system reseller or vendor to purchase the replacement parts. Back cover removal instructions and jumper settings for the AFL-915 series are described below.

4.2 Motherboard Replacement

A user cannot replace a motherboard. If the motherboard fails it must be shipped back to IEI to be replaced. If the system motherboard has failed, please contact the system vendor, reseller or an IEI sales person directly.

4.3 Internal Aluminum Cover Removal

WARNING!

Turn the power off before removing the back cover. Failing to do so may lead to severe damage of AFL-915 series and injury to the body.

WARNING!

Take antistatic precautions when working with internal components. The interior of the AFL-915 series contains very sensitive electronic components. These components are easily damaged by electrostatic discharge (ESD). Before working with the internal components make sure all the anti-static precautions described earlier have been observed.

To replace any of the following components,

- DDR2 memory module
- Wireless LAN module

- Inverter

The internal aluminum back cover of the AFL-915 series must be removed. To remove the aluminum back cover, remove the retention screws indicated in the sections below.

Remove the following screws:

- 5 x Flat head screws
- 11 x Round head screws

Screw positions are indicated below (**Figure 4-1**).

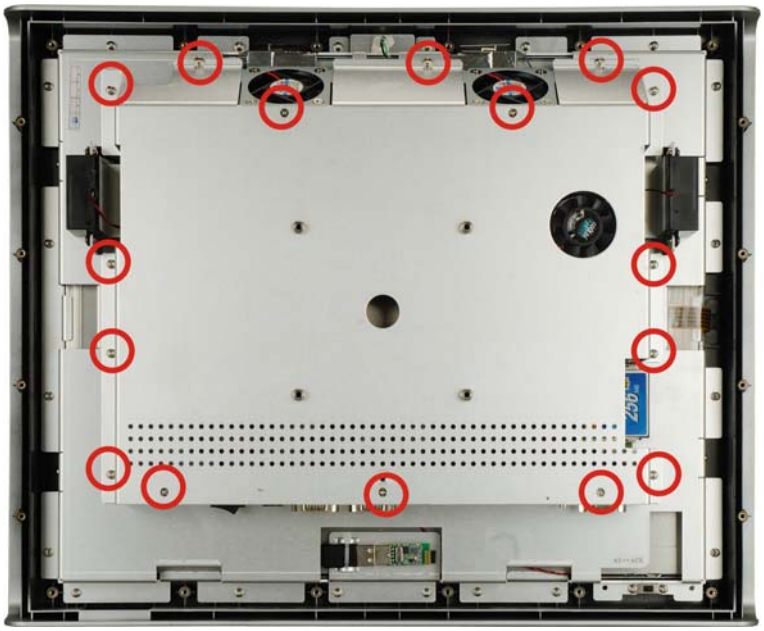


Figure 4-1: AFL-19B-915 Aluminum Back Cover Retention Screws

4.4 Memory Module Replacement

The flat panel PC is preinstalled with a 512MB DDR2 memory module. If the memory module fails, follow the instructions below to replace the memory module.

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

Step 2: Remove the internal aluminum back cover. See **Section 4.3** above.

Step 3: Locate the DDR2 memory module on the motherboard of the flat panel PC (**Figure 4-2**).

Figure 4-2: SO-DIMM Socket Location

Step 4: Remove the DDR2 memory module by pulling both the spring retainer clips outward from the socket.

Step 5: Grasp the DDR2 memory module by the edges and carefully pull it out of the socket.

Step 6: Install the new DDR2 memory module by pushing it into the socket at an angle (**Figure 4-3**).

Step 7: Gently pull the spring retainer clips of the SO-DIMM socket out and push the rear of the DDR2 memory module down (**Figure 4-3**).

Step 8: Release the spring retainer clips on the SO-DIMM socket. They clip into place and secure the DDR2 memory module in the socket.

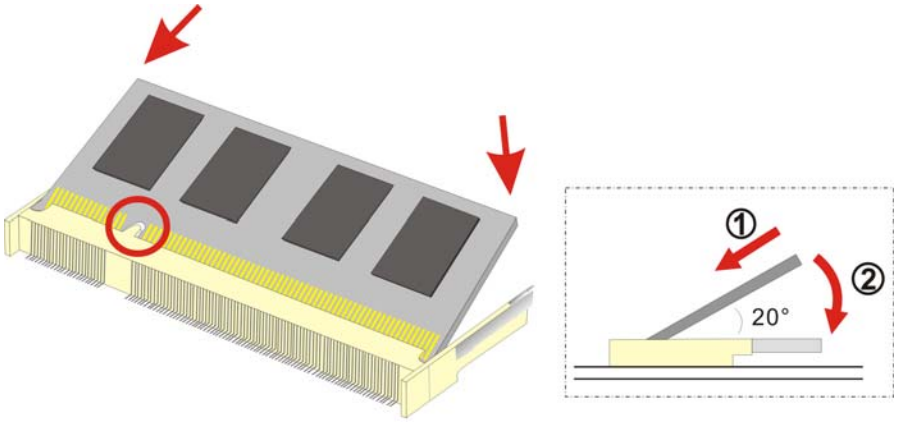


Figure 4-3: DDR2 SO-DIMM Module Installation

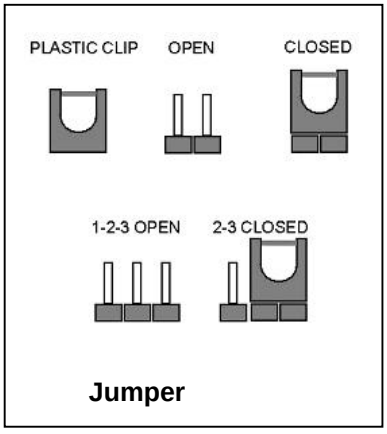
4.5 Jumper Settings

WARNING:

System damage can occur if the jumper settings are changed. The jumpers should not be changed under normal conditions.

NOTE:

A jumper is a metal bridge that is used to close an electrical circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To CLOSE/SHORT a jumper means connecting the pins of the jumper with the plastic clip and to OPEN a jumper means removing the plastic clip from a jumper.



Jumper

The motherboard comes with thirteen jumpers. They are listed below.

- 4.5.1 Clear CMOS jumper (JP9)
- 4.5.2 CompactFlash® Master/Slave Selection (JP5)
- 4.5.3 CompactFlash® Voltage Selection (JP8)
- 4.5.4 COM1 and COM2 RI and voltage selection (JP10)
- 4.5.5 COM3 RI and voltage selection (JP6)
- 4.5.6 COM3 RS-232/422/485 selection (JP11, JP12 and JP13)
- 4.5.7 LCD Type Selection (JP7)
- 4.5.8 LCD Voltage Setup (JP1)
- 4.5.9 Touch panel type selection (JP3)

4.5.1 Clear CMOS jumper (JP9)

The Clear CMOS jumper setting is used to reset the CMOS to default settings.

JP9	Description
1-2	Normal Operation
2-3	Clear CMOS Setup

Table 4-1: Clear CMOS Jumper Settings

4.5.2 CompactFlash® Master/Slave Selection (JP5)

The Master/Slave selection allows the CompactFlash® slot to be setup as either the IDE master or the IDE slave. If no other IDE device is used in the system, then the setting does not need to be changed.

JP5	Description
1-2	Master
Open	Slave

Table 4-2: CompactFlash® Master/Slave Selection

4.5.3 CompactFlash® Voltage Selection (JP8)

The operating voltage of the CompactFlash® card is adjusted using the voltage selection jumper. CompactFlash® cards can operate with both 3 V and 5 V power input.

JP8	Description
1-2	3 V
2-3	5 V

Table 4-3: CompactFlash® Voltage Selection

4.5.4 COM1 and COM2 RI and voltage selection (JP10)

The COM1 and COM2 pin-9 signal can be selected as 12V, 5V or Ring.

JP10	Description
7-9, 8-10	Use for RI
3-5, 4-6	5 V
1-3, 2-4	12 V

Table 4-4: COM1 and COM2 RI and Voltage Settings

4.5.5 COM3 RI and voltage selection (JP6)

The COM3 pin-9 signal can be selected as 12V, 5V or Ring.

JP6	Description
3-4	Use for RI
3-5	5 V
3-1	12 V

Table 4-5: COM3 RI and Voltage Selection

4.5.6 COM3 RS-232/422/485 selection (JP11, JP12 and JP13)

The three jumpers in this section all need to be changed when setting the mode for COM3.

The JP11 setting has no effect when RS-232 is selected for JP12 and JP13.

JP11	Description
1-3, 2-4	RS-422
3-5, 4-6	RS-485

Table 4-6: COM3 Mode Selection

JP12 selects RS-232, RS-422 or RS-485 mode for the COM3 serial port.

JP12	Description
1-2	RS-232
3-4	RS-422
5-6	RS-485

Table 4-7: COM3 Mode Selection

JP13 selects RS-232, RS-422 or RS-485 mode for the COM3 serial port.

JP13	Description
1-2, 4-5, 7-8, 10-11	RS-232
2-3, 5-6, 8-9, 10-11	RS-422/RS-485

Table 4-8: COM3 Mode Selection

4.5.7 LCD Type Selection (JP7)

This jumper should not be changed from factory settings. The LCD type jumper selects what kind of LCD screen is being used in the system.

JP7	Description
1-2	LID0
3-4	LID1
5-6	LID2

Table 4-9: LCD Type Selection

4.5.8 LCD Voltage Setup (JP1)

This jumper should not be changed from factory settings. The LCD voltage jumper selects the voltage for the LCD screen being used in the system.

JP1	Description
1-2	LID0
3-4	LID1
5-6	LID2

Table 4-10: LCD Type Selection

4.5.9 Touch panel type selection (JP3)

This jumper shouldn't be changed from factory settings. This jumper selects the type of touch panel used in the system.

JP3	Description
4W_5W	Short

Table 4-11: Touch Panel Type Selection

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Chapter

5

AMI BIOS Setup

5.1 Introduction

A licensed copy of AMI 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.

5.1.1 Starting Setup

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

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

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

5.1.2 Using Setup

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

Key	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
Esc key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
Page Up key	Increase the numeric value or make changes
Page Dn key	Decrease the numeric value or make changes

F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 /F3 key	Change color from total 16 colors. F2 to select color forward.
F10 key	Save all the CMOS changes, only for Main Menu

Table 5-1: BIOS Navigation Keys

5.1.3 Getting Help

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

5.1.4 Unable to Reboot After Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the jumper described in Chapter **5**.

5.1.5 BIOS Menu Bar

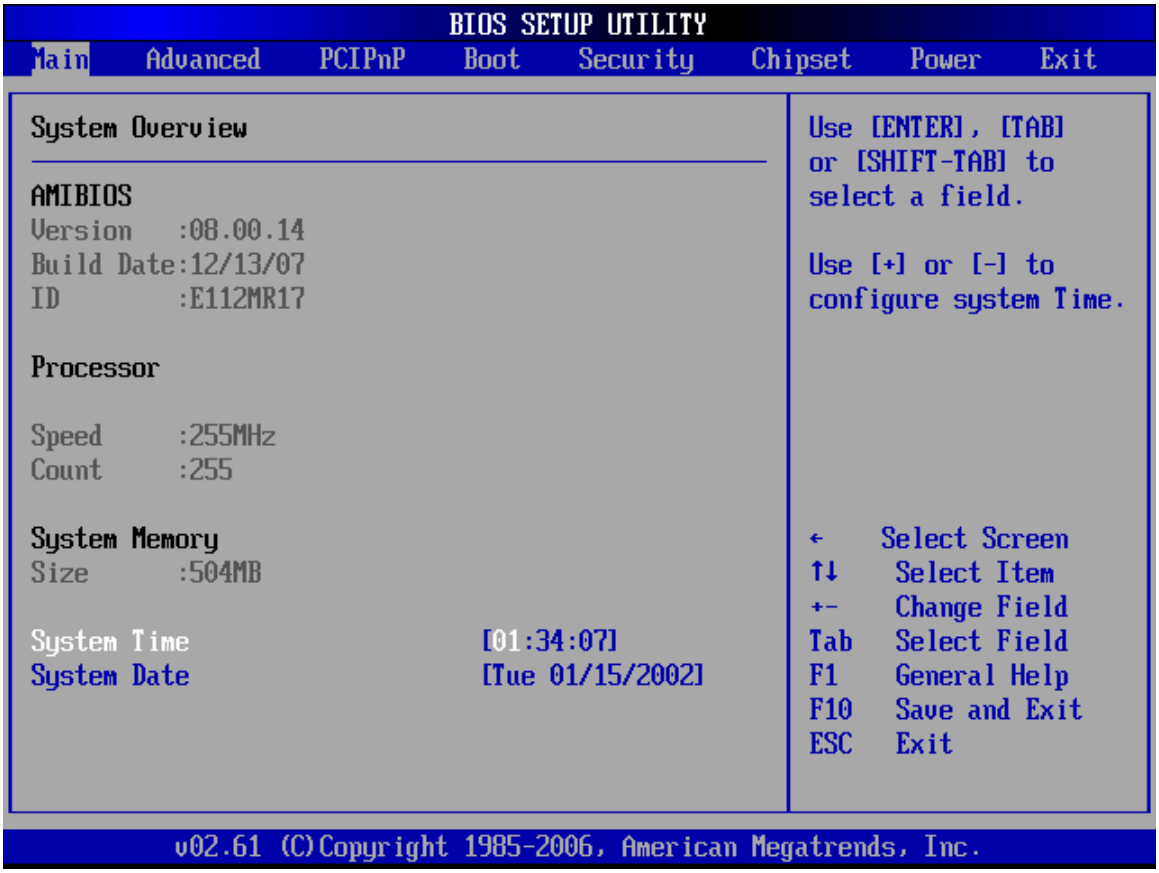
The **menu bar** on top of the BIOS screen has the following main items:

- Main Changes the basic system configuration.
- Advanced Changes the advanced system settings.
- PCIPnP Changes the advanced PCI/PnP Settings
- Boot Changes the system boot configuration.
- Security Sets User and Supervisor Passwords.
- Chipset Changes the chipset settings.
- Power Changes power management settings.
- Exit Selects exit options and loads default settings

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

5.2 Main

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



BIOS Menu 1: Main

➔ System Overview

The **System Overview** lists a brief summary of different system components. The fields in **System Overview** cannot be changed. The items shown in the system overview include:

- AMI BIOS: Displays auto-detected BIOS information
  - **Version**: Current BIOS version
  - **Build Date**: Date the current BIOS version was made
  - **ID**: Installed BIOS ID

- Processor: Displays auto-detected CPU specifications
  - **Type**: Names the currently installed processor
  - **Speed**: Lists the processor speed
  - **Count**: The number of CPUs on the motherboard
- System Memory: Displays the auto-detected system memory.
  - **Size**: Lists memory size

The System Overview field also has two user configurable fields:

➔ **System Time [xx:xx:xx]**

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

➔ **System Date [xx/xx/xx]**

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

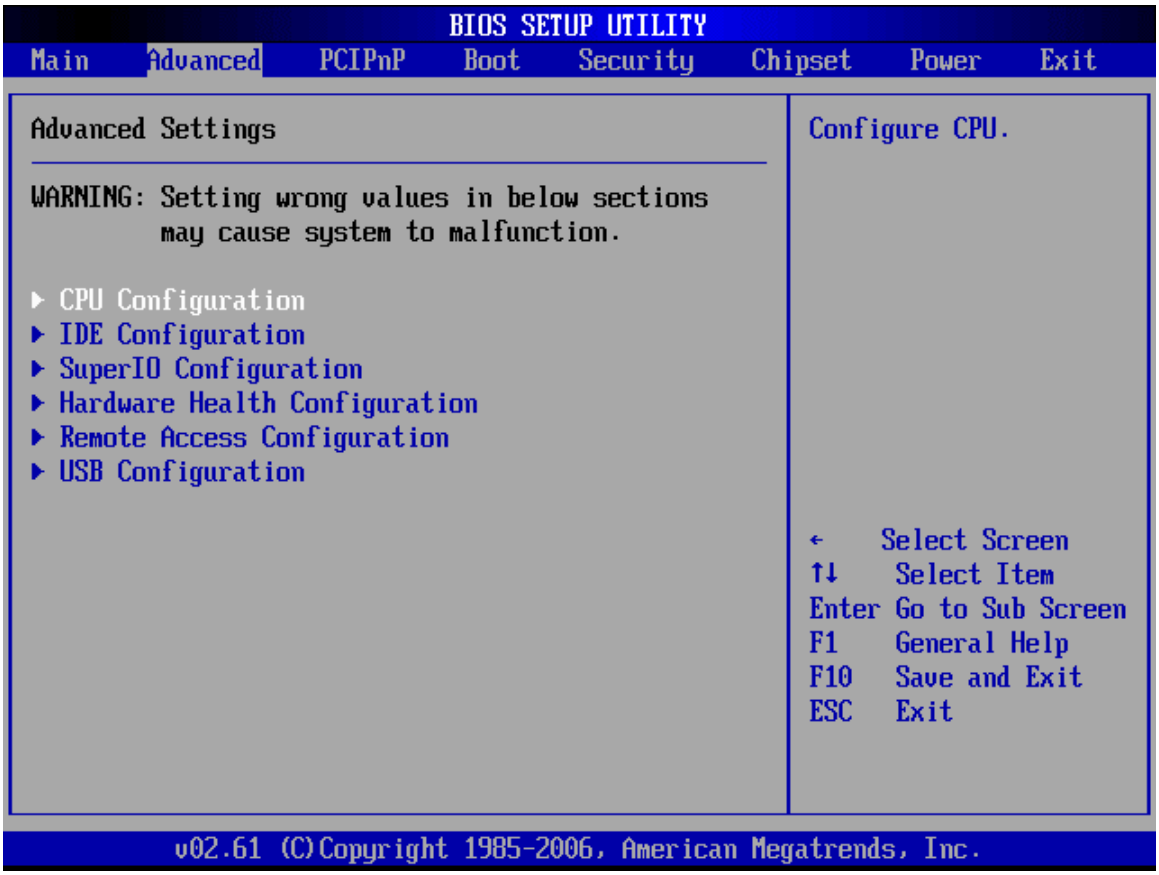
5.3 Advanced

Use the **Advanced** menu 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.

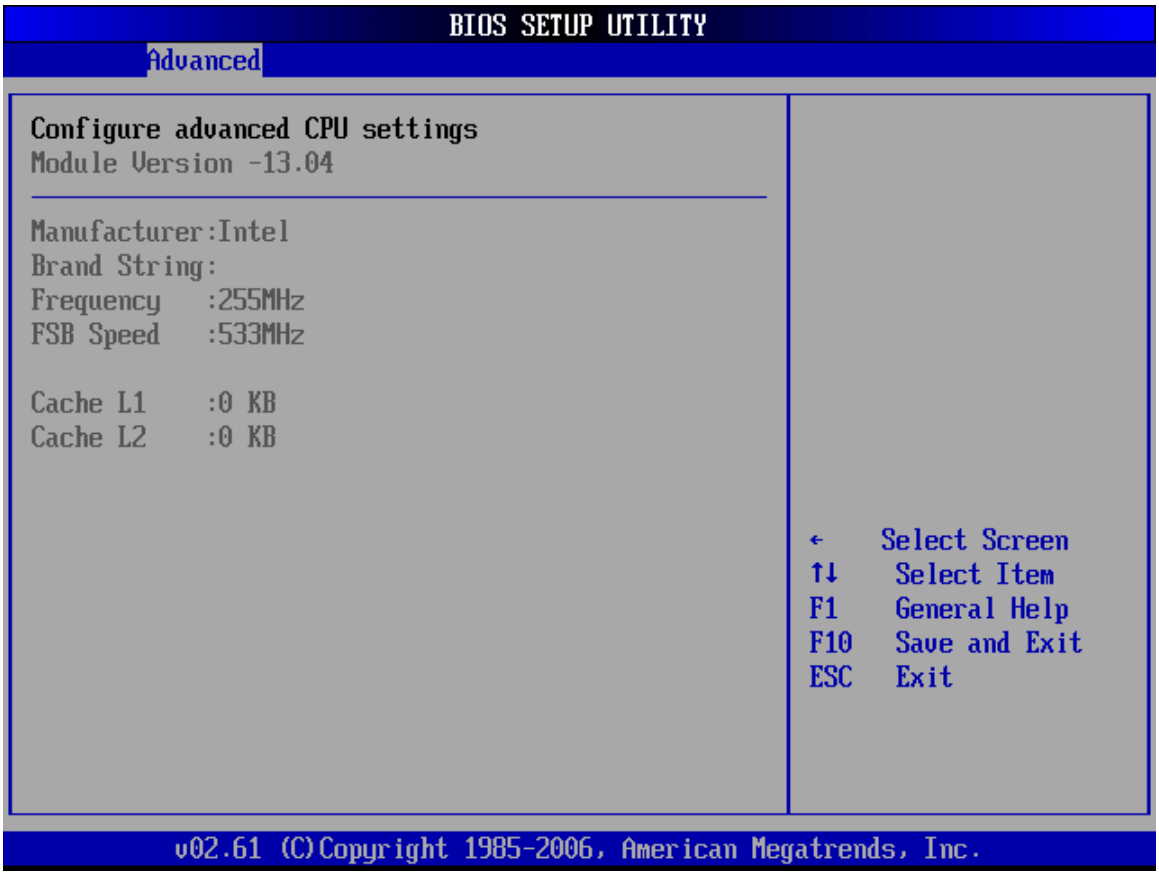
- CPU Configuration (see Section **5.3.1**)
- IDE Configuration (see Section **5.3.2**)
- Super IO Configuration (see Section **5.3.3**)
- Hardware Health Configuration (see Section **5.3.4**)
- Remote Access Configuration (see Section **5.3.5**)
- USB Configuration (see Section **5.3.6**)



BIOS Menu 2: Advanced

5.3.1 CPU Configuration

Use the **CPU Configuration** menu to view detailed CPU specifications and configure the CPU.



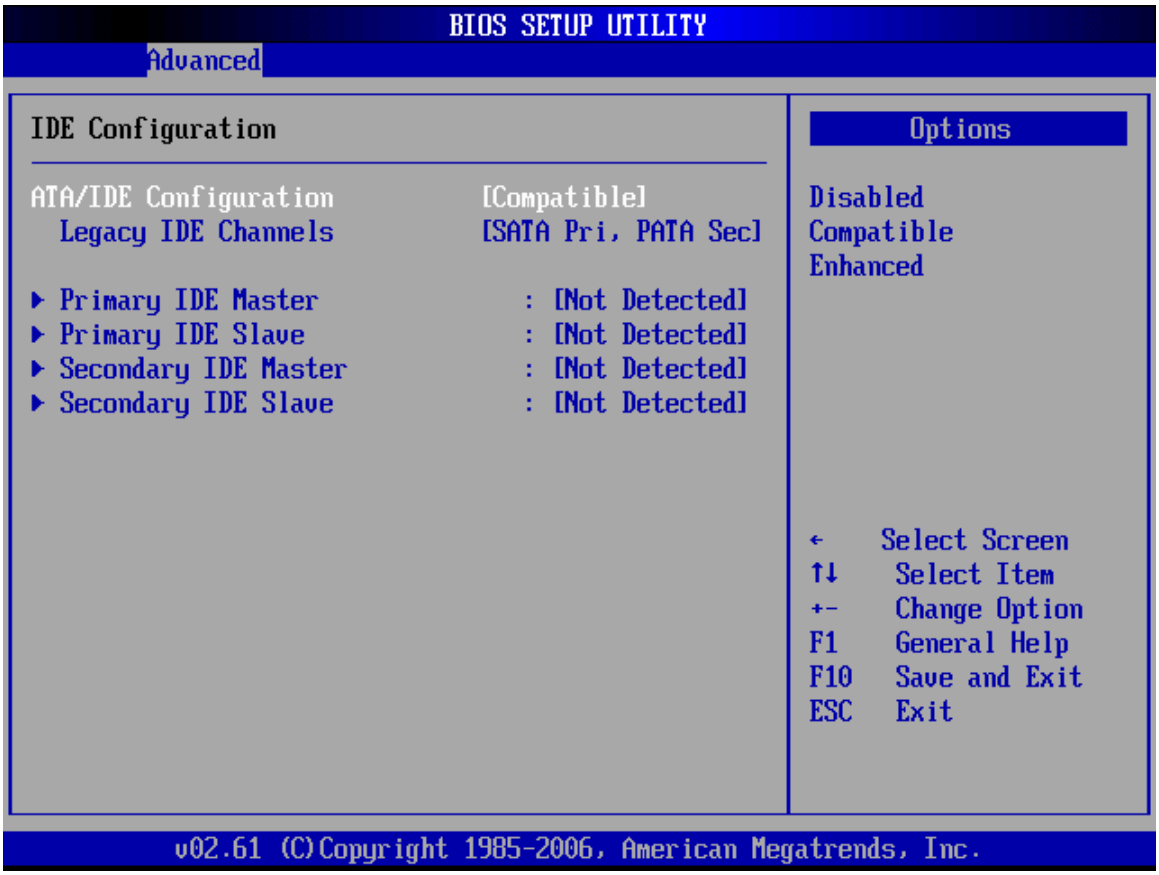
BIOS Menu 3: CPU Configuration

The CPU Configuration menu lists the following CPU details:

- Manufacturer: Lists the name of the CPU manufacturer
- Brand String: Lists the brand name of the CPU being used
- Frequency: Lists the CPU processing speed
- FSB Speed: Lists the FSB speed
- Cache L1: Lists the CPU L1 cache size
- Cache L2: Lists the CPU L2 cache size

5.3.2 IDE Configuration

Use the **IDE Configuration** menu to change and/or set the configuration of the IDE devices installed in the system.



BIOS Menu 4: IDE Configuration

➔ **ATA/IDE Configurations [Compatible]**

Use the **ATA/IDE Configurations** option to configure the ATA/IDE controller.

➔ **Disabled** Disables the on-board ATA/IDE controller.

➔ **Compatible** Configures the on-board ATA/IDE controller to be in compatible mode. In this mode, a SATA channel will replace one of the IDE channels. This mode supports up to 4 storage devices.

➔ **Enhanced** **DEFAULT** Configures the on-board ATA/IDE controller to be in Enhanced mode. In this mode, IDE channels and SATA

channels are separated. This mode supports up to 6 storage devices. Some legacy OS do not support this mode.

➔ **Legacy IDE Channels [SATA Pri, PATA Sec]**

➔ **SATA Only**	Only the SATA drives are enabled.
➔ **SATA Pri, PATA Sec** **DEFAULT**	The IDE drives are enabled on the Primary IDE channel. The SATA drives are enabled on the Secondary IDE channel.
➔ **PATA Only**	The IDE drives are enabled on the primary and secondary IDE channels. SATA drives are disabled.

➔ **IDE Master and IDE Slave**

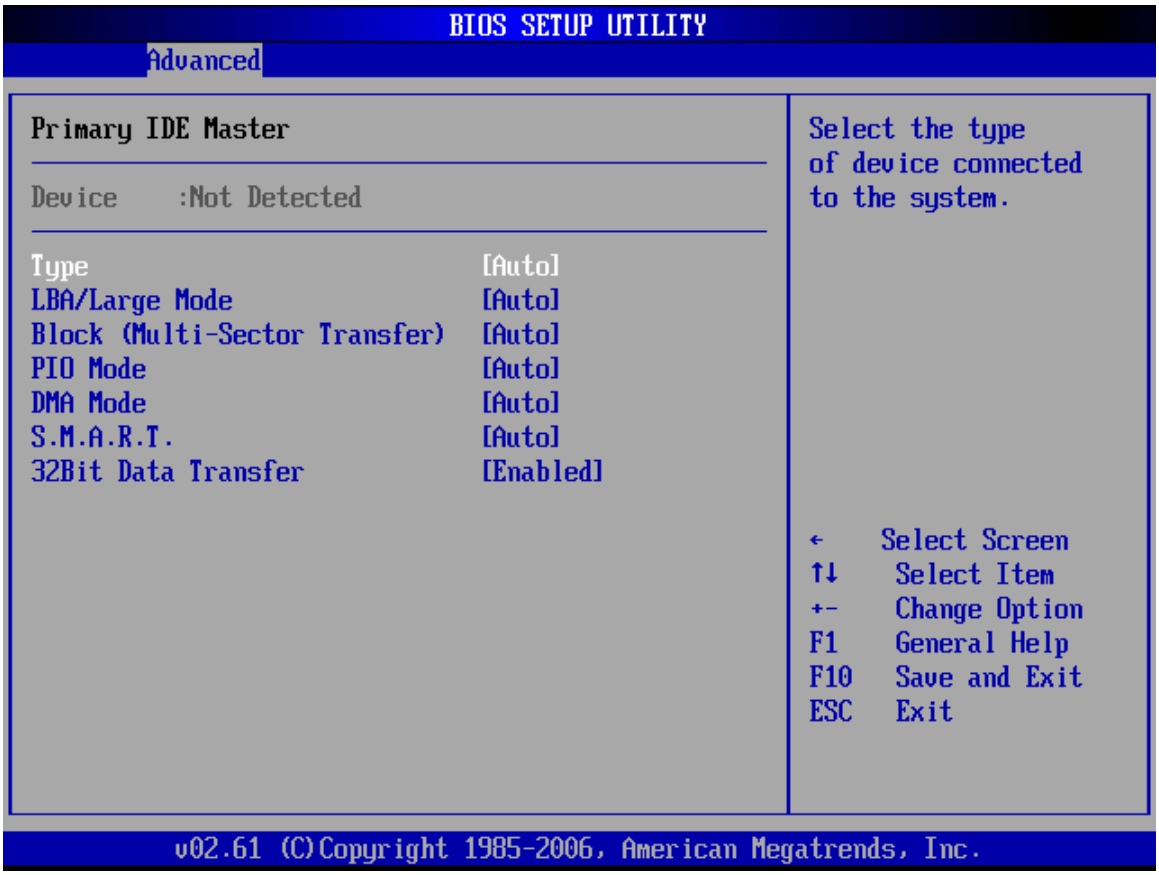
When entering setup, BIOS auto detects the presence of IDE devices. BIOS displays the status of the auto detected IDE devices. The following IDE devices are detected and are shown in the **IDE Configuration** menu:

- Primary IDE Master
- Primary IDE Slave
- Secondary IDE Master
- Secondary IDE Slave

The **IDE Configuration** menu allows changes to the configurations for the IDE devices installed in the system. If an IDE device is detected, and one of the above listed four BIOS configuration options are selected, the IDE configuration options shown in **Section 5.3.2.1** appear.

5.3.2.1 IDE Master, IDE Slave

Use the **IDE Master** and **IDE Slave** configuration menu to view both primary and secondary IDE device details and configure the IDE devices connected to the system.



BIOS Menu 5: IDE Master and IDE Slave Configuration

➔ **Auto-Detected Drive Parameters**

The "grayed-out" items in the left frame are IDE disk drive parameters automatically detected from the firmware of the selected IDE disk drive. The drive parameters are listed as follows:

- Device: Lists the device type (e.g. hard disk, CD-ROM etc.)
- Type: Indicates the type of devices a user can manually select
- Vendor: Lists the device manufacturer
- Size: List the storage capacity of the device.
- LBA Mode: Indicates whether the LBA (Logical Block Addressing) is a method of addressing data on a disk drive is supported or not.
- Block Mode: Block mode boosts IDE drive performance by increasing the amount of data transferred. Only 512 bytes of data can be transferred per

interrupt if block mode is not used. Block mode allows transfers of up to 64 KB per interrupt.

- PIO Mode: Indicates the PIO mode of the installed device.
- Async DMA: Indicates the highest Asynchronous DMA Mode that is supported.
- Ultra DMA: Indicates the highest Synchronous DMA Mode that is supported.
- S.M.A.R.T.: Indicates whether or not the Self-Monitoring Analysis and Reporting Technology protocol is supported.
- 32Bit Data Transfer: Enables 32-bit data transfer.

➔ **Type [Auto]**

Use the **Type** BIOS option select the type of device the AMIBIOS attempts to boot from after the Power-On Self-Test (POST) is complete.

➔ **Not Installed**		BIOS is prevented from searching for an IDE disk drive on the specified channel.
➔ **Auto**	**DEFAULT**	The BIOS auto detects the IDE disk drive type attached to the specified channel. This setting should be used if an IDE hard disk drive is attached to the specified channel.
➔ **CD/DVD**		The CD/DVD option specifies that an IDE CD-ROM drive is attached to the specified IDE channel. The BIOS does not attempt to search for other types of IDE disk drives on the specified channel.
➔ **ARMD**		This option specifies an ATAPI Removable Media Device. These include, but are not limited to: ■ ZIP ■ LS-120

➔ **LBA/Large Mode [Auto]**

Use the **LBA/Large Mode** option to disable or enable BIOS to auto detects LBA (Logical Block Addressing). LBA is a method of addressing data on a disk drive. In LBA mode, the maximum drive capacity is 137 GB.

➔ **Disabled** BIOS is prevented from using the LBA mode control on the specified channel.

➔ **Auto** **DEFAULT** BIOS auto detects the LBA mode control on the specified channel.

➔ **Block (Multi Sector Transfer) [Auto]**

Use the **Block (Multi Sector Transfer)** to disable or enable BIOS to auto detect if the device supports multi-sector transfers.

➔ **Disabled** BIOS is prevented from using Multi-Sector Transfer on the specified channel. The data to and from the device occurs one sector at a time.

➔ **Auto** **DEFAULT** BIOS auto detects Multi-Sector Transfer support on the drive on the specified channel. If supported the data transfer to and from the device occurs multiple sectors at a time.

➔ **PIO Mode [Auto]**

Use the **PIO Mode** option to select the IDE PIO (Programmable I/O) mode program timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases.

➔ **Auto** **DEFAULT** BIOS auto detects the PIO mode. Use this value if the IDE disk drive support cannot be determined.

- ➔ **0** PIO mode 0 selected with a maximum transfer rate of 3.3MBps
- ➔ **1** PIO mode 1 selected with a maximum transfer rate of 5.2MBps
- ➔ **2** PIO mode 2 selected with a maximum transfer rate of 8.3MBps
- ➔ **3** PIO mode 3 selected with a maximum transfer rate of 11.1MBps
- ➔ **4** PIO mode 4 selected with a maximum transfer rate of 16.6MBps

  (This setting generally works with all hard disk drives manufactured after 1999. For other disk drives, such as IDE CD-ROM drives, check the specifications of the drive.)

➔ **DMA Mode [Auto]**

Use the **DMA Mode** BIOS selection to adjust the DMA mode options.

- ➔ **Auto** **DEFAULT** BIOS auto detects the DMA mode. Use this value if the IDE disk drive support cannot be determined.
- ➔ **SWDMA0** Single Word DMA mode 0 selected with a maximum data transfer rate of 2.1MBps
- ➔ **SWDMA1** Single Word DMA mode 1 selected with a maximum data transfer rate of 4.2MBps
- ➔ **SWDMA2** Single Word DMA mode 2 selected with a maximum data transfer rate of 8.3MBps
- ➔ **MWDMA0** Multi Word DMA mode 0 selected with a maximum data transfer rate of 4.2MBps
- ➔ **MWDMA1** Multi Word DMA mode 1 selected with a maximum data transfer rate of 13.3MBps
- ➔ **MWDMA2** Multi Word DMA mode 2 selected with a maximum data transfer rate of 16.6MBps

- ➔ **UDMA1** Ultra DMA mode 0 selected with a maximum data transfer rate of 16.6MBps
- ➔ **UDMA1** Ultra DMA mode 1 selected with a maximum data transfer rate of 25MBps
- ➔ **UDMA2** Ultra DMA mode 2 selected with a maximum data transfer rate of 33.3MBps
- ➔ **UDMA3** Ultra DMA mode 3 selected with a maximum data transfer rate of 44MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)
- ➔ **UDMA4** Ultra DMA mode 4 selected with a maximum data transfer rate of 66.6MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)
- ➔ **UDMA5** Ultra DMA mode 5 selected with a maximum data transfer rate of 99.9MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)

➔ **S.M.A.R.T [Auto]**

Use the **S.M.A.R.T** option to auto-detect, disable or enable Self-Monitoring Analysis and Reporting Technology (SMART) on the drive on the specified channel. **S.M.A.R.T** predicts impending drive failures. The **S.M.A.R.T** BIOS option enables or disables this function.

- ➔ **Auto** **DEFAULT** BIOS auto detects HDD SMART support.
- ➔ **Disabled** Prevents BIOS from using the HDD SMART feature.
- ➔ **Enabled** Allows BIOS to use the HDD SMART feature

➔ **32Bit Data Transfer [Enabled]**

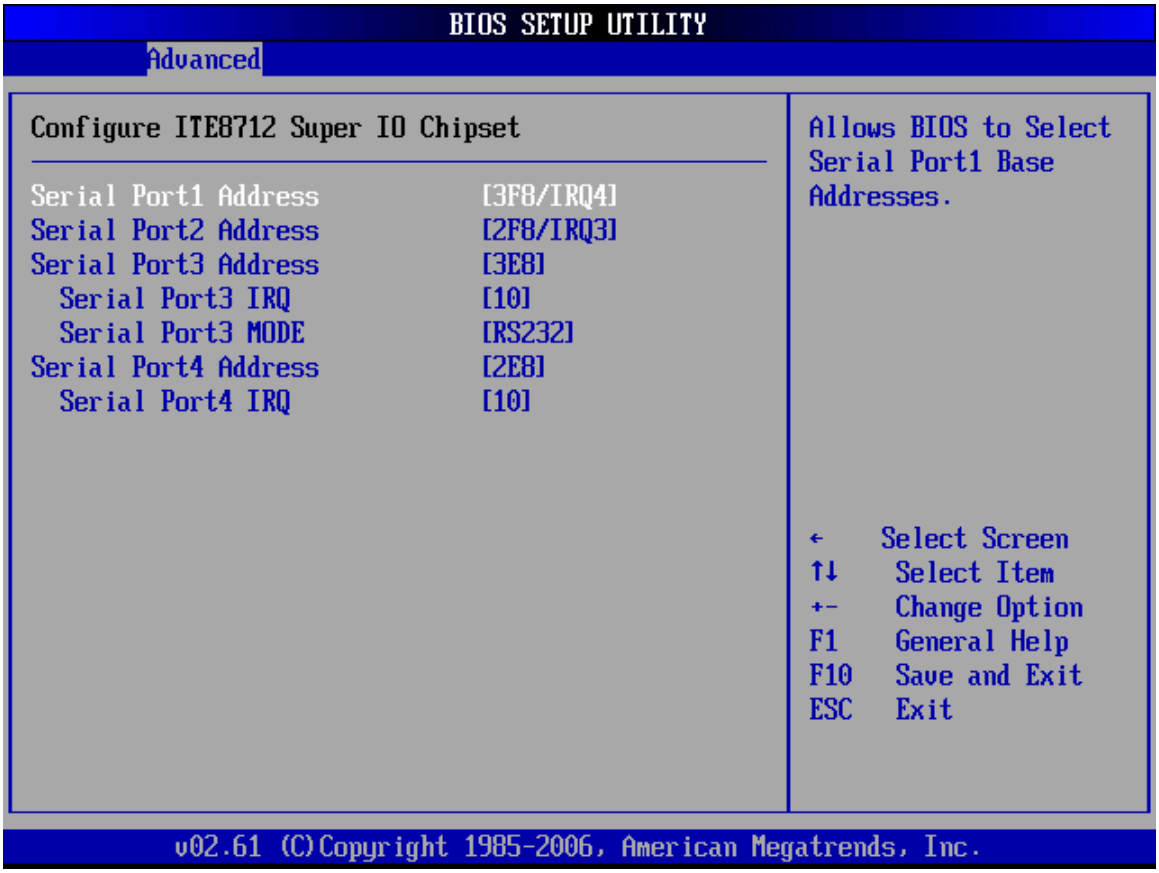
Use the **32Bit Data Transfer** BIOS option to enables or disable 32-bit data transfers.

➔ **Disabled** Prevents the BIOS from using 32-bit data transfers.

➔ **Enabled** **DEFAULT** Allows BIOS to use 32-bit data transfers on supported hard disk drives.

5.3.3 Super IO Configuration

Use the **Super IO Configuration** menu to set or change the configurations for the FDD controllers, parallel ports and serial ports.



BIOS Menu 6: Super IO Configuration

➔ **Serial Port1 Address [3F8/IRQ4]**

Use the **Serial Port1 Address** option to select the Serial Port 1 base address.

- ➔ **Disabled** No base address is assigned to Serial Port 1
- ➔ **3F8/IRQ4** **DEFAULT** Serial Port 1 I/O port address is 3F8 and the interrupt address is IRQ4
- ➔ **3E8/IRQ4** Serial Port 1 I/O port address is 3E8 and the interrupt address is IRQ4
- ➔ **2E8/IRQ3** Serial Port 1 I/O port address is 2E8 and the interrupt address is IRQ3

➔ **Serial Port2 Address [2F8/IRQ3]**

Use the **Serial Port2 Address** option to select the Serial Port 2 base address.

- ➔ **Disabled** No base address is assigned to Serial Port 2
- ➔ **2F8/IRQ3** **DEFAULT** Serial Port 2 I/O port address is 3F8 and the interrupt address is IRQ3
- ➔ **3E8/IRQ4** Serial Port 2 I/O port address is 3E8 and the interrupt address is IRQ4
- ➔ **2E8/IRQ3** Serial Port 2 I/O port address is 2E8 and the interrupt address is IRQ3

➔ **Serial Port3 Address [3E8]**

Use the **Serial Port3 Address** option to select the base addresses for serial port 3

- ➔ **Disabled** No base address is assigned to serial port 3
- ➔ **3E8** **DEFAULT** Serial port 3 I/O port address is 3E8
- ➔ **2E8** Serial port 3 I/O port address is 2E8
- ➔ **2E0** Serial port 3 I/O port address is 2E0

➔ **Serial Port3 IRQ [10]**

Use the **Serial Port3 IRQ** option to select the interrupt address for serial port 3.

➔ **4**		Serial port 3 IRQ address is 4
➔ **9**		Serial port 3 IRQ address is 9
➔ **10**		Serial port 3 IRQ address is 10
➔ **11**	**DEFAULT**	Serial port 3 IRQ address is 11

➔ **Serial Port3 MODE [RS232]**

Use the **Serial Port3 MODE** option to select the serial port 3 transmission mode.

➔ **RS232**	**DEFAULT**	Set transmission mode to RS-232
➔ **RS482/RS485**		Transmission mode set to RS-482 or RS-485

➔ **Serial Port4 Address [2E8]**

Use the **Serial Port4 IRQ** option to select the interrupt address for serial port 4.

➔ **Disabled**		No base address is assigned to serial port 3
➔ **3E8**		Serial port 4 I/O port address is 3E8
➔ **2E8**	**DEFAULT**	Serial port 4 I/O port address is 2E8
➔ **2E0**		Serial port 4 I/O port address is 2E0

➔ **Serial Port4 IRQ [10]**

Use the **Serial Port4 IRQ** option to select the interrupt address for serial port 4.

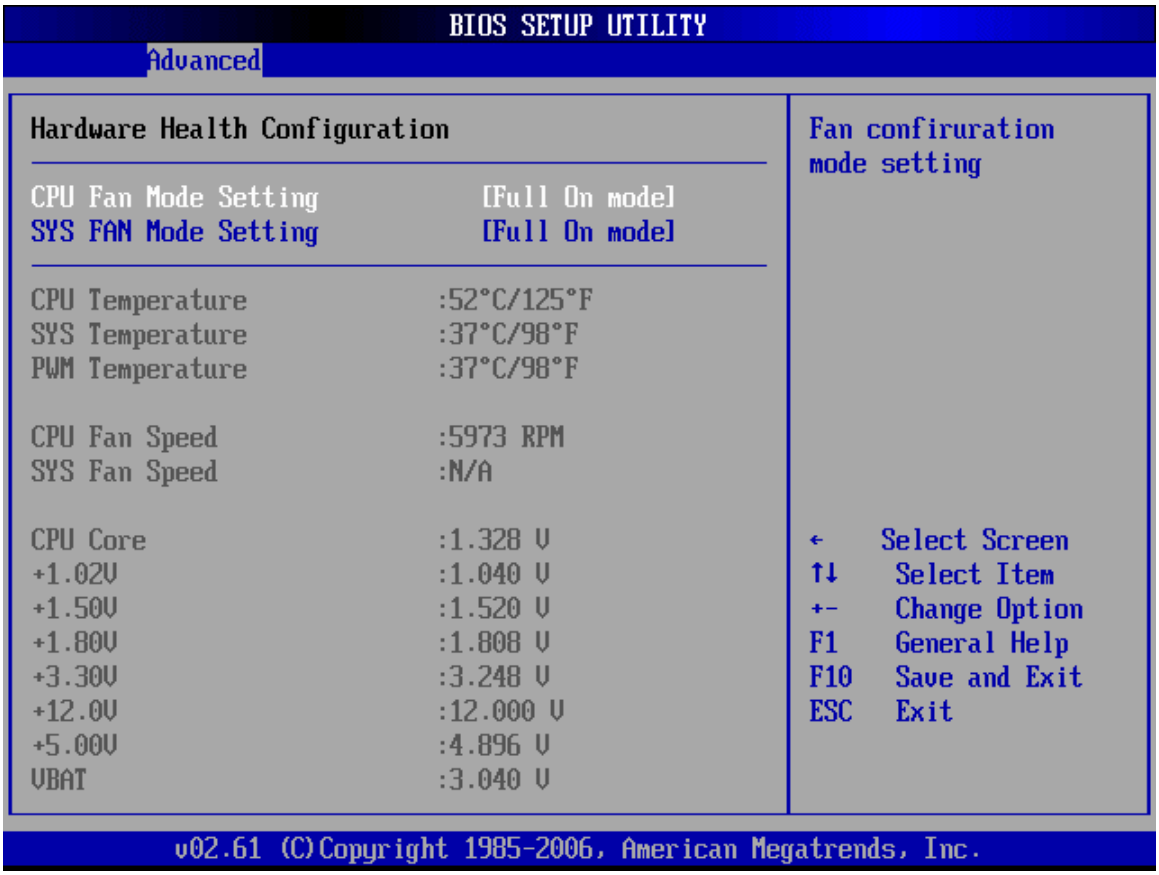
➔ **3**	**DEFAULT**	Serial port 4 IRQ address is 3
➔ **9**		Serial port 4 IRQ address is 9

➔ **10** **DEFAULT** Serial port 4 IRQ address is 10

➔ **11** Serial port 4 IRQ address is 11

5.3.4 Hardware Health Configuration

The **Hardware Health Configuration** menu shows the operating temperature, fan speeds and system voltages.



BIOS Menu 7: Hardware Health Configuration

➔ **CPU FAN Mode Setting [Full On Mode]**

Use the **CPU FAN 1 Mode Setting** option to configure the second fan.

➔ **Full On Mode** **DEFAULT** Fan is on all the time

➔ **Automatic mode**	Fan is off when the temperature is low enough. Parameters must be set by the user.
➔ **PWM Manual mode**	Pulse width modulation set manually

When the **CPU FAN Mode Setting** option is in the **Automatic Mode**, the following parameters can be set.

- Temperature 1 Limit of OFF
- Temperature 1 Limit of Start
- Fan 1 Start PWM
- Slope PWM 1

When the **CPU FAN Mode Setting** option is in the **PWM Manual Mode**, the following parameters can be set.

- Fan 1 PWM control

➔ **Temperature 1 Limit of OFF [000]**

WARNING:

Setting this value too high may cause the fan to stop when the CPU is at a high temperature and therefore cause the system to be damaged.

The **CPU Temp. Limit of OFF** option can only be set if the **CPU FAN Mode Setting** option is set to **Automatic Mode**. Use the **CPU Temp. Limit of OFF** option to select the CPU temperature at which the cooling fan should automatically turn off. To select a value, select the **CPU Temp. Limit of OFF** option and enter a decimal number between 000 and 127. The temperature range is specified below.

- Minimum Value: 0°C
- Maximum Value: 127°C

➔ **Temperature 1 Limit of Start [020]**

WARNING:

Setting this value too high may cause the fan to start only when the CPU is at a high temperature and therefore cause the system to be damaged.

The **CPU Temp. Limit of Start** option can only be set if the **CPU FAN Mode Setting** option is set to **Automatic Mode**. Use the **CPU Temp. Limit of Start** option to select the CPU temperature at which the cooling fan should automatically turn on. When the fan starts, it rotates using the starting pulse width modulation (PWM) specified in the **Fan 3 Start PWM** option below. To select a value, select the **CPU Temp. Limit of Start** option and enter a decimal number between 000 and 127. The temperature range is specified below.

- Minimum Value: 0°C
- Maximum Value: 127°C

➔ **Fan 1 Start PWM [070]**

The **Fan 3 Start PWM** option can only be set if the **CPU FAN Mode Setting** option is set to **Automatic Mode**. Use the **Fan 3 Start PWM** option to select the PWM mode the fan starts to rotate with after the temperature specified in the **Temperature 3 Limit of Start** is exceeded. The Super I/O chipset supports 128 PWM modes. To select a value, select the **Fan 3 Start PWM** option and enter a decimal number between 000 and 127. The temperature range is specified below.

- PWM Minimum Mode: 0
- PWM Maximum Mode: 127

➔ **Slope PWM 1 [0.5 PWM]**

The **Slope PWM 1** option can only be set if the **CPU FAN Mode Setting** option is set to **Automatic Mode**. Use the **Slope PWM 1** option to select the linear rate at which the PWM mode increases with respect to an increase in temperature. A list of available options is shown below:

- 0 PWM
- 1 PWM
- 2 PWM
- 4 PWM
- 8 PWM
- 16 PWM
- 32 PWM
- 64 PWM

➔ **Fan 1 PWM control [100]**

The **CPU Fan PWM Control** option can only be set if the **CPU FAN Mode Setting** option is set to **Manual Mode**. Use the **CPU Fan PWM Control** option to select PWM duty cycle control. The PWM duty cycle specifies the width of the modulated pulse. A high value ensures a wide pulse and a low value ensures a narrow pulse. To select a value, select the **CPU Fan PWM Control** option and enter a decimal number between 000 and 127. The PWM Duty Cycle control range is specified below.

- PWM Minimum Mode: 0
- PWM Maximum Mode: 127

➔ **H/W Health Function [Enabled]**

Use the **H/W Health Function** to enable the monitoring of the system environmental parameters.

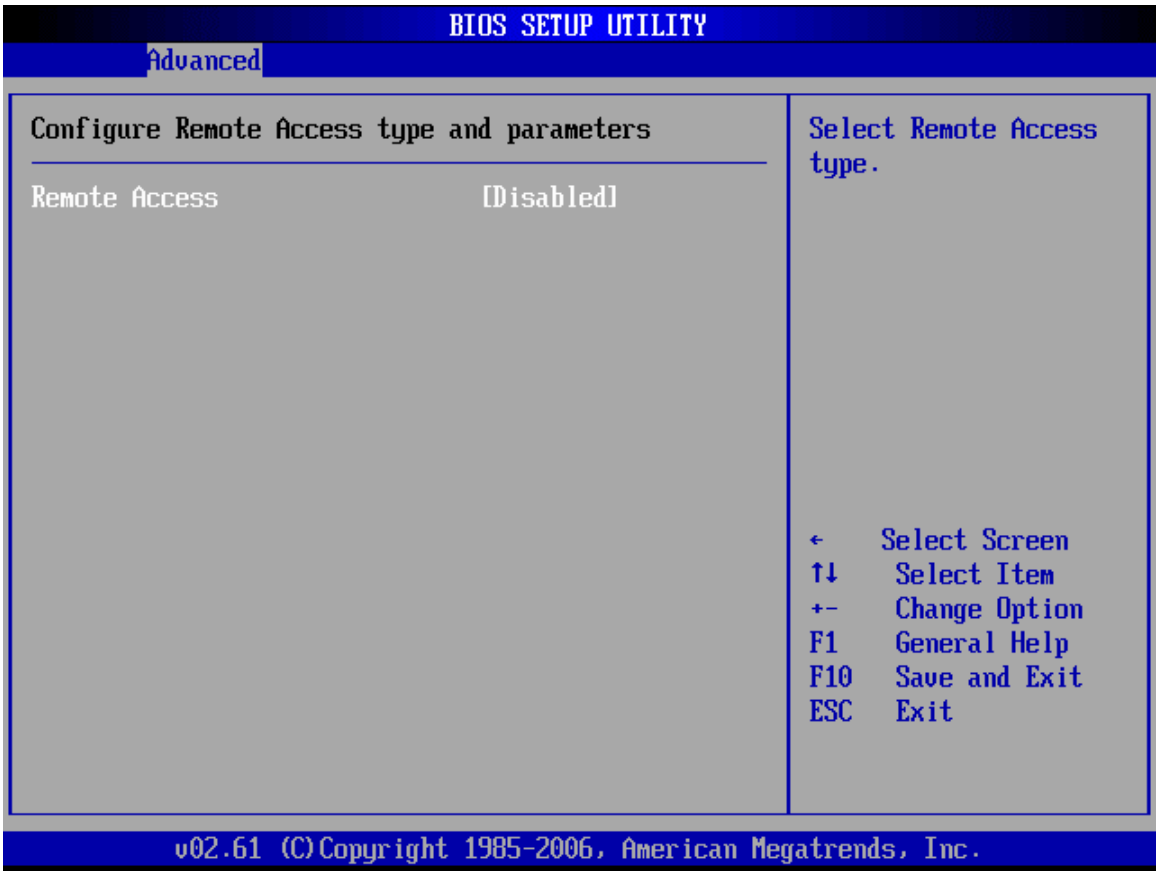
➔ **Disabled**		Disables the health monitoring function
➔ **Enabled**	**DEFAULT**	Enables the health monitoring function

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

- System Temperatures: The following system temperatures are monitored
  - Temperature Sensor #1
  - System Temperature
- Fan Speeds: The CPU cooling fan speed is monitored.
  - Fan1 Speed
- Voltages: The following system voltages are monitored
  - Vcore
  - +3.30Vin
  - +5.00Vin
  - +12Vin

5.3.5 Remote Access Configuration

Use the **Remote Access Configuration** menu to configure remote access parameters. The **Remote Access Configuration** is an AMIBIOS feature and allows a remote host running a terminal program to display and configure the BIOS settings.



BIOS Menu 8: Remote Access Configuration [Advanced]

➔ **Remote Access [Disabled]**

Use the **Remote Access** option to enable or disable access to the remote functionalities of the system.

➔ **Disabled** DEFAULT Remote access is disabled.

➔ **Enabled** Remote access configuration options shown below appear:

- Serial Port Number
- Serial Port Mode
- Flow Control
- Redirection after BIOS POST

- Terminal Type
- VT-UTF8 Combo Key Support

These configuration options are discussed below.

➔ **Serial Port Number [COM1]**

Use the **Serial Port Number** option allows to select the serial port used for remote access.

➔ **COM1** **DEFAULT** System is remotely accessed through COM1

➔ **COM2** System is remotely accessed through COM2

NOTE: Make sure the selected COM port is enabled through the Super I/O configuration menu.

➔ **Base Address, IRQ [2F8h,3]**

The **Base Address, IRQ** option cannot be configured and only shows the interrupt address of the serial port listed above.

➔ **Serial Port Mode [115200 8,n,1]**

Use the **Serial Port Mode** option to select baud rate through which the console redirection is made. The following configuration options are available

- 115200 8,n,1 DEFAULT
- 57600 8,n,1
- 38400 8,n,1
- 19200 8,n,1
- 09600 8,n,1

NOTE:

Identical baud rate setting musts be set on the host (a management computer running a terminal software) and the slave

➔ **Flow Control [None]**

Use the **Flow Control** option to report the flow control method for the console redirection application.

➔ **None**	**DEFAULT**	No control flow,
➔ **Hardware**		Hardware is set as the console redirection
➔ **Software**		Software is set as the console redirection

➔ **Redirection After BIOS POST [Always]**

Use the **Redirection After BIOS POST** option to specify when console redirection should occur.

➔ **Disabled**		The console is not redirected after POST
➔ **Boot Loader**		Redirection is active during POST and during Boot Loader
➔ **Always**	**DEFAULT**	Redirection is always active (Some OSes may not work if set to Always)

➔ **Terminal Type [ANSI]**

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

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

➔ **VT-UTF8 Combo Key Support [Disabled]**

Use the **VT-UFT8 Combo Key Support** option to enable additional keys that are not provided by VT100 for the PC 101 keyboard.

The VT100 Terminal Definition is the standard convention used to configure and conduct emergency management tasks with UNIX-based servers. VT100 does not support all keys on the standard PC 101-key layout, however. The VT-UTF8 convention makes available additional keys that are not provided by VT100 for the PC 101 keyboard.

- ➔ **Disabled** **DEFAULT** Disables the VT-UTF8 terminal keys
- ➔ **Enabled** Enables the VT-UTF8 combination key. Support for ANSI/VT100 terminals

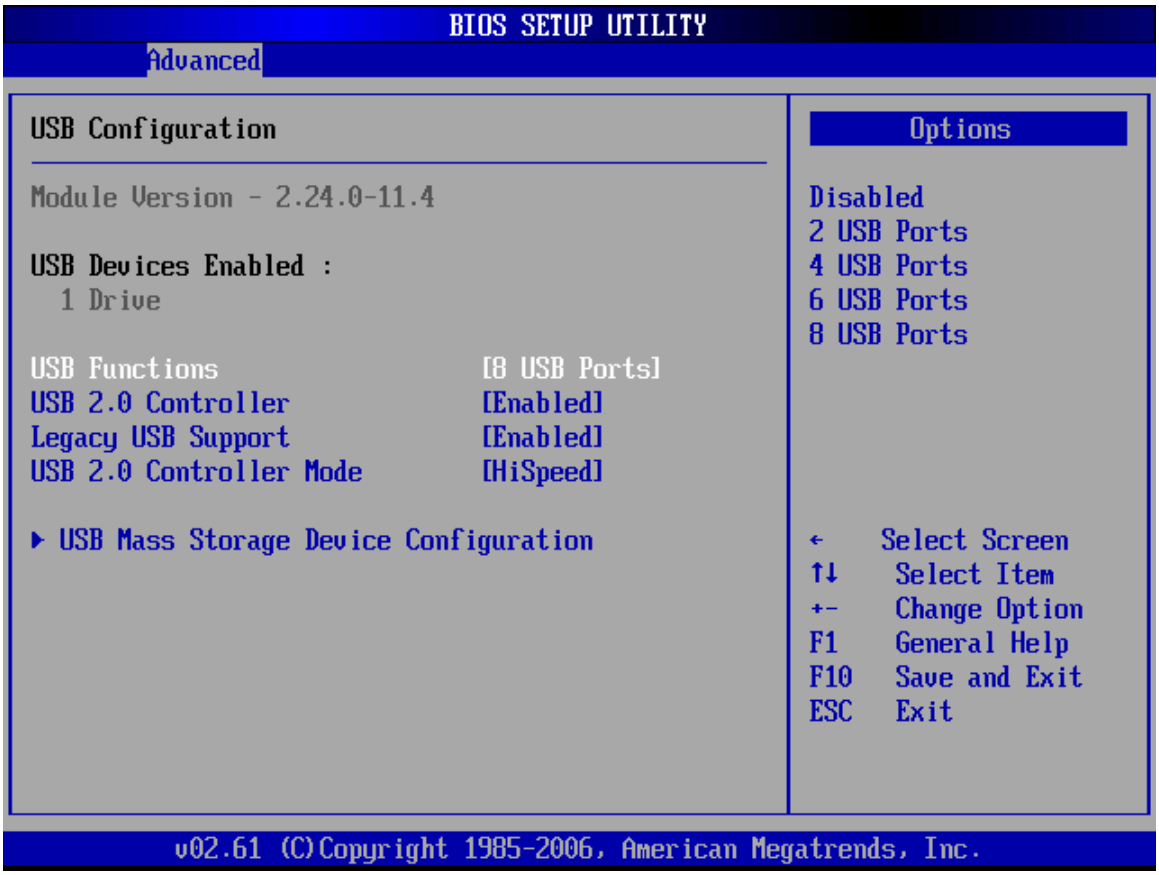
➔ **Sredir Memory Display Delay [Disabled]**

Use the **Sredir Memory Display Delay** option to select the delay before memory information is displayed. Configuration options are listed below

- No Delay DEFAULT
- Delay 1 sec
- Delay 2 sec
- Delay 4 sec

5.3.6 USB Configuration

Use the **USB Configuration** menu to read USB configuration information and configure the USB settings.



BIOS Menu 9: USB Configuration

➔ **USB Devices Enabled**

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

➔ **USB Functions [Enabled]**

Use the **USB Functions** BIOS option to enable or disable a specified number of USB ports. If only two USB ports are being used, disabling the remaining six USB frees up system resources that can be redirected elsewhere.

➔	**Disabled**	USB function support disabled
➔	**2 USB Ports**	Two USB ports are enabled
➔	**4 USB Ports**	Four USB ports are enabled

➔ **5 USB Ports** Five USB ports are enabled

➔ **8 USB Ports** **DEFAULT** Eight USB ports are enabled

➔ **USB 2.0 Controller [Enabled]**

Use the **USB 2.0 Controller** BIOS option to enable or disable the USB 2.0 controller

➔ **Disabled** USB 2.0 controller disabled

➔ **Enabled** **DEFAULT** USB 2.0 controller enabled

➔ **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.

➔ **Disabled** Legacy USB support disabled

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

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

➔ **USB2.0 Controller Mode [HiSpeed]**

Use the **USB2.0 Controller Mode** option to set the speed of the USB2.0 controller.

➔ **FullSpeed** The controller is capable of operating at 12Mb/s

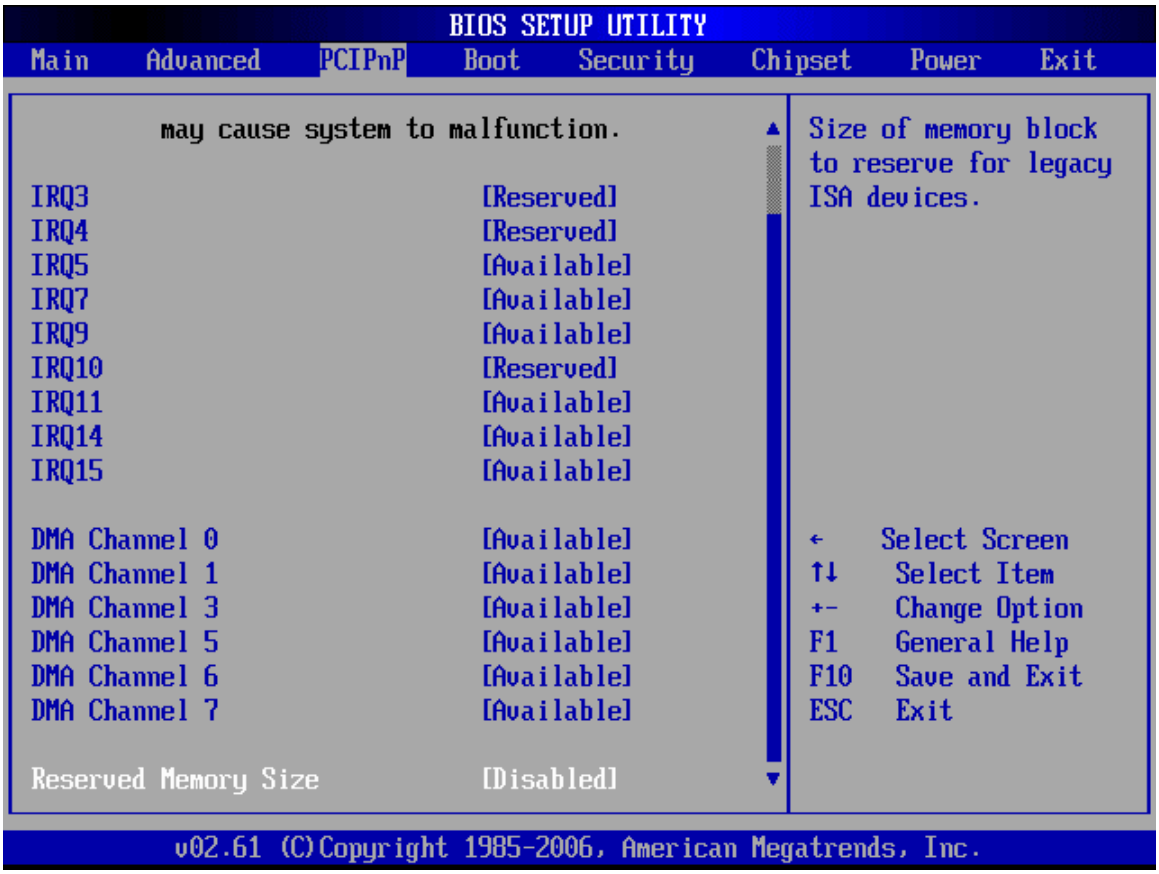
➔ **HiSpeed** **DEFAULT** The controller is capable of operating at 480Mb/s

5.4 PCI/PnP

Use the **PCI/PnP** menu to configure advanced PCI and PnP settings.

WARNING!

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



BIOS Menu 10: PCI/PnP Configuration

➔ **IRQ# [Available]**

Use the **IRQ#** address to specify what IRQs can be assigned to a particular peripheral device.

➔ **Available** The specified IRQ is available to be used by PCI/PnP devices

➔ **Reserved** The specified IRQ is reserved for use by Legacy ISA devices

Available IRQ addresses are:

- IRQ3 **Reserved**
- IRQ4 **Reserved**
- IRQ5 **Available**
- IRQ7 **Available**
- IRQ9 **Available**
- IRQ10 **Reserved**
- IRQ 11 **Available**
- IRQ 14 **Available**
- IRQ 15 **Available**

➔ **DMA Channel# [Available]**

Use the **DMA Channel#** option to assign a specific DMA channel to a particular PCI/PnP device.

➔ **Available** **DEFAULT** The specified DMA is available to be used by PCI/PnP devices

➔ **Reserved** The specified DMA is reserved for use by Legacy ISA devices

Available DMA Channels are:

- DM Channel 0

- DM Channel 1
- DM Channel 3
- DM Channel 5
- DM Channel 6
- DM Channel 7

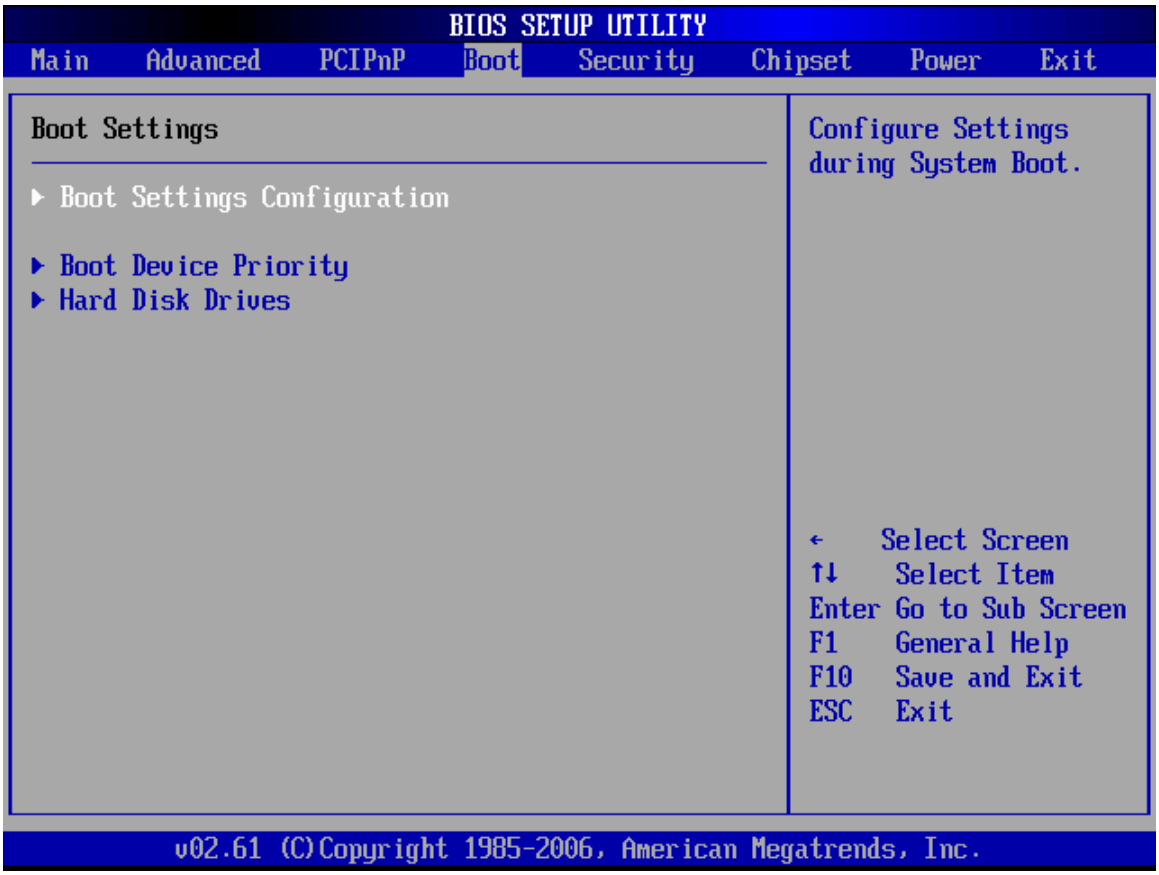
➔ **Reserved Memory Size [Disabled]**

Use the **Reserved Memory Size** BIOS option to specify the amount of memory that should be reserved for legacy ISA devices.

➔	**Disabled**	**DEFAULT**	No memory block reserved for legacy ISA devices
➔	**16K**		16KB reserved for legacy ISA devices
➔	**32K**		32KB reserved for legacy ISA devices
➔	**64K**		54KB reserved for legacy ISA devices

5.5 Boot

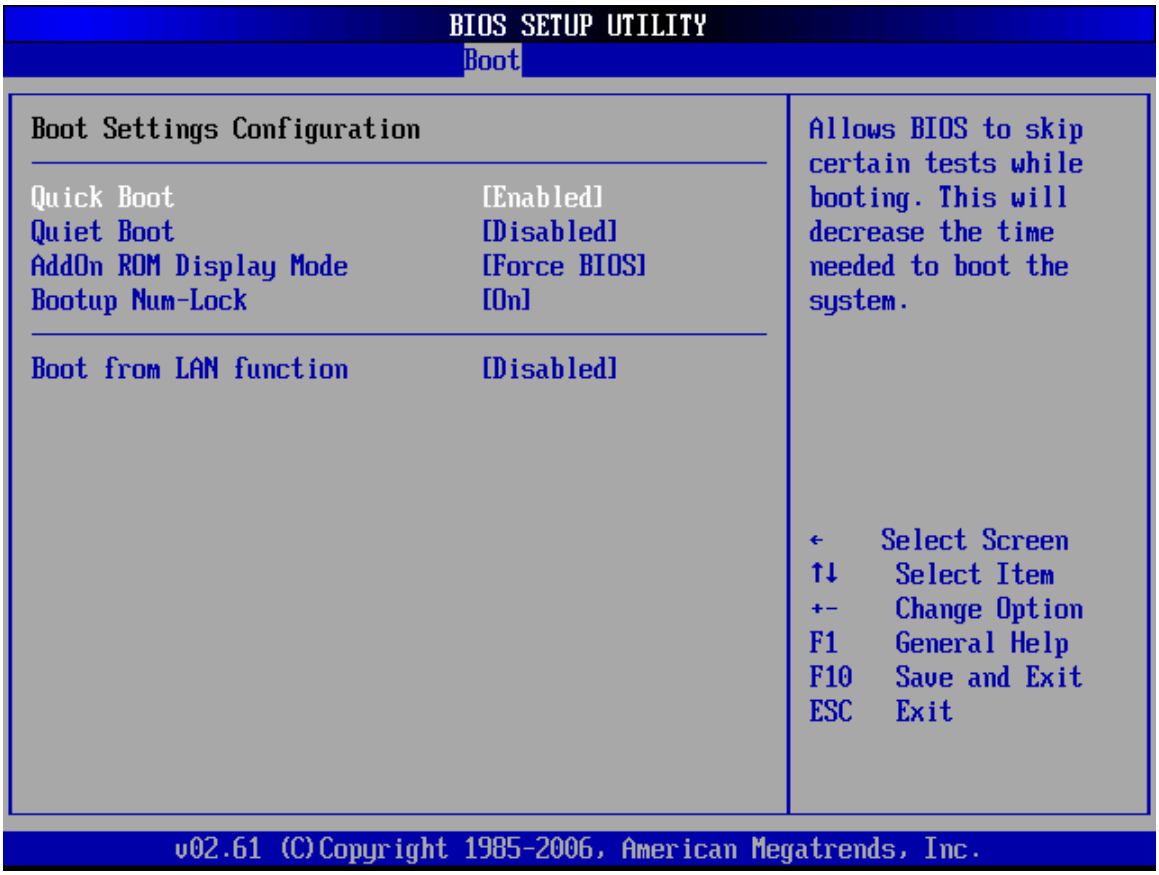
Use the **Boot** menu to configure system boot options.



BIOS Menu 11: Boot

5.5.1 Boot Settings Configuration

Use the **Boot Settings Configuration** menu to configure advanced system boot options.



BIOS Menu 12: Boot Settings Configuration

➔ **Quick Boot [Enabled]**

Use the **Quick Boot** BIOS option to make the computer speed up the boot process.

➔ **Disabled** No POST procedures are skipped

➔ **Enabled** **DEFAULT** Some POST procedures are skipped to decrease the system boot time

➔ **Quiet Boot [Disabled]**

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

➔ **Disabled** **DEFAULT** Normal POST messages displayed

➔ **Enabled** OEM Logo displayed instead of POST messages

➔ **AddOn ROM Display Mode [Force BIOS]**

Use the **AddOn ROM Display Mode** option to allow add-on ROM (read-only memory) messages to be displayed.

➔ **Force BIOS** **DEFAULT** The system forces third party BIOS to display during system boot.

➔ **Keep Current** The system displays normal information during system boot.

➔ **Bootup Num-Lock [On]**

Use the **Bootup Num-Lock** BIOS option to specify if the number lock setting must be modified during boot up.

➔ **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.

➔ **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.

➔ **Boot From LAN Function [Disabled]**

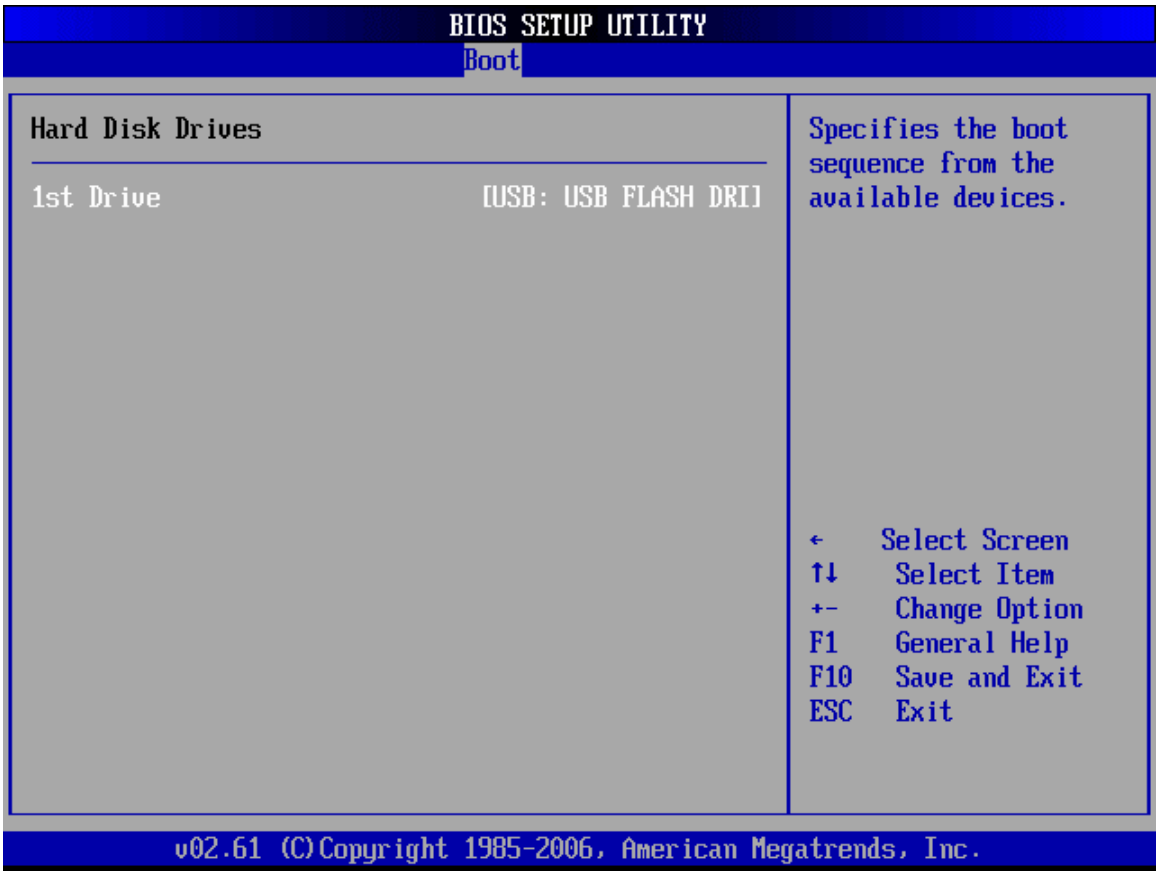
Use the **BOOT From LAN Function** option to enable the system to be booted via the Ethernet port.

➔ **Disabled**		Cannot be booted from a remote system through the Intel® 82573L PCIe GbE controller
➔ **Enabled**	**DEFAULT**	Can be booted from a remote system through the Intel® 82573L PCIe GbE controller

5.5.2 Boot Device Priority

Use the **Boot Device Priority** menu to specify the boot sequence from the available devices. Possible boot devices may include:

- HDD
- USB FLASH DRIVE



BIOS Menu 13: Boot Device Priority Settings

5.5.3 Hard Disk Drives

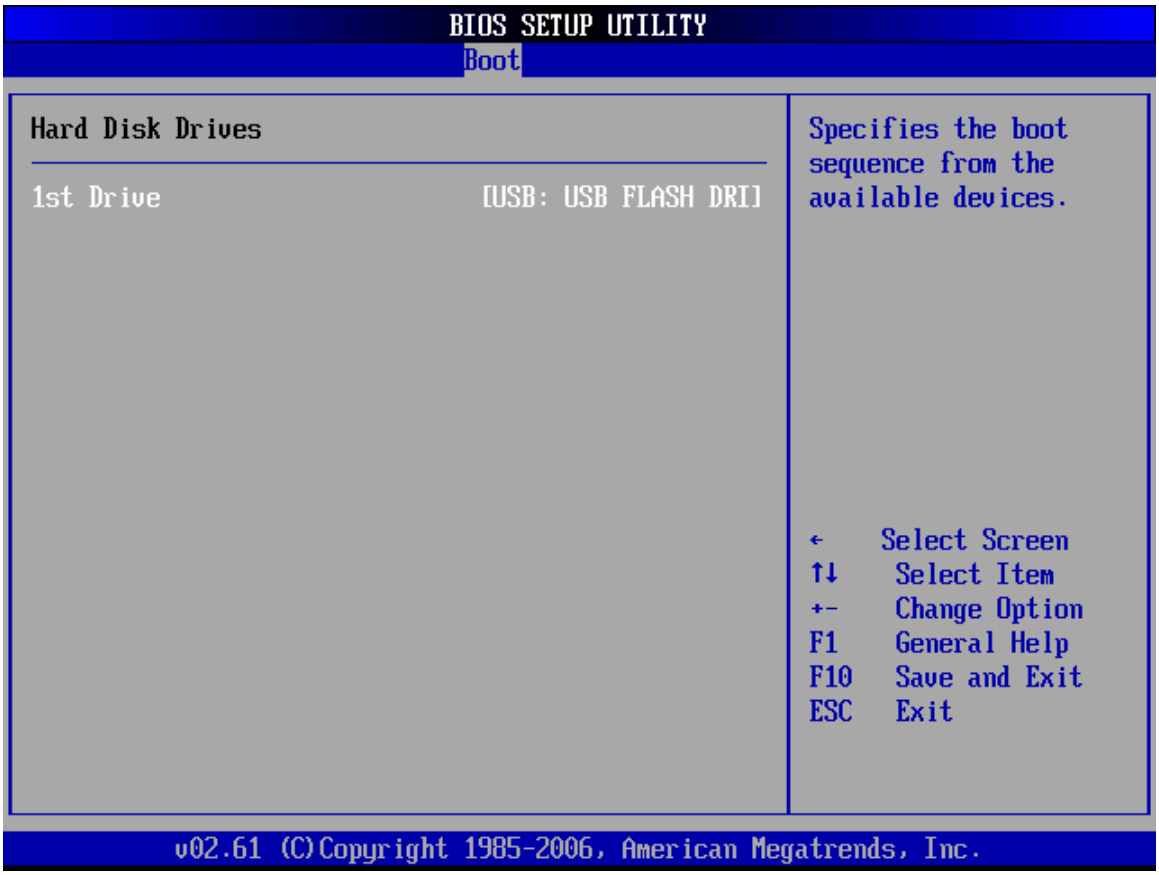
Use the **Hard Disk Drives** menu to specify the boot sequence of the available HDDs. When the menu is opened, the HDDs connected to the system are listed as shown below:

- 1st Drive [SATA: PM-(part number)]
- 2nd Drive [SATA: PS-(part number)]
- 3rd Drive [HDD: SM-(part number)]
- 4th Drive [HDD: SM-(part number)]

NOTE:

Only the drives connected to the system are shown. For example, if only two HDDs are connected only "**1st Drive**" and "**2nd Drive**" are listed.

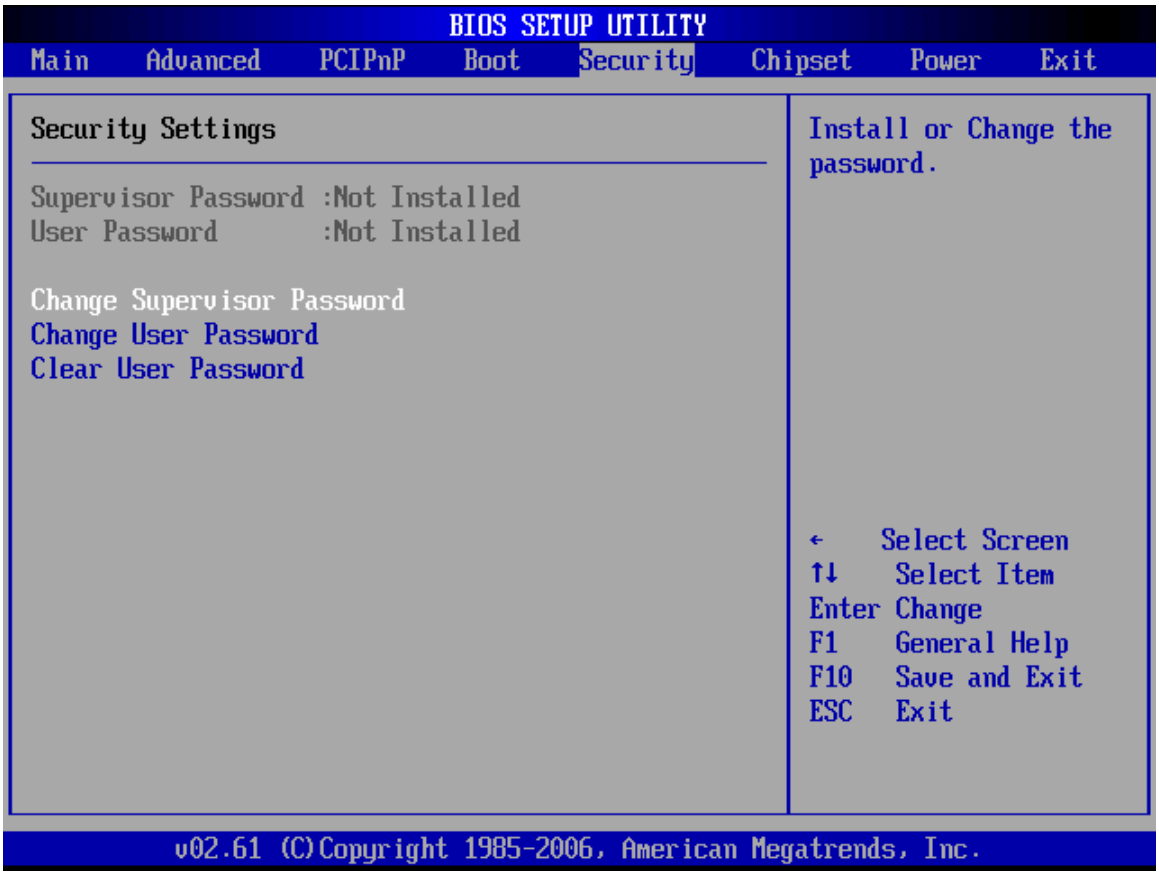
The boot sequence from the available devices is selected. If the "**1st Drive**" option is selected a list of available HDDs is shown. Select the first HDD the system boots from. If the "**1st Drive**" is not used for booting this option may be disabled.



BIOS Menu 14: Hard Disk Drives

5.6 Security

Use the **Security** menu to set system and user passwords.



BIOS Menu 15: Security

➔ **Change Supervisor Password**

Use the **Change Supervisor Password** to set or change a supervisor password. The default for this option is **Not Installed**. If a supervisor password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change Supervisor Password**.

➔ **Change User Password**

Use the **Change User Password** to set or change a user password. The default for this option is **Not Installed**. If a user password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change User Password**.

➔ **Clear User Password**

Use the **Clear User Password** to clear a user's password. The default for this option is **Not Installed**. If a user password must be cleared, use this option.

5.7 Chipset

Use the **Chipset** menu to access the Northbridge and Southbridge configuration menus

WARNING!

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

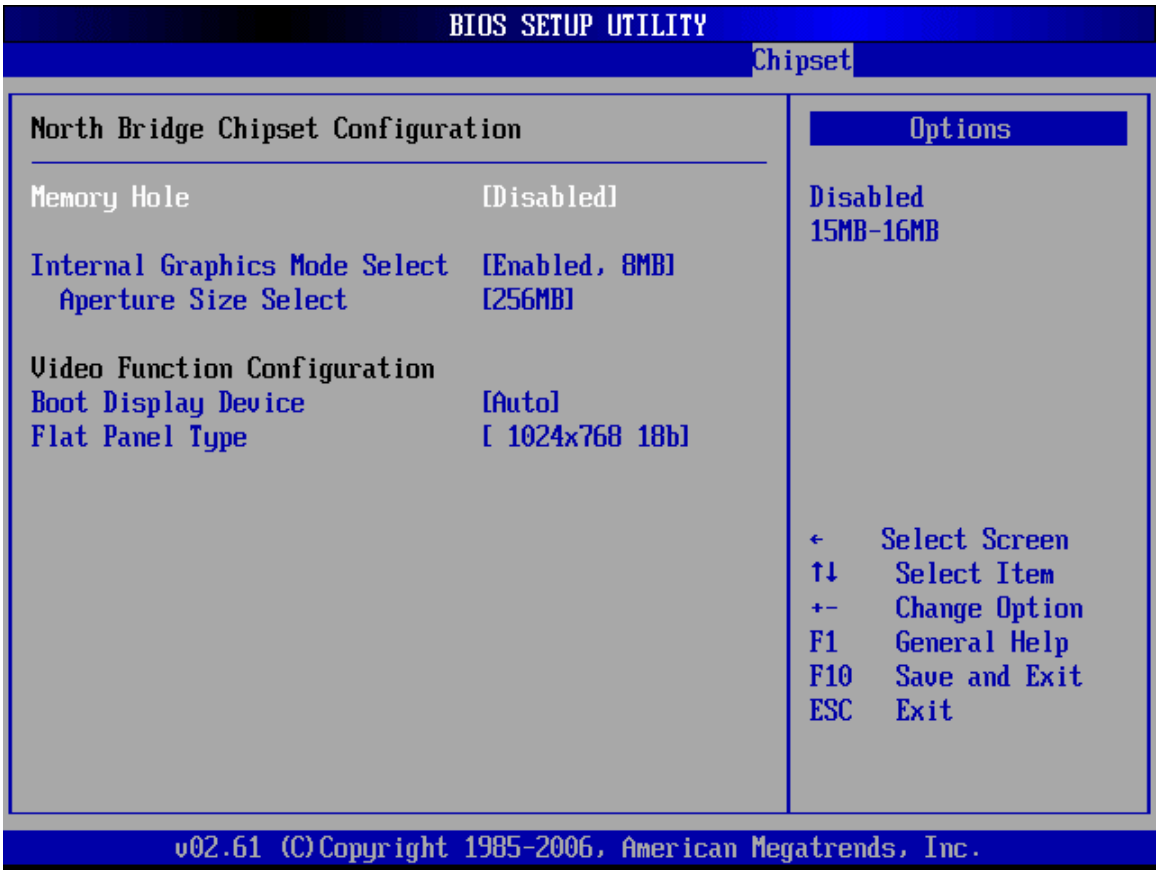
BIOS Menu 16: Chipset

The following submenus can be accessed:

- North Bridge Configuration
- South Bridge Configuration

5.7.1 Northbridge Configuration

Use the **Northbridge Chipset Configuration** menu to configure the Northbridge chipset.



BIOS Menu 17:Northbridge Chipset Configuration

➔ **Memory Hole [Disabled]**

Use the **Memory Hole** option to reserve memory space between 15MB and 16MB for ISA expansion cards that require a specified area of memory to work properly. If an older ISA

expansion card is used, please refer to the documentation that came with the card to see if it is necessary to reserve the space.

➔ **Disabled**	**DEFAULT**	Memory is not reserved for ISA expansion cards
➔ **15MB – 16MB**		Between 15MB and 16MB of memory is reserved for ISA expansion cards

➔ **Internal Graphics Mode Select [Enable, 256MB]**

Use the **Internal Graphic Mode Select** option to specify the amount of system memory that can be used by the Internal graphics device.

➔ **Disable**		
➔ **Enable, 1MB**		1MB of memory used by internal graphics device
➔ **Enable, 8MB**	**DEFAULT**	8MB of memory used by internal graphics device

➔ **Aperture Size Select/Graphic Win Size [256MB]**

Use the **Aperture Size Select/Graphic Win Size** option to select the size of the AGP aperture and the size of the GART (Graphics Address Relocation Table). The aperture is a portion on the PCI memory address range dedicated for use as AGP memory address space and the GART is a translation table that translates the AGP memory addresses into actual addresses. The following options are available.

- 32MB
- 64MB
- 128MB
- 256MB Default

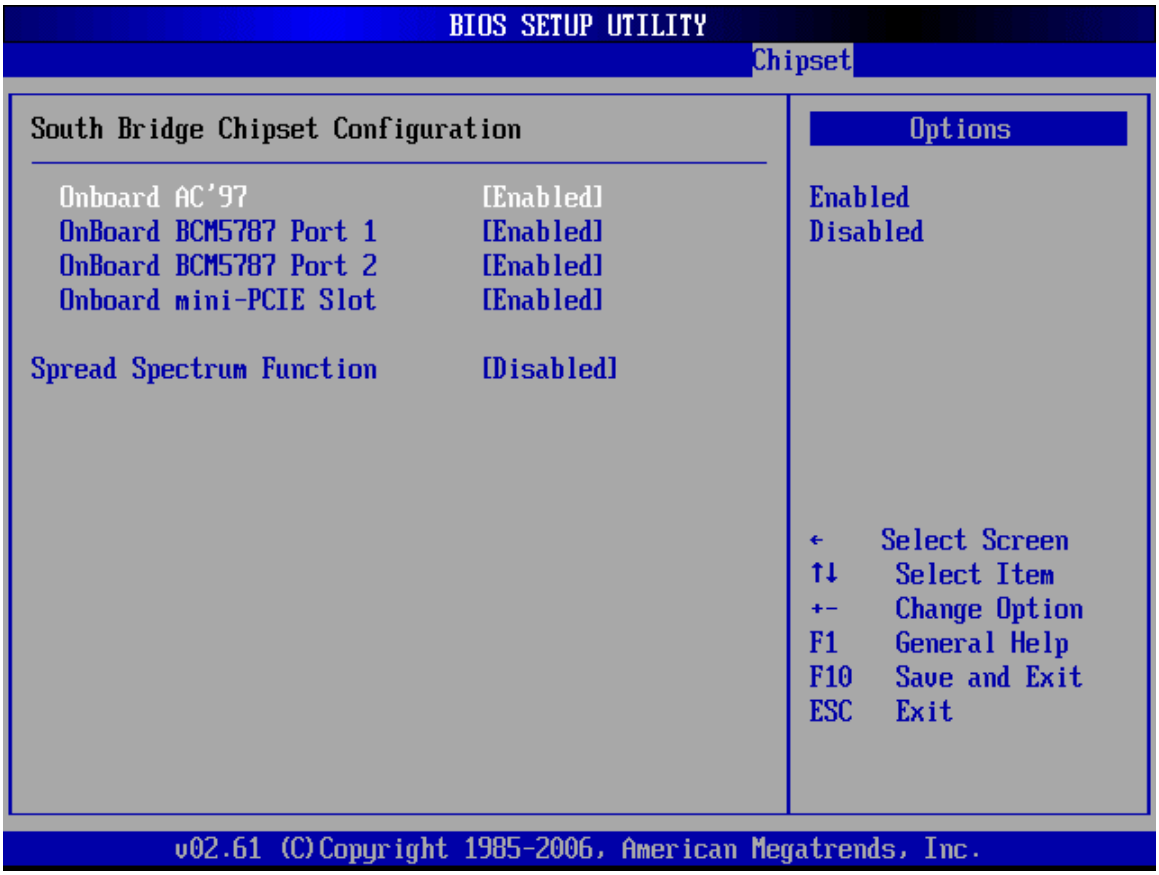
➔ **Boot Display Device [Auto]**

Use the **Boot Display Device** BIOS feature to determine what displays are used. Dual display functionality is enabled here. Dual display configuration options are listed below:

- Auto DEFAULT
- CRT
- LFP
- CRT+LFP

5.7.2 Southbridge Configuration

The **Southbridge Configuration** menu allows the Southbridge chipset to be configured.



BIOS Menu 18:Southbridge Chipset Configuration

➔ **Onboard AC'97 [Enabled]**

Use the **Onboard AC'97** option to enable or disable the AC'97 CODEC.

➔ **Disabled** The onboard AC'97 is disabled

➔ **Enabled** **DEFAULT** The onboard AC'97 automatically detected and enabled

➔ **Onboard BCM5787 Port 1 [Enabled]**

Use the **Onboard BCM5787 Port 1** option to enable or disable the 1st PCI Express port.

➔ **Disabled** 1st PCI Express port disabled.

➔ **Enabled** **DEFAULT** 1st PCI Express port enabled.

➔ **Onboard BCM5787 Port 2 [Enabled]**

Use the **Onboard BCM5787 Port 2** option to enable or disable the 2nd PCI Express port.

➔ **Disabled** 2nd PCI Express port disabled.

➔ **Enabled** **DEFAULT** 2nd PCI Express port enabled.

➔ **Onboard mini-PCIE Slot [Enabled]**

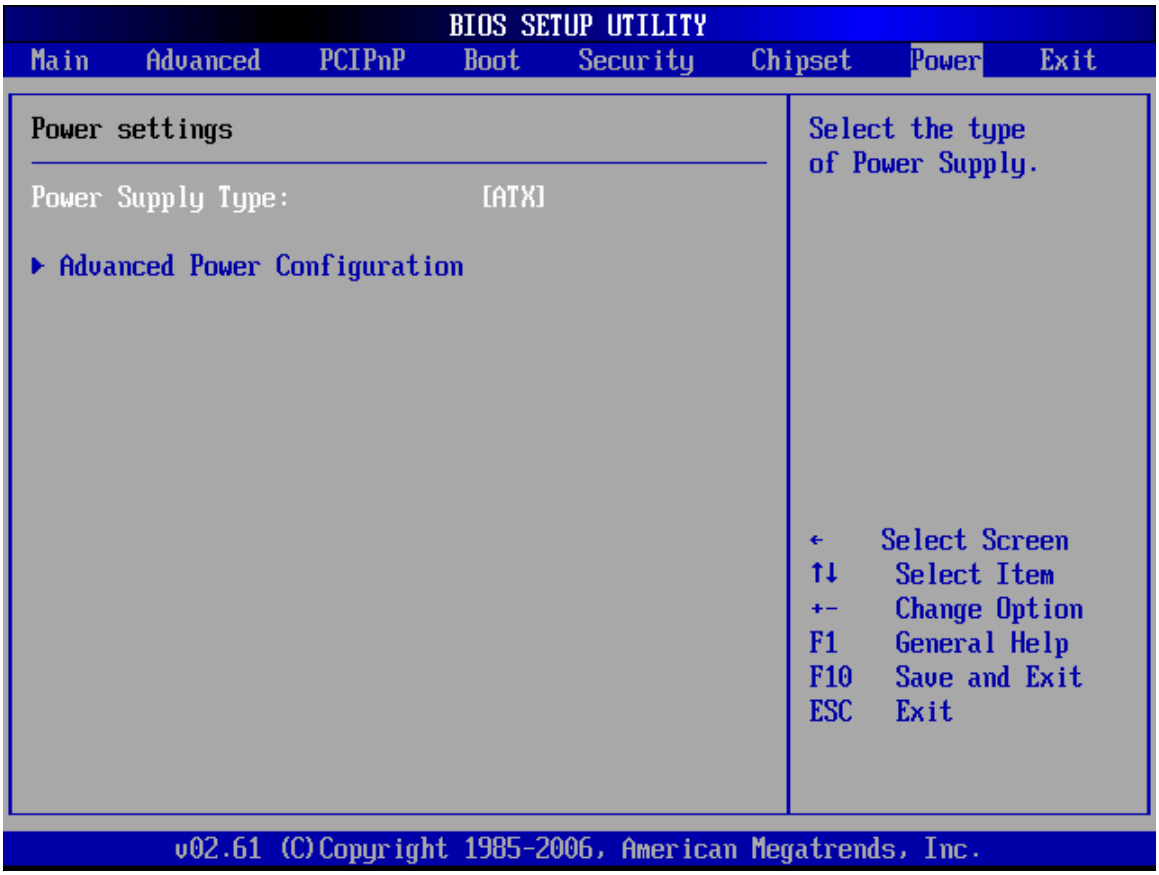
Use the **Onboard mini-PCIE Slot** option to enable or disable the PCIe Mini slot.

➔ **Disabled** PCIe Mini slot disabled.

➔ **Enabled** **DEFAULT** PCIe Mini slot enabled.

5.8 Power

The **Power** menu allows the advanced power management options to be configured.



BIOS Menu 19:Power

➔ **Power Supply Type [ATX]**

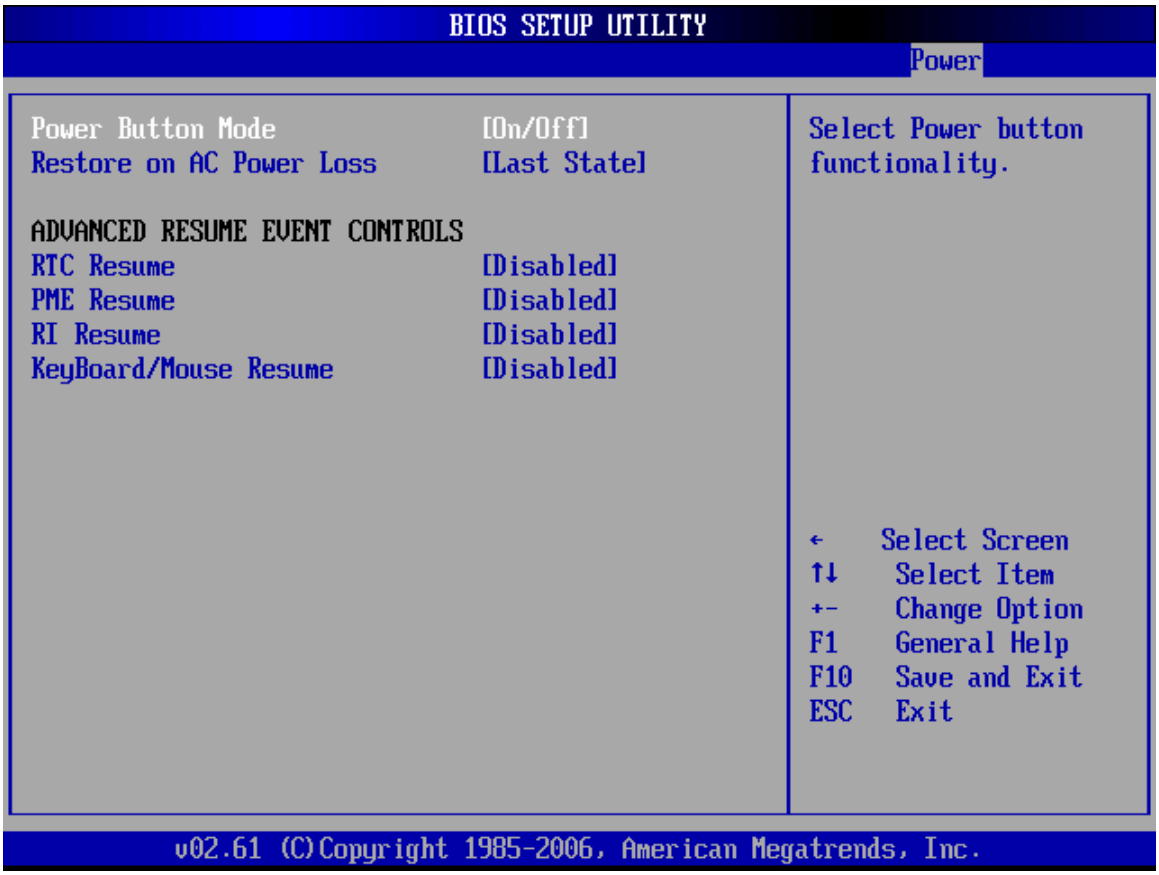
Use the **Power Supply Type** BIOS option to select what kind of power supply is connected to the system.

➔ **ATX** **DEFAULT** An ATX power supply is connected to the system.

➔ **AT** An AT power supply is connected to the system.

5.8.1 Advanced Power Configuration

The **Advanced Power Configuration** menu allows the advanced power management options to be configured.



BIOS Menu 20:Power

➔ **Power Button Mode [On/Off]**

Use the **Power Button Mode** BIOS to specify how the power button functions.

➔ **On/Off** **DEFAULT** When the power button is pressed the system is either turned on or off

➔ **Suspend** When the power button is pressed the system goes into suspend mode

➔ **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.

➔ **RTC Resume [Disabled]**

Use the **RTC Resume** 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:

- RTC Alarm Date (Days)
- System Time

After setting the alarm, the computer turns itself on from a suspend state when the alarm goes off.

➔ **PME Resume [Disabled]**

Use the **PME Resume** BIOS option to enable activity on the PCI PME (power management event) controller to rouse the system from a suspend or standby state.

➔ **Disabled** **DEFAULT** Wake event not generated by PCI PME controller activity

➔ **Enabled** Wake event generated by PCI PME controller activity

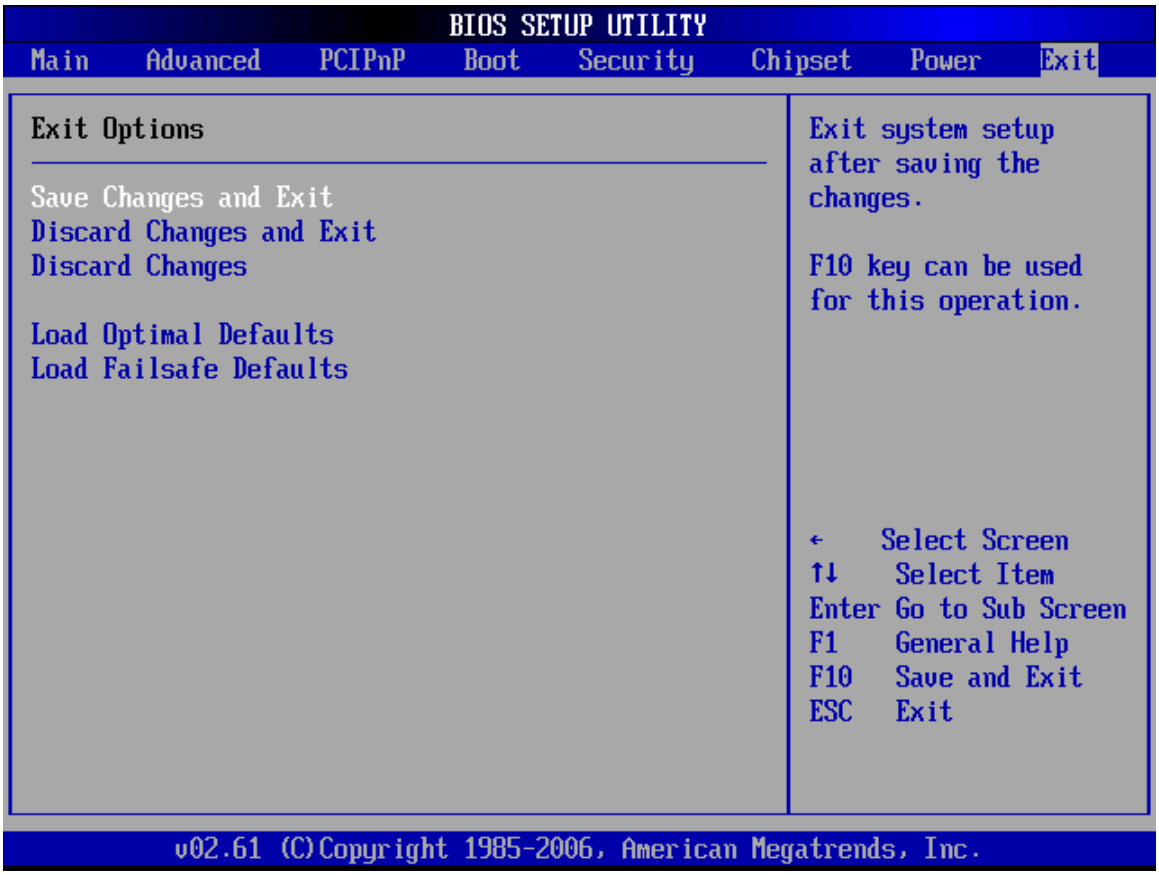
➔ **RI Resume [Disabled]**

Use the **RI Resume** option to enable the system to be roused from a suspended or standby state when there is activity on the RI (ring in) modem line. That is, the system is roused by an incoming call on a modem.

➔	**Disabled**	**DEFAULT**	Wake event not generated by an incoming call
➔	**Enabled**		Wake event generated by an incoming call

5.9 Exit

Use the **Exit** menu to load default BIOS values, optimal failsafe values and to save configuration changes.



BIOS Menu 21:Exit

➔ **Save Changes and Exit**

Use the **Save Changes and Exit** option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

➔ **Discard Changes and Exit**

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

➔ **Discard Changes**

Use the **Discard Changes** option to discard the changes and remain in the BIOS configuration setup program.

➔ **Load Optimal Defaults**

Use the **Load Optimal Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F9 key can be used for this operation.**

➔ **Load Failsafe Defaults**

Use the **Load Failsafe Defaults** option to load failsafe default values for each of the parameters on the Setup menus. **F8 key can be used for this operation.**

Appendix

A

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 AFL-915 series.

A.1 Safety Precautions

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

A.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 AFL-915 series is opened.
- ***Make sure the power is turned off and the power cord is disconnected*** whenever the AFL-915 series is being installed, moved or modified.
- ***Do not apply voltage levels that exceed the specified voltage range***. Doing so may cause fire and/or an electrical shock.
- ***Electric shocks can occur*** if the AFL-915 series chassis is opened when the AFL-915 series is running.
- ***Do not drop or insert any objects*** into the ventilation openings of the AFL-915 series.
- ***If considerable amounts of dust, water, or fluids enter the AFL-915 series***, turn off the power supply immediately, unplug the power cord, and contact the AFL-915 series vendor.
- **DO NOT**:
  - Drop the AFL-915 series 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

A.1.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the AFL-915 series may result in permanent damage to the AFL-915 series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the AFL-915 series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the AFL-915 series 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 antic-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.

A.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the AFL-915 series, please follow the guidelines below.

A.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the AFL-915 series, 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 AFL-915 series does not require cleaning. Keep fluids away from the AFL-915 series interior.
- Be cautious of all small removable components when vacuuming the AFL-915 series.
- Turn the AFL-915 series off before cleaning the AFL-915 series.
- Never drop any objects or liquids through the openings of the AFL-915 series.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the AFL-915 series.
- Avoid eating, drinking and smoking within vicinity of the AFL-915 series.

A.2.2 Cleaning Tools

Some components in the AFL-915 series 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 AFL-915 series.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the AFL-915 series.
- ***Water or rubbing alcohol*** – A cloth moistened with water or rubbing alcohol can be used to clean the AFL-915 series.
- ***Using solvents*** – The use of solvents is not recommended when cleaning the AFL-915 series 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 AFL-915 series. Dust and dirt can restrict the airflow in the AFL-915 series 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

B

BIOS Configuration Options

B.1 BIOS Configuration Options

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

Appendix

C

Software Drivers

C.1 Remote Management Tool

IEI provides optional pre-installed Windows XP Embedded or Windows CE 5.0 turnkey solutions tailored for the AFOLUX series. For information about configuring the operating system, adding remote management tools or additional software and drivers, refer to the software user manuals on IEI AFOLUX series Utility CD that came with the AFOLUX series flat panel PC.

C.2 Touch Panel Driver

C.2.1 Introduction

The onboard touch panel controller enables analog resistive touch panels for four-wire, five-wire & eight-wire models. The controller directly communicates with the PC system through the touch panel communications interface. The controller design is superior in sensitivity, accuracy, and friendly operation. The touch panel driver emulates the left mouse button and the right mouse button functions.

The touch panel driver supports the following operating systems:

- Microsoft Windows versions:
  - Microsoft Windows 95
  - Microsoft Windows 98
  - Microsoft Windows ME
  - Microsoft Windows 2000
  - Microsoft Windows NT
  - Microsoft Windows XP
  - Microsoft Windows 3.1
- Microsoft Windows CE
- Linux
- QNX
- DOS.

Driver installation is described below.

C.2.2 Driver Installation

To install the touch panel software driver, please follow the steps below.

Step 1: Insert the driver CD that came with the AFOLUX series into the CD drive.

Step 2: Once the CD drive is installed, the screen in **Figure C-1** appears.

Figure C-1: Driver CD Pop Up Screen

Step 3: Select the operating system installed on the system from the menu on the screen.

NOTE:

The following description is for driver installation using a Windows 2000 OS. If a different OS is installed, please refer to the driver user manual for the relevant OS. The driver user manuals can be accessed by selecting "**User Manual**" from the menu on the left side of the "**Driver CD Pop Up Screen**".

Step 4: Once the OS system is selected, a welcome screen appears (**Figure C-2**). To continue the installation process click **NEXT**.

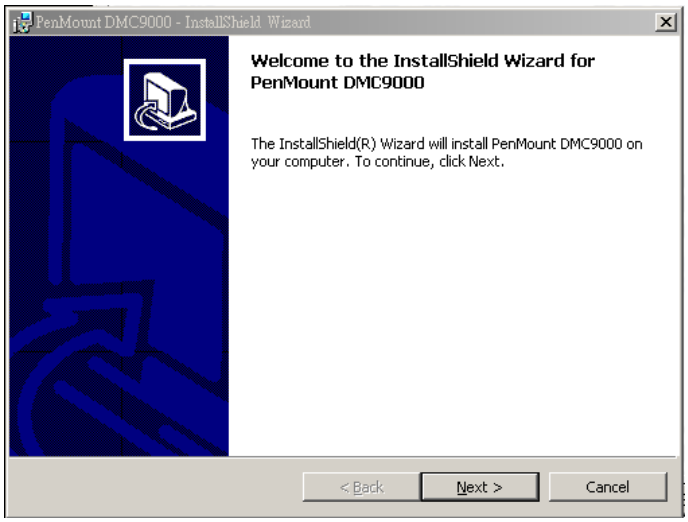


Figure C-2: Welcome Screen

Step 5: The license agreement shown in **Figure C-3** appears. Agree to the license by selecting "I accept the terms in the license agreement".

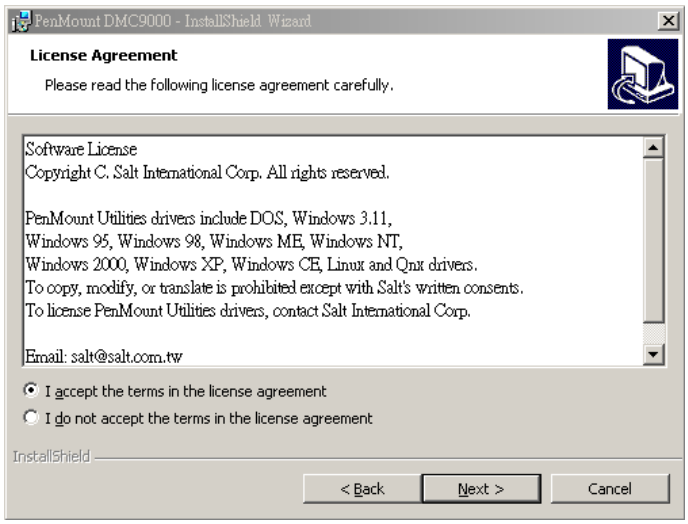


Figure C-3: License Agreement

Step 6: Click **NEXT** and the Installshield Wizard is ready to install the program (**Figure C-4**).

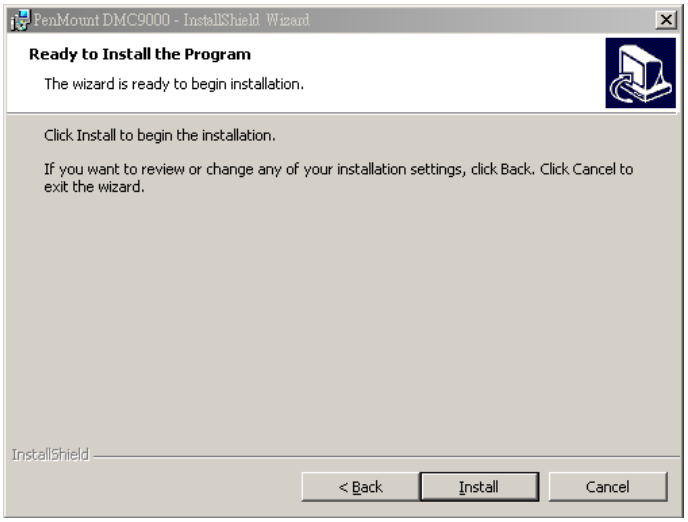


Figure C-4: Ready to Install the Program

Step 7: Click **INSTALL** to continue. The Installing PenMount DMC9000 screen appears as the program is installed (**Figure C-5**).

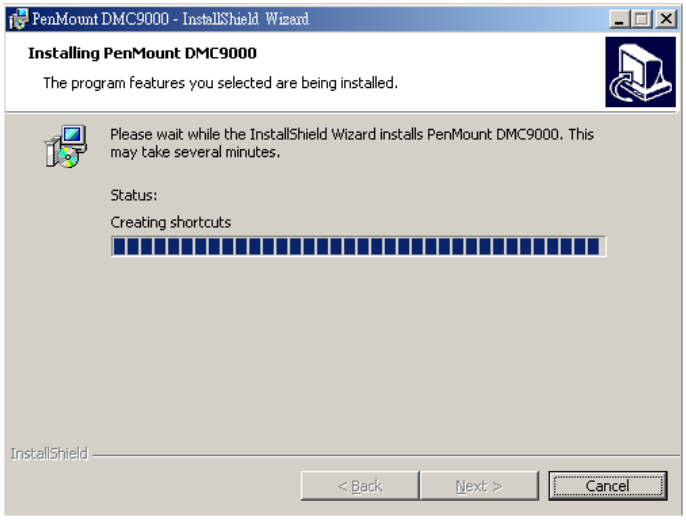


Figure C-5: Installing PenMount DMC9000

Step 8: The user is then prompted to select to restart the computer now or later (**Figure C-6**). For the settings to take effect, the computer must be restarted. Click **Yes** to restart the computer.

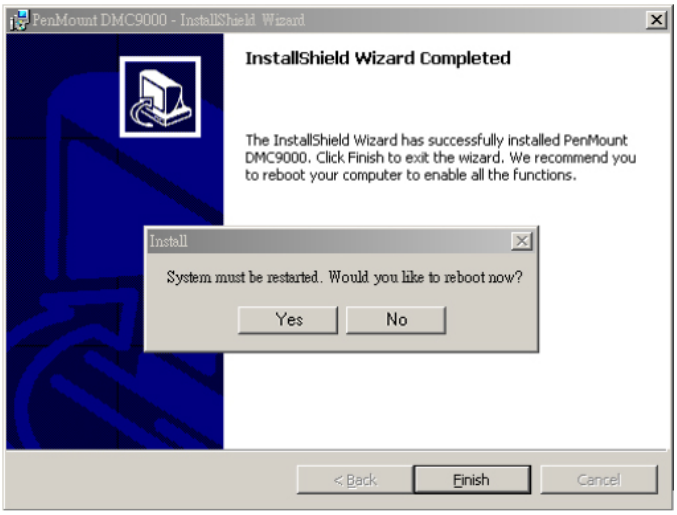


Figure C-6: Reboot the Computer

C.2.3 Touch Panel Driver Configuration

To configure the touch panel driver options, refer to the PenMount user manual located on the driver installation CD.

Appendix

D

Watchdog Timer

NOTE:

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

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

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

INT 15H:

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

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

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

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

NOTE:

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

Example program:

```
; INITIAL TIMER PERIOD COUNTER
;
W_LOOP:

        MOV     AX, 6F02H       ;setting the time-out value
        MOV     BX, 05          ;time-out value is 5 seconds
        INT      15H
 ;
; ADD THE APPLICATION PROGRAM HERE
;
        CMP      EXIT_AP, 1     ;is the application over?
        JNE      W_LOOP         ;No, restart the application

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

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Appendix

E

Hazardous Materials Disclosure

E.1 Hazardous Material Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

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

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

Please refer to the table on the next page.

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

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006

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	X	O	O	O	O	X
显示	X	O	O	O	O	X
印刷电路板	X	O	O	O	O	X
金属螺帽	X	O	O	O	O	O
电缆组装	X	O	O	O	O	X
风扇组装	X	O	O	O	O	X
电力供应组装	X	O	O	O	O	X
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/T11363-2006 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/T11363-2006 标准规定的限量要求。

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