DS910-OT

User's Manual

Copyright

Trademarks

FCC and DOC Statement on Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio TV technician for help.

Notice:

1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
2. Shielded interface cables must be used in order to comply with the emission limits.

Table of Contents

About this Manual

An electronic file of this manual is included in the DVD. To view the user's manual in the DVD, insert the DVD into a DVD-ROM drive. The autorun screen (Main Board Utility CD) will appear. Click "User's Manual" on the main menu.

Warranty

1. Warranty does not cover damages or failures that arised from misuse of the product, inability to use the product, unauthorized replacement or alteration of components and product specifications.

2. The warranty is void if the product has been subjected to physical abuse, improper installation, modification, accidents or unauthorized repair of the product.

3. Unless otherwise instructed in this user's manual, the user may not, under any circumstances, attempt to perform service, adjustments or repairs on the product, whether in or out of warranty. It must be returned to the purchase point, factory or authorized service agency for all such work.

4. We will not be liable for any indirect, special, incidental or consequencial damages to the product that has been modified or altered.

Static Electricity Precautions

It is quite easy to inadvertently damage your PC, system board, components or devices even before installing them in your system unit. Static electrical discharge can damage computer components without causing any signs of physical damage. You must take extra care in handling them to ensure against electrostatic build-up.

1. To prevent electrostatic build-up, leave the system board in its anti-static bag until you are ready to install it.

2. Wear an antistatic wrist strap.

3. Do all preparation work on a static-free surface.

4. Hold the device only by its edges. Be careful not to touch any of the components, contacts or connections.

5. Avoid touching the pins or contacts on all modules and connectors. Hold modules or connectors by their ends.

Important:
Electrostatic discharge (ESD) can damage your processor, disk drive and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.

Safety Measures

To avoid damage to the system:
• Use the correct AC input voltage range.

To reduce the risk of electric shock:
• Unplug the power cord before removing the system chassis cover for installation or servicing. After installation or servicing, cover the system chassis before plugging the power cord.

Battery:
• Danger of explosion if battery incorrectly replaced.
• Replace only with the same or equivalent type recommend by the manufacturer.
• Dispose of used batteries according to local ordinance.

Safety Precautions

- Use the correct AC input voltage range.

- Unplug the power cord before removing the system chassis cover for installation or servicing. After installation or servicing, cover the system chassis before plugging the power cord.

- Danger of explosion if battery incorrectly replaced.

- Replace only with the same or equivalent type recommend by the manufacturer.

- Dispose of used batteries according to local ordinance.

- Keep this system away from humidity.

- Place the system on a stable surface. Dropping it or letting it fall may cause damage.

- The openings on the system are for air ventilation to protect the system from overheating. DO NOT COVER THE OPENINGS.

- Place the power cord in such a way that it will not be stepped on. Do not place anything on top of the power cord. Use a power cord that has been approved for use with the system and that it matches the voltage and current marked on the system's electrical range label.

- If the system will not be used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.

- If one of the following occurs, consult a service personnel:

  - The power cord or plug is damaged.

  - Liquid has penetrated the system.

  - The system has been exposed to moisture.

  - The system is not working properly.

  - The system dropped or is damaged.

  - The system has obvious signs of breakage.

- The unit uses a three-wire ground cable which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace the outlet.

- Disconnect the system from the AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.

About the Package

The system package contains the following items. If any of these items are missing or damaged, please contact your dealer or sales representative for assistance.

- ☑ 1 DS910-OT system unit
- ☑ 1 HDD drive bay kit
    - 4 HDD screws
    - 1 SATA with power cable
- ☑ 2 Terminal blocks
- ☑ 1 60W power adapter
    - AC input: 100-240V, 50-60Hz
    - DC output: 12V, 5A max (60W max)
- ☑ 1 Quick Installation guide
- ☑ 1 DVD disk includes:
    - Drivers
    - Manual

Optional Items

- ☑ 1 VESA mount kit
    - 1 VESA bracket
    - Bracket screws
- ☑ 1 Wallmount kit
    - 2 wallmount brackets
    - Bracket screws
- ☑ 1 Power cord

The system and accessories in the package may not come similar to the information listed above. This may differ in accordance to the sales region or models in which it was sold. For more information about the standard package in your region, please contact your dealer or sales representative.

Before Using the System

Before powering-on the system, prepare the basic system components.

If you are installing the system board in a new system, you will need at least the following internal components.

- Storage devices such as hard disk drive, DVD-ROM, etc.

You will also need external system peripherals you intend to use which will normally include at least a keyboard, a mouse and a video display monitor.

Chapter 1 - Introduction

Overview

DS910-OT
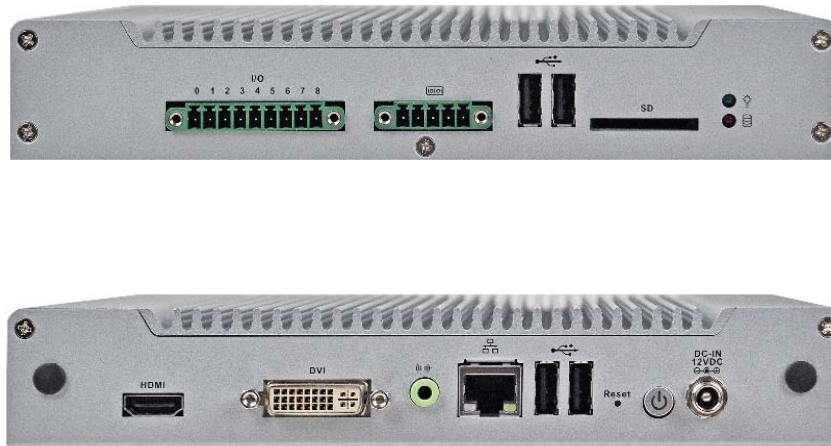
Key Features

	DS910-OT
Processor	AMD® T40N/T56N
Chipset	AMD® A50M
LAN	1 LAN port
COM	1 5-pole RS232 COM terminal block
DIO	1 9-pole terminal block for 8-bit DIO
DVI-I	1 DVI-I port
USB	4 USB ports
HDMI	1 HDMI port

Specifications

Processor
• AMD® T56N (Dual-Core 1.65GHz 18W TDP)
• AMD® T40N (Dual-Core 1.0GHz 9W TDP)

Chipset
• AMD® A50M

System Memory
• 2 DDR3 SODIMM sockets
• Supports DDR3 1066/1333MHz (DS910-OT56N)
  Supports DDR3 1066MHz (DS910-OT40N)
• Supports up to 16GB memory
• Single channel memory interface

Storage
• 1 2.5" SATA drive bay
• SD/MMC slot
• Supports 1 mSATA module via a mini PCIe socket

Graphics
• Supports Hardware H.264/MPEG-4 video decoder or AVC (Advanced Video
  Coding)
• 1080p video playback capability
• DVI-I display resolution up to 1920x1080
• HDMI display resolution up to 1920x1080
• Dual display outputs
  - DVI-I + HDMI

LAN
• Realtek® RTL8111DL Gigabit Ethernet controller

Audio
• Realtek® ALC262 2-channel High Definition Audio

COM
• 1 5-pole RS232 COM terminal block

Expansion
• 2 mini PCIe slots
  - One of the slots support mSATA module

I/O Ports
• Front Panel
- - 1 9-pole terminal block for 8-bit DIO
- - 1 5-pole RS232 COM terminal block
- - 2 USB 2.0 ports (Type A)
- - 1 SD/MMC slot
- - 1 Power LED
- - 1 HDD LED
• Rear Panel
- - 1 HDMI
- - 1 DVI-I
- - 1 Line-out
- - 1 LAN
- - 2 USB 2.0 (Type A)
- - 1 Reset button
- - 1 Power button
- - 2 antenna holes
- - 12V DC-in

Power
• Power input voltage
- - +12V DC

Environment
• Temperature
- - Operating: $0^{o}C \sim 45^{o}C$
- - Storage: $-20^{o}C \sim 70^{o}C$
• Humidity
- - Operating: 10% to 85% non-condensing
- - Storage: 10% to 90% non-condensing

Construction
• Aluminum + SGCC

Mounting
• Wall/VESA mounting kit (brackets and screws) - optional

Dimensions
• 210mm x 35mm x 194.3mm (W x H x D)

Weight
• 1.71 kg

OS Support
• Windows 7, Windows 7 Embedded, Windows XP, Windows XP Embedded, Linux
  Kernel 2.6

Other Features
• Watchdog Timer function

Certification
• CE
• FCC Class B

Getting to Know the DS910-OT

Front Panel

Power LED

GPIO   COM   USB   SD/MMC   HDD LED
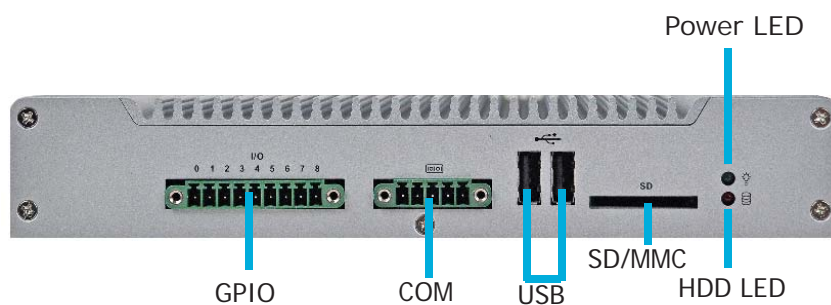
HDD LED
Indicates the status of the hard drive.

Power LED
Indicates the power status of the system.

SD/MMC
Used to insert an SD/MMC card.

USB Ports
Used to connect USB 2.0/1.1 devices.

GPIO Port
Supports 8-bit digital output and input.

COM Port
Used to connect serial devices.

Introduction

Rear Panel

Wi-Fi Module Antenna Hole   LAN   Wi-Fi Module Antenna Hole

HDMI   DVI-I   Line-Out   USB   +12V DC-in   Power   Reset
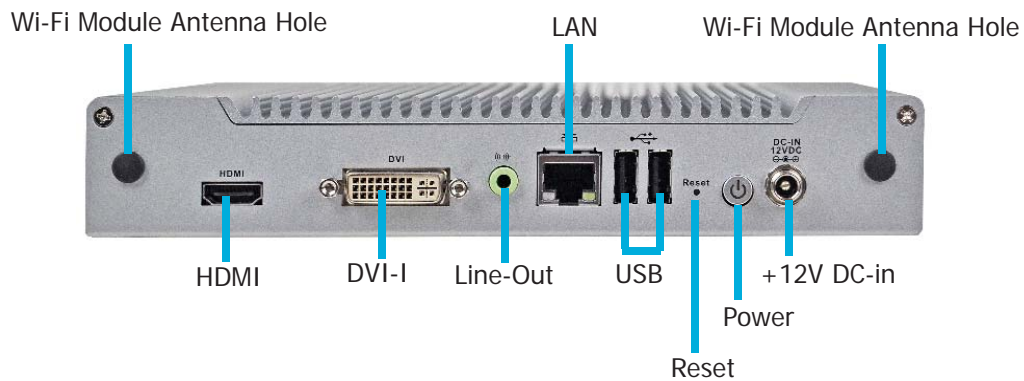
Wi-Fi Module Antenna
Used to connect to a Wi-Fi antenna.

HDMI Port
Use to connect an HDMI device.

DVI-I
Use to connect an DVI device.

Line-out
Used to connect to a speaker.

LAN Port
Used to connect systems to a local area network.

USB Ports
Used to connect USB 2.0/1.1 devices.

Reset Switch
Press to reset the system.

Power Switch
Press to power-on or power-off the system.

DC-in
Used to plug a 12V DC.

Mechanical Dimensions

Chassis Dimensions

194.30

210.00

35.00

35.00
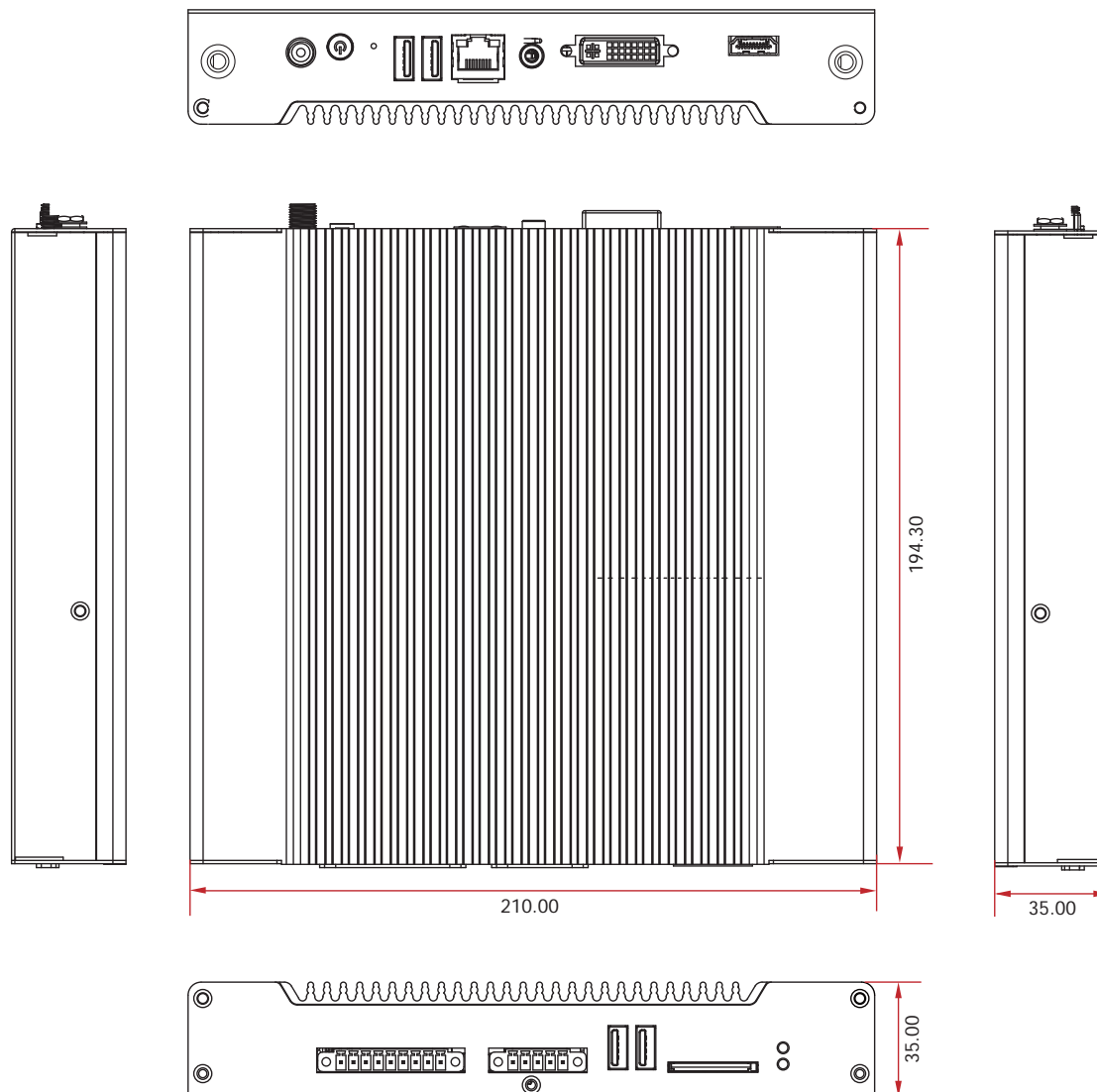
Chapter 2 - Getting Started

Preparing the System

Before you start using the system, you need the following items:

- SATA hard drive
- AC power adapter
- USB keyboard
- USB mouse
- CD-ROM drive (for installing software/drivers)
- Memory module (optional)

Installing Devices

The following are devices that can be installed in the DS910-OT system.

- Memory module
- SATA hard drive

Configuring the BIOS

To get you started, you may need to change configurations such as the date, time and the type of hard disk drive.

1. Power-on the system.

2. After the memory test, the message "Press DEL to run setup" will appear on the screen. Press the Delete key to enter the AMI BIOS setup utility.

Installing the Operating System

Most operating system software are provided in a CD therefore you need to install a CD-ROM drive in order to use the CD.

Make sure a 2.5″ SATA drive is already installed.

1. Refer to the following chapters for information on connecting a CD-ROM drive and installing a SATA drive.

2. Refer to your operating system manual for instructions on installing the operating system.

Installing the Drivers

The system package includes a CD disk. The CD includes drivers that must be installed to provide the best system performance. Refer to the Supported Software chapter for instructions on installing the drivers.

Chapter 3 - Installing Devices

Removing the Chassis Cover

1. Make sure the system and all other peripheral devices connected to it has been powered-off.

2. Disconnect all power cords and cables.

3. The 8 mounting screws on the sides of the system are used to secure the cover to the chassis. Remove these screws and then put them in a safe place for later use.

Mounting screw

Mounting screw

4. After removing the mounting screws, lift the cover up.

Lift the Cover Upward

5. The SODIMM socket and SATA drive bay are readily accessible after removing the chassis cover.

SATA drive bay
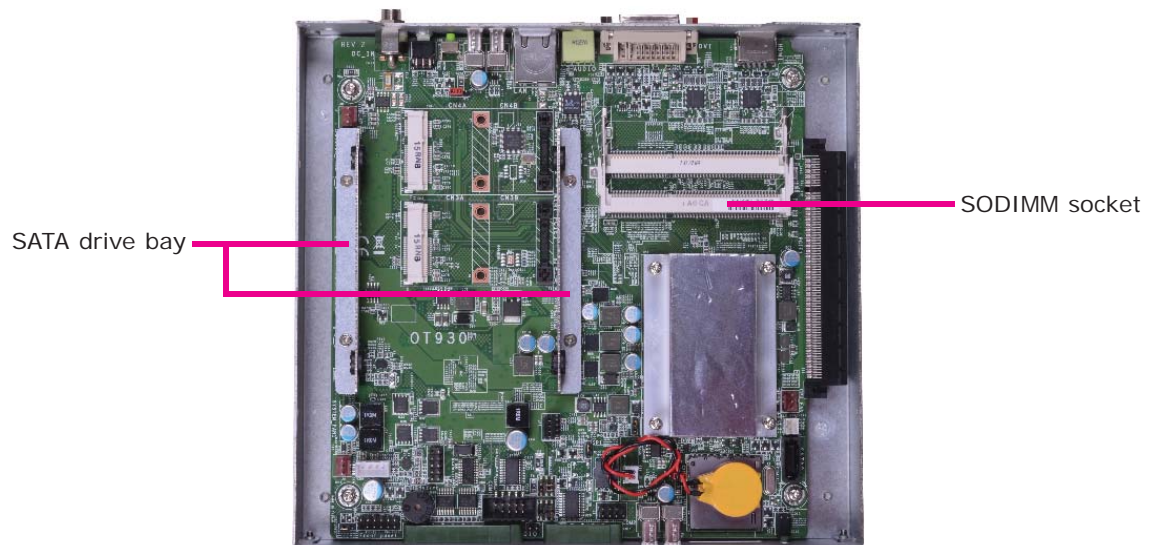
SODIMM socket

Note:
The system comes with an aluminum sheet on the heat sink. Please do not tear off.

Installing a SODIMM

Note:
The system board is equipped with two SODIMM sockets. At first, install the memory from SODIMM1.

1. Locate the SODIMM socket on the system board.

SODIMM sockets
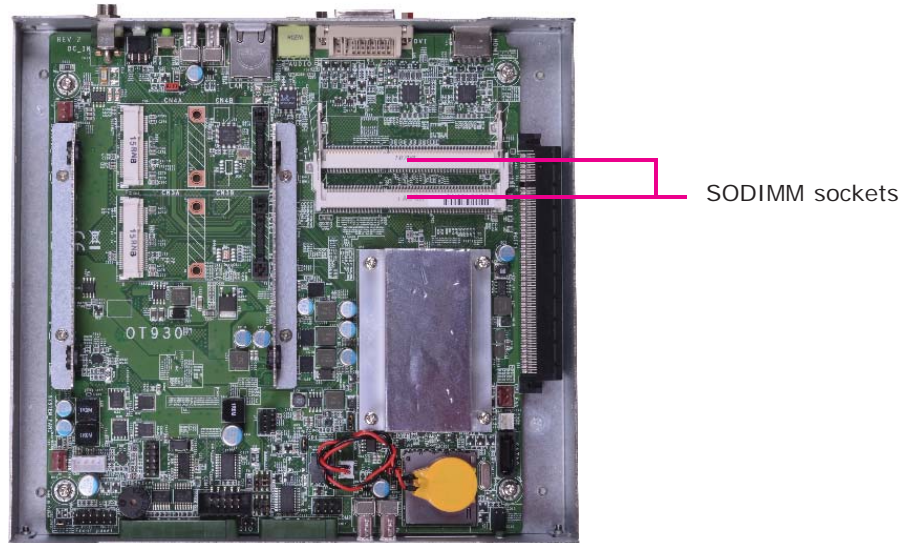
2. Note the key on the socket. The key ensures the module can be plugged into the socket in only one direction.
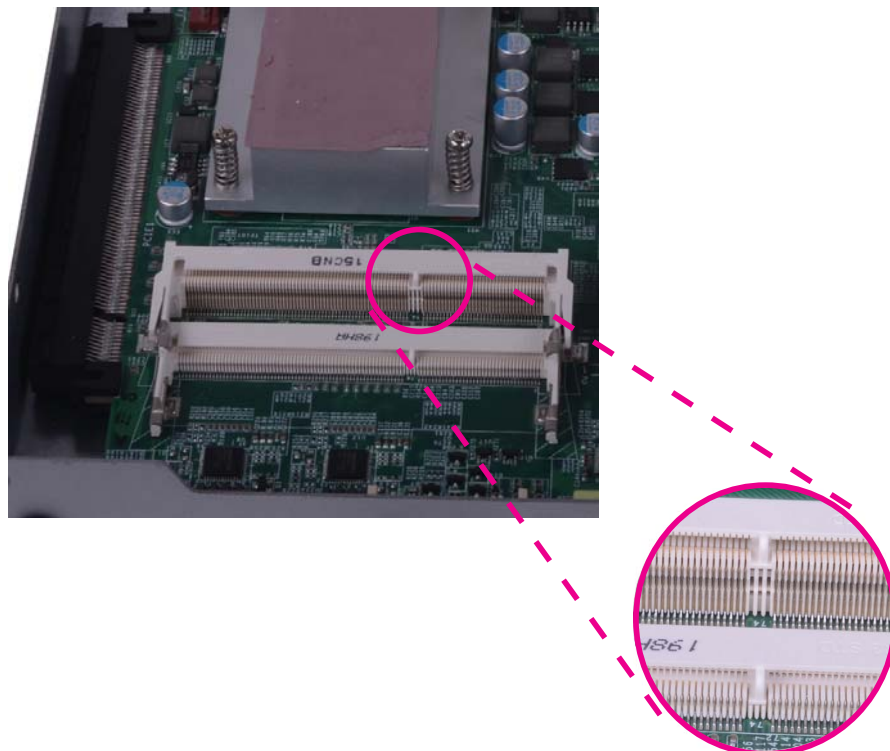
3. Grasping the module by its edges, align the module into the socket at an approximately 30 degrees angle. Apply firm even pressure to each end of the module until it slips down into the socket. The contact fingers on the edge of the module will almost completely disappear inside the socket.

SODIMM

4. Push the module down until the clips at each end of the socket lock into position. You will hear a distinctive "click", indicating the module is correctly locked into position.

Clip

Clip
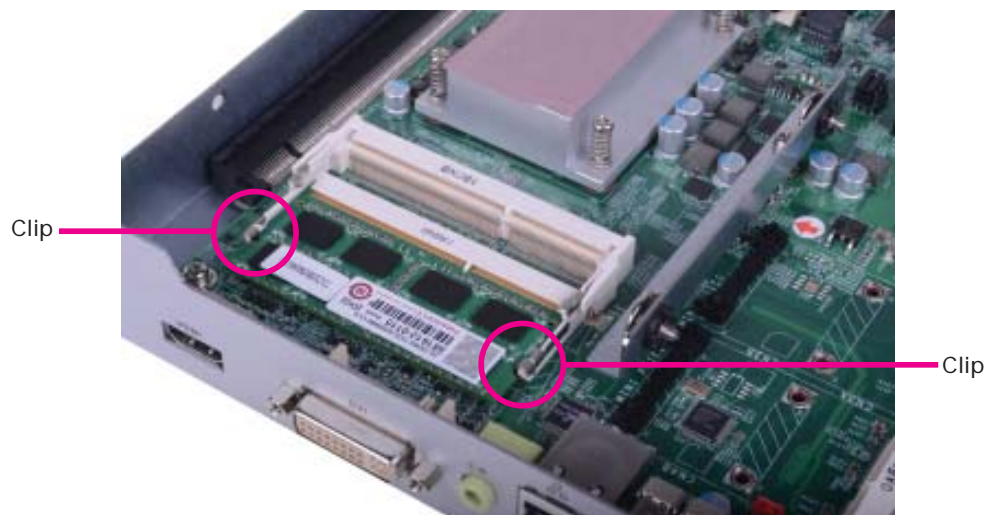
Installing a SATA Drive

1. Remove the 4 mounting screws that secure the HDD brackets to the drive bay.
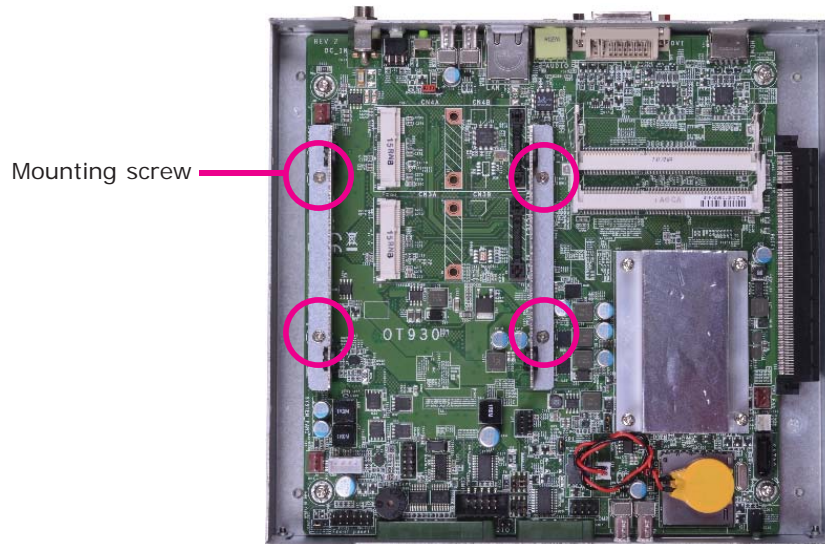
Mounting screw

2. Align the mounting holes of the SATA drive with the mounting holes on the HDD bracket and then use the provided mounting screws to secure the drive in place.

SATA drive

HDD bracket

Mounting screw
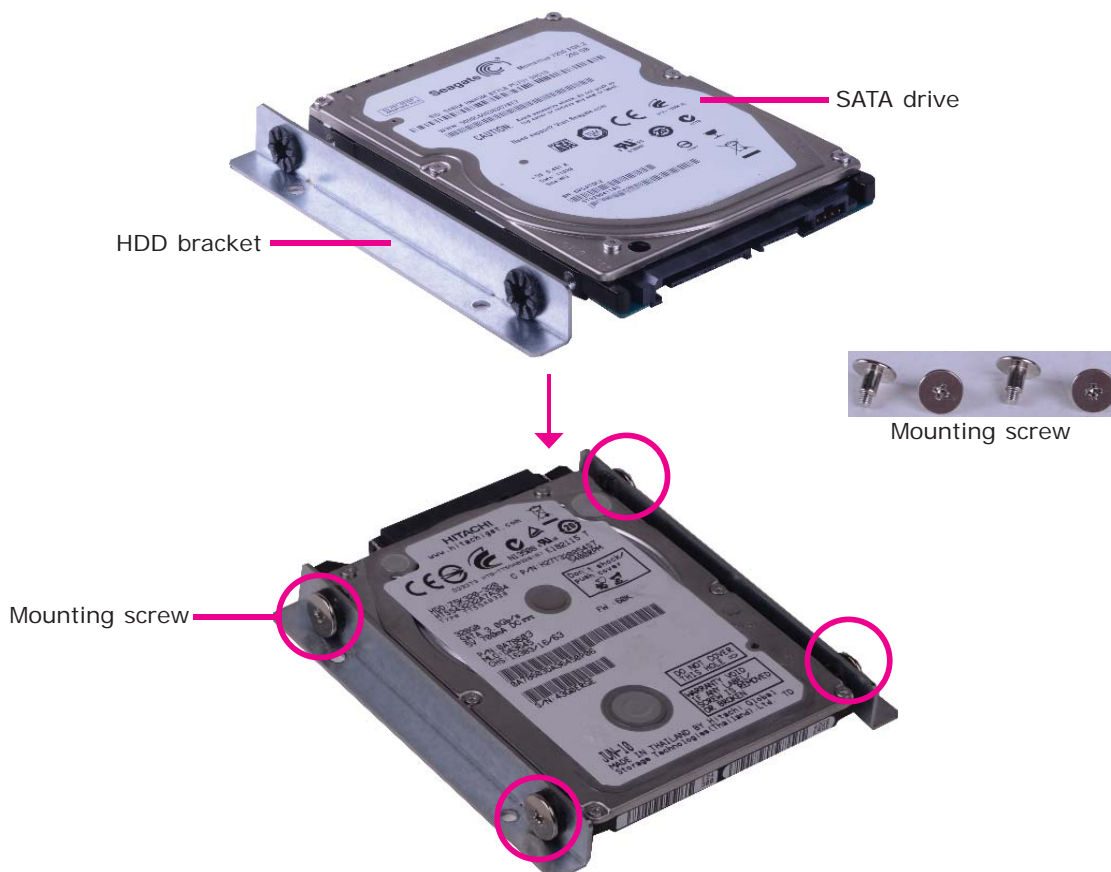
Mounting screw

3. Place the SATA drive (with HDD bracket) into the chassis. Replace the 4 mounting screws you removed in step 1.

Mounting screw
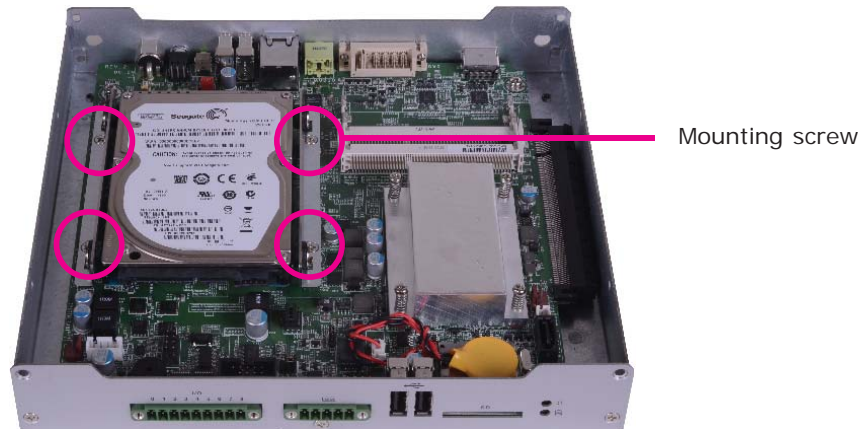
4. Connect the SATA data cable and SATA power cable to the connectors on the SATA drive.

SATA power cable

SATA data cable

SATA power/data connector

SATA data connector

SATA power connector

SATA power/data connector
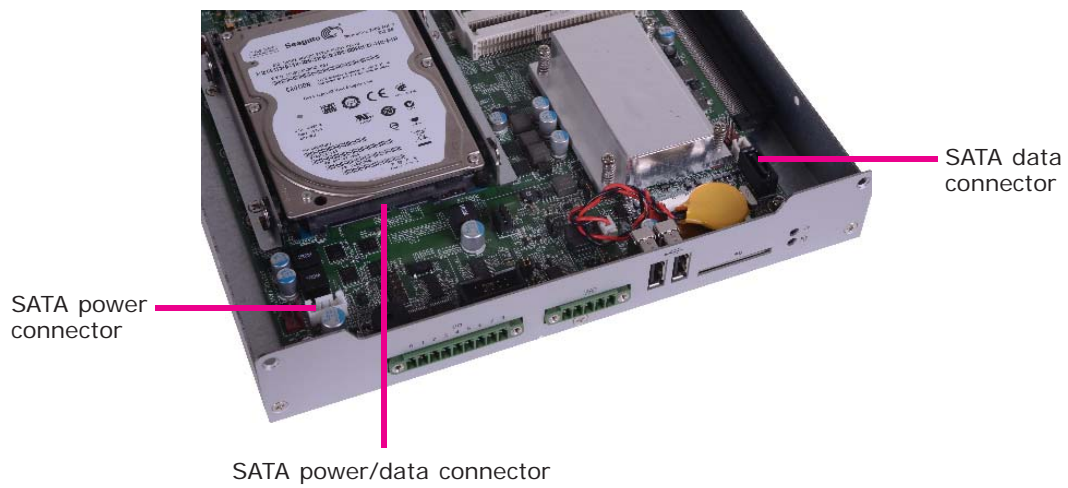
Connecting Cables to Terminal Blocks

1. Insert one end of the cable into the holes on the terminal block, and use the screwdriver to fasten the cables.
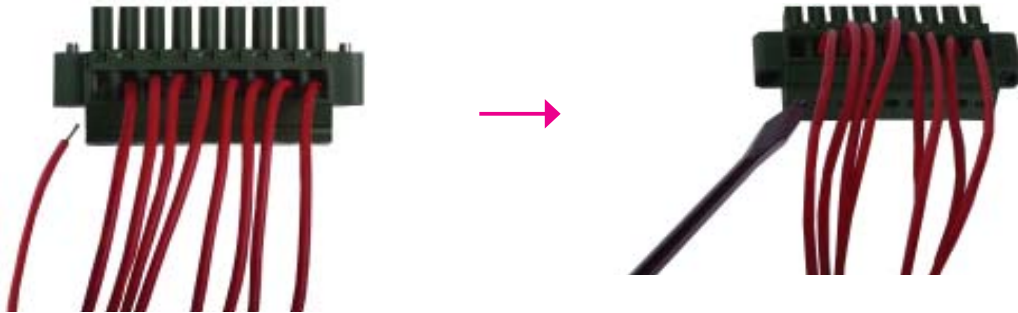
2. Connect the terminal block to the connector on the system, and use the screwdriver to secure the terminal block in place.
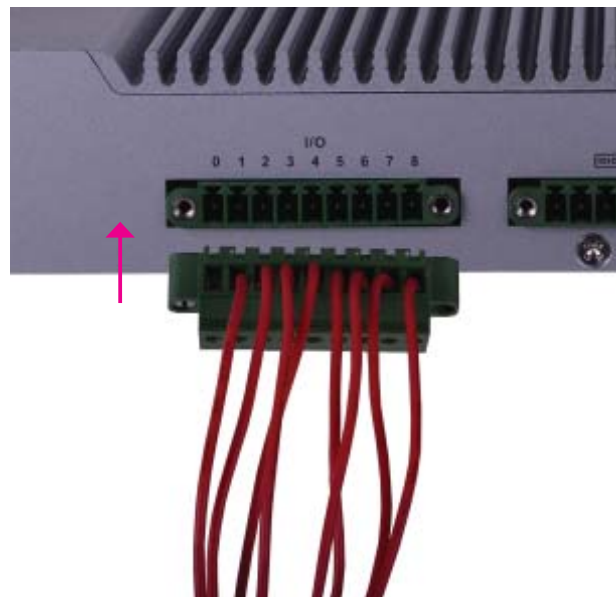
Chapter 4 - Jumper Settings

Jumper Settings

Clear CMOS Data

1-2 On:
Normal (default)

2-3 On:
Clear CMOS Data

JP1
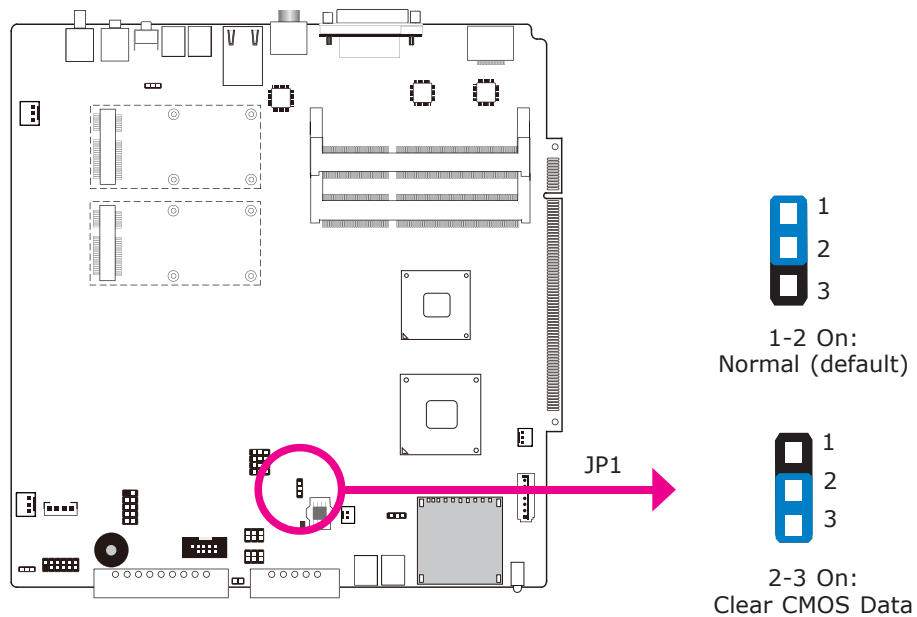
If you encounter the following,

a) CMOS data becomes corrupted.
b) You forgot the supervisor or user password.

you can reconfigure the system with the default values stored in the ROM BIOS.

To load the default values stored in the ROM BIOS, please follow the steps below.

1. Power-off the system and unplug the power cord.

2. Set JP1 pins 2 and 3 to On. Wait for a few seconds and set JP1 back to its default setting, pins 1 and 2 On.

3. Now plug the power cord and power-on the system.

USB Power Select

JP5

1 2 3
1-2 On:
+5V (default)

1 2 3
2-3 On:
+5V_standby

JP6

3 2 1
2-3 On:
+5V_standby

3 2 1
1-2 On:
+5V (default)
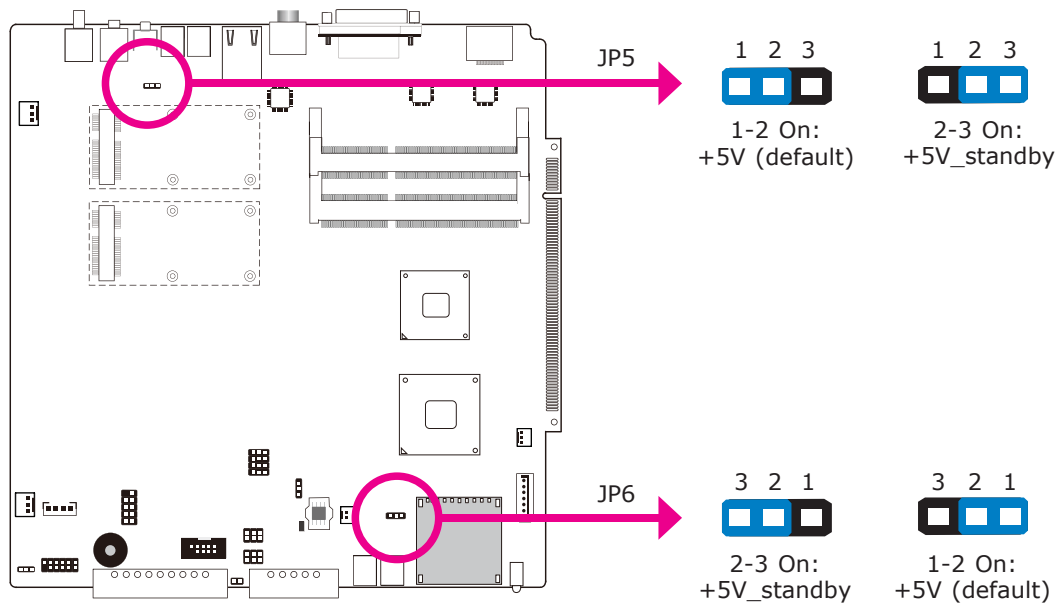
JP5 (for USB 0 and USB 1) and JP6 (for USB 2 and USB 3) are used to select the power of the USB ports. Selecting 5V_standby will allow you to use a USB device to wake up the system.

BIOS Setting

"USB KB Wake-Up From S3" in the Power Management Setup submenu of the BIOS must be set to Enabled. Refer to chapter 3 for more information.

Important:
If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5V_standby power source of your power supply must support ≥1.5A. For 3 or more USB ports, the 5V_standby power source of your power supply must support ≥2A.

mSATA/ Mini PCIe Select

JP7

3 2 1

1-2 On:
Mini PCIe
(default)

3 2 1

2-3 On:
mSATA
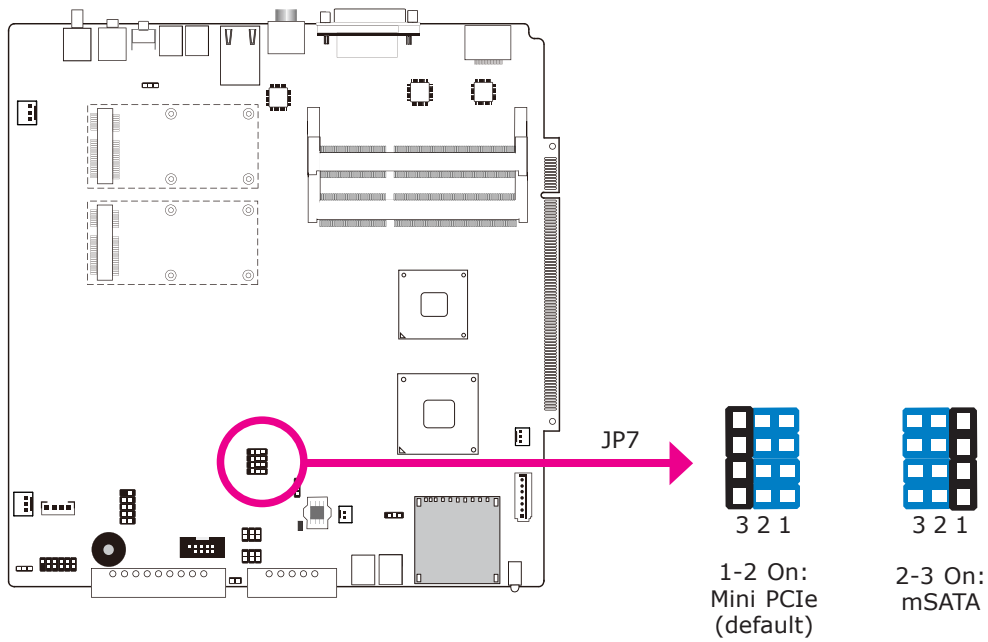
JP7 is used to select whether mSATA or Mini PCIe.

COM1 RS232/Power Select

JP9
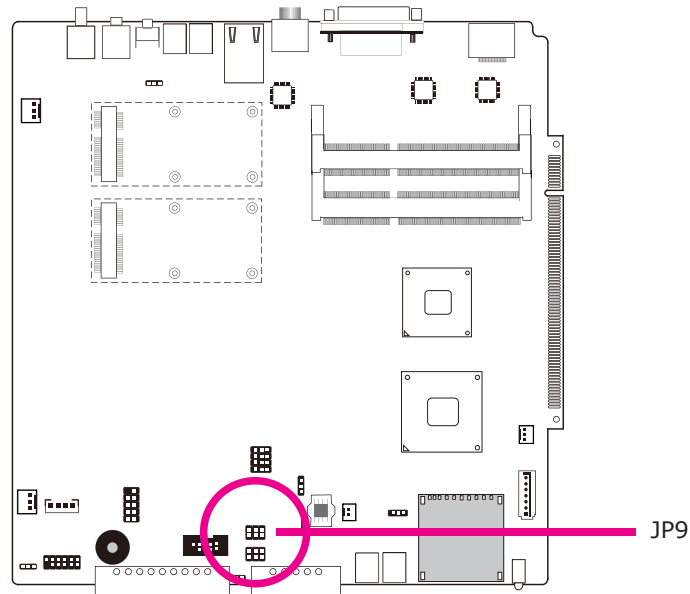
JP9 are used to configure COM 1 to pure RS232 or RS232 with power.

The pin function of COM 1 will vary according to JP9's setting respectively.

JP9	
5 3 1	5 3 1
6 4 2	6 4 2
1-3 (RI), 2-4 (DCD) On: RS232 (default)	3-5 (+5V), 4-6 (+12V) On: RS232 with power
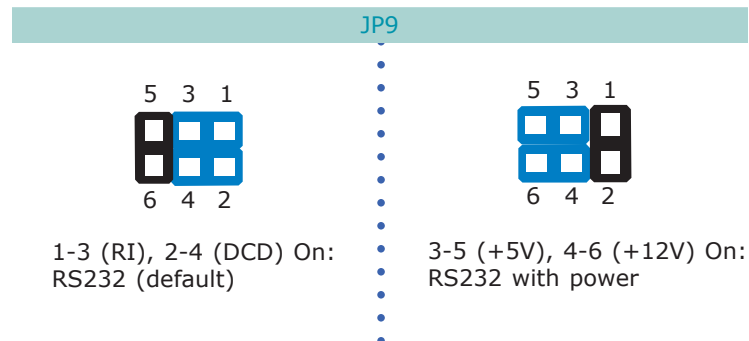
COM1 RS232/RS422/RS485 Select

JP8
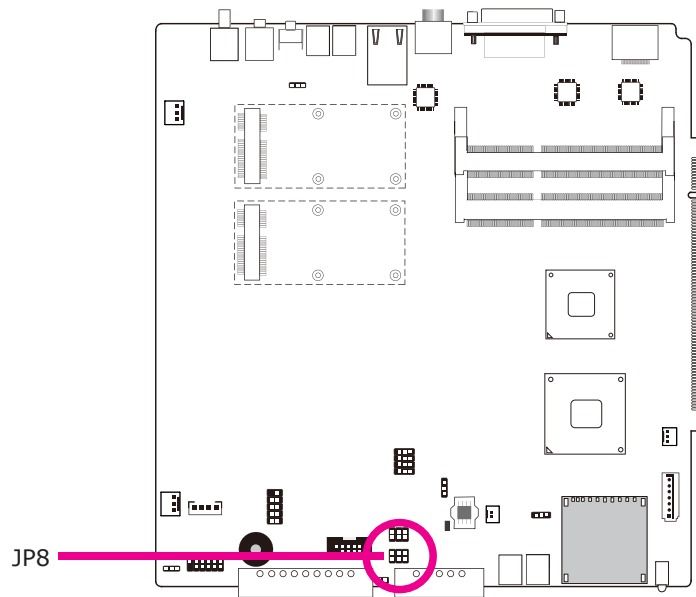
JP8 (for COM1) is used to configure the COM port to RS232, RS422 (Full Duplex) or RS485.

The pin function of the COM ports will vary according to the jumper's setting.

JP8		
5 3 1 6 4 2 1-2 On: RS232 (default)	5 3 1 6 4 2 3-4 On: RS422 Full Duplex	5 3 1 6 4 2 5-6 On: RS485

Power-on Select

1 2 3

1-2 On:
Power-on via power button
(default)

1 2 3

2-3 On:
Power-on via AC power
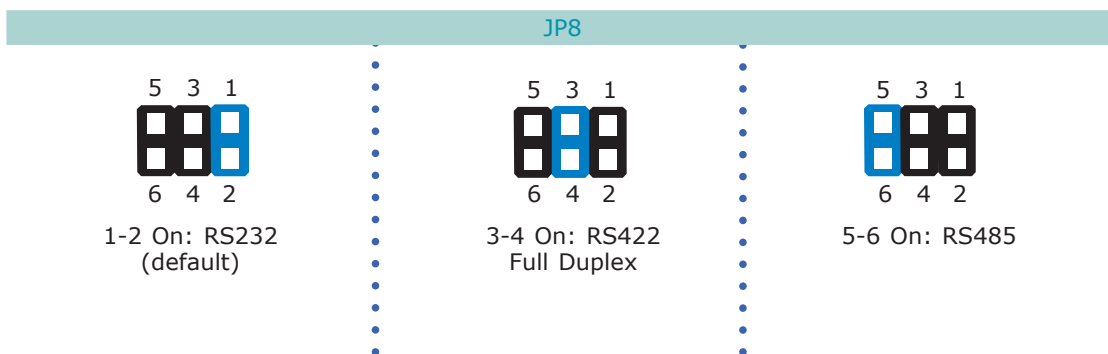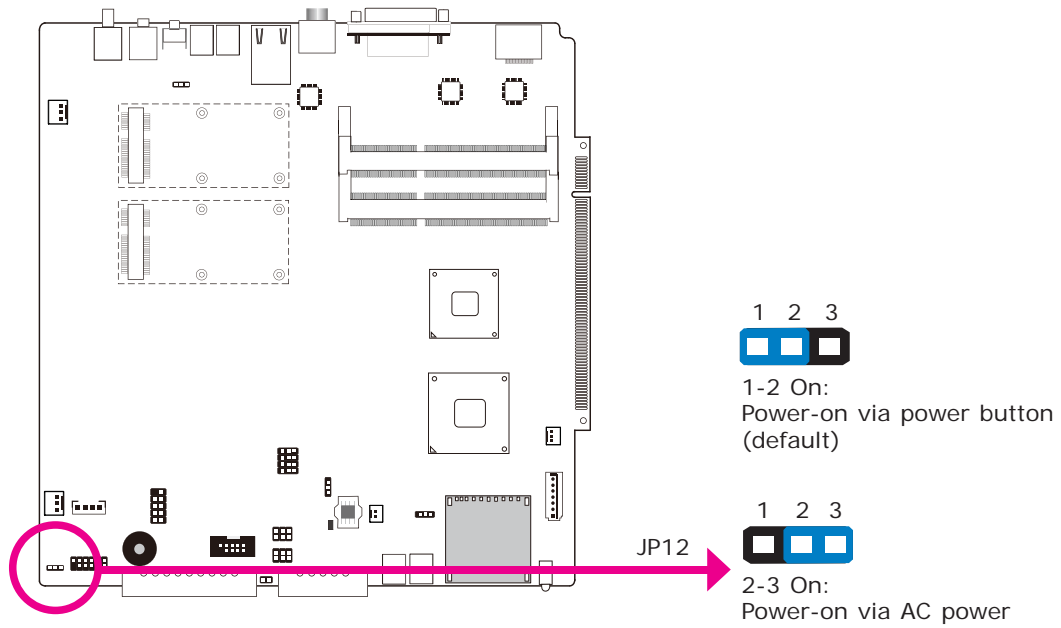
JP12

To power-on via AC Power:

1. Set JP12 pins 2 and 3 to On.

2. Set the "After G3" field to **Power On**.

Chapter 5 - Ports and Connectors

Front Panel I/O Ports
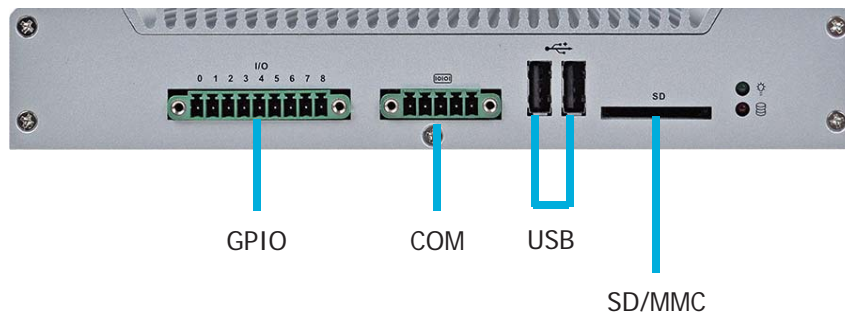
The front panel I/O ports consist of the following:

- 1 GPIO port
- 1 5-pole RS232 COM terminal block
- 2 USB
- 1 SD/MMC slot

COM Port
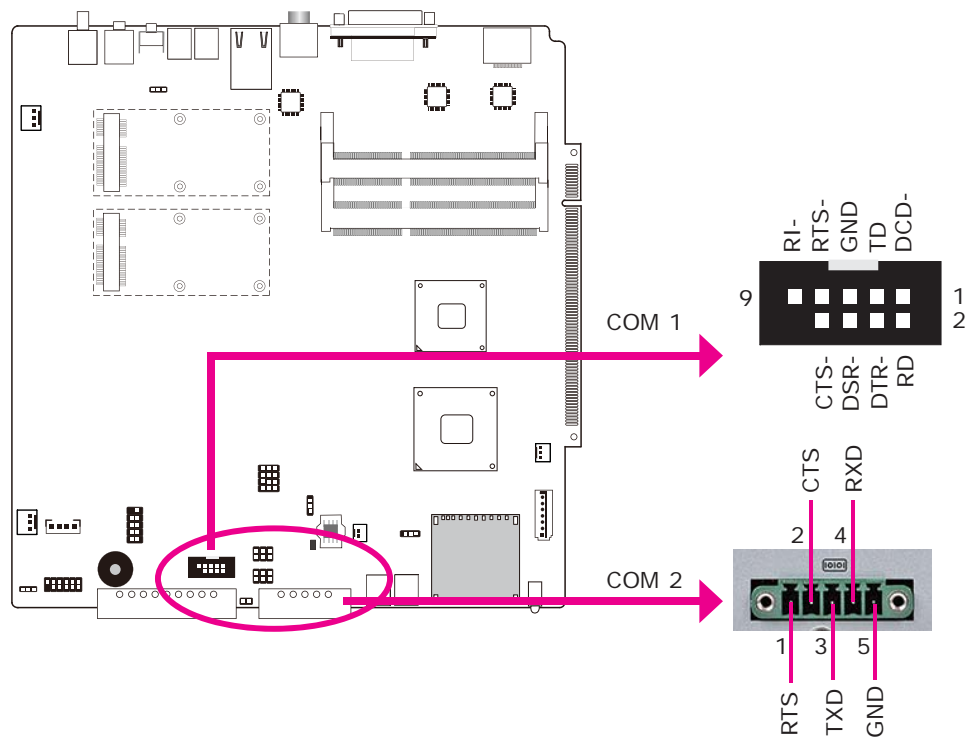
COM 1 and COM 2 are fixed at RS232.

COM 1's pin definition will vary according to JP8's settings. Refer to "COM 1 RS232/RS422/RS485 Select" in this chapter for more information.

The serial ports are asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices.

Digital Input/Output
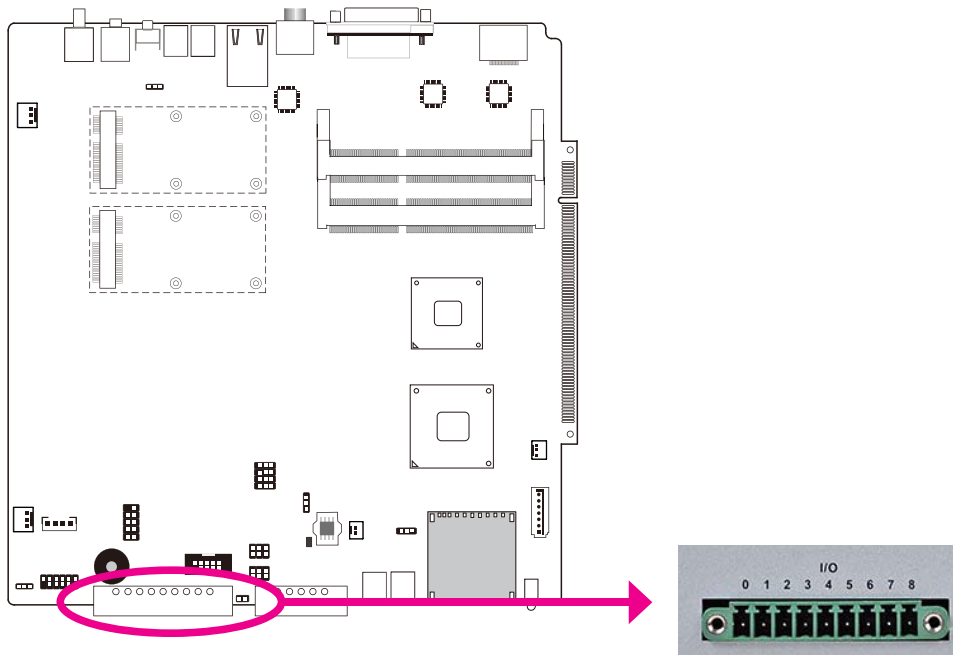
The Digital I/O connector provides powering-on function to an external device that is connected to this connector.

Pin	Digital Output/ Input Pin Assignment
0	DIO1
1	DIO2
2	DIO3
3	DIO4
4	DIO5
5	DIO6
6	DIO7
7	DIO8
8	GND

USB Ports
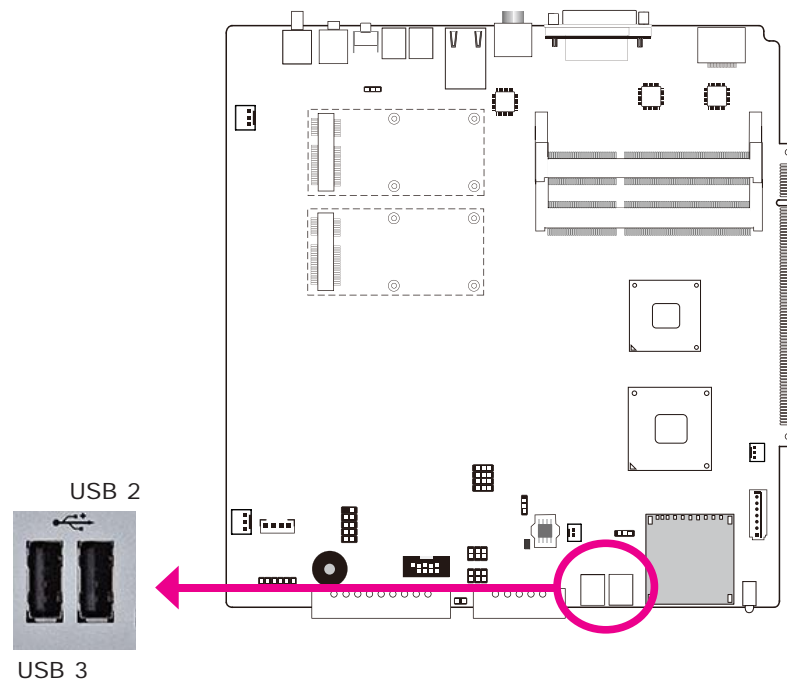
USB 2

USB 3

USB allows data exchange between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

The system board is equipped with 4 USB 2.0/1.1 ports.

SD/MMC

SD/MMC
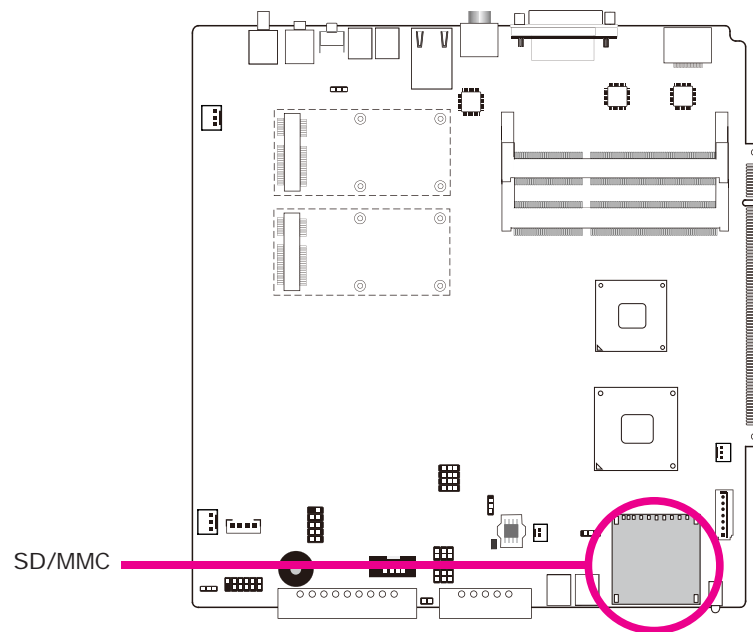
This expansion port is used to insert a Secure Digital (SD) or Multimedia Card (MMC) device. Aside from storing data files, an SD card is also capable of storing powerful software applications.

Rear Panel I/O Ports
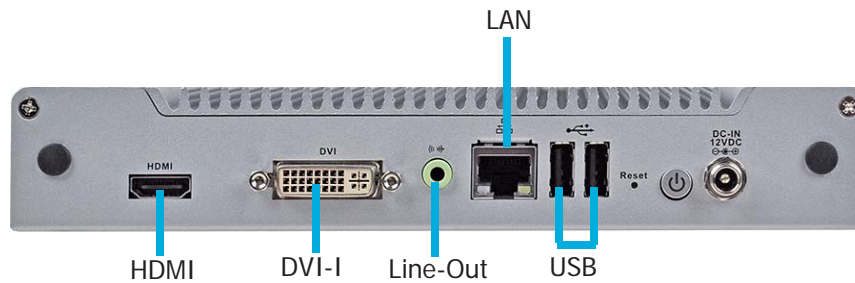
The rear panel I/O ports consist of the following:

- 1 HDMI port
- 1 DVI-I port
- 1 Line-out
- 1 LAN port
- 2 USB ports

LAN Port
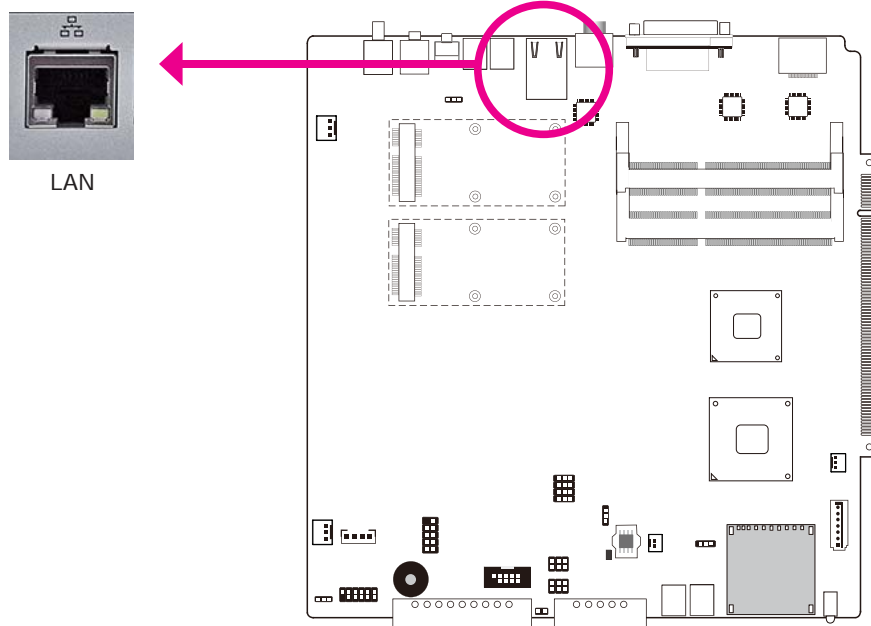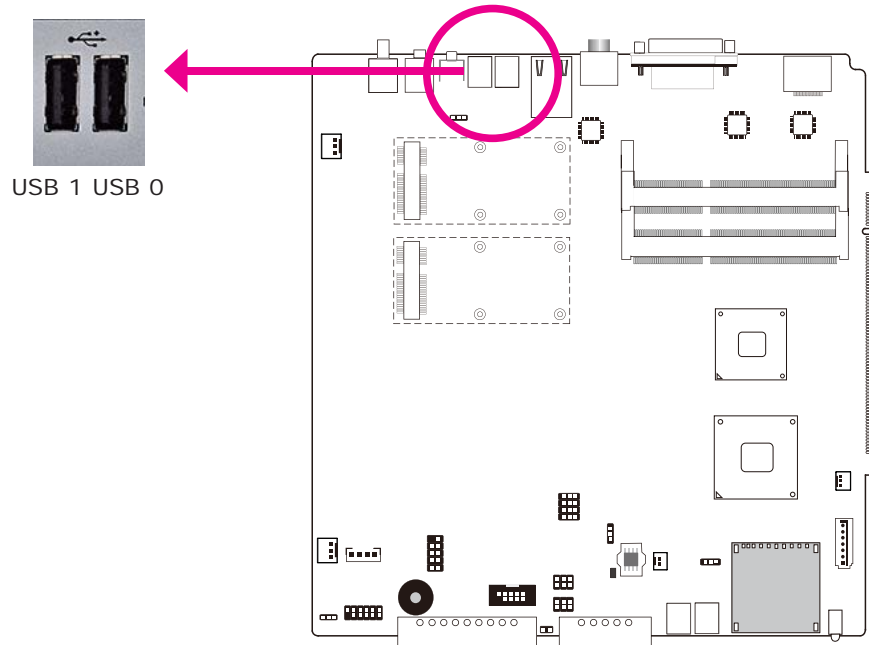
LAN

The LAN port allows the system board to connect to a local area network by means of a network hub.

BIOS Setting

Configure "Wake on LAN" in the Advanced menu ("SuperIO Configuration" sub-menu) of the BIOS. Refer to chapter 7 for more information.

Driver Installation

Install the LAN drivers. Refer to chapter 8 for more information.

USB Ports

USB 1 USB 0

USB allows data exchange between your computer and a wide range of simulta-neously accessible external Plug and Play peripherals.

The system board is equipped with 4 USB 2.0/1.1 ports.

Ports and Connectors

Line-out
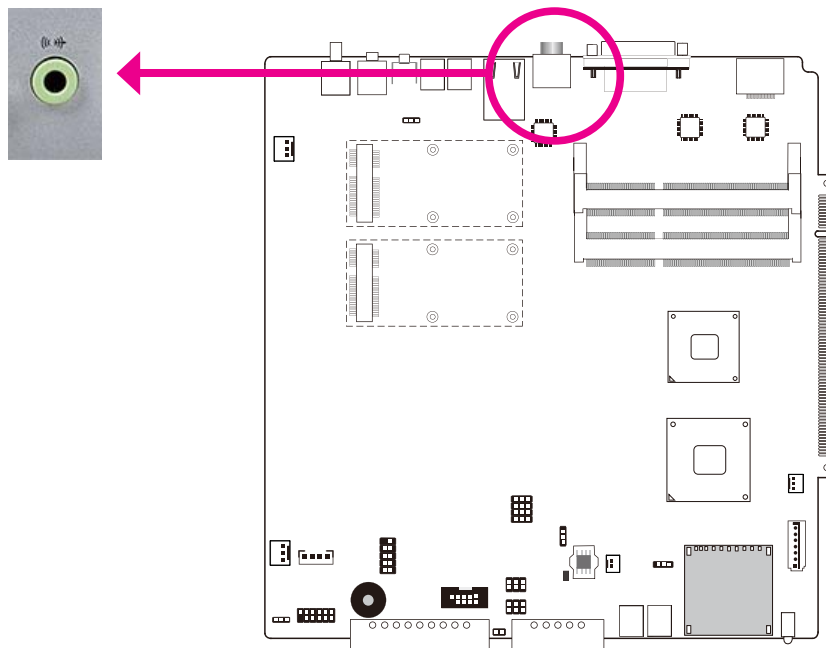
This jack is used to connect a headphone or external speakers.

DVI-I
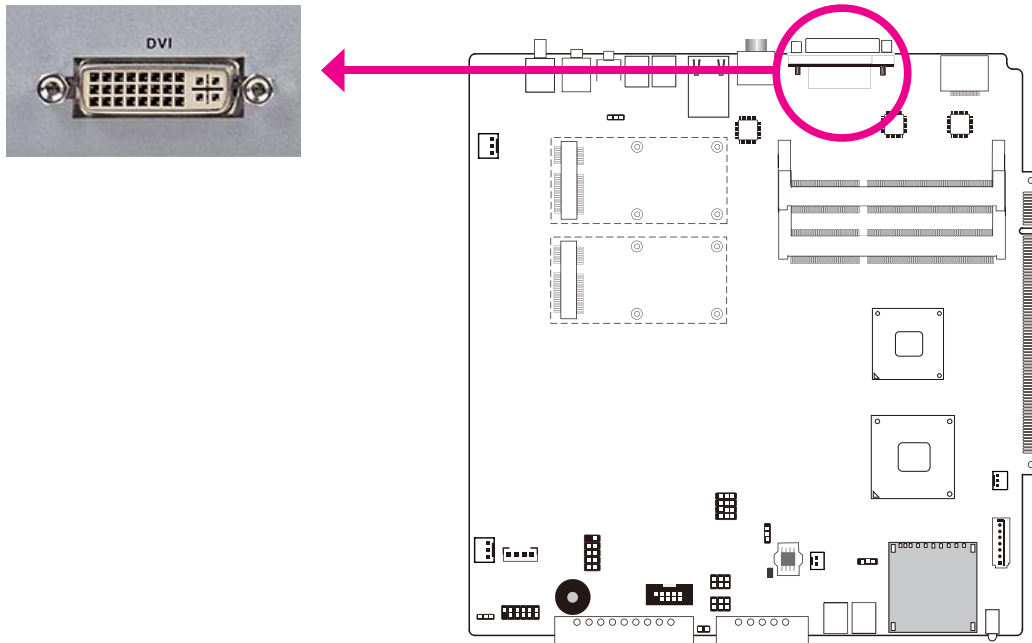
The DVI-I port is used to connect an LCD monitor. Connect the display device's cable connector to the DVI-I port. After you plug the cable connector into the port, gently tighten the cable screws to hold the connector in place.

Connect the display device's cable connector to the DVI-I port. After you plug the cable connector into the port, gently tighten the cable screws to hold the connector in place.

BIOS Setting

Configure the display device in the Advanced Chipset Features submenu of the BIOS. Refer to chapter 3 for more information.

HDMI
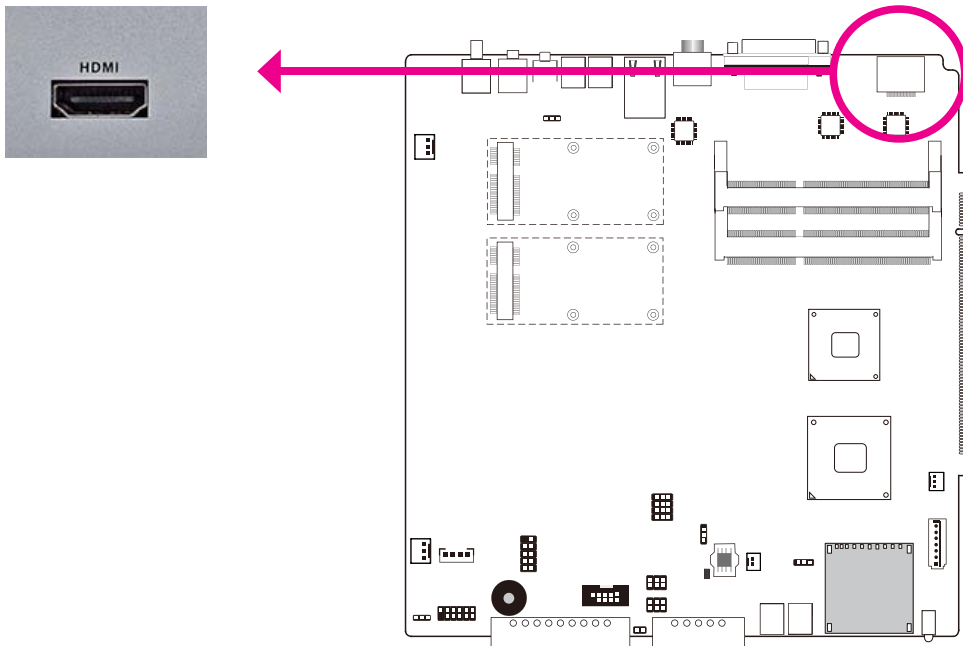
The HDMI port which carries both digital audio and video signals is used to connect a LCD monitor or digital TV that has the HDMI port.

I/O Connectors

Mini PCIe slot
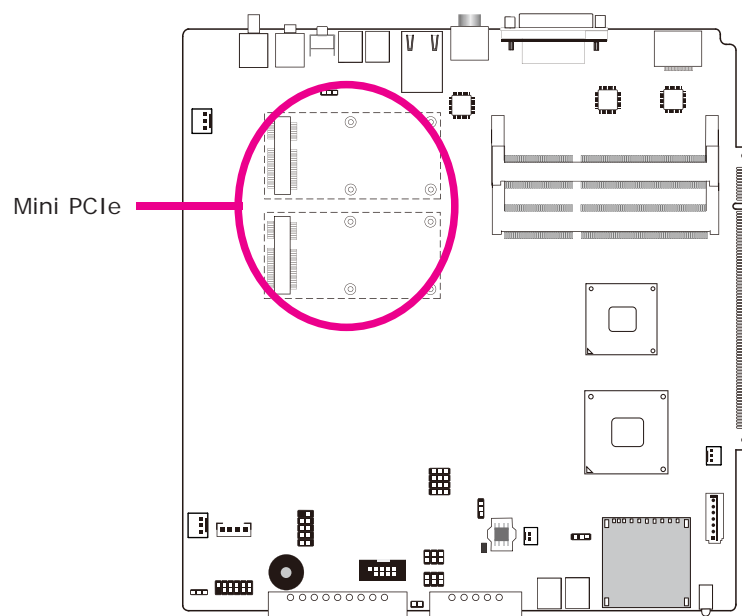
Mini PCIe

Install mini PCI Express cards such as network cards or other cards that comply to the mini PCI Express specifications into the mini PCI Express x1 slot.

Ports and Connectors

Front Panel Connectors
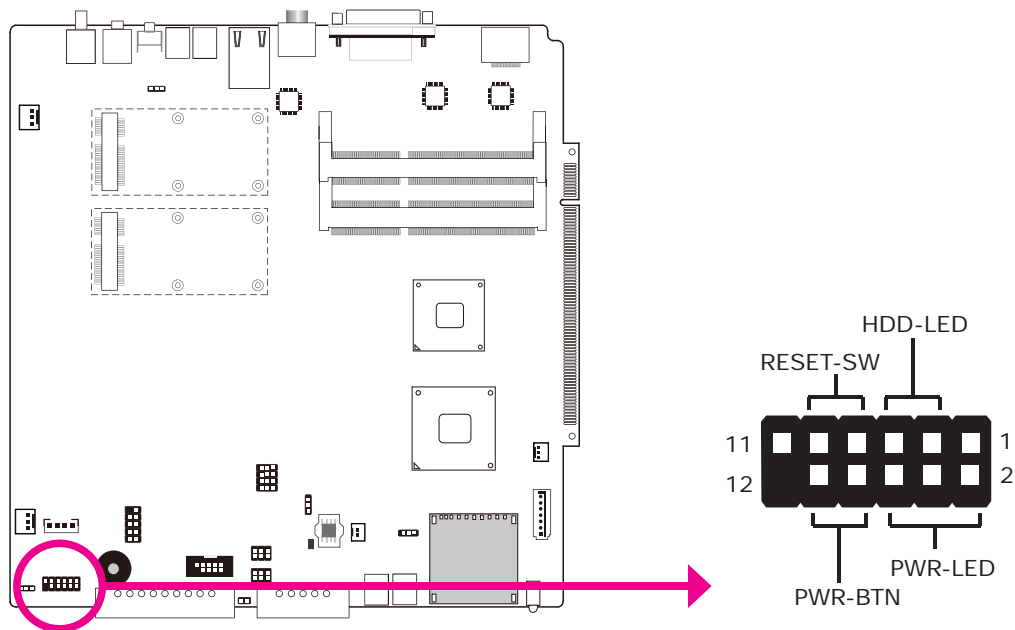
HDD-LED - HDD LED

This LED will light when the hard drive is being accessed.

RESET SW - Reset Switch

This switch allows you to reboot without having to power off the system.

PWR-BTN - Power Switch

This switch is used to power on or off the system.

PWR-LED - Power/Standby LED

When the system's power is on, this LED will light. When the system is in the S1 (POS - Power On Suspend) state, it will blink every second. When the system is in the S3 (STR - Suspend To RAM) state, it will blink every 4 seconds.

	Pin	Pin Assignment		Pin	Pin Assignment
N. C.	1	N. C.	PWR-LED	2 4 6	LED Power LED Power Signal
HDD-LED	3 5	HDD Power Signal	PWR-BTN	8 10	GND Signal
RESET SW	7 9	Ground RST Signal			
N. C.	11	N. C.	Key	12	Key

LEDs
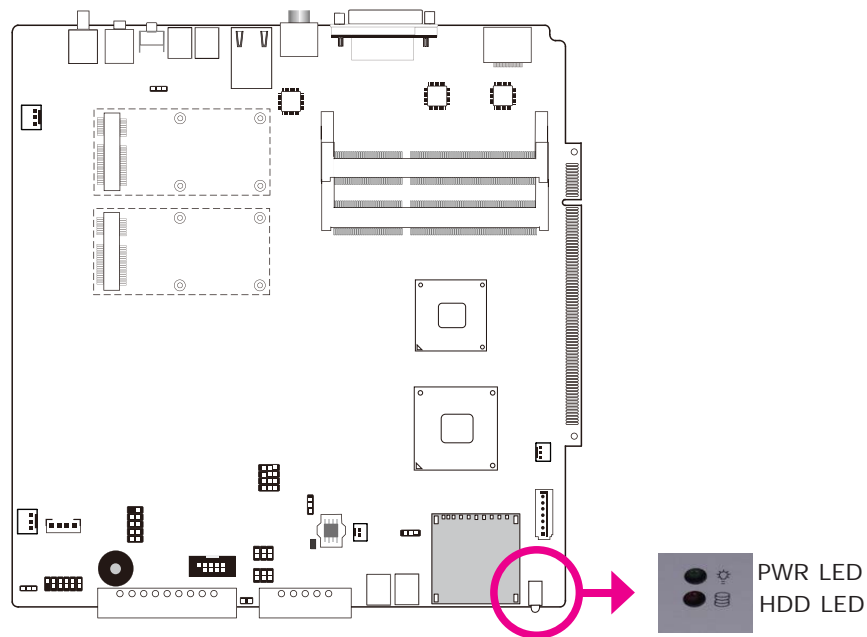
PWR LED
HDD LED

PWR LED

The Power LED will light green when the system's power is on.

HDD LED

The HDD LED will light yellow when the hard drive is being accessed.

Cooling Fan Connectors

Sense — 3
Power —
Ground — 1

System fan 2

CPU fan

1 — Ground
— Power
3 — Sense

Sense — 3
Power —
Ground — 1

System fan 1
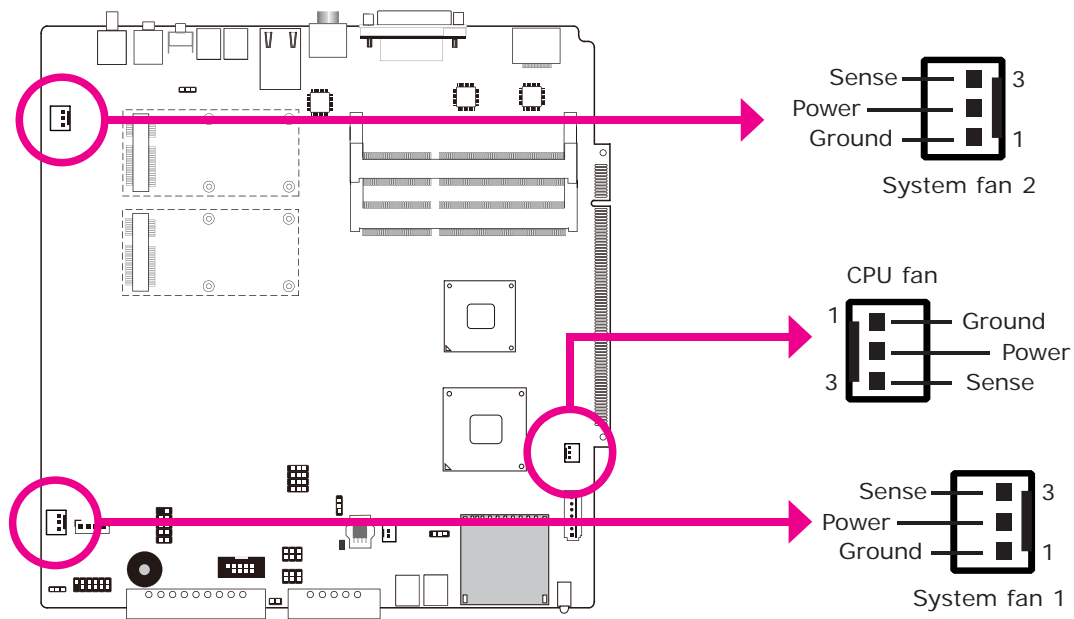
The fan connectors are used to connect cooling fans. The cooling fans will pro-vide adequate airflow throughout the chassis to prevent overheating the CPU and system board components.

BIOS Setting

The Advanced menu ("Hardware Health Configuration" submenu) of the BIOS will display the current speed of the cooling fan. Refer to chapter 7 for more information.

Chassis Instrusion Connector

2 ☐☐ 1

Ground

Chassis signal
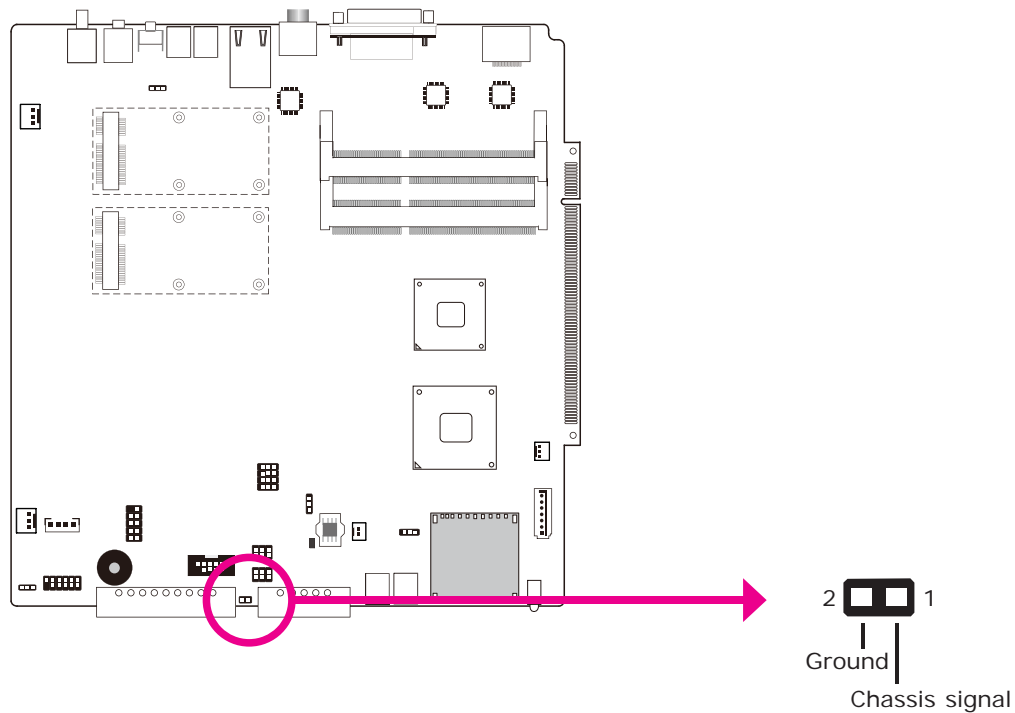
The board supports the chassis intrusion detection function. Connect the chassis intrusion sensor cable from the chassis to this connector. When the system's power is on and a chassis intrusion occurred, an alarm will sound. When the system's power is off and a chassis intrusion occurred, the alarm will sound only when the system restarts.

Hardware Monitor for Windows

Install the "Hardware Monitor for Windows" utility. By default, the chassis intrusion detection function is disabled. When enabled, a warning message will appear when the chassis is open. The utility can also be configured so that a beeping alarm will sound when the chassis is open. Refer to the "Hardware Monitor for Windows" section in chapter 8 for more information.

Battery

Ground
Battery

1

battery

Connect to the
battery connector
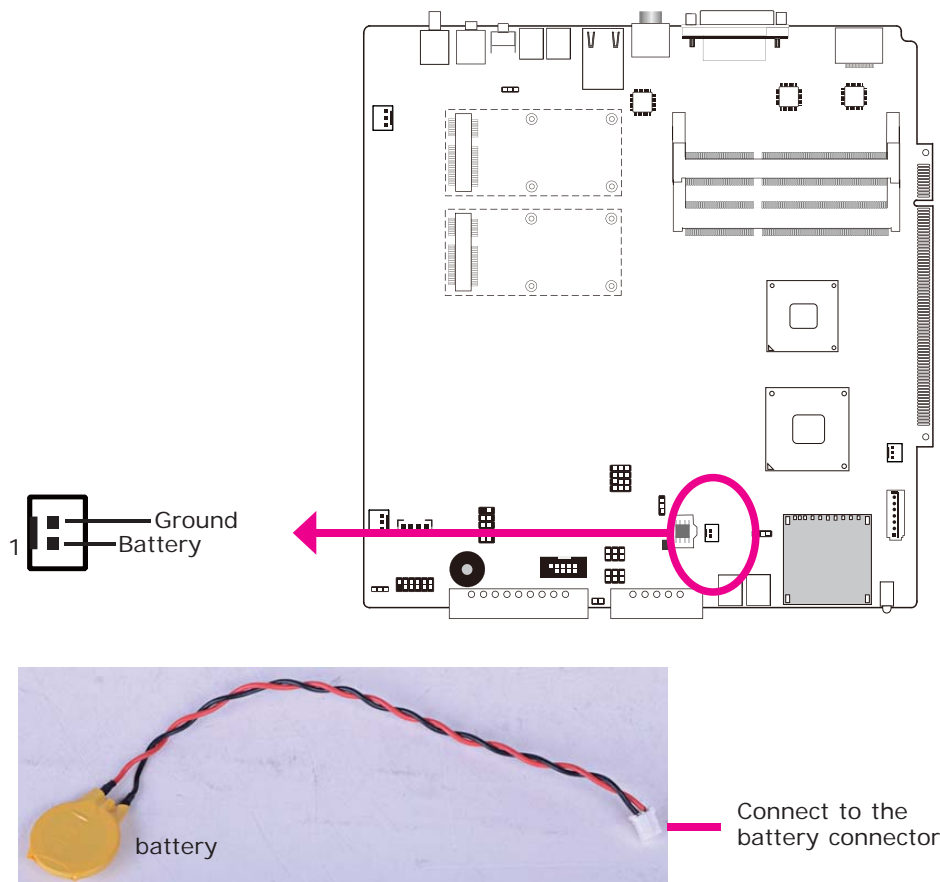
The lithium ion battery powers the real-time clock and CMOS memory. It is an auxiliary source of power when the main power is shut off.

Safety Measures

- Danger of explosion if battery incorrectly replaced.

- Replace only with the same or equivalent type recommend by the manufacturer.

- Dispose of used batteries according to local ordinance.

SATA (Serial ATA) Connector

GND 7
RXP
RXN
GND
TXN
TXP
GND 1

SATA 0
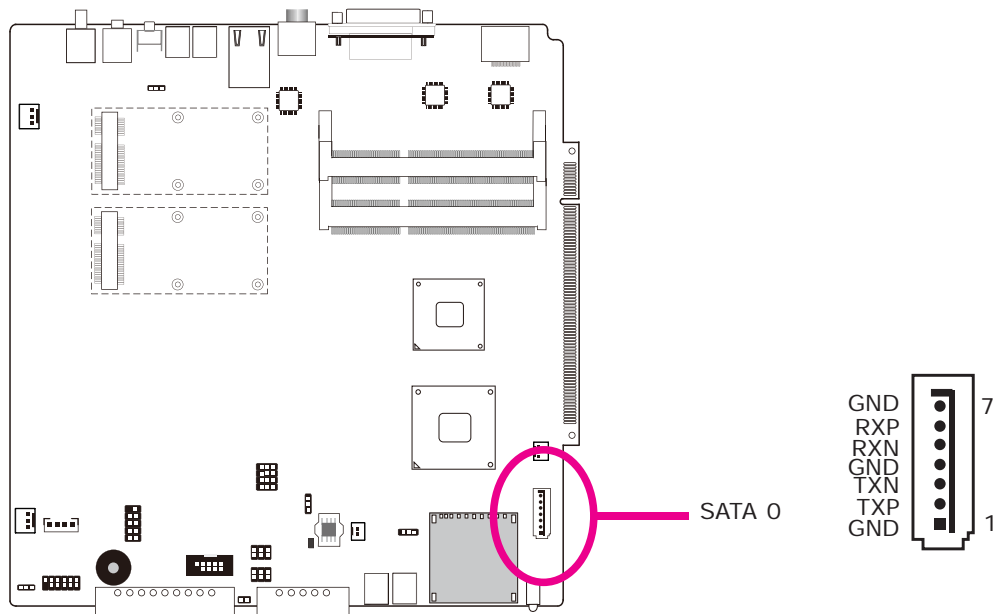
The Serial ATA connector is used to connect a Serial ATA device. Connect one end of the Serial ATA data cable to a SATA connector and the other end to your Serial ATA device.

The system board package also comes with a power cable that must be connected from the system board to the SATA drive's power connector in order to provide power to the drive.

51

HDD Power

Ground

Ground

+12V   +5V

1
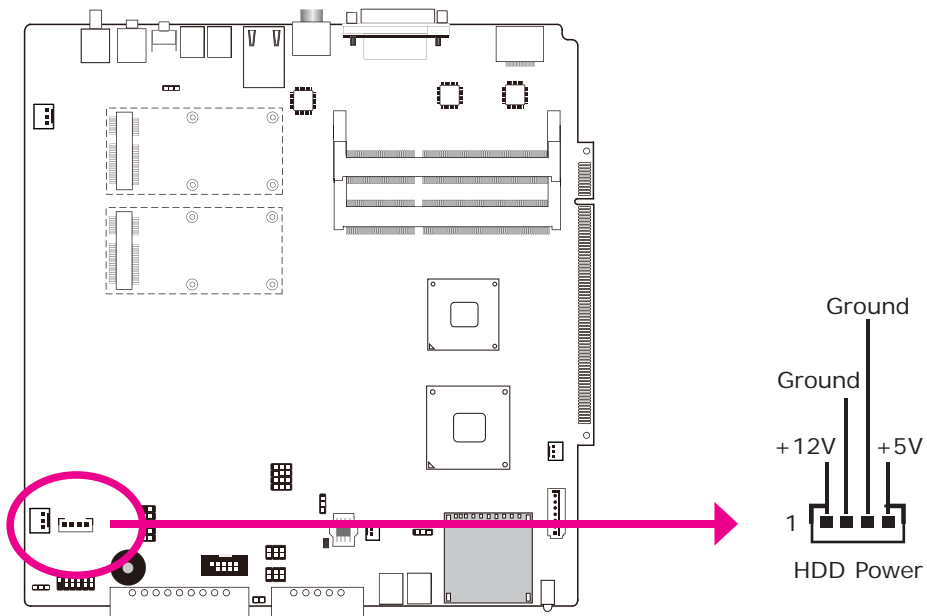
HDD Power

The HDD power connector supplies power to the SATA drive. Connect one end of the provided power cable to the HDD power connector and the other end to your storage device.

5

Factory Testing

10 9

1 2
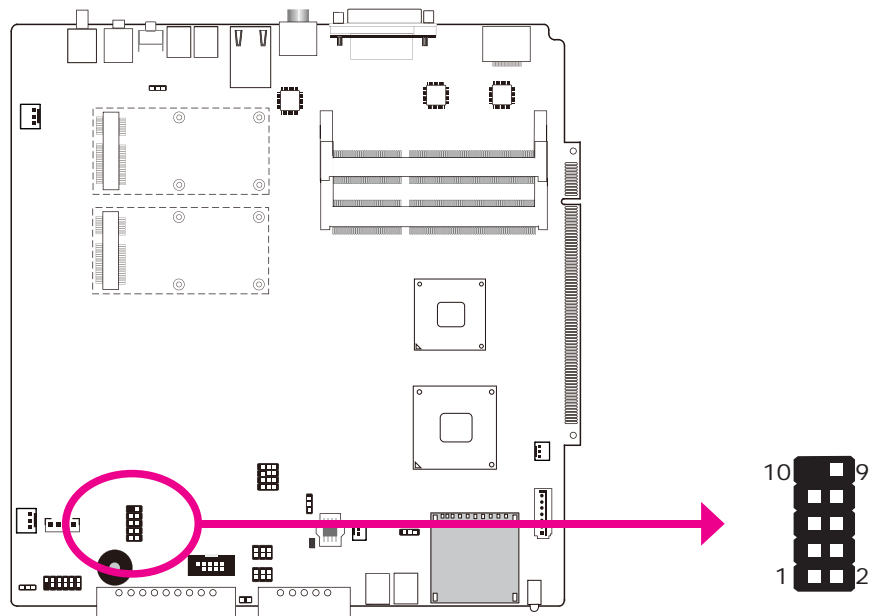
Chapter 6 - Mounting Options

Wall Mounting

The Wall Mounting kit includes the following:

- 2 Wallmount brackets
- Bracket screws

1. At the bottom side of the system, use the provided mounting screws to se-cure the wallmount brackets on each side of the system.
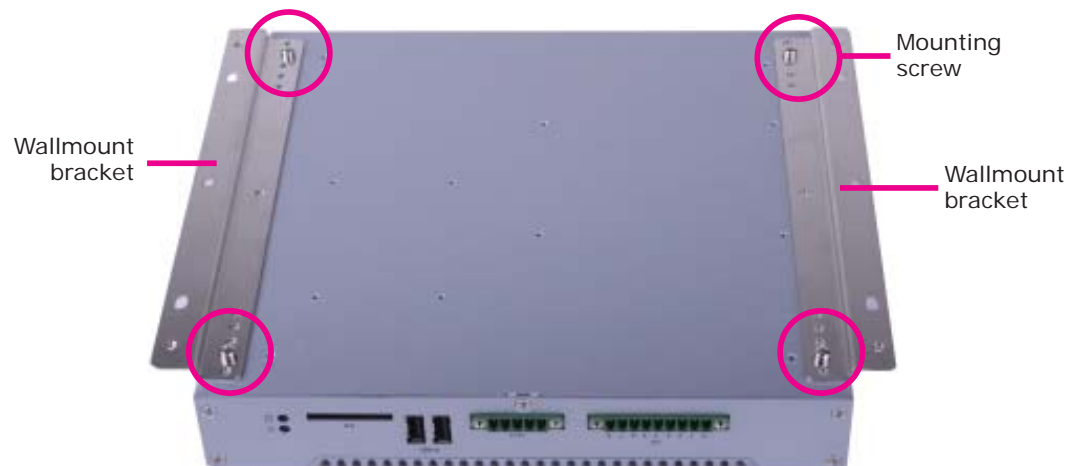
VESA Mounting

Mounting Kit

- 1 VESA bracket
- Bracket screws

1. Prior to installing the VESA bracket, make sure you have already installed the wallmount brackets.

2. Using the provided mouting screws, secure the VESA bracket onto the monitor

3. Align the VESA bracket to the wallmount brackets and then use the provided mounting screws to secure the bracket in place.

100.00
75.00
100.00
75.00
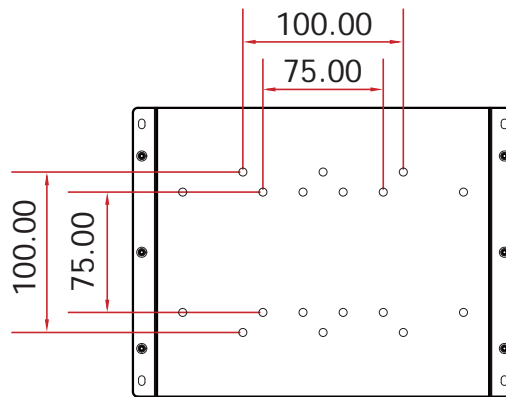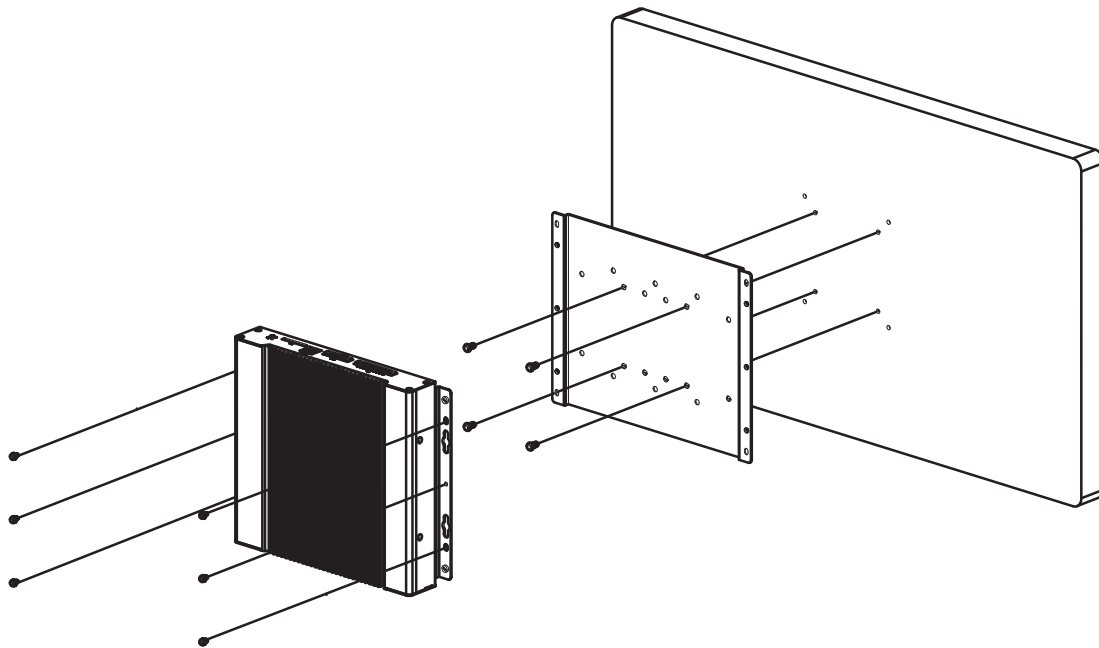
Chapter 7 - BIOS Setup

Overview

The BIOS is a program that takes care of the basic level of communication between the CPU and peripherals. It contains codes for various advanced features found in this system board. The BIOS allows you to configure the system and save the configuration in a battery-backed CMOS so that the data retains even when the power is off. In general, the information stored in the CMOS RAM of the EEPROM will stay unchanged unless a configuration change has been made such as a hard drive replaced or a device added.

It is possible that the CMOS battery will fail causing CMOS data loss. If this happens, you need to install a new CMOS battery and reconfigure the BIOS settings.

Note:
The BIOS is constantly updated to improve the performance of the system board; therefore the BIOS screens in this chapter may not appear the same as the actual one. These screens are for reference purpose only.

Default Configuration

Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

Entering the BIOS Setup Utility

The BIOS Setup Utility can only be operated from the keyboard and all commands are keyboard commands. The commands are available at the right side of each setup screen.

The BIOS Setup Utility does not require an operating system to run. After you power up the system, the BIOS message appears on the screen and the memory count begins. After the memory test, the message "Press DEL to run setup" will appear on the screen. If the message disappears before you respond, restart the system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> and <Del> keys simultaneously.

3

BIOS Setup

Legends

Keys	Function
Right and Left arrows	Moves the highlight left or right to select a menu.
Up and Down arrows	Moves the highlight up or down between submenus or fields.
<Esc>	Exits to the BIOS Setup Utility.
+ (plus key)	Scrolls forward through the values or options of the highlighted field.
- (minus key)	Scrolls backward through the values or options of the highlighted field.
<F1>	Displays General Help.
<F2>	Previous Values.
<F3>	Optimized Defaults.
<F4>	Saves and exits the Setup program.
<Enter>	Press <Enter> to enter the high-lighted submenu.

Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

Submenu

When "▶" appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the sub-menu, move the highlight to that field and press <Enter>.

AMI BIOS Setup Utility

Main

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
   Main    Advanced    Chipset    Boot    Security    Save & Exit

 BIOS Information                                          Choose the system default
 BIOS Vendor               American Megatrends            language.
 Core Version              4.6.4.1
 Compliancy               UEFI 2.1
 Project Version          OABVQ 0.15 x64
 Build Date and Time      01/02/2012 12:05:12

 Memory Information
 Total Memory              2048 MB (DDR3)

 System Language           [English]

 System Date               [Mon 01/09/2012]              → ←: Select Screen
 System Time               [09:50:57]                    ↑↓:   Select Item
                                                         Enter: Select
 Access Level              Administrator                 +/-:   Change Opt.
                                                         F1:    General Help
                                                         F2:    Previous Values
                                                         F3:    Optimized Defaults
                                                         F4:    Save & Exit
                                                         ESC:  Exit

          Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```

System Language

Choose the system default language.

System Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1980 to 2099.

System Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

Advanced

The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

Important:
Setting incorrect field values may cause the system to malfunction.

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.					
Main	**Advanced**	Chipset	Boot	Security	Save & Exit

```
Legacy OpROM Support                                            Enable or Disable Boot
Launch PXE OpROM                      [Disabled]                 Option for Legacy Net-
Launch Storage OpROM                  [Enabled]                  work Devices.


▶ PCI Subsystem Settings
▶ ACPI Power Management Configuration
▶ Trusting Computing
▶ CPU Configuration
▶ IDE Configuration
▶ USB Configuration
▶ Super IO Configuration
▶ PC Health Status
                                                                →←:  Select Screen
                                                                ↑↓:   Select Item
                                                                Enter: Select
                                                                +/-:   Change Opt.
                                                                F1:    General Help
                                                                F2:    Previous Values
                                                                F3:    Optimized Defaults
                                                                F4:    Save & Exit
                                                                ESC:  Exit
```

Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.

Launch PXE OpROM

Enables or disables the boot option for legacy network devices.

Launch Storage OpROM

Enables or disables the boot option for legacy mass storage devices with option ROM.

PCI Subsystem Settings

This section is used to configure the PCI Subsystem settings.

```
           Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
      Advanced

 PCI Option ROM Handling                                          Select the highest ACPI
 PCI ROM Priority                         [EFI Compatible ROM]     sleep state the system will
                                                                  enter, when the SUSPEND
                                                                  button is pressed.




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

           Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```

PCI ROM Priority

In case multiple option ROMs exist, select the PCI option ROM to launch.

ACPI Power Management Configuration

This section is used to configure the ACPI Power Management.

```
           Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
     Advanced

  ACPI Power Management Configuration                      Enables or disables BIOS
                                                           ACPI Auto Configuration.
  Enable ACPI Auto Configuration        [Disabled]

  ACPI Sleep State                      [S3 (Suspend to RAM)]

  Resume by PME                         [Disabled]
  Wake system with Fixed Time           [Disabled]



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

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```

Enable ACPI Auto Configuration

Enables or disables the ACPI function.

ACPI Sleep State

Selects the highest ACPI sleep state the system will enter when the Suspend button is pressed.

S1(POS)   Enables the Power On Suspend function.

S3(STR)   Enables the Suspend to RAM function.

Resume by PME

Enable this field to use the PME signal to wake up the system.

Wake System with Fixed Time

Enables or disables the system's wake on alarm event. When enabled, the system will wake up on the specified time.

Trusted Computing (optional)

This section configures settings relevant to Trusted Computing innovations.

```
           Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
     Advanced

  Configuration                                                    Enables or Disables
     TPM Support                    [Disable]                      BIOS support for security
                                                                   device. O.S. will not show
  Current Status Information                                       Security Device. TCG
     SUPPORTED TURNED OFF                                          EFI protocol and INT1A
                                                                   interface will not be
                                                                   available.



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

           Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

TPM Support

Enables or Disables TPM. O.S. will not show TPM. Resetting the platform is required.

CPU Configuration

This section is used to configure the CPU. It will also display the detected CPU information.

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
            Advanced

  CPU Configuration                                          Enabled for Windows XP
                                                             and Linux (OS optimized
  Node0: AMD G-T56N Processor                                for Hyper-Threading
  Dual Core Running @ 1673 MHz 1350 mV                       Technology) and Disabled
  Max Speed: 1650 MHz     Intended Speed: 1650 MHz           for other OS (OS not
                                                             optimized for
  Limit CPUID Maximum           [Disabled]                   Hyper-Threading
  C6 Mode                       [Enabled]                    Technology). When
                                                             Disabled only one thread
                                                             per enabled core is
                                                             enabled.

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

          Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```

Limit CPUID Maximum

The CPUID instruction of some newer CPUs will return a value greater than 3. The default is Disabled because this problem does not exist in the Windows series operating systems. If you are using an operating system other than Windows, this problem may occur. To avoid this problem, enable this field to limit the return value to 3 or less than 3.

C6 Mode

Enables or disables C6 mode.

IDE Configuration

This section is used to configure the IDE.

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
      Advanced

  IDE Configuration
  OnChip SATA Channel              [Enabled]
  OnChip SATA Type                 [IDE]


  SATA Port 0                      ST500DM002-1BD (500.1
  SATA Port 1                      Not Present


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

          Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```

OnChip SATA Channel

This field is used to enable or disable the Serial ATA function.

OnChip SATA Type

This field is used to configure the SATA devices supported by the processor.

Native IDE   This option configures the Serial ATA drives as Parallel ATA storage devices.

RAID   This option allows you to create RAID on Serial ATA devices.

AHCI   This option allows the Serial ATA devices to use AHCI (Advanced Host Controller Interface).

Legacy IDE   This option configures the Serial ATA drives as Legacy IDE storage devices.

USB Configuration

This section is used to configure USB.

```
                Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
                  Advanced

  USB Configuration                                               Enables Legacy USB
                                                                  support. AUTO option
  USB Devices:                                                    disables legacy support if
       1 Keyboard, 1 Drive                                        no USB devices are
                                                                  connected. DISABLE
  Legacy USB Support                    [Enabled]                 option will keep USB
  EHCI Hand-off                         [Disabled]                devices available only for
                                                                  EFI applications.
  USB hardware delays and time-outs:
  Device reset time-out                 [20 sec]


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

                Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```
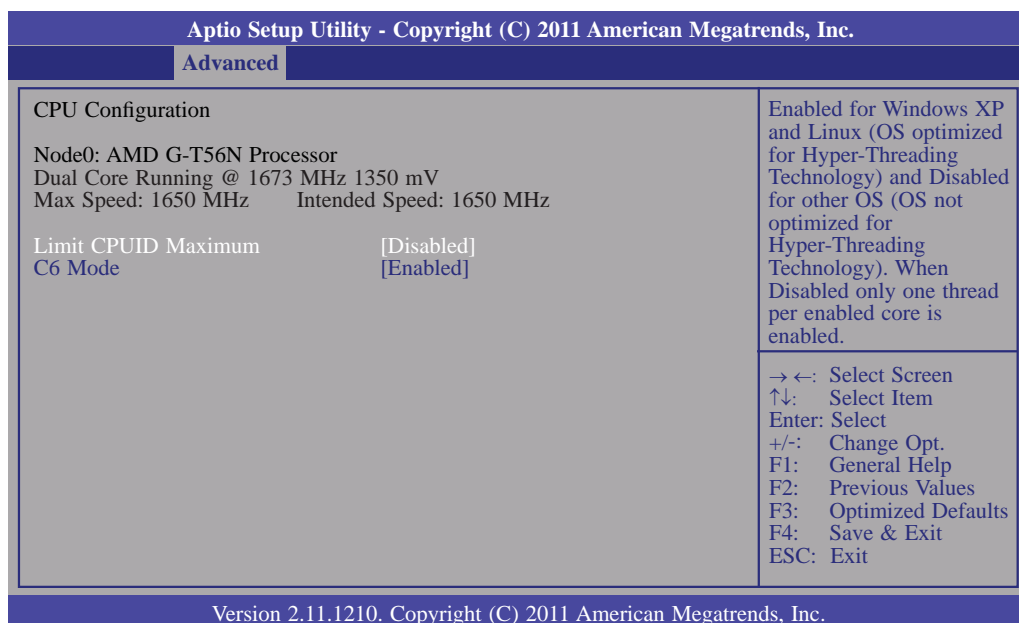
Legacy USB Support

Enabled
Enables legacy USB.

Auto
Disables support for legacy when no USB devices are connected.

Disabled
Keeps USB devices available only for EFI applications.

EHCI Hand-off

This is a workaround for OSes that does not support EHCI hand-off. The EHCI ownership change should be claimed by the EHCI driver.

Device reset time-out

Selects the USB mass storage device's start unit command timeout.

Super IO Configuration

This section is used to configure the I/O functions supported by the onboard Super I/O chip.

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
    Advanced

   Super IO Configuration                                        Set parameters of Serial
                                                                 Port 0 (COMA).
   Super IO Chip                    Winbond W83627DHG
 ▶ Serial Port 0 Configuration
 ▶ Serial Port 1 Configuration

   Case Open Beep                   [Disabled]

   Watchdog                         [Disabled]

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

          Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```

Case Open Beep

Set this field to Enabled to allow the system to alert you of a chassis intrusion event.

Watchdog

This field is used to enable or disable the Watchdog Timer function.

AC Power Loss

Turns Off

When power returns after an AC power failure, the system's power is off. You must press the Power button to power-on the system.

Turns On

When power returns after an AC power failure, the system will automatically power-on.

Former-Sts

When power returns after an AC power failure, the system will return to the state where you left off before power failure occurs. If the system's power is off when AC power failure occurs, it will remain off when power returns. If the system's power is on when AC power failure occurs, the system will power-on when power returns

Serial Port 0 Configuration to Serial Port 1 Configuration

```
              Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
    Advanced

 Serial Port 0 Configuration                                   Enable or Disable Serial
                                                               Port (COM)
 Serial Port                              [Enabled]
 Device Settings                          IO=3F8h; IRQ=4;

 Change Settings                          [Auto]




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

              Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```

```
              Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
    Advanced

 Serial Port 1 Configuration                                   Enable or Disable Serial
                                                               Port (COM)
 Serial Port                              [Enabled]
 Device Settings                          IO=2F8h; IRQ=3;

 Change Settings                          [Auto]




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

              Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```

Serial Port

Enables or disables the serial port.

Change Settings

Selects the IO/IRQ setting of the I/O device.
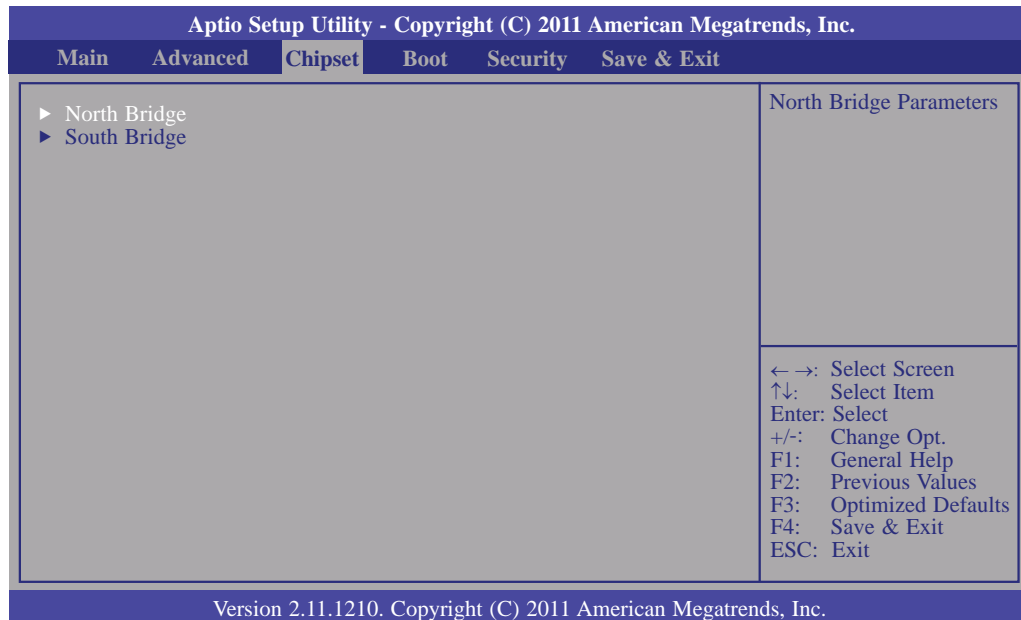
PC Health Status

This section displays the SIO hardware health monitor.

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
   Advanced

   PC Health Status

   SYSTIN temperature              : +35 C
   CPUTIN temperature              : +70 C
   CPU FAN Speed                   : N/A
   System FAN1 Speed               : N/A
   System FAN2 Speed               : N/A
   CPUVCore                        : +1.328 V
   +5V                             : +4.704 V
   +3.3V                           : +3.344V
   CPUVNB                          : +3.344 V
   VDIMM                           : +0.976 V                →←: Select Screen
   +12V                            : +1.552 V                ↑↓:    Select Item
   3VSB                            : +12.282 V             Enter: Select
   VBAT                            : +3.424 V               +/-:    Change Opt.
                                    :+3.072 V                F1:    General Help
                                                            F2:    Previous Values
                                                            F3:    Optimized Defaults
                                                            F4:    Save & Exit
                                                            ESC:  Exit

          Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```

Chipset

Configures relevant chipset functions.

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
   Main     Advanced    Chipset     Boot     Security    Save & Exit

  ▶ North Bridge                                          North Bridge Parameters
  ▶ South Bridge




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

          Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```

North Bridge

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Chipset	
North Bridge Configuration Memory Information Memory Clock: 667 MHz Total Memory: 2048 MB (DDR3) ▶ GFX Configuration ▶ Memory Configuration ▶ Node 0 Information	GFX Configuration → ←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.	

GFX Configuration

```
              Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
                 Chipset

GFX Configuration                                              Select Primary Video
                                                              Device that BIOS will use
Primary Video Device              [IGD Video]                 for output.

NB GPP Core Config                [GPP_CORE_x4x4]



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

              Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```

Primary Video Device

Select Primary Video Device that BIOS will use for output.

NB GPP Core Config

Selects the NB GPP Core configuration.

Memory Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Chipset	
Memory Configuration Integrated Graphics [Auto]	Enable Integrated Graphics controller. → ←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.	

Integrated Graphics

Enables Integrated Graphics controller.

BIOS Setup

Node 0 Information

```
           Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
                                    Chipset

  Node 0 Information
                                                         →←:   Select Screen
     Starting Address: 0 KB                              ↑↓:   Select Item
        Ending Address: 2097151 KB                       Enter: Select
                                                         +/-:   Change Opt.
                                                         F1:   General Help
  Dimm0: Not Present                                     F2:   Previous Values
  Dimm1: size=2048 MB, speed=1333 MHZ                    F3:   Optimized Defaults
                                                         F4:   Save & Exit
                                                         ESC:  Exit


             Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```

South Bridge

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.		
Chipset		
SB CIM Version:	1.1.1.2	Options for SB USB configurations.
▶ SB USB Configuration		
▶ SB HD Azalia Configuration		
		→ ←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.		

SB USB Configuration

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
                  Chipset

  USB PORT 0                    [Enabled]              Enable or Disable USB
  USB PORT 1                    [Enabled]              Port 0
  USB PORT 2                    [Enabled]
  USB PORT 3                    [Enabled]




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

             Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```

USB Port 0 to USB Port 3

Enables or disables the selected USB port.

SB HD Azalia Configuration

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.	
Chipset	

HD Audio Azalia Device	[Enabled]	Enable or Disable HD Audio Azalia Device.
		→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

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HD Audio Azalia Device

Enables or Disables HD Audio Azalia Device.

Boot

```
              Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
    Main      Advanced     Chipset      Boot     Security    Save & Exit

 Boot Configuration                                          Number of seconds to
 Setup Prompt Timeout            1                           wait for setup activation
 Bootup NumLock State            [On]                        key.
                                                             65535(0xFFFF) means
 Quiet Boot                      [Disabled]                  indefinite waiting.
 Fast Boot                       [Disabled]

 CSM16 Module Version            07.64

 Gate A20 Active                 [Upon Request]
 Option ROM Messages             [Force BIOS]
 Interrupt 19 capture            [Enabled]                   ← →:  Select Screen
 CSM Support                     [Enabled]                   ↑↓:   Select Item
                                                             Enter: Select
 Boot Option Priorities                                      +/-:  Change Opt.
 Boot Option #1                  [SATA   PM: ST500DM0......]  F1:   General Help
 Boot Option #2                  [Generic Storage De......]  F2:   Previous Values
                                                             F3:   Optimized Defaults
 Hard Drive BBS Priorities                                   F4:   Save & Exit
 USB device BBS Priorities                                   ESC:  Exit

              Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```

Setup Prompt Timeout

Selects the number of seconds to wait for the setup activation key. 65535(0xFFFF) denotes indefinite waiting.

Bootup NumLock State

This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

Quiet Boot

Enables or disables the quiet boot function.

Fast Boot

Enables or disables boot with initialization of a minimal set of devices re quired to launch active boot option. Has no effect for BBS boot options.

GateA20 Active

Upon Request- GA20 can be disabled using BIOS services.

Alwasy- Do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.

Option ROM Messages

Set display mode for option ROM.

Interrupt 19 Capture

Enabled: Allows option ROMs to trap Int 19.

Disabled:

CSM Support

Enabled/ disabled CSM support. If auto is selected, based on OS, CSM will be enabled/ disabled automatically.

Boot Option #1 and Boot Option #2

Selects the boot sequence of the device.

Security

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.						
Main	Advanced	Chipset	Boot	Security	Save & Exit	

Password Description If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup. If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights. The password length must be in the following range: Minimun length 3 Maximun length 20 Administrator Password User Password HDD Security Configuration: HDD 0: ST500DM002-1	Set Setup Administrator Password →←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.

Administrator Password

Sets the administrator password.

User Password

Sets the user password.

Save & Exit

Main	Advanced	Chipset	Boot	Security	Save & Exit

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

Save Options
Save Changes
Discard Changes

Restore Defaults
Save as User Defaults
Restore User Defaults

Boot Override
Generic Storage Device 9454                    ← →:  Select Screen
                                               ↑↓:   Select Item
Launch EFI Shell from file system device       Enter: Select
                                               +/-:  Change Opt.
                                               F1:   General Help
                                               F2:   Previous Values
                                               F3:   Optimized Defaults
                                               F4:   Save & Exit
                                               ESC:  Exit
```

Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.

Save Changes and Reset

To save the changes, select this field and then press <Enter>. A dialog box will appear. Select Yes to reset the system after saving all changes made.

Discard Changes and Reset

To discard the changes, select this field and then press <Enter>. A dialog box will appear. Select Yes to reset the system setup without saving any changes.

Restore Defaults

To restore and load the optimized default values, select this field and then press <Enter>. A dialog box will appear. Select Yes to restore the default values of all the setup options.

Save as User Defaults

To save changes done so far as user default, select this field and then press <Enter>. A dialog box will appear. Select Yes to save values as user default.

Restore User Defaults

To restore user default to all the setup options, select this field and then press <Enter>. A dialog box will appear. Select Yes to restore user default.

Updating the BIOS

To update the BIOS, you will need the new BIOS file and a flash utility, AFUDOS. EXE. Please contact technical support or your sales representative for the files.

To execute the utility, type:

A:> AFUDOS BIOS_File_Name /b /p /n

then press <Enter>.

```
C:\AFU\AFUDOS>afudos filename /B /P /N

+----------------------------------------------------------------------------------------+
|                         AMI Firmware Update Utility(APTIO) v2.25                        |
|             Copyright (C)2008 American Megatrends Inc. All Rights Reserved.             |
+----------------------------------------------------------------------------------------+

        Reading file ..............................   done
        Erasing flash .............................   done
        Writing flash .............................   done
        Verifying flash ...........................   done
        Erasing BootBlock ....................   done
        Writing BootBlock ....................   done
        Verifying BootBlock .................   done

C:\AFU\AFUDOS>
```

Chapter 8 - Supported Software

The CD that came with the board contains drivers, utilities and software applications required to enhance the performance of the system board. Insert the CD into a CD-ROM drive. The autorun screen (Mainboard Utility CD) will appear. If after inserting the CD, "Autorun" did not automatically start, please go directly to the root directory of the CD and double-click "Setup".

Supported Software
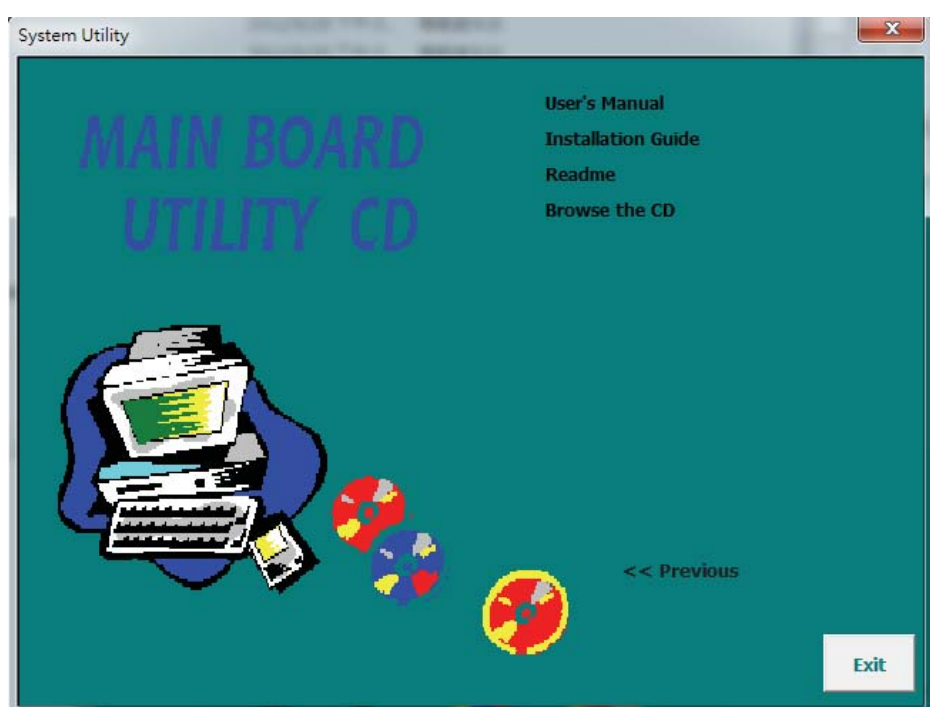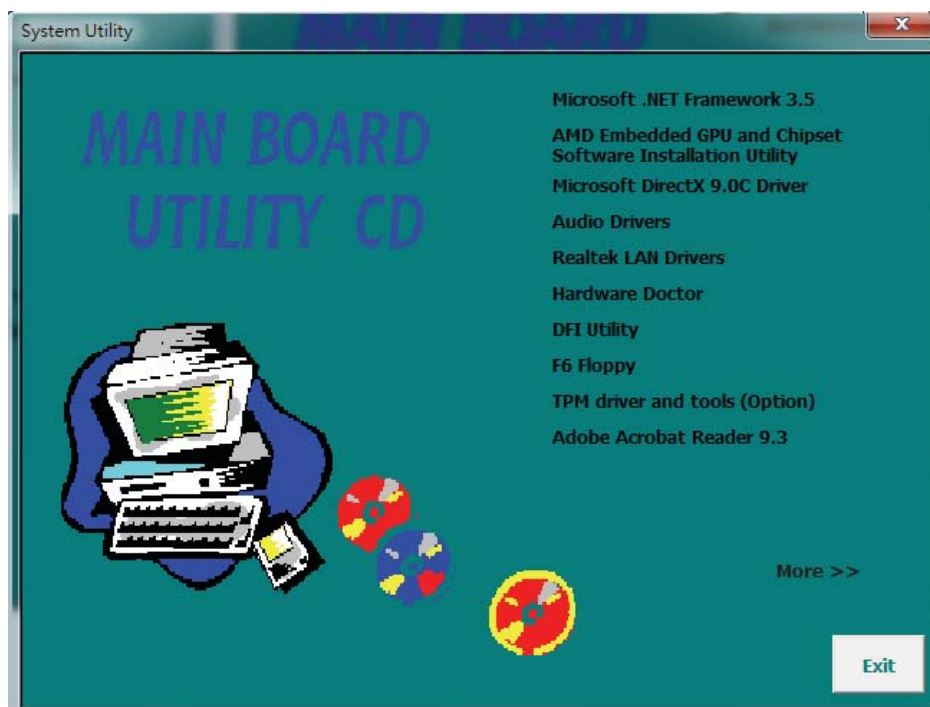
Microsoft .NET Framework 3.5
(for Windows XP only)

Note:
Before installing Microsoft .NET Framework 3.5, make sure you have up-dated your Windows XP operating system to Service Pack 3.

To install the driver, click "Microsoft .NET Framework 3.5" on the main menu.

1. Read the license agreement carefully.

    Click "I have read and accept the terms of the License Agreement" then click Install.
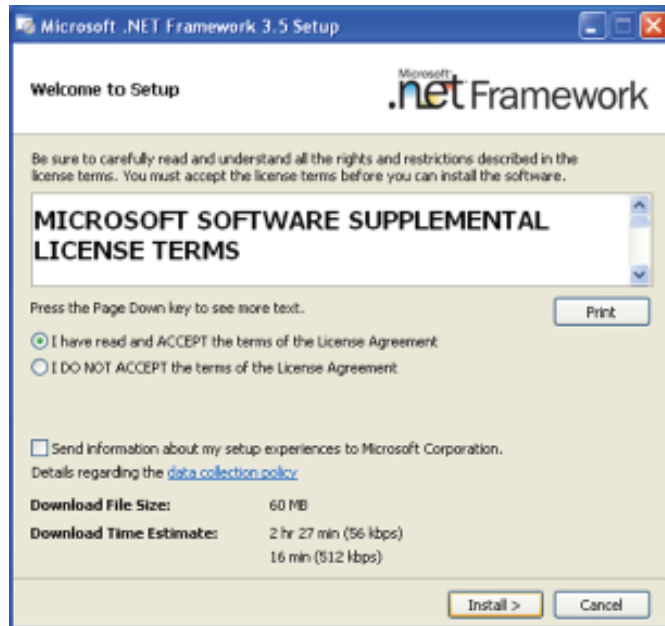
2. Setup is now installing the driver.

3. Click Exit.
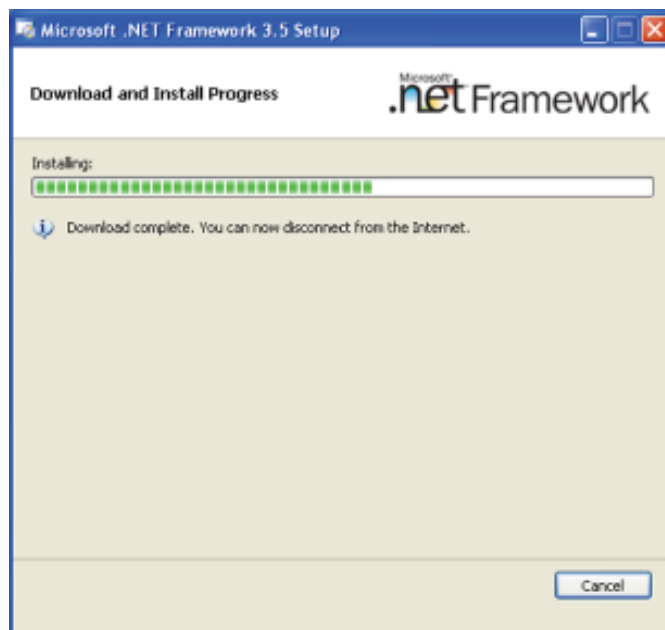
Supported Software
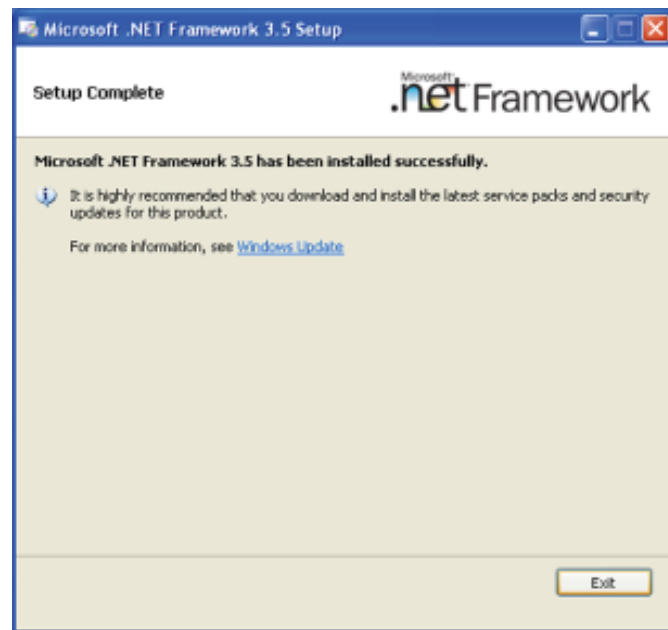
AMD Embedded GPU and Chipset Software Installation Utility

To install the driver, click "AMD Embedded GPU and Chipset Software Installation Utility" on the main menu.

1. Under the Language Support section, select the language you would like the installation to display and then click Next..
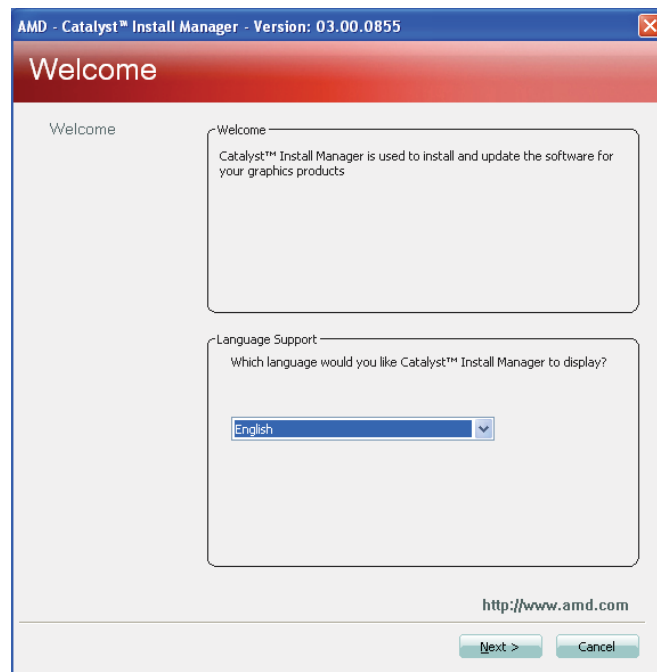
2. Click Install to begin the installation.
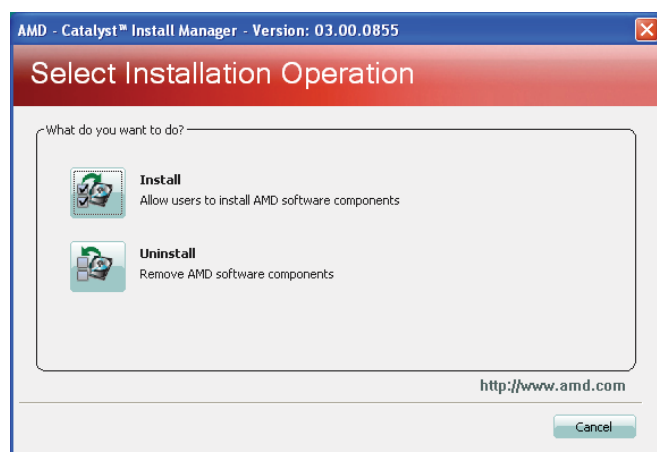
3. Click Express and then click Next.
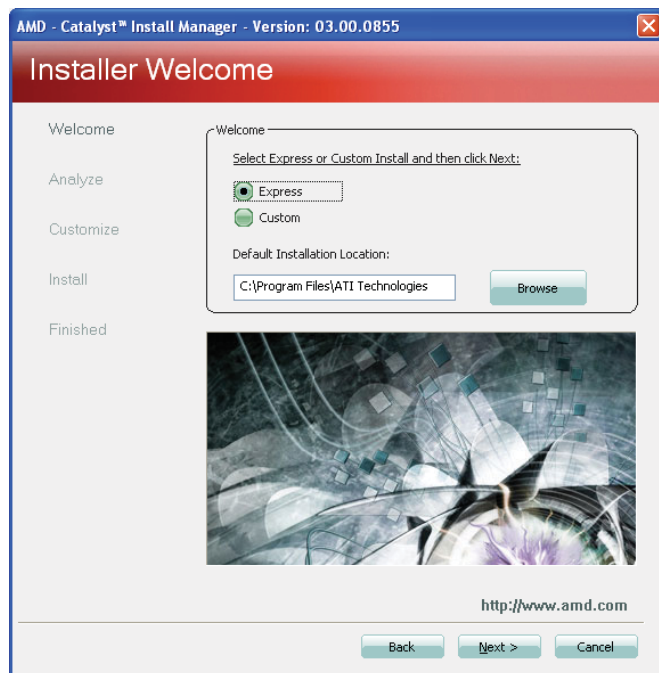
4. After completing installation, click Finish.
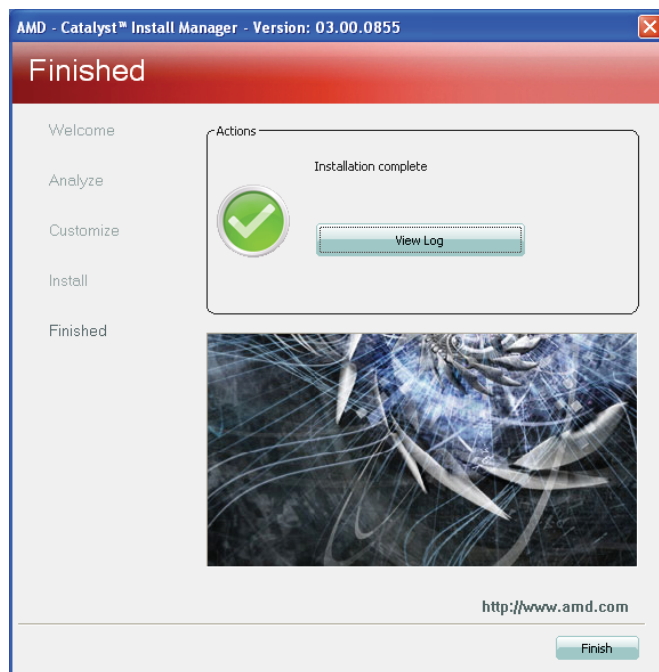
Microsoft DirectX 9.0C (for Windows XP only)

To install the driver, click "Microsoft DirectX 9.0C" on the main menu.

1. Click "I accept the agree-
   ment" then click Next.

2. To start installation, click
   Next.
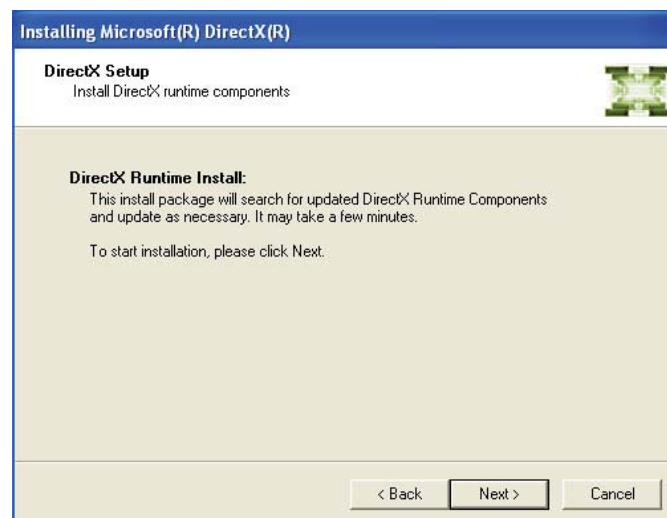
3. Click Finish. Reboot the
   system for DirectX to take
   effect.
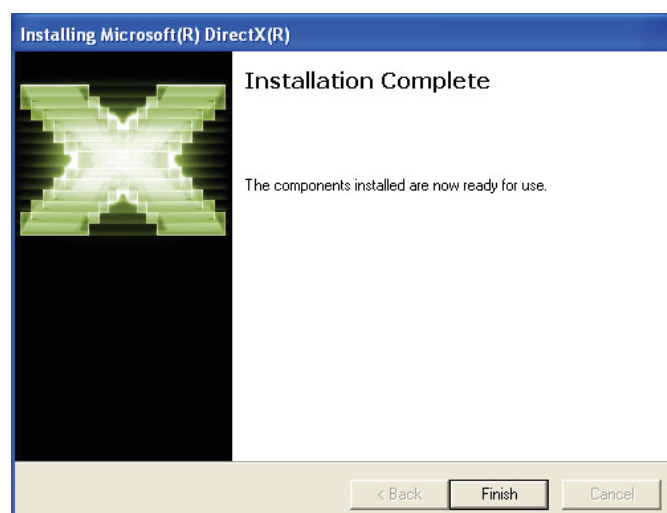
Audio Drivers

To install the driver, click "Audio Drivers" on the main menu.

1. Setup is now ready to in-
   stall the audio driver. Click
   Next.

2. Follow the remainder of the
   steps on the screen; click-
   ing "Next" each time you
   finish a step.
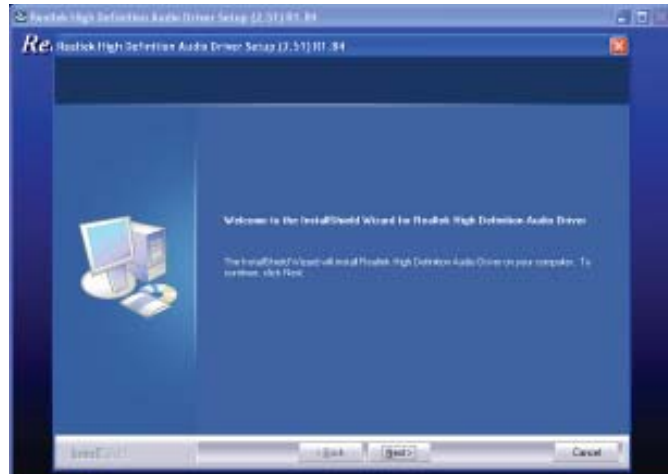
3. Click "Yes, I want to restart
   my computer now" then
   click Finish.

   Restarting the system will
   allow the new software in-
   stallation to take effect.

Supported Software
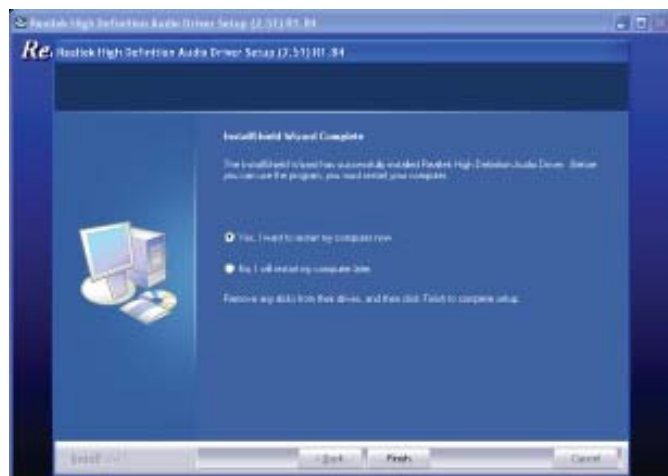
Realtek LAN Drivers

To install the driver, click "Realtek LAN Drivers" on the main menu.

1. Setup is ready to install the driver. Click Next.
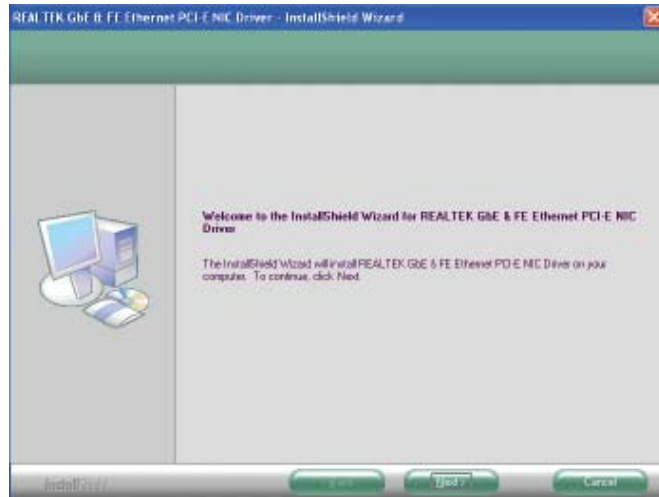
2. Click Install to begin the installation.
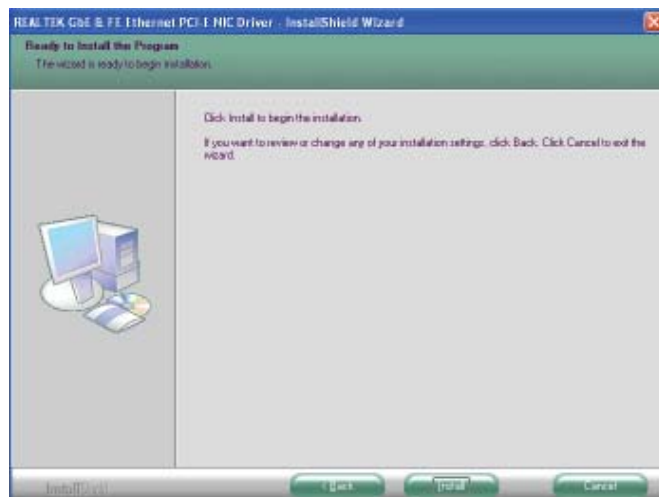
3. After completing installation, click Finish.
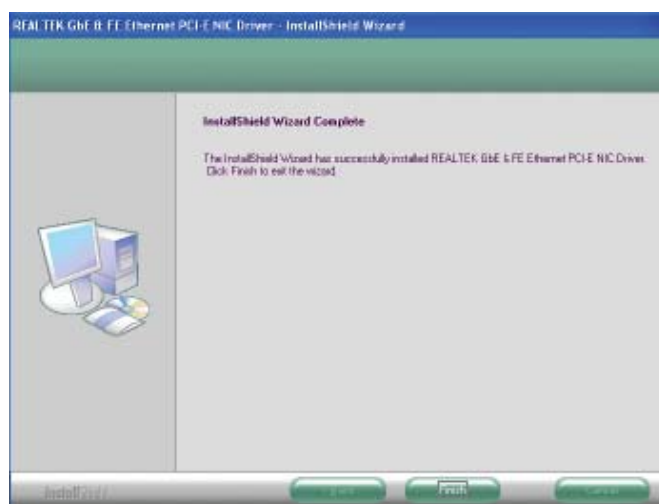
Hardware Doctor

To install the driver, click "Hardware Doctor" on the main menu.

1. Setup is ready to install the driver. Click Next.

2. Click Next to install to this folder, or click Change to install to a different folder.

Supported Software
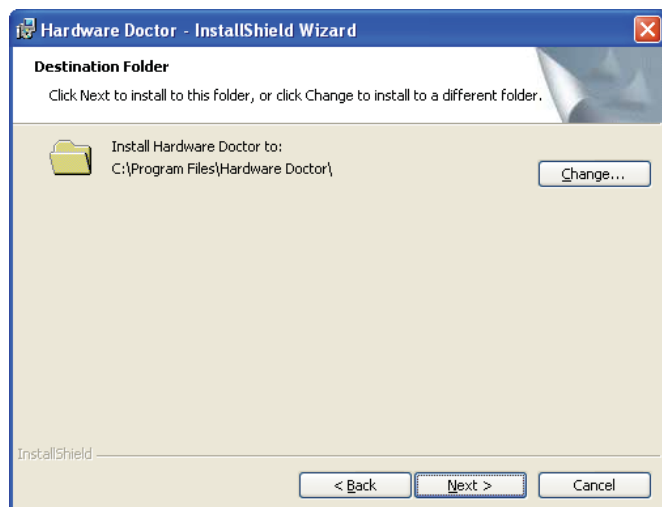
3. Click Install to begin the installation.
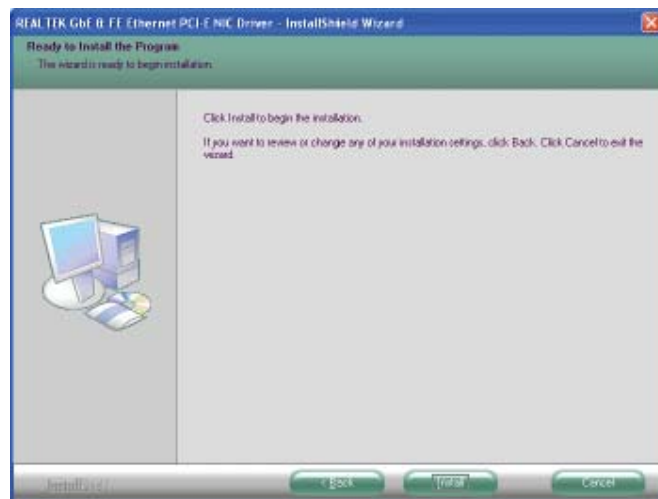
4. After completing installation, click Finish.
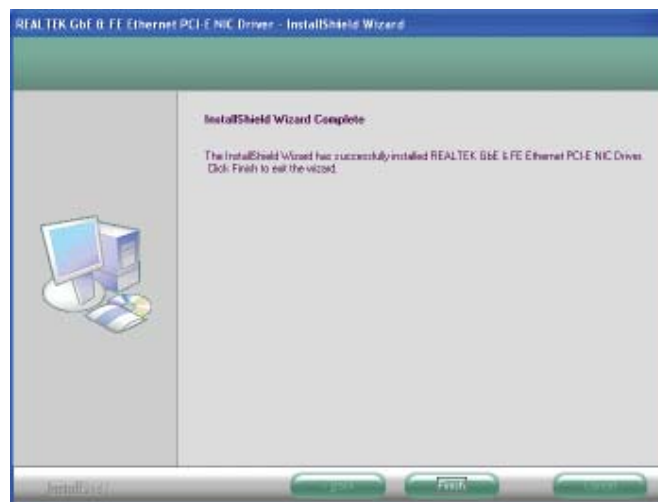
DFI Utility

DFI Utility provides information about the board, Watchdog, DIO, and Backlight. To access the utility, click "DFI Utility" on the main menu.

Note:
If you are using Windows 7, you need to access the operating system as an administrator to be able to install the utility.

1. Setup is ready to instal the DFI Utility driver Click "Next".
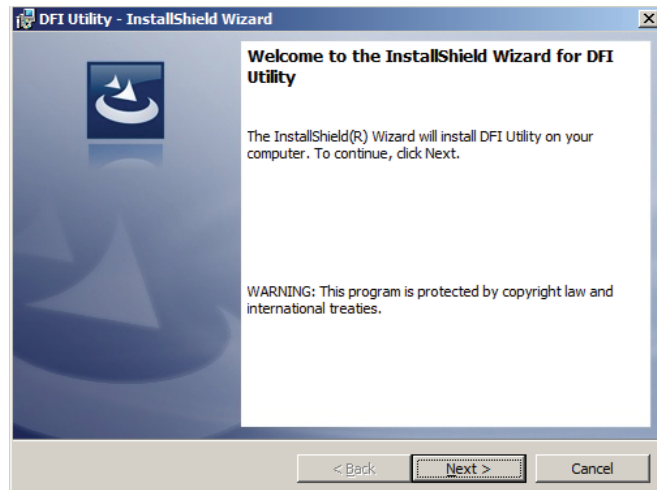
2. Click "I accept the terms in the license agreement" then click "Next".

Supported Software
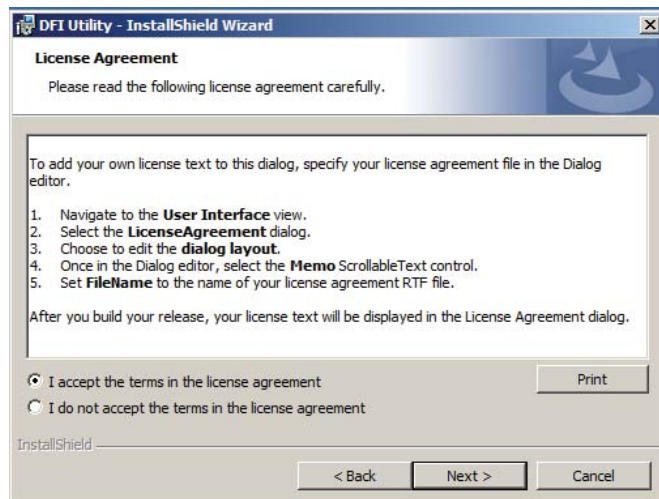
3. Enter "User name" and "Organization" information then click "Next".
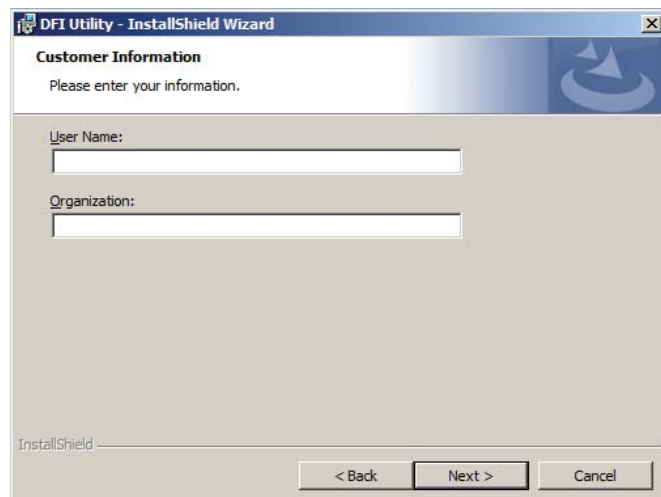
4. Click "Install" to begin the installation.

5. After completing installa tion, click "Finish".
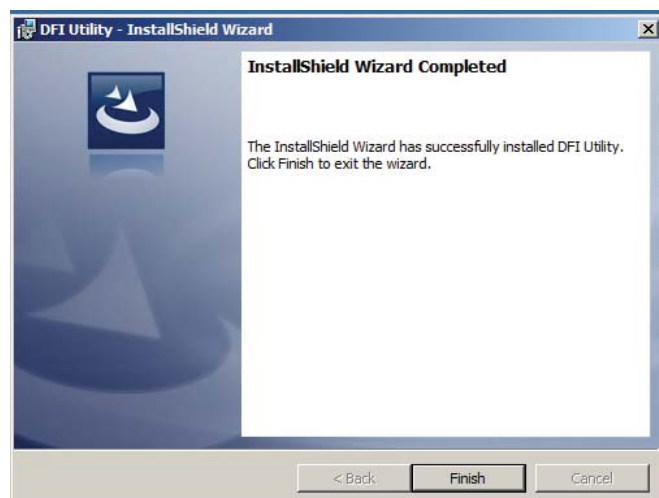
The DFI Utility icon will appear on the desktop. Double-click the icon to open the utility.

Supported Software

F6 Floppy Configuration Utility

This is used to create a floppy driver diskette needed when you install Windows®
XP using the F6 installation method. This will allow you to install the operating
system onto a hard drive when in AHCI mode.

1. Insert a blank floppy diskette.

2. Locate for the drivers in the CD then copy them to the floppy diskette. The
    CD includes drivers for both 32-bit and 64-bit operating systems. The path to
    the drivers are shown below.

    32-bit
    CD Drive:\AHCI_RAID\F6FLOPPY\f6flpy32

    64-bit
    CD Drive:\AHCI_RAID\F6FLOPPY\f6flpy64

Intel TPM Driver and Tool (option)

To install the driver, click "Infineon TPM driver and tool (option)" on the main menu.

1. TPM requires installing the Microsoft Visual C++ package prior to installing the driver. Click Install.
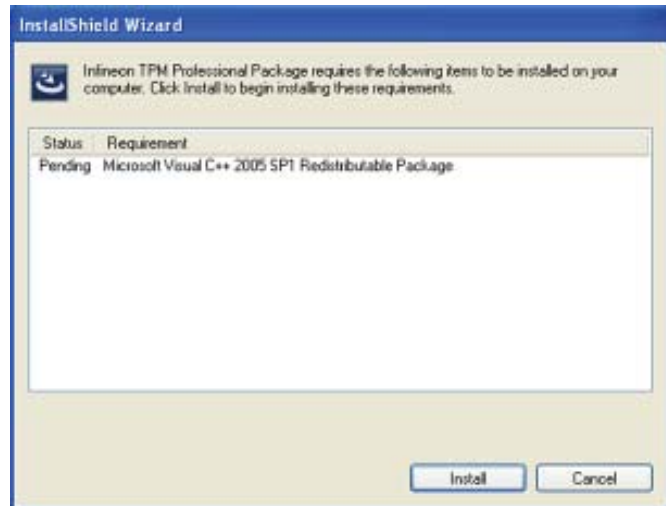
2. The setup program is preparing to install the driver.

3. The setup program is ready to install the driver. Click Next.

4. Click "I accept the terms in the license agreement" and then click "Next".

5. Enter the necessary information and then click Next.
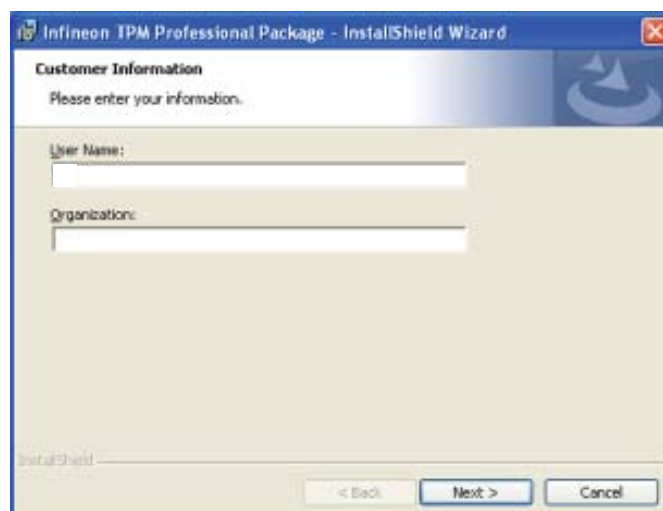
6. Select a setup type and then click Next.

7. Click Install.

8. The setup program is cur-
    rently installing the driver.

9. Click Finish.

Supported Software

10. Click Yes to restart the system.

Restarting the system will allow the new software installation to take effect.
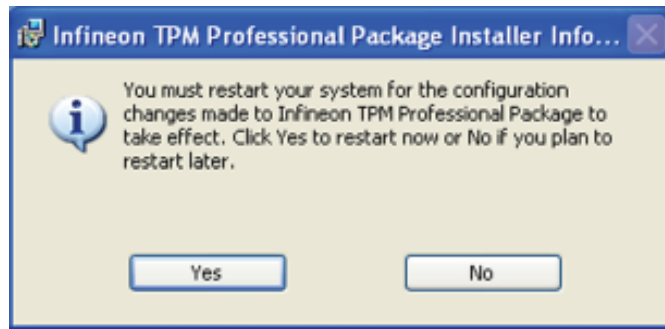
Adobe Acrobat Reader 9.3

To install, click "Adobe Acrobat Reader 9.3" on the main menu.

1. Click Next to install to the destination folder or click Change Destination folder to select another folder.

2. Click Install to begin installation.
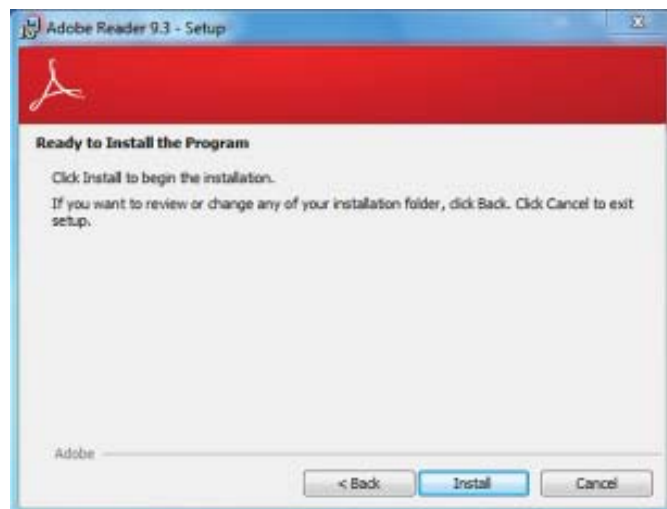
3. Click Finish to exit installation.

Appendix A - NLITE and AHCI Installation Guide

nLite

nLite is an application program that allows you to customize your XP installation disc by integrating the RAID/AHCI drivers into the disc. By using nLite, the F6 function key usually required during installation is no longer needed.

> **Note:**
> The installation steps below are based on nLite version 1.4.9. Installation procedures may slightly vary if you're using another version of the program.

1. Download the program from nLite's offical website.

   http://www.nliteos.com/download.html

2. Install nLite.

   > **Important:**
   > Due to it's coding with Visual.Net, you may need to first install .NET Framework prior to installing nLite.

3. Download relevant RAID/AHCI driver files from Intel's website. The drivers you choose will depend on the operating system and chipset used by your computer.

   The downloaded driver files should include iaahci.cat, iaAHCI.inf, iastor.cat, iaStor. inf, IaStor.sys, license.txt and TXTSETUP.OEM.

A
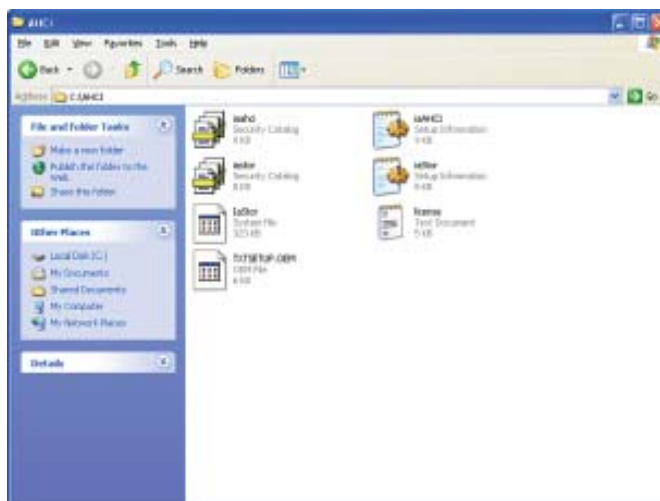
4. Insert the XP installation disc into an optical drive.

5. Launch nLite. The Welcome screen will appear. Click **Next**.
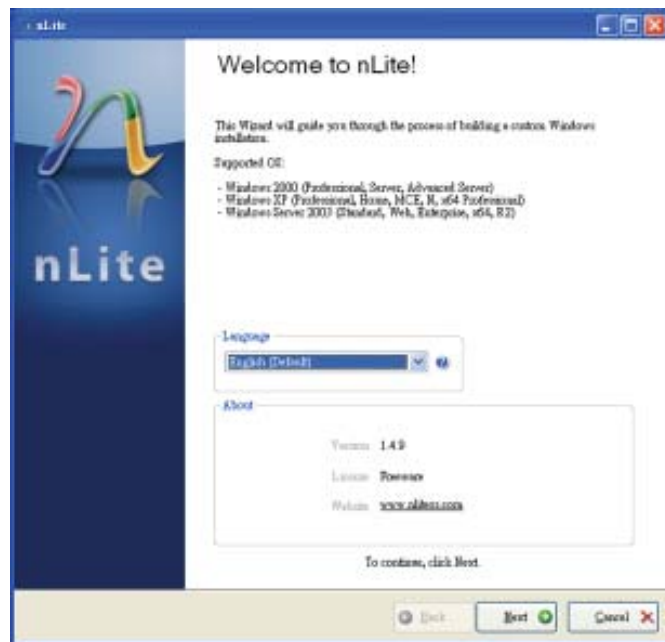
6. Click **Next** to temporarily save the Windows installation files to the designated default folder.

   If you want to save them in another folder, click **Browse**, select the folder and then click **Next**.
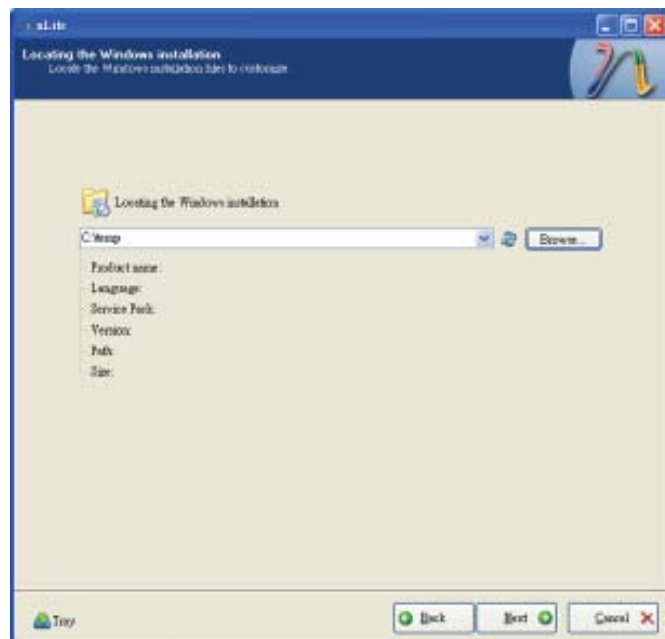
7. Click **Next**.
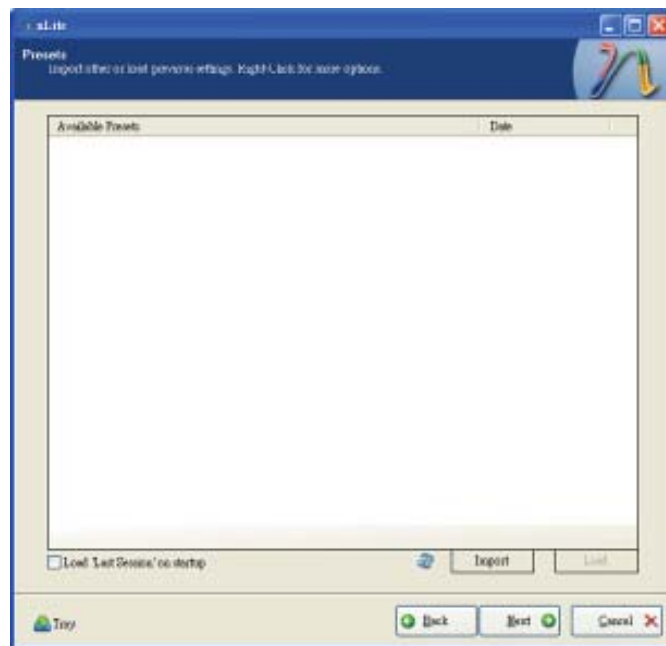
8. In the Task Selection dialog box, click **Drivers** and **Bootable ISO**. Click **Next**.
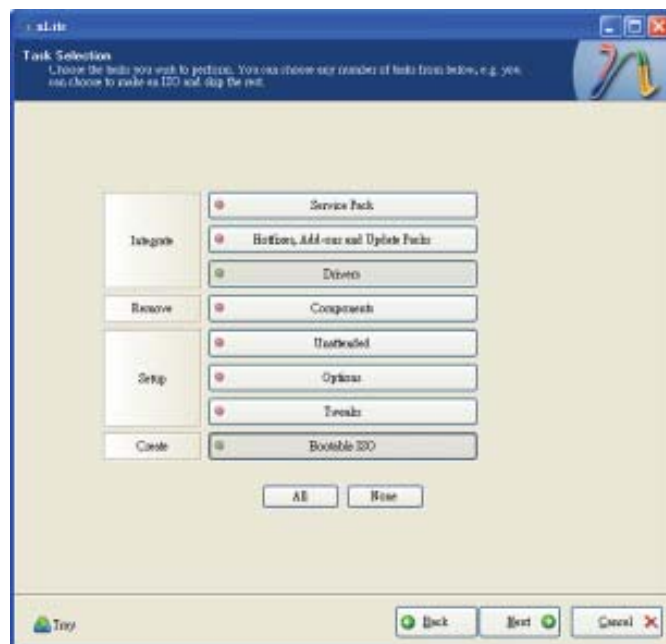
9. Click **Insert** and then se-
    lect **Multiple driver folder**
    to select the drivers you
    will integrate. Click **Next**.
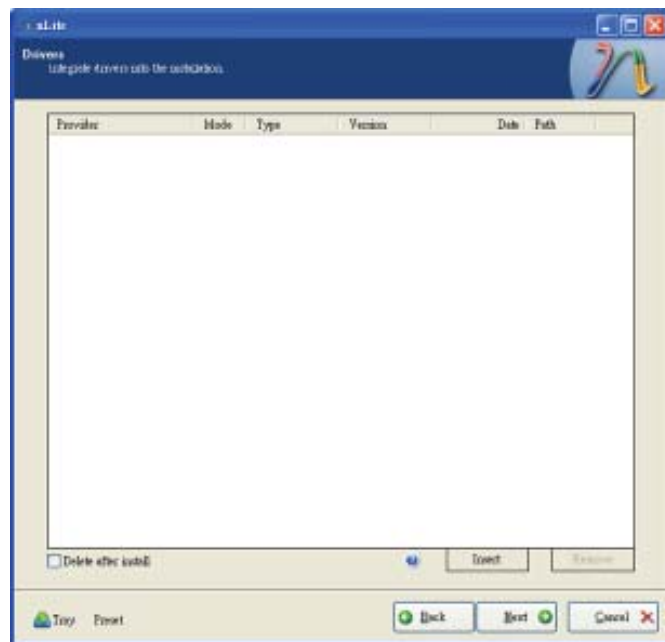
10. Select only the drivers
    appropriate for the Win-
    dows version that you are
    using and then click **OK**.

    Integrating 64-bit driv-
    ers into 32-bit Windows
    or vice versa will cause
    file load errors and failed
    installation.
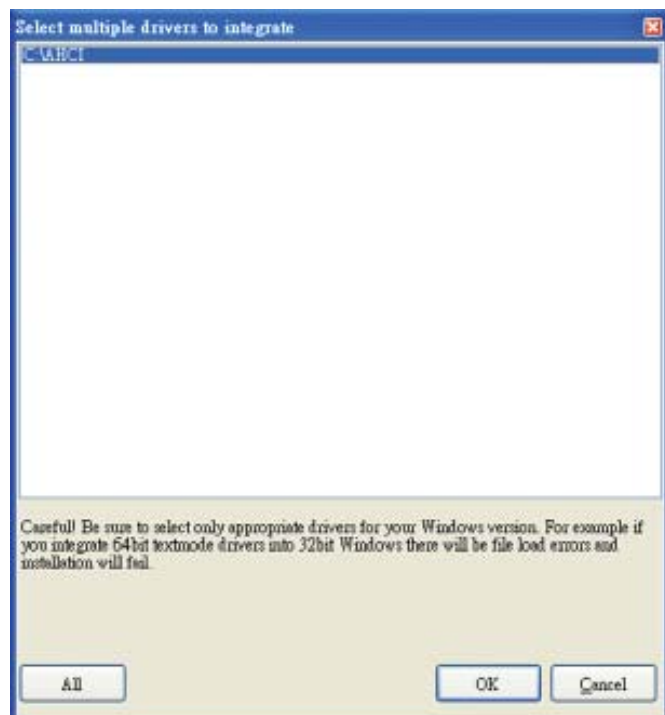
11. If you are uncertain of the southbridge chip used on your motherboard, select all RAID/AHCI controllers and then click **OK**.

12. Click **Next**.
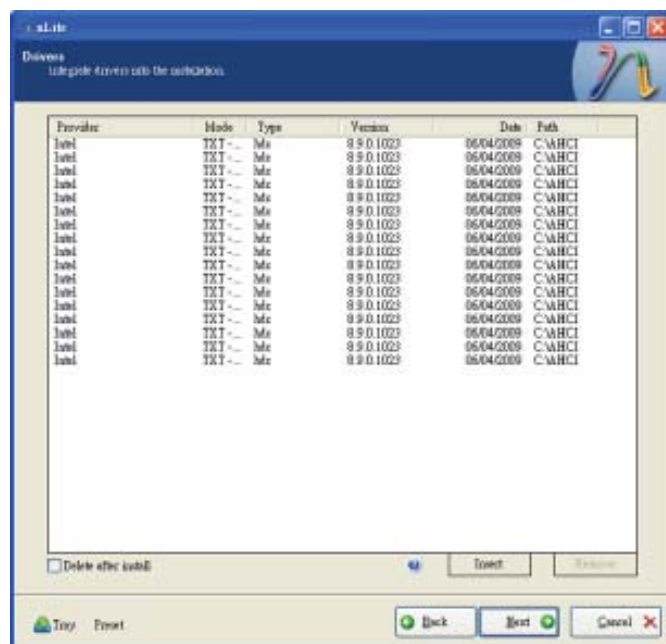
13. The program is currently integrating the drivers and applying changes to the installation.
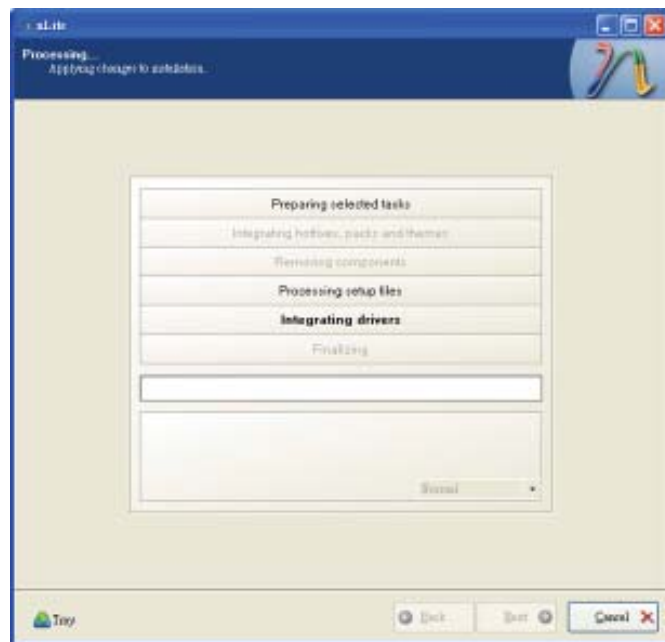
14. When the program is finished applying the changes, click **Next**.
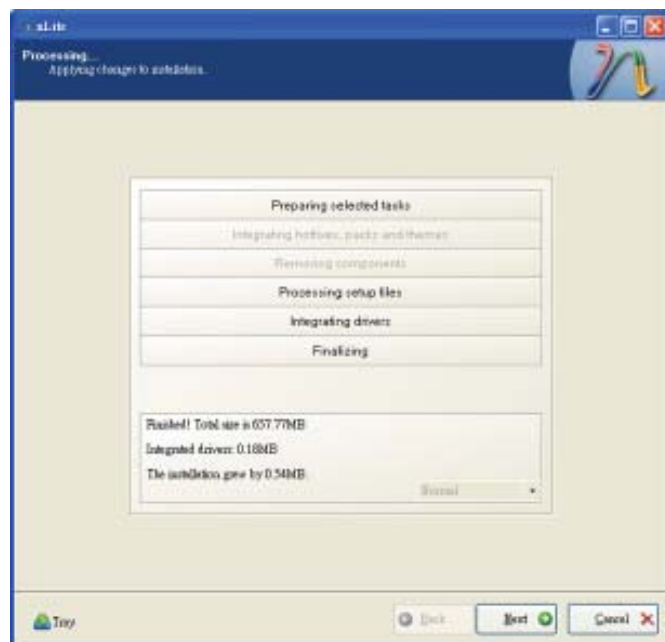
15. To create an image, se-
lect the **Create Image**
mode under the General
section and then click
Next.
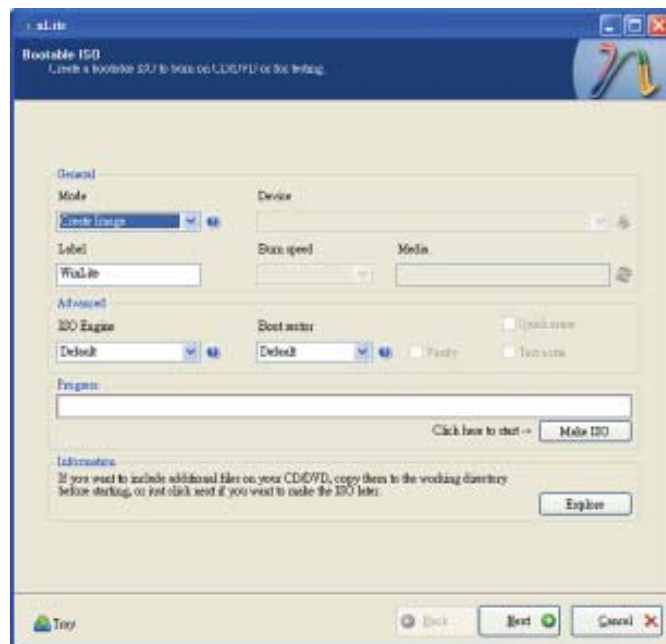
16. Or you can choose to
burn it directly to a disc
by selecting the **Direct
Burn** mode under the
General section.

Select the optical device
and all other necessary
settings and then click
Next.
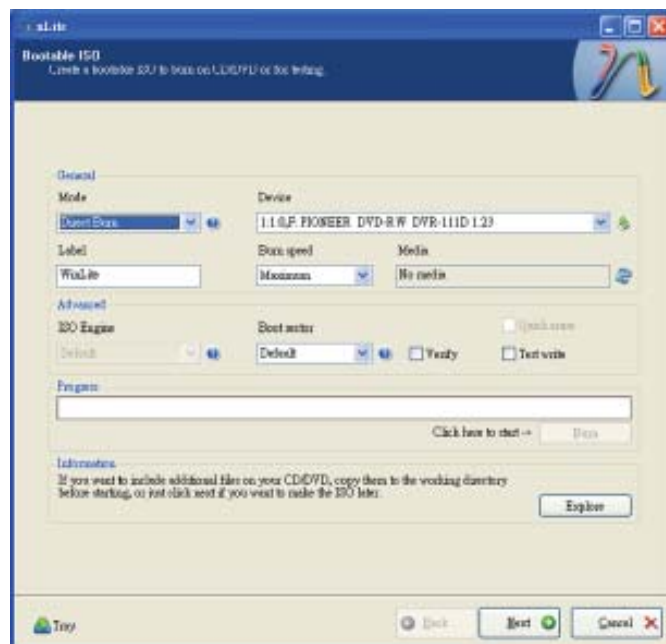
17. You have finished cus-
tomizing the Windows
XP installation disc. Click
Finish.

Enter the BIOS utility to
configure the SATA con-
troller to RAID/AHCI. You
can now install Windows
XP.
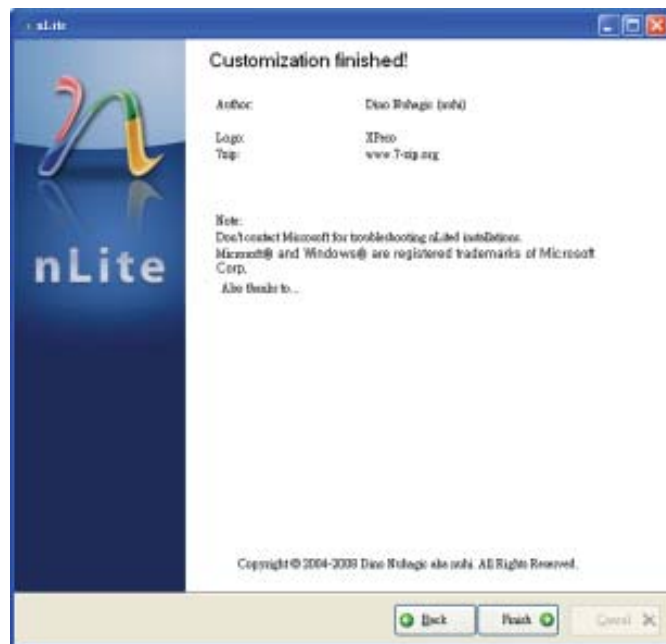
AHCI

The installation steps below will guide you in configuring your SATA drive to AHCI mode.

1. Enter the BIOS utility and configure the SATA controller to IDE mode.

2. Install Windows XP but do not press F6.

3. Download relevant RAID/AHCI driver files supported by the motherboard chipset from Intel's website.

    Transfer the downloaded driver files to C:\AHCI.
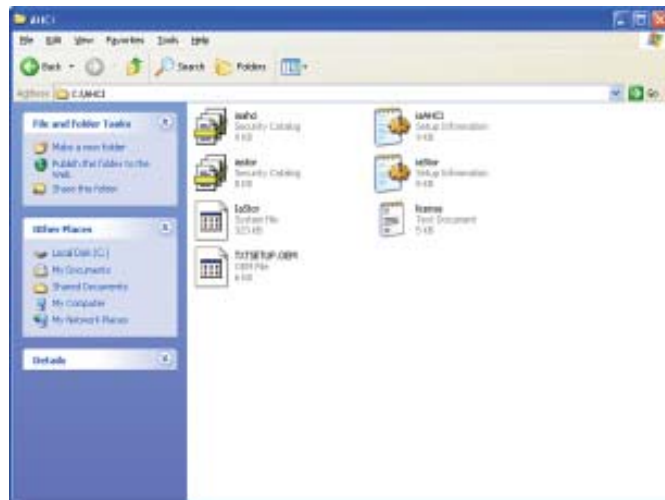
4. Open Device Manager and right click on one of the Intel Serial ATA Storage Controllers, then select **Update Driver**.

    If the controller you selected did not work, try selecting another one.
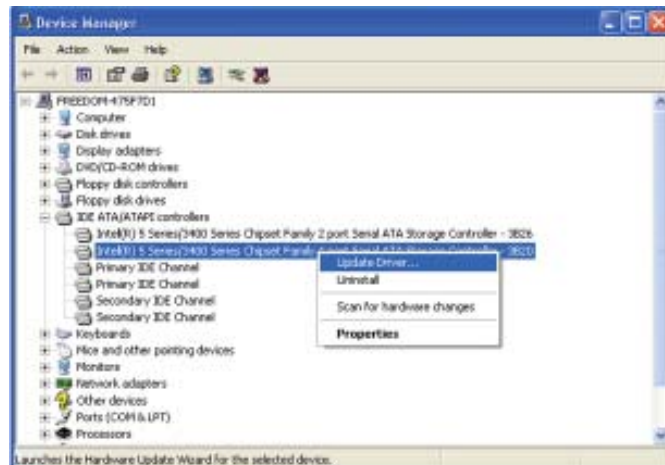
5. In the Hardware Update Wizard dialog box, select **"No, not this time"** then click **Next**.

6. Select **"Install from a list or specific location (Advanced)"** and then click **Next**.
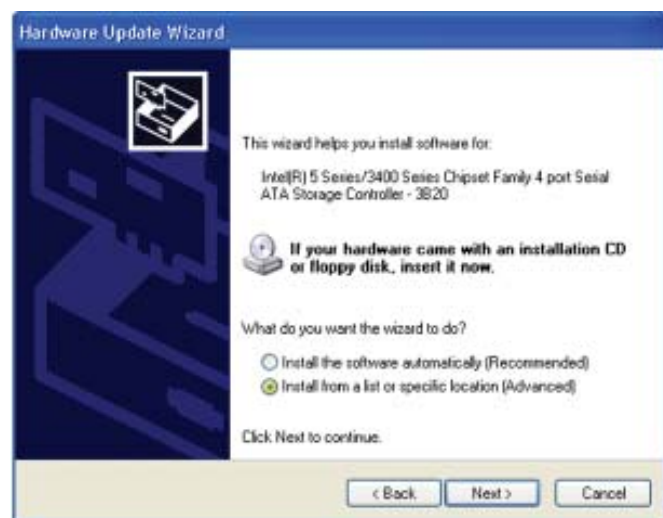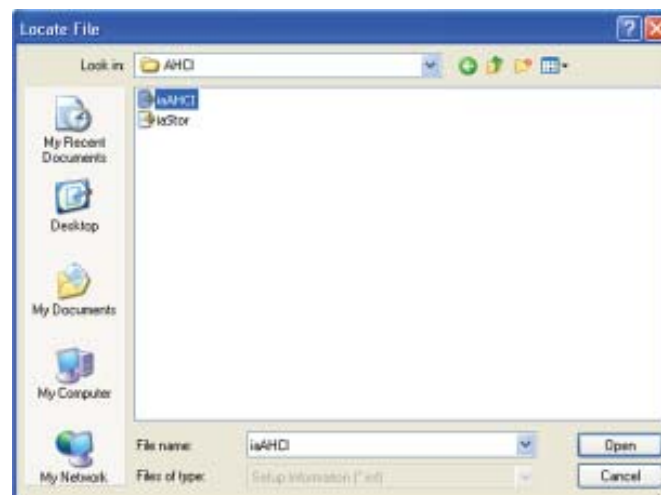
7. Select **"Don't search. I will choose the driver to install"** and then click **Next**.
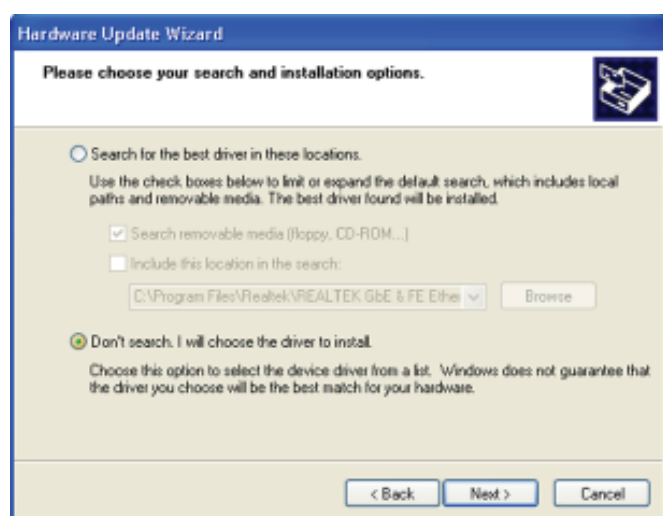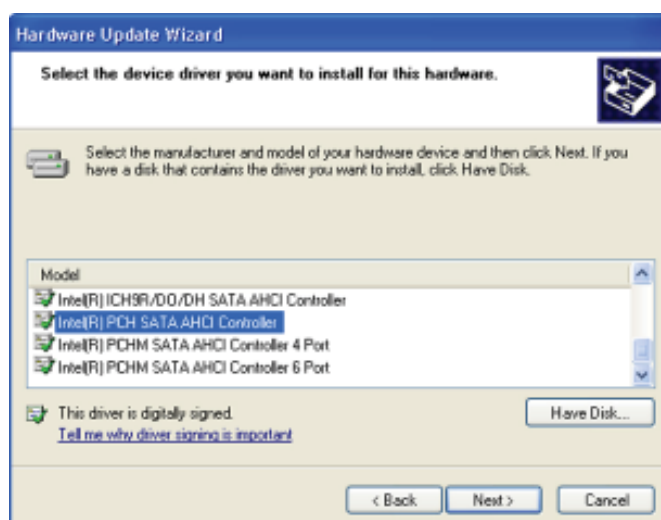
8. Click **"Have Disk"**.
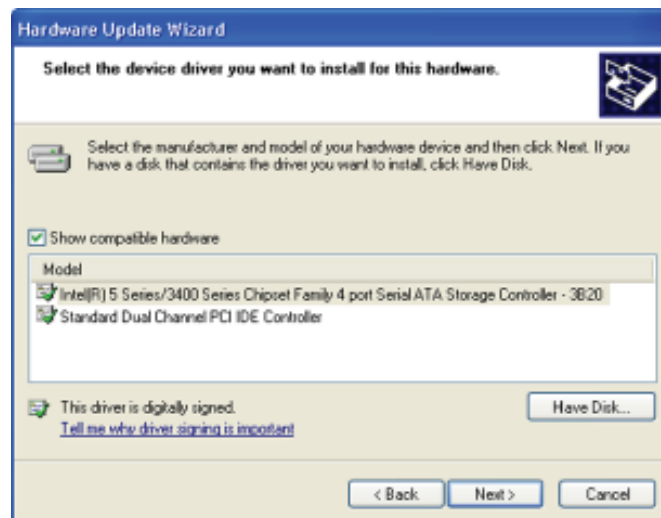
9. Select C:\AHCI\iaAHCI.inf
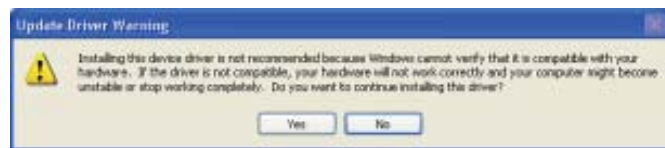   and then click **Open**.

10. Select the appropriate
    AHCI Controller of your
    hardware device and then
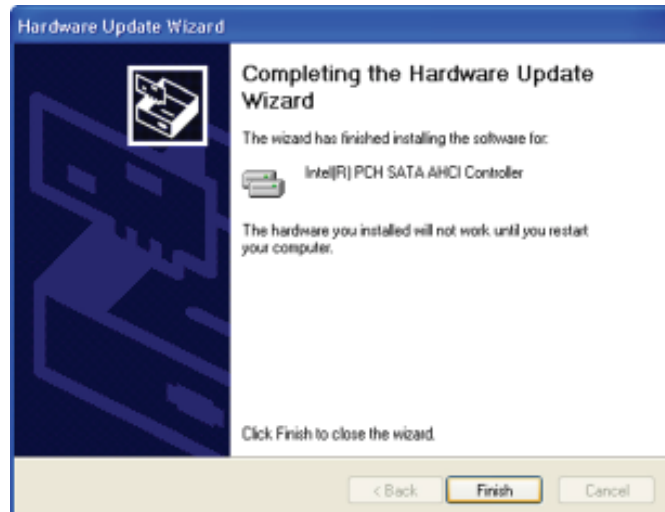   click **Next**.

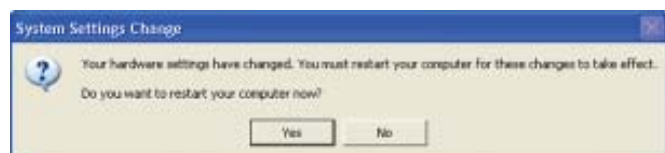11. A warning message appeared because the selected SATA controller did not match your hardware device.

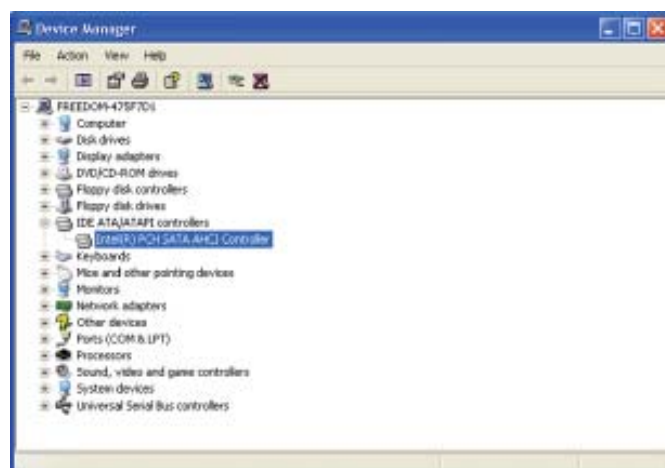   Ignore the warning and click **Yes** to proceed.

12. Click **Finish**.

13. The system's settings have been changed. Windows XP requires that you restart the computer. Click **Yes**.

14. Enter the BIOS utility and modify the SATA controller from IDE to AHCI. By doing so, Windows will work normally with the SATA controller that is in AHCI mode.

Appendix B - Watchdog Timer

Watchdog Timer

The following parameters are references for setting the time interval of the Watchdog Timer function. The system will regularly be "cleared" according to the set time interval. If the system hangs or fails to function, it will also reset according to the time interval so that your system will continue to operate.

```
.model small
.386

;-------------------
;Port defination
;-------------------
SuperIo_CFG_Port   EQU        2Eh        ;Super I/O Config port. (2Eh/4Eh)
SuperIo_DAT_Port   EQU        SuperIo_CFG_Port + 1

WDT_Counter        EQU        10         ; 1 to 255 (Sec./Min), 0 means disabled

mSuperio_Enter_Config        Macro
          mov       dx, SuperIo_CFG_Port
          mov       al, 87h
          out       dx, al
          NEWIODELAY
          out       dx, al
endM

mSuperio_Exit_Config         Macro
          mov       dx, SuperIo_CFG_Port
          mov       al, 0AAh
          out       dx, al
endM

mSuperio_GetSet_Reg          Macro RegIndex, AndMask, OrValue
          mov       dx, SuperIo_CFG_Port
          mov       al, RegIndex
          out       dx, al
          NEWIODELAY
          mov       dx, SuperIo_DAT_Port
          in        al, dx
          NEWIODELAY
          mov       ah, al
          and       al, AndMask
          or        al, OrValue
          out       dx, al
          NEWIODELAY
endM
mSuperio_Get_Reg Macro RegIndex
          mov       dx, SuperIo_CFG_Port
          mov       al, RegIndex
          out       dx, al
```

```
                NEWIODELAY
                mov        dx, SuperIo_DAT_Port
                in                   al, dx
                NEWIODELAY
endM


mSuperio_LDN_Select         Macro      LDN
          mSuperio_Set_Reg  07h, LDN
endM


mSuperio_Set_Reg  Macro RegIndex, SetValue
                mov        dx, SuperIo_CFG_Port
                mov        al, RegIndex
                out        dx, al
                NEWIODELAY
                mov        dx, SuperIo_DAT_Port
                mov        al, SetValue
                out        dx, al
                NEWIODELAY
endM


NEWIODELAY          Macro
            out        0EBh, al  ;Dummy I/O output for delay
endM


        .code


start:
                call                 W83627Hx_WDT

                mov        ah, 4ch
                int        21h


W83627Hx_WDT    Proc       near
;LDN8
;CRF5[3]  :RW 0/1 = WDTO Second/Minute
;CRF5[2]  :RW 0/1 = Keyboard Reset Low/High when WDTO Timeout

;CRF6[7:0]:RW 00h = Disable , 01h~0FFh = 1~255 Sec/Min.

;CRF7[7]  :RW 0/1 = Disable/Enable Mouse interrupt reset WDTO counting.

;CRF7[6]  :RW 0/1 = Disable/Enable Keyboard interrupt reset WDTO counting.

;CRF7[5]  :WO 1   = Force WDTO time out(Auto clear).

;CRF7[4]  :RW 0/1 = WDTO time status TimeOut/Counting.

;CRF7[3:0]:RW 0~7 = Low IRQ for WDTO (Typical is 2, means SMI).

                mSuperio_Enter_Config

                mSuperio_LDN_Select 08h
```

; PLED mode register, WDTO time unit as second, Keyboard reset when WDTO time out

      mSuperio_GetSet_Reg 0F5h, 11110111b, 00000100b

; , Disable MS/KB interrupt reset WDTO counting, IRQ2 for WDTO

      mSuperio_GetSet_Reg 0F7h, 11111111b, 11000010b

; , WDTO Time out Value

      mSuperio_Set_Reg 0F6h, WDT_Counter

mSuperio_Exit_Config

@@:

      ret

W83627Hx_WDT   endP

end start

Appendix C - System Error Message

When the BIOS encounters an error that requires the user to correct something, either a beep code will sound or a message will be displayed in a box in the middle of the screen and the message, PRESS F1 TO CONTINUE, CTRL-ALT-ESC or DEL TO ENTER SETUP, will be shown in the information box at the bottom. Enter Setup to correct the error.

Error Messages

One or more of the following messages may be displayed if the BIOS detects an error during the POST. This list indicates the error messages for all Awards BIO-Ses:

CMOS BATTERY HAS FAILED

The CMOS battery is no longer functional. It should be replaced.

> **Important**
> Danger of explosion if battery incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the battery manufacturer's instructions.

CMOS CHECKSUM ERROR

Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

DISPLAY SWITCH IS SET INCORRECTLY

The display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, either turn off the system and change the jumper or enter Setup and change the VIDEO selection.

Hard Disk(s) fail (80)

HDD reset failed.

Hard Disk(s) fail (40)

HDD controller diagnostics failed.

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System Error Message

Hard Disk(s) fail (20)

HDD initialization error.

Hard Disk(s) fail (10)

Unable to recalibrate fixed disk.

Hard Disk(s) fail (08)

Sector Verify failed.

Keyboard is locked out - Unlock the key

The BIOS detects that the keyboard is locked. Keyboard controller is pulled low.

Keyboard error or no keyboard present

Cannot initialize the keyboard. Make sure the keyboard is attached   correctly and no keys are being pressed during the boot.

Manufacturing POST loop

System will repeat POST procedure infinitely while the keyboard controller is pull low. This is also used for the M/B burn in test at the factory.

BIOS ROM checksum error - System halted

The checksum of ROM address F0000H-FFFFFH is bad.

Memory test fail

The BIOS reports memory test fail if the memory has error(s).

Appendix D - Troubleshooting

Troubleshooting Checklist

This chapter of the manual is designed to help you with problems that you may encounter with your personal computer. To efficiently troubleshoot your system, treat each problem individually. This is to ensure an accurate diagnosis of the problem in case a problem has multiple causes.

Some of the most common things to check when you encounter problems while using your system are listed below.

1. The power switch of each peripheral device is turned on.

2. All cables and power cords are tightly connected.

3. The electrical outlet to which your peripheral devices are connected is working. Test the outlet by plugging in a lamp or other electrical device.

4. The monitor is turned on.

5. The display's brightness and contrast controls are adjusted properly.

6. All add-in boards in the expansion slots are seated securely.

7. Any add-in board you have installed is designed for your system and is set up correctly.

Monitor/Display

If the display screen remains dark after the system is turned on:

1. Make sure that the monitor's power switch is on.

2. Check that one end of the monitor's power cord is properly attached to the monitor and the other end is plugged into a working AC outlet. If necessary, try another outlet.

3. Check that the video input cable is properly attached to the monitor and the system's display adapter.

4. Adjust the brightness of the display by turning the monitor's brightness control knob.

The picture seems to be constantly moving.

1. The monitor has lost its vertical sync. Adjust the monitor's vertical sync.

2. Move away any objects, such as another monitor or fan, that may be creating a magnetic field around the display.

3. Make sure your video card's output frequencies are supported by this monitor.

The screen seems to be constantly wavering.

1. If the monitor is close to another monitor, the adjacent monitor may need to be turned off. Fluorescent lights adjacent to the monitor may also cause screen wavering.

Power Supply

When the computer is turned on, nothing happens.

1. Check that one end of the AC power cord is plugged into a live outlet and the other end properly plugged into the back of the system.

2. Make sure that the voltage selection switch on the back panel is set for the correct type of voltage you are using.

3. The power cord may have a "short" or "open". Inspect the cord and install a new one if necessary.

Hard Drive

Hard disk failure.

1. Make sure the correct drive type for the hard disk drive has been entered in the BIOS.

2. If the system is configured with two hard drives, make sure the bootable (first) hard drive is configured as Master and the second hard drive is configured as Slave. The master hard drive must have an active/bootable partition.

Excessively long formatting period.

If your hard drive takes an excessively long period of time to format, it is likely a cable connection problem. However, if your hard drive has a large capacity, it will take a longer time to format.

Serial Port

The serial device (modem, printer) doesn't output anything or is outputting garbled characters.

1. Make sure that the serial device's power is turned on and that the device is on-line.

2. Verify that the device is plugged into the correct serial port on the rear of the computer.

3. Verify that the attached serial device works by attaching it to a serial port that is working and configured correctly. If the serial device does not work, either the cable or the serial device has a problem. If the serial device works, the problem may be due to the onboard I/O or the address setting.

4. Make sure the COM settings and I/O address are configured correctly.

Keyboard

Nothing happens when a key on the keyboard was pressed.

1. Make sure the keyboard is properly connected.

2. Make sure there are no objects resting on the keyboard and that no keys are pressed during the booting process.

System Board

1. Make sure the add-in card is seated securely in the expansion slot. If the add-in card is loose, power off the system, re-install the card and power up the system.

2. Check the jumper settings to ensure that the jumpers are properly set.

3. Verify that all memory modules are seated securely into the memory sockets.

4. Make sure the memory modules are in the correct locations.

5. If the board fails to function, place the board on a flat surface and seat all socketed components. Gently press each component into the socket.

6. If you made changes to the BIOS settings, re-enter setup and load the BIOS defaults.