LR100-N16/N18 SERIES

System Board User's Manual

A12530117

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FCC and DOC Statement on Class B

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

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

Notice:

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

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About this Manual

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

Warranty

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

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

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

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

Static Electricity Precautions

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

1. To prevent electrostatic build-up, leave the system board in its anti-static bag until you are ready to install it.

2. Wear an antistatic wrist strap.

3. Do all preparation work on a static-free surface.

4. Hold the device only by its edges. Be careful not to touch any of the components, contacts or connections.

5. Avoid touching the pins or contacts on all modules and connectors. Hold modules or connectors by their ends.

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

Safety Measures

To avoid damage to the system:
- Use the correct AC input voltage range.

To reduce the risk of electric shock:
- Unplug the power cord before removing the system chassis cover for installation or servicing. After installation or servicing, cover the system chassis before plugging the power cord.

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

About the Package

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

☑ One system board
☑ One IDE cable
☑ One USB cable
☑ One Serial ATA cable
☑ One Serial ATA power cable
☑ One bracket mounted with a COM port
☑ One I/O shield
☑ One CD
☑ One QR (Quick Reference)

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

Before Using the System Board

Before using the system board, prepare basic system components.

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

- 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.

Specifications

Processor	• Intel® Atom™ D510 (Dual Core) - LR100-N16D Intel® Atom™ D410 (Single Core) - LR100-N16S Intel® Atom™ N450 (Single Core) - LR100-N16M Intel® Atom™ D525 (Dual Core) - LR100-N18D Intel® Atom™ D425 (Single Core) - LR100-N18S Intel® Atom™ N455 (Single Core) - LR100-N18M • On die 2 x 512KB (LR100-N16D/N18D), 1 x 512KB (LR100-N16S/N16M/N18S/N18M); 8-way L2 cache • C0 and C1 C-states - LR100-N16D/N16S/N18D/N18S C0/C1(E)/C2(E)/C4(E) C-states - LR100-N16M/N18M • 1.66GHz core frequency (LR100-N16D/N16S/N16M/N18M), 1.8GHz core frequency (LR100-N18D/N18S); 1.10V voltage • IA 32-bit and Intel® 64 architecture • Micro-FCBGA8 packaging technologies • Cooling option: heat sink with cooling fan - LR100-N16D/N18D; heat sink (fanless solution) - LR100-N16S/N16M/N18S/N18M
Southbridge	• Intel® ICH8M I/O Controller Hub
System Memory	• Two 200-pin SODIMM sockets • LR100-N16M/N18M - Supports DDR2 667MHz only LR100-N16D/N16S/N18D/N18S - Supports DDR2 667/800MHz only • LR100-N16M/N18M - Supports up to 2GB system memory LR100-N16D/N16S/N18D/N18S - Supports up to 4GB system memory • Single channel memory interface • Supports x16 devices
Expansion Slots	• 1 PCIE x1 slot • 1 PCI slot • 1 CompactFlash socket

Graphics	LR100-N16D/N16S/N18D/N18S • Intel® GMA 3150 - Contains a refresh of the 3rd generation graphics core • 400MHz render clock frequency • Display ports: LVDS and RGB - Integrated single LVDS channel supports resolution up to 1366x768, 18bpp - Analog RGB display output up to resolution 2048x1536 @ 60Hz • DirectX 9 compliant Pixel Shader 2.0 LR100-N16M/N18M • Intel® GMA 3150 - Contains a refresh of the 3rd generation graphics core • 200MHz render clock frequency • Display ports: LVDS and RGB - Integrated single LVDS channel supports resolution up to 1280x800 or 1366x768 - Analog RGB display output up to resolution 1400x1050 @ 60Hz • DirectX 9 compliant Pixel Shader 2.0
Audio	• Realtek ALC262 2-channel High Definition Audio • High performance DACs with 100dB SNR • ADCs with 90dB SNR • Two stereo DACs support 24-bit PCM format for stereo audio playback • Three stereo ADCs support 20-bit PCM format for multiple input streaming • S/PDIF audio interface
LAN	• Intel 82567V Gigabit Ethernet Phy and Realtek RTL8111C PCI Express Gigabit Ethernet controller • 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	• 3 Serial ATA ports compliant with SATA 1.0 specification • SATA speed up to 3Gb/s (SATA 2.0)
Rear Panel I/O Ports	• Mini-DIN-6 ports: PS/2 mouse port and PS/2 keyboard port • 3 DB-9 RS232 serial ports - Pins 1 and 9 of COM2 functions as RS232 signal or power (selectable via jumper) • 1 DB-15 VGA port • 2 RJ45 LAN ports • 4 USB 2.0/1.1 ports • Mic-in, line-in and line-out

I/O Connectors	• 3 connectors for 6 external USB 2.0/1.1 ports • 1 connector for an external RS232/422/485 serial port • 1 LVDS LCD panel connector • 1 LCD/inverter power connector • 1 8-bit DIO connector • 1 DIO power connector • 1 front audio connector for line-out and mic-in jacks • 1 CD-in connector • 1 S/PDIF connector • 3 Serial ATA connectors • 1 40-pin IDE connector • 1 24-pin ATX power connector • 1 front panel connector • 1 chassis intrusion connector • 2 fan connectors
BIOS	• AMI BIOS • SPI BIOS
Energy Efficient Design	• ACPI 1.0a specification • System Power Management • Wake-On-Events include: - Wake-On-USB Keyboard/Mouse - Wake-On-LAN - Wake-On-Ring - RTC timer to power-on the system • AC power failure recovery
Damage Free Intelligence	• Monitors CPU/system temperature and overheat alarm • Monitors 5V/1.05V/1.8V/12V/3VSB/VBAT/VCORE voltages and failure alarm • Monitors system fan speed and failure alarm • Read back capability that displays temperature, voltage and fan speed • Watchdog timer function
Temperature	• 0°C to 60°C
Humidity	• 10% to 90%
PCB	• Mini-ITX form factor • 170mm (6.7") x 170mm (6.7")

Features

Watchdog Timer

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

CompactFlash

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

DDR2

DDR2 is a higher performance DDR technology whose data transfer rate delivers bandwidth of 4.3 GB per second and beyond. That is twice the speed of the conventional DDR without increasing its power consumption. DDR2 SDRAM modules work at 1.8V supply compared to 2.6V memory voltage for DDR modules. DDR2 also incorporates new innovations such as the On-Die Termination (ODT) as well as larger 4-bit pre-fetch against DDR which fetches 2 bits per clock cycle.

Graphics

The Intel® chipset features sophisticated graphics for large display applications. Graphics interfaces such as VGA and LVDS support multiple graphics display options.

PCI Express

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

S/PDIF

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

Serial ATA

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

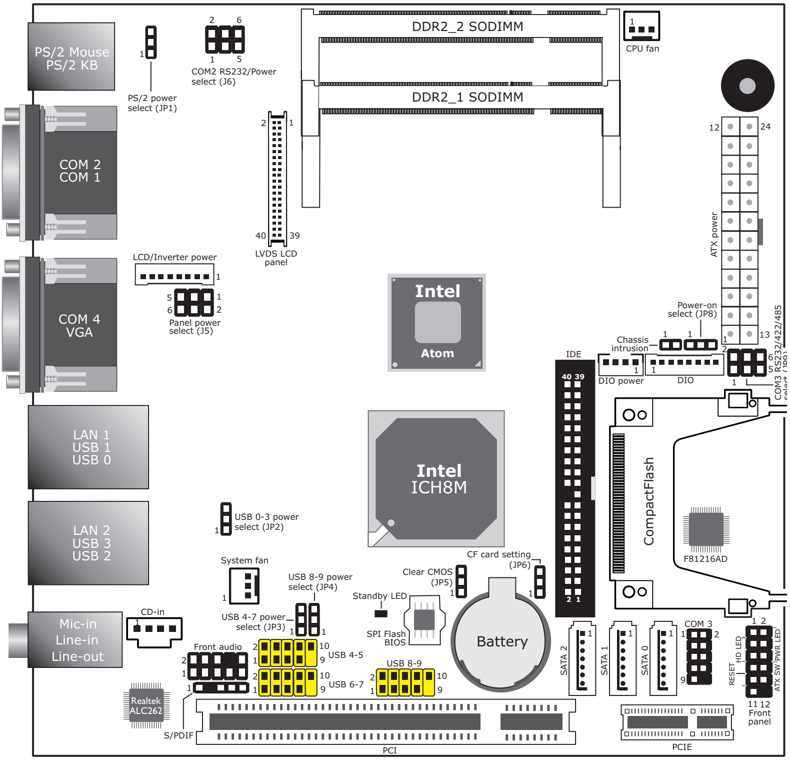
Gigabit LAN

The Intel 82567V and 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.

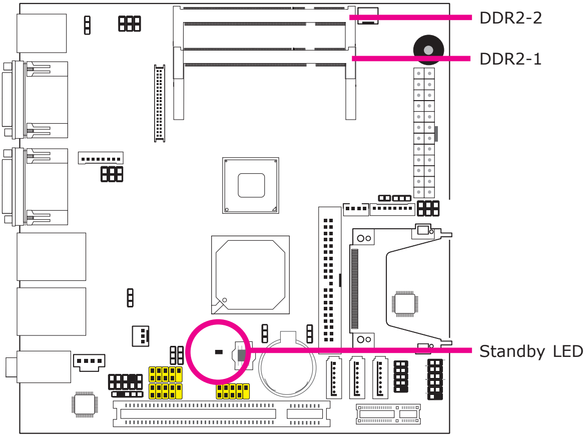
System Board Layout


PS/2 Mouse
PS/2 KB
COM 2
COM 1
COM 4
VGA
LAN 1
USB 1
USB 0
LAN 2
USB 3
USB 2
Mic-in
Line-in
Line-out
Realtek ALC262
PS/2 power select (JP1)
COM2 RS232/Power select (J6)
DDR2_2 SODIMM
DDR2_1 SODIMM
CPU fan
LVDS LCD panel
LCD/Inverter power
Panel power select (J5)
Intel Atom
ATX power
Power-on select (JP8)
Chassis intrusion
DIO power
DIO
IDE
COM3 RS232/422/485
Intel ICH8M
CompactFlash
F81216AD
USB 0-3 power select (JP2)
System fan
USB 8-9 power select (JP4)
Standby LED
Clear CMOS (JP5)
CF card setting (JP6)
CD-in
USB 4-7 power select (JP3)
SPI Flash BIOS
Battery
Front audio
USB 4-5
USB 6-7
USB 8-9
SATA 2
SATA 1
SATA 0
COM 3
RESET
HD LED
ATX SW
PWR LED
Front panel
S/PDIF
PCI
PCIE

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

System Memory

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



The system board supports two DDR2 SODIMM sockets.

Installing the DIM Module

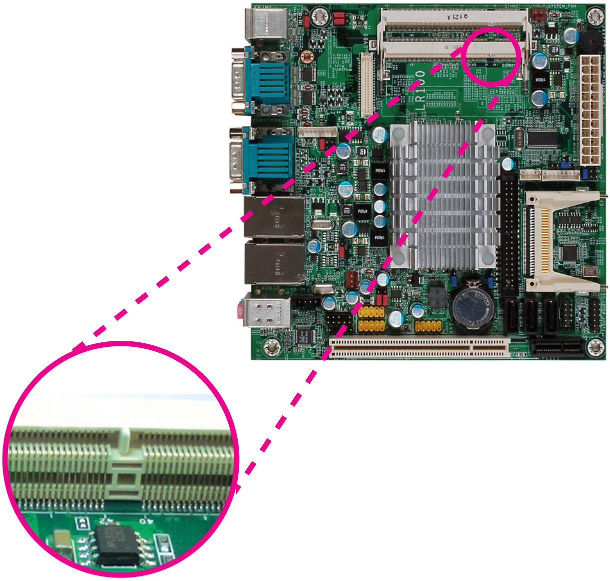
Note:
The system board used in the following illustrations may not resemble the actual one. These illustrations are for reference only.

1. Make sure the PC and all other peripheral devices connected to it has been powered down.

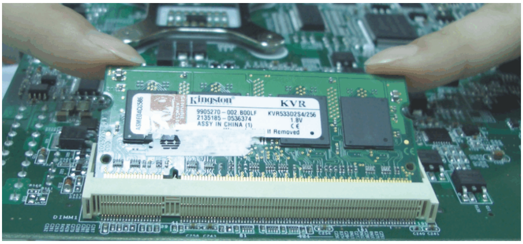
2. Disconnect all power cords and cables.

3. Locate the SODIMM socket on the system board.

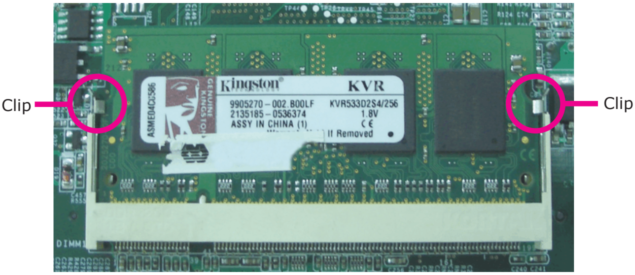
4. Note the key on the socket. The key ensures the module can be plugged into the socket in only one direction.



5. Grasping the module by its edges, align the module into the socket at an approximately 30 degrees angle. Apply firm even pressure to each end of the module until it slips down into the socket. The contact fingers on the edge of the module will almost completely disappear inside the socket.

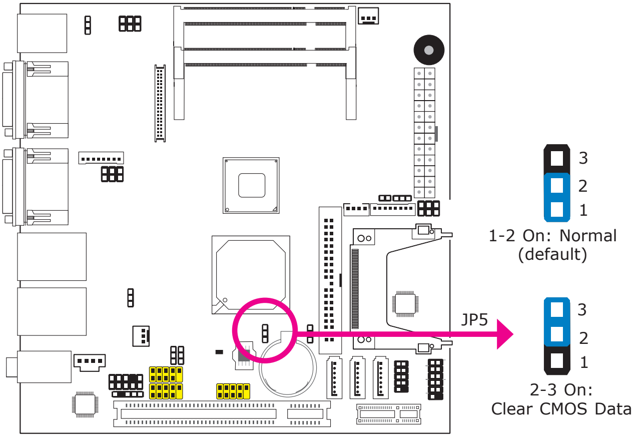


6. Push down the module until the clips at each end of the socket lock into position. You will hear a distinctive "click", indicating the module is correctly locked into position.



Jumper Settings

Clear CMOS Data



If you encounter the following,

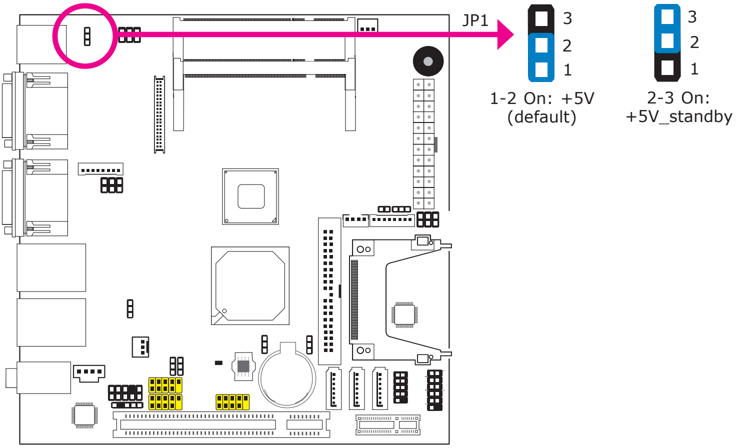
a) CMOS data becomes corrupted.
b) You forgot the supervisor or user password.

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.

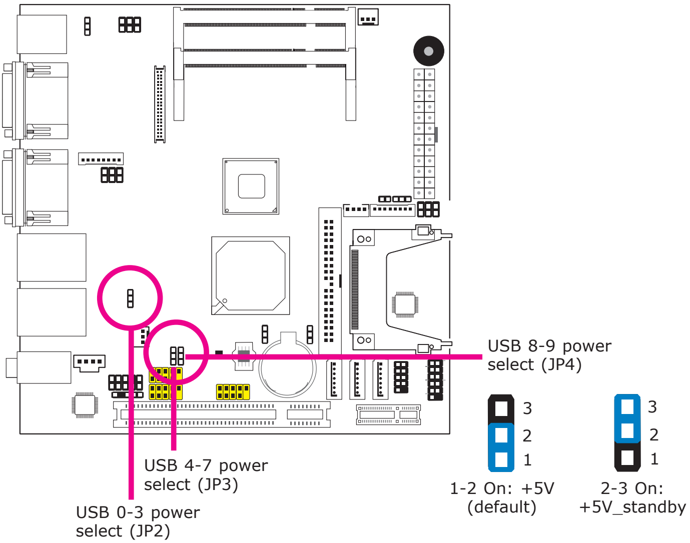
1. Power-off the system and unplug the power cord.
2. Set JP5 pins 2 and 3 to On. Wait for a few seconds and set JP5 back to its default setting, pins 1 and 2 On.
3. Now plug the power cord and power-on the system.

PS/2 Power Select


JP1
3
2
1
1-2 On: +5V
(default)
3
2
1
2-3 On:
+5V_standby

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.

USB Power Select


USB 8-9 power
select (JP4)
3
2
1
1-2 On: +5V
(default)
3
2
1
2-3 On:
+5V_standby
USB 4-7 power
select (JP3)
USB 0-3 power
select (JP2)

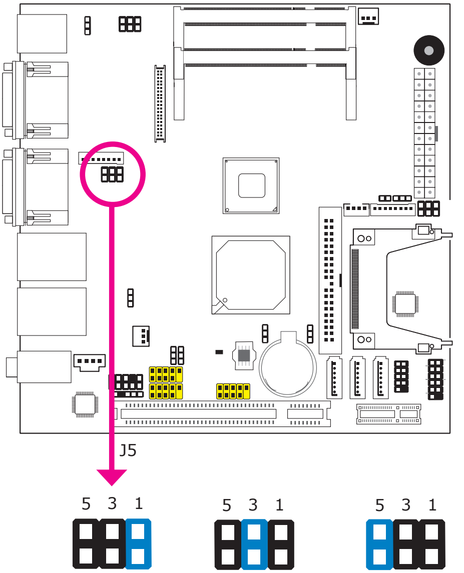
JP2 (for USB 0-3), JP3 (for USB 4-7) and JP4 (for USB 8-9) are used to select the power of the USB ports. Selecting +5V_standby will allow you to use a USB device to wake up the system.

BIOS Setting

“USB Device Wakeup From S3” in the Advanced menu (“ACPI Configuration” 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 ≥1.5A. For 3 or more USB ports, the +5V_standby power source of your power supply must support ≥2A.

Panel Power Select



1-2 On: +12V

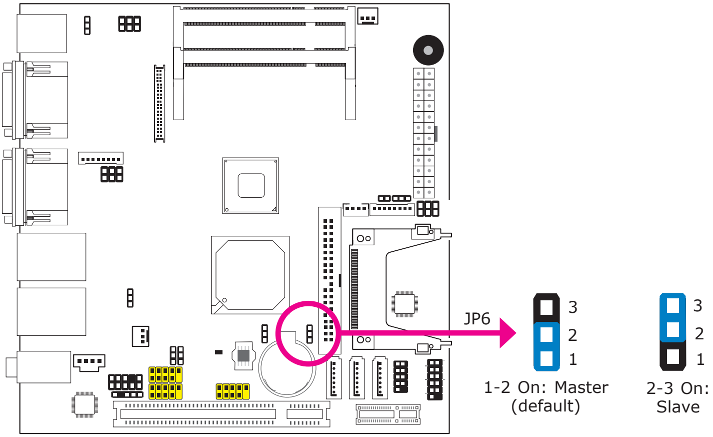
3-4 On: +5V

5-6 On: +3.3V (default)

J5 is used to select the power supplied to the LCD panel.

Important:
Before powering-on the system, make sure J5's setting matches the LCD panel's specification. Selecting the incorrect voltage will seriously damage the LCD panel.

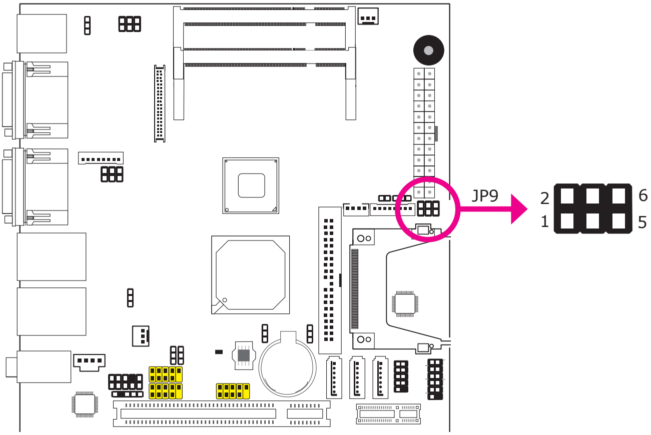
CompactFlash Card Setting


JP6
3
2
1
1-2 On: Master
(default)
3
2
1
2-3 On:
Slave

JP6 is used to set the CompactFlash card to Master or Slave mode.

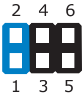
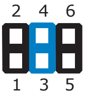
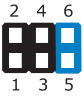
Note:
We do not recommend using IDE devices and CF card at the same time.

COM 3 RS232/RS422/RS485 Select



JP9 is used to configure COM 3 to RS232, RS422 (Half Duplex) or RS485.

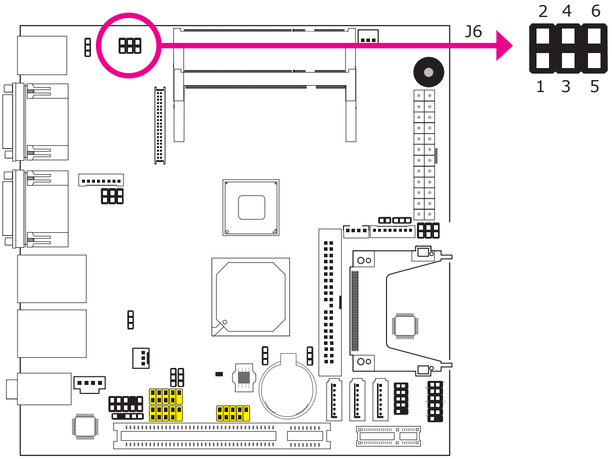
The pin function of COM 3 will vary according to the jumper's setting.

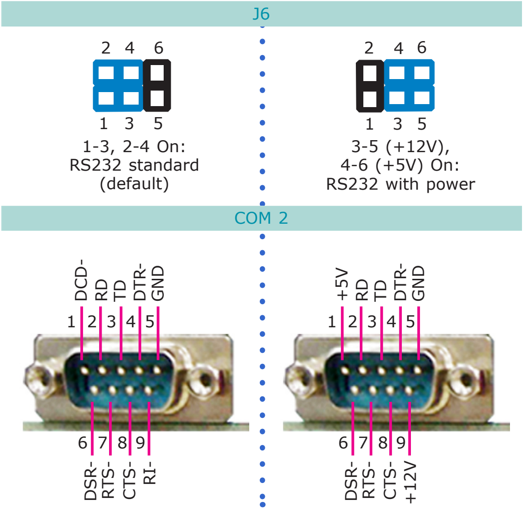
JP9		
 1-2 On: RS232 (default)	 3-4 On: RS422 Half Duplex	 5-6 On: RS485

COM 3

Pin	RS232	RS422 Half Duplex	RS485
1	DCD-	RXD+	DATA+
2	RD	RXD-	DATA-
3	TD	TXD+	N.C.
4	DTR-	TXD-	N.C.
5	GND	N.C.	N.C.
6	DSR-	N.C.	N.C.
7	RTS-	N.C.	N.C.
8	CTS-	N.C.	N.C.
9	RI-	N.C.	N.C.

COM 2 RS232/Power Select

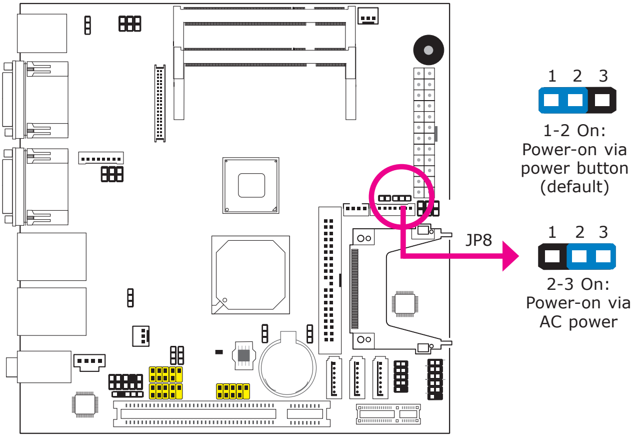



J6
2 4 6
1 3 5
2 4 6
1 3 5
COM 2
DCD-
RD
TD
DTR-
GND
1 2 3 4 5
6 7 8 9
DSR-
RTS-
CTS-
RI-
+5V
RD
TD
DTR-
GND
1 2 3 4 5
6 7 8 9
DSR-
RTS-
CTS-
+12V

1-3, 2-4 On:
RS232 standard
(default)

3-5 (+12V),
4-6 (+5V) On:
RS232 with power

Power-on Select


JP8
1 2 3
1-2 On:
Power-on via
power button
(default)
1 2 3
2-3 On:
Power-on via
AC power

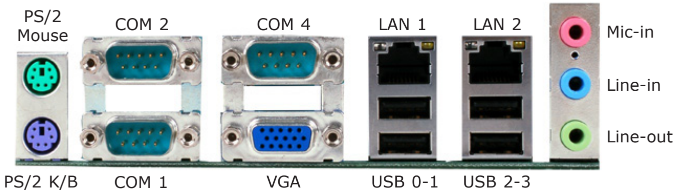
JP8 is used to select the method of powering on the system. If you want the system to power-on whenever AC power comes in, set JP8 pins 2 and 3 to On. If you want to use the power button, set pins 1 and 2 to On.

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

Note:

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

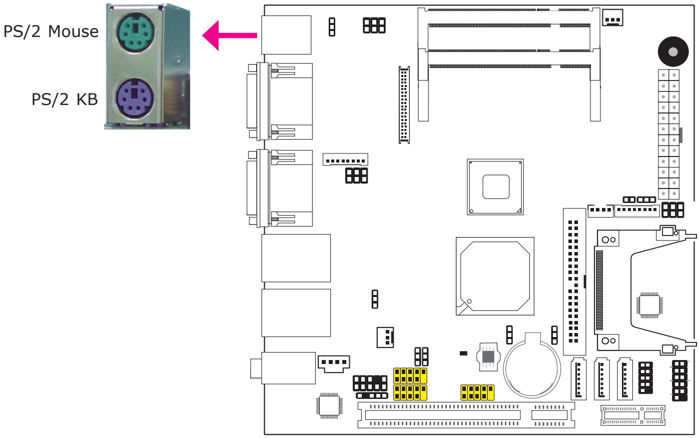
Rear Panel I/O Ports


PS/2
Mouse
COM 2
COM 4
LAN 1
LAN 2
Mic-in
Line-in
Line-out
PS/2 K/B
COM 1
VGA
USB 0-1
USB 2-3

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

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

PS/2 Mouse and PS/2 Keyboard Ports



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

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

Wake-On-PS/2 Keyboard/Mouse

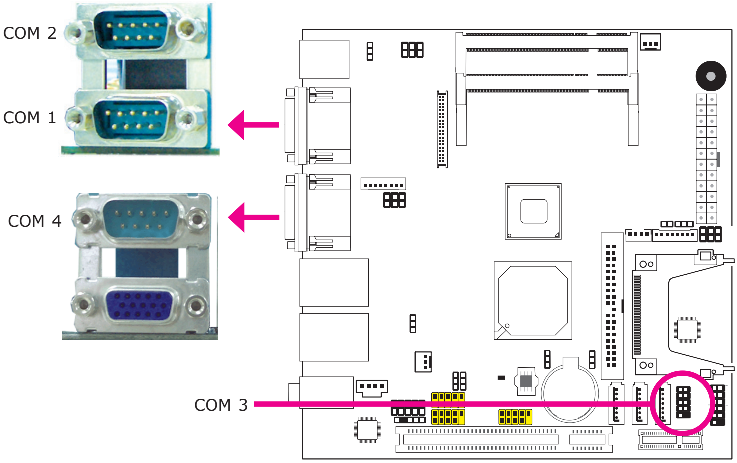
The Wake-On-PS/2 Keyboard/Mouse function allows you to use the PS/2 keyboard or PS/2 mouse to power-on the system. To use this function:

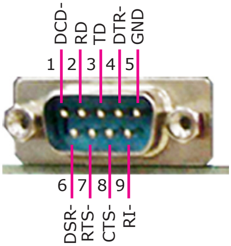
- Jumper Setting

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

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

COM (Serial) Ports


COM 2
COM 1
COM 4
COM 3


DCD-
RD
TD
DTR-
GND
1
2
3
4
5
6
7
8
9
DSR-
RTS-
CTS-
RI-

COM 1, COM 2 and COM 4

COM 1, COM 2 and COM 4 are fixed at RS232.

COM 3's pin definition will vary according to JP9's settings. Refer to "COM 3 RS232/RS422/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.

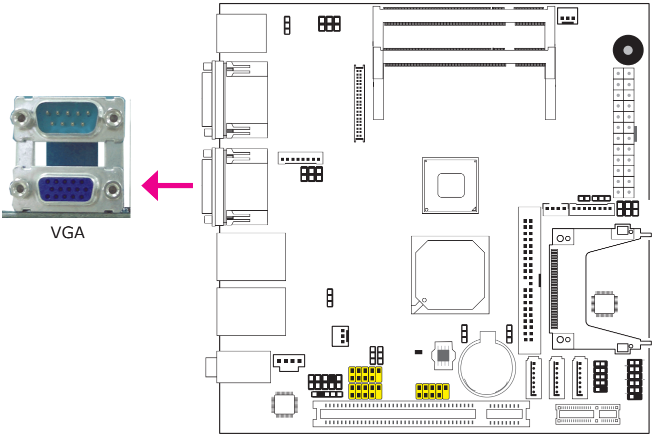
Connecting External Serial Ports

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

BIOS Setting

Configure the serial ports in the Advanced menu ("Super IO Configuration" submenu) of the BIOS. Refer to chapter 3 for more information.

VGA Port



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

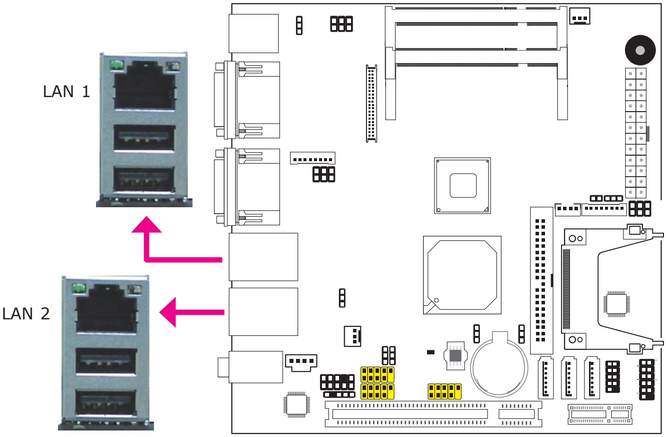
BIOS Setting

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

Driver Installation

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

RJ45 LAN Ports



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

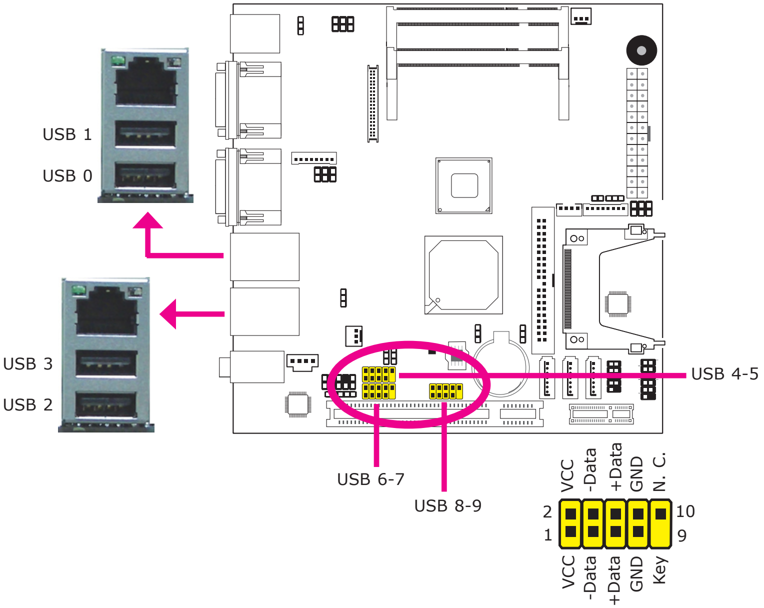
BIOS Setting

Configure the onboard LAN ports in the Chipset menu (“South Bridge Chipset Configuration” submenu) 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 three 10-pin connectors allow you to connect 6 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 a connector.

BIOS Setting

Configure the onboard USB in the Chipset menu (“South Bridge Chipset Configuration” submenu) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

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

Wake-On-USB Keyboard/Mouse

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

- Jumper Setting

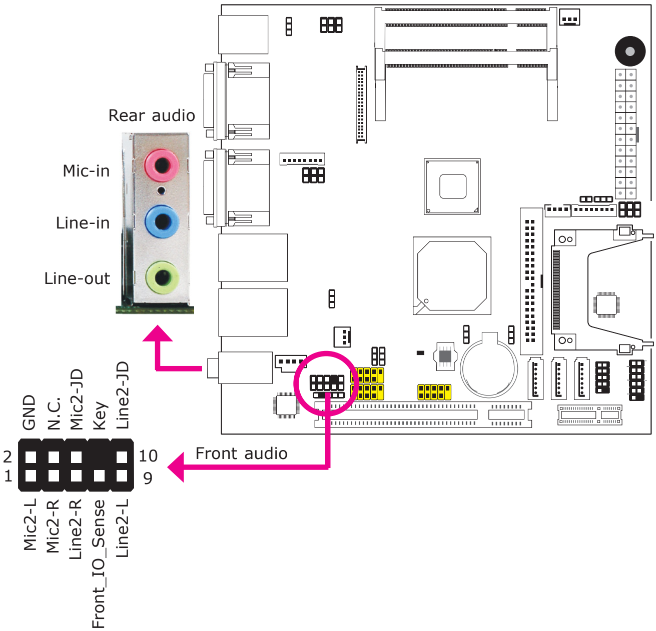
  JP2, JP3 and/or JP4 must be set to "2-3 On: 5V_standby". Refer to "USB Power Select" in this chapter for more information.

- BIOS Setting

  "USB Device Wakeup From S3" in the Advanced menu ("ACPI Configuration" 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 ≥1.5A. For 3 or more USB ports, the 5V_standby power source of your power supply must support ≥2A.

Audio


Rear audio
Mic-in
Line-in
Line-out
GND
N.C.
Mic2-JD
Key
Line2-JD
2
1
10
9
Front audio
Mic2-L
Mic2-R
Line2-R
Front_IO_Sense
Line2-L

Rear Audio

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

- Mic-in Jack (Pink)
  This jack is used to connect an external microphone.

- Line-in Jack (Light Blue)
  This jack is used to connect any audio devices such as Hi-fi set, CD player, tape player, AM/FM radio tuner, synthesizer, etc.

- Line-out Jack (Lime)
  This jack is used to connect a headphone or external speakers.

Front Audio

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

BIOS Setting

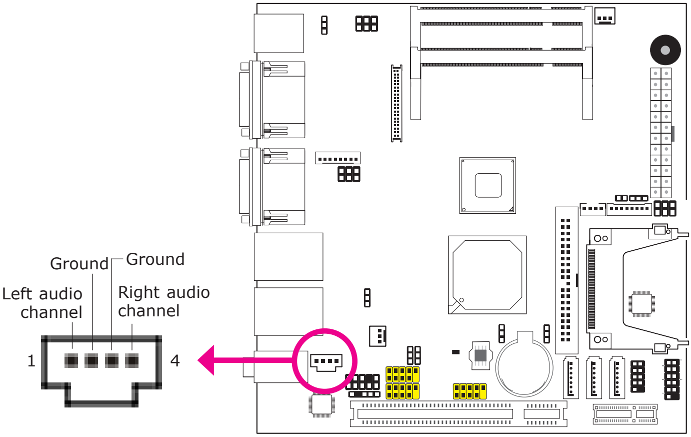
Configure the onboard audio in the Chipset menu (“South Bridge Chipset Configuration” submenu) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

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

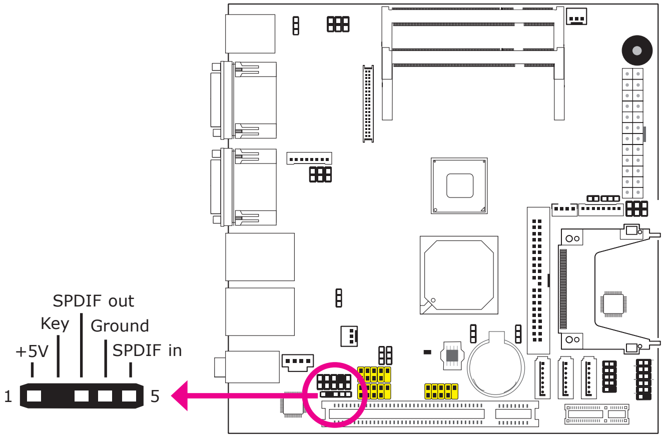
I/O Connectors

CD-in Internal Audio Connector


Ground
Ground
Left audio channel
Right audio channel
1
4

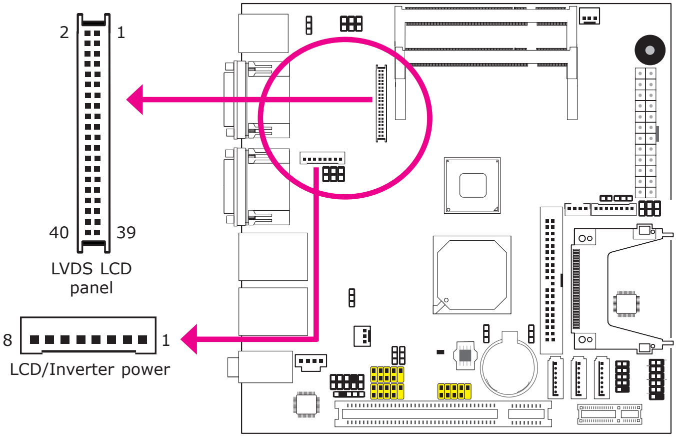
The CD-in connector is used to receive audio from a CD-ROM drive, TV tuner or MPEG card.

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 Chipset menu of the BIOS. Refer to chapter 3 for more information.

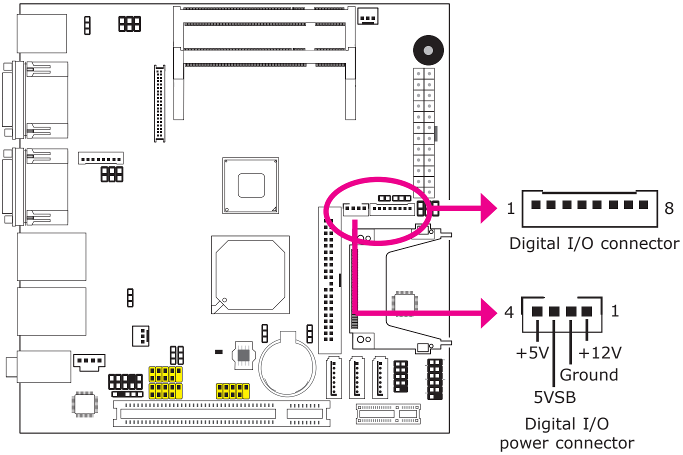
LVDS LCD Panel Connector

Pins	Function	Pins	Function
1	GND	2	GND
3	N. C.	4	N. C.
5	N. C.	6	N. C.
7	GND	8	GND
9	LVDS_Out2+	10	N. C.
11	LVDS_Out2-	12	N. C.
13	GND	14	GND
15	LVDS_Out1+	16	N. C.
17	LVDS_Out1-	18	N. C.
19	GND	20	GND
21	LVDS_Out0+	22	N. C.
23	LVDS_Out0-	24	N. C.
25	GND	26	GND
27	LVDS_CLK1+	28	N. C.
29	LVDS_CLK1-	30	N. C.
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

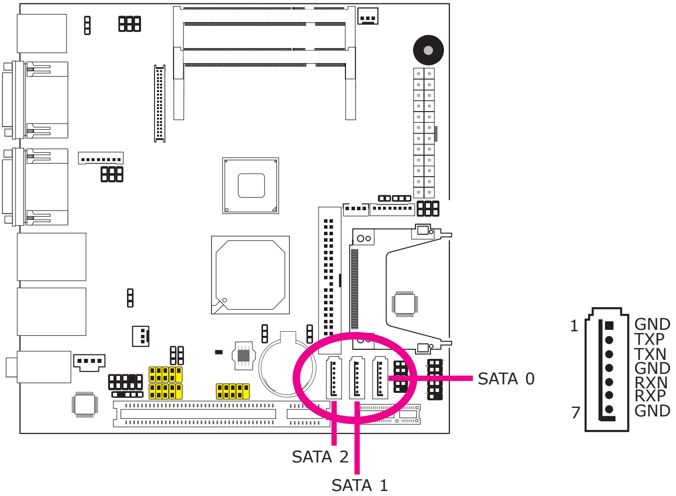

1
8
Digital I/O connector
4
1
+5V
+12V
Ground
5VSB
Digital I/O
power connector

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

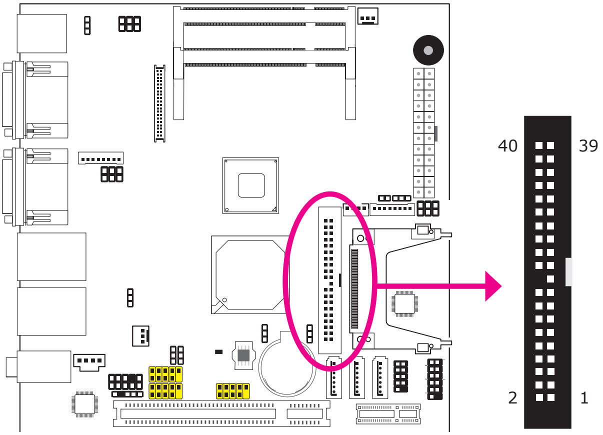

SATA 0
SATA 2
SATA 1
1
7
GND
TXP
TXN
GND
RXN
RXP
GND

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 Advanced menu ("IDE Configuration" submenu) of the BIOS. Refer to chapter 3 for more information.

IDE Connector



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

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

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

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

Adding a Second IDE Disk Drive

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

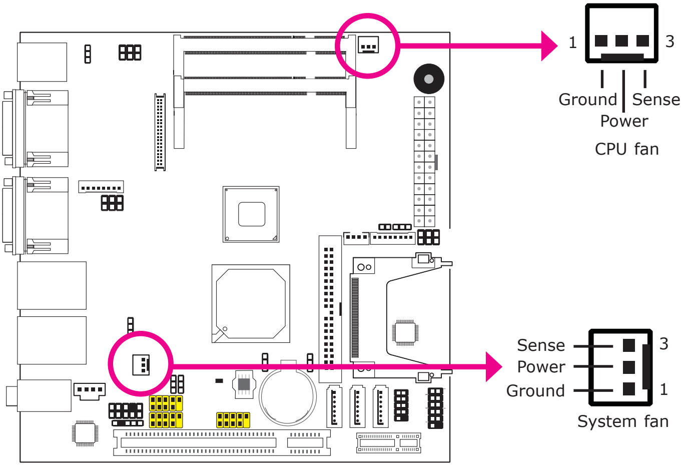
The system board supports Enhanced IDE or ATA-2, ATA/33, ATA/66 and ATA/100 hard drives. We recommend that you use hard drives from the same manufacturer. In a few cases, drives from two different manufacturers will not function properly when used together. The problem lies in the hard drives, not the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

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

BIOS Setting

Configure the onboard IDE in the Advanced menu ("IDE Configuration" submenu) of the BIOS. Refer to chapter 3 for more information.

Cooling Fan Connectors

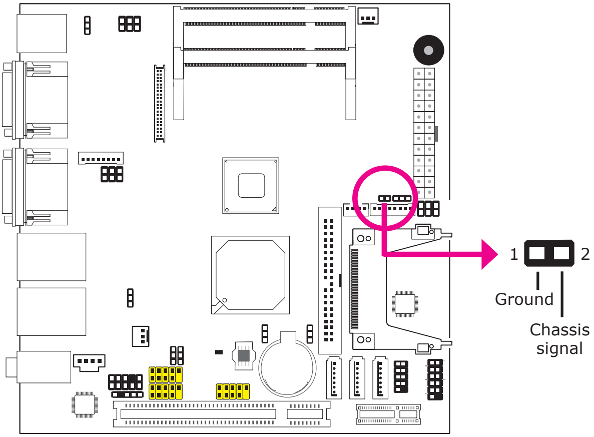

1
3
Ground
Sense
Power
CPU fan
Sense
Power
Ground
3
1
System fan

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 Advanced menu ("Hardware Health Configuration" submenu) of the BIOS will display the current speed of the cooling fan. Refer to chapter 3 for more information.

Chassis Instrusion Connector

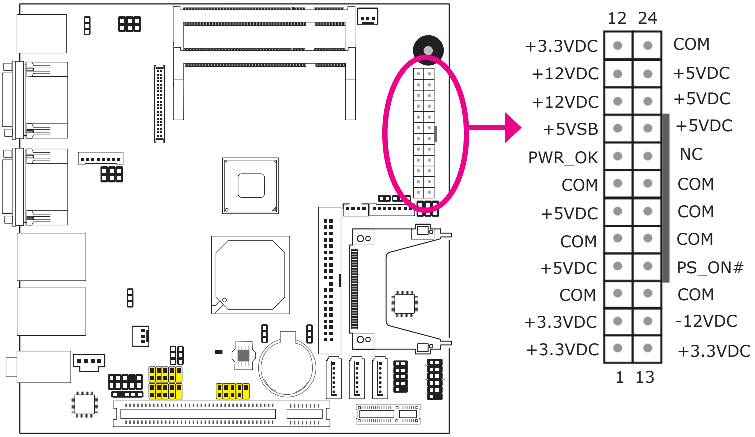


The board supports the chassis intrusion detection function. Connect the chassis intrusion sensor cable from the chassis to this connector. When the system's power is on and a chassis intrusion occurred, an alarm will sound. When the system's power is off and a chassis intrusion occurred, the alarm will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

Hardware Monitor for Windows

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

Power Connector


12 24
+3.3VDC COM
+12VDC +5VDC
+12VDC +5VDC
+5VSB +5VDC
PWR_OK NC
COM COM
+5VDC COM
COM COM
+5VDC PS_ON#
COM COM
+3.3VDC -12VDC
+3.3VDC +3.3VDC
1 13

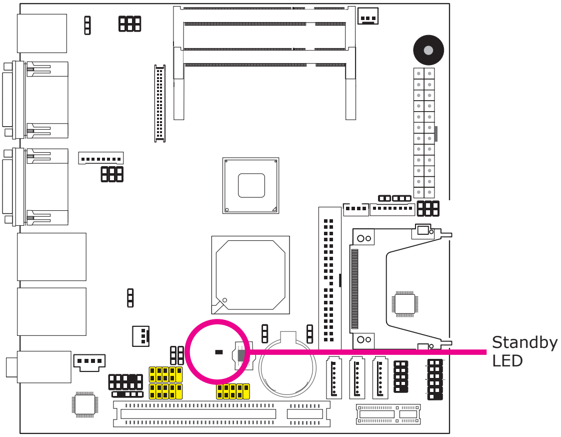
Connect a 24-pin ATX main power connector from the power supply unit to the 24-pin power connector. The connector from the power supply unit is designed to fit the 24-pin connector in only one orientation. Make sure to find the proper orientation before plugging the connector.

The system board requires a minimum of 120 Watt power supply to operate. We recommend that you use a power supply that complies with the ATX12V Power Supply Design Guide Version 1.1.

Important

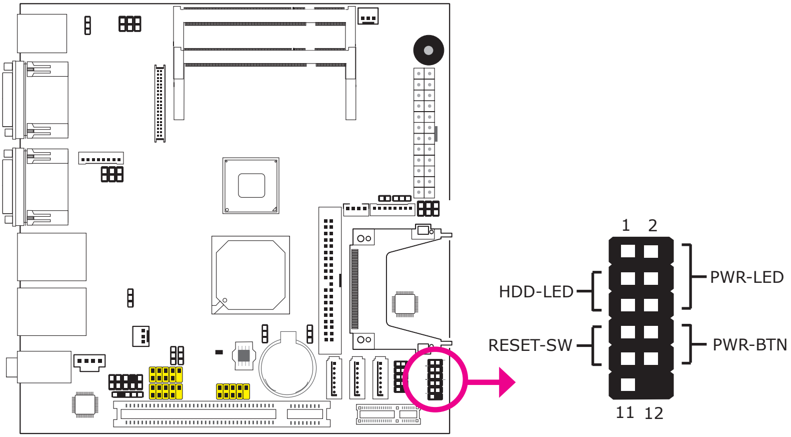
The system board consumes a minimal amount of power. Due to its low power consumption, you only need a 120W to 150W power supply. Every power supply has its minimum load of power. If you use a greater than 150W power supply, the power consumed by the system board may not attain its minimum load causing instability to the entire system.

Standby LED



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

Front Panel Connectors



HDD-LED - HDD LED

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

RESET SW - Reset Switch

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

PWR-BTN - Power Switch

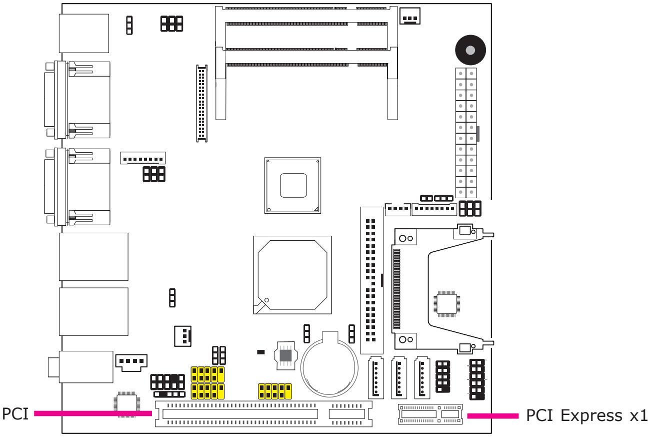
This switch is used to power on or off the system.

PWR-LED - Power/Standby LED

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

	Pin	Pin Assignment		Pin	Pin Assignment
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	GND Signal
RESET SW	7 9	Ground RST Signal			
N. C.	11	N. C.	Key	12	Key

Expansion Slots



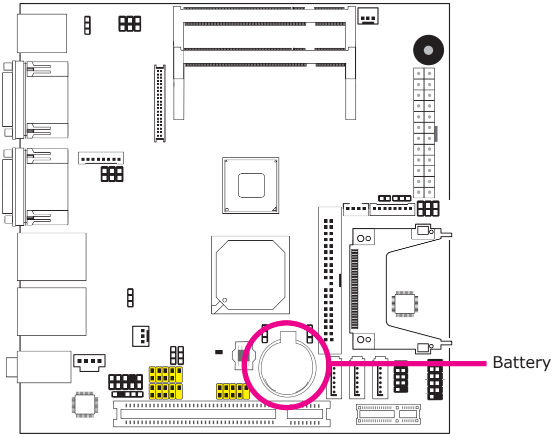
PCI Express x1

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

PCI Slot

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

Battery

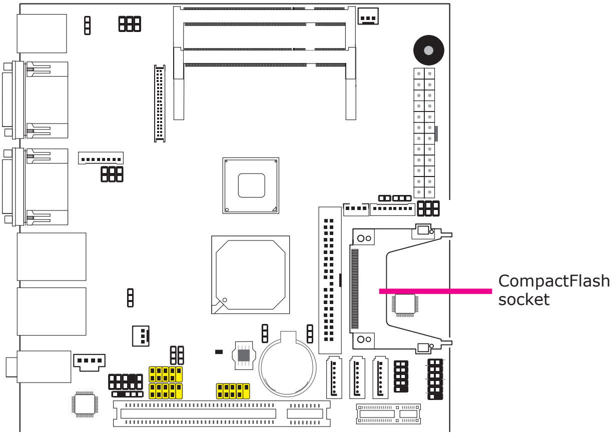


The lithium ion battery powers the real-time clock and CMOS memory. It is an auxiliary source of power when the main power is shut off.

Safety Measures

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

CompactFlash Socket



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

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

Chapter 3 - BIOS Setup

Overview

The BIOS is a program that takes care of the basic level of communication between the CPU and peripherals. It contains codes for various advanced features found in this system board. The BIOS allows you to configure the system and save the configuration in a battery-backed CMOS so that the data retains even when the power is off. In general, the information stored in the CMOS RAM of the EEPROM will stay unchanged unless a configuration change has been made such as a hard drive replaced or a device added.

It is possible that the CMOS battery will fail causing CMOS data loss. If this happens, you need to install a new CMOS battery and reconfigure the BIOS settings.

Note:
The BIOS is constantly updated to improve the performance of the system board; therefore the BIOS screens in this chapter may not appear the same as the actual one. These screens are for reference purpose only.

Default Configuration

Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

Entering the BIOS Setup Utility

The BIOS Setup Utility can only be operated from the keyboard and all commands are keyboard commands. The commands are available at the right side of each setup screen.

The BIOS Setup Utility does not require an operating system to run. After you power up the system, the BIOS message appears on the screen and the memory count begins. After the memory test, the message "Press DEL to run setup" will appear on the screen. 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.

Legends

Keys	**Function**
Right and Left arrows	Moves the highlight left or right to select a menu.
Up and Down arrows	Moves the highlight up or down between submenus or fields.
<Esc>	Exits to the BIOS Setup Utility.
+ (plus key)	Scrolls forward through the values or options of the highlighted field.
- (minus key)	Scrolls backward through the values or options of the highlighted field.
Tab	Selects a field.
<F1>	Displays General Help.
<F10>	Saves and exits the Setup program.
<Enter>	Press <Enter> to enter the highlighted submenu.

Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

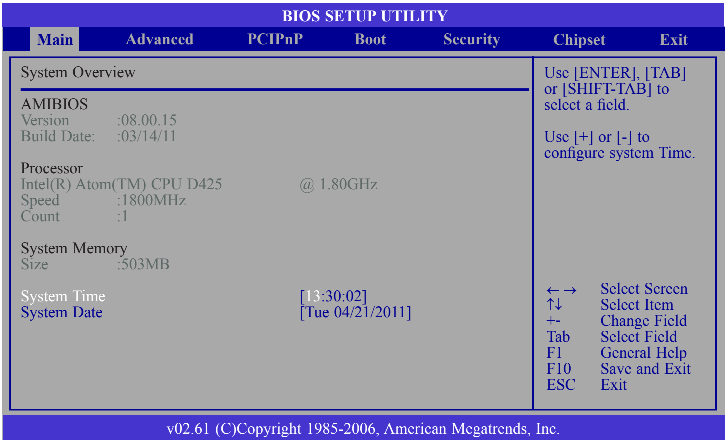
Submenu

When "▸" appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press <Enter>.

AMI BIOS Setup Utility

Main

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.



```
System Overview

AMIBIOS
Version       :08.00.15
Build Date:   :03/14/11

Processor
Intel(R) Atom(TM) CPU D425          @ 1.80GHz
Speed         :1800MHz
Count         :1

System Memory
Size          :503MB

System Time                         [13:30:02]
System Date                         [Tue 04/21/2011]
```

```
Use [ENTER], [TAB]
or [SHIFT-TAB] to
select a field.

Use [+] or [-] to
configure system Time.

←→     Select Screen
↑↓     Select Item
+-     Change Field
Tab    Select Field
F1     General Help
F10    Save and Exit
ESC    Exit
```

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AMI BIOS

Displays the detected BIOS information.

Processor

Displays the detected processor information.

System Memory

Displays the detected system memory information.

System 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.

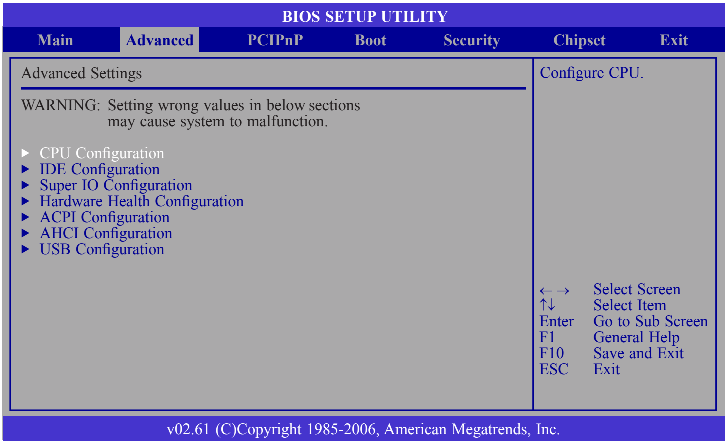
System Date

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 1980 to 2099.

Advanced

The Advanced menu 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.

Important:
Setting incorrect field values may cause the system to malfunction.


BIOS SETUP UTILITY
Main
Advanced
PCIPnP
Boot
Security
Chipset
Exit
Advanced Settings
▸ CPU Configuration
▸ IDE Configuration
▸ Super IO Configuration
▸ Hardware Health Configuration
▸ ACPI Configuration
▸ AHCI Configuration
▸ USB Configuration
← → Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit

WARNING: Setting wrong values in below sections
may cause system to malfunction.

Configure CPU.

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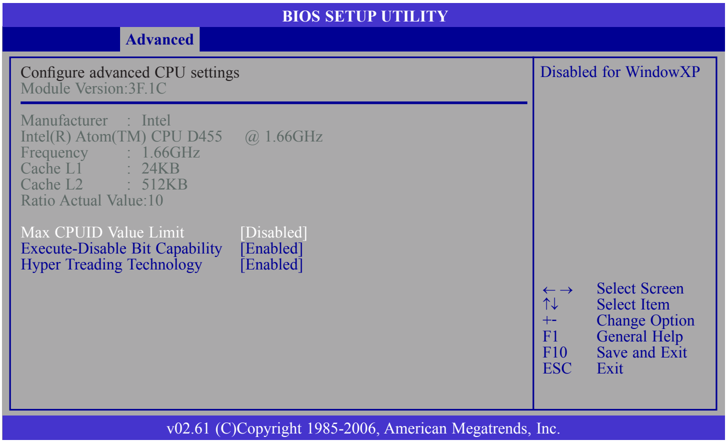
CPU Configuration

This section is used to configure the CPU. It will also display the detected CPU information.



```
                         BIOS SETUP UTILITY
            Advanced
Configure advanced CPU settings                  Disabled for WindowXP
Module Version:3F.1C

Manufacturer    :  Intel
Intel(R) Atom(TM) CPU D455     @ 1.66GHz
Frequency       :  1.66GHz
Cache L1        :  24KB
Cache L2        :  512KB
Ratio Actual Value:10

Max CPUID Value Limit          [Disabled]
Execute-Disable Bit Capability [Enabled]
Hyper Treading Technology      [Enabled]
                                                 ←→    Select Screen
                                                 ↑↓    Select Item
                                                 +-    Change Option
                                                 F1    General Help
                                                 F10   Save and Exit
                                                 ESC   Exit

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```

Max CPUID Value Limit

Set this field to Disabled when using Windows XP. Set this field to Enabled when using legacy operating systems so that the system will boot even when it doesn't support CPUs with extended CPUID function.

Execute Disable Bit Capability

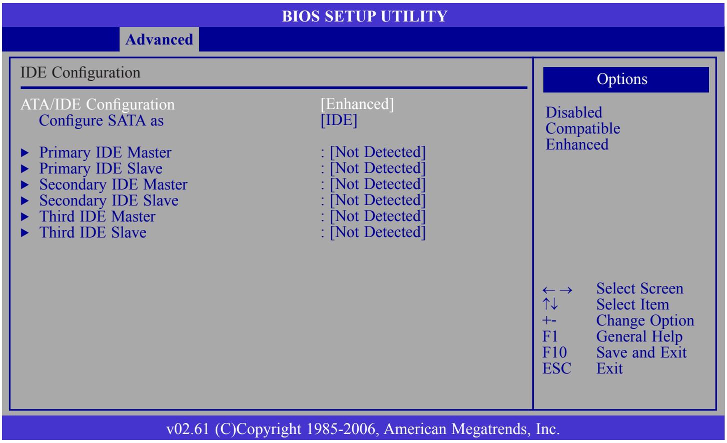
When this field is set to Disabled, it will force the XD feature flag to always return to 0.

Hyper Threading Technology

Enable this field for Windows XP and Linux which are optimized for Hyper-Threading technology. Select disabled for other OSes not optimized for Hyper-Threading technology. When disabled, only one thread per enabled core is enabled.

IDE Configuration

This section is used to configure the IDE drives.



```
                         BIOS SETUP UTILITY
              Advanced
 IDE Configuration                                     |      Options
                                                       |
 ATA/IDE Configuration            [Enhanced]           | Disabled
    Configure SATA as             [IDE]                | Compatible
                                                       | Enhanced
 ▶  Primary IDE Master            : [Not Detected]     |
 ▶  Primary IDE Slave             : [Not Detected]     |
 ▶  Secondary IDE Master          : [Not Detected]     |
 ▶  Secondary IDE Slave           : [Not Detected]     |
 ▶  Third IDE Master              : [Not Detected]     |
 ▶  Third IDE Slave               : [Not Detected]     |
                                                       | ←→     Select Screen
                                                       | ↑↓     Select Item
                                                       | +-     Change Option
                                                       | F1     General Help
                                                       | F10    Save and Exit
                                                       | ESC    Exit
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```

ATA/IDE Configuration

This field is used to configure the IDE drives. The options are Disabled, Compatible and Enhanced.

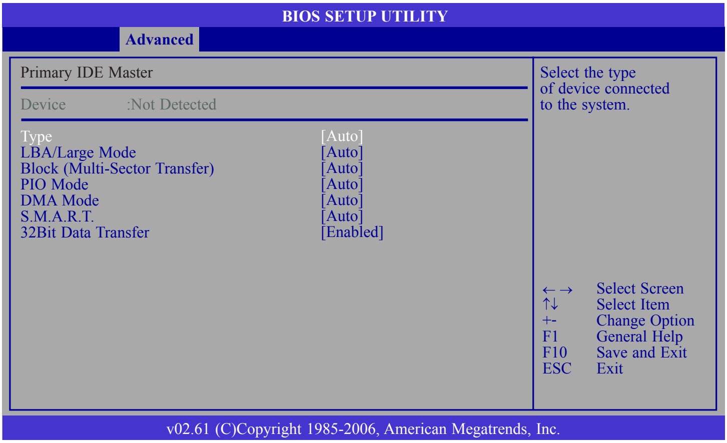
Configure SATA as

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

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

Primary IDE Master to Third IDE Slave

When you enter the BIOS Setup Utility, the BIOS will auto detect the existing IDE devices then displays the status of the detected devices. To configure an IDE drive, move the cursor to a field then press <Enter>.



```
Primary IDE Master                                  Select the type
                                                    of device connected
Device          :Not Detected                       to the system.

Type                              [Auto]
LBA/Large Mode                    [Auto]
Block (Multi-Sector Transfer)     [Auto]
PIO Mode                          [Auto]
DMA Mode                          [Auto]
S.M.A.R.T.                        [Auto]
32Bit Data Transfer               [Enabled]

                                                    ←→     Select Screen
                                                    ↑↓     Select Item
                                                    +-     Change Option
                                                    F1     General Help
                                                    F10    Save and Exit
                                                    ESC    Exit

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```

Type

Selects the type of IDE drive connected to the system.

LBA/Large Mode

Auto
The LBA mode will automatically be enabled, that is, if the LBA mode was not previously disabled.

Disabled
Disables the LBA mode.

Block (Multi-Sector Transfer)

Auto
Data transfer to and from the device occurs multiple sectors at a time.

Disabled
Data transfer to and from the device occurs one sector at a time.

PIO Mode

Selects the data transfer mode. PIO means Programmed Input/Output. Rather than have the BIOS issue a series of commands to effect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by themselves. Your system supports five modes, 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode after checking your drive.

Auto
The BIOS will automatically set the system according to your hard disk drive's timing.

Mode 0-4
You can select a mode that matches your hard disk drive's timing. Caution: Do not use the wrong setting or you will have drive errors.

DMA Mode

Selects the DMA mode.

Auto
Automatically detects the DMA mode.

SWDMAn
SingleWord DMAn.

MWDMAn
MultiWord DMAn.

UDMAn
Ultra DMAn.

S.M.A.R.T.

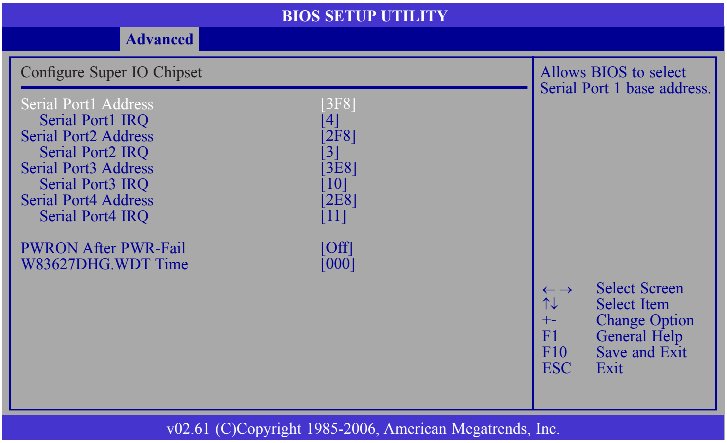
The system board supports SMART (Self-Monitoring, Analysis and Reporting Technology) hard drives. SMART is a reliability prediction technology for ATA/IDE and SCSI drives. The drive will provide sufficient notice to the system or user to backup data prior to the drive's failure. SMART is supported in ATA/33 or later hard drives. The options are Auto (default), Enabled and Disabled.

32Bit Data Transfer

Enables or disables 32-bit data transfer.

Super IO Configuration

This section is used to configure the I/O functions supported by the onboard Super I/O chip.



```
                         BIOS SETUP UTILITY
                 Advanced
 Configure Super IO Chipset                            Allows BIOS to select
                                                       Serial Port 1 base address.
 Serial Port1 Address                  [3F8]
    Serial Port1 IRQ                   [4]
 Serial Port2 Address                  [2F8]
    Serial Port2 IRQ                   [3]
 Serial Port3 Address                  [3E8]
    Serial Port3 IRQ                   [10]
 Serial Port4 Address                  [2E8]
    Serial Port4 IRQ                   [11]

 PWRON After PWR-Fail                  [Off]
 W83627DHG.WDT Time                    [000]
                                                       ←→      Select Screen
                                                       ↑↓      Select Item
                                                       +-      Change Option
                                                       F1      General Help
                                                       F10     Save and Exit
                                                       ESC     Exit

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```

Serial Port1 Address to Serial Port4 Address

Auto
The system will automatically select an I/O address for the onboard serial ports.

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

Disabled
Disables the onboard serial port 1 and/or serial port 2.

Serial Port1 IRQ to Serial Port4 IRQ

Select an IRQ for the onboard serial ports. This is not configurable if the Serial Port Address fields are set to Disabled.

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.

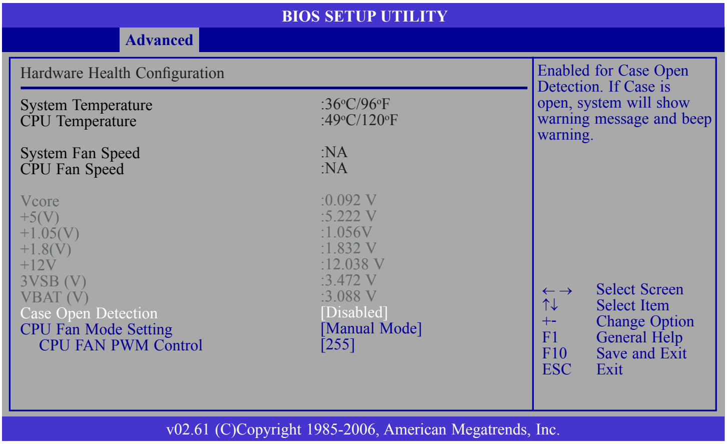
Former-Sts
When power returns after an AC power failure, the system will return to the state where you left off before power failure occurs. If the system's power is off when AC power failure occurs, it will remain off when power returns. If the system's power is on when AC power failure occurs, the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

W83627DHG.WDT Time

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

Hardware Health Configuration

This section is used to configure the hardware monitor function.



```
                         BIOS SETUP UTILITY
             Advanced
 Hardware Health Configuration                        Enabled for Case Open
                                                      Detection. If Case is
 System Temperature              :36°C/96°F           open, system will show
 CPU Temperature                 :49°C/120°F          warning message and beep
                                                      warning.
 System Fan Speed                :NA
 CPU Fan Speed                   :NA

 Vcore                           :0.092 V
 +5(V)                           :5.222 V
 +1.05(V)                        :1.056V
 +1.8(V)                         :1.832 V
 +12V                            :12.038 V            ←→    Select Screen
 3VSB (V)                        :3.472 V             ↑↓    Select Item
 VBAT (V)                        :3.088 V             +-    Change Option
 Case Open Detection             [Disabled]           F1    General Help
 CPU Fan Mode Setting            [Manual Mode]        F10   Save and Exit
   CPU FAN PWM Control           [255]                ESC   Exit

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```

System Temperature to VBAT (V)

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

Case Open Detection

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

CPU Fan Mode Setting

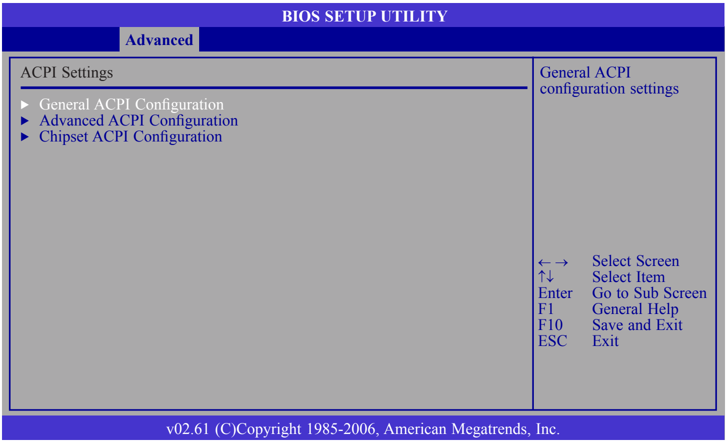
Selects the CPU fan's mode. The options are Manual Mode and Thermal Cruise Mode.

CPU Fan PWM Control

This is the PWM's duty cycle control. Enter the CPU fan's speed in this field. The higher the value, the faster the CPU fan's speed.

ACPI Configuration

This section is used to configure ACPI.



BIOS SETUP UTILITY
Advanced

ACPI Settings

- ▶ General ACPI Configuration
- ▶ Advanced ACPI Configuration
- ▶ Chipset ACPI Configuration

General ACPI configuration settings

← →	Select Screen
↑↓	Select Item
Enter	Go to Sub Screen
F1	General Help
F10	Save and Exit
ESC	Exit

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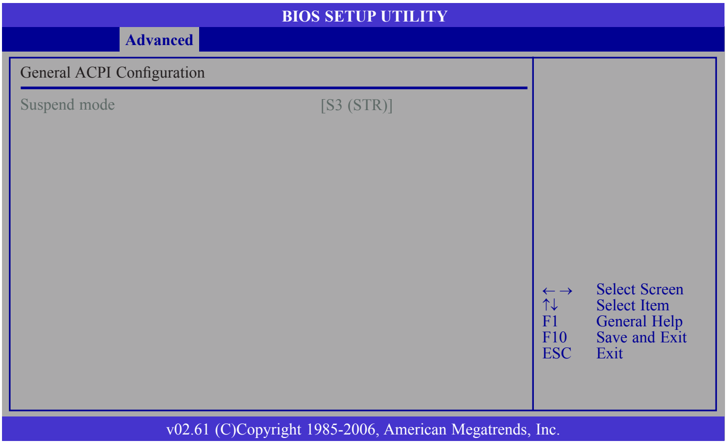
General ACPI Configuration

Configures the general ACPI settings.



BIOS SETUP UTILITY
Advanced

General ACPI Configuration

Suspend mode [S3 (STR)]

← →	Select Screen
↑↓	Select Item
F1	General Help
F10	Save and Exit
ESC	Exit

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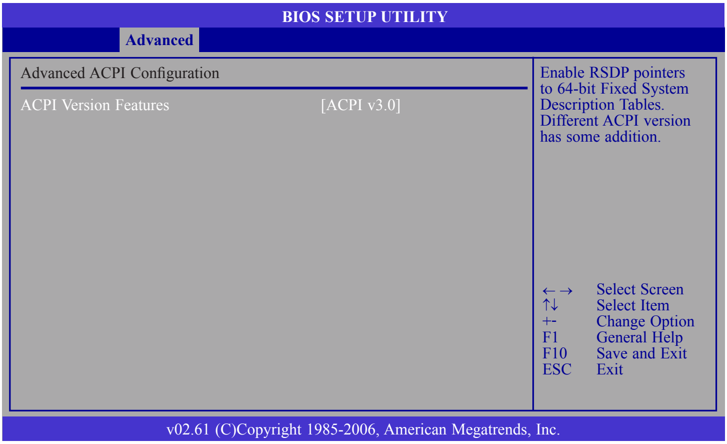
Suspend Mode

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

S3(STR)
Enables the Suspend to RAM function.

Advanced ACPI Configuration

Configures additional ACPI functions.


BIOS SETUP UTILITY
Advanced

Advanced ACPI Configuration

ACPI Version Features [ACPI v3.0]

Enable RSDP pointers to 64-bit Fixed System Description Tables. Different ACPI version has some addition.

← → Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit

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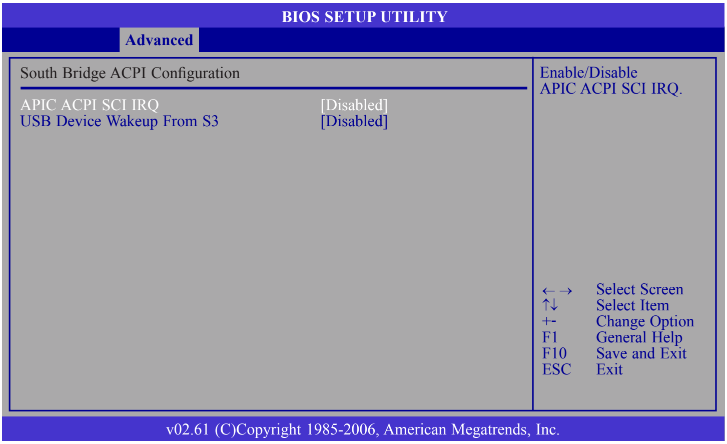
ACPI Version Features

Selects the ACPI version. The options are ACPI v1.0, ACPI v2.0 and ACPI v3.0.

Chipset ACPI Configuration

Configures relevant chipset ACPI functions.



```
                        BIOS SETUP UTILITY
            Advanced
South Bridge ACPI Configuration                        Enable/Disable
                                                       APIC ACPI SCI IRQ.
APIC ACPI SCI IRQ                  [Disabled]
USB Device Wakeup From S3          [Disabled]

                                                       ← →    Select Screen
                                                       ↑↓     Select Item
                                                       +-     Change Option
                                                       F1     General Help
                                                       F10    Save and Exit
                                                       ESC    Exit
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```

APIC ACPI SCI IRQ

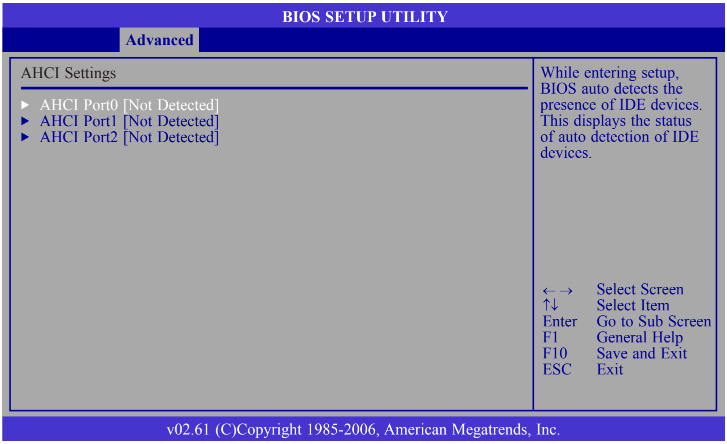
Enables or disables the APIC ACPI SCI IRQ.

USB Device WakeUp 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.

AHCI Configuration

This section is used to configure AHCI.



AHCI Settings

- ▶ AHCI Port0 [Not Detected]
- ▶ AHCI Port1 [Not Detected]
- ▶ AHCI Port2 [Not Detected]

While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detection of IDE devices.

←→	Select Screen
↑↓	Select Item
Enter	Go to Sub Screen
F1	General Help
F10	Save and Exit
ESC	Exit

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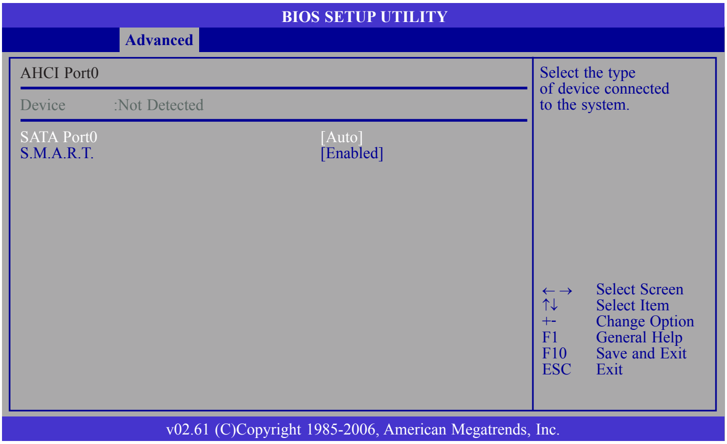
AHCI Port0 to AHCI Port2

Configures the AHCI port.



```
BIOS SETUP UTILITY
Advanced
AHCI Port0                                         Select the type
                                                   of device connected
Device        :Not Detected                        to the system.

SATA Port0                          [Auto]
S.M.A.R.T.                          [Enabled]

                                                   ←→    Select Screen
                                                   ↑↓    Select Item
                                                   +-    Change Option
                                                   F1    General Help
                                                   F10   Save and Exit
                                                   ESC   Exit

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```

SATA Port0

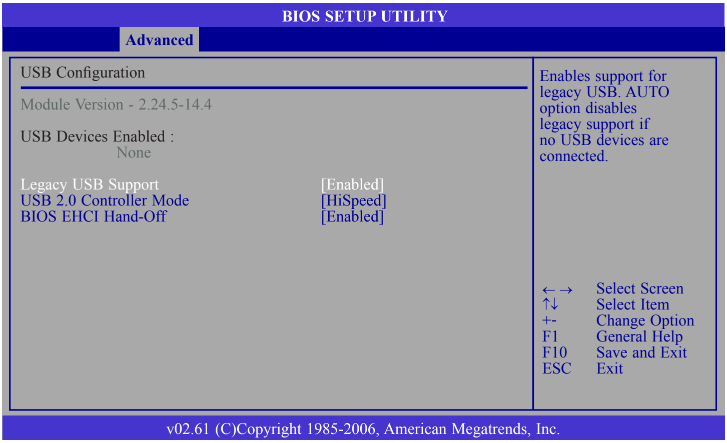
Selects the type of device connected to the system.

S.M.A.R.T.

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. The options are Auto, Enabled and Disabled.

USB Configuration

This section is used to configure USB devices.



BIOS SETUP UTILITY

Advanced

USB Configuration

Module Version - 2.24.5-14.4

USB Devices Enabled :
None

```
Legacy USB Support                  [Enabled]
USB 2.0 Controller Mode             [HiSpeed]
BIOS EHCI Hand-Off                  [Enabled]
```

Enables support for legacy USB. AUTO option disables legacy support if no USB devices are connected.

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Legacy USB Support

Enabled
Enables Legacy USB.

Auto
Disables support for Legacy when no USB devices are connected.

Disabled
Keeps USB devices available only for EFI applications.

USB 2.0 Controller Mode

Configures the USB 2.0 controller in HiSpeed (480Mbps) or FullSpeed (12Mbps).

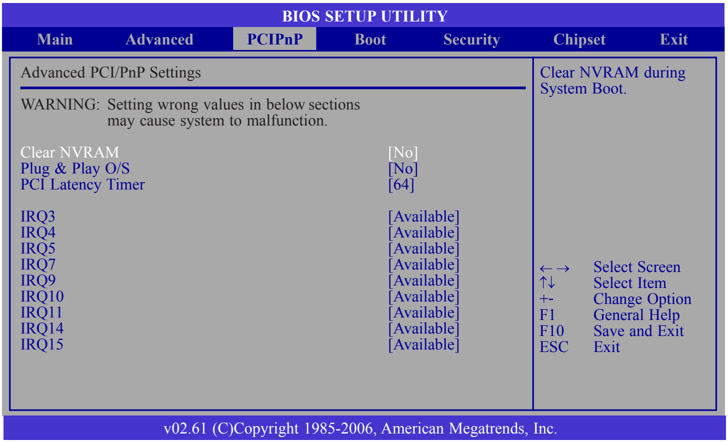
BIOS EHCI Hand-Off

This is a workaround for OSes that does not support EHCI hand-off. The EHCI ownership change should be claimed by the EHCI driver.

PCIPnP

The PCIPnP menu is used to configure PCI Plug and Play devices.

Important:
Setting incorrect field values may cause the system to malfunction.



```
Advanced PCI/PnP Settings

WARNING: Setting wrong values in below sections
         may cause system to malfunction.

Clear NVRAM                              [No]
Plug & Play O/S                          [No]
PCI Latency Timer                        [64]

IRQ3                                     [Available]
IRQ4                                     [Available]
IRQ5                                     [Available]
IRQ7                                     [Available]
IRQ9                                     [Available]
IRQ10                                    [Available]
IRQ11                                    [Available]
IRQ14                                    [Available]
IRQ15                                    [Available]
```

Clear NVRAM during System Boot.

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Clear NVRAM

This field allows clearing the NVRAM during system boot.

Plug & Play O/S

Yes
The operating system onfigures Plug and Play (PnP) devices that are not required to boot in a Plug and Play supported operating system.

No
The BIOS configures all the devices in the system.

PCI Latency Timer

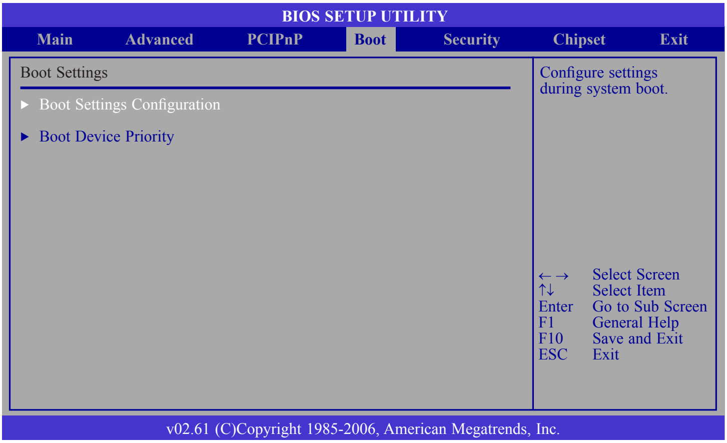
This feature is used to select the length of time each PCI device will control the bus before another takes over. The larger the value, the longer the PCI device can retain control of the bus. Since each access to the bus comes with an initial delay before any transaction can be made, low values for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

IRQ3 to IRQ15

Available
The specified IRQ is available for PCI/PnP devices.

Reserved
The specified IRQ is reserved for Legacy ISA devices.

Boot


BIOS SETUP UTILITY
Main
Advanced
PCIPnP
Boot
Security
Chipset
Exit
← → Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit

Boot Settings

- ▸ Boot Settings Configuration
- ▸ Boot Device Priority

Configure settings during system boot.

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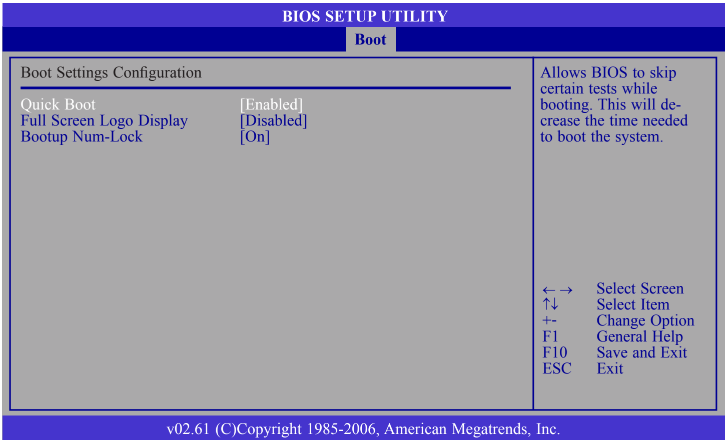
Boot Settings Configuration

This section is used to configure settings during system boot.


BIOS SETUP UTILITY
Boot
← → Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit

Boot Settings Configuration

Quick Boot	[Enabled]
Full Screen Logo Display	[Disabled]
Bootup Num-Lock	[On]

Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.

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Quick Boot

When Enabled, the BIOS will shorten or skip some check items during POST. This will decrease the time needed to boot the system.

Full Screen Logo Display

This field is applicable only if you want a particular logo to appear during system boot-up.

Enabled
Displays OEM logo instead of the POST messages.

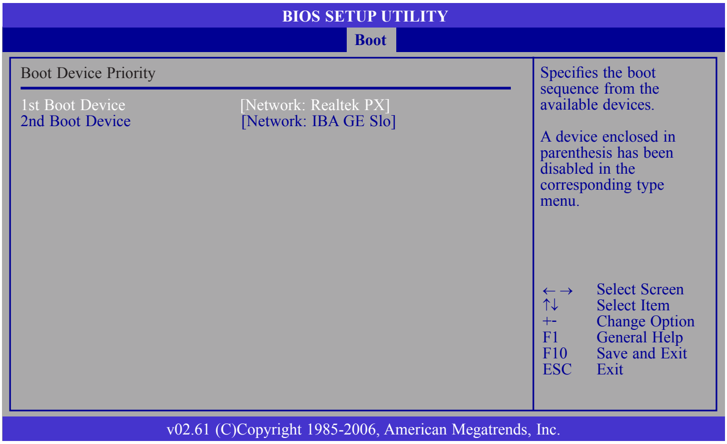
Disabled
Displays normal POST messages.

Bootup Num-Lock

This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

Boot Device Priority

This section is used to select the boot priority sequence of the devices.



BIOS SETUP UTILITY

Boot

Boot Device Priority

1st Boot Device [Network: Realtek PX]
2nd Boot Device [Network: IBA GE Slo]

Specifies the boot sequence from the available devices.

A device enclosed in parenthesis has been disabled in the corresponding type menu.

← → Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit

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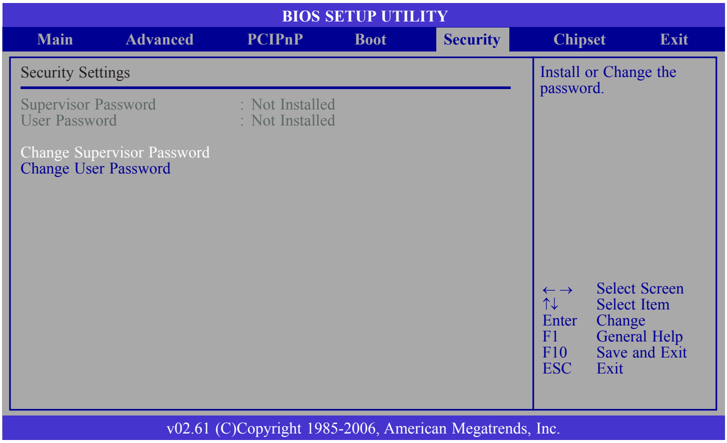
1st Boot Device and 2nd Boot Device

Selects the drive to boot first and second in the “1st Boot Device” and “2nd Boot Device” field respectively. The BIOS will boot the operating system according to the sequence of the drive selected.

Security


BIOS SETUP UTILITY
Main
Advanced
PCIPnP
Boot
Security
Chipset
Exit
← → Select Screen
↑↓ Select Item
Enter Change
F1 General Help
F10 Save and Exit
ESC Exit

Security Settings

Supervisor Password : Not Installed
User Password : Not Installed

Change Supervisor Password
Change User Password

Install or Change the password.

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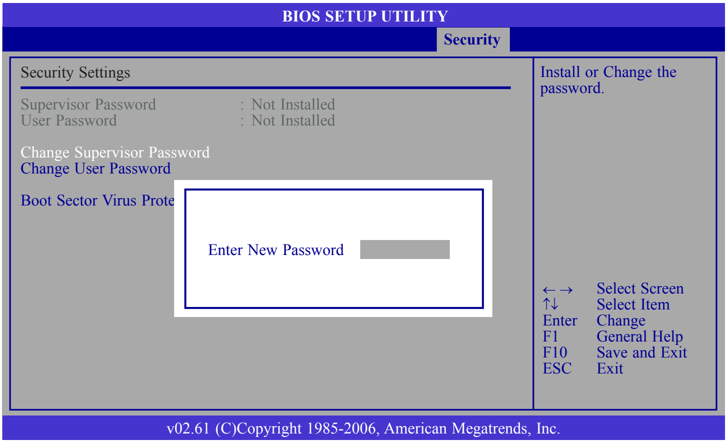
Change Supervisor Password

This field is used to set or change the supervisor password. To set a new password:

1. Select the Change Supervisor Password field then press <Enter>.
2. Type your password in the dialog box then press <Enter>. You are limited to eight letters/numbers.


BIOS SETUP UTILITY
Security
← → Select Screen
↑↓ Select Item
Enter Change
F1 General Help
F10 Save and Exit
ESC Exit

Security Settings

Supervisor Password : Not Installed
User Password : Not Installed

Change Supervisor Password
Change User Password

Boot Sector Virus Prote

Enter New Password

Install or Change the password.

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3. Press <Enter> to confirm the new password.

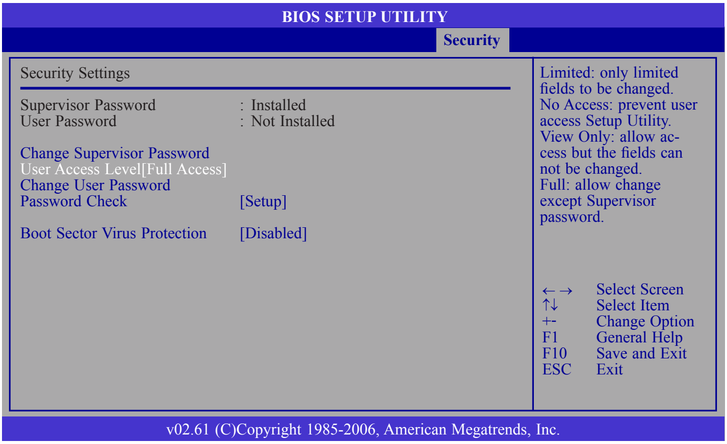
4. When the Password Installed dialog box appears, select OK.

To change the password, repeat the same steps above.

To clear the password, select Change Supervisor Password then press <Enter>. The Password Uninstalled dialog box will appear.

If you forgot the password, you can clear the password by erasing the CMOS RTC (Real Time Clock) RAM using the Clear CMOS jumper. Refer to the Jumper Settings section in chapter 2 for more information.

After you have set the supervisor password, the User Access Level field will appear.



```
BIOS SETUP UTILITY
Security

Security Settings

Supervisor Password             : Installed
User Password                   : Not Installed

Change Supervisor Password
User Access Level[Full Access]
Change User Password
Password Check                  [Setup]

Boot Sector Virus Protection    [Disabled]

Limited: only limited
fields to be changed.
No Access: prevent user
access Setup Utility.
View Only: allow ac-
cess but the fields can
not be changed.
Full: allow change
except Supervisor
password.

←→    Select Screen
↑↓    Select Item
+-    Change Option
F1    General Help
F10   Save and Exit
ESC   Exit

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```

User Access Level

Selects the access level to the fields in the Setup utility.

Limited
Allows you to change settings to some fields such as Date and Time.

No Access
Prevents access to the Setup utility.

View Only
Allows you to view the settings but does not allow you to change the settings.

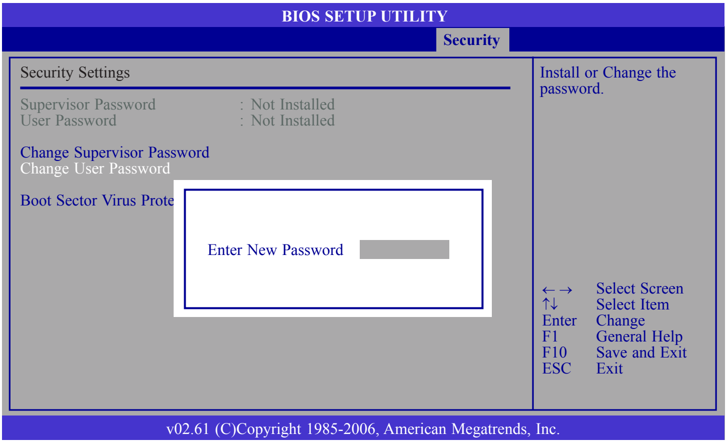
Full Access
Allows you to change settings to all the fields in the utility.

Change User Password

This field is used to set or change the user password.

To set a new password:

1. Select the Change User Password field then press <Enter>.
2. Type your password in the dialog box then press <Enter>. You are limited to eight letters/numbers.



BIOS SETUP UTILITY

Security

Security Settings

Supervisor Password : Not Installed
User Password : Not Installed

Change Supervisor Password
Change User Password

Boot Sector Virus Prote

Enter New Password

Install or Change the password.

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3. Press <Enter> to confirm the new password.
4. When the Password Installed dialog box appears, select OK.

To change the password, repeat the same steps above.

After you have set the user password, the Clear User Password and Password Check fields will appear.

Clear User Password

To clear the password, select Clear User Password then press <Enter>. The Password Uninstalled dialog box will appear.

Password Check

Setup
The BIOS checks for the user password whenever accessing the Setup utility.

Always
The BIOS checks for the user password when accessing the Setup utility and booting the system.

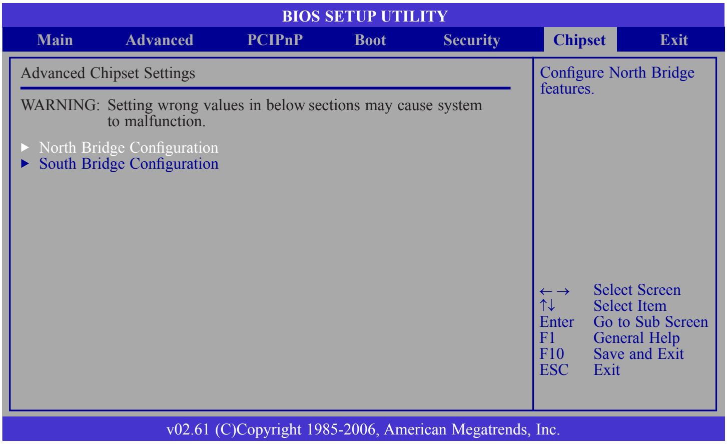
Boot Sector Virus Protection

Enables or disables the boot sector virus protection function.

Chipset

This section is used to configure the system based on the specific features of the chipset.

Important:
Setting incorrect field values may cause the system to malfunction.


BIOS SETUP UTILITY
Main
Advanced
PCIPnP
Boot
Security
Chipset
Exit
← → Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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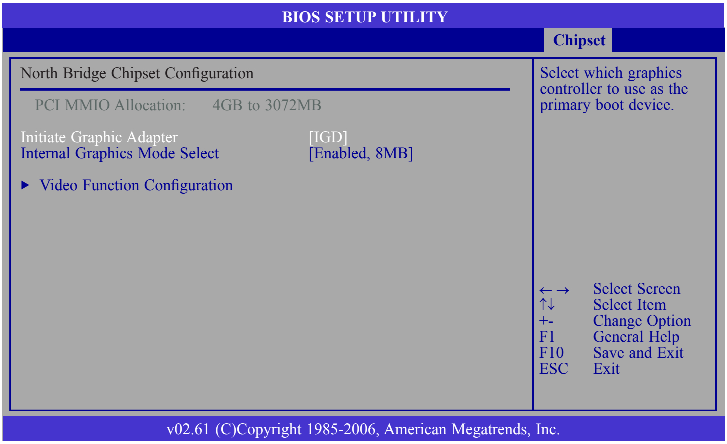
Advanced Chipset Settings

WARNING: Setting wrong values in below sections may cause system to malfunction.

- ▶ North Bridge Configuration
- ▶ South Bridge Configuration

Configure North Bridge features.

North Bridge Configuration


BIOS SETUP UTILITY
Chipset
← → Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

North Bridge Chipset Configuration

PCI MMIO Allocation: 4GB to 3072MB

Initiate Graphic Adapter [IGD]
Internal Graphics Mode Select [Enabled, 8MB]

- ▶ Video Function Configuration

Select which graphics controller to use as the primary boot device.

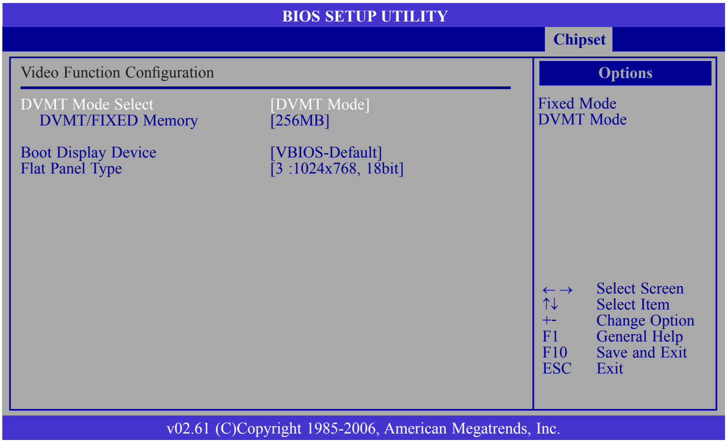
Initiate Graphics Adapter

Selects the graphics controller to use as the primary boot device.

Internal Graphics Mode Select

Selects the amount of system memory used by the internal graphics device.

Video Function Configuration



BIOS SETUP UTILITY

Chipset

Video Function Configuration

```
DVMT Mode Select              [DVMT Mode]
   DVMT/FIXED Memory          [256MB]

Boot Display Device           [VBIOS-Default]
Flat Panel Type               [3 :1024x768, 18bit]
```

Options

Fixed Mode
DVMT Mode

```
←→     Select Screen
↑↓     Select Item
+-     Change Option
F1     General Help
F10    Save and Exit
ESC    Exit
```

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DVMT Mode Select

DVMT Mode
Memory that is dynamically allocated based on memory requests made by an application and are released back to the system once the requesting application has been terminated.

Fixed Mode
Non-contiguous pagelocked memory allocated during driver initialization to provide a static amount of memory.

DVMT/FIXED Memory

Selects the graphics memory size used by the DVMT/Fixed mode.

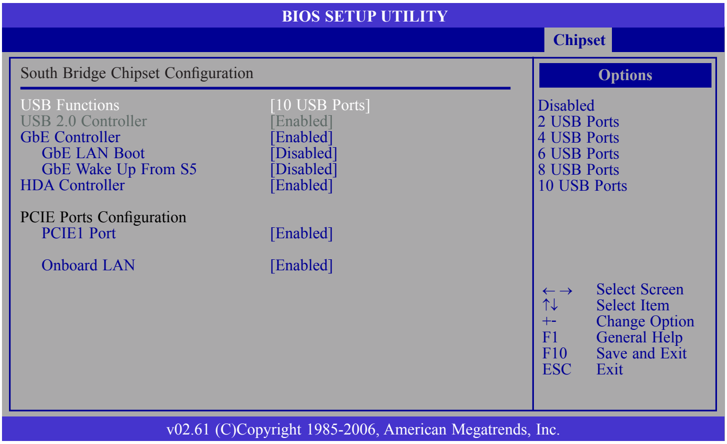
Boot Display Device

Selects the type of display to use when the system boots.

Flat Panel Type

Selects the type of flat panel connected to the system.

South Bridge Configuration



```
                              BIOS SETUP UTILITY
                                                          Chipset
 South Bridge Chipset Configuration                        Options
                                                        Disabled
 USB Functions                 [10 USB Ports]           2 USB Ports
 USB 2.0 Controller            [Enabled]                4 USB Ports
 GbE Controller                [Enabled]                6 USB Ports
    GbE LAN Boot               [Disabled]               8 USB Ports
    GbE Wake Up From S5        [Disabled]               10 USB Ports
 HDA Controller                [Enabled]

 PCIE Ports Configuration
    PCIE1 Port                 [Enabled]

    Onboard LAN                [Enabled]
                                                        ←→     Select Screen
                                                        ↑↓     Select Item
                                                        +-     Change Option
                                                        F1     General Help
                                                        F10    Save and Exit
                                                        ESC    Exit

              v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.
```

USB Functions

Selects the number of USB ports you want enabled.

USB 2.0 Controller

Enables or disables the Enhanced Host Controller Interface (USB 2.0).

GbE Controller (for Intel LAN controller)

Enables or disables the Intel Gigabit LAN controller.

GbE LAN Boot (for Intel LAN controller)

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

GbE Wake Up From S5 (for Intel LAN controller)

When enabled, it allows the system to wake up from S5 via the network LAN.

HDA Controller

Enables or disables the High Definition audio controller.

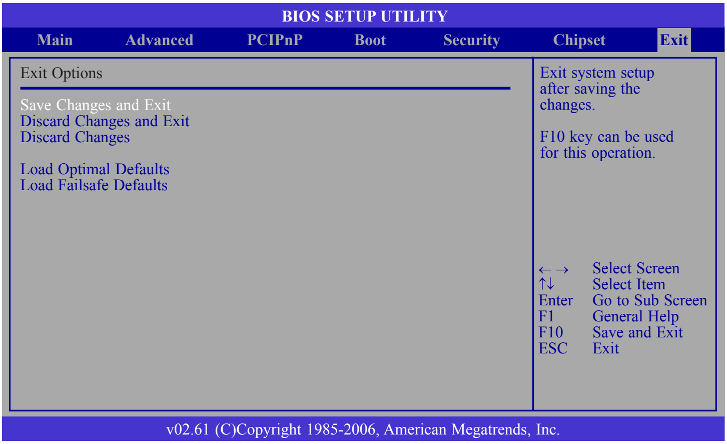
PCIE1 Port

Enables or disables the PCIE x1 slot.

Onboard LAN

Enables or disables the Realtek LAN controller.

Exit



BIOS SETUP UTILITY

Main
Advanced
PCIPnP
Boot
Security
Chipset
Exit

Exit Options

Save Changes and Exit
Discard Changes and Exit
Discard Changes

Load Optimal Defaults
Load Failsafe Defaults

Exit system setup after saving the changes.

F10 key can be used for this operation.

```
←→      Select Screen
↑↓      Select Item
Enter   Go to Sub Screen
F1      General Help
F10     Save and Exit
ESC     Exit
```

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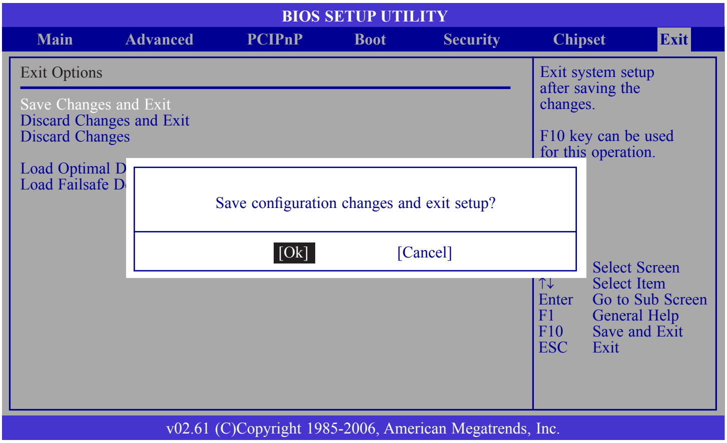
Save Changes and Exit

To save the changes and exit the Setup utility, select this field then press <Enter>. A dialog box will appear. Confirm by selecting OK.

You can also press <F10> to save and exit Setup.



BIOS SETUP UTILITY

Main
Advanced
PCIPnP
Boot
Security
Chipset
Exit

Exit Options

Save Changes and Exit
Discard Changes and Exit
Discard Changes

Load Optimal D
Load Failsafe D

Exit system setup after saving the changes.

F10 key can be used for this operation.

Save configuration changes and exit setup?

[Ok]
[Cancel]

```
        Select Screen
↑↓      Select Item
Enter   Go to Sub Screen
F1      General Help
F10     Save and Exit
ESC     Exit
```

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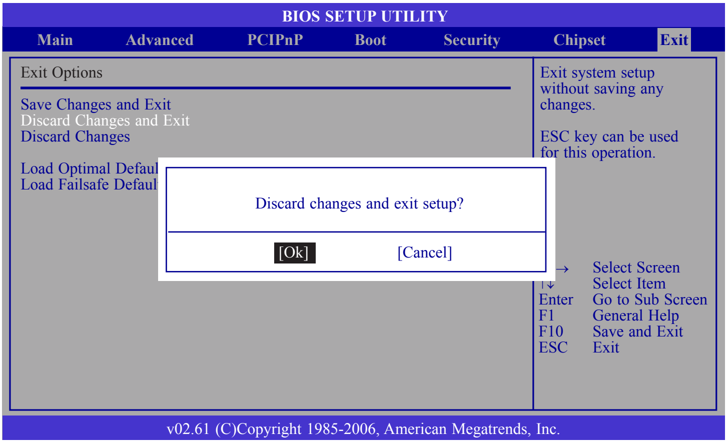
Discard Changes and Exit

To exit the Setup utility without saving the changes, select this field then press <Enter>. A dialog box will appear. Confirm by selecting OK.

You can also press <ESC> to exit without saving the changes.


BIOS SETUP UTILITY
Main
Advanced
PCIPnP
Boot
Security
Chipset
Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaul
Load Failsafe Defaul
[Ok]
[Cancel]
→ Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit

Discard changes and exit setup?

Exit system setup without saving any changes.

ESC key can be used for this operation.

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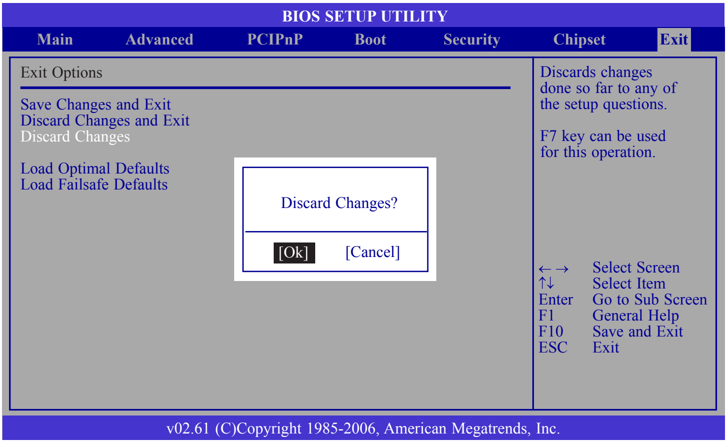
Discard Changes

To discard the changes, select this field then press <Enter>. A dialog box will appear. Confirm by selecting OK to discard all changes made and restore the previously saved settings.

You can also press <F7> to discard the changes.


BIOS SETUP UTILITY
Main
Advanced
PCIPnP
Boot
Security
Chipset
Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Load Failsafe Defaults
[Ok]
[Cancel]
←→ Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit

Discard Changes?

Discards changes done so far to any of the setup questions.

F7 key can be used for this operation.

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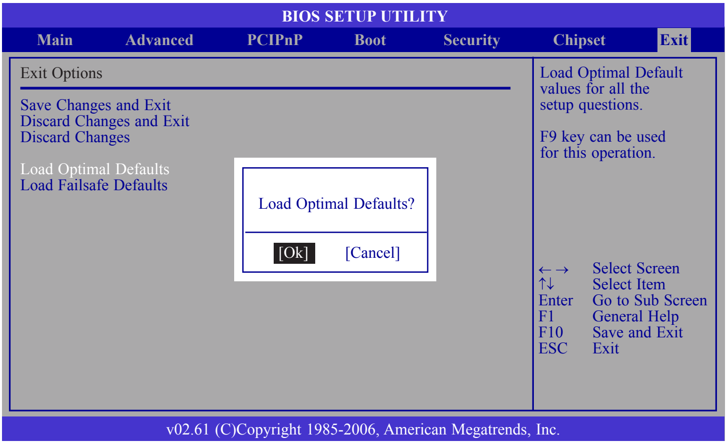
Load Optimal Defaults

To load optimal default values from the BIOS ROM, select this field then press <Enter>. A dialog box will appear. Confirm by selecting OK.

You can also press <F9> to load optimal default values.


BIOS SETUP UTILITY
Main
Advanced
PCIPnP
Boot
Security
Chipset
Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Load Failsafe Defaults
[Ok]
[Cancel]
←→ Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

Load Optimal Defaults?

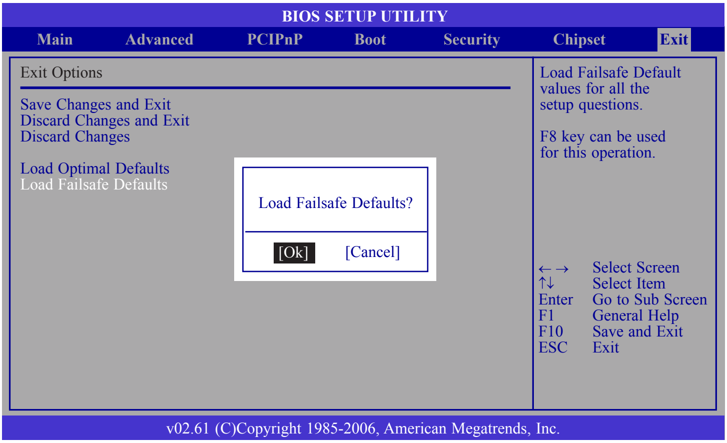
Load Optimal Default values for all the setup questions.

F9 key can be used for this operation.

Load Failsafe Defaults

To load the fail-safe default values from the BIOS ROM, select this field then press <Enter>. A dialog box will appear. Confirm by selecting OK.

You can also press <F8> to load the fail-safe default values.


BIOS SETUP UTILITY
Main
Advanced
PCIPnP
Boot
Security
Chipset
Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Load Failsafe Defaults
[Ok]
[Cancel]
←→ Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

Load Failsafe Defaults?

Load Failsafe Default values for all the setup questions.

F8 key can be used for this operation.

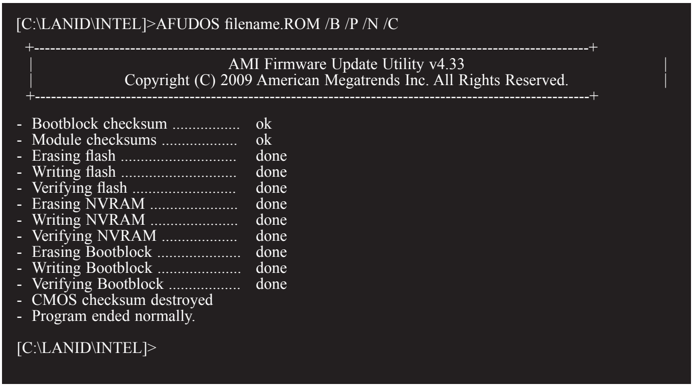
Updating the BIOS

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

To execute the utility, type:

A:> AFUDOS BIOS_File_Name /b /p /n /c

then press <Enter>.

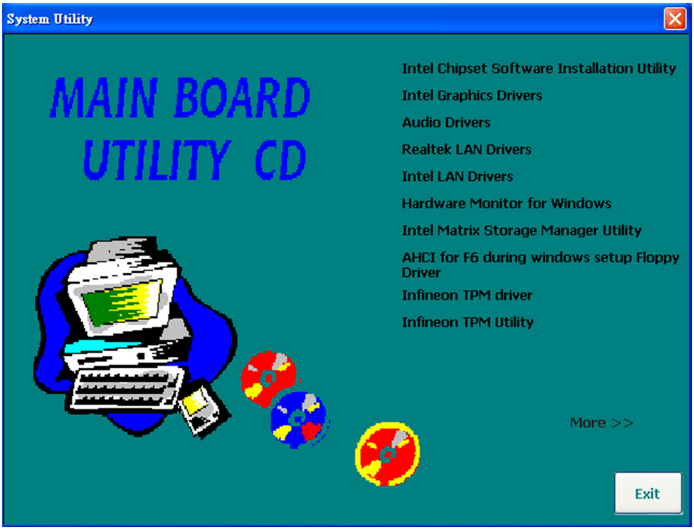


```
[C:\LANID\INTEL]>AFUDOS filename.ROM /B /P /N /C
 +---------------------------------------------------------------------------------------------------+
 |                              AMI Firmware Update Utility v4.33                                    |
 |                 Copyright (C) 2009 American Megatrends Inc. All Rights Reserved.                  |
 +---------------------------------------------------------------------------------------------------+

-  Bootblock checksum ................  ok
-  Module checksums ..................  ok
-  Erasing flash .....................  done
-  Writing flash .....................  done
-  Verifying flash ...................  done
-  Erasing NVRAM .....................  done
-  Writing NVRAM .....................  done
-  Verifying NVRAM ...................  done
-  Erasing Bootblock .................  done
-  Writing Bootblock .................  done
-  Verifying Bootblock ...............  done
-  CMOS checksum destroyed
-  Program ended normally.

[C:\LANID\INTEL]>
```

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".

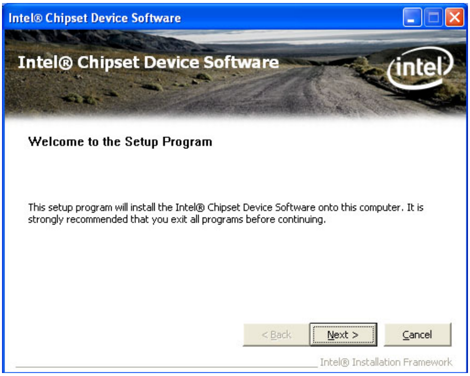

System Utility
MAIN BOARD UTILITY CD
Intel Chipset Software Installation Utility
Intel Graphics Drivers
Audio Drivers
Realtek LAN Drivers
Intel LAN Drivers
Hardware Monitor for Windows
Intel Matrix Storage Manager Utility
AHCI for F6 during windows setup Floppy Driver
Infineon TPM driver
Infineon TPM Utility
More >>
Exit

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.

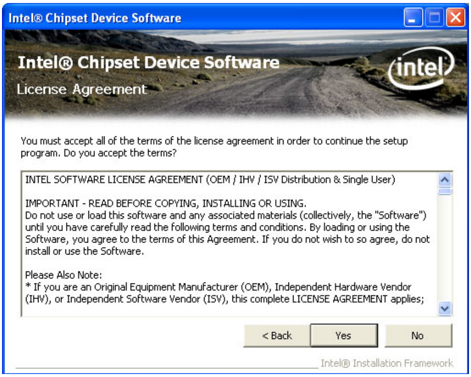
1. Setup is ready to install the utility. Click Next.


Intel® Chipset Device Software
Intel® Chipset Device Software
intel
< Back
Next >
Cancel
Intel® Installation Framework

Welcome to the Setup Program

This setup program will install the Intel® Chipset Device Software onto this computer. It is strongly recommended that you exit all programs before continuing.

2. Read the license agreement then click Yes.


Intel® Chipset Device Software
Intel® Chipset Device Software
License Agreement
intel
< Back
Yes
No
Intel® Installation Framework

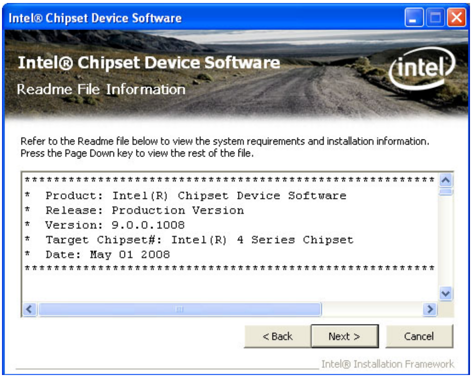
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?

INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)

IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.

Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;

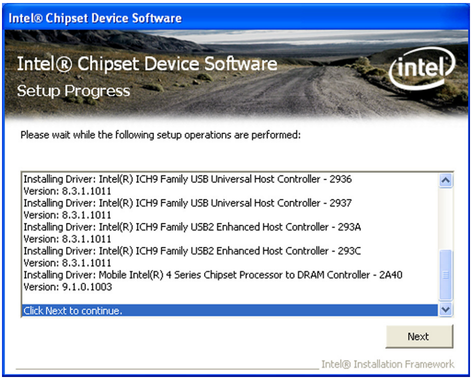
3. Go through the readme document for more installation tips then click Next.


Intel® Chipset Device Software
Intel® Chipset Device Software
Readme File Information
intel
< Back
Next >
Cancel
Intel® Installation Framework

Refer to the Readme file below to view the system requirements and installation information. Press the Page Down key to view the rest of the file.

```
************************************************************
*  Product: Intel(R) Chipset Device Software
*  Release: Production Version
*  Version: 9.0.0.1008
*  Target Chipset#: Intel(R) 4 Series Chipset
*  Date: May 01 2008
************************************************************
```

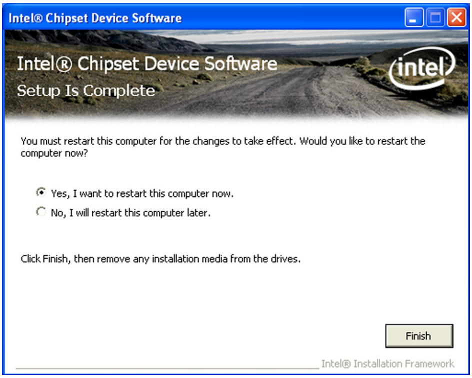
4. After all setup operations are done, click Next.


Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Progress
intel
Next
Intel® Installation Framework

Please wait while the following setup operations are performed:

```
Installing Driver: Intel(R) ICH9 Family USB Universal Host Controller - 2936
Version: 8.3.1.1011
Installing Driver: Intel(R) ICH9 Family USB Universal Host Controller - 2937
Version: 8.3.1.1011
Installing Driver: Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293A
Version: 8.3.1.1011
Installing Driver: Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293C
Version: 8.3.1.1011
Installing Driver: Mobile Intel(R) 4 Series Chipset Processor to DRAM Controller - 2A40
Version: 9.1.0.1003
Click Next to continue.
```

5. Click Finish to exit setup.


Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Is Complete
intel
Finish
Intel® Installation Framework

You must restart this computer for the changes to take effect. Would you like to restart the computer now?

● Yes, I want to restart this computer now.

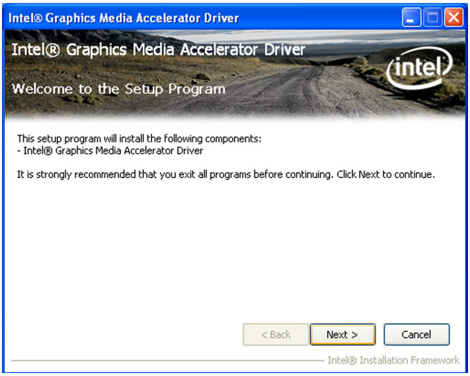
○ No, I will restart this computer later.

Click Finish, then remove any installation media from the drives.

Intel Graphics Drivers

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

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



Intel® Graphics Media Accelerator Driver

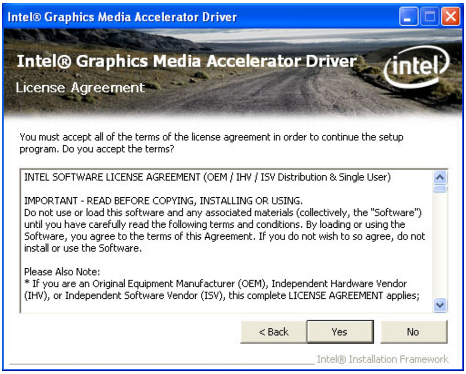
Intel® Graphics Media Accelerator Driver

Welcome to the Setup Program

This setup program will install the following components:
- Intel® Graphics Media Accelerator Driver

It is strongly recommended that you exit all programs before continuing. Click Next to continue.

2. Read the license agreement then click Yes.



Intel® Graphics Media Accelerator Driver

Intel® Graphics Media Accelerator Driver

License Agreement

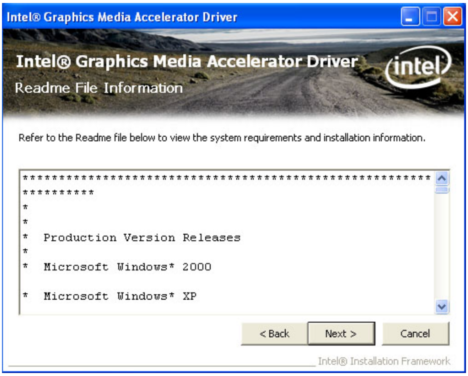
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?

INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)

IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.

Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;

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



Intel® Graphics Media Accelerator Driver

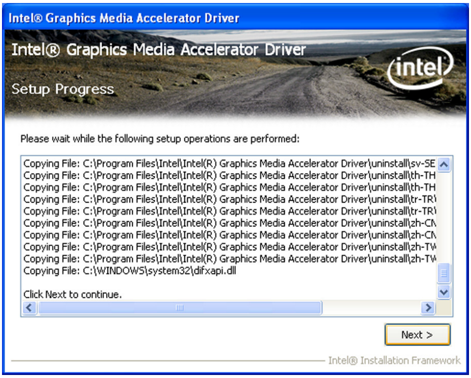
Intel® Graphics Media Accelerator Driver

Readme File Information

Refer to the Readme file below to view the system requirements and installation information.

```
**************************************************************
**********
*
*
*  Production Version Releases
*
*  Microsoft Windows* 2000

*  Microsoft Windows* XP
```

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

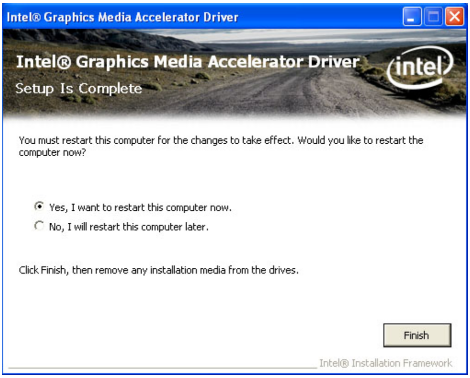

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Setup Progress
intel
Next >
Intel® Installation Framework

Please wait while the following setup operations are performed:

```
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\sv-SE
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\th-TH
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\th-TH
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\tr-TR
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\tr-TR
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-CN
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-CN
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-TW
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-TW
Copying File: C:\WINDOWS\system32\difxapi.dll

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 Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Setup Is Complete
intel
Finish
Intel® Installation Framework

You must restart this computer for the changes to take effect. Would you like to restart the computer now?

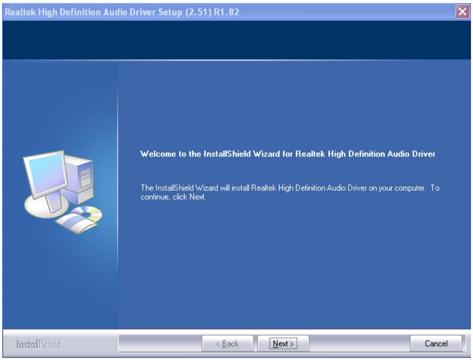
● Yes, I want to restart this computer now.
○ No, I will restart this computer later.

Click Finish, then remove any installation media from the drives.

Audio Drivers

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

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

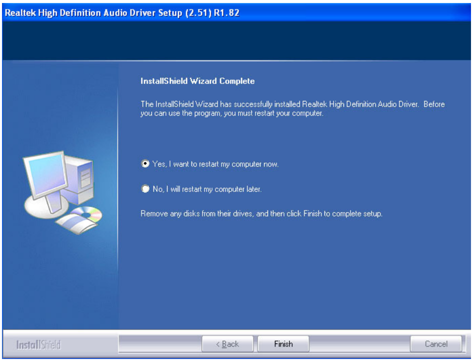

Realtek High Definition Audio Driver Setup (2.51) R1.82
InstallShield
< Back
Next >
Cancel

Welcome to the InstallShield Wizard for Realtek High Definition Audio Driver

The InstallShield Wizard will install Realtek High Definition Audio Driver on your computer. To continue, 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.


Realtek High Definition Audio Driver Setup (2.51) R1.82
InstallShield
< Back
Finish
Cancel

InstallShield Wizard Complete

The InstallShield Wizard has successfully installed Realtek High Definition Audio Driver. Before you can use the program, you must restart your computer.

● Yes, I want to restart my computer now.

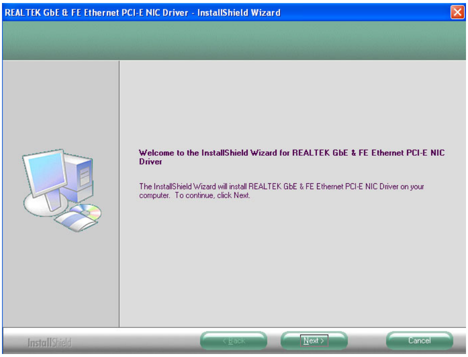
○ No, I will restart my computer later.

Remove any disks from their drives, and then click Finish to complete setup.

Realtek LAN Drivers

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

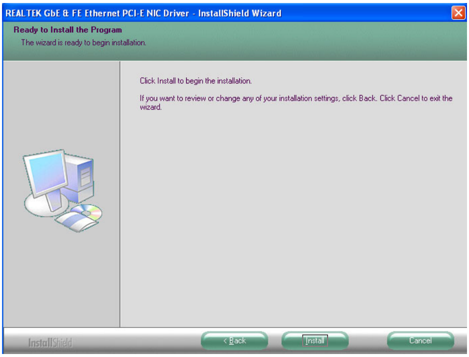
1. Setup is ready to install the driver. Click Next.


REALTEK GbE & FE Ethernet PCI-E NIC Driver - InstallShield Wizard
InstallShield
< Back
Next >
Cancel

Welcome to the InstallShield Wizard for REALTEK GbE & FE Ethernet PCI-E NIC Driver

The InstallShield Wizard will install REALTEK GbE & FE Ethernet PCI-E NIC Driver on your computer. To continue, click Next.

2. Click Install to begin the installation.


REALTEK GbE & FE Ethernet PCI-E NIC Driver - InstallShield Wizard
InstallShield
< Back
Install
Cancel

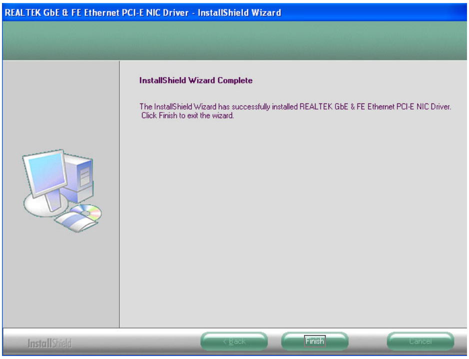
Ready to Install the Program

The wizard is ready to begin installation.

Click Install to begin the installation.

If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

3. After completing installation, click Finish.


REALTEK GbE & FE Ethernet PCI-E NIC Driver - InstallShield Wizard
InstallShield
< Back
Finish
Cancel

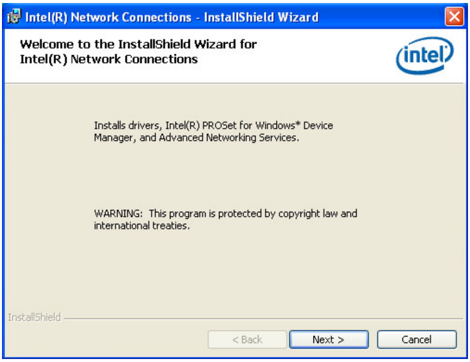
InstallShield Wizard Complete

The InstallShield Wizard has successfully installed REALTEK GbE & FE Ethernet PCI-E NIC Driver. Click Finish to exit the wizard.

Intel LAN Drivers

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

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

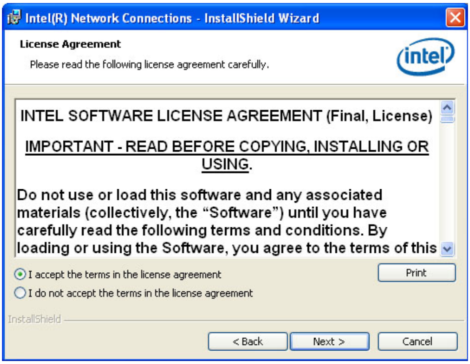

Intel(R) Network Connections - InstallShield Wizard
intel
InstallShield
< Back
Next >
Cancel

Welcome to the InstallShield Wizard for Intel(R) Network Connections

Installs drivers, Intel(R) PROSet for Windows* Device Manager, and Advanced Networking Services.

WARNING: This program is protected by copyright law and international treaties.

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


Intel(R) Network Connections - InstallShield Wizard
intel
Print
InstallShield
< Back
Next >
Cancel

License Agreement

Please read the following license agreement carefully.

INTEL SOFTWARE LICENSE AGREEMENT (Final, License)

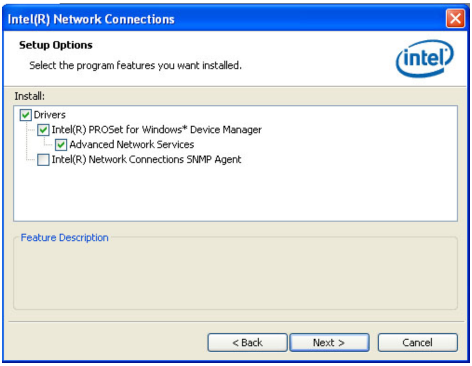
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.

Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this

● I accept the terms in the license agreement

○ I do not accept the terms in the license agreement

3. Select the program featuers you want installed then click Next.


Intel(R) Network Connections
intel
Feature Description
< Back
Next >
Cancel

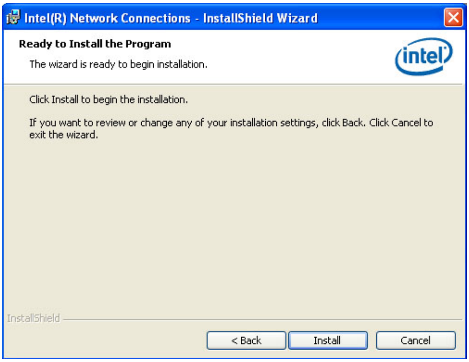
Setup Options

Select the program features you want installed.

Install:

- ☑ Drivers
  - ☑ Intel(R) PROSet for Windows* Device Manager
    - ☑ Advanced Network Services
  - ☐ Intel(R) Network Connections SNMP Agent

4. Click Install to begin the installation.


Intel(R) Network Connections - InstallShield Wizard

Ready to Install the Program

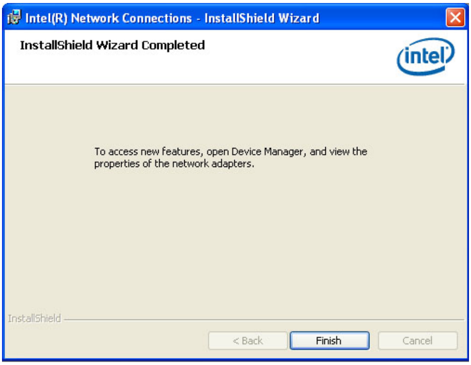
The wizard is ready to begin installation.

Click Install to begin the installation.

If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

intel
InstallShield
< Back
Install
Cancel

5. After completing installation, click Finish.


Intel(R) Network Connections - InstallShield Wizard

InstallShield Wizard Completed

To access new features, open Device Manager, and view the properties of the network adapters.

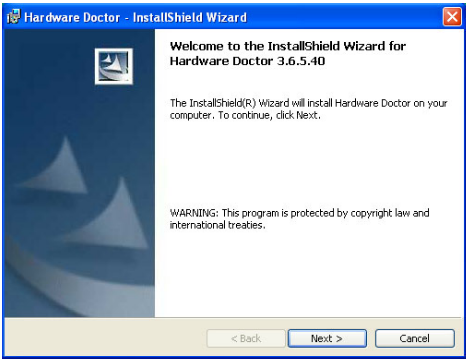
intel
InstallShield
< Back
Finish
Cancel

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.



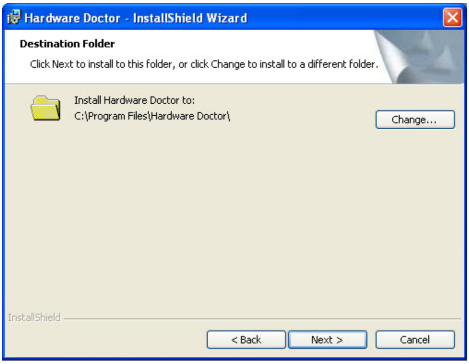
Hardware Doctor - InstallShield Wizard
< Back
Next >
Cancel

Welcome to the InstallShield Wizard for Hardware Doctor 3.6.5.40

The InstallShield(R) Wizard will install Hardware Doctor on your computer. To continue, click Next.

WARNING: This program is protected by copyright law and international treaties.

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



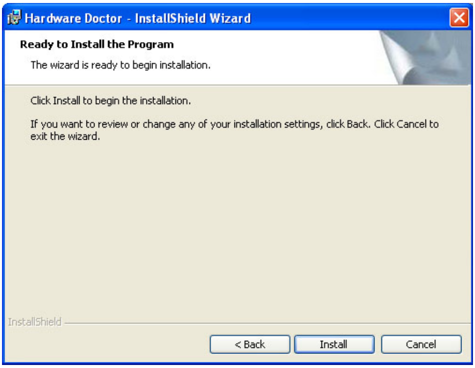
Hardware Doctor - InstallShield Wizard
InstallShield
Change...
< Back
Next >
Cancel

Destination Folder

Click Next to install to this folder, or click Change to install to a different folder.

Install Hardware Doctor to:
C:\Program Files\Hardware Doctor\

3. Click Install to begin the installation.


Hardware Doctor - InstallShield Wizard
InstallShield
< Back
Install
Cancel

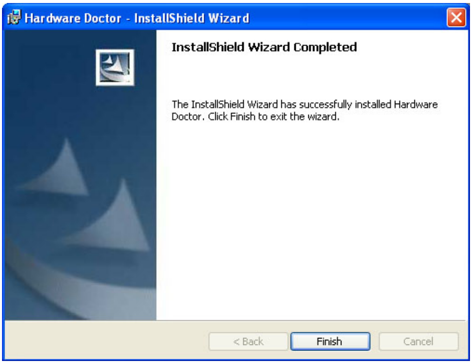
Ready to Install the Program

The wizard is ready to begin installation.

Click Install to begin the installation.

If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

4. After completing installation, click Finish.


Hardware Doctor - InstallShield Wizard
< Back
Finish
Cancel

InstallShield Wizard Completed

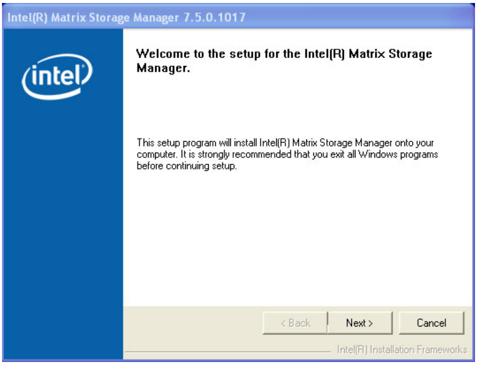
The InstallShield Wizard has successfully installed Hardware Doctor. Click Finish to exit the wizard.

Intel Matrix Storage Manager Utility

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

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

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

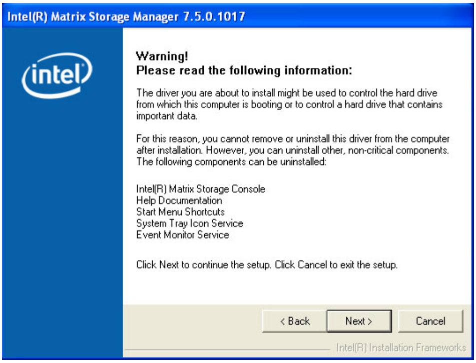


Intel(R) Matrix Storage Manager 7.5.0.1017

Welcome to the setup for the Intel(R) Matrix Storage Manager.

This setup program will install Intel(R) Matrix Storage Manager onto your computer. It is strongly recommended that you exit all Windows programs before continuing setup.

2. Read the warning carefully then click Next.



Intel(R) Matrix Storage Manager 7.5.0.1017

Warning!
Please read the following information:

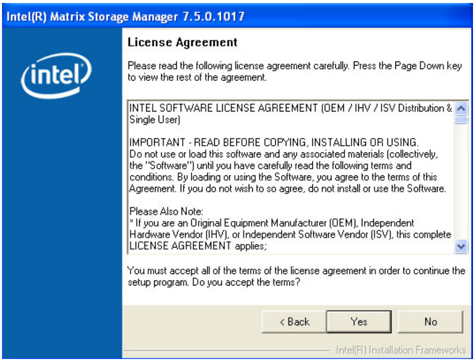
The driver you are about to install might be used to control the hard drive from which this computer is booting or to control a hard drive that contains important data.

For this reason, you cannot remove or uninstall this driver from the computer after installation. However, you can uninstall other, non-critical components. The following components can be uninstalled:

Intel(R) Matrix Storage Console
Help Documentation
Start Menu Shortcuts
System Tray Icon Service
Event Monitor Service

Click Next to continue the setup. Click Cancel to exit the setup.

3. Read the license agreement then click Yes.



Intel(R) Matrix Storage Manager 7.5.0.1017

License Agreement

Please read the following license agreement carefully. Press the Page Down key to view the rest of the agreement.

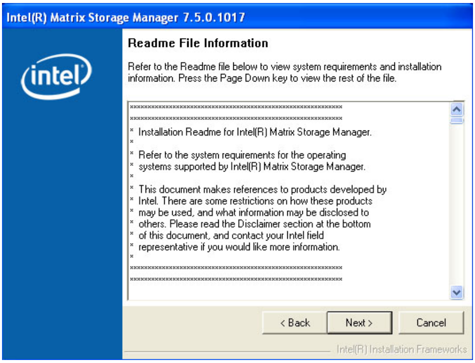
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)

IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.

Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;

You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?

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



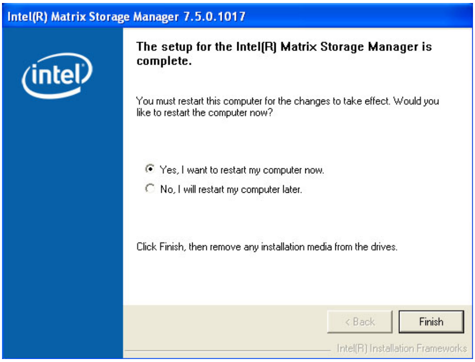
Intel(R) Matrix Storage Manager 7.5.0.1017

Readme File Information

Refer to the Readme file below to view system requirements and installation information. Press the Page Down key to view the rest of the file.

```
*  Installation Readme for Intel(R) Matrix Storage Manager.
*
*  Refer to the system requirements for the operating
*  systems supported by Intel(R) Matrix Storage Manager.
*
*  This document makes references to products developed by
*  Intel. There are some restrictions on how these products
*  may be used, and what information may be disclosed to
*  others. Please read the Disclaimer section at the bottom
*  of this document, and contact your Intel field
*  representative if you would like more information.
*
```

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



Intel(R) Matrix Storage Manager 7.5.0.1017

The setup for the Intel(R) Matrix Storage Manager is complete.

You must restart this computer for the changes to take effect. Would you like to restart the computer now?

● Yes, I want to restart my computer now.
○ No, I will restart my computer later.

Click Finish, then remove any installation media from the drives.

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.

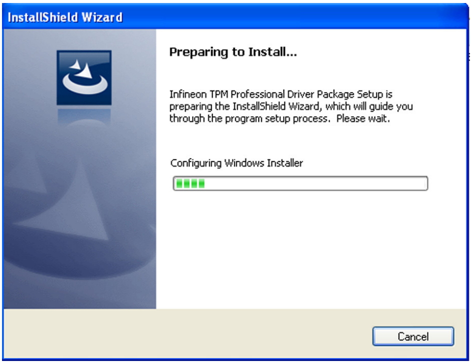
   32-bit
   CD Drive:\AHCI_RAID\F6FLOPPY\f6flpy32

   64-bit
   CD Drive:\AHCI_RAID\F6FLOPPY\f6flpy64

Infineon TPM Driver

To install, click “Infineon TPM Driver” on the main menu.

1. The setup program is preparing to install the driver.



InstallShield Wizard

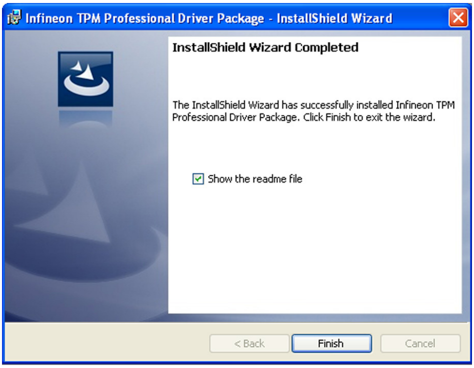
Preparing to Install...

Infineon TPM Professional Driver Package Setup is preparing the InstallShield Wizard, which will guide you through the program setup process. Please wait.

Configuring Windows Installer

Cancel

2. The driver has been successfully installed. Click Finish.



Infineon TPM Professional Driver Package - InstallShield Wizard

InstallShield Wizard Completed

The InstallShield Wizard has successfully installed Infineon TPM Professional Driver Package. Click Finish to exit the wizard.

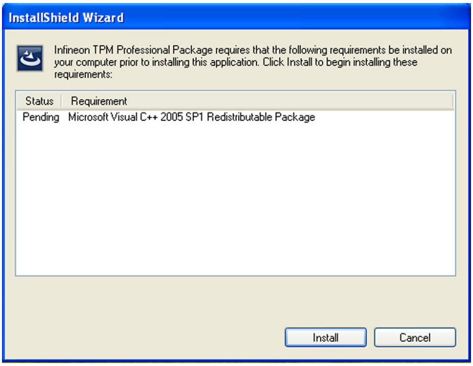
☑ Show the readme file

< Back
Finish
Cancel

Infineon TPM Utility

To install, click “Infineon TPM Utility” on the main menu.

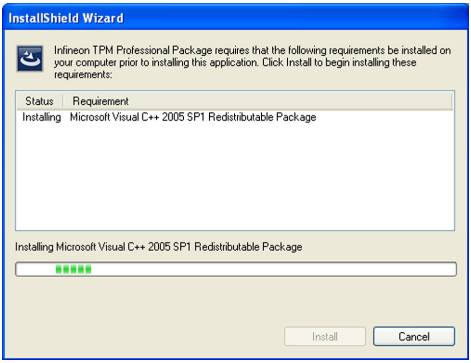
1. TPM requires installing the Microsoft Visual C++ package prior to installing the utility. Click Install.


InstallShield Wizard
Install
Cancel

Infineon TPM Professional Package requires that the following requirements be installed on your computer prior to installing this application. Click Install to begin installing these requirements:

Status	Requirement
Pending	Microsoft Visual C++ 2005 SP1 Redistributable Package

2. The setup program is currently installing the Microsoft Visual C++ package.

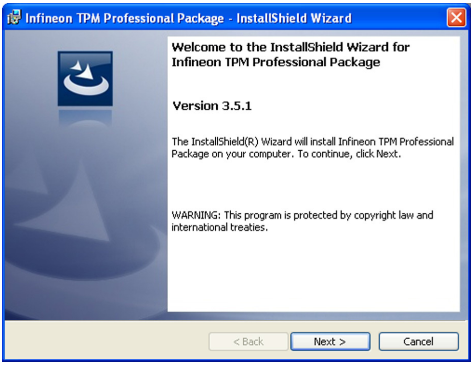

InstallShield Wizard
Install
Cancel

Infineon TPM Professional Package requires that the following requirements be installed on your computer prior to installing this application. Click Install to begin installing these requirements:

Status	Requirement
Installing	Microsoft Visual C++ 2005 SP1 Redistributable Package

Installing Microsoft Visual C++ 2005 SP1 Redistributable Package

3. The setup program is now ready to install the utility. Click Next.


Infineon TPM Professional Package - InstallShield Wizard
< Back
Next >
Cancel

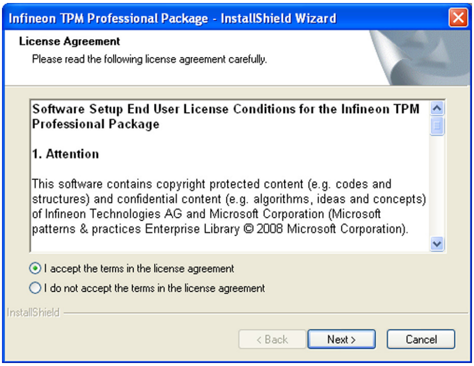
Welcome to the InstallShield Wizard for Infineon TPM Professional Package

Version 3.5.1

The InstallShield(R) Wizard will install Infineon TPM Professional Package on your computer. To continue, click Next.

WARNING: This program is protected by copyright law and international treaties.

4. Click “I accept the terms in the license agreement” and then click “Next”.



Infineon TPM Professional Package - InstallShield Wizard

License Agreement

Please read the following license agreement carefully.

Software Setup End User License Conditions for the Infineon TPM Professional Package

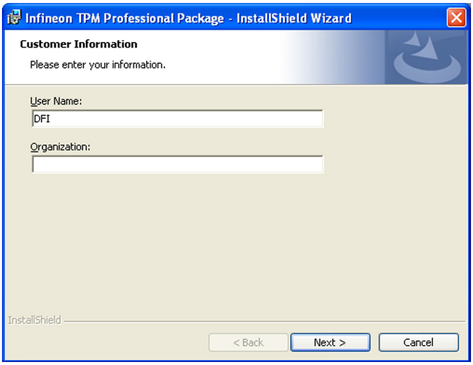
1. Attention

This software contains copyright protected content (e.g. codes and structures) and confidential content (e.g. algorithms, ideas and concepts) of Infineon Technologies AG and Microsoft Corporation (Microsoft patterns & practices Enterprise Library © 2008 Microsoft Corporation).

● I accept the terms in the license agreement

○ I do not accept the terms in the license agreement

5. Enter the necessary information and then click Next.



Infineon TPM Professional Package - InstallShield Wizard

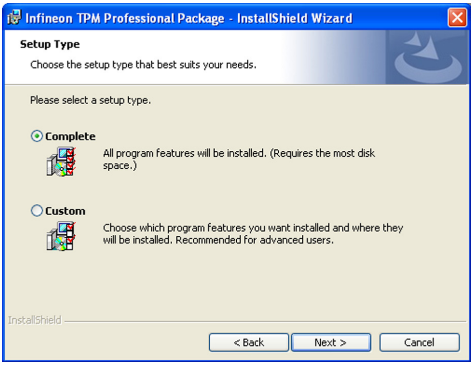
Customer Information

Please enter your information.

User Name: DFI

Organization:

6. Select a setup type and then click Next.



Infineon TPM Professional Package - InstallShield Wizard

Setup Type

Choose the setup type that best suits your needs.

Please select a setup type.

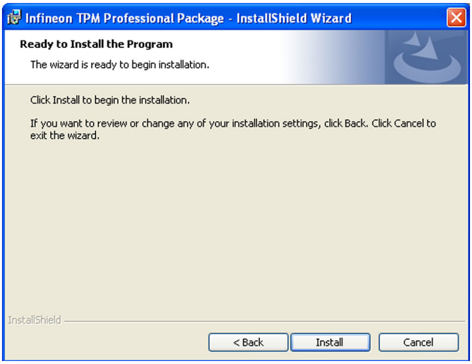
● **Complete**

All program features will be installed. (Requires the most disk space.)

○ **Custom**

Choose which program features you want installed and where they will be installed. Recommended for advanced users.

7. Click Install.


Infineon TPM Professional Package - InstallShield Wizard
InstallShield
< Back
Install
Cancel

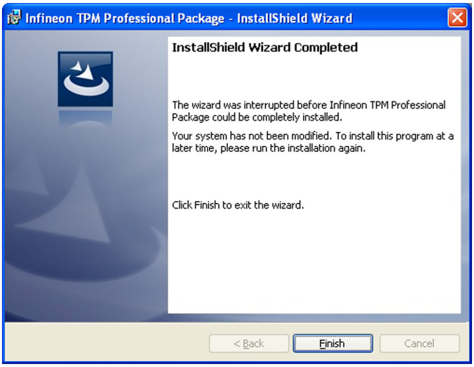
Ready to Install the Program

The wizard is ready to begin installation.

Click Install to begin the installation.

If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

8. Click Finish.


Infineon TPM Professional Package - InstallShield Wizard
< Back
Finish
Cancel

InstallShield Wizard Completed

The wizard was interrupted before Infineon TPM Professional Package could be completely installed.

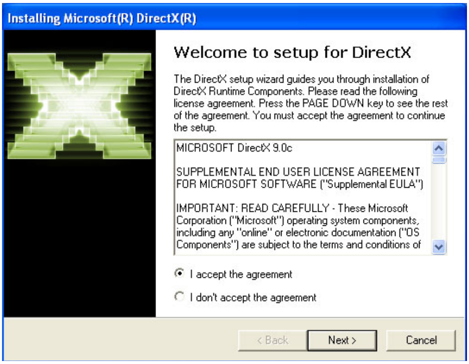
Your system has not been modified. To install this program at a later time, please run the installation again.

Click Finish to exit the wizard.

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.


Installing Microsoft(R) DirectX(R)
< Back
Next >
Cancel

Welcome to setup for DirectX

The DirectX setup wizard guides you through installation of DirectX Runtime Components. Please read the following license agreement. Press the PAGE DOWN key to see the rest of the agreement. You must accept the agreement to continue the setup.

MICROSOFT DirectX 9.0c

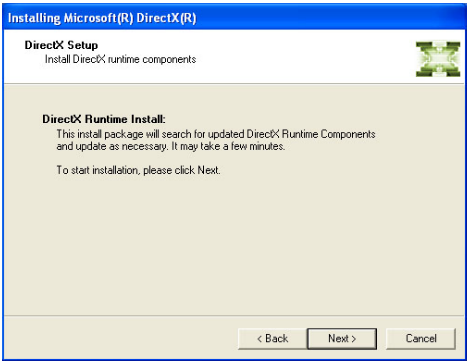
SUPPLEMENTAL END USER LICENSE AGREEMENT FOR MICROSOFT SOFTWARE ("Supplemental EULA")

IMPORTANT: READ CAREFULLY - These Microsoft Corporation ("Microsoft") operating system components, including any "online" or electronic documentation ("OS Components") are subject to the terms and conditions of

● I accept the agreement

○ I don't accept the agreement

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

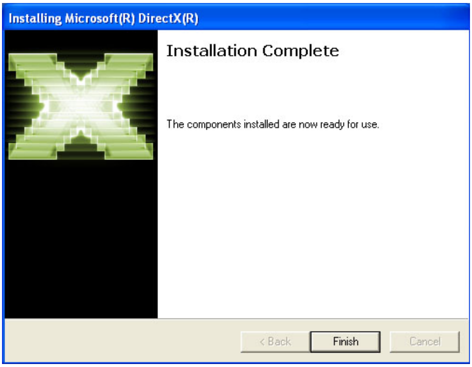

Installing Microsoft(R) DirectX(R)
< Back
Next >
Cancel

DirectX Setup
Install DirectX runtime components

DirectX Runtime Install:
This install package will search for updated DirectX Runtime Components and update as necessary. It may take a few minutes.

To start installation, please click Next.

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


Installing Microsoft(R) DirectX(R)
< Back
Finish
Cancel

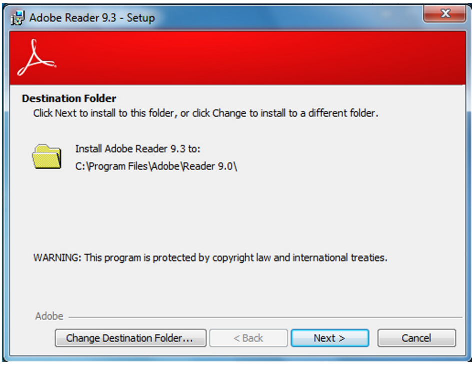
Installation Complete

The components installed are now ready for use.

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.



Destination Folder

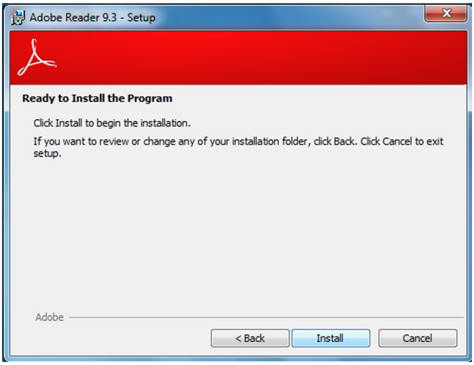
Click Next to install to this folder, or click Change to install to a different folder.

Install Adobe Reader 9.3 to:
C:\Program Files\Adobe\Reader 9.0\

WARNING: This program is protected by copyright law and international treaties.

Adobe Reader 9.3 - Setup
Adobe
Change Destination Folder...
< Back
Next >
Cancel

2. Click Install to begin installation.



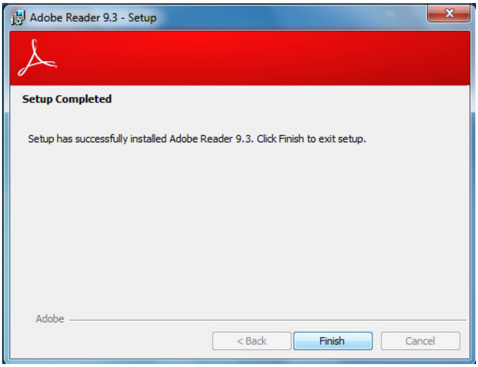
Ready to Install the Program

Click Install to begin the installation.

If you want to review or change any of your installation folder, click Back. Click Cancel to exit setup.

Adobe Reader 9.3 - Setup
Adobe
< Back
Install
Cancel

3. Click Finish to exit installation.



Adobe Reader 9.3 - Setup

Setup Completed

Setup has successfully installed Adobe Reader 9.3. Click Finish to exit setup.

Adobe
< Back
Finish
Cancel

Appendix A - NLITE and AHCI Installation Guide

nLite

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

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

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

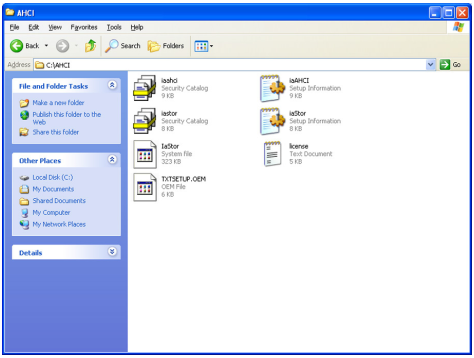
   http://www.nliteos.com/download.html

2. Install nLite.

   Important:
   Due to it's coding with Visual.Net, you may need to first install .NET Framework prior to installing nLite.

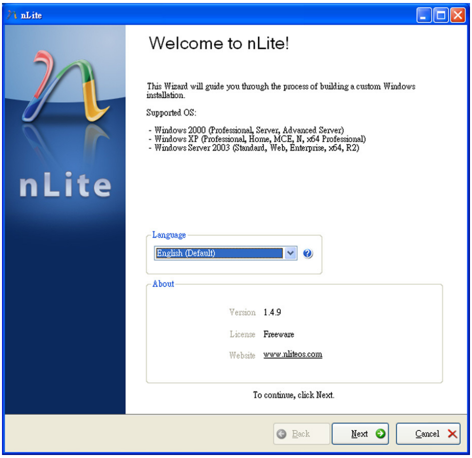
3. Download relevant RAID/AHCI driver files from Intel's website. The drivers you choose will depend on the operating system and chipset used by your computer.

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


AHCI
File Edit View Favorites Tools Help
Back
Search
Folders
Address C:\AHCI
Go
File and Folder Tasks
Make a new folder
Publish this folder to the Web
Share this folder
Other Places
Local Disk (C:)
My Documents
Shared Documents
My Computer
My Network Places
Details
iaahci Security Catalog 9 KB
iaAHCI Setup Information 9 KB
iastor Security Catalog 8 KB
iaStor Setup Information 8 KB
IaStor System file 323 KB
license Text Document 5 KB
TXTSETUP.OEM OEM File 6 KB

4. Insert the XP installation disc into an optical drive.

5. Launch nLite. The Welcome screen will appear. Click **Next**.



Welcome to nLite!

This Wizard will guide you through the process of building a custom Windows installation.

Supported OS:

- Windows 2000 (Professional, Server, Advanced Server)
- Windows XP (Professional, Home, MCE, N, x64 Professional)
- Windows Server 2003 (Standard, Web, Enterprise, x64, R2)

Language: English (Default)

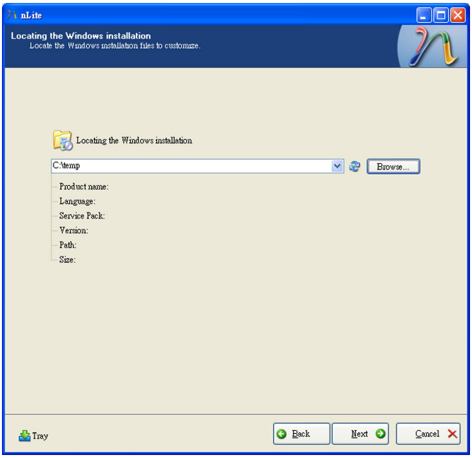
About

Version 1.4.9
License Freeware
Website www.nliteos.com

To continue, click Next.

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

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



Locating the Windows installation

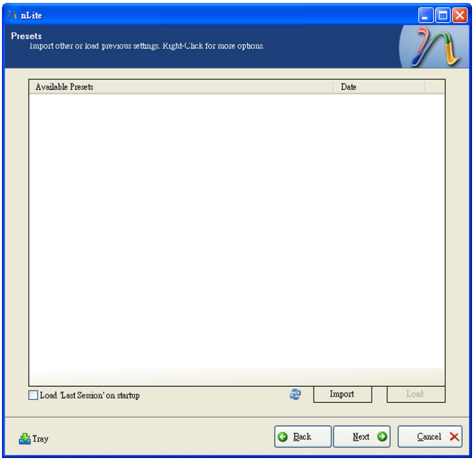
Locate the Windows installation files to customize.

Locating the Windows installation

C:\temp

Product name:
Language:
Service Pack:
Version:
Path:
Size:

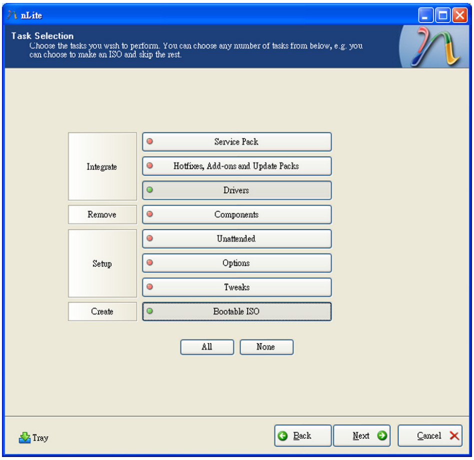
7. Click **Next**.


nLite
Presets
Available Presets
Date
Import
Load
Tray
Back
Next
Cancel

Import other or load previous settings. Right-Click for more options.

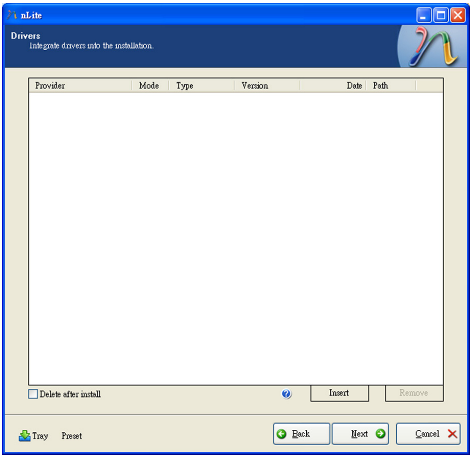
☐ Load 'Last Session' on startup

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


nLite
Task Selection
Integrate
Service Pack
Hotfixes, Add-ons and Update Packs
Drivers
Remove
Components
Setup
Unattended
Options
Tweaks
Create
Bootable ISO
All
None
Tray
Back
Next
Cancel

Choose the tasks you wish to perform. You can choose any number of tasks from below, e.g. you can choose to make an ISO and skip the rest.

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

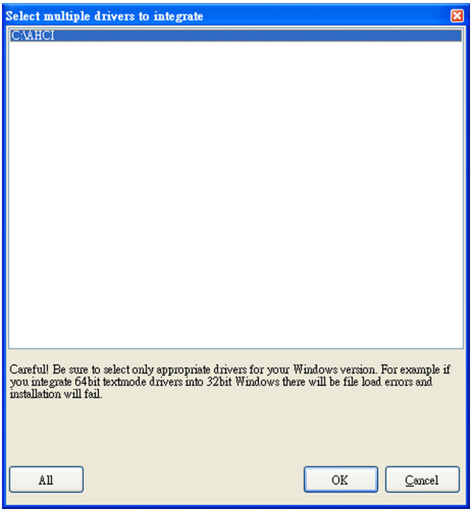


Integrate drivers into the installation.

nLite
Drivers
Provider
Mode
Type
Version
Date
Path
☐ Delete after install
Insert
Remove
Tray
Preset
Back
Next
Cancel

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

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



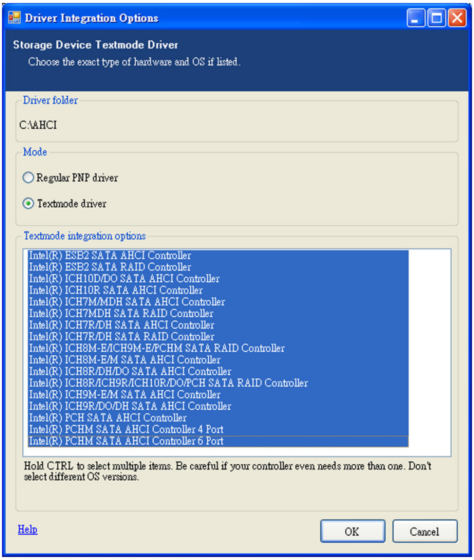
Select multiple drivers to integrate

C:\AHCI

Careful! Be sure to select only appropriate drivers for your Windows version. For example if you integrate 64bit textmode drivers into 32bit Windows there will be file load errors and installation will fail.

All
OK
Cancel

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



Storage Device Textmode Driver
Choose the exact type of hardware and OS if listed.

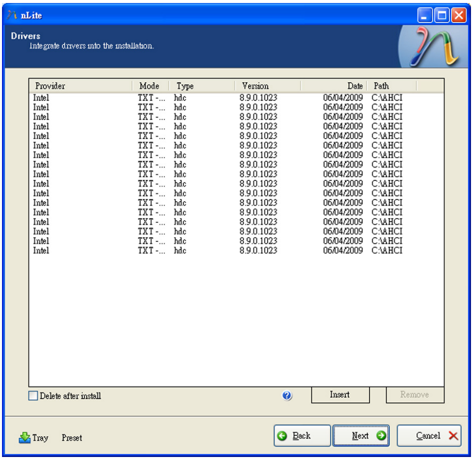
Driver folder
C:\AHCI

Mode
○ Regular PNP driver
● Textmode driver

Textmode integration options
Intel(R) ESB2 SATA AHCI Controller
Intel(R) ESB2 SATA RAID Controller
Intel(R) ICH10D/DO SATA AHCI Controller
Intel(R) ICH10R SATA AHCI Controller
Intel(R) ICH7M/MDH SATA AHCI Controller
Intel(R) ICH7MDH SATA RAID Controller
Intel(R) ICH7R/DH SATA AHCI Controller
Intel(R) ICH7R/DH SATA RAID Controller
Intel(R) ICH8M-E/ICH9M-E/PCHM SATA RAID Controller
Intel(R) ICH8M-E/M SATA AHCI Controller
Intel(R) ICH8R/DH/DO SATA AHCI Controller
Intel(R) ICH8R/ICH9R/ICH10R/DO/PCH SATA RAID Controller
Intel(R) ICH9M-E/M SATA AHCI Controller
Intel(R) ICH9R/DO/DH SATA AHCI Controller
Intel(R) PCH SATA AHCI Controller
Intel(R) PCHM SATA AHCI Controller 4 Port
Intel(R) PCHM SATA AHCI Controller 6 Port

Hold CTRL to select multiple items. Be careful if your controller even needs more than one. Don't select different OS versions.

12. Click **Next**.

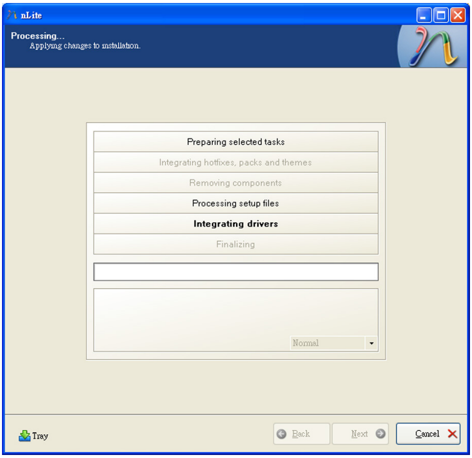


Drivers
Integrate drivers into the installation.

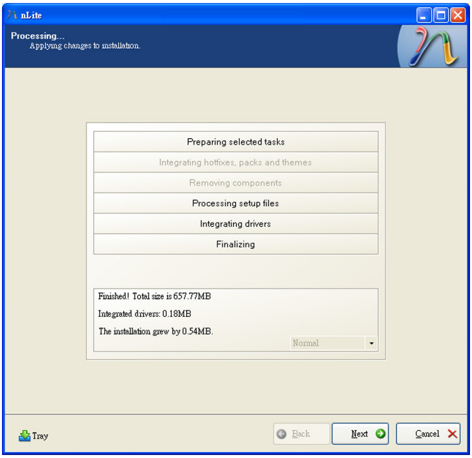
Provider	Mode	Type	Version	Date	Path
Intel	TXT -...	hdc	8.9.0.1023	06/04/2009	C:\AHCI
Intel	TXT -...	hdc	8.9.0.1023	06/04/2009	C:\AHCI
Intel	TXT -...	hdc	8.9.0.1023	06/04/2009	C:\AHCI
Intel	TXT -...	hdc	8.9.0.1023	06/04/2009	C:\AHCI
Intel	TXT -...	hdc	8.9.0.1023	06/04/2009	C:\AHCI
Intel	TXT -...	hdc	8.9.0.1023	06/04/2009	C:\AHCI
Intel	TXT -...	hdc	8.9.0.1023	06/04/2009	C:\AHCI
Intel	TXT -...	hdc	8.9.0.1023	06/04/2009	C:\AHCI
Intel	TXT -...	hdc	8.9.0.1023	06/04/2009	C:\AHCI
Intel	TXT -...	hdc	8.9.0.1023	06/04/2009	C:\AHCI
Intel	TXT -...	hdc	8.9.0.1023	06/04/2009	C:\AHCI
Intel	TXT -...	hdc	8.9.0.1023	06/04/2009	C:\AHCI
Intel	TXT -...	hdc	8.9.0.1023	06/04/2009	C:\AHCI
Intel	TXT -...	hdc	8.9.0.1023	06/04/2009	C:\AHCI
Intel	TXT -...	hdc	8.9.0.1023	06/04/2009	C:\AHCI
Intel	TXT -...	hdc	8.9.0.1023	06/04/2009	C:\AHCI
Intel	TXT -...	hdc	8.9.0.1023	06/04/2009	C:\AHCI

☐ Delete after install

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

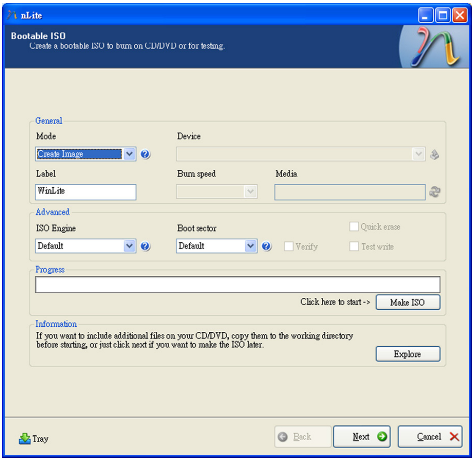

nLite
Processing...
Applying changes to installation.
Preparing selected tasks
Integrating hotfixes, packs and themes
Removing components
Processing setup files
Integrating drivers
Finalizing
Normal
Tray
Back
Next
Cancel

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


nLite
Processing...
Applying changes to installation.
Preparing selected tasks
Integrating hotfixes, packs and themes
Removing components
Processing setup files
Integrating drivers
Finalizing
Normal
Tray
Back
Next
Cancel

```
Finished! Total size is 657.77MB
Integrated drivers: 0.18MB
The installation grew by 0.54MB.
```

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



nLite

Bootable ISO

Create a bootable ISO to burn on CD/DVD or for testing.

General
Mode: Create Image
Label: WinLite

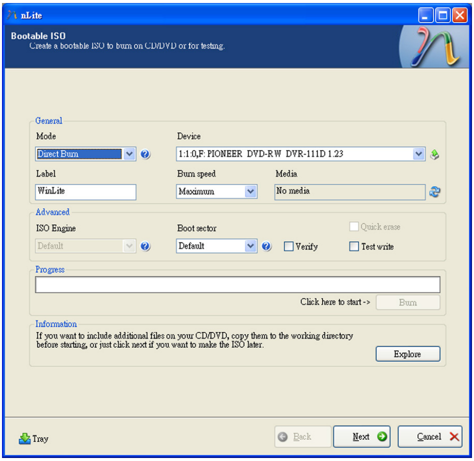
Advanced
ISO Engine: Default
Boot sector: Default

Information
If you want to include additional files on your CD/DVD, copy them to the working directory before starting, or just click next if you want to make the ISO later.

Device
Burn speed
Media
☐ Quick erase
☐ Verify
☐ Test write
Progress
Click here to start ->
Make ISO
Explore
Tray
Back
Next
Cancel

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

Select the optical device and all other necessary settings and then click **Next**.



nLite

Bootable ISO

Create a bootable ISO to burn on CD/DVD or for testing.

General
Mode: Direct Burn
Device: 1:1:0,F: PIONEER DVD-RW DVR-111D 1.23
Label: WinLite
Burn speed: Maximum
Media: No media

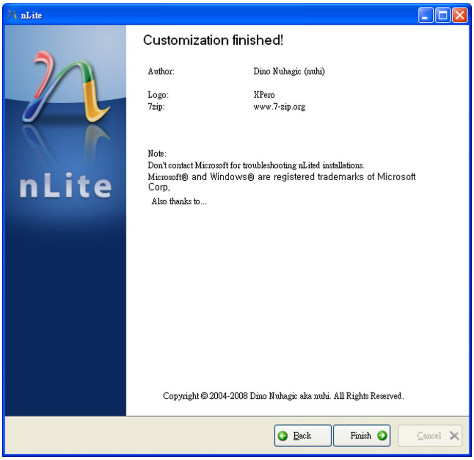
Advanced
ISO Engine: Default
Boot sector: Default

Information
If you want to include additional files on your CD/DVD, copy them to the working directory before starting, or just click next if you want to make the ISO later.

☐ Quick erase
☐ Verify
☐ Test write
Progress
Click here to start ->
Burn
Explore
Tray
Back
Next
Cancel

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

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



Customization finished!

Author:	Dino Nuhagic (nuhi)
Logo:	XPero
7zip:	www.7-zip.org

Note:
Don't contact Microsoft for troubleshooting nLited installations.
Microsoft® and Windows® are registered trademarks of Microsoft Corp.
Also thanks to...

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AHCI

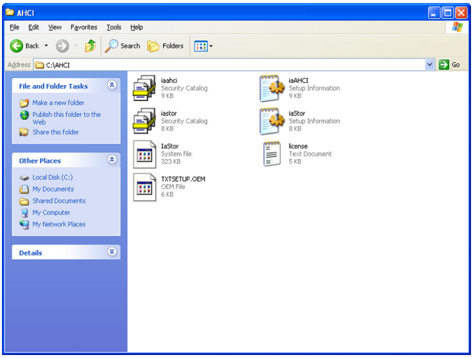
The installation steps below will guide you in configuring your SATA drive to AHCI mode.

1. Enter the BIOS utility and configure the SATA controller to IDE mode.

2. Install Windows XP but do not press F6.

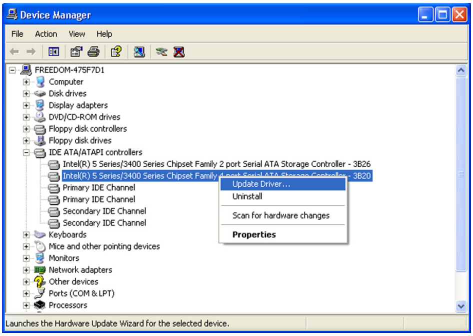
3. Download relevant RAID/AHCI driver files supported by the motherboard chipset from Intel's website.

   Transfer the downloaded driver files to C:\AHCI.


AHCI
File Edit View Favorites Tools Help
Back Search Folders
Address C:\AHCI Go
File and Folder Tasks
Make a new folder
Publish this folder to the Web
Share this folder
Other Places
Local Disk (C:)
My Documents
Shared Documents
My Computer
My Network Places
Details
iaahci Security Catalog 9 KB
iaAHCI Setup Information 9 KB
iastor Security Catalog 8 KB
iaStor Setup Information 8 KB
IaStor System file 323 KB
license Text Document 5 KB
TXTSETUP.OEM OEM File 6 KB

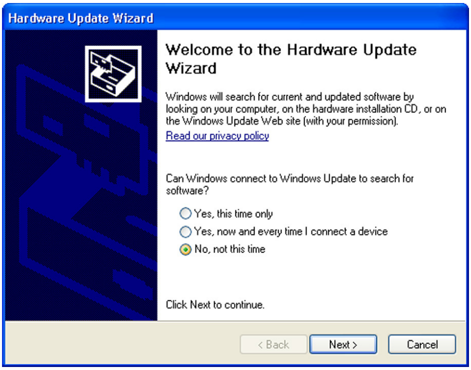
4. Open Device Manager and right click on one of the Intel Serial ATA Storage Controllers, then select **Update Driver**.

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


Device Manager
File Action View Help
FREEDOM-475F7D1
Computer
Disk drives
Display adapters
DVD/CD-ROM drives
Floppy disk controllers
Floppy disk drives
IDE ATA/ATAPI controllers
Intel(R) 5 Series/3400 Series Chipset Family 2 port Serial ATA Storage Controller - 3B26
Intel(R) 5 Series/3400 Series Chipset Family 4 port Serial ATA Storage Controller - 3B20
Primary IDE Channel
Primary IDE Channel
Secondary IDE Channel
Secondary IDE Channel
Keyboards
Mice and other pointing devices
Monitors
Network adapters
Other devices
Ports (COM & LPT)
Processors
Update Driver...
Uninstall
Scan for hardware changes
Properties

Launches the Hardware Update Wizard for the selected device.

5. In the Hardware Update Wizard dialog box, select **"No, not this time"** then click **Next**.



Welcome to the Hardware Update Wizard

Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).

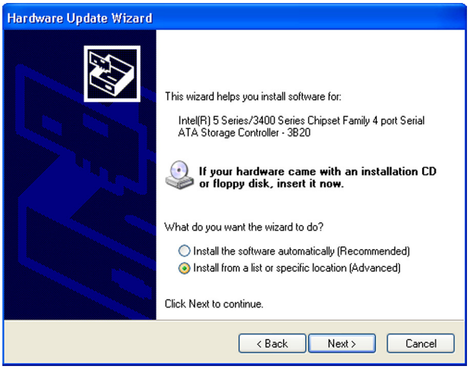
Read our privacy policy

Can Windows connect to Windows Update to search for software?

○ Yes, this time only
○ Yes, now and every time I connect a device
● No, not this time

Click Next to continue.

6. Select **"Install from a list or specific location (Advanced)"** and then click **Next**.



This wizard helps you install software for:

Intel(R) 5 Series/3400 Series Chipset Family 4 port Serial ATA Storage Controller - 3B20

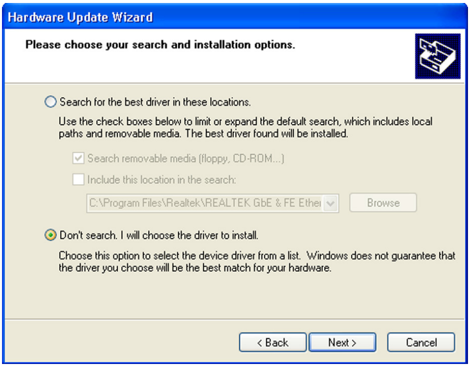
If your hardware came with an installation CD or floppy disk, insert it now.

What do you want the wizard to do?

○ Install the software automatically (Recommended)
● Install from a list or specific location (Advanced)

Click Next to continue.

7. Select **"Don't search. I will choose the driver to install"** and then click **Next**.



Please choose your search and installation options.

○ Search for the best driver in these locations.

Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.

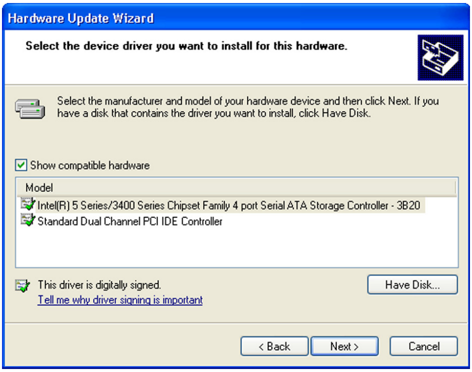
☑ Search removable media (floppy, CD-ROM...)
☐ Include this location in the search:

C:\Program Files\Realtek\REALTEK GbE & FE Ether

● Don't search. I will choose the driver to install.

Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.

8. Click **"Have Disk"**.


Hardware Update Wizard
Have Disk...
< Back
Next >
Cancel

Select the device driver you want to install for this hardware.

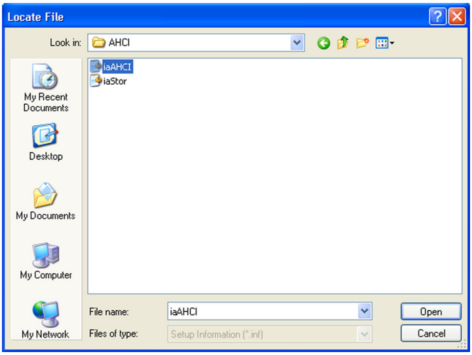
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.

☑ Show compatible hardware

Model
Intel(R) 5 Series/3400 Series Chipset Family 4 port Serial ATA Storage Controller - 3B20
Standard Dual Channel PCI IDE Controller

This driver is digitally signed.
Tell me why driver signing is important

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

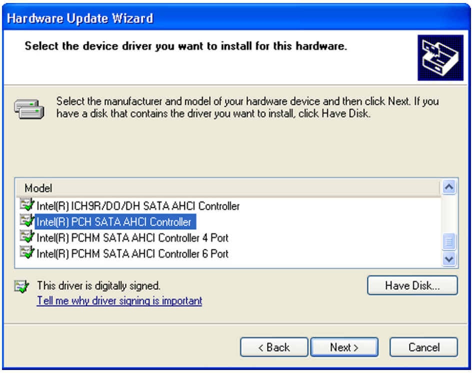

Locate File
My Recent Documents
Desktop
My Documents
My Computer
My Network
iaAHCI
iaStor
Open
Cancel

Look in: AHCI

File name: iaAHCI

Files of type: Setup Information (*.inf)

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


Hardware Update Wizard
Have Disk...
< Back
Next >
Cancel

Select the device driver you want to install for this hardware.

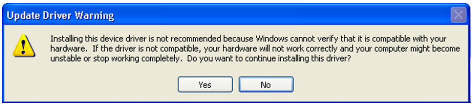
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.

Model
Intel(R) ICH9R/DO/DH SATA AHCI Controller
Intel(R) PCH SATA AHCI Controller
Intel(R) PCHM SATA AHCI Controller 4 Port
Intel(R) PCHM SATA AHCI Controller 6 Port

This driver is digitally signed.
Tell me why driver signing is important

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

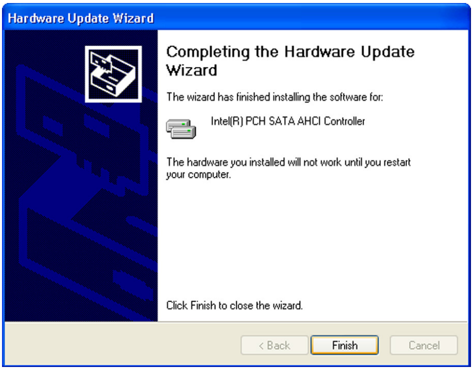
    Ignore the warning and click **Yes** to proceed.



Update Driver Warning

Installing this device driver is not recommended because Windows cannot verify that it is compatible with your hardware. If the driver is not compatible, your hardware will not work correctly and your computer might become unstable or stop working completely. Do you want to continue installing this driver?

12. Click **Finish**.



Hardware Update Wizard

Completing the Hardware Update Wizard

The wizard has finished installing the software for:

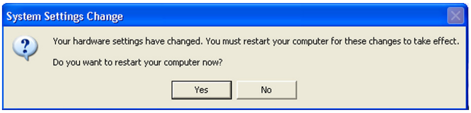
Intel(R) PCH SATA AHCI Controller

The hardware you installed will not work until you restart your computer.

Click Finish to close the wizard.

< Back
Finish
Cancel

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

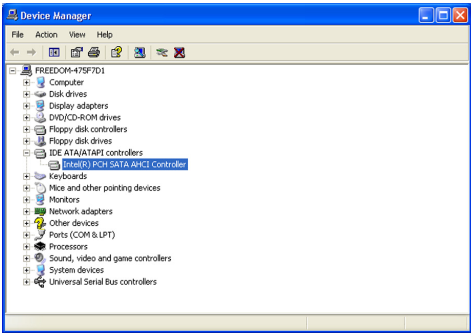


System Settings Change

Your hardware settings have changed. You must restart your computer for these changes to take effect.

Do you want to restart your computer now?

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



Device Manager
File
Action
View
Help
FREEDOM-475F7D1
Computer
Disk drives
Display adapters
DVD/CD-ROM drives
Floppy disk controllers
Floppy disk drives
IDE ATA/ATAPI controllers
Intel(R) PCH SATA AHCI Controller
Keyboards
Mice and other pointing devices
Monitors
Network adapters
Other devices
Ports (COM & LPT)
Processors
Sound, video and game controllers
System devices
Universal Serial Bus controllers

Appendix B - Watchdog Timer

Watchdog Timer

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

```
.model small
.386

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

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

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

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

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

mSuperio_LDN_Select     Macro   LDN
        mSuperio_Set_Reg 07h, LDN
endM

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

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

.code

start:
        call                    W83627Hx_WDT

        mov     ah, 4ch
        int     21h

W83627Hx_WDT    Proc    near
;LDN8
;CRF5[3]  :RW 0/1 = WDTO Second/Minute
;CRF5[2]  :RW 0/1 = Keyboard Reset Low/High when WDTO Timeout

;CRF6[7:0]:RW 00h = Disable , 01h~0FFh = 1~255 Sec/Min.

;CRF7[7]  :RW 0/1 = Disable/Enable Mouse interrupt reset WDTO counting.

;CRF7[6]  :RW 0/1 = Disable/Enable Keyboard interrupt reset WDTO counting.

;CRF7[5]  :WO 1   = Force WDTO time out(Auto clear).

;CRF7[4]  :RW 0/1 = WDTO time status TimeOut/Counting.

;CRF7[3:0]:RW 0~7 = Low IRQ for WDTO (Typical is 2, means SMI).

        mSuperio_Enter_Config

        mSuperio_LDN_Select 08h
```

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

            mSuperio_GetSet_Reg 0F5h, 11110111b, 00000100b

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

            mSuperio_GetSet_Reg 0F7h, 11111111b, 11000010b

; , WDTO Time out Value

            mSuperio_Set_Reg 0F6h, WDT_Counter

mSuperio_Exit_Config

@@:

            ret

W83627Hx_WDT    endP

end start
```

Appendix C - System Error Message

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

Error Messages

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

CMOS BATTERY HAS FAILED

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

Important

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

CMOS CHECKSUM ERROR

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

DISPLAY SWITCH IS SET INCORRECTLY

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

Hard Disk(s) fail (80)

HDD reset failed.

Hard Disk(s) fail (40)

HDD controller diagnostics failed.

Hard Disk(s) fail (20)

HDD initialization error.

Hard Disk(s) fail (10)

Unable to recalibrate fixed disk.

Hard Disk(s) fail (08)

Sector Verify failed.

Keyboard is locked out - Unlock the key

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

Keyboard error or no keyboard present

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

Manufacturing POST loop

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

BIOS ROM checksum error - System halted

The checksum of ROM address F0000H-FFFFFH is bad.

Memory test fail

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

Appendix D - Troubleshooting

Troubleshooting Checklist

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

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

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

Monitor/Display

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

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

The picture seems to be constantly moving.

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

The screen seems to be constantly wavering.

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

Power Supply

When the computer is turned on, nothing happens.

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

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.