

SR960-N

System Board User's Manual

935-SR9602-000G
A03660019

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Trademarks

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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.

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About this Manual

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

Warranty

1. Warranty does not cover damages or failures that arised from misuse of the product, inability to use the product, unauthorized replacement or alteration of components and product specifications.
2. The warranty is void if the product has been subjected to physical abuse, improper installation, modification, accidents or unauthorized repair of the product.
3. Unless otherwise instructed in this user's manual, the user may not, under any circumstances, attempt to perform service, adjustments or repairs on the product, whether in or out of warranty. It must be returned to the purchase point, factory or authorized service agency for all such work.
4. We will not be liable for any indirect, special, incidental or consequential 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
- ☑ A user's manual
- ☑ One IDE cable
- ☑ 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 "Main Board Utility" CD
- ☑ 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 I - Introduction

Specifications

Processor	• Intel® Core™2 Duo mobile processor - 800MHz/667MHz/533MHz 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 - DVM T 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 • 1 front panel connector • 2 fan connectors
BIOS	• Award BIOS • 8Mbit 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") × 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 pre-fetch 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.

S/PDIF

S/PDIF is a standard audio file transfer format that transfers digital audio signals to a device without having to be converted first to an analog format. This prevents the quality of the audio signal from degrading whenever it is converted to analog. S/PDIF is usually found on digital audio equipment such as a DAT machine or audio processing device. The S/PDIF connector on the system board sends surround sound and 3D audio signal outputs to amplifiers and speakers and to digital recording devices like CD recorders.

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 $\geq 720\text{mA}$.

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 $\geq 720\text{mA}$.

WAKE-ON-PS/2

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

**Important:**

The 5V_standby power source of your power supply must support $\geq 720\text{mA}$.

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.

**Important:**

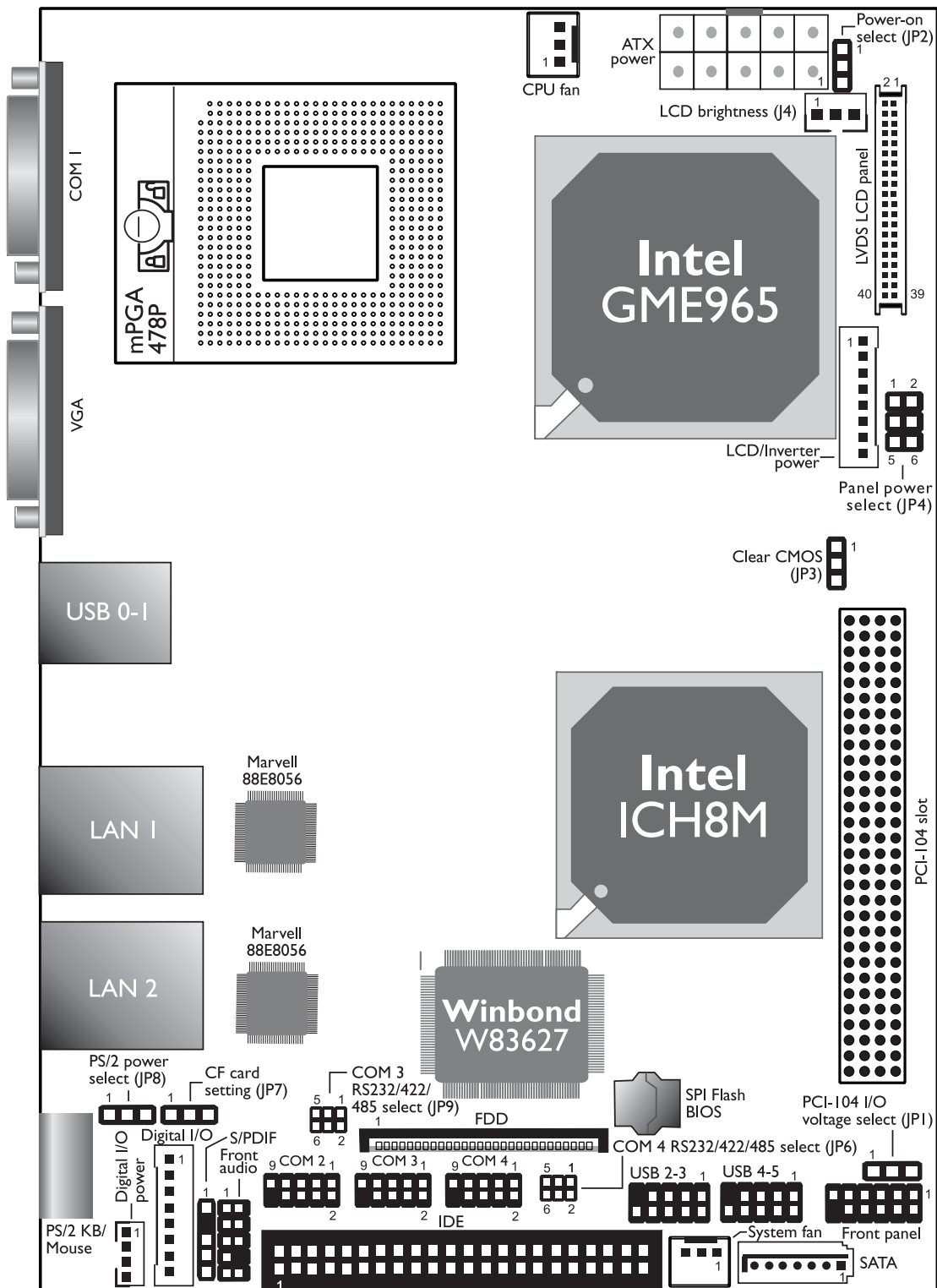
The 5V_standby power source of your power supply must support $\geq 720\text{mA}$.

**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

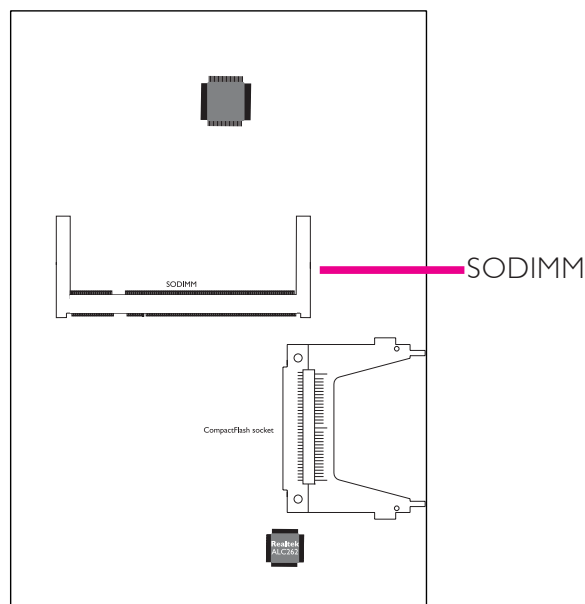


**Warning:**

Electrostatic discharge (ESD) can damage your system board, processor, 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 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.

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.

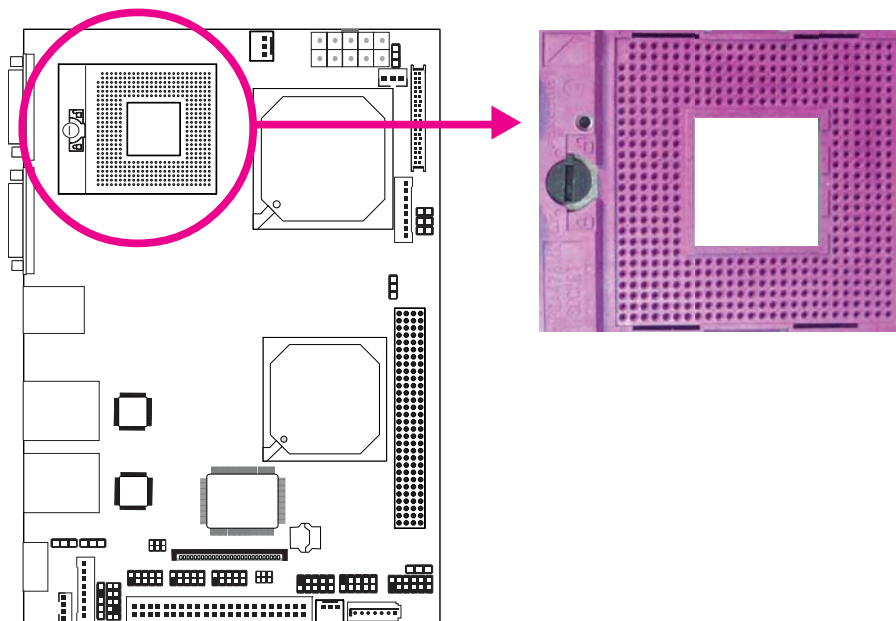


Note:

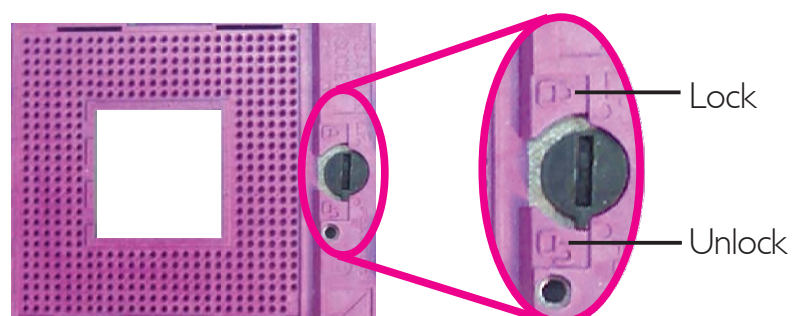
The system board used in the following illustrations may not resemble the actual one. These illustrations are for reference only.

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.

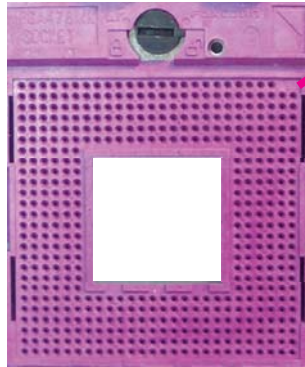


- Position the CPU above the socket. The gold triangular mark on the CPU must align with pin 1 of the CPU socket.



Important:

Handle the CPU by its edges and avoid touching the pins.



Pin 1 of the socket



Gold triangular mark

- 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

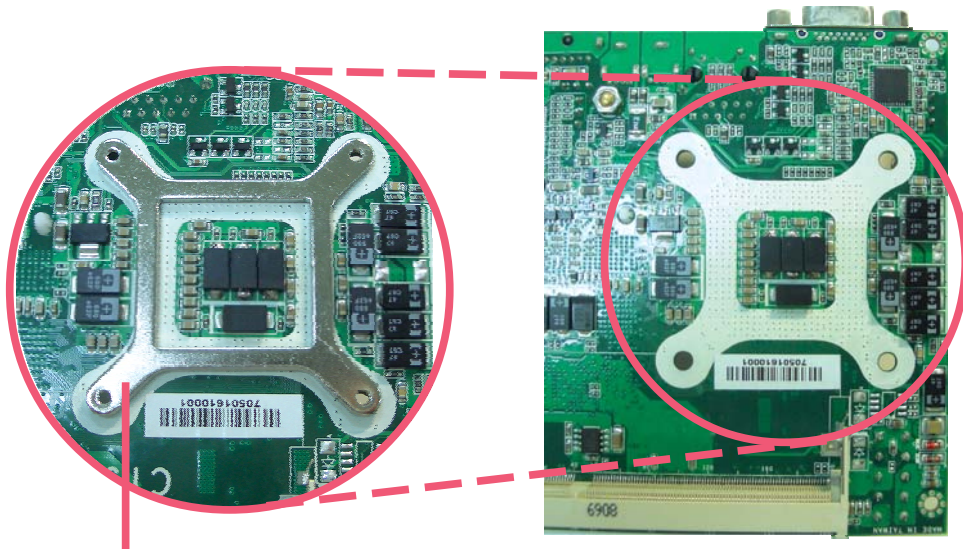
The CPU must be kept cool by using a CPU fan with heat sink. Without sufficient air circulation across the CPU and heat sink, the CPU will overheat damaging both the CPU and system board.



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.

- I. 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.

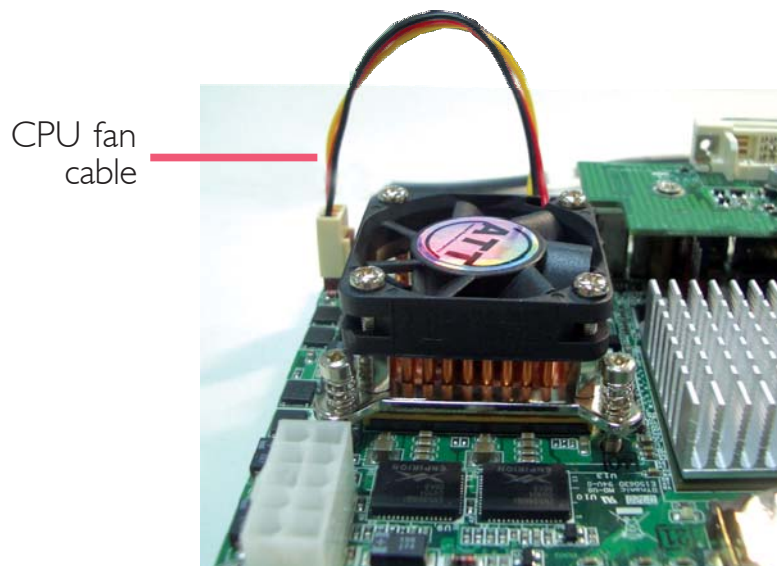
Turn each Phillips head screw half way down first to initially stabilize the heat sink onto the board, then finally tighten each screw.



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.

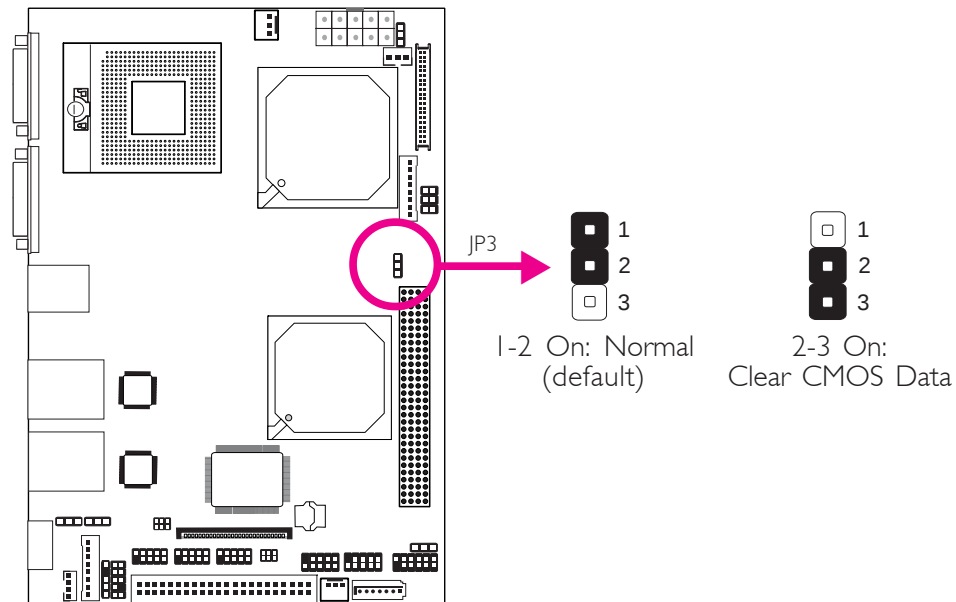


Important:

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



If you encounter the following,

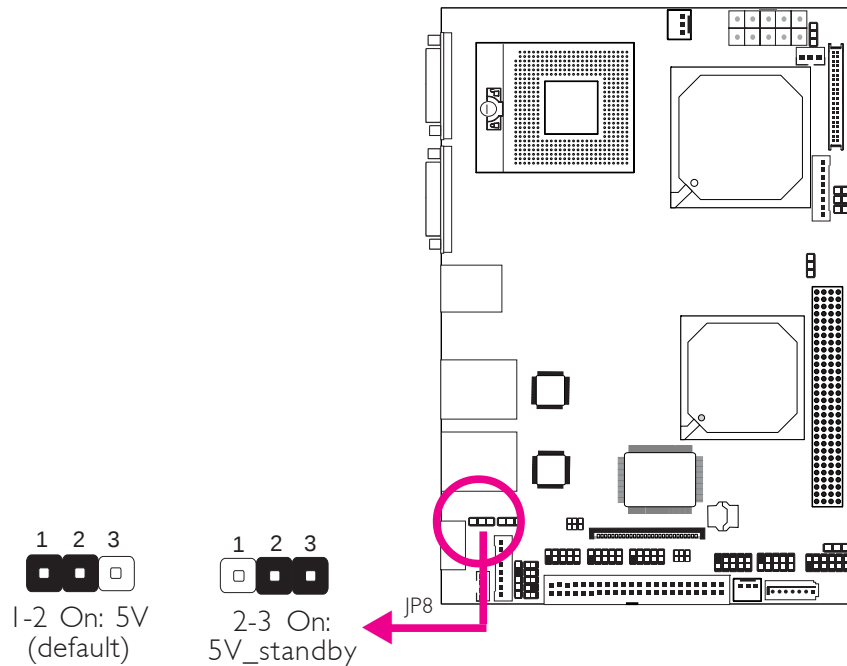
- a) CMOS data becomes corrupted.
- b) You forgot the supervisor or user password.

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



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

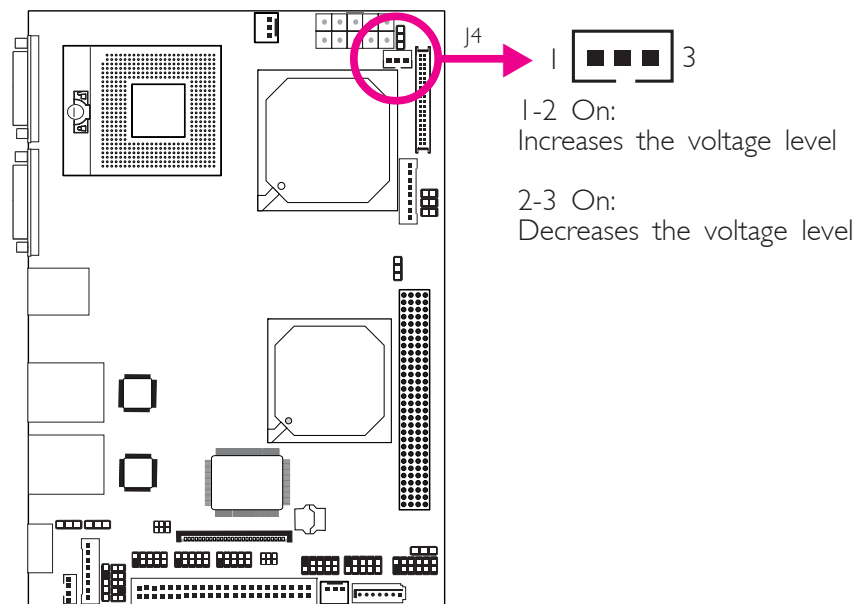
Configure the PS/2 keyboard/mouse wake up function in the Advanced menu of the BIOS. Refer to chapter 3 for more information.



Important:

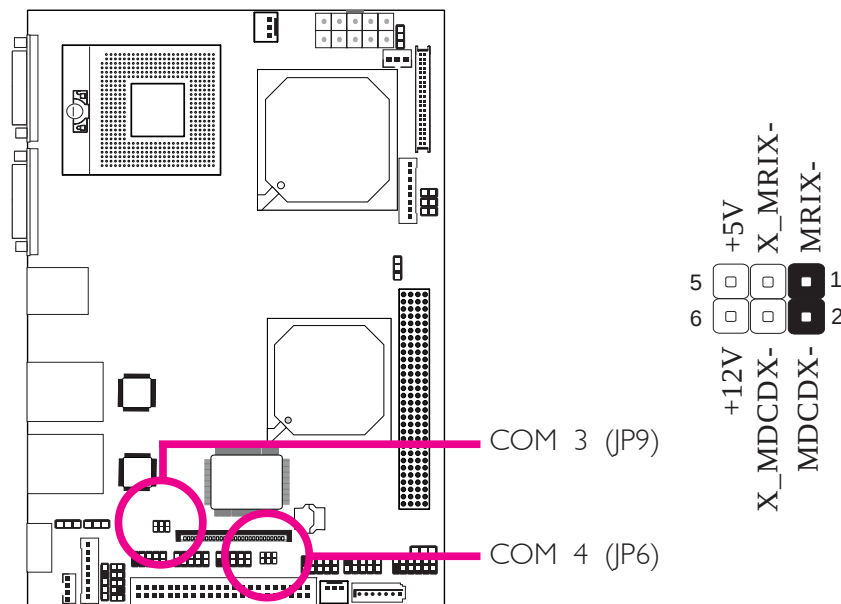
The 5V_standby power source of your power supply must support $\geq 720\text{mA}$.

LCD Brightness Control (Voltage Level Adjust)



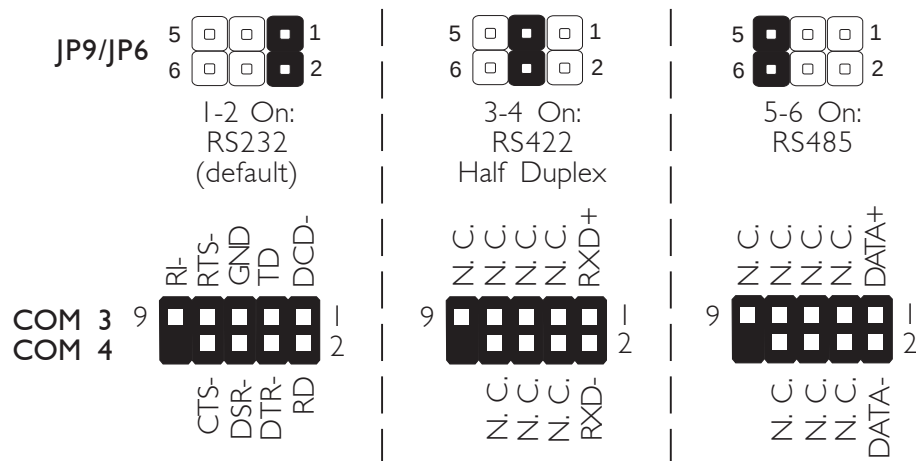
Use J4 to connect to the LCD Brightness Control button of the LCD Display Panel. It is used to adjust the brightness of the LCD Display Panel. Increasing or decreasing the voltage to control the LCD panel's brightness varies among Inverters. You must refer to the Inverter's specification to make the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

COM 3 and COM 4 RS232/RS422/RS485 Select

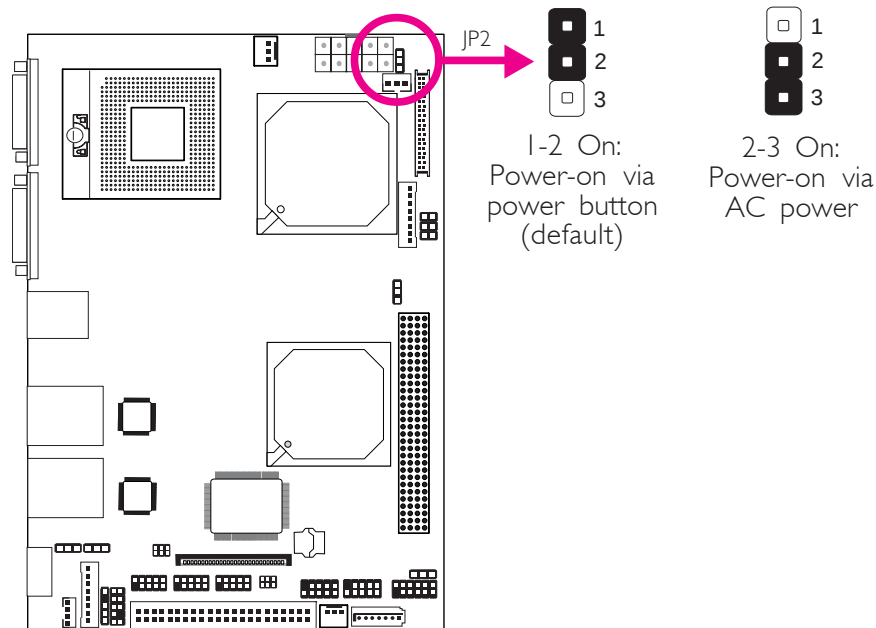


JP9 and JP6 are used to configure COM 3 and COM 4 respectively to RS232, RS422 (Half Duplex) or RS485.

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



Power-on Select



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.

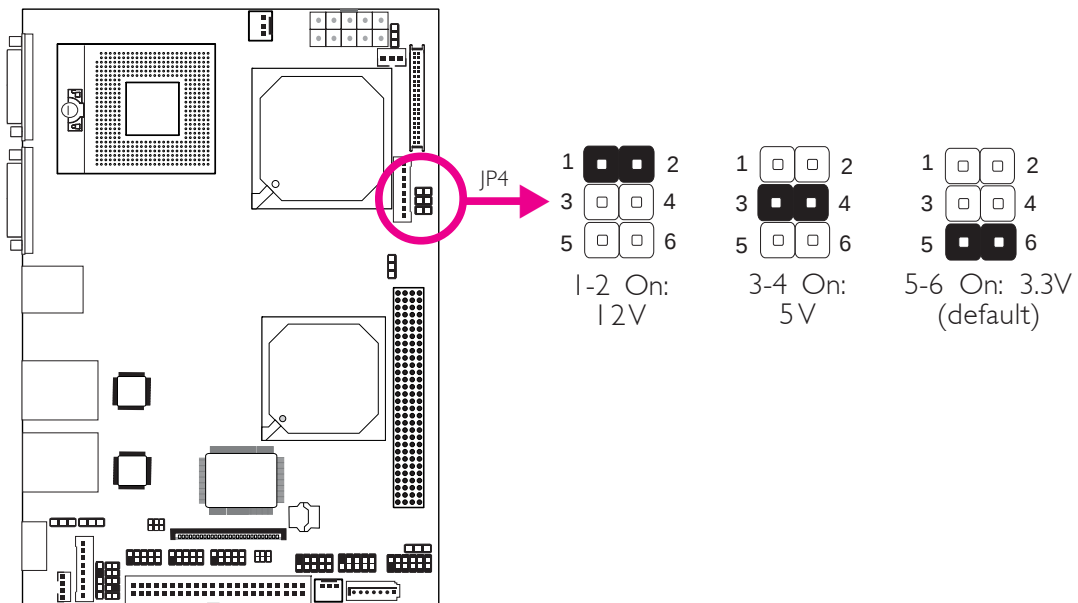
When using JP2 “Power On” feature to power the system back on after a power failure occurs, may not power on the system if the power lost is resumed within 5 seconds (power flicker).



Note:

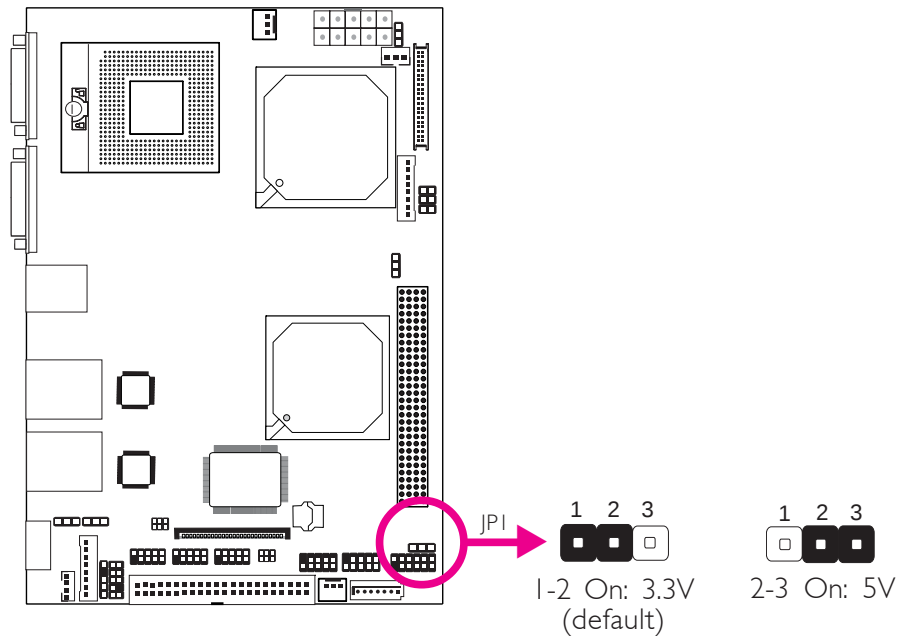
In order to ensure that power is resumed after a power failure that may occur within a 5 second period, JP2 should be set to pins 2-3 and the “Restore on AC Power Loss” in the Advanced menu of the BIOS is set to “Power On”.

Panel Power Select



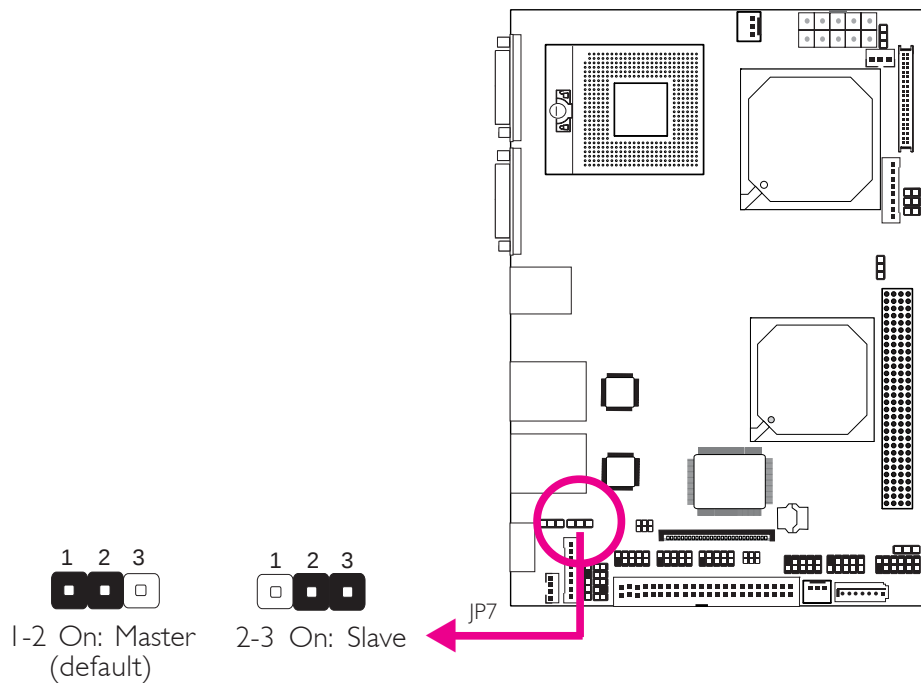
JP4 is used to select the power supplied to the LCD panel. Before powering-on the system, make sure JP4's setting matches the LCD panel's specifications. Selecting the incorrect voltage will seriously damage the LCD panel.

PCI-I/O Voltage Select



JPI is used to select the voltage supplied to the PCI-I/O slot.

Compact Flash Card Setting

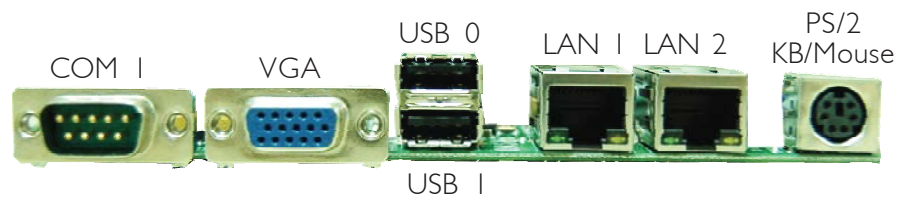


JP7 is used to set the CompactFlash™ socket to Master or Slave mode.

**Note:**

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

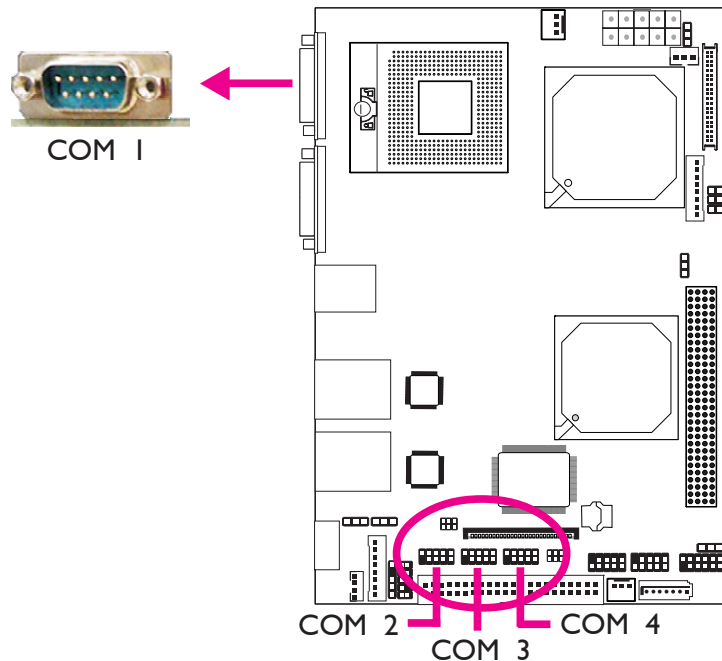
Rear Panel I/O Ports



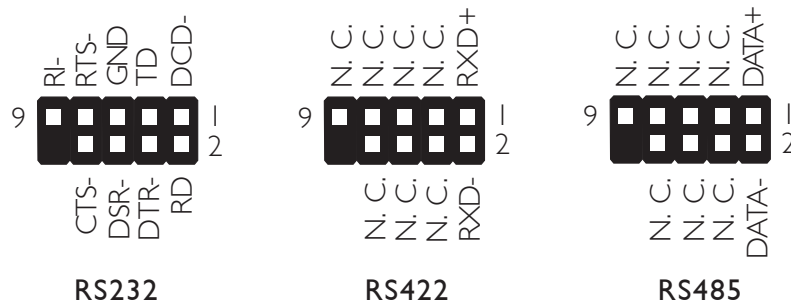
The rear panel I/O ports consist of the following:

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



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.

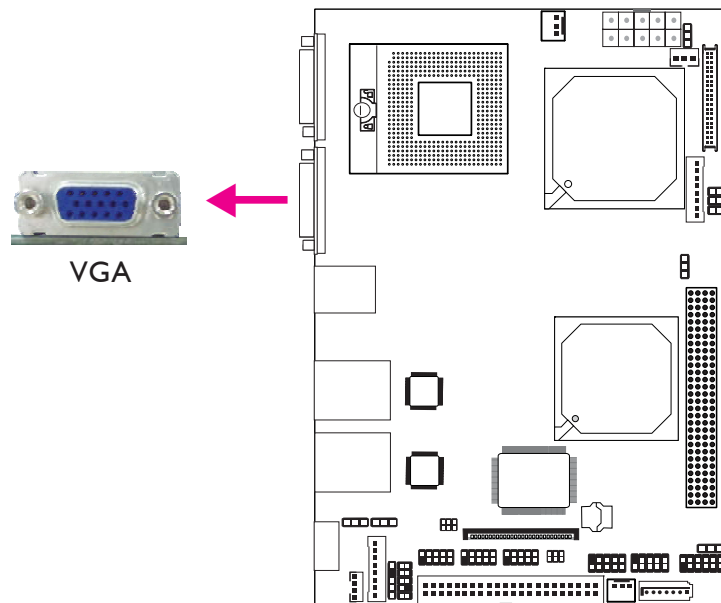
Jumper Setting

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



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.

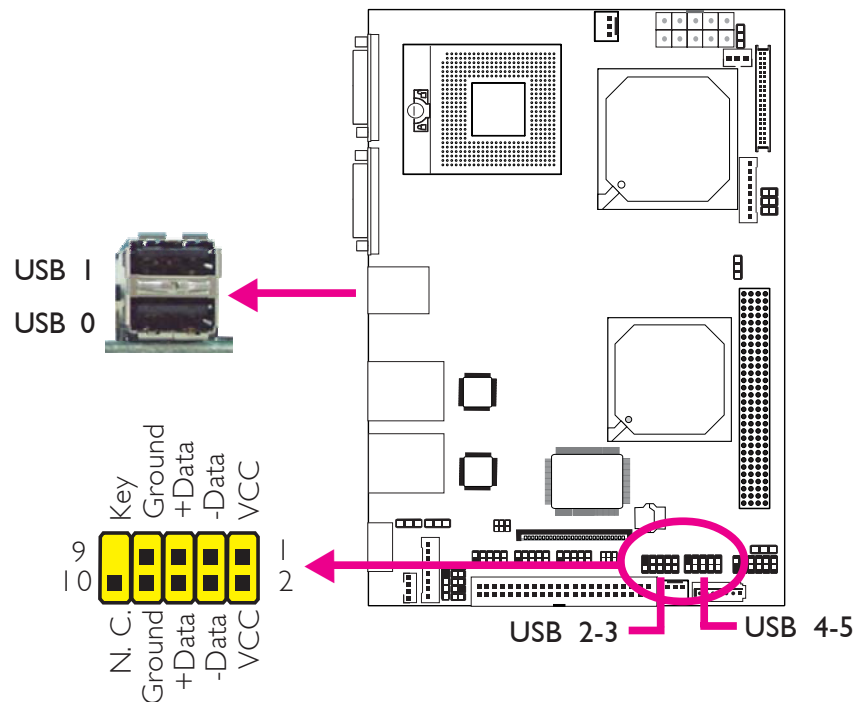
BIOS Setting

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.

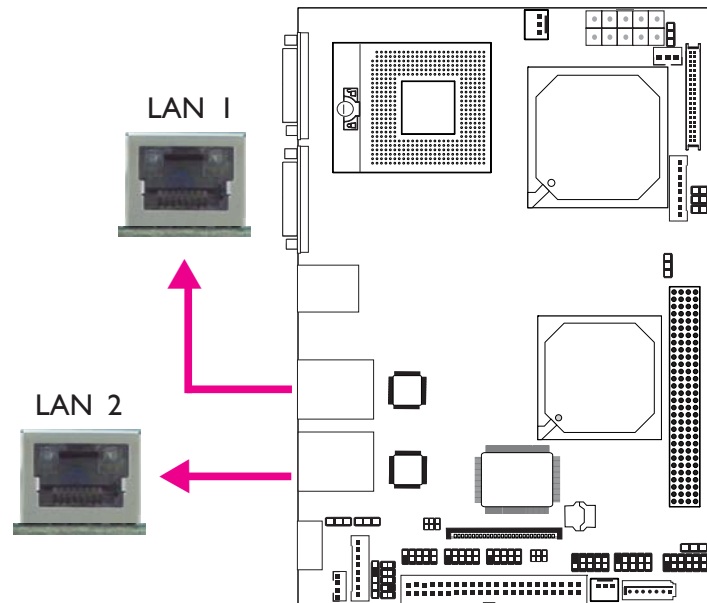
BIOS Setting

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



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

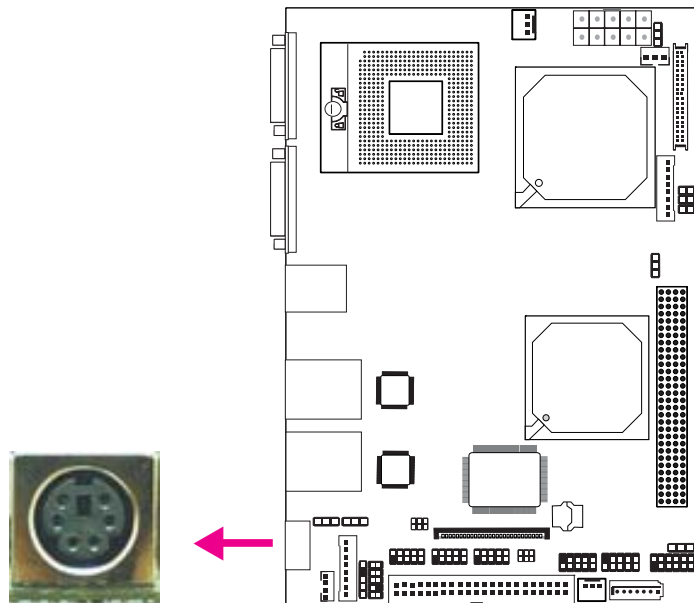
BIOS Setting

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.



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.

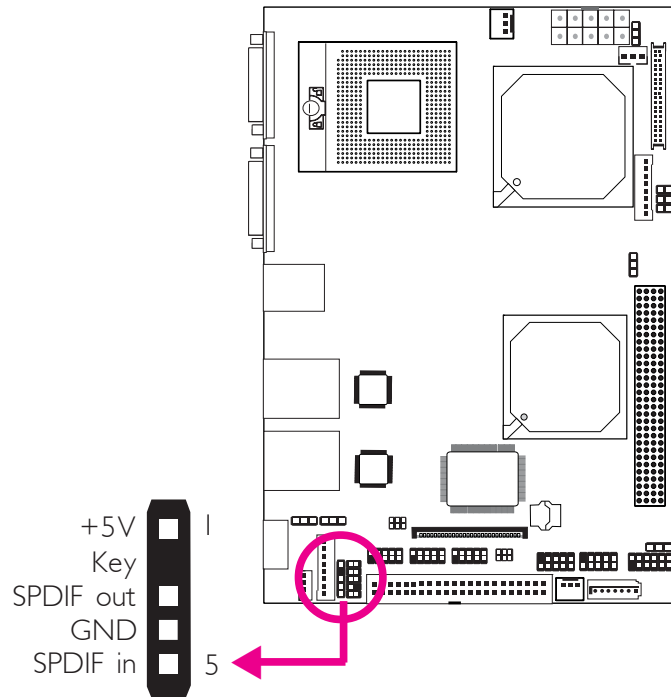


Important:

The 5V_standby power source of your power supply must support $\geq 720\text{mA}$.

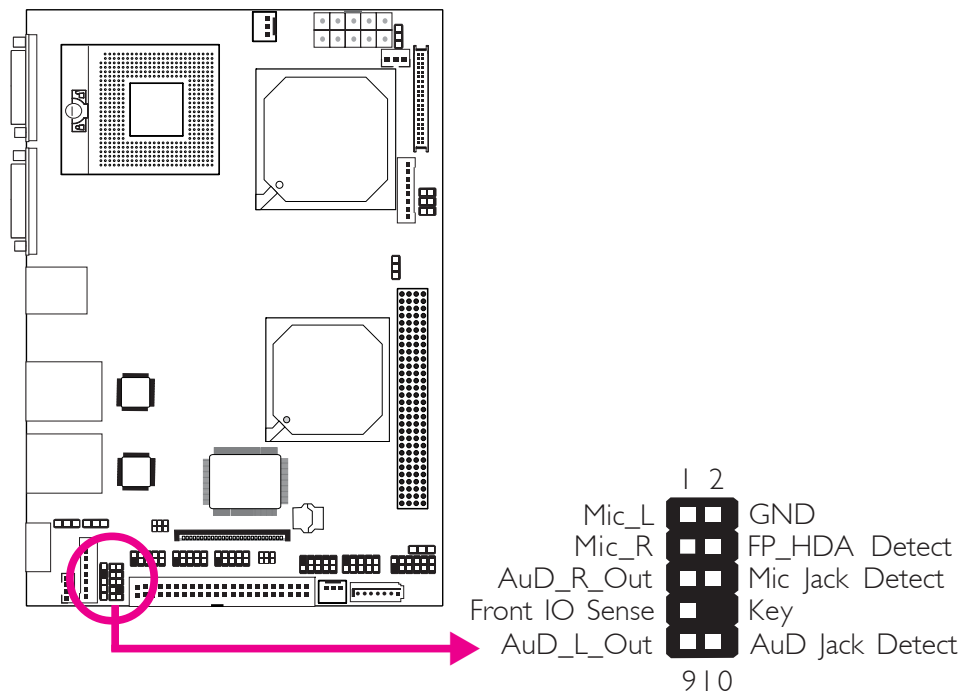
I/O Connectors

S/PDIF Connector



The S/PDIF connector is used to connect an external S/PDIF port. Your S/PDIF port 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 connect the audio cable connector to the S/PDIF connector. Make sure pin 1 of the audio cable connector is aligned with pin 1 of the S/PDIF connector.

Front Audio Connector



The front audio connector allows you to connect to the second line-out and mic-in jacks that are at the front panel of your system.

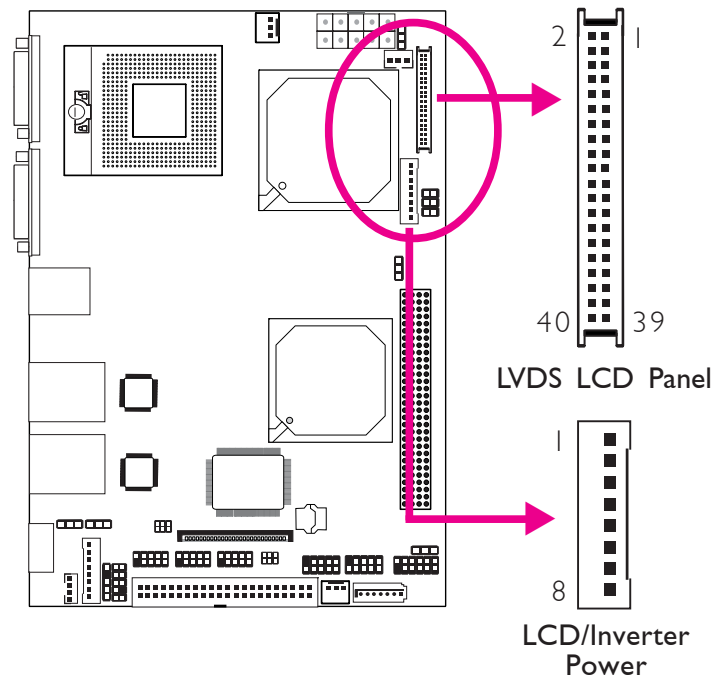
BIOS Setting

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



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.

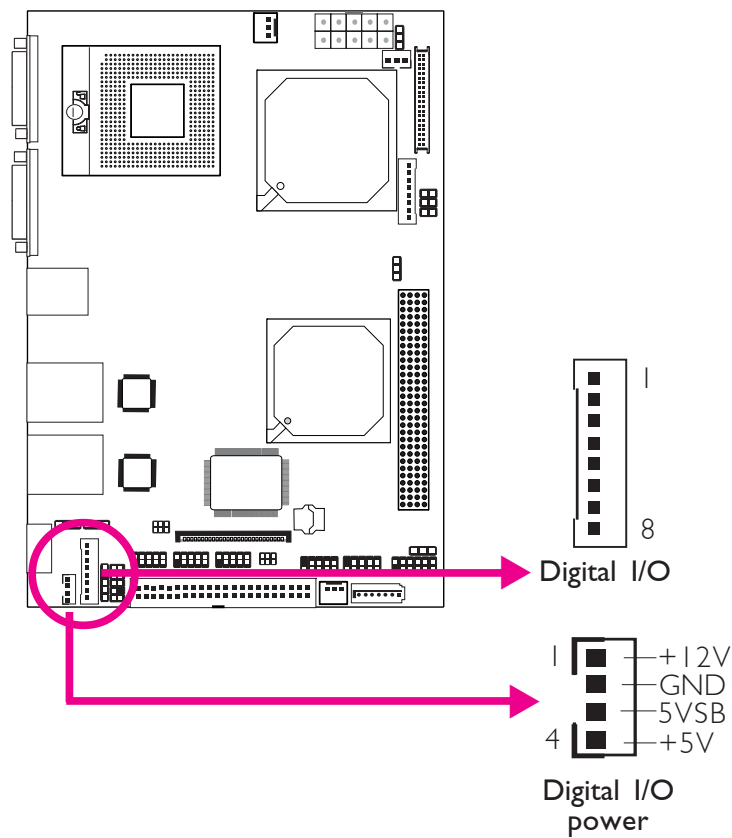
LVDS LCD Panel Connector

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

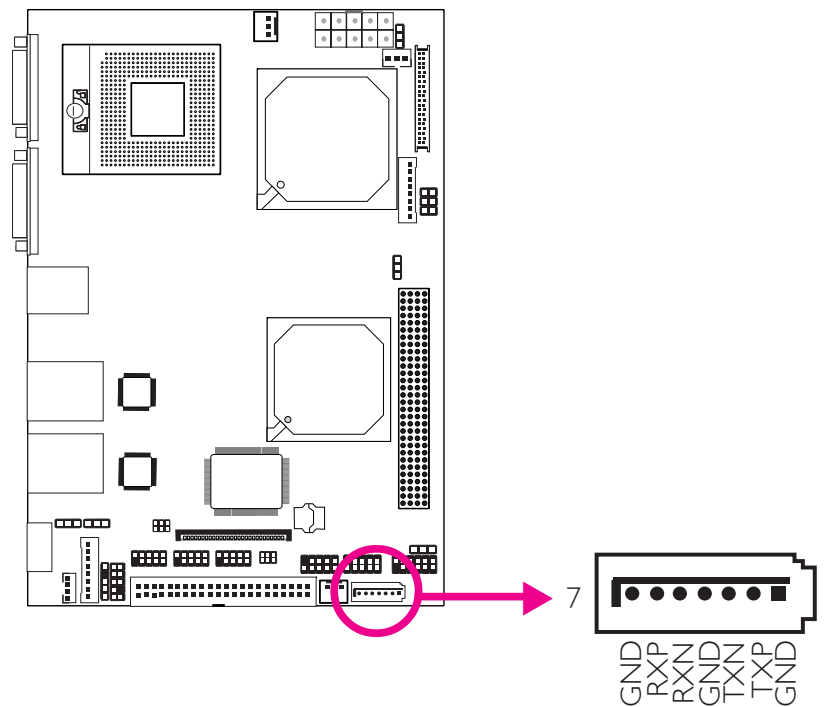


The Digital I/O connector and Digital I/O power connector provide powering-on function to an external device that is connected to these connectors. The Digital I/O bus provides 8-bit write and 8-bit read.

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

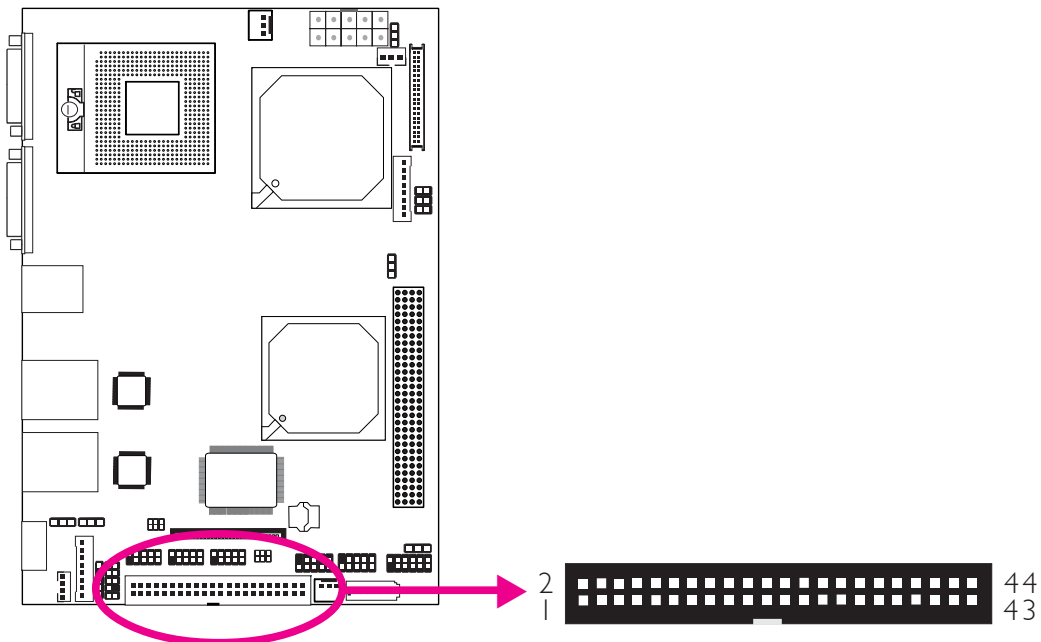


The Serial ATA port is used to connect Serial ATA device. Connect one end of the Serial ATA cable to the SATA port and the other end to your Serial ATA device.

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.



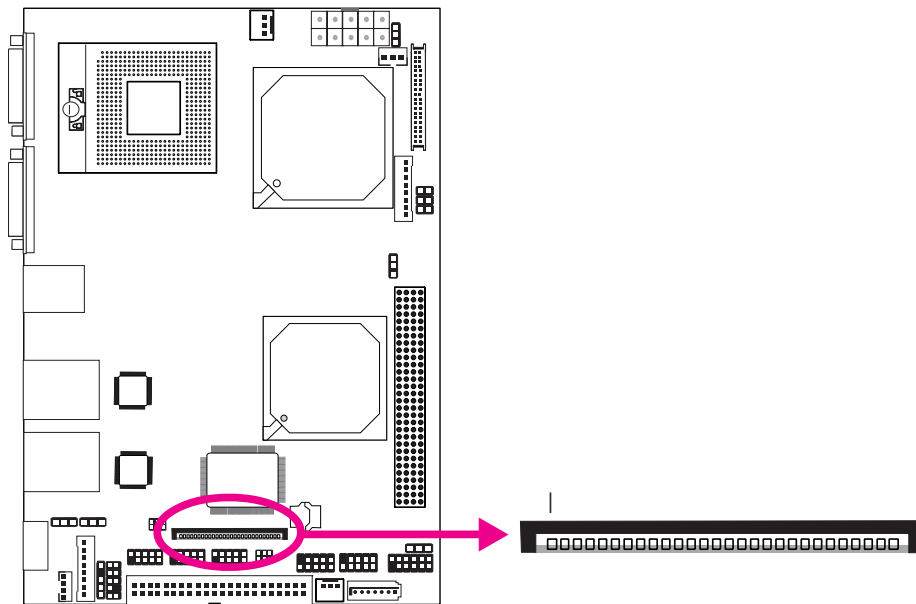
Important:

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.

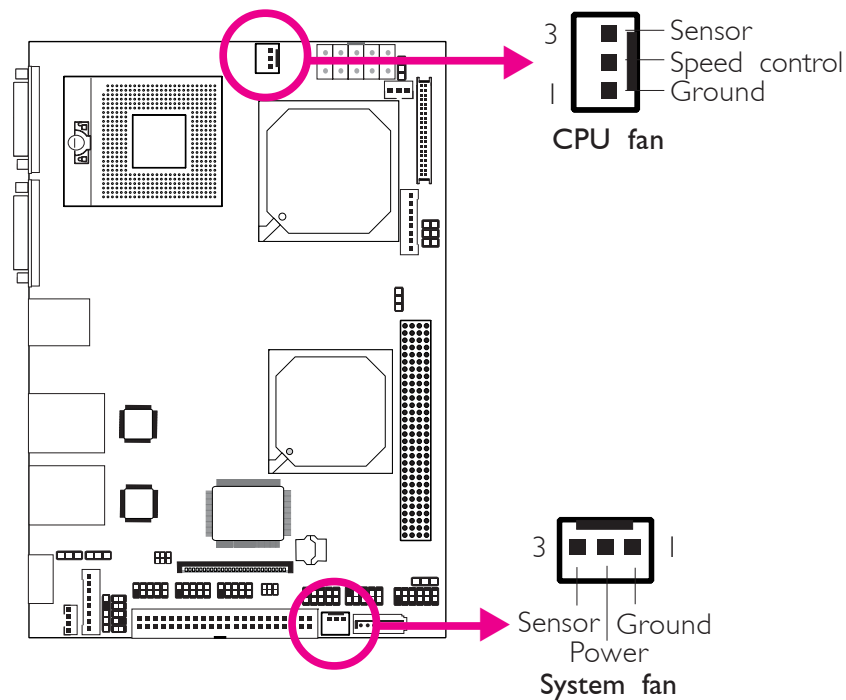
BIOS Setting

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	5V	2	INDEX#
3	5V	4	DR0#
5	5V	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

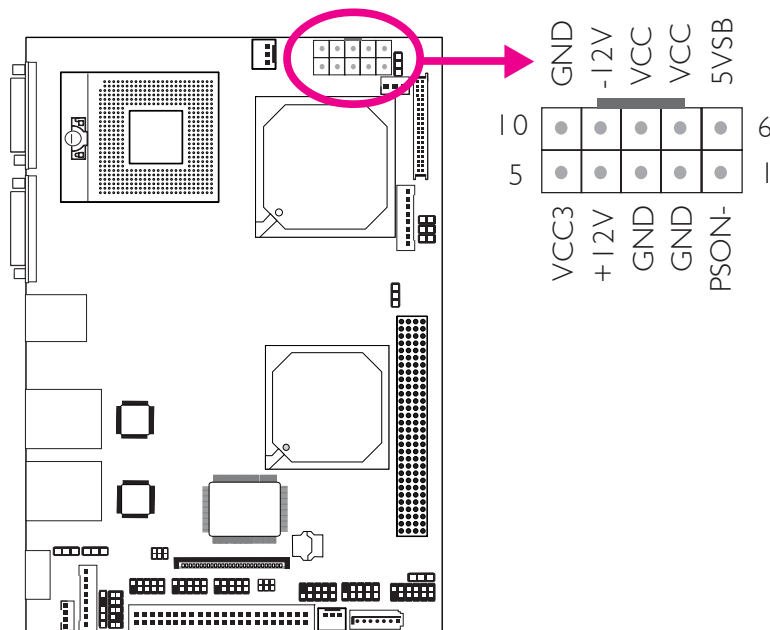


Connect the CPU fan's cable connector to the CPU fan connector on the system board. The system fan connector is used to connect an additional cooling fan. The cooling fans will provide adequate air-flow throughout the chassis to prevent overheating the CPU and system board components.

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



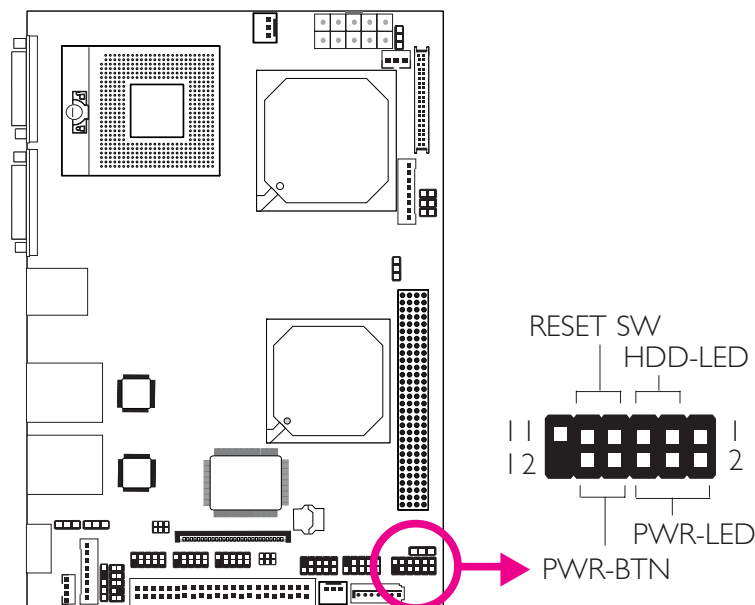
Connect a 10-pin ATX main power connector from the power supply unit to the ATX connector. The system board requires a minimum of 120 Watt power supply to operate. We recommend that you use a power supply that complies with the ATX12V Power Supply Design Guide Version 1.1.



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

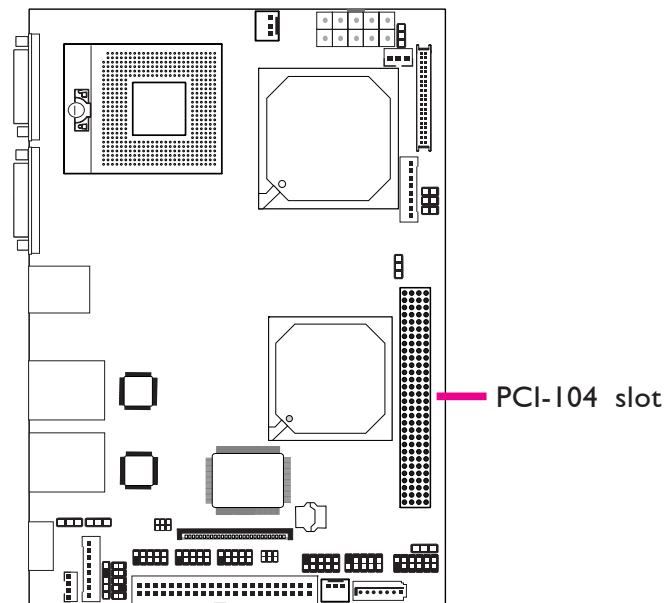
This switch is used to power on or off the system.

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.

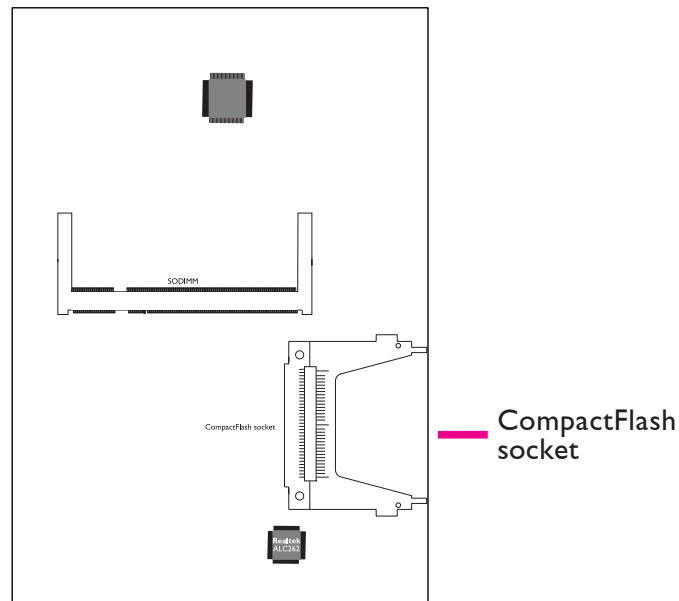
	Pin	Pin Assignment		Pin	Pin Assignment
N. C.	1	N. C.	PWR-LED	2	LED Power
				4	LED Power
				6	Signal
HDD-LED	3	HDD Power	PWR-BTN	8	3V_DUAL
	5	Signal		10	Signal
RESET SW	7	Ground			
	9	RST Signal			
N. C.	11	N. C.	Key	12	Key

PCI-I04 Slot



The PCI-I04 slot is an interface that allows connecting 4 PCI devices.

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 retain 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

Award BIOS Setup Utility

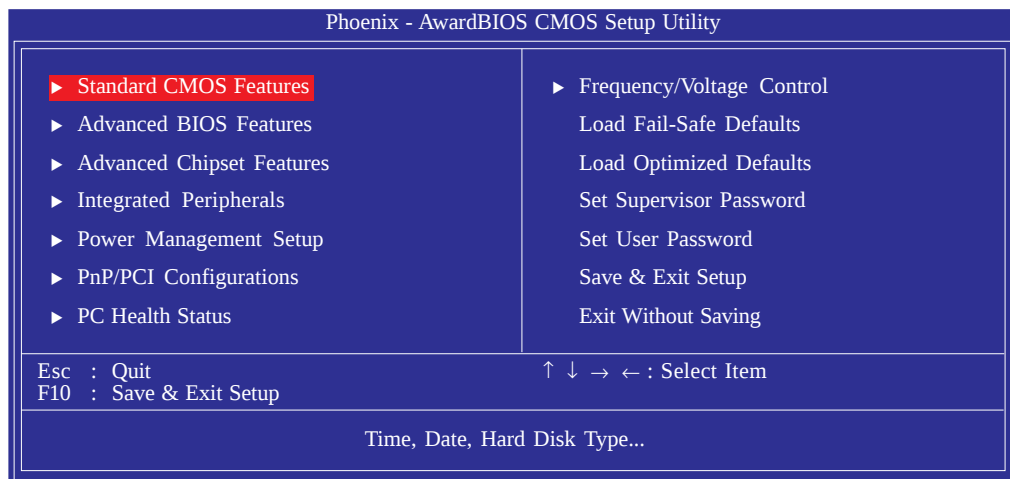
The Basic Input/Output System (BIOS) is a program that takes care of the basic level of communication between the processor and peripherals. In addition, the BIOS also contains codes for various advanced features found in this system board. This chapter explains the Setup Utility for the Award BIOS.

After you power up the system, the BIOS message appears on the screen and the memory count begins. After the memory test, the following message will appear on the screen:

Press DEL to enter setup

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 keys simultaneously.

When you press , the main menu screen will appear:



Standard CMOS Features

Use the arrow keys to highlight “Standard CMOS Features” then press <Enter>. A screen similar to the one below will appear:

Phoenix - AwardBIOS CMOS Setup Utility		
Standard CMOS Features		
Date <mm:dd:yy>	Mon, Nov 17 2008	Item Help
Time <hh:mm:ss>	9 : 3 : 54	Menu Level ▶
▶ IDE Channel 0 Master	None	Change the day, month, year and century
▶ IDE Channel 0 Slave	None	
▶ IDE Channel 2 Master	None	
▶ IDE Channel 2 Slave	None	
▶ IDE Channel 3 Master	None	
Drive A	None	
Video	EGA/VGA	
Halt On	All Errors	
Base Memory	640K	
Extended Memory	514048K	
Total Memory	515072K	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
 F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

Date

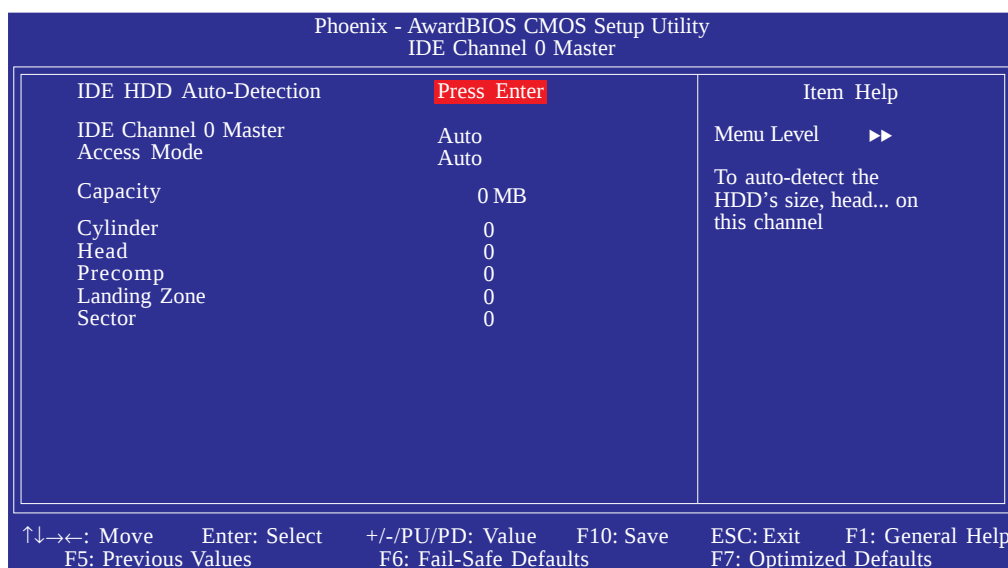
The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1999 to 2099.

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.

IDE Channel 0 Master to IDE Channel 3 Master

To configure the IDE drives, move the cursor to a field then press <Enter>. The following screen will appear:



The settings on the screen are for reference only. Your version may not be identical to this one.

IDE HDD Auto-Detection

Detects the parameters of the drive. The parameters will automatically be shown on the screen.

IDE Channel 0 Master to IDE Channel 3 Master

If you select "Auto", the BIOS will auto-detect the HDD & CD-ROM drive at the POST stage and show the IDE for the HDD & CD-ROM drive. If a hard disk has not been installed, select "None".

Access Mode

For hard drives larger than 528MB, you would typically select the LBA type. Certain operating systems require that you select CHS or Large. Please check your operating system's manual or Help desk on which one to select.

Capacity

Displays the approximate capacity of the disk drive. Usually the size is slightly greater than the size of a formatted disk given by a disk checking program.

Cylinder

This field displays the number of cylinders.

Head

This field displays the number of read/write heads.

Precomp

This field displays the number of cylinders at which to change the write timing.

Landing Zone

This field displays the number of cylinders specified as the landing zone for the read/write heads.

Sector

This field displays the number sectors per track.

Drive A

This field identifies the type of floppy disk drive installed.

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

Video

This field selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select the type. The default setting is EGA/VGA.

<i>EGA/VGA</i>	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SVGA and PGA monitor adapters.
<i>CGA 40</i>	Color Graphics Adapter. Power up in 40-column mode.
<i>CGA 80</i>	Color Graphics Adapter. Power up in 80-column mode.
<i>Mono</i>	Monochrome adapter. Includes high resolution monochrome adapters.

Halt On

This field determines whether the system will stop if an error is detected during power up. The default setting is All Errors.

<i>No Errors</i>	The system boot will not stop for any errors detected.
<i>All Errors</i>	The system boot will stop whenever the BIOS detects a non-fatal error.
<i>All, But Keyboard</i>	The system boot will not stop for a keyboard error; it will stop for all other errors.
<i>All, But Diskette</i>	The system boot will not stop for a disk error; it will stop for all other errors.
<i>All, But Disk/Key</i>	The system boot will not stop for a disk or keyboard error; it will stop for all other errors.

Base Memory

Displays the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard or 640K for systems with 640K or more memory installed on the motherboard.

Extended Memory

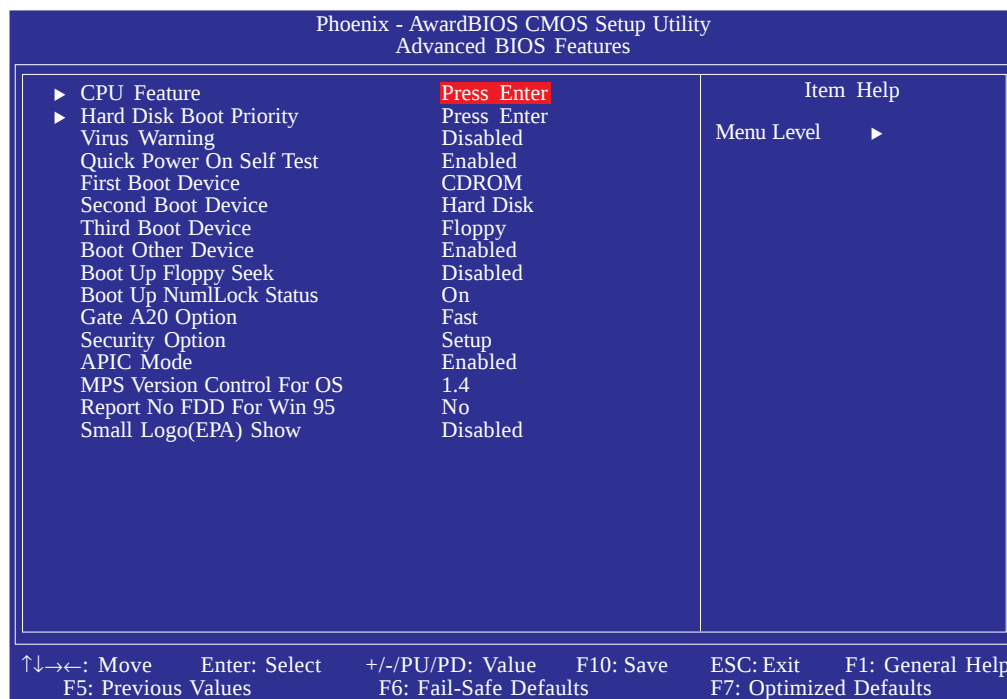
Displays the amount of extended memory detected during boot-up.

Total Memory

Displays the total memory available in the system.

Advanced BIOS Features

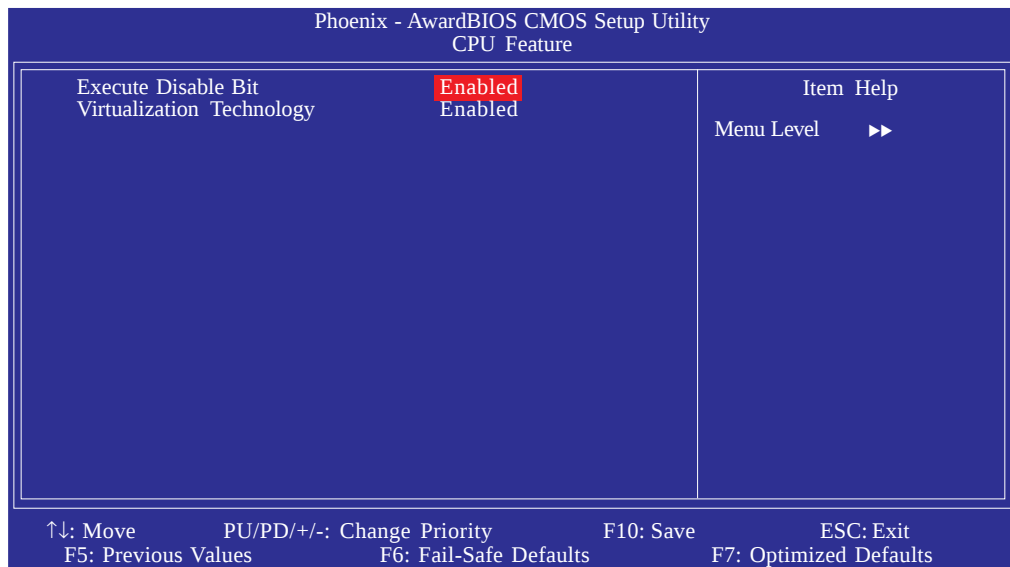
The Advanced BIOS Features allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.



The settings on the screen are for reference only. Your version may not be identical to this one.

CPU Feature

This field is used to configure the CPU that is installed on the system board. Move the cursor to this field then press <Enter>.



The settings on the screen are for reference only. Your version may not be identical to this one.

Execute Disable Bit

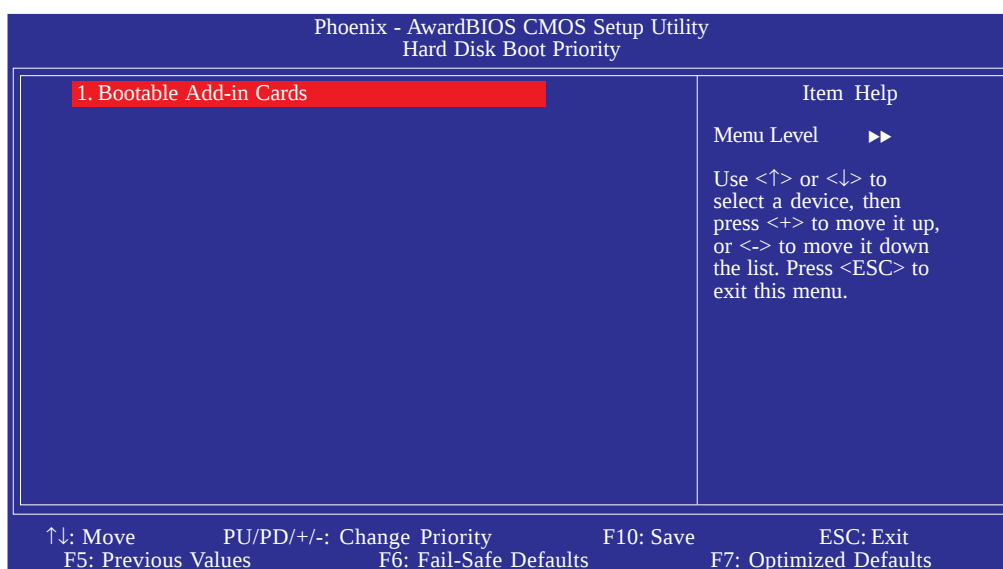
When this field is set to Disabled, it will force the XD feature flag to always return to 0.

Virtualization Technology

When this field is set to Enabled, the VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Hard Disk Boot Priority

This field is used to select the boot sequence of the hard drives. Move the cursor to this field then press <Enter>. Use the Up or Down arrow keys to select a device then press <+> to move it up or <-> to move it down the list.



The settings on the screen are for reference only. Your version may not be identical to this one.

Virus Warning

This field protects the boot sector and partition table of your hard disk drive. When this field is enabled, the Award BIOS will monitor the boot sector and partition table of the hard disk drive. If an attempt is made to write to the boot sector or partition table of the hard disk drive, the BIOS will halt the system and an error message will appear.

After seeing the error message, if necessary, you will be able to run an anti-virus program to locate and remove the problem before any damage is done. Many disk diagnostic programs which attempt to access the boot sector table will cause the warning message to appear. If you are running such a program, we recommend that you first disable this field.

Quick Power On Self Test

This field speeds up Power On Self Test (POST) after you power on the system. When Enabled, the BIOS will shorten or skip some check items during POST.

First Boot Device, Second Boot Device, Third Boot Device and Boot Other Device

Select the drive to boot first, second and third in the “First Boot Device” “Second Boot Device” and “Third Boot Device” fields respectively. The BIOS will boot the operating system according to the sequence of the drive selected. Set “Boot Other Device” to Enabled if you wish to boot from another device.

Boot Up Floppy Seek

When enabled, the BIOS will check whether the floppy disk drive installed is 40 or 80 tracks. Note that the BIOS cannot distinguish between 720K, 1.2M, 1.44M and 2.88M drive types as they are all 80 tracks. When disabled, the BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360KB.

Boot Up NumLock Status

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.

Gate A20 Option

This entry allows you to select how gate A20 is handled. Gate A20 is a device used to address memory above 1 Mbyte. Initially, gate A20 was handled via the keyboard controller. Today, while keyboards still provide this support, it is more common, and much faster, for the system chipset to provide support for gate A20.

Security Option

This field determines when the system will prompt for the password - everytime the system boots or only when you enter the BIOS setup. Set the password in the Set Supervisor/User Password submenu.

- System* The system will not boot and access to Setup will be denied unless the correct password is entered at the prompt.
- Setup* The system will boot, but access to Setup will be denied unless the correct password is entered at the prompt.

APIC Mode

Leave this field in its default setting.

MPS Version Control for OS

This field is used to select the MPS version used by the system.

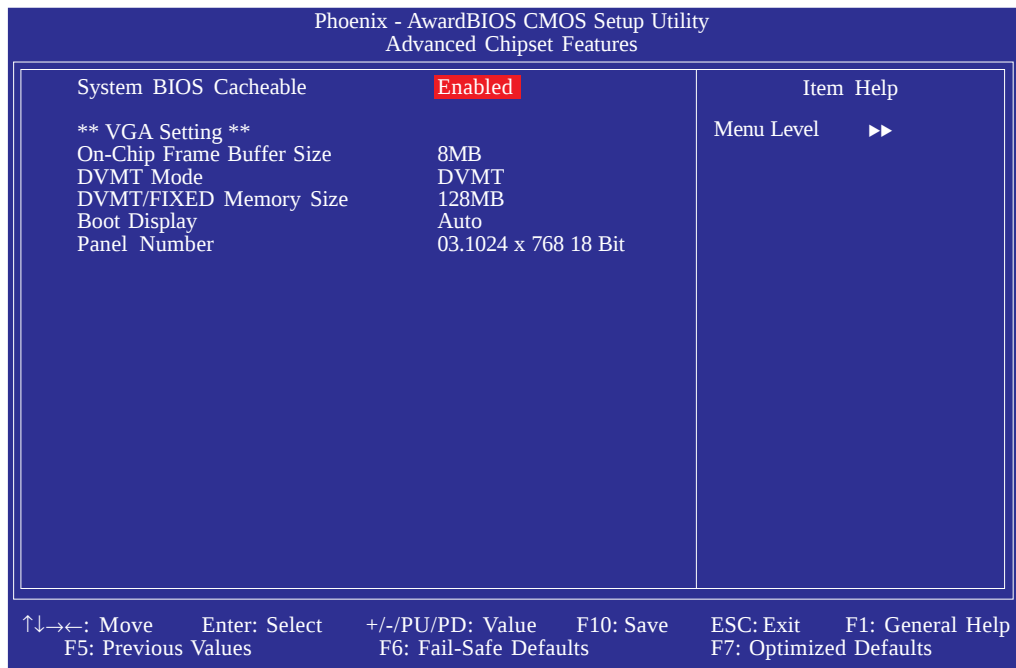
Report No FDD For WIN 95

The options are Yes and No.

Small Logo(EPA) Show

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

Advanced Chipset Features



The settings on the screen are for reference only. Your version may not be identical to this one.

This section gives you functions to configure the system based on the specific features of the chipset. The chipset manages bus speeds and access to system memory resources. **These items should not be altered unless necessary.** The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered some incompatibility or that data was being lost while using your system.

System BIOS Cacheable

When this field is enabled, accesses to the system BIOS ROM addressed at F0000H-FFFFFH are cached, provided that the cache controller is enabled. The larger the range of the Cache RAM, the higher the efficiency of the system.

On-Chip Frame Buffer Size

This field is used to select the onboard VGA's frame buffer size that is shared from the system memory.

DVMT Mode

The options are Fixed and DVMT.

DVMT/Fixed Memory Size

This field is used to select the graphics memory size used by DVMT/Fixed mode.

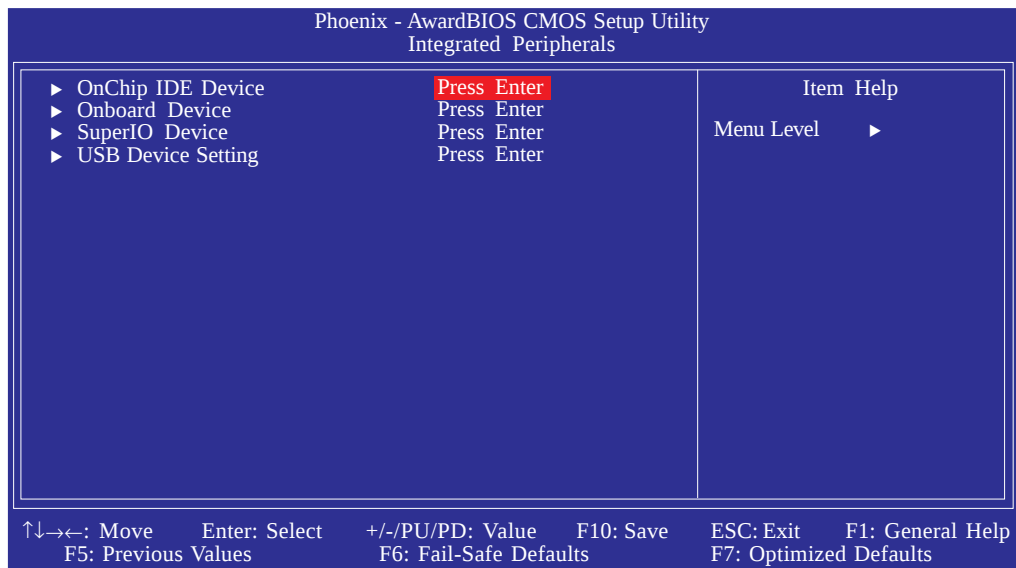
Boot Display

This field is used to select the type of display to use when the system boots.

Panel Number

This field is used to select the type of panel that you are using.

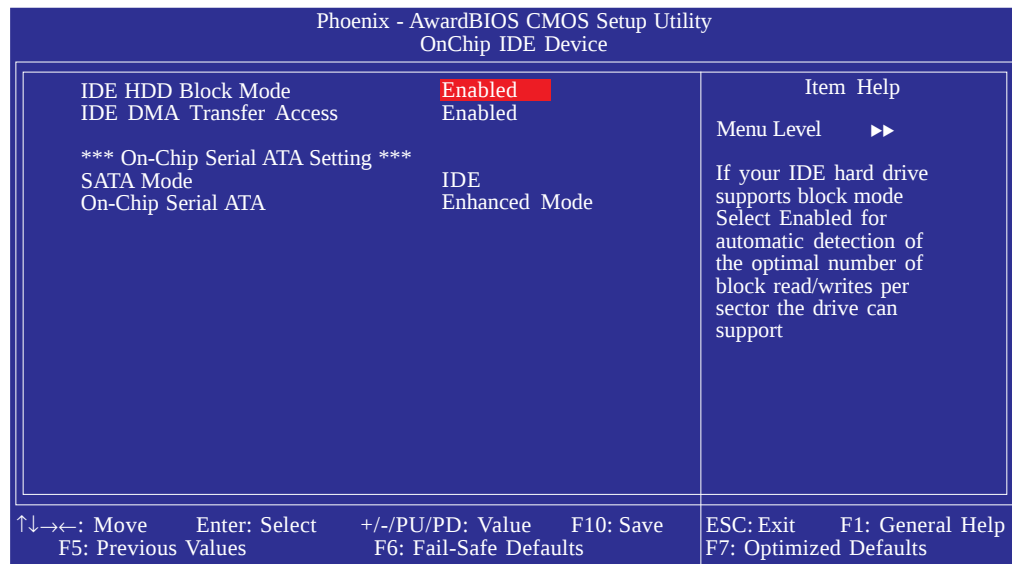
Integrated Peripherals



The settings on the screen are for reference only. Your version may not be identical to this one.

OnChip IDE Device

Move the cursor to this field and press <Enter>. The following screen will appear:



The settings on the screen are for reference only. Your version may not be identical to this one.

IDE HDD Block Mode

Enabled The IDE HDD uses the block mode. The system BIOS will check the hard disk drive for the maximum block size the system can transfer. The block size will depend on the type of hard disk drive.

Disabled The IDE HDD uses the standard mode.

IDE DMA Transfer Access

This field is used to enable or disable the DMA transfer function of an IDE hard drive.

SATA Mode

IDE This option configures the Serial ATA drives in IDE mode.

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

On-Chip Serial ATA

Disabled Disables the onboard SATA.

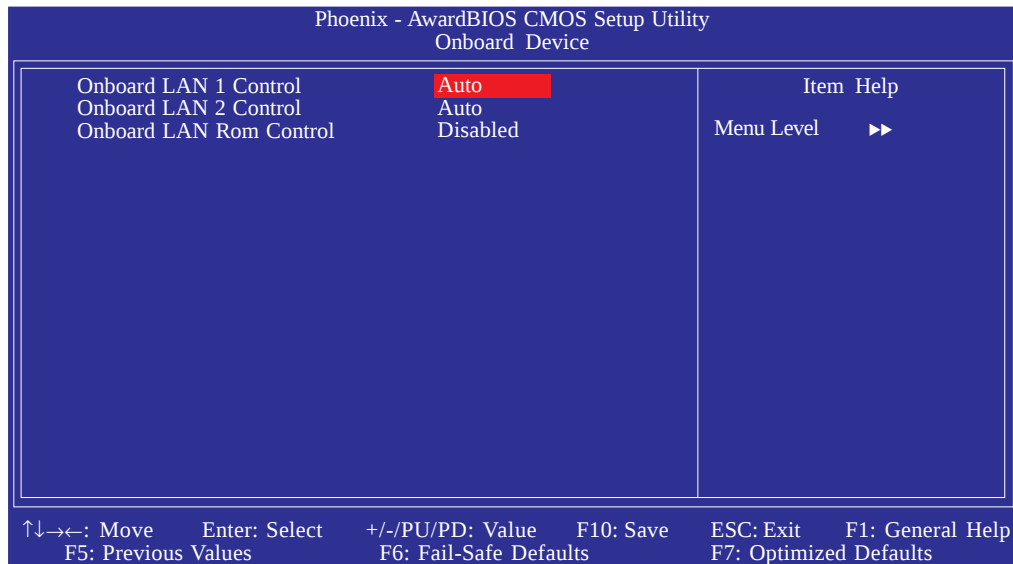
Combined Mode This option allows you to use both PATA and SATA drives; allowing a maximum of 2 IDE drives in each channel.

Enhanced Mode This option allows you to use both PATA and SATA drives; allowing a maximum of 5 IDE drives.

SATA Only SATA is operating in legacy mode.

Onboard Device

Move the cursor to this field and press <Enter>. The following screen will appear:



The settings on the screen are for reference only. Your version may not be identical to this one.

Onboard LAN 1 Control and Onboard LAN 2 Control

These fields are used to enable or disable the onboard LAN chips.

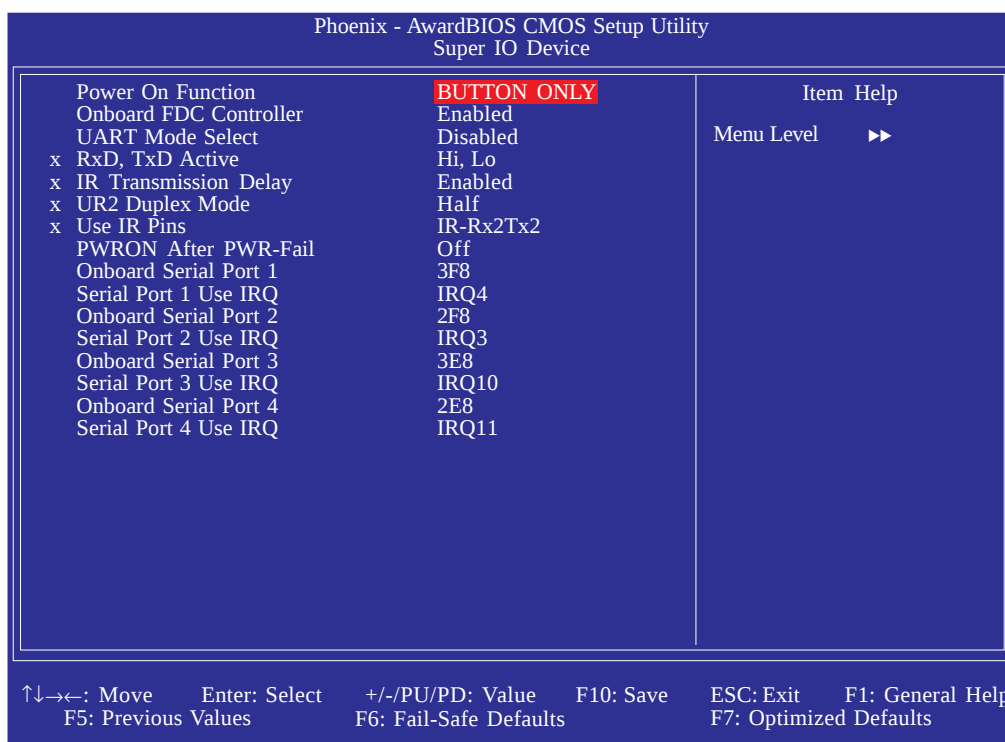
Onboard LAN Rom Control

Enable this field if you wish to use the boot ROM (instead of a disk drive) to boot-up the system and access the local area network directly.

If you wish to change the boot ROM's settings, type the <Shift> and <F10> keys simultaneously when prompted during boot-up. Take note: you will be able to access the boot ROM's program (by typing <Shift> + <F10>) only when this field is enabled.

Super IO Device

Move the cursor to this field and press <Enter>. The following screen will appear:



The settings on the screen are for reference only. Your version may not be identical to this one.

Power On Function

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

- Button only* Default setting. Uses the power button to power on the system.
- Password* When this option is selected, set the password you would like to use to power-on the system in the "KB Power On Password" field.
- Hot Key* When this option is selected, select the function key you would like to use to power-on the system in the "Hot Key Power On" field.
- Mouse Left* When this option is selected, double-click the left button of the mouse to power-on the system.
- Mouse Right* When this option is selected, double-click the right button of the mouse to power-on the system.

- Any Key* Press any key to power-on the system.
- Keyboard 98* When this option is selected, press the “wake up” key of the Windows® 98 compatible keyboard to power-on the system.

Onboard FDC Controller

- Enabled* Enables the onboard floppy disk controller.
- Disabled* Disables the onboard floppy disk controller.

UART Mode Select

This field is used to select the type of IrDA standard supported by your IrDA device. For better transmission of data, your IrDA peripheral device must be within a 30o angle and within a distance of 1 meter.

RxD, TxD Active

The options are Hi, Lo; Lo, Hi; Lo, Lo; and Hi, Hi.

IR Transmission Delay

If this field is Enabled, transmission of data will be slower. This is recommended when you encounter transmission problem with your device. The options are: Enabled and Disabled.

UR2 Duplex Mode

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

Use IR Pins

The options are IR-Rx2Tx2 and RxD2TxD2.

PWRON After PWR-Fail

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

Onboard Serial Port I/2/3/4

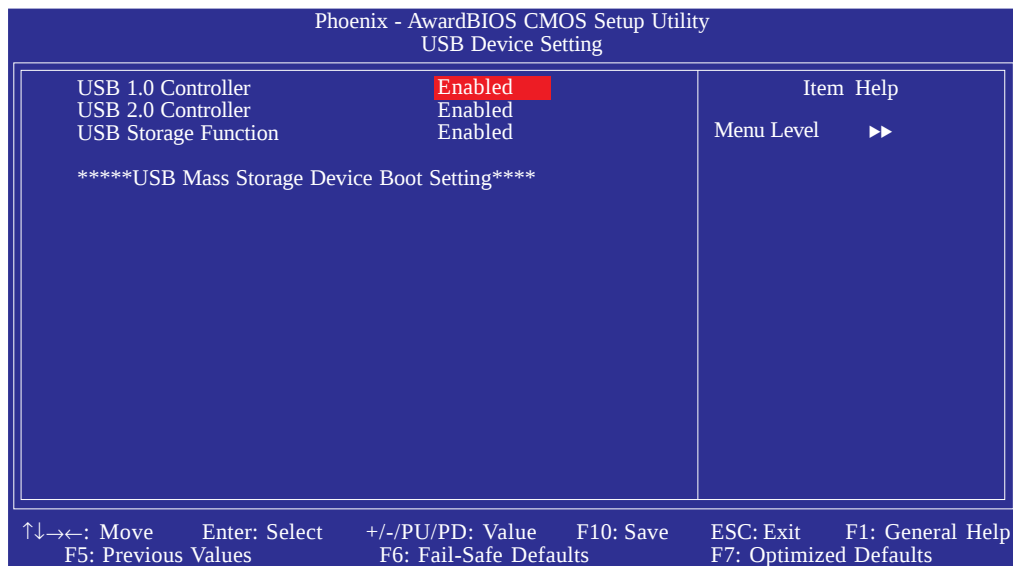
- Auto* The system will automatically select an I/O address for the serial port.
- 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3* Allows you to manually select an I/O address for the serial port.
- Disabled* Disables the serial port.

Serial Port 1 Use IRQ, Serial Port 2 Use IRQ, Serial Port 3 Use IRQ and Serial Port 4 Use IRQ

These fields are used to select an IRQ for the onboard serial port 1, 2, 3 or 4.

USB Device Setting

Move the cursor to this field and press <Enter>. The following screen will appear:



The settings on the screen are for reference only. Your version may not be identical to this one.

USB 1.0 Controller

This field is used to enable or disable the Universal Host Controller Interface (USB 1.0).

USB 2.0 Controller

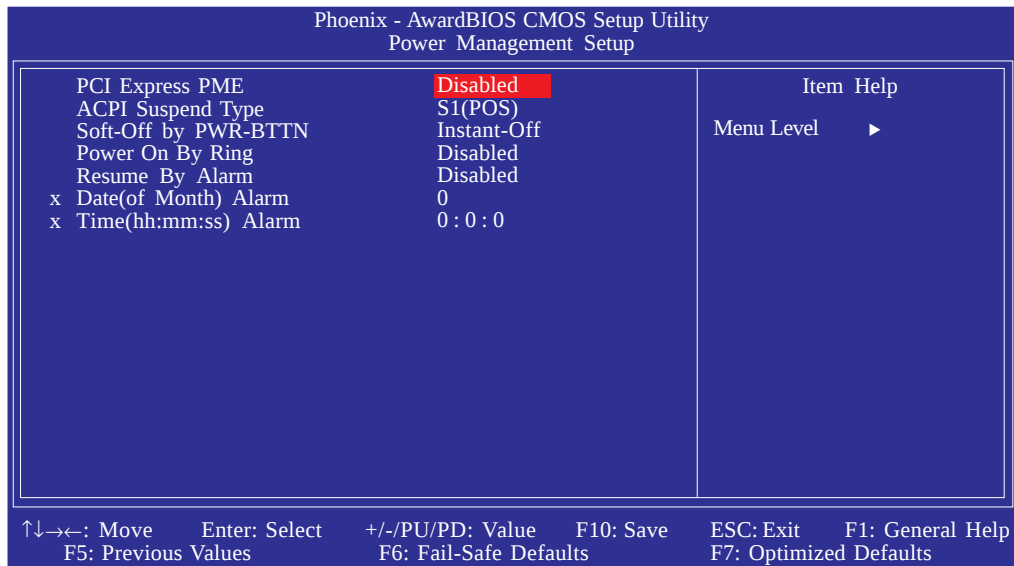
This field is used to enable or disable the Enhanced Host Controller Interface (USB 2.0).

USB Storage Function

This field is used to enable or disable the support for legacy USB mass storage.

Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy.



The settings on the screen are for reference only. Your version may not be identical to this one.

PCI Express PME

This field is used to configure the PCI Express PME..

ACPI Suspend Type

This field is used to select the type of Suspend mode.

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

Soft-Off by PWR-BTTN

This field allows you to select the method of powering off your system.

Delay 4 Sec. Regardless of whether the Power Management function is enabled or disabled, if the power button is pushed and released in less than 4 sec, the system enters the Suspend mode. The purpose of this function is to prevent the system from powering off in case you accidentally “hit” or pushed the power button. Push and release again in less than 4 sec to restore. Pushing the power button for more than 4 seconds will power off the system.

Instant-Off Pressing and then releasing the power button at once will immediately power off your system.

Power On By Ring

When this field is set to Enabled, the system will power-on to respond to calls coming from a modem.

Resume By Alarm

Enabled When Enabled, you can set the date and time you would like the Soft Power Down (Soft-Off) PC to power-on in the “Date (of Month) Alarm” and “Time (hh:mm:ss) Alarm” fields. However, if the system is being accessed by incoming calls or the network (Resume On Ring/LAN) prior to the date and time set in these fields, the system will give priority to the incoming calls or network.

Disabled Disables the automatic power-on function. (default)

Date (of Month) Alarm

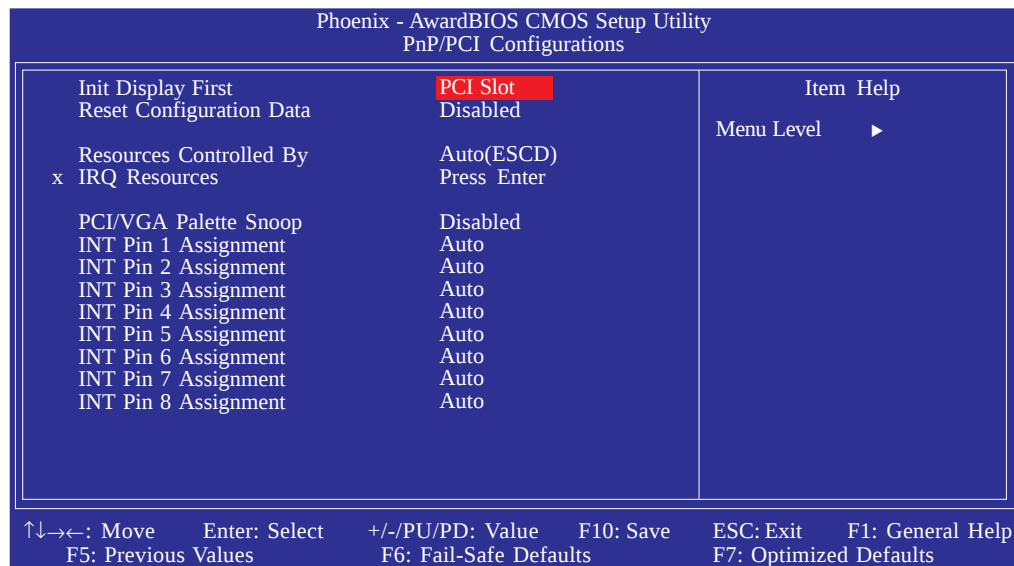
- | | |
|------|---|
| 0 | The system will power-on everyday according to the time set in the "Time (hh:mm:ss) Alarm" field. |
| 1-31 | Select a date you would like the system to power-on. The system will power-on on the set date, and time set in the "Time (hh:mm:ss) Alarm" field. |

Time (hh:mm:ss) Alarm

This is used to set the time you would like the system to power-on. If you want the system to power-on everyday as set in the "Date (of Month) Alarm" field, the time set in this field must be later than the time of the RTC set in the Standard CMOS Features submenu.

PnP/PCI Configurations

This section shows how to configure the PCI bus system. It covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.



The settings on the screen are for reference only. Your version may not be identical to this one.

Init Display First

Onboard When the system boots, it will first initialize the onboard VGA.

PCI Slot When the system boots, it will first initialize PCI.

Reset Configuration Data

Enabled The BIOS will reset the Extended System Configuration Data (ESCD) once automatically. It will then recreate a new set of configuration data.

Disabled The BIOS will not reset the configuration data.

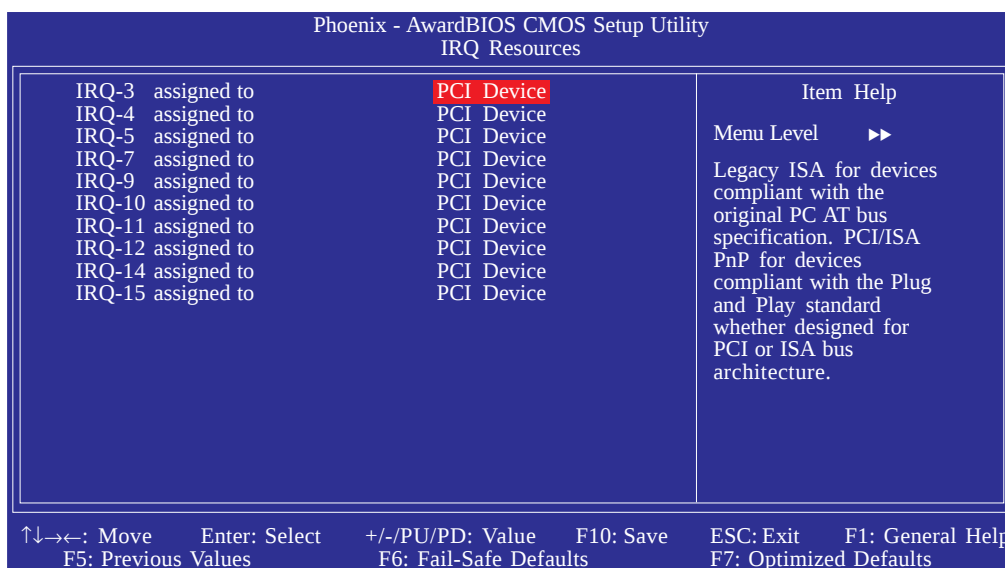
Resources Controlled By

The Award Plug and Play BIOS has the capability to automatically configure all of the boot and Plug and Play compatible devices.

- Auto(ESCD)* The system will automatically detect the settings for you.
- Manual* Choose the specific IRQ in the “IRQ Resources” field.

IRQ Resources

Move the cursor to this field and press <Enter>. This field is used to set each system interrupt to either Reserved or PCI Device.



The settings on the screen are for reference only. Your version may not be identical to this one.

PCI/VGA Palette Snoop

This field determines whether the MPEG ISA/VESA VGA cards can work with PCI/VGA or not. The default value is Disabled.

- Enabled* MPEG ISA/VESA VGA cards work with PCI/VGA.
- Disabled* MPEG ISA/VESA VGA cards does not work with PCI/VGA.

INT Pin 1 Assignment to INT Pin 8 Assignment

By default, a device is automatically assigned to each INT. You can also manually assign an INT for each device.

PC Health Status

Phoenix - AwardBIOS CMOS Setup Utility			Item	Help
PC Health Status				
Current System Temp	45°C/113°F		Menu Level	►
Current CPU1 Temperature	54°C/129°F			
System Fan	0 RPM			
CPU Fan	6683 RPM			
Vcore	1.09V			
+12V	12.34V			
+5V	5.31V			
+3.3V	3.23V			
VBAT (V)	3.18V			
5VSB (V)	5.26V			

The settings on the screen are for reference only. Your version may not be identical to this one.

Current System Temp to 5VSB (V)

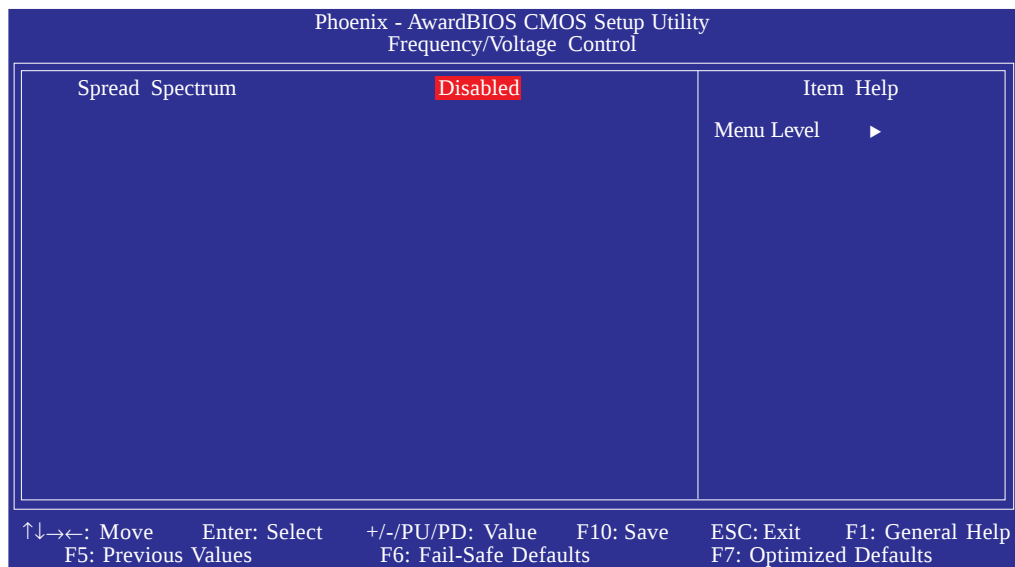
These fields will show the temperature, fan speed and output voltage of the monitored devices or components.



Note:

The onboard hardware monitor function is capable of detecting “system health” conditions but if you want a warning message to pop-up or a warning alarm to sound when an abnormal condition occurs, you must install the Hardware Monitor for Windows utility. This utility is included in the CD that came with the system board. Refer to the Hardware Monitor for Windows section in chapter 4 for more information.

Frequency/Voltage Control



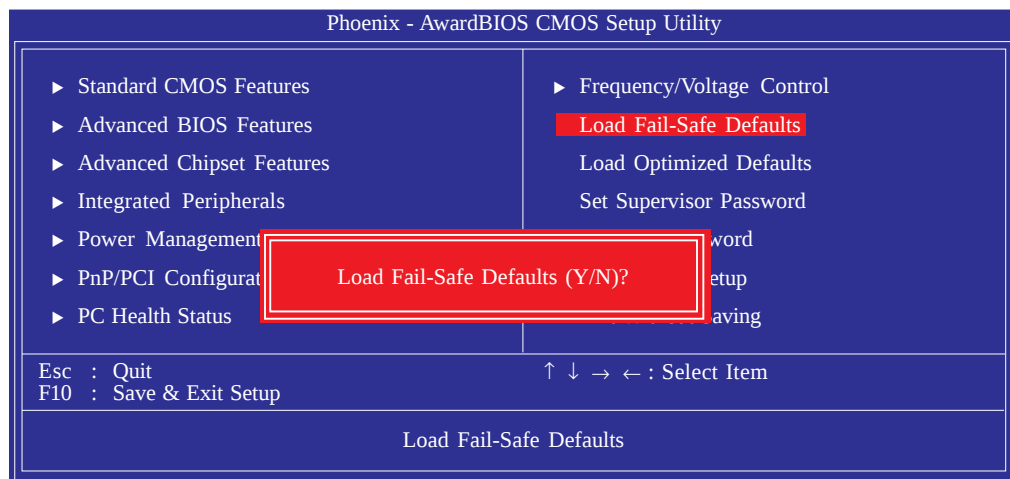
The settings on the screen are for reference only. Your version may not be identical to this one.

Spread Spectrum

Leave this field in its default setting. Do not alter this setting unless advised by an engineer or technician.

Load Fail-Safe Defaults

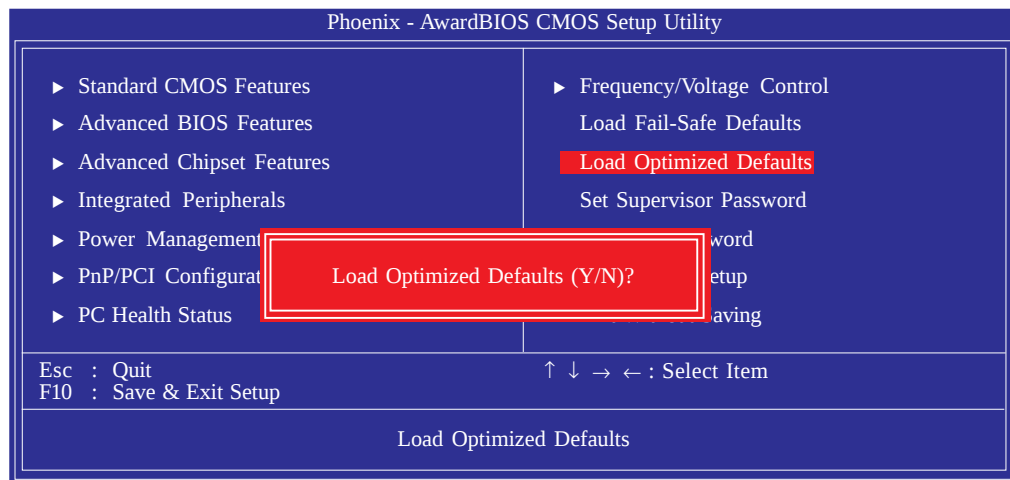
The “Load Fail-Safe Defaults” option loads the troubleshooting default values permanently stored in the ROM chips. These settings are not optimal and turn off all high performance features. You should use these values only if you have hardware problems. Highlight this option in the main menu and press <Enter>.



If you want to proceed, type <Y> and press <Enter>. The default settings will be loaded.

Load Optimized Defaults

The “Load Optimized Defaults” option loads optimized settings from the BIOS ROM. Use the default values as standard values for your system. Highlight this option in the main menu and press <Enter>.

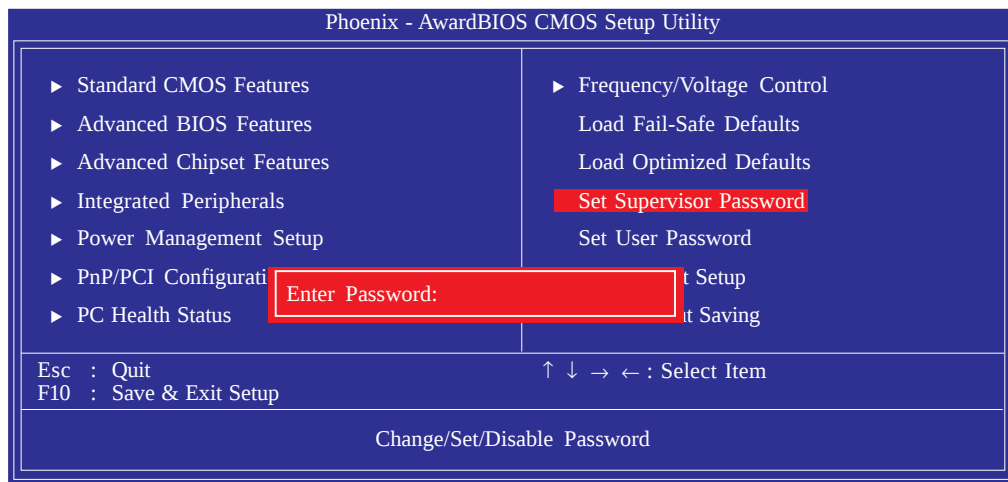


Type <Y> and press <Enter> to load the Setup default values.

Set Supervisor Password

If you want to protect your system and setup from unauthorized entry, set a supervisor's password with the "System" option selected in the Advanced BIOS Features. If you want to protect access to setup only, but not your system, set a supervisor's password with the "Setup" option selected in the Advanced BIOS Features. You will not be prompted for a password when you cold boot the system.

Use the arrow keys to highlight "Set Supervisor Password" and press <Enter>.



Type in the password. You are limited to eight characters. When done, the message below will appear:

Confirm Password:

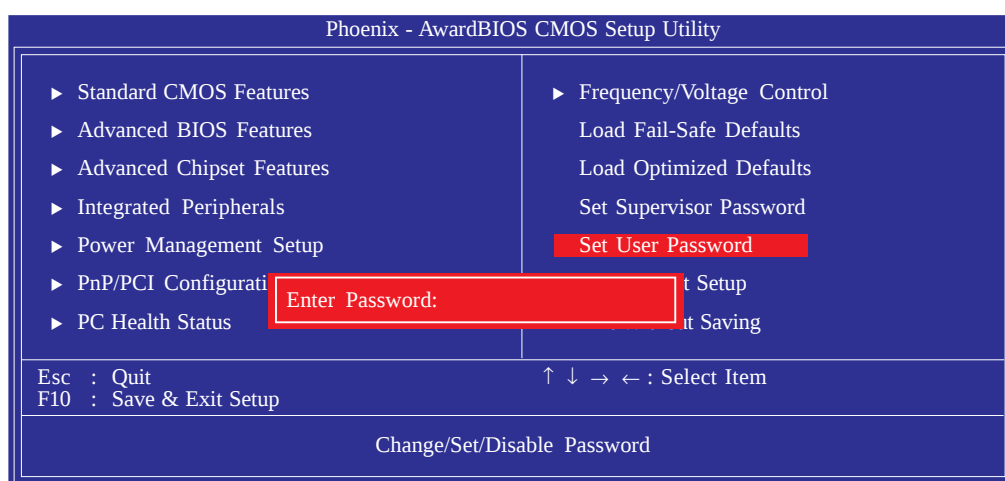
You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set Supervisor Password" and press <Enter>, instead of typing in a new password. Press the <Esc> key to return to the main menu.

Set User Password

If you want another user to have access only to your system but not to setup, set a user's password with the "System" option selected in the Advanced BIOS Features. If you want a user to enter a password when trying to access setup, set a user's password with the "Setup" option selected in the Advanced BIOS Features.

Using user's password to enter Setup allows a user to access only "Set User Password" that appears in the main menu screen. Access to all other options is denied.

Use the arrow keys to highlight "Set User Password" and press <Enter>.



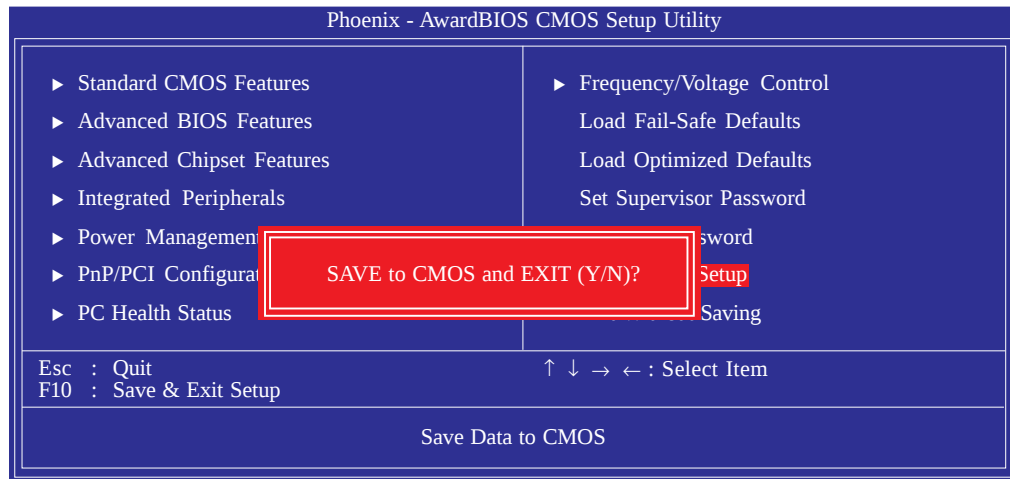
Type in the password. You are limited to eight characters. When done, the message below will appear:

Confirm Password:

You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set User Password" and press <Enter>, instead of typing in a new password. Press the <Esc> key to return to the main menu.

Save & Exit Setup

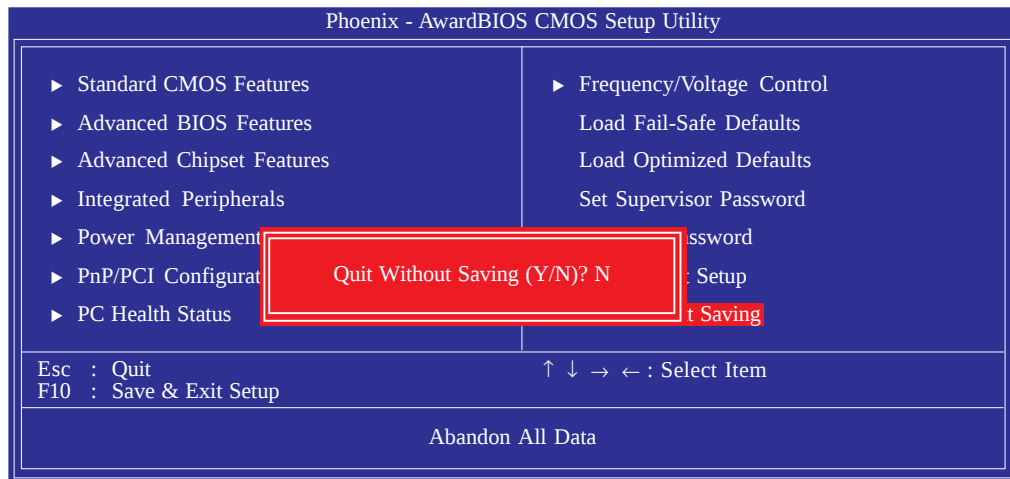
When all the changes have been made, highlight “Save & Exit Setup” and press <Enter>.



Type “Y” and press <Enter>. The modifications you have made will be written into the CMOS memory, and the system will reboot. You will once again see the initial diagnostics on the screen. If you wish to make additional changes to the setup, press <Ctrl> <Alt> simultaneously after memory testing is done.

Exit Without Saving

When you do not want to save the changes you have made, highlight “Exit Without Saving” and press <Enter>.



Type “Y” and press <Enter>. The system will reboot and you will once again see the initial diagnostics on the screen. If you wish to make any changes to the setup, press <Ctrl> <Alt> simultaneously after memory testing is done.

Updating the BIOS

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

1. Save the new BIOS file along with the flash utility AWDFLASH.EXE to a floppy disk.
2. Reboot the system and enter the Award BIOS Setup Utility to set the first boot drive to "Floppy".
3. Save the setting and reboot the system.
4. After the system booted from the floppy disk, execute the flash utility by typing AWDFLASH.EXE. The following screen will appear:

Award BIOS Flash Utility V8.15B (C) Phoenix Technologies Ltd. All Rights Reserved.
(The current BIOS information will appear in this area.) File Name to Program :

5. Type the new BIOS file name onto the gray area that is next to "File Name to Program" then press <Enter>.

6. The following will appear:

Do You Want to Save BIOS (Y/N)

This question refers to the current existing BIOS in your system. We recommend that you save the current BIOS and its flash utility; just in case you need to reinstall the BIOS. To save the current BIOS, press <Y> then enter the file name of the current BIOS. Otherwise, press <N>.

7. The following will then appear:

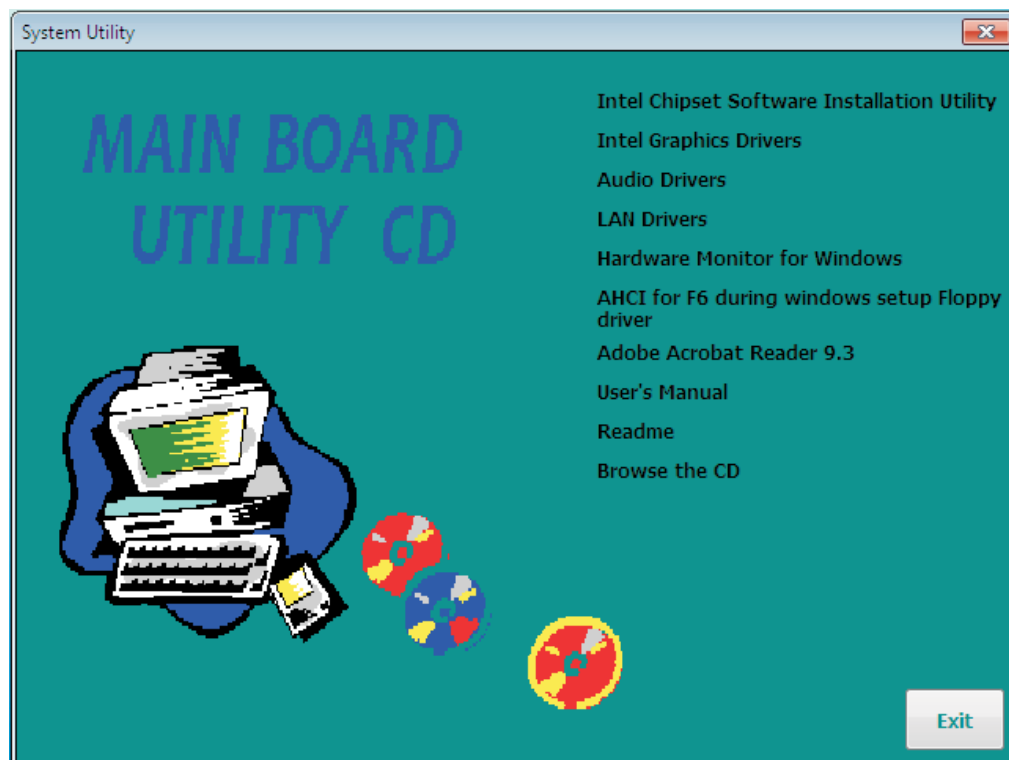
Press "Y" to Program or "N" to Exit

8. Press <Y> to flash the new BIOS.

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".



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.



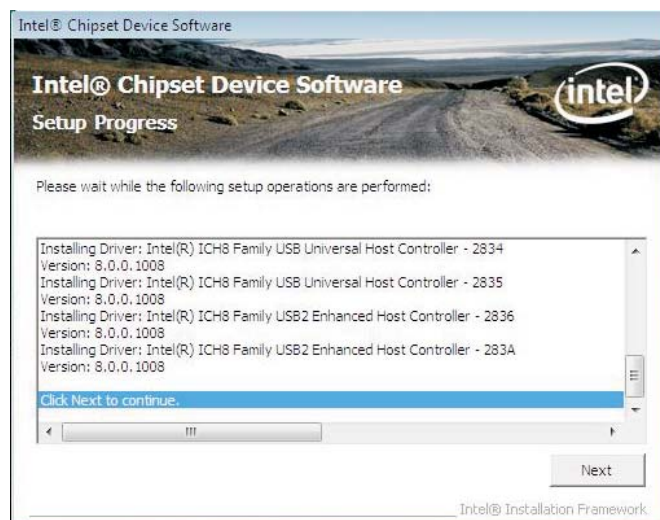
2. Read the license agreement then click Yes.



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.



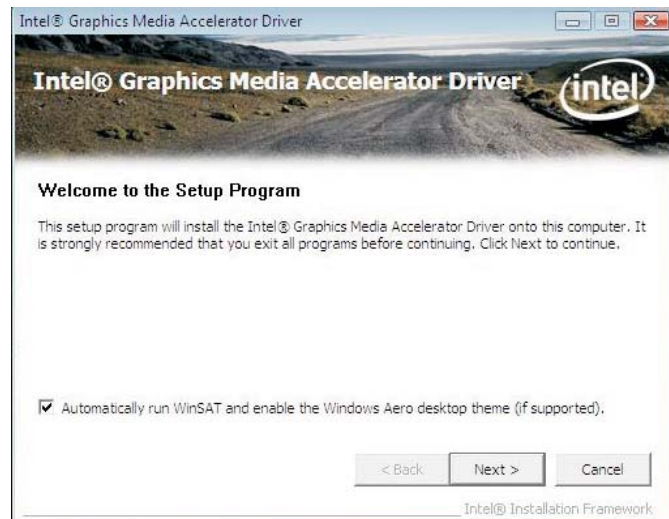
5. After completing installation, click Finish to exit setup.



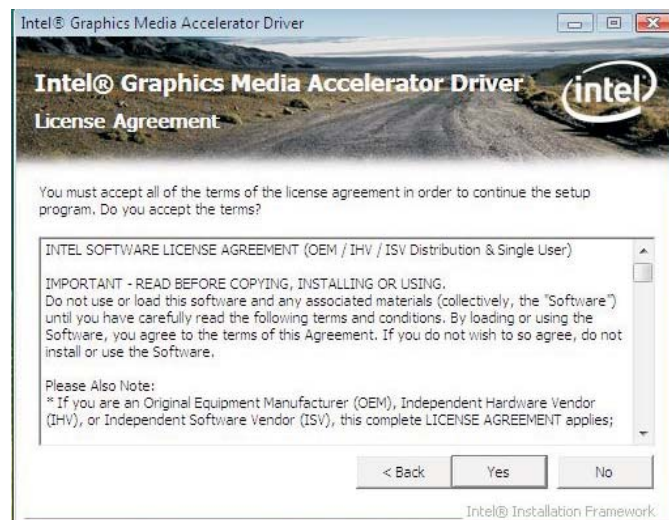
Intel Graphics Drivers

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

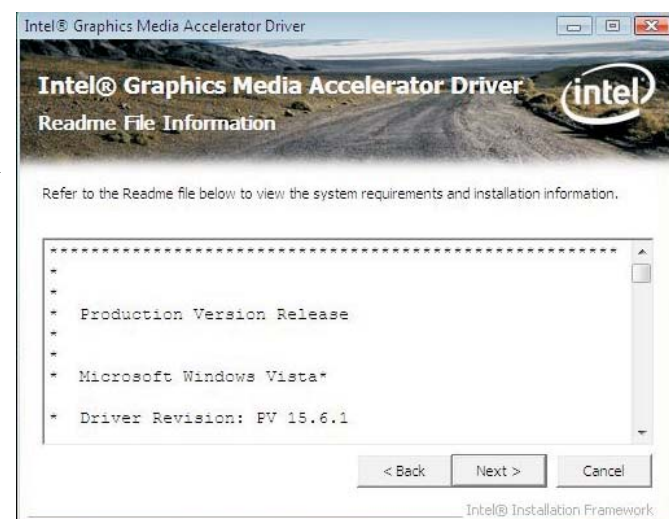
1. Setup is now ready to install the graphics driver. Click Next.



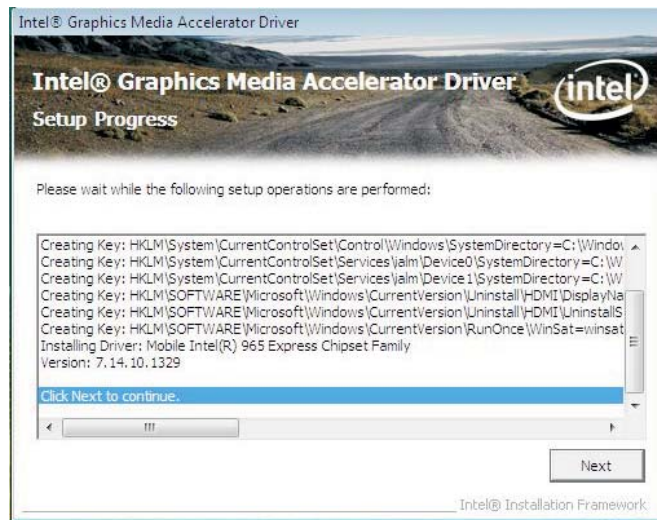
2. Read the license agreement then click Yes.



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.



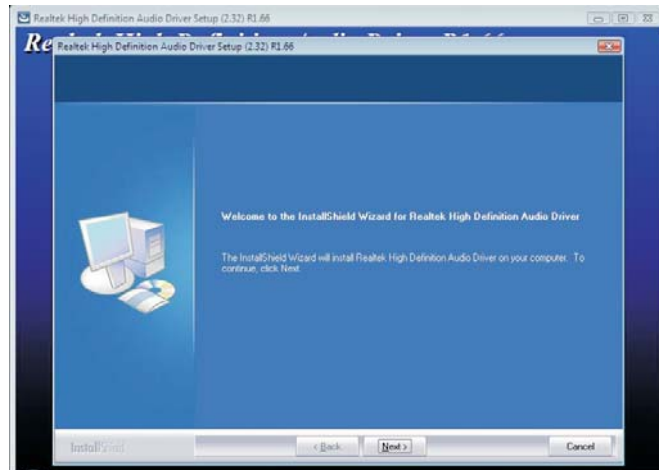
Note:

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.

Audio Drivers

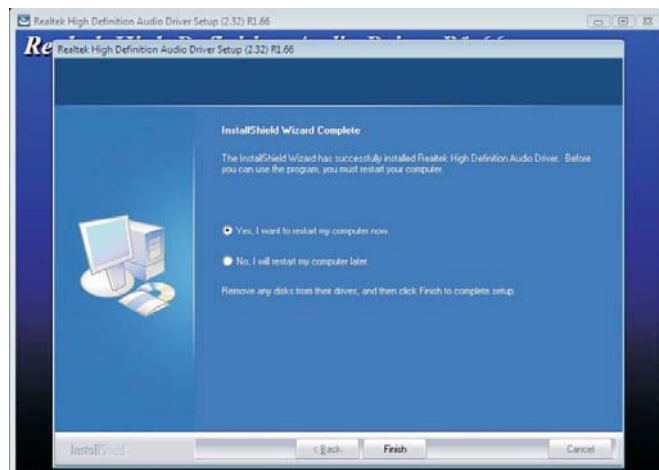
To install the driver, click “Audio Drivers” on the main menu.

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.

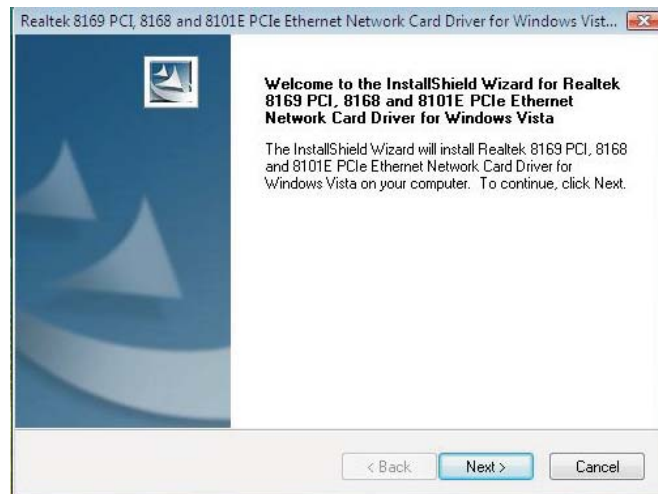
Restarting the system will allow the new software installation to take effect.



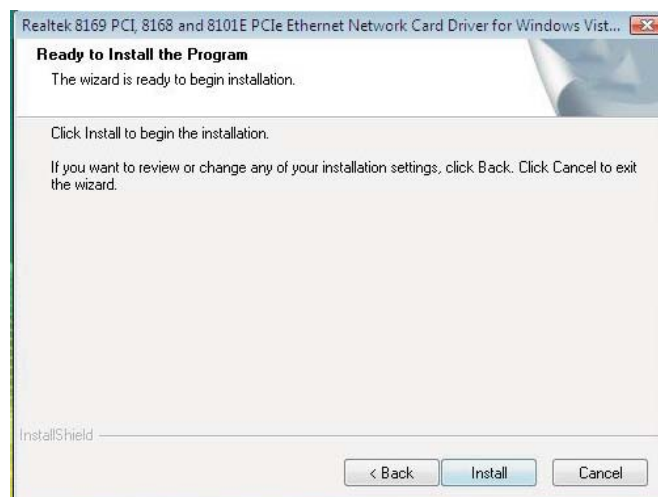
LAN Drivers

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

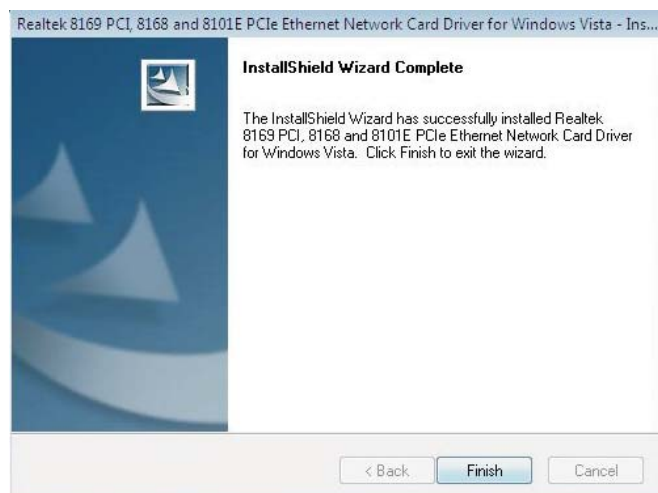
1. Setup is now ready to install the driver. Click Next.



2. Click Install to begin installation.



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

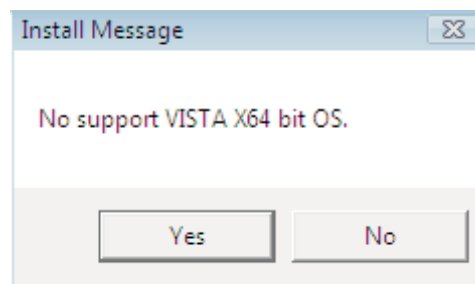


Hardware Monitor for Windows

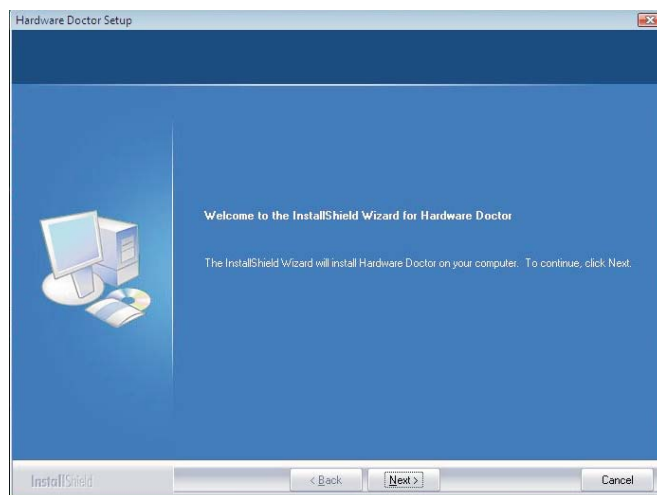
The Hardware Monitor for Windows utility is capable of monitoring the system's temperature, fan speed, voltage, etc. and allows you to manually set a range (Highest and Lowest Limit) to the items being monitored. If the settings/values are over or under the set range, a warning message will pop-up. The 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.

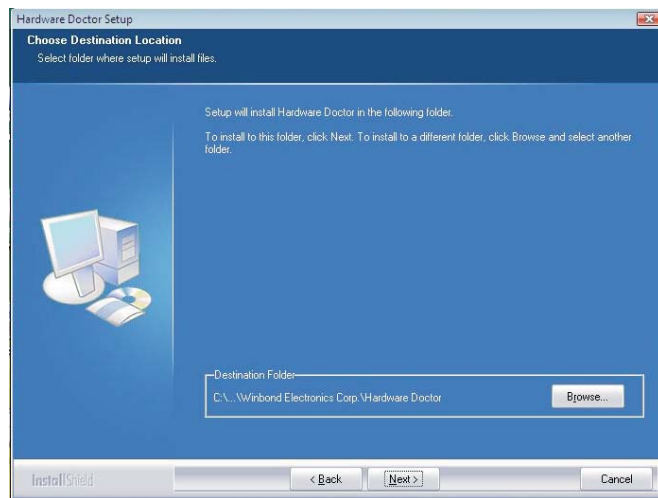
1. Click Yes to continue.



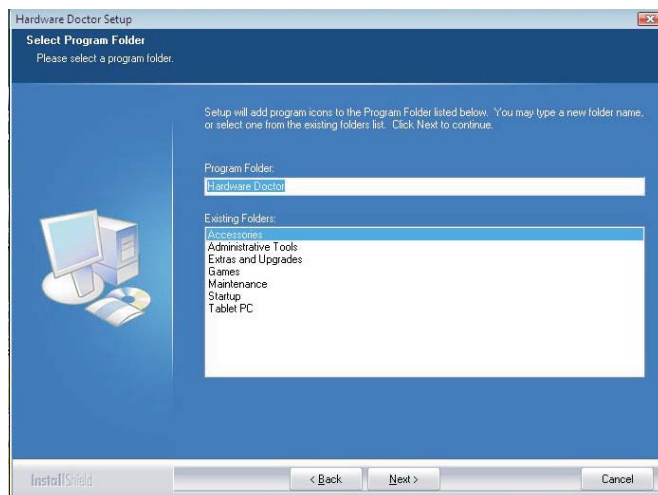
2. Setup is now ready to install the utility. Click Next.



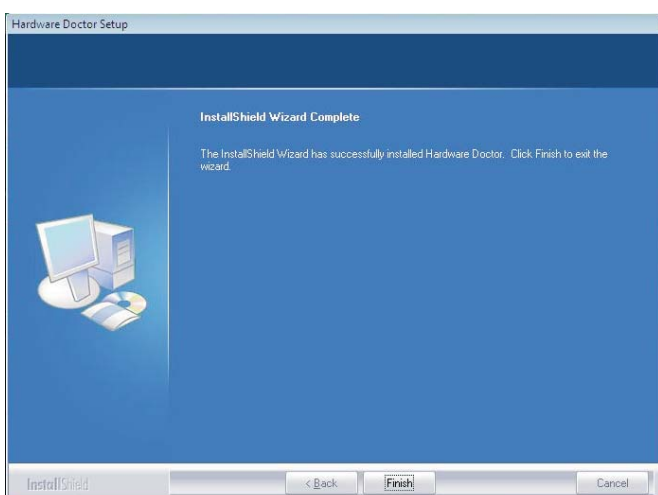
- Click Next to install or click Browse to select another folder.



- Click Next to add the program icon to the Program Folder.



- After completing installation, click Finish to exit setup.

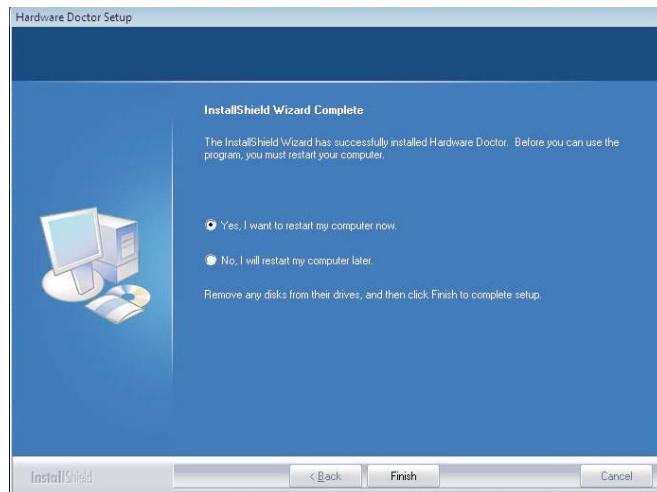


6. Click Yes if you want to create a Hardware Doctor shortcut at your desktop.



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

Restarting the system will allow the utility to take effect.

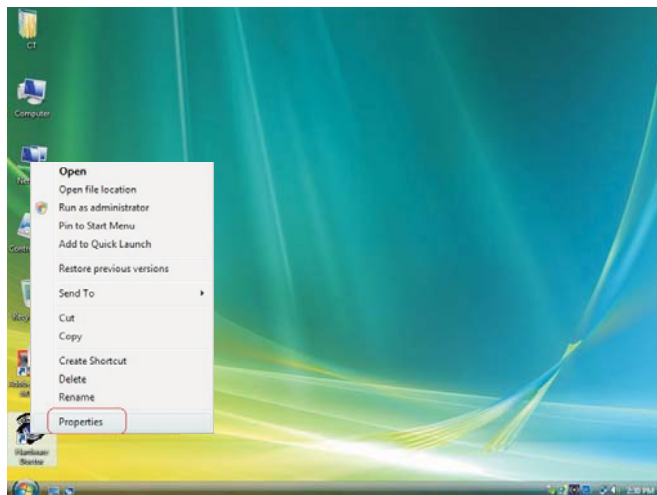


Using the Hardware Monitor for Windows Utility

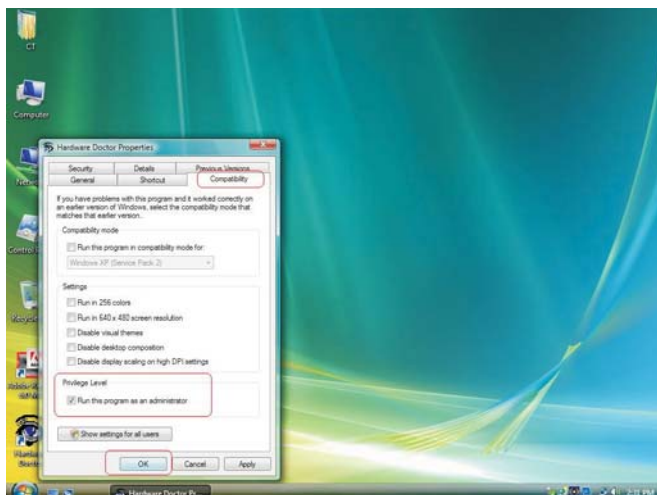
1. When you try to run the utility, which is usually done by double-clicking the Hardware Doctor shortcut, an error message will appear.



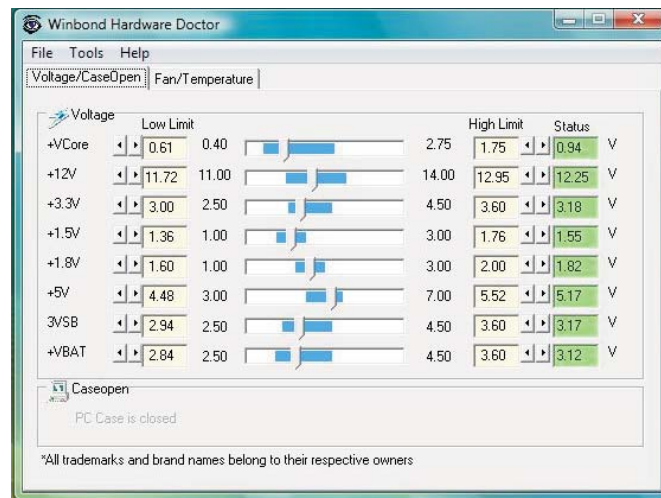
2. To solve this problem, right-click the Hardware Doctor shortcut, then select Properties.



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.

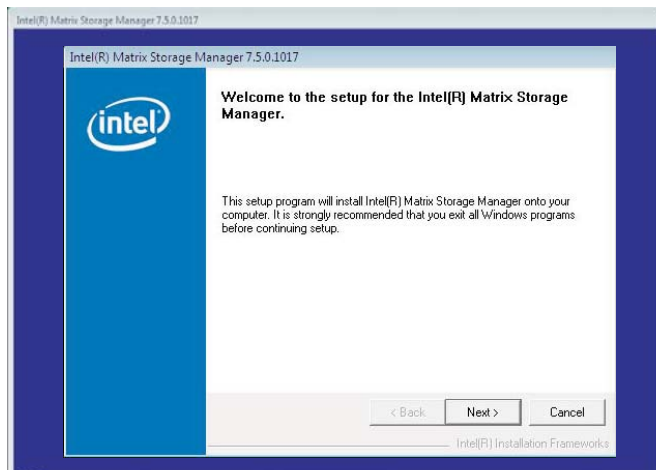


Note:

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.

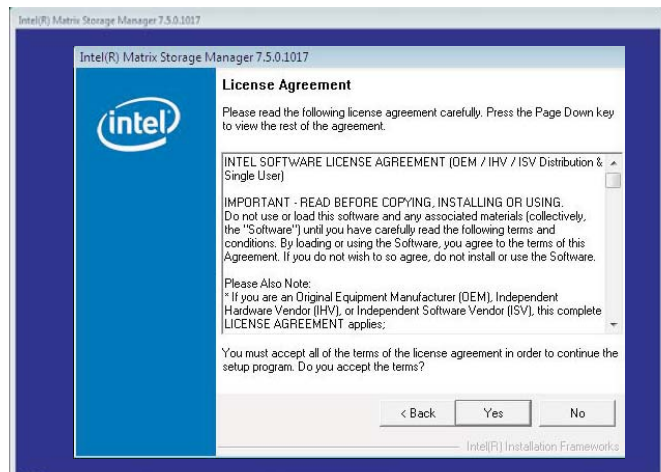
1. Setup is now ready to install the utility. Click Next.



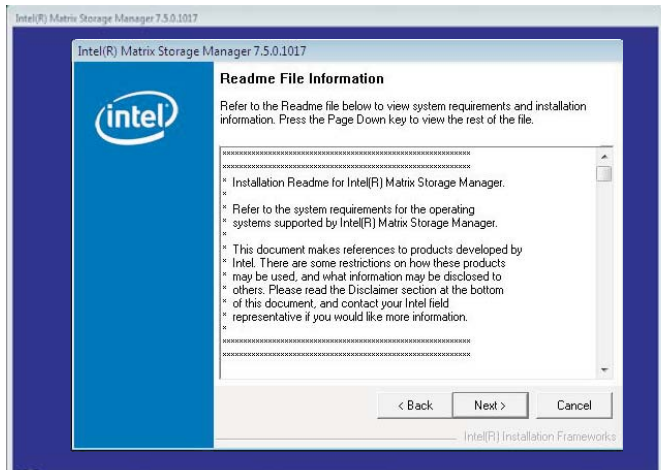
2. Read the Warning information carefully then click Next to begin installation.



- Read the license agreement then click Yes.

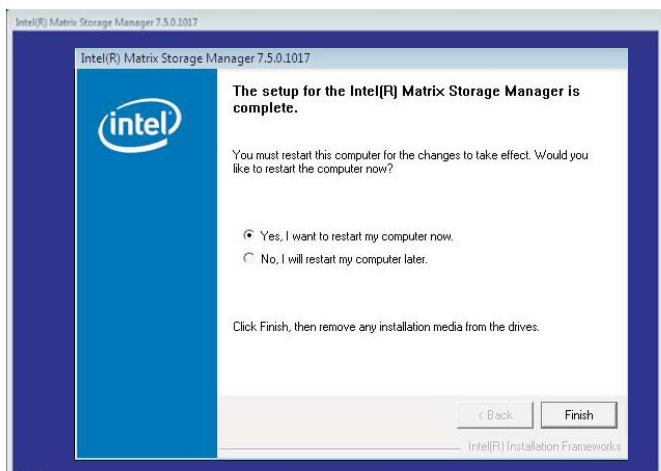


- Go through the readme document for system requirements and installation tips then click Next.



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

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

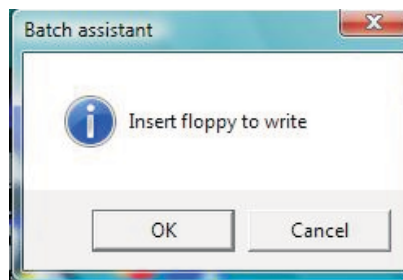


AHCI for F6 During Windows Setup Floppy Driver

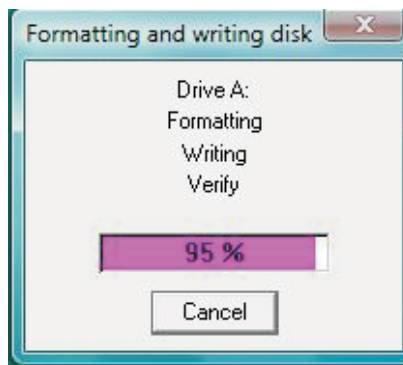
This is used to create a floppy driver diskette needed when you install Windows® XP using the F6 installation method. This will allow you to install the operating system onto a hard drive when in AHCI mode.

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

1. Insert a blank floppy diskette then click OK.



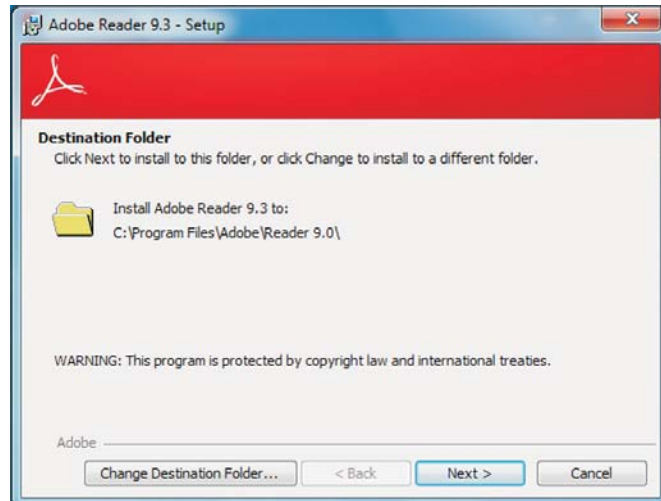
2. The system is currently formatting and writing the necessary driver files into the diskette.



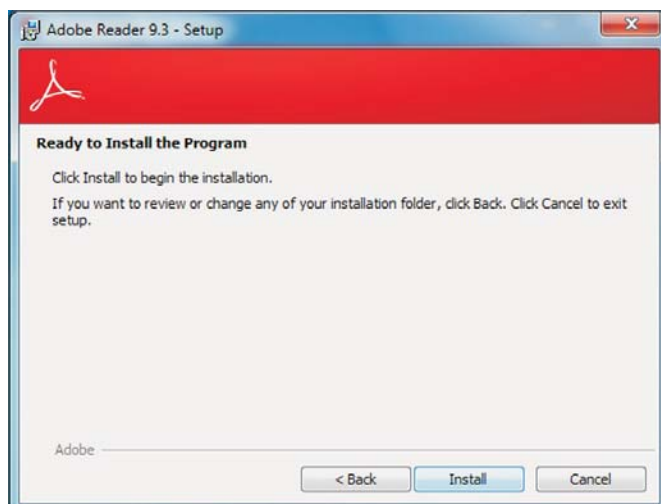
Adobe Acrobat Reader 9.3

To install the reader, click “Adobe Acrobat Reader 9.3” on the main menu.

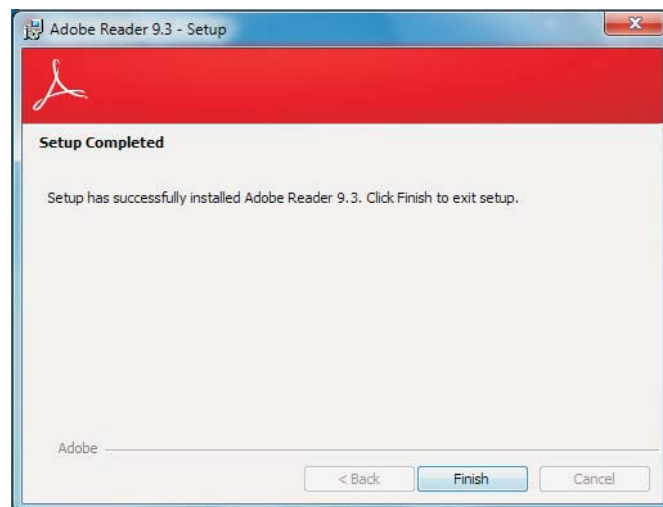
1. Click Next to install or click Change Destination Folder to select another folder.



2. Click Install to begin installation.



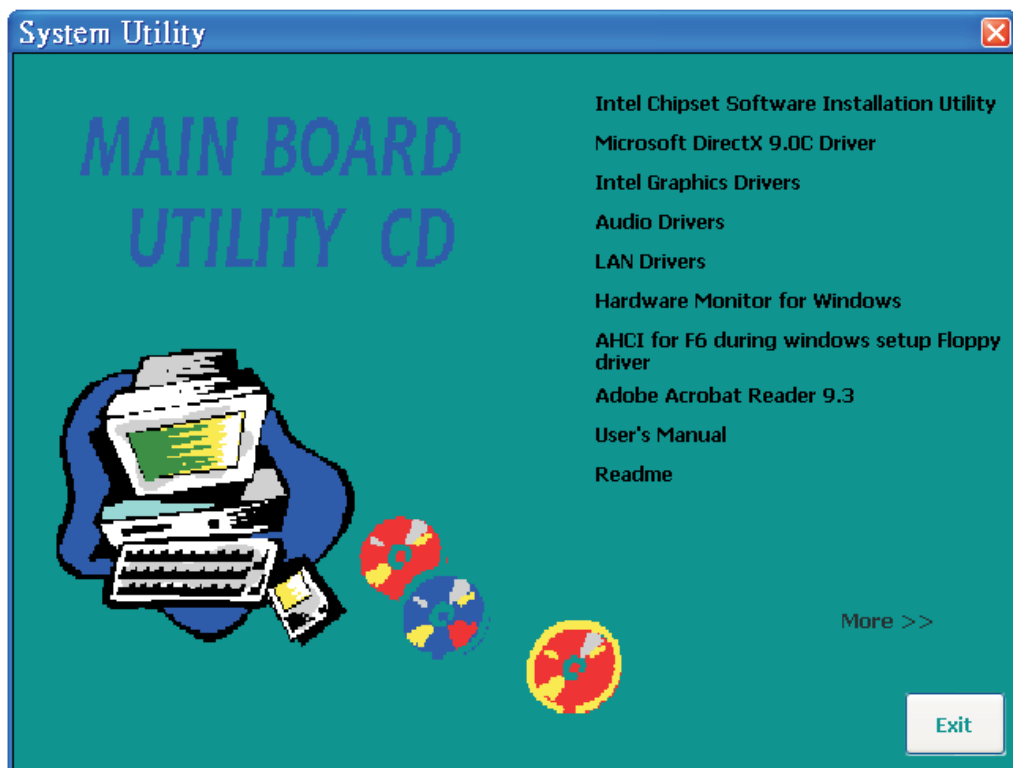
3. Click Finish to exit installation.



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".



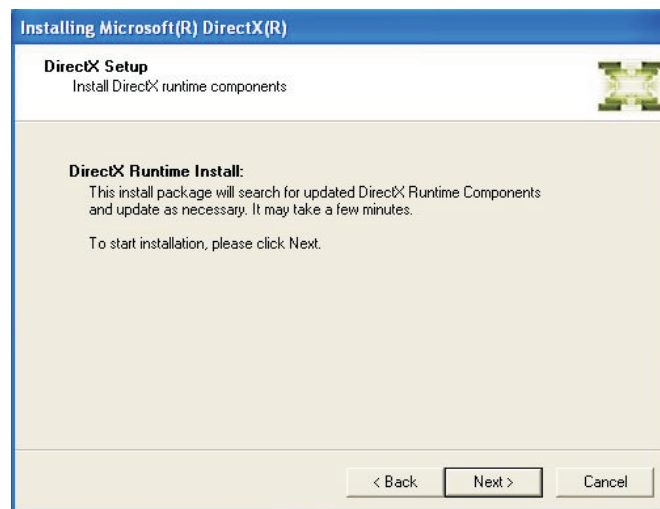
Microsoft DirectX 9.0C Driver

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

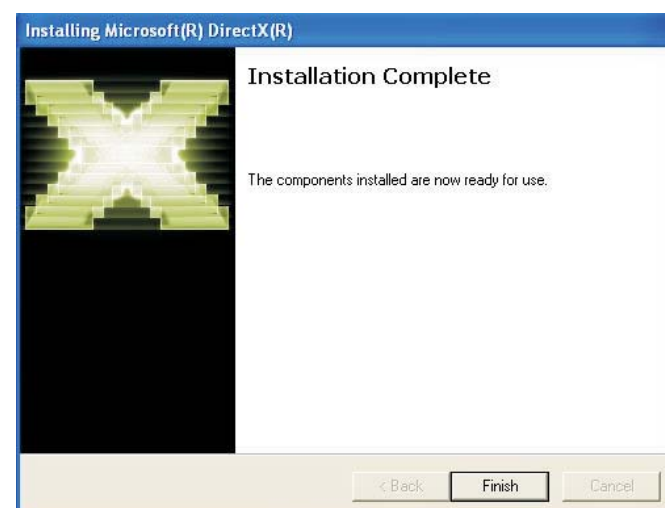
1. Click “I accept the agreement” then click Next.



2. To start installation, click Next.



3. Click Finish. Reboot the system for DirectX to take effect.



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.

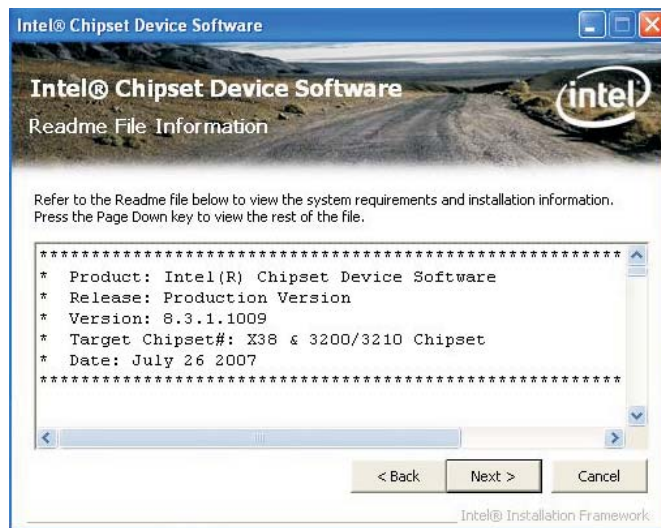
1. Setup is now ready to install the utility. Click Next.



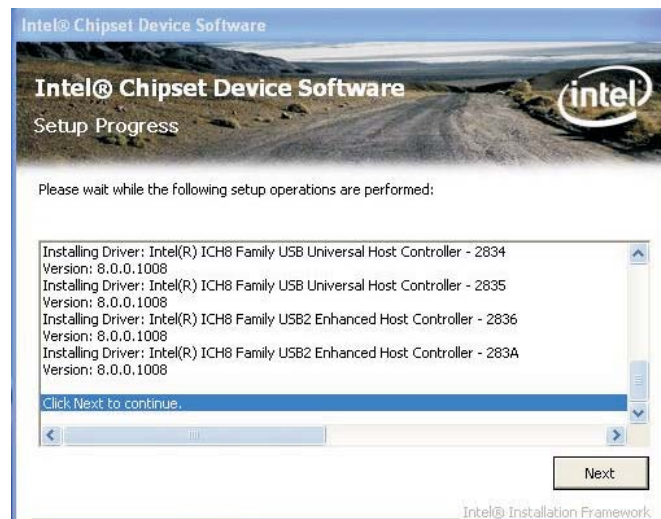
2. Read the license agreement then click Yes.



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.



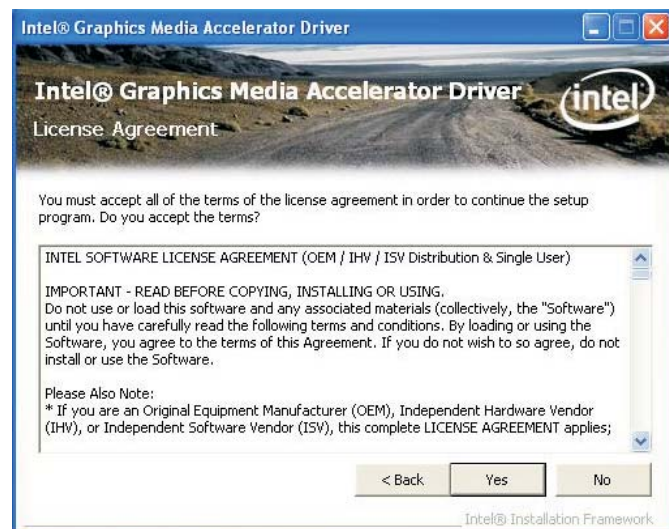
Intel Graphics Drivers

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

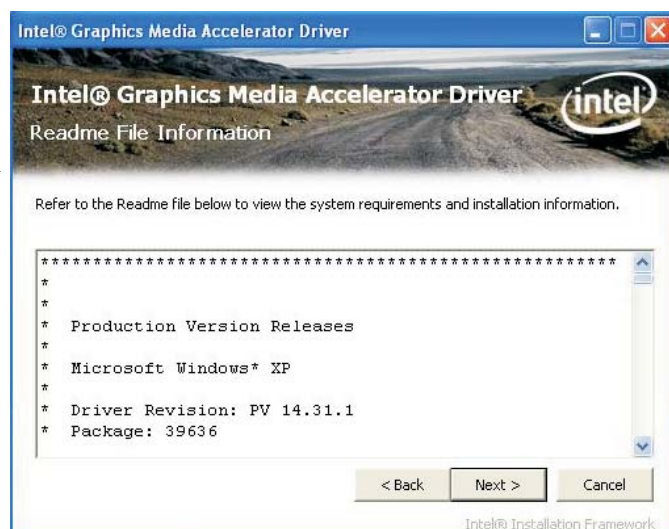
1. To start installation, click Next.



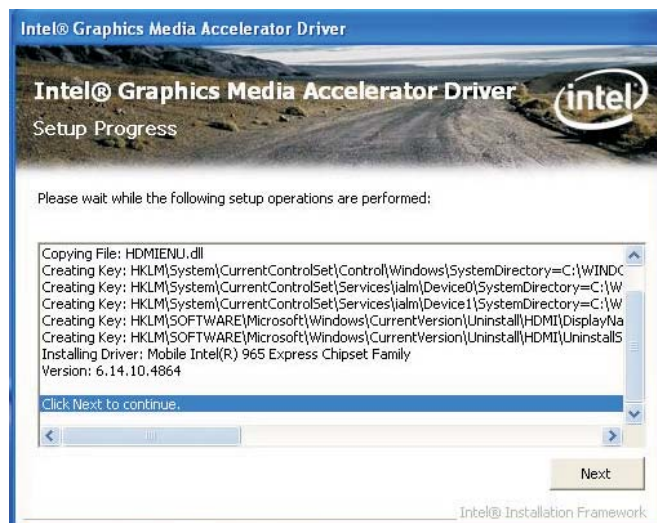
2. Read the license agreement then click Yes.



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

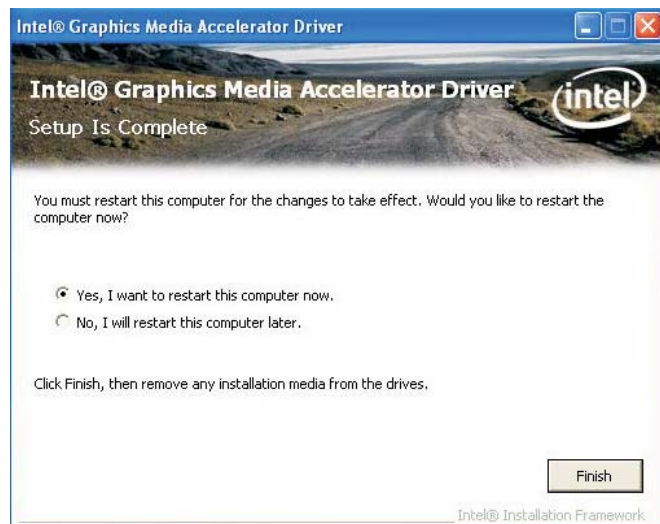


4. Setup is now installing the driver. Click Next to continue.



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

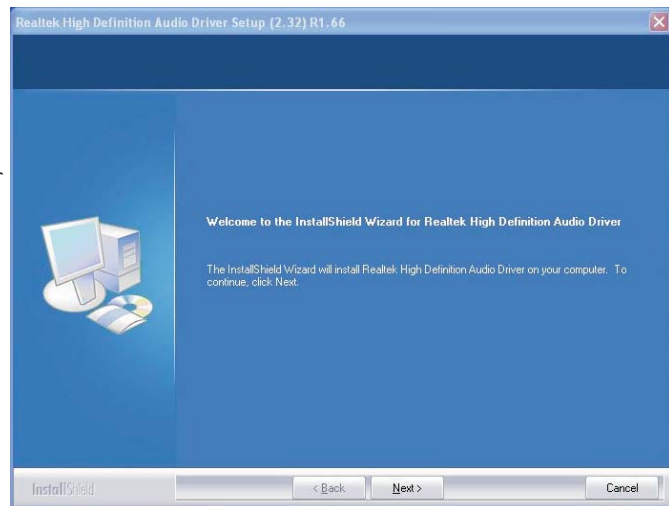
Restarting the system will allow the new software installation to take effect.



Audio Drivers

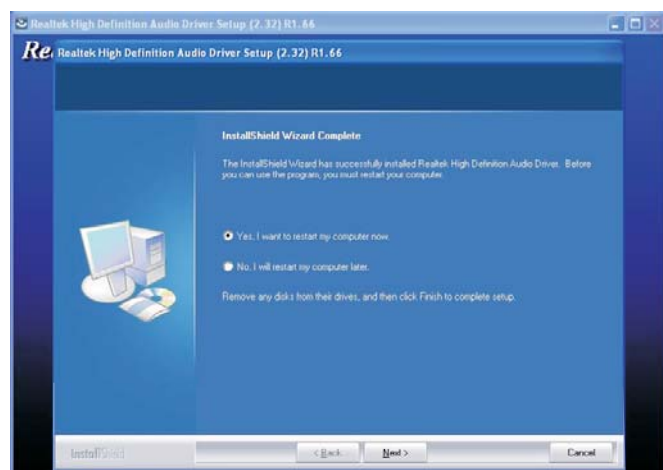
To install the driver, click “Audio Drivers” on the main menu.

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.

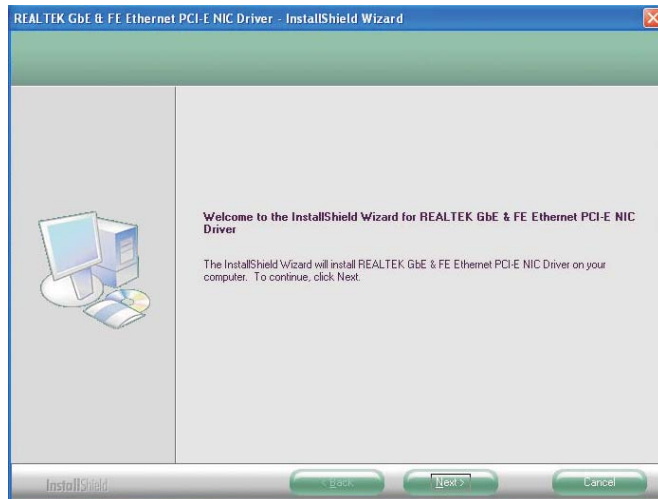
Restarting the system will allow the new software installation to take effect.



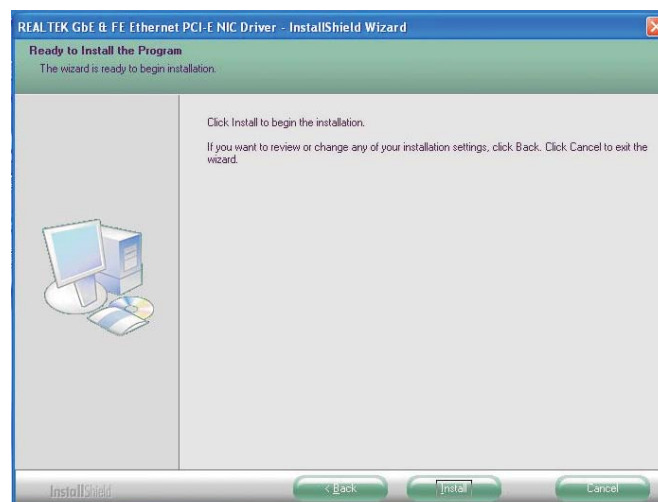
LAN Drivers

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

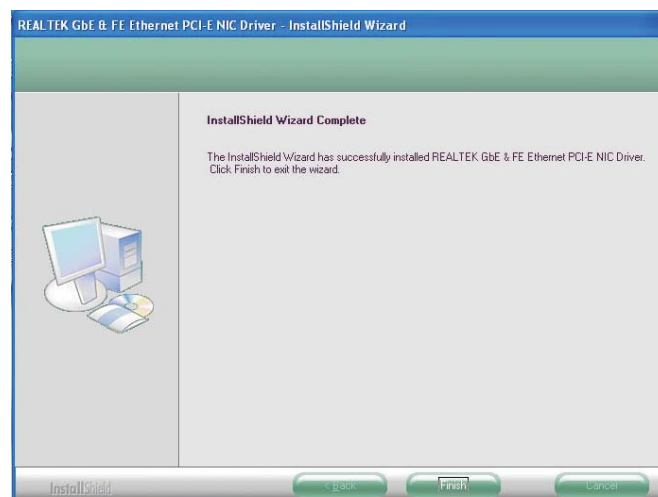
1. Setup is now ready to install the driver. Click Next.



2. Click Install to begin installation.



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

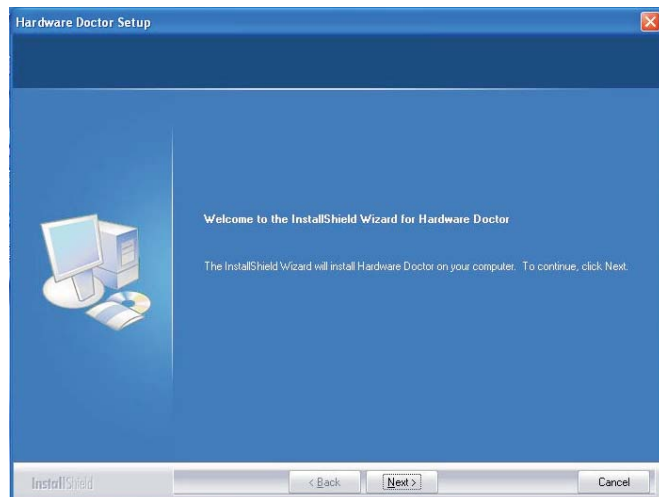


Hardware Monitor for Windows

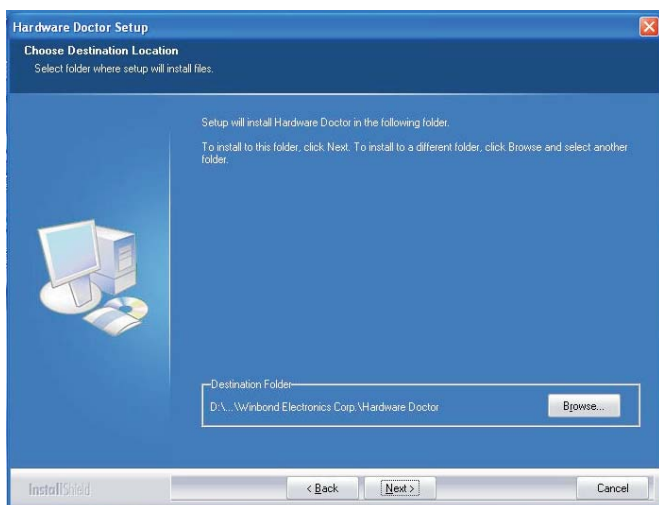
The Hardware Monitor for Windows utility is capable of monitoring the system's temperature, fan speed, voltage, etc. and allows you to manually set a range (Highest and Lowest Limit) to the items being monitored. If the settings/values are over or under the set range, a warning message will pop-up. The 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.

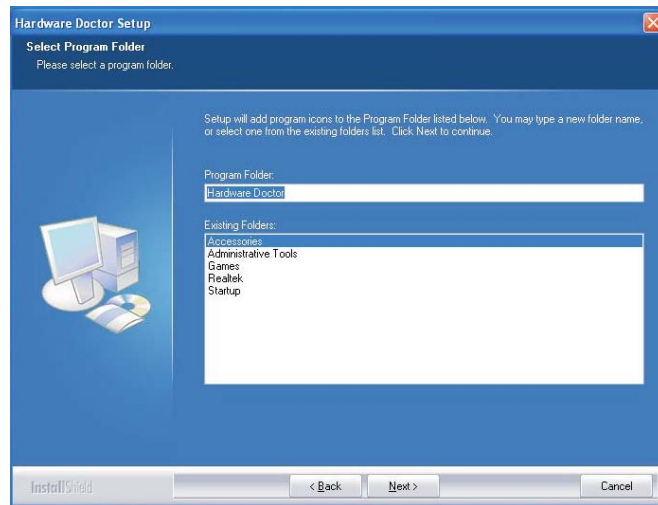
1. Setup is now ready to install the utility. Click Next.



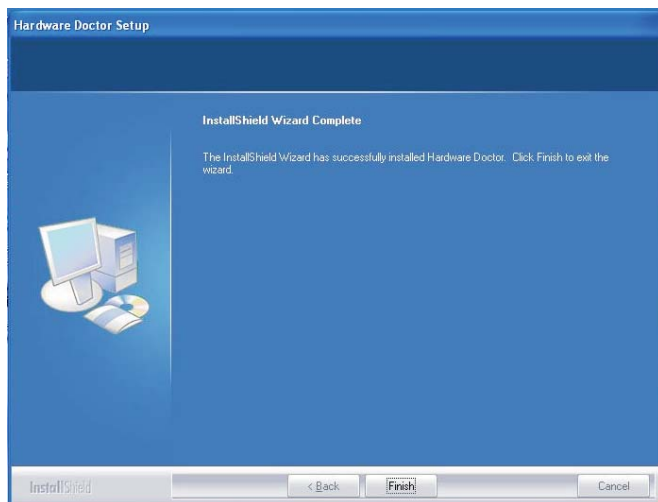
2. Click Next to install or click Browse to select another folder.



- Click Next to add the program icon to the Program Folder.



- After completing installation, click Finish to exit setup.

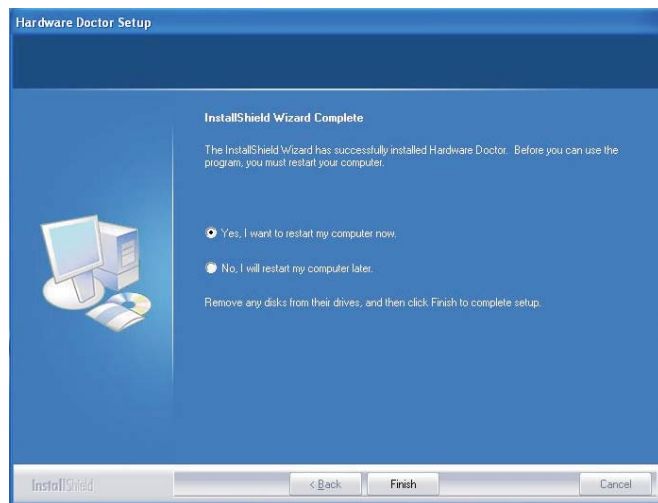


- Click Yes if you want to create a Hardware Doctor shortcut at your desktop.



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:

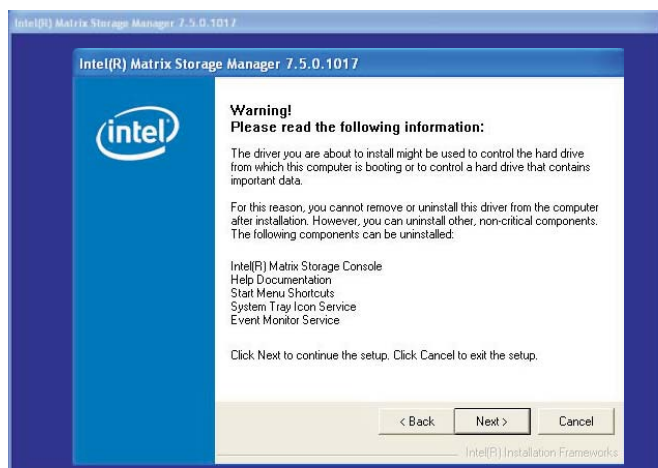
This utility is supported only when the Configure SATA As field is set to AHCI. (The Configure SATA As field is in the Main menu of the BIOS utility.)

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.



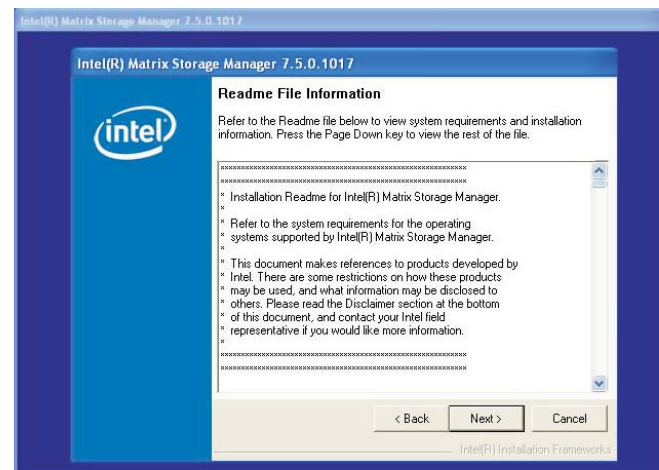
2. Read the Warning information carefully then click Next.



3. Read the license agreement then click Yes.

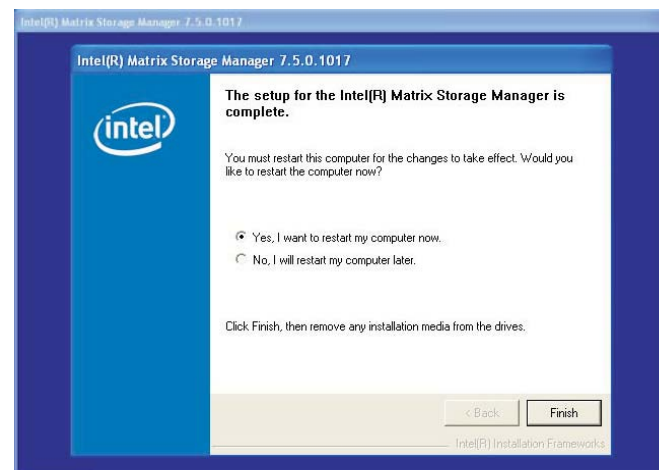


4. Go through the readme document for system requirements and installation tips then click Next.



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

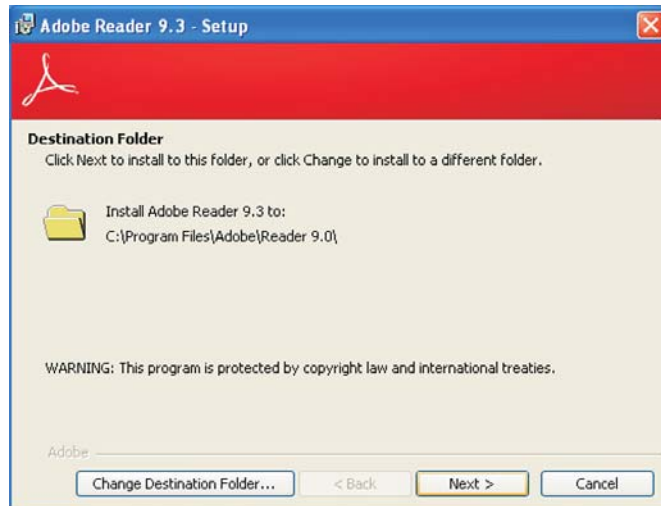
Restarting the system will allow the new software installation to take effect.



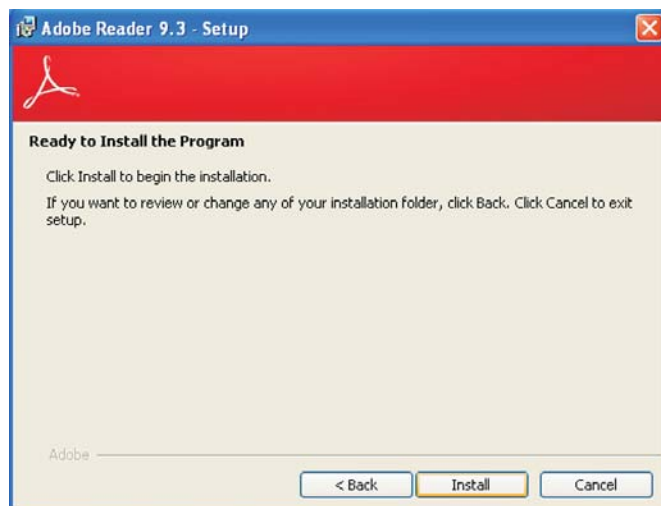
Adobe Acrobat Reader 9.3

To install the reader, click “Adobe Acrobat Reader 9.3” on the main menu.

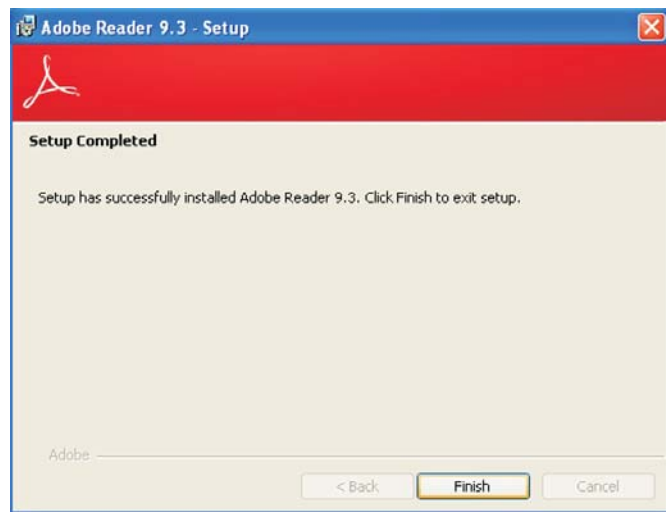
1. Click Next to install or click Change Destination Folder to select another folder:



2. Click Install to begin installation.



3. Click Finish to exit installation.



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.

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.

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.

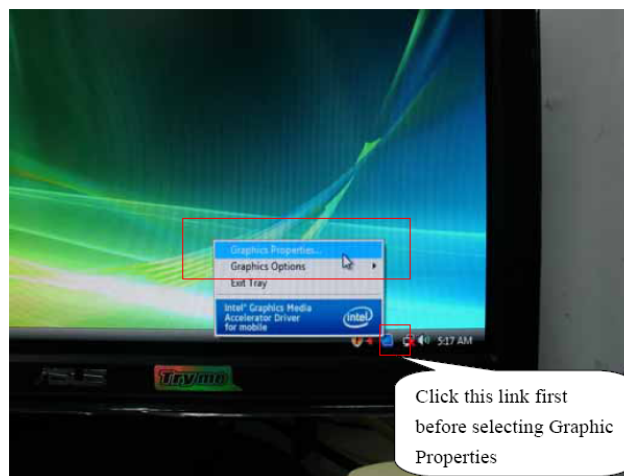
System Board

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.

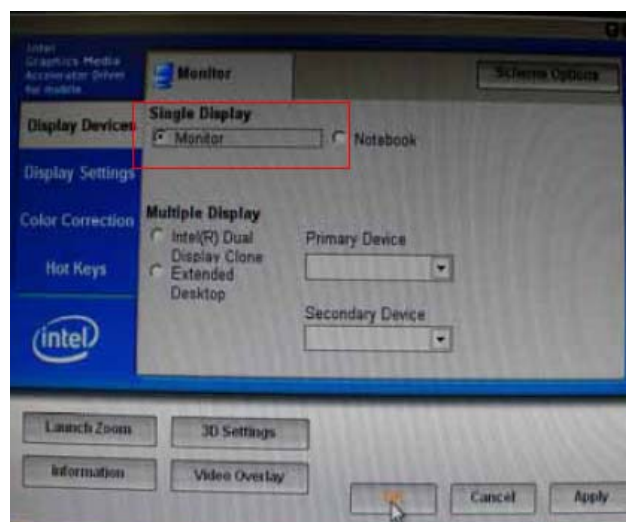
Appendix C - Frequently Asked Questions

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

AI: 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.



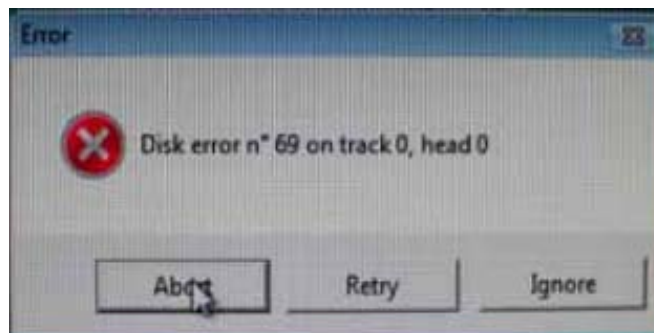
In the Single Display section, select Monitor:



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

