SR960-N

System Board
User's Manual

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

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.

About the Package

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

- ☑ The system board
- ☑ One IDE cable (44-pin to 44-pin)
- ☑ One cable with 2 USB ports
- ☑ One Serial ATA data cable
- ☑ One Serial ATA power cable
- ☑ One COM port cable
- ☑ One cable with PS/2 keyboard and PS/2 mouse ports
- ☑ One power cable
- ☑ One front audio card
- ☑ One front audio cable
- ☑ One CPU cooler
- ☑ One "Main Board Utility" CD
- ☑ Two AHCI floppy diskettes (32-bit and 64-bit)
- ☑ One QR (Quick Reference)

The system board 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 Board

Before using the system board, prepare basic system components.

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

- • A CPU
- • Memory module
- • Storage devices such as hard disk drive, CD-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

Specifications

Processor	• Intel® Core™2 Duo mobile processor - 533MHz/800MHz system data bus • Processor socket: mPGA478P

Chipset	• Intel® chipset
	  -Intel® GME965 Express chipset
	  -Intel® 82801HBM I/O Controller Hub (ICH8M)

System Memory	• One 200-pin SODIMM socket • Supports 533MHz and 667MHz DDR2 SDRAM • Supports maximum of 2GB system memory using 256Mbit, 512Mbit, 1Gbit or 2Gbit memory technology for x8 and x16 devices
Expansion Slots	• 1 PCI-104 slot for 4 PCI devices

Graphics	• Integrated graphics interface
	  - Analog CRT
	    - Integrated 300MHz RAMDAC
	    - Analog monitor supports up to QXGA (2048x1536@60Hz)
	    - Supports CRT hot plug
	  - LVDS interface
	    - 4:3 aspect ratio panel supports up to UXGA (1600x1200@75Hz)
	    - Widescreen panel supports up to WUXGA (1920x1200@65Hz)
	    - 25MHz-112MHz single/dual channel @ 18bpp or 24bpp, TFT panel type support
	• Internal graphics features
	  - Mobile Intel® Graphics Media Accelerator X3100
	  - DVMT 4.0
	  - Intel® Smart 2D Display Technology
	  - Estimated 500MHz core render clock at 1.05V core voltage
	  - High performance MPEG-2 decoding
	  - WMV9C (VC-1) and H.264 (AVC) support
	  - Microsoft DirectX 9 and DirectX 10 support

Audio	• Realtek ALC262 High Definition audio CODEC • 2-channel audio output • 1 stereo DAC supports 16/20/24-bit PCM format with 44.1/48/96/192KHz sample rate • 2 stereo ADCs support 16/20-bit PCM format with 44.1/48/96/192KHz sample rate
LAN	• Two Marvell 88E8056 PCI Express Gigabit controllers • Supports 10Mbps, 100Mbps and 1Gbps data transmission • IEEE 802.3 (10/100Mbps) and IEEE 802.3ab (1Gbps) compliant
IDE	• Supports up to two Ultra ATA 100/66/33 IDE devices **Note:** We do not recommend using IDE devices and CF card at the same time.

Serial ATA	• One Serial ATA II interface • Data transfer rate up to 3Gb/s • Intel Matrix Storage Technology • Integrated AHCI controller
Rear I/O	• 1 mini-DIN-6 port for PS/2 KB and PS/2 Mouse ports • 1 DB-9 serial port • 1 DB-15 VGA port • 2 RJ45 LAN ports • 2 USB 2.0/1.1 ports
I/O Connectors	• 1 CompactFlash socket • 2 connectors for 4 additional external USB 2.0/1.1 ports • 3 connectors for 3 external RS-232 serial ports (two of the ports are RS-232/RS-422/RS-485 selectable) • 1 LCD brightness control connector • 1 LVDS LCD panel connector • 1 LCD/inverter power connector • 1 DIO connector and 1 DIO power connector • 1 front audio connector for line-out and mic-in jacks • 1 connector for IrDA interface • 1 Serial ATA connector • 1 44-pin IDE connector and 1 floppy connector • 1 10-pin ATX power connector (one 10-to-20 pin ATX power cable provided) • 1 front panel connector • 2 fan connectors
BIOS	• AMI BIOS • 4Mbit SPI flash memory

Energy Efficient Design	• Supports ACPI specification and OS Directed Power Management
	• Supports ACPI STR (Suspend to RAM) function
	• Wake-On-Events include:
	  - Wake-On-PS/2 Keyboard/Mouse
	  - Wake-On-LAN and Wake-On-Ring
	  - RTC timer to power-on the system
	• System power management supported
	• CPU stopped clock control
	• Microsoft®/Intel® APM 1.2 compliant
	• Soft Power supported - ACPI v2.0 specification
	• AC power failure recovery

Damage Free Intelligence	• Monitors CPU/system temperature and overheat alarm • Monitors CPU(V)/1.5V/3.3V/5V/12V/VBAT(V)/1.8V voltages and failure alarm • Monitors CPU/system fan speed and failure alarm • Read back capability that displays temperature, voltage and fan speed • Watchdog timer function
Temperature	• 0°C to 60°C
Humidity	• 10% to 90%
PCB	• 10 layers, EPIC form factor; 11.5cm (4.528") x 16.5cm (6.496")

Features

WATCHDOG TIMER The Watchdog Timer function allows your application to regularly "clear" the system at the set time interval. If the system hangs or fails to function, it will reset at the set time interval so that your system will continue to operate.

DDR2 DDR2 is a higher performance DDR technology whose data transfer rate delivers bandwidth of 4.3 GB per second and beyond. That is twice the speed of the conventional DDR without increasing its power consumption. DDR2 SDRAM modules work at 1.8V supply compared to 2.6V memory voltage for DDR modules. DDR2 also incorporates new innovations such as the On-Die Termination (ODT) as well as larger 4-bit prefetch against DDR which fetches 2 bits per clock cycle.

GRAPHICS The Intel GME965 northbridge chip comes integrated with the Intel Graphics Media Accelerator X3100 delivering exceptional 3D graphics performance. It supports analog CRT and LVDS interfaces.

IRDA The system board is equipped with an IrDA connector for wireless connectivity between your computer and peripheral devices. The IrDA (Infrared Data Association) specification supports data transfers of 115K baud at a distance of 1 meter.

SERIAL ATA Serial ATA is a storage interface that is compliant with SATA 1.0a specification. With speed of up to 3Gbps, it improves hard drive performance faster than the standard parallel ATA whose data transfer rate is 100MB/s.

GIGABIT LAN The two Marvell 88E8056 PCI Express Gigabit controllers support up to 1Gbps data transmission.

USB The system board supports USB 2.0 and USB 1.1 ports. USB 1.1 supports 12Mb/second bandwidth while USB 2.0 supports 480Mb/second bandwidth providing a marked improvement in device transfer speeds between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

WAKE-ON-RING This feature allows the system that is in the Suspend mode or Soft Power Off mode to wake-up/power-on to respond to calls coming from an external modem or respond to calls from a modem PCI card that uses the PCI PME (Power Management Event) signal to remotely wake up the PC.

Important:
The 5V_standby power source of your power supply must support ≥720mA.

WAKE-ON-LAN This feature allows the network to remotely wake up a Soft Power Down (Soft-Off) PC. It is supported via the onboard LAN port or via a PCI LAN card that uses the PCI PME (Power Management Event) signal. However, if your system is in the Suspend mode, you can power-on the system only through an IRQ or DMA interrupt.

Important:
The 5V_standby power source of your power supply must support ≥720mA.

WAKE-ON-PS/2 This function allows you to use the PS/2 keyboard or PS/2 mouse to power-on the system.

<u>Important:</u>
The 5V_standby power source of your power supply must support ≥720mA.

RTC TIMER The RTC installed on the system board allows your system to automatically power-on on the set date and time.

ACPI STR The system board is designed to meet the ACPI (Advanced Configuration and Power Interface) specification. ACPI has energy saving features that enables PCs to implement Power Management and Plug-and-Play with operating systems that support OS Direct Power Management. ACPI when enabled in the Power Management Setup will allow you to use the Suspend to RAM function.

With the Suspend to RAM function enabled, you can power-off the system at once by pressing the power button or selecting "Standby" when you shut down Windows® without having to go through the sometimes tiresome process of closing files, applications and operating system. This is because the system is capable of storing all programs and data files during the entire operating session into RAM (Random Access Memory) when it powers-off. The operating session will resume exactly where you left off the next time you power-on the system.

<u>Important:</u>
The 5V_standby power source of your power supply must support ≥720mA.

POWER FAILURE RECOVERY When power returns after an AC power failure, you may choose to either power-on the system manually or let the system power-on automatically.

Chapter 2 - Hardware Installation

System Board Layout
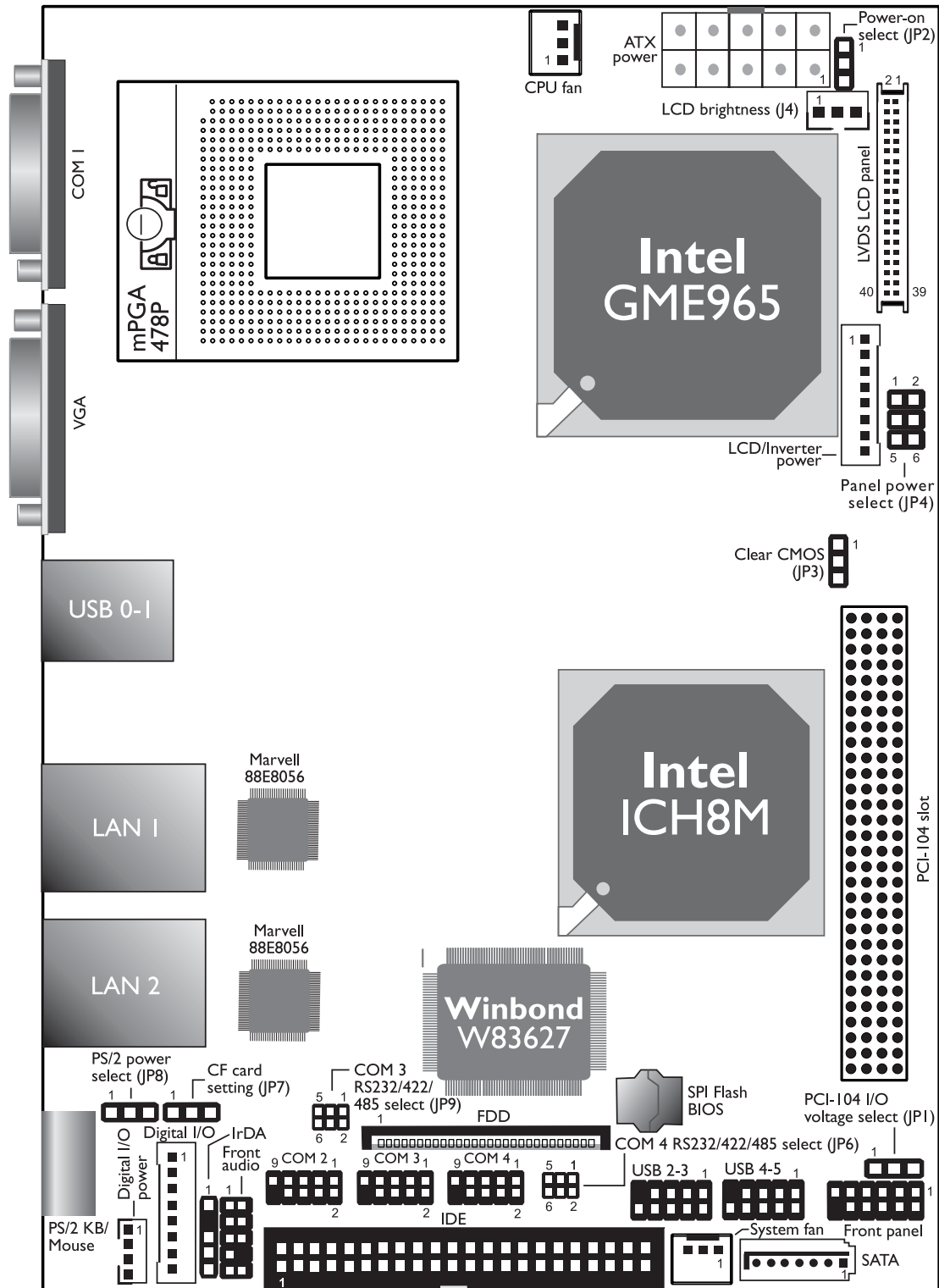
Warning:
Electrostatic discharge (ESD) can damage your system board, proces-sor, disk drives, add-in boards, and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protec-tion by wearing an antistatic 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 proce-dures requiring ESD protection.

System Memory

The system board is equipped with a SODIMM socket located at the solder side of the board.
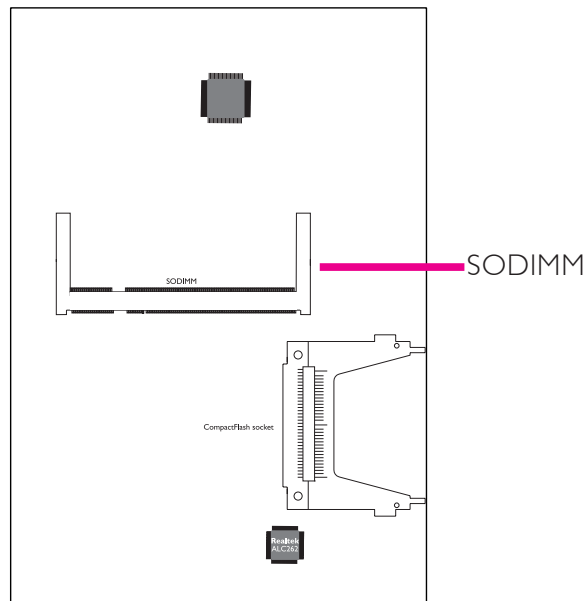
BIOS Setting

Configure the system memory in the Chipset menu of the BIOS. Refer to chapter 3 for more information.

Installing the DIM Module

> **Note:**
> *The system board used in the following illustrations may not resemble the actual one. These illustrations are for reference only.*

1. Make sure the PC and all other peripheral devices connected to it has been powered down.

2. Disconnect all power cords and cables.

3. Locate the SODIMM socket on the system board.

4. Insert the module into the socket at an approximately 30 degrees angle. Note that the socket and module are both keyed, which means the module can be plugged into the socket in only one way.

5. To seat the module into the socket, 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.

6. Push down the module 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.

CPU

Overview

The system board is equipped with a surface mount mPGA478P CPU socket.

> **Note:**
> *The system board used in the following illustrations may not resemble the actual one. These illustrations are for reference only.*

Installing the CPU

1. Make sure the PC and all other peripheral devices connected to it has been powered down.

2. Disconnect all power cords and cables.

3. Locate the mPGA478P socket on the system board.
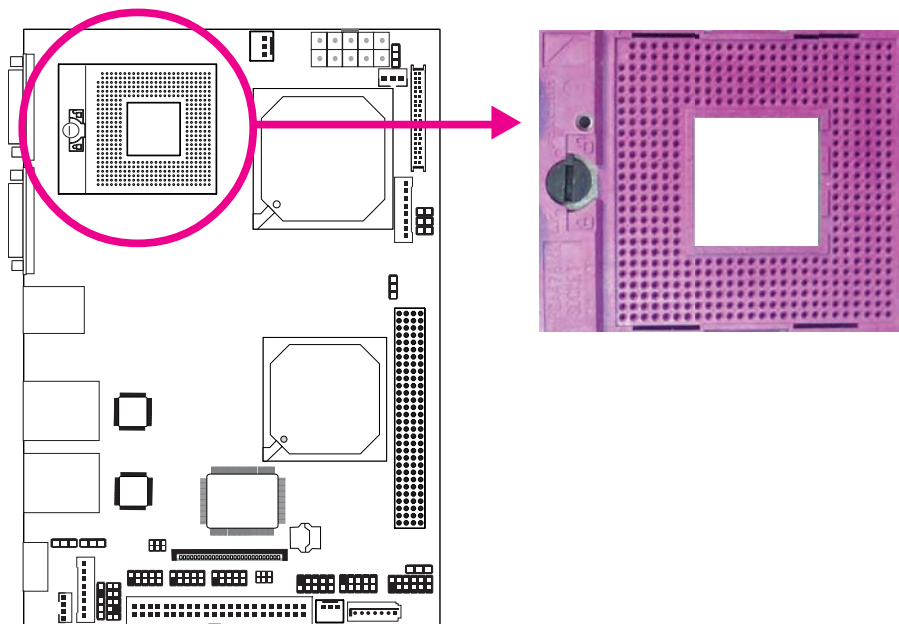
4. Use a screwdriver to turn the screw to its unlock position.

Lock

Unlock
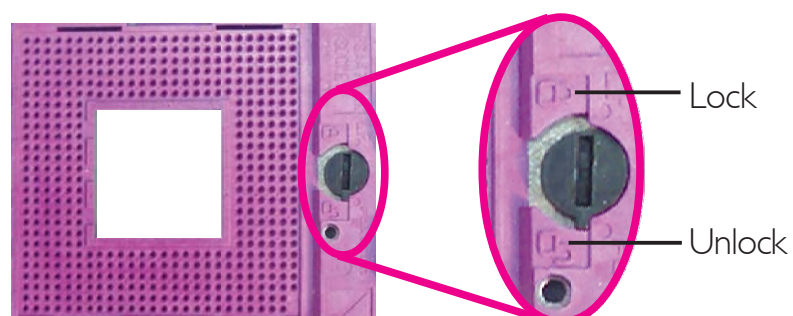
5. Position the CPU above the socket. The gold triangular mark on the CPU must align with pin 1 of the CPU socket.

> **Important:**
> *Handle the CPU by its edges and avoid touching the pins.*
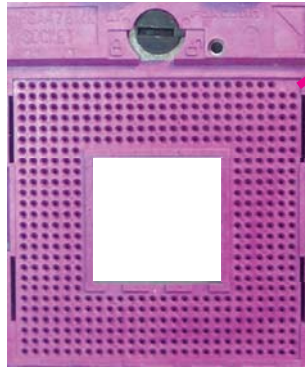
Pin 1 of the socket
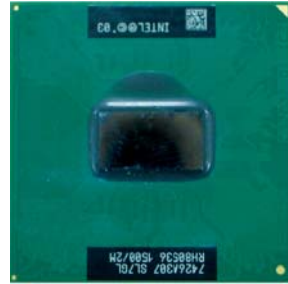
Gold triangular mark

6. Insert the CPU into the socket until it is seated in place. The CPU will fit in only one orientation and can easily be inserted without exerting any force. Use a screwdriver to turn the screw to its lock position.

> **Important:**
> *Do not force the CPU into the socket. Forcing the CPU into the socket may bend the pins and damage the CPU.*
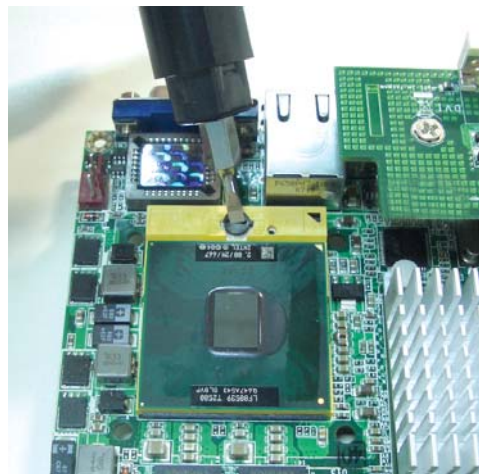
Installing the Fan and Heat Sink

The CPU must be kept cool by using a CPU fan with heat sink. Without sufficient air circulation across the CPU and heat sink, the CPU will overheat damaging both the CPU and system board.

> **Note:**
> • *Use only certified fan and heat sink.*
> • *Your fan and heat sink package usually contains the fan and heat sink assembly, and an installation guide. If the installation procedure in the installation guide differs from the one in this section, please follow the installation guide in the package.*

1. On the solder side of the board, match the screw holes of the retention module base to the mounting holes around the CPU socket.
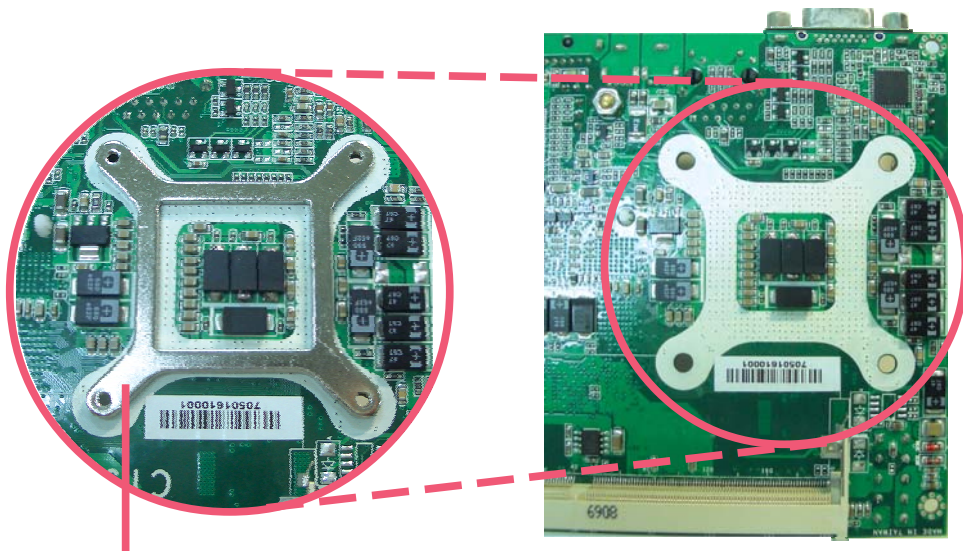
Retention module base

2. Apply a thin layer of thermal paste on top of the CPU. Do not spread the paste all over the surface. When you later place the heat sink on top, the compound will disperse evenly.

3. While holding the retention module base in position (step 1), place the fan / heat sink assembly on top of the CPU. The 4 screws around the heat sink must match the screw holes of the retention module base. We strongly recommend using this type of fan / heat sink assembly because it provides adequate cooling to the components of the system board.

   Turn each Phillips head screw half way down first to initially stabilize the heat sink onto the board, then finally tighten each screw.

   Important:
   Do not turn the first screw all the way down followed by the next and so on. This is to avoid imbalance which might cause cracks or fractures to the CPU and/or heat sink assembly.

4. Connect the CPU fan's cable connector to the CPU fan connector on the system board.

CPU fan cable
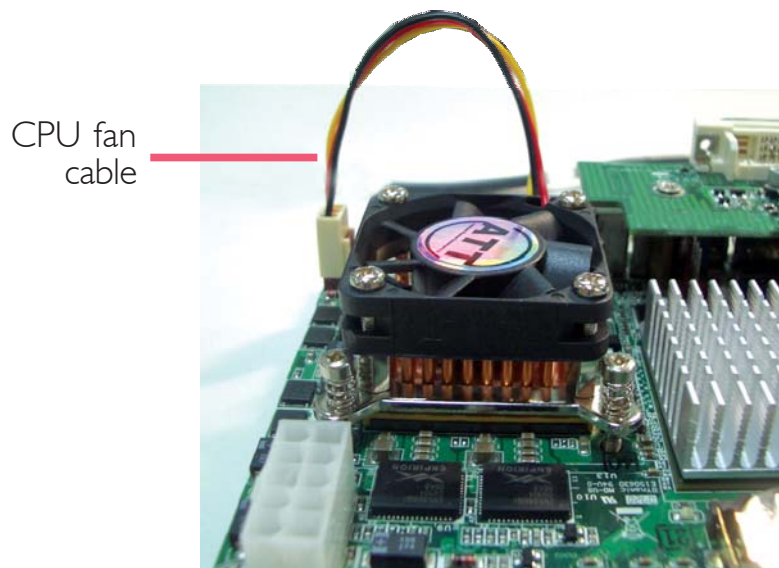
Important:
When you install the CPU fan and heat sink assembly, make sure the assembly is positioned in such a way that the direction of the airflow blows towards the Northbridge. This is to ensure optimum thermal condition and system performance.

Jumper Settings

Clear CMOS Data

1-2 On: Normal
(default)

2-3 On:
Clear CMOS Data
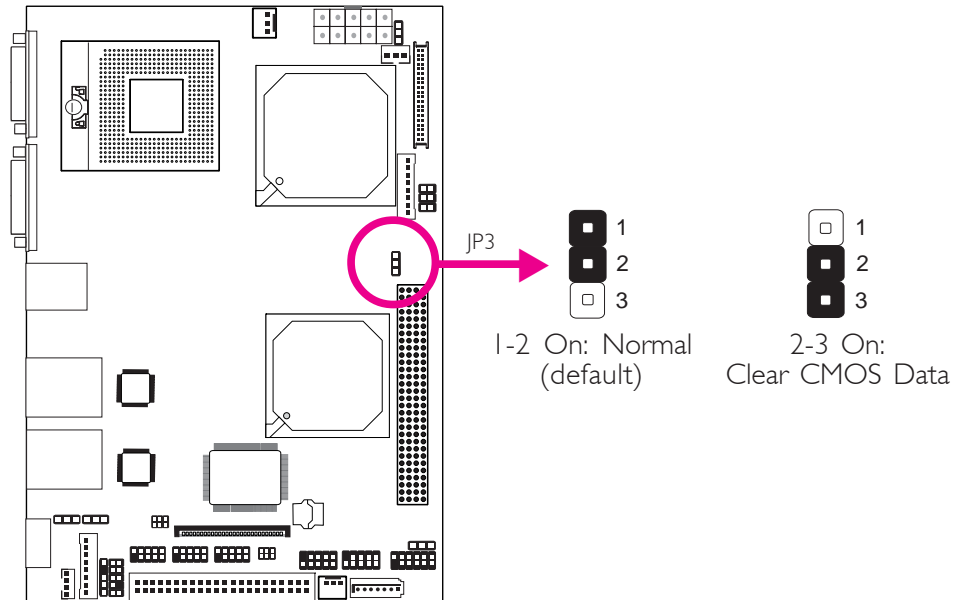
If you encounter the following,

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 JP3 pins 2 and 3 to On. Wait for a few seconds and set JP3 back to its default setting, pins 1 and 2 On.

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

PS/2 Power Select

1 2 3

1-2 On: 5V (default)

1 2 3

2-3 On: 5V_standby

JP8
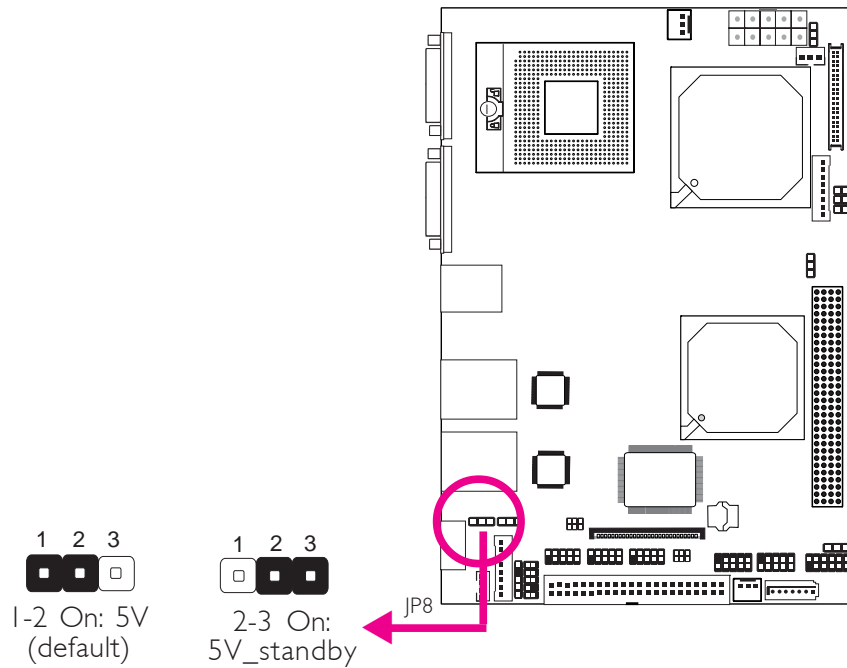
JP8 is used to select the power of the PS/2 keyboard/mouse port. Selecting 5V_standby will allow you to use the PS/2 keyboard or PS/2 mouse to wake up the system.

BIOS Setting

Configure the PS/2 keyboard/mouse wake up function in the Advanced menu of the BIOS. Refer to chapter 3 for more information.

> **Important:**
> *The 5V_standby power source of your power supply must support ≥720mA.*

LCD Brightness Control (Voltage Level Adjust)

J4

1 ▪▪▪ 3

1-2 On:
Increases the voltage level

2-3 On:
Decreases the voltage level
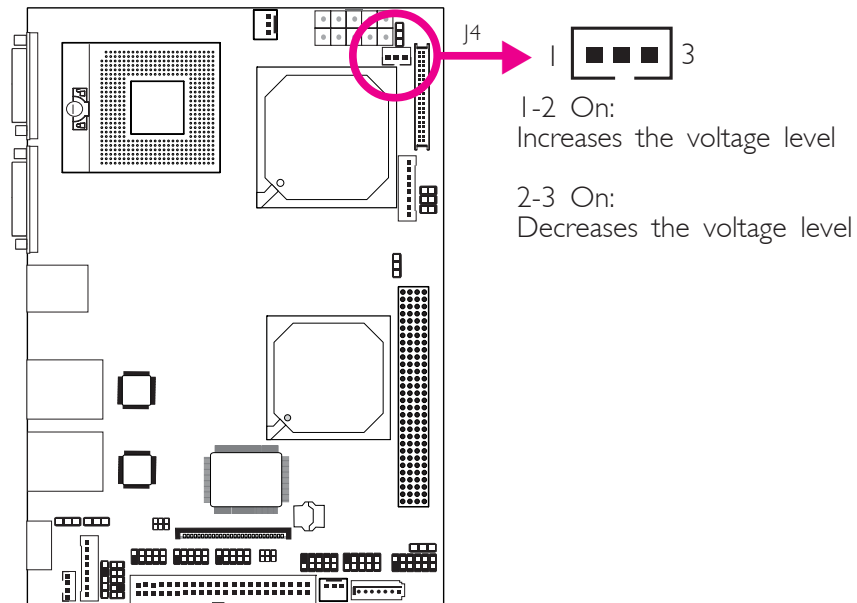
Use J4 to connect to the LCD Brightness Control button of the LCD Display Panel. It is used to adjust the brightness of the LCD Display Panel. Increasing or decreasing the voltage to control the LCD panel's brightness varies among Inverters. You must refer to the Inverter's specification to make the appropriate adjustment to the brightness of the LCD panel.

COM 3 and COM 4 RS232/RS422/RS485 Select

COM 3 (JP9)

COM 4 (JP6)
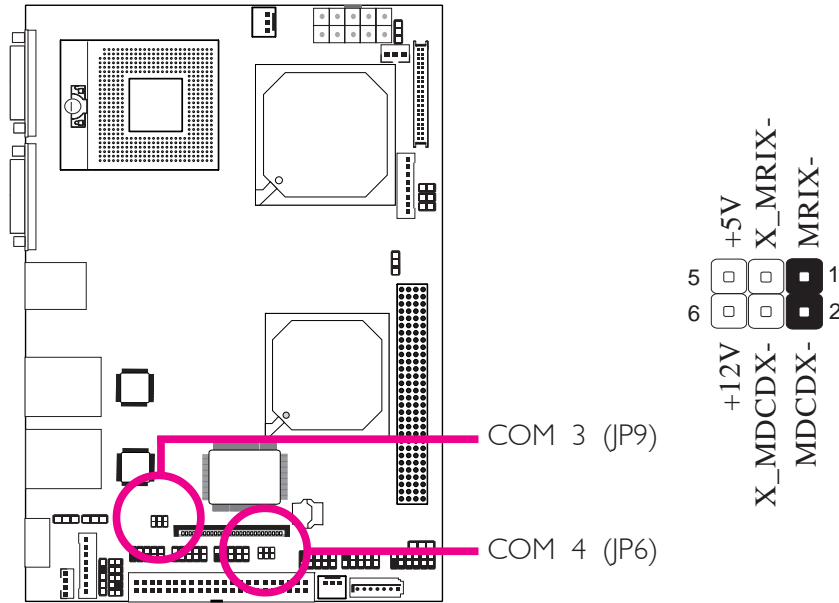
JP9 and JP6 are used to configure COM 3 and COM 4 respectively to RS232, RS422 (Half Duplex) or RS485.

The pin function of COM 3 and COM 4 will vary according to the jumpers' setting.

JP9/JP6

1-2 On:
RS232
(default)

3-4 On:
RS422
Half Duplex

5-6 On:
RS485

COM 3
COM 4

Power-on Select

JP2

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

2-3 On:
Power-on via
AC power
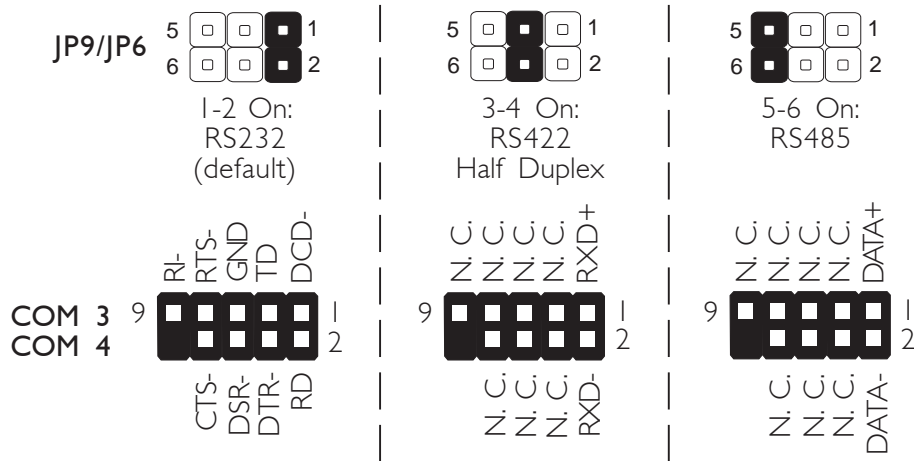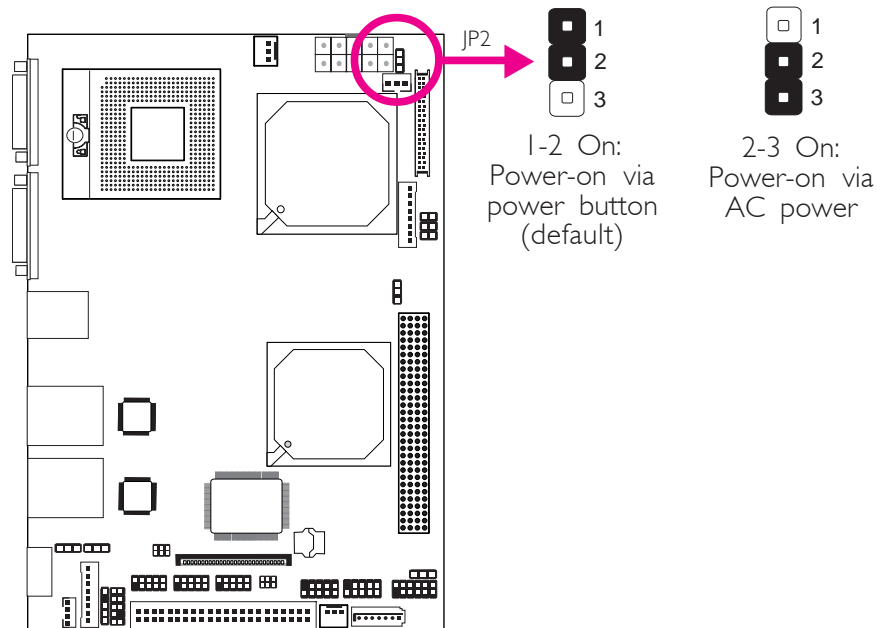
JP2 is used to select the method of powering on the system. If you want the system to power-on whenever AC power comes in, set JP2 pins 2 and 3 to On. If you want to use the power button, set pins 1 and 2 to On.

When using JP2 "Power On" feature to power the system back on after a power failure occurs, may not power on the system if the power lost is resumed within 5 seconds (power flicker).

Note:

In order to ensure that power is resumed after a power failure that may occur within a 5 second period, JP2 should be set to pins 2-3 and the "Restore on AC Power Loss" in the Advanced menu of the BIOS is set to "Power On".

Panel Power Select

1 ■ ■ 2	1 □ □ 2	1 □ □ 2
3 □ □ 4	3 ■ ■ 4	3 □ □ 4
5 □ □ 6	5 □ □ 6	5 ■ ■ 6
1-2 On: 12V	3-4 On: 5V	5-6 On: 3.3V (default)
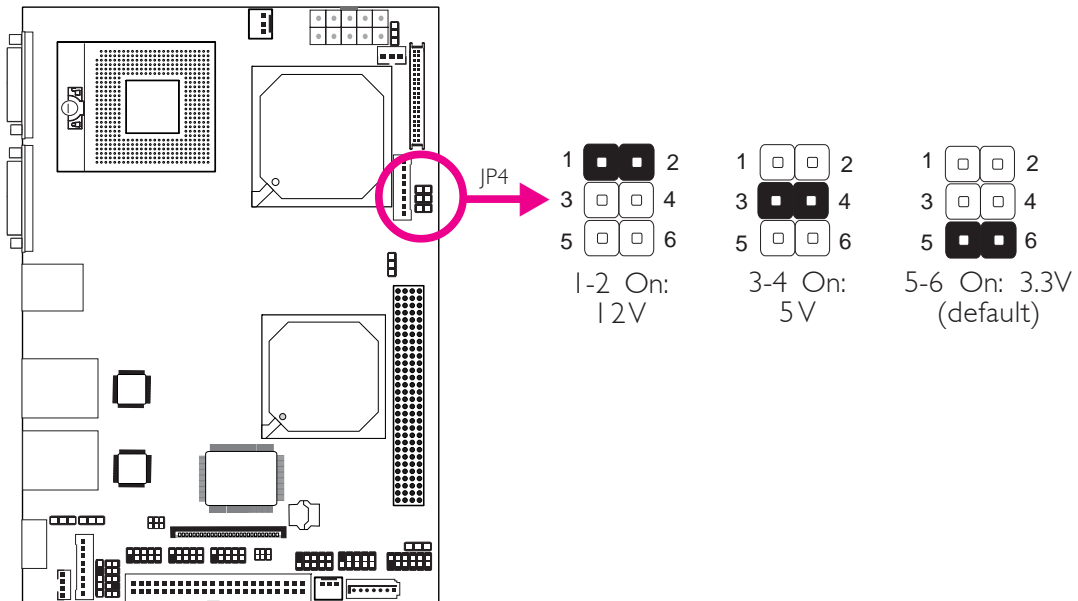
JP4 is used to select the power supplied to the LCD panel. Before powering-on the system, make sure JP4's setting matches the LCD panel's specifications. Selecting the incorrect voltage will seriously damage the LCD panel.

PCI-104 I/O Voltage Select

1-2 On: 3.3V (default)   2-3 On: 5V
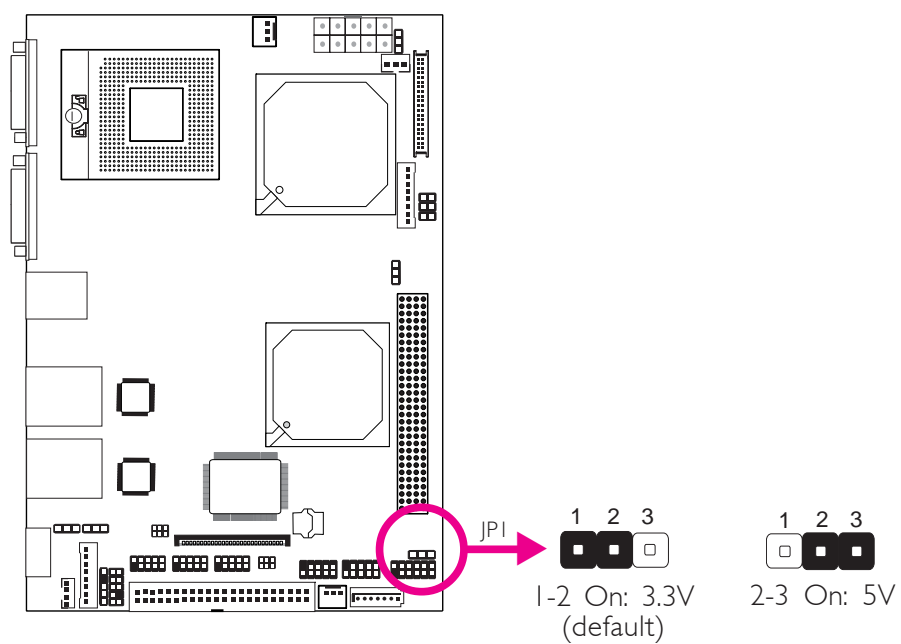
JP1 is used to select the voltage supplied to the PCI-104 slot.

Compact Flash Card Setting


```
  1  2  3          1  2  3
 ■■ ■□         □ ■■ ■
1-2 On: Master  2-3 On: Slave
   (default)
```

JP7
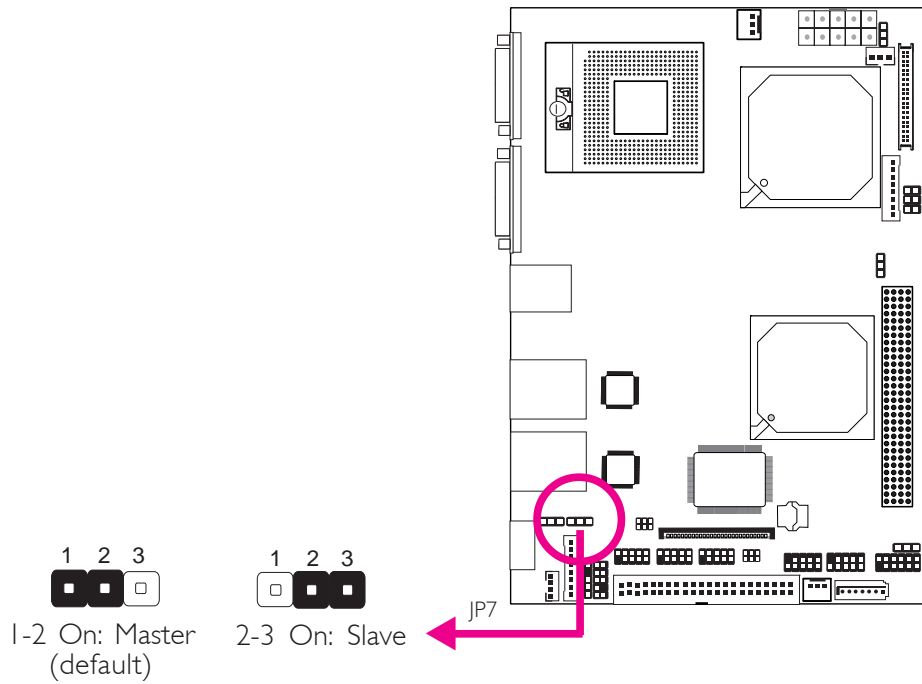
JP7 is used to set the CompactFlash™ socket to Master or Slave mode.

Note:
We do not recommend using IDE devices and CF card at the same time.

Rear Panel I/O Ports

COM 1   VGA   USB 0   LAN 1 LAN 2   PS/2 KB/Mouse

USB 1
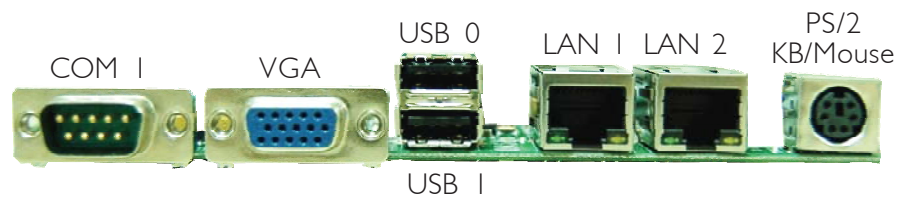
The rear panel I/O ports consist of the following:

- DB-9 serial port
- DB-15 VGA port
- USB 2.0/1.1 ports
- RJ45 LAN ports
- PS/2 keyboard/mouse port

Serial Ports

COM 1

COM 2   COM 3   COM 4
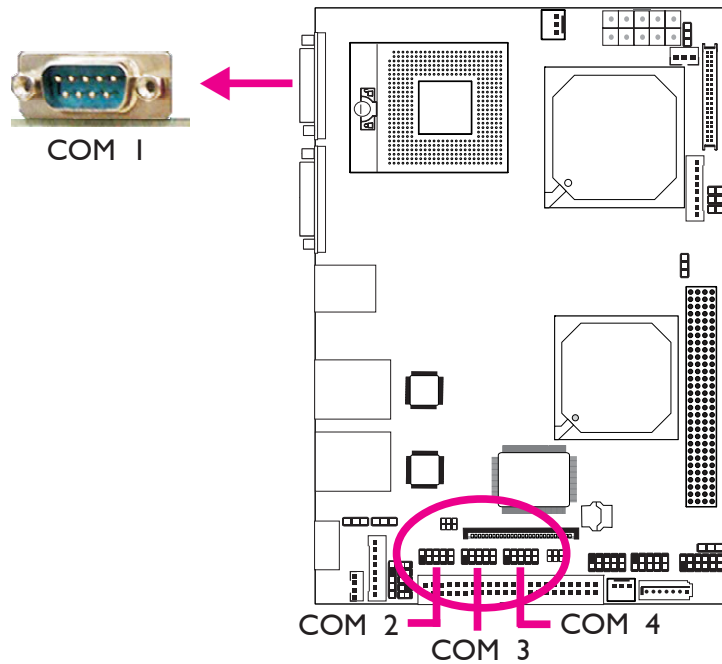
COM 2 is fixed at RS232. COM 3 and COM 4 will vary according to the settings of JP9 and JP6.

RS232   RS422   RS485
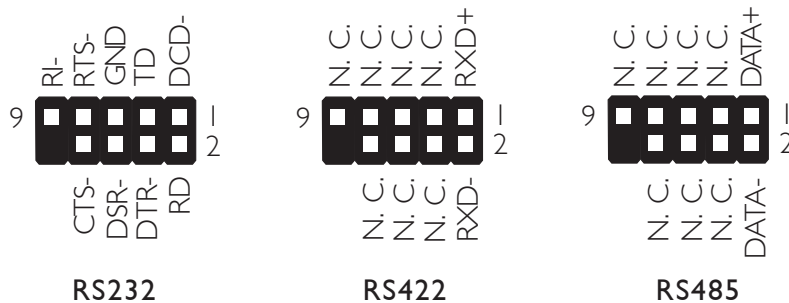
The serial ports are asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices.

Jumper Setting

Refer to the "Jumper Settings" section in this chapter for settings relevant to the serial ports.

BIOS Setting

Configure the serial ports in the Advanced menu of the BIOS. Refer to chapter 3 for more information.

VGA Port

VGA
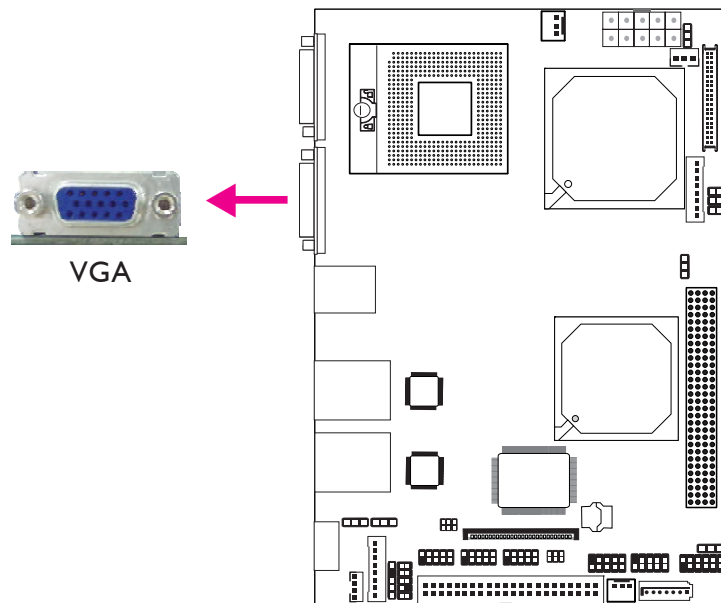
The VGA port is used for connecting a VGA monitor. Connect the monitor's 15-pin D-shell cable connector to the VGA port. After you plug the monitor's cable connector into the VGA port, gently tighten the cable screws to hold the connector in place.

BIOS Setting

Configure the onboard VGA in the Chipset menu of the BIOS. Refer to chapter 3 for more information.

Driver Installation

Install the graphics driver. Refer to chapter 4 for more information.

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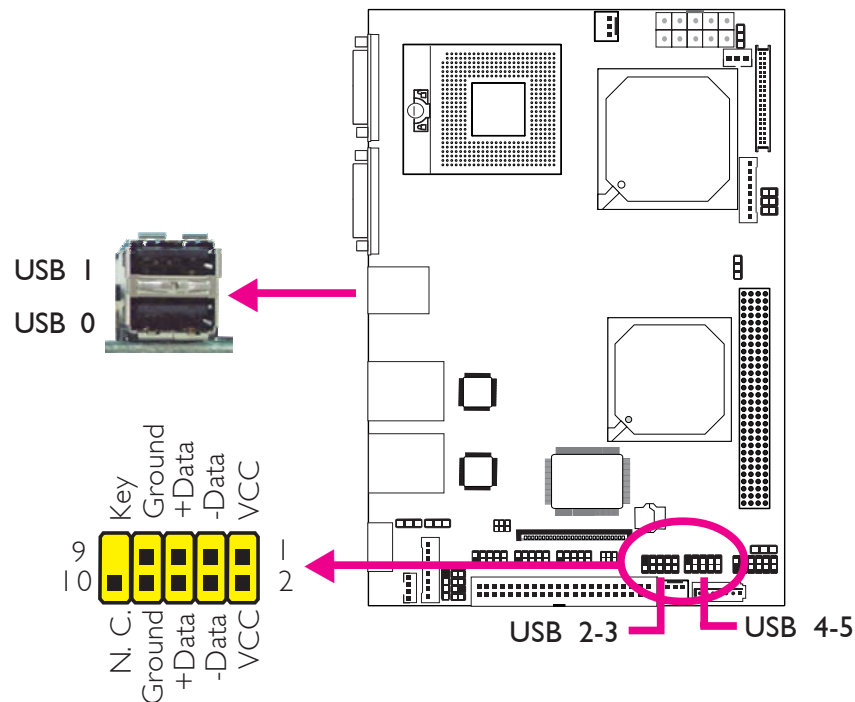
USB allows data exchange between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

The system board is equipped with two onboard USB 2.0/1.1 ports. The USB 2-3 and USB 4-5 connectors allow you to connect 4 additional USB 2.0/1.1 ports. The additional USB ports may be mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then insert the connector (that is attached to the USB port cables) to a USB connector.

BIOS Setting

Configure the onboard USB in the Advanced menu of the BIOS. Refer to chapter 3 for more information.

Driver Installation

You may need to install the proper drivers in your operating system to use the USB device. Refer to your operating system's manual or documentation for more information. Refer to chapter 4 for more information about installing the USB 2.0 driver.

RJ45 Fast-Ethernet Port

LAN 1

LAN 2
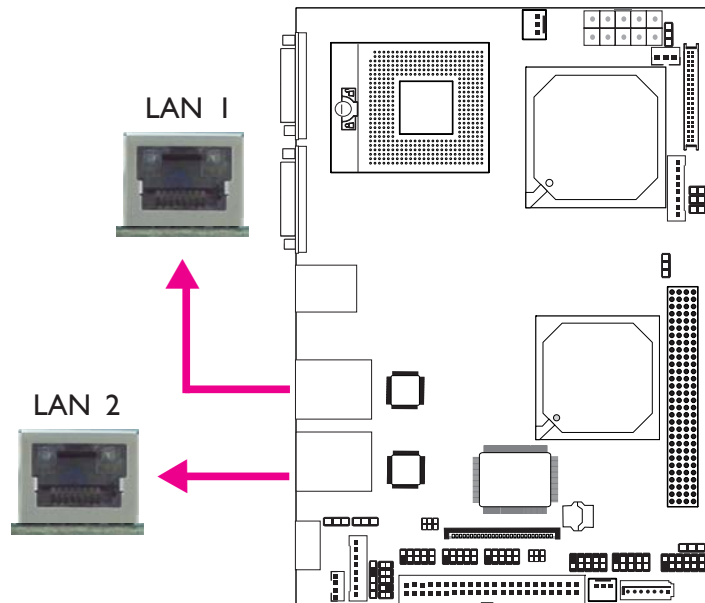
The LAN ports allow the system board to connect to a local area network by means of a network hub.

BIOS Setting

Configure the onboard LAN in the Chipset menu of the BIOS. Refer to chapter 3 for more information.

Driver Installation

Install the LAN drivers. Refer to chapter 4 for more information.

PS/2 Port
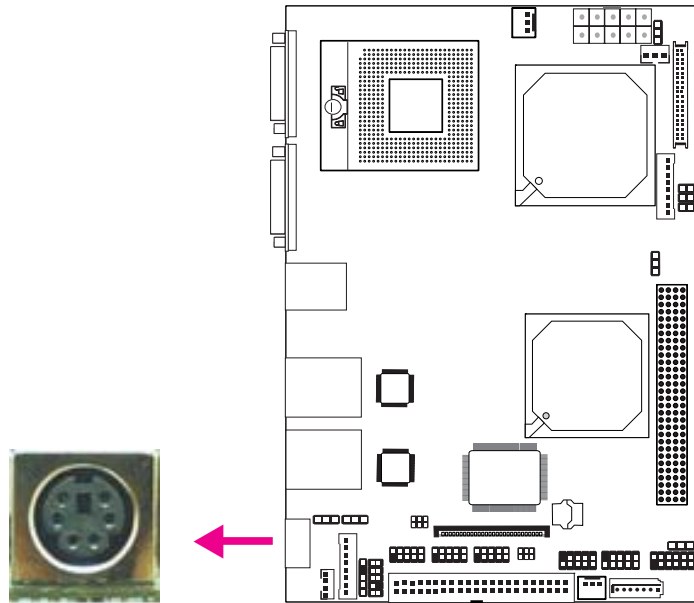
The PS/2 port allows you to connect a PS/2 keyboard and a PS/2 mouse by means of the provided cable.

Connect to
PS/2 port on
the board

PS/2 keyboard
port

PS/2 mouse
port

> **Warning:**
> *Make sure to turn off your computer prior to connecting or disconnecting a mouse or keyboard. Failure to do so may damage the system board.*

Wake-On-PS/2 Keyboard/Mouse

The Wake-On-PS/2 Keyboard/Mouse function allows you to use the PS/2 keyboard or PS/2 mouse to power-on the system. To use this function:

- **Jumper Setting:**
  JP8 must be set to "2-3 On: 5V_standby". Refer to "PS/2 Power Select" in this chapter for more information.

- **BIOS Setting:**
  Configure the PS/2 keyboard/mouse wake up function in the Advanced menu of the BIOS. Refer to chapter 3 for more information.

  Important:
  The 5V_standby power source of your power supply must support ≥720mA.

I/O Connectors

IrDA Connector
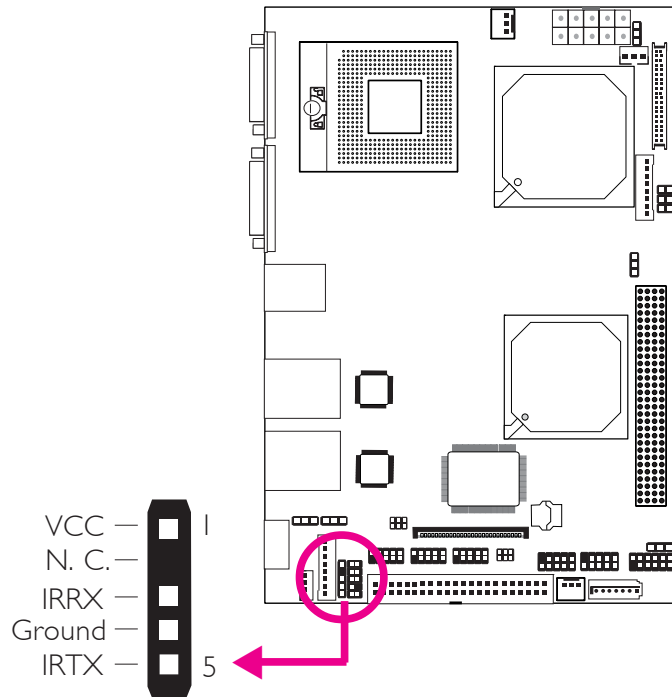
Connect the cable connector from your IrDA module to the IrDA connector on the system board.

> **Note:**
> *The sequence of the pin functions on some IrDA cable may be reversed from the pin function defined on the system board. Make sure to connect the cable to the IrDA connector according to their pin functions.*

BIOS Setting

Configure the onboard IrDA in the Advanced menu of the BIOS. Refer to chapter 3 for more information.

Driver Installation

You may need to install the proper drivers in your operating system to use the IrDA function. Refer to your operating system's manual or documentation for more information.

Front Audio Connector


```
         1  2
  Mic  ▢▢  GND
 N. C.  ▢▢  AuD_Vcc
AuD_R_Out ▢▢  AuD_R_Return
 N. C.  ▢▢  Key
AuD_L_Out ▢▢  AuD_L_Return
         9 10
```
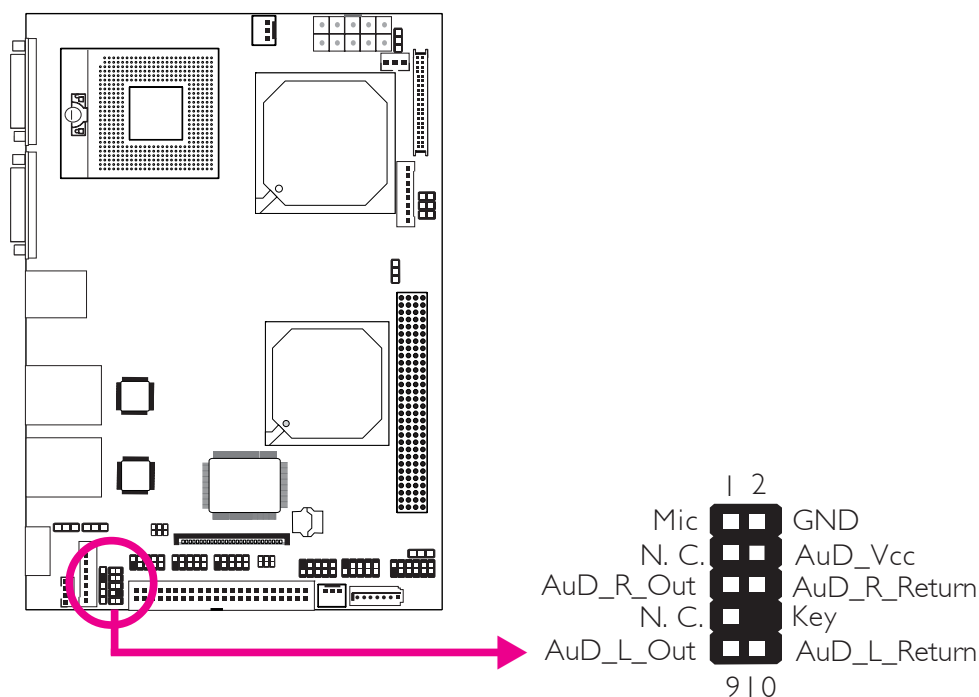
The front audio connector allows you to connect to the line-out and mic-in jacks that are at the front panel of your system. Remove the jumper caps from pins 5-6 and pins 9-10 prior to connecting the front audio cable connector. Make sure pin 1 of the cable connector is aligned with pin 1 of the front audio connector. If you are not using this connector, make sure to replace the jumper caps back to their original pin locations.

Pins 5-6 and 9-10 short (default)	The front audio is disabled. The rear audio is enabled.
Pins 5-6 and 9-10 open	The front audio is enabled. The rear audio is disabled.

BIOS Setting

Configure the onboard audio in the Chipset menu of the BIOS. Refer to chapter 3 for more information.

Driver Installation

Install the audio driver. Refer to chapter 4 for more information.

LVDS LCD Panel Connector
LCD/Inverter Power Connector

LVDS LCD Panel
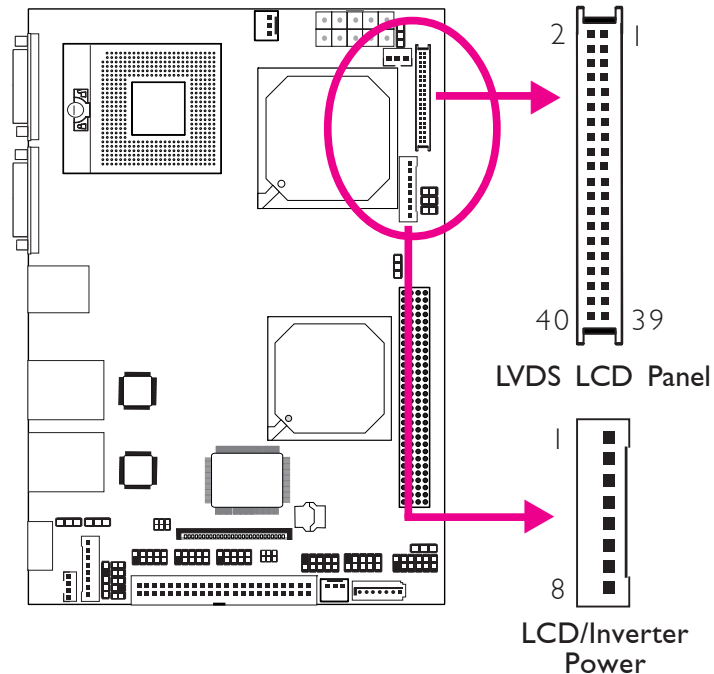
LCD/Inverter Power

The system board allows you to connect a LCD Display Panel by means of the LVDS LCD panel connector and the LCD/Inverter power connector. These connectors transmit video signals and power from the system board to the LCD Display Panel.

Refer to the next page for the pin functions of these connectors.

Jumper Settings

Refer to the "Jumper Settings" section in this chapter for settings relevant to the LCD panel.

BIOS Setting

Configure the LCD panel in the Chipset menu of the BIOS. Refer to chapter 3 for more information.

LVDS LCD Panel Connector

Pins	Function	Pins	Function
1	GND	2	GND
3	LVDS_Out3+	4	LVDS_Out7+
5	LVDS_Out3-	6	LVDS_Out7-
7	GND	8	GND
9	LVDS_Out2+	10	LVDS_Out6+
11	LVDS_Out2-	12	LVDS_Out6-
13	GND	14	GND
15	LVDS_Out1+	16	LVDS_Out5+
17	LVDS_Out1-	18	LVDS_Out5-
19	GND	20	GND
21	LVDS_Out0+	22	LVDS_Out4+
23	LVDS_Out0-	24	LVDS_Out4-
25	GND	26	GND
27	LVDS_CLK1+	28	LVDS_CLK2+
29	LVDS_CLK1-	30	LVDS_CLK2-
31	GND	32	GND
33	N. C.	34	N. C.
35	N. C.	36	N. C.
37	Panel Power	38	Panel Power
39	Panel Power	40	Panel Power

LCD/Inverter Power Connector

Pins	Function	Pins	Function
8	+12V	4	Panel Power
7	+12V	3	Panel Inverter Brightness Voltage Control
6	Panel Backlight On/Off Control	2	GND
5	N. C.	1	GND

Digital I/O and Digital I/O Power Connectors

Digital I/O
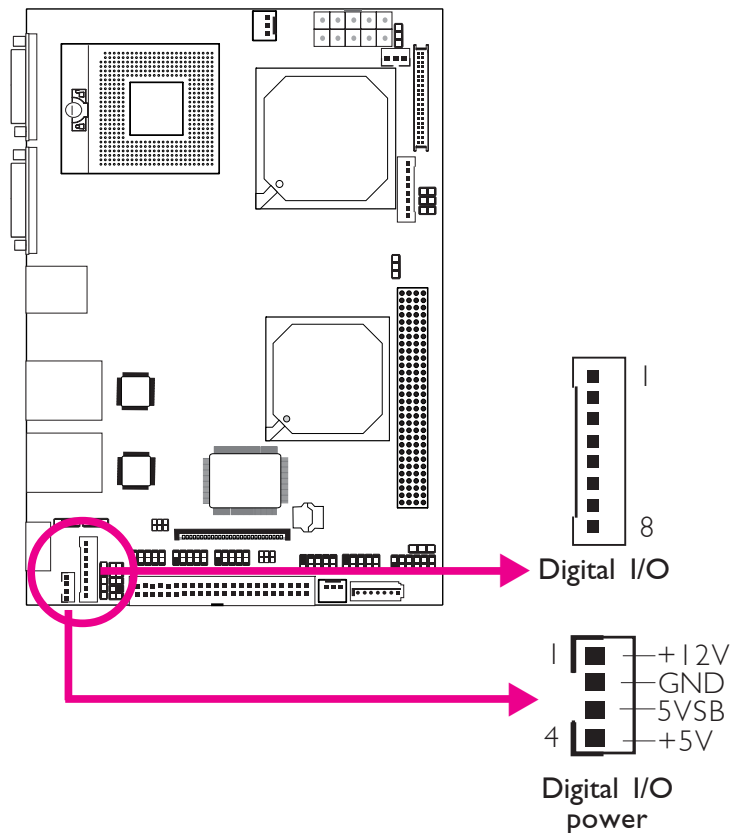
Digital I/O power

The Digital I/O connector and Digital I/O power connector provide powering-on function to an external device that is connected to these connectors. The Digital I/O bus provides 8-bit write and 8-bit read.

Digital I/O Connector

Pins	Function
1	DIO0
2	DIO1
3	DIO2
4	DIO3
5	DIO4
6	DIO5
7	DIO6
8	DIO7

Serial ATA Port

7 ··········· 1

GND
RXP
RXN
GND
TXN
TXP
GND
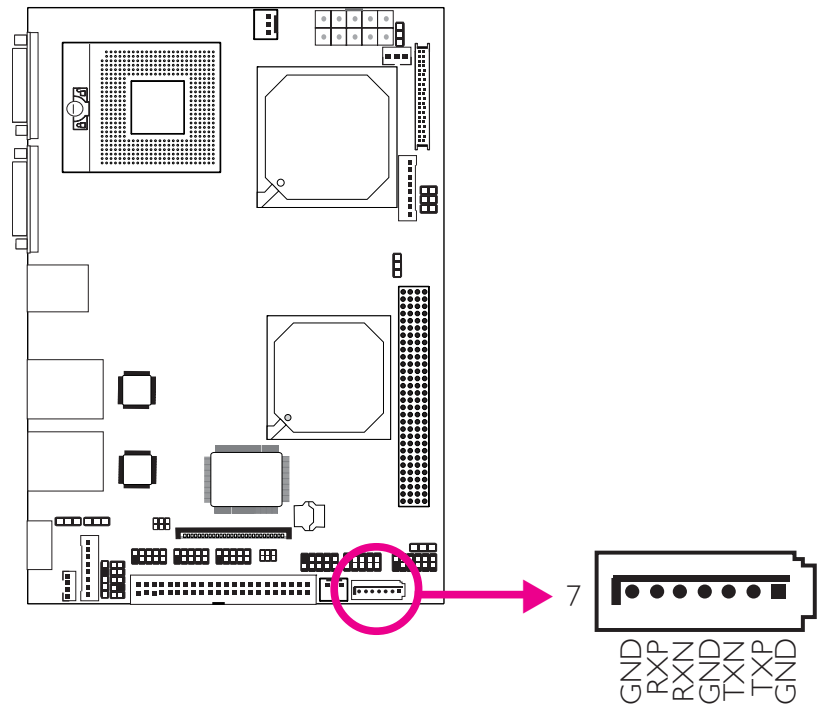
The Serial ATA port is used to connect Serial ATA device. Connect one end of the Serial ATA cable to the SATA port and the other end to your Serial ATA device.

BIOS Setting

Configure Serial ATA in the Main menu of the BIOS. Refer to chapter 3 for more information.

IDE Disk Drive Connectors
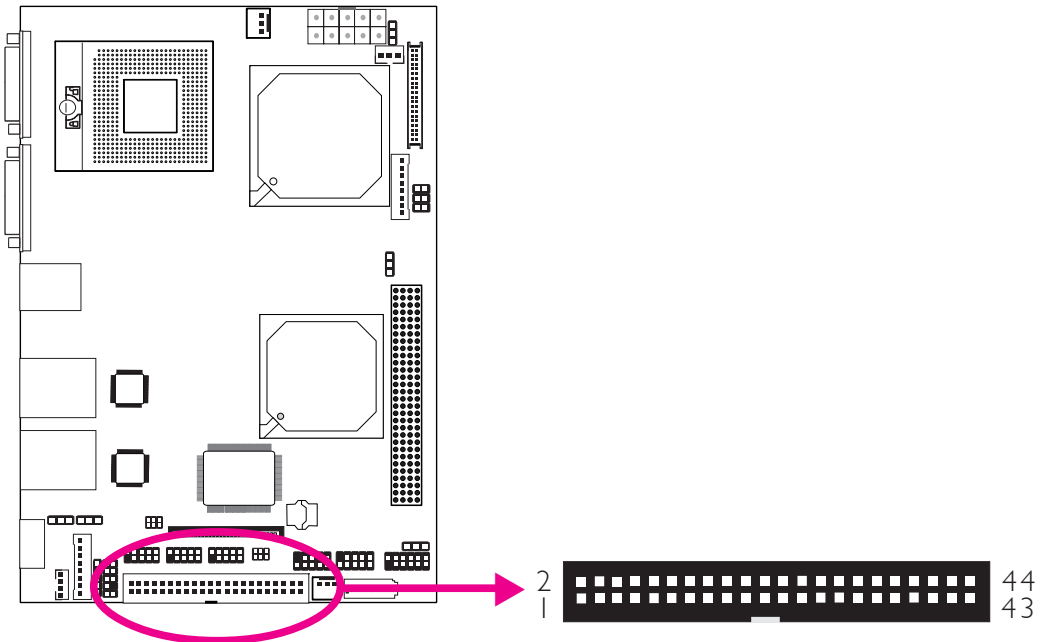
The 44-pin IDE connector is used to connect hard drives. The IDE cable can be inserted into the IDE connector only if pin 1 of the cable connector is aligned with pin 1 of the IDE connector.

The IDE connector supports 2 devices, a Master and a Slave. Use an IDE ribbon cable to connect the drives to the system board. An IDE ribbon cable have 3 connectors on them, one that plugs into an IDE connector on the system board and the other 2 connects to IDE devices. The connector at the end of the cable is for the Master drive and the connector in the middle of the cable is for the Slave drive.

> **Note:**
> *We do not recommend using IDE devices and CF card at the same time.*

Connecting the IDE Disk Drive Cable

Connect one end of the IDE cable into the IDE connector on the system board and the other connectors to the IDE devices.

> **Note:**
> *Refer to your disk drive user's manual for information about selecting proper drive switch settings.*

Adding a Second IDE Disk Drive

When using two IDE drives, one must be set as the master and the other as the slave. Follow the instructions provided by the drive manufacturer for setting the jumpers and/or switches on the drives.

The system board supports Enhanced IDE or ATA-2, ATA/33, ATA/66 and ATA/100 hard drives. We recommend that you use hard drives from the same manufacturer. In a few cases, drives from two different manufacturers will not function properly when used together. The problem lies in the hard drives, not the system board.

> **Important:**
> *If you encountered problems while using an ATAPI CD-ROM drive that is set in Master mode, please set the CD-ROM drive to Slave mode. Some ATAPI CD-ROMs may not be recognized and cannot be used if incorrectly set in Master mode.*

BIOS Setting

Configure the onboard IDE in the Main menu of the BIOS. Refer to chapter 3 for more information.

Floppy Disk Drive (FDD) Connector
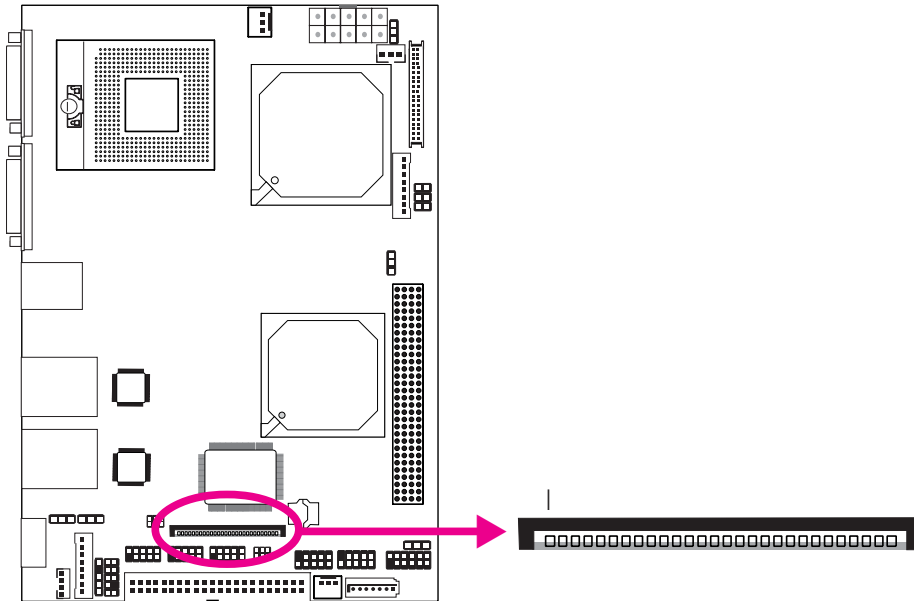
The system board is equipped with a 26-pin FPC type floppy disk drive connector. Only connect a 1.44MB slim-type floppy disk drive. Floppy drives other than the one mentioned above are optional. Refer to the next page for the pin function of this connector.

Connecting the Floppy Disk Drive Cable

Install one end of the floppy disk drive cable into the floppy disk connector on the system board and the other end of the connector to the floppy drive. Pin 1 of the cable must align with pin 1 of the FDD connector.

BIOS Setting

Enable or disable this function in the Advanced menu of the BIOS. Refer to chapter 3 for more information.

FPC Type FDD Connector

Pins	Function	Pins	Function
1	5 V	2	INDEX#
3	5 V	4	DR0#
5	5 V	6	DSKCH#
7	N. C.	8	N. C.
9	N. C.	10	MTR0#
11	N. C.	12	DIR#
13	DRVDE0	14	STEP#
15	GND	16	WDATA#
17	GND	18	WGATE#
19	GND	20	TRK0#
21	GND	22	WRPRO#
23	GND	24	RDATA#
25	GND	26	HDSEL#

Cooling Fan Connectors

Fan speed
control — 3
Power —
Ground — 1

CPU fan

3 — 1

N. C. | Ground
Power
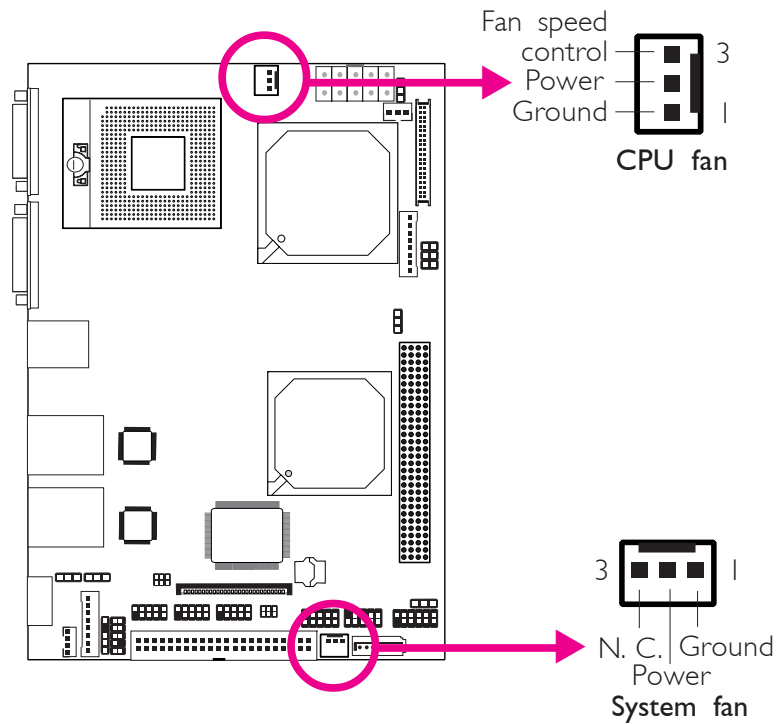
System fan

Connect the CPU fan's cable connector to the CPU fan connector on the system board. The system fan connector is used to connect an additional cooling fan. The cooling fans will provide adequate air-flow throughout the chassis to prevent overheating the CPU and system board components.

BIOS Setting

The Advanced menu of the BIOS will display the current speed of the cooling fans. Refer to chapter 3 for more information.

Power Connector
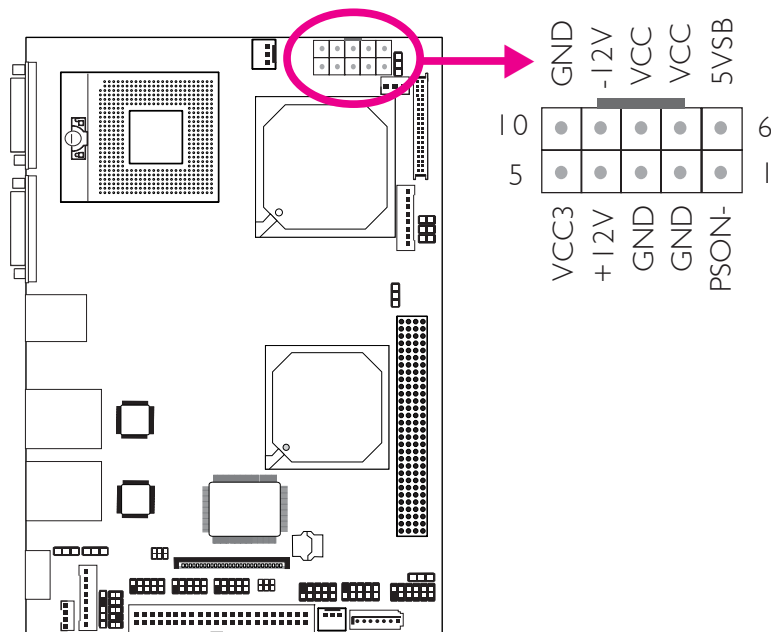
Connect a 10-pin ATX main power connector from the power sup-
ply unit to the ATX connector. The system board requires a minimum
of 120 Watt power supply to operate. We recommend that you use
a power supply that complies with the ATX12V Power Supply De-
sign Guide Version 1.1.

> **Important:**
> *The system board consumes a minimal amount of power. Due
> to its low power consumption, you only need a **120W to
> 150W** power supply. Every power supply has its minimum
> load of power. If you use a greater than 150W power supply,
> the power consumed by the system board may not attain its
> minimum load causing instability to the entire system.*

Front Panel Connectors
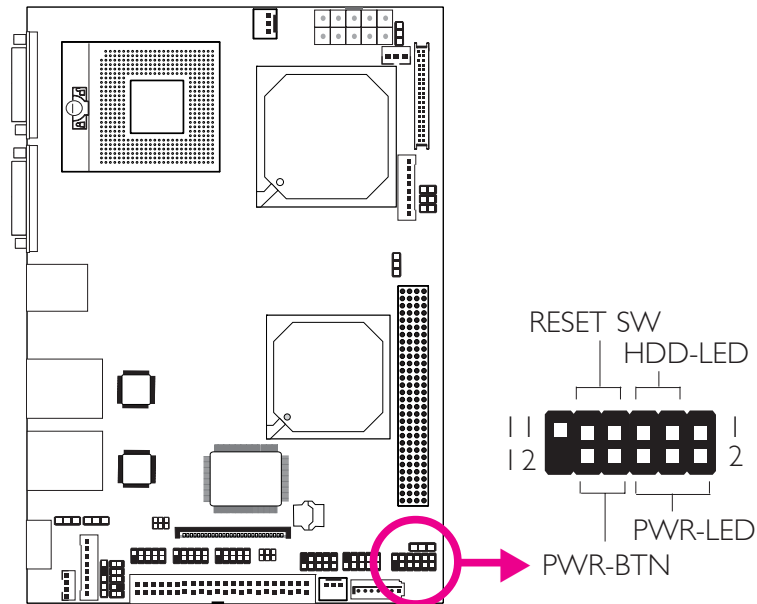
HDD-LED - HDD LED
This LED will light when the hard drive is being accessed.

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	3V_DUAL Signal
RESET SW	7 9	Ground RST Signal			
N. C.	11	N. C.	Key	12	Key

PCI-104 Slot
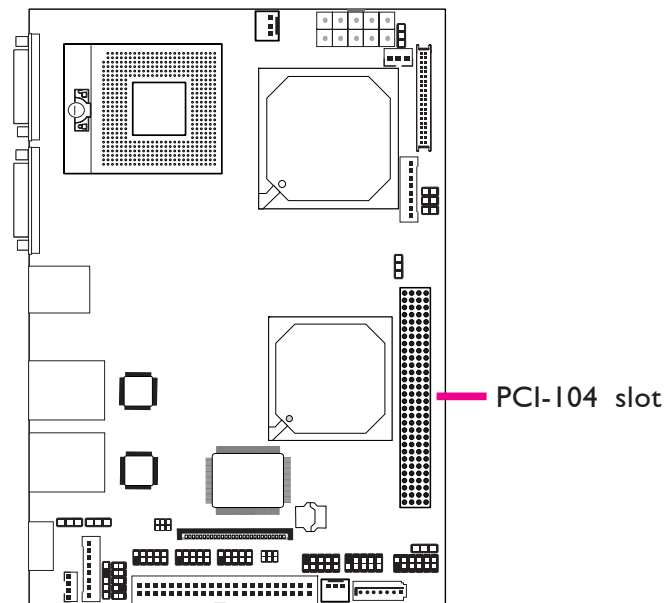
The PCI-104 slot is an interface that allows connecting 4 PCI devices.

CompactFlash Socket

CompactFlash socket
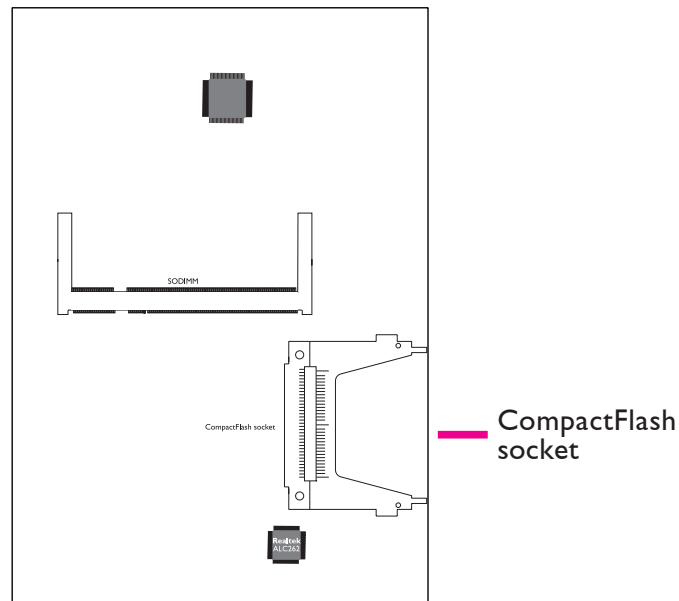
The system board is equipped with the CompactFlash™ socket for inserting a CompactFlash™ card. CompactFlash™ card is a small removable mass storage device designed with flash technology - a non-volatile storage solution that does not require a battery to re-tain data indefinitely. The CompactFlash™ technology is widely used in products such as portable and desktop computers, digital cameras, handheld data collection scanners, PDAs, Pocket PCs, handy terminals and personal communicators.

> **Note:**
> *We do not recommend using IDE devices and CF card at the same time.*

Chapter 3 - 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 enter 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.

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.
Tab	Selects a field.
<F1>	Displays General Help.
<F10>	Saves and exits the Setup program.
<Enter>	Press <Enter> to enter the highlighted 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 submenu, move the highlight to that field and press <Enter>.

Main

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

```
                         BIOS SETUP UTILITY
┌──────────────────────────────────────────────────────────────────────┐
│  Main      Advanced    PCIPnP     Boot     Security    Chipset    Exit │
├──────────────────────────────────────────────────────────────────────┤
│  System  Date              [Tue 11/27/2007]      Use [ENTER] to select │
│  System  Time              9 : 3 : 54            a field.              │
│                                                                        │
│  ATA/IDE Configuration     [Enhanced]            Use [+] or [-] to     │
│    Configure SATA as       [IDE]                 configure system Date.│
│                                                                        │
│  ▶ Primary  IDE Master     [Hard Disk]                                 │
│  ▶ Primary  IDE Slave      [Not  Detected]                             │
│  ▶ Secondary  IDE  Master  [Not  Detected]                            │
│  ▶ Secondary  IDE  Slave   [Not  Detected]                            │
│  ▶ Tertiary  IDE  Master   [ATAPI CDROM]                              │
│  ▶ Tertiary  IDE  Slave    [Not  Detected]                            │
│                                                                        │
│  IDE Detect Time Out (Sec) [35]                  ← →    Select  Screen │
│                                                  ↑↓     Select  Item   │
│  Floppy A                  [Disabled]            + -    Change  Field  │
│                                                  Tab    Select  Field  │
│  ▶ System  Information                           F1     General  Help  │
│                                                  F10    Save and Exit  │
│                                                  ESC    Exit           │
├──────────────────────────────────────────────────────────────────────┤
│      v02.61  (C)Copyright 1985-2006, American  Megatrends, Inc.        │
└──────────────────────────────────────────────────────────────────────┘
```

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 1999 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.

ATA/IDE Configuration

This field is used to configure the IDE drives. The options are Disabled, Compatible and Enhanced.

Configure SATA As

IDE   This option configures the Serial ATA drives as Parallel ATA physical storage device.

AHCI This option configures the Serial ATA drives to use AHCI (Advanced Host Controller Interface). AHCI allows the storage driver to enable the advanced Serial ATA features which will increase storage performance.

Primary IDE Master to Tertiary IDE Slave

When you enter the BIOS Setup Utility, the BIOS will auto detect the existing IDE devices then display the status of the detected devices.

To configure an IDE drive, move the cursor to a field then press <Enter>. The parameters of the drive will appear on the screen.

```
                       BIOS SETUP UTILITY
   Main

 Primary IDE Master                           Select the type
                                              of device connected
 Device       : Hard Disk                     to the system.
 Vendor       : ST380811AS
 Size         : 80.0GB
 LBA Mode     : Supported
 Block Mode   : 16 Sectors
 PIO Mode     : 4
 Async DMA    : MultiWord DMA-2
 Ultra DMA    : Ultra DMA-6
 S.M.A.R.T.   : Supported

 Type              [Auto]
 PIO Mode          [Auto]                     ← →    Select Screen
 DMA Mode          [Auto]                     ↑↓     Select Item
 S.M.A.R.T.        [Auto]                     +-     Change Option
 32Bit Data Transfer  [Enabled]              F1     General Help
                                              F10    Save and Exit
                                              ESC    Exit

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```

Type

Selects the type of IDE drive.

PIO Mode

Selects the data transfer mode. PIO means Programmed Input/Output. Rather than have the BIOS issue a series of commands to effect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by themselves. Your system supports five modes, 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode after checking your drive.

Auto   The BIOS will automatically set the system according to your hard disk drive's timing.

Mode 0-4 You can select a mode that matches your hard disk drive's timing. Caution: Do not use the wrong setting or you will have drive errors.

DMA Mode

Selects the DMA mode.

S.M.A.R.T.

The system board supports SMART (Self-Monitoring, Analysis and Reporting Technology) hard drives. SMART is a reliability prediction technology for ATA/IDE and SCSI drives. The drive will provide sufficient notice to the system or user to backup data prior to the drive's failure. SMART is supported in ATA/33 or later hard drives. The options are Auto (default), Enabled and Disabled.

32Bit Data Transfer

Enables or disables 32-bit data transfer.

IDE Detect Time Out (Sec)

Selects the time out value for detecting ATA/ATAPI devices.

Floppy A

This field identifies the type of floppy disk drive installed.

None	No floppy drive is installed
360K, 5.25 in.	5-1/4 in. standard drive; 360KB capacity
1.2M, 5.25 in.	5-1/4 in. AT-type high-density drive; 1.2MB capacity
720K, 3.5 in.	3-1/2 in. double-sided drive; 720KB capacity
1.44M, 3.5 in.	3-1/2 in. double-sided drive; 1.44MB capacity
2.88M, 3.5 in.	3-1/2 in. double-sided drive; 2.88MB capacity

System Information

This section displays general system specifications. The BIOS auto-matically detects the information in this section.

```
                        BIOS SETUP UTILITY
 ┌──────┐
 │ Main │
 ├──────┴──────────────────────────────────────┬────────────────────────┐
 │ System  Information                          │                        │
 │ ─────────────────────────────────────────   │                        │
 │ Model  Name   :  SR100N                      │                        │
 │                                              │                        │
 │ Firmware Information                         │                        │
 │ BIOS File Name : SR100N77.25A, 07/26/2007    │                        │
 │                                              │                        │
 │ System Memory Information                    │                        │
 │ Total      504MB                             │                        │
 │ DIMM-1    None                               │                        │
 │ DIMM-2    512MB                              │                        │
 │                                              │                        │
 │                                              │  ← →   Select  Screen   │
 │                                              │  ↑↓    Select  Item     │
 │                                              │  F1    General  Help    │
 │                                              │  F10   Save and Exit    │
 │                                              │  ESC   Exit             │
 │                                              │                        │
 │                                              │                        │
 │                                              │                        │
 └──────────────────────────────────────────────────────────────────────┘
        v02.61  (C)Copyright 1985-2006, American  Megatrends, Inc.
```
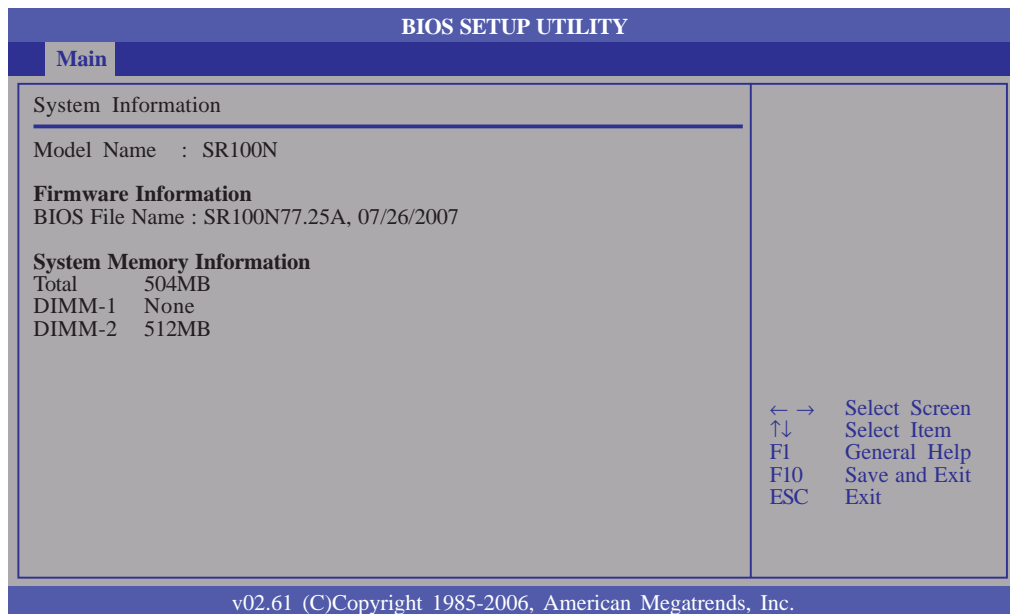
Firmware Information

Displays the detected BIOS information.

System Memory Information

Displays the detected system memory.

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.*

BIOS SETUP UTILITY						
Main	**Advanced**	**PCIPnP**	**Boot**	**Security**	**Chipset**	**Exit**

Advanced Settings

WARNING: Setting wrong values in below sections
         may cause system to malfunction.

▶ CPU Configuration
▶ Super IO Configuration
▶ PC Health Status
▶ ACPI Configuration
▶ APM Configuration
▶ MPS Configuration
▶ USB Configuration

Configure CPU.

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

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CPU Configuration

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

```
                         BIOS SETUP UTILITY
      Advanced

  Configure advanced CPU settings                      This should be enabled
  Module Version:3E.02                                 in order to enable or
                                                       disable the Hardware
  Manufacturer  :  Intel                               Prefetcher Disable
  Intel(R) Core(TM)2 Duo CPU    T7700 @ 2.40GHz        Feature.
  Frequency     :   2.40GHz
  FSB Speed     :   800MHz
  Cache L1      :   64 KB
  Cache L2      :   4096 KB

  Hardware  Prefetcher          [Enabled]
  Adjacent  Cache  Line  Prefetch  [Enabled]
  Max CPUID Value Limit         [Disabled]
  Vanderpool  Technology        [Enabled]           ← →     Select  Screen
  Execute Disable Bit           [Enabled]           ↑↓      Select  Item
  Core  Multi-Processing        [Enabled]           +-      Change  Field
  Intel(R)  SpeedStep(TM) tech  [Enabled]           F1      General  Help
  Intel(R)  C-STATE tech        [Enabled]           F10     Save and Exit
  Enhanced  C-States            [Enabled]           ESC     Exit


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```

Hardware Prefetcher

Enables or disables the Hardware Prefetcher feature.

Adjacent Cache Line Prefetch

Enables or disables the Adjacent Cache Line Prefetch feature.

Max CPUID Value Limit

Set this field to Disabled when using Windows XP. Set this field to Enabled when using legacy operating systems so that the system will boot even when it doesn't support CPUs with extended CPUID function.

Vanderpool Technology

Set this field to Enabled when the processor supports Vanderpool technology.

Execute Disable Bit

When this field is set to Disabled, it will force the XD feature flag to always return to 0.

Core Multi-Processing

The options are Enabled and Disabled. Disabling this field disables one execution core.

Intel(R) SpeedStep(TM) Tech

Enables or disables GV3.

Intel(R) C-STATE Tech

CPU Idle is set to C2, C3, C4 state.

Enhanced C-States

CPU Idle is set to Enhanced C-State.

Super IO Configuration

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

BIOS SETUP UTILITY		
Advanced		
Super IO Configuration		Allows BIOS to select Serial Port1 Base Addresses.
Onboard Floppy Controller	[Enabled]	
Onboard IrDA Controller	[A98/IRQ3]	
IR Duplex Mode	[Half Duplex]	
Serial Port1 Address	[3F8]	
Serial Port1 IRQ	[11]	
Serial Port2 Address	[2F8]	
Serial Port2 IRQ	[10]	
Serial Port3 Address	[3E8]	
Serial Port3 IRQ	[11]	
Serial Port4 Address	[2E8]	
Serial Port4 IRQ	[10]	
		← → Select Screen
		↑↓ Select Item
		+- Change Option
		F1 General Help
		F10 Save and Exit
		ESC Exit
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Onboard Floppy Controller

This field is used to enable or disable the onboard floppy controller.

Onboard IrDA Controller

This field is used to select an address for the IrDA controller.

IR Duplex Mode

Half Duplex   Data is completely transmitted before receiving data.
Full Duplex   Transmits and receives data simultaneously.

Serial Port1 Address to Serial Port4 Address

This field is used to select an address for a serial port.

Serial Port1 IRQ to Serial Port4 IRQ

This field is used to select an IRQ for a serial port.

PC Health Status

This section is used to configure the hardware monitor function.

```
                         BIOS SETUP UTILITY
        Advanced

   PC Health Status

   Current  System  Temp        : 29ºC/84ºF
   Current  CPU  Temperature     : 61ºC/141ºF

   System  Fan                   : NA
   CPU Fan                       : 7031 RPM

   Vcore                         : 1.088 V
   +3.3V                         : 3.232 V
   +12V                          : 11.932 V
   +1.5V                         : 1.512 V
   +1.8V                         : 1.848 V
   +5V                           : 4.992 V
   VBAT  (V)                     : 3.184 V
                                                  ←  →    Select  Screen
                                                  ↑↓      Select  Item
                                                  F1      General  Help
                                                  F10     Save and Exit
                                                  ESC     Exit



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```

Current System Temp and Current CPU Temperature

Detects and displays the internal temperature of the system and the current temperature of the CPU.

System Fan and CPU Fan

Detects and displays the current system fan and CPU fan speed in RPM (Revolutions Per Minute).

Vcore to VBAT (V)

Detects and displays the output voltages.

ACPI Configuration

This section is used to configure the Advanced ACPI configuration.

```
                          BIOS SETUP UTILITY
          Advanced

   ACPI Settings                                        Enable RSDP pointers
                                                        to 64-bit Fixed System
   ACPI Version  Features        [ACPI v1.0]            Description Tables.
   ACPI APIC Support             [Enabled]
   ACPI Standby  State           [S1 (POS)]





                                                        ← →    Select  Screen
                                                        ↑↓     Select  Item
                                                        +-     Change Option
                                                        F1     General  Help
                                                        F10    Save and Exit
                                                        ESC    Exit


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```
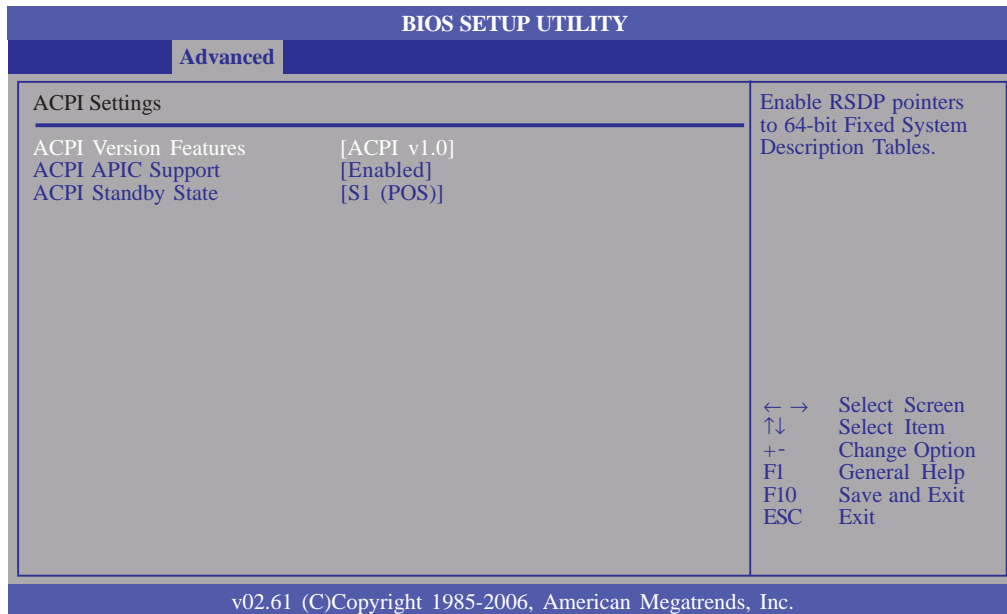
ACPI Version Features

Selects the ACPI version.

ACPI APIC Support

Enables or disables the Advanced Configuration and Power Interface (ACPI) of the Advanced Programmable Interrupt Controller (APIC). When enabled, the ACPI APIC table pointer is included in the RSDT pointer list.
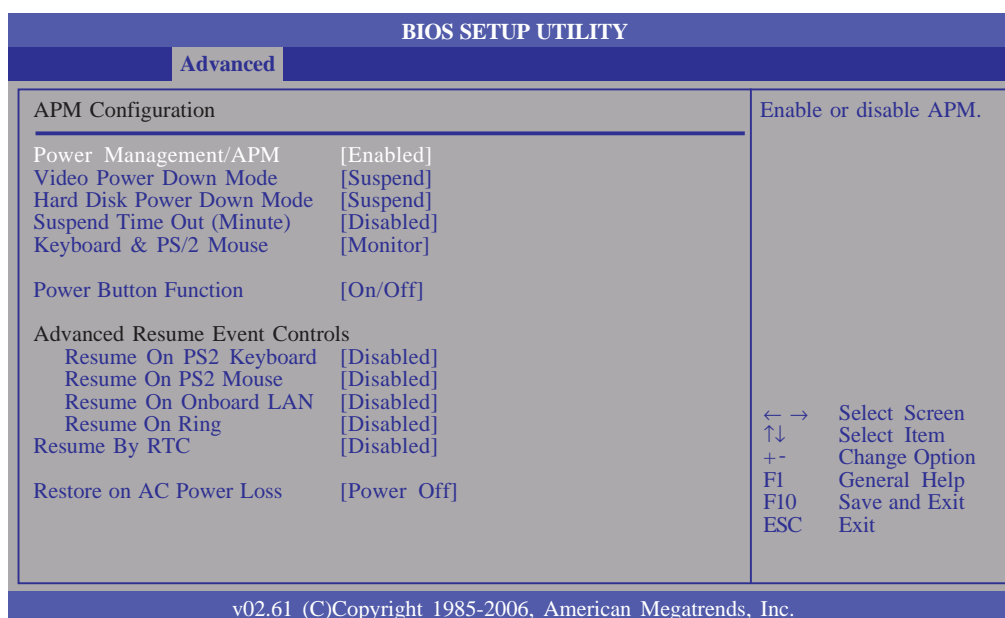
ACPI Standby State

Selects the ACPI state to be used for system suspend.

S1(POS)   Enables the Power On Suspend function.
S3(STR)   Enables the Suspend to RAM function.

APM Configuration

This section is used to configure your system to most effectively save energy.

```
                         BIOS SETUP UTILITY
  Advanced

APM Configuration                                    Enable or disable APM.

Power Management/APM         [Enabled]
Video Power Down Mode        [Suspend]
Hard Disk Power Down Mode    [Suspend]
Suspend Time Out (Minute)    [Disabled]
Keyboard & PS/2 Mouse        [Monitor]

Power Button Function        [On/Off]

Advanced Resume Event Controls
  Resume On PS2 Keyboard     [Disabled]
  Resume On PS2 Mouse        [Disabled]
  Resume On Onboard LAN      [Disabled]        ← →    Select Screen
  Resume On Ring             [Disabled]        ↑↓     Select Item
Resume By RTC                [Disabled]        + -    Change Option
                                               F1     General Help
Restore on AC Power Loss     [Power Off]       F10    Save and Exit
                                               ESC    Exit


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```

Power Management/APM

Enables or disables APM.

Video Power Down Mode

Suspend   Activates the video off feature when the system en-
            ters the Suspend mode.
Disabled Disables the video off feature.

Hard Disk Power Down Mode

Suspend   Activates the hard disk power down feature when
            the system enters the Suspend mode.
Disabled Disables the hard disk power down feature.

Suspend Time Out (Minute)

Selects the time that the system enters the Suspend mode.

Keyboard & PS/2 Mouse

Monitors PS/2 keyboard and PS/2 mouse ports.

Power Button Function

On/Off   When the power button is pressed, it turns the system on or off.

Suspend   When the power button is pressed, the system goes into Suspend mode.

Resume On PS2 Keyboard

Enables the PS/2 keyboard to wake up the system.

Resume On PS2 Mouse

Enables the PS/2 mouse to wake up the system.

Resume On Onboard LAN

Enables the LAN to wake up the system.

Resume On Ring

Enables the system to wake up to respond to calls coming from an external modem.

Resume By RTC

Enables the RTC to wake up the system.

Restore on AC Power Loss

Power 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.

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

Last State   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.

MPS Configuration

This section is used to configure the multi-processor table.

```
                          BIOS SETUP UTILITY
         Advanced
  MPS Configuration                               Select MPS Revision.

  MPS Revision            [1.4]




                                             ← →    Select  Screen
                                             ↑↓     Select  Item
                                             +-     Change Option
                                             F1     General  Help
                                             F10    Save and Exit
                                             ESC    Exit


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```
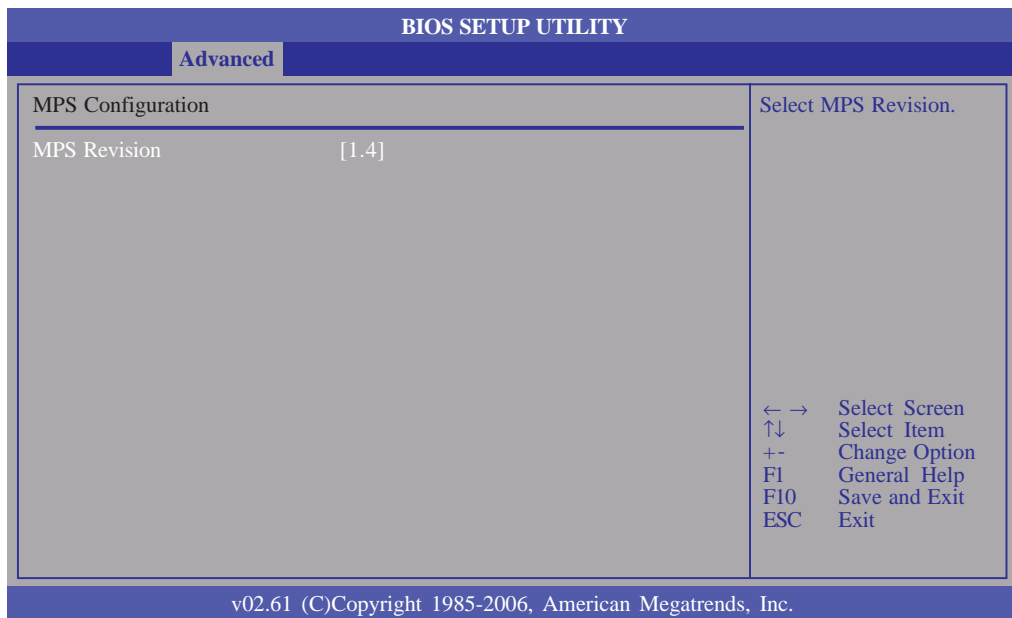
MPS Revision

Selects the MPS revision used by the system.

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USB Configuration

This section is used to configure USB devices.

```
                        BIOS SETUP UTILITY
    Advanced

 USB Configuration                                    Enables support for
                                                      legacy USB. Auto
 Module Version - 2.24.2-13.4                          option disables
                                                      legacy support if
 USB Devices  Enabled :                                no USB devices are
         None                                          connected.

 Legacy USB Support            [Enabled]
 USB 2.0 Controller Mode       [HiSpeed]
 BIOS EHCI Hand-Off            [Enabled]
 Hotplug USB FDD Support       [Auto]

 ▶ USB Mass Storage Device Configuration
                                                   ←→    Select  Screen
                                                   ↑↓    Select  Item
                                                   +-    Change Option
                                                   F1    General  Help
                                                   F10   Save and Exit
                                                   ESC   Exit

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```

Legacy USB Support

Due to the limited space of the BIOS ROM, the support for legacy USB keyboard (in DOS mode) is by default set to Disabled. With more BIOS ROM space available, it will be able to support more advanced features as well as provide compatibility to a wide variety of peripheral devices.

If a PS/2 keyboard is not available and you need to use a USB keyboard to install Windows (installation is performed in DOS mode) or run any program under DOS, set this field to Enabled.

USB 2.0 Controller Mode

Sets the USB 2.0 controller mode to HiSpeed (480 Mbps) or FullSpeed (12 Mbps).

BIOS EHCI Hand-Off

Enable this field when using operating systems without the EHCI hand-off support.

Hotplug USB FDD Support

If no USB FDD is present, a dummy FDD device is created that will be associated with the hotplugged FDD later.

USB Mass Storage Device Configuration

This section is used to configure the USB mass storage devices.

```
                        BIOS SETUP UTILITY
        Advanced

 USB Mass Storage Device Configuration              Number of seconds
 _____        POST waits for the
 USB Mass Storage Reset Delay  [20 Sec]             USB mass storage
                                                    device after start
    Device #1              USB Hotplug FDD          unit command.
    Emulation Type         [Auto]




                                                    ← →   Select Screen
                                                    ↑↓    Select Item
                                                    +-    Change Option
                                                    F1    General Help
                                                    F10   Save and Exit
                                                    ESC   Exit

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```
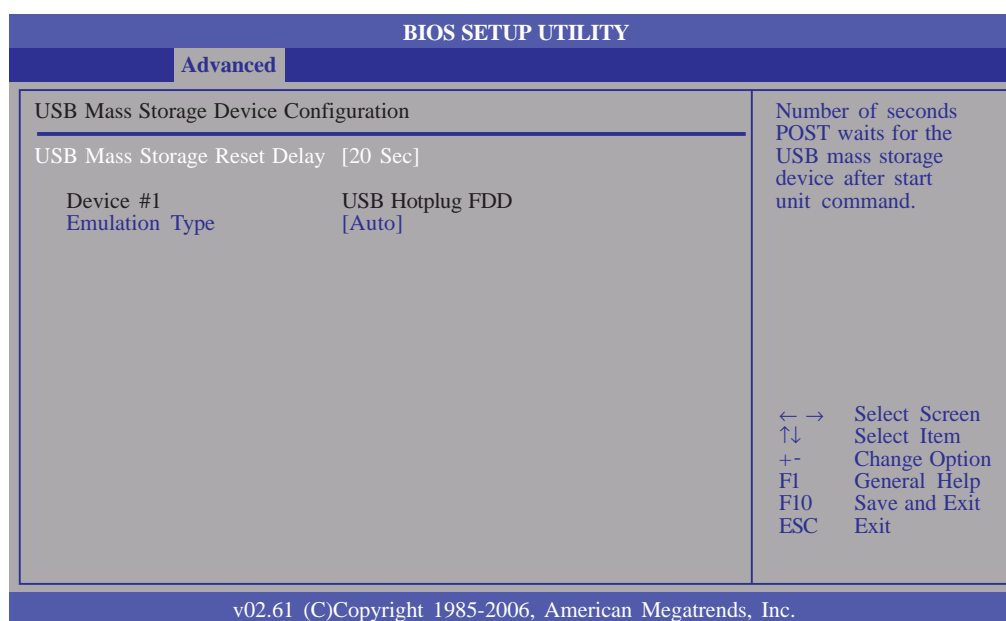
USB Mass Storage Reset Delay

Selects the number of seconds POST waits for the USB mass storage device after the start of a unit command.

Emulation Type

Auto	USB devices less than 530MB will be emulated as floppy while the rest as hard drive.
Floppy	Emulates the USB flash disk as floppy.
Forced FDD	Forces an HDD formatted drive to boot as FDD (e.g. ZIP drive).
Hard Disk	Emulates the USB flash disk as hard drive.
CDROM	Emulates the USB flash disk as CD-ROM.

PCIPnP

This section is used to configure settings for PCI/PnP devices.

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

BIOS SETUP UTILITY						
Main	Advanced	**PCIPnP**	Boot	Security	Chipset	Exit

```
Advanced PCI/PnP Settings                               ▲    Clear NVRAM during
                                                             System Boot.
WARNING: Setting wrong values in below sections
          may cause system to malfunction.

Clear NVRAM                  [No]
Plug & Play O/S              [No]
PCI  Latency  Timer          [64]
Allocate IRQ to PCI VGA      [Yes]
Palette Snooping             [Disabled]
PCI IDE BusMaster            [Enabled]
OffBoard PCI/ISA IDE Card    [Auto]

IRQ3                         [Available]        ← →      Select  Screen
IRQ4                         [Available]        ↑↓       Select  Item
IRQ5                         [Available]        +-       Change  Option
IRQ7                         [Available]        F1       General  Help
IRQ9                         [Available]        F10      Save and Exit
IRQ10                        [Available]        ESC      Exit
IRQ11                        [Available]
IRQ14                        [Available]
IRQ15                        [Available]   ▼
                                                85-2006, American Megatrends, Inc.
DMA Channel 0                [Available]
DMA Channel 1                [Available]
DMA Channel 3                [Available]
DMA Channel 5                [Available]
DMA Channel 6                [Available]
DMA Channel 7                [Available]

Reserved  Memory  Size       [Disabled]
```

Clear NVRAM

This field allows clearing the NVRAM during system boot.

Plug & Play O/S

Yes   Configures Plug and Play (PnP) devices that are not re-
         quired to boot in a Plug and Play supported operating
         system.

No   The BIOS configures all the devices in the system.

PCI Latency Timer

This feature is used to select the length of time each PCI device will control the bus before another takes over. The larger the value, the longer the PCI device can retain control of the bus.

Allocate IRQ to PCI VGA

Yes   Assigns an IRQ to the PCI VGA card if the card requested for one.

No   Will not assign an IRQ to the PCI VGA card even when the card requested for one.

Palette Snooping

When enabled, it informs PCI devices that an ISA graphics device is installed in the system. This will allow the card to function normally.

PCI IDE BusMaster

When enabled, the BIOS uses PCI bus mastering when reading and writing to IDE drives.

OffBoard PCI/ISA IDE Card

Some PCI IDE cards may need this field set to the PCI slot number that is holding the card. Selecting Auto will work for most PCI IDE cards.

IRQ3 to IRQ15

Available   The specified IRQ is available for PCI/PnP devices.
Reserved   The specified IRQ is reserved for Legacy ISA devices.

DMA Channel 0 to DMA Channel 7

Available   The specified DMA is available for PCI/PnP devices.
Reserved   The specified DMA is reserved for Legacy ISA devices.

Reserved Memory Size

Selects the size of memory block reserved for legacy ISA devices.

Boot

BIOS SETUP UTILITY						
Main	**Advanced**	**PCIPnP**	**Boot**	**Security**	**Chipset**	**Exit**

Boot Settings

► Boot Settings Configuration

► Boot Device Priority

Configure settings during system boot.

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

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Boot Settings Configuration

This section is used to configure settings during system boot.

BIOS SETUP UTILITY	
	Boot

Boot Settings Configuration

Quick Boot	[Enabled]
Full Screen Logo Display	[Disabled]
Bootup Num-Lock	[On]
Boot To OS/2	[No]
Wait for 'F1' If Error	[Enabled]
Hit 'DEL' Message Display	[Enabled]

Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.

← →   Select Screen
↑↓   Select Item
+-   Change Option
F1   General Help
F10   Save and Exit
ESC   Exit

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Quick Boot

When Enabled, the BIOS will shorten or skip some check items during POST. This will decrease the time needed to boot the system.

Full Screen Logo Display

This field is applicable only if you want a particular logo to appear during system boot-up.

Enabled   The logo will appear in full screen during system boot-up.

Disabled   The logo will not appear during system boot-up.

Bootup Num-Lock

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.

Boot To OS/2

The options are Yes and No.

Wait for 'F1' If Error

When enabled, the system will wait for the <F1> key to be pressed when an error occurs.

Hit 'DEL' Message Display

When enabled, the system displays the "Press DEL to run Setup" message during POST.

Boot Device Priority

This section is used to select the boot priority sequence of the devices.

```
                        BIOS SETUP UTILITY
                             Boot

Boot Device Priority                           Specifies the boot
                                               sequence from the
1st Boot Device        [USB:USB Hotplug FDD]   available devices.
2nd Boot Device        [CD/DVD:3M-_NEC DV-]
3rd Boot Device        [SATA:PW-WDC WD1200]    A device enclosed in
                                               parenthesis has been
                                               disabled in the
                                               corresponding type
                                               menu.


                                               ←  →   Select Screen
                                               ↑↓     Select Item
                                               +-     Change Option
                                               F1     General Help
                                               F10    Save and Exit
                                               ESC    Exit

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```

1st Boot Device to 3rd Boot Device

Select the drive to boot first, second and third in the "1st Boot Device" "2nd Boot Device" and "3rd Boot Device" fields respectively. The BIOS will boot the operating system according to the sequence of the drive selected.

Security

```
                          BIOS SETUP UTILITY
   Main      Advanced    PCIPnP     Boot    Security   Chipset    Exit

  Security Settings                                  <Enter> to change
                                                     password.
  Supervisor Password      : Not Installed
  User Password            : Not Installed           <Enter> again to
                                                     disable password.
  Change Supervisor Password
  Change User Password

  Boot Sector Virus Protection   [Disabled]


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

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```

Change Supervisor Password

This field is used to set or change the supervisor password.

To set a new password:

1. Select the Change Supervisor Password field then press <Enter>.

2. Type your password in the dialog box then press <Enter>. You are limited to eight letters/numbers.

3. Press <Enter> to confirm the new password.

4. When the Password Installed dialog box appears, select OK.

To change the password, repeat the same steps above.

To clear the password, select Change Supervisor Password then press <Enter>. The Password Uninstalled dialog box will appear.

If you forgot the password, you can clear the password by erasing the CMOS RTC (Real Time Clock) RAM using the Clear CMOS jumper. Refer to the Jumper Settings section in chapter 2 for more information.

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After you have set the supervisor password, the User Access Level field will appear.

```
                        BIOS SETUP UTILITY
   Main      Advanced     PCIPnP      Boot    Security   Chipset      Exit

 Security Settings                                      Limited: only limited
                                                       fields to be changed.
 Supervisor Password      : Installed                   No Access: prevent
 User  Password           : Not Installed               user access Setup
                                                        Utility.
 Change Supervisor Password                             View Only: allow
 User Access Level        [Full Access]                 access but the fields
 Change User Password                                   can not be changed.
 Password Check           [Setup]                       Full: allow change
                                                        except Supervisor
 Boot Sector Virus Protection   [Disabled]              password.


                                                        ← →     Select Screen
                                                        ↑↓      Select Item
                                                        +-      Change Option
                                                        F1      General  Help
                                                        F10     Save and Exit
                                                        ESC     Exit

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```

User Access Level

Selects the access level to the fields in the Setup utility.

Limited   Allows you to change settings to some fields such as Date and Time.
No Access   Prevents access to the Setup utility.
View Only   Allows you to view the settings but does not allow you to change the settings.
Full Access Allows you to change settings to all the fields in the utility.

Change User Password

This field is used to set or change the user password.

To set a new password:

1. Select the Change User Password field then press <Enter>.

2. Type your password in the dialog box then press <Enter>. You are limited to eight letters/numbers.

3. Press <Enter> to confirm the new password.

4. When the Password Installed dialog box appears, select OK.

To change the password, repeat the same steps above.

After you have set the user password, the Clear User Password and Password Check fields will appear.

Clear User Password

To clear the password, select Clear User Password then press <Enter>. The Password Uninstalled dialog box will appear.

Password Check

Setup   The BIOS checks for the user password whenever accessing the Setup utility.

Always   The BIOS checks for the user password when accessing the Setup utility and booting the system.

Boot Sector Virus Protection

Enables or disables the boot sector virus protection function.

BIOS Setup ▪▪▪

Chipset

This section is used to configure the system based on the specific features of the chipset.

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

BIOS SETUP UTILITY						
Main	**Advanced**	**PCIPnP**	**Boot**	**Security**	**Chipset**	**Exit**

Advanced Chipset Settings

WARNING: Setting wrong values in below sections
            may cause system to malfunction.

▶ North Bridge Configuration
▶ South Bridge Configuration

Configure North Bridge features.

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

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North Bridge Configuration

BIOS SETUP UTILITY	
	Chipset

North Bridge Chipset Configuration

DRAM Frequency   [Auto]
Configure DRAM Timing by SPD   [Enabled]

Boots Graphic Adapter Priority   [PCI/IGD]
Internal Graphics Mode Select   [Enabled, 8MB]

▶ Video Function Configuration

Options

Auto
533 MHz
667 MHz

← →   Select Screen
↑↓   Select Item
+-   Change Option
F1   General Help
F10   Save and Exit
ESC   Exit

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DRAM Frequency

Selects the operating frequency of the DRAM.

Configure DRAM Timing by SPD

The EEPROM on a DIMM has SPD (Serial Presence Detect) data structure that stores information about the module such as the memory type, memory size, memory speed, etc. When this field is enabled, the system will run according to the information in the EEPROM.

Boots Graphic Adapter Priority

Selects which graphics controller to use as the primary boot device.

Internal Graphics Mode Select

Selects the amount of system memory used by the internal graphics device.

Video Function Configuration

```
                      BIOS SETUP UTILITY
                                                    Chipset

 Video Function Configuration                              Options

 DVMT Mode Select            [DVMT Mode]          Fixed Mode
    DVMT/FIXED Memory        [256MB]              DVMT Mode

 Boot Display Device         [VBIOS-Default]
 Local Flat Panel Scaling    [Auto]
 Flat Panel Type             [03. 1024x768, 18bit]
 Spread Spectrum Clock       [Disabled]



                                                 ← →    Select  Screen
                                                 ↑↓     Select  Item
                                                 +-     Change Option
                                                 F1     General  Help
                                                 F10    Save and Exit
                                                 ESC    Exit


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```

DVMT Mode Select

DVMT Mode   Memory that is dynamically allocated based on memory requests made by an application and are released back to the system once the requesting application has been terminated.

Fixed Mode   Non-contiguous pagelocked memory allocated during driver initialization to provide a static amount of memory.

DVMT/FIXED Memory

Selects the graphics memory size used by the DVMT/Fixed mode.

Boot Display Device

Selects the type of display to use when the system boots.

Local Flat Panel Scaling

Selects the local flat panel's scaling method.

Flat Panel Type

Selects the type of flat panel connected to the system.

Spread Spectrum Clock

The options are Enabled and Disabled.

South Bridge Configuration

USB Functions

This field is used to select the number of USB ports you want enabled.

USB 2.0 Controller

Enables or disables the USB 2.0 controller.

HDA Controller

Enables or disables the High Definition audio controller.

OnBoard GLAN 1

Enables or disables the onboard Gigabit LAN 1.

OnBoard GLAN 2

Enables or disables the onboard Gigabit LAN 2.

Exit

BIOS SETUP UTILITY						
Main	Advanced	PCIPnP	Boot	Security	Chipset	**Exit**

Exit Options

Exit & Save Changes
Exit & Discard Changes
Discard Changes

Load Optimal Defaults
Load Failsafe Defaults

Exit system setup after saving the changes.

F10 key can be used for this operation.

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

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Exit & Save Changes

To save the changes and exit the Setup utility, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

You can also press <F10> to save and exit Setup.

Exit & Discard Changes

To exit the Setup utility without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting.

You can also press <ESC> to exit without saving the changes.

Discard Changes

To discard the changes, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes to discard all changes made and restore the previously saved settings.

You can also press <F7> to discard the changes.

Load Optimal Defaults

Loads the optimal default values from the BIOS ROM.

You can also press <F9> to load optimal default values.

Load Failsafe Defaults

Loads the fail-safe default values from the BIOS ROM.

You can also press <F8> to load the fail-safe default values.

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 /n /c /p

then press <Enter>.

```
C:\>AFUDOS.EXE SR100N78.29A /P /B /N /C

 +-------------------------------------------------------------------------+
 |                    AMI Firmware Update Utility Ver. 4.14                 |
 |         Copyright (C) 2007 American Megatrends Inc. All Rights Reserved. |
 +-------------------------------------------------------------------------+

 - Bootblock checksum ................  ok
 - Module checksums ...................  ok
 - Erasing flash ............................  done
 - Writing flash ............................  done
 - Verifying flash ..........................  done
 - Erasing NVRAM ......................  done
 - Writing NVRAM ......................  done
 - Verifying NVRAM ...................  done
 - Erasing Bootblock ....................  done
 - Writing Bootblock ....................  done
 - Verifying Bootblock .................  done
 - CMOS checksum destroyed
 - Program ended normally

C:\>_
```

Chapter 4 - Supported Software

Drivers for Windows Vista System

The CD that came with the system 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 ▪▪

Intel Chipset Software Installation Utility

The Intel Chipset Software Installation Utility is used for updating Windows® INF files so that the Intel chipset can be recognized and configured properly in the system.

To install the utility, click "Intel Chipset Software Installation Utility" on the main menu.

1. Setup is now ready to install the utility. Click Next.

2. Read the license agreement then click Yes.

3. Go through the readme document for system requirements and installation tips then click Next.

4. Setup is now installing the driver. Click Next to continue.

5. After completing installation, click Finish to exit setup.

Intel Graphics Drivers

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

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

2. Read the license agreement then click Yes.
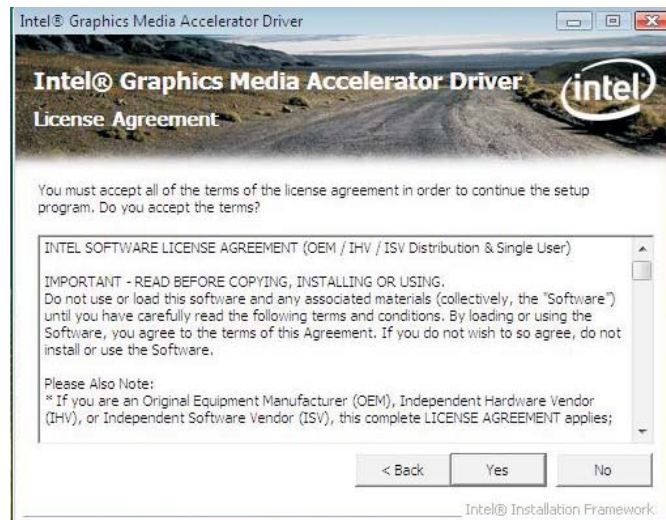
3. Go through the readme document for system requirements and installation tips then click Next.
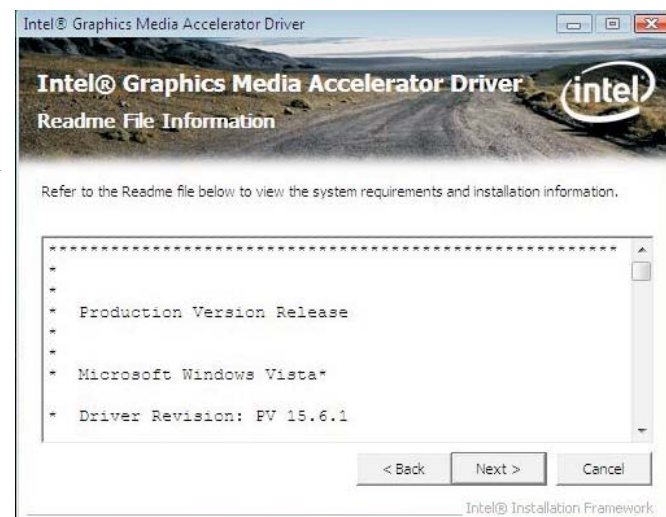
4. Setup is now installing the driver. Click Next to continue.
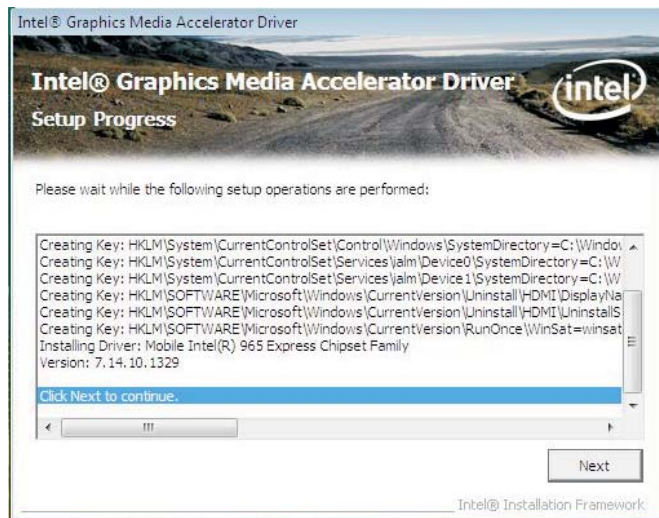
5. Click "Yes, I want to restart this computer now" then click Finish.

   Restarting the system will allow the new software installation to take effect.

Note:
After installing the graphics driver and the system rebooted, the screen will turn black for 1 to 2 minutes (while WinSAT is running) before the Windows Vista desktop appears. This will happen the first time you reboot after installing the graphics driver as this is the time when the system will automatically detect and mount the graphics driver.

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Supported Software ■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■

Audio Drivers

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

1. Click Next to start the installation.

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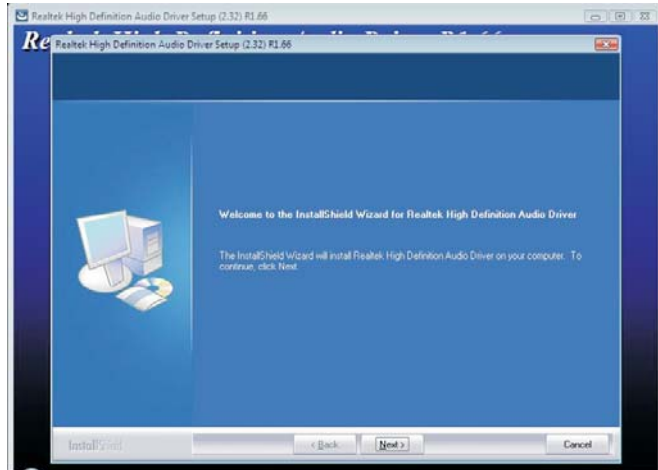
3. Click "Yes, I want to restart my computer now" then click Finish.

   Restarting the system will allow the new software installation to take effect.
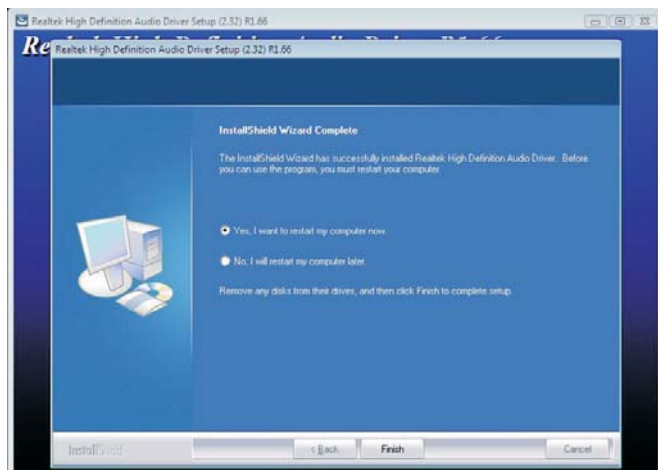
Note:

After installing the audio driver under Windows Vista, you will see an "X" mark on the audio icon. This is normal. This mark will disappear when you connect an external speaker to the speaker-out jack.

LAN Drivers

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

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

2. Click Install to begin installation.

3. After completing installation, click Finish to exit setup.

Supported Software ▪▪▪

Hardware Monitor for Windows

The Hardware Monitor for Windows utility is capable of monitoring the system's temperature, fan speed, voltage, etc. and allows you to manually set a range (Highest and Lowest Limit) to the items being monitored. If the settings/values are over or under the set range, a warning message will pop-up. The utility can also be configured so that a beeping alarm will sound whenever an error occurs. We recommend that you use the "Default Setting" which is the ideal setting that would keep the system in good working condition.

To install the utility, click "Hardware Monitor for Windows" on the main menu.

1. Click Yes to continue.

2. Setup is now ready to install the utility. Click Next.
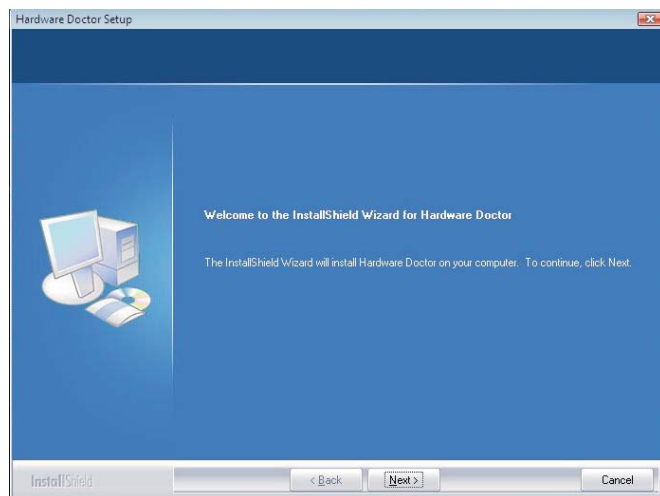
4

3. Click Next to install or click Browse to select another folder.
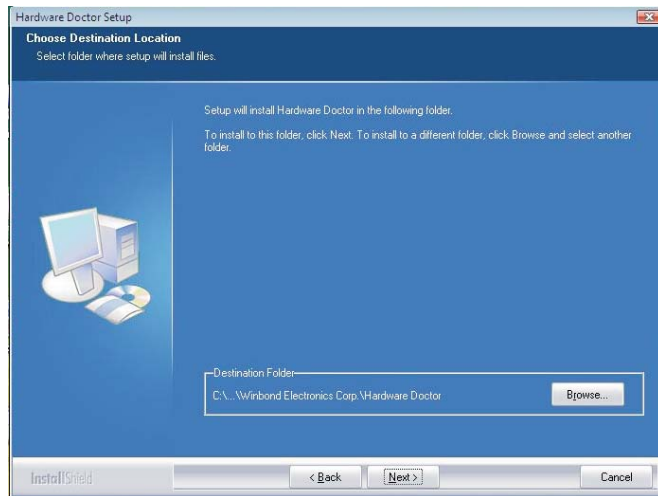
4. Click Next to add the program icon to the Program Folder.
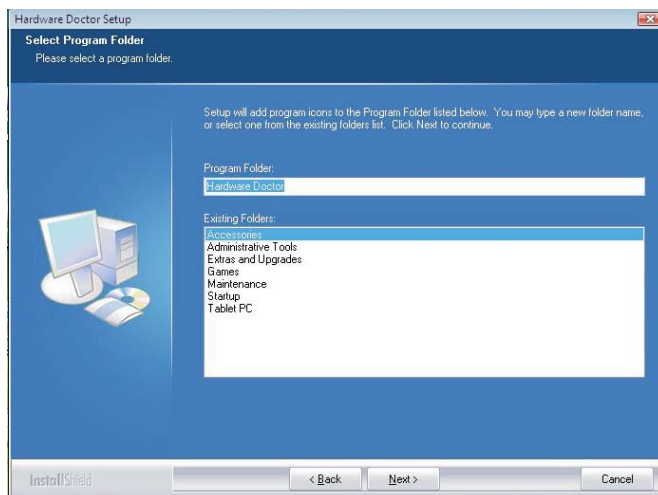
5. After completing installation, click Finish to exit setup.
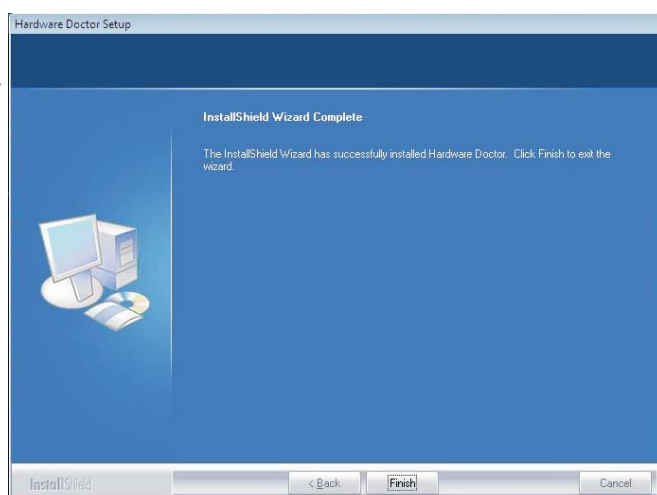
6. Click Yes if you want to create a Hardware Doctor shortcut at your desktop.

7. Click "Yes, I want to restart my computer now" then click Finish.

   Restarting the system will allow the utility to take effect.

4
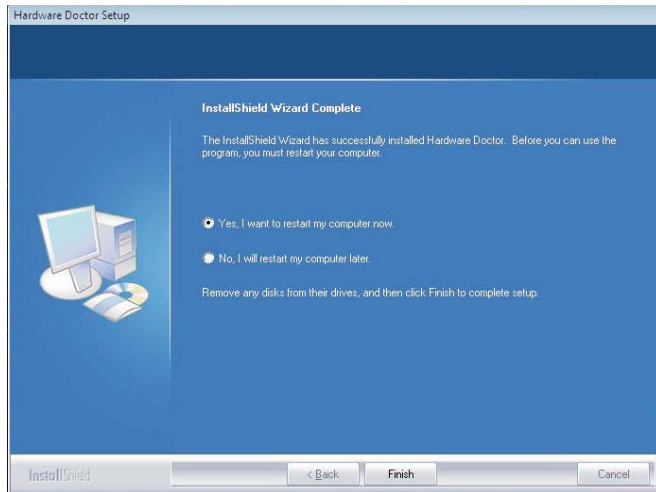
## Using the Hardware Monitor for Windows Utility

1. When you try to run the utility, which is usually done by double-clicking the Hardware Doctor shortcut, an error message will appear.

2. To solve this problem, right-click the Hardware Doctor shortcut. then select Properties.
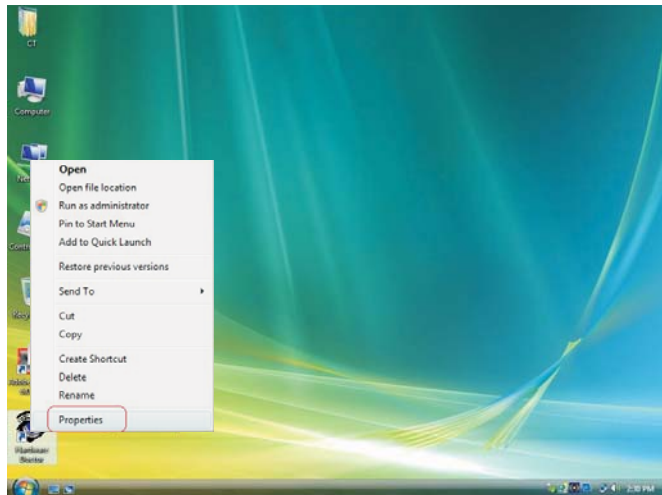
3. Select the Compatibility tab, click "Run this program as an administrator" then click OK.
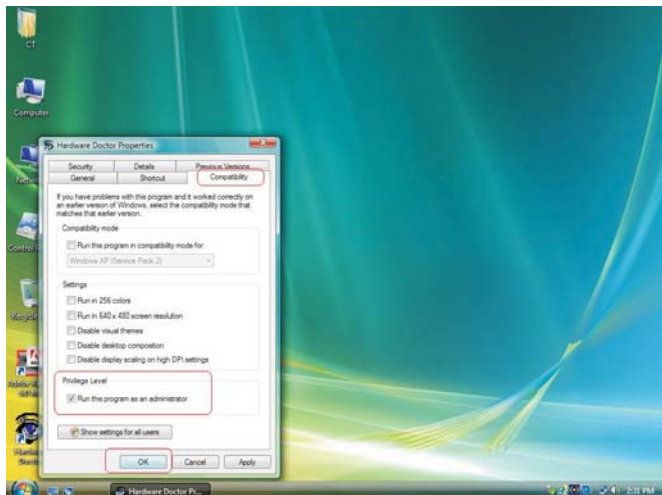
4. You can now access the utility.
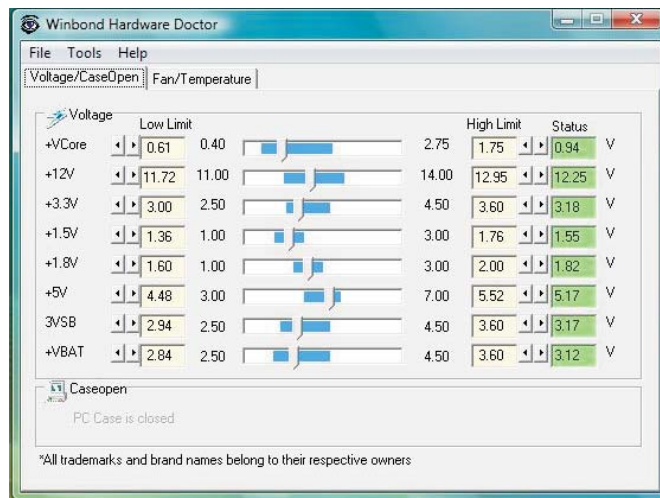
Intel Matrix Storage Manager Utility

Intel Matrix Storage Manager is a utility that allows you to monitor the current status of the SATA drives. It enables enhanced performance and power management for the storage subsystem.

Note:
This utility is supported only when the Configure SATA As field is set to AHCI. (The Configure SATA As field is in the Main menu of the BIOS utility.)

To install the utility, click "Intel Matrix Storage Manager Utility" on the main menu.

1. Setup is now ready to install the utility. Click Next.
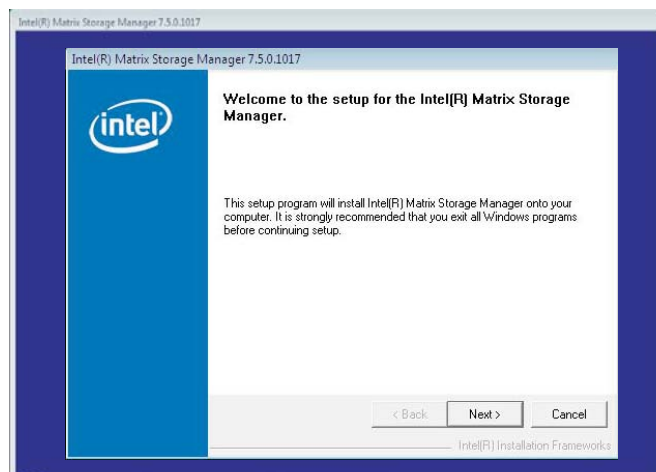
2. Read the Warning information carefully then click Next to begin installation.

3. Read the license agreement then click Yes.
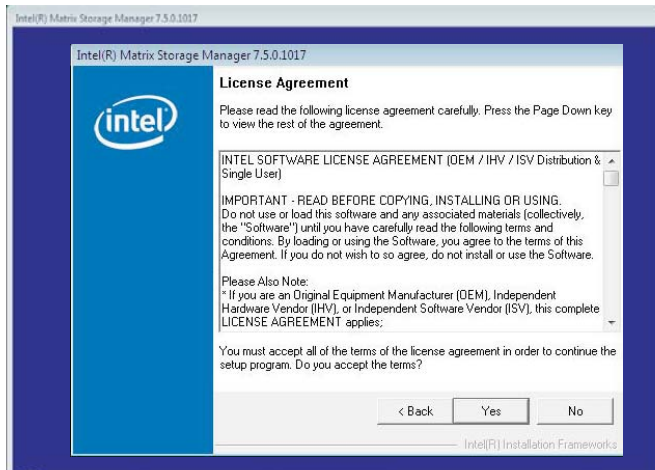
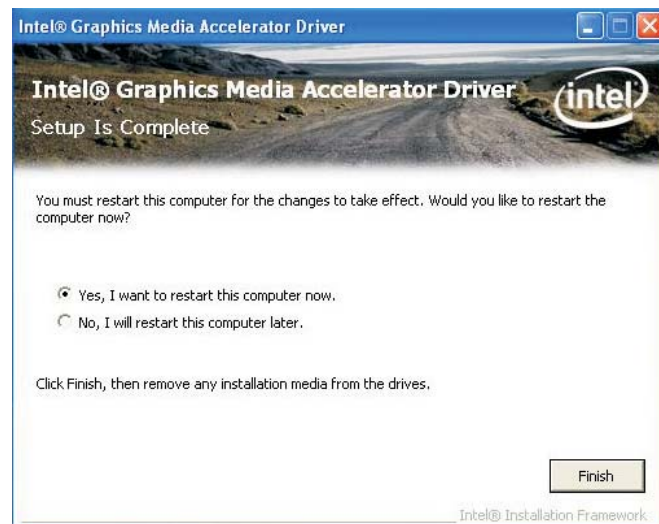4. Go through the readme document for system requirements and installation tips then click Next.
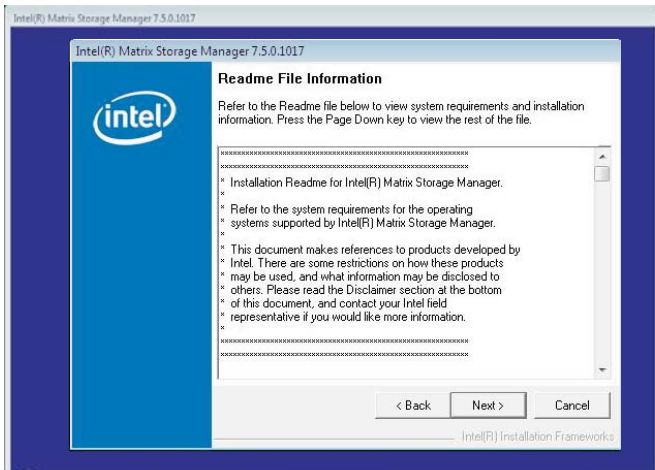
5. Click "Yes, I want to restart my computer now" then click Finish.

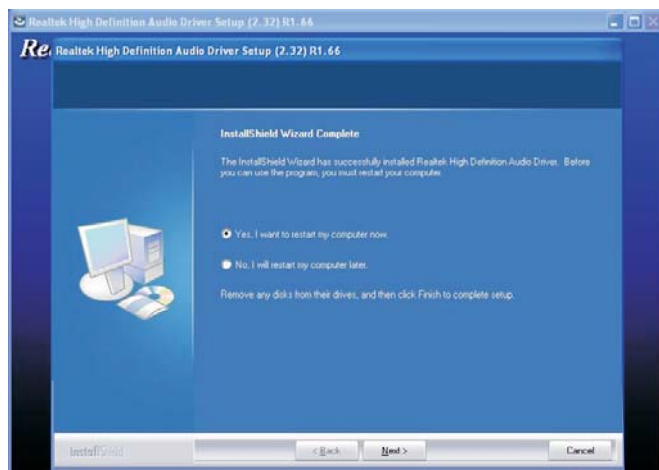   Restarting the system will allow the new software installation to take effect.
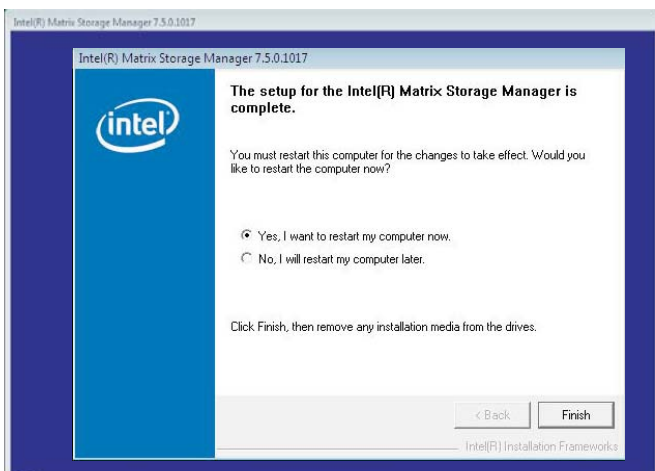
AHCI for F6 During Windows Setup Floppy Driver

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.

Click "AHCI for F6 During Windows Setup Floppy Driver" on the main menu.

1. Insert a blank floppy diskette then click OK.
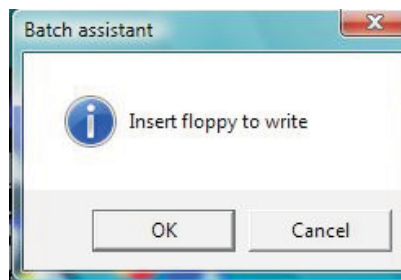
2. The system is currently formatting and writing the necessary driver files into the diskette.
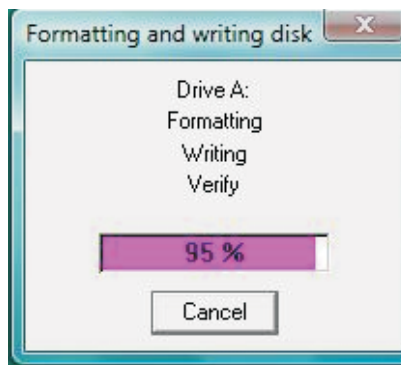
Adobe Acrobat Reader 6.0 (English Version)

To install, click "Adobe Acrobat Reader 6.0 (English Version)" on the main menu.

1. Click Next to continue.

2. Setup is now ready to install. Click Next.

3. Click Next to install or click Change Destination Folder to select another folder.
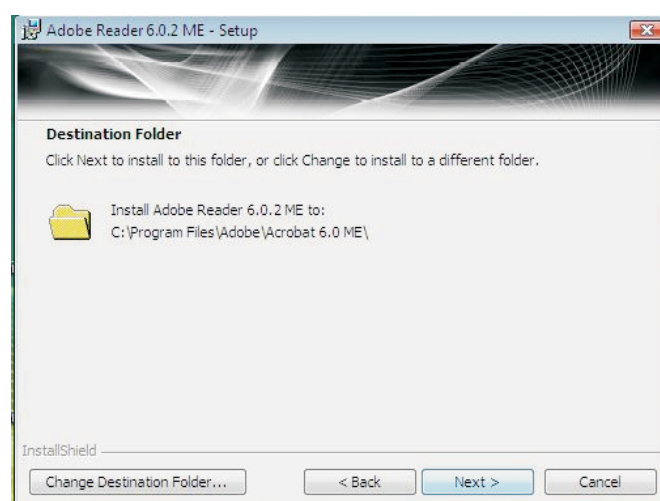
4. Click Install to begin installation.
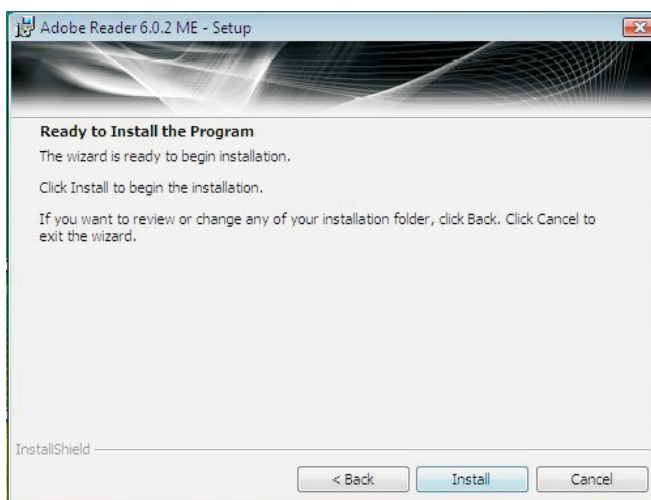
5. Click Finish to exit installaion.
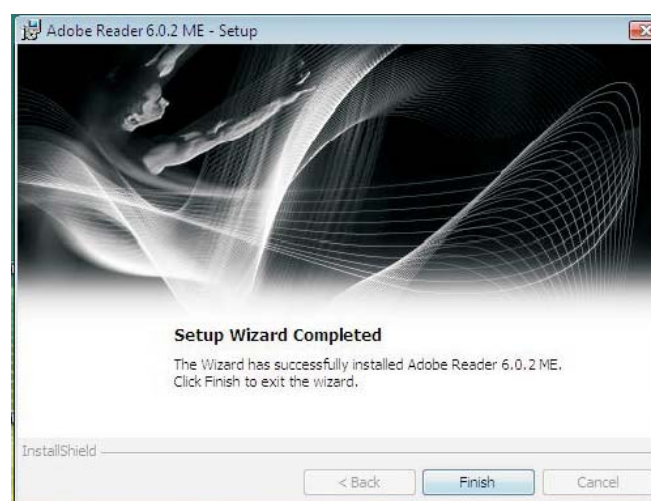
Drivers for Windows XP System

The CD that came with the system 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 (Main Board 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".

Microsoft DirectX 9.0C Driver

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

1. Click "I accept the agreement" then click Next.

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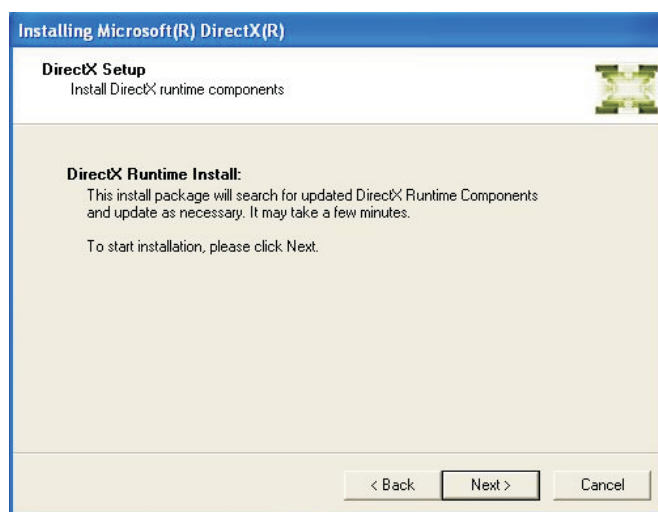
3. Click Finish. Reboot the system for DirectX to take effect.

Supported Software ■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■

Intel Chipset Software Installation Utility

The Intel Chipset Software Installation Utility is used for updating Windows® INF files so that the Intel chipset can be recognized and configured properly in the system.

To install the utility, click "Intel Chipset Software Installation Utility" on the main menu.

1. Setup is now ready to install the utility. Click Next.

2. Read the license agreement then click Yes.

3. Go through the readme document for system requirements and installation tips then click Next.

4. Setup is now installing the driver. Click Next to continue.

5. Click "Yes, I want to restart this computer now" then click Finish.

   Restarting the system will allow the new software installation to take effect.

Supported Software ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪

Intel Graphics Drivers

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

1. To start installation, click Next.

2. Read the license agreement then click Yes.
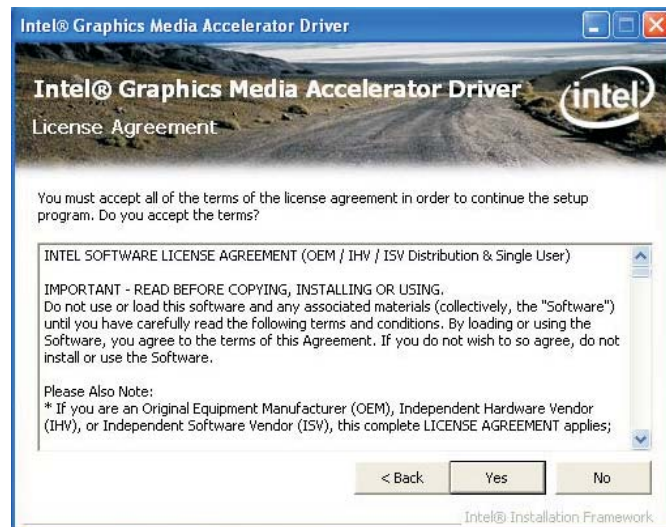
3. Go through the readme document for system requirements and installation tips then click Next.
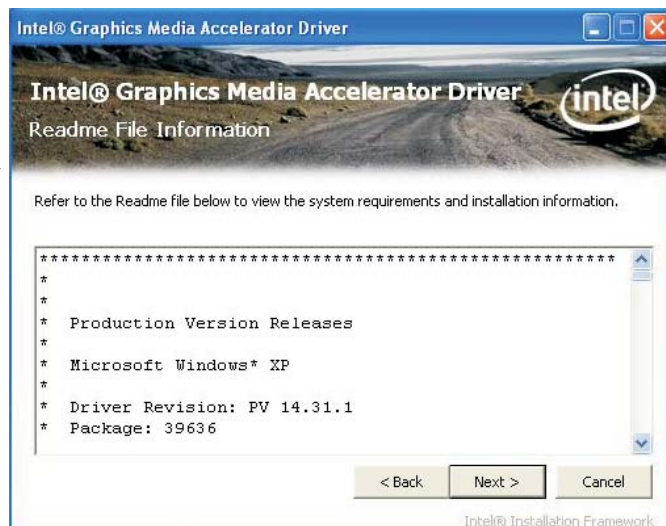
4. Setup is now installing the driver. Click Next to continue.
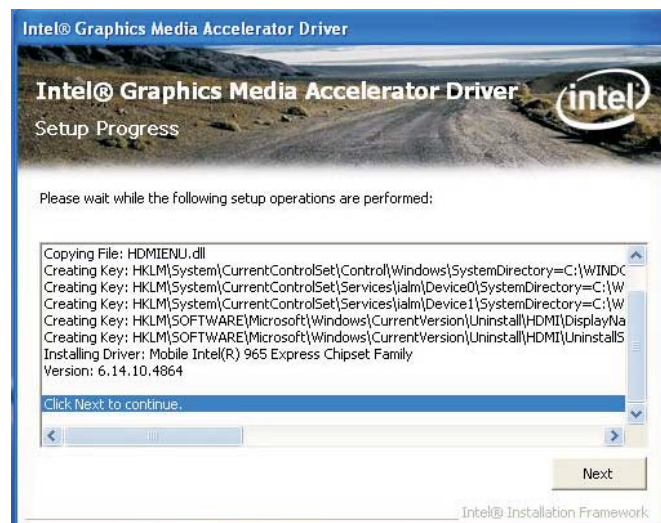
5. Click "Yes, I want to restart this computer now" then click Finish.

    Restarting the system will allow the new software installation to take effect.

Audio Drivers

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

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

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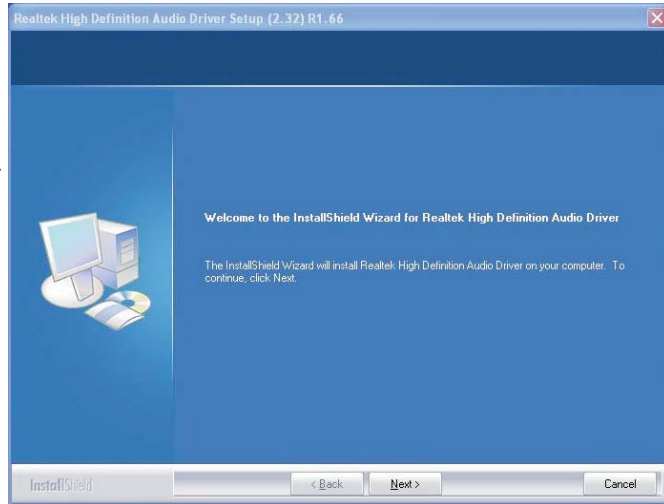
3. Click "Yes, I want to restart my computer now" then click Finish.

   Restarting the system will allow the new software installation to take effect.

LAN Drivers

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

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

2. Click Install to begin installation.

3. After completing installation, click Finish to exit setup.

Supported Software ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪

Hardware Monitor for Windows

The Hardware Monitor for Windows utility is capable of monitoring the system's temperature, fan speed, voltage, etc. and allows you to manually set a range (Highest and Lowest Limit) to the items being monitored. If the settings/values are over or under the set range, a warning message will pop-up. The utility can also be configured so that a beeping alarm will sound whenever an error occurs. We recommend that you use the "Default Setting" which is the ideal setting that would keep the system in good working condition.

To install the utility, click "Hardware Monitor for Windows" on the main menu.

1. Setup is now ready to install the utility. Click Next.

2. Click Next to install or click Browse to select another folder.
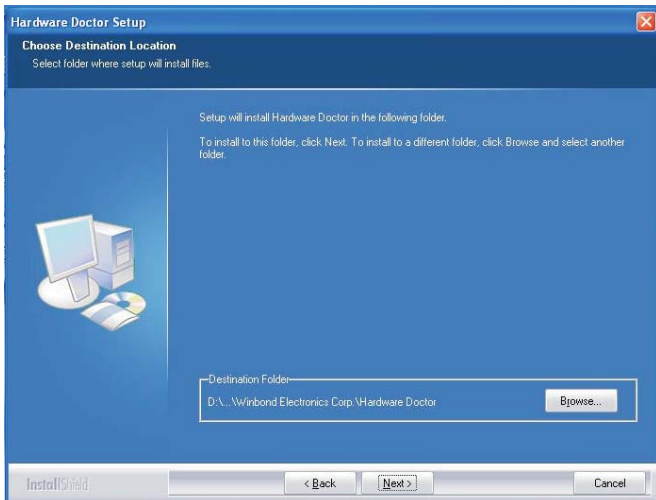
3. Click Next to add the program icon to the Program Folder.
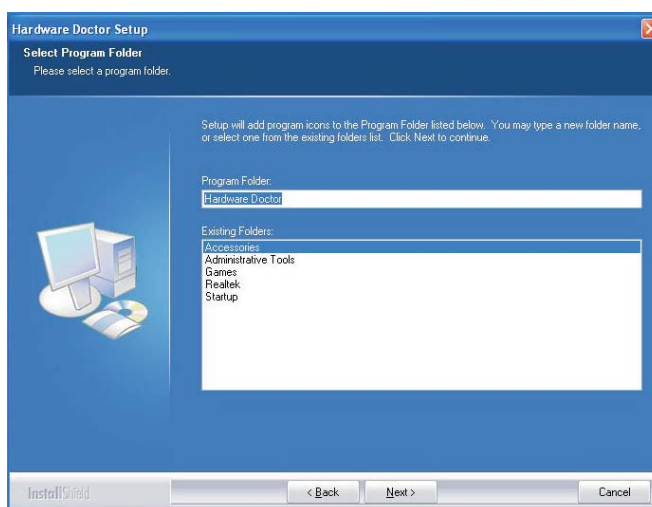
4. After completing installation, click Finish to exit setup.
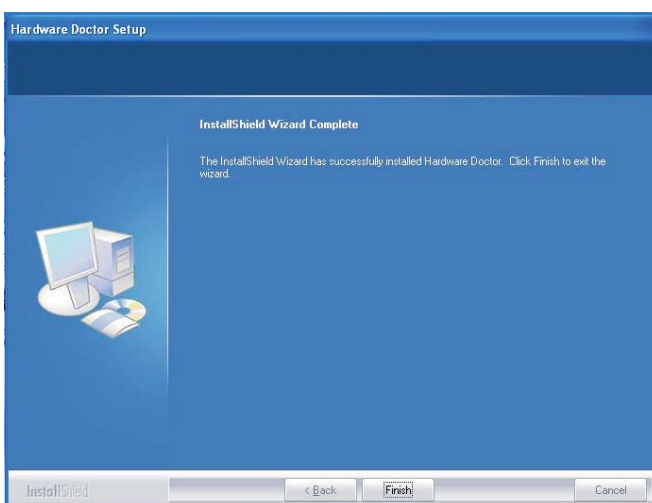
5. Click Yes if you want to create a Hardware Doctor shortcut at your desktop.
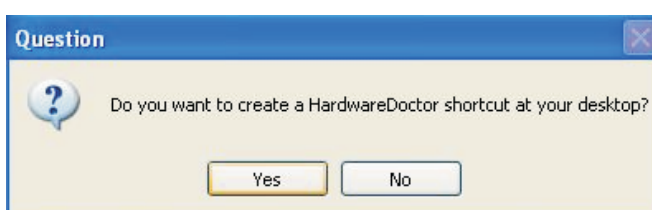
6. Click "Yes, I want to restart my computer now" then click Finish.

Restarting the system will allow the driver to take effect.
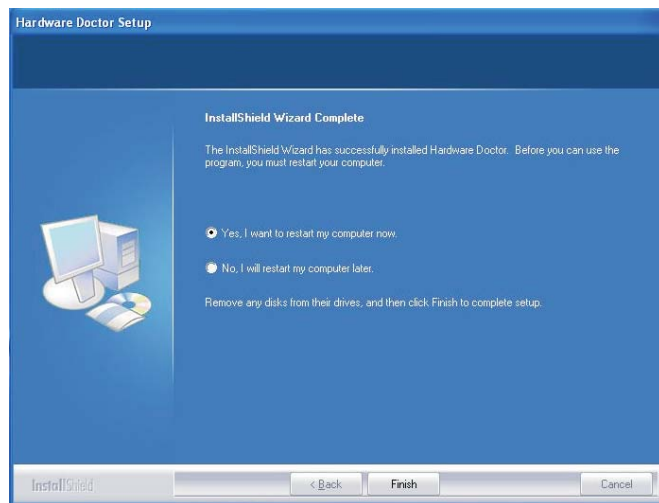
Intel Matrix Storage Manager Utility

Intel Matrix Storage Manager is a utility that allows you to monitor the current status of the SATA drives. It enables enhanced performance and power management for the storage subsystem.

Note:
This utility is supported only when the Configure SATA As field is set to AHCI. (The Configure SATA As field is in the Main menu of the BIOS utility.)

To install the utility, click "Intel Matrix Storage Manager Utility" on the main menu.

1. Setup is now ready to install the utility. Click Next.
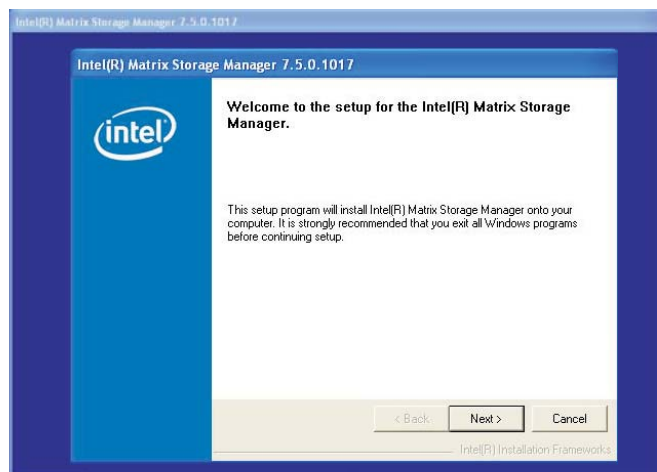
2. Read the Warning infor- mation carefully then click Next.

3. Read the license agreement then click Yes.

4. Go through the readme document for system requirements and installation tips then click Next.
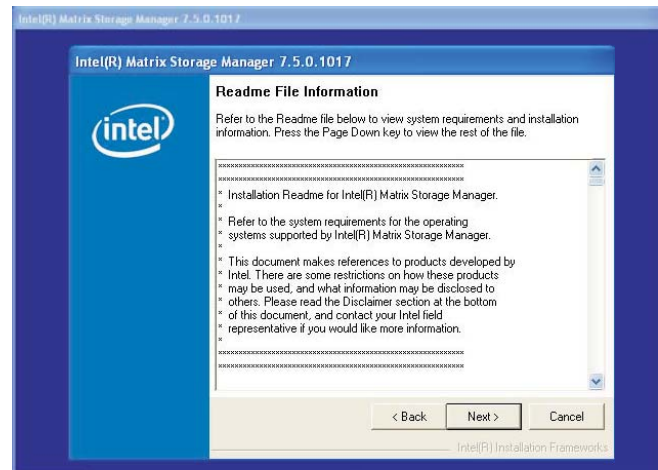
5. Click "Yes, I want to restart my computer now" then click Finish.

   Restarting the system will allow the new software installation to take effect.

Adobe Acrobat Reader 6.0 (English Version)

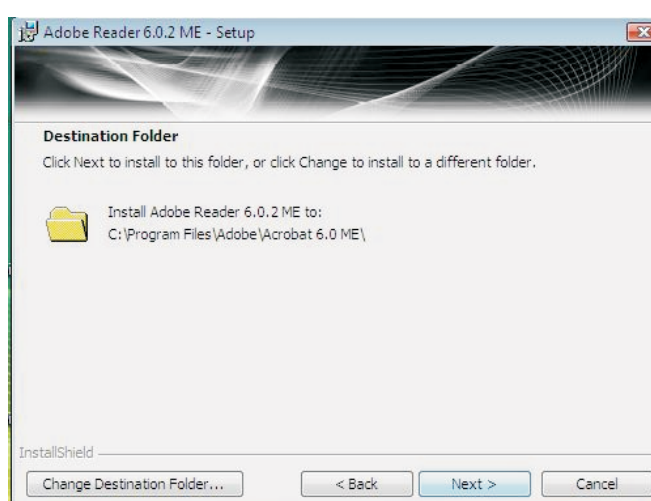To install, click "Adobe Acrobat Reader 6.0 (English Version)" on the main menu.
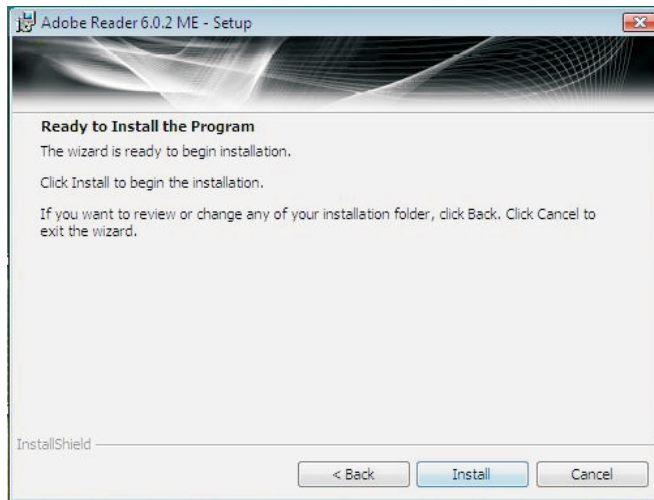
1. Click Next to continue.

2. Setup is now ready to install. Click Next.

3. Click Next to install or click Change Destination Folder to select another folder.

4. Click Install to begin installation.

5. Click Finish to exit installaion.

Appendix A - 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.

```
;=============== PROGRAM START ===============
SIO_CON_PORT     EQU     2EH
SIO_DATA         EQU     2FH


begin:
MOV     DX,SIO_CON_PORT      ;SUPERIO ENTER CONFIG
MOV     AL,87H
OUT     DX,AL
OUT     DX,AL


MOV     DX,SIO_CON_PORT
MOV     AL,2DH               ;GPIO5 AND POWER CONTROL SIGNALS
                             MULTI-FUNCTION PIN SELECTION
OUT     DX,AL                ;BIT 0 PIN77 SELECT (0= WDTO#, 1=
                             GPIO50)


MOV     DX,SIO_DATA
IN      AL,DX
AND     AL,0FEH              ;SELECT PIN TO WATCH DOG
OUT     DX,AL


MOV     DX,SIO_CON_PORT
MOV     AL,07H               ;LOGIC DEVICE SLELCT
OUT     DX,AL


MOV     DX,SIO_DATA
MOV     AL,08H               ;SELECT DEVICE 8 (WATCH DOG)
OUT     DX,AL


MOV     DX,SIO_CON_PORT
MOV     AL,030H              ;ACTIVATE REGISTER
OUT     DX,AL


MOV     DX,SIO_DATA
OR      AL,01H               ;0= INACTIVATE, 1=ACTIVATE
OUT     DX,AL
```

```
MOV    DX,SIO_CON_PORT
MOV    AL,0F5H              ;WATCH DOG CONTROL REGISTER
OUT    DX,AL

MOV    DX,SIO_DATA          ;BIT1  DIS/EN WDTO#  OUTPUT LOW PULSE
                            TO KBRST#PIN(0=DIS, 1=ENABLE)
IN     AL,DX                ;BIT3 COUNTER MODE SLEECT (0=SECOND
                            MODE, 1=MINUTE MODE)
OR     AL,02H
OUT    DX,AL

MOV    DX,SIO_CON_PORT
MOV    AL,0F6H              ;WATCH DOG COUNTER
OUT    DX,AL

MOV    DX,SIO_DATA
MOV    AL,0AH               ;SET COUNTER (EX 10 SEC)
OUT    DX,AL

MOV    DX,SIO_CON_PORT
MOV    AL,0F7H              ;WATCH DOG COUNTER
OUT    DX,AL

MOV    DX,SIO_DATA
MOV    AL,00H               ;Clear WDTO
OUT    DX,AL

mov    DX,SIO_CON_PORT   ;SUPERIO EXIT CONFIG
mov    al, 0AAh
out    dx, al

;=============== RETURN DOS ===================
mov    ah,4ch               ;return  dos
int    21h

  end begin
```

Appendix B - 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.

Troubleshooting ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪

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.

1. 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.

Troubleshooting ▪▪

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.

Appendix C - Frequently Asked Questions

Q1: Black screen appeared when uninstalling the Windows Vista graphics driver.

A1: Before uninstalling the graphics driver, please perform the following steps. Click the graphics icon in the notification area of the taskbar then select Graphics Properties.
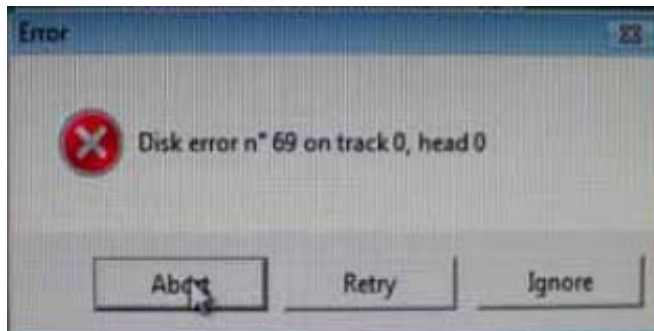

Click this link first before selecting Graphic Properties

In the Single Display section, select Monitor.

Frequently Asked Questions ∎∎∎∎∎∎∎∎∎∎∎∎∎∎∎∎∎∎∎∎∎∎∎∎∎∎∎∎∎∎∎
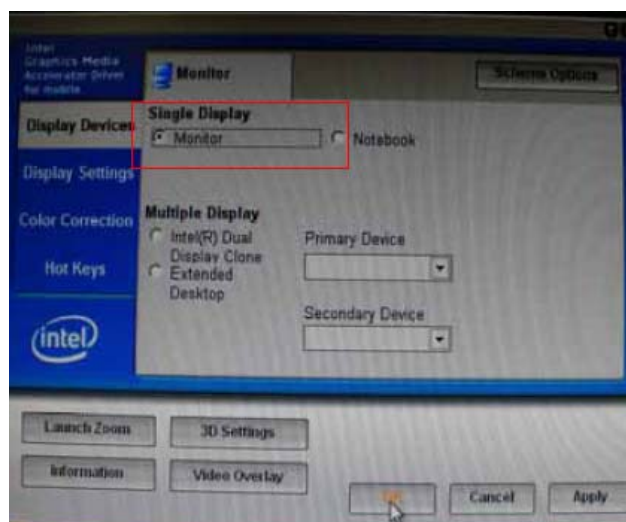
Q2: When executing F6FLPY.EXE in Windows Vista and the following error messages appear, please perform step A2.

Click OK.

Click Abort.

A2: Disconnect the USB floppy drive for 15 seconds then reconnect it to the motherboard. Execute F6FLPY.EXE again.
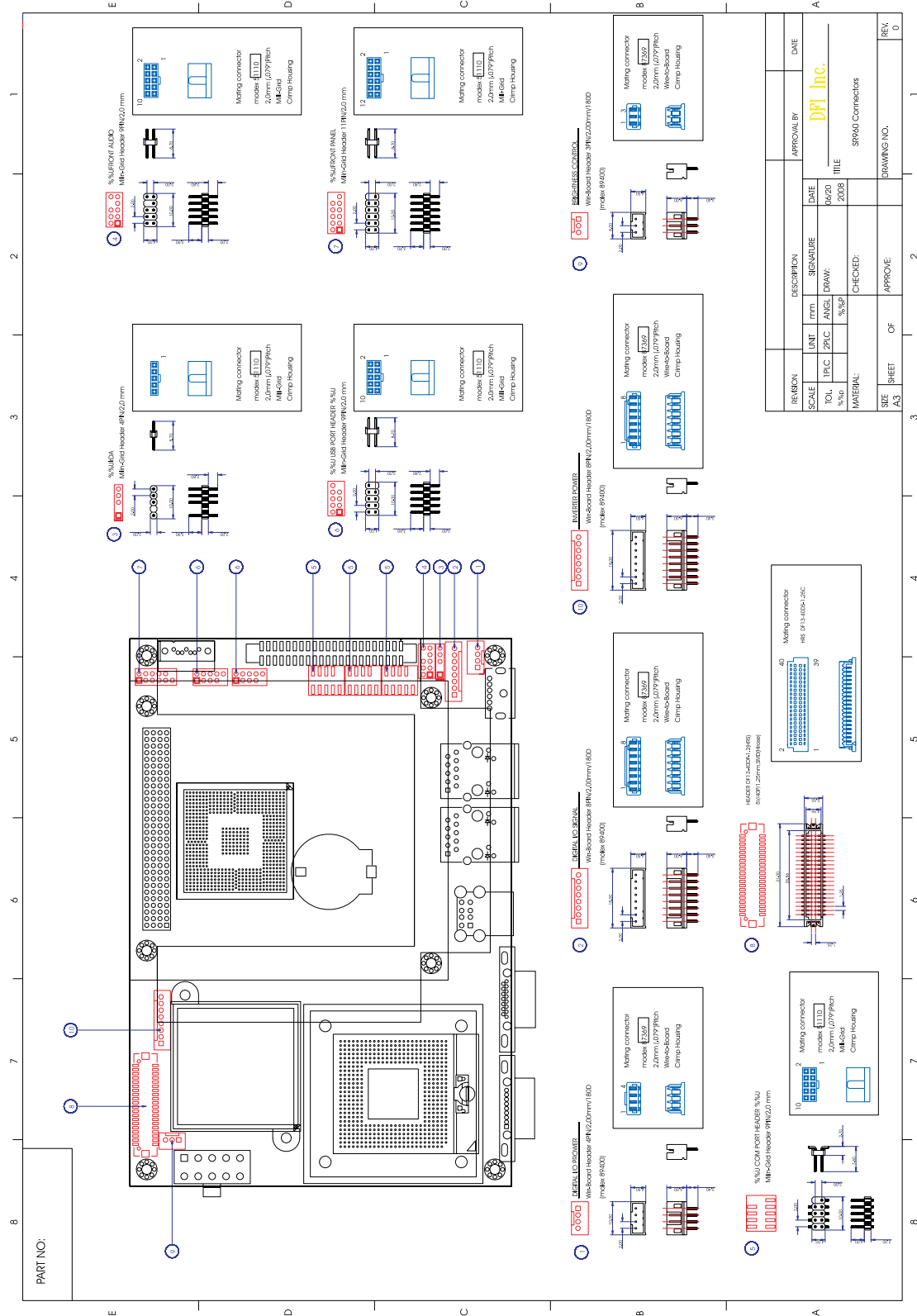

Disconnect for 15 seconds

Reconnect

Appendix D - Connector Pitch