MODEL:

AFL-08B-N270

Panel PC with Touch Screen and Intel® Atom N270 1.6 GHz CPU, Gigabit Ethernet, Wireless LAN, Bluetooth, USB 2.0, External SATA, RS-232/422/485, Audio, RoHS Compliant, IP 64 Protection

Rev. 1.00 – 12 June, 2009

RoHS Lead Free

Revision

Date	Version	Changes
12 June, 2009	1.00	Initial release

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Introduction

1.1 AFL-08B-N270 Panel PC Overview

Figure 1-1: AFL-08B-N270 Panel PC

The AFOLUX AFL-08B-N270 is an Intel® Atom N270 powered all-in-one touch screen panel PC with a rich variety of functions and peripheral connections. It is designed for easy and simplified integration into conference center, home automation, and building control applications.

An Intel® 945GSE graphics memory controller hub (GMCH) coupled with an Intel® ICH7M input/output controller hub ensures optimal memory, graphics, and peripheral I/O support. The system comes with 1.0 GB of preinstalled DDR2 SDRAM and supports a maximum of 2.0 GB ensuring smooth data throughputs with reduced bottlenecks and fast system access.

Two serial ports, two USB 2.0 ports, and one external SATA port provide simplified connectivity to a variety of external peripheral devices. Wi-Fi capabilities and two RJ-45 Ethernet connectors ensure uninterrupted connection of the system to an external LAN.

The AFL-08B-N270 panel PC is an elegant yet sophisticated system that is as easily implemented in commercial, industrial, and corporate environments as the home.

1.1.1 Features

The AFL-08B-N270 features the following:

- Intel® Atom™ processor
- Intel® 945GSE chipset
- 1 GB 533 MHz DDR2 SDRAM preinstalled
- 802.11 b/g wireless module
- Two USB 2.0 ports
- One external SATA port
- Watchdog timer that triggers a system reset if the system hangs for some reason
- IP 64 compliant front panel
- AT or ATX power mode
- Touch screen
- Bluetooth module
- RoHS compliance

1.2 External Overview

The stylish AFL-08B-N270 panel PC comprises of a screen, rear panel, top panel, bottom panel and two side panels (left and right). An ABS/PC plastic front frame surrounds the front screen. The rear panel provides screw holes for a wall-mounting bracket compliant with VESA FDMI standard. An I/O interface panel on the bottom panel of the AFL-08B-N270 provides access to external interface connectors.

1.2.1 Front Panel

The front side of the AFL-08B-N270 is a TFT LCD screen surrounded by an ABS/PC plastic frame. The top of the front panel has a digital camera and microphones. A power LED is located on the bottom of the front panel. Refer to Figure 1-2.

Figure 1-2: AFL-08B-N270 Front View

1.2.2 Rear Panel

The rear panel provides access to the internal components of the AFL-08B-N270 and CF card slot. Refer to **Figure 1-3** for back cover retention screw and VESA mount screw holes.

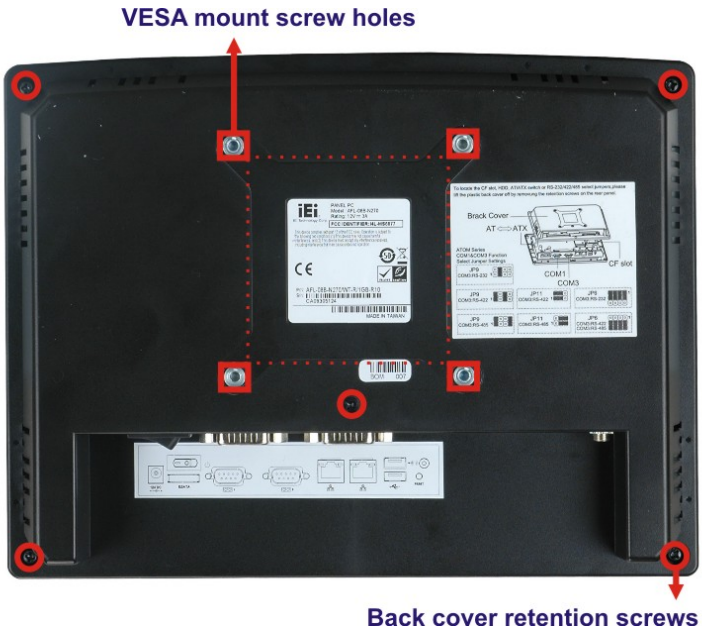


Figure 1-3: AFL-08B-N270 Rear View

1.2.3 I/O Interface Panel

The I/O interface panel located on the bottom of the AFL-08B-N270 has the following I/O interface connectors:

- 1 x 12 V DC-IN connector
- 1 x Audio line-out jack
- 1 x external SATA port
- 1 x Power switch
- 1 x Reset button
- 2 x RJ-45 GbE LAN ports
- 1 x RS-232 serial port
- 1 x RS-232/422/485 serial port
- 2 x USB 2.0 connectors

The external I/O interface connector panel is shown in the following figure.

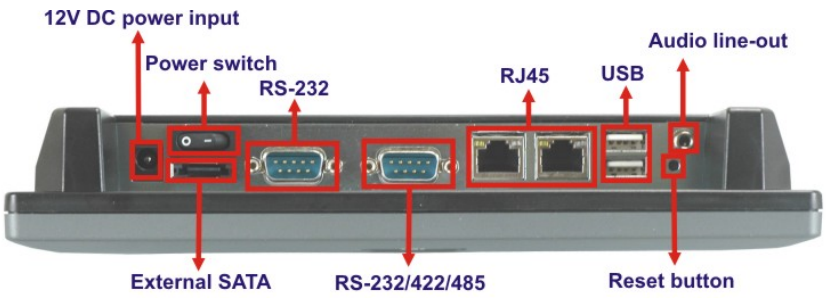


Figure 1-4: AFL-08B-N270 I/O Interface Connector Panel

1.3 Internal Overview

The AFL-08B-N270 has the following components installed internally:

- 1 x Motherboard
- 1 x 1.0 GB 533 MHz DDR2 SDRAM SO-DIMM
- 1 x Wireless LAN module
- 1 x Bluetooth module
- 2 x 1.5W speakers

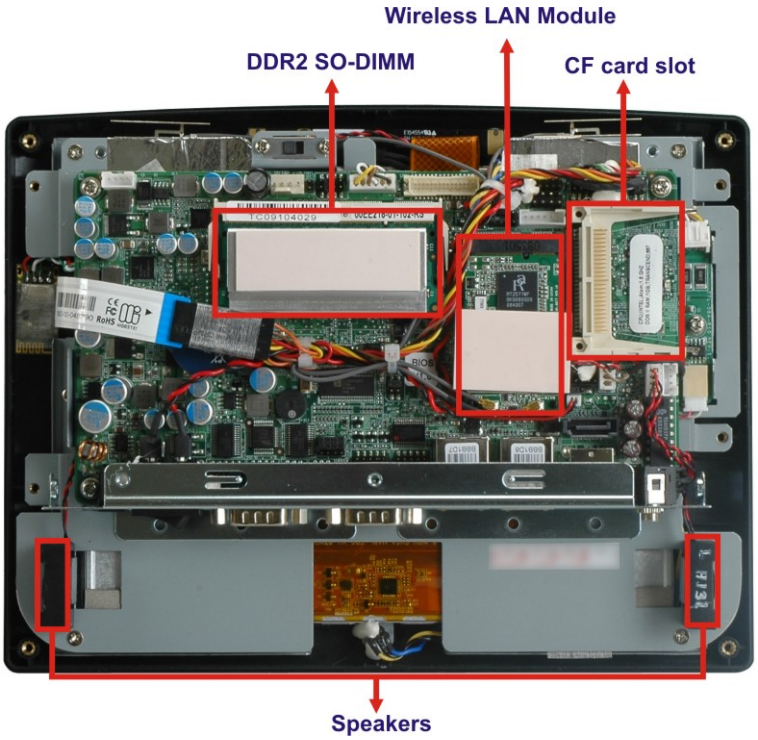


Figure 1-5: Internal Overview

1.4 System Specifications

The technical specifications for the AFL-08B-N270 systems are listed below.

Specifications	AFL-08B-N270
LCD Size	8"
Max Resolution	800 x 600
Brightness (cd/m2)	300
Contrast Ratio	400:1
LCD Color	262K
Pixel Pitch (mm)	0.0675(H) x 0.2025(V)
Viewing Angle (H-V)	130º/120º
Backlight MTBF	30000 hrs
SBC Model	AFLMB-945GSE-R10
CPU	Intel® Atom™ N270 1.6 GHz CPU
Chipset	Intel 945GSE + ICH7M
RAM	1 GB 533MHz DDR2 SO-DIMM Supports one 400MHz or 533MHz DDR2 SO-DIMM (2 GB Max.)
I/O Ports and Switches	One 12V DC power jack One Audio line-out jack One External SATA port One Power switch One Reset button Two RJ-45 GbE LAN ports One RS-232 serial port One RS-232/422/485 serial port Two USB 2.0 ports
SSD	CF Type II
Watchdog Timer	Software programmable supports 1~255 sec. System reset
Audio	AMP 1.5W + 1.5W internal speakers Digital microphone
Digital Camera	300K pixel
Wireless LAN	Wireless LAN 802.11 b/g PCIe mini card module

Specifications	AFL-08B-N270
Bluetooth V2.0	Yes (via internal USB interface)
Construction Material	ABS + PC Plastic front frame
LED Function	One Power ON/OFF LED on Front Panel
Mounting	Panel, Wall, Rack, Arm, Stand (VESA 75mm x 75mm)
Front Panel Color	Grey 7539U
Dimension (W x H x D mm)	234 x 184 x 42
Operation Temperature (ºC)	-10ºC~50ºC
Storage Temperature (ºC)	-20ºC~60ºC
Net Weight	0.8 Kg
IP Level	Front Frame IP64
EMC	CE, FCC, CCC
Safety	CB
Touch Screen	Resistive 5-Wire
Power Adapter	36W Power Adapter 90VAC~264VAC, 50/60Hz, 12VDC 12VDC output
Power Requirement	12VDC
Power Consumption	25W

Table 1-1: AFL-08B-N270 Specifications

1.5 Dimensions

The AFL-408A/B-N270 dimensions are listed below and shown in the following figure.

- **Width**: 234 mm
- **Height**: 184 mm
- **Depth**: 42 mm

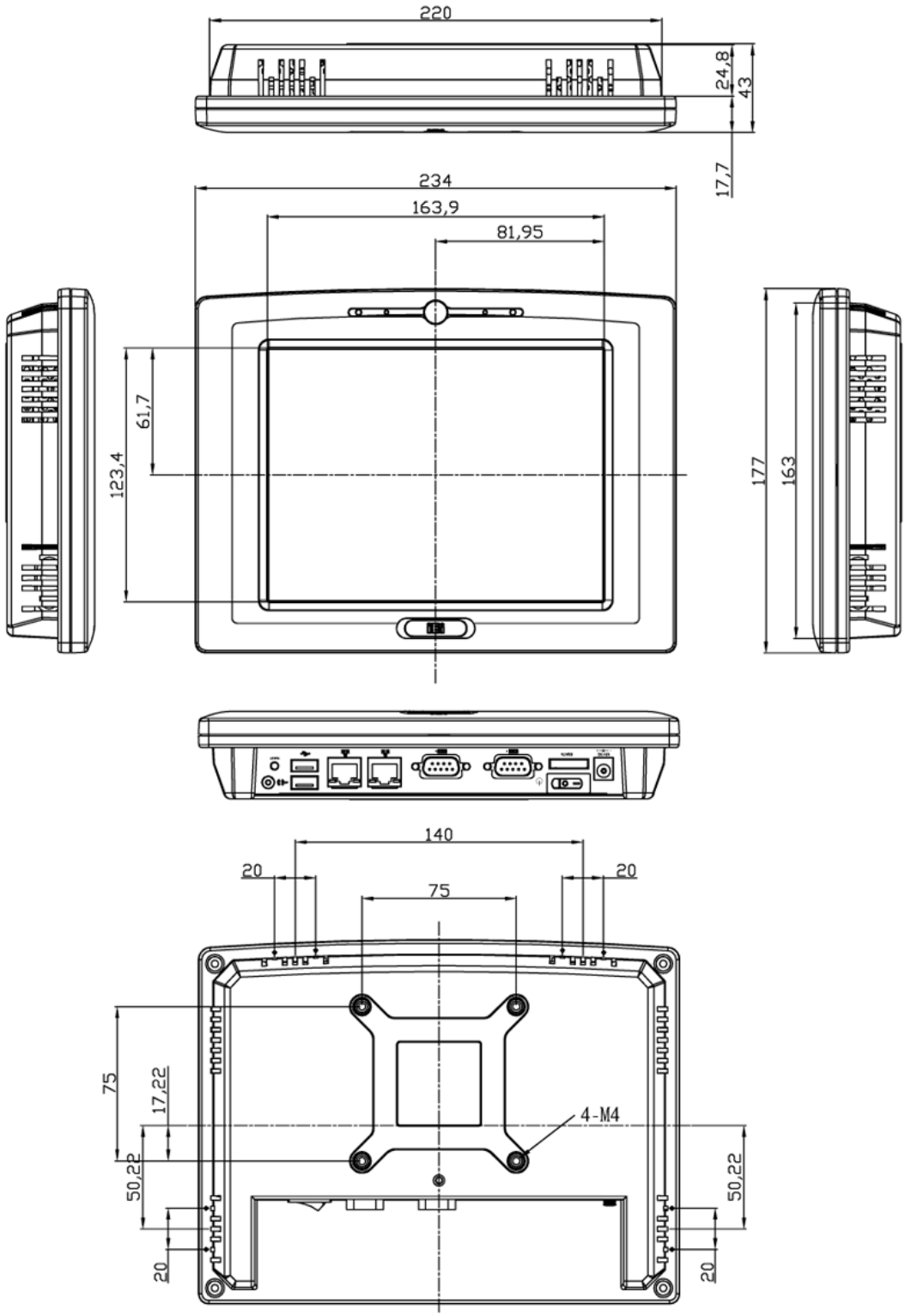


Figure 1-6: AFL-08B-N270 Dimensions (mm)

Chapter

2

Installation

WARNING:

When installing the AFL-08B-N270, make sure to:

- **Turn the power off**: Chance of electrocution. Turn off the monitor and unplug it from the power supply.
- **Only let certified engineers change the hardware settings**: Incorrect settings can cause irreparable damage to the product.
- **Install the monitor with assistance**: The product is very heavy and may be damaged by drops and bumps. Two or more people should install the panel PC.
- **Take anti-static precautions**: Electrostatic discharge can destroy electrical components and injure the user. Users must ground themselves using an anti-static wristband or similar device.

The installation steps below should be followed in order.

Step 1: Unpack the panel PC

Step 2: Check all the required parts are included

Step 3: Install the CompactFlash® card

Step 4: Mount the panel PC

Step 5: Connect peripheral devices to the bottom panel of the panel PC

Step 6: Connect the power cable

Step 7: Configure the system

2.1 Unpack the Panel PC

To unpack the panel PC, follow the steps below:

WARNING!

Only remove the protective plastic cover stuck to the front screen after installation. The plastic layer protects the monitor surface during installation process.

Step 1: Carefully cut the tape sealing the box. Only cut deep enough to break the tape.

Step 2: Open the outside box.

Step 3: Carefully cut the tape sealing the box. Only cut deep enough to break the tape.

Step 4: Open the inside box.

Step 5: Lift the monitor out of the boxes.

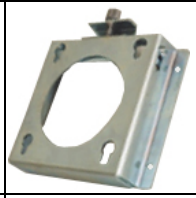
Step 6: Remove the peripheral parts box from the main box.

2.1.1 Packing List

The AFL-08B-N270 panel PC is shipped with the following components:

Quantity	Item	Image
1	AFL-08B-N270	
1	Power adapter P/N: 63000-FSP0481AD101C-RS	

1	Power cord P/N: 32000-000002-RS	
1	Screw kit (4 x M3; 5mm) P/N: 44013-030041-RS	
1	User manual CD and driver CD	
1	Touch pen P/N: XTR104-0002-RS	

Optional	
WIN CE 6.0 ALFCF-W10-N270-CE060	
WIN XPE ALFCF-W10-N270-XPE	
Linux ALFCF-W10-N270-LNX-R10	
Panel mounting kit (**P/N**: AFLPK-12)	
Wall mounting kit (**P/N**: AFLWK-12)	
Rack mounting kit (**P/N**: AFLRK-08)	

VSTAND: (**P/N**: VSTAND-A10)	
Stand (**P/N**:STAND-A08)	
Stand (**P/N**:STAND-100-RS)	
Stand (**P/N**: STAND-150-RS)	
Arm (**P/N**: ARM-11-RS)	
Arm (**P/N**: ARM-31-RS)	

Hybrid card reader (**P/N**: AFLP-08AMSI-U)	
Magnetic stripe reader (**P/N**: AFLP-08AMSR-U)	
60 W DC/DC 9-30 VDC input vehicle power adapter: IDD-930160-KIT	
DC 12 V Input UPS AUPS-A10-R10	
DC 9-36V Input UPS AUPS-A20-R10	

Make sure all the components listed in the packing list are present. If any of these items are missing or damaged, contact the distributor or sales representative immediately.

2.2 Removing the Rear Panel

To access the AFL-08B-N270 internally the rear panel must be removed. To remove the rear panel, please follow the steps below.

Step 1: Remove the retention screws (**Figure 2-1**).

Figure 2-1: Back Cover Retention Screws

Step 2: Lift the cover and pull down the cover a bit to make it possible to fully remove it. More strength is required to separate the cover from the chassis.

2.3 CF Card Installation

The AFL-08B-N270 has one CF Type II slot inside the rear panel cover. The slot can be accessed after removing the back cover. To install the CF card, follow the instructions below.

Step 1: Locate the CF slot cover. Remove the retention screw and CF slot cover (**Figure 2-2**).

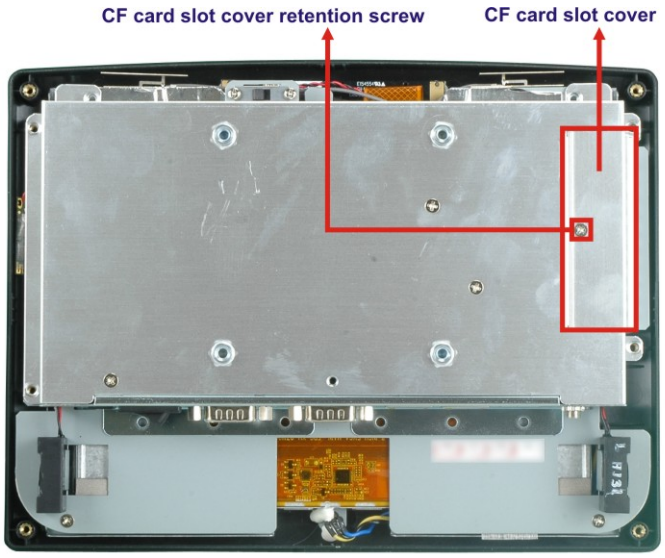


Figure 2-2: CF card slot location

Step 2: Insert a CF card into the slot (**Figure 2-3**).

Figure 2-3: CF Card Location

Step 3: Replace the CF card slot cover.

Step 4: Reinsert retention screw.

2.4 AT/ATX Mode Selection

AT and ATX power modes can both be used on the AFL-08B-N270. The selection is made through an AT/ATX switch on the top edge of the inner aluminum cover (**Figure 2-4**). To select AT mode or ATX mode, follow the steps below.

Step 1: Locate the AT/ATX switch on the top edge of the aluminum cover (**Figure 2-4**).

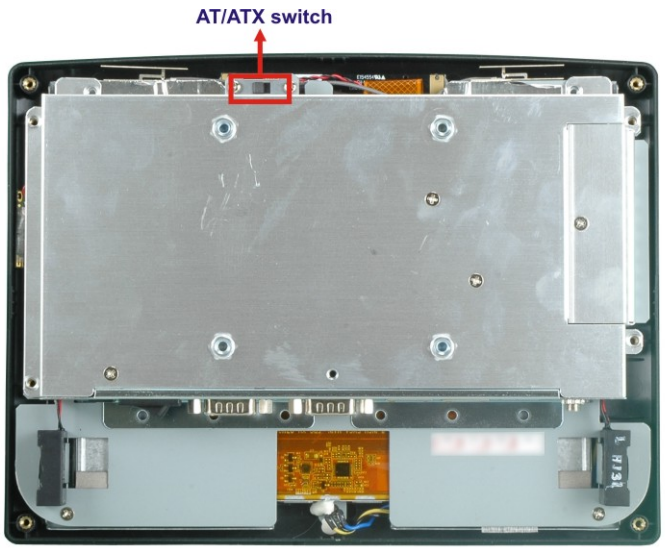


Figure 2-4: AT/ATX Switch Location

Step 2: Adjust the AT/ATX switch.

2.4.1 AT Power Mode

With the AT mode selected, the power is controlled by a central power unit rather than a power switch. The AFL-08B-N270 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

2.4.2 ATX Power Mode

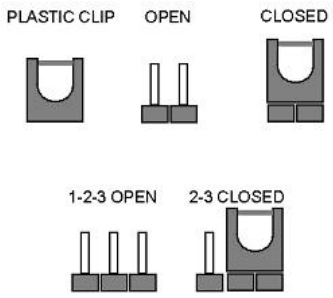
With the ATX mode selected, the AFL-08B-N270 panel PC goes in a standby mode when it is turned off. The panel PC can be easily turned on via network or a power switch in standby mode. Remote power control is perfect for advertising applications since the broadcasting time for each panel PC can be set individually and controlled remotely. Other possible application includes

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

2.5 Jumper Settings

NOTE:

A jumper is a metal bridge used to close an electrical circuit. It consists of two or three 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.



The following jumpers can be found on the motherboard installed in the AFL-08B-N270. Before the panel PC is installed, the jumpers must be set in accordance with the desired configuration. The jumpers on the AFL-08B-N270 motherboard are listed in **Table 2-1**.

Description	Label	Type
Clear CMOS	J_COMS1	2-pin header
COM1 Pin 9 setting	JP8	10-pin header
COM3 Pin 9 setting	JP10	6-pin header
COM3 RX RS-232/422/485 select	JP9	8-pin header
COM3 TX RS-422/485 select	JP11	6-pin header
COM3 RS-232/422/485 select	JP6	12-pin header

Table 2-1: Jumpers

2.5.1 Access the Jumpers

To access the jumpers, remove the back cover and aluminum inner cover. To remove the back panel, please refer to **Section 2.2**.

2.5.2 Preconfigured Jumpers

WARNING:

Do not change the settings on the jumpers in described here. Doing so may disable or damage the system.

The following jumpers are preconfigured for the AFL-08B-N270. Users should not change these jumpers (**Table 2-2**).

Jumper Name	Label	Type
LVDS voltage selection	J_VLVDS1	3-pin header
Touch Screen Select	J1	4-pin header
Panel Type and Resolution	J_LCD_TYPE1	10-pin header

Table 2-2: Preconfigured Jumpers

2.5.3 Clear CMOS Jumper

Jumper Label:	**J_CMOS1**
Jumper Type:	2-pin header
Jumper Settings:	See **Table 2-3**
Jumper Location:	See **Figure 2-5**

If the AFL-08B-N270 fails to boot due to improper BIOS settings, the clear CMOS jumper clears the CMOS data and resets the system BIOS information. To do this, use the jumper cap to close the pins for a few seconds then remove the jumper clip.

If the "CMOS Settings Wrong" message is displayed during the boot up process, the fault may be corrected by pressing the F1 to enter the CMOS Setup menu. Do one of the following:

- Enter the correct CMOS setting
- Load Optimal Defaults
- Load Failsafe Defaults.

After having done one of the above, save the changes and exit the CMOS Setup menu.

The clear CMOS jumper settings are shown in **Table 2-3**.

Clear CMOS	Description	
Short 1 - 2	Keep CMOS Setup	Default
Short 2 - 3	Clear CMOS Setup	

Table 2-3: Clear CMOS Jumper Settings

The location of the clear CMOS jumper is shown in **Figure 2-5** below.

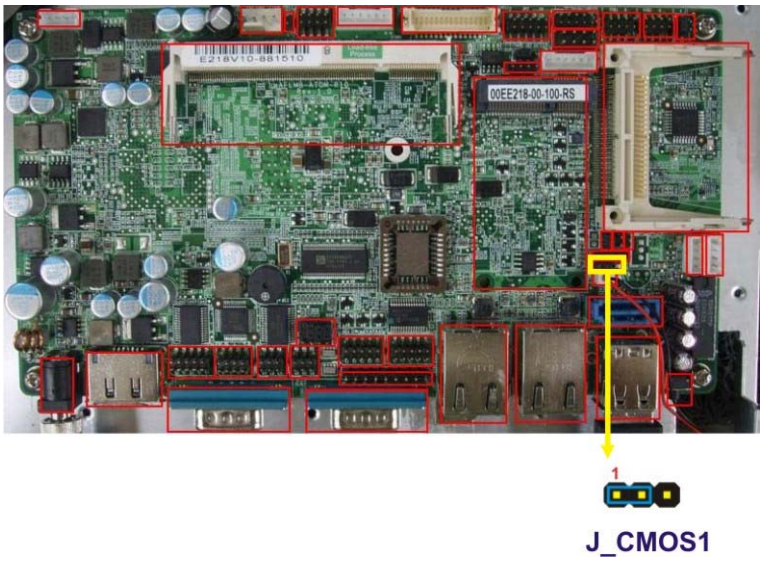


Figure 2-5: Clear CMOS Jumper

2.5.4 COM Port Pin 9 Select

Jumper Label:	**JP8** and **JP10**
Jumper Settings:	See **Table 2-4**
Jumper Location:	See **Figure 2-6**

Two jumpers (JP8 and JP10) configure pin 9 on COM1 and COM3 DB-9 connectors. Pin 9 on the COM1 and the COM3 DB-9 connectors can be set as the ring (RI) signal, +5 V or +12 V. The COM1 and COM3 Pin 9 Setting jumper selection options are shown in **Table 2-4**.

JP8	Description	
Short 1-3	COM1 RI Pin use +12 V	
Short 5-7	COM1 RI Pin use +5 V	
Short 7-9	COM1 RI Pin use RI	Default

Table 2-4: COM1 Pin 9 Setting Jumper Settings

JP10	Description	
Short 1-2	COM3 RI Pin use +12 V	
Short 3-4	COM3 RI Pin use RI	Default
Short 5-6	COM3 RI Pin use +5 V	

Table 2-5: COM3 Pin 9 Setting Jumper Settings

The COM1 and COM3 Pin 9 Setting jumper locations are shown in **Figure 2-6** below.

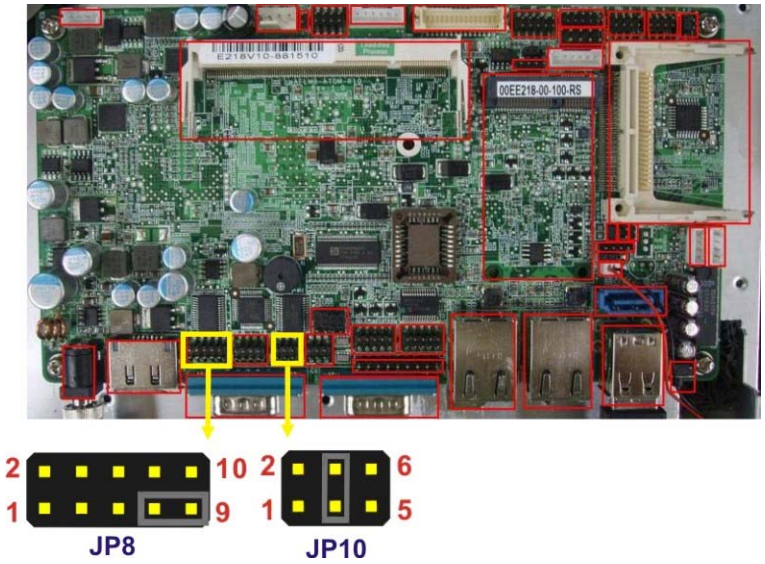


Figure 2-6: COM1 and COM3 Pin 9 Setting Jumper Locations

2.5.5 COM3 RX Function Select Jumper

Jumper Label: **JP9**

Jumper Type: 8-pin header

Jumper Settings: See **Table 2-6**

Jumper Location: See **Figure 2-7**

The COM3 RX Function Select jumper sets the communication protocol used by the COM3 port as RS-232, RS-422 or RS-485. The settings are shown in **Table 2-6**.

COM3 RX Function Select	Description	
Short 3-4	RS-232	Default
Short 1-2, 5-6	RS-422	
Short 1-2, 7-8	RS-485	

Table 2-6: COM3 RX Function Select Jumper Settings

The COM3 RX Function Select jumper location is shown in **Figure 2-7**.

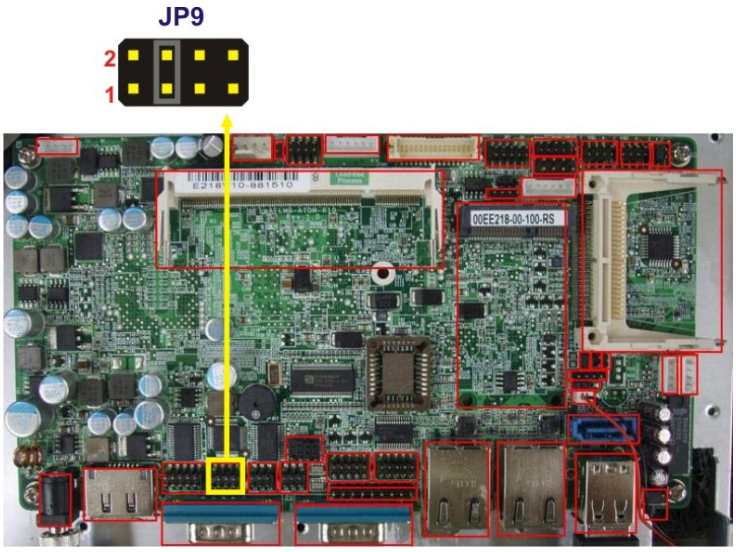


Figure 2-7: COM3 RX Function Select Jumper Location

2.5.6 COM3 TX Function Select Jumper

Jumper Label: **JP11**

Jumper Type: 6-pin header

Jumper Settings: See **Table 2-7**

Jumper Location: See **Figure 2-8**

The COM3 TX Function Select jumper configures the TX pin on COM3 serial port connector as RS-422 as an RS-485. The COM3 TX Function Select jumper selection options are shown in **Table 2-7**.

COM3 TX Function Select	Description	
Short 1 – 3	RS-422	Default
Short 2 – 4	RS-422	Default
Short 3 – 5	RS-485	
Short 4 – 6	RS-485	

Table 2-7: COM3 TX Function Select Jumper Settings

The COM3 TX Function Select jumper location is shown in **Figure 2-8** below.

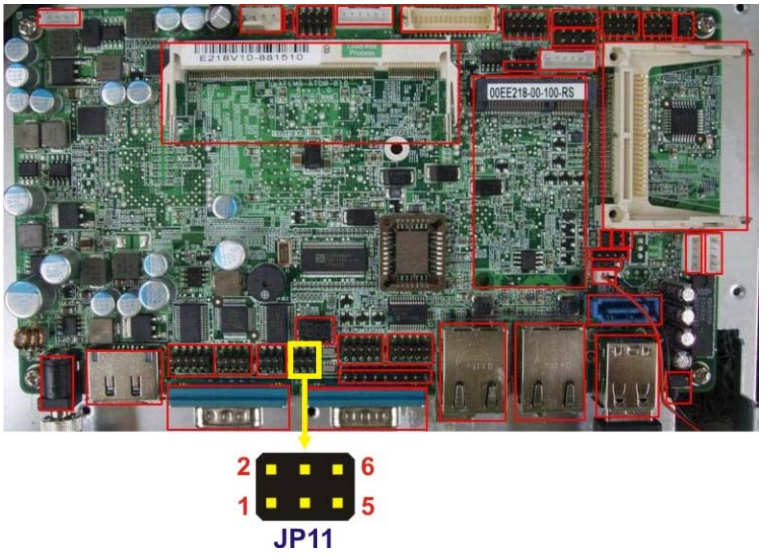


Figure 2-8: COM3 TX Function Select Jumper Pinout Locations

2.5.7 COM3 RS-232/422/485 Serial Port Select Jumper

Jumper Label: **JP6**

Jumper Type: 12-pin header (four 3-pin headers combined)

Jumper Settings: See **Table 2-8**

Jumper Location: See **Figure 2-9**

The COM3 RS-232/422/485 Serial Port Select jumper sets the communication protocol used by the second serial communications port (COM3) as RS-232, RS-422 or RS-485. The COM3 RS-232/422/485 Serial Port Select settings are shown in **Table 2-8**.

RS-232/485 Select	Description	
Short 1-2	RS-232	Default
Short 4-5	RS-232	Default
Short 7-8	RS-232	Default
Short 10-11	RS-232	Default
Short 2-3	RS-422/485	
Short 5-6	RS-422/485	
Short 8-9	RS-422/485	
Short 11-12	RS-422/485	

Table 2-8: COM3 RS-232/422/485 Serial Port Select Jumper Settings

The COM3 RS-232/422/485 Serial Port Select jumper location is shown in **Figure 2-9**.

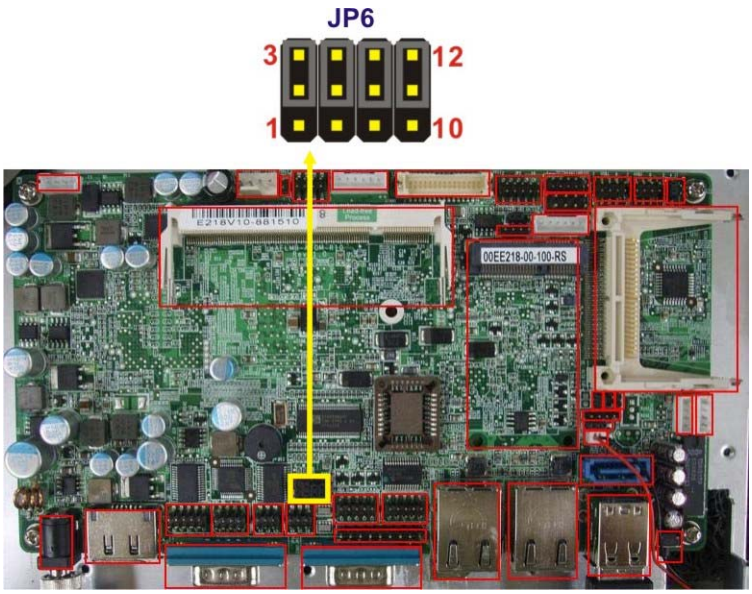


Figure 2-9: COM3 RS-232/422/485 Serial Port Select Jumper Location

2.6 Mounting the System

WARNING!

When mounting the 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-08B-N270 are listed below.

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

The four mounting methods are described below.

2.6.1 Wall Mounting

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

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

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

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

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

Step 5: Secure the mounting-bracket to the wall by inserting the retention screws into the four pilot holes and tightening them (**Figure 2-10**).

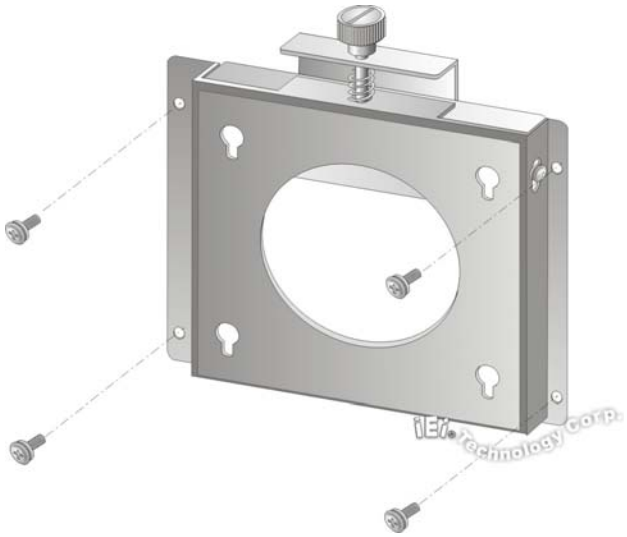


Figure 2-10: Wall-mounting Bracket

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 panel PC and tighten until the screw shank is secured against the rear panel (**Figure 2-11**).

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 2-11**). Ensure that all four of the mounting screws fit snuggly into their respective slotted holes.

NOTE:

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

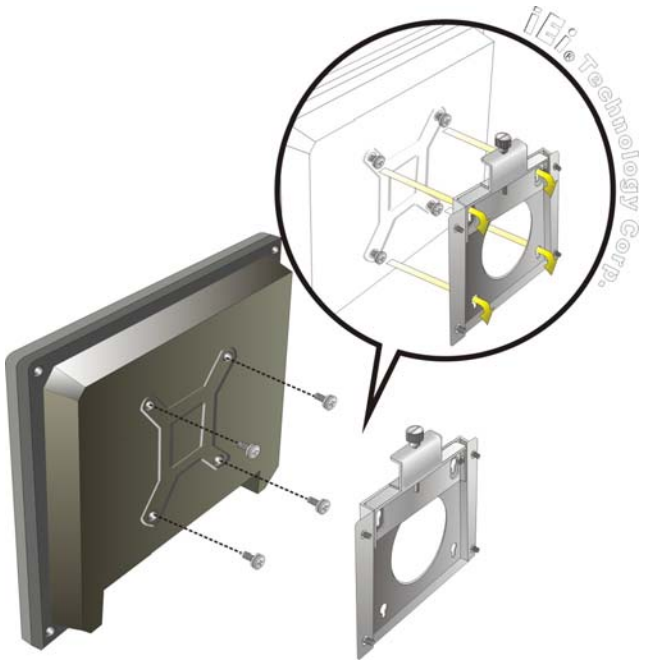


Figure 2-11: Chassis Support Screws

Step 9: Secure the panel PC by fastening the retention screw of the wall-mounting bracket. (**Figure 2-12**).

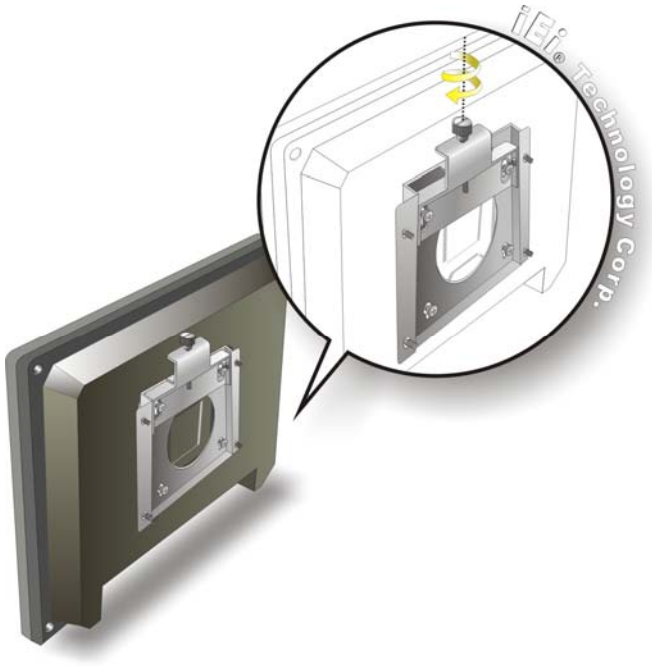


Figure 2-12: Secure the Panel PC

2.6.2 Panel Mounting

To mount the AFL-08B-N270 panel PC into a panel, please follow the steps below.

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

Step 2: Cut out a section from the panel that corresponds to the rear panel dimensions of the 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 panel PC but just large enough for the rear panel of the panel PC to fit through (**Figure 2-13**).

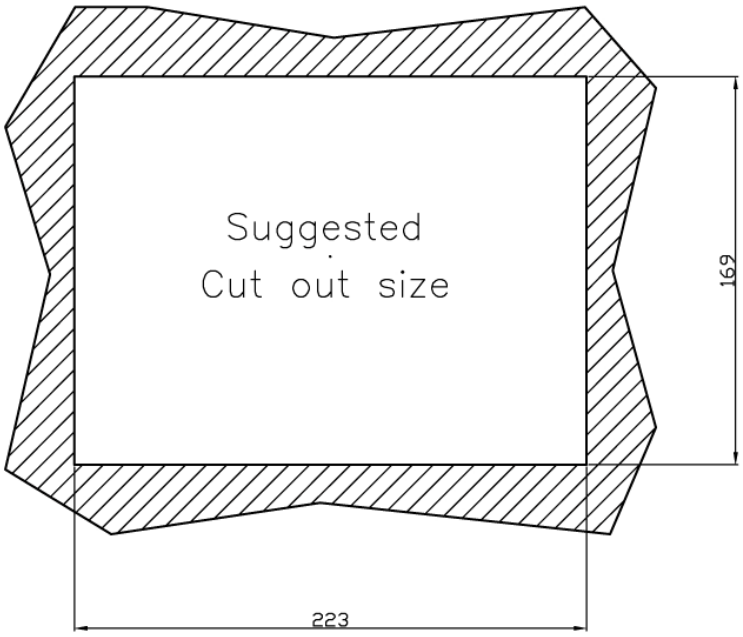


Figure 2-13: AFL-08B-N270 Cutout Dimensions (units in mm)

Step 3: Slide the 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 2-14**).

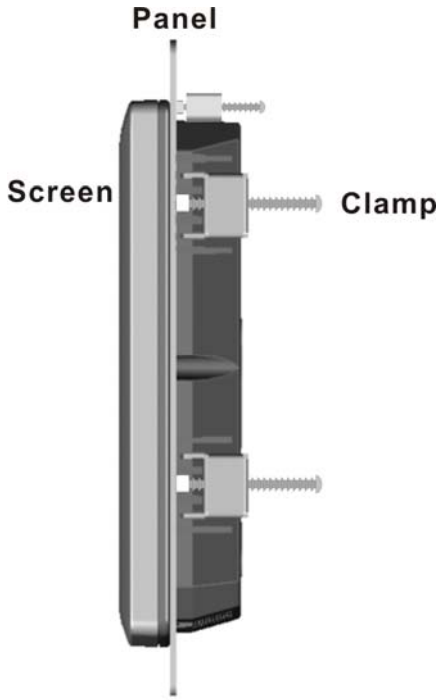


Figure 2-14: Tighten the Panel Mounting Clamp Screws

2.6.3 Cabinet and Rack Installation

The AFL-08B-N270 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-08B-N270 panel PC and the rack/cabinet into which the AFL-08B-N270 is installed.

Step 1: Slide the rear of the AFL-08B-N270 panel PC through the rack/cabinet bracket until the aluminum frame is flush against the front of the bracket (**Figure 2-15**).

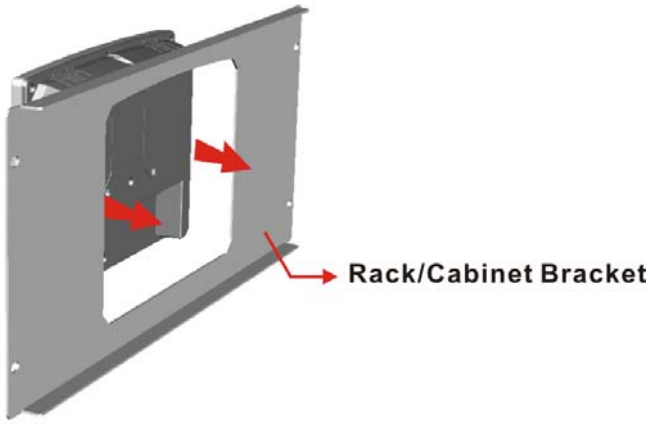


Figure 2-15: The Rack/Cabinet Bracket

Step 2: Insert the rack mounting clamps into the pre-formed holes along the edges of the 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 2-16**).

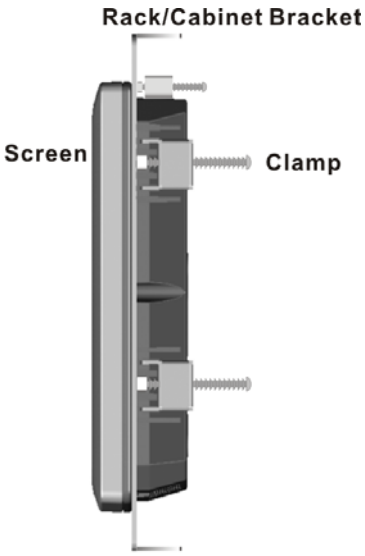


Figure 2-16: Secure the Rack/Cabinet Bracket

Step 4: Slide the panel PC with the attached rack/cabinet bracket into a rack or cabinet (**Figure 2-17**).

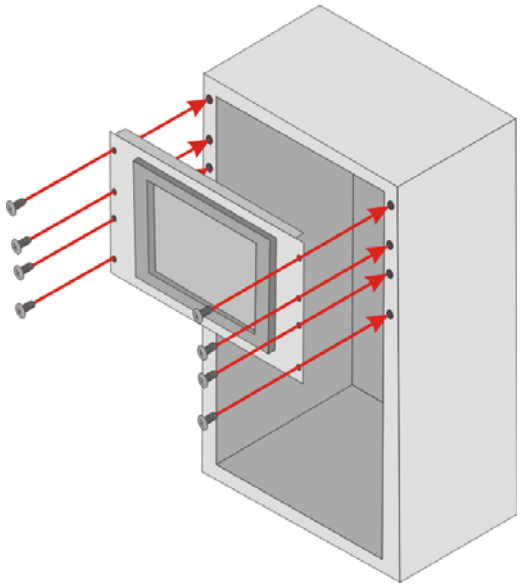


Figure 2-17: Install into a Rack/Cabinet

Step 5: Once the panel PC with the attached rack/cabinet bracket has been properly inserted into the rack or cabinet, secure the front of the rack/cabinet bracket to the front of the rack or cabinet (**Figure 2-17**).

2.6.4 Arm Mounting

The AFL-08B-N270 is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 75mm interface pad. To mount the panel PC on an arm, please follow the steps below.

Step 1: 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 mounting arm please ensure that it is VESA compliant and that the arm has a 75 mm interface pad. If it is not VESA compliant, it cannot be used to support the AFL-08B-N270 panel PC.

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

Step 3: Align the retention screw holes on the mounting arm interface with those in the panel PC. The arm mount retention screw holes are shown in **Figure 2-18**.

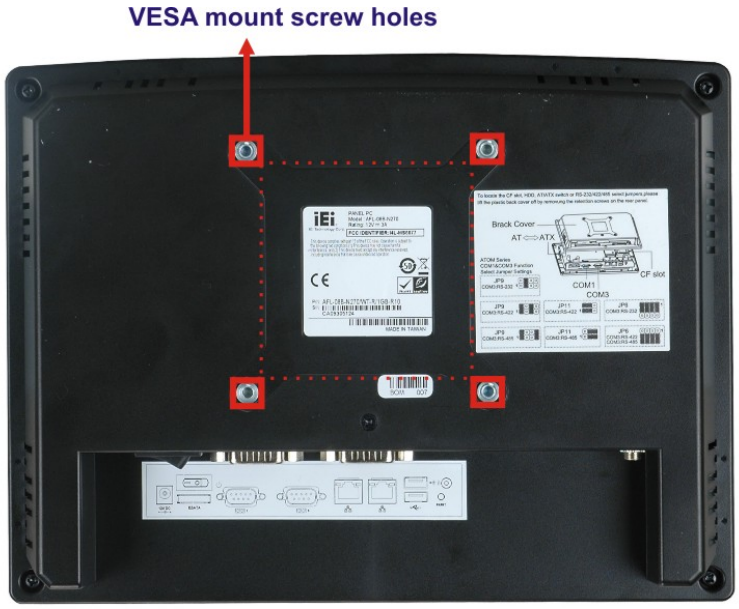


Figure 2-18:AFL-08B-N270 Arm Mounting Retention Screw Holes

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

2.7 Bottom Panel Connectors

All I/O interface connections of the AFL-08B-N270 are found on the bottom panel.

2.7.1 LAN Connection

There is one external RJ-45 LAN connector. The RJ-45 connector enables 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 connector** on the bottom panel of the AFL-08B-N270 Series.

Step 2: **Align the connector.** Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the bottom panel of the AFL-08B-N270. See **Figure 2-19**.

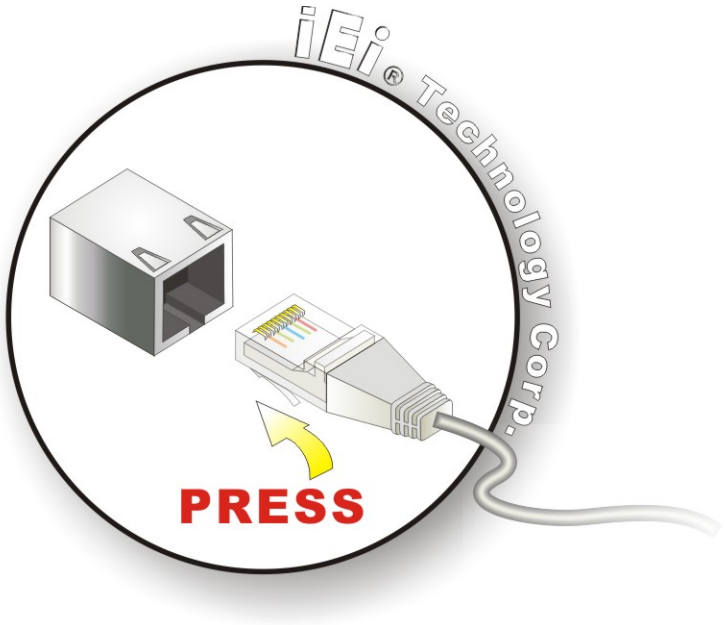


Figure 2-19: LAN Connection

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.

2.7.2 Serial Device Connection and RS-422/485 Pinouts

The AFL-08B-N270 has two DB-9 connectors for connecting to RS-232 and RS-232/422/485 serial devices on the bottom panel. Follow the steps below to connect a serial device to the panel PC. Please see **Section 2.7.2.1** below for the RS-422 and RS-485 pinouts of Serial Port COM3.

Step 1: **Locate the DB-9 connector**. The location of the DB-9 connector is shown in **Chapter 3**.

Step 2: **Insert the serial connector**. Insert the DB-9 connector of a serial device into the DB-9 connector on the external peripheral interface. See **Figure 2-20**.

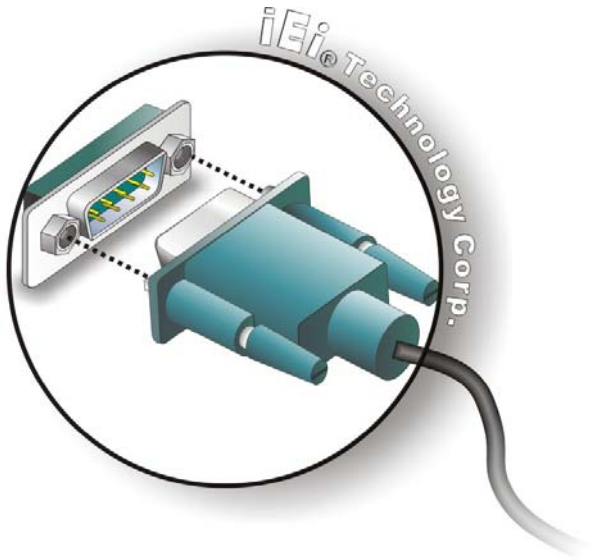


Figure 2-20: Serial Device Connector

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.

2.7.2.1 COM3 RS-422 and RS-485 Pinouts

The pinouts for RS-422 and RS-485 operation of external serial port COM3 are detailed below.

COM 3	RS-422 Description
Pin 1	TX-
Pin 2	TX+
Pin 6	RX-
Pin 7	RX+

Table 2-9: RS-422 Pinouts

COM 3	RS-485 Description
Pin 1	Data-
Pin 2	Data+

Table 2-10: RS-485 Pinouts

2.7.3 USB Device Connection

There are four external USB 2.0 connectors. All connectors are perpendicular to the AFL-08B-N270. To connect a USB 2.0 or USB 1.1 device, please follow the instructions below.

Step 1: **Located 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 2-21**.

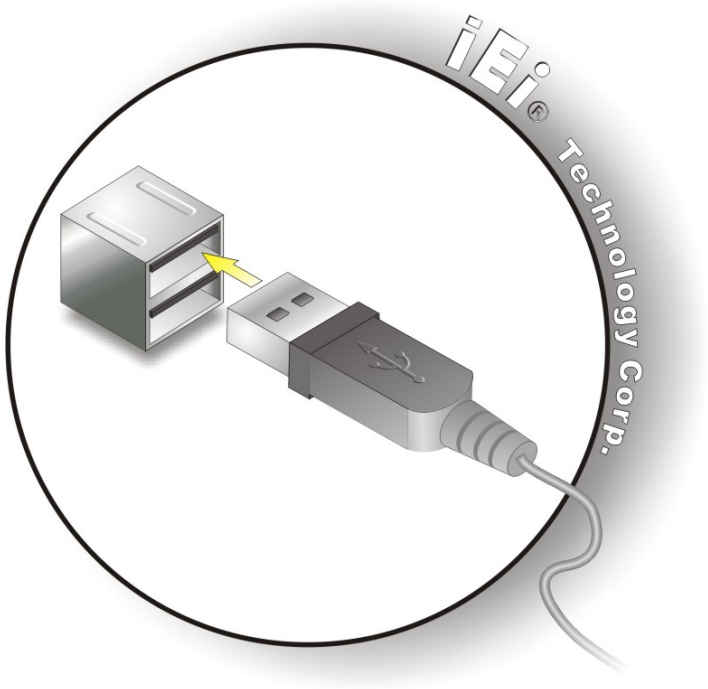


Figure 2-21: USB Device Connection

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

2.8 Power Connection

The power cable connects the power adapter to the power outlet. The power adapter and power cable are required for operation of the panel PC.

Step 1: Connect the power adapter to the panel PC.

Step 2: Connect the power cable to the included power adapter.

Step 3: Connect the power cable to the power outlet.

2.9 Driver Installation

NOTE:

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

The following drivers can be installed on the system; each driver is in its own directory on the driver CD:

- Chipset driver
- Graphics driver
- LAN driver
- Audio driver
- Touch panel driver
- Wireless LAN card driver
- Bluetooth driver

Chapter

3

System Maintenance

3.1 System Maintenance Introduction

WARNING!

Turn off th e power before removing the ba ck cover. Risk of electrocution. Severe damage to the product and injury to the body may occur if internal parts are touched while the power is still on.

WARNING!

Take antistatic precautions when working on the in ternal components. Some internal components are easily damaged or destroyed by electrostatic discharge. Take antistatic precautions to prevent electrostatic discharge.

If the components of the AFL-08B-N270 fail they must be replaced. Components that can be replaced include (see **Figure 3-1**):

- CF Module
- Wireless LAN module
- SO-DIMM module

Please contact the system reseller or vendor to purchase the replacement parts. Back cover removal instructions for the AFL-08B-N270 are described below.

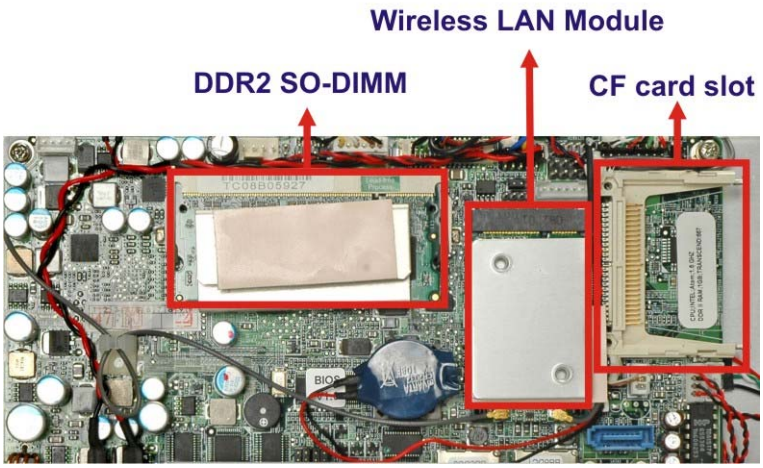


Figure 3-1: Replaceable Components

3.2 Motherboard Replacement

In the case of motherboard failure, please contact a sales representative, reseller or system vendor. The motherboard is accessible after opening the rear cover.

3.3 Cover Removal

To access the AFL-08B-N270 internally the back panel must be removed. To remove the back panel, please follow the steps below.

Step 1: **Follow all anti-static procedures**. See **Section A.1.2**.

Step 2: **Turn off the power**. See **Section 3.1**.

Step 3: **Remove the retention screws on the back**. Remove the retention screws (**Figure 3-2**) from the rear panel.

Figure 3-2: Back Cover Retention Screws

Step 4: Lift the cover and pull down the cover a bit to make it possible to fully remove it.

More strength is required to separate the cover from the chassis.

Step 5: Remove the retention screws (**Figure 3-3**) from the aluminum cover.

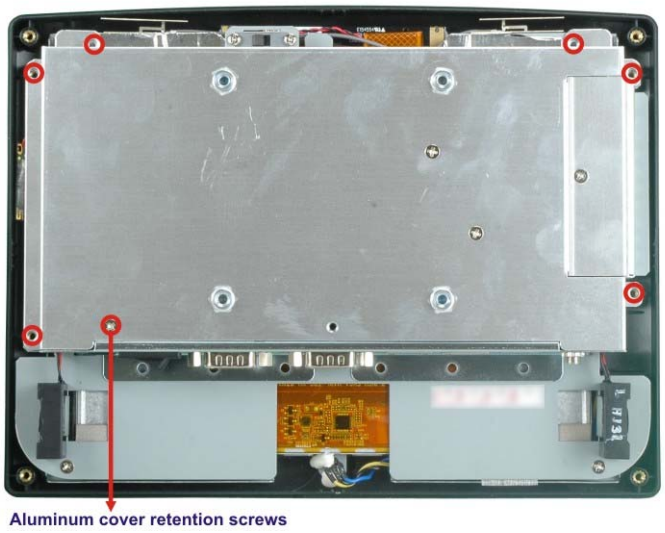


Figure 3-3: Aluminum Cover Retention Screws

Step 6: Lift off the cover.

3.4 Memory Module Replacement

The panel PC is preinstalled with a 1 GB DDR2 memory module. If the memory module is fail, follow the instructions below to replace the memory module.

Step 7: Remove the aluminum back cover. See **Section 3.3** above.

Step 8: Locate the DDR2 SO-DIMM on the motherboard (**Figure 3-4**).

Figure 3-4:AFL-08B-N270 SO-DIMM Socket Location

Step 9: Remove the DDR memory module by pulling both the spring retainer clips outward from the socket.

Step 10: Grasp the DDR memory module by the edges and carefully pull it out of the socket.

Step 11: Install the new DDR memory module by pushing it into the socket at an angle (**Figure 3-5**).

Step 12: Gently pull the spring retainer clips of the SO-DIMM socket out and push the rear of the DDR memory module down (**Figure 3-5**).

Step 13: Release the spring retainer clips on the SO-DIMM socket. They clip into place and secure the DDR memory module in the socket.

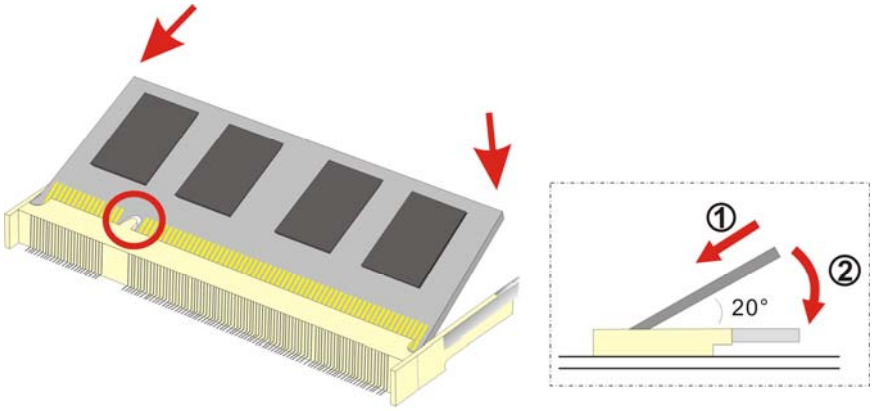


Figure 3-5: DDR2 SO-DIMM Module Installation

3.5 CF Card Replacement

The AFL-08B-N270 has one CF Type II slot. Follow the instructions below to replace the CF card.

Step 1: **Follow all anti-static procedures**. See **Section A.1.2**.

Step 2: **Turn off the power**. See **Section 3.1**.

Step 3: **Follow the instruction listed in Section 2.3 to replace the CF card.**

3.6 Reinstalling the Covers

WARNING:

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

When maintenance procedures are complete, please make sure all the covers are replaced, including the following:

- Aluminum cover
- CF card slot cover

Chapter

4

BIOS Options

4.1 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.

4.1.1 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.

4.1.2 Using Setup

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

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 4-1: BIOS Navigation Keys

4.1.3 Getting Help

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

4.1.4 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**.

4.1.5 BIOS Menu Bar

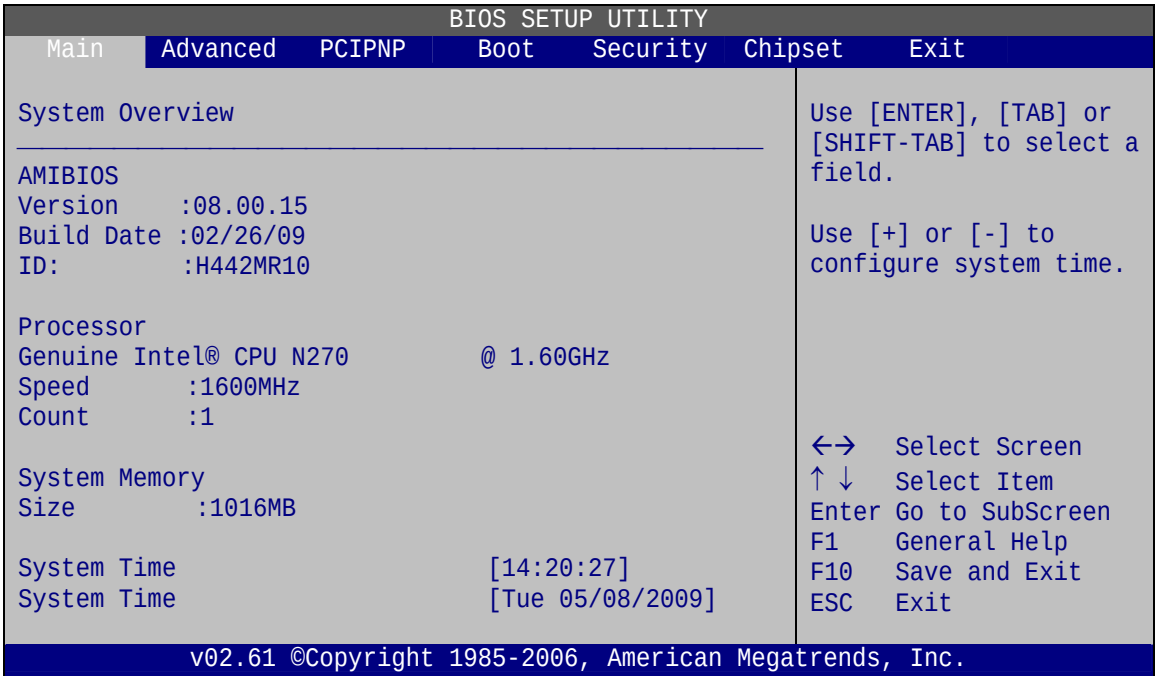
The **menu bar** on top of the BIOS screen has the following main items:

- **Main** Changes the basic system configuration.
- **Advanced** Changes the advanced system settings.
- **PCIPnP** Changes the advanced PCI/PnP Settings
- **Boot** Changes the system boot configuration.
- **Security** Sets User and Supervisor Passwords.
- **Chipset** Changes the chipset 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.

4.2 Main

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



BIOS Menu 1: Main

➔ System 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 CPU card
- **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.

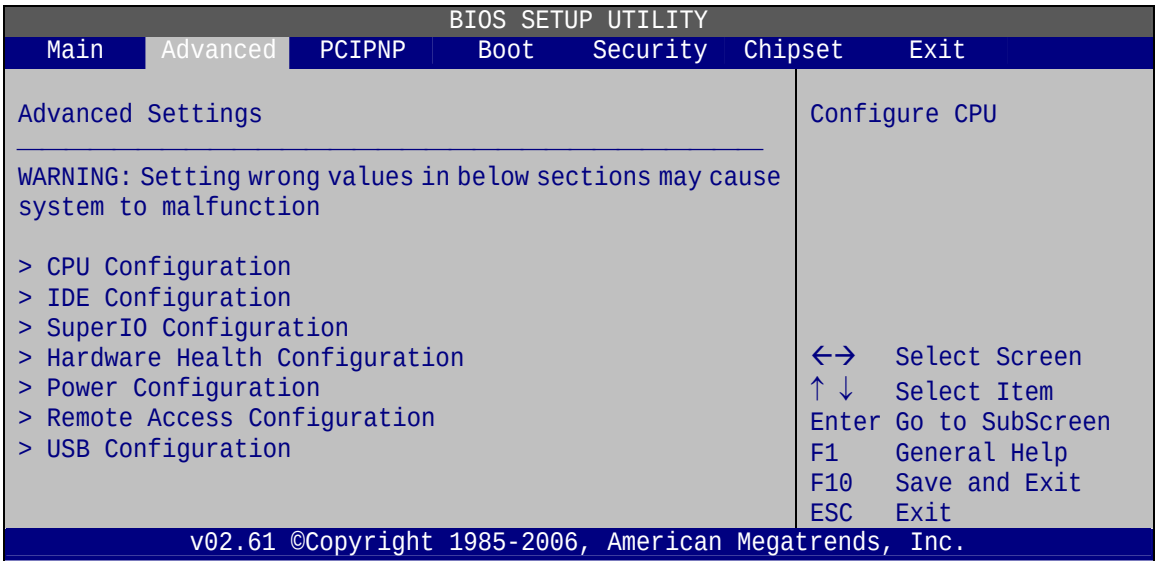
4.3 Advanced

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

WARNING:

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

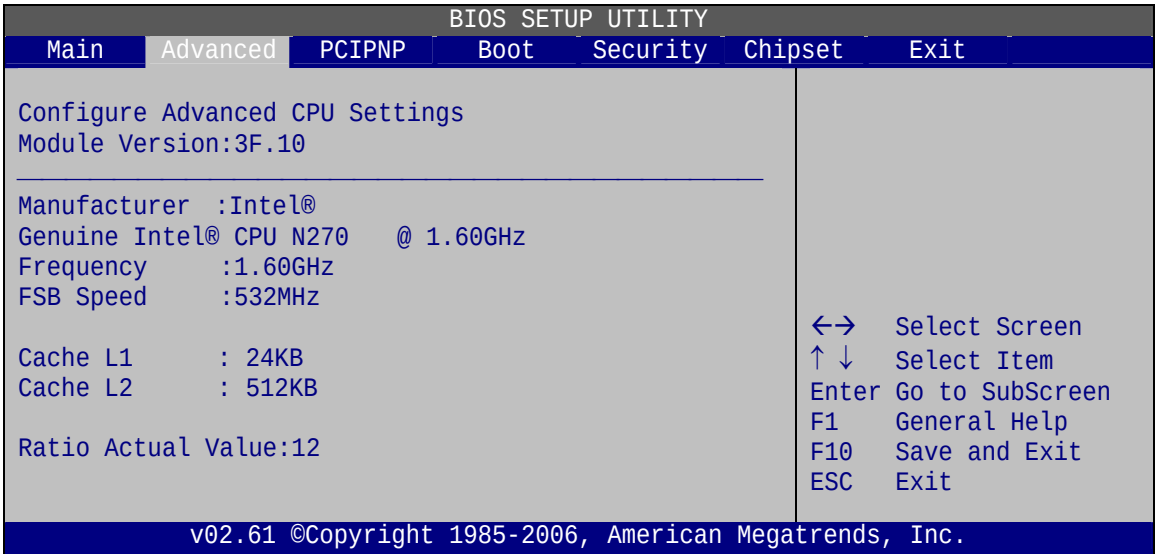
- CPU Configuration (see **Section 4.3.1**)
- IDE Configuration (see **Section 4.3.2**)
- Super I/O Configuration (see **Section 4.3.3**)
- Hardware Health Configuration (see **Section 6.3.4)**
- Power Configuration **(see Section 4.3.5**)
- Remote Access Configuration (see **Section 4.3.6**)
- USB Configuration (see **Section 4.3.8**)



BIOS Menu 2: Advanced

4.3.1 CPU Configuration

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



BIOS Menu 3: CPU Configuration

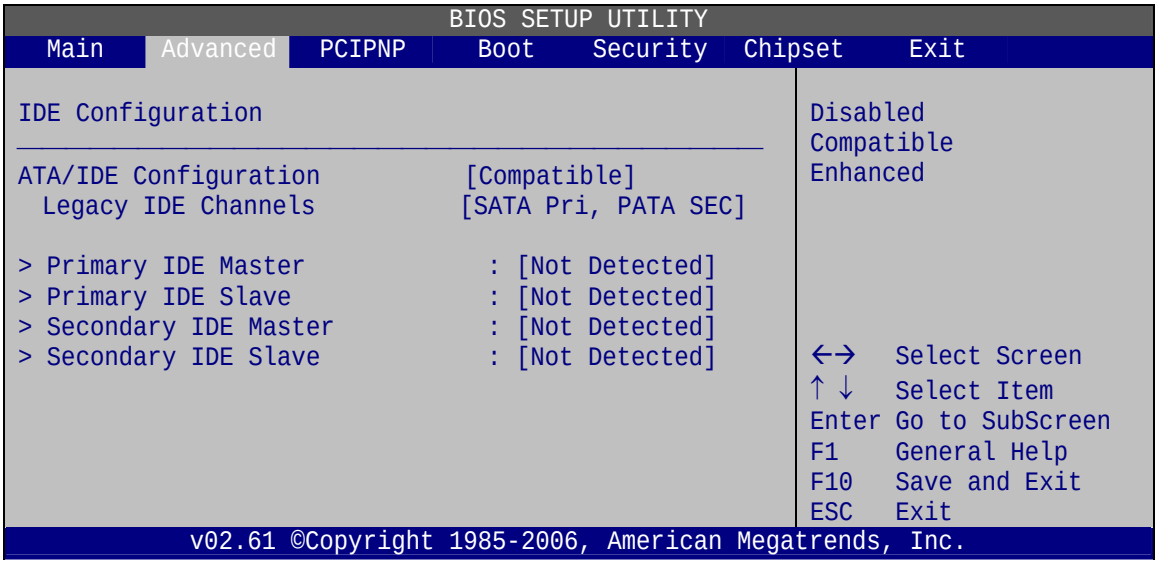
The CPU Configuration menu (**BIOS Menu 3**) lists the following CPU details:

- **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

4.3.2 IDE Configuration

Use the **IDE Configuration** menu (**BIOS Menu 4**) 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** **DEFAULT** 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** 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 [PATA Pri, SATA 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**

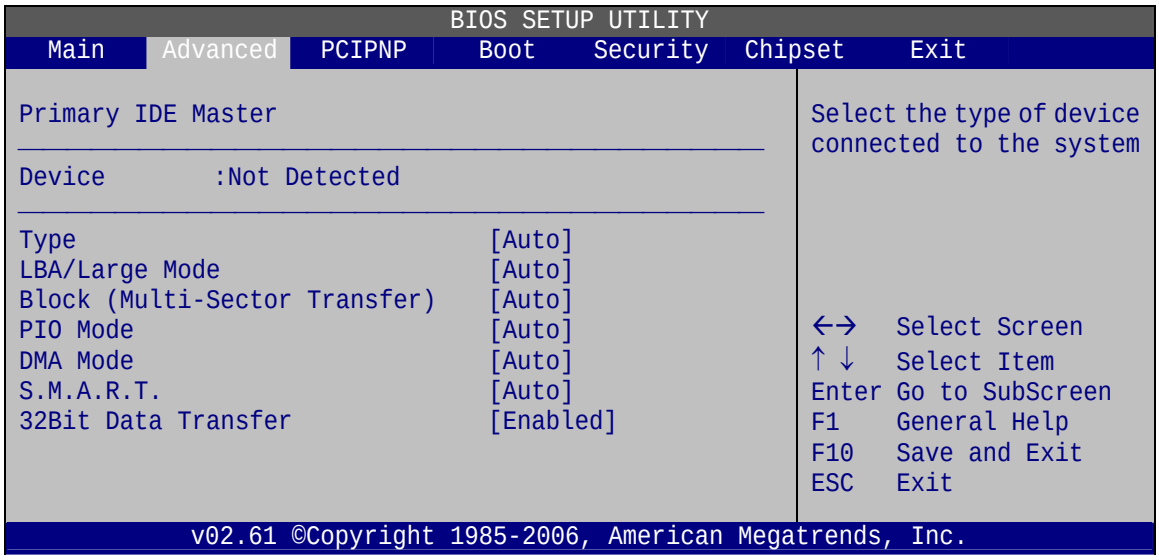
When entering setup BIOS automatically detects the presence of IDE devices. The BIOS displays the status of the auto detected IDE devices. The following IDE devices are detected and are shown in the **IDE Configuration** menu:

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

The **IDE Configuration** menu (**BIOS Menu 4**) 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 4.3.2.1** appear.

4.3.2.1 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

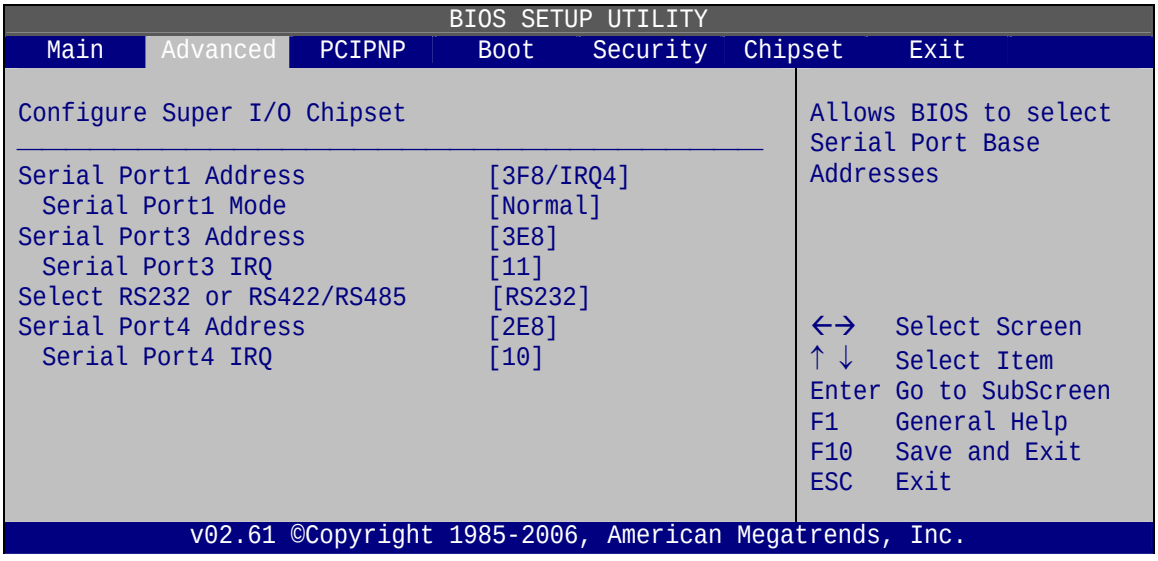
➔ **32Bit Data Transfer [Enabled]**

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.

4.3.3 Super I/O Configuration

Use the **Super I/O Configura tion** menu (**BIOS Menu 6**) 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
➔ **2F8/IRQ3**		Serial Port 1 I/O port address is 2F8 and the interrupt address is IRQ3
➔ **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 Port1 Mode [Normal]**

Use the **Serial Port1 Mode** option to select the transmitting and receiving mode for the first serial port.

➔ **Normal**	**DEFAULT**	Serial Port 1 mode is normal
➔ **IrDA**		Serial Port 1 mode is IrDA
➔ **ASK IR**		Serial Port 1 mode is ASK IR

➔ **Serial Port3 Address [3E8]**

Use the **Serial Port3 Address** option to select the Serial Port 3 base address.

➔ **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
➔ **2F0**		Serial Port 3 I/O port address is 2F0
➔ **2E0**		Serial Port 3 I/O port address is 2E0

➔ **Serial Port3 IRQ [11]**

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

- ➔ **10** Serial port 3 IRQ address is 10
- ➔ **11** **DEFAULT** Serial port 3 IRQ address is 11

➔ **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
- ➔ **2E8** **DEFAULT** Serial port 4 I/O port address is 2E8

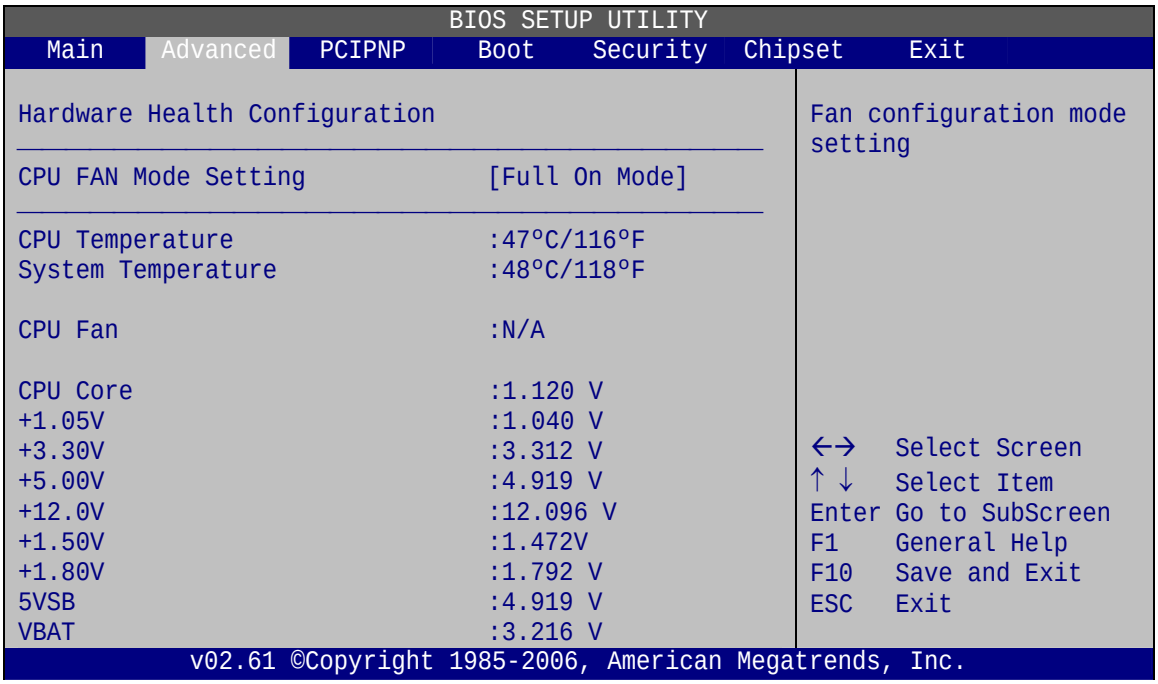
➔ **Serial Port4 IRQ [10]**

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

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

4.3.4 Hardware Health Configuration

The **Hardware Health Configuration** menu (**BIOS Menu 7**) 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 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.

- CPU Temp. Limit of OFF
- CPU Temp. Limit of Start
- CPU Fan Start PWM
- Slope PWM

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

- CPU Fan PWM control

➔ **CPU Temp. 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

➔ **CPU Temp. 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

➔ **CPU Fan 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 Sta rt 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 [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:

- 0.125 PWM
- 0.25 PWM
- 0.5 PWM
- 1 PWM
- 2 PWM
- 4 PWM
- 8 PWM
- 15 PWM

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

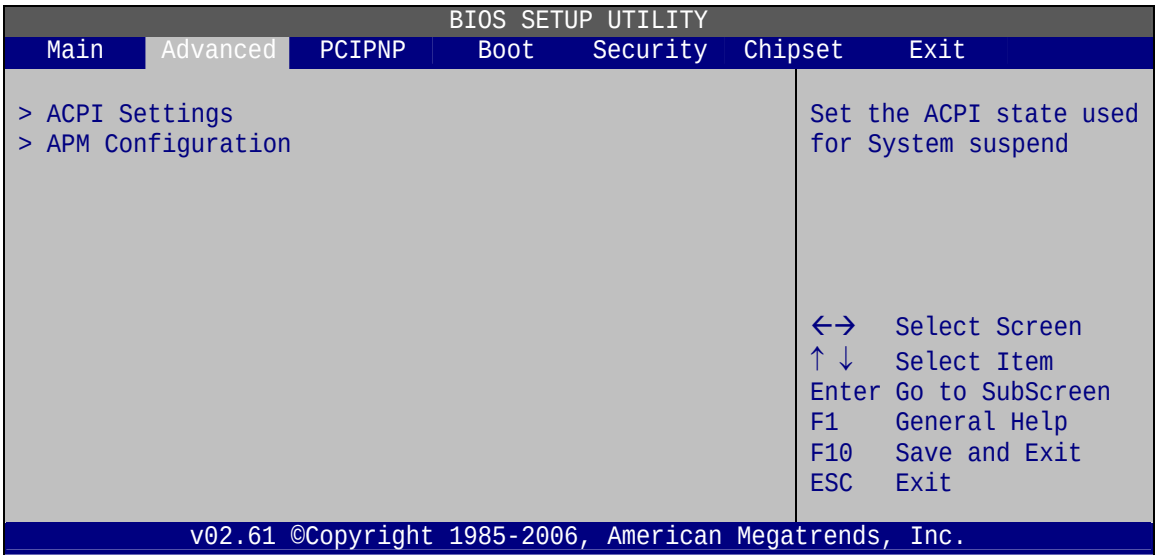
- **System Temperatures**: The following system temperatures are monitored

- CPU Temperature
- System Temperature

- **Fan Speeds**: The CPU cooling fan speed is monitored.
  - CPU Fan Speed
- **Voltages**: The following system voltages are monitored
  - CPU Core
  - +1.05V
  - +3.30V
  - +5.00V
  - +12.0 V
  - +1.5V
  - +1.8V
  - 5VSB
  - VBAT

4.3.5 Power Configuration

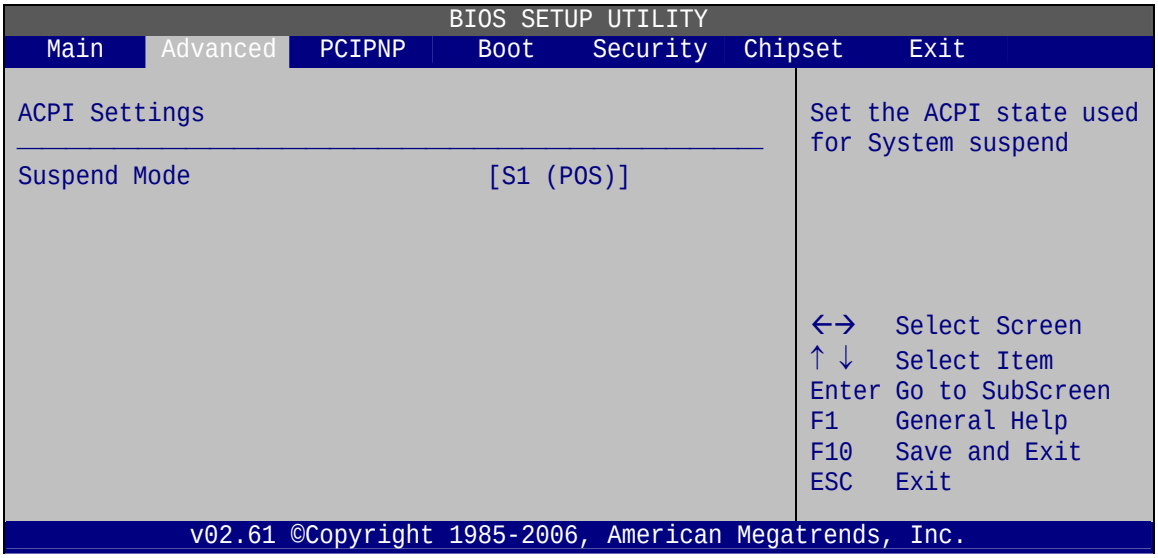
The **Power Configuration** menu (**BIOS Menu 8**) configures the Advanced Configuration and Power Interface (ACPI) and Power Management (APM) options.



BIOS Menu 8: Power Configuration

4.3.5.1 ACPI configuration

The **ACPI Configuration** menu (**BIOS Menu 9**) configures the Advanced Configuration and Power Interface (ACPI).



BIOS Menu 9: ACPI Configuration

➔ **Suspend Mode [S1(POS)]**

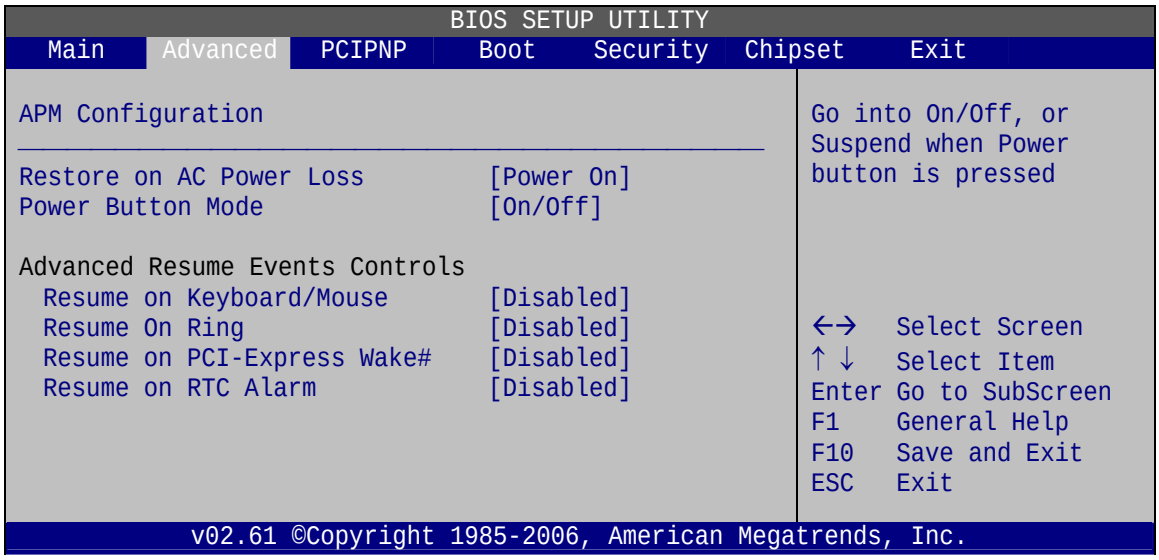
Use the **Suspend Mode** BIOS option to specify the sleep state the system enters when it is not being used.

➔ **S1 (POS)** **DEFAULT** System appears off. The CPU is stopped; RAM is refreshed; the system is running in a low power mode.

➔ **S3 (STR)** System appears off. The CPU has no power; RAM is in slow refresh; the power supply is in a reduced power mode.

4.3.6 APM Configuration

The **APM Configuration** menu (**BIOS Menu 10**) allows the advanced power management options to be configured.



BIOS Menu 10: APM Configuration

➔ **Restore on AC Power Loss [Last State]**

Use the **Restore on AC Po wer 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.

➔ **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

➔ **Resume on Keyboard/Mouse [Disabled]**

Use the **Resume on Ke yboard/Mouse** BIOS option to enable activity on either the keyboard or mouse to rouse the system from a suspend or standby state. That is, the system is roused when the mouse is moved or a button on the keyboard is pressed.

➔ **Disabled**	**DEFAULT**	Wake event not generated by activity on the keyboard or mouse
➔ **Resume On KeyBoard**		Wake event not generated by activity on the keyboard
➔ **Resume On Mouse**		Wake event not generated by activity on the mouse
➔ **Enabled**		Wake event generated by activity on the keyboard or mouse

➔ **Resume on Ring [Disabled]**

Use the **Resume on Ring** BIOS option to enable activity on the RI (ring in) modem line to rouse the system from a suspend or standby state. That is, the system will be 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

➔ **Resume on PCI-Express WAKE# [Enabled]**

Use the **Resume PCI-Express WAKE#** BIOS option to enable activity on the PCI-Express WAKE# signal to rouse the system from a suspend or standby state.

➔ **Disabled**		Wake event not generated by PCI-Express WAKE# signal activity
➔ **Enabled**	**DEFAULT**	Wake event generated by PCI-Express WAKE# signal activity

➔ **Resume On RTC Alarm [Disabled]**

Use the **Resume On RTC Alarm** 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.

4.3.7 Remote Configuration

Use the **Remote Access Configuration** menu (**BIOS Menu 11**) 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 SETUP UTILITY
  Main   Advanced   PCIPNP   Boot   Security   Chipset   Exit

Configure Remote Access type and parameters
-------------------------------------------------------------
Remote Access                   [Disabled]

Serial port number              [COM1]
     Base Address, IRQ          [3F8H, 4]
Serial Port Mode                [115200 8,n,1]
Redirection After BIOS POST     [Always]
Terminal Type                   [ANSI]

                                ←→   Select Screen
                                ↑ ↓  Select Item
                                Enter Go to SubScreen
                                F1    General Help
                                F10   Save and Exit
                                ESC   Exit

          v02.61 ©Copyright 1985-2006, American Megatrends, Inc.
```

BIOS Menu 11: Remote Access Configuration

➔ **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**
- ➔ **Redirection after BIOS POST**
- ➔ **Terminal Type**

These configuration options are discussed below.

➔ **Serial Port Number [COM1]**

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

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

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

➔ **COM3** System is remotely accessed through COM3

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

➔ **Base Address, IRQ [3F8h,4]**

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

➔ **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)

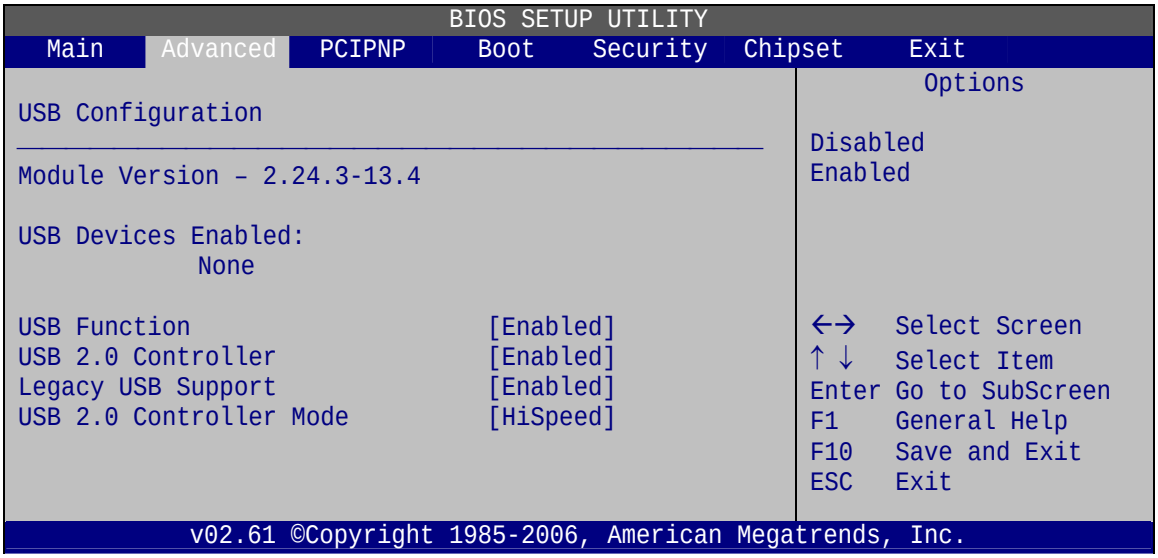
➔ **Terminal Type [ANSI]**

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

4.3.8 USB Configuration

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



BIOS Menu 12: USB Configuration

➔ **USB Functions [Enabled]**

Use the **USB Function** option to enable or disable the USB controllers.

➔ **Disabled** USB controllers are enabled

➔ **Enabled** **DEFAULT** USB controllers are disabled

➔ **USB 2.0 Controller [Enabled]**

The **USB 2.0 Controller** BIOS option enables or disables the USB 2.0 controller

➔ **Enabled** **DEFAULT** USB function enabled

➔ **Disabled** USB function disabled

➔ **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]**

The **USB2.0 Controller Mode** BIOS option sets the speed of the USB2.0 controller.

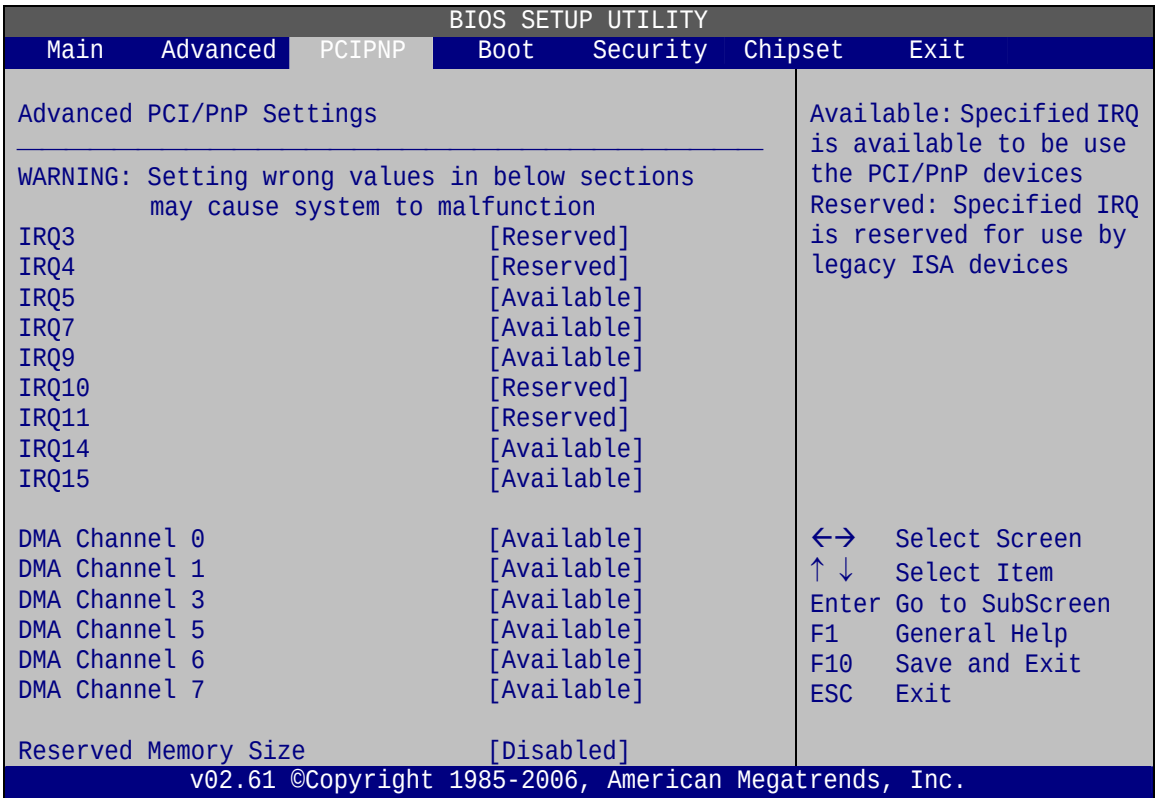
➔	**FullSpeed**		The controller is capable of operating at full speed 12 Mb/s
➔	**HiSpeed**	**DEFAULT**	The controller is capable of operating at high speed 480 Mb/s

4.4 PCI/PnP

Use the PCI/PnP menu (**BIOS Menu 13**) 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 13: PCI/PnP Configuration

➔ **IRQ# [Available]**

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

➔ **Available** **DEFAULT** 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
- IRQ4
- IRQ5
- IRQ7

- IRQ9
- IRQ10
- IRQ 11
- IRQ 14
- IRQ 15

➔ **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

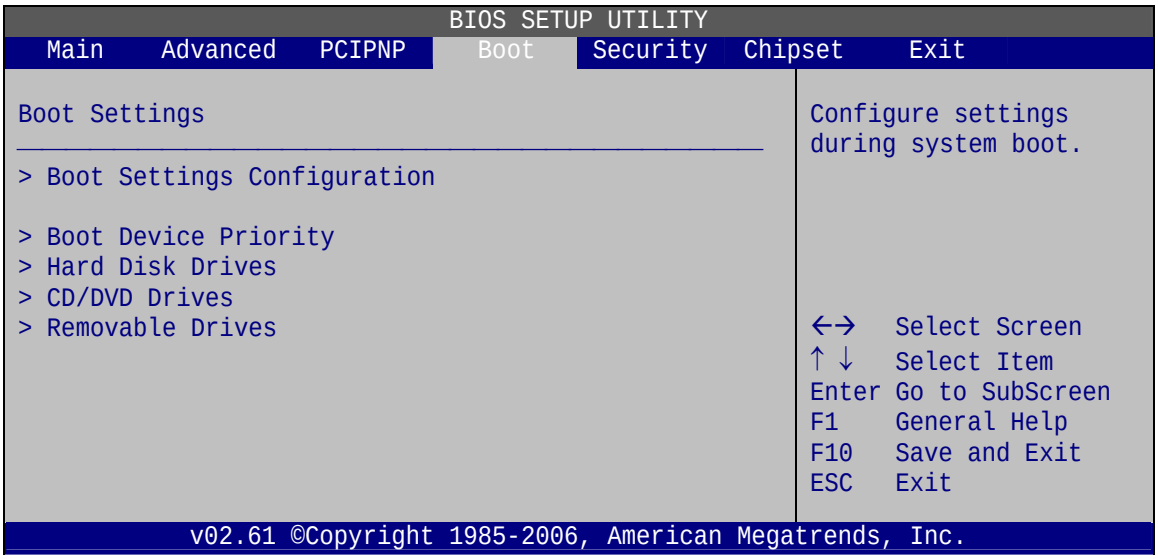
➔ **Reserved Memory Size [Disabled]**

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

4.5 Boot

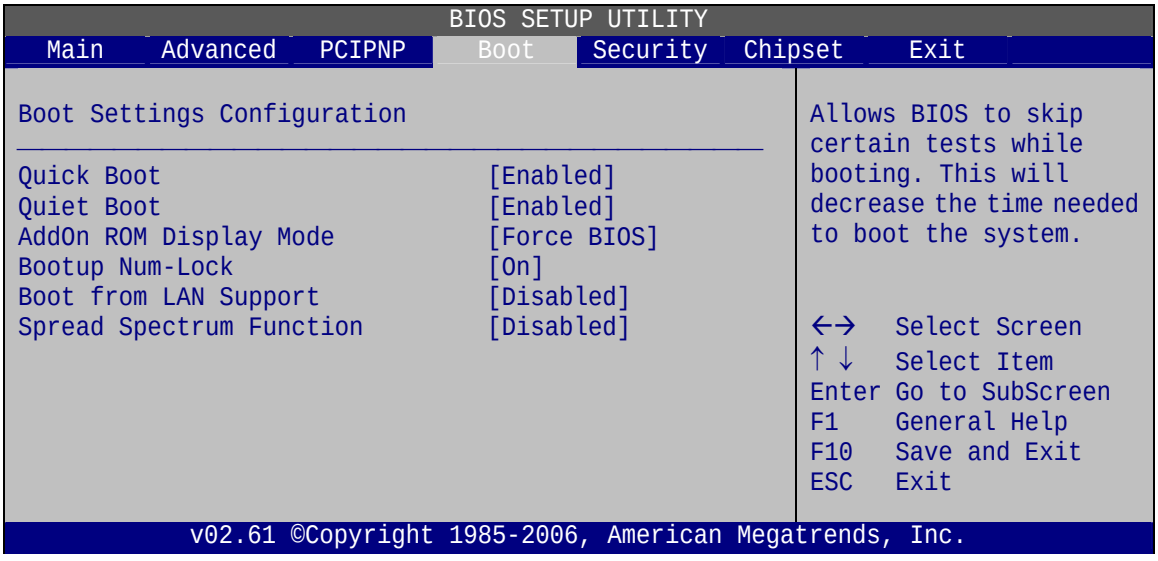
Use the Boot menu (**BIOS Menu 14**) to configure system boot options.



BIOS Menu 14: Boot

4.5.1 Boot Settings Configuration

Use the Boot Settings Configuration menu (**BIOS Menu 15**) to configure advanced system boot options.



BIOS Menu 15: 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]**

The **AddOn ROM Displ ay Mode** option allows add-on ROM (read-only memory) messages to be displayed.

➔ **Force BIOS**	**DEFAULT**	Allows the computer system to force a third party BIOS to display during system boot.
➔ **Keep Current**		Allows the computer system to display the information during system boot.

➔ **Bootup Num-Lock [On]**

The **Bootup Num-Lock** BIOS option allows the Number Lock setting to 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 Support [Disabled]**

The **BOOT From LAN Support** option enables the system to be booted from a remote system.

➔ **Enabled**		Can be booted from a remote system through the LAN
➔ **Disabled**	**DEFAULT**	Cannot be booted from a remote system through the LAN

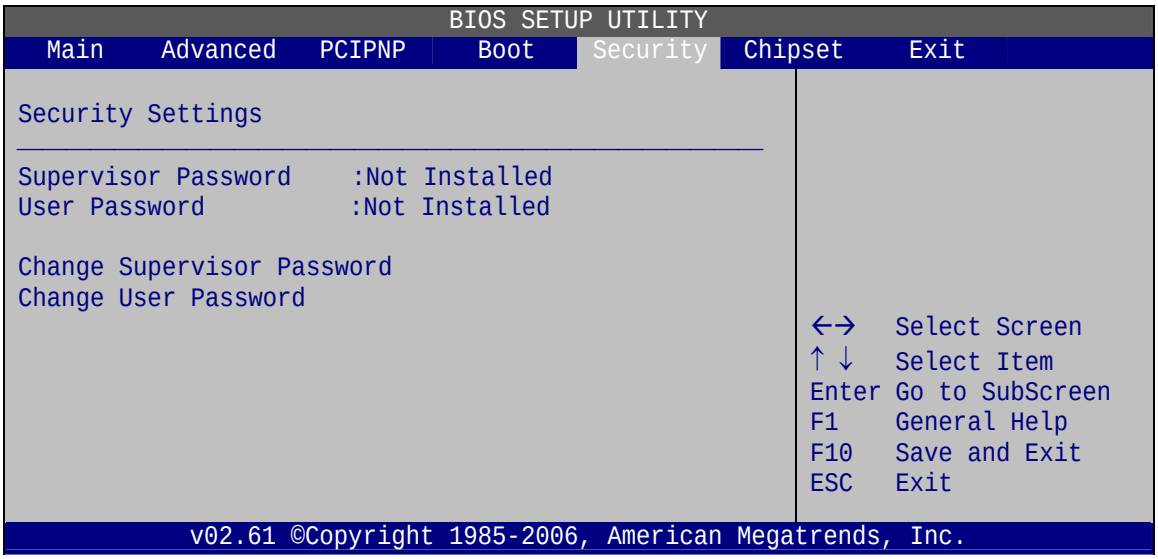
➔ **Spread Spectrum Mode [Disabled]**

The **Spread Spectrum Mode** option can help to improve CPU EMI issues.

➔ **Disabled**	**DEFAULT**	The spread spectrum mode is disabled
➔ **Enabled**		The spread spectrum mode is enabled

4.6 Security

Use the Security menu (**BIOS Menu 16**) to set system and user passwords.



BIOS Menu 16: 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**

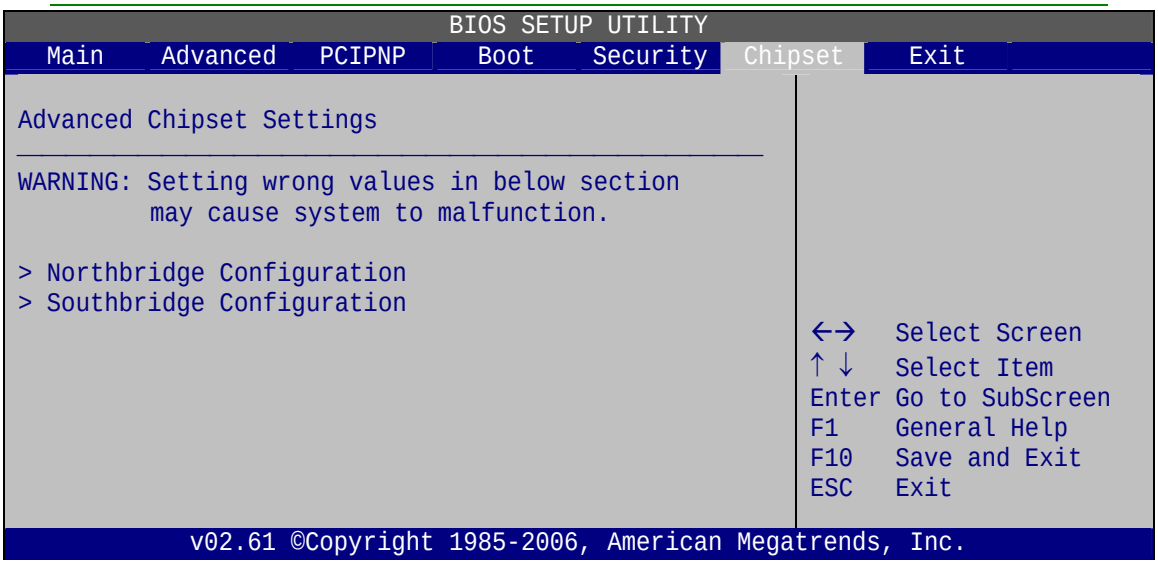
Use the **Change User Password** to set or change a user password. The default for this option is **Not Installed**. If a user password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change User Password**.

4.7 Chipset

Use the **Chipset** menu (**BIOS Menu 17**) to access the Northbridge and Southbridge configuration menus.

WARNING!

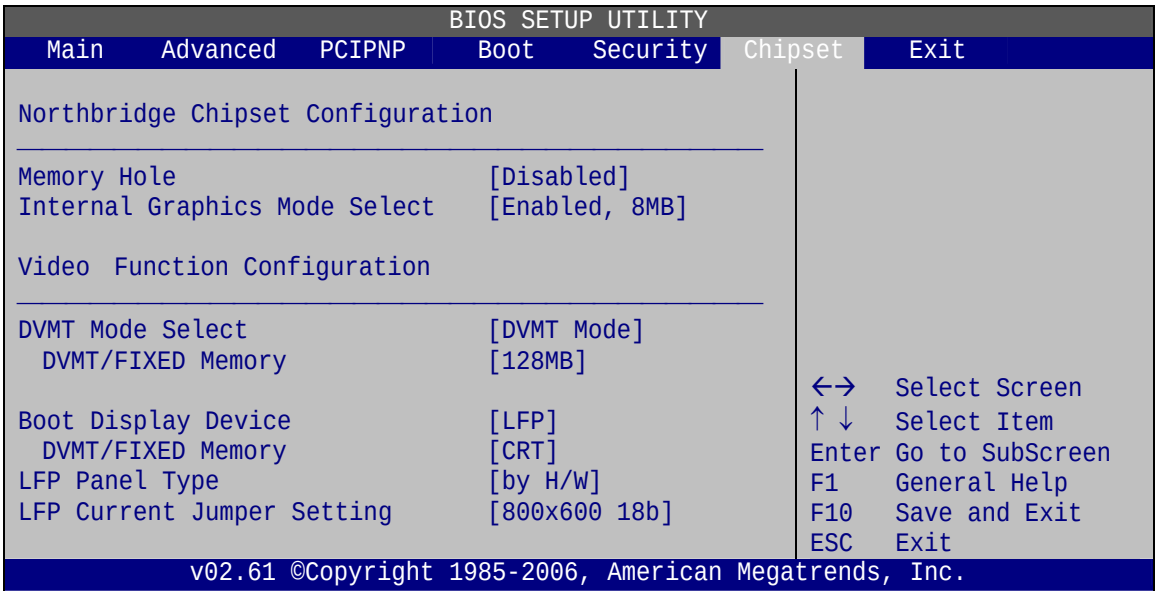
Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.



BIOS Menu 17: Chipset

4.7.1 Northbridge Chipset Configuration

Use the **Northbridge Chipset Configuration** menu (**BIOS Menu 18**) to configure the Northbridge chipset settings.



BIOS Menu 18: Northbridge Chipset Configuration

➔ **Memory Hole [Disabled]**

The **Memory Hole** reserves the 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

➔ **Enabled** Memory is reserved for ISA expansion cards

➔ **Internal Graphics Mode Select [Enable, 8MB]**

The **Internal Graphic Mode Select** option determines 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

➔ **DVMT Mode Select [DVMT Mode]**

Use the **DVMT Mode Select** option to select the Intel Dynamic Video Memory Technology (DVMT) operating mode.

➔ **Fixed Mode**		A fixed portion of graphics memory is reserved as graphics memory.
➔ **DVMT Mode**	**DEFAULT**	Graphics memory is dynamically allocated according to the system and graphics needs.
➔ **Combo Mode**		A fixed portion of graphics memory is reserved as graphics memory. If more memory is needed, graphics memory is dynamically allocated according to the system and graphics needs.

➔ **DVMT/FIXED Memory**

Use the **DVMT/FIXED Memory** option to specify the maximum amount of memory that can be allocated as graphics memory. This option can only be configured for if **DVMT Mode** or **Fixed Mode** is selected in the **DVMT Mode Select** option. If **Combo Mode** is selected, the maximum amount of graphics memory is 128MB. Configuration options are listed below.

- 64MB
- 128MB **DEFAULT**
- Maximum DVMT

➔ **Boot Display Device [LFP]**

Use the **Boot Display Device** option to select the display device used by the system when it boots. Configuration options are listed below.

- CRT
- LFP **DEFAULT**

➔ **Sec. Display Device [CRT]**

Use the **Sec. Display Device** option to select the second display device used by the system. Configuration options are listed below.

- Disabled
- CRT **DEFAULT**

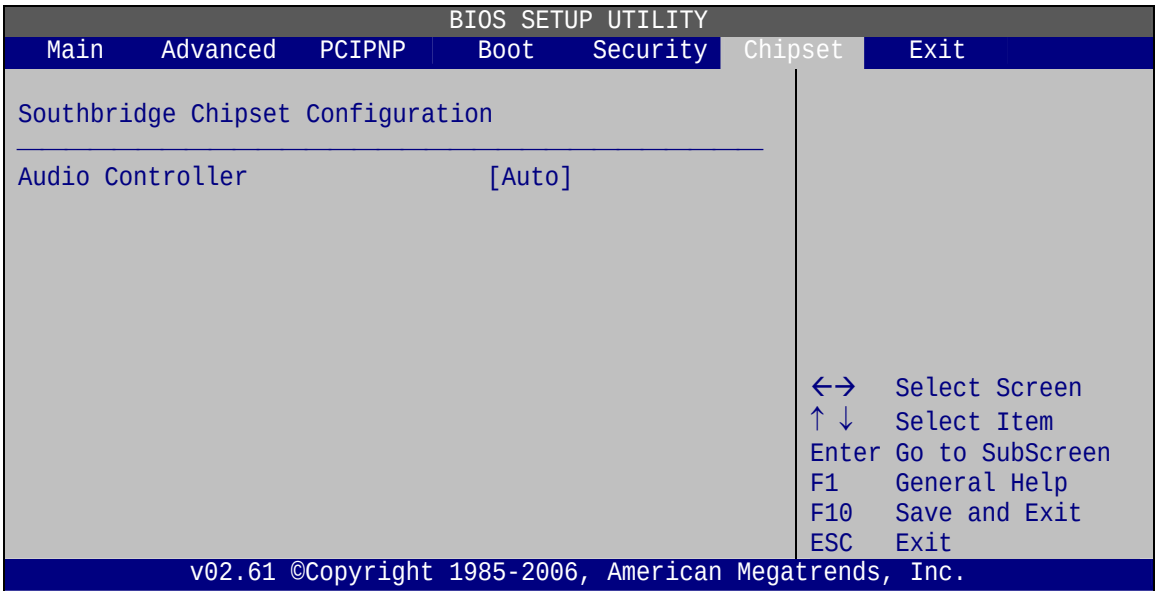
➔ **LFP Panel Type [by H/W]**

Use the **LFP Panel Type** option to select the type of panel connected to the system. Configuration options are listed below.

- 640x480 18b
- 800x480 18b
- 800x600 18b
- 1024x768 18b
- 1280x1024 36b
- 1400x1050 36b
- 1440x900 36b
- 1600x1200 36b
- by H/W **DEFAULT**

4.7.2 Southbridge Configuration

The **Southbridge Configuration** menu (**BIOS Menu 19**) allows the Southbridge chipset to be configured.



BIOS Menu 19: Southbridge Chipset Configuration

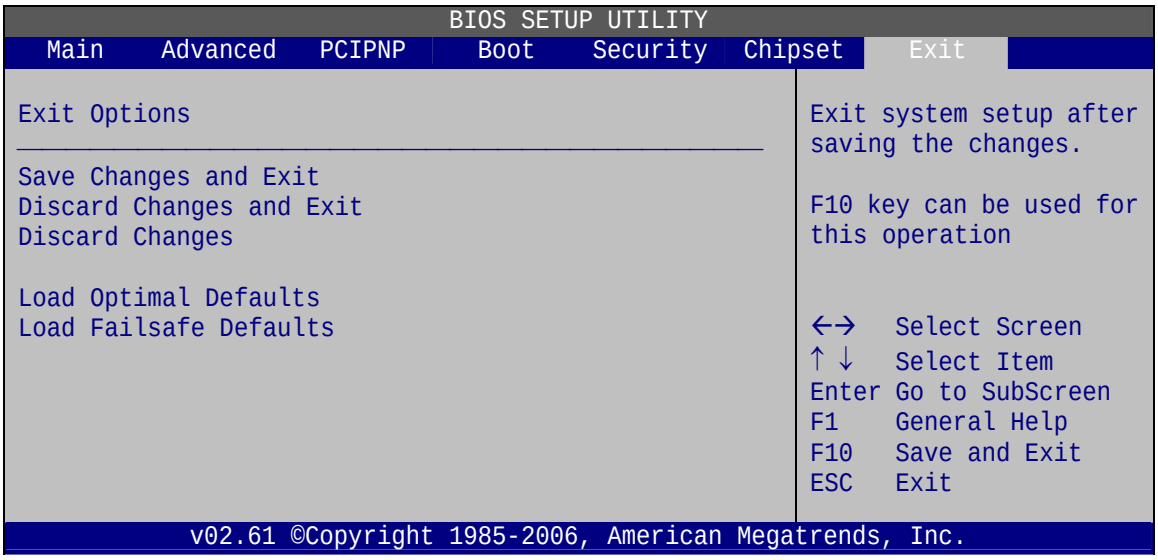
➔ **Audio Controller [AC'97 Audio Only]**

The **Audio Controller** option enables or disables the audio controller.

➔ **Auto**	**DEFAULT**	The onboard AC'97 is automatically detected and enabled
➔ **Azalia**		The Azalia HD audio controller is enabled
➔ **AC'97 Audio Only**		The on-board AC'97 audio controller is enabled.
➔ **All Disabled**		The on-board audio controller is disabled.

4.8 Exit

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



BIOS Menu 20: 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**

Step 1: 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-08B-N270.

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-08B-N270 is opened.
- ***Make sure the power is turned off and the power cord is disconnected*** whenever the AFL-08B-N270 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-08B-N270 chassis is opened when the AFL-08B-N270 is running.
- ***Do not drop or insert any objects*** into the ventilation openings of the AFL-08B-N270.
- ***If considerable amounts of dust, water, or fluids enter the AFL-08B-N270***, turn off the power supply immediately, unplug the power cord, and contact the AFL-08B-N270 vendor.
- **DO NOT** do the following:
  - **DO NOT** drop the AFL-08B-N270 against a hard surface.
  - **DO NOT** strike or exert excessive force onto the LCD panel.
  - **DO NOT** touch any of the LCD panels with a sharp object
  - **DO NOT** use the AFL-08B-N270 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-08B-N270 may result in permanent damage to the AFL-08B-N270 and sever injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the AFL-08B-N270. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the AFL-08B-N270 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-08B-N270, please follow the guidelines below.

A.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the AFL-08B-N270, 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 does not require cleaning. Keep fluids away from the interior.
- Be careful not to damage the small, removable components inside.
- Turn off before cleaning.
- Never drop any objects or liquids through the openings.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning.
- Avoid eating, drinking and smoking nearby.

A.2.2 Cleaning Tools

Some components 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 for cleaning.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended.
- ***Water or rubbing alcohol*** – A cloth moistened with water or rubbing alcohol should be used.
- ***Using solvents*** – The use of solvents is not recommended as they may damage the plastic parts.
- ***Vacuum cleaner*** – Using a vacuum specifically designed for computers is one of the best methods of cleaning. Dust and dirt can restrict the airflow and cause 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 Options

Below is a list of BIOS configuration options in the BIOS chapter.

Appendix

C

Terminology

AC '97	Audio Codec 97 (AC'97) refers to a codec standard developed by Intel® in 1997.
ACPI	Advanced Configuration and Power Interface (ACPI) is an OS-directed configuration, power management, and thermal management interface.
AHCI	Advanced Host Controller Interface (AHCI) is a SATA Host controller register-level interface.
ATA	The Advanced Technology Attachment (ATA) interface connects storage devices including hard disks and CD-ROM drives to a computer.
ARMD	An ATAPI Removable Media Device (ARMD) is any ATAPI device that supports removable media, besides CD and DVD drives.
ASKIR	Amplitude Shift Keyed Infrared (ASKIR) is a form of modulation that represents a digital signal by varying the amplitude ("volume") of the signal. A low amplitude signal represents a binary 0, while a high amplitude signal represents a binary 1.
BIOS	The Basic Input/Output System (BIOS) is firmware that is first run when the computer is turned on and can be configured by the end user
CODEC	The Compressor-Decompressor (CODEC) encodes and decodes digital audio data on the system.
CompactFlash®	CompactFlash® is a solid-state storage device. CompactFlash® devices use flash memory in a standard size enclosure. Type II is thicker than Type I, but a Type II slot can support both types.
CMOS	Complimentary metal-oxide-conductor is an integrated circuit used in chips like static RAM and microprocessors.
COM	COM refers to serial ports. Serial ports offer serial communication to expansion devices. The serial port on a personal computer is usually a male DB-9 connector.
DDR	Double Data Rate refers to a data bus transferring data on both the rising and falling edges of the clock signal.
DMA	Direct Memory Access (DMA) enables some peripheral devices to bypass the system processor and communicate directly with the system memory.

DIMM	Dual Inline Memory Modules are a type of RAM that offer a 64-bit data bus and have separate electrical contacts on each side of the module.
EHCI	The Enhanced Host Controller Interface (EHCI) specification is a register-level interface description for USB 2.0 Host Controllers.
EIDE	Enhanced IDE (EIDE) is a newer IDE interface standard that has data transfer rates between 4.0 MBps and 16.6 MBps.
EIST	Enhanced Intel® SpeedStep Technology (EIST) allows users to modify the power consumption levels and processor performance through application software. The application software changes the bus-to-core frequency ratio and the processor core voltage.
FSB	The Front Side Bus (FSB) is the bi-directional communication channel between the processor and the Northbridge chipset.
GbE	Gigabit Ethernet (GbE) is an Ethernet version that transfers data at 1.0 Gbps and complies with the IEEE 802.3-2005 standard.
HDD	Hard disk drive (HDD) is a type of magnetic, non-volatile computer storage device that stores digitally encoded data.
ICH	The Input/Ouput Control Hub (ICH) is an Intel® Southbridge chipset.
IrDA	Infrared Data Association (IrDA) specify infrared data transmission protocols used to enable electronic devices to wirelessly communicate with each other.
L1 Cache	The Level 1 Cache (L1 Cache) is a small memory cache built into the system processor.
L2 Cache	The Level 2 Cache (L2 Cache) is an external processor memory cache.
LCD	Liquid crystal display (LCD) is a flat, low-power display device that consists of two polarizing plates with a liquid crystal panel in between.
LVDS	Low-voltage differential signaling (LVDS) is a dual-wire, high-speed differential electrical signaling system commonly used to connect LCD displays to a computer.
POST	The Power-on Self Test (POST) is the pre-boot actions the system performs when the system is turned-on.

RAM	Random Access Memory (RAM) is volatile memory that loses data when power is lost. RAM has very fast data transfer rates compared to other storage like hard drives.
SATA	Serial ATA (SATA) is a serial communications bus designed for data transfers between storage devices and the computer chipsets. The SATA bus has transfer speeds up to 1.5 Gbps and the SATA II bus has data transfer speeds of up to 3.0 Gbps.
S.M.A.R.T	Self Monitoring Analysis and Reporting Technology (S.M.A.R.T) refers to automatic status checking technology implemented on hard disk drives.
UART	Universal Asynchronous Receiver-transmitter (UART) is responsible for asynchronous communications on the system and manages the system's serial communication (COM) ports.
UHCI	The Universal Host Controller Interface (UHCI) specification is a register-level interface description for USB 1.1 Host Controllers.
USB	The Universal Serial Bus (USB) is an external bus standard for interfacing devices. USB 1.1 supports 12Mbps data transfer rates and USB 2.0 supports 480Mbps data transfer rates.
VGA	The Video Graphics Array (VGA) is a graphics display system developed by IBM.

Appendix

D

Watchdog Timer

NOTE:

The following discussion applies to DOS environment.

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

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

NOTE:

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     BL, 30          ;time-out value is 48 seconds
        INT     15H
;
; ADD THE APPLICATION PROGRAM HERE
;
        CMP     EXIT_AP, 1      ;is the application over?
        JNE     W_LOOP          ;No, restart the application

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

Appendix

E

Hazardous Materials Disclosure

E.1 Hazardous Materials 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。						