G5G100-L10C

System Board
User's Manual

935-G5G101-500G
A05000817

Copyright

Trademarks

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

About this Manual

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

Warranty

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

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

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

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

Static Electricity Precautions

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

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

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

Safety Measures

To avoid damage to the system:

- Use the correct AC input voltage range.

To reduce the risk of electric shock:

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

Battery:

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

About the Package

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

- ☑ The system board
- ☑ A user's manual
- ☑ One IDE cable
- ☑ One USB cable
- ☑ One Serial ATA data cable
- ☑ One Serial ATA power cable
- ☑ One bracket mounted with a serial port
- ☑ One "Main Board Utility" CD
- ☑ One I/O shield
- ☑ One Quick Reference guide (QR)

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.

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

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

Chapter 1 - Introduction

Specifications

Processor	• Intel® Celeron® M 373 1GHz, 512K cache processor (ULV) - 400MHz system data bus
Chipset	• Intel® chipset - Intel® 910GMLE Graphics Memory Controller Hub (GMCH) - Intel® 82801FBM I/O Controller Hub (ICH6M)
System Memory	• One 184-pin DDR SDRAM DIMM socket • Supports single channel (64-bit wide) memory interface • Unbuffered PC2700 (DDR333) DDR SDRAM DIMM • Supports maximum of 1GB system memory using 256Mbit, 512Mbit or 1Gbit technology for x8 and x16 devices, non-ECC memory
Expansion Slots	• 1 PCI slot for PCI expansion card or customized riser card for 1, 2 or 3 PCI slots expansion (for low profile PCI card only)
Graphics	• Integrated display interface - Analog display supported • Internal graphics features - Display core frequency up to 200MHz - Render core frequency up to 166MHz - Dynamic Video Memory Technology (DVMT) 3.0 - Intel GMA900
Audio	• Realtek ALC655 • 16-bit stereo full-duplex codec with independent variable sampling rate • S/PDIF-in/out interface • 5.1-channel audio output
LAN	• RTL8110SC Gigabit ethernet controller • Supports 10Mbps, 100Mbps and 1Gbps data transmission • IEEE 802.3 (10/100Mbps) and IEEE 802.3ab (1Gbps) compliant
Serial ATA	• Supports two Serial ATA interfaces which are compliant with SATA 1.0 specification • Data transfer rate up to 1.5Gb/s
IDE	• Supports up to UltraDMA 100Mbps hard drives • PIO Mode 4 Enhanced IDE (data transfer rate up to 14MB/sec.)
Rear Panel I/O Ports	• 1 mini-DIN-6 PS/2 mouse port • 1 mini-DIN-6 PS/2 keyboard port • 3 DB-9 serial ports • 1 DB-15 VGA port • 1 RJ45 LAN port • 4 USB 2.0/1.1 ports • Mic-in, line-in and line-out

I/O Connectors	• 2 connectors for 4 additional external USB 2.0/1.1 ports • 1 connector for 1 external serial port • 1 front audio connector for line-out and mic-in jacks • 1 CD-in connector • 1 S/PDIF-in/out connector • 2 Serial ATA connectors • 1 IrDA connector • 1 40-pin IDE connector • 1 floppy connector (FPC type) • 1 20-pin ATX power connector • 1 front panel connector • 1 chassis open connector • 3 fan connectors
BIOS	• Award BIOS • 4Mbit flash memory
Energy Efficient Design	• Supports ACPI specification and OS Directed Power Management • Supports ACPI STR (Suspend to RAM) function • Wake-On-Events include: - Wake-On-USB Keyboard from S3 - Wake-On-PCI-Event - Wake-On-Ring - Wake-On-LAN - RTC timer to power-on the system • System power management supported • Microsoft®/Intel® APM 1.2 compliant • Soft Power supported - ACPI v1.0a specification • AC power failure recovery
Damage Free Intelligence	• Monitors CPU/system temperature and overheat alarm • Monitors CPU(V)/1.5V/3.3V/5V/12V/-12V/VBAT(V)/5VSB(V) voltages and failure alarm • Monitors CPU/system/2nd fan speed and failure alarm • Read back capability that displays temperature, voltage and fan speed
Temperature	• 0°C to 60°C
Humidity	• 10% to 90%
PCB	• 6 layers, Mini-ITX form factor • 17cm (6.7") x 17cm (6.7")

Features

DDR Double Data Rate SDRAM (DDR SDRAM) is a type of SDRAM that doubles the data rate through reading and writing at both the rising and falling edge of each clock. This effectively doubles the speed of operation therefore doubling the speed of data transfer.

GRAPHICS The Northbridge chip comes integrated with the Intel Graphics Media Accelerator 900 delivering exceptional 3D graphics performance.

5.1-CHANNEL AUDIO The audio jacks at the rear panel will support 5.1-channel audio only when the audio utility is configured to support this function. The front audio's mic-in function will not work at this moment.

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 1.0 specification. With speed of up to 1.5Gbps, it improves hard drive performance faster than the standard parallel ATA whose data transfer rate is 100MB/s.

GIGABIT LAN The Realtek Gigabit LAN chip supports up to 1Gbps data transmission.

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

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

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

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

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

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

WAKE-ON-PCI-EVENT This feature is supported via a PCI card that uses the PCI PME (Power Management Event) signal. However, if your system is in the Suspend mode, you can power-on the system only through an IRQ or DMA interrupt.

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

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

Important:
If you are using the Wake-On-USB Keyboard function for 2 USB ports, the 5V_standby power source of your power supply must support ≥1.5A. For 3 or more USB ports, the 5V_standby power source of your power supply must support ≥2A.

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

ACPI STR The system board is designed to meet the ACPI (Advanced Configuration and Power Interface) specification. ACPI has energy saving features that enables PCs to implement Power Management and Plug-and-Play with operating systems that support OS Direct Power Management. Currently, only Windows® 98/2000/ME/XP/Vista supports the ACPI function. ACPI when enabled in the Power Management Setup will allow you to use the Suspend to RAM function.

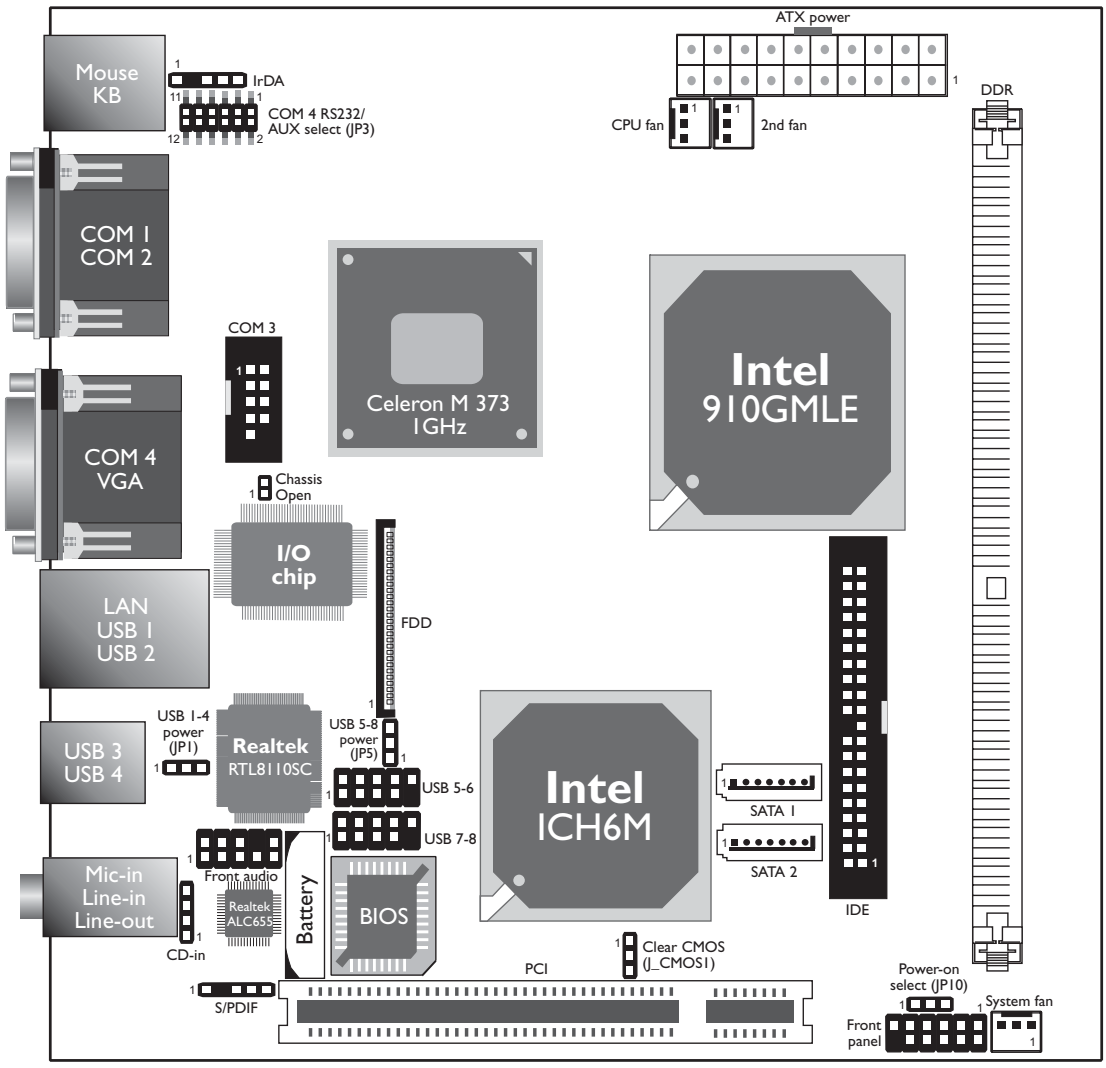
With the Suspend to RAM function enabled, you can power-off the system at once by pressing the power button or selecting "Standby" when you shut down Windows® 98/2000/ME/XP/Vista without having to go through the sometimes tiresome process of closing files, applications and operating system. This is because 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 ≥720mA.

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

Chapter 2 - Hardware Installation

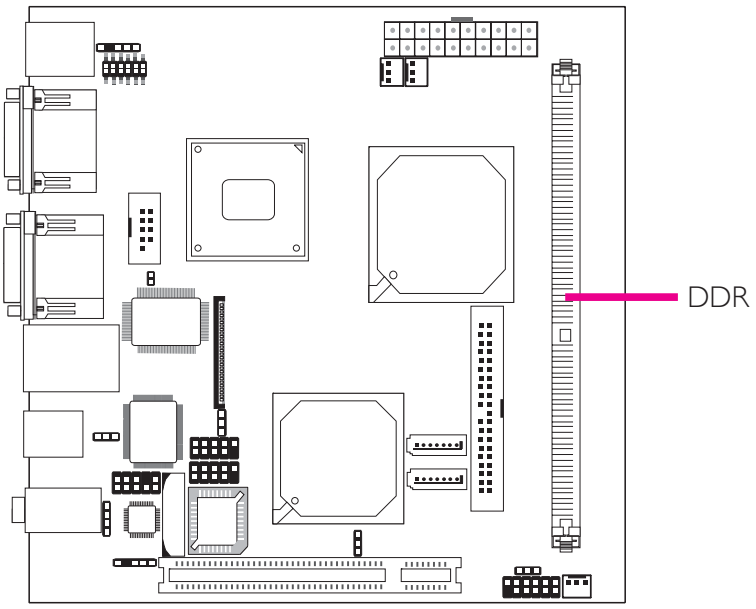
System Board Layout



Warning:

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

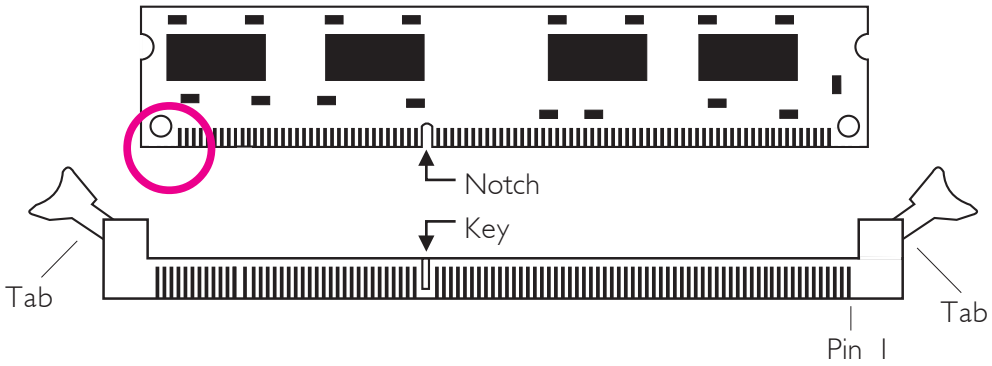
System Memory



The system board supports DDR SDRAM DIMM. Double Data Rate SDRAM (DDR SDRAM) is a type of SDRAM that doubles the data rate through reading and writing at both the rising and falling edge of each clock. This effectively doubles the speed of operation therefore doubling the speed of data transfer.

Installing the DIM Module

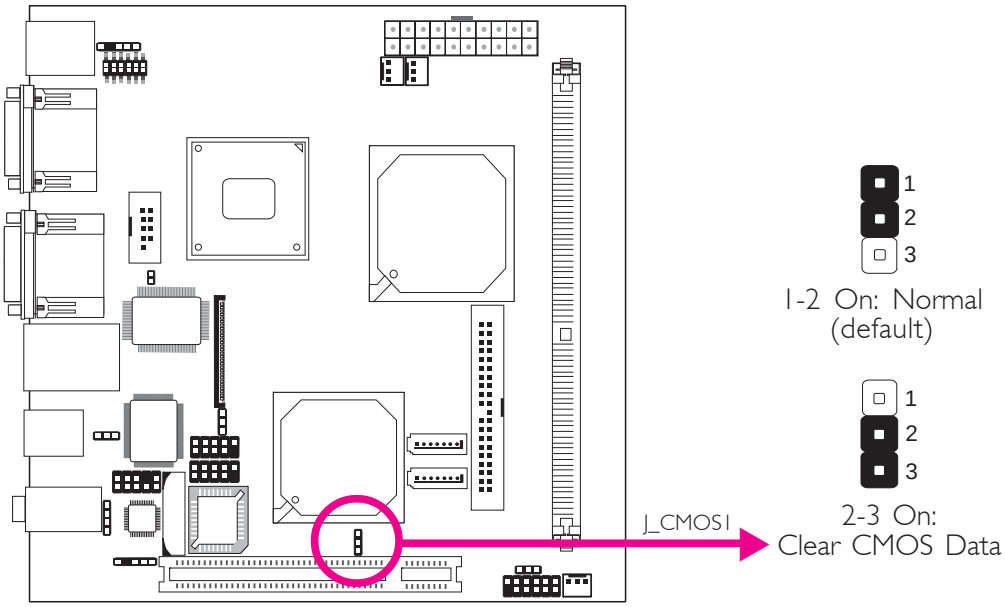
A DIM module simply snaps into a DIMM socket on the system board. Pin 1 of the DIM module must correspond with Pin 1 of the socket.



1. Pull the "tabs" which are at the ends of the socket to the side.
2. Position the DIMM above the socket with the "notch" in the module aligned with the "key" on the socket.
3. Seat the module vertically into the socket. Make sure it is completely seated. The tabs will hold the DIMM in place.

Jumper Settings

Clear CMOS Data



If you encounter the following,

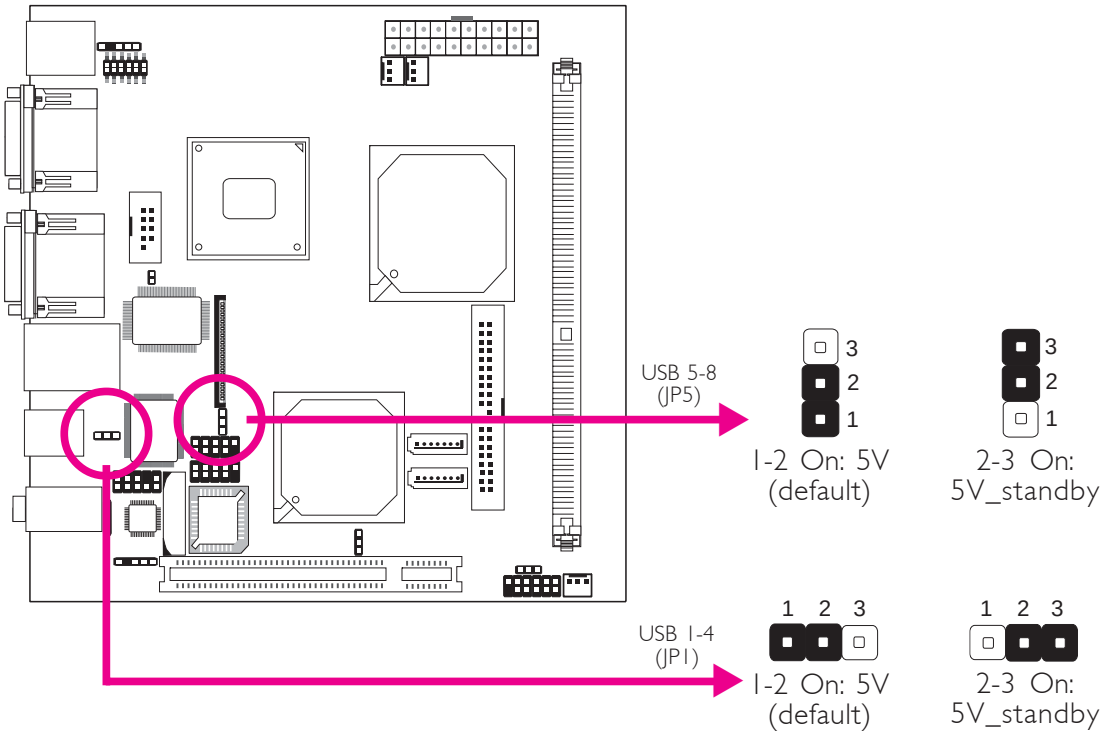
a) CMOS data becomes corrupted.
b) You forgot the supervisor or user password.

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

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

1. Power-off the system and unplug the power cord.
2. Set J_CMOS1 pins 2 and 3 to On. Wait for a few seconds and set J_CMOS1 back to its default setting, pins 1 and 2 On.
3. Now plug the power cord and power-on the system.

USB Power Select



JP1 and JP5 are used to select the power of the USB ports. Selecting 5V_standby will allow you to use a USB keyboard to wake up the system.

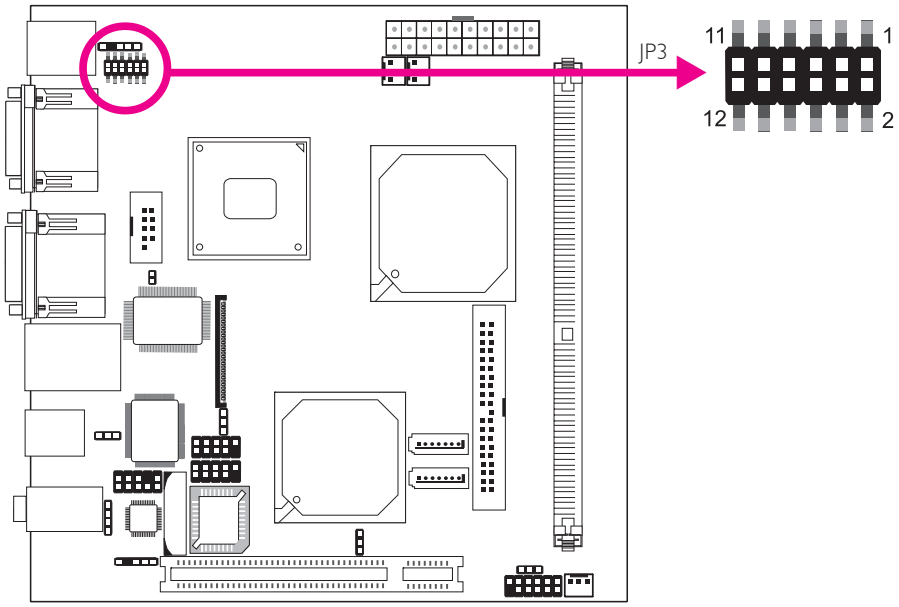
BIOS Setting

"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 function for 2 USB ports, the 5V_standby power source of your power supply must support ≥1.5A. For 3 or more USB ports, the 5V_standby power source of your power supply must support ≥2A.

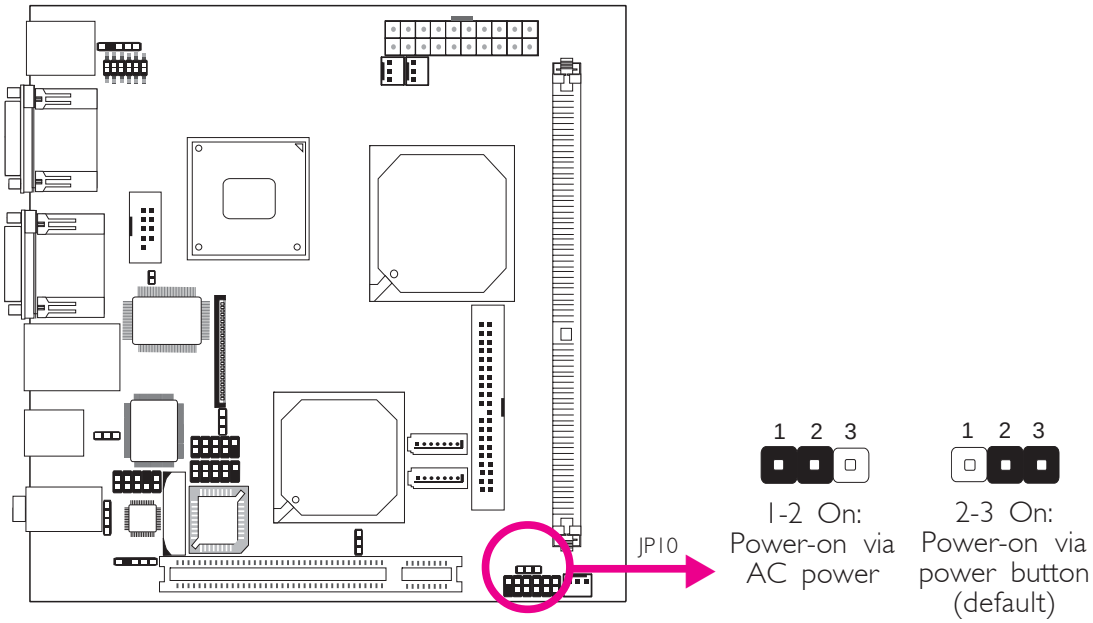
COM 4 RS232/AUX Select



COM 4 is an RS-232 port. If the serial device connected to this port requires 5V/12V power from the system board, set JP3 pins 1-3, 2-4, 9-11 (12V) and 10-12 (5V) to On. Otherwise, leave this jumper's setting at 1-3, 2-4, 7-9, 8-10 On.

COM 4 RS232/AUX Select	JP3
RS232 (default)	1-3, 2-4, 7-9, 8-10 On
Auxiliary power	1-3, 2-4, 9-11 (12V), 10-12 (5V) On

Power-on Select



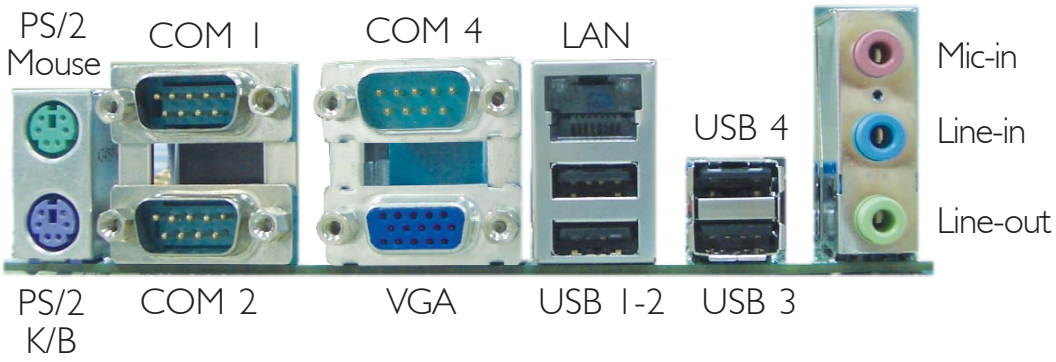
JP10 is used to select the method of powering on the system. If you want the system to power-on whenever AC power comes in, set JP10 pins 1 and 2 to On. If you want to use the power button, set pins 2 and 3 to On.

Important:

If you want the system to automatically power-on when power returns after an AC power failure, you must:

1. *Set JP10 pins 1 and 2 to On.*
2. *The PWRON After PWR-Fail field must be set to "On". (Integrated Peripherals submenu, Super I/O Device section of the BIOS).*

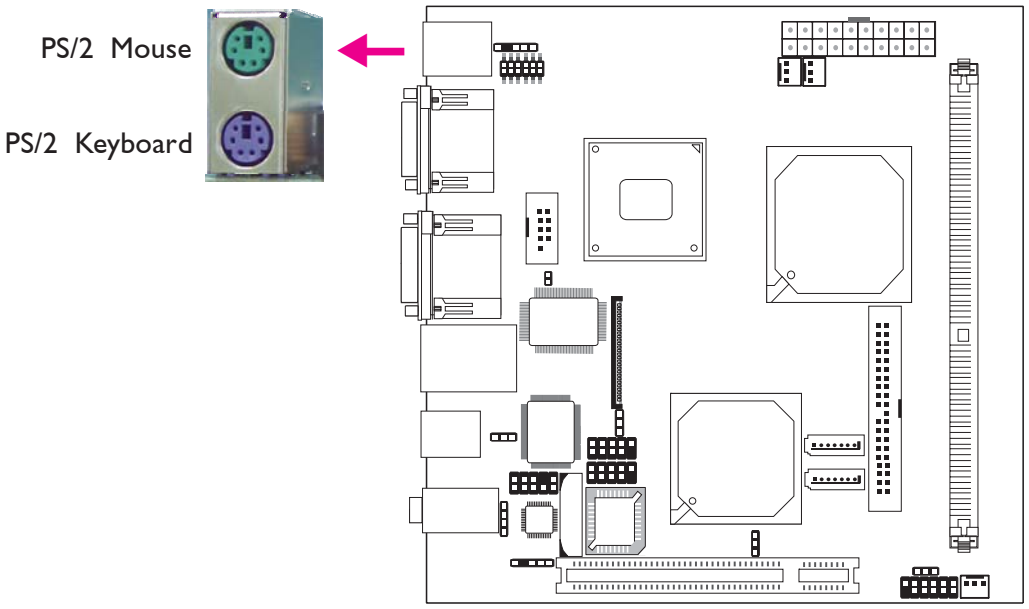
Rear Panel I/O Ports



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

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

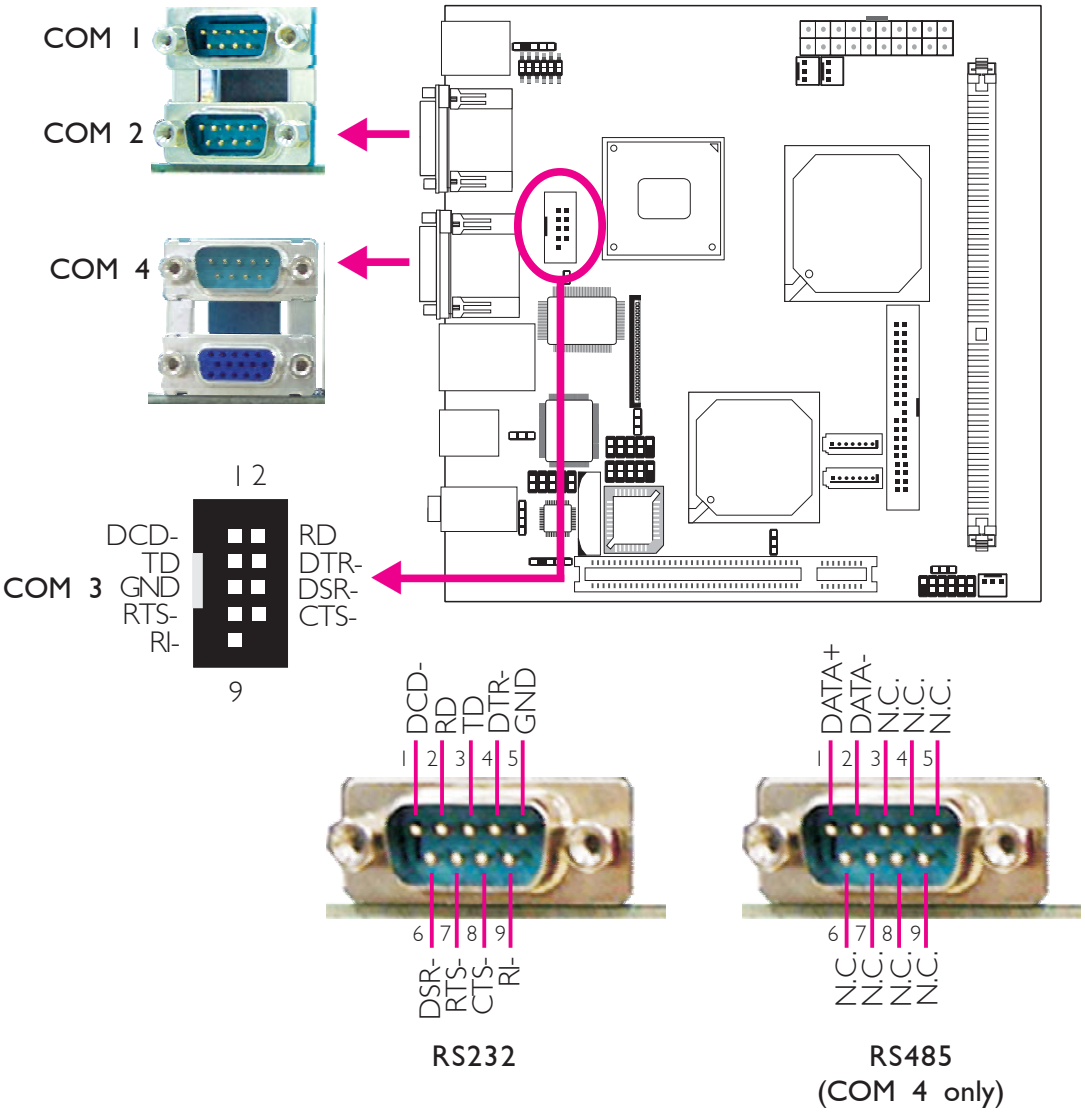
PS/2 Mouse and PS/2 Keyboard Ports



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.

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

Serial Ports



RS232

RS485 (COM 4 only)

The system board is equipped with 3 onboard serial ports (COM 1, COM2 and COM4). It is also equipped with a 9-pin connector (COM 3). These serial ports are RS-232 asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices.

Your COM port may come mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then insert the connector that is attached to the serial port cable to COM 3. Make sure the colored stripe on the ribbon cable is aligned with pin 1 of COM 3.

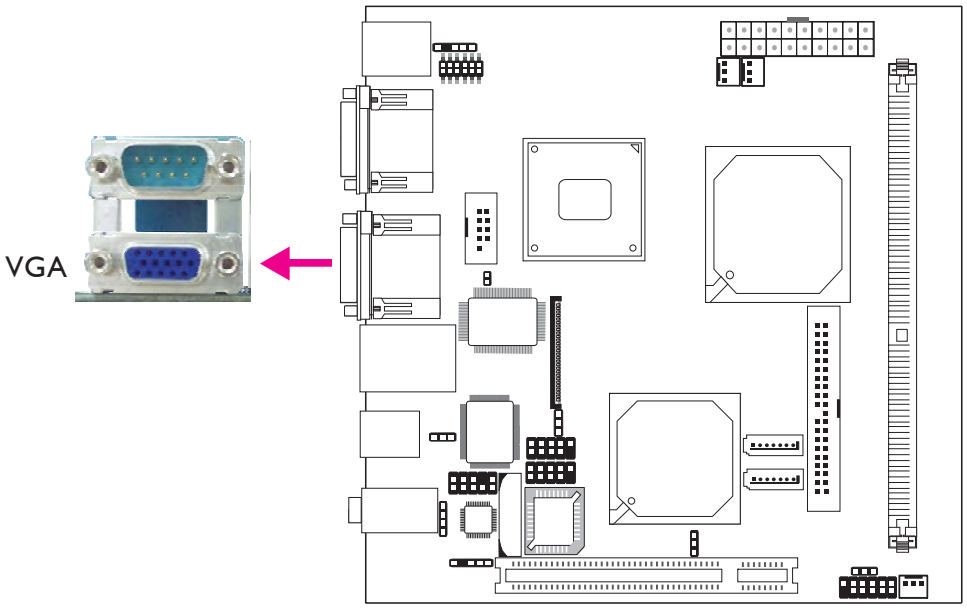
Jumper Setting

If the serial device connected to COM 4 requires auxiliary power from the system board, set JP3 appropriately. Refer to "COM 4 RS232/AUX Select" in this chapter for more information.

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.

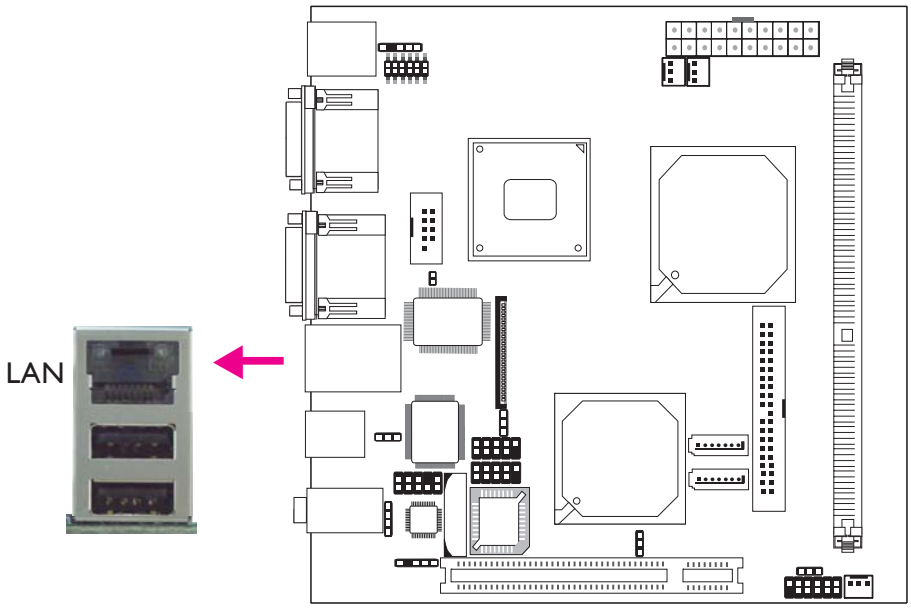
BIOS Setting

Configure the onboard VGA in the Advanced Chipset Features submenu of the BIOS.

Driver Installation

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

RJ45 Fast-Ethernet Port



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

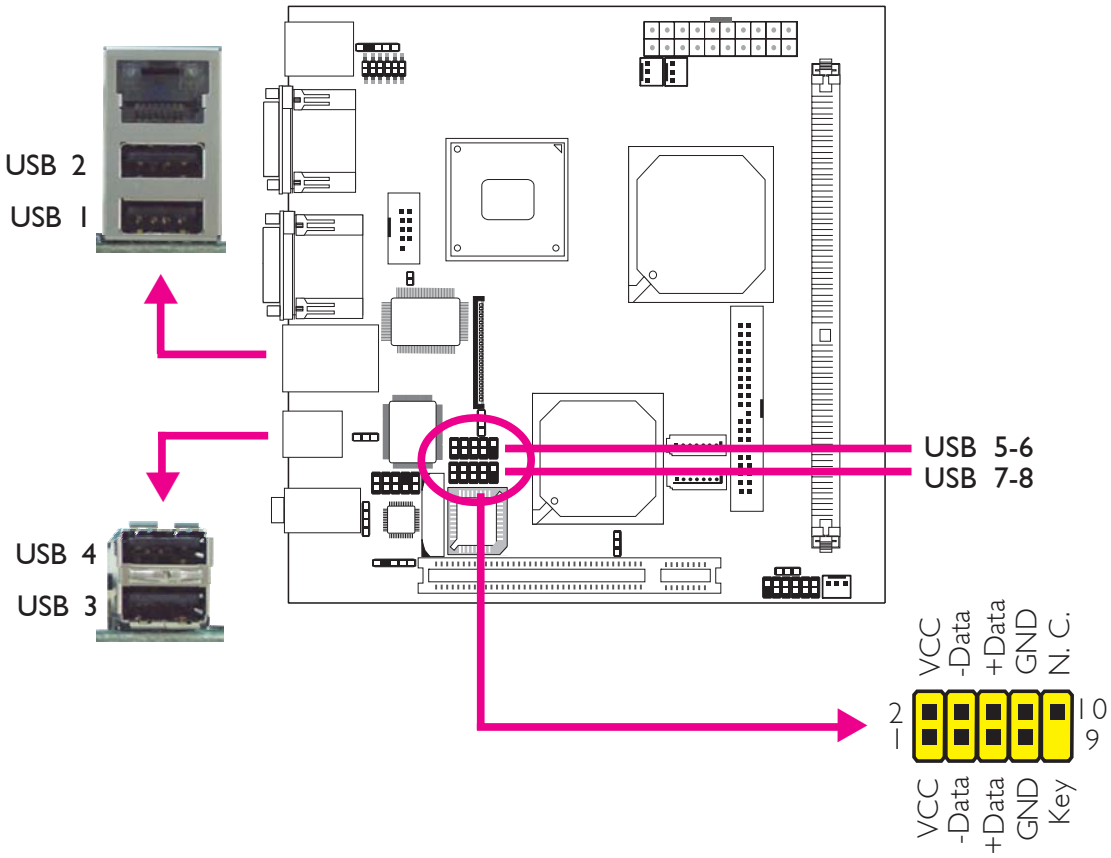
BIOS Setting

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

Driver Installation

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

Universal Serial Bus Connectors



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

The system board supports 4 onboard USB 2.0/1.1 ports. The USB 5-6 and USB 7-8 connectors allow you to connect 4 additional USB 2.0/1.1 ports. The 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 these USB connectors.

BIOS Setting

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

Driver Installation

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

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

Wake-On-USB Keyboard

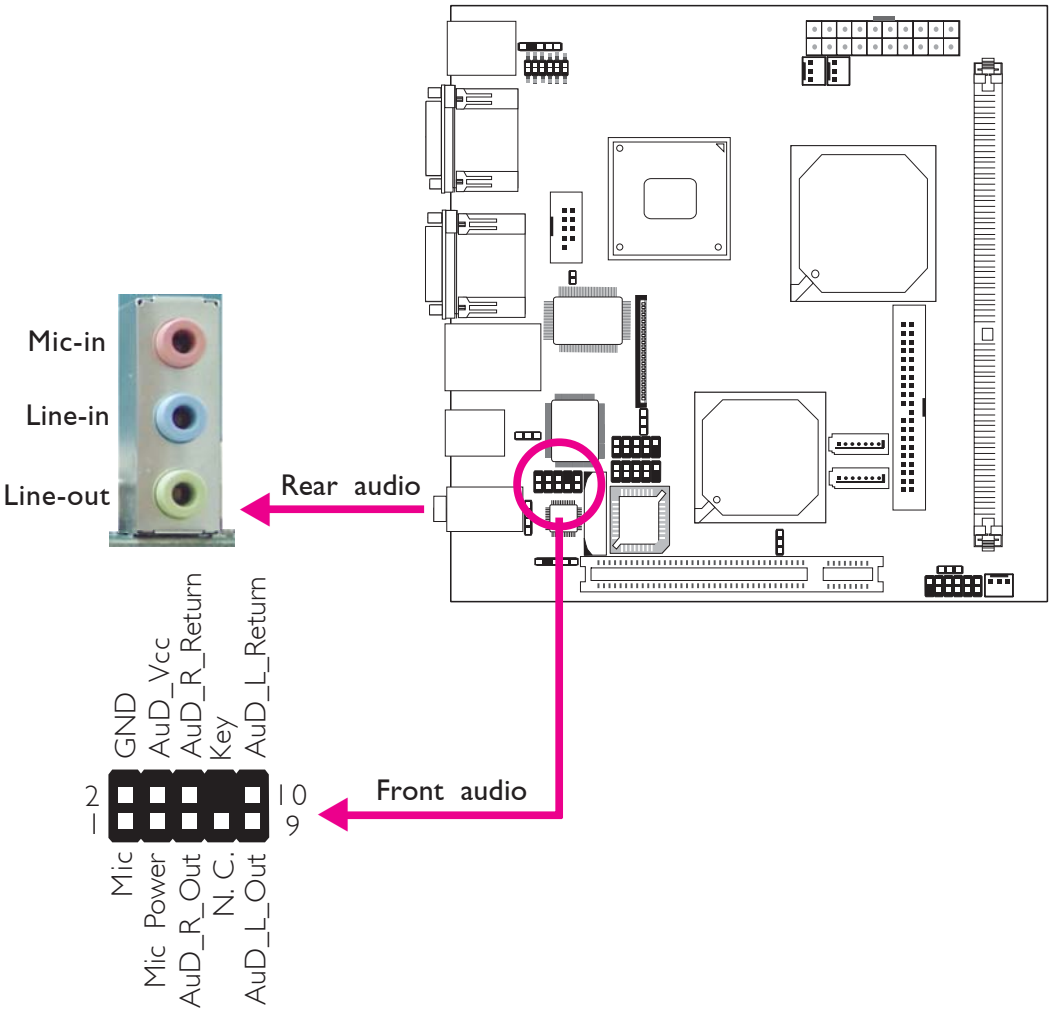
The Wake-On-USB Keyboard function allows you to use a USB keyboard to wake up a system from the S3 (STR - Suspend To RAM) state. To use this function:

- **Jumper Setting:**
  JP1 and/or JP5 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 function for 2 USB ports, the 5V_standby power source of your power supply must support ≥1.5A. For 3 or more USB ports, the 5V_standby power source of your power supply must support ≥2A.

Audio (Rear Audio and Front 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 (Pink)**
  In a 2-channel or 4-channel mode, this jack is used to connect an external microphone. In a 6-channel mode, this jack functions as Center/Subwoofer.

- **Line-in (Light Blue)**
  In a 2-channel mode, this jack is used to connect any audio devices such as Hi-fi set, CD player, tape player, AM/FM radio tuner, synthesizer, etc. In a 4-channel or 6-channel mode, this jack functions as rear right/left speaker out.

- **Line-out (Lime)**
  In a 2-channel mode, this jack is used to connect a headphone or external speakers. In a 4-channel or 6-channel mode, this jack functions as front right/left speaker out.

	2-channel	4-channel	6-channel
Light Blue	Line-in	Rear R/L	Rear R/L
Lime	Line-out	Front R/L	Front R/L
Pink	Mic-in	Mic-in	Center/Subwoofer

Front Audio

The front audio connector allows you to connect to the line-out and mic-in jacks that are at the front panel of your system. Using the line-out and mic-in jacks will disable the rear audio's line-out and mic-in functions.

Remove the jumper caps from pins 5-6 and pins 9-10 prior to connecting the front audio cable connector. Make sure pin 1 of the cable is aligned with pin 1 of the connector. If you are not using this connector, make sure to replace the jumper caps back to their original pin locations.

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

BIOS Setting

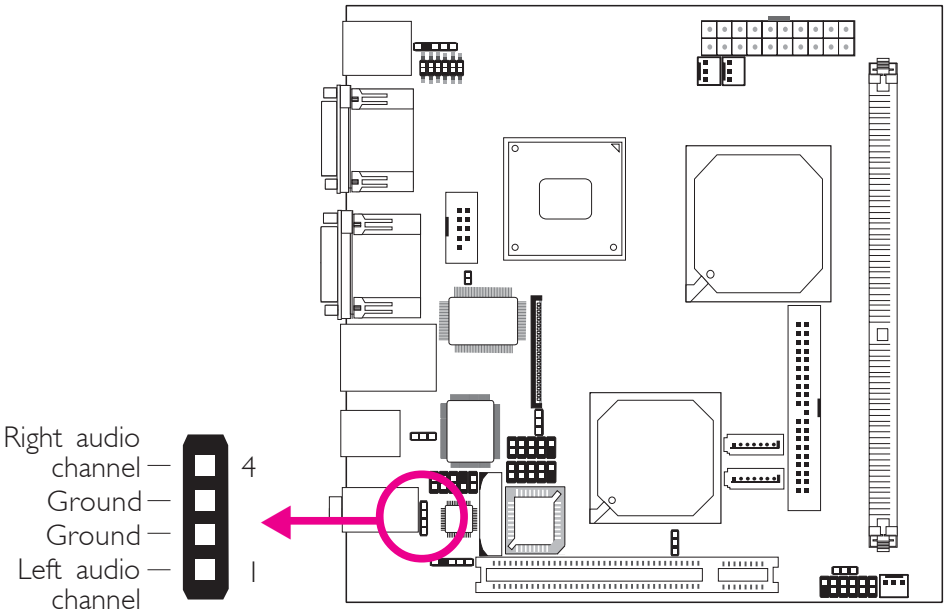
Configure the onboard audio in the Integrated Peripherals submenu ("Onboard Device" section) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

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

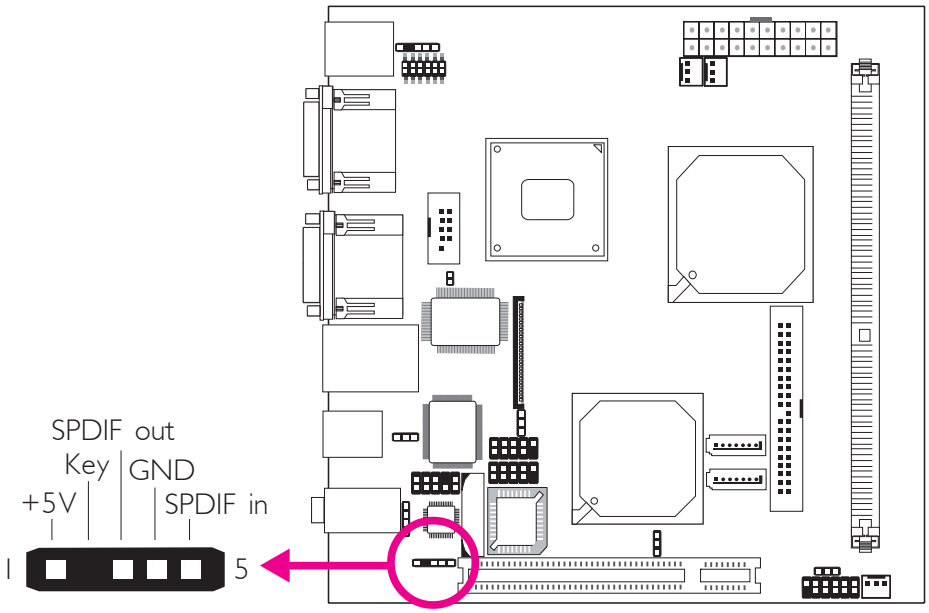
I/O Connectors

CD-in Internal Audio Connector



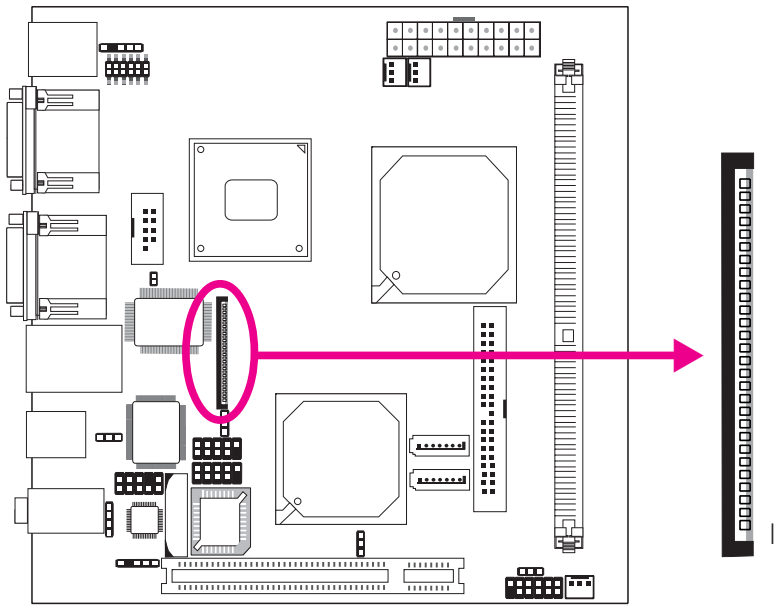
The CD-in connector is used to receive audio from a CD-ROM drive, TV tuner or MPEG card.

S/PDIF Connector



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

Floppy Disk Drive Connector



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

Connecting the Floppy Disk Drive Cable

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

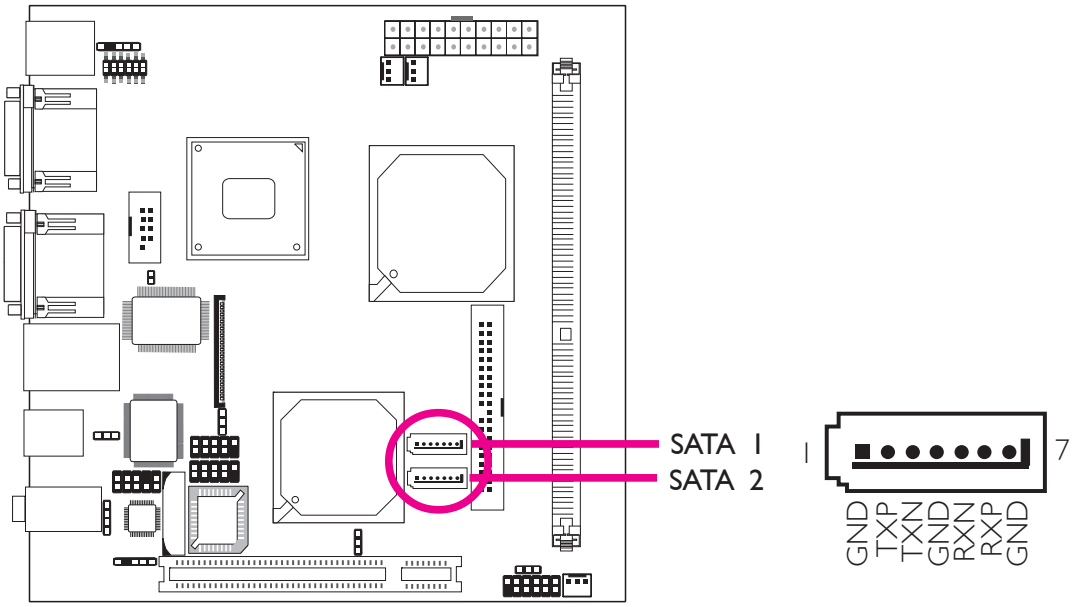
BIOS Setting

Enable or disable this function in the Integrated Peripherals submenu ("Super IO Device" section) of the BIOS. Refer to chapter 3 for more information.

FPC Type FDD Connector

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

Serial ATA Connectors

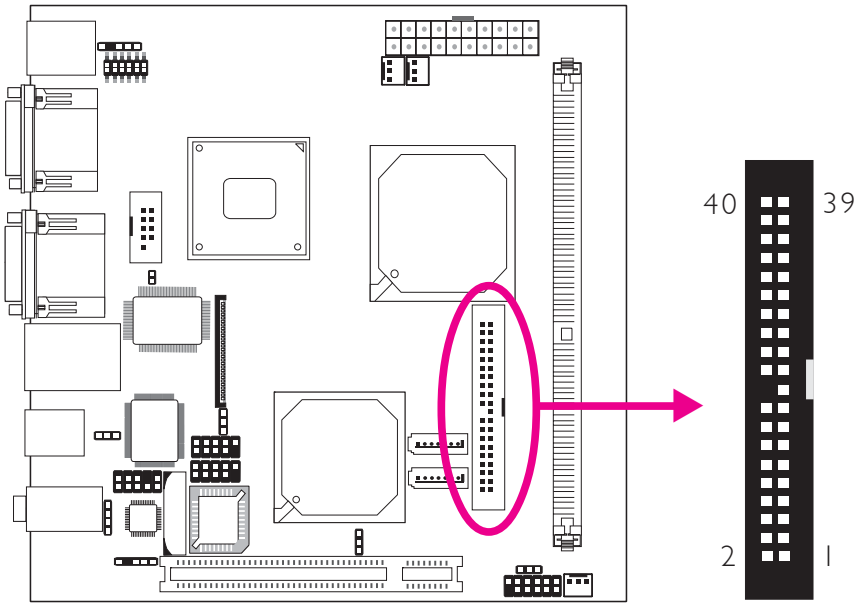


The system board is equipped with two Serial ATA connectors for connecting Serial ATA devices. Connect one end of the Serial ATA cable to SATA 1 or SATA 2 and the other end to your Serial ATA device.

BIOS Setting

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

IDE Disk Drive Connectors



The IDE connector will interface two Enhanced IDE (Integrated Drive Electronics) disk drives. The IDE cable can be inserted into this connector only if pin 1 of the cable is aligned with pin 1 of this connector.

Connecting the IDE Disk Drive Cable

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

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

Adding a Second IDE Disk Drive

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

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

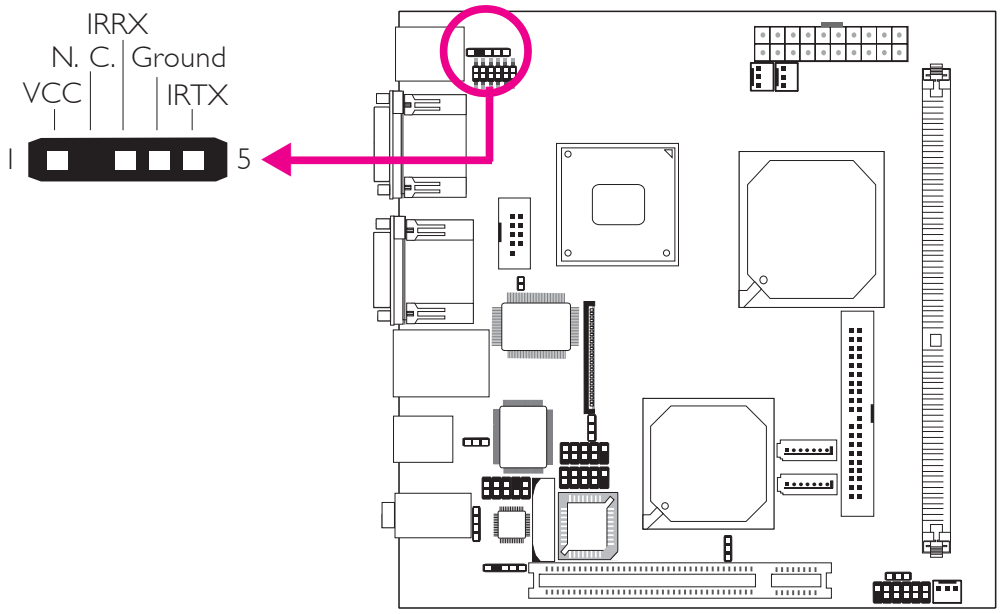
Important:

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

BIOS Setting

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

IrDA Connector



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

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

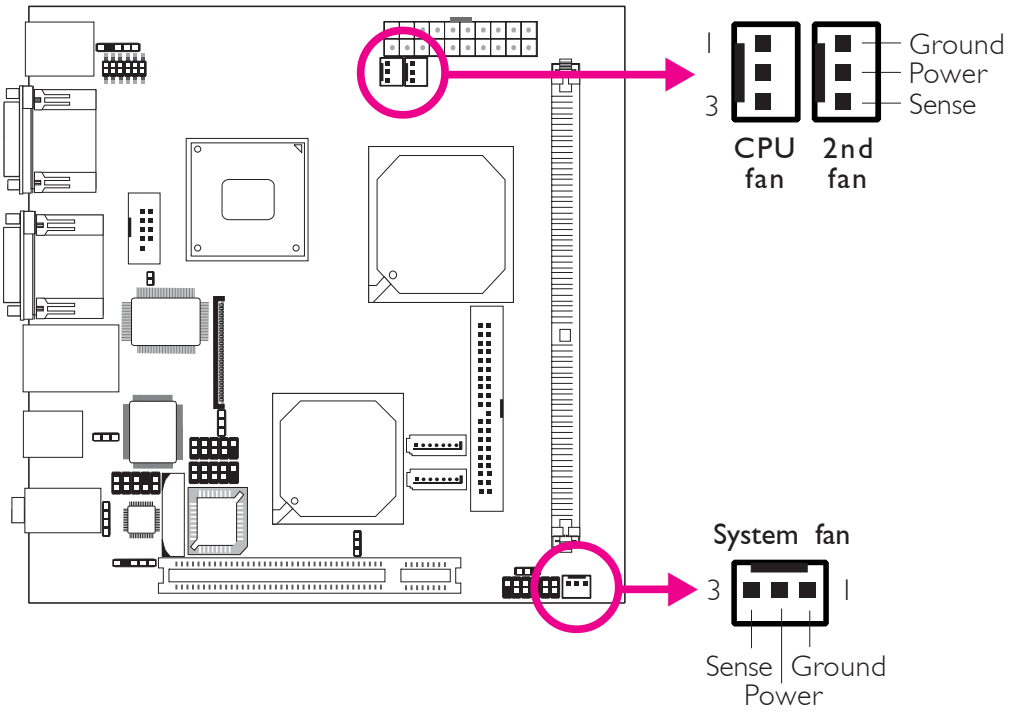
BIOS Setting

Configure the onboard IrDA in the Integrated Peripherals submenu ("Super IO Device" section) of the BIOS to the type of IrDA standard supported by your device.

Driver Installation

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

Cooling Fan Connectors

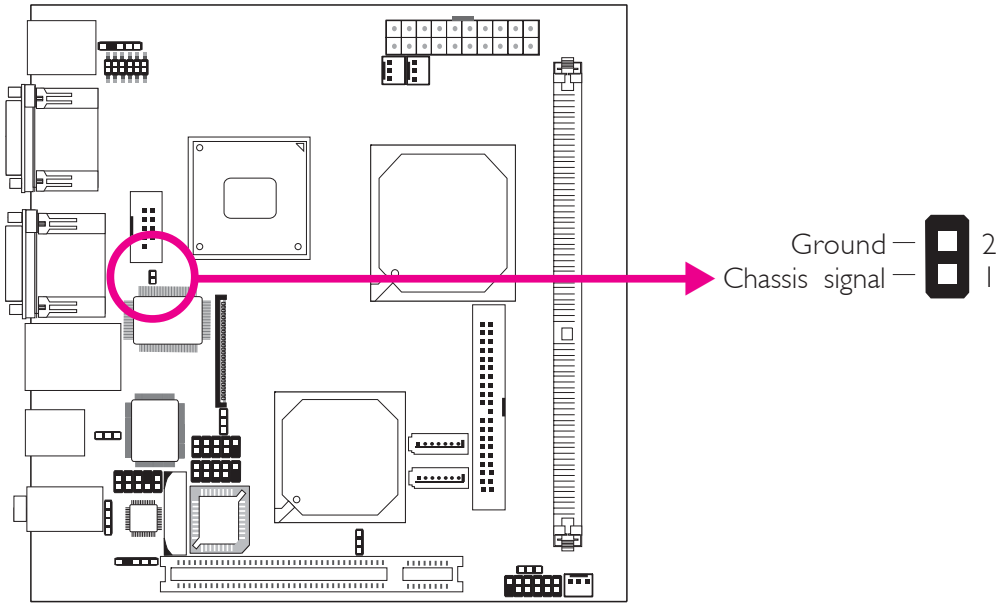


Connect the CPU fan's cable connector to the CPU fan connector on the system board. The 2nd fan and system fan connectors are used to connect additional cooling fans. The cooling fans will provide adequate airflow throughout the chassis to prevent overheating the CPU and system board components.

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 Open Connectors

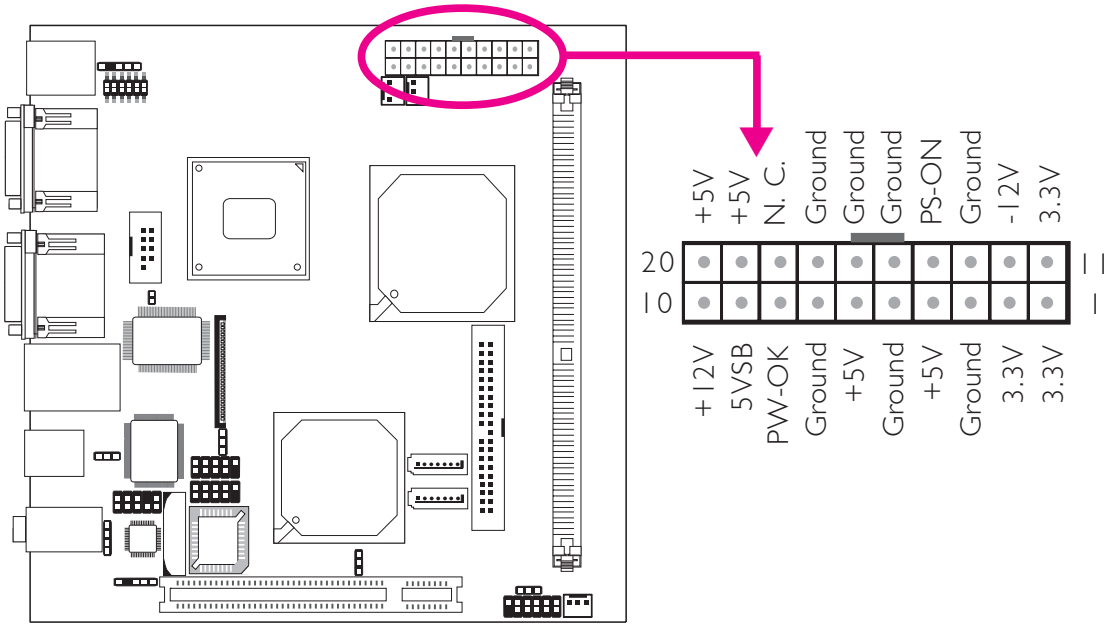


The system board supports the chassis intrusion detection function. Connect the chassis intrusion sensor cable from the chassis to the chassis open connector on the board. Whenever a chassis component has been removed, the sensor sends signal to the connector alerting you of a chassis intrusion event.

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.

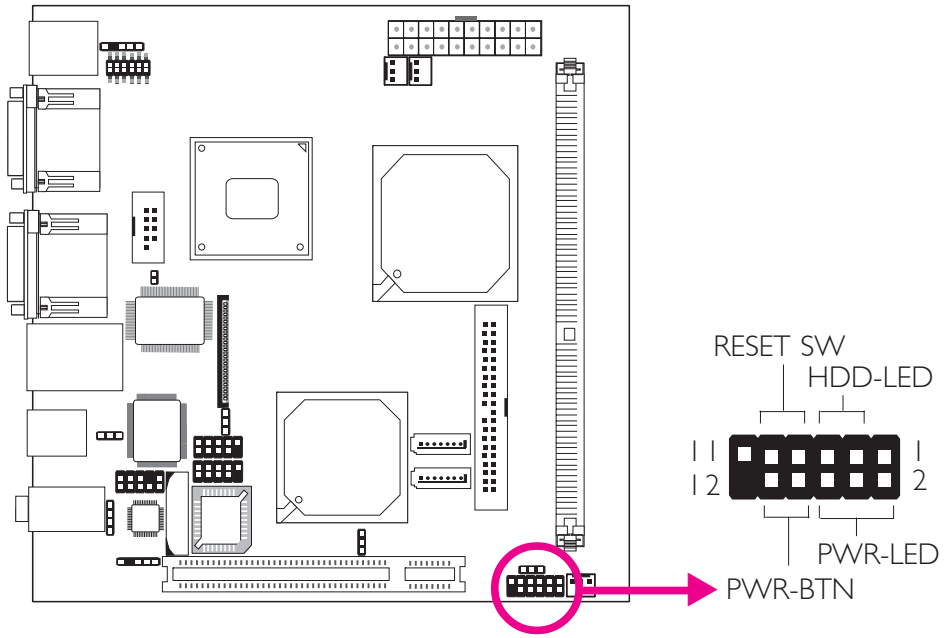
Power Connectors



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

The system board requires a minimum of 150 Watt power supply to operate. Your system configuration (amount of memory, add-in cards, peripherals, etc.) may exceed the minimum power requirement. To ensure that adequate power is provided, use a 250 Watt (or greater) power supply.

Front Panel Connectors



HDD-LED - HDD LED

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

RESET SW - Reset Switch

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

PWR-BTN - Power Switch

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

PWR-LED - Power/Standby LED

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

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

Chapter 3 - BIOS Setup

Award BIOS Setup Utility

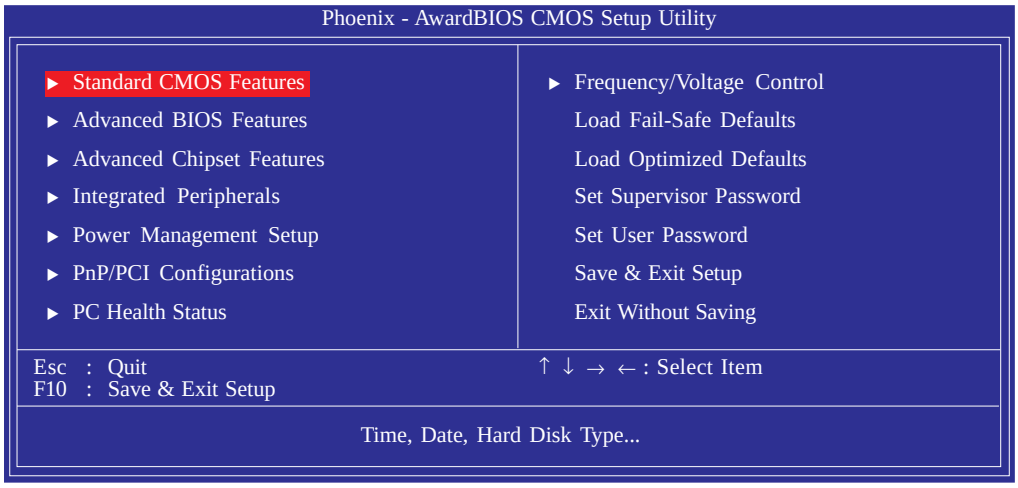
The Basic Input/Output System (BIOS) is a program that takes care of the basic level of communication between the processor and peripherals. In addition, the BIOS also contains codes for various advanced features found in this system board. This chapter explains the Setup Utility for the Award BIOS.

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

Press DEL to enter setup

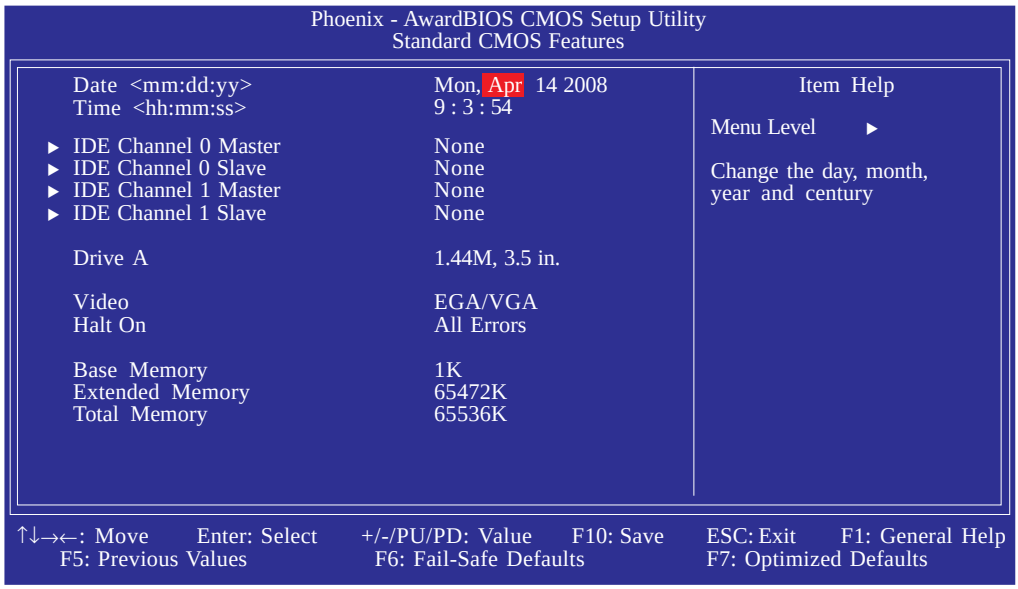
If the message disappears before you respond, restart the system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> and <Del> keys simultaneously.

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



Standard CMOS Features

Use the arrow keys to highlight "Standard CMOS Features" 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

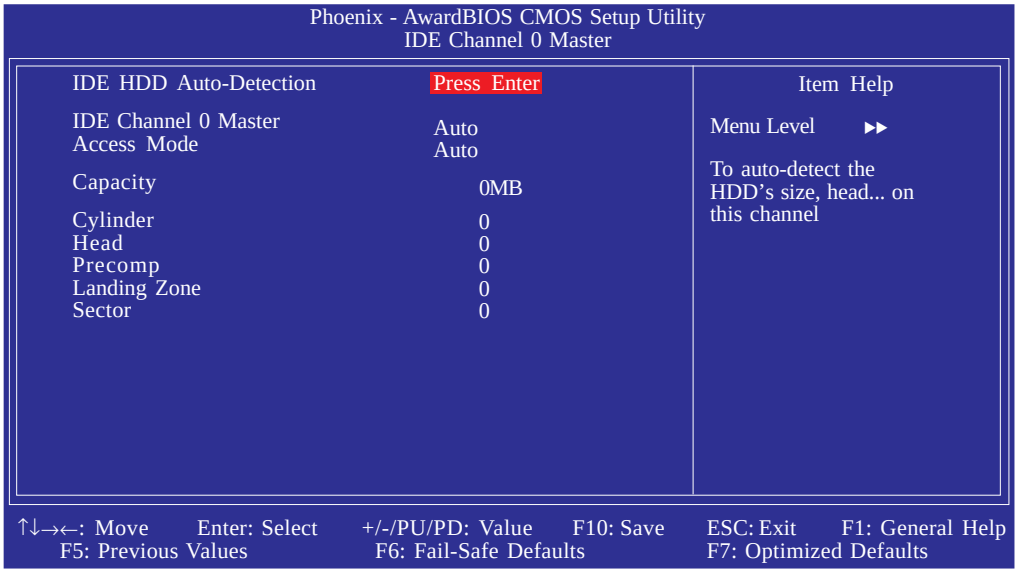
The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1999 to 2099.

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

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



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

IDE HDD Auto Detection

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

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

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

Access Mode

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

Capacity

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

Cylinder

This field displays the number of cylinders.

Head

This field displays the number of read/write heads.

Precomp

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

Landing Zone

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

Sector

This field displays the number sectors per track.

Drive A

This field identifies the type of floppy disk drive installed.

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

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

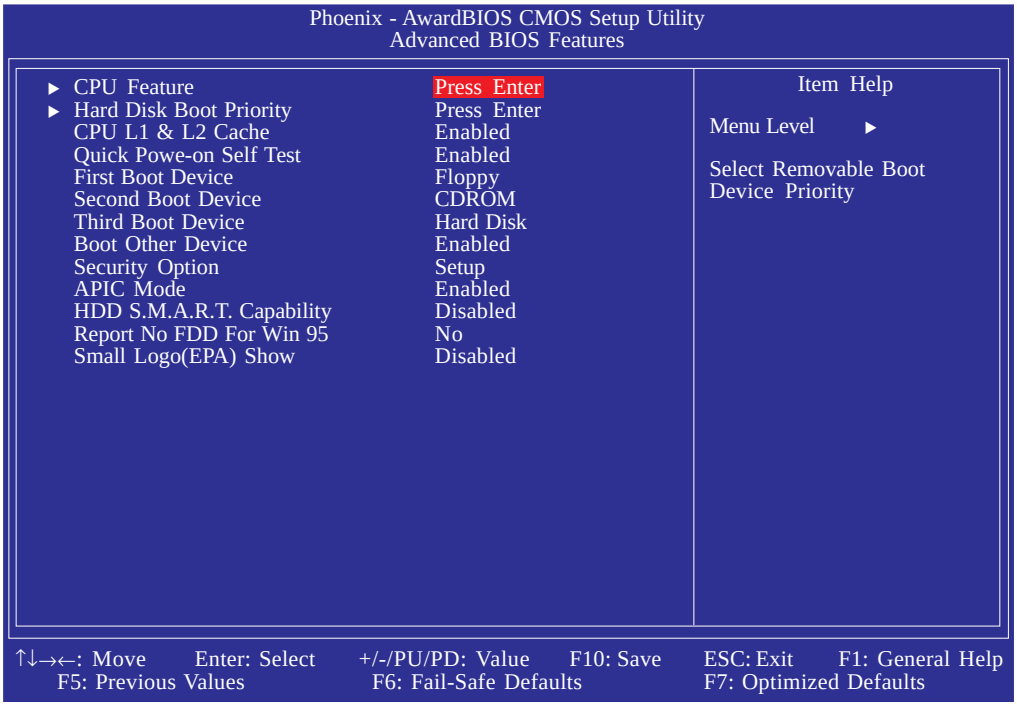
Displays the amount of extended memory detected during boot-up.

Total Memory

Displays the total memory available in the system.

Advanced BIOS Features

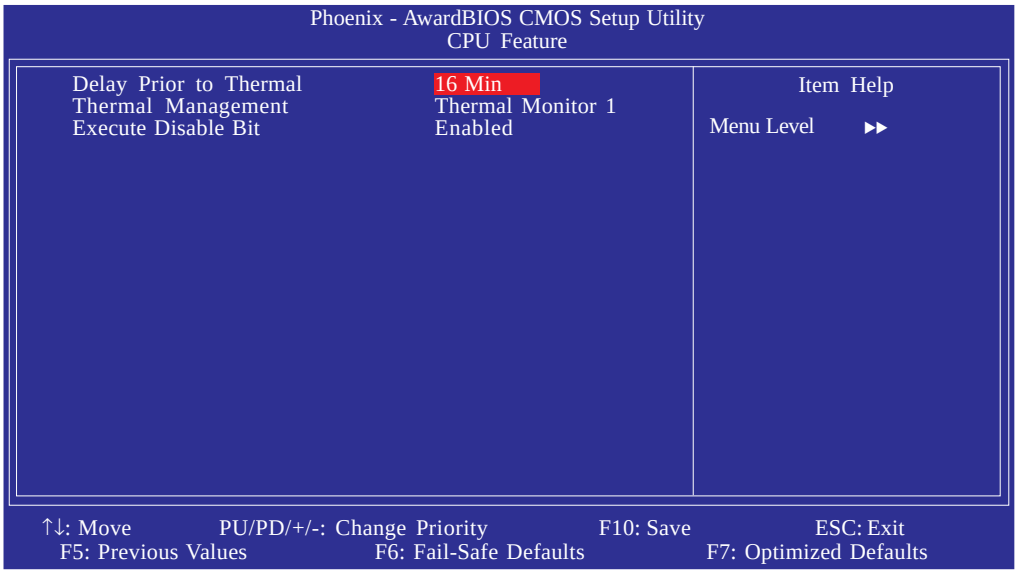
The Advanced BIOS Features allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.



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.

Delay Prior To Thermal

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

Thermal Management

Select a "thermal monitor" in this field to enable the CPU's speedstep function. Restart the system then go to the operating system's "Control Panel". Double-click "Power Options". The "Power Options Properties" dialog box will appear. In the "Power Schemes" menu, select "Portable/Laptop". Speedstep reduces the CPU's frequency and voltage in accordance to its load.

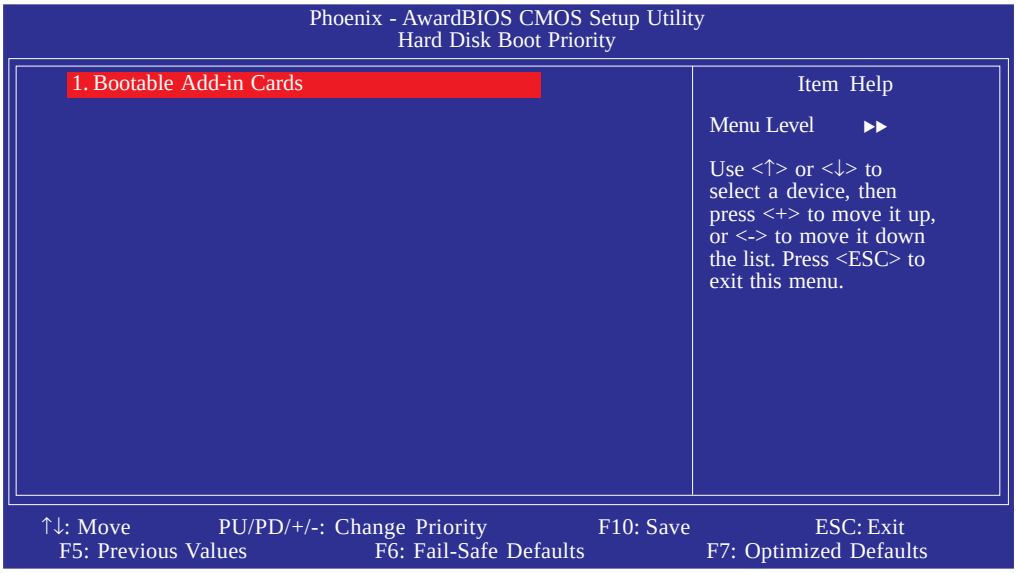
Thermal Monitor 1	On die throtting.
Thermal Monitor 2	Ratio and VID transition.

Execute Disable Bit

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

Hard Disk Boot Priority

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



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

CPU L1 and L2 Cache

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

Quick Power On Self Test

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

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

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

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

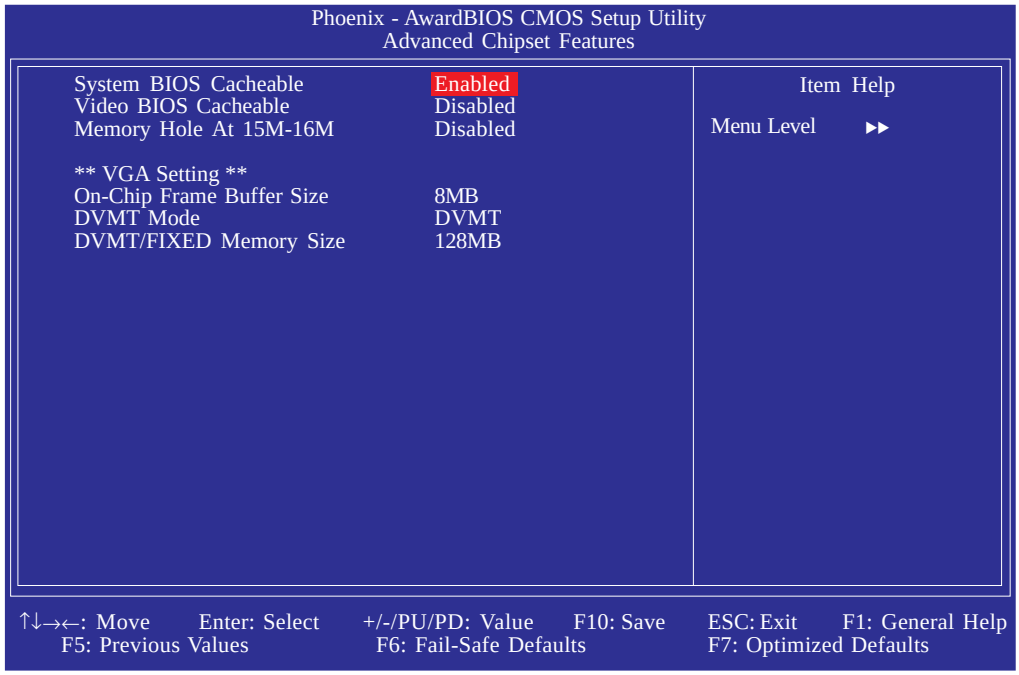
The options are Yes and No.

Small Logo(EPA) Show

Enabled The EPA logo will appear during system boot-up.

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

Advanced Chipset Features



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

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

System BIOS Cacheable

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

Video BIOS Cacheable

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

Memory Hole At 15M-16M

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

On-Chip Frame Buffer Size

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

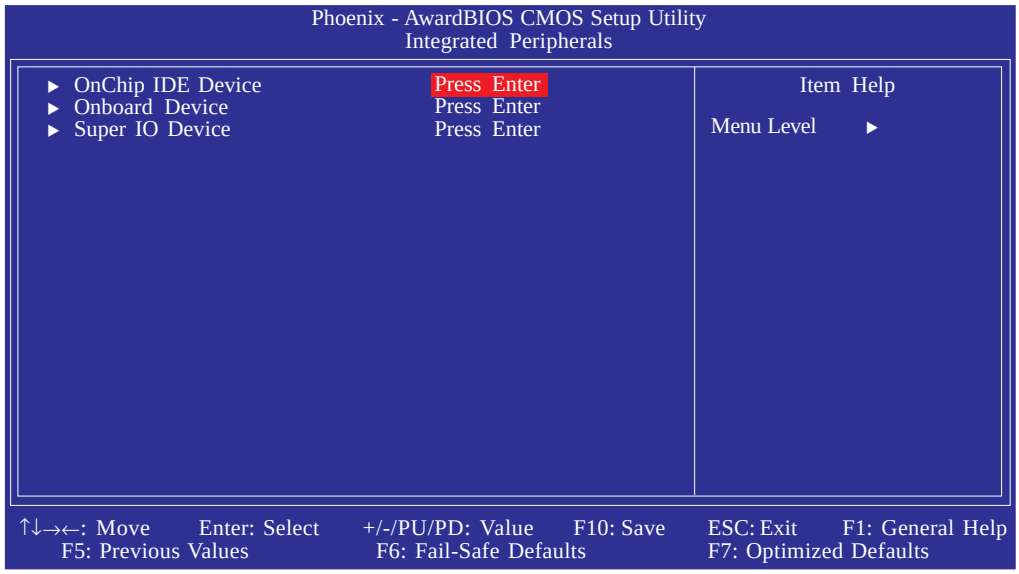
DVMT Mode

This field shows the current DVMT mode.

DVMT/Fixed Memory Size

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

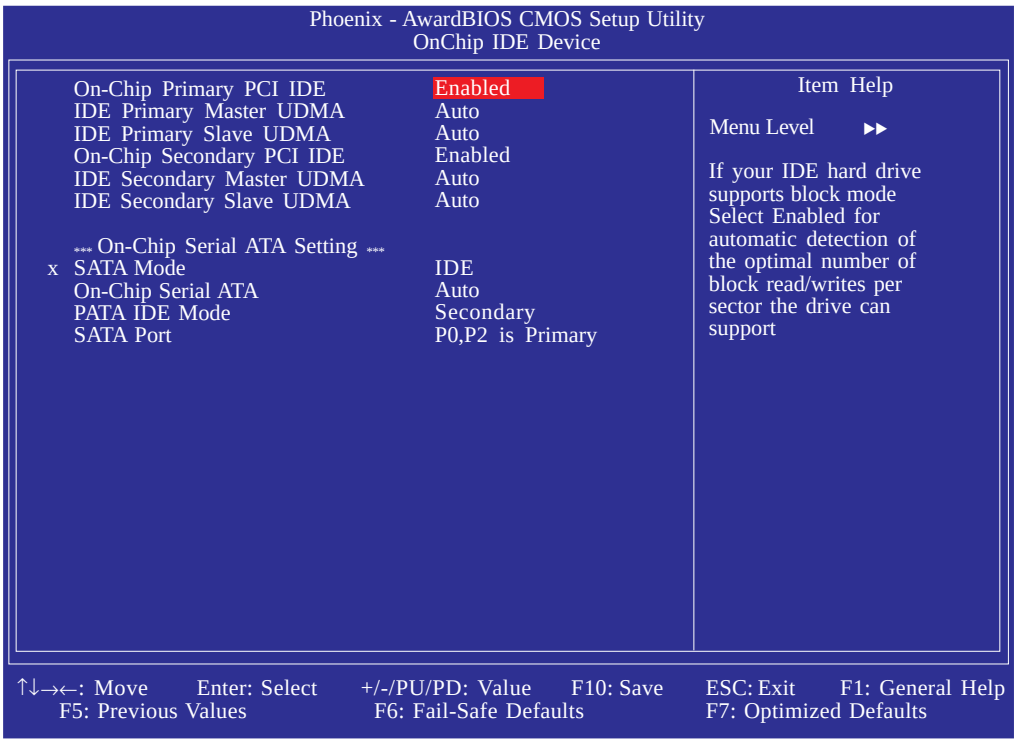
Integrated Peripherals



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

OnChip IDE Device

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



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

On-Chip Primary PCI IDE and On-Chip Secondary PCI IDE

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

IDE Primary Master/Slave UDMA and IDE Secondary Master/Slave UDMA

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

Auto	The BIOS will automatically detect the settings for you.
Disabled	The BIOS will not detect these categories.

SATA Mode

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

On-Chip Serial ATA

Disabled	Disables the onboard SATA.
Auto	The system will detect the existing SATA and IDE drives then automatically set them to the available master/slave mode.
Combined Mode	This option allows you to combine both IDE and SATA drives; supporting maximum of 2 drives on each channel.
Enhanced Mode	This option allows you to use both IDE and SATA drives; allowing a maximum of 4 drives - 1 IDE Master, 1 IDE Slave and 2 SATA.
SATA Only	This option automatically sets the SATA drives to Primary Master mode. Since the SATA drives are in Master mode, you cannot set the IDE drive to Master mode.

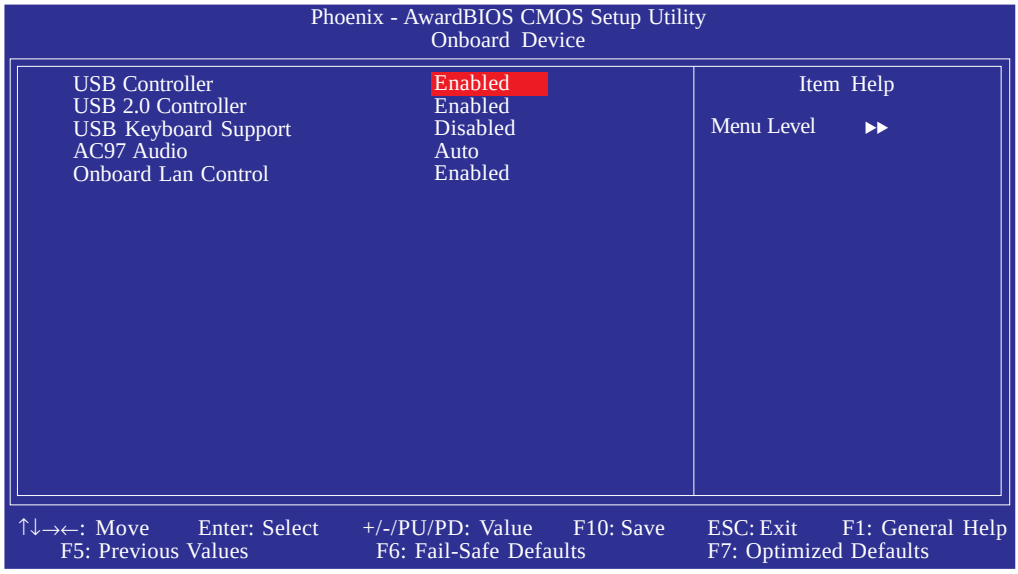
PATA IDE Mode and SATA Port

This field is used to select the function mode for the IDE 1 connector and its relation to the SATA ports.

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

Onboard Device

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



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

USB Controller

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

USB 2.0 Controller

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

USB Keyboard Support

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

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

AC97 Audio

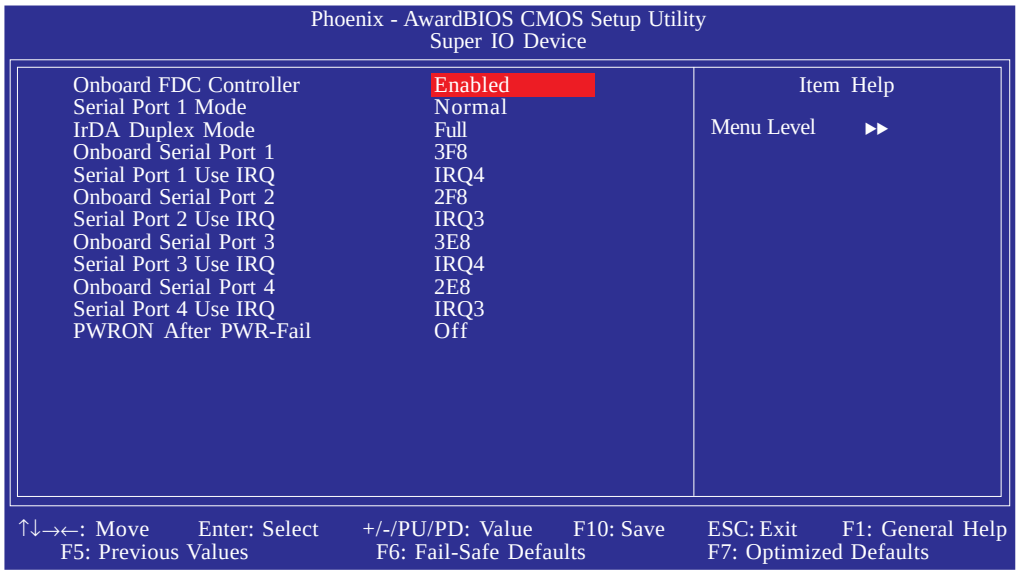
Auto	Select this option when using the onboard audio codec.
Disabled	Select this option when using a PCI sound card.

Onboard LAN Control

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

Super IO Device

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



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

Onboard FDC Controller

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

Serial Port 1 Mode

COM 1 functions as a serial port or IrDA. You cannot use both at the same time.

Normal	This option sets COM 1 as serial port.
IrDA	This option sets COM 1 as IrDA.

IrDA Duplex Mode

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

Onboard Serial Port 1 to Onboard Serial Port 4

3F8, 2F8, 3E8, 2E8 Allows you to manually select an I/O address for the serial port.

Disabled Disables the serial port.

Serial Port 1 Use IRQ to Serial Port 4 Use IRQ

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

PWRON After PWR-Fail

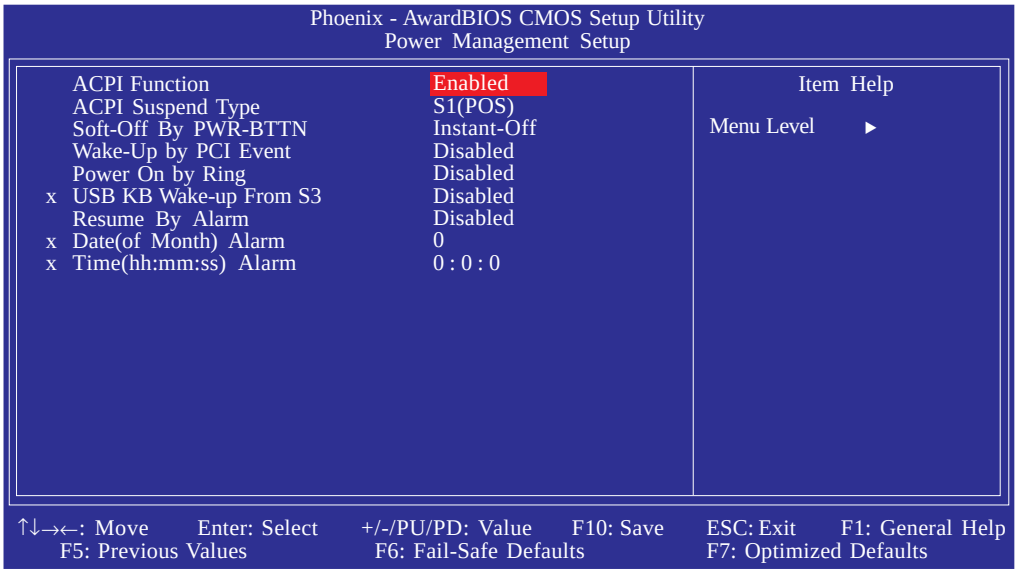
Off When power returns after an AC power failure, the system's power is off. You must press the Power button to power-on the system.

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.

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. If you want to use the Suspend to RAM function, make sure this field is enabled then select "S3(STR)" in the "ACPI Suspend Type" field.

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 Event

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 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.

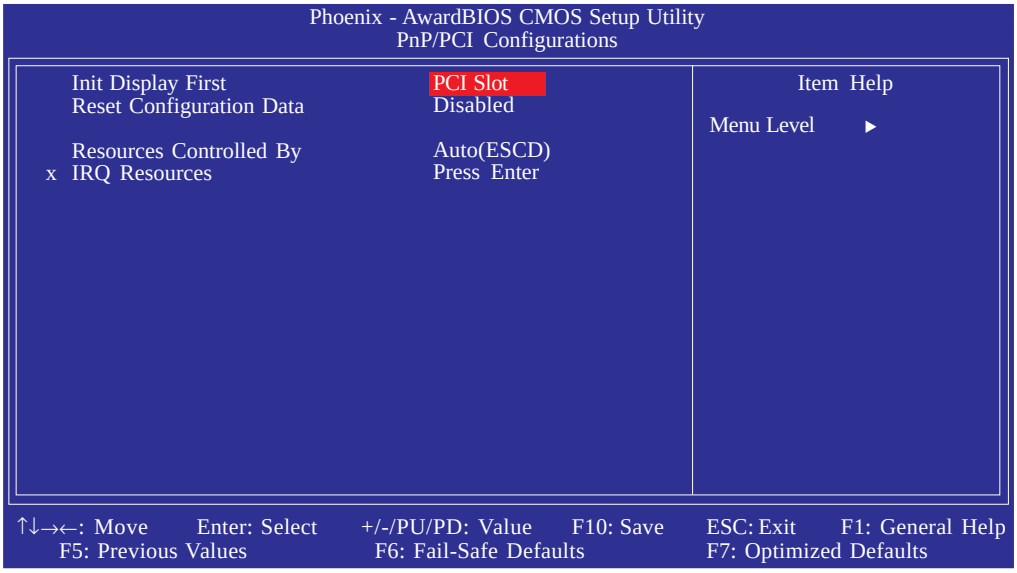
1-31 Select a date you would like the system to power-on. The system will power-on on the set date, and time set in the "Time (hh:mm:ss) Alarm" field.

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

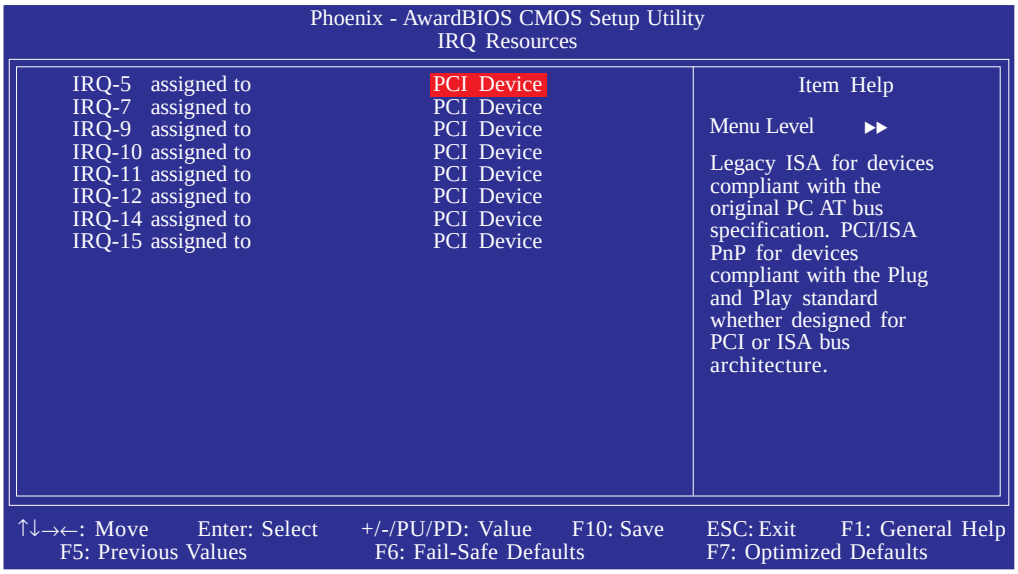
The Award Plug and Play BIOS has the capability to automatically configure all of the boot and Plug and Play compatible devices.

Auto(ESCD) The system will automatically detect the settings for you.

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

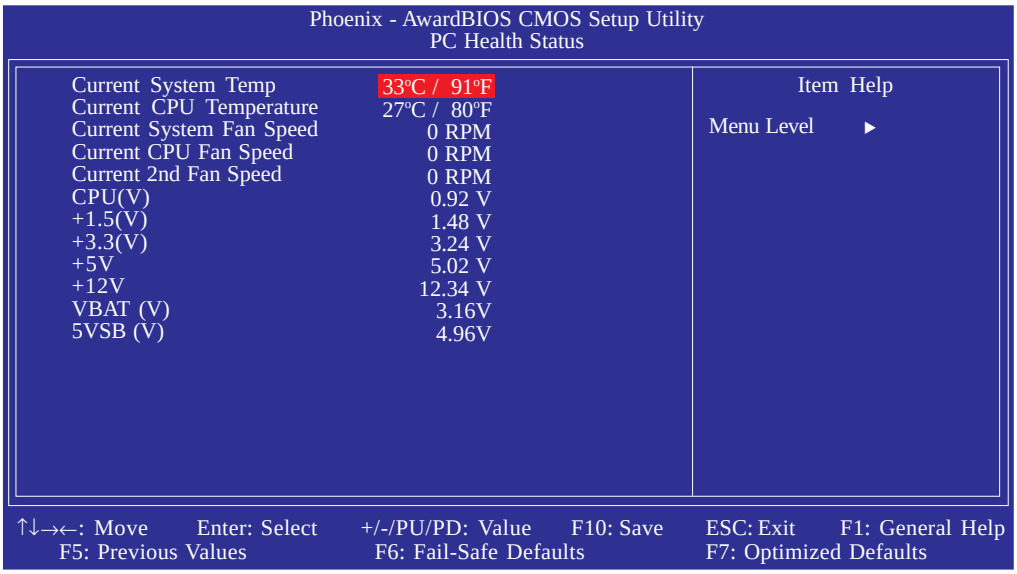
IRQ Resources

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.

PC Health Status



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

Current System Temp to Current 2nd Fan Speed

These fields will show the internal temperature of the system, current temperature of the CPU, and the current fan speed of the cooling fans in RPM (Revolutions Per Minute).

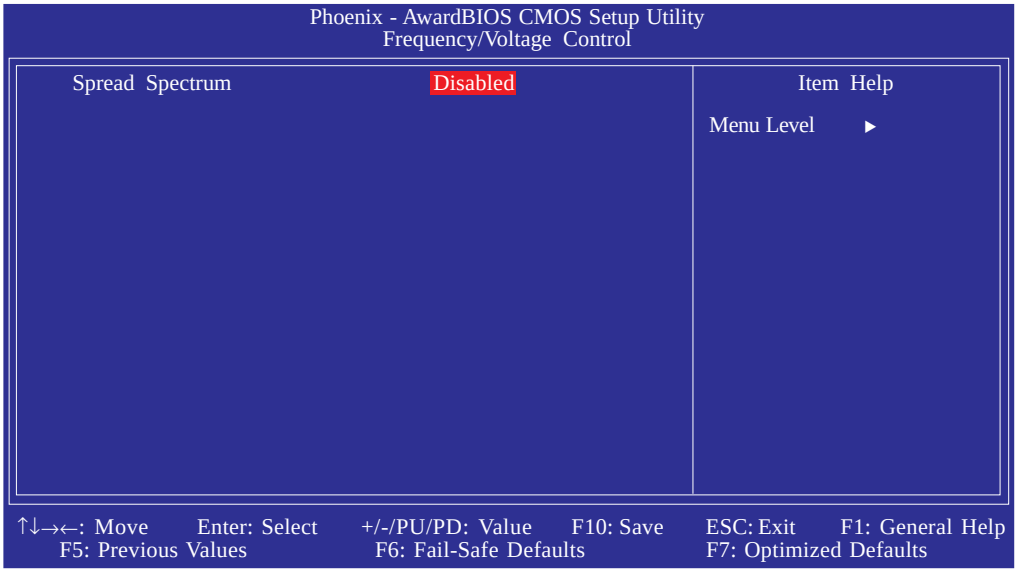
CPU(V) to 5VSB(V)

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

Note:

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

Frequency/Voltage Control



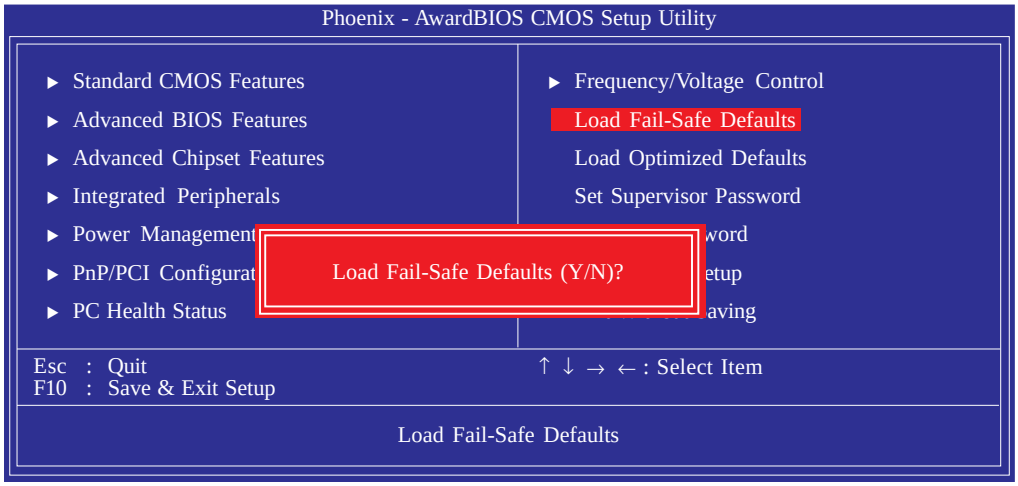
The settings on the screen are for reference only. Your version may not be identical to this one.

Spread Spectrum

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

Load Fail-Safe Defaults

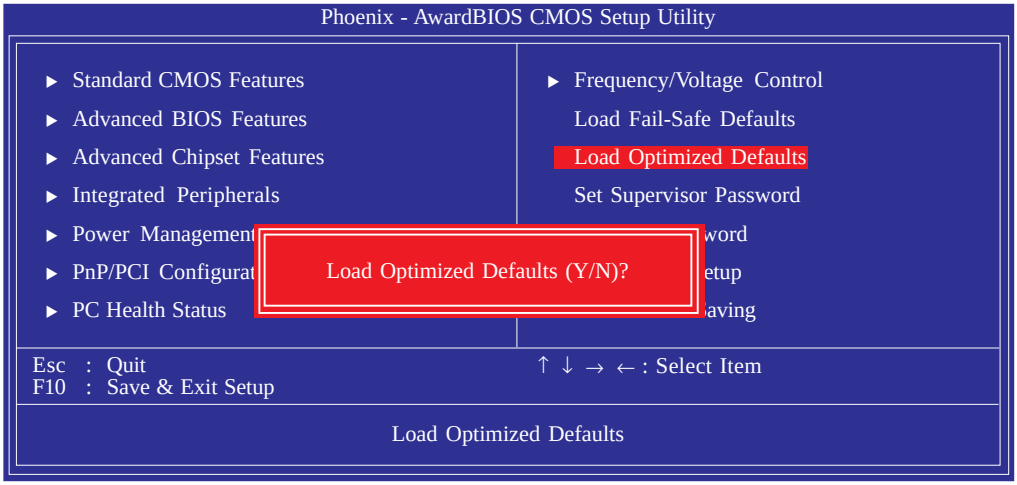
The "Load Fail-Safe Defaults" option loads the troubleshooting default values permanently stored in the ROM chips. These settings are not optimal and turn off all high performance features. You should use these values only if you have hardware problems. Highlight this option in the main menu and press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



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

Load Optimized Defaults

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

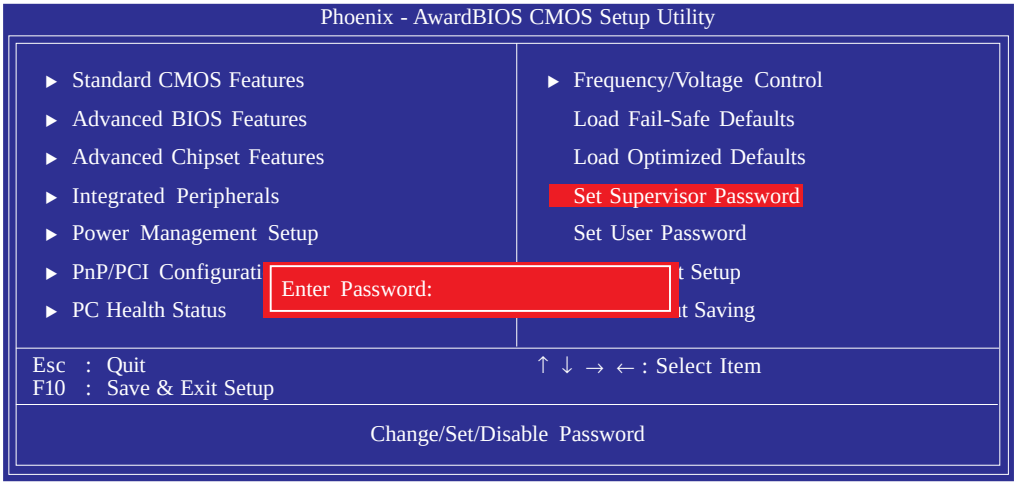


Type <Y> and press <Enter> to load the Setup default values.

Set Supervisor Password

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

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



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

Confirm Password:

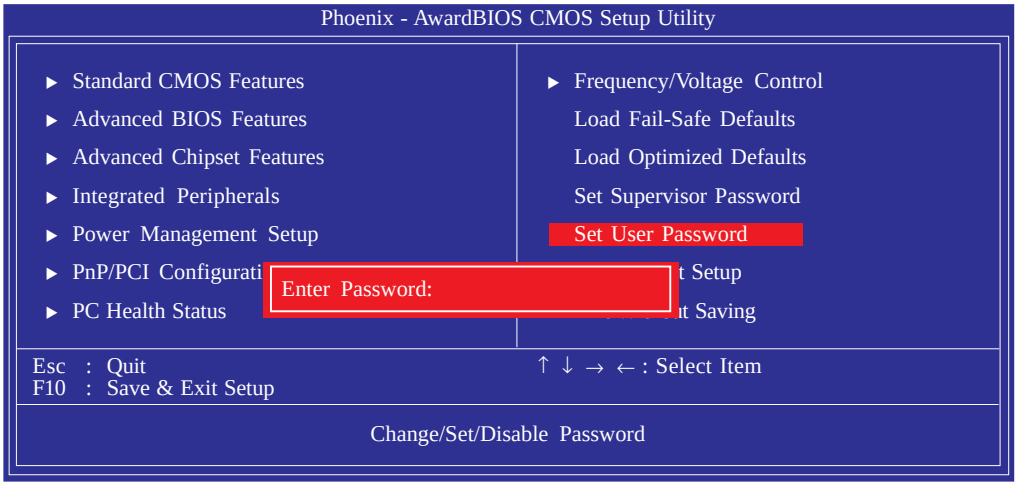
You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set Supervisor Password" and press <Enter>, instead of typing in a new password. Press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

Set User Password

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

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

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



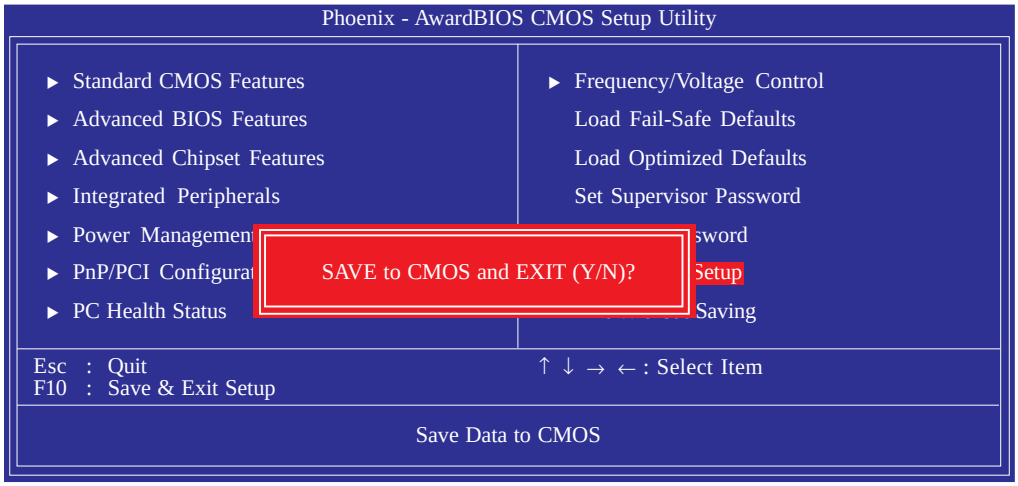
Type in the password. You are limited to eight characters. When done, the message below will appear:

Confirm Password:

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

Save & Exit Setup

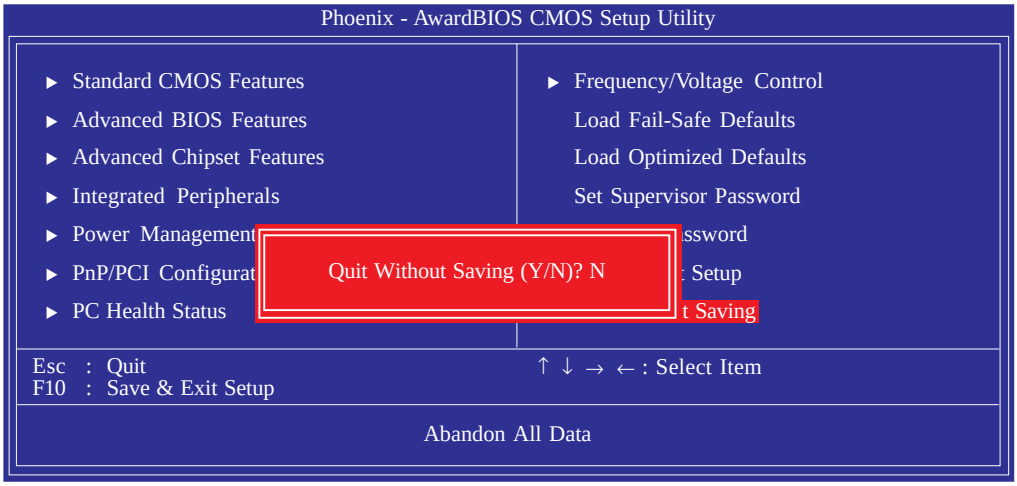
When all the changes have been made, highlight "Save & Exit Setup" and press <Enter>.



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

Exit Without Saving

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

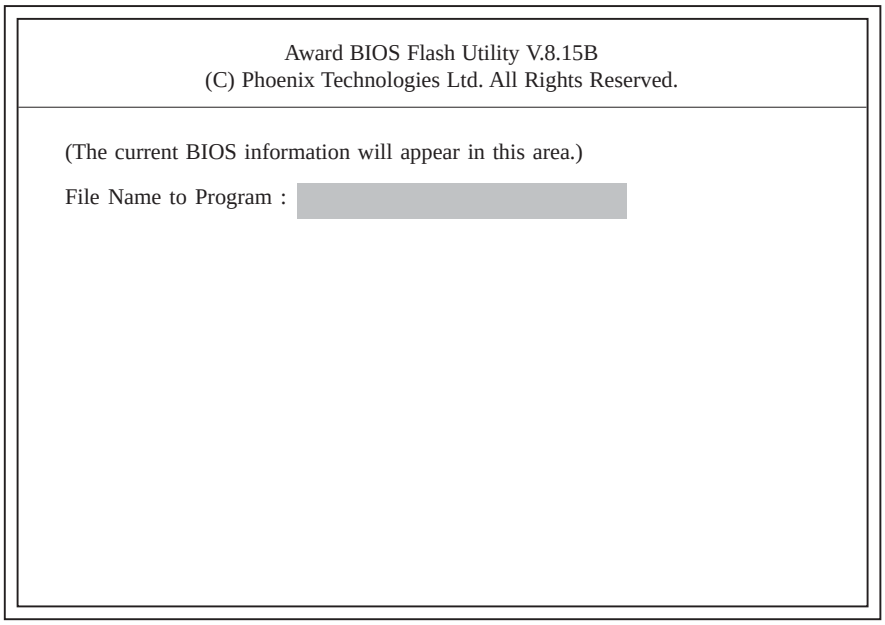


Type "Y" and press <Enter>. The system will reboot and you will once again see the initial diagnostics on the screen. If you wish to make any changes to the setup, press <Ctrl> <Alt> <Esc> simultaneously or <Del> after memory testing is done.

Updating the BIOS

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

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



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

6. The following will appear:

   Do You Want to Save BIOS (Y/N)

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

7. The following will then appear:

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

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

Chapter 4 - Supported Software

Drivers, Utilities and Software Applications

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".

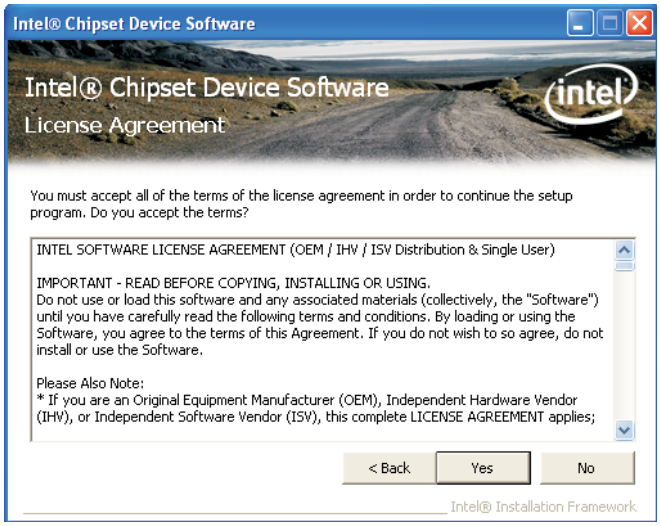
Intel Chipset Software Installation Utility

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.

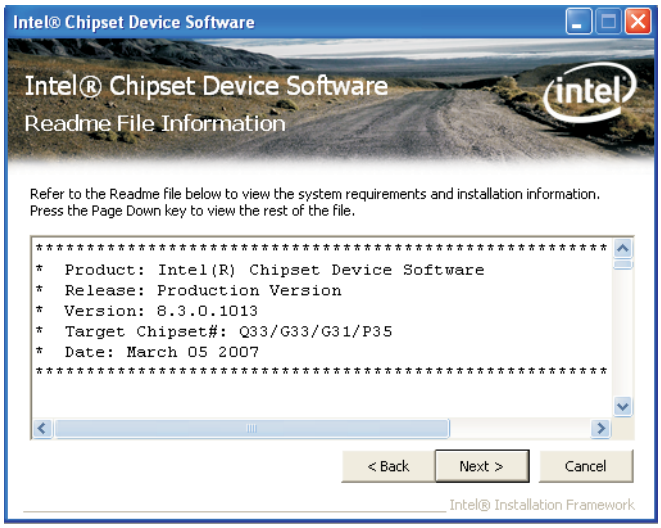
To install the utility, click "Intel Chipset Software Installation Utility" on the main menu.

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

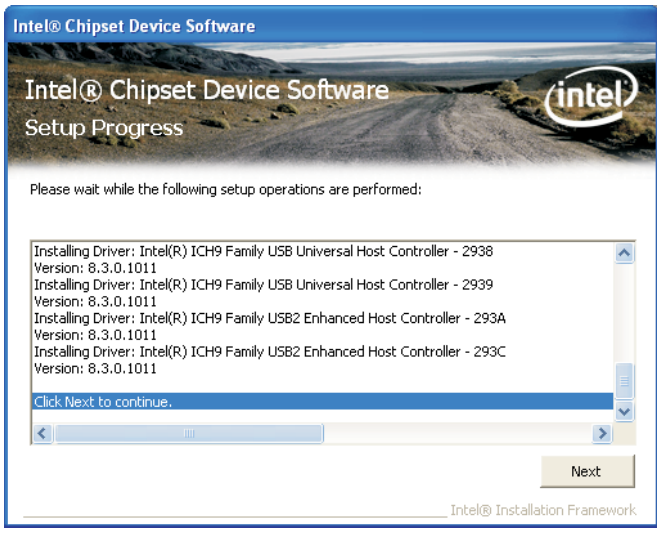
2. Read the license agreement then click Yes.



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



4. After all setup operations are done, click Next.

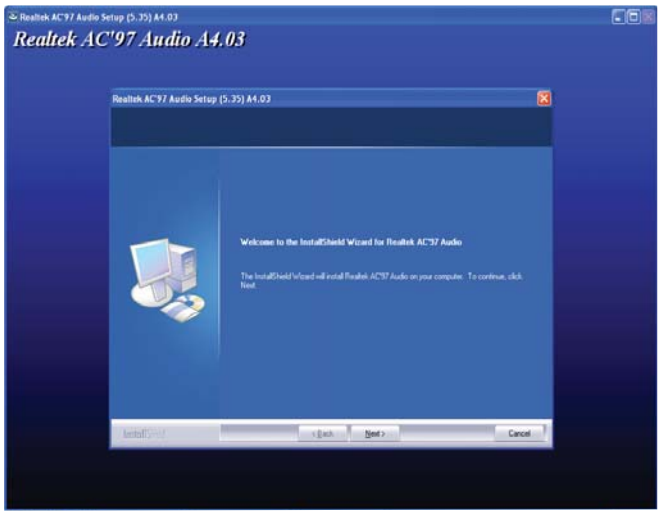


5. Click Finish to exit setup.

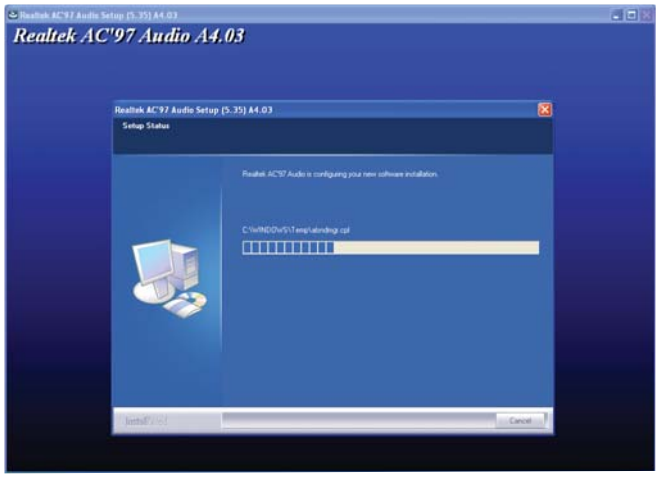
Audio Drivers

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

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



2. The installation wizard will extract the files needed to install AC97 audio. After all files have been extracted, click Next.



3. Follow the prompts on the screen to complete installation.

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

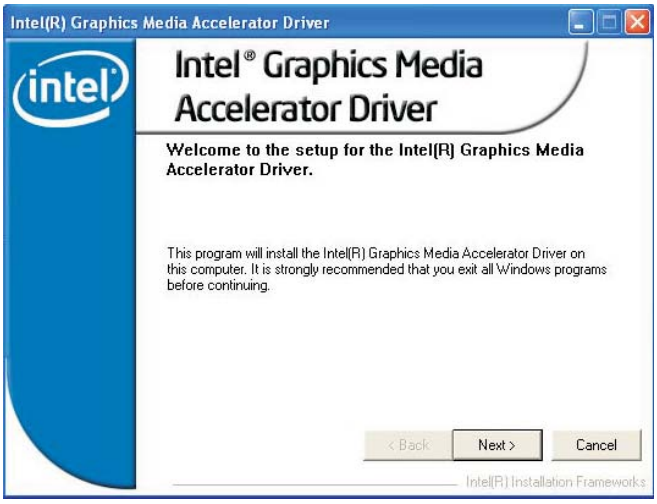
   Restarting the system will allow the new software installation to take effect.

4 Supported Software

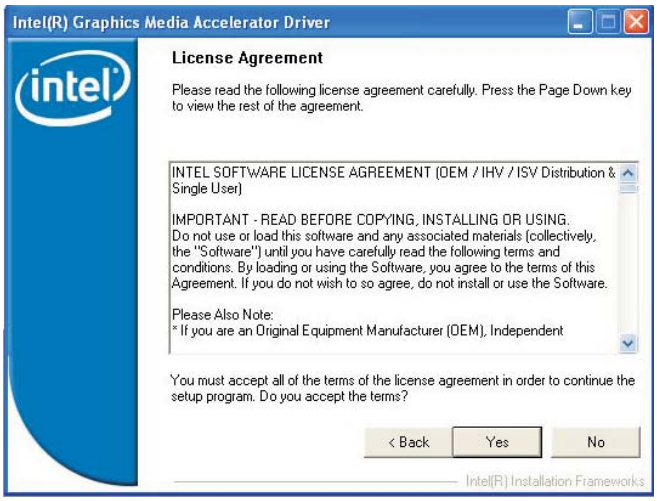
Intel Graphics Drivers

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

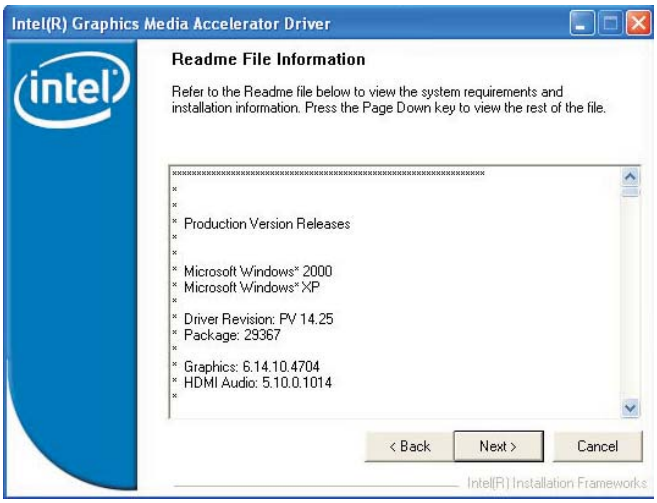
1. Setup is now ready to install the graphics driver. Click Next.



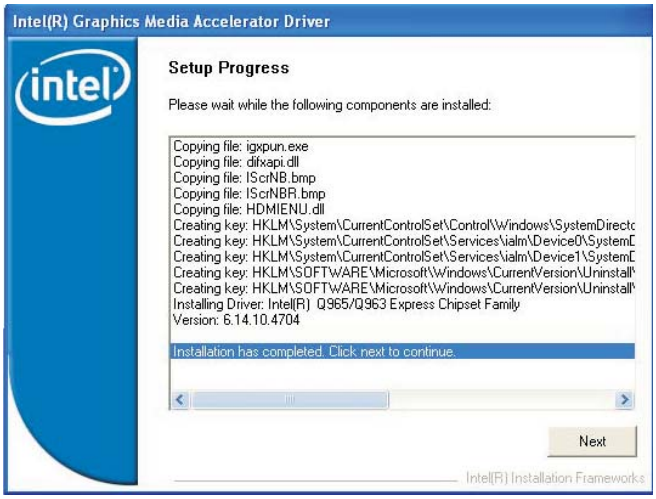
2. Read the license agreement then click Yes.



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

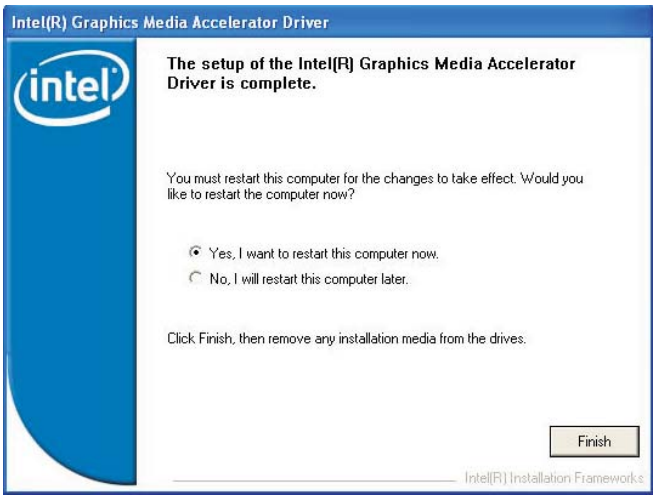


4. Setup is currently installing the driver. After installation has completed, click Next.



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

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

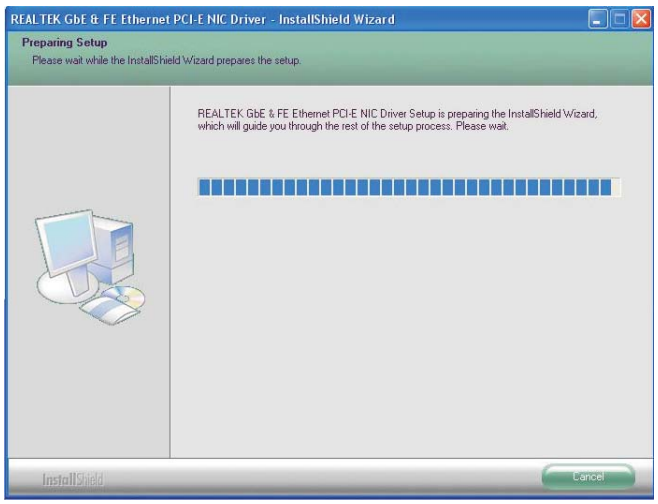


4 Supported Software

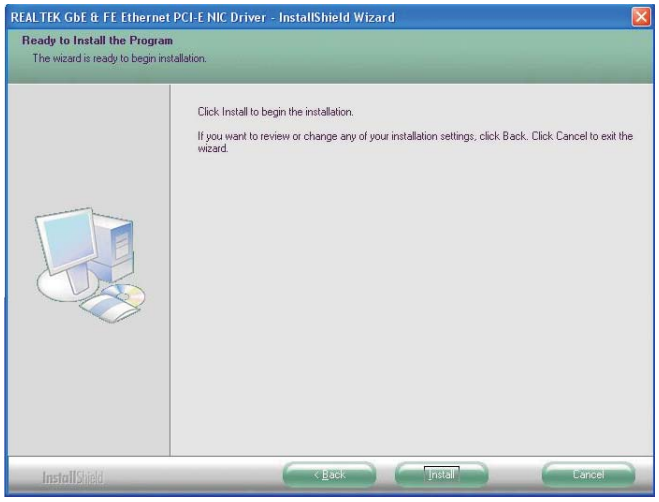
LAN Drivers

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

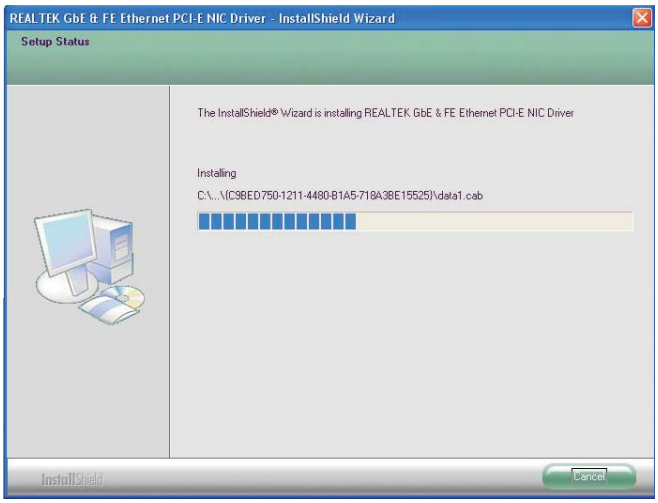
1. The installation wizard will extract the files needed to install the driver.



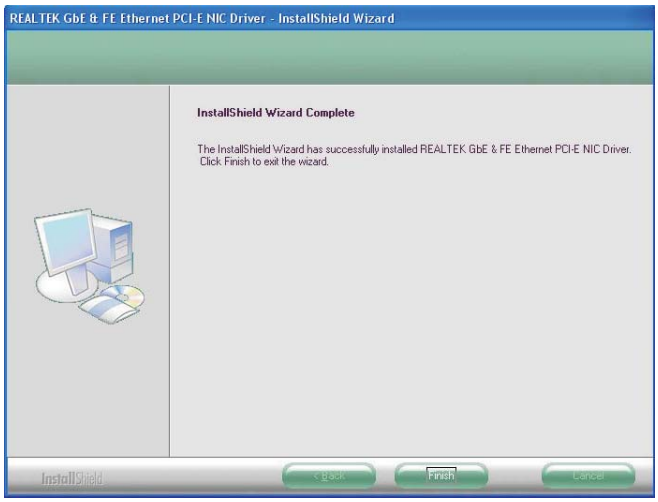
2. You are now ready to install the driver. Click Install.



3. Setup is currently installing the driver.



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

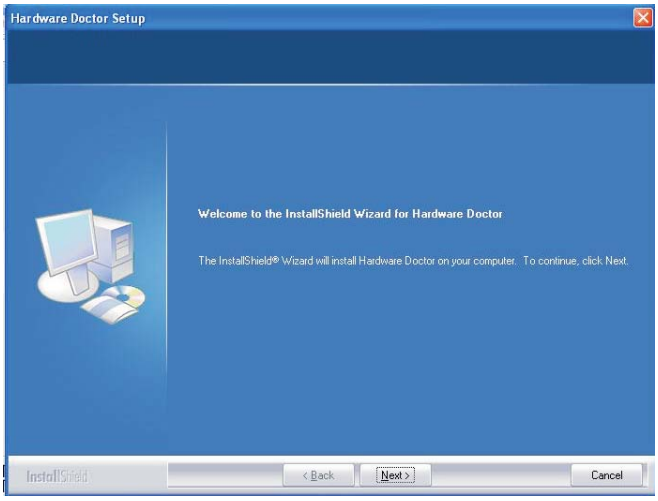


Hardware Monitor for Windows

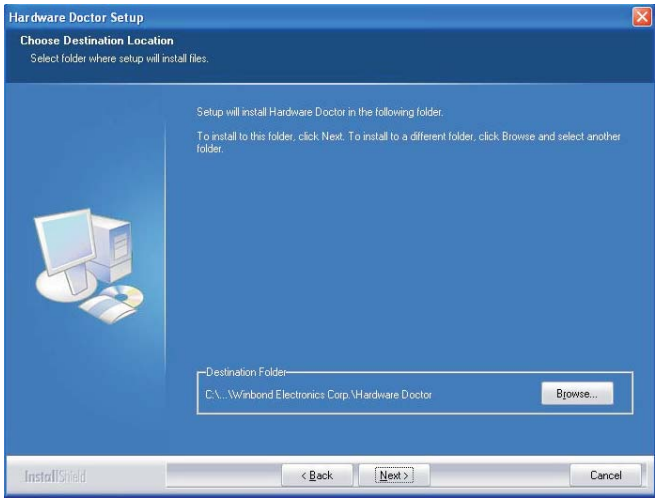
The Hardware Monitor for Windows utility is capable of monitoring the system's temperature, fan speed, voltage, etc. and allows you to manually set a range (Highest and Lowest Limit) to the items being monitored. If the settings/values are over or under the set range, a warning message will pop-up. The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

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

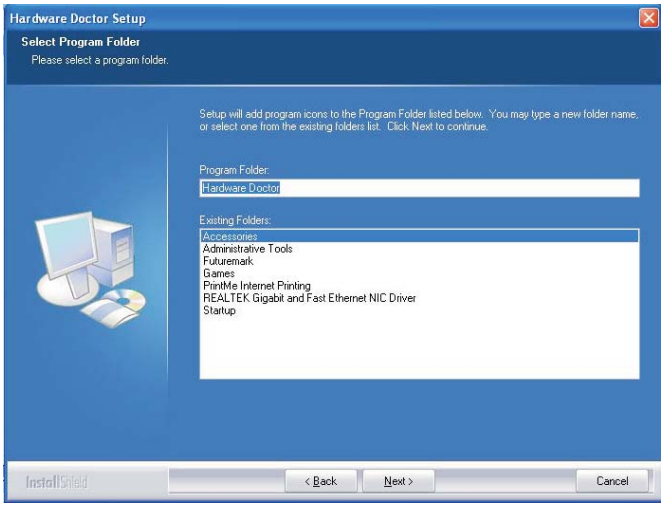
1. Setup is now ready to install the utility. Click Next.



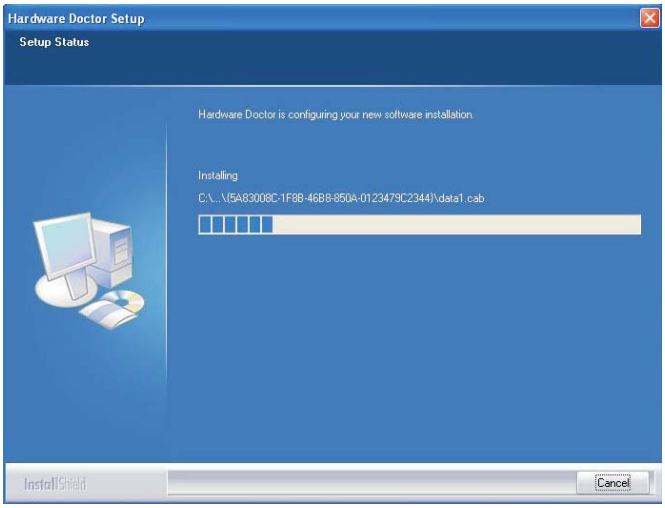
2. Click Next to install or click Browse to select another folder.



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

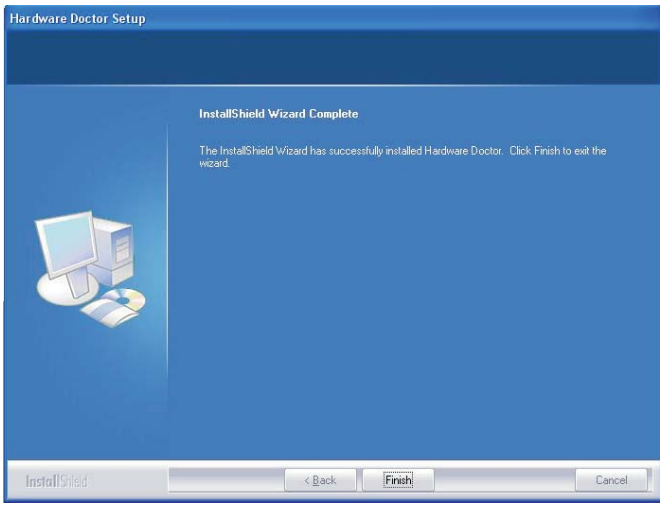


4. Hardware Doctor is configuring the new software installation.



5. Follow the prompts on the screen to complete the installation then click Finish.

   Restarting the system will allow the driver to take effect.

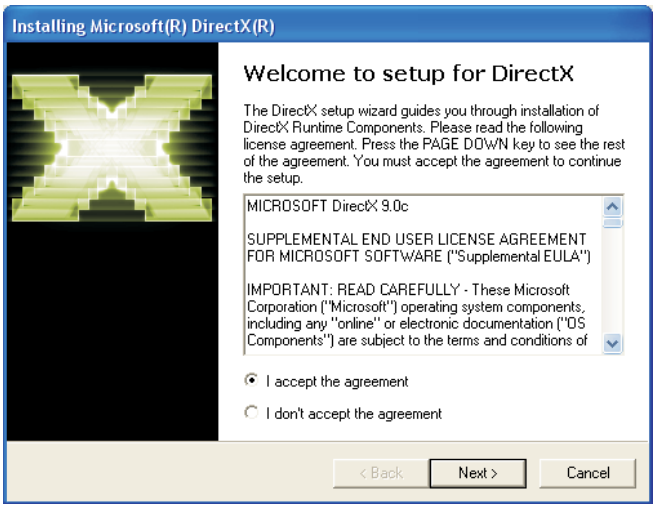


4 Supported Software

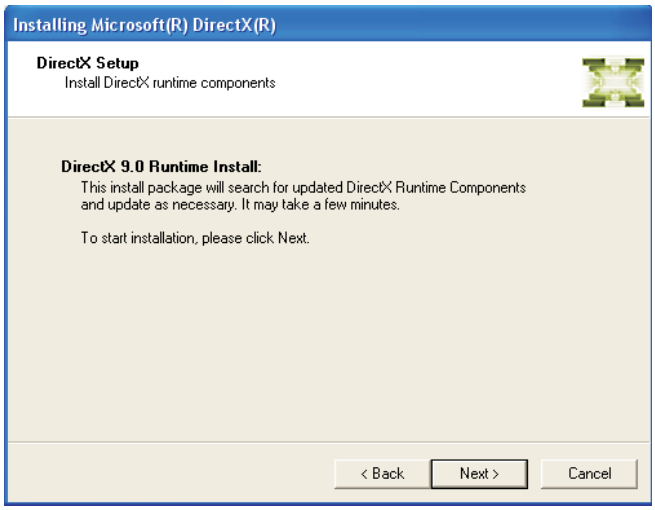
Microsoft DirectX 9.0C Driver

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

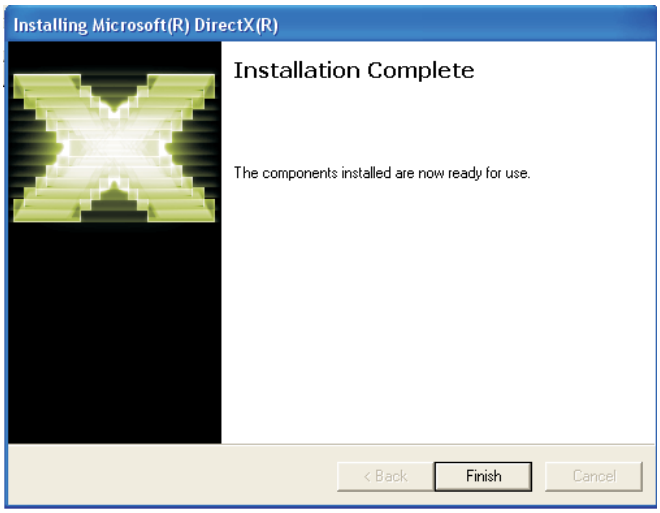
1. Click "I accept the agreement" then click Next.



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



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



Intel Matrix Storage Manager Utility

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

Note:
This utility is supported only when the SATA Mode field is set to AHCI. (The SATA Mode field is in the Integrated Peripherals submenu of the BIOS utility.)

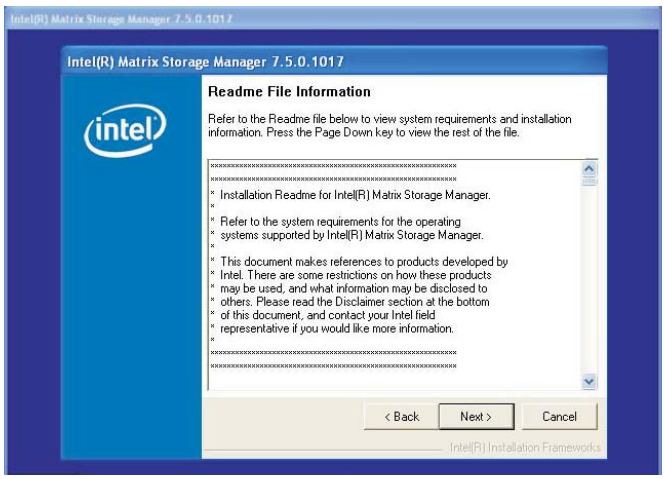
To install the utility, click "Intel Matrix Storage Manager Utility" on the main menu.

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

2. Read the Warning information carefully then click Next.

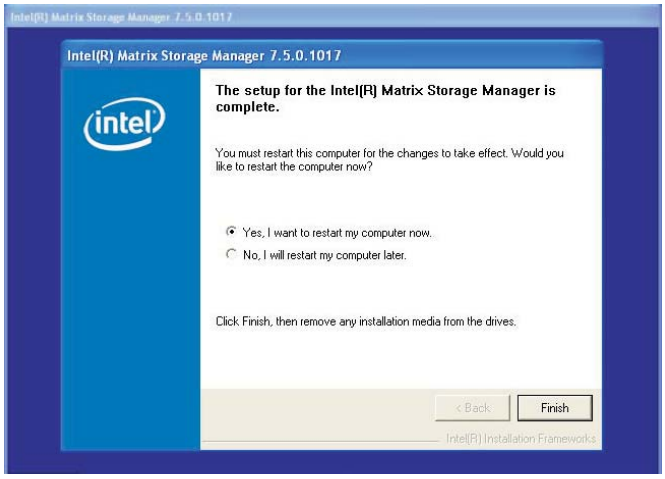
3. Read the license agreement then click Yes.

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.

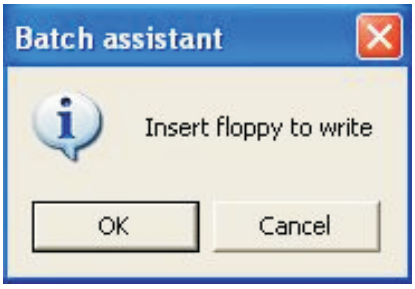


AHCI for F6 During Windows Setup Floppy Driver

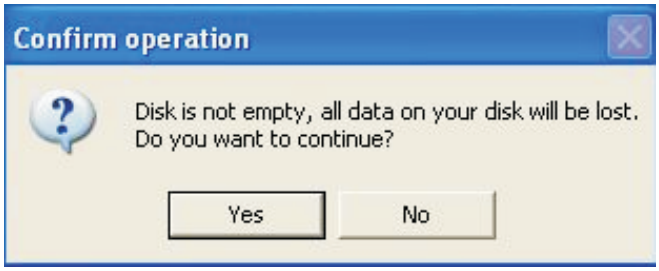
This is used to create a floppy driver diskette needed when you install Windows® XP using the F6 installation method. This will allow you to install the operating system onto a hard drive when in AHCI mode.

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

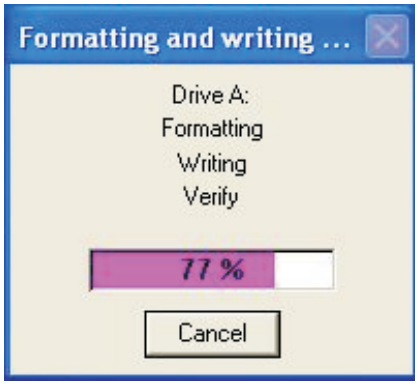
1. Insert a blank floppy diskette then click OK.



2. Make sure you have a backup of the data in the disk. Clicking Yes will erase all data.



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



Installing the AHCI Driver During Windows XP Installation

The AHCI driver must be installed during the Windows® XP installation using the F6 installation method. 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.
2. Press <F6> when prompted in the status line with the 'Press F6 if you need to install a third party driver' message.
3. Press <S> to "Specify Additional Device".
4. At this point you will be prompted to insert a floppy disk containing the AHCI driver. Insert the provided floppy diskette.
5. Locate for the drive where you inserted the diskette then select AHCI controller that corresponds to your BIOS setup. Press <Enter> to confirm.

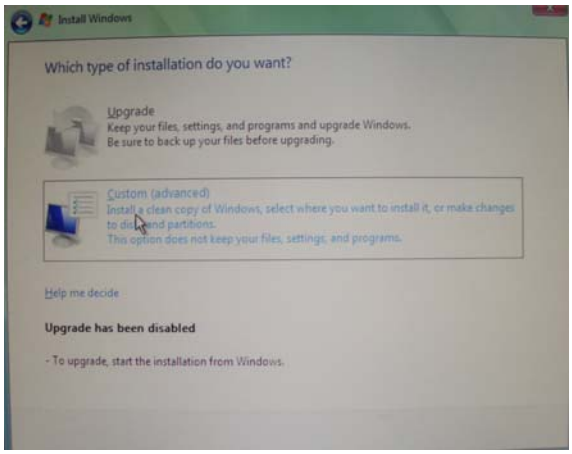
You have successfully installed the driver. However you must continue installing the OS. Leave the floppy disk in the floppy drive until the system reboots itself because Windows setup will need to copy the files again from the floppy disk to the Windows installation folders. After Windows setup has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

Installing the AHCI Driver During Windows Vista Installation

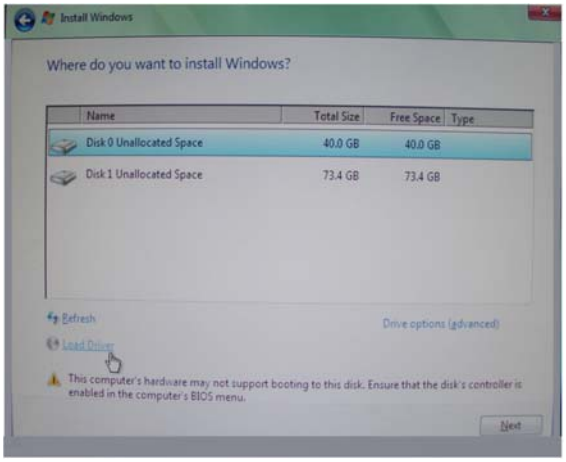
The AHCI driver must be installed during the Windows® Vista installation. This is required in order to install the operating system onto a hard drive that is in AHCI mode.

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).

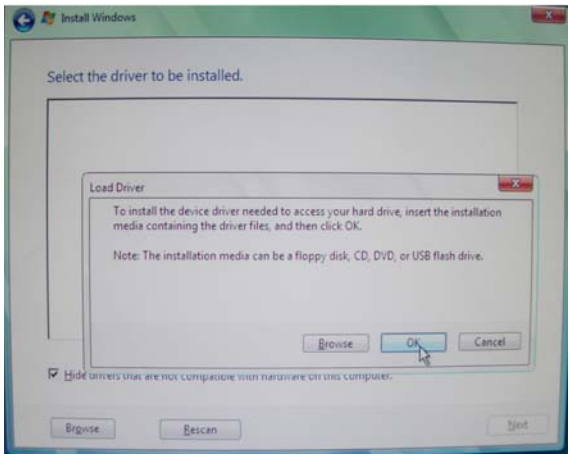


2. Select Load Driver.

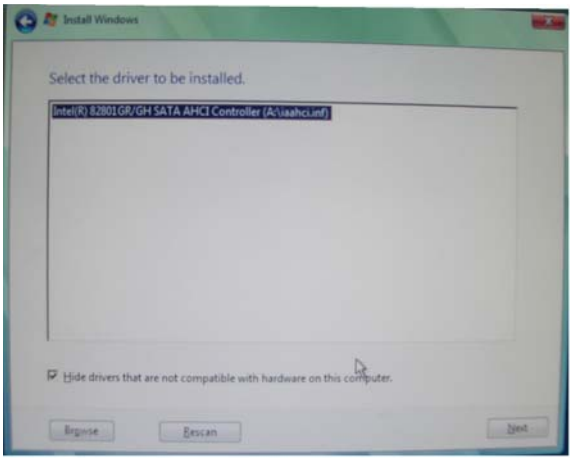


3. Insert the floppy diskette that contains the driver then click OK.

   You can create the driver diskette by using the files included in the provided CD.



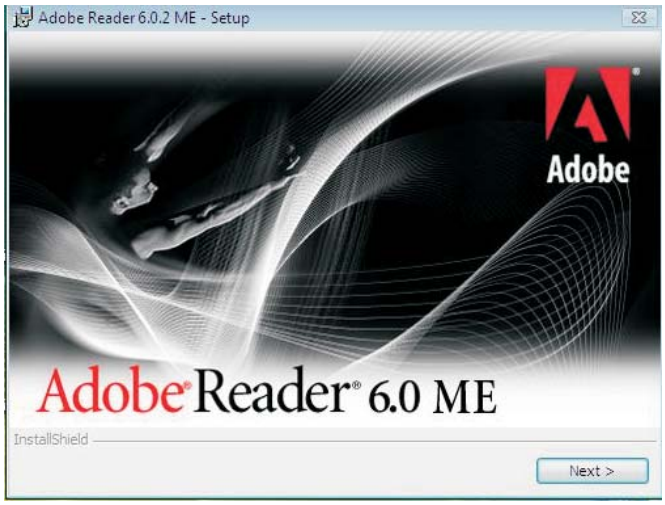
4. The screen on the right will appear.



Adobe Acrobat Reader 6.0 (English Version)

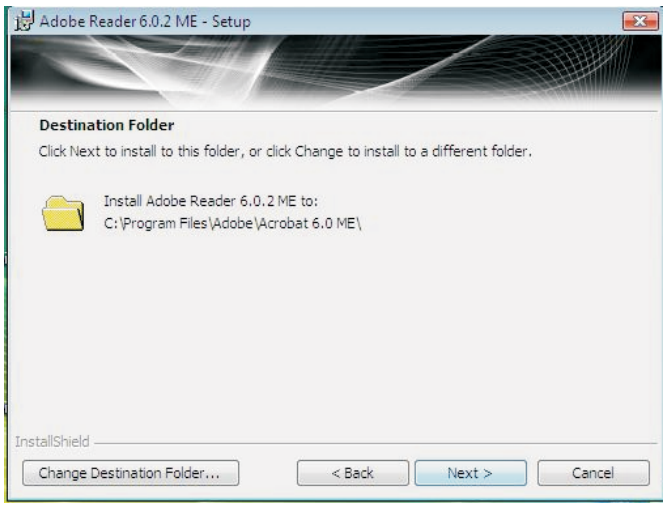
To install, click "Adobe Acrobat Reader 6.0 (English Version)" on the main menu.

1. Click Next to continue.

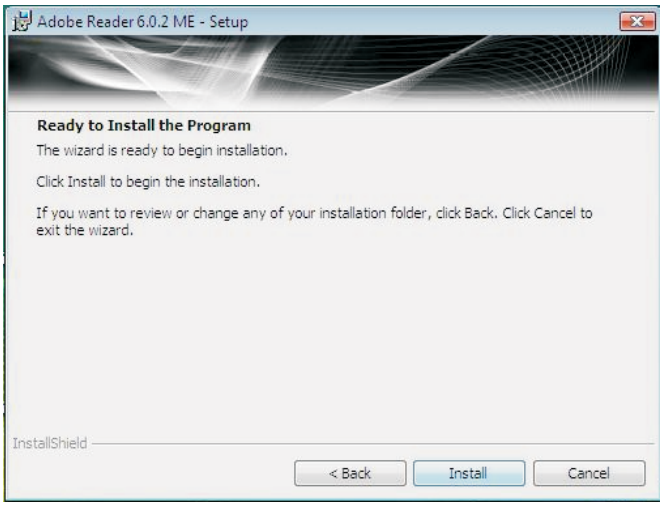


2. Setup is now ready to install. Click Next.

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



4. Click Install to begin installation.



5. Click Finish to exit installaion.

Appendix A - Watchdog Timer

Watchdog Timer

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

mov dx,04e <Enter>
mov al,87 <Enter>
out dx,al <Enter>
out dx,al <Enter>
mov dx,04e <Enter>
mov al,07 <Enter>
out dx,al <Enter>
inc dx <Enter>
inc al <Enter>
out dx,al <Enter>
dec dx <Enter>
mov al,f6 <Enter>
out dx,al <Enter>
inc dx <Enter>
mov al,xy <Enter>
out dx,al <Enter>

"XY" is the Watchdog Time count value for the "00h to "FFh" range wherein the time can be set from 0 sec. to 255 sec.

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 or DEL TO ENTER SETUP, will be shown in the information box at the bottom. Enter Setup to correct the error.

POST Beep

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

Error Messages

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

CMOS BATTERY HAS FAILED

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

Caution:

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

CMOS CHECKSUM ERROR

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

DISPLAY SWITCH IS SET INCORRECTLY

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

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

FLOPPY DISK(S) fail (80)
Unable to reset floppy subsystem.

FLOPPY DISK(S) fail (40)
Floppy type mismatch.

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

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

Hard Disk(s) fail (20)
HDD initialization error.

Hard Disk(s) fail (10)
Unable to recalibrate fixed disk.

Hard Disk(s) fail (08)
Sector Verify failed.

Keyboard is locked out - Unlock the key
The BIOS detects that the keyboard is locked. Keyboard controller is pulled low.

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

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

BIOS ROM checksum error - System halted
The checksum of ROM address F0000H-FFFFFH is bad.

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

Appendix 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.

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

Serial Port

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

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

Keyboard

Nothing happens when a key on the keyboard was pressed.

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

System Board

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