CT930-B

ECX Board
User's Manual

935-CT9303-050G
I01910743

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FCC and DOC Statement on Class B

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

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

Notice:

1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

2. Shielded interface cables must be used in order to comply with the emission limits.

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About this Manual

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

Warranty

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

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

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

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

Static Electricity Precautions

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

1. To prevent electrostatic build-up, leave the system board in its anti-static bag until you are ready to install it.
2. Wear an antistatic wrist strap.
3. Do all preparation work on a static-free surface.
4. Hold the device only by its edges. Be careful not to touch any of the components, contacts or connections.
5. Avoid touching the pins or contacts on all modules and connectors. Hold modules or connectors by their ends.

Important:

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

Safety Measures

To avoid damage to the system:

- Use the correct AC input voltage range.

To reduce the risk of electric shock:

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

Battery:

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

About the Package

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

- ☑ The system board
- ☑ One IDE cable (44-pin to 44-pin)
- ☑ One audio cable - Speaker-out, mic-in and line-in (optional)
- ☑ One serial cable
- ☑ One Serial ATA data cable
- ☑ One Serial ATA power cable
- ☑ One PS/2 keyboard/mouse cable
- ☑ One power cable
- ☑ One CPU cooler
- ☑ One "Main Board Utility" CD
- ☑ One QR (Quick Reference)

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

Before Using the System Board

Before using the system board, prepare basic system components.

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

- A CPU
- Memory module
- Storage devices such as hard disk drive, CD-ROM, etc.

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

Important:
Use the power cable included in the package. This cable is exclusively for CT930-B. Refer to the I/O Connectors section in chapter 2 for the pin functions of the power connector.

Chapter 1 - Introduction

Specifications

Processor	• Intel® Core™ Duo/Solo processor - 667MHz/533MHz system data bus • Intel® Celeron® M processor - 533MHz system data bus • Processor socket: mPGA478M **Note:** Ultra Low Voltage (ULV) and Low Voltage (LV) processor is available on special order.
Chipset	• Intel® chipset - Intel® 945GME Express chipset - Intel® 82801GBM I/O Controller Hub (ICH7M)
System Memory	• One 200-pin SODIMM socket • Supports 400MHz, 533MHz and 667MHz DDR2 SDRAM • Supports maximum of 2GB system memory using 256Mbit, 512Mbit or 1Gbit technology for x8 and x16 devices
BIOS	• Award BIOS • 4Mbit flash memory
Energy Efficient Design	• Supports ACPI specification and OS Directed Power Management • Wake-On-Events include: - Wake-On-PS/2 Keyboard/Mouse - Wake-On-USB Keyboard/Mouse - Wake-On-LAN - Wake-On-Ring - RTC timer to power-on the system • System power management supported • CPU stopped clock control • Microsoft®/Intel® APM 1.2 compliant • Soft Power supported - ACPI v1.0a specification • AC power failure recovery
Damage Free Intelligence	• Monitors CPU/system temperature and overheat alarm • Monitors CPU/system fan speed and failure alarm • Read back capability that displays temperature, voltage and fan speed

Graphics	• Integrated graphics interface - Analog CRT - Integrated 400MHz RAMDAC - Analog monitor supports up to UXGA - LVDS interface - Panel support up to UXGA (1600x1200) - 25MHz-112MHz single/dual channel @ 18bpp, TFT panel type support • Internal graphics features - DVMT 3.0 support - Intel® Dual-Frequency Graphics Technology - Intel® Smart 2D Display Technology - Dual Independent display pipes - Intel Gen 3.5 Integrated Graphics Engine
Audio	• Realtek ALC655 • 16-bit stereo full-duplex codec with independent variable sampling rate • 5.1-channel audio output
LAN	• One Marvell 88E8053 PCI Express Gigabit controller • Supports 10Mbps, 100Mbps and 1Gbps data transmission • IEEE 802.3 (10/100Mbps) and IEEE 802.3ab (1Gbps) compliant
Serial ATA	• Supports 2 SATA (Serial ATA) interfaces which are compliant with SATA 1.0 specification • SATA speed up to 1.5Gb/s
IDE Interface	• One 44-pin IDE connector supports up to two IDE devices • Supports Ultra ATA 100/66/33 (this will depend on the IDE cable used) **Note:** We do not recommend using IDE devices and CF card at the same time.
I/O Ports	• 1 DB-15 VGA port • 1 TV-Out (S-Video I/F) - Does not support Macrovision • 1 RJ45 LAN port • 2 USB 2.0/1.1 ports • 1 port for PS/2 Keyboard and PS/2 Mouse ports • 1 DB-9 serial port • 2 Serial ATA ports
I/O Connectors	• 1 CompactFlash socket **Note:** By default, CompactFlash is fixed in Slave mode. • 1 connector for 1 external serial port • 1 LVDS LCD panel connector • 1 LCD/inverter power connector • 1 audio connector for mic-in, line-in and line-out jacks • 1 44-pin IDE connector • 1 10-pin ATX power connector • 1 front panel connector • 2 fan connectors

Temperature	• 0°C to 60°C
Humidity	• 10% to 90%
PCB	• 10 layers, ECX form factor • 10.5cm (4.14") x 14.6cm (5.75")
Daughterboard Connector	• 1 daughterboard connector for EXT-ECX1 daughterboard
EXT-ECX1 Daughterboard (optional)	• Chrontel CH7307C DVI transmitter chip • 2 USB ports • 1 DVI port • 1 mini PCI slot • 4 layers • 9.35cm (3.68") x 9.55cm (3.76")

Features

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 prefetch against DDR which fetches 2 bits per clock cycle.

GRAPHICS The built-in graphics delivers exceptional 3D graphics performance. It supports analog CRT and LVDS interfaces.

5.1-CHANNEL AUDIO The Realtek ALC655 audio codec provides 6-channel audio output for advanced 5.1-channel super surround sound audio system. The 5.1-channel audio is supported only when the audio utility is configured to support this function.

SERIAL ATA Serial ATA is a storage interface that is compliant with SATA 1.0 specification. With speed of up to 1.5Gbps, it improves hard drive performance faster than the standard parallel ATA whose data transfer rate is 100MB/s.

GIGABIT LAN The Marvell 88E8053 PCI Express Gigabit LAN controller supports up to 1Gbps data transmission. It allows the system board to easily connect to a local area network or broadband connection.

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.

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

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

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

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

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

WAKE-ON-USB This function allows you to use a USB keyboard or USB mouse to wake up a system from the S1 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 ≥1.5A. For 3 or more USB ports, the 5V_standby power source of your power supply must support ≥2A.

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

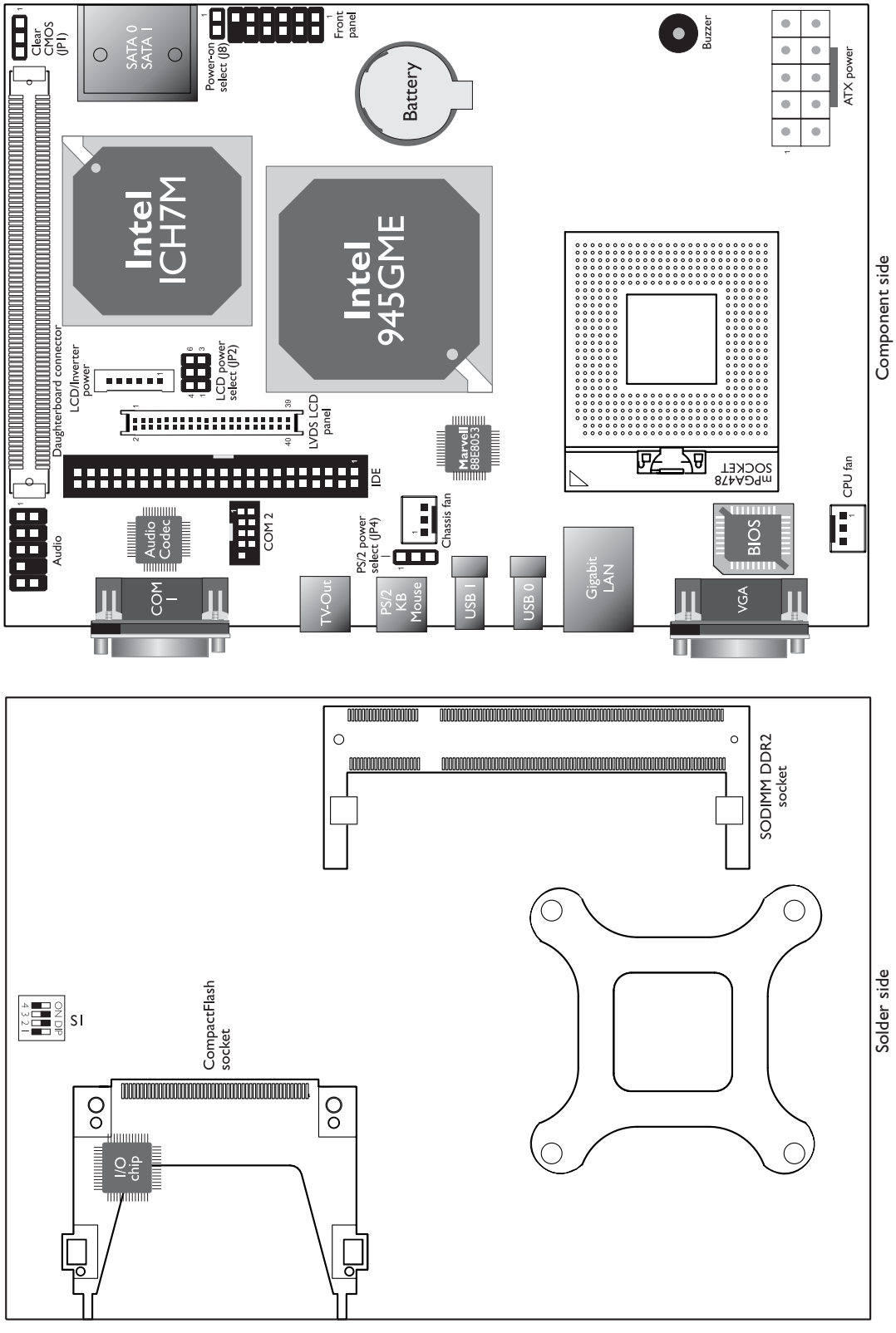
ACPI STR The system board is designed to meet the ACPI (Advanced Configuration and Power Interface) specification. ACPI has energy saving features that enables PCs to implement Power Management and Plug-and-Play with operating systems that support OS Direct Power Management. Currently, only Windows® 2000/XP supports the ACPI function. ACPI when enabled in the Power Management Setup will allow you to use the S1 function.

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

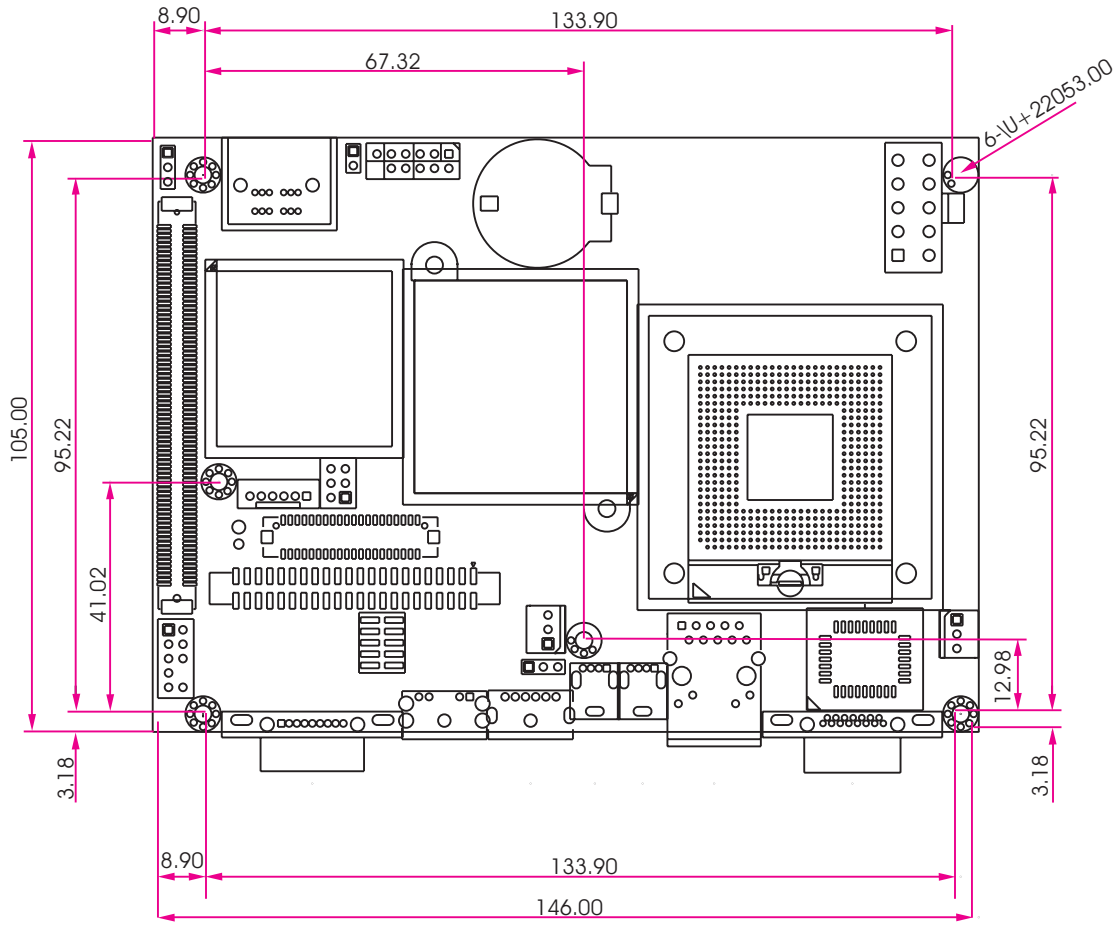
POWER FAILURE RECOVERY When power returns after an AC power failure, you may choose to either power-on the system manually or let the system power-on automatically.

Chapter 2 - Hardware Installation

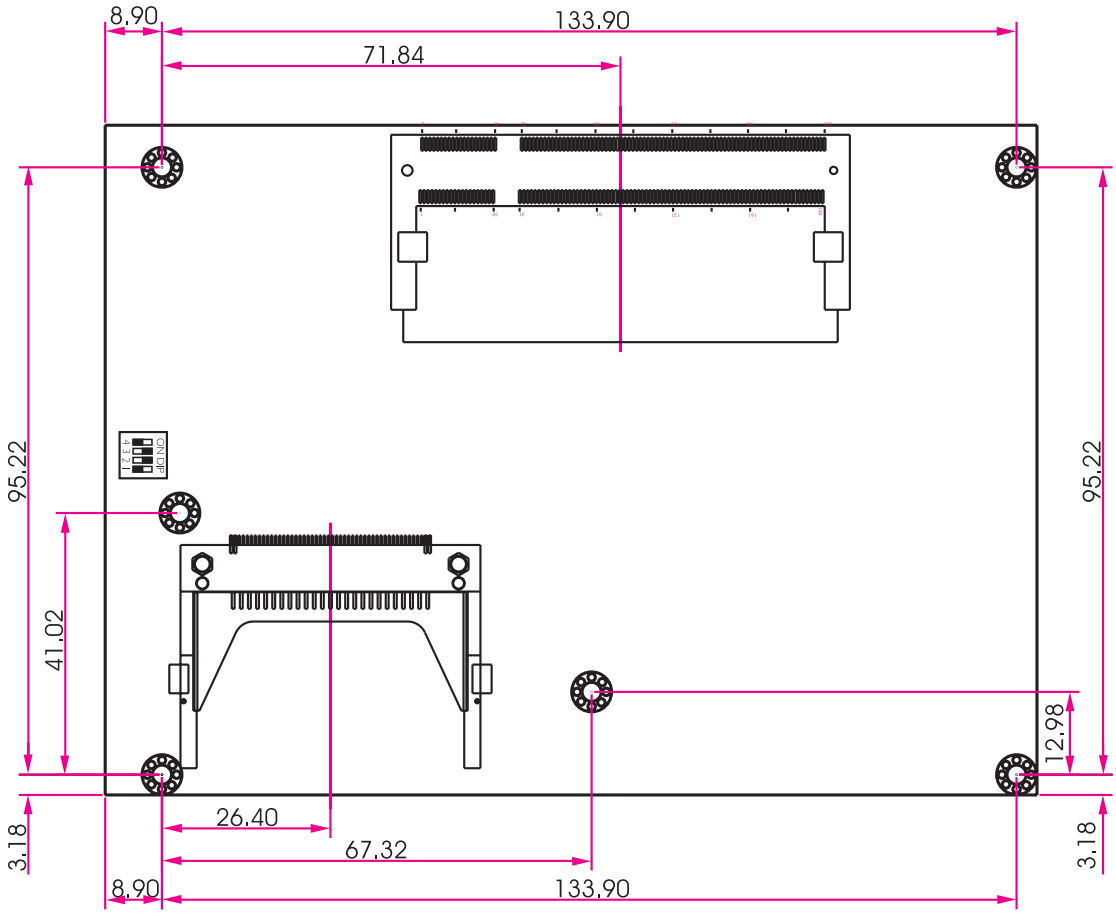
System Board Layout



Mechanical Diagram

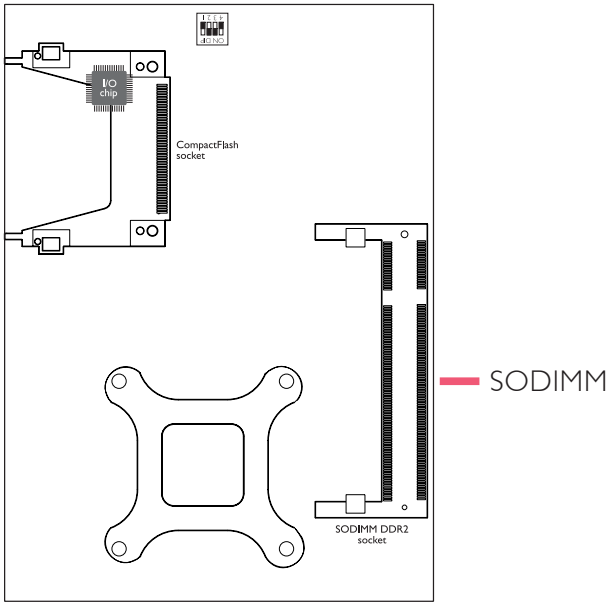


CT930-B
(component side)



CT930-B
(solder side)

System Memory

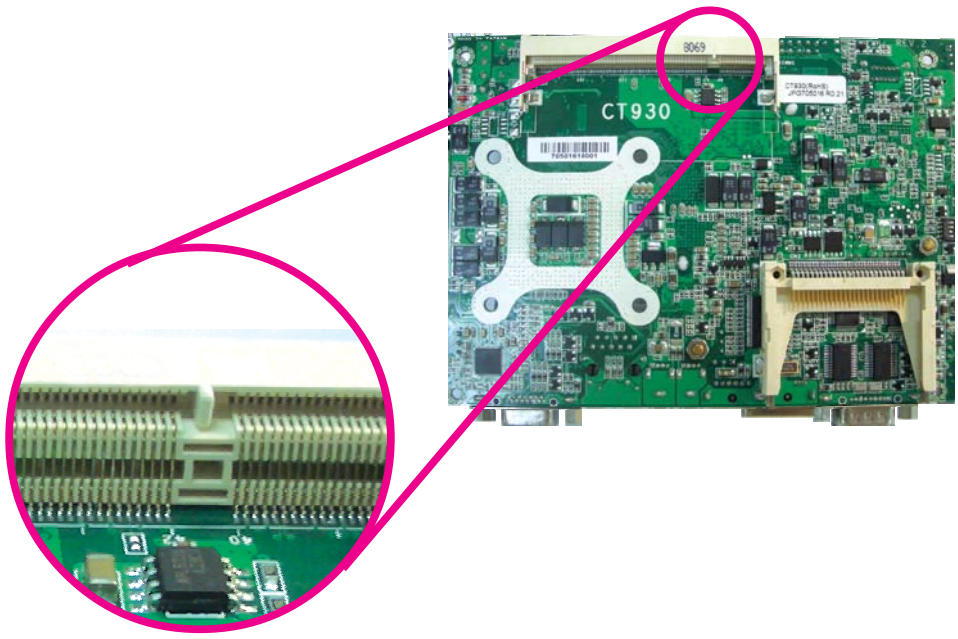


BIOS Setting

Configure the system memory in the Advanced Chipset Features submenu of the BIOS.

Installing the SODIMM DDR2 Module

1. Make sure the PC and all other peripheral devices connected to it has been powered down.
2. Disconnect all power cords and cables.
3. Locate the SODIMM socket on the board.
4. Note the key on the socket. The keying mechanism ensures the module can be plugged into the socket in only one way.



5. Grasping the module by its edges, insert the module into the socket at an approximately 30 degrees angle. Note that the socket and module are both keyed, which means the module can be plugged into the socket in only one direction.

6. To seat the module into the socket, apply firm even pressure to each end of the module until it slips down into the socket. The contact fingers on the edge of the module will almost completely disappear inside the socket.

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

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

CPU

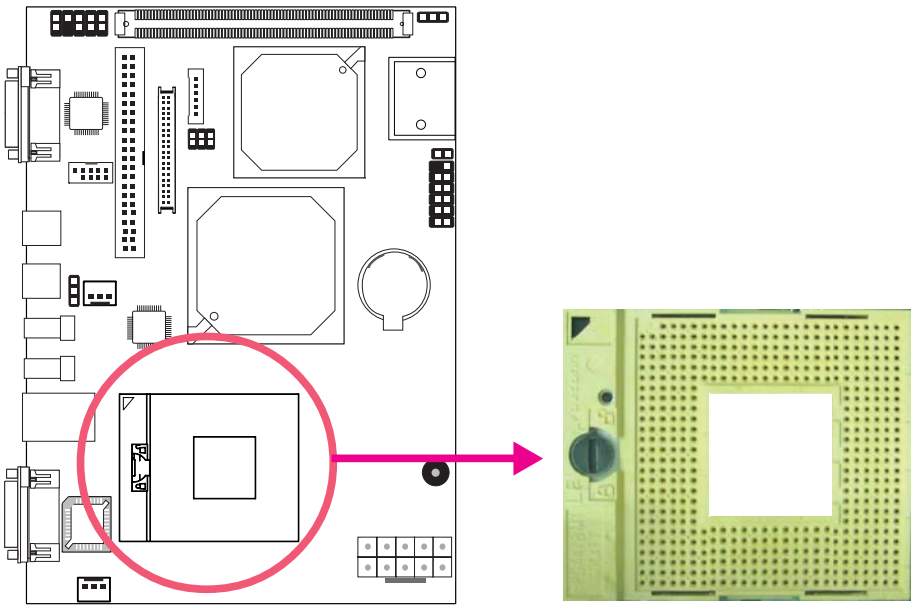
Overview

The system board is equipped with a surface mount mPGA478 CPU socket.

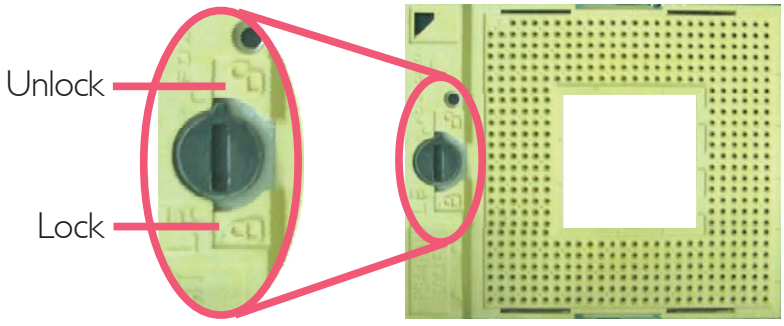
Installing the CPU

Note:
The board used in this section may not resemble the actual one. These illustrations are for reference only.

1. Make sure the PC and all other peripheral devices connected to it has been powered down.
2. Disconnect all power cords and cables.
3. Locate the mPGA478 socket on the system board.



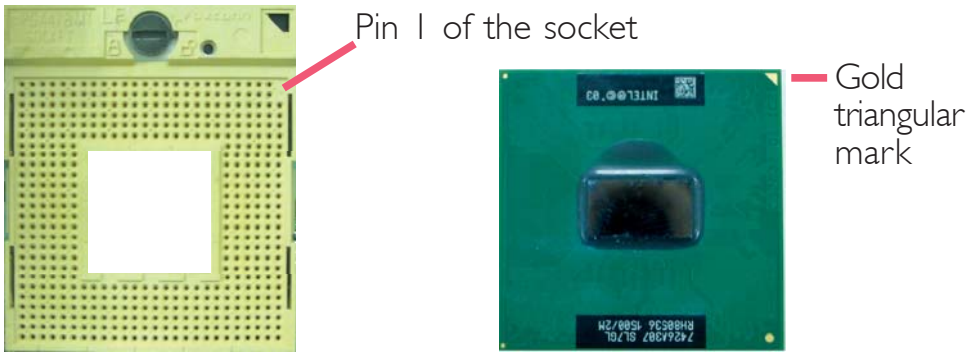
4. Use a screwdriver to turn the screw to its unlock position.



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

Important:

1. ***Only Use Intel® Core™ Duo/Solo processor or Intel® Celeron® M processor manufactured on 65nm technology.*** *Intel Pentium M and Intel Celeron M processors manufactured on 0.13 micron and 90nm technology are not supported. Installing an incompatible processor will cause severe damage to both the processor and system board.*
2. *Handle the CPU by its edges and avoid touching the pins.*



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

Important:

Do not force the CPU into the socket. Forcing the CPU into the socket may bend the pins and damage the CPU.

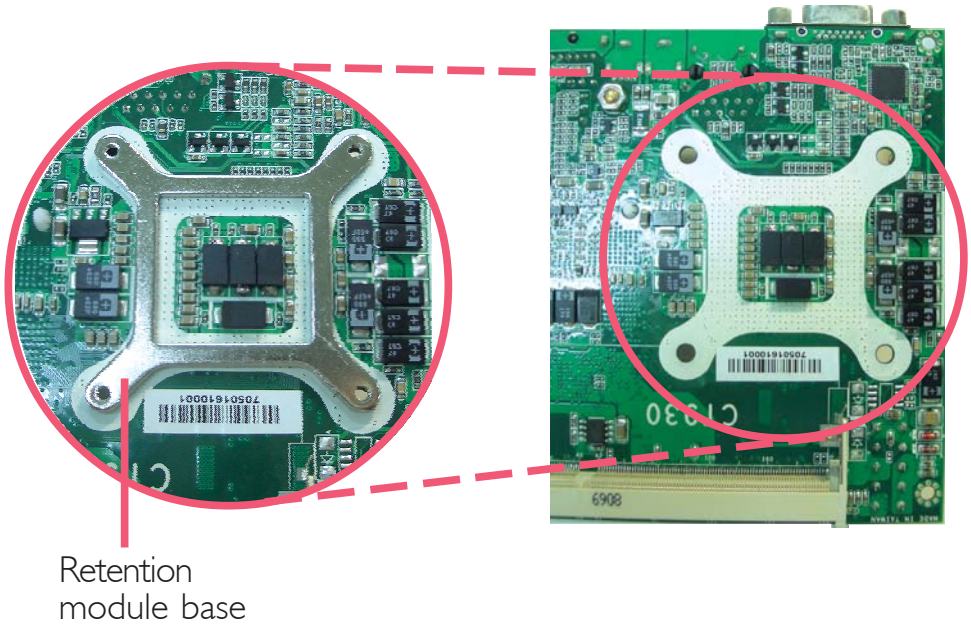
Installing the Fan and Heat Sink

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

Note:

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

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



Retention module base

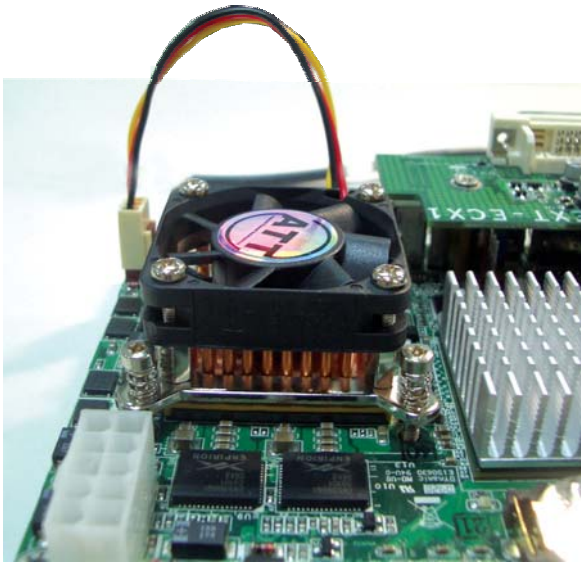
2. Apply a thin layer of thermal paste on top of the CPU. Do not spread the paste all over the surface. When you later place the heat sink on top, the compound will disperse evenly.

3. Place the fan / heat sink assembly on top of the CPU. The 4 screws around the heat sink must match the screw holes of the retention module base. We strongly recommend using this type of fan / heat sink assembly because it provides adequate cooling to the components of the system board.

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

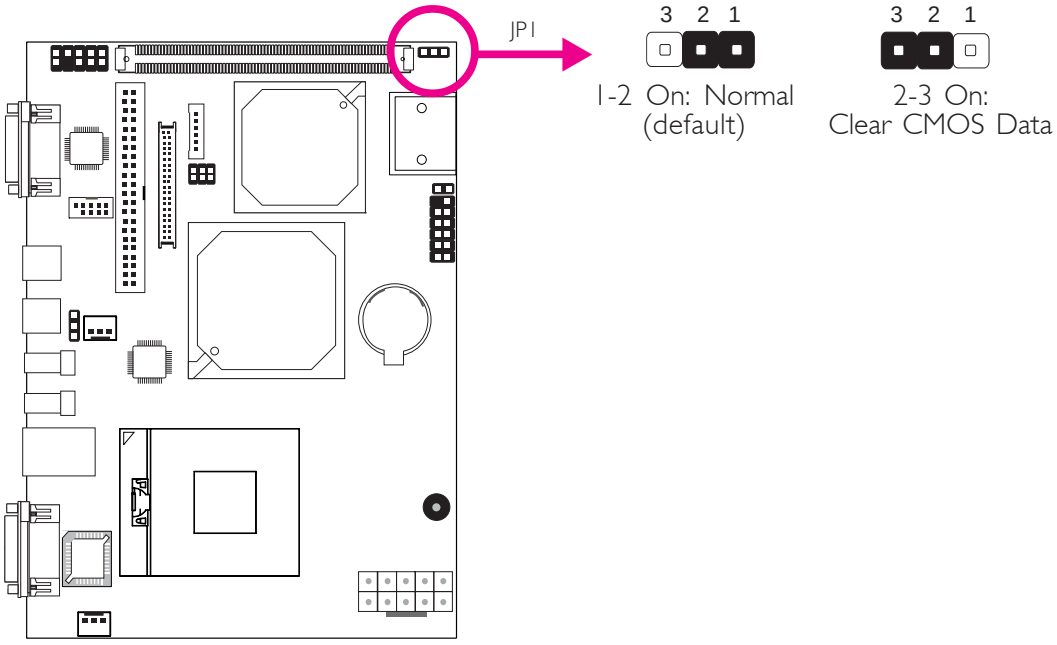
   Important:
   Do not turn the first screw all the way down followed by the next and so on. This is to avoid imbalance which might cause cracks or fractures to the CPU and/or heat sink assembly.

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



Jumper Settings

Clear CMOS Data



If you encounter the following,

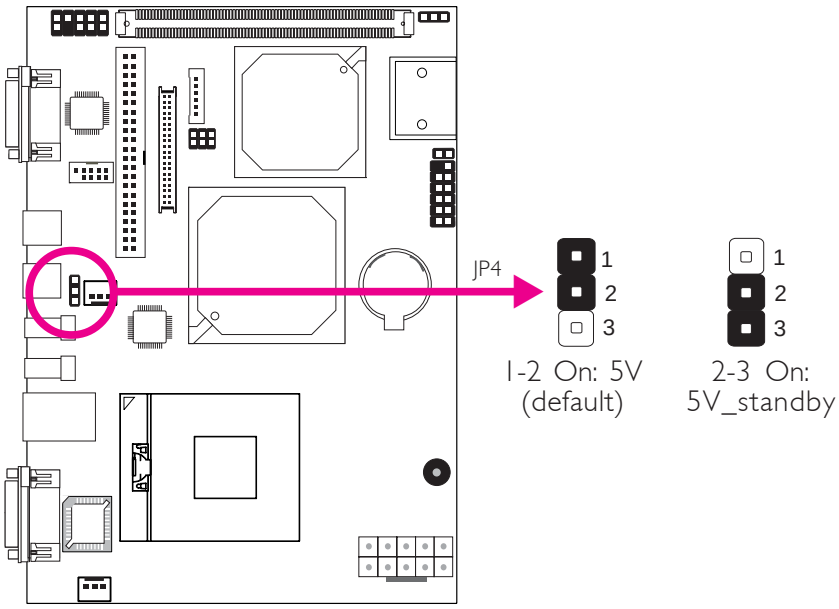
a) CMOS data becomes corrupted.
b) You forgot the supervisor or user password.

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

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

1. Power-off the system and unplug the power cord.
2. Set JP1 pins 2 and 3 to On. Wait for a few seconds and set JP1 back to its default setting, pins 1 and 2 On.
3. Now plug the power cord and power-on the system.

PS/2 Power Select



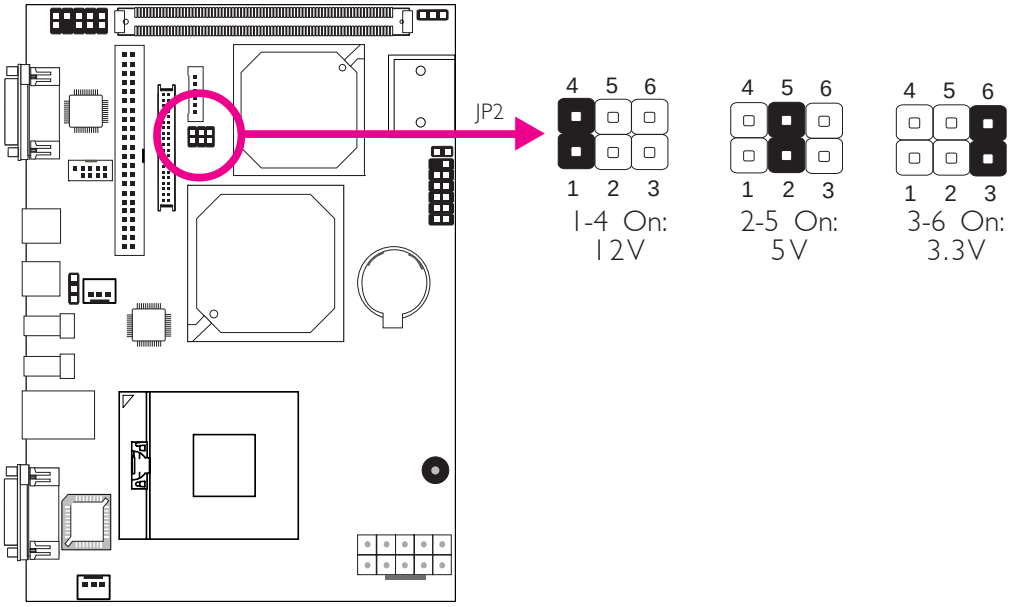
JP4 is used to select the power of the PS/2 keyboard/mouse port. Selecting 5V_standby will allow you to use the PS/2 keyboard or PS/2 mouse to wake up the system.

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

LCD Power Select

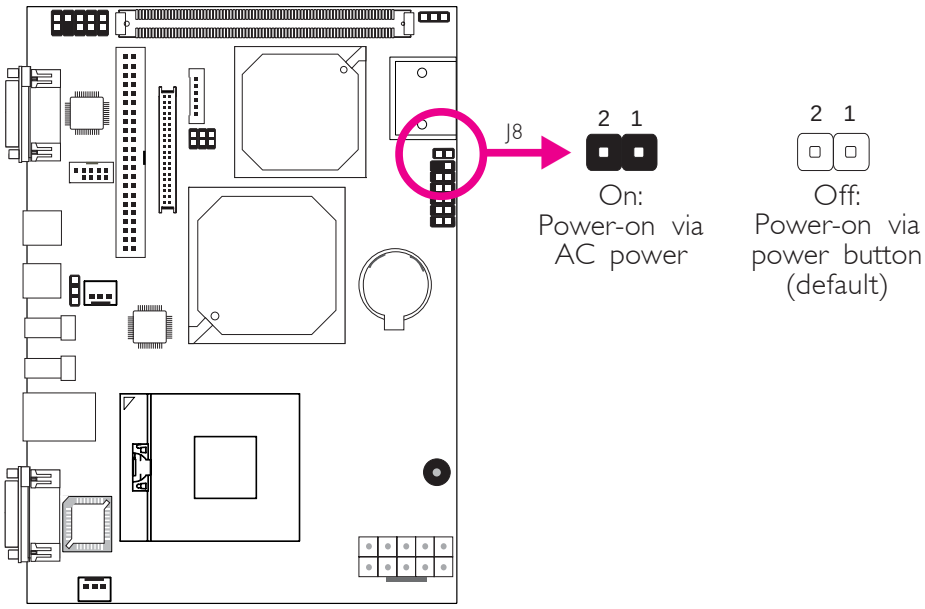


JP2 is used to select the power supplied to the LCD panel.

Important:

Before powering-on the system, make sure JP2's setting matches the LCD panel's specification. Selecting the incorrect voltage will seriously damage the LCD panel.

Power-on Select

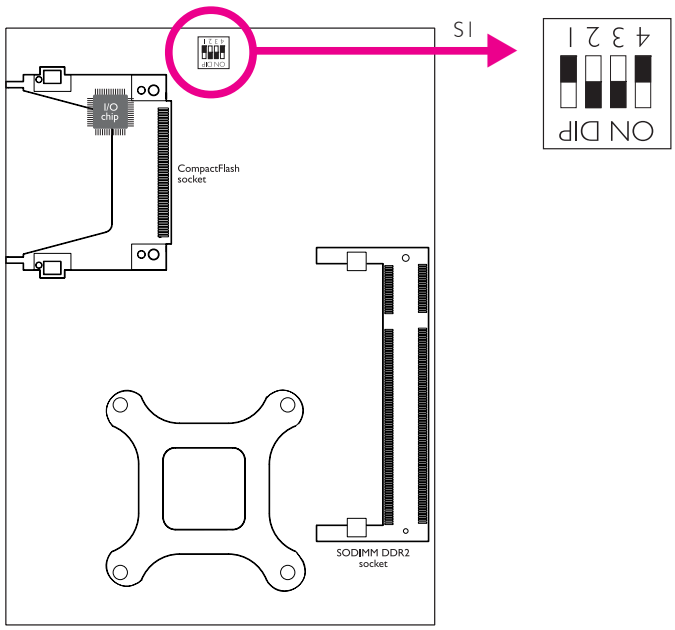


J8 is used to select the method of powering on the system. If you want the system to power-on whenever AC power comes in, set J8 to On. If you want to use the power button, set J8 to Off.

When using J8 "Power On" feature to power the system back on after a power failure occurs, may not power on the system if the power lost is resumed within 5 seconds (power flicker).

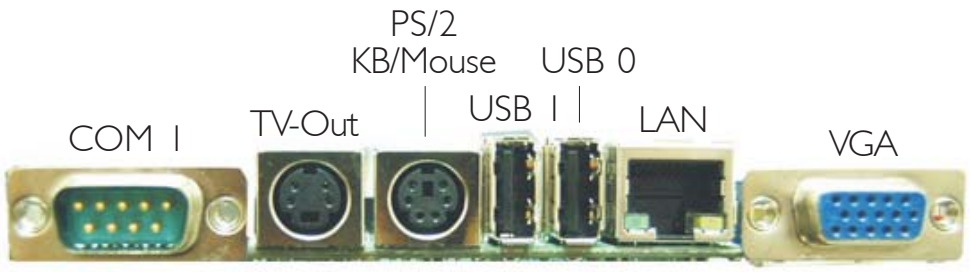
Note:
In order to ensure that power is resumed after a power failure that may occur within a 5 second period, J8 should be set to Off and the "PWRON After PWR-Fail" in CMOS is set to "ON".

Inverter Settings



S1 DIP Switch Option	1	2	3	4
Inverter High Enable, Panel 3.3V or 5V	Off	On	On	Off
Inverter Low Enable, Panel 3.3V or 5V	On	Off	On	Off
Inverter High Enable, Panel 12V	Off	On	Off	On
Inverter Low Enable, Panel 12V	On	Off	Off	On

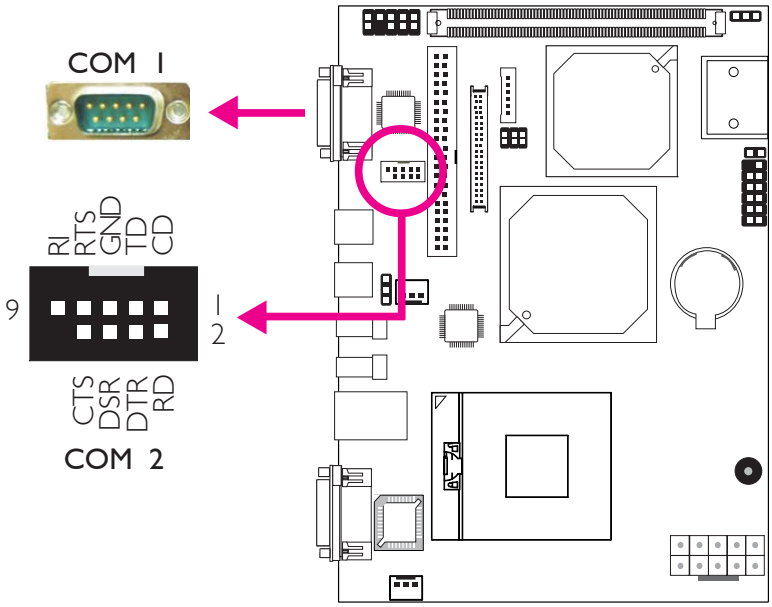
Rear Panel I/O Ports



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

- COM port
- TV-out port
- PS/2 KB/mouse port
- 2 USB ports
- LAN port
- VGA port

Serial (COM) Port



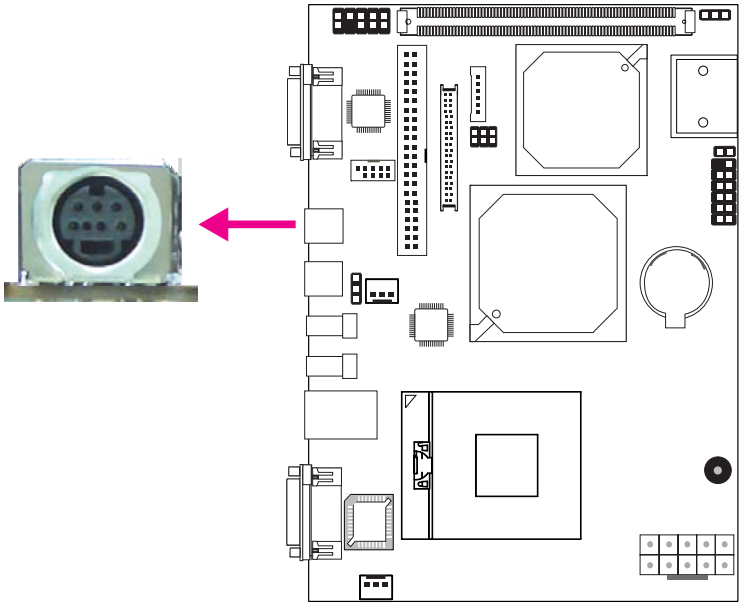
The system board is equipped with an onboard serial port (COM 1). It is also equipped with a 9-pin connector (COM 2) for connecting an external serial port. The serial ports are RS-232 asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices.

To connect an external serial port, please refer to the following description. The serial 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 insert the cable connector to COM 2. Make sure the colored stripe on the ribbon cable is aligned with pin 1 of COM 2.

BIOS Setting

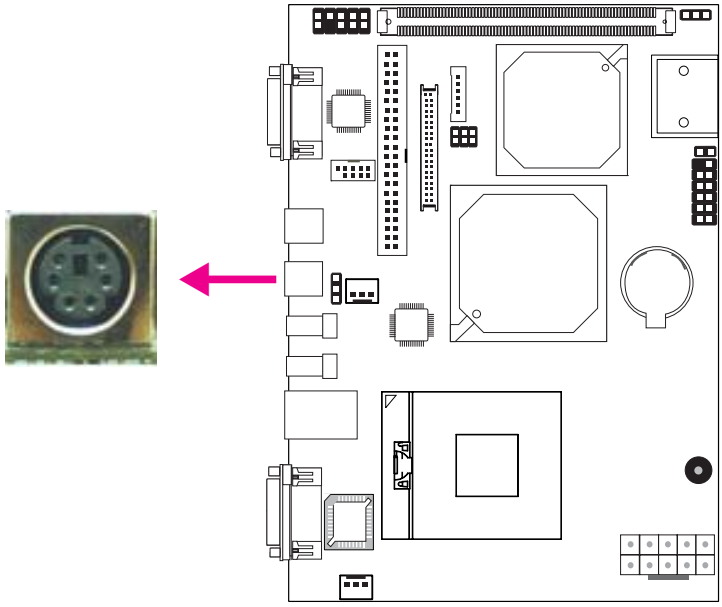
Configure the serial ports in the Integrated Peripherals submenu ("Super IO Device" section) of the BIOS. Refer to chapter 3 for more information.

TV-Out Port



The TV-out port is used to connect a TV that comes with S-Video output. S-Video is a technology for transmitting video signals over a cable by dividing the video information into two separate signals: color (chrominance) and brightness (luminance). These signals produce sharper images than composite video where the video information is transmitted as a single signal over one wire.

PS/2 KB/Mouse Port



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

Warning:

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

Wake-On-PS/2 Keyboard/Mouse

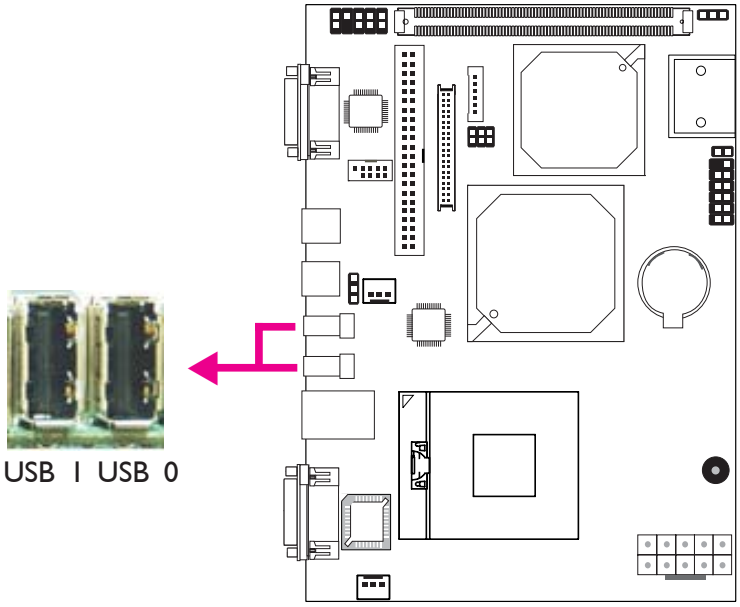
The Wake-On-PS/2 Keyboard/Mouse function allows you to use the PS/2 keyboard or PS/2 mouse to power-on the system. To use this function:

- **Jumper Setting:**
  JP4 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 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 ≥720mA.

Universal Serial Bus Connectors



The 2 USB 2.0/1.1 ports allow data exchange between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

BIOS Setting

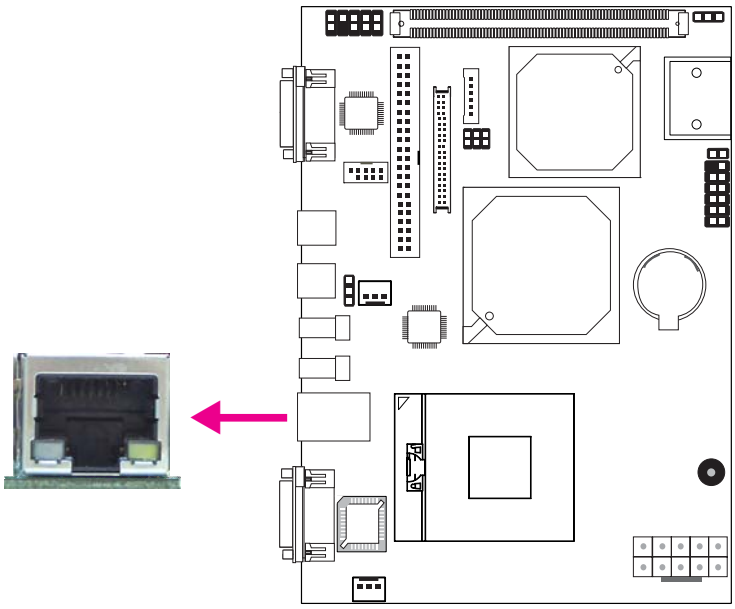
Configure the onboard USB in the Integrated Peripherals submenu ("Onboard Device" section) of the BIOS. Refer to chapter 3 for more information.

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.

Refer to chapter 4 for more information about installing the USB 2.0 driver.

LAN Port



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

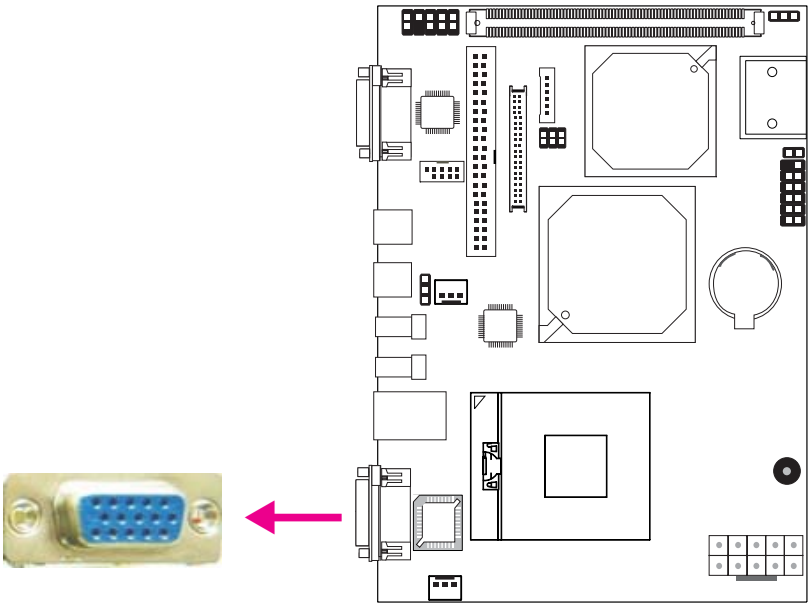
BIOS Setting

Configure the onboard LAN in the Integrated Peripherals submenu ("Onboard 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.

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 (Blue). 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

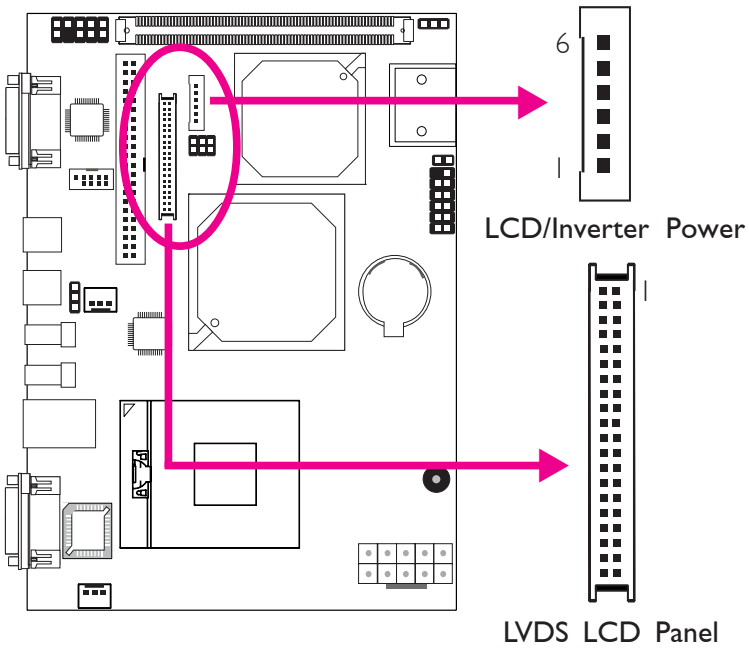
Configure the onboard VGA in the Advanced Chipset Features submenu of the BIOS. Refer to chapter 3 for more information.

Driver Installation

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

I/O Connectors

LVDS LCD Panel Connector
LCD/Inverter Power Connector



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

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

Jumper Settings

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

BIOS Setting

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

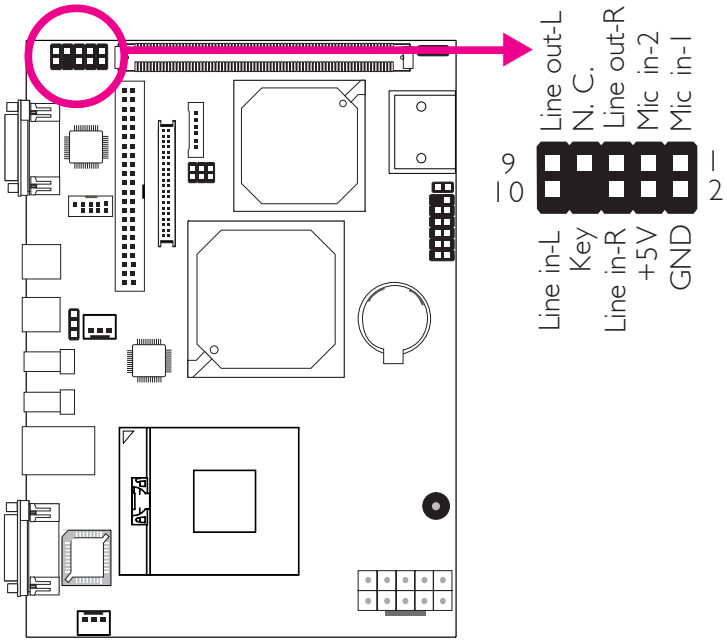
LVDS LCD Panel Connector

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	GND	34	GND
35	GND	36	GND
37	VCC_PANEL	38	VCC_PANEL
39	VCC_PANEL	40	VCC_PANEL

LCD/Inverter Power Connector

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

Audio Connector



The audio connector allows you to connect mic-in, line-in and line-out jacks. The 5.1-channel audio is supported only when the audio utility is configured to support this function.

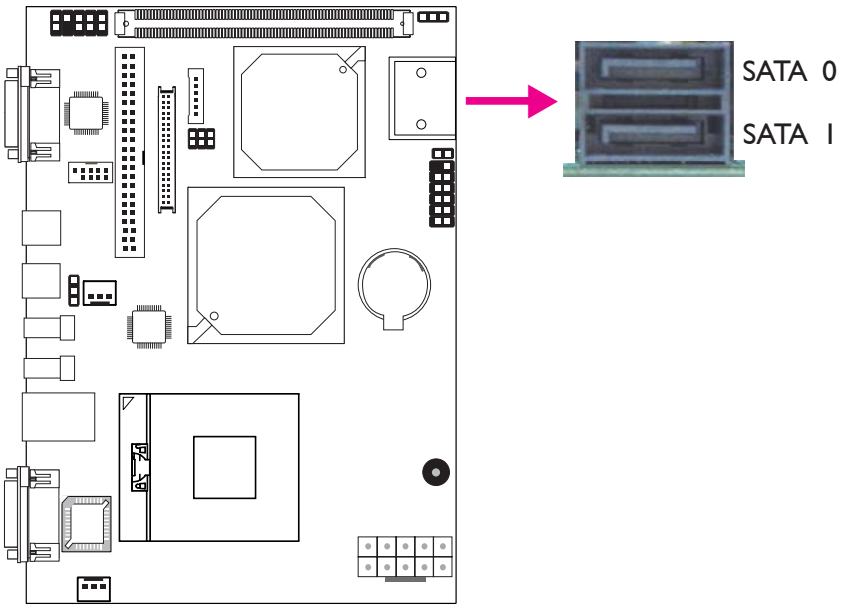
BIOS Setting

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.

SATA (Serial ATA) Ports

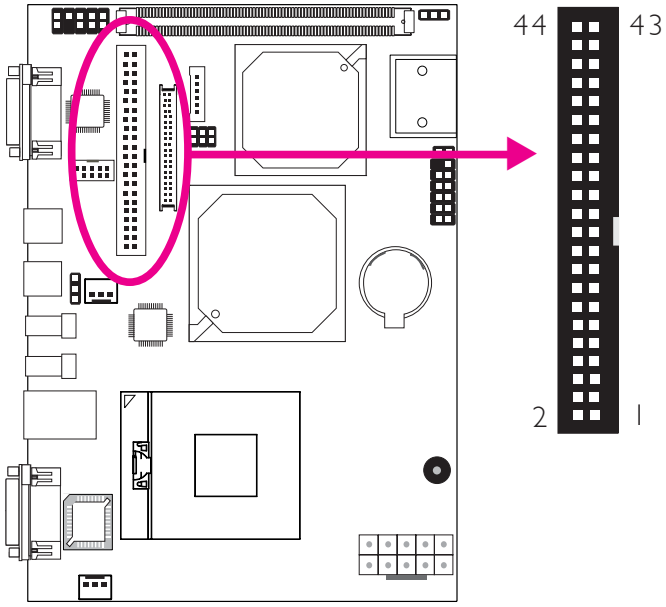


The 2 SATA ports are for connecting Serial ATA devices. Connect one end of the Serial ATA cable to a SATA port and the other end to your Serial ATA device.

BIOS Setting

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

IDE Disk Drive Connector



The 44-pin IDE connector is for connecting up to two 2.5" hard drives. To prevent improper IDE cable installation, the IDE connector has a keying mechanism. The connector on the IDE cable can be inserted only if pin 1 of the cable connector is aligned with pin 1 of the IDE connector on the system board.

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

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

Connecting the IDE Disk Drive Cable

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

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

Adding a Second IDE Disk Drive

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

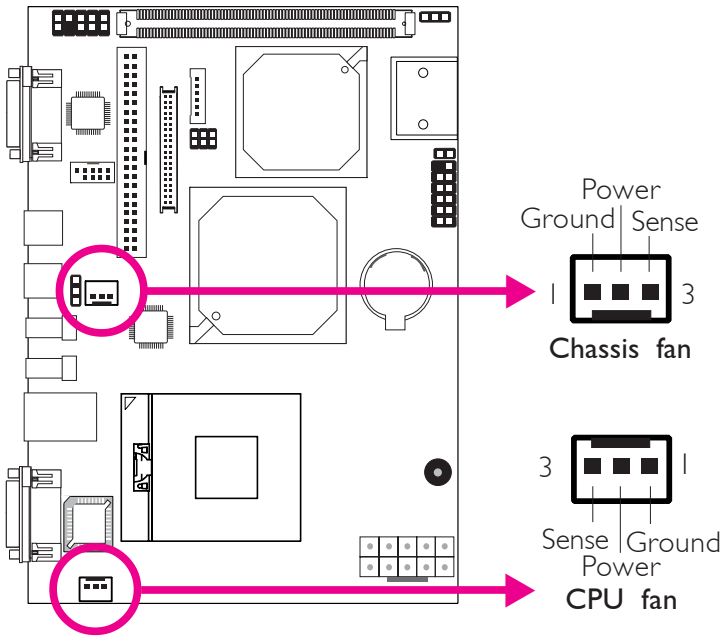
The system board supports Enhanced IDE or ATA-2, ATA/33, ATA/66 and ATA/100 hard drives. We recommend that you use hard drives from the same manufacturer. In a few cases, drives from two different manufacturers will not function properly when used together. The problem lies in the hard drives, not the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

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

BIOS Setting

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

Cooling Fan Connectors

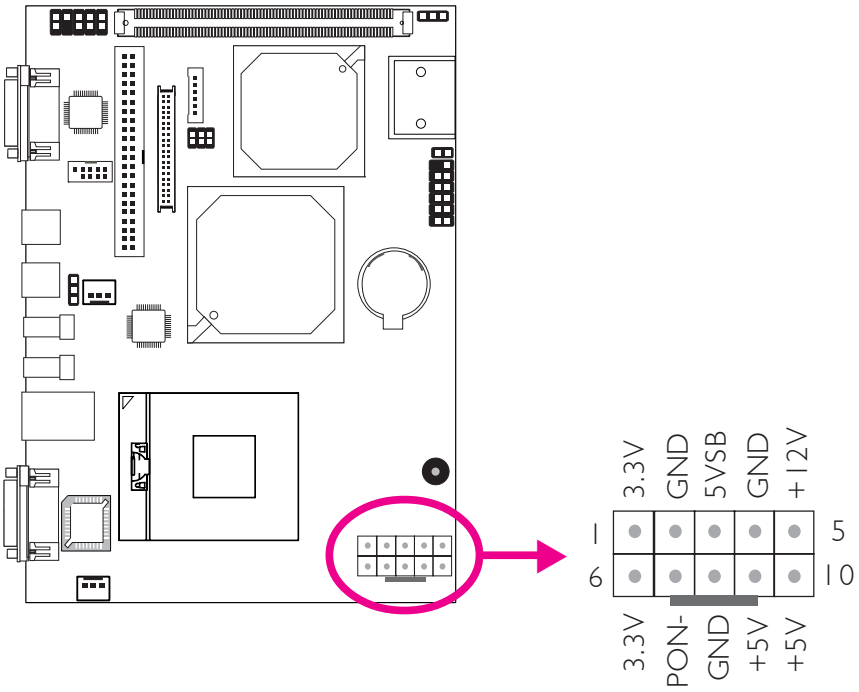


Connect the CPU fan's cable connector to the CPU fan connector on the system board. The chassis fan connector is used to connect an additional cooling fan. The cooling fans will provide adequate air-flow throughout the chassis to prevent overheating the CPU and system board components.

BIOS Setting

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

Power Connector

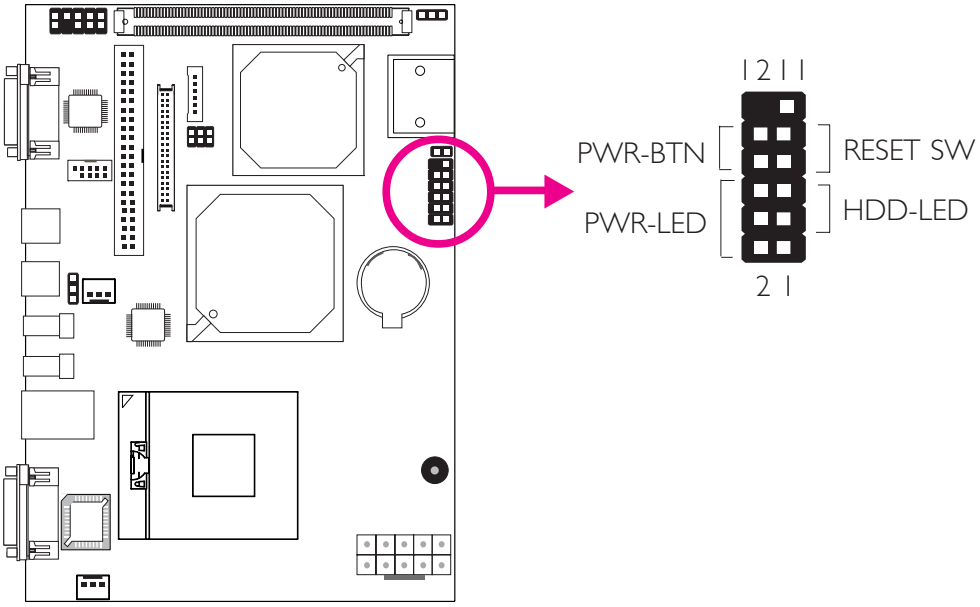


Insert a 10-pin connector from the power supply unit to the power connector on the system board. We recommend that you use a power supply that complies with the ATX12V Power Supply Design Guide Version 1.1.

Important:

*The system board consumes a minimal amount of power. Due to its low power consumption, you only need a **100W to 150W** power supply. Every power supply has its minimum load of power. If you use a greater than 150W power supply, the power consumed by the system board may not attain its minimum load causing instability to the entire system.*

Front Panel Connectors



HDD-LED - HDD LED

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

RESET SW - Reset Switch

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

PWR-BTN - Power Switch

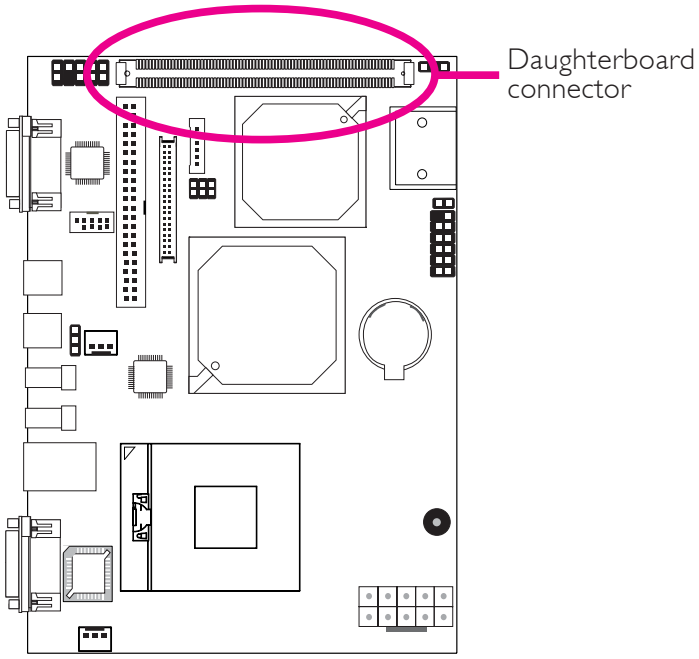
This switch is used to power on or off the system.

PWR-LED - Power/Standby LED

When the system's power is on, this LED will light. When the system is in the S1 (POS - Power On Suspend) state, it will blink.

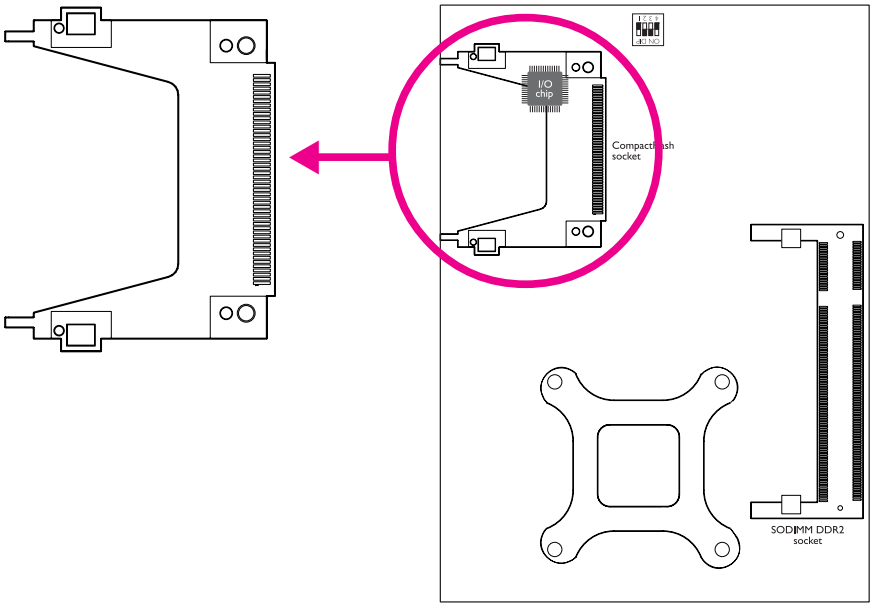
	Pin	Pin Assignment		Pin	Pin Assignment
N. C.	1	N. C.	PWR-LED	2 4 6	LED Power LED Power Signal
HDD-LED	3 5	HDD Power Signal	PWR-BTN	8 10	Signal Ground
RESET SW	7 9	Ground RST Signal			
N. C.	11	N. C.	Key	12	Key

Daughterboard Connector



The daughterboard connector is an interface for the EXT-ECX1 daughterboard. Refer to the EXT-ECX1 daughterboard manual for more information.

CompactFlash™ Socket

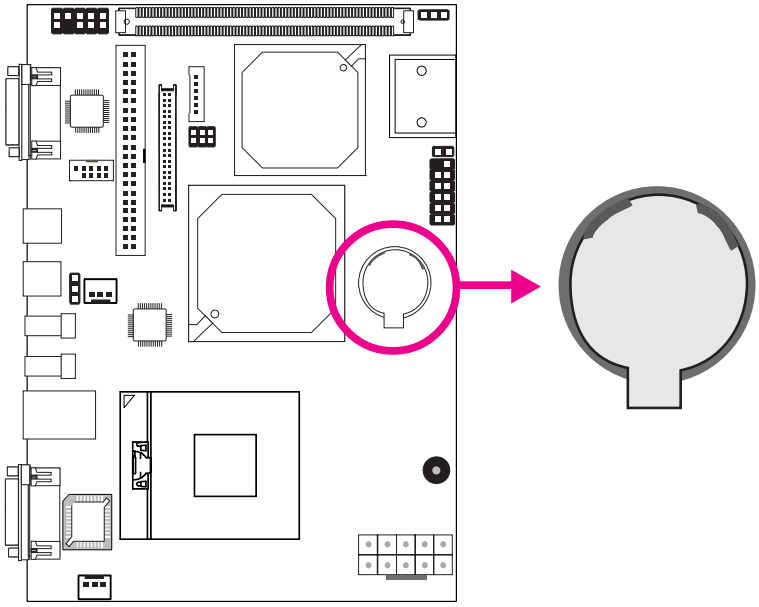


The CompactFlash™ socket is for inserting a CompactFlash™ card. CompactFlash™ card is a small removable mass storage device designed with flash technology - a non-volatile storage solution that does not require a battery to retain data indefinitely. The CompactFlash™ technology is widely used in products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

Note:

- *We do not recommend using IDE devices and CF card at the same time.*
- *By default, CompactFlash is fixed in Slave mode.*

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.

Chapter 3 - BIOS Setup

Award BIOS Setup Utility

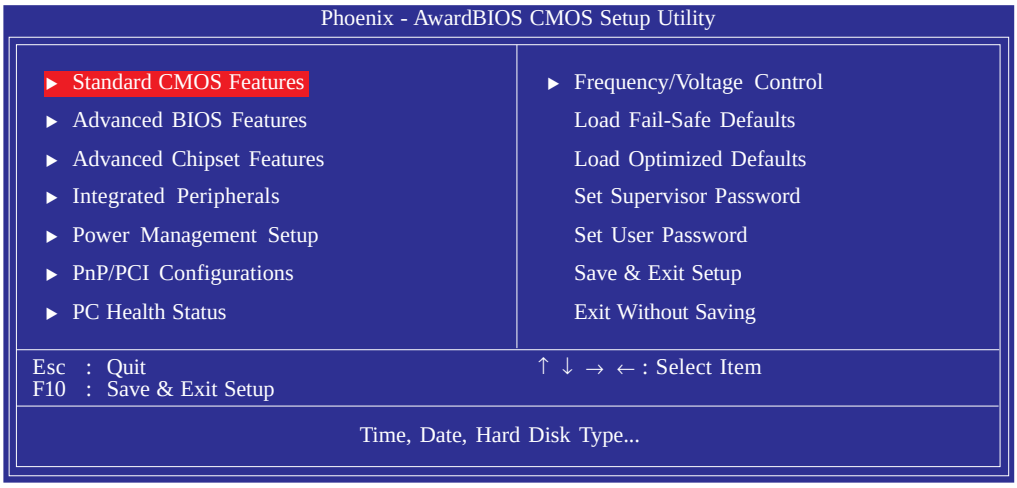
The Basic Input/Output System (BIOS) is a program that takes care of the basic level of communication between the processor and peripherals. In addition, the BIOS also contains codes for various advanced features found in this system board. This chapter explains the Setup Utility for the Award BIOS.

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

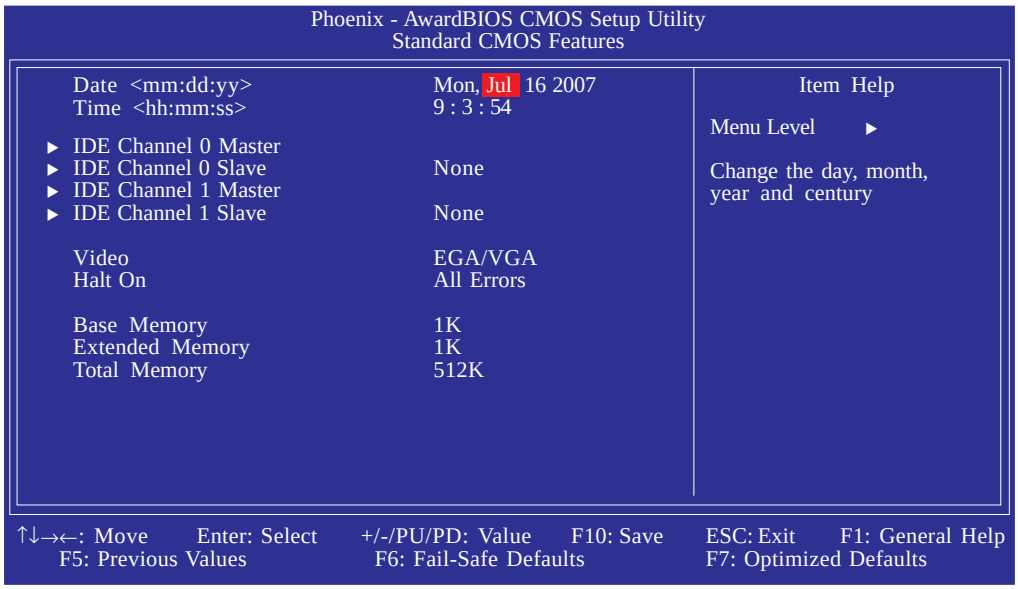
If the message disappears before you respond, restart the system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> and <Del> keys simultaneously.

When you press <Del>, the main menu screen will appear.



Standard CMOS Features

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



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

Date

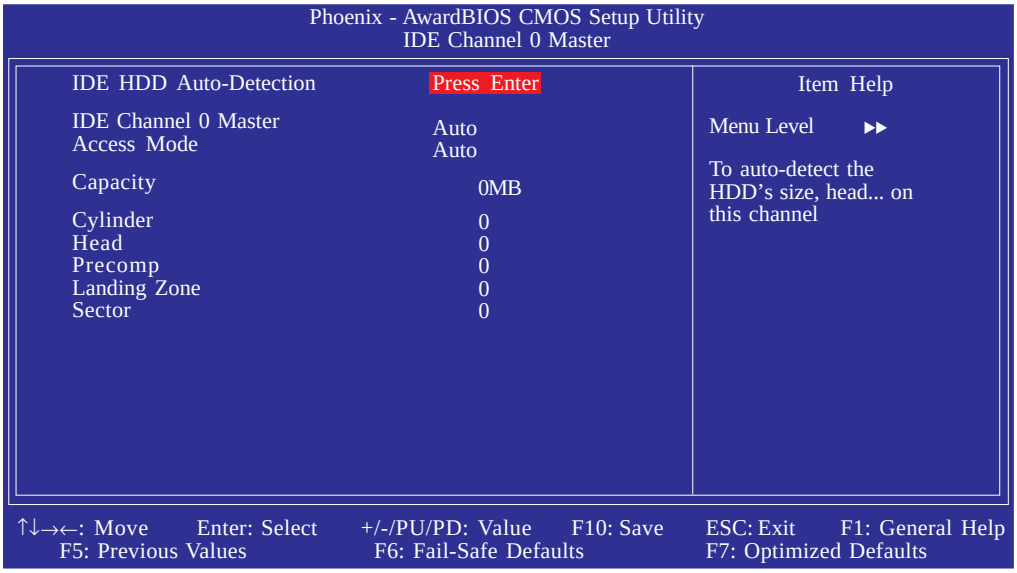
The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1999 to 2099.

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, IDE Channel 0 Slave, IDE Channel 1 Master and 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/Slave and IDE Channel 1 Master/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.

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

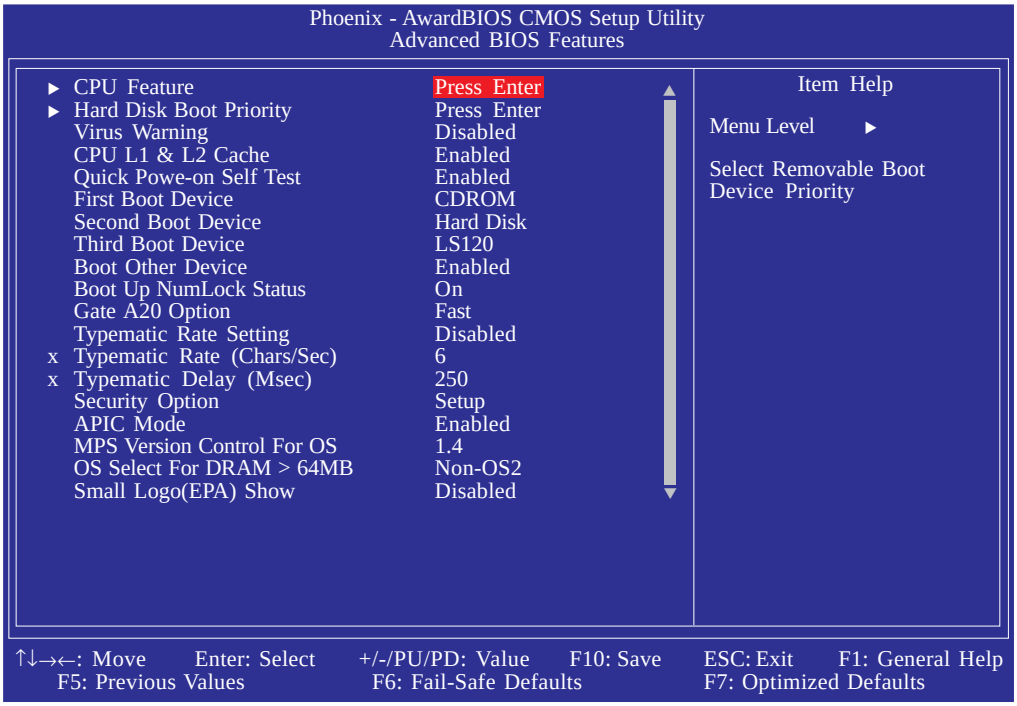
Displays the amount of extended memory detected during boot-up.

Total Memory

Displays the total memory available in the system.

Advanced BIOS Features

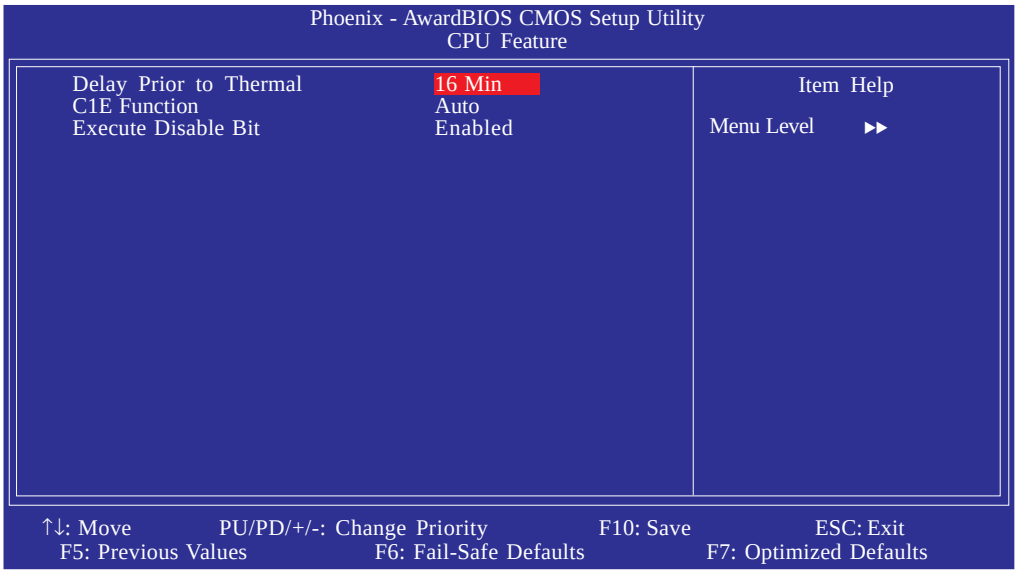
The Advanced BIOS Features allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.



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..

C1E Function

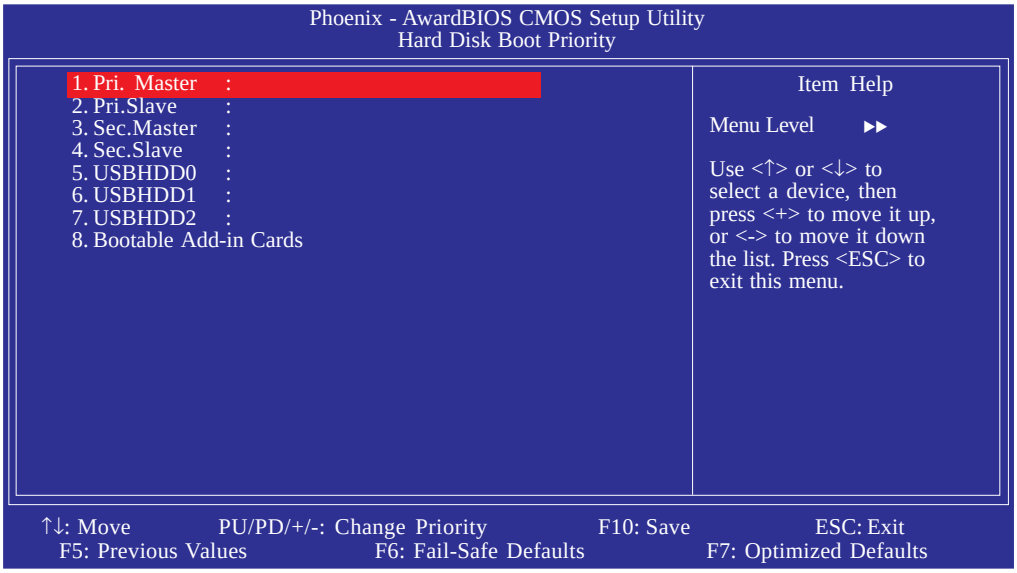
The options are Auto and Disabled.

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.

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.

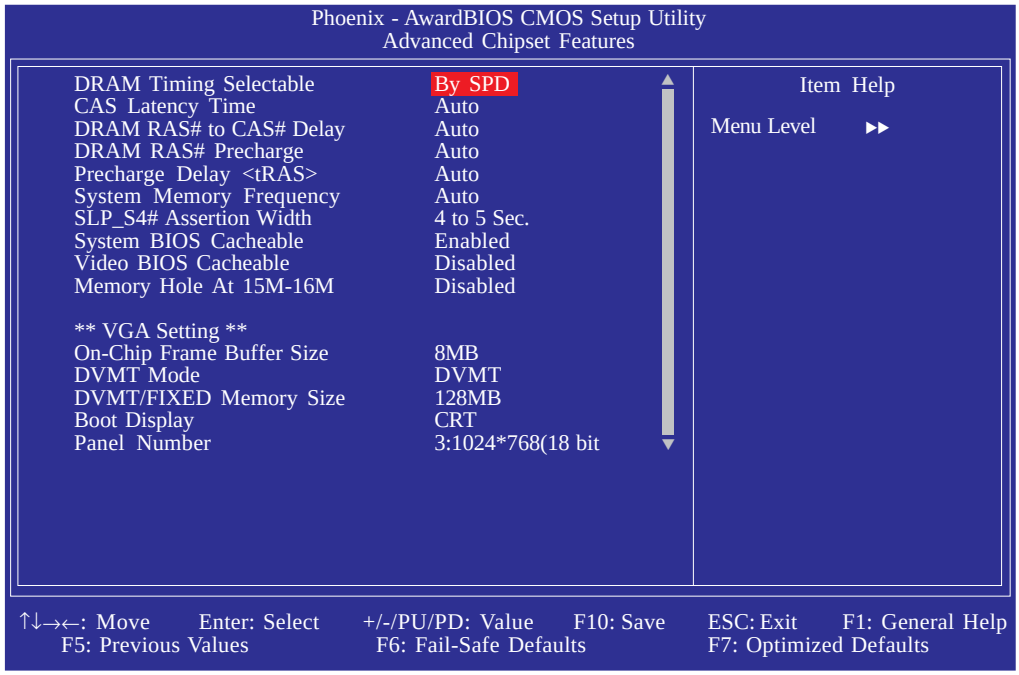
OS Select for DRAM > 64MB

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 screen above list all the fields available in the Advanced Chipset 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.

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 sta-

ble condition for the system. The "CAS Latency Time" to "Precharge Delay" 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 "Precharge Delay" 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 addresssed 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.

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

This field shows the current DVMT mode.

DVMT/Fixed Memory Size

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

Boot Display

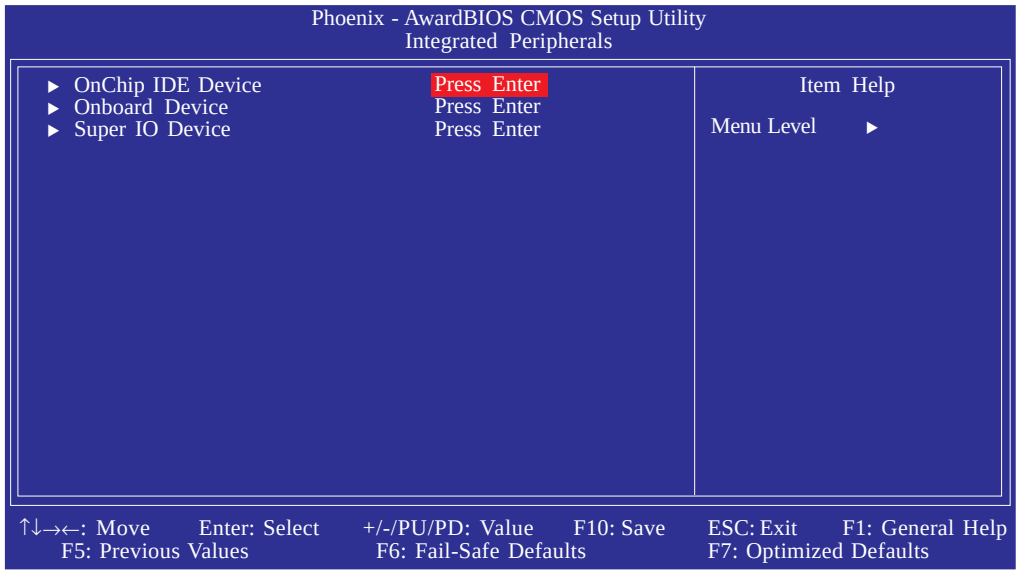
This field is used to select the type of display to use when the system boots.

CRT	Select this option if you want the system to boot the CRT display.
LFP	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.
CRT+DVI	Select this option if you want the system to boot both the CRT and DVI display.

Panel Number

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

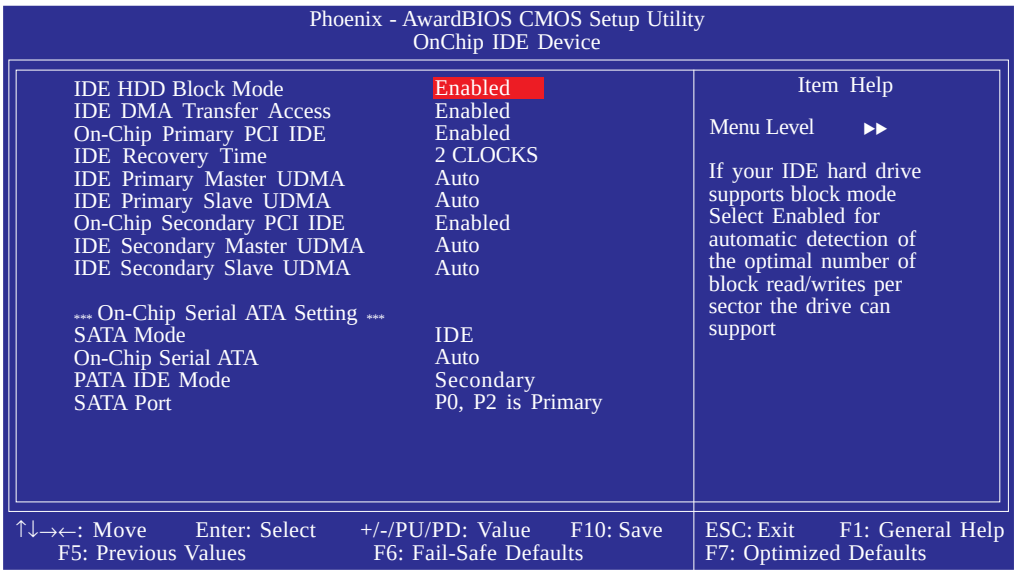
Integrated Peripherals



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 and On-Chip Secondary PCI IDE

These fields allow 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 Recovery Time

This field is used to select the IDE recovery time.

IDE Primary Master/Slave UDMA and IDE Secondary 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 in IDE mode.

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

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.

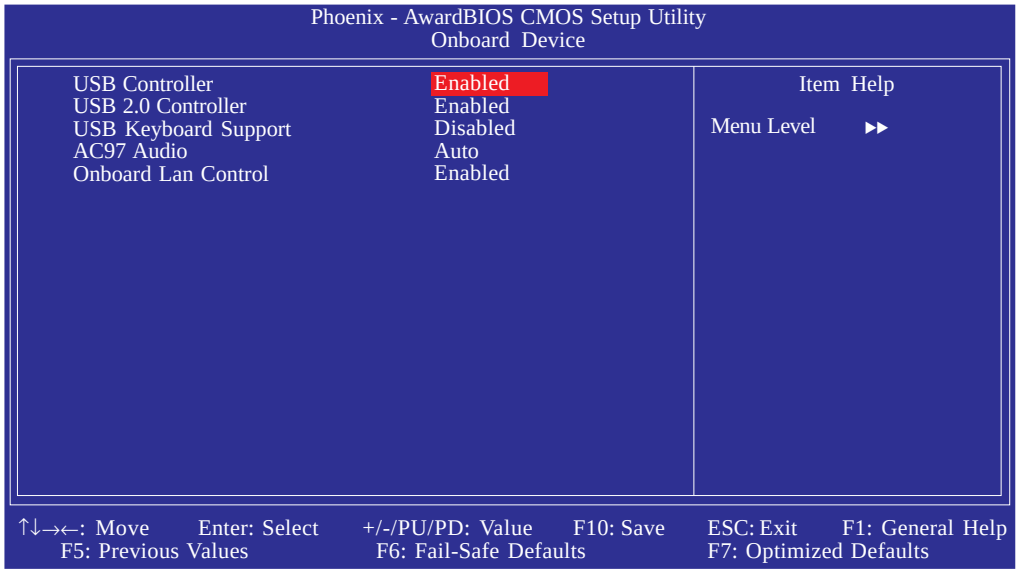
PATA IDE Mode and SATA Port

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.

USB Controller

This field is used to enable or disable the USB ports.

USB 2.0 Controller

If you are using USB 2.0, this field must be set to Enabled.

USB Keyboard Support

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

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

AC97 Audio

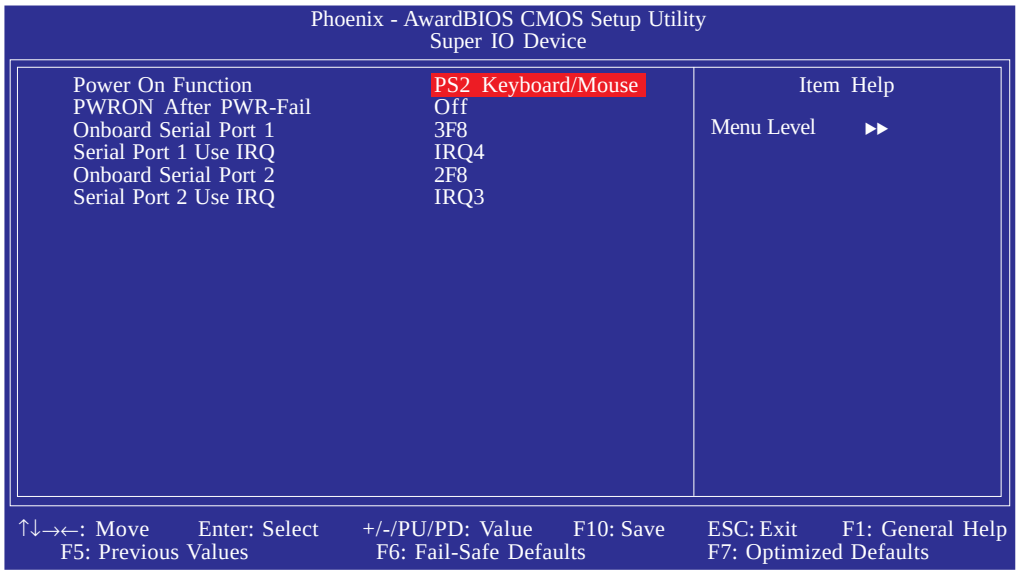
Auto	Select this option when using the onboard audio codec.
Disabled	Select this option when using a PCI sound card.

Onboard LAN Control

Auto	The system automatically detects the onboard LAN.
Disabled	Disables the onboard LAN.

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

PS2 Keyboard/Mouse	When this option is selected, use the PS/2 keyboard or PS/2 mouse to power-on the system.
Button only	Default setting. Uses the power button 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 and Onboard Serial Port 2

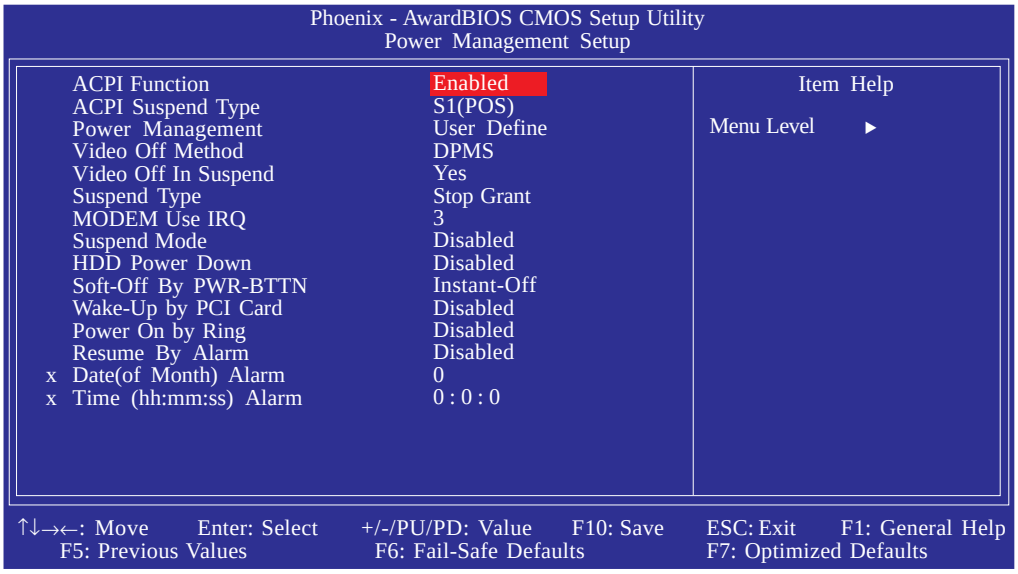
Auto	The system will automatically select an I/O address for the onboard serial port 1 and serial port 2.
3F8/IRQ4, 2F8/IRQ3	Allows you to manually select an I/O address for the onboard serial port 1 and serial port 2.
Disabled	Disables the onboard serial port 1 and/or serial port 2.

Serial Port 1 Use IRQ and Serial Port 2 Use IRQ

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

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. When this field is enabled, the S1 function will also be enabled.

ACPI Suspend Type

This field will show the S1 (Power On Suspend) function enabled.

Power Management

This field allows you to select the type (or degree) of power saving by changing the length of idle time that elapses before the "Suspend Mode" field is activated.

User Define	Allows you to set the power saving time in the "Suspend Mode" field.
Min Saving	Minimum power saving time for Suspend mode = 1 hr.
Max Saving	Maximum power saving time for Suspend mode = 1 min.

Video Off Method

This determines the manner in which the monitor is blanked.

Blank Screen	This only writes blanks to the video buffer.
V/H SYNC + Blank	This will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
DPMS Support	Initializes display power management signaling. Select this if your video board supports it.

Video Off In Suspend

This field is used to activate the video off feature when the system enters the Suspend mode.

Suspend Type

The options are Stop Grant and PwrOn Suspend.

MODEM Use IRQ

This field is used to set an IRQ channel for the modem installed in your system.

Suspend Mode

When the system enters the Suspend mode, the CPU and onboard peripherals will be shut off.

HDD Power Down

This is selectable only when the Power Management field is set to User Define. When the system enters the HDD Power Down mode according to the power saving time selected, the hard disk drive will be powered down while all other devices remain active.

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.

Power On By Ring

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

Resume By Alarm

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

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

Date (of Month) Alarm

0 The system will power-on everyday according to the time set in the "Time (hh:mm:ss) Alarm" field.

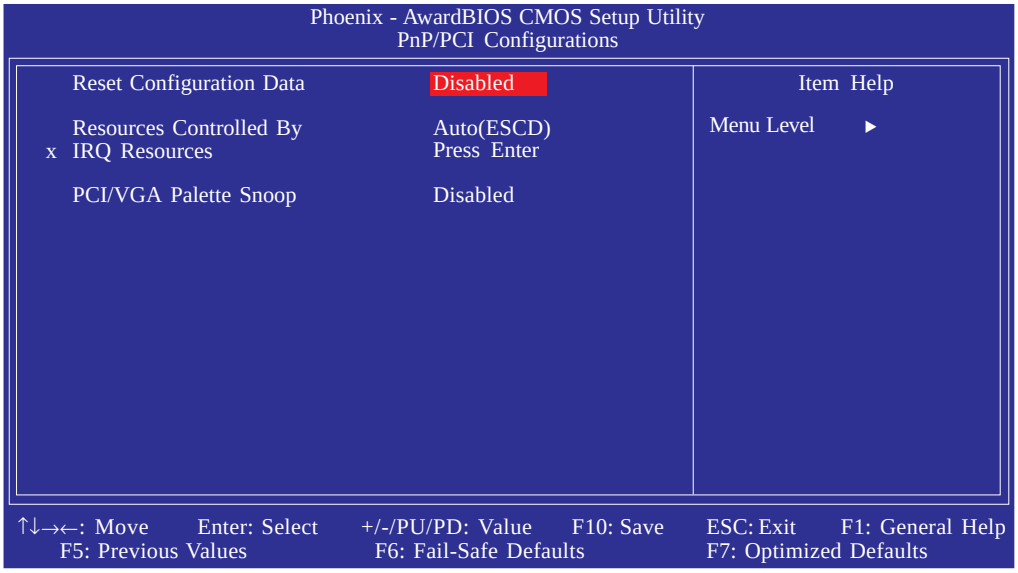
1-31 Select a date you would like the system to power-on. The system will power-on on the set date, and time set in the "Time (hh:mm:ss) Alarm" field.

Time (hh:mm:ss) Alarm

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

PnP/PCI Configurations

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



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

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

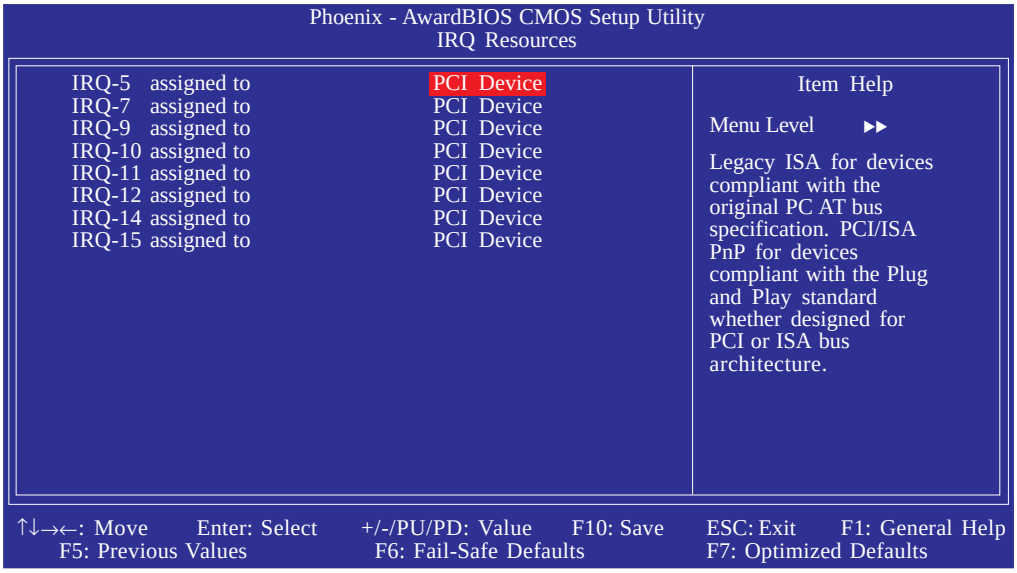
The Award Plug and Play BIOS has the capability to automatically configure all of the boot and Plug and Play compatible devices.

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.

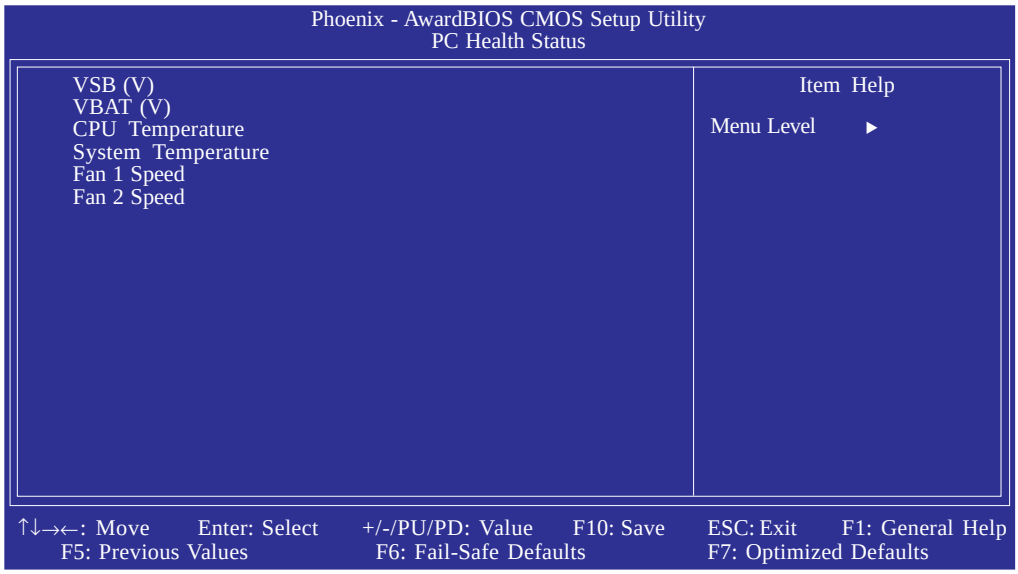
PCI/VGA Palette Snoop

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.

PC Health Status

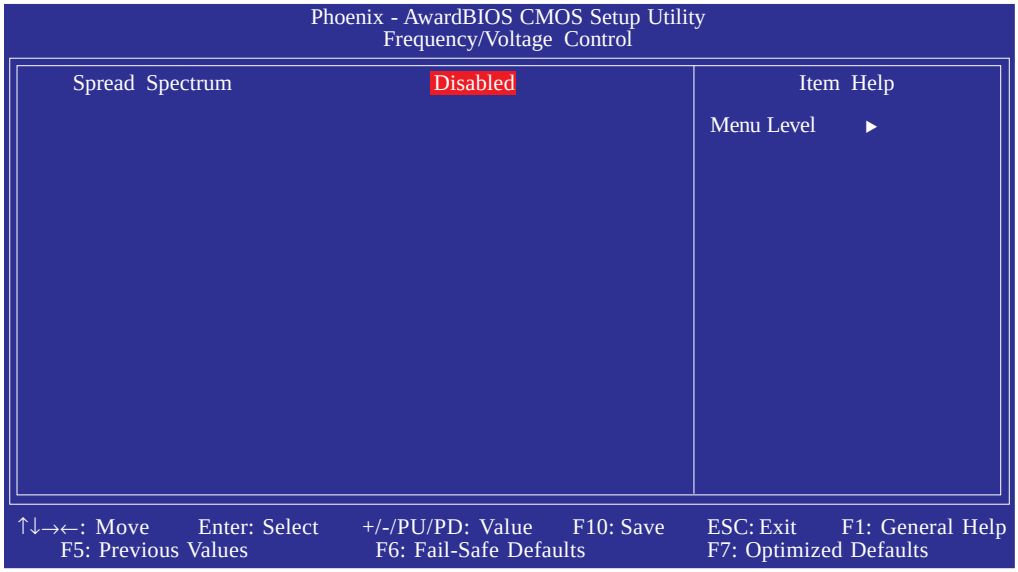


The settings on the screen are for reference only. Your version may not be identical to this one.

VSB(V) to Fan 2 Speed

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

Frequency/Voltage Control



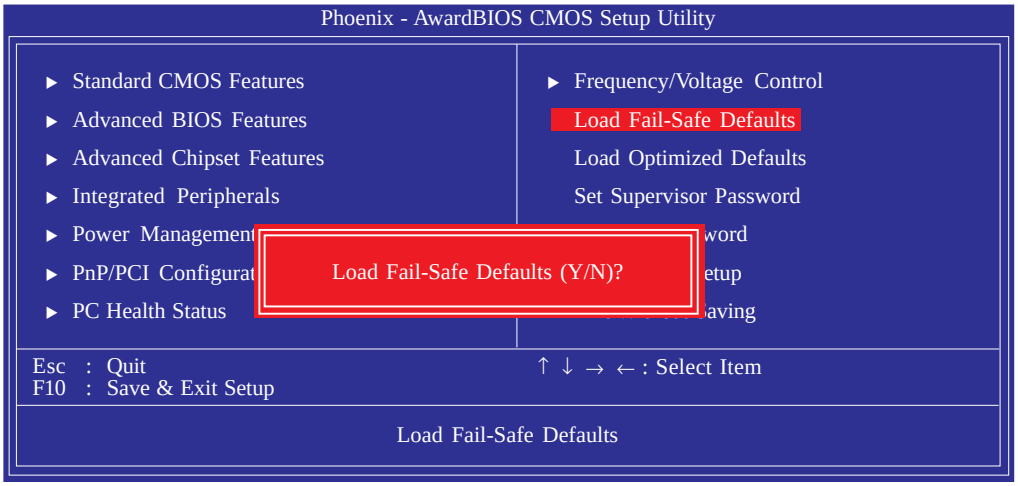
The settings on the screen are for reference only. Your version may not be identical to this one.

Spread Spectrum

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

Load Fail-Safe Defaults

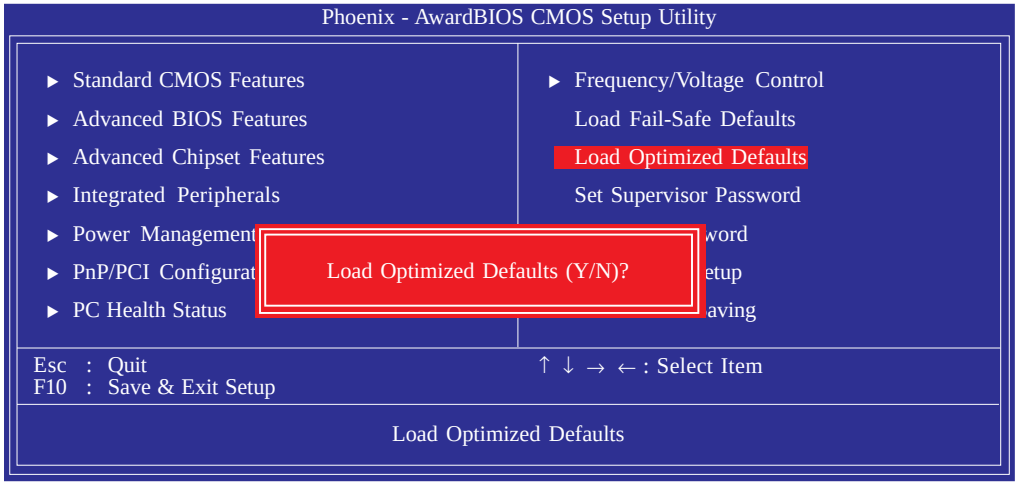
The "Load Fail-Safe Defaults" option loads the troubleshooting default values permanently stored in the ROM chips. These settings are not optimal and turn off all high performance features. You should use these values only if you have hardware problems. Highlight this option in the main menu and press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



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

Load Optimized Defaults

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

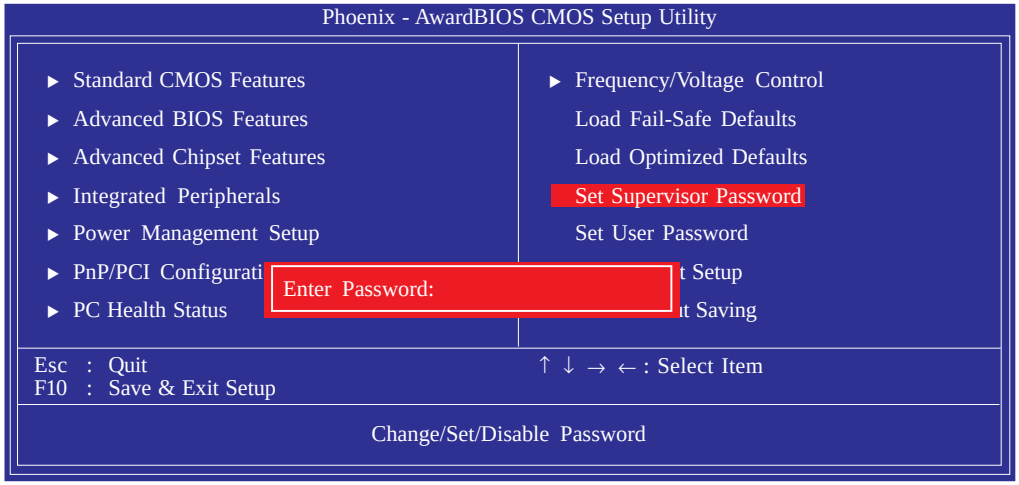


Type <Y> and press <Enter> to load the Setup default values.

Set Supervisor Password

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

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



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

Confirm Password:

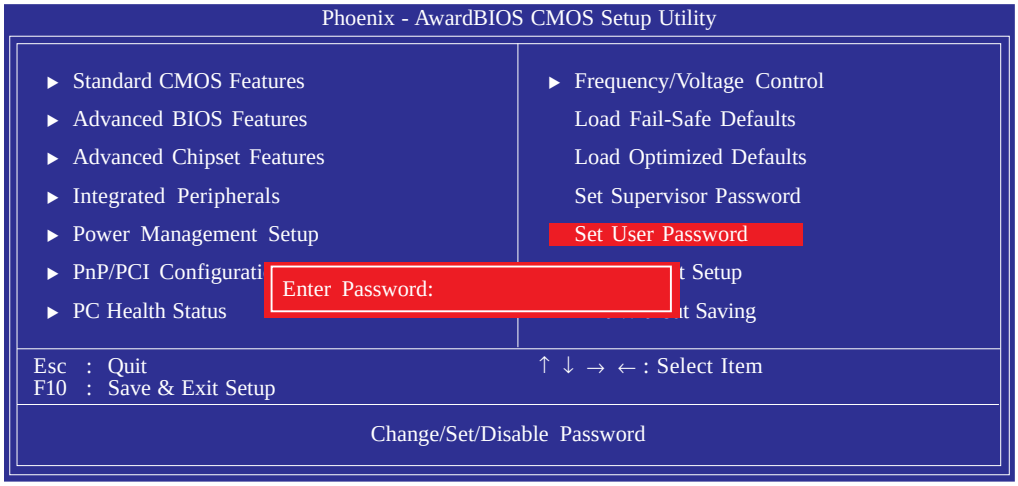
You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set Supervisor Password" and press <Enter>, instead of typing in a new password. Press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

Set User Password

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

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

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



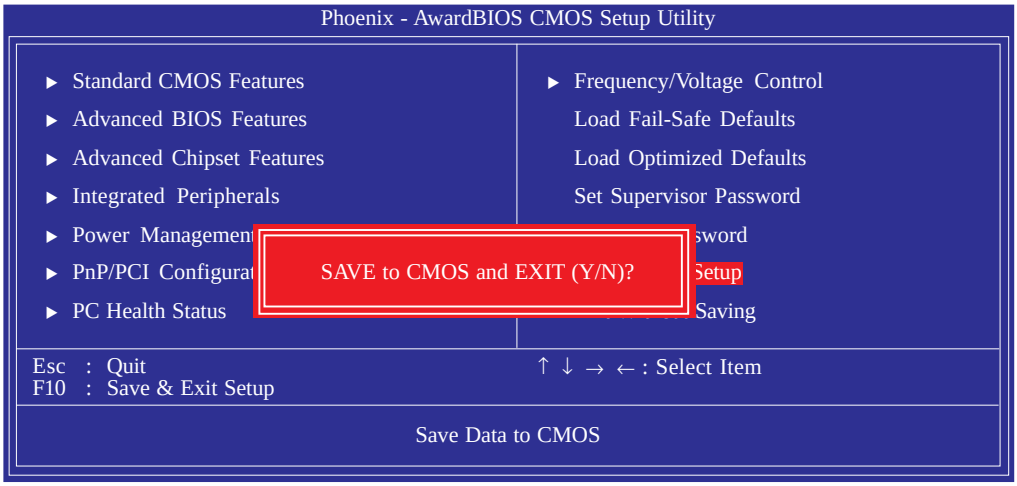
Type in the password. You are limited to eight characters. When done, the message below will appear:

Confirm Password:

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

Save & Exit Setup

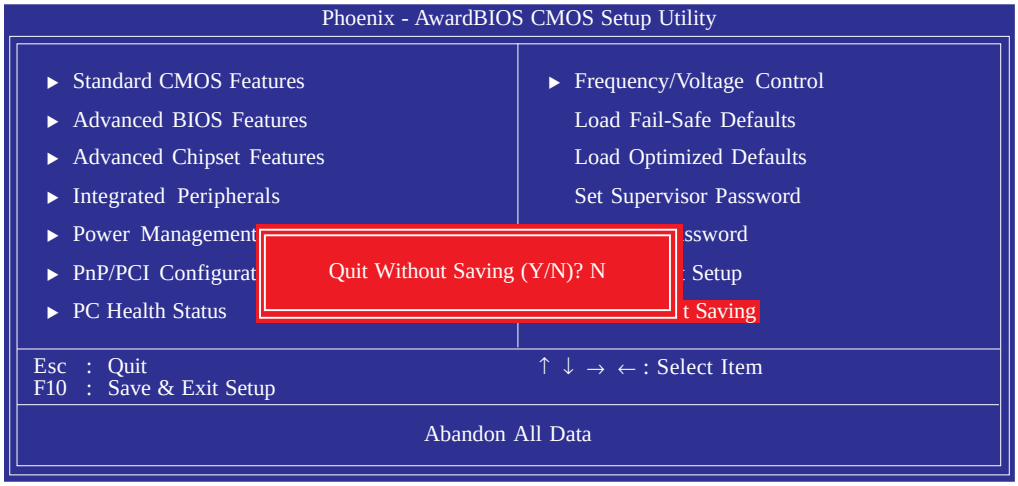
When all the changes have been made, highlight "Save & Exit Setup" and press <Enter>.



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

Updating the BIOS

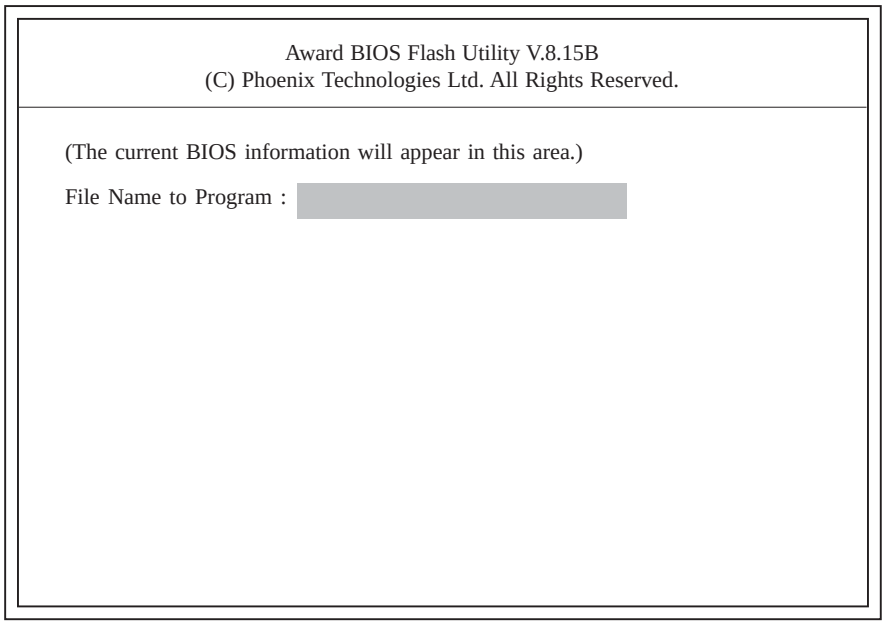
To update the BIOS, you will need the new BIOS file and a flash utility, AWDFLASH.EXE. Please contact technical support or your sales representative for the files.

1. Save the new BIOS file along with the flash utility AWDFLASH.EXE to a floppy disk.

2. Reboot the system and enter the Award BIOS Setup Utility to set the first boot drive to "Floppy".

3. Save the setting and reboot the system.

4. After the system booted from the floppy disk, execute the flash utility by typing AWDFLASH.EXE. The following screen will appear.



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

6. The following will appear:

   Do You Want to Save BIOS (Y/N)

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

7. The following will then appear:

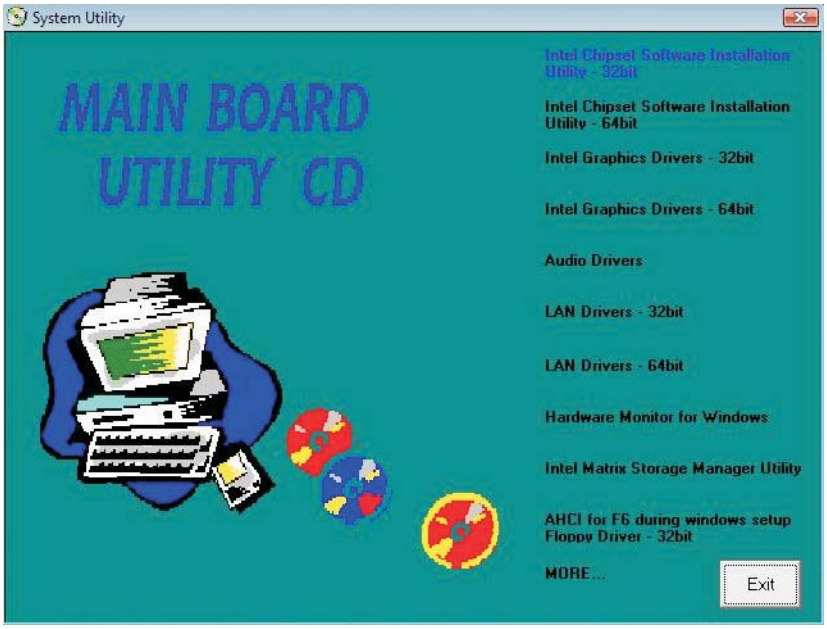
   Press "Y" to Program or "N" to Exit

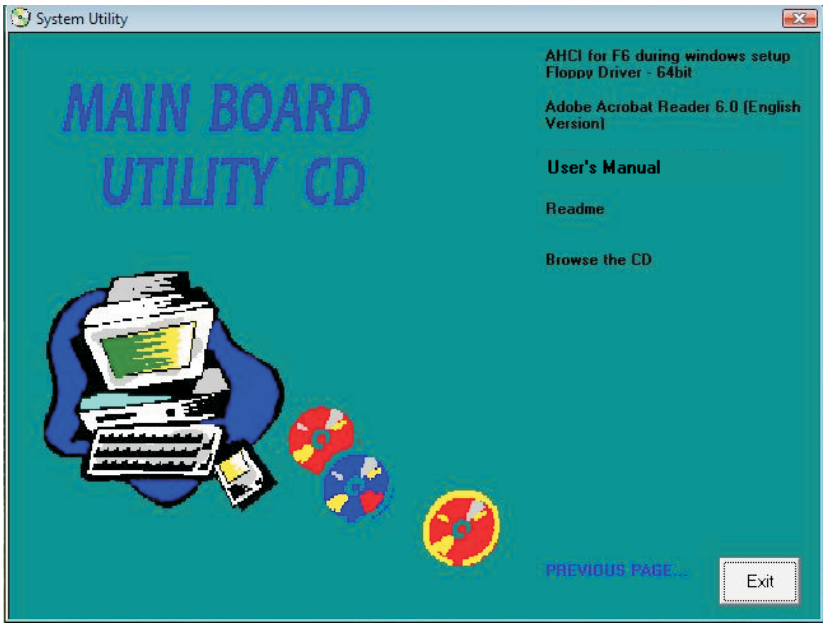
8. Press <Y> to flash the new BIOS.

Chapter 4 - Supported Software

Drivers for Windows Vista System

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





Intel Chipset Software Installation Utility

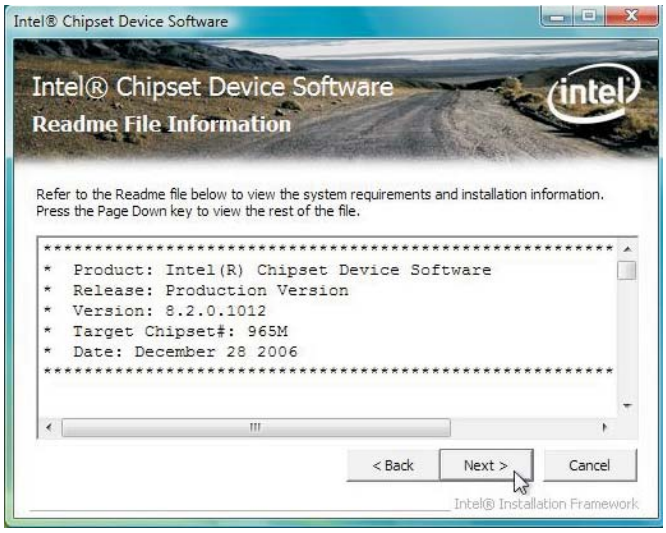
The Intel Chipset Software Installation Utility is used for updating Windows® INF files so that the Intel chipset can be recognized and configured properly in the system.

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

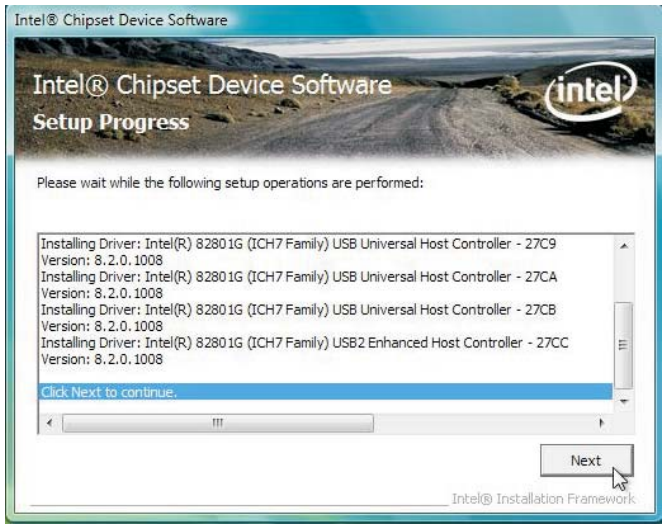
1. Setup is now ready to install the utility. Click Next.

2. Read the license agreement then click Yes.

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



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



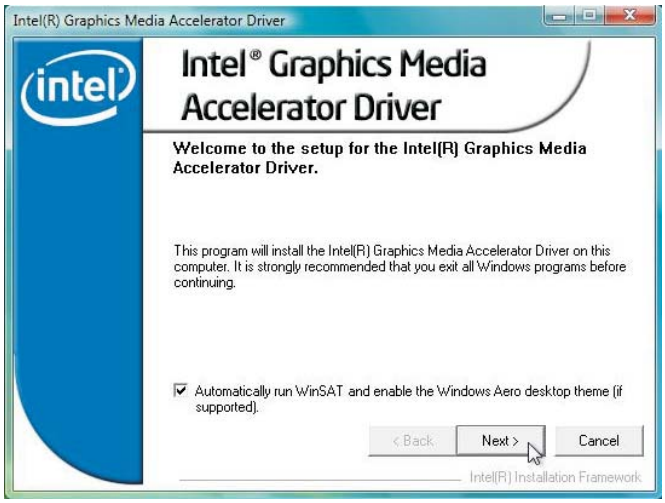
5. After completing installation, click Finish to exit setup.

4 Supported Software

Intel Graphics Drivers

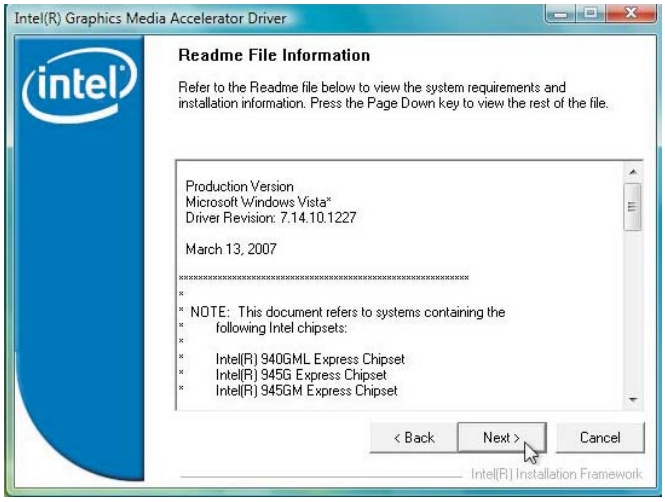
To install the utility, click "Intel Graphics Drivers" on the main menu.

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

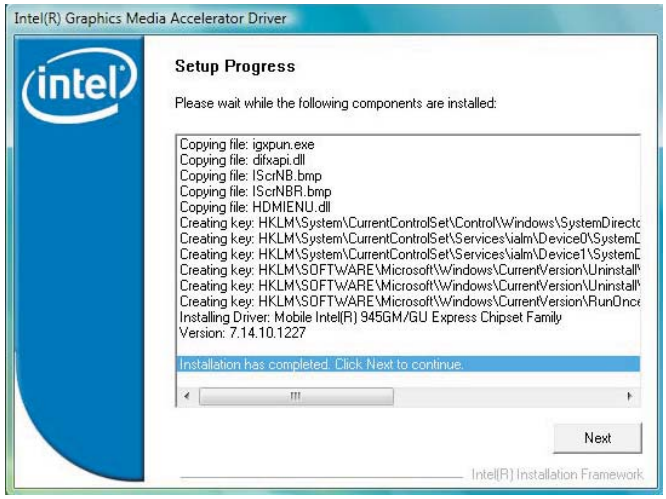


2. Read the license agreement then click Yes.

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

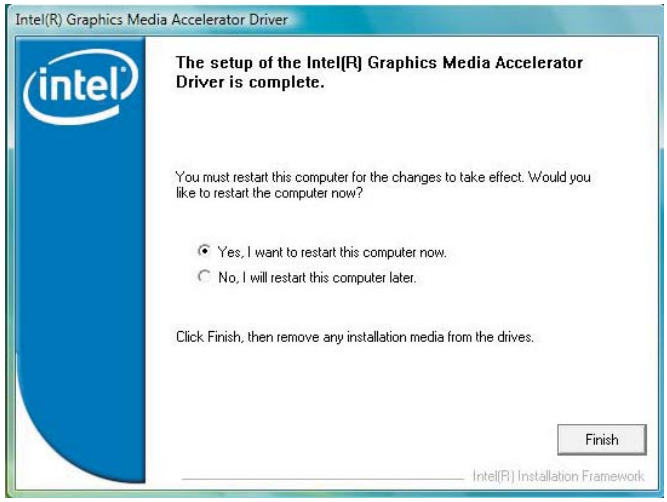


4. Setup is now installing the driver. Click Next to continue.



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

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



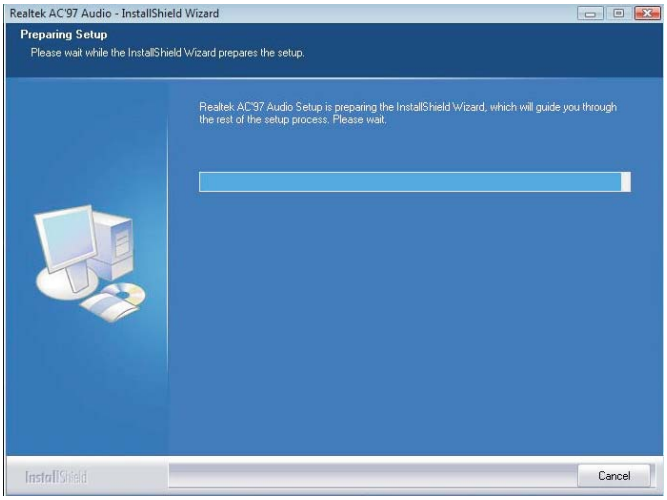
4 Supported Software

Audio Drivers

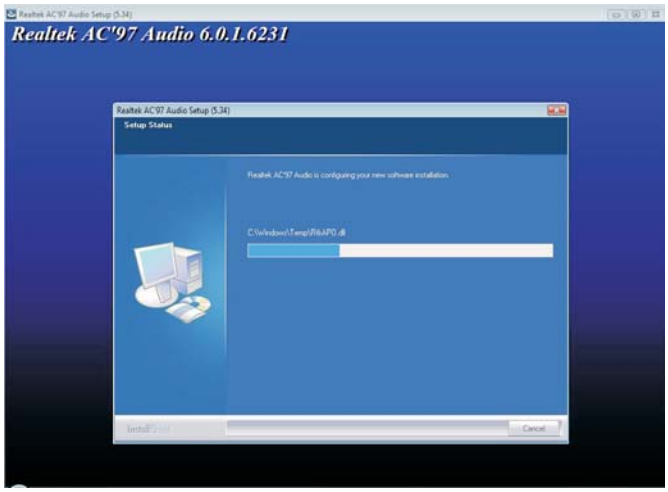
To install the utility, click "Audio Drivers" on the main menu.

1. Click Next to start the installation.

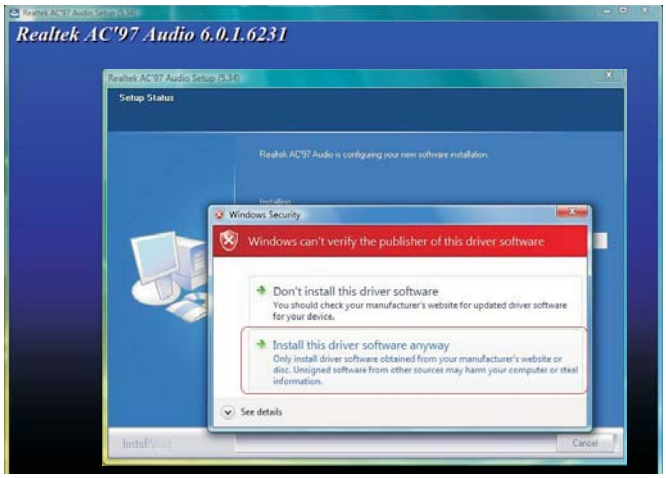
2. Setup is preparing to install the driver.



3. Setup is configuring the new software installation.



4. Click "Install this driver software anyway" to continue.



Important:
The warning message appeared because Windows Vista does not support AC'97. Vista only supports High Definition audio. In the event that AC'97 is currently used on the system board, click "Install this driver software anyway" to continue installing the audio driver.

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.

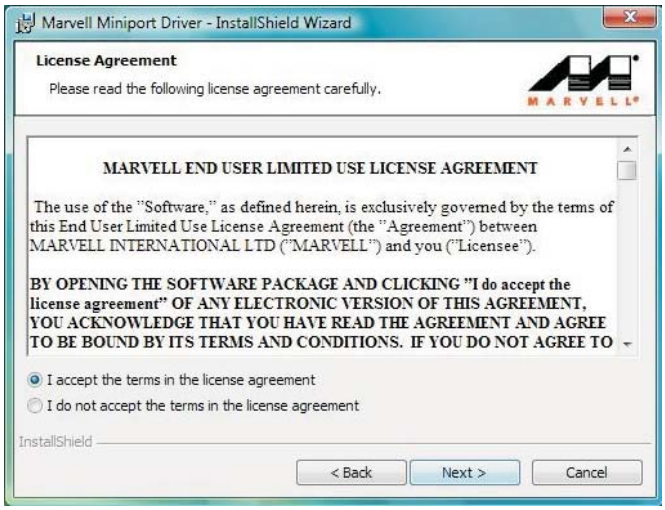
4 Supported Software

LAN Drivers

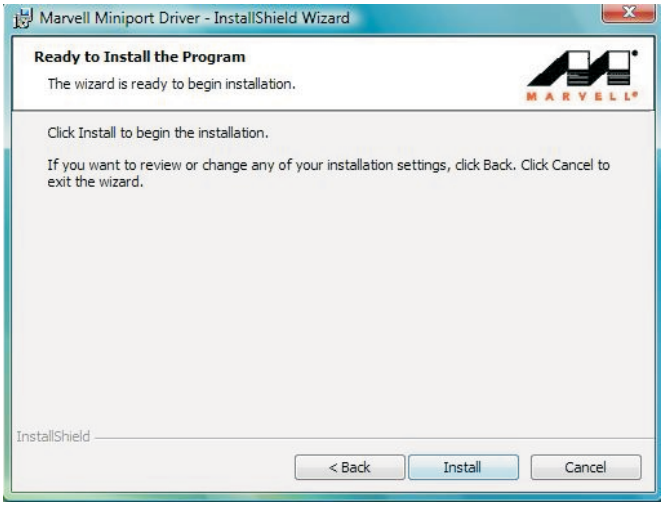
To install the utility, click "LAN Drivers" on the main menu.

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

2. Read the license agreement then click "I accept the terms in the license agreement". Click Next.



3. Click Install to begin installation.



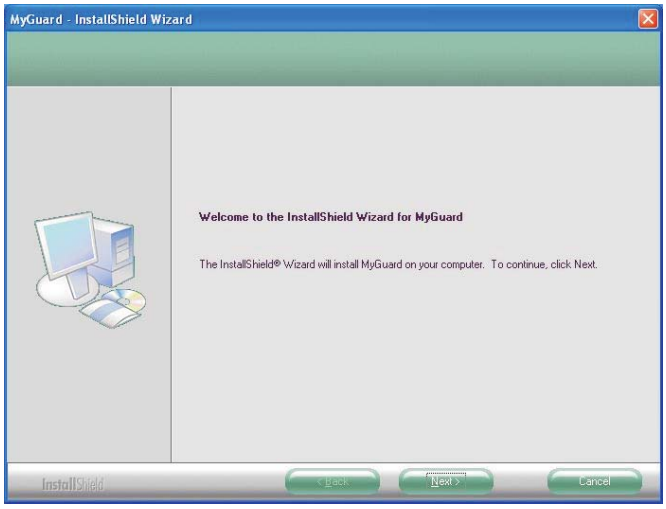
4. After completing installation, click Finish to exit setup.

Hardware Monitor for Windows Utility

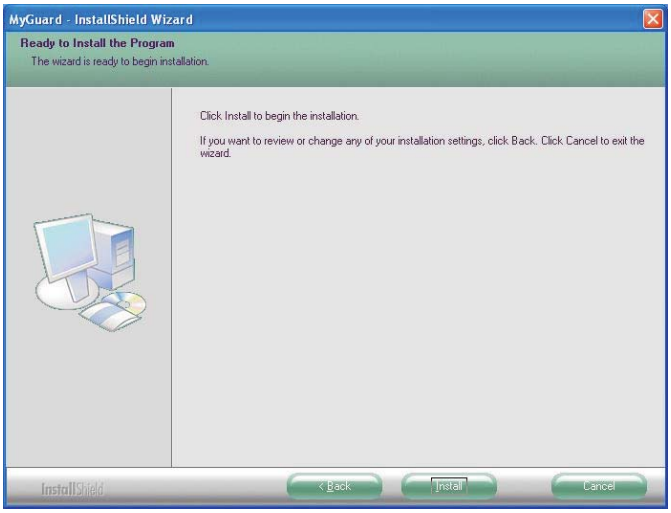
The Hardware Monitor for Windows utility is capable of monitoring the system's temperature, fan speed, voltage, etc. and allows you to manually set a range (Highest and Lowest Limit) to the items being monitored. If the settings/values are over or under the set range, a warning message will pop-up. The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

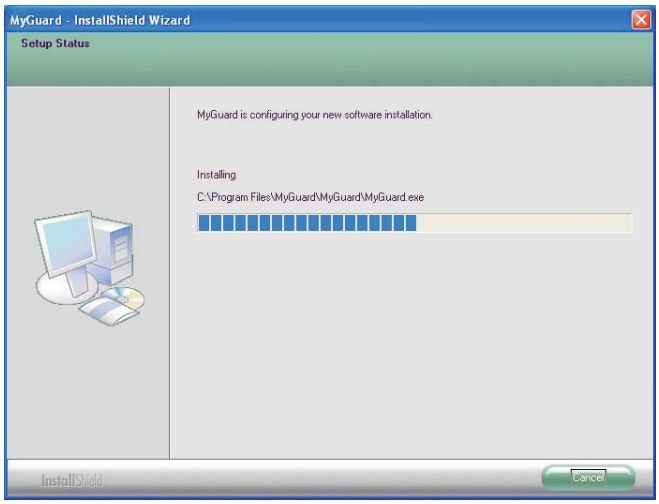
1. Setup is now ready to install the utility. Click Next.



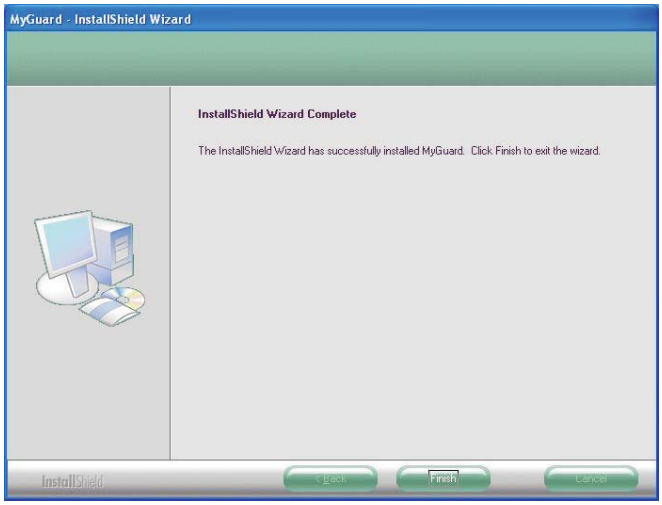
2. Click Install to begin installation.



3. Setup is currently installing the utility.

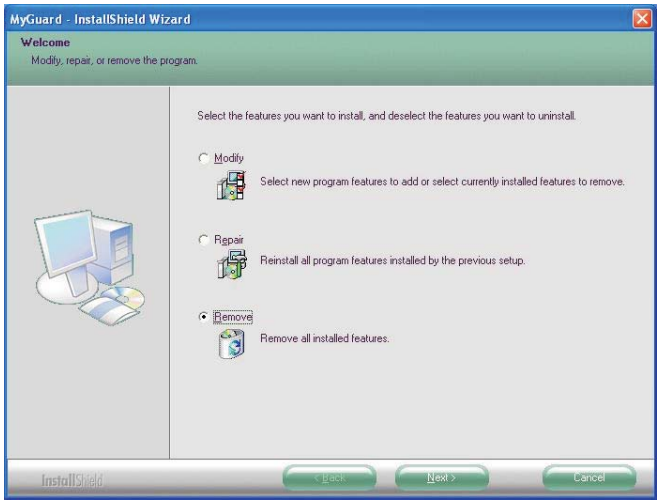


4. Click Finish to exit setup.



5. If you need to uninstall the utility, run the program again and when the screen on the right appears, select Remove then click Next.

   Follow the remainder of the steps on the screen; clicking "Next" each time you finish a step.



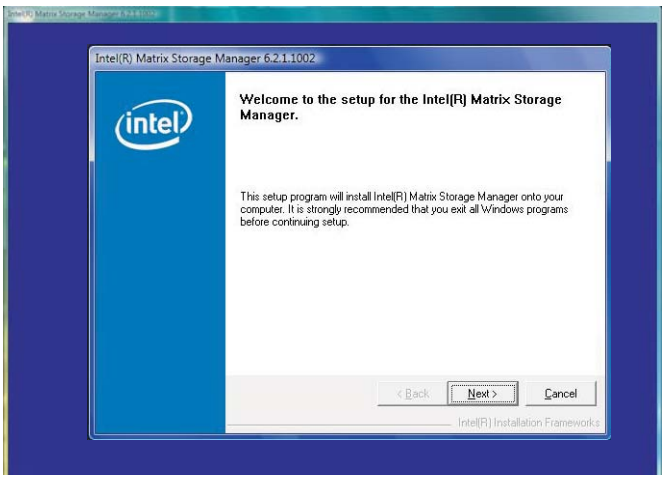
Intel Matrix Storage Manager Utility

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

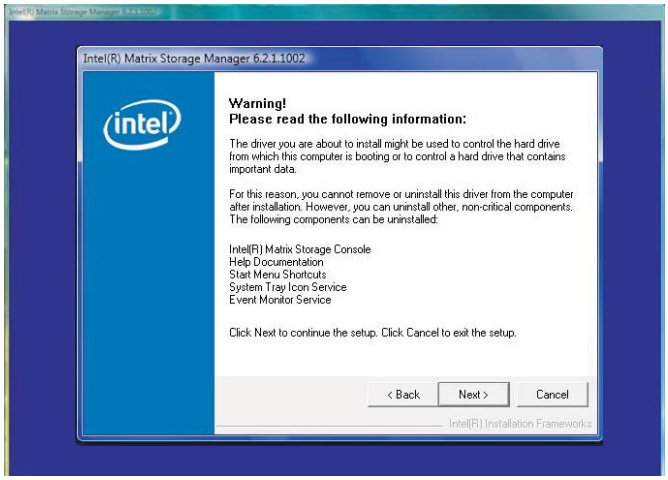
Note:
This utility is supported only when the SATA Mode field is set to AHCI. (The SATA Mode field is in the Integrated Peripherals -> OnChip IDE Device section of the Award BIOS.)

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

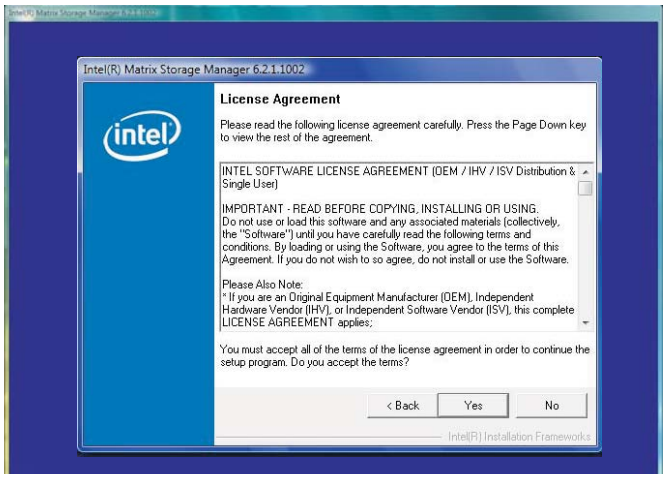
1. Setup is now ready to install the utility. Click Next.



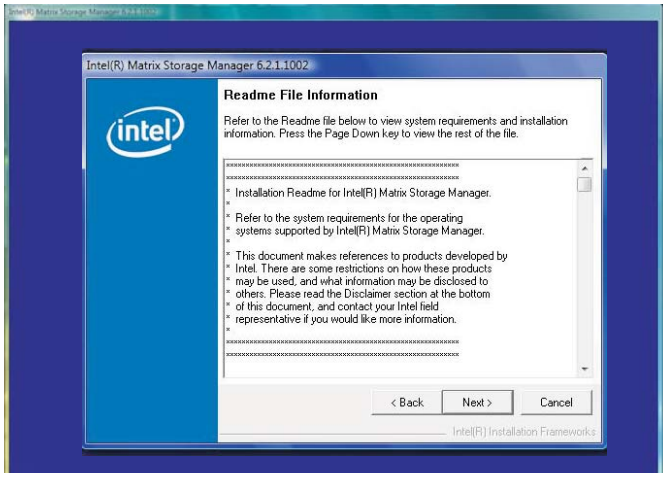
2. Read the warning carefully then click Next.



3. Read the license agreement then click Yes.

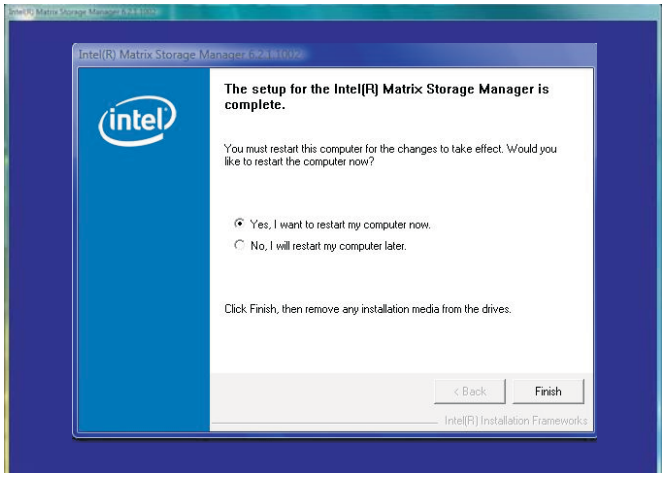


4. Go through the readme document to view system requirements and installation information then click Next.



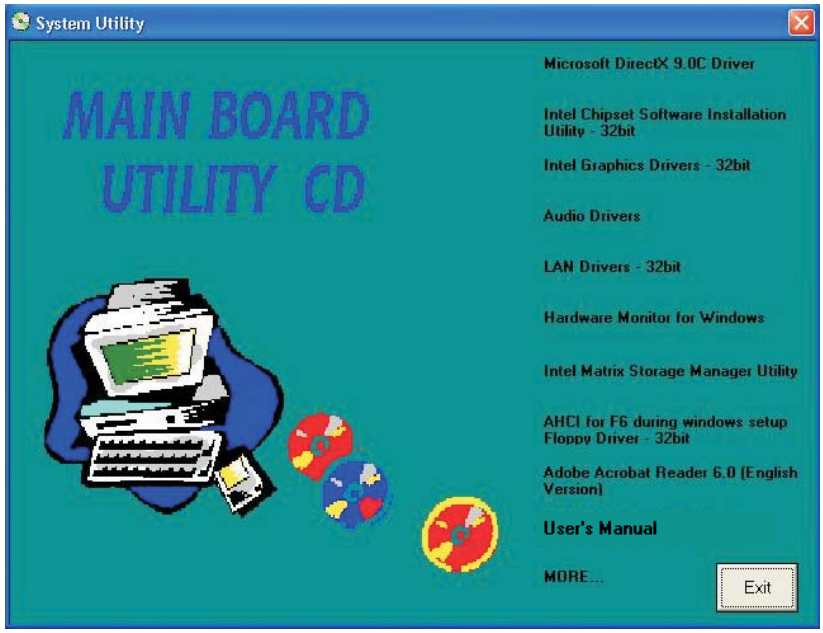
5. Click "Yes, I want to restart my computer now" then click Finish.

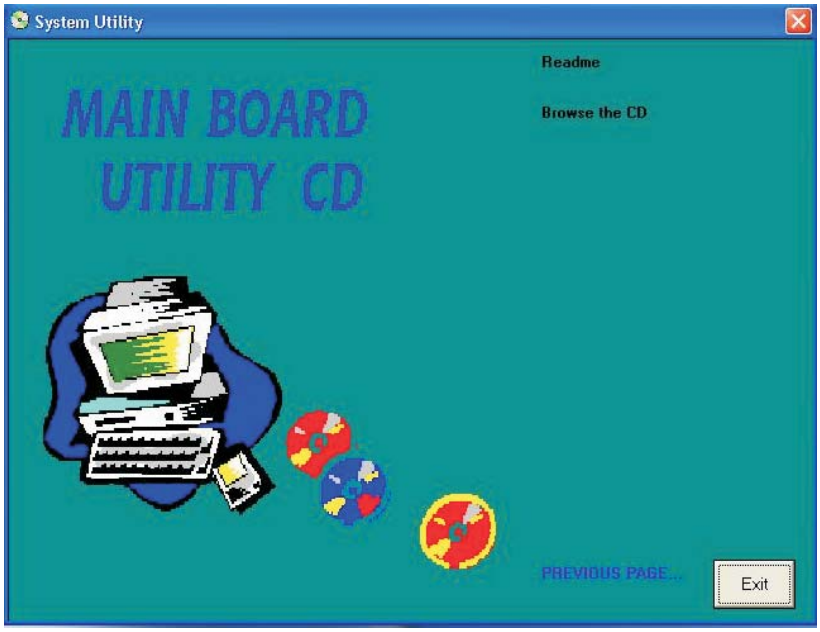
   Restarting the system will allow the new software installation to take effect.



Drivers for Windows XP System

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

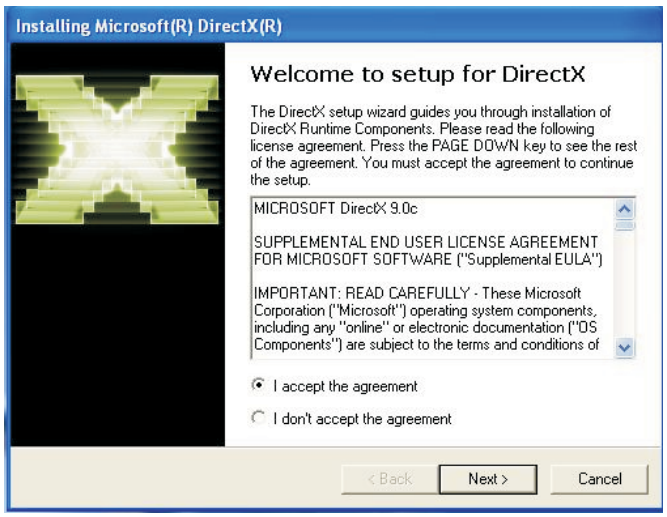




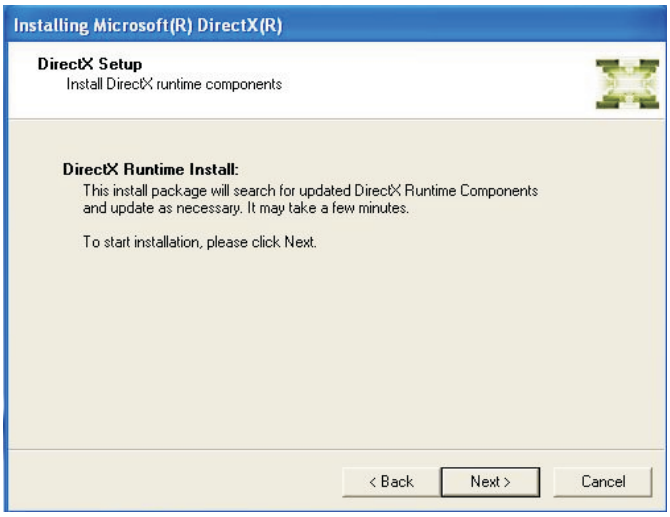
Microsoft DirectX 9.0C Driver

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

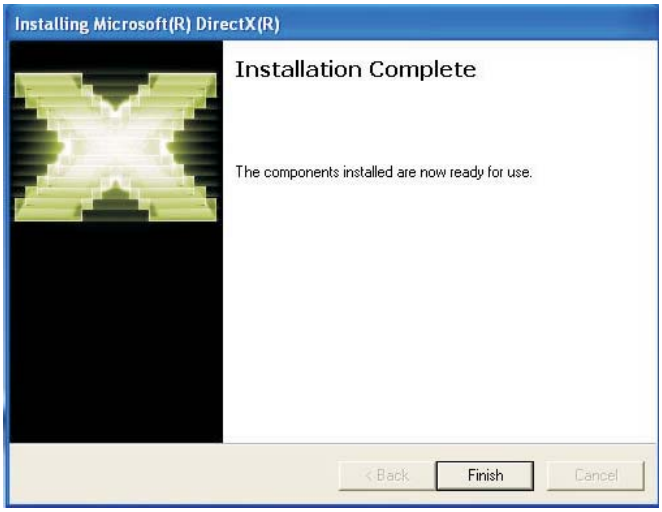
1. Click "I accept the agreement" then click Next.



2. To start installation, click Next.



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



Intel Chipset Software Installation Utility

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

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

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

2. Read the license agreement then click Yes.

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

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

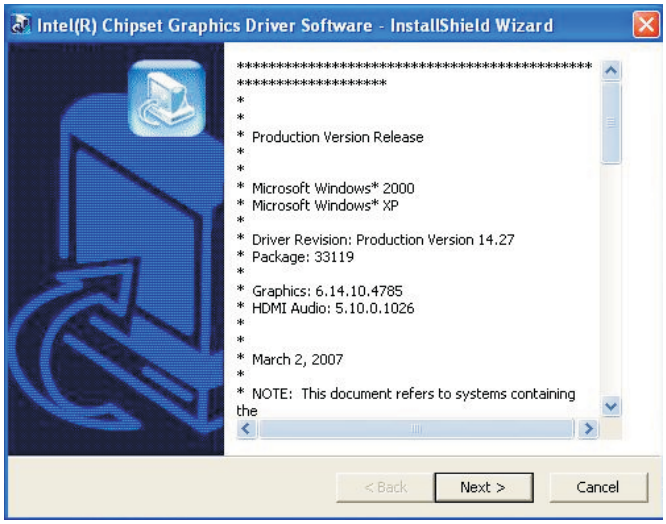
5. Click "Yes, I want to restart this computer now" then click Finish.

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

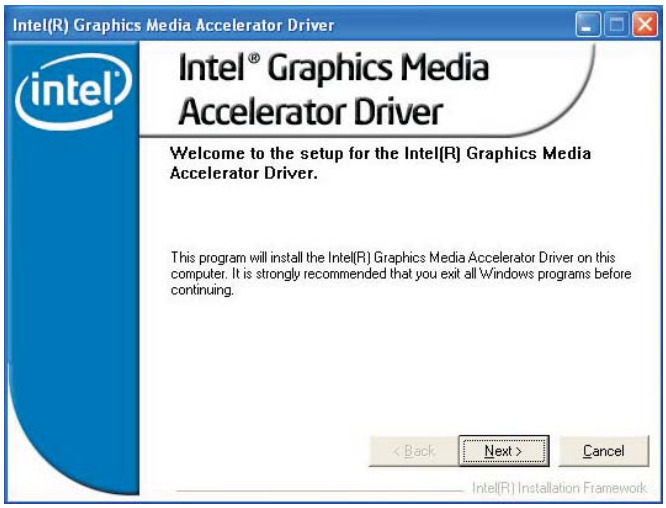
Intel Graphics Drivers

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

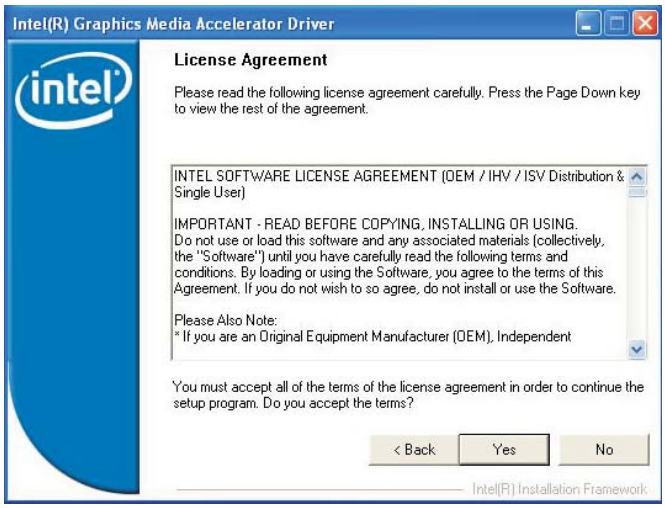
1. To start installation, click Next.



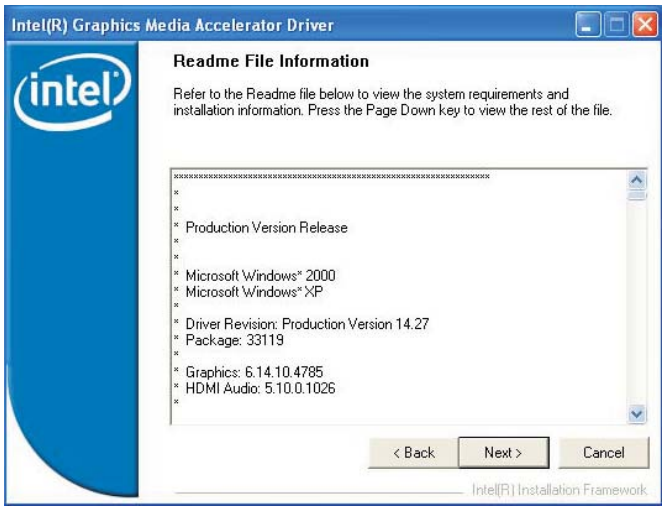
2. Setup is now ready to install the graphics driver. Click Next.



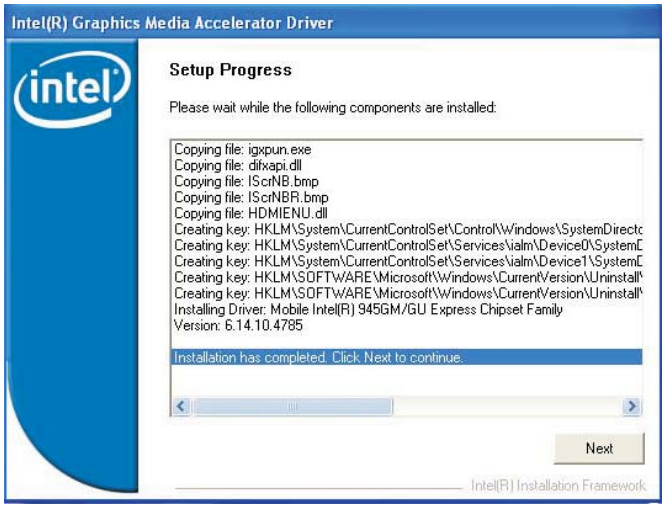
3. Read the license agreement then click Yes.



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

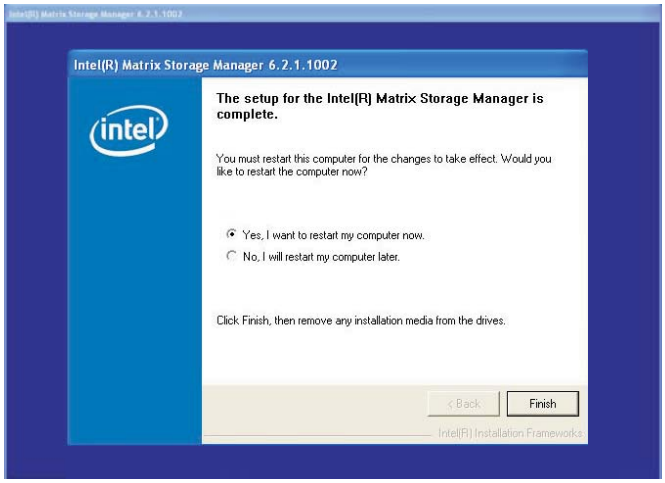


5. Setup is now installing the driver. Click Next to continue.



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

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

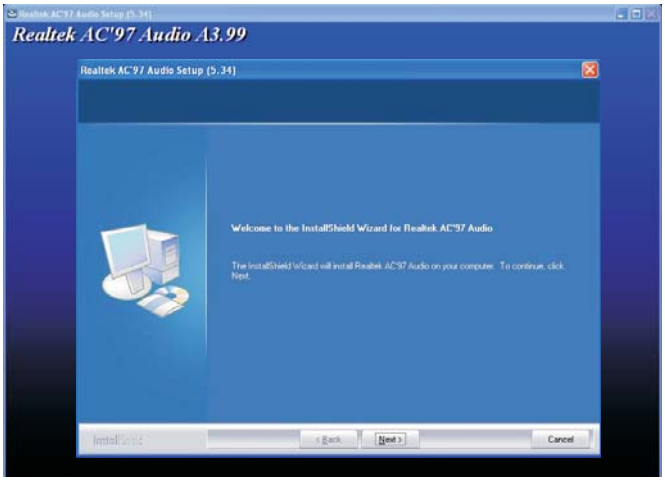


Audio Drivers

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

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

2. Follow the remainder of the steps that appeared 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.

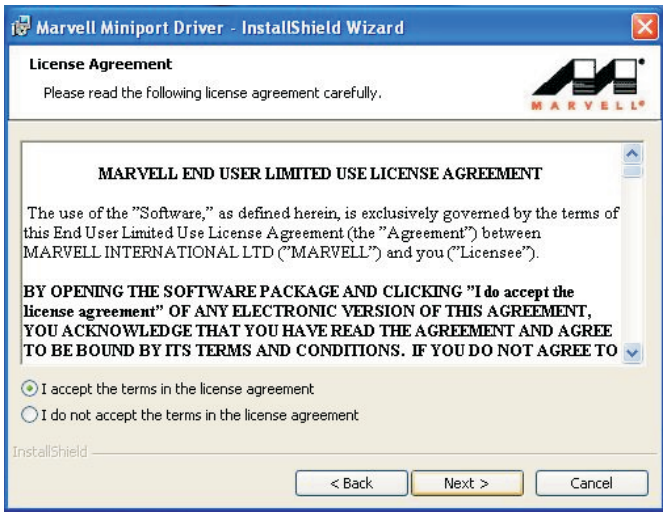
4 Supported Software

LAN Drivers

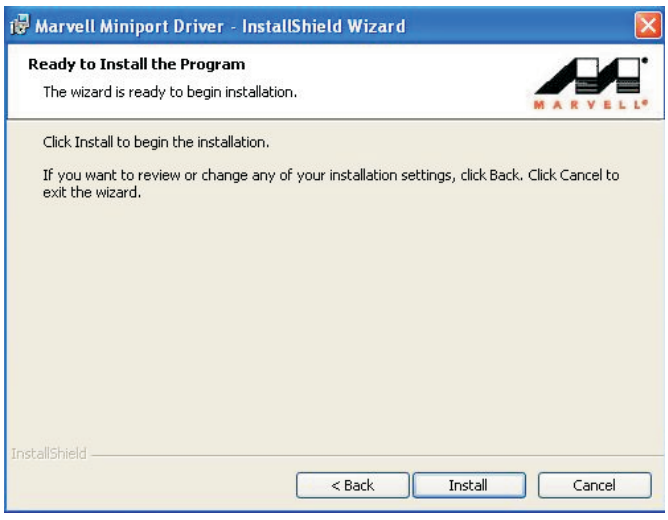
To install the utility, click "LAN Drivers" on the main menu.

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

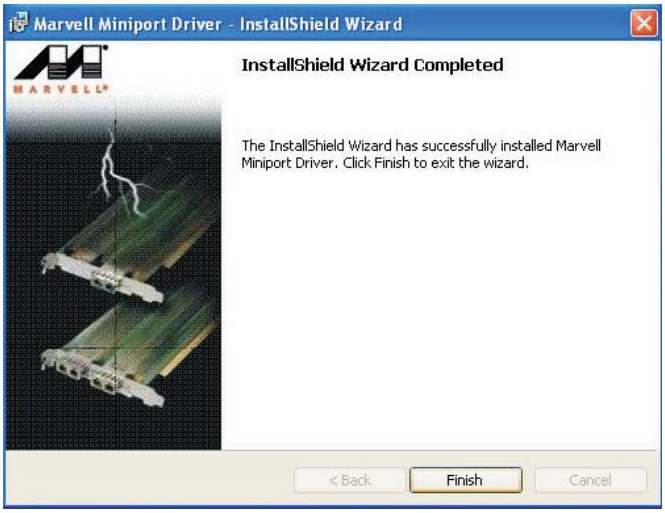
2. Read the license agreement then click "I accept the terms in the license agreement". Click Next.



3. Click Install to begin the installation.



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



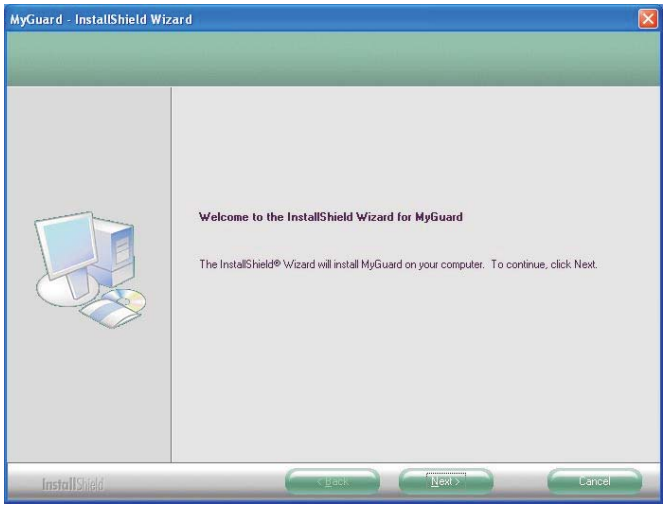
4 Supported Software

Hardware Monitor for Windows Utility

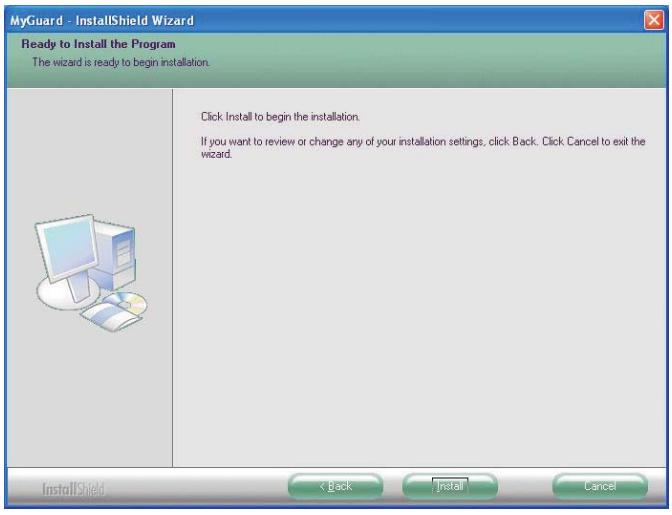
The Hardware Monitor for Windows utility is capable of monitoring the system's temperature, fan speed, voltage, etc. and allows you to manually set a range (Highest and Lowest Limit) to the items being monitored. If the settings/values are over or under the set range, a warning message will pop-up. The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

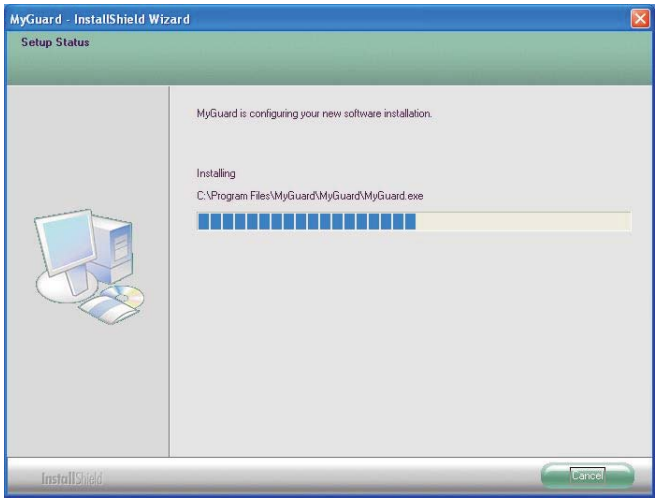
1. Setup is now ready to install the utility. Click Next.



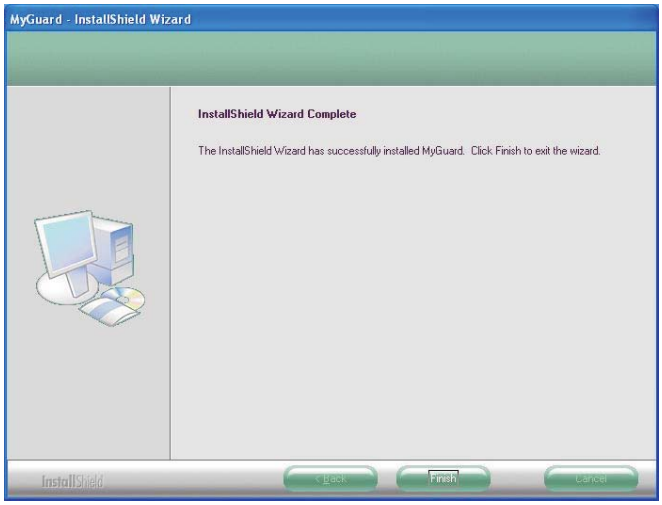
2. Click Install to begin installation.



3. Setup is currently installing the utility.

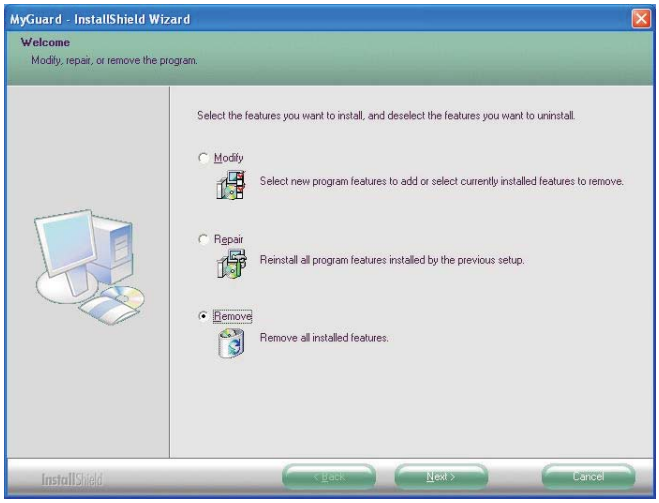


4. Click Finish to exit setup.



5. If you need to uninstall the utility, run the program again and when the screen on the right appears, select Remove then click Next.

   Follow the remainder of the steps on the screen; clicking "Next" each time you finish a step.



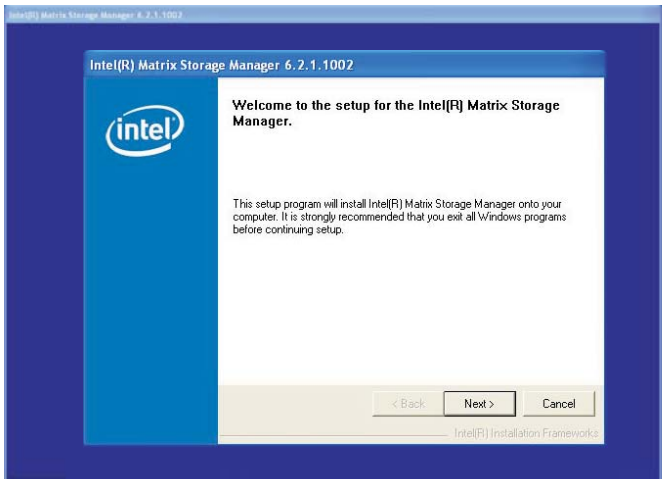
Intel Matrix Storage Manager Utility

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

Note:
This utility is supported only when the SATA Mode field is set to AHCI. (The SATA Mode field is in the Integrated Peripherals -> OnChip IDE Device section of the Award BIOS.)

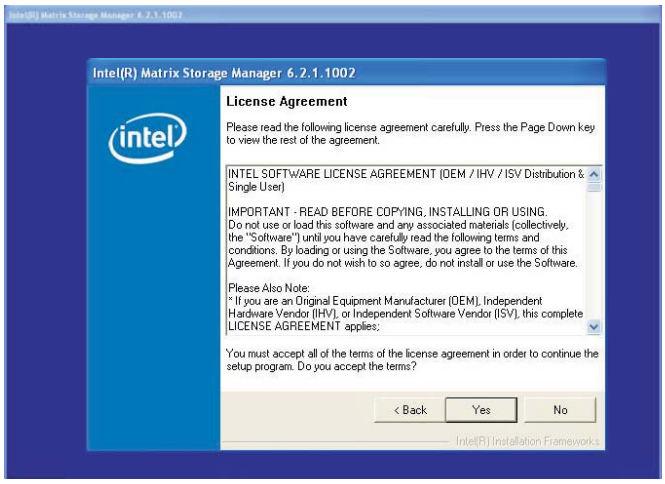
To install the utility, click "Intel Matrix Storage Manager Utility" on the main menu.

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

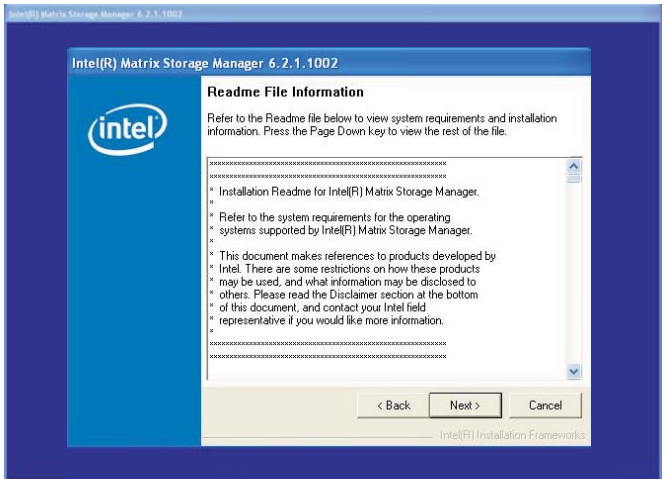


2. Read the warning carefully then click Next.

3. Read the license agreement then click Yes.

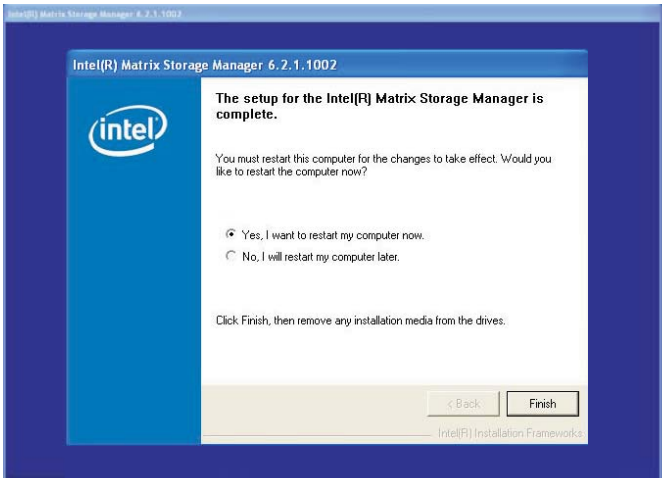


4. Go through the readme document to view system requirements and installation information then click Next.



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.



4 Supported Software

USB 2.0 Drivers

Windows® XP

If your Windows® XP CD already includes Service Pack 1, the USB 2.0 driver will automatically install when you install the operating system. If the CD does not include Service Pack 1, it is available for download at Microsoft's Windows Update website.

Windows® 2000

If your Windows® 2000 CD already includes Service Pack 4, the USB 2.0 driver will automatically install when you install the operating system. If the CD does not include Service Pack 4, it is available for download at Microsoft's Windows Update website.

Installation Notes

1. "Autorun" ONLY supports the Windows® XP and Windows® Vista operating systems. 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".

2. The drivers for Windows® 2000 are also included in the CD however "Autorun" is not supported for this operating system. Therefore you must manually install the drivers from the respective folders of each driver.

3. All steps or procedures to install software drivers are subject to change without notice as the softwares are occassionally updated. Please contact technical support or your sales representative for the latest version of the drivers or software applications.

Appendix A - 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.

POST Beep

There are two kinds of beep codes in the BIOS. One code indicates that a video error has occured and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by three short beeps. The other code indicates that a DRAM error has occured. This beep code consists of a single long beep.

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.

Caution:

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

CMOS CHECKSUM ERROR

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

DISPLAY SWITCH IS SET INCORRECTLY

The display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different

setting than indicated in Setup. Determine which setting is correct, either turn off the system and change the jumper or enter Setup and change the VIDEO selection.

Hard Disk(s) fail (80)
HDD reset failed.

Hard Disk(s) fail (40)
HDD controller diagnostics failed.

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 B - Troubleshooting

Troubleshooting Checklist

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

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

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

Monitor/Display

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

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

The picture seems to be constantly moving.

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

The screen seems to be constantly wavering.

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

Power Supply

When the computer is turned on, nothing happens.

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

Hard Drive

Hard disk failure.

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

Excessively long formatting period.

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

Serial Port

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

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

Troubleshooting

Keyboard

Nothing happens when a key on the keyboard was pressed.

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

System Board

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

Appendix C - Watchdog Timer

Watchdog Timer

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

```
;============== PROGRAM START ==============
Secondio_Config_Port        EQU     2EH
Entry_Key                   EQU     87H
Watch_Dog_Timer             EQU     14H     ;20Second
;*****************************************
code        segment
            assume  cs:code,ds:code
            org     100h
;-----------------------------------------
start:
    mov     dx, Secondio_Config_Portÿ
    mov     al, Entry_Key
    out     dx, al
    out     dx, al
    mov     dx, Secondio_Config_Port
    mov     al, 07H
    out     dx, al
    mov     al, 08H
    inc     dx
    out     dx, al
    mov     dx, Secondio_Config_Port
    mov     al, 30H
    out     dx, al
    mov     al, 01H
    inc     dx
    out     dx, al
    mov     dx, Secondio_Config_Port
    mov     al, 60H
    out     dx, al
    mov     al, 03H
```

```
        inc     dx
        out     dx, al
        mov     dx, Secondio_Config_Port
        mov     al, 61H
        out     dx, al
        mov     al, 00H
        inc     dx
        out     dx, al
        mov     dx, Secondio_Config_Port
        mov     al, 0F0H
        out     dx, al
        mov     al, 03H
        inc     dx
        out     dx, al
        mov     dx, Secondio_Config_Port
        mov     al, 0F1H
        out     dx, al
        mov     al, Watch_Dog_Timer
        inc     dx
        out     dx, al
        mov     dx, Secondio_Config_Port
        mov     al, 0F1H
        out     dx, al
        mov     al, Watch_Dog_Timer        ; Set the watchdog timer
        inc     dx
        out     dx, al
        mov     dx, Secondio_Config_Port
        mov     al, 0AAH
        out     dx, al
        mov     ah,4ch
        int     21H
;-------------------------------------------
code    ends
;*****************************************
        end     start
```