

CA100-D

System Board User's Manual

935-CA1001-000G
A10940020

Copyright

This publication contains information that is protected by copyright. No part of it may be reproduced in any form or by any means or used to make any transformation/adaptation without the prior written permission from the copyright holders.

This publication is provided for informational purposes only. The manufacturer makes no representations or warranties with respect to the contents or use of this manual and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. The user will assume the entire risk of the use or the results of the use of this document. Further, the manufacturer reserves the right to revise this publication and make changes to its contents at any time, without obligation to notify any person or entity of such revisions or changes.

© 2010. All Rights Reserved.

Trademarks

Windows® 2000 and Windows® XP are registered trademarks of Microsoft Corporation. Award is a registered trademark of Award Software, Inc. Other trademarks and registered trademarks of products appearing in this manual are the properties of their respective holders.

FCC and DOC Statement on Class B

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

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

Notice:

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

Table of Contents

Copyright.....	2
Trademarks.....	2
FCC and DOC Statement on Class B.....	3
About this Manual.....	7
Warranty	7
Static Electricity Precautions.....	8
Safety Measures.....	8
About the Package.....	9
Before Using the System Board.....	9
Chapter 1 - Introduction.....	10
Specifications.....	10
Features	12
Chapter 2 - Hardware Installation.....	15
System Board Layout.....	15
System Memory	16
Installing the DIM Module.....	17
CPU.....	19
Installing the CPU.....	19
Installing the Fan and Heat Sink.....	21
Jumper Settings.....	23
Clear CMOS Data.....	23
PS/2 Power Select.....	24
USB Power Select.....	25
COM 2 RS232/RS485 Select.....	26
Power-on Select.....	27
Panel Power Select.....	28
Rear Panel I/O Ports.....	29
PS/2 Mouse and PS/2 Keyboard Ports.....	30
COM (Serial) Ports	31
VGA Port.....	32
DVI-I Port	33
RJ45 LAN Port	34
USB Ports.....	35
Audio	37

I/O Connectors.....	38
CD-in Internal Audio Connector	38
S/PDIF-out Connector.....	39
LVDS LCD Panel and LCD/Inverter Power Connector.....	40
Digital I/O Connector.....	42
SATA (Serial ATA) Connectors	43
IDE Connector	44
Cooling Fan Connectors.....	46
Chassis Intrusion Connector	47
Power Connectors	48
Standby Power LED	49
Front Panel Connectors	50
Expansion Slots	51
Battery	52
Chapter 3 - BIOS Setup.....	53
Award BIOS Setup Utility.....	53
Standard CMOS Features	54
Advanced BIOS Features.....	58
Advanced Chipset Features.....	62
Integrated Peripherals	65
Power Management Setup.....	70
PnP/PCI Configurations	72
PC Health Status.....	74
Frequency/Voltage Control	75
Load Fail-Safe Defaults	76
Load Optimized Defaults	77
Set Supervisor Password.....	78
Set User Password	79
Save & Exit Setup.....	80
Exit Without Saving.....	81
Updating the BIOS.....	82
Chapter 4 - Supported Software	84
Intel Chipset Software Installation Utility	85
Microsoft DirectX 9.0C Driver	87
Intel Graphics Drivers (for Windows 7 / Windows Vista).....	88
Intel Graphics Drivers (for Windows XP).....	91
Audio Drivers	93
LAN Drivers.....	94
Hardware Monitor for Windows (for Windows 7 / Windows Vista) ..	95
Hardware Monitor for Windows (for Windows XP)	100
Intel Matrix Storage Manager Utility.....	102
AHCI for F6 During Windows Setup Floppy Driver	104
Adobe Acrobat Reader 9.3	105

Appendix A - Watchdog Sample Code	108
Appendix B - System Error Message	110
Appendix C - Troubleshooting	112

About this Manual

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

Warranty

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

Static Electricity Precautions

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

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



Important:

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

Safety Measures

To avoid damage to the system:

- Use the correct AC input voltage range.

To reduce the risk of electric shock:

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

Battery:

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

About the Package

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

- ☑ One system board
- ☑ One IDE cable
- ☑ One USB cable
- ☑ Two Serial ATA data cables
- ☑ Two Serial ATA power cables
- ☑ One I/O shield
- ☑ One user's manual
- ☑ One CD
- ☑ One QR (Quick Reference)

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

Before Using the System Board

Before using the system board, prepare basic system components.

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

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

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

Chapter 1 - Introduction

Specifications

Processor	<ul style="list-style-type: none">• Intel® Core™2 Penryn processor• Intel® Celeron® 575 processor• 1066/800/667MHz FSB• Intel® 45nm transistor technology• Intel® Trusted Execution Technology (Intel® TXT)• Intel® Virtualization Technology (Intel® VT) DMA• Supports Data Bus Inversion (DBI)• Supports Message Signaled Interrupt (MSI)• Supports Intel® architecture with Intel® Wide Dynamic Execution• Processor socket: Socket P 478-pin Micro FCPGA
Chipset	<ul style="list-style-type: none">• Intel® chipset<ul style="list-style-type: none">- Northbridge: Intel® GM45 Express chipset- Southbridge: Intel® ICH9M I/O Controller Hub
System Memory	<ul style="list-style-type: none">• Two 204-pin SODIMM sockets• Supports 800/1066MHz DDR3 SDRAM• Supports maximum of 8GB system memory• 64-bit wide per channel• 256Mb, 512Mb, 1Gb and 2Gb memory technologies• Supports non-ECC x8 and x16 DIMMs• Supports On-Die Termination (ODT)• Supports partial writes to memory using data mask signals (DM)
Expansion Slots	<ul style="list-style-type: none">• 1 PCI Express x1 slot (PCIe 1.1)• 1 PCI slot (PCI 2.3)
Graphics	<ul style="list-style-type: none">• Intel GMA4500 integrated graphics engine<ul style="list-style-type: none">- Supports 3D, 2D and video capabilities, DX10 and OpenGL 2.1
Audio	<ul style="list-style-type: none">• Realtek ALC262 2-channel High Definition Audio• Three stereo ADCs support 16/20-bit PCM format for multiple input streaming• High quality analog differential CD input• 16/20/24-bit S/PDIF-OUT supports 44.1K/48K/96K/192kHz sample rate• 16/20/24-bit S/PDIF-IN supports 44.1K/48K/96K/192kHz sample rate
LAN	<ul style="list-style-type: none">• Two Realtek RTL8111C-GR PCI Express Gigabit controllers• Integrated 10/100/1000 transceiver• Supports Full Duplex flow control (IEEE 802.3x)• Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab• Supports power down / link down power saving
Serial ATA	<ul style="list-style-type: none">• Supports 4 SATA (Serial ATA) interfaces which are compliant with SATA 1.0 specification• SATA speed up to 3Gb/s (SATA 2.0)• Integrated Advanced Host Controller Interface (AHCI) controller

IDE	<ul style="list-style-type: none"> • JMicron JMB368 PCI Express to PATA host controller • Supports Native Mode operation • Supports PIO Modes 0, 1, 2, 3, 4 • Supports Multiword DMA Modes 0, 1, 2 • Supports Ultra DMA 33/66/100/133 • Supports ATA/ATAPI command
Rear Panel I/O Ports	<ul style="list-style-type: none"> • 1 mini-DIN-6 PS/2 mouse port • 1 mini-DIN-6 PS/2 keyboard port • 2 DB-9 serial ports • 1 DB-15 VGA port • 1 DVI-I port (DVI-D signal only) • 2 RJ45 LAN ports • 4 USB 2.0/1.1 ports • Mic-in, line-in and line out jacks
I/O Connectors	<ul style="list-style-type: none"> • 2 connectors for 4 additional external USB 2.0/1.1 ports • 1 LVDS LCD panel connector • 1 LCD/inverter power connector • 1 Digital I/O connector • 1 front audio connector for line-out and mic-in jacks • 1 CD-in internal audio connector • 1 S/PDIF connector • 4 Serial ATA connectors • 1 40-pin IDE connector • 1 20-pin ATX power connector • 1 front panel connector • 2 fan connectors
BIOS	<ul style="list-style-type: none"> • Award BIOS • 16Mbit SPI flash memory
Energy Efficient Design	<ul style="list-style-type: none"> • Supports ACPI specification and OS Directed Power Management • Supports ACPI STR (Suspend to RAM) function • Wake-On-Events include: <ul style="list-style-type: none"> - Wake-On-PS/2 KB/Mouse / Wake-On-USB KB/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 v2.0 specification • AC power failure recovery
Damage Free Intelligence	<ul style="list-style-type: none"> • Monitors CPU/System temperature and overheat alarm • Monitors Vcore/12V/1.5V/5V/5VSB voltages and failure alarm • Monitors CPU/Chassis fan speed and failure alarm • Read back capability that displays temperature, voltage and fan speed • Watchdog timer function
Temperature	<ul style="list-style-type: none"> • 0°C to 60°C
Humidity	<ul style="list-style-type: none"> • 10% to 90%
PCB	<ul style="list-style-type: none"> • 8-layers, mini-ITX form factor • 17cm (6.7") x 17cm (6.7")

Features

Watchdog Timer

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

DDR3

DDR3 delivers increased system bandwidth and improved performance. It offers peak data transfer rate of up to 21 Gb/s bandwidth. The advantages of DDR3 are its higher bandwidth and its increase in performance at a lower power than DDR2.

Graphics

The Intel northbridge chip comes integrated with the Intel Graphics Media Accelerator 4500 delivering an excellent blend of graphics performance and features to meet business needs. With support for Microsoft DirectX 10, Shader Model 4.0 and OpenGL* 2.0, Intel GMA 4500 delivers excellent video and 3D graphics with outstanding graphics responsiveness. These enhancements deliver the performance and compatibility needed for today's and tomorrow's business applications.

DVI

DVI (Digital Visual Interface) is a form of video interface technology made to maximize the quality of flat panel LCD monitors and modern video graphics cards. Data is transmitted using the TMDS (Transition Minimized Differential Signaling) protocol, providing a digital signal from the PC's graphics subsystem to the display.

LVDS

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

PCI Express

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

S/PDIF

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

Serial ATA

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

Gigabit LAN

The two Realtek RTL8111C PCI Express Gigabit controllers support up to 1Gbps data transmission.

USB

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

Wake-On-Ring

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

**Important:**

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

Wake-On-LAN

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

**Important:**

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

Introduction

Wake-On-PS/2

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



Important:

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

Wake-On-USB

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



Important:

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

RTC Timer

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

ACPI STR

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

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



Important:

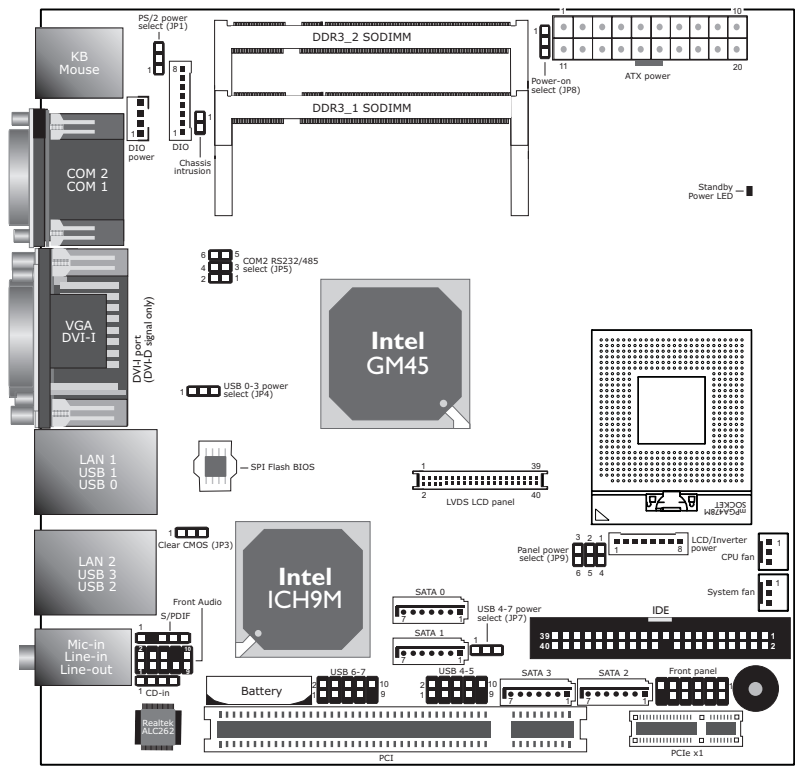
The 5V_standby power source of your power supply must support $\geq 720\text{mA}$.

Power Failure Recovery

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

Chapter 2 - Hardware Installation

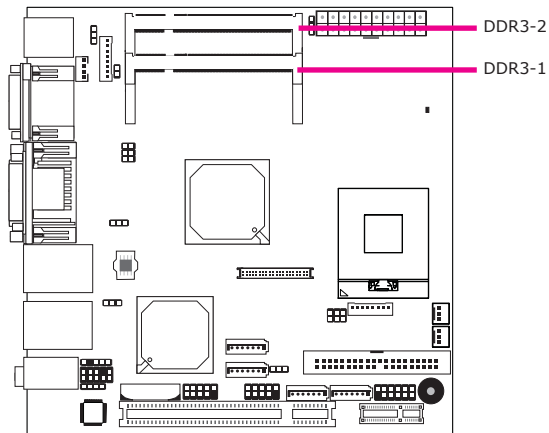
System Board Layout



**Important:**

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

System Memory



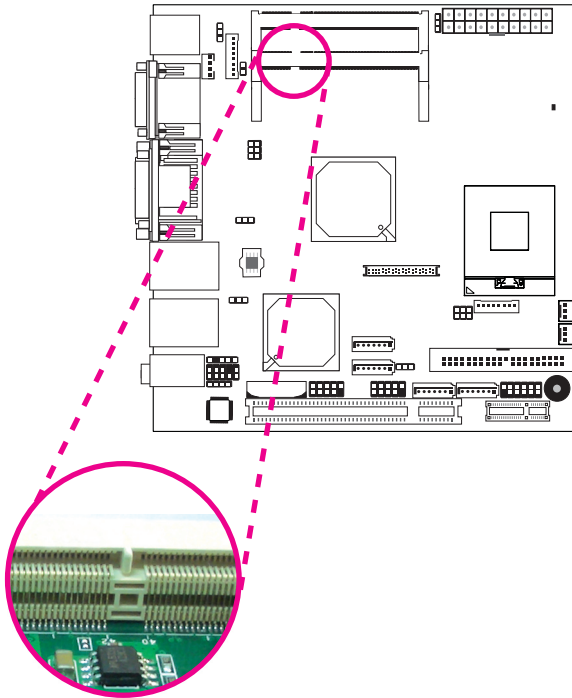
The system board is equipped with two 204-pin SODIMM sockets that support DDR3 modules.

BIOS Setting

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

Installing the SODIMM

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 key ensures the module can be plugged into the socket in only one way.

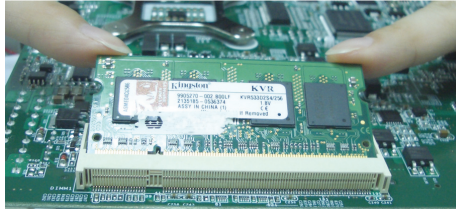


5. Grasping the module by its edges, align the module into the socket at an approximately 30 degrees angle. Note that the socket and module are both keyed, which means the module can be plugged into the socket in only one direction.

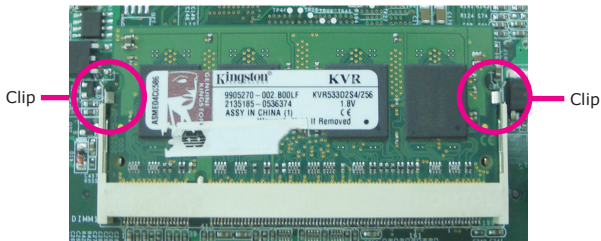
- To seat the module into the socket, apply firm even pressure to each end of the module until it slips down into the socket. The contact fingers on the edge of the module will almost completely disappear inside the socket.

**Note:**

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



- Push the module down 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

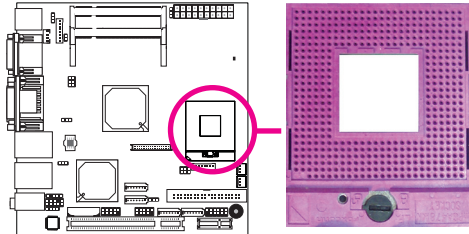
The system board is equipped with a surface mount mPGA478 CPU socket.

**Note:**

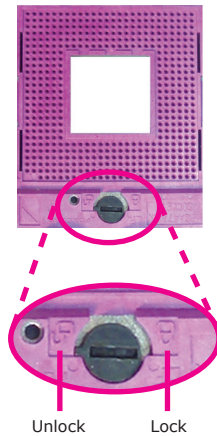
The system board used in the following illustrations may not resemble the actual one. These illustrations are for reference only.

Installing the CPU

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



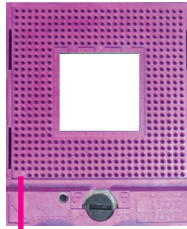
4. Use a screwdriver to turn the screw to its unlock position.



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

Important:

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



Pin 1

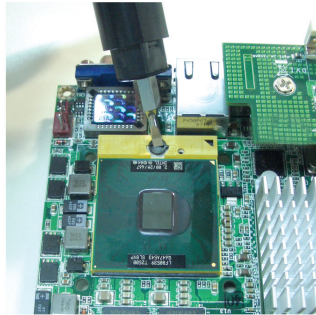


Gold triangular mark

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

Important:

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



Installing the Fan and Heat Sink

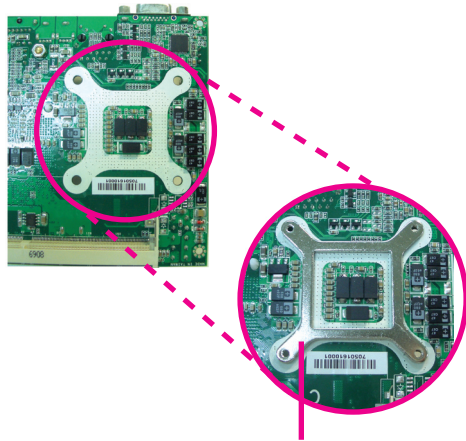
The CPU must be kept cool by using a CPU fan with heat sink. Without sufficient air circulation across the CPU and heat sink, the CPU will overheat damaging both the CPU and system board.



Note:

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

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



Retention module base

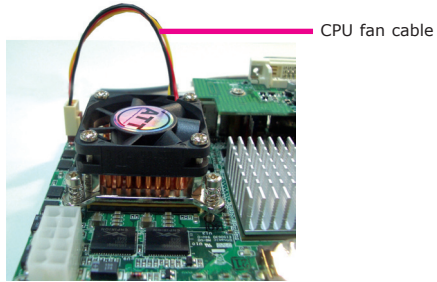
2. Apply a thin layer of thermal paste on top of the CPU. Do not spread the paste all over the surface. When you later place the heat sink on top, the compound will disperse evenly.
3. While holding the retention module base in position (step 1), place the fan / heat sink assembly on top of the CPU. The 4 screws around the heat sink must match the screw holes of the retention module base. We strongly recommend using this type of fan / heat sink assembly because it provides adequate cooling to the components of the system board.

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

Important:

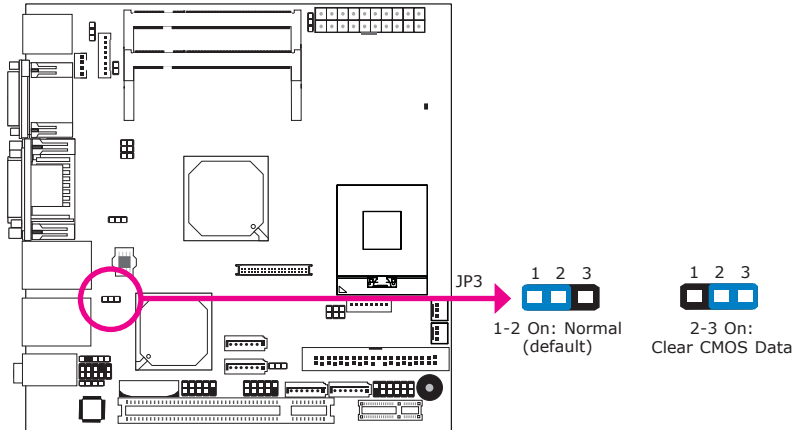
Do not turn the first screw all the way down followed by the next and so on. This is to avoid imbalance which might cause cracks or fractures to the CPU and/or heat sink assembly.

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



Jumper Settings

Clear CMOS Data



If you encounter the following,

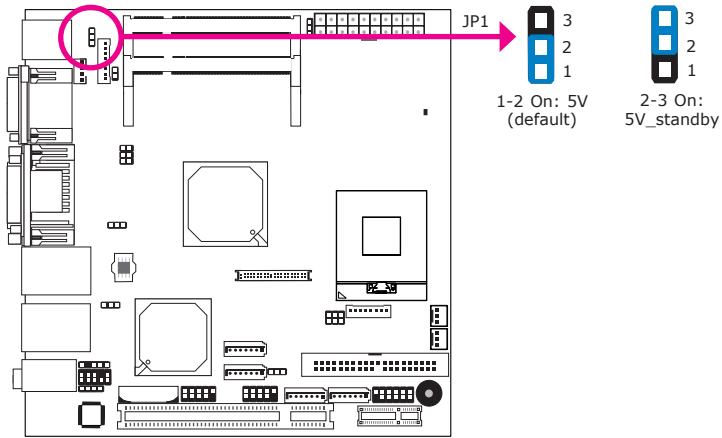
- CMOS data becomes corrupted.
- You forgot the supervisor or user password.

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

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

- Power-off the system and unplug the power cord.
- Set JP3 pins 2 and 3 to On. Wait for a few seconds and set JP3 back to its default setting, pins 1 and 2 On.
- Now plug the power cord and power-on the system.

PS/2 Power Select



JP1 is used to select the power of the PS/2 keyboard/mouse port. Selecting 5V_standby will allow you to use the PS/2 keyboard or PS/2 mouse to wake up the system.

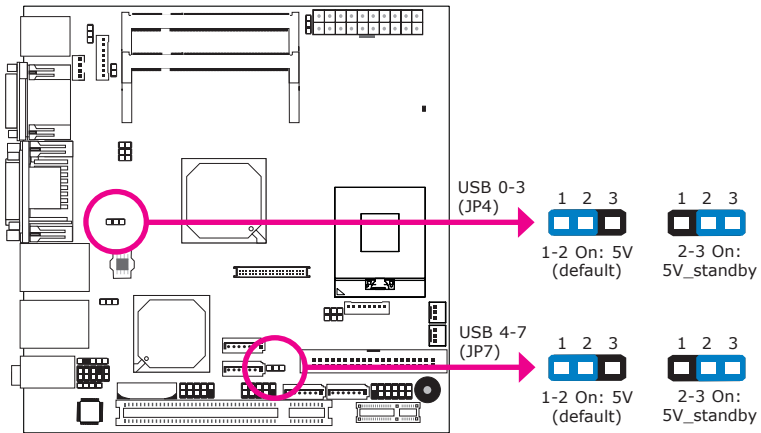
BIOS Setting

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

**Important:**

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

USB Power Select



These jumpers are used to select the power of the USB ports. Selecting 5V_standby will allow you to use a USB device to wake up the system.

BIOS Setting

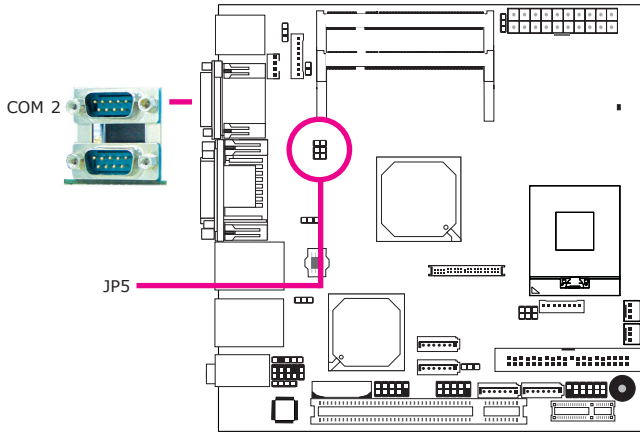
“USB KB Wake-Up From S3” in the Power Management Setup submenu of the BIOS must be set to Enabled. Refer to chapter 3 for more information.



Important:

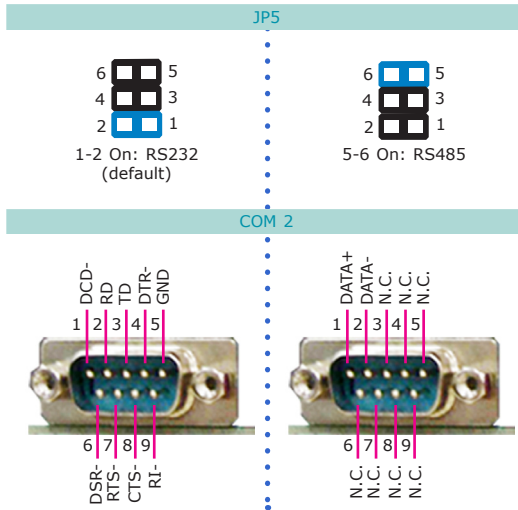
If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5V_standby power source of your power supply must support $\geq 1.5A$. For 3 or more USB ports, the 5V_standby power source of your power supply must support $\geq 2A$.

COM 2 RS232/RS485 Select

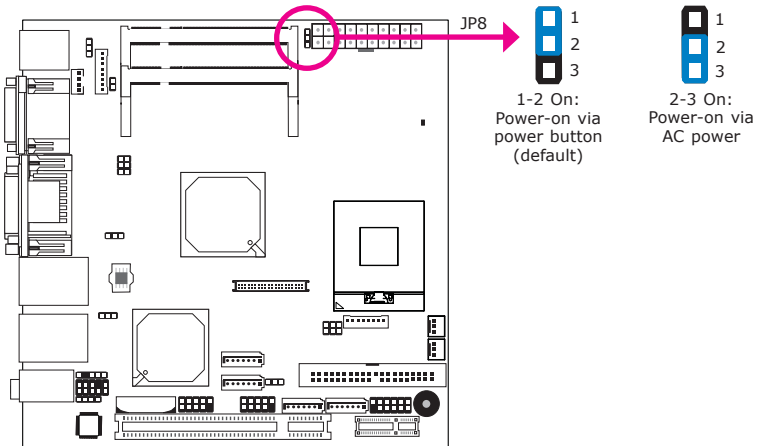


JP5 is used to configure COM 2 to RS232 or RS485.

The pin function of COM 2 will vary according to JP5's setting.



Power-on Select



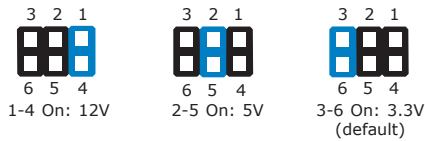
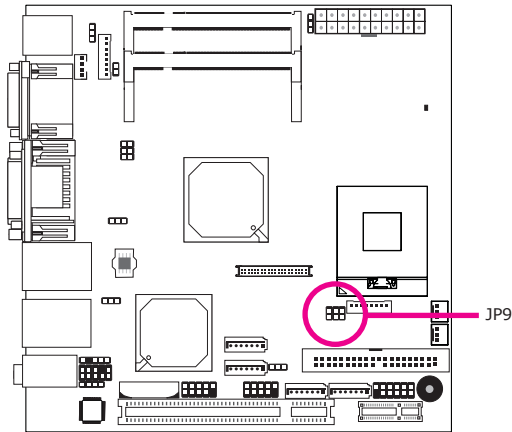
JP8 is used to select the method of powering on the system. If you want the system to power-on whenever AC power comes in, set JP8 pins 2 and 3 to On. If you want to use the power button, set pins 1 and 2 to On.

When using the JP8 "Power On" feature to power the system back on after a power failure occurs, the system may not power on if the power lost is resumed within 5 seconds (power flicker).

**Note:**

In order to ensure that power is resumed after a power failure that recovers within a 5 second period, JP8 must be set to pins 2-3 and the "PWRON After PWR-Fail" in CMOS is set to "On".

Panel Power Select

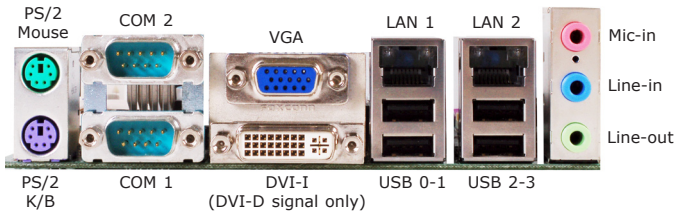


JP9 is used to select the power supplied to the LCD panel.

**Important:**

Before powering-on the system, make sure JP9's setting matches the LCD panel's specification. Selecting the incorrect voltage will seriously damage the LCD panel.

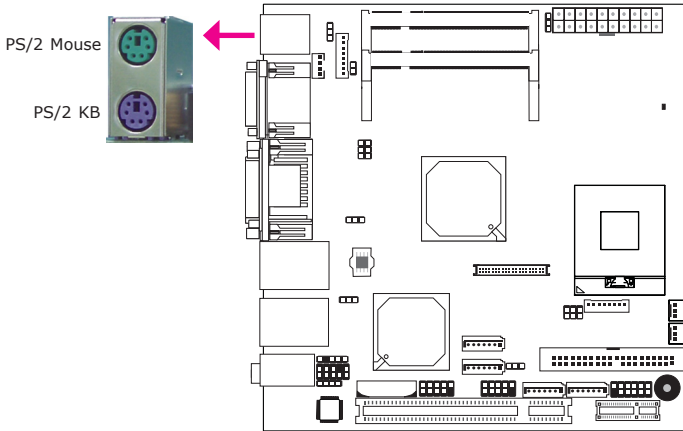
Rear Panel I/O Ports



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

- PS/2 mouse port
- PS/2 keyboard port
- 2 COM ports
- VGA port
- DVI-I port (DVI-D signal only)
- 2 LAN ports
- 4 USB ports
- Mic-in jack
- Line-in jack
- Line-out jack

PS/2 Mouse and PS/2 Keyboard Ports



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



Important:

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

Wake-On-PS/2 Keyboard/Mouse

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

- **Jumper Setting**

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

- **BIOS Setting**

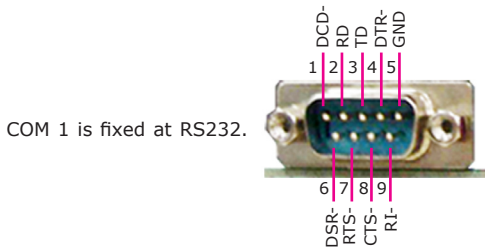
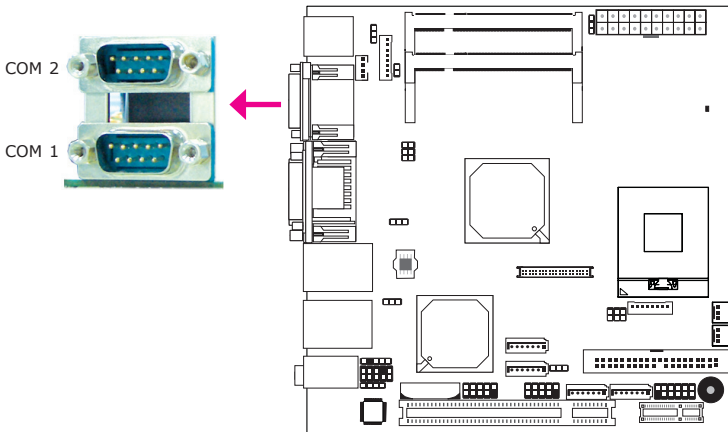
Configure the PS/2 keyboard/mouse wake up function in the Integrated Peripherals submenu ("Super IO Device" section) of the BIOS. Refer to chapter 3 for more information.



Important:

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

COM (Serial) Ports



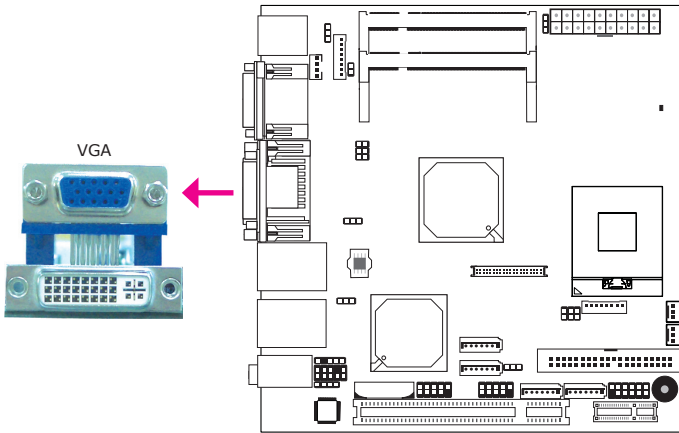
COM 2's pin definition will vary according to JP5's settings. Refer to "COM 2 RS232/RS485 Select" in this chapter for more information.

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

BIOS Setting

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

VGA Port



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

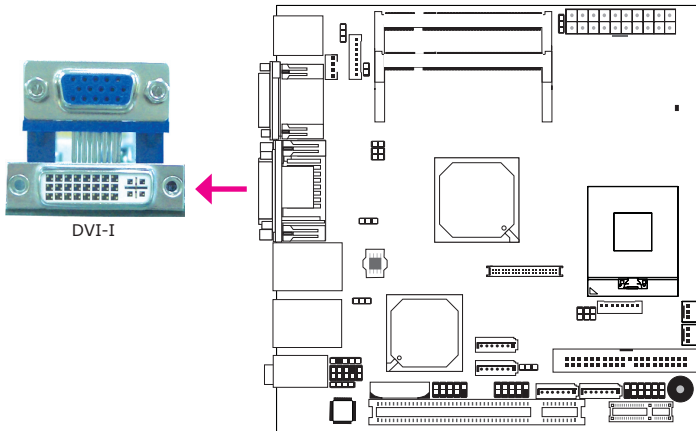
BIOS Setting

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

Driver Installation

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

DVI-I Port



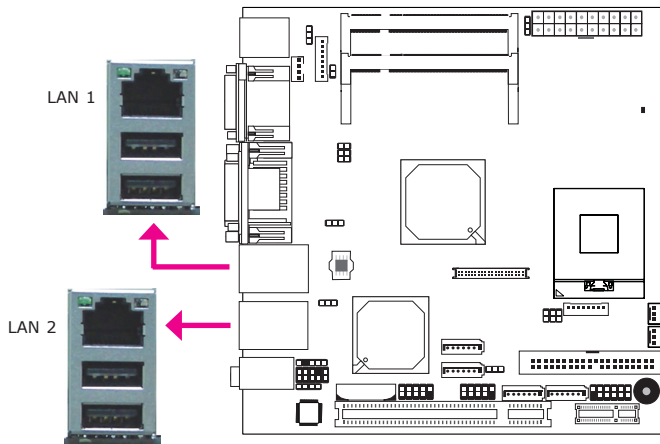
The DVI-I port is used to connect an LCD monitor. This port supports DVI-D signal only.

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

BIOS Setting

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

RJ45 LAN Ports



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

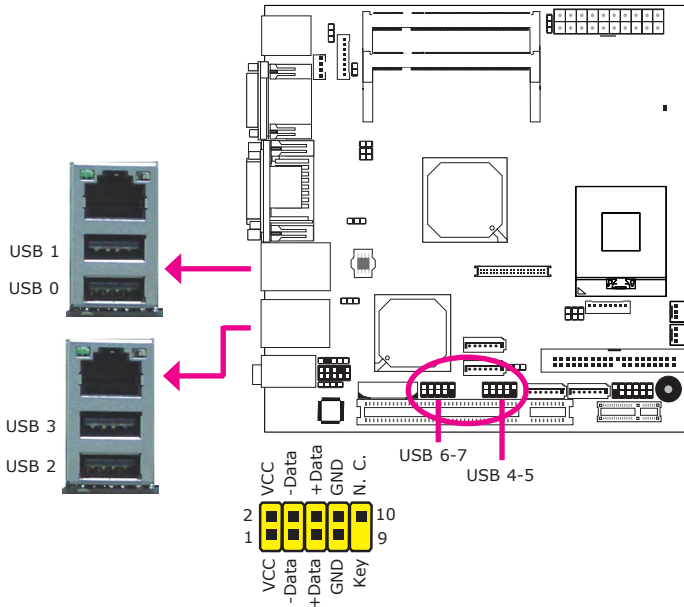
BIOS Setting

Configure the onboard LAN ports in the Advanced Chipset Features submenu ("PCI Express Root Port Func" section) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

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

USB Ports



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

The system board is equipped with four onboard USB 2.0/1.1 ports. The two 10-pin connectors allow you to connect 4 additional USB 2.0/1.1 ports. The additional USB ports may be mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then insert the USB port cables to a connector.

BIOS Setting

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

Driver Installation

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

Wake-On-USB Keyboard/Mouse

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

- **Jumper Setting**

JP4 and/or JP7 must be set to "2-3 On: 5V_standby". Refer to "USB Power Select" in this chapter for more information.

- **BIOS Setting**

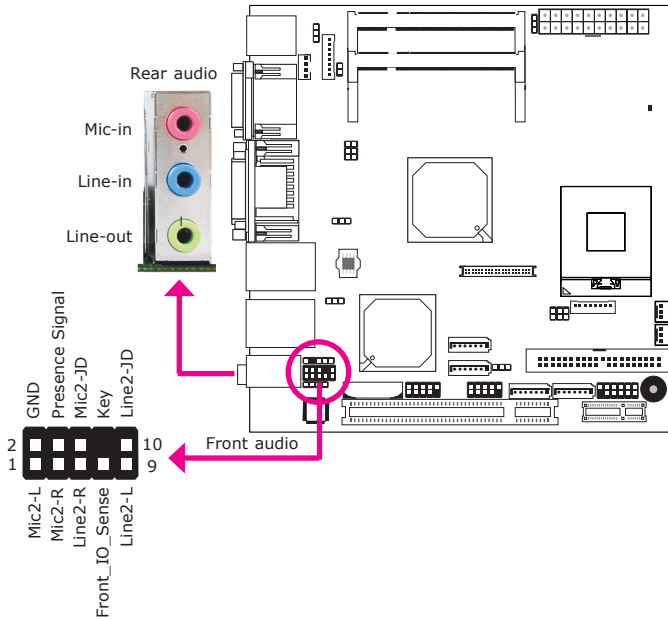
"USB KB Wake-Up From S3" in the Power Management Setup submenu of the BIOS must be set to Enabled. Refer to chapter 3 for more information.



Important:

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

Audio



Rear Audio

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

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

Front Audio

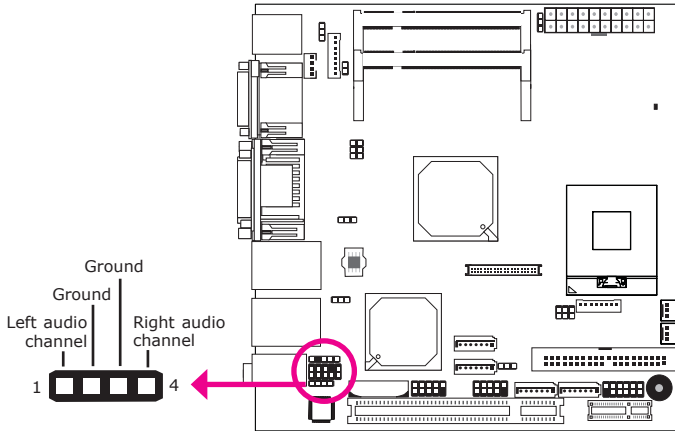
The front audio connector allows you to connect to the second line-out and mic-in jacks that are at the front panel of your system.

Driver Installation

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

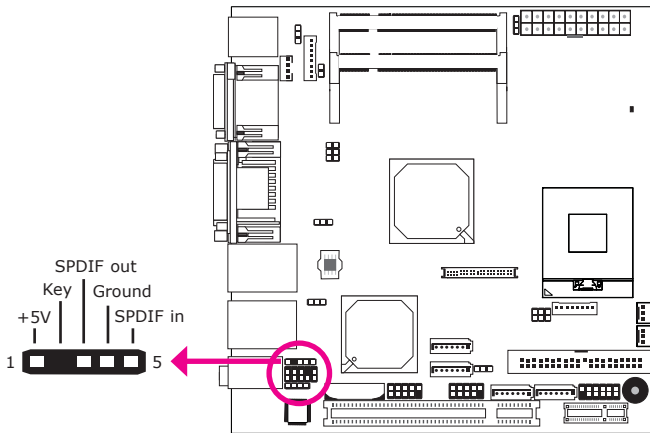
I/O Connectors

CD-in Internal Audio Connector



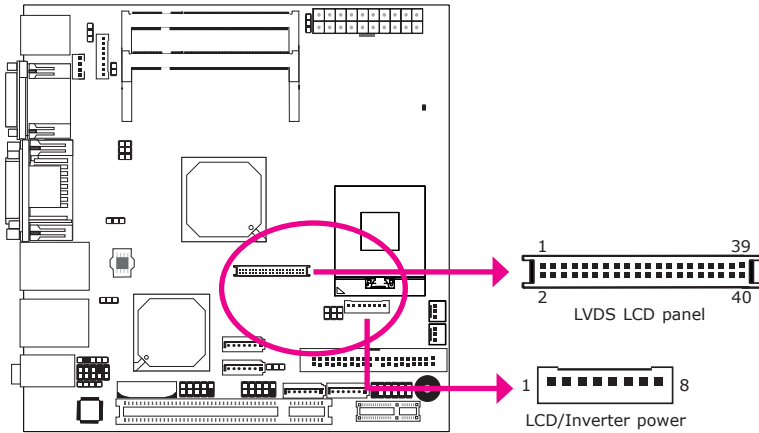
The CD-in connector is used to receive audio from a CD-ROM drive, TV tuner or MPEG card.

S/PDIF Connector



The S/PDIF connector is used to connect an external S/PDIF port. Your S/PDIF port may be mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then connect the audio cable to the S/PDIF connector. Make sure pin 1 of the audio cable is aligned with pin 1 of the S/PDIF connector.

LVDS LCD Panel Connector LCD/Inverter Power Connector



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

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

BIOS Setting

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

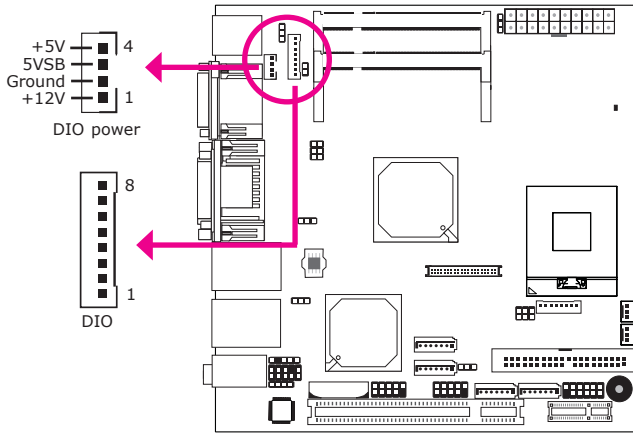
LVDS LCD Panel Connector

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

LCD/Inverter Power Connector

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

Digital I/O Connector

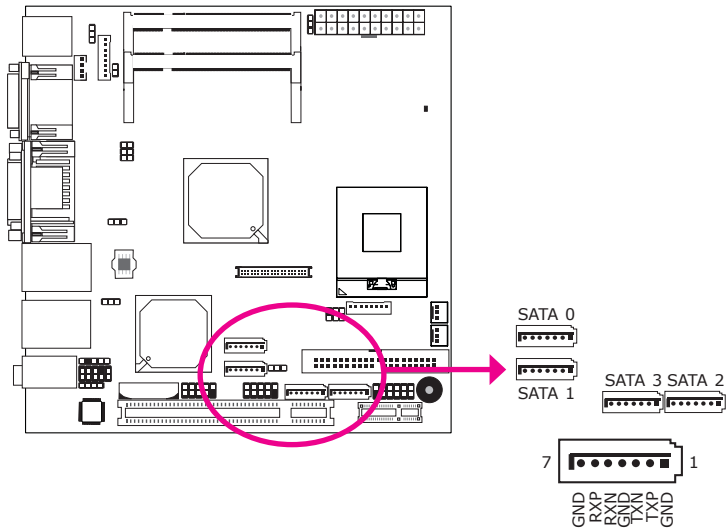


The Digital I/O connector provides powering-on function to an external device that is connected to this connector.

Digital I/O Connector

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

SATA (Serial ATA) Connectors

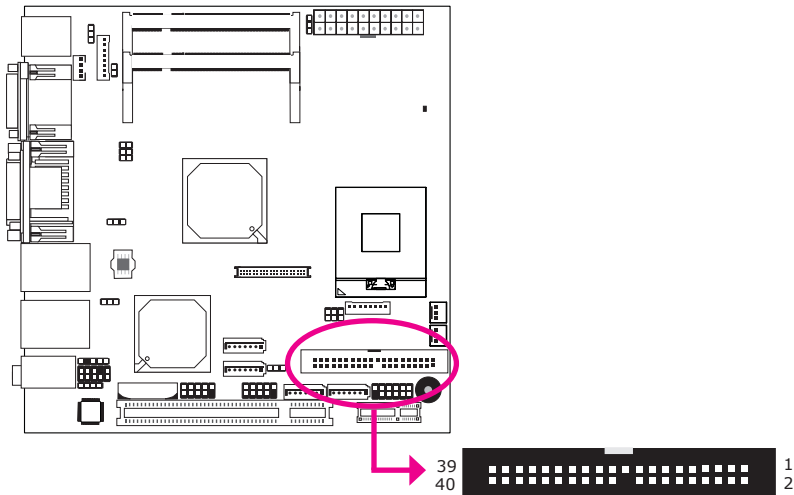


The Serial ATA connectors are used to connect Serial ATA devices. Connect one end of the Serial ATA cable to a SATA connector and the other end to your Serial ATA device.

BIOS Setting

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

IDE Connector



The IDE connector is used to connect hard drives. The connector on the IDE cable can be inserted into this connector only if pin 1 of the cable is aligned with pin 1 of this connector.

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



Note:

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

Adding a Second IDE Disk Drive

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

The system board supports Enhanced IDE or ATA-2, ATA/33, ATA/66, ATA/100 and ATA/133 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.

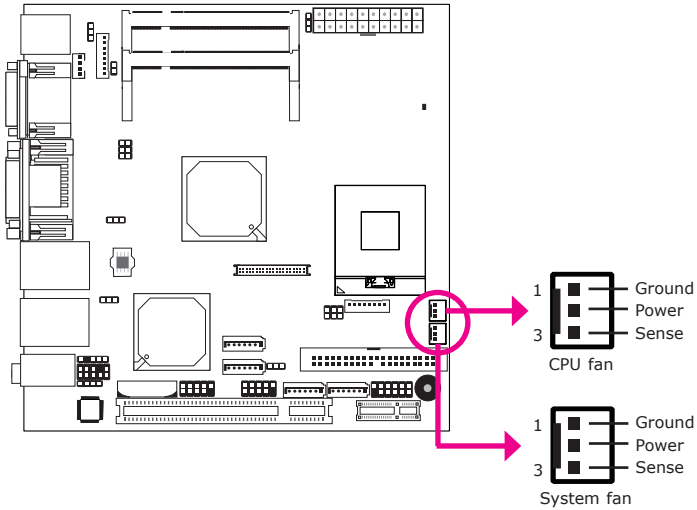
**Important:**

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

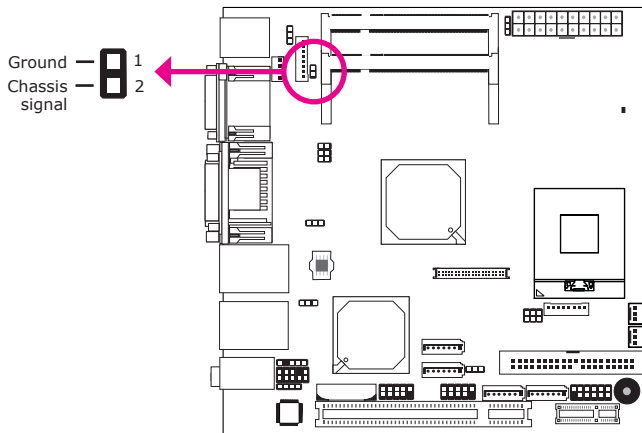


The fan connectors are used to connect cooling fans. The cooling fans will provide adequate airflow throughout the chassis to prevent overheating the CPU and system board components.

BIOS Setting

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

Chassis Intrusion Connector

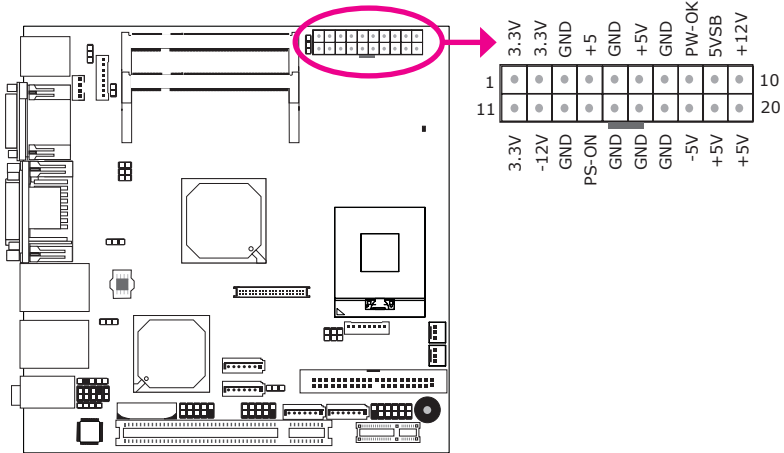


The board supports the chassis intrusion detection function. Connect the chassis intrusion sensor cable from the chassis to this connector. When the system's power is on and a chassis intrusion occurred, an alarm will sound. When the system's power is off and a chassis intrusion occurred, the alarm will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

Hardware Monitor for Windows

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

Power Connectors



Use a power supply that complies with the ATX12V Power Supply Design Guide Version 1.1. An ATX12V power supply unit has a standard 20-pin ATX main power connector that must be inserted into the board's 20-pin connector.

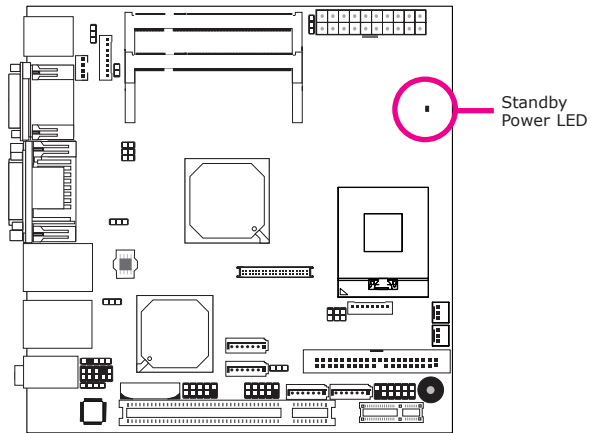
The power connector from the power supply unit is designed to fit the 20-pin connector in only one orientation. Make sure to find the proper orientation before plugging the connector.

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

**Important:**

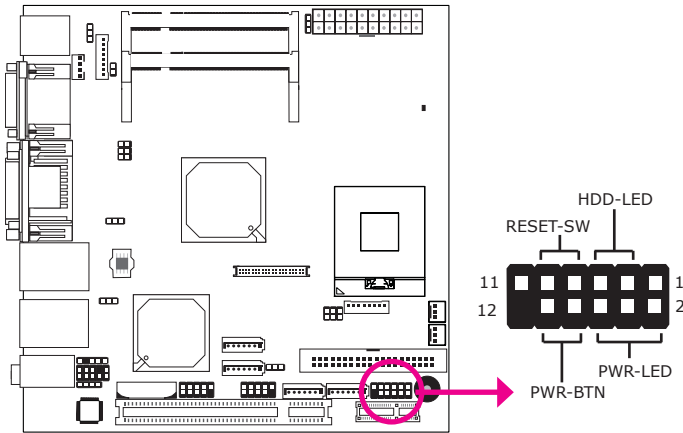
Insufficient power supplied to the system may result in instability or the add-in boards and peripherals not functioning properly. Calculating the system's approximate power usage is important to ensure that the power supply meets the system's consumption requirements.

Standby Power LED



This LED will light when the system's standby power is on.

Front Panel Connectors



HDD-LED - HDD LED

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

RESET SW - Reset Switch

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

PWR-BTN - Power Switch

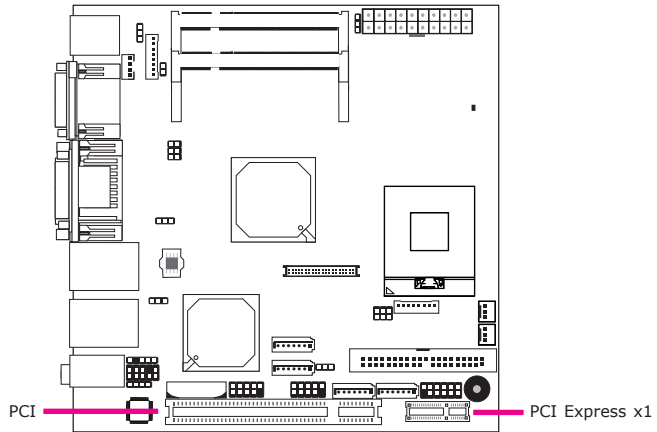
This switch is used to power on or off the system.

PWR-LED - Power/Standby LED

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

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

Expansion Slots



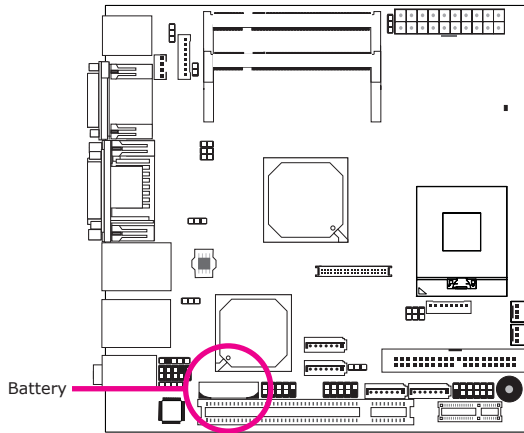
PCI Express x1 Slot

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

PCI Slot

The PCI slot supports expansion cards that comply with PCI specifications.

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

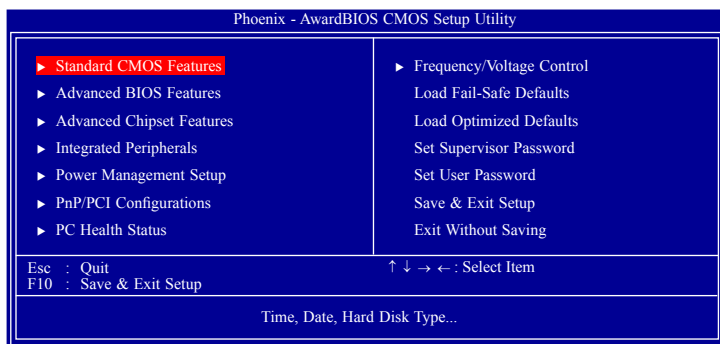
The Basic Input/Output System (BIOS) is a program that takes care of the basic level of communication between the processor and peripherals. In addition, the BIOS also contains codes for various advanced features found in this system board. This chapter explains the Setup Utility for the Award BIOS.

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

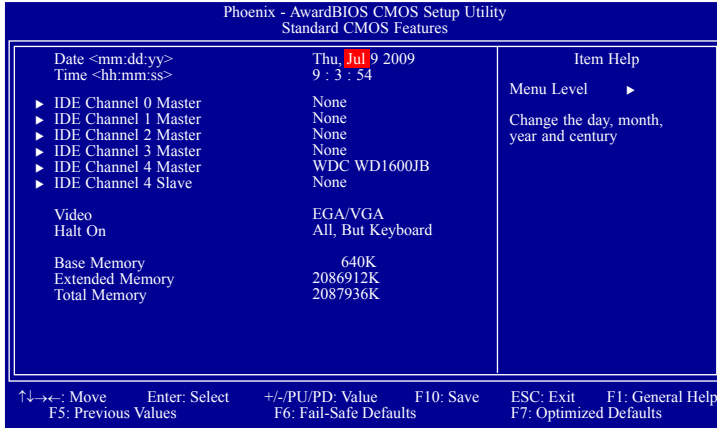
If the message disappears before you respond, restart the system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> and keys simultaneously.

When you press , the main menu screen will appear.



Standard CMOS Features

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



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

Date

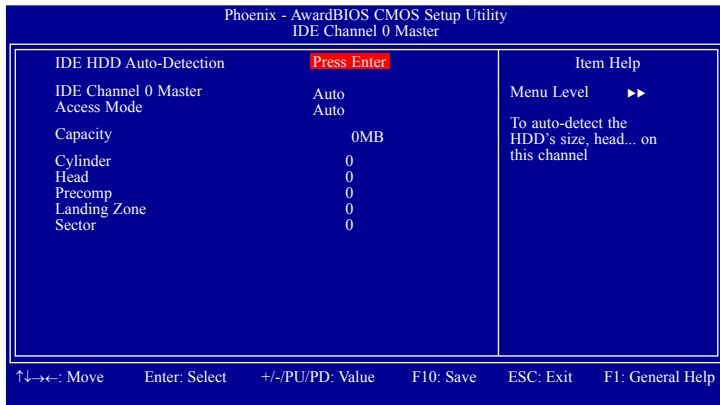
The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1999 to 2099.

Time

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

IDE Channel 0 Master to IDE Channel 4 Slave

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



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

IDE HDD Auto-Detection

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

IDE Channel 0 Master to IDE Channel 4 Slave

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

Access Mode

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

Capacity

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

Cylinder

This field displays the number of cylinders.

Head

This field displays the number of read/write heads.

Precomp

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

Landing Zone

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

Sector

This field displays the number sectors per track.

Video

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

EGA/VGA

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

CGA 40

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

CGA 80

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

Mono

Monochrome adapter. Includes high resolution monochrome adapters.

Halt On

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

No Errors

The system boot will not stop for any errors detected.

All Errors

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

All, But Keyboard

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

All, But Diskette

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

All, But Disk/Key

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

Base Memory

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

Extended Memory

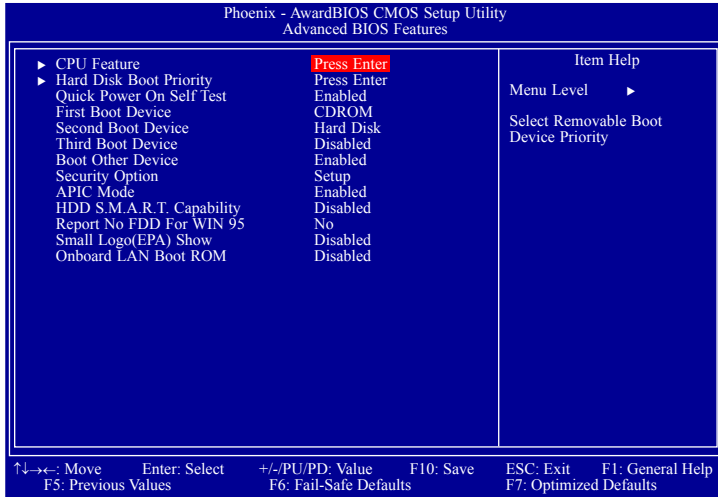
Displays the amount of extended memory detected during boot-up.

Total Memory

Displays the total memory available in the system.

Advanced BIOS Features

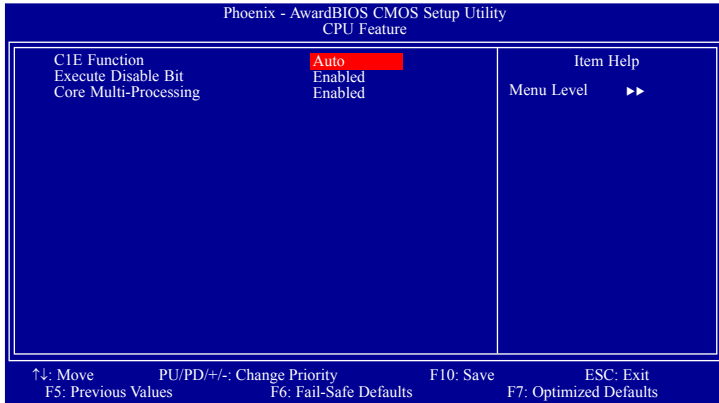
The Advanced BIOS Features allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.



The 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.

C1E Function

The options are Auto and Disabled.

Execute Disable Bit

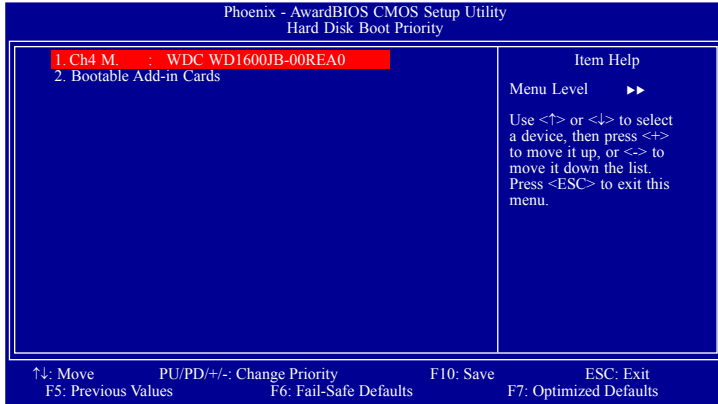
When this field is set to Disabled, it will force the XD feature flag to always return to 0.

Core Multi-Processing

The options are Enabled and Disabled.

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.

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.

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.

HDD S.M.A.R.T. Capability

The system board supports SMART (Self-Monitoring, Analysis and Reporting Technology) hard drives. SMART is a reliability prediction technology for ATA/IDE and SCSI drives. The drive will provide sufficient notice to the system or user to backup data prior to the drive's failure. The default is Disabled. If you are using hard drives that support S.M.A.R.T., set this field to Enabled. SMART is supported in ATA/33 or later hard drives.

Report No FDD For WIN 95

Yes

Will report no FDD for Windows® 95.

No

Will not report no FDD for Windows® 95.

Small Logo(EPA) Show

Enabled

The EPA logo will appear during system boot-up.

Disabled

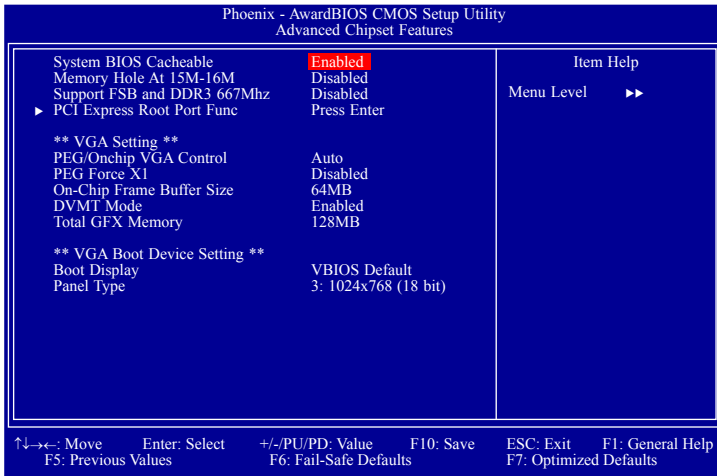
The EPA logo will not appear during system boot-up.

Onboard LAN Boot ROM

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

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

Advanced Chipset Features



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

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

System BIOS Cacheable

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

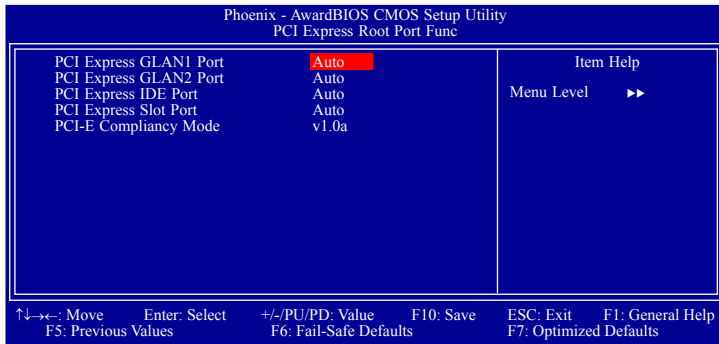
Memory Hole At 15M-16M

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.

Support FSB and DDR3 667MHz

The options are Enabled and Disabled.

PCI Express Root Port Func



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

PCI Express GLAN1 Port and PCI Express GLAN2 Port

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

PCI Express IDE Port

This field is used to enable or disable the IDE port.

PCI Express Slot Port

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

PCI-E Compliancy Mode

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

PEG/Onchip VGA Control

This field is used to select the graphics controller that will serve as the primary boot device.

PEG Force X1

The options are Enabled and Disabled.

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 is used to configure the DVMT mode.

Total GFX Memory

For Windows XP operating system, the maximum value is based on the system memory size.

512MB for 1GB DRAM

768MB for 1.5GB to 2GB DRAM

1GB for above 2GB DRAM

The options are 128MB, 256MB and MAX.

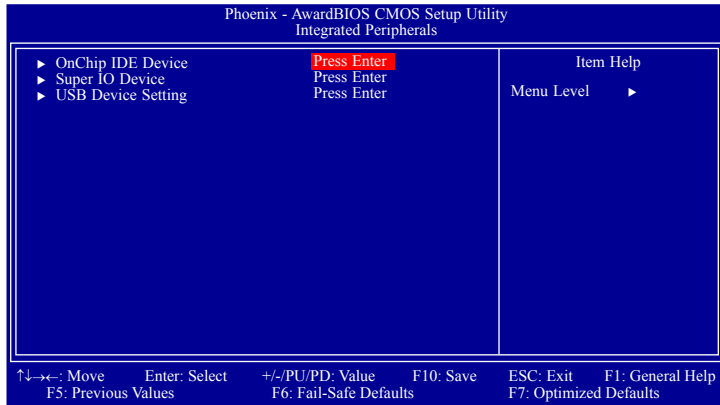
Boot Display

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

Panel Type

This field is used to select the type of LCD panel used by the internal graphics device.

Integrated Peripherals



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

OnChip IDE Device

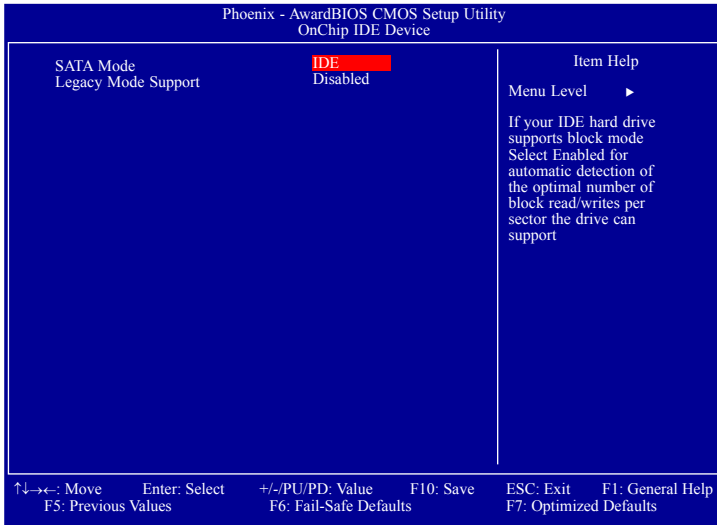
Super I/O Device

USB Device Setting

Refer to the following pages for more information on these submenus.

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.

SATA Mode

IDE

This option configures the Serial ATA drives in IDE mode.

AHCI

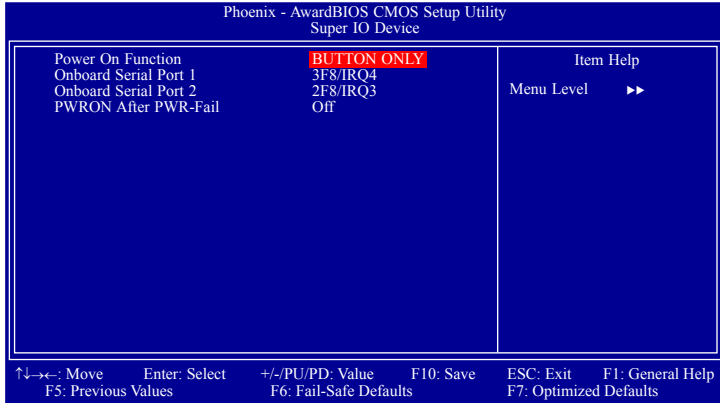
This option allows the Serial ATA devices to use AHCI (Advanced Host Controller Interface).

Legacy Mode Support

Some operating systems are not supported in Native mode. If you are using this kind of operating system, set this field to Enabled.

Super IO Device

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



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

Power On Function

This field allows you to use the 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.

Mouse Left

When this option is selected, double-click the left button of the mouse to power-on the system.

Mouse Right

When this option is selected, double-click the right button of the mouse to power-on the system.

Any Key

Press any key to power-on the system.

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, 3E8/IRQ4, 2E8/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.

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

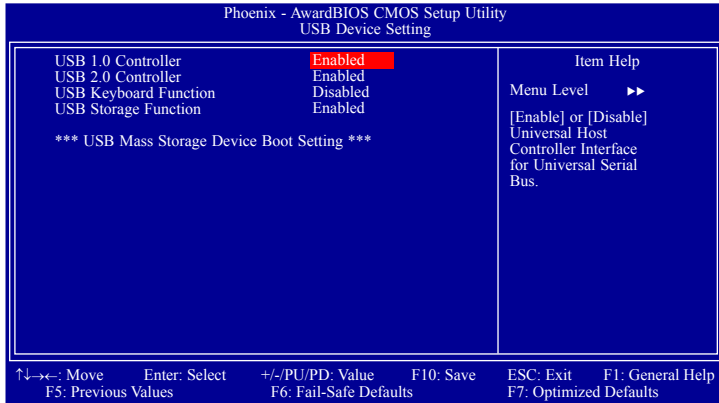
When power returns after an AC power failure, the system will automatically power-on.

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.

USB Device Setting

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



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

USB 1.0 Controller

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

USB 2.0 Controller

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

USB Keyboard Function

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

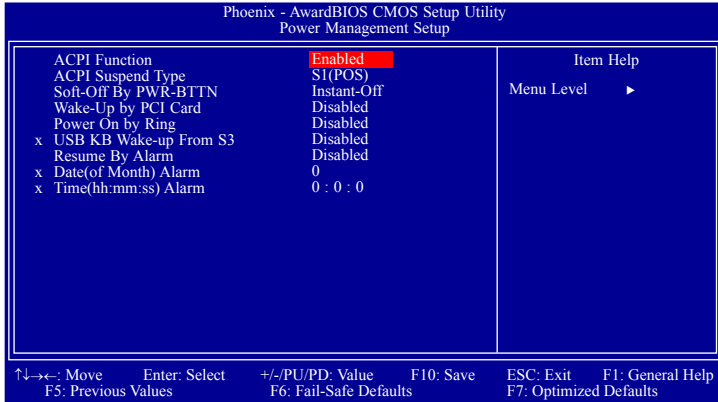
If a PS/2 keyboard is not available and you need to use a USB keyboard to install Windows (installation is performed in DOS mode) or run any program under DOS, set this field to Enabled.

USB Storage Function

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

Power Management Setup

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



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

ACPI Function

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

ACPI Suspend Type

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

S1(POS)

Enables the Power On Suspend function.

S3(STR)

Enables the Suspend to RAM function.

Soft-Off by PWR-BTTN

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

Delay 4 Sec.

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

Instant-Off

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

Wake-Up By PCI Card

Enabled

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

Disabled

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

Power On By Ring

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

USB KB Wake-Up From S3

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

Resume By Alarm

Enabled

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

Disabled

Disables the automatic power-on function. (default)

Date (of Month) Alarm

0

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

1-31

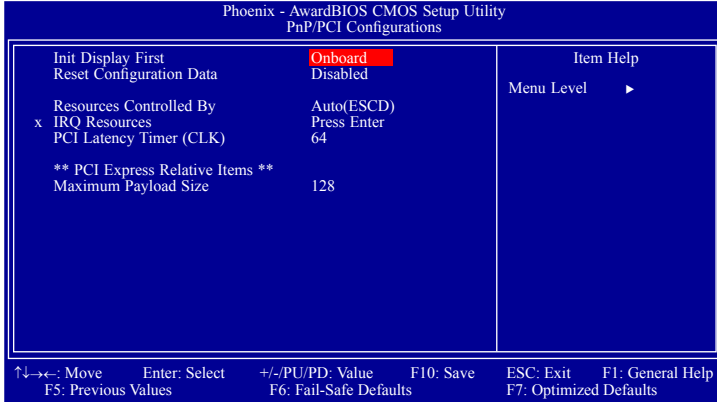
Select a date you would like the system to power-on. The system will power-on on the set date, and time set in the "Time (hh:mm:ss) Alarm" field.

Time (hh:mm:ss) Alarm

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

PnP/PCI Configurations

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



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

Init Display First

Onboard

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

PCI Slot

When the system boots, it will first initialize PCI.

Reset Configuration Data

Enabled

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

Disabled

The BIOS will not reset the configuration data.

Resources Controlled By

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

Auto(ESCD)

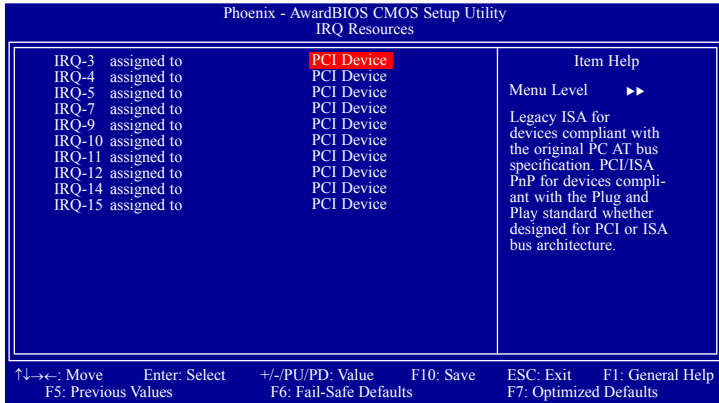
The system will automatically detect the settings for you.

Manual

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

IRQ Resources

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



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

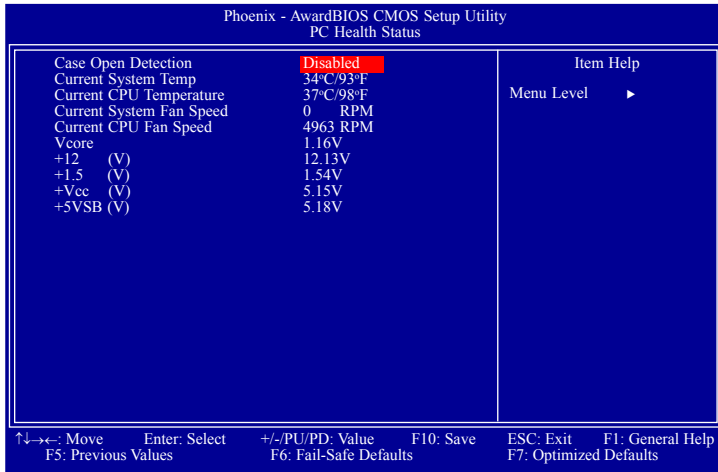
PCI Latency Timer (CLK)

This feature is used to select the length of time each PCI device will control the bus before another takes over. The larger the value, the longer the PCI device can retain control of the bus. Since each access to the bus comes with an initial delay before any transaction can be made, low values for the PCI Latency Timer will reduce the effectiveness of the PCI bandwidth while higher values will improve it.

Maximum Payload Size

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

PC Health Status



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

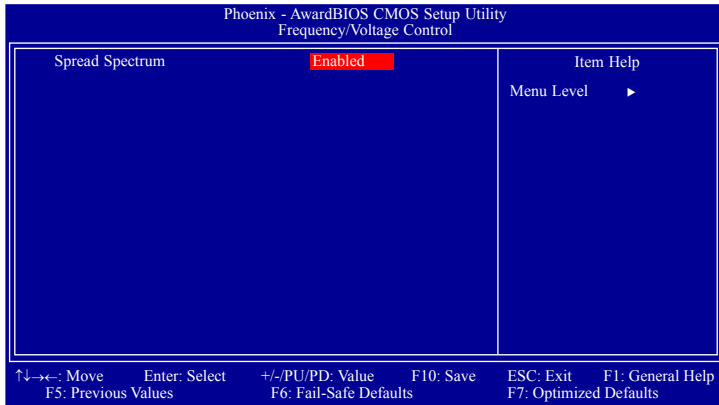
Case Open Detection

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

Current System Temp to +5VSB (V)

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

Frequency/Voltage Control



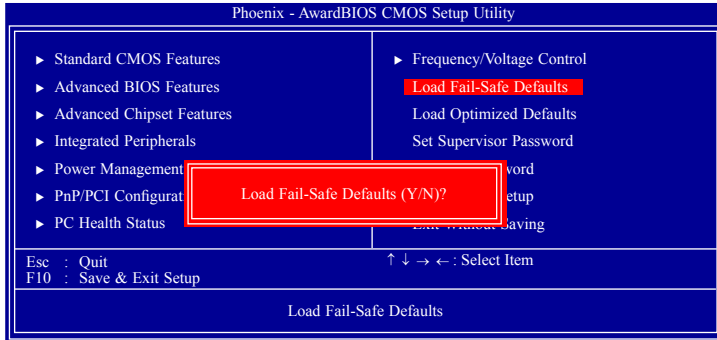
The settings on the screen are for reference only. Your version may not be identical to this one.

Spread Spectrum Modulated

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

Load Fail-Safe Defaults

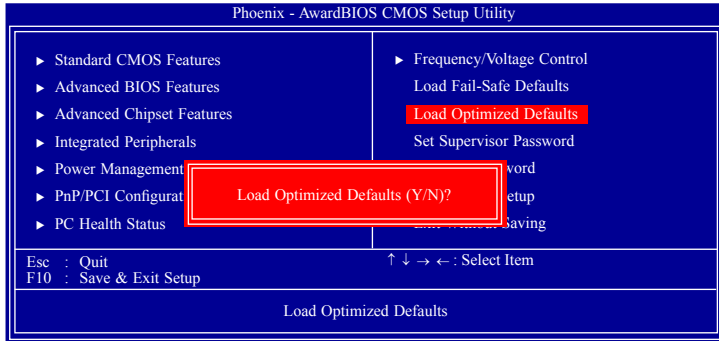
The “Load Fail-Safe Defaults” option loads the troubleshooting default values permanently stored in the ROM chips. These settings are not optimal and turn off all high performance features. You should use these values only if you have hardware problems. Highlight this option in the main menu and press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



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

Load Optimized Defaults

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

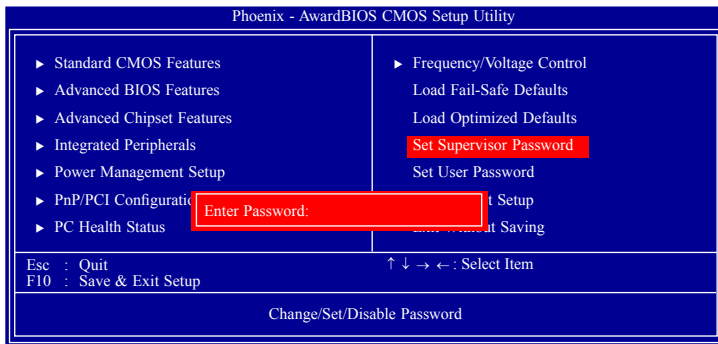


Type <Y> and press <Enter> to load the Setup default values.

Set Supervisor Password

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

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



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

Confirm Password:

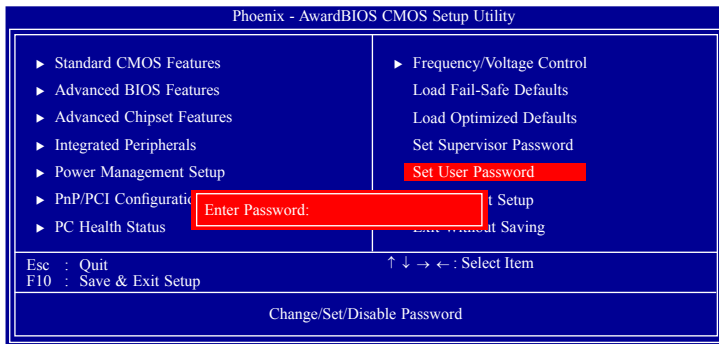
You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set Supervisor Password" and press <Enter>, instead of typing in a new password. Press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

Set User Password

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

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

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



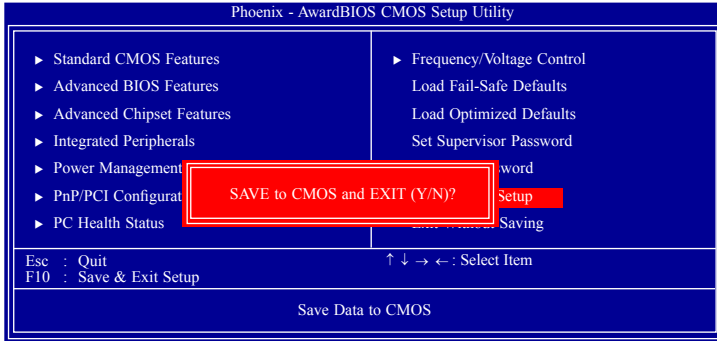
Type in the password. You are limited to eight characters. When done, the message below will appear:

Confirm Password:

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

Save & Exit Setup

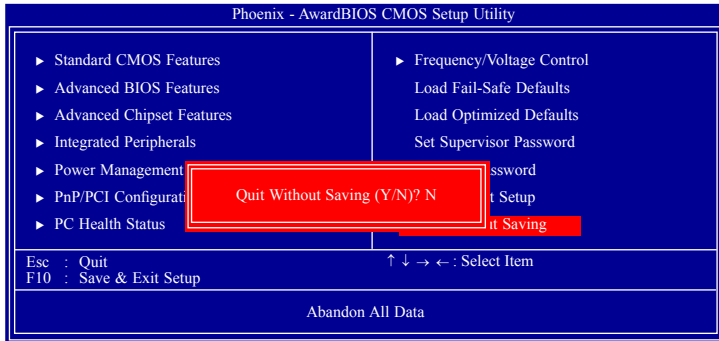
When all the changes have been made, highlight "Save & Exit Setup" and press <Enter>.



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

Exit Without Saving

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

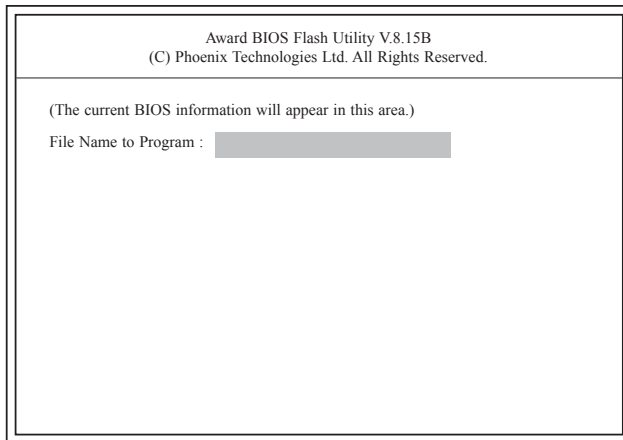


Type "Y" and press <Enter>. The system will reboot and you will once again see the initial diagnostics on the screen. If you wish to make any changes to the setup, press <Ctrl> <Alt> simultaneously after memory testing is done.

Updating the BIOS

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

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



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

6. The following will appear.

Do You Want to Save BIOS (Y/N)

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

7. The following will then appear.

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

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

Chapter 4 - Supported Software

The CD that came with the system board contains drivers, utilities and software applications required to enhance the performance of the system board.

Insert the CD into a CD-ROM drive. The autorun screen (Mainboard Utility CD) will appear. If after inserting the CD, "Autorun" did not automatically start (which is, the Mainboard Utility CD screen did not appear), please go directly to the root directory of the CD and double-click "Setup".



Intel Chipset Software Installation Utility

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

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

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



2. Read the license agreement then click Yes.



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



- After all setup operations are done, click Next.



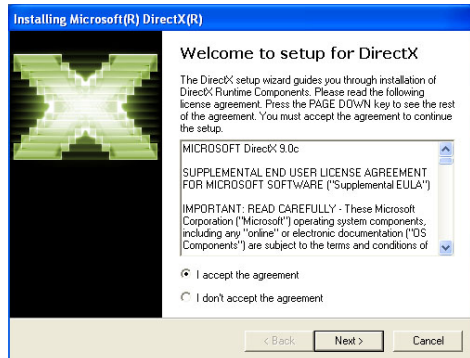
- Click Finish to exit setup.



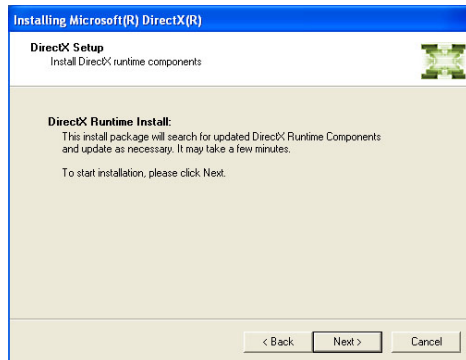
Microsoft DirectX 9.0C Driver (for Windows XP)

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

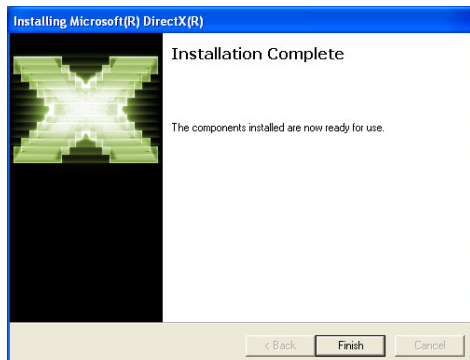
1. Click "I accept the agreement" then click Next.



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



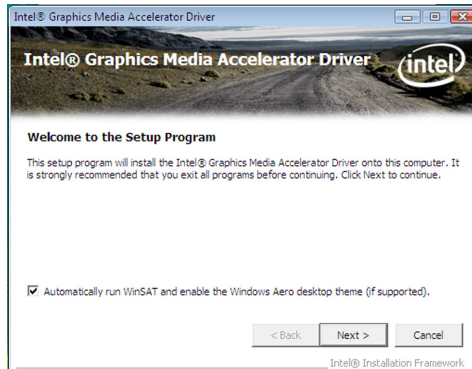
3. Click Finish. Reboot the system for DirectX to take effect.



Intel Graphics Drivers (for Windows 7 / Windows Vista)

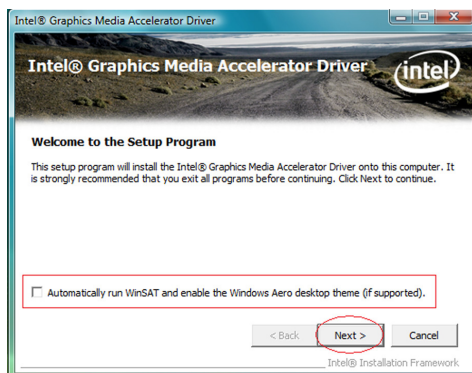
To install the driver, click "Intel Graphics Drivers" on the main menu.

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

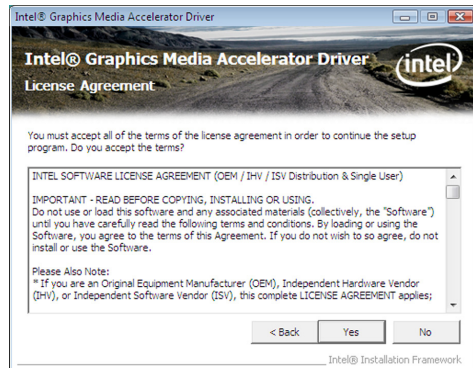


By default, the "Automatically run WinSAT and enable the Windows Aero desktop theme" is enabled. With this enabled, after installing the graphics driver and the system rebooted, the screen will turn blank for 1 to 2 minutes (while WinSAT is running) before the Windows Vista desktop appears. The "blank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

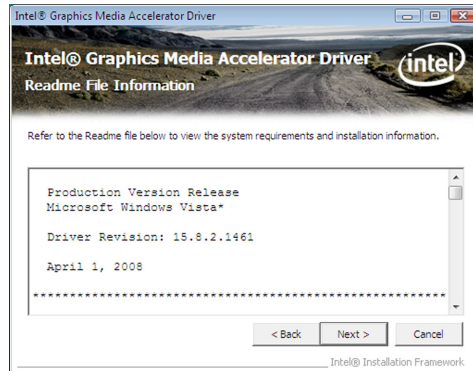
We recommend that you skip this process by disabling this function then click Next.



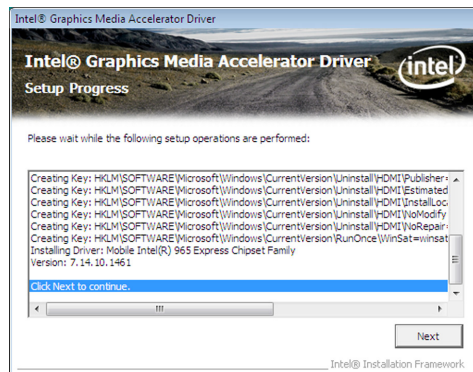
2. Read the license agreement then click Yes.



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

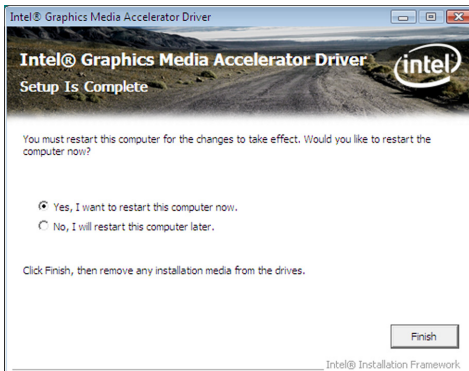


4. Setup is now installing the driver. Click Next to continue.



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

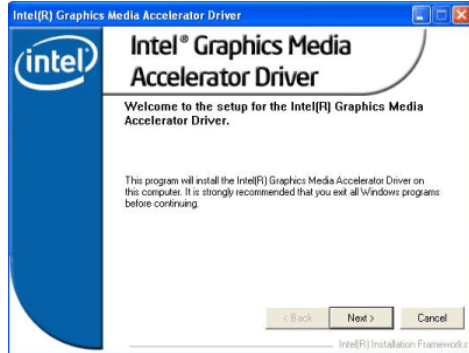
Restarting the system will allow the new software installation to take effect.



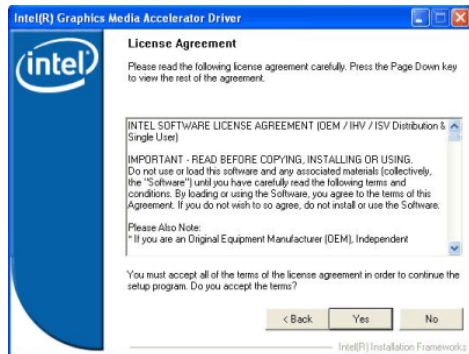
Intel Graphics Drivers (for Windows XP)

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

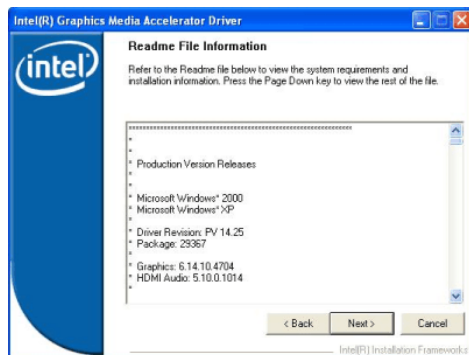
1. Setup is now ready to install the graphics driver. Click Next.



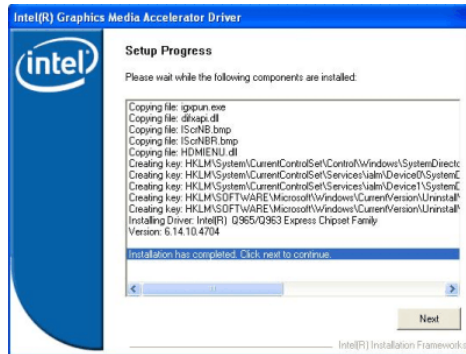
2. Read the license agreement then click Yes.



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

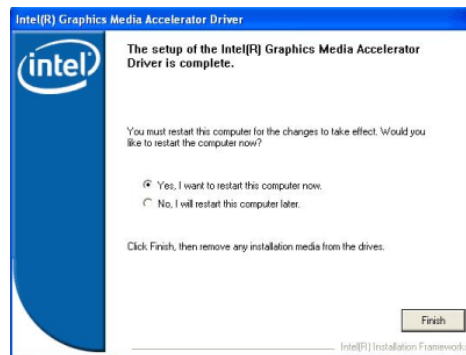


4. Setup is currently installing the driver. After installation has completed, click Next.



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

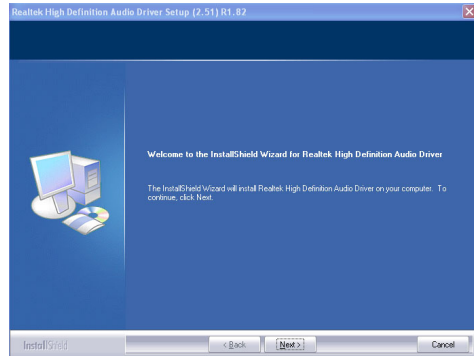
Restarting the system will allow the new software installation to take effect.



Audio Drivers

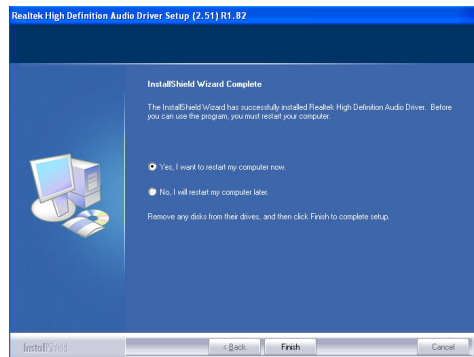
To install the driver, click "Audio Drivers" on the main menu.

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



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

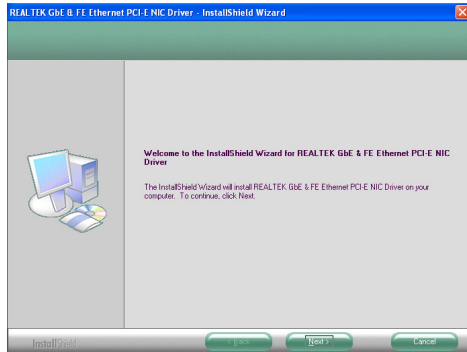
Restarting the system will allow the new software installation to take effect.



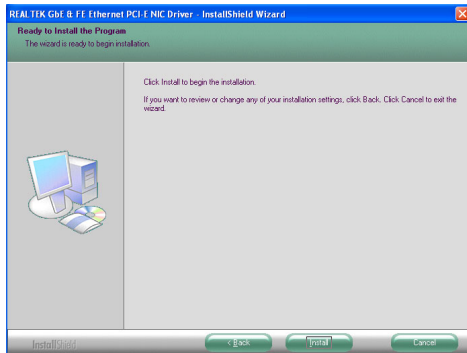
LAN Drivers

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

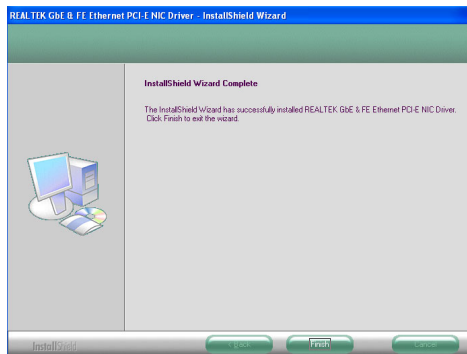
1. Setup is ready to install the driver. Click Next.



2. Click Install to begin the installation.



3. After completing installation, click Finish.

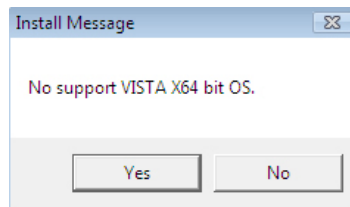


Hardware Monitor for Windows (for Windows 7 / Windows Vista)

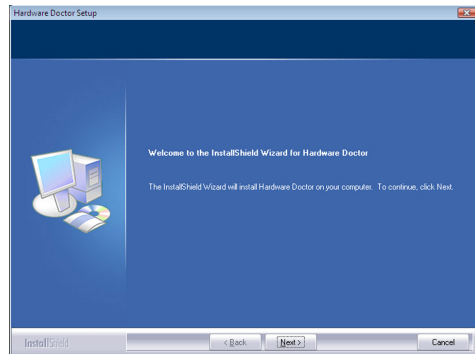
The Hardware Monitor for Windows utility is capable of monitoring the system's temperature, fan speed, voltage, etc. and allows you to manually set a range (Highest and Lowest Limit) to the items being monitored. If the settings/values are over or under the set range, a warning message will pop-up. The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

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

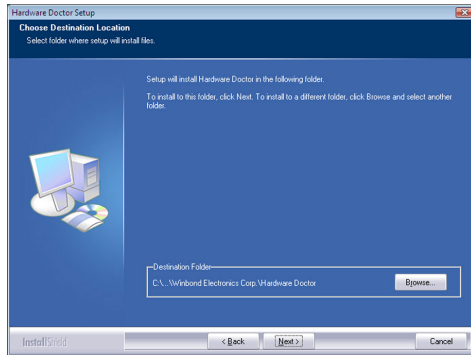
1. Click Yes to continue.



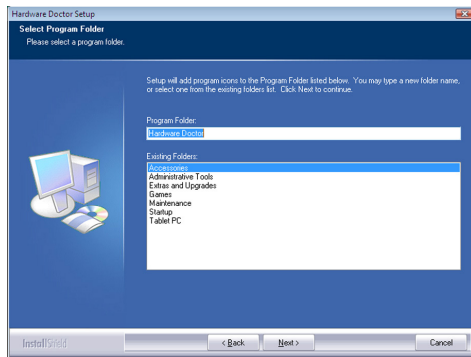
2. Setup is now ready to install the utility. Click Next.



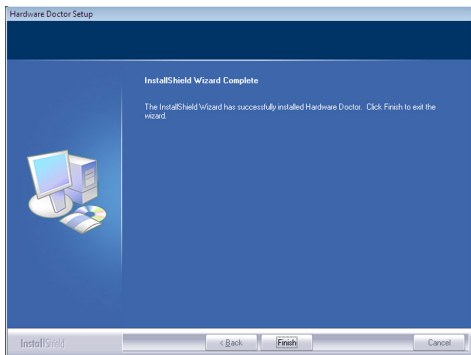
3. Click Next to install or click Browse to select another folder.



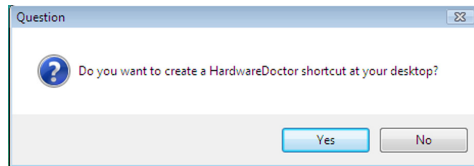
4. Click Next to add the program icon to the Program Folder.



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

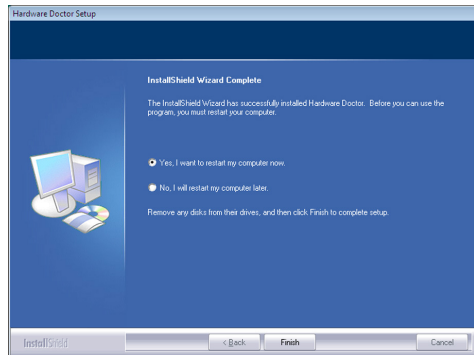


- Click Yes if you want to create a Hardware Doctor shortcut at your desktop.



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

Restarting the system will allow the utility to take effect.

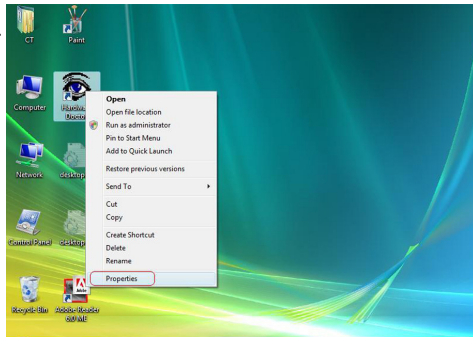


Using the Hardware Monitor for Windows Utility

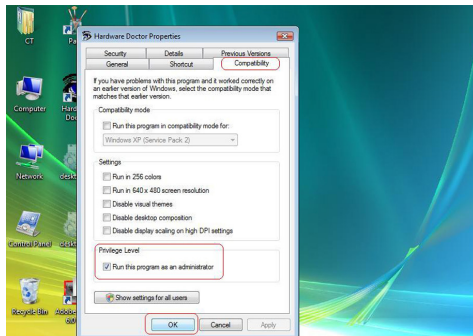
1. When you try to run the utility, which is usually done by double-clicking the Hardware Doctor shortcut, an error message will appear.



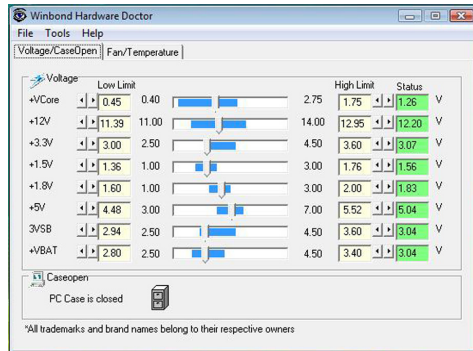
2. To solve this problem, right-click the Hardware Doctor shortcut, then select Properties.



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



4. You can now access the utility.



Hardware Monitor for Windows (for Windows XP)

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

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

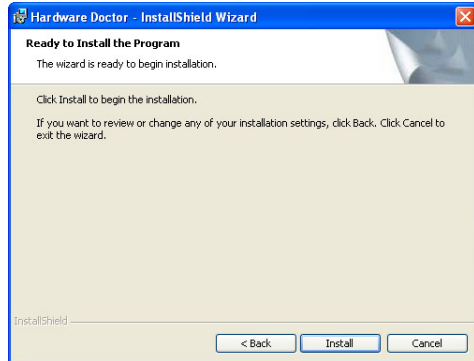
1. Setup is now ready to install the utility. Click Next.



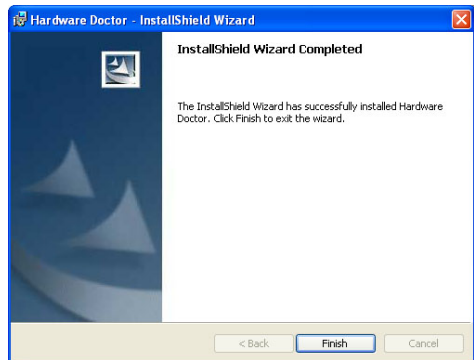
2. Click Next to install or click Change to select another folder.



3. Click Install to begin the installation.



4. After completing installation, click Finish.



Intel Matrix Storage Manager Utility

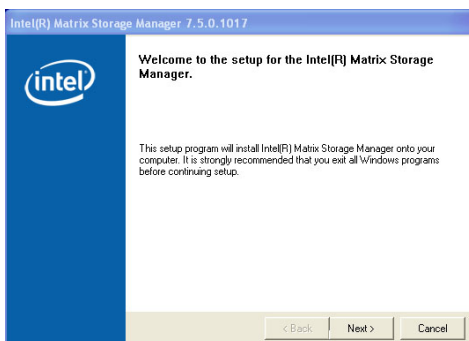
Intel Matrix Storage Manager is a utility that allows you to monitor the current status of the SATA drives. It enables enhanced performance and power management for the storage subsystem.

**Note:**

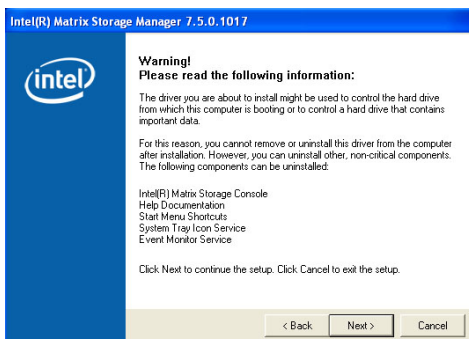
This utility is supported only when the SATA Mode field is set to AHCI. (The SATA Mode field is in the OnChip IDE Device section, Integrated Peripherals submenu of the BIOS utility.)

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

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



2. Read the Warning information carefully then click Next.



3. Read the license agreement then click Yes.

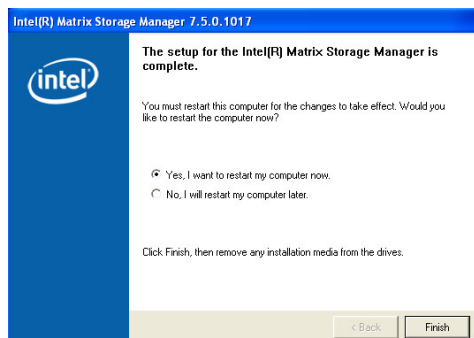


4. Go through the readme document for system requirements and installation tips then click Next.



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

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



AHCI for F6 During Windows Setup Floppy Driver

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

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

32-bit

CD Drive:\AHCI_RAID\F6FLOPPY\xf6flpy32

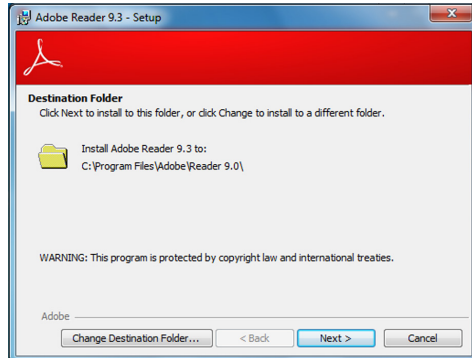
64-bit

CD Drive:\AHCI_RAID\F6FLOPPY\xf6flpy64

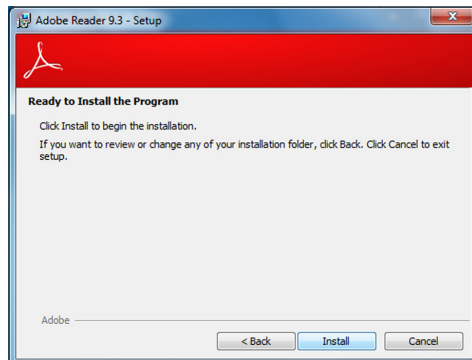
Adobe Acrobat Reader 9.3

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

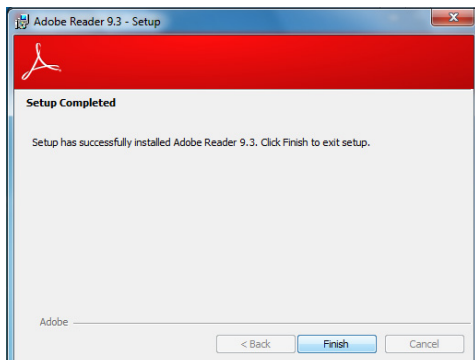
1. Click Next to install or click Change Destination Folder to select another folder.



2. Click Install to begin installation.



3. Click Finish to exit installation.

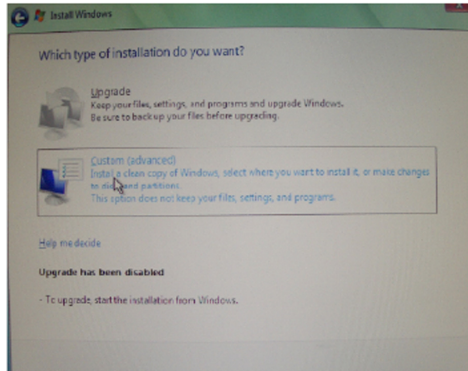


Installing the AHCI Driver During Windows Vista Installation

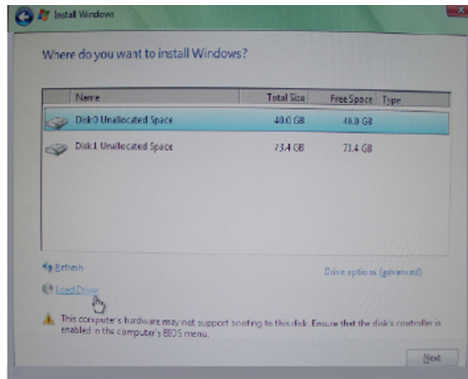
The AHCI driver must be installed during Windows® Vista installation. This is required in order to install the operating system onto a hard drive when in AHCI mode.

1. Start Windows Setup by booting from the installation CD. Follow the steps on the screen.

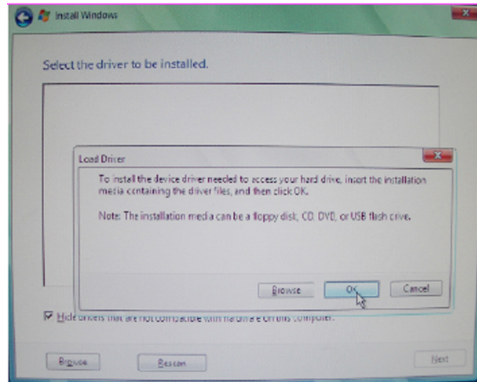
When the screen on the right appears, click Custom (advanced).



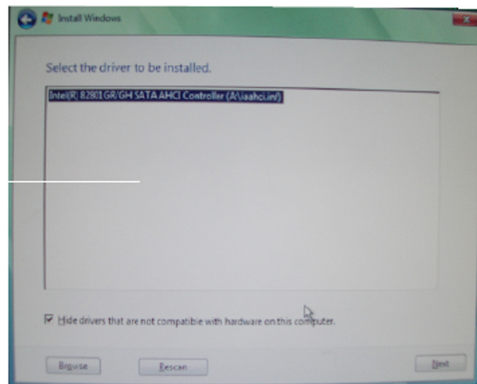
2. Select Load Driver.



3. Insert the provided floppy diskette then click OK.



4. The screen on the right will appear. Select the driver.



Appendix A - Watchdog Sample Code

;Software programming example:

```
;-----  
;(1) Enter Superio Configuration mode  
;-----  
MOV     DX,4EH  
MOV     AL,87H  
OUT     DX,AL  
OUT     DX,AL  
  
;-----  
;(2)Configuration Logical Device 8, register CRF5/CRF6/CRF7  
; (WDT count mode / count value / control mode)  
;-----  
MOV     DX,4EH  
MOV     AL,07H      ;Ready to Program Logical Device  
OUT     DX,AL  
  
MOV     DX,4FH  
MOV     AL,08H      ;Select Logical Device 8  
OUT     DX,AL  
  
MOV     DX,4EH  
MOV     AL,F5H      ;Select CRF5  
OUT     DX,AL  
  
MOV     DX,4FH  
IN      AL,DX  
OR      AL,08H      ;Set CRF5[Bit:3]=1, WDT count mode=Minute mode  
OUT     DX,AL  
  
MOV     DX,4EH  
MOV     AL,F6H      ;Select CRF6  
OUT     DX,AL  
  
MOV     DX,4FH  
MOV     AL,02H      ;Set CRF6 value=02 => Watch Dog Timer=2 (unit:Min)  
OUT     DX,AL  
  
MOV     DX,4EH  
MOV     AL,F7H      ;Select CRF7  
OUT     DX,AL
```

```
MOV     DX,4FH
MOV     AL,02H      ;Set CRF7[Bit:7,6]=11, WDT reset by mouse/keyboard
                    ;interrupt
OUT     DX,AL

;-----
;(3) Exit extended function mode
;-----
MOV     DX,4EH
MOV     AL,AAH
OUT     DX,AL
```

Appendix B - System Error Message

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

Error Messages

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

CMOS BATTERY HAS FAILED

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



Important

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

CMOS CHECKSUM ERROR

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

DISPLAY SWITCH IS SET INCORRECTLY

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

FLOPPY DISK(S) fail (80)

Unable to reset floppy subsystem.

FLOPPY DISK(S) fail (40)

Floppy type mismatch.

Hard Disk(s) fail (80)

HDD reset failed.

Hard Disk(s) fail (40)

HDD controller diagnostics failed.

Hard Disk(s) fail (20)

HDD initialization error.

Hard Disk(s) fail (10)

Unable to recalibrate fixed disk.

Hard Disk(s) fail (08)

Sector Verify failed.

Keyboard is locked out - Unlock the key

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

Keyboard error or no keyboard present

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

Manufacturing POST loop

System will repeat POST procedure infinitely while the keyboard controller is pulled 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 C - Troubleshooting

Troubleshooting Checklist

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

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

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

Monitor/Display

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

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

The picture seems to be constantly moving.

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

The screen seems to be constantly wavering.

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

Power Supply

When the computer is turned on, nothing happens.

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

Floppy Drive

The computer cannot access the floppy drive.

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

Hard Drive

Hard disk failure.

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

Excessively long formatting period.

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

Serial Port

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

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

Keyboard

Nothing happens when a key on the keyboard was pressed.

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

System Board

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