

NP102-N16C

System Board User's Manual

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Trademarks

All trademarks and registered trademarks of products appearing in this manual are the properties of their respective holders.

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.

- ☑ One system board
- ☑ One IDE cable
- ☑ One USB cable
- ☑ One Serial ATA data cable
- ☑ One Serial ATA power cable
- ☑ One bracket mounted with a COM port
- ☑ One I/O shield
- ☑ One 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	<ul style="list-style-type: none">• Intel® Atom™ N270 (Diamondville SC) processor• 1.6GHz core frequency, 1.10V voltage• 2.5W thermal design power• 512KB on-die L2 cache• 533-MT/s FSB• 22x22 mm, 1.0 mm ball pitch and 437 balls FCBGA
Chipset	<ul style="list-style-type: none">• Intel® chipset<ul style="list-style-type: none">- Northbridge: Intel® 945GSE GMCH- Southbridge: Intel® 82801GBM ICH7M
System Memory	<ul style="list-style-type: none">• One 240-pin DDR2 DIMM socket• Maximum memory supports up to 2GB• Supports 400MHz and 533MHz DDR2 SDRAM
Expansion Slots	<ul style="list-style-type: none">• 1 PCI Express x1 slot• 1 PCI slot
Graphics	<ul style="list-style-type: none">• Integrated Intel GMA 950• 133/166MHz internal graphics core render frequency at 1.05V core voltage• 24-bit dual-channel LVDS• CRT resolutions up to SXGA+
Audio	<ul style="list-style-type: none">• Realtek ALC262 2-channel High Definition Audio• Two 24-bit stereo DACs and three 20-bit stereo ADCs• S/PDIF input/output interface
LAN	<ul style="list-style-type: none">• Two Realtek RTL8111C PCI Express Gigabit controllers• Supports 10Mbps, 100Mbps and 1Gbps data transmission• IEEE 802.3 (10/100Mbps) and IEEE 802.3ab (1Gbps) compliant
Serial ATA	<ul style="list-style-type: none">• Two SATA ports with independent DMA operation supported on ports 0 and 2• Two-mode operation supports legacy mode using I/O space or an AHCI mode using memory space• SATA and PATA can be used in a combined function mode (When SATA is used with PATA, AHCI mode is not supported.)
IDE	<ul style="list-style-type: none">• Bus Master IDE (PATA) controller• Supports up to two IDE devices• Ultra ATA 100/66/33
Rear Panel I/O Ports	<ul style="list-style-type: none">• 1 mini-DIN-6 PS/2 mouse port• 1 mini-DIN-6 PS/2 keyboard port• 2 DB-9 RS232/422/485 serial ports• 1 DB-15 VGA port• 2 RJ45 LAN ports• 4 USB 2.0/1.1 ports• Mic-in, line-in and line-out

I/O Connectors	<ul style="list-style-type: none"> • 1 CompactFlash socket • 2 connectors for 4 additional external USB 2.0/1.1 ports • 2 connectors for 2 additional external serial ports <ul style="list-style-type: none"> - COM3: RS232 with power • 1 LVDS LCD panel connector • 1 LCD/inverter power connector • 1 DIO connector • 1 front audio connector for line-out and mic-in jacks • 1 CD-in internal audio connector • 1 S/PDIF connector • 2 Serial ATA connectors • 1 40-pin IDE connector • 1 24-pin ATX power connector • 1 front panel connector • 1 chassis intrusion connector • 1 fan connector
BIOS	<ul style="list-style-type: none"> • Award BIOS • 8Mbit SPI BIOS
Energy Efficient Design	<ul style="list-style-type: none"> • Supports ACPI specification 2.0/1.0 • Supports ACPI STR (Suspend to RAM) function • Wake-On-Events include: <ul style="list-style-type: none"> - Wake-On-PS/2 Keyboard/Mouse - Wake up by PCI card - PCI Express PME - USB KB/MS wake up from S3 - Wake-On-Ring - RTC timer to power-on the system • Enhanced Intel® SpeedStep Technology • AC power failure recovery
Damage Free Intelligence	<ul style="list-style-type: none"> • Monitors CPU/system temperature and overheat alarm • Monitors CPU(V)/3.3V/5V/12V/VBAT(V) voltages and failure alarm • Monitors system fan speed and failure alarm • Read back capability that displays temperature, voltage and fan speed • Watchdog timer function
Temperature	<ul style="list-style-type: none"> • 0°C to 60°C
Humidity	<ul style="list-style-type: none"> • 10% to 90%
PCB	<ul style="list-style-type: none"> • Mini-ITX form factor • 17cm (6.7") x 17cm (6.7")

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.

CompactFlash

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.

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® 945GSE Express Chipset features an integrated 32-bit 3D graphics engine based on the Intel® Graphics Media Accelerator 950 architecture; delivering sophisticated graphics for large display applications. Graphics interfaces such as single-channel SDVO, VGA and dual-channel LVDS support multiple graphics display options.

LVDS

The Low-Voltage Differential Signaling (LVDS) interface allows the Intel Graphics Media Adapter to communicate directly to the flat-panel display. The LVDS interface supports pixel color depths of 18 and 24 bits.

PCI Express

PCI Express is a high bandwidth I/O infrastructure that possesses the ability to scale speeds by forming multiple lanes. The x1 PCI Express lane supports transfer rate of 2.5 Gigabytes (250MBbps) per second which is nearly 4 times faster than the traditional PCI.

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 150MB/s, it improves hard drive performance faster than the standard parallel ATA whose data transfer rate is 100MB/s.

Gigabit LAN

The two Realtek RTL8111C 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 $\geq 720\text{mA}$.

Wake-On-USB

This function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 (STR - Suspend To RAM) state.

**Important:**

If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5V_standby power source of your power supply must support $\geq 1.5\text{A}$. For 3 or more USB ports, the 5V_standby power source of your power supply must support $\geq 2\text{A}$.

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:**

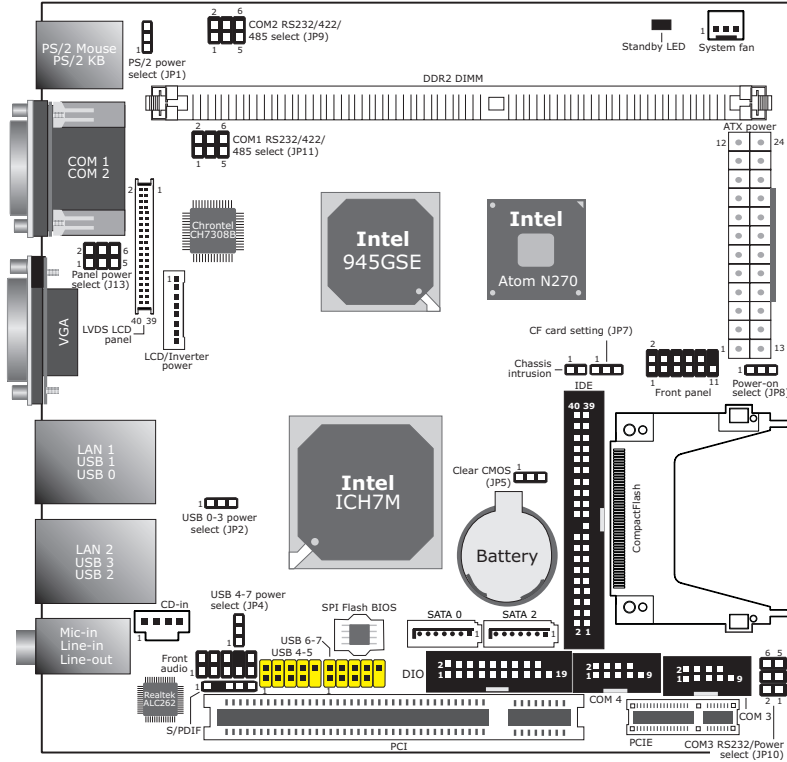
The 5V_standby power source of your power supply must support $\geq 720\text{mA}$.

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



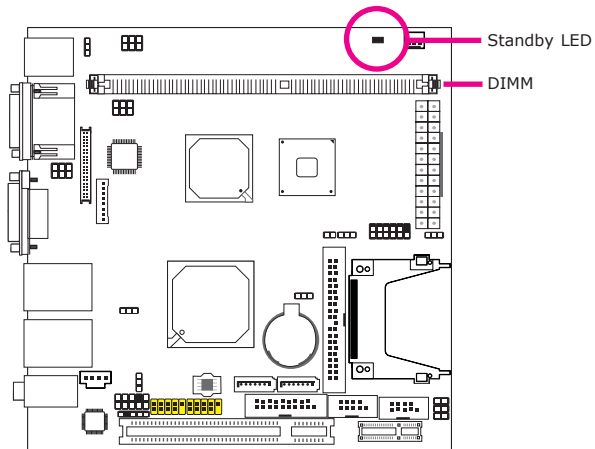
**Important:**

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

**Important:**

When the Standby LED lit red, it indicates that there is power on the system board. Power-off the PC then unplug the power cord prior to installing any devices. Failure to do so will cause severe damage to the motherboard and components.



The system board supports one 240-pin DDR2 DIMM socket.

BIOS Setting

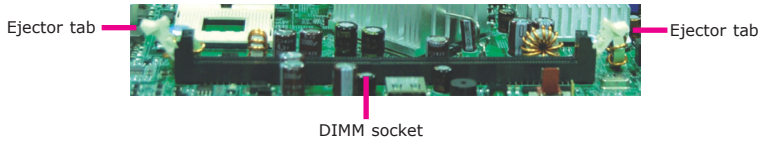
Configure the system memory in the Advanced Chipset Features submenu of the BIOS. Refer to chapter 3 for more information.

Installing the DIM Module

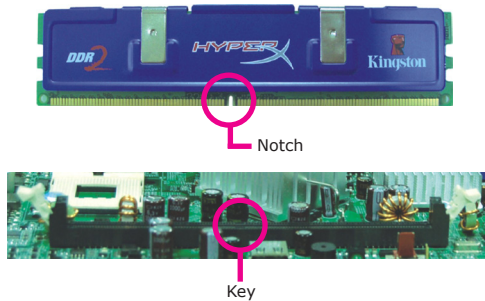
**Note:**

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

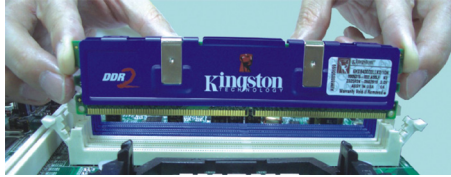
1. Make sure the PC and all other peripheral devices connected to it has been powered down.
2. Disconnect all power cords and cables.
3. Locate the DDR2 socket on the board.
4. Push the "ejector tabs" which are at the ends of the socket to the side.



5. Note how the module is keyed to the socket.



6. Grasping the module by its edges, position the module above the socket with the "notch" in the module aligned with the "key" on the socket. The keying mechanism ensures the module can be plugged into the socket in only one way.



7. Seat the module vertically, pressing it down firmly until it is completely seated in the socket.

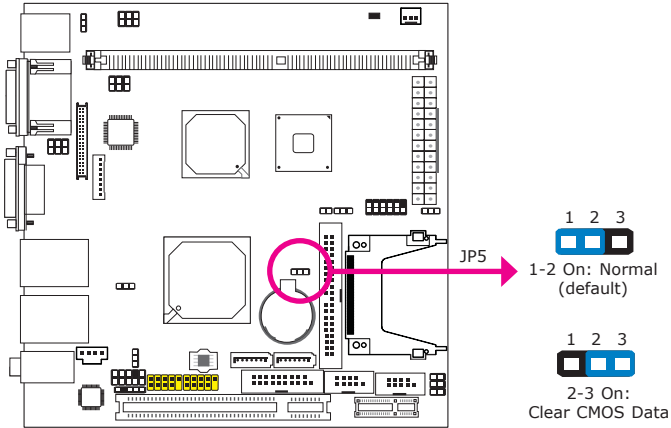


8. The ejector tabs at the ends of the socket will automatically snap into the locked position to hold the module in place.



Jumper Settings

Clear CMOS Data



If you encounter the following,

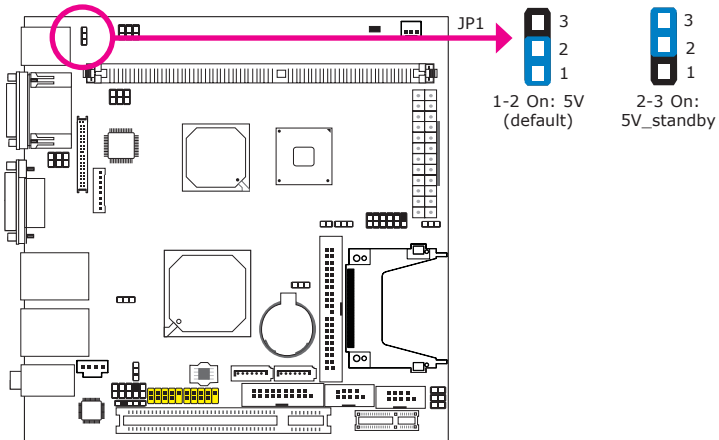
- CMOS data becomes corrupted.
- You forgot the supervisor or user password.

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.

- Power-off the system and unplug the power cord.
- Set JP5 pins 2 and 3 to On. Wait for a few seconds and set JP5 back to its default setting, pins 1 and 2 On.
- Now plug the power cord and power-on the system.

PS/2 Power Select



JP1 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

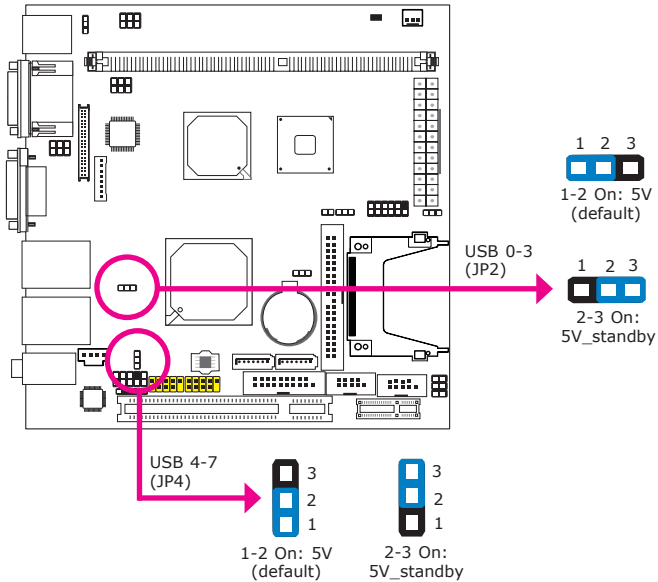
Configure the PS/2 keyboard/mouse wake up function in the Integrated Peripherals submenu ("Super IO Device" section) of the BIOS. Refer to chapter 3 for more information.



Important:

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

USB Power Select



JP2 (for USB 0-3) and JP4 (for USB 4-7) are used to select the power of the USB ports. Selecting 5V_standby will allow you to use a USB device to wake up the system.

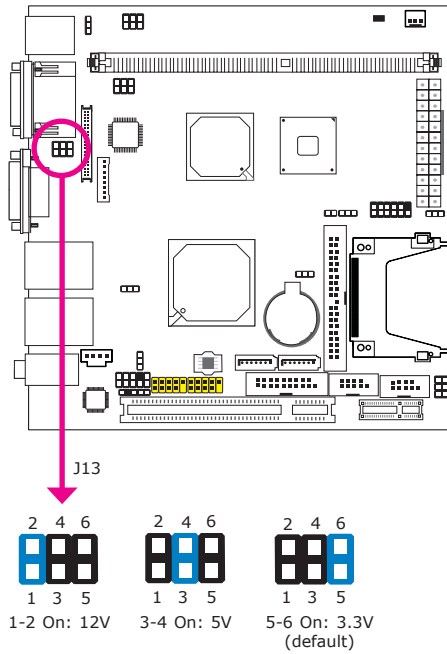
BIOS Setting

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

**Important:**

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

Panel Power Select

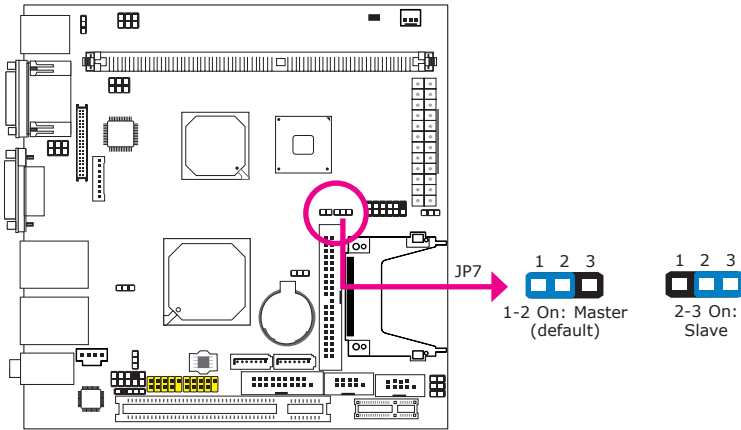


J13 is used to select the power supplied to the LCD panel.

**Important:**

Before powering-on the system, make sure J13's setting matches the LCD panel's specification. Selecting the incorrect voltage will seriously damage the LCD panel.

CompactFlash Card Setting

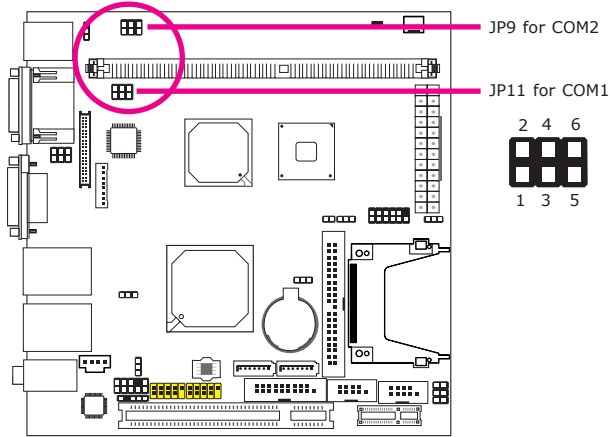


JP7 is used to set the CompactFlash card to Master or Slave mode.

**Note:**

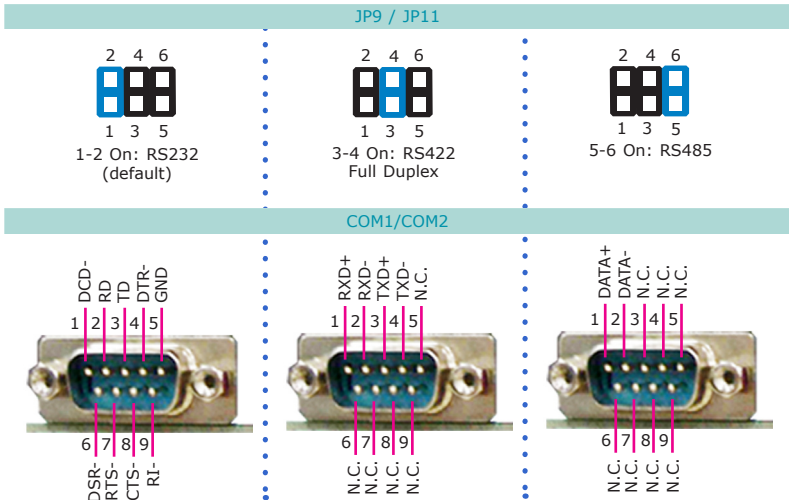
We do not recommend using IDE devices and CF card at the same time.

COM1/COM2 RS232/RS422/RS485 Select

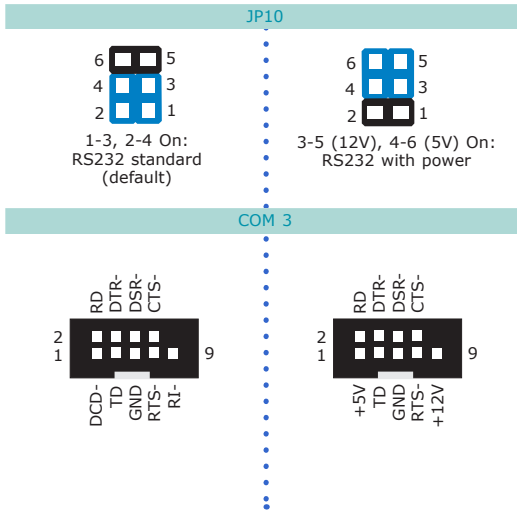
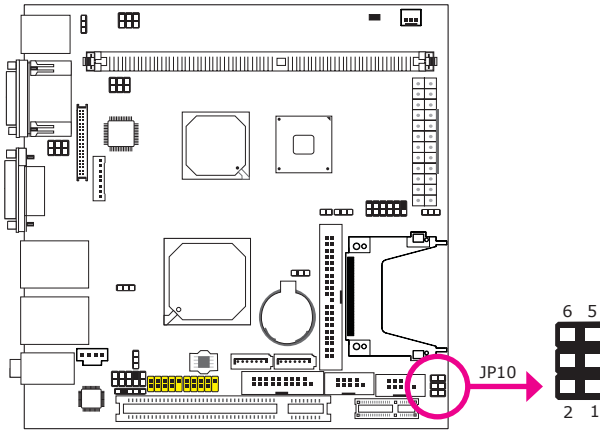


JP9 and JP11 are used to configure COM2 and COM1 respectively to RS232, RS422 (Full Duplex) or RS485.

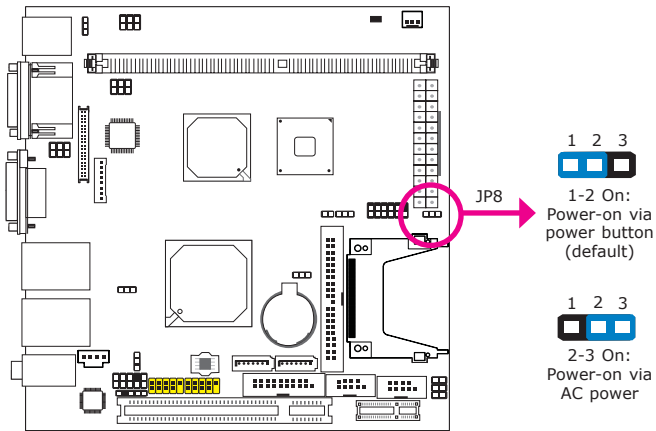
The pin function of COM1 and COM2 will vary according to the jumper's setting.



COM 3 RS232/Power Select



Power-on Select



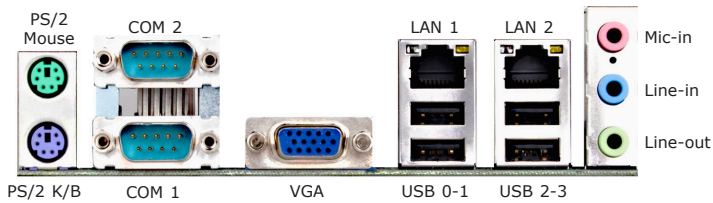
JP8 is used to select the method of powering on the system. If you want the system to power-on whenever AC power comes in, set JP8 pins 2 and 3 to On. If you want to use the power button, set pins 1 and 2 to On.

When using the JP8 “Power On” feature to power the system back on after a power failure occurs, the system may not power on 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 recovers within a 5 second period, JP8 must be set to pins 2-3 and the “PWRON After PWR-Fail” in CMOS is set to “On”.

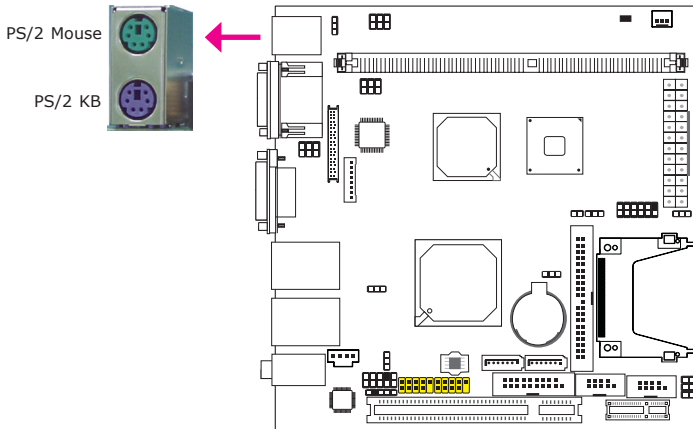
Rear Panel I/O Ports



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

- PS/2 mouse port
- PS/2 keyboard port
- 2 COM ports
- VGA port
- 2 LAN ports
- 4 USB ports
- Mic-in jack
- Line-in jack
- Line-out jack

PS/2 Mouse and PS/2 Keyboard Ports



These ports are used to connect a PS/2 mouse and a PS/2 keyboard. The PS/2 mouse port uses IRQ12. If a mouse is not connected to this port, the system will reserve IRQ12 for other expansion cards.



Important:

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

JP1 must be set to "2-3 On: 5V_standby". Refer to "PS/2 Power Select" in this chapter for more information.

- BIOS Setting

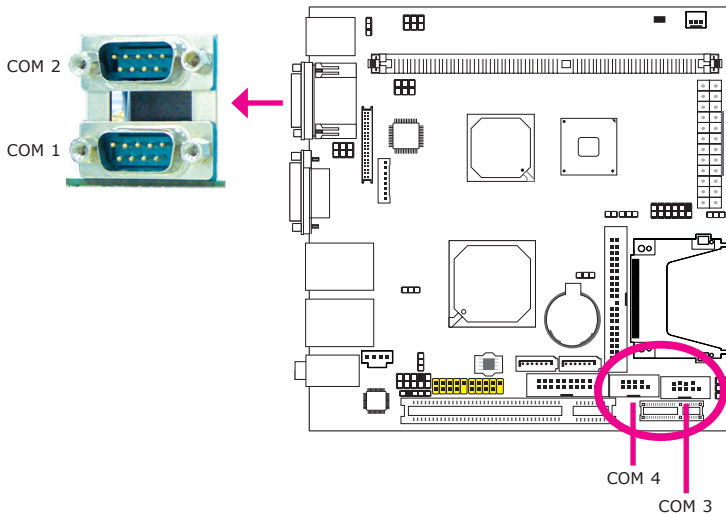
Configure the PS/2 keyboard/mouse wake up function in the Integrated Peripherals submenu ("Super IO Device" section) of the BIOS. Refer to chapter 3 for more information.



Important:

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

COM (Serial) Ports



COM 1 and COM 2's pin definition will vary according to JP11 and JP9's settings. Refer to "COM1/COM2 RS232/RS422/RS485 Select" in this chapter for more information.

COM 3 and COM 4 are fixed at RS232. You may set COM 3 to support auxiliary power by configuring JP10. Refer to "COM 3 RS232/Power Select" in this chapter for more information.

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

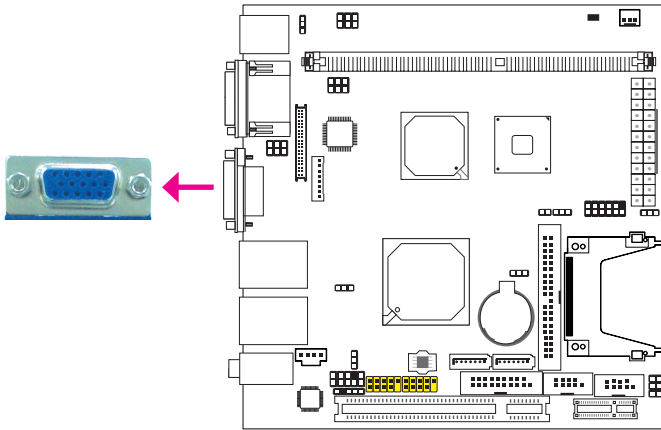
Connecting External Serial Ports

Your COM port may come 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 serial port cable to a COM connector. Make sure the colored stripe on the ribbon cable is aligned with pin 1 of the COM connector.

BIOS Setting

Configure the serial ports in the Integrated Peripherals submenu ("Super IO Device" section) 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.

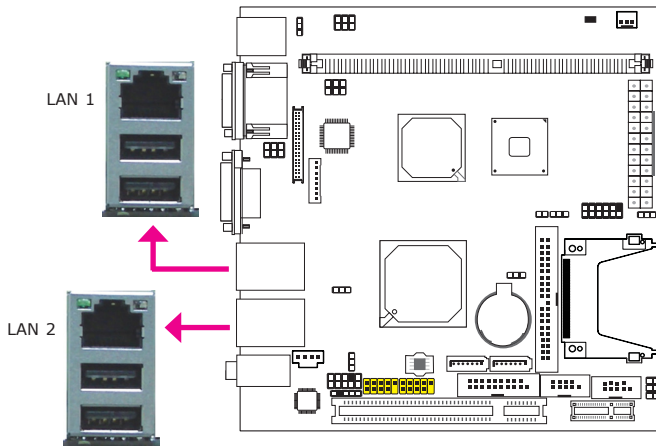
BIOS Setting

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

Driver Installation

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

RJ45 LAN Ports



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

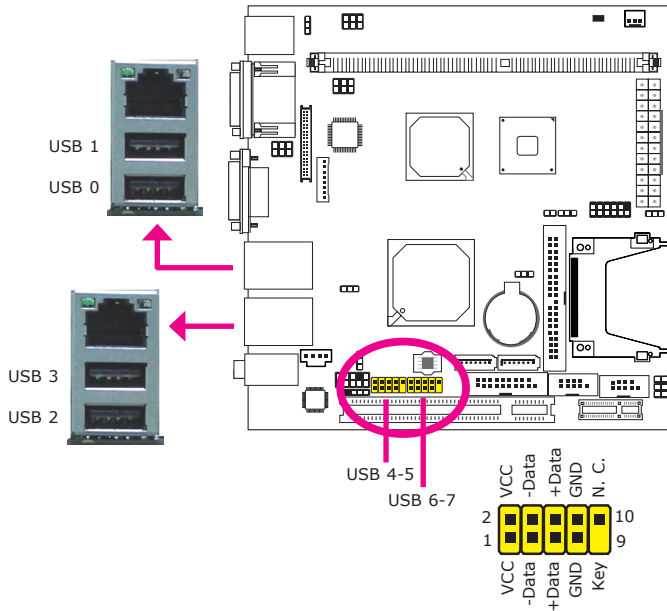
BIOS Setting

Configure the onboard LAN ports in the Integrated Peripherals submenu ("On-board Device" section) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

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

USB Ports



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 four onboard USB 2.0/1.1 ports. The USB 4-5 and USB 6-7 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 USB port cables to a connector.

BIOS Setting

Configure the onboard USB in the Integrated Peripherals submenu (“Onboard Device” section) 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.

Wake-On-USB Keyboard/Mouse

The Wake-On-USB Keyboard/Mouse function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 (STR - Suspend To RAM) state. To use this function:

- **Jumper Setting**

JP2 and/or JP4 must be set to "2-3 On: 5V_standby". Refer to "USB Power Select" in this chapter for more information.

- **BIOS Setting**

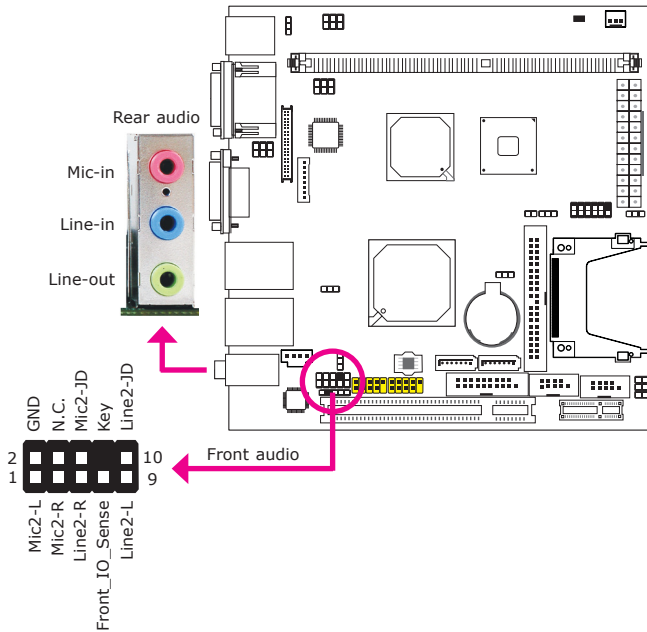
"USB KB Wake-Up From S3" in the Power Management Setup submenu of the BIOS must be set to Enabled. Refer to chapter 3 for more information.



Important:

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

Audio



Rear Audio

The system board is equipped with 3 audio jacks. A jack is a one-hole connecting interface for inserting a plug.

- **Mic-in Jack (Pink)**
This jack is used to connect an external microphone.
- **Line-in Jack (Light Blue)**
This jack is used to connect any audio devices such as Hi-fi set, CD player, tape player, AM/FM radio tuner, synthesizer, etc.
- **Line-out Jack (Lime)**
This jack is used to connect a headphone or external speakers.

Front Audio

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

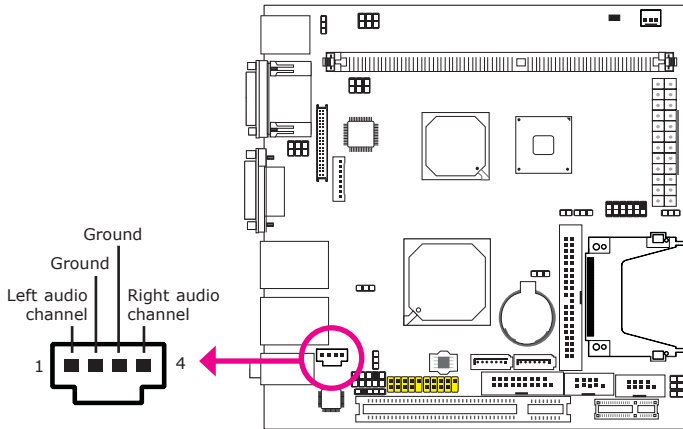
Configure the onboard audio in the Integrated Peripherals submenu (“Onboard Device” section) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

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

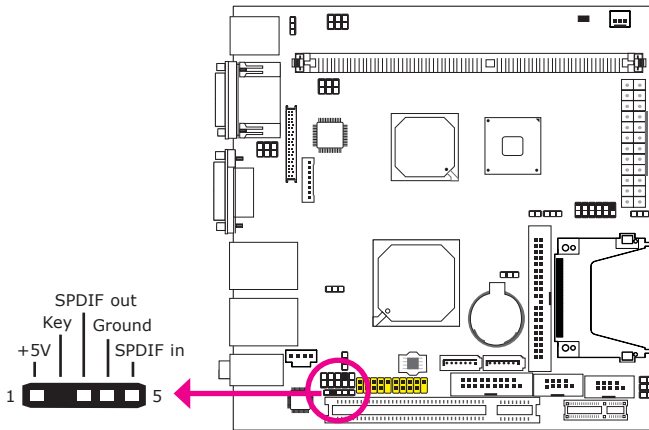
I/O Connectors

CD-in Internal Audio Connector



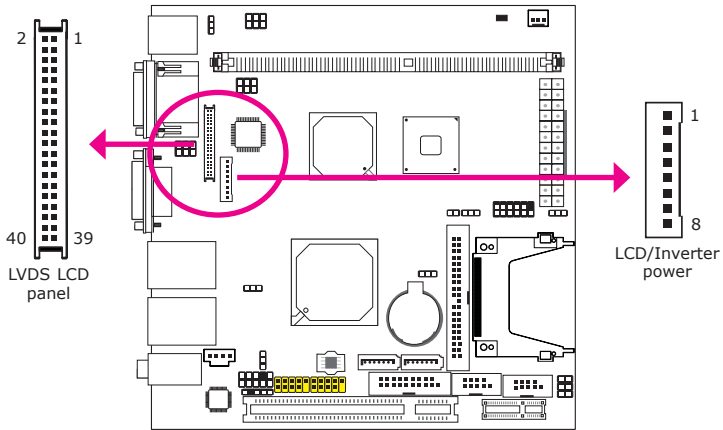
The CD-in connector is used to receive audio from a CD-ROM drive, TV tuner or MPEG card.

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 to the S/PDIF connector. Make sure pin 1 of the audio cable is aligned with pin 1 of the S/PDIF connector.

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.

BIOS Setting

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

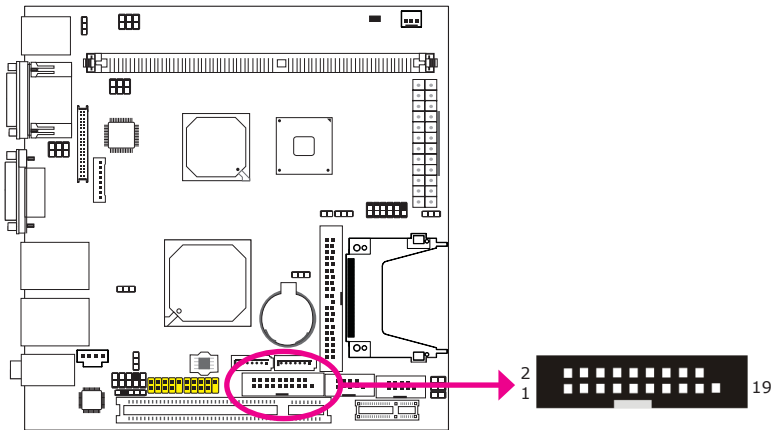
LVDS LCD Panel Connector

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	LVDS_DDCCLK	34	N. C.
35	LVDS_DDCDAA	36	N. C.
37	Panel Power	38	Panel Power
39	Panel Power	40	Panel Power

LCD/Inverter Power Connector

Pins	Function
1	GND
2	GND
3	Panel Inverter Brightness Voltage Control
4	Panel Power
5	+3.3V
6	Panel Backlight On/Off Control
7	+12V
8	+12V

Digital I/O Connector

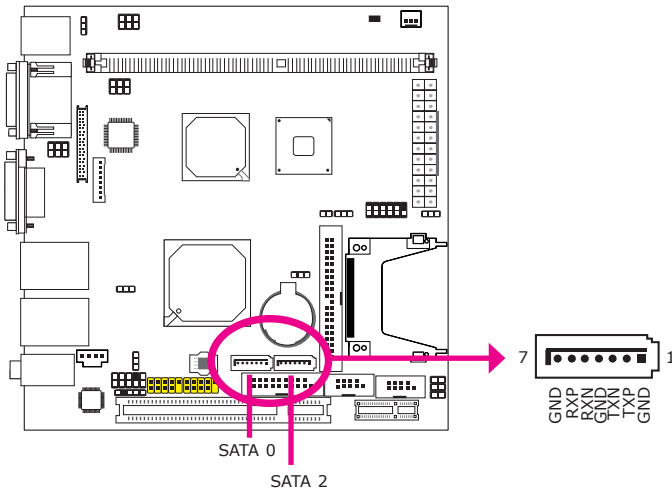


The Digital I/O connector provides powering-on function to an external device that is connected to this connector.

Digital I/O Connector

Pins	Function	Pins	Function
1	GND	2	+12V
3	DIO7	4	+12V
5	DIO6	6	GND
7	DIO5	8	VCC
9	DIO4	10	VCC
11	DIO3	12	GND
13	DIO2	14	V_5P0_STBY
15	DIO1	16	V_5P0_STBY
17	DIO0	18	GND
19	GND		

SATA (Serial ATA) Connectors

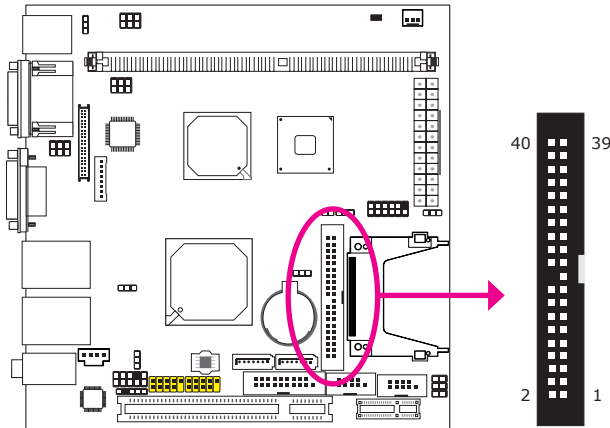


The Serial ATA connectors are used to connect Serial ATA devices. Connect one end of the Serial ATA cable to a SATA connector and the other end to your Serial ATA device.

BIOS Setting

Configure the Serial ATA drives in the Integrated Peripherals submenu ("OnChip IDE Device" section) of the BIOS. Refer to chapter 3 for more information.

IDE Connector



Important:

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

The IDE connector is used to connect hard drives. The connector on the IDE cable can be inserted into this connector only if pin 1 of the cable is aligned with pin 1 of this 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 has 3 connectors on them, one that plugs into the IDE connector on the system board and the other 2 connect 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:

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.

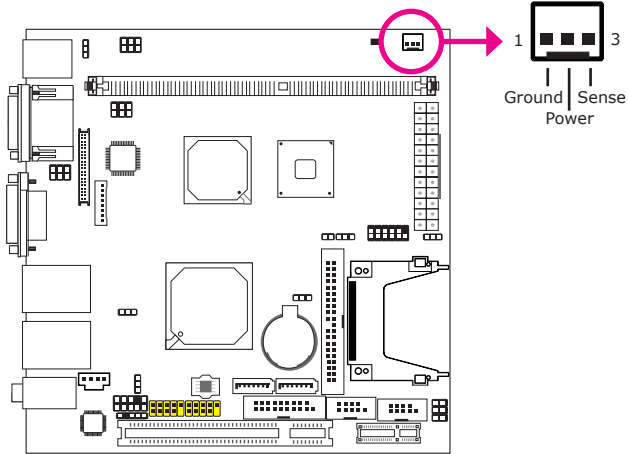
**Important:**

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 Integrated Peripherals submenu (“OnChip IDE Device” section) of the BIOS. Refer to chapter 3 for more information.

Cooling Fan Connector

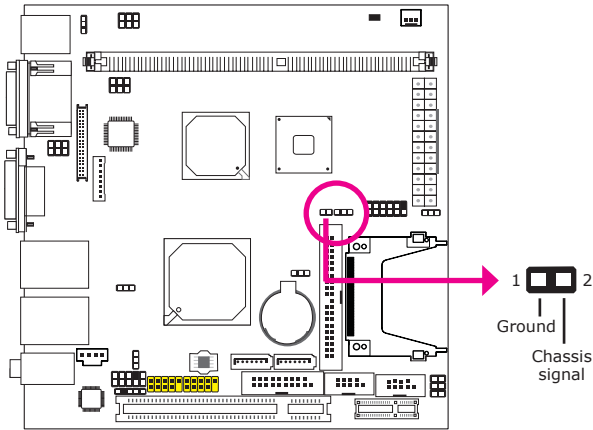


The fan connector is used to connect a cooling fan. The cooling fan will provide adequate airflow throughout the chassis to prevent overheating the CPU and system board components.

BIOS Setting

The PC Health Status submenu of the BIOS will display the current speed of the cooling fan. Refer to chapter 3 for more information.

Chassis Intrusion Connector

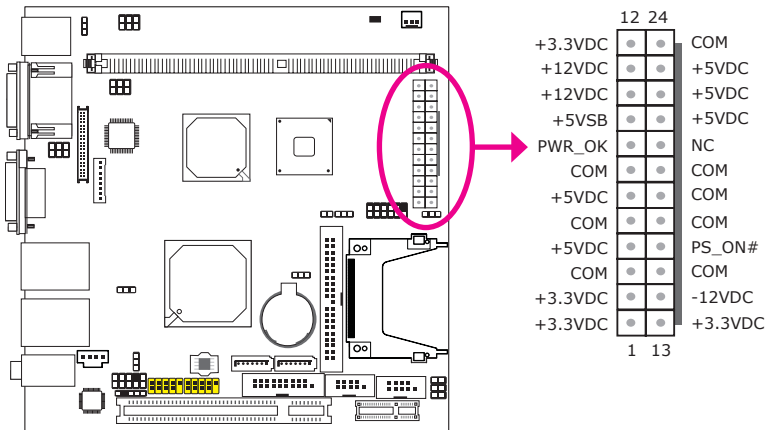


The board supports the chassis intrusion detection function. Connect the chassis intrusion sensor cable from the chassis to this connector. When the system's power is on and a chassis intrusion occurred, an alarm will sound. When the system's power is off and a chassis intrusion occurred, the alarm will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

Hardware Monitor for Windows

Install the "Hardware Monitor for Windows" utility. By default, the chassis intrusion detection function is disabled. When enabled, a warning message will appear when the chassis is open. The utility can also be configured so that a beeping alarm will sound when the chassis is open. Refer to the "Hardware Monitor for Windows" section in chapter 4 for more information.

Power Connector



Use a power supply that complies with the ATX12V Power Supply Design Guide Version 2.0. Connect a 24-pin ATX main power connector from the power supply unit to the ATX power connector.

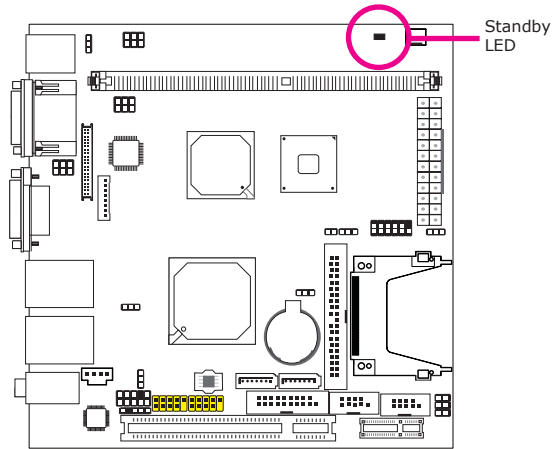
The system board requires a minimum of 300 Watt power supply to operate. Your system configuration (CPU power, amount of memory, add-in cards, peripherals, etc.) may exceed the minimum power requirement. To ensure that adequate power is provided, we strongly recommend that you use a minimum of 400 Watt (or greater) power supply.



Important:

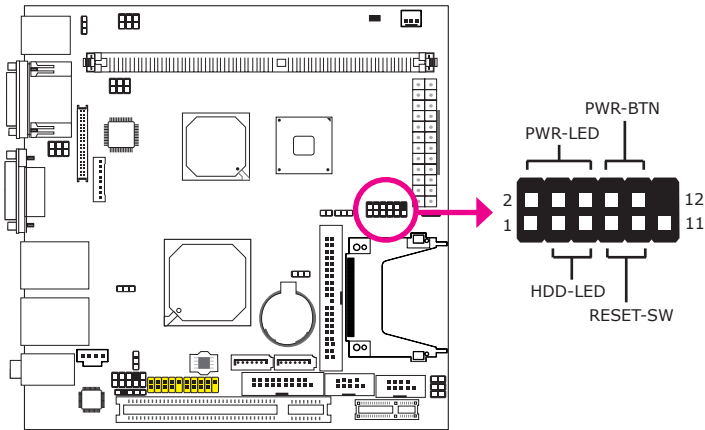
Insufficient power supplied to the system may result in instability or the add-in boards and peripherals not functioning properly. Calculating the system's approximate power usage is important to ensure that the power supply meets the system's consumption requirements.

Standby LED



This LED will lit red when the system is in the standby mode. It indicates that there is power on the system board. Power-off the PC then unplug the power cord prior to installing any devices. Failure to do so will cause severe damage to the motherboard and components.

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

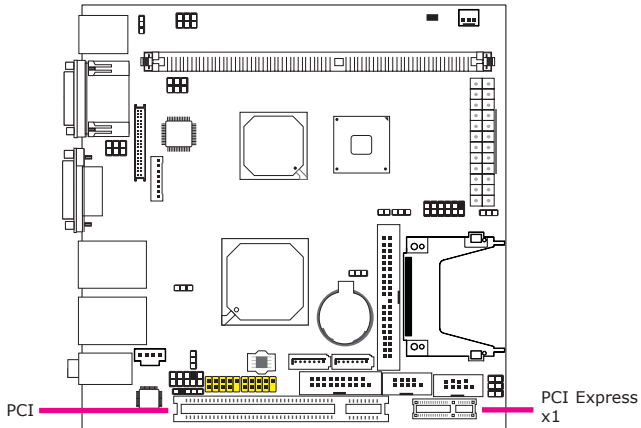
This switch is used to power on or off the system.

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

Expansion Slots



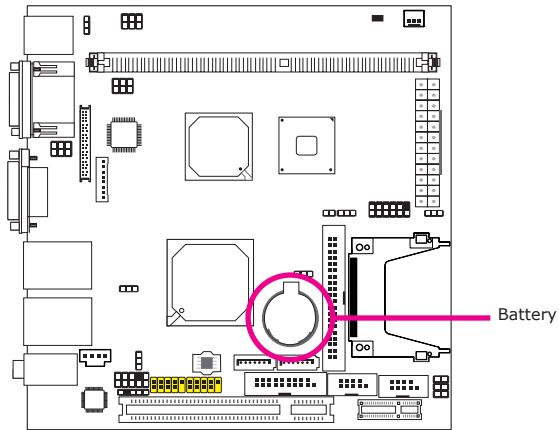
PCI Express x1

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

PCI Slot

The PCI slot supports expansion cards that comply with PCI specifications. You can install a PCI expansion card or a customized riser card designed for 1, 2 or 3 PCI slots expansion (for low profile PCI card only) into the PCI slot.

Battery

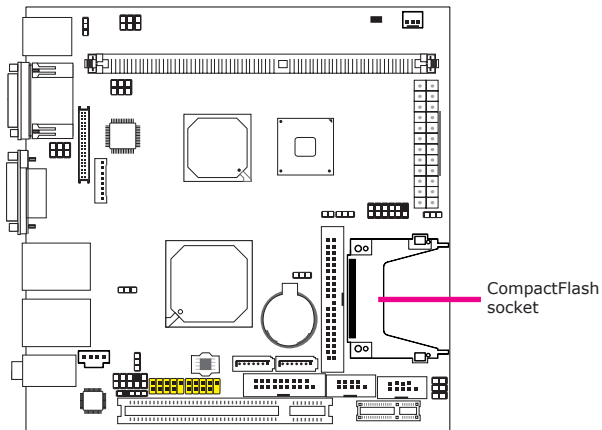


The lithium ion battery powers the real-time clock and CMOS memory. It is an auxiliary source of power when the main power is shut off.

Safety Measures

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

CompactFlash Socket



The CompactFlash™ socket is used for inserting a CompactFlash™ card. Compact-Flash™ 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.

**Important:**

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

Chapter 3 - BIOS Setup

Award BIOS Setup Utility

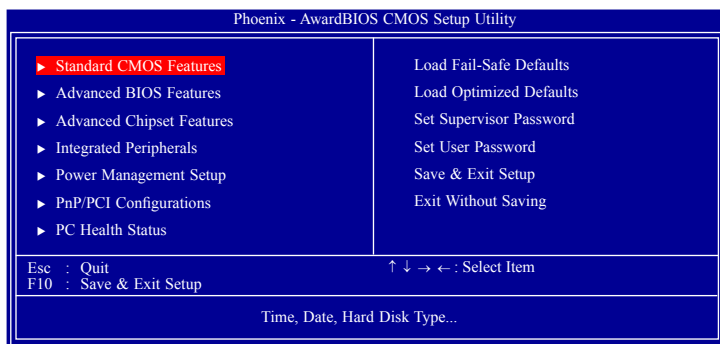
The Basic Input/Output System (BIOS) is a program that takes care of the basic level of communication between the processor and peripherals. In addition, the BIOS also contains codes for various advanced features found in this system board. This chapter explains the Setup Utility for the Award BIOS.

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" and press <Enter>. A screen similar to the one below will appear.

Phoenix - AwardBIOS CMOS Setup Utility		Item Help
Standard CMOS Features		
Date <mm.dd.yy>	Tue, Jul 27 2010	
Time <hh:mm:ss>	9 : 3 : 54	
▶ IDE Channel 0 Master	None	Menu Level ▶
▶ IDE Channel 0 Slave	None	
▶ IDE Channel 1 Master	None	Change the day, month, year and century
▶ IDE Channel 1 Slave	None	
Video	EGA/VGA	
Halt On	All Errors	
Base Memory	640K	
Extended Memory	2086912K	
Total Memory	2087936K	

↑↔←: 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

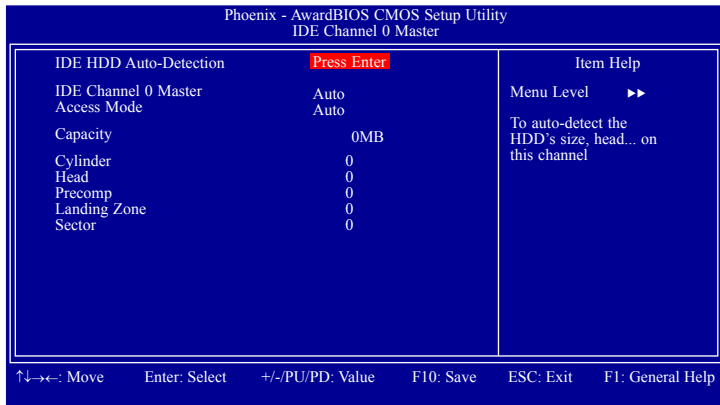
The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1999 to 2099.

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 1 Slave

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 1 Slave

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.

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.

EGA/VGA

Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SVGA and PGA monitor adapters.

CGA 40

Color Graphics Adapter. Power up in 40-column mode.

CGA 80

Color Graphics Adapter. Power up in 80-column mode.

Mono

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.

No Errors

The system boot will not stop for any errors detected.

All Errors

The system boot will stop whenever the BIOS detects a non-fatal error.

All, But Keyboard

The system boot will not stop for a keyboard error; it will stop for all other errors.

All, But Diskette

The system boot will not stop for a disk error; it will stop for all other errors.

All, But Disk/Key

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

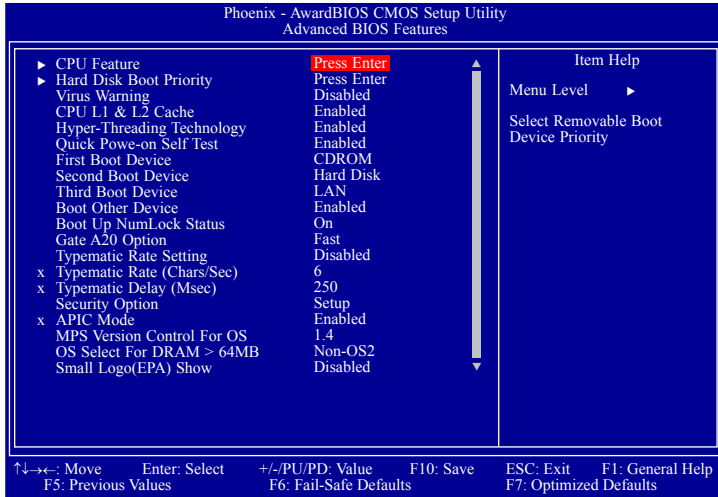
Displays the amount of extended memory detected during boot-up.

Total Memory

Displays the total memory available in the system.

Advanced BIOS Features

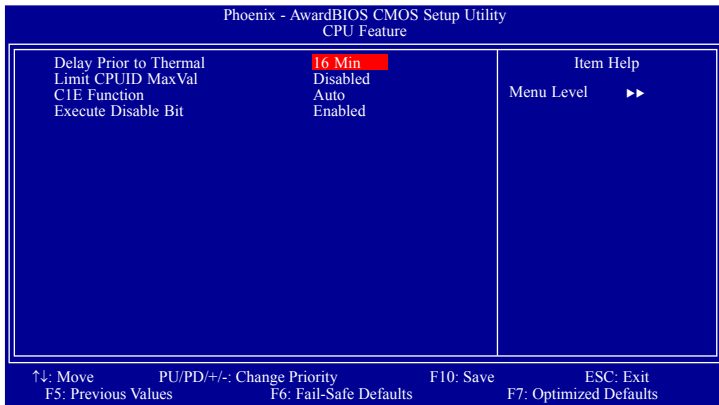
The Advanced BIOS Features allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.



The screen above list all the fields available in the Advanced BIOS Features submenu, for ease of reference in this manual. In the actual CMOS setup, you have to use the scroll bar to view the fields. 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.

Delay Prior To Thermal

This field is used to select the time that would force the CPU to a 50% duty cycle when it exceeds its maximum operating temperature therefore protecting the CPU and the system board from overheating to ensure a safe computing environment..

Limit CPUID MaxVal

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

C1E Function

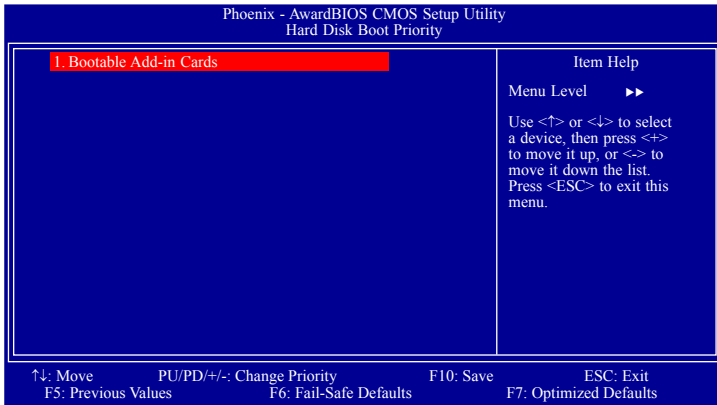
The options are Auto and Disabled.

Execute Disable Bit

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

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.

CPU L1 and L2 Cache

This field is used to speed up the memory access. Enable the external cache for better performance.

Hyper-Threading Technology

This field is used to enable the functionality of an Intel® processor that supports Hyper-Threading Technology and will appear only when using this processor.

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 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.

Typematic Rate Setting

Disabled

Continually holding down a key on your keyboard will cause the BIOS to report that the key is down.

Enabled

The BIOS will not only report that the key is down, but will first wait for a moment, and, if the key is still down, it will begin to report that the key has been depressed repeatedly. For example, you would use such a feature to accelerate cursor movements with the arrow keys. You can then select the typematic rate and typematic delay in the "Typematic Rate (Chars/Sec)" and "Typematic Delay (Msec)" fields below.

Typematic Rate (Chars/Sec)

This field allows you to select the rate at which the keys are accelerated.

Typematic Delay (Msec)

This field allows you to select the delay between when the key was first depressed and when the acceleration begins.

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.

OS Select for DRAM > 64MB

This field allows you to access the memory that is over 64MB in OS/2. The options are: Non-OS2 and OS2.

Small Logo(EPA) Show

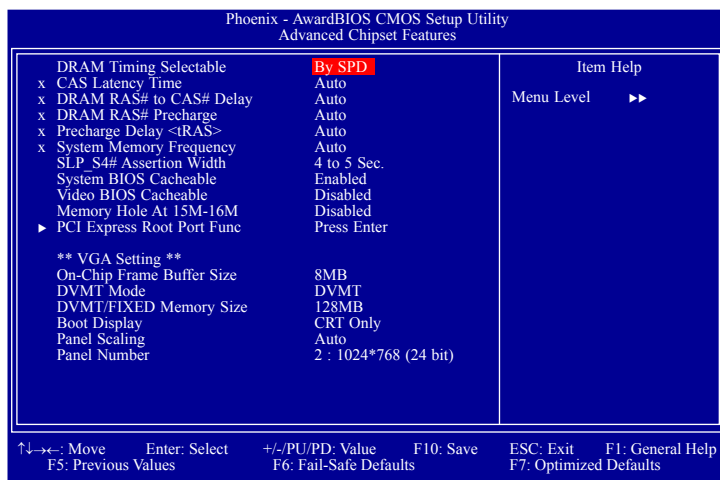
Enabled

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.

DRAM Timing Selectable

This field is used to select the timing of the DRAM.

By SPD

The EEPROM on a DIMM has SPD (Serial Presence Detect) data structure that stores information about the module such as the memory type, memory size, memory speed, etc. When this option is selected, the system will run according to the information in the EEPROM. This option is the default setting because it provides the most stable condition for the system. The "CAS Latency Time" to "System Memory Frequency" fields will show the default settings by SPD.

Manual

If you want better performance for your system other than the one "by SPD", select "Manual" then select the best option in the "CAS Latency Time" to "System Memory Frequency" fields.

CAS Latency Time

This field is used to select the local memory clock periods.

DRAM RAS# to CAS# Delay

This field is used to select the latency between the DRAM active command and the read/write command.

DRAM RAS# Precharge

This field is used to select the idle clocks after issuing a precharge command to the DRAM.

Precharge Delay (tRAS)

The options are Auto and 4 to15.

System Memory Frequency

This field is used to select the frequency of the system memory.

SLP_S4# Assertion Width

The options are 1 to 2 Sec., 2 to 3 Sec., 3 to 4 Sec. and 4 to 5 Sec.

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.

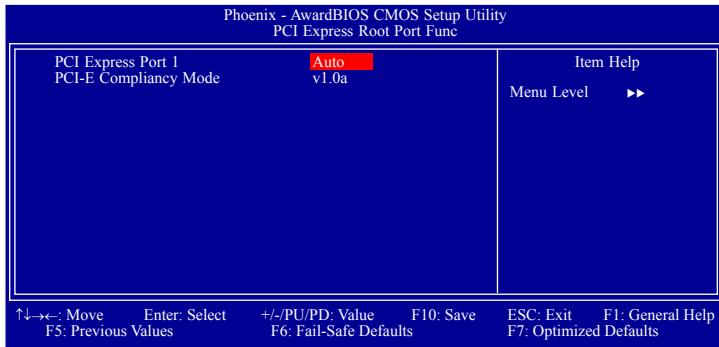
Video BIOS Cacheable

As with caching the system BIOS, enabling the Video BIOS cache will allow access to video BIOS addressed at C0000H to C7FFFH to be cached, if the cache controller is also enabled. The larger the range of the Cache RAM, the faster the video performance.

Memory Hole At 15M-16M

In order to improve system performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16MB. When enabled, the CPU assumes the 15-16MB memory range is allocated to the hidden ISA address range instead of the actual system DRAM. When disabled, the CPU assumes the 15-16MB address range actually contains DRAM memory. If more than 16MB of system memory is installed, this field must be disabled to provide contiguous system memory.

PCI Express Root Port Func



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

PCI Express Port 1

This field is used to enable or disable the PCI Express port function.

PCI-E Compliancy Mode

This field is used to select the mode for the PCI Express add-in card.

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 DVMT, Fixed and Both.

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.

Auto

Automatically detects the connected display.

CRT Only

Select this option if you want the system to boot the CRT display.

LFP Only

Select this option if you want the system to boot the LCD flat panel display.

CRT+LFP

Select this option if you want the system to boot both the CRT and LCD flat panel display.

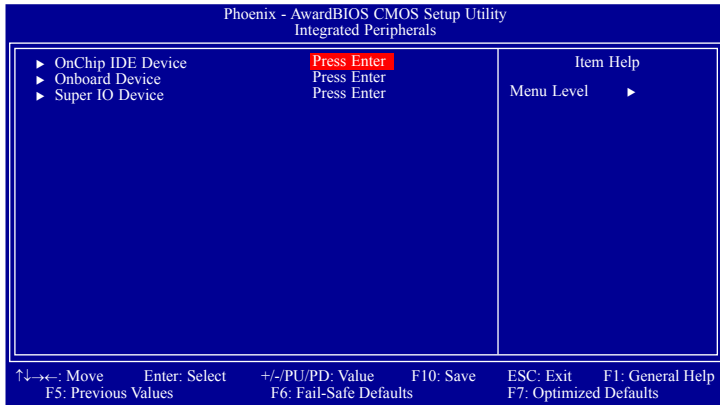
Panel Scaling

This options are Auto, On and Off.

Panel Number

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

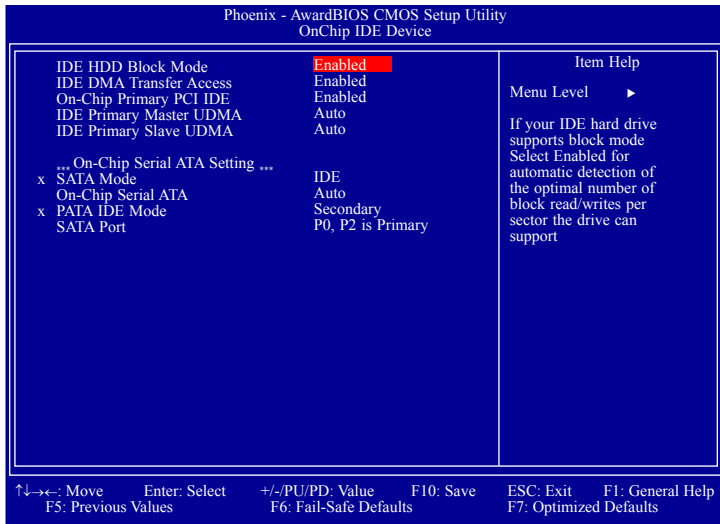
Integrated Peripherals



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.

On-Chip Primary PCI IDE

This field allows you to enable or disable the primary and secondary IDE controller. The default is Enabled. Select Disabled if you want to add a different hard drive controller

IDE Primary Master/Slave UDMA

These fields allow you to set the Ultra DMA in use. When Auto is selected, the BIOS will select the best available option after checking your hard drive or CD-ROM

Auto

The BIOS will automatically detect the settings for you.

Disabled

The BIOS will not detect these categories.

SATA Mode

IDE

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

AHCI

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

On-Chip Serial ATA

Disabled

Disables the onboard SATA.

Auto

The system will detect the existing SATA and IDE drives then automatically set them to the available master/slave mode.

Combined Mode

This option allows you to combine both IDE and SATA drives; supporting maximum of 2 drives on each channel.

Enhanced Mode

This option allows you to use both IDE and SATA drives; allowing a maximum of 4 drives - 1 IDE Master, 1 IDE Slave and 2 SATA.

SATA Only

This option automatically sets the SATA drives to Primary Master mode. Since the SATA drives are in Master mode, you cannot set the IDE drive to Master mode.

PATA IDE Mode and SATA Port

This field is used to select the function mode for the IDE connector and its relation to the SATA ports.

Primary

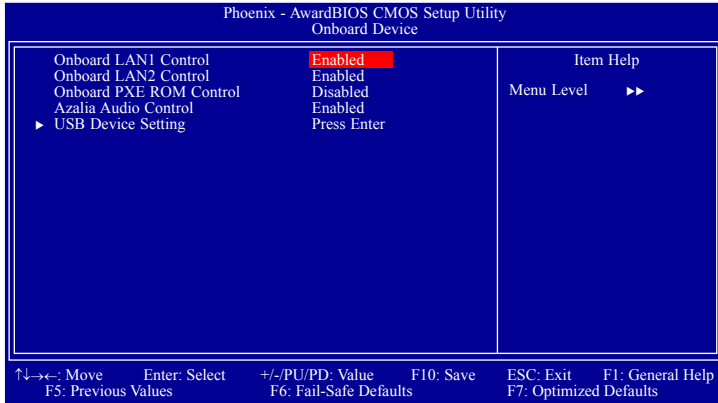
IDE serves as Primary Master and Primary Slave channel. SATA 1 and SATA 2 serve as Secondary Master and Secondary Slave channel.

Secondary

IDE serves as Secondary Master and Secondary Slave channel. SATA 1 and SATA 2 serve as Primary Master and Primary Slave channel.

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 LAN1 Control and Onboard LAN2 Control

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

Onboard PXE 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.

Azalia Audio Control

Enabled

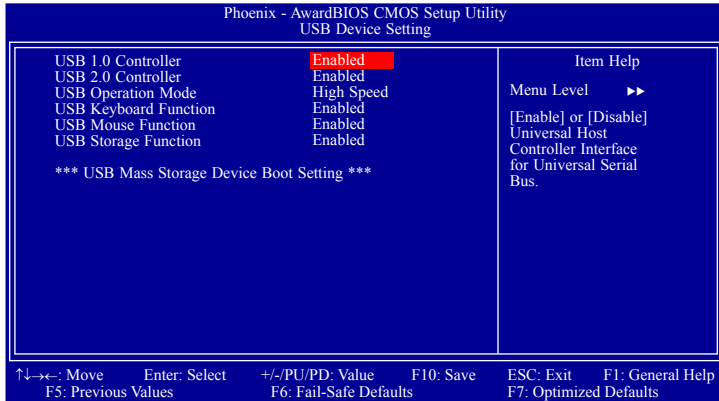
Enables the onboard Azalia CODEC.

Disabled

Disables the onboard audio. Disable the onboard audio when using an audio PCI card.

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 Operation Mode

This field is used to select the USB's operation mode. The options are Full/Low Speed and High Speed.

USB Keyboard Function

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

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

USB Mouse Function

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

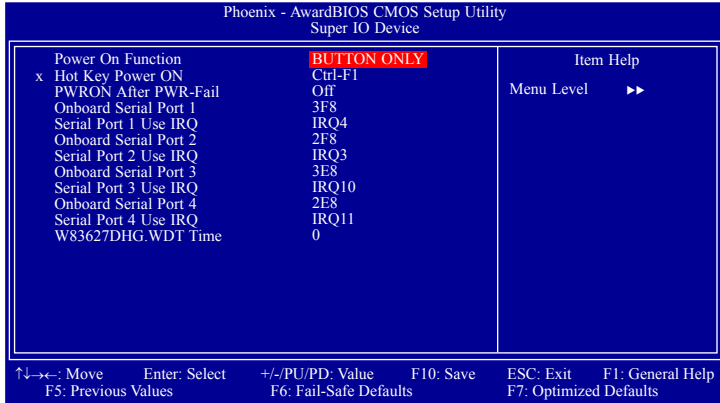
If a PS/2 mouse is not available and you need to use a USB mouse to install Windows (installation is performed in DOS mode) or run any program under DOS, set this field to Enabled.

USB Storage Function

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

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 PS/2 keyboard or PS/2 mouse 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.

Button only

Default setting. Uses the power button to power on the system.

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.

Hot Key Power On

This field is used to select a function key that you would like to use to power-on the system.

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 1/2/3/4

3F8, 2F8, 3E8, 2E8

Allows you to manually select an I/O address for the serial port.

Disabled

Disables the serial port.



Important:

The touch screen is internally connected to COM 3. If the LCD Display Panel supports touch screen, leave the "Onboard Serial Port 3" field in its default setting because a default address has already been assigned to this port. Make sure COM 3 is not attached with a serial device.

Serial Port 1/2/3/4 Use IRQ

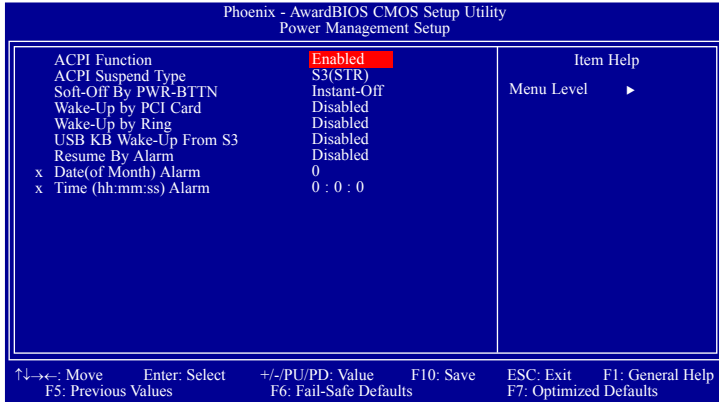
These fields are used to select an IRQ for the onboard serial port 1, 2, 3 or 4.

W83627DHG.WDT Time

This field is used to select the time interval of the Watchdog timer. If the system hangs or fails to function, it will reset at the set time interval so that your system will continue to operate.

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.

ACPI Function

This function should be enabled only in operating systems that support ACPI.

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.

Wake-Up By PCI Card

Enabled

This field should be set to Enabled only if your PCI card such as LAN card or modem card uses the PCI PME (Power Management Event) signal to remotely wake up the system. Access to the LAN card or PCI card will cause the system to wake up. Refer to the card's documentation for more information.

Disabled

The system will not wake up despite access to the PCI card.

Wake-Up By Ring

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

USB KB Wake-Up From S3

This field, when enabled, allows you to use a USB keyboard or USB mouse to wake up a system that is in the S3 (STR - Suspend To RAM) state. This can be configured only if the "ACPI Suspend Type" field is set to "S3(STR)".

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

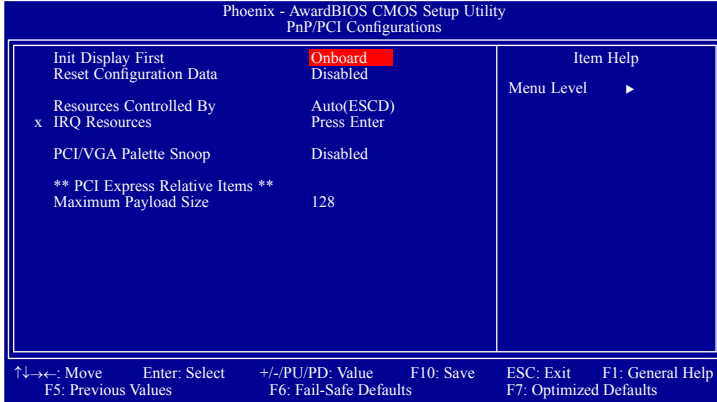
Select a date you would like the system to power-on. The system will power-on on the set date, and time set in the "Time (hh:mm:ss) Alarm" field.

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)

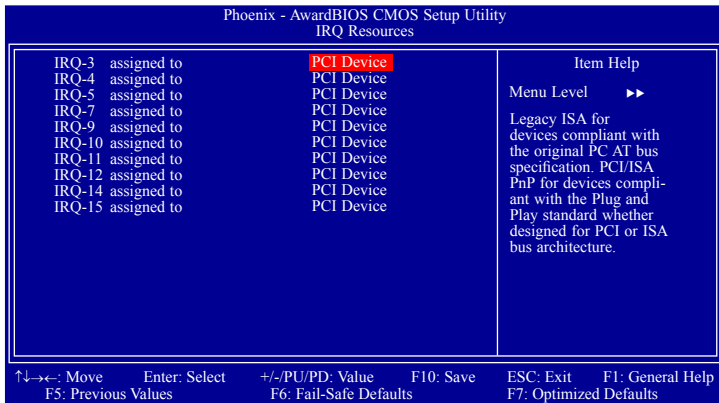
The system will automatically detect the settings for you.

Manual

Choose the specific IRQ resources in the "IRQ Resources" field.

IRQ Resources

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



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.

Maximum Payload Size

This field is used to select the maximum TLP payload size of the PCI Express devices. The unit is byte.

PC Health Status

Phoenix - AwardBIOS CMOS Setup Utility		Item Help
PC Health Status		
Case Open Warning	Disabled	
Shutdown Temperature	Disabled	
Current System Temperature	32°C/89°F	Menu Level ▶
Current CPU Temperature	41°C/105°F	
Current System Fan Speed	0 RPM	
Vcore	0.90V	
5V	5.04V	
1.05V	1.06V	
1.8V	1.81V	
+12V	11.88V	
VBAT (V)	3.24V	

↑↓←→: 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.

Case Open Warning

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

Shutdown Temperature

You can prevent the system from overheating by selecting a temperature at which the system will shutdown. If the system detected that its temperature exceeded the one set in this field, it will automatically shutdown. This function will work only if your operating system supports the ACPI feature.

Current System Temperature to VBAT (V)

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

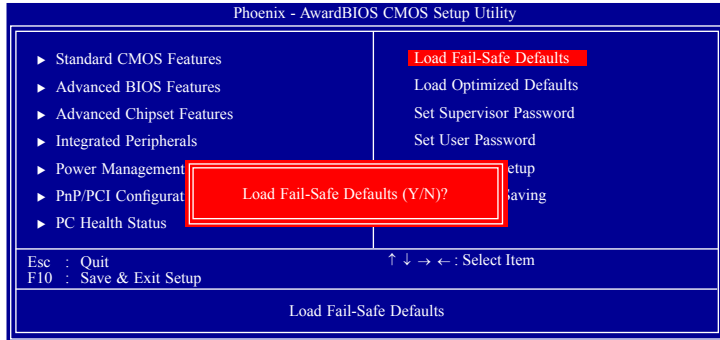


Note:

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.

Load Fail-Safe Defaults

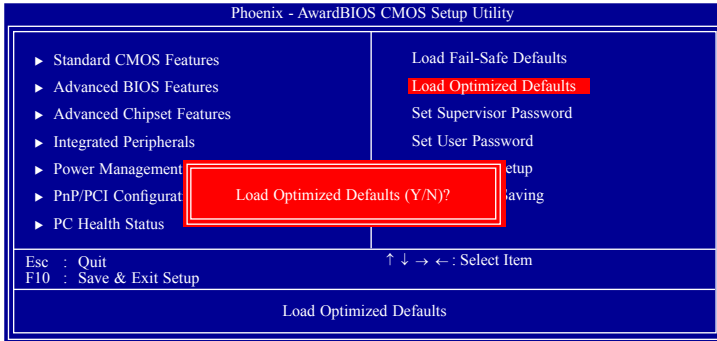
The "Load Fail-Safe Defaults" option loads the troubleshooting default values permanently stored in the ROM chips. These settings are not optimal and turn off all high performance features. You should use these values only if you have hardware problems. Highlight this option in the main menu and press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

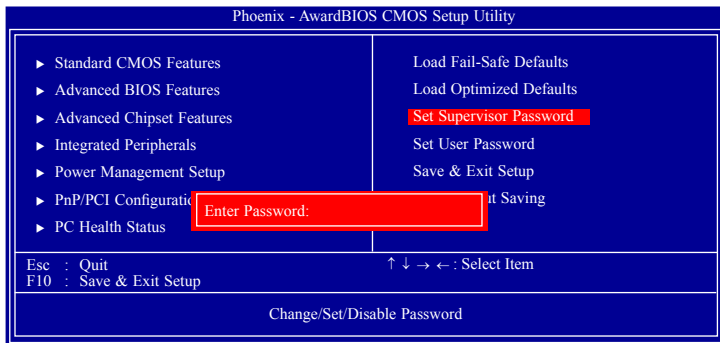


Type <Y> and press <Enter> to load the Setup default values.

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:

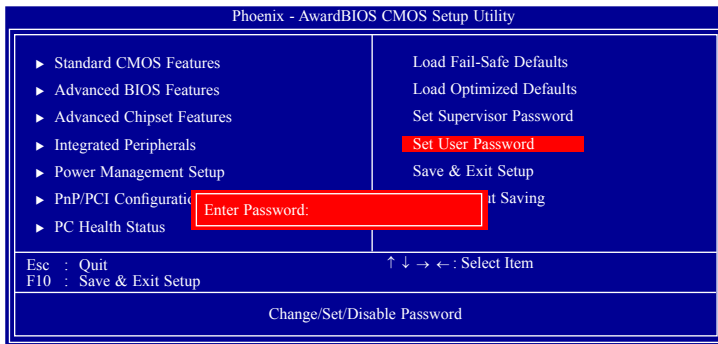
You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set Supervisor Password" and press <Enter>, instead of typing in a new password. Press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



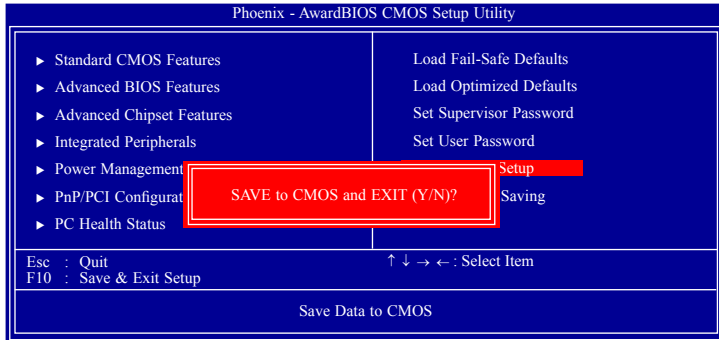
Type in the password. You are limited to eight characters. When done, the message below will appear:

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

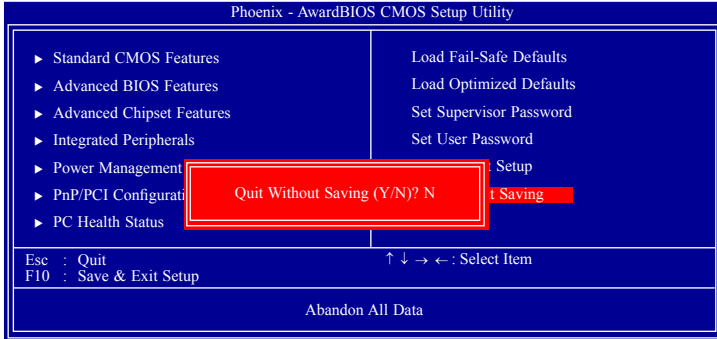
When all the changes have been made, highlight "Save & Exit Setup" and press <Enter>.



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>.

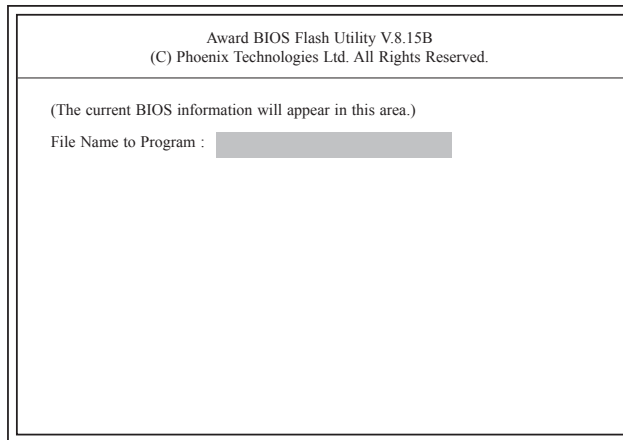


Type "Y" and press <Enter>. The system will reboot and you will once again see the initial diagnostics on the screen. If you wish to make any changes to the setup, press <Ctrl> <Alt> simultaneously after memory testing is done.

Updating the BIOS

To update the BIOS, you will need the new BIOS file and a flash utility, AWD-FLASH.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.



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

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 (which is, the Mainboard Utility CD screen did not appear), please go directly to the root directory of the CD and double-click "Setup".



Drivers for Windows 7 / Windows Vista System

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.

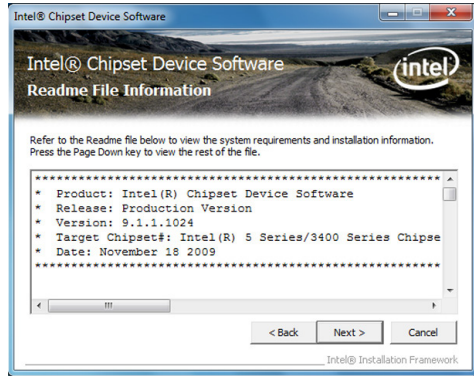
1. Setup is now ready to install the utility. Click Next.



2. Read the license agreement then click Yes.



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



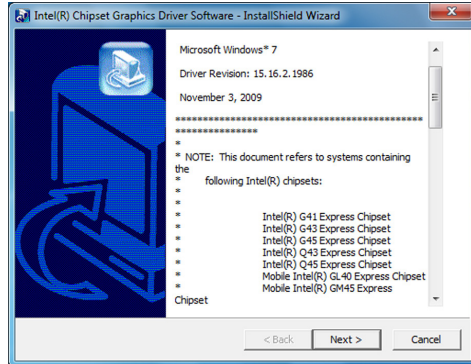
5. After completing installation, click Finish to exit setup.



Intel Graphics Drivers

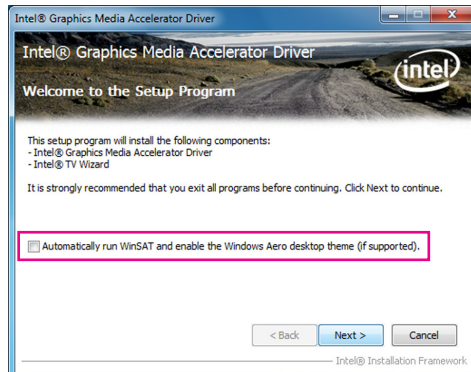
To install the driver, click “Intel Graphics Drivers” on the main menu.

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



By default, the “Automatically run WinSAT and enable the Windows Aero desktop theme” is enabled. With this enabled, after installing the graphics driver and the system rebooted, the screen will turn blank for 1 to 2 minutes (while WinSAT is running) before the Windows 7 / Windows Vista desktop appears. The “blank screen” period is the time Windows is testing the graphics performance.

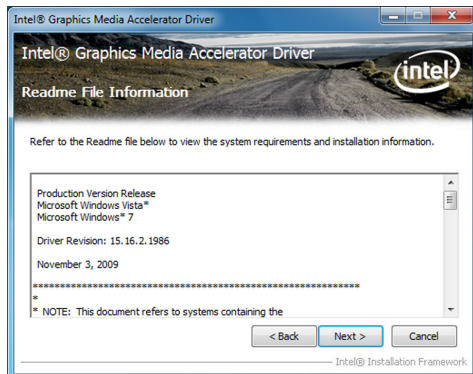
We recommend that you skip this process by disabling this function then click Next.



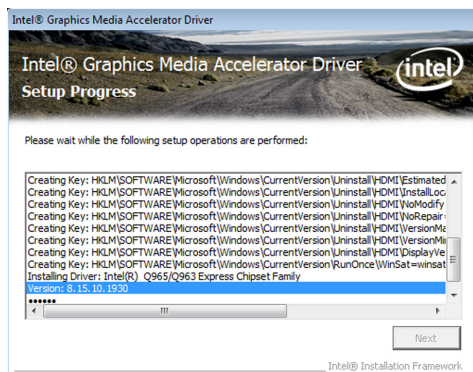
2. Read the license agreement then click Yes.



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 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.

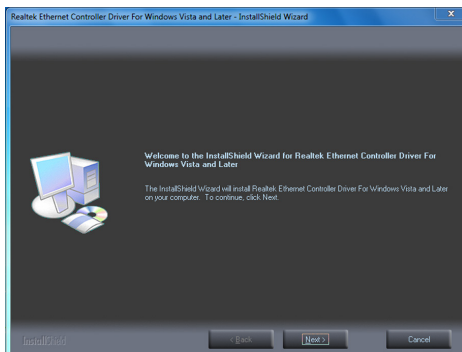
Restarting the system will allow the new software installation to take effect.



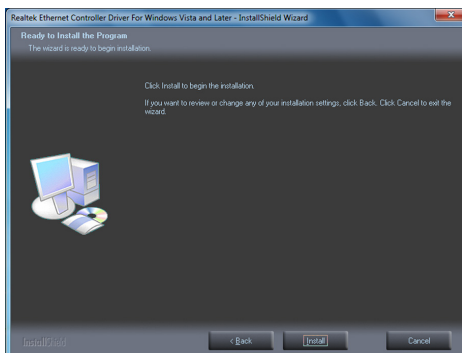
LAN Drivers

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

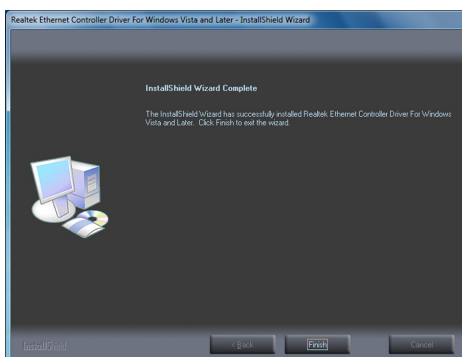
1. Setup is ready to install the driver. Click Next.



2. Click Install to begin the installation.



3. After completing installation, click Finish.

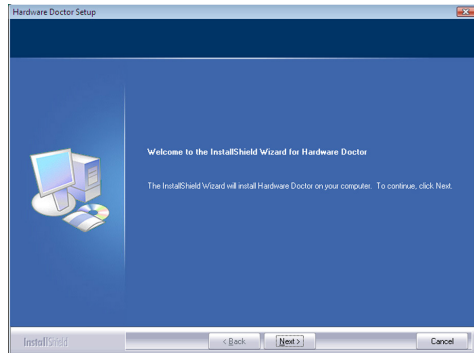


Hardware Monitor for Windows

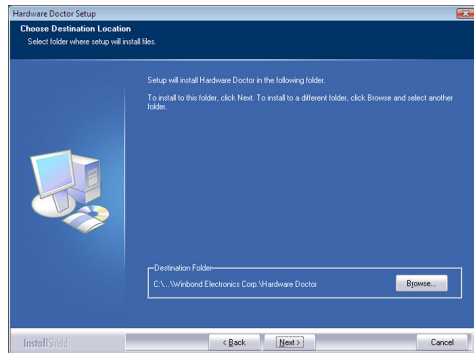
The Hardware Monitor for Windows utility is capable of monitoring the system's temperature, fan speed, voltage, etc. and allows you to manually set a range (Highest and Lowest Limit) to the items being monitored. If the settings/values are over or under the set range, a warning message will pop-up. The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

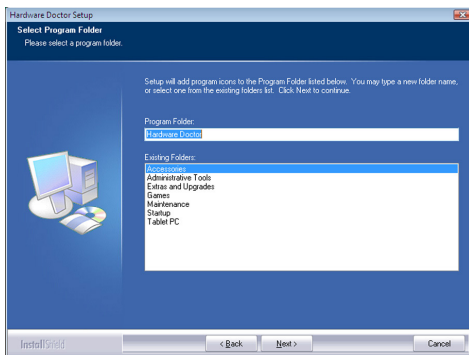
1. Setup is now ready to install the utility. Click Next.



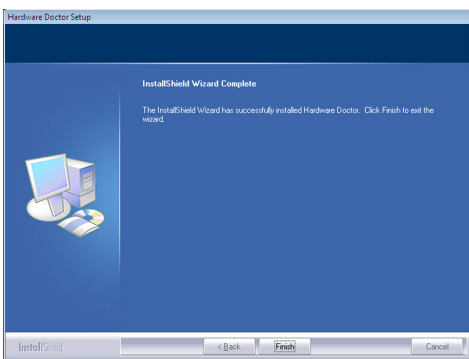
2. Click Next to install or click Browse to select another folder.



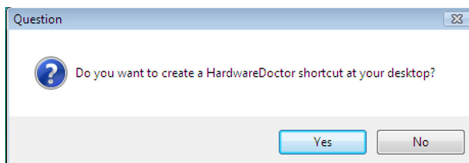
- Click Next to add the program icon to the Program Folder.



- After completing installation, click Finish to exit setup.

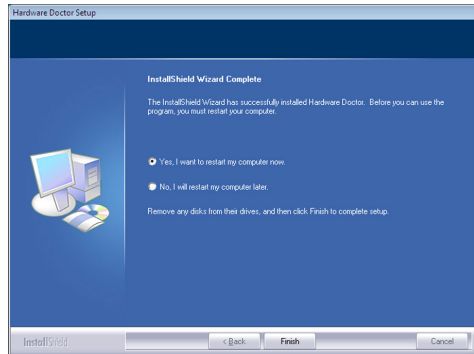


- Click Yes if you want to create a Hardware Doctor shortcut at your desktop.



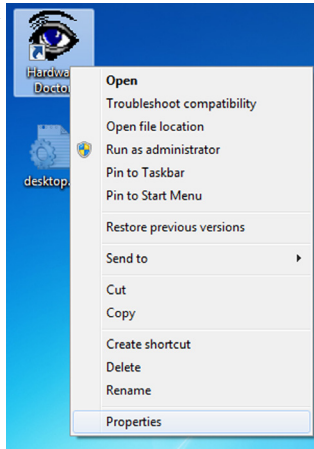
6. Click "Yes, I want to restart my computer now" then click Finish.

Restarting the system will allow the utility to take effect.

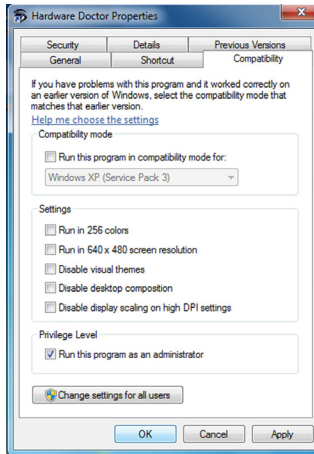


Using the Hardware Monitor for Windows Utility

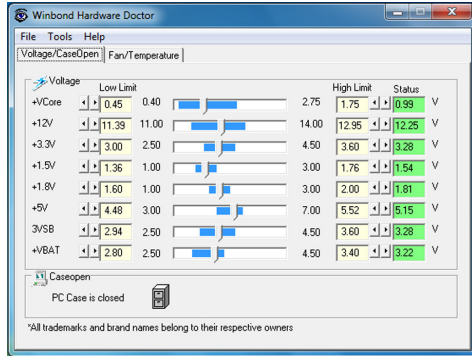
1. On your desktop, right-click the Hardware Doctor icon and then select Properties.



2. Select the Compatibility tab, click "Run this program as an administrator" then click OK.



4. You can now access the utility.

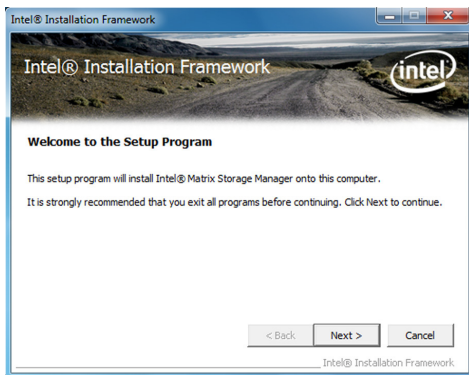


Intel Matrix Storage Manager Utility

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.

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

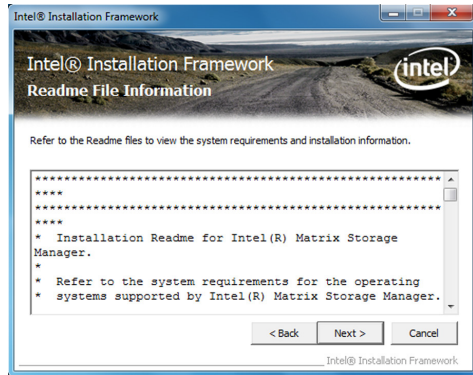
1. Setup is now ready to install the utility. Click Next.



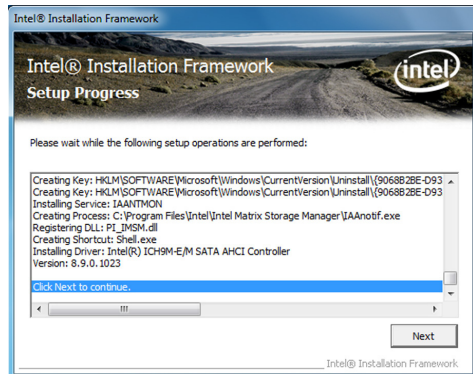
2. Read the license agreement then click Yes.



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

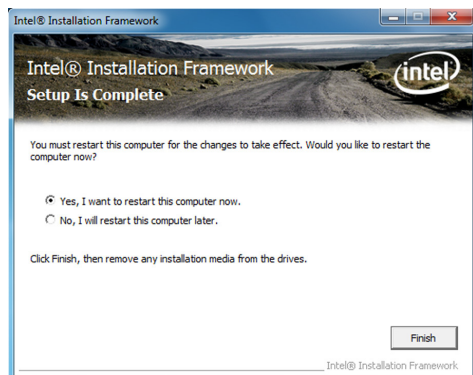


- Setup is now installing the utility. Click Next to continue.

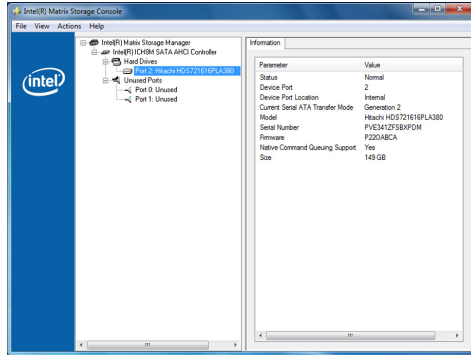


- Click "Yes, I want to restart my computer now" then click Finish.

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



6. Run the Intel Matrix Storage Console utility to view the hard drives' configuration.

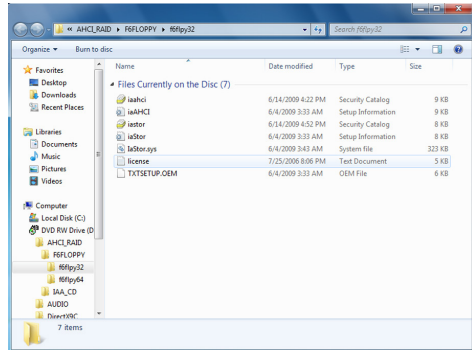


F6 Floppy Configuration Utility

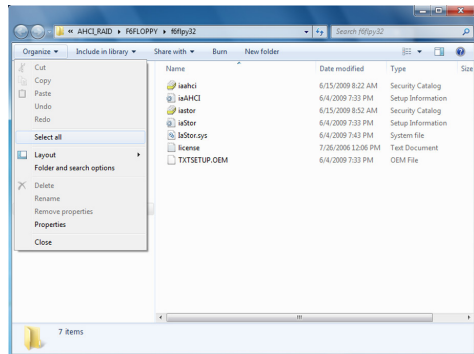
You need to prepare an AHCI driver floppy diskette that you will need when you install the AHCI driver during Windows 7 / Windows Vista installation. You may also choose to copy the installation files to a USB flash drive.

1. Click "F6 Floppy Configuration Utility" on the main menu.

Windows Explorer will appear showing the locations of the installation files.

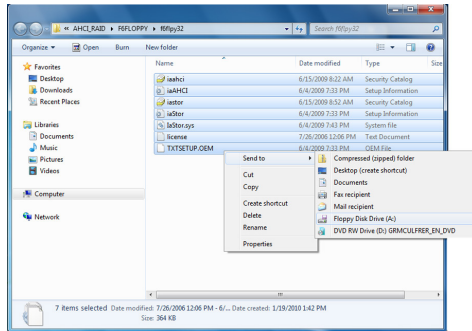


2. Click the Organize menu then click "Select All".
3. Insert a blank formatted floppy diskette into a floppy disk drive or plug a USB flash drive.



4. Right click on the files, select "Send To" and then select the floppy drive or USB flash drive.

The system will copy the selected files to the designated drive.



Installing the AHCI Driver During Windows 7 / Windows Vista Installation

The AHCI driver must be installed during Windows 7 / Windows Vista installation. This is required in order to be able to install the operating system onto a hard drive that is configured in AHCI mode.

**Note:**

The illustrations below were captured from the Windows 7 operating system. Except for slight differences in their screen appearance, the installation procedure is also the same for Windows Vista.

When you insert the operating system's installation disc into an optical drive, the message **Press any key to boot from CD or DVD** will appear. Press Enter.

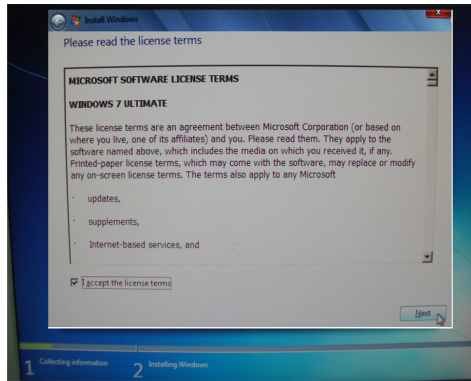
1. Enter the preferred language and other preferences then click Next.



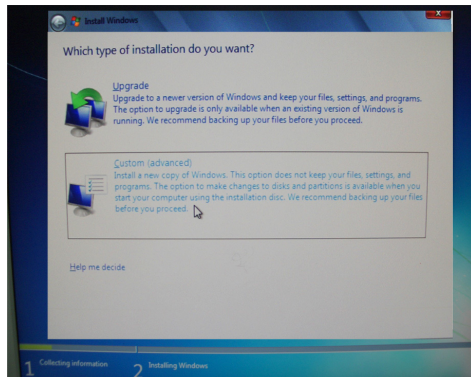
2. Click Install Now.



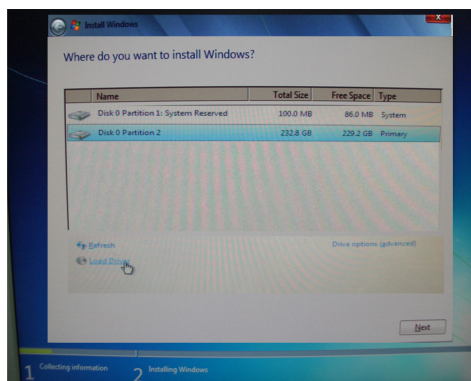
- Click "I accept the license terms" then click Next.



- Click Custom (advanced) to install a new copy of Windows.



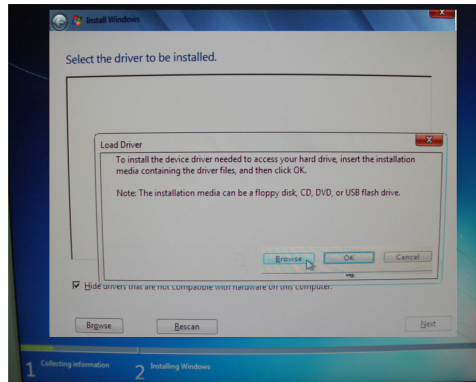
- Select Load Driver then click Next.



- If you are using one optical drive only, take out the Windows installation disc and then insert the CD that came with the motherboard package.

If you have another optical drive, you can choose to insert the provided CD to that drive or plug the USB flash drive that contains the AHCI driver.

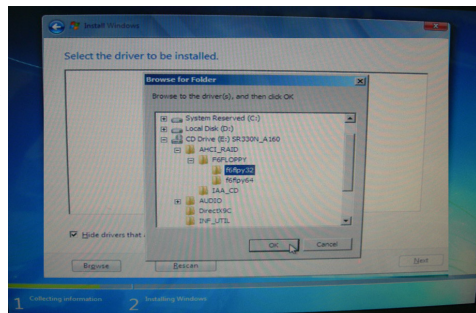
Click Browse.



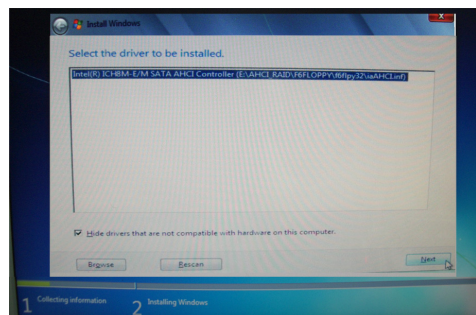
- Locate for the optical drive where you inserted the CD. The AHCI driver is in the \AHCI_RAID\F6FLOPPY\F6FLPY32 of the CD.

Or locate for the USB flash drive that contains the AHCI driver.

After you have selected the driver, click OK.

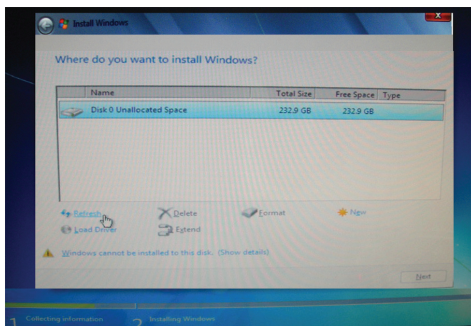


- Select the driver then click Next.

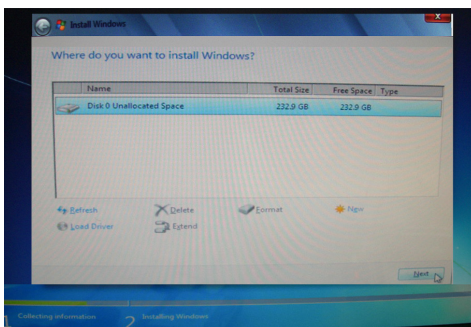


9. If you are using one optical drive only, the warning message "Windows cannot be installed to this disk" will appear. Remove the AHCI driver CD and insert the Windows installation disc back in. You will not be able to proceed yet because the Next button is still gray. You must first click Refresh.

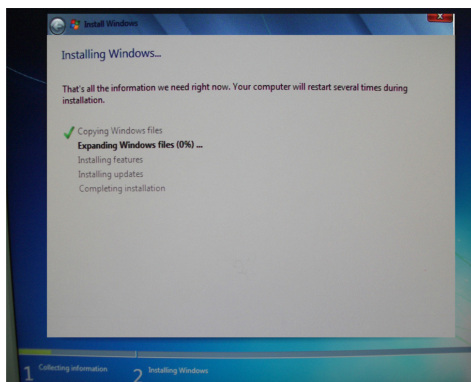
Skip this step if the CD is in another optical drive or if you are using a USB flash drive.



10. The Next button that was initially gray will turn black. Click Next to proceed.



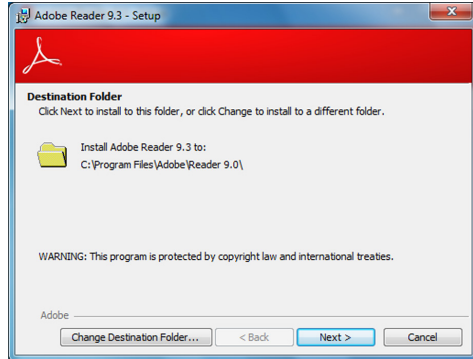
11. The system is currently installing Windows. Your computer will restart several times during the installation.



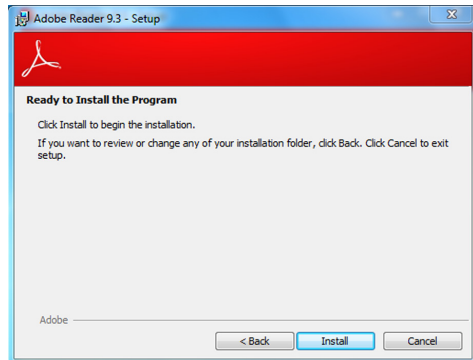
Adobe Acrobat Reader 9.3

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

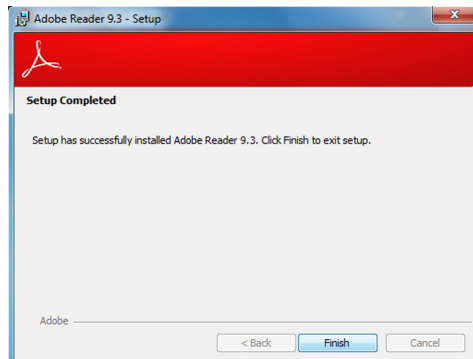
1. Click Next to install to the destination folder or click Change Destination folder to select another folder.



2. Click Install to begin installation.



3. Click Finish to exit installation.



Drivers for Windows XP System

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 ready to install the utility. Click Next.



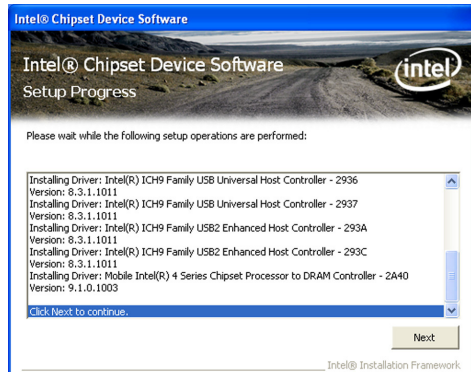
2. Read the license agreement then click Yes.



- Go through the readme document for more installation tips then click Next.



- After all setup operations are done, click Next.



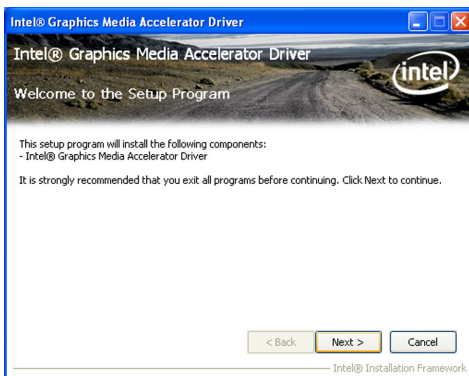
- Click Finish to exit setup.



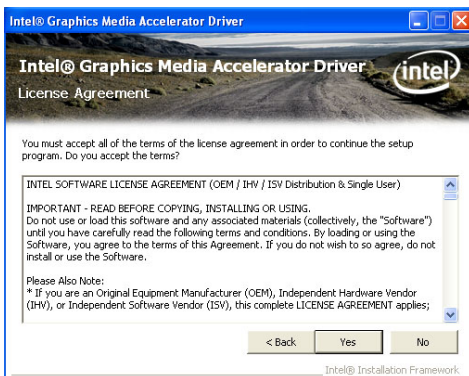
Intel Graphics Drivers

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

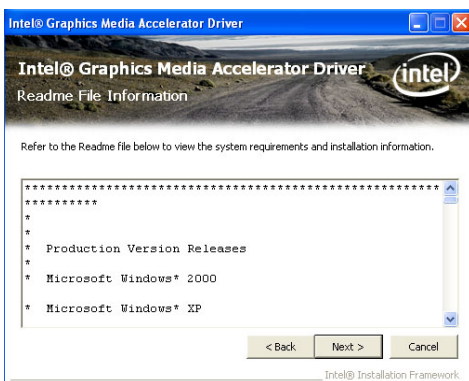
1. To start installation, click Next.



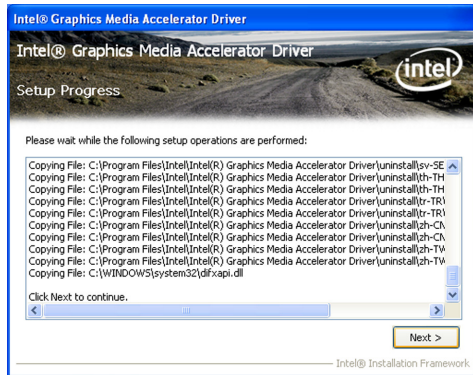
2. Read the license agreement then click Yes.



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

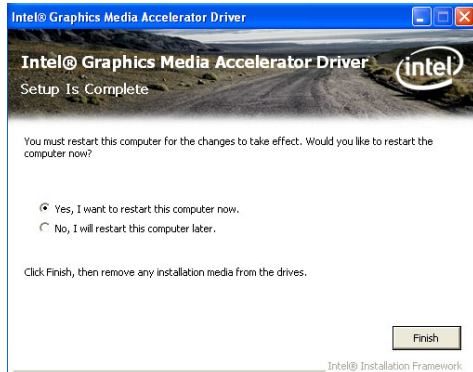


4. Setup is now installing the driver. Click Next to continue.



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

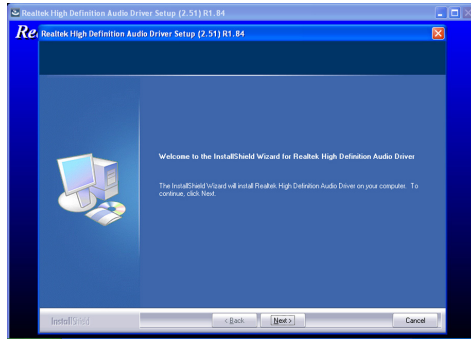
Restarting the system will allow the new software installation to take effect.



Audio Drivers

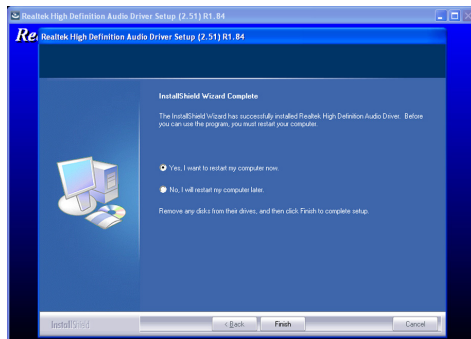
To install the driver, click “Audio Drivers” on the main menu.

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



2. Click “Yes, I want to restart my computer now” then click Finish.

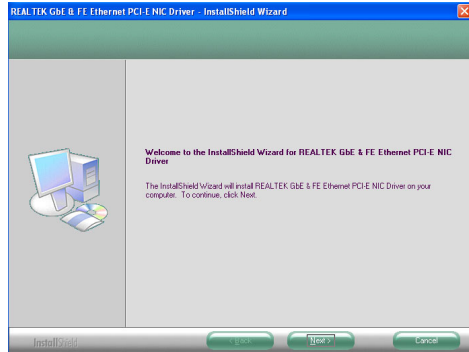
Restarting the system will allow the new software installation to take effect.



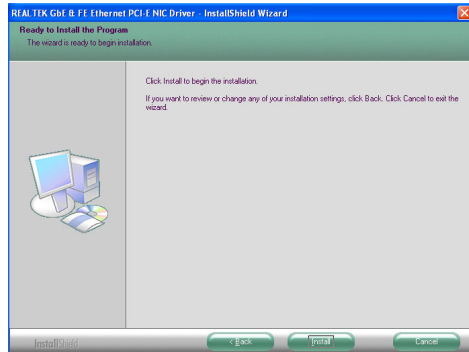
LAN Drivers

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

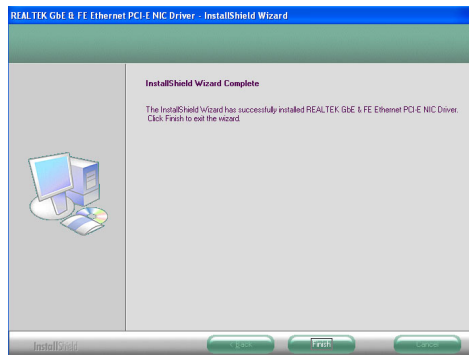
1. Setup is ready to install the driver. Click Next.



2. Click Install to begin the installation.



3. After completing installation, click Finish.



Hardware Monitor for Windows

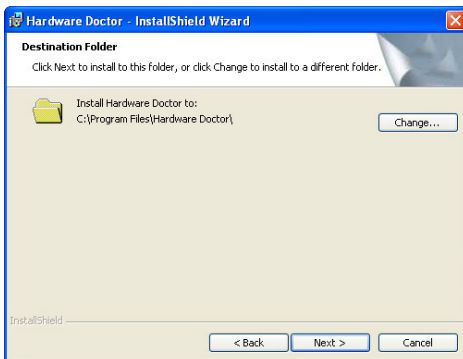
The Hardware Monitor for Windows utility is capable of monitoring the system's temperature, fan speed, voltage, etc. and allows you to manually set a range (Highest and Lowest Limit) to the items being monitored. If the settings/values are over or under the set range, a warning message will pop-up. The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

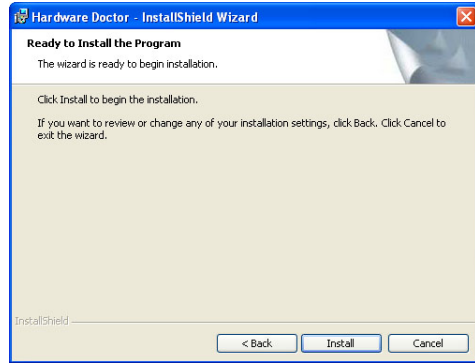
1. Setup is now ready to install the utility. Click Next.



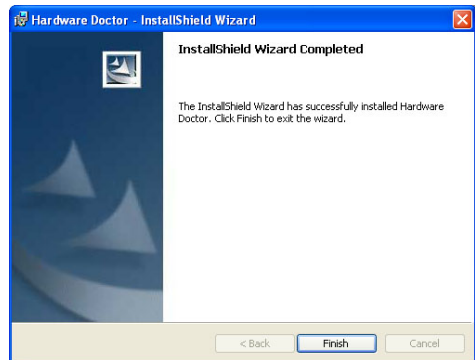
2. Click Next to install or click Change to select another folder.



3. Click Install to begin the installation.



4. After completing installation, click Finish.

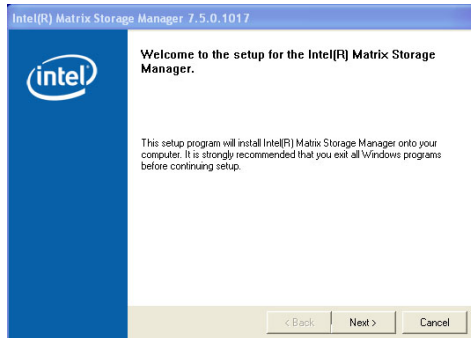


Intel Matrix Storage Manager Utility

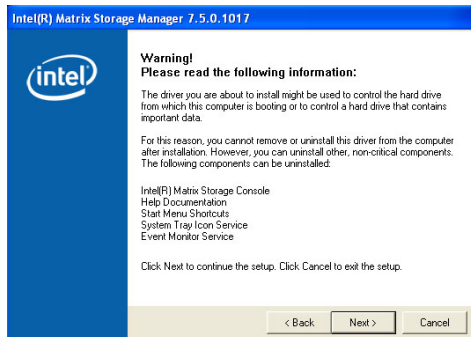
Intel Matrix Storage Manager is a utility that allows you to monitor the current status of the SATA drives. It enables enhanced performance and power management for the storage subsystem.

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.



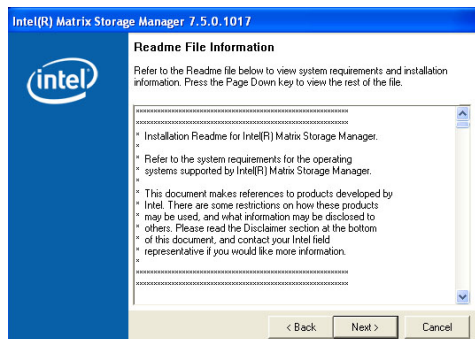
2. Read the Warning information carefully then click Next.



3. Read the license agreement then click Yes.

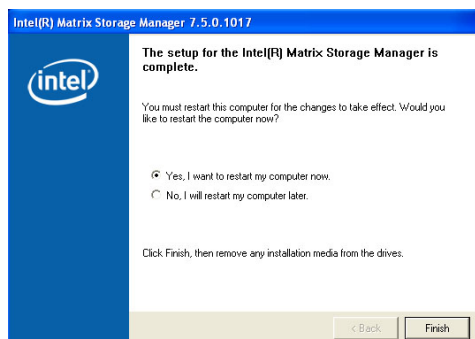


4. Go through the readme document for system requirements and installation tips then click Next.



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.

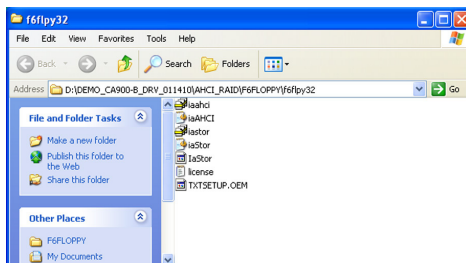


F6 Floppy Configuration Utility

You need to prepare an AHCI driver floppy diskette that you will need when you install the AHCI driver during Windows XP installation.

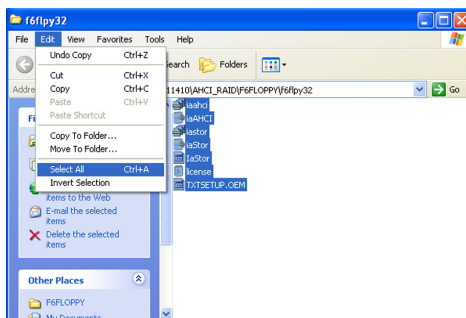
1. Click "F6 Floppy Configuration Utility" on the main menu.

Windows Explorer will appear showing the locations of the installation files.



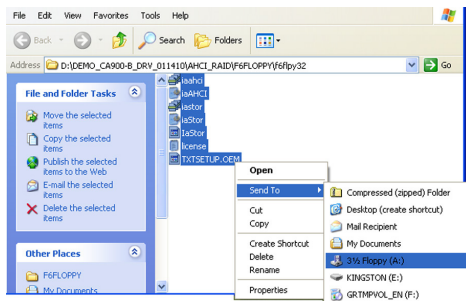
2. Click the Edit menu then click "Select All".

3. Insert a blank formatted floppy diskette into a floppy disk drive.



4. Right click on the files, select "Send To" and then select "3½ Floppy (A:)".

The system will copy the selected files into the diskette.



Installing the AHCI Driver During Windows XP Installation

The AHCI driver must be installed during Windows XP installation. This is required in order to be able to install the operating system onto a hard drive that is configured in AHCI mode.

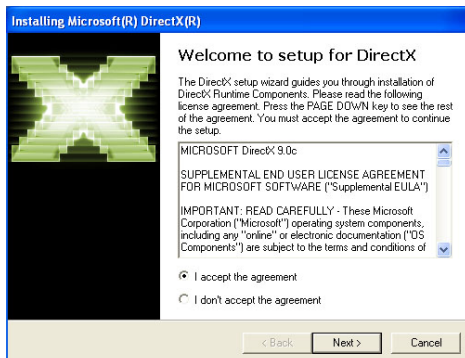
1. When you insert the operating system's installation disc into an optical drive, the message **Press any key to boot from CD** will appear. Press Enter.
2. The message **Setup is inspecting your computer's hardware configuration** will appear.
3. Press **F6** when prompted in the status line with the "Press F6 if you need to install a third party SCSI or RAID driver" message.
4. Press **S** to "Specify Additional Device".
4. Insert the floppy disk, containing the AHCI driver, into a floppy drive.
5. Select **Intel(R) ICH7M SATA AHCI Controller** then press Enter.

You have successfully installed the driver. However you must continue installing the OS. Leave the floppy disk in the floppy drive until the system reboots itself because Windows setup will need to copy the files again from the floppy disk to the Windows installation folders. After Windows setup has copied these files again, remove the floppy diskette so that Windows setup can reboot as needed.

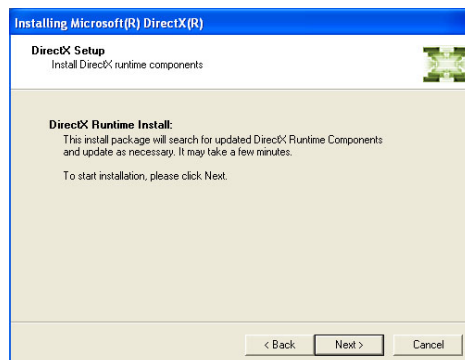
Microsoft DirectX 9.0C Driver

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

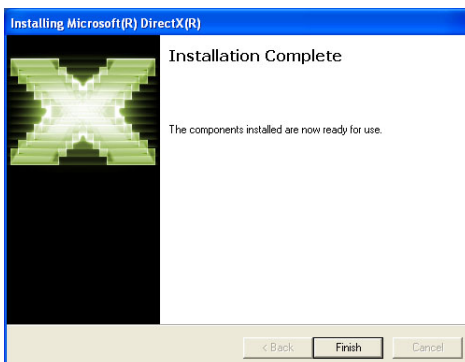
1. Click "I accept the agreement" then click Next.



2. You are now ready to install DirectX. Click Next.



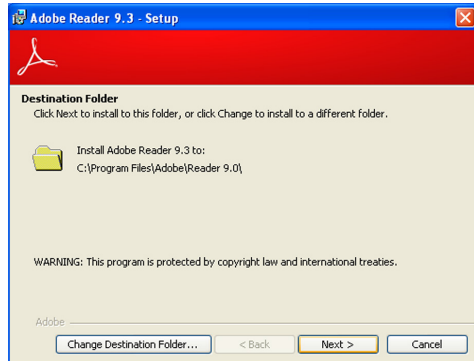
3. Click Finish. Reboot the system for DirectX to take effect.



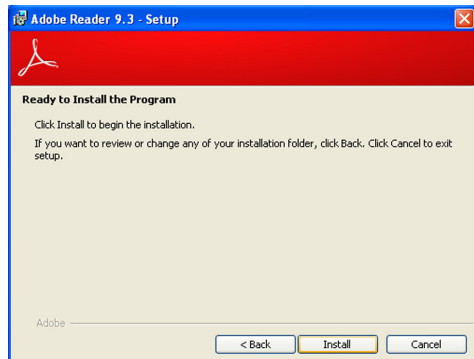
Adobe Acrobat Reader 9.3

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

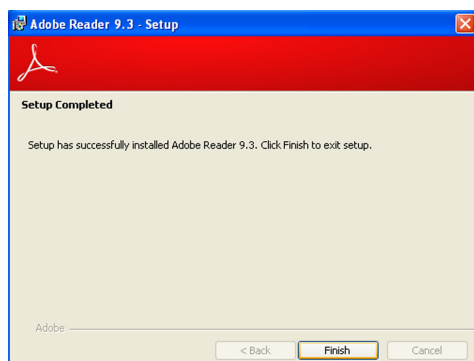
1. Click Next to install to the destination folder or click Change Destination folder to select another folder.



2. Click Install to begin installation.



3. Click Finish to exit installation.



Appendix A - NLITE and AHCI Installation Guide

nLite

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



Note:

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

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

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

2. Install nLite.

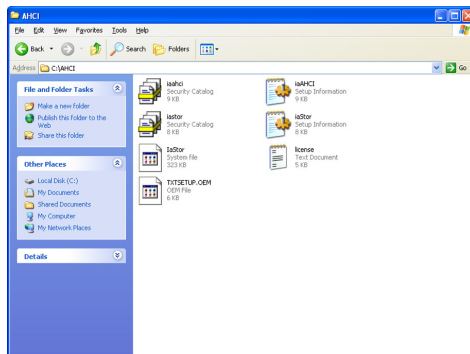


Important:

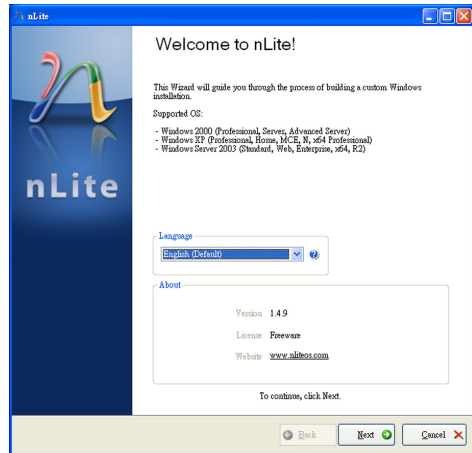
Due to its coding with Visual.Net, you may need to first install .NET Framework prior to installing nLite.

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

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

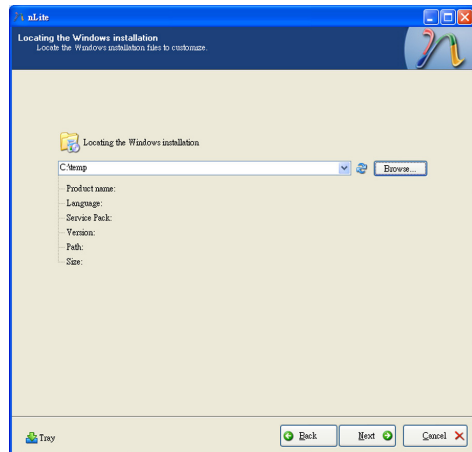


4. Insert the XP installation disc into an optical drive.
5. Launch nLite. The Welcome screen will appear. Click **Next**.

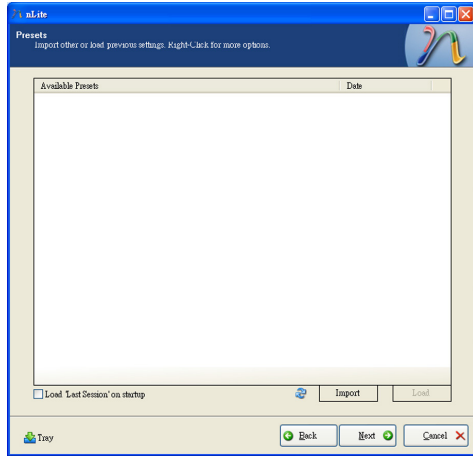


6. Click **Next** to temporarily save the Windows installation files to the designated default folder.

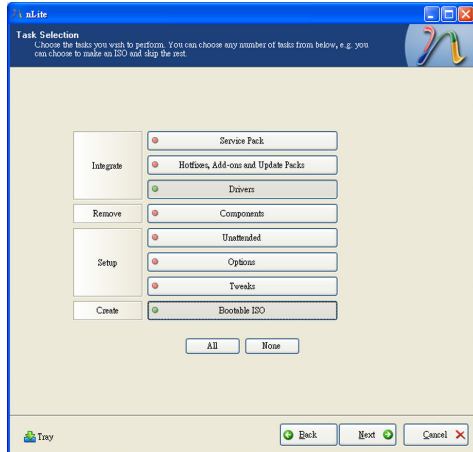
If you want to save them in another folder, click **Browse**, select the folder and then click **Next**.



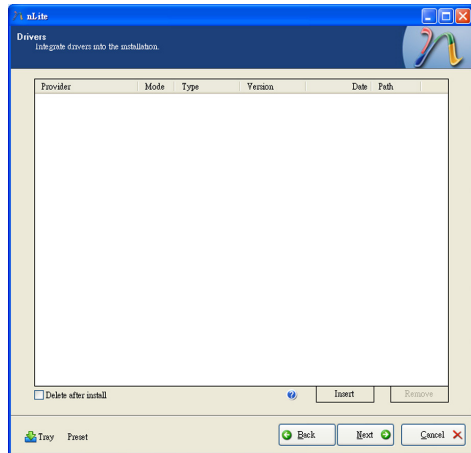
7. Click **Next**.



8. In the Task Selection dialog box, click **Drivers** and **Bootable ISO**. Click **Next**.

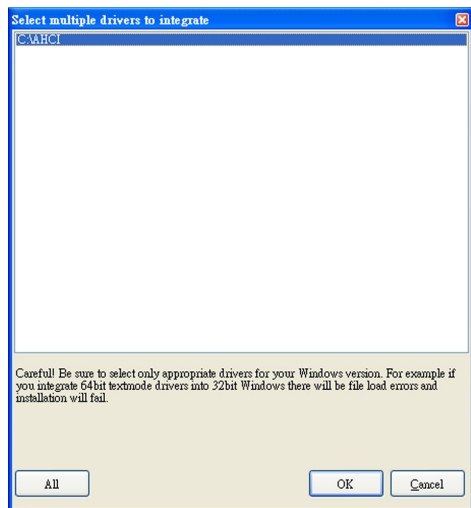


- Click **Insert** and then select **Multiple driver folder** to select the drivers you will integrate. Click **Next**.

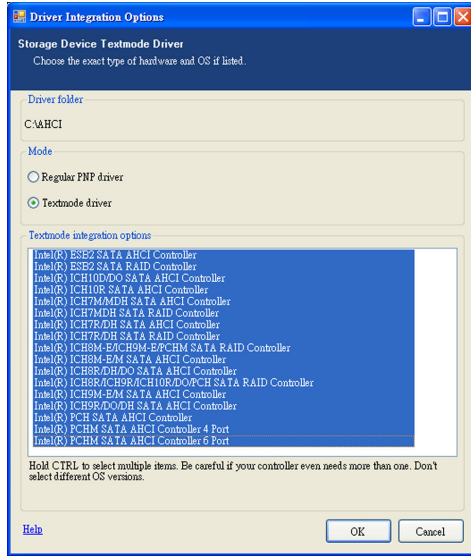


- Select only the drivers appropriate for the Windows version that you are using and then click **OK**.

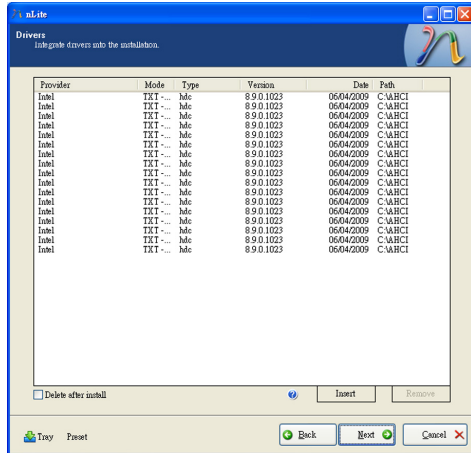
Integrating 64-bit drivers into 32-bit Windows or vice versa will cause file load errors and failed installation.



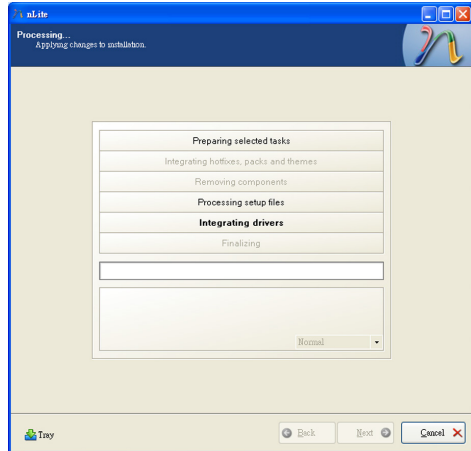
- If you are uncertain of the southbridge chip used on your motherboard, select all RAID/AHCI controllers and then click **OK**.



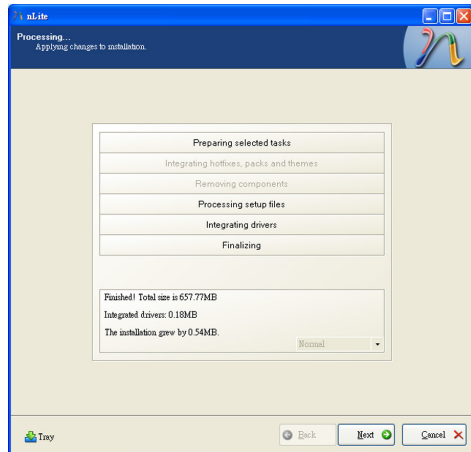
- Click **Next**.



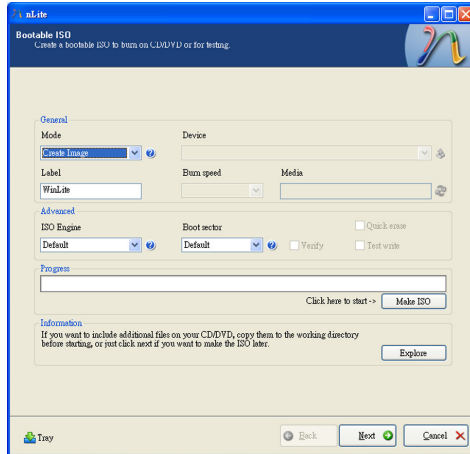
13. The program is currently integrating the drivers and applying changes to the installation.



14. When the program is finished applying the changes, click **Next**.

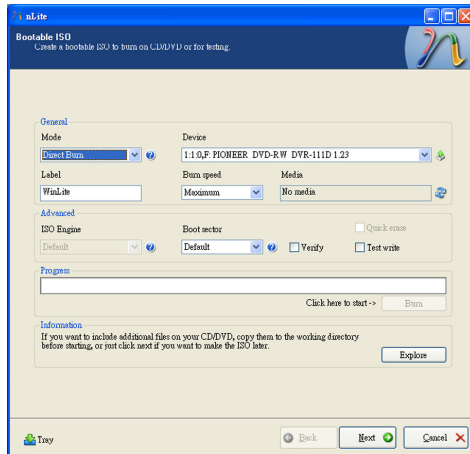


- To create an image, select the **Create Image** mode under the General section and then click **Next**.



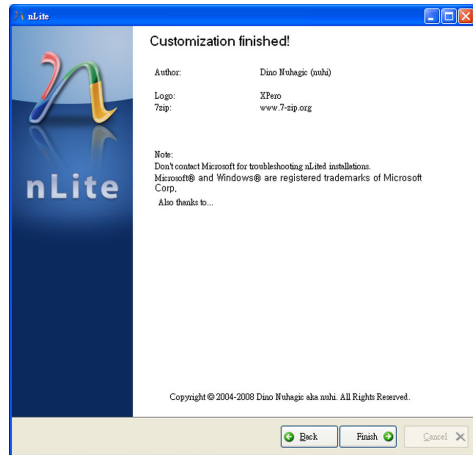
- Or you can choose to burn it directly to a disc by selecting the **Direct Burn** mode under the General section.

Select the optical device and all other necessary settings and then click



17. You have finished customizing the Windows XP installation disc. Click **Finish**.

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

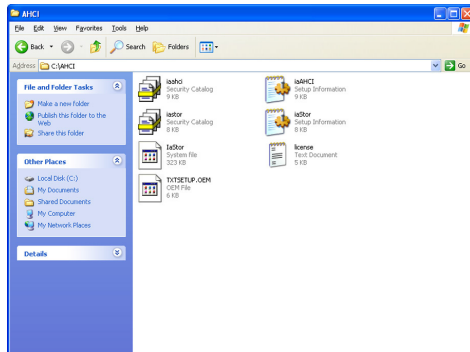


AHCI

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

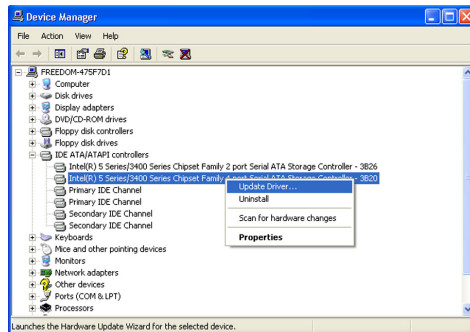
1. Enter the BIOS utility and configure the SATA controller to IDE mode.
2. Install Windows XP but do not press F6.
3. Download relevant RAID/AHCI driver files supported by the motherboard chipset from Intel's website.

Transfer the downloaded driver files to C:\AHCI.



4. Open Device Manager and right click on one of the Intel Serial ATA Storage Controllers, then select **Update Driver**.

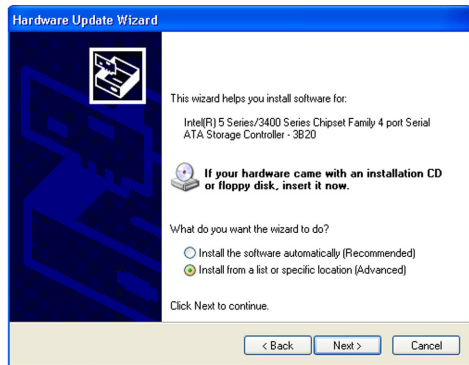
If the controller you selected did not work, try selecting another one.



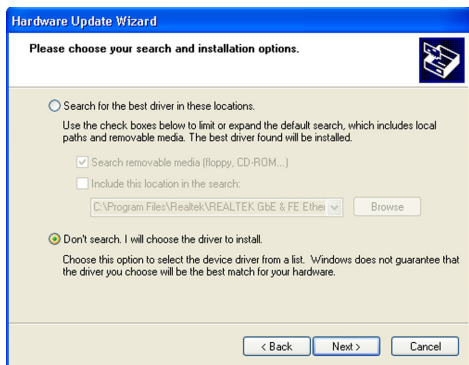
- In the Hardware Update Wizard dialog box, select **“No, not this time”** then click **Next**.



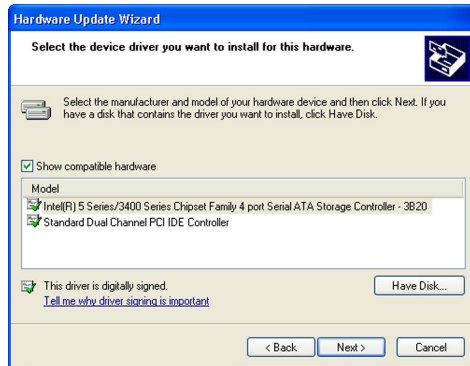
- Select **“Install from a list or specific location (Advanced)”** and then click **Next**.



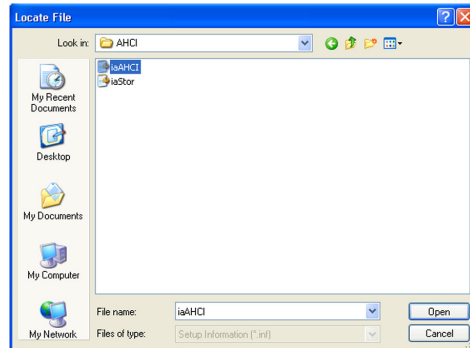
- Select **“Don't search. I will choose the driver to install”** and then click **Next**.



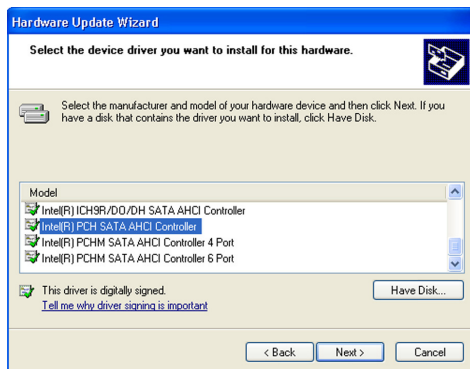
- Click "**Have Disk**".



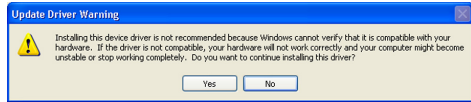
- Select C:\AHCI\iaAHCI.inf and then click **Open**.



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



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

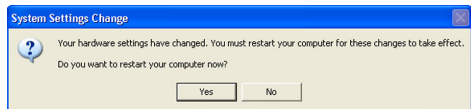


Ignore the warning and click **Yes** to proceed.

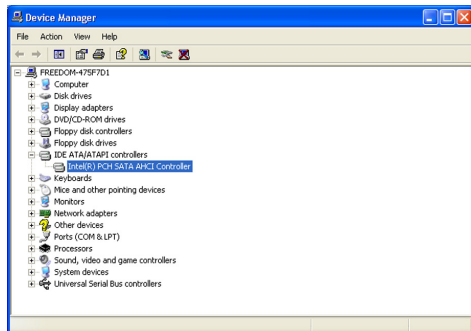
12. Click **Finish**.



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



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



Appendix B - Watchdog Timer

Watchdog Timer

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

```
.model small
.386

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

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

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

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

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

mSuperio_Get_Reg      Macro RegIndex
    mov     dx, SuperIo_CFG_Port
    mov     al, RegIndex
    out    dx, al
```



```

        NEWIODELAY
        mov     dx, SuperIo_DAT_Port
        in     al, dx
        NEWIODELAY
endM

mSuperio_LDN_Select      Macro   LDN
        mSuperio_Set_Reg 07h, LDN
endM

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

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

.code

start:
        call    W83627Hx_WDT

        mov     ah, 4ch
        int     21h

W83627Hx_WDT Proc   near
;LDN8
;CRF5[3] :RW 0/1 = WDTO Second/Minute
;CRF5[2] :RW 0/1 = Keyboard Reset Low/High when WDTO Timeout
;CRF6[7:0]:RW 00h = Disable , 01h~0FFh = 1~255 Sec/Min.
;CRF7[7] :RW 0/1 = Disable/Enable Mouse interrupt reset WDTO counting.
;CRF7[6] :RW 0/1 = Disable/Enable Keyboard interrupt reset WDTO counting.
;CRF7[5] :WO 1 = Force WDTO time out(Auto clear).
;CRF7[4] :RW 0/1 = WDTO time status TimeOut/Counting.
;CRF7[3:0]:RW 0~7 = Low IRQ for WDTO (Typical is 2, means SMI).

        mSuperio_Enter_Config
        mSuperio_LDN_Select 08h

```

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

```
    mSuperio_GetSet_Reg 0F5h, 11110111b, 00000100b
```

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

```
    mSuperio_GetSet_Reg 0F7h, 11111111b, 11000010b
```

```
; , WDTO Time out Value
```

```
    mSuperio_Set_Reg 0F6h, WDT_Counter
```

```
mSuperio_Exit_Config
```

```
@@:
```

```
    ret
```

```
W83627Hx_WDT    endP
```

```
end start
```

Appendix C - System Error Message

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

Error Messages

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

CMOS BATTERY HAS FAILED

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



Important

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

CMOS CHECKSUM ERROR

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

DISPLAY SWITCH IS SET INCORRECTLY

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

FLOPPY DISK(S) fail (80)

Unable to reset floppy subsystem.

FLOPPY DISK(S) fail (40)

Floppy type mismatch.

Hard Disk(s) fail (80)

HDD reset failed.

Hard Disk(s) fail (40)

HDD controller diagnostics failed.

Hard Disk(s) fail (20)

HDD initialization error.

Hard Disk(s) fail (10)

Unable to recalibrate fixed disk.

Hard Disk(s) fail (08)

Sector Verify failed.

Keyboard is locked out - Unlock the key

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

Keyboard error or no keyboard present

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

Manufacturing POST loop

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

BIOS ROM checksum error - System halted

The checksum of ROM address F0000H-FFFFFH is bad.

Memory test fail

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

Appendix D - Troubleshooting

Troubleshooting Checklist

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

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

1. The power switch of each peripheral device is turned on.
2. All cables and power cords are tightly connected.
3. The electrical outlet to which your peripheral devices are connected is working. Test the outlet by plugging in a lamp or other electrical device.
4. The monitor is turned on.
5. The display's brightness and contrast controls are adjusted properly.
6. All add-in boards in the expansion slots are seated securely.
7. Any add-in board you have installed is designed for your system and is set up correctly.

Monitor/Display

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

1. Make sure that the monitor's power switch is on.
2. Check that one end of the monitor's power cord is properly attached to the monitor and the other end is plugged into a working AC outlet. If necessary, try another outlet.
3. Check that the video input cable is properly attached to the monitor and the system's display adapter.
4. Adjust the brightness of the display by turning the monitor's brightness control knob.

The picture seems to be constantly moving.

1. The monitor has lost its vertical sync. Adjust the monitor's vertical sync.
2. Move away any objects, such as another monitor or fan, that may be creating a magnetic field around the display.
3. Make sure your video card's output frequencies are supported by this monitor.

The screen seems to be constantly wavering.

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

Power Supply

When the computer is turned on, nothing happens.

1. Check that one end of the AC power cord is plugged into a live outlet and the other end properly plugged into the back of the system.
2. Make sure that the voltage selection switch on the back panel is set for the correct type of voltage you are using.
3. The power cord may have a "short" or "open". Inspect the cord and install a new one if necessary.

Floppy Drive

The computer cannot access the floppy drive.

1. The floppy diskette may not be formatted. Format the diskette and try again.
2. The diskette may be write-protected. Use a diskette that is not write-protected.
3. You may be writing to the wrong drive. Check the path statement to make sure you are writing to the targeted drive.
4. There is not enough space left on the diskette. Use another diskette with adequate storage space.

Hard Drive

Hard disk failure.

1. Make sure the correct drive type for the hard disk drive has been entered in the BIOS.
2. If the system is configured with two hard drives, make sure the bootable (first) hard drive is configured as Master and the second hard drive is configured as Slave. The master hard drive must have an active/bootable partition.

Excessively long formatting period.

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

Serial Port

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

1. Make sure that the serial device's power is turned on and that the device is on-line.
2. Verify that the device is plugged into the correct serial port on the rear of the computer.
3. Verify that the attached serial device works by attaching it to a serial port that is working and configured correctly. If the serial device does not work, either the cable or the serial device has a problem. If the serial device works, the problem may be due to the onboard I/O or the address setting.
4. Make sure the COM settings and I/O address are configured correctly.

Keyboard

Nothing happens when a key on the keyboard was pressed.

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

System Board

1. Make sure the add-in card is seated securely in the expansion slot. If the add-in card is loose, power off the system, re-install the card and power up the system.
2. Check the jumper settings to ensure that the jumpers are properly set.
3. Verify that all memory modules are seated securely into the memory sockets.
4. Make sure the memory modules are in the correct locations.
5. If the board fails to function, place the board on a flat surface and seat all socketed components. Gently press each component into the socket.
6. If you made changes to the BIOS settings, re-enter setup and load the BIOS defaults.