G5C900-B

COM Express Board
User's Manual

935-G5C901-000G
A01500719

Copyright

Trademarks

FCC and DOC Statement on Class B

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

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

Notice:

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

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

Table of Contents

About this Manual

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

Warranty

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

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

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

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

Static Electricity Precautions

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

1. To prevent electrostatic build-up, leave the 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 package contains the following items. If any of these items are missing or damaged, please contact your dealer or sales representative for assistance.

- ☑ The system board
- ☑ A user's manual
- ☑ One "Main Board Utility" CD
- ☑ One QR (Quick Reference)

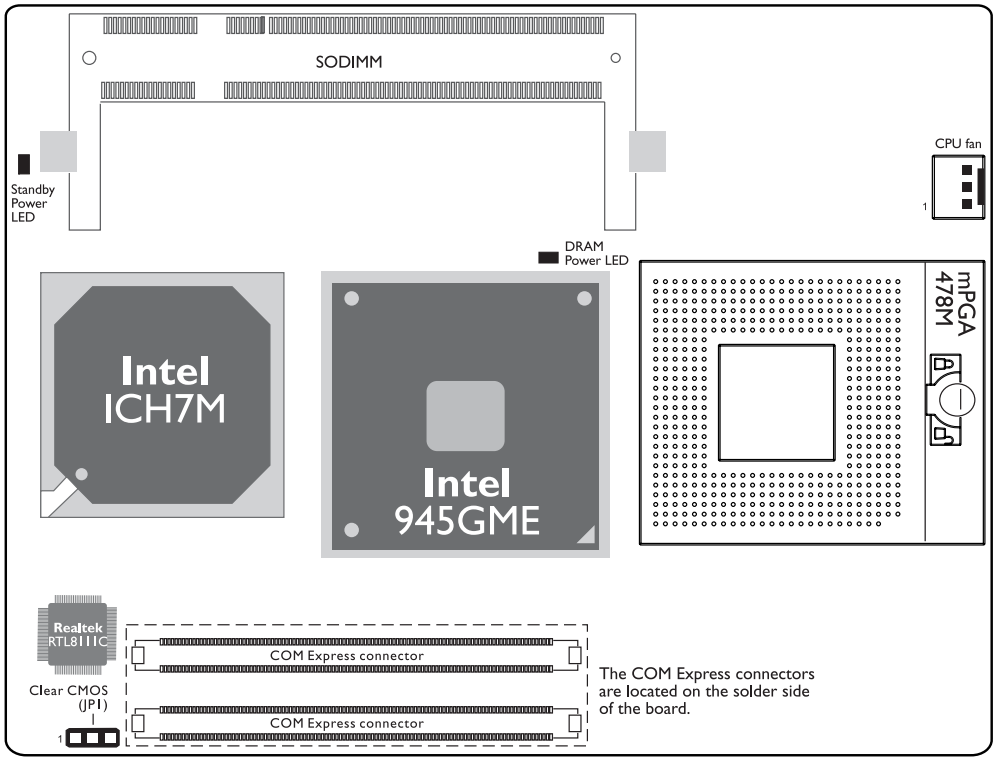
The board and accessories in the package may not come similar to the information listed above. This may differ in accordance to the sales region or models in which it was sold. For more information about the standard package in your region, please contact your dealer or sales representative.

Specifications

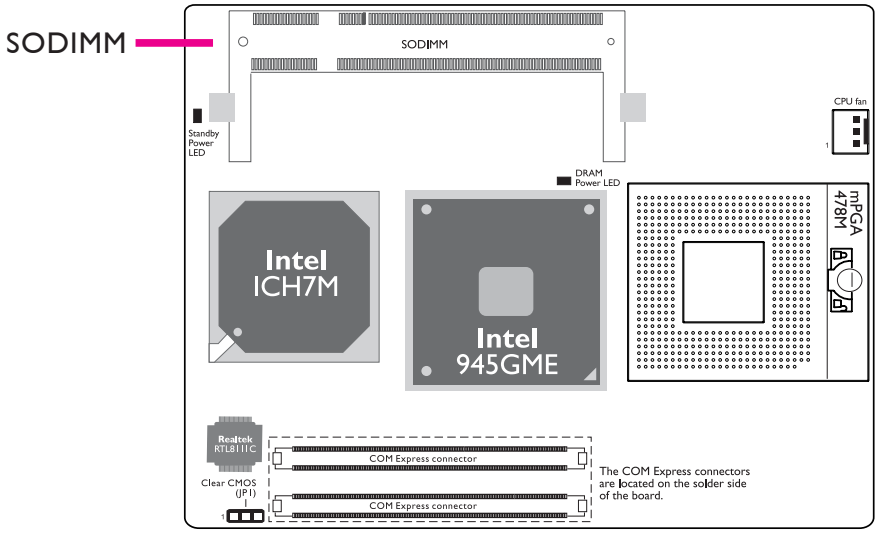
Processor	• Intel® Core™ Duo/Solo processor Intel® Core™2 Duo processor - 667MHz/533MHz system data bus • Intel® Celeron® M processor - 533MHz system data bus (on Ultra Low Voltage) • Processor socket: mPGA478M • Cooling options - Heatspreader - Heat sink with cooling fan
Chipset	• Intel® chipset - Intel® 945GME Graphics Memory Controller Hub (GMCH) - Intel® ICH7M
System Memory	• One 200-pin SODIMM socket (1.8V) • Supports up to 2GB DDR2 SDRAM • Supports 533MHz and 667MHz DDR2 SDRAM
BIOS	• SPI interface BIOS (8Mbit)
Graphics	• Internal graphics features - DVMT 3.0 support - Intel® Dual-Frequency Graphics Technology - Intel® Smart 2D Display Technology - Dual Independent display pipes - Intel Gen 3.5 Integrated Graphics Engine • Integrated graphics interface - Analog CRT - Integrated 400MHz RAMDAC - Analog monitor supports up to UXGA - LVDS interface - Panel support up to UXGA (1600x1200) - 25MHz-112MHz single/dual channel @ 18/24bpp, TFT panel type support
LAN	• One Realtek RTL8111C PCI Express Gigabit controller • Supports 10Mbps, 100Mbps and 1Gbps data transmission • IEEE 802.3 (10/100Mbps) and IEEE 802.3ab (1Gbps) compliant
Audio	• Supports AC97 digital interface
Expansion Interfaces	• 1 PCI Express x16 • 3 PCI Express x1 • 4 PCI (Master)

Serial ATA	• Supports 2 Serial ATA interfaces which are compliant with SATA 1.0 specification
IDE	• Supports up to 2 IDE devices • Supports up to Ultra ATA 100
Damage Free Intelligence	• Monitors CPU temperature and overheat alarm • Monitors CPU Smart fan speed and failure alarm • Monitors Vcore/1.8V/1.5V voltages and failure alarm
Connectors	• COM Express connectors - Two 220-pin COM Express standard connectors - Module connector pin: Tyco 3-6318490-6 • 1 CPU fan connector
Temperature	• Operating: 0°C to 60°C • Non-operating: -40°C to 85°C
Humidity	• Operating: 10% to 90%
Power	• Input: 12V, 5VSB, VCC_RTC
Regulatory	• EMC: CE, FCC Part 15 Class B
PCB	• Dimensions - COM Express basic form factor - 9.5cm (3.74") x 12.5cm (4.9") • Compliance - PICMG COM Express R1.0 basic form factor, Type 2

Board Layout



System Memory



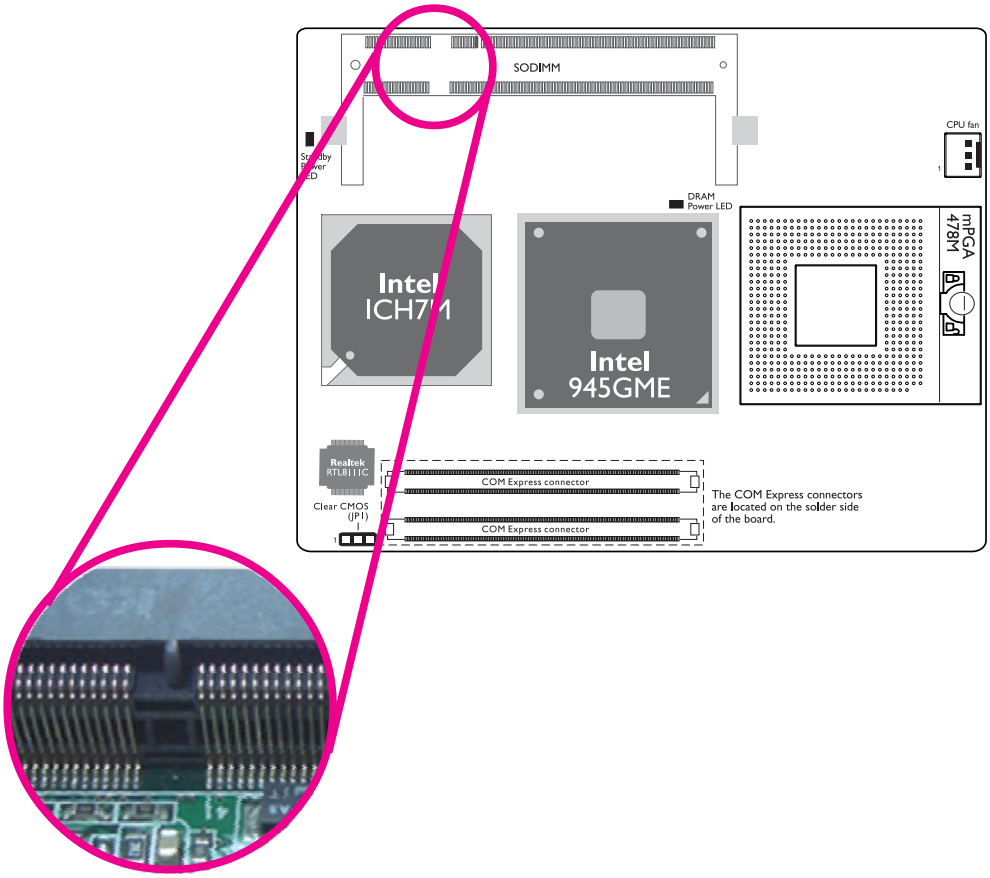
BIOS Setting

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

Installing SODIMM

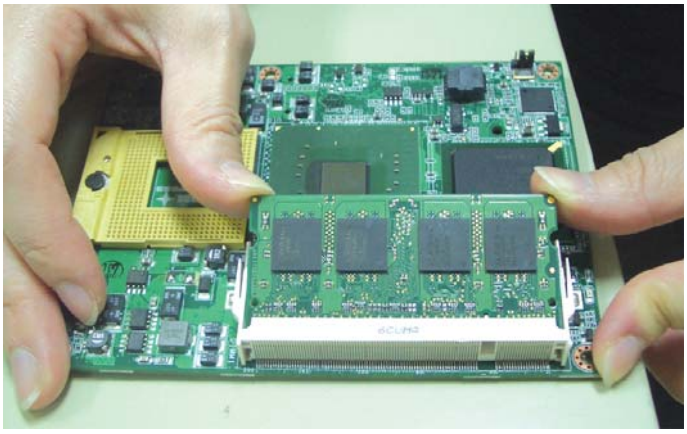
Note:
The board used in the following illustrations may not resemble the actual board. These illustrations are for reference only.

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

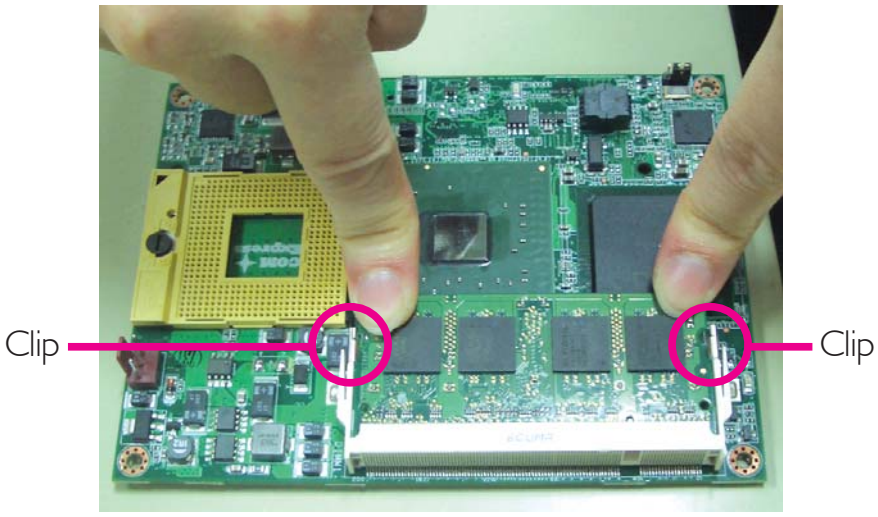


5. Grasping the module by its edges, insert the module into the socket at an approximately 30 degrees angle. Note that the socket and module are both keyed, which means the module can be plugged into the socket in only one direction.

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



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

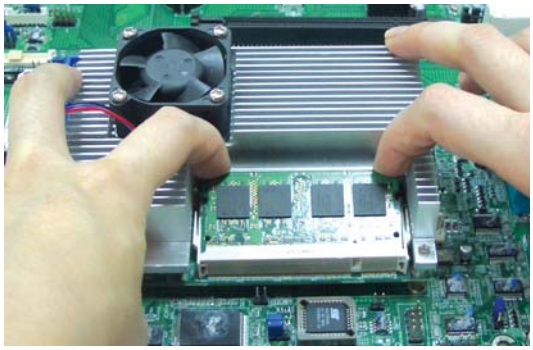


8. To remove the module, simultaneously push the retaining clips outward to unlock the module.

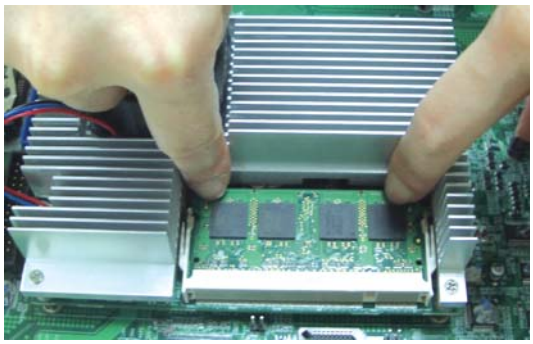
9. If the board already comes installed with the heat sink / fan assembly, you will still be able to install the module without removing the heat sink / fan assembly. Avoid constant removal and installation of the assembly as this will easily damage the components on the board.

   Despite limited space to accessing the SODIMM socket, installing the module is basically the same as described earlier.

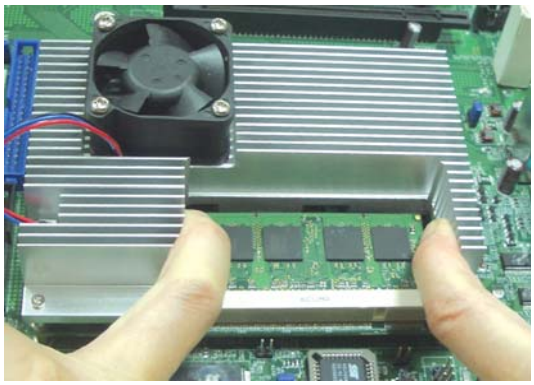
   a) Insert the module into the socket at an approximately 30 degrees angle.



   b) Push down the module until the clips at each side of the socket lock into position.



   c) To remove the module, simultaneously push the retaining clips outward to unlock the module. You can also use a thin blunt object to push the clips outward. The module will release from the socket.



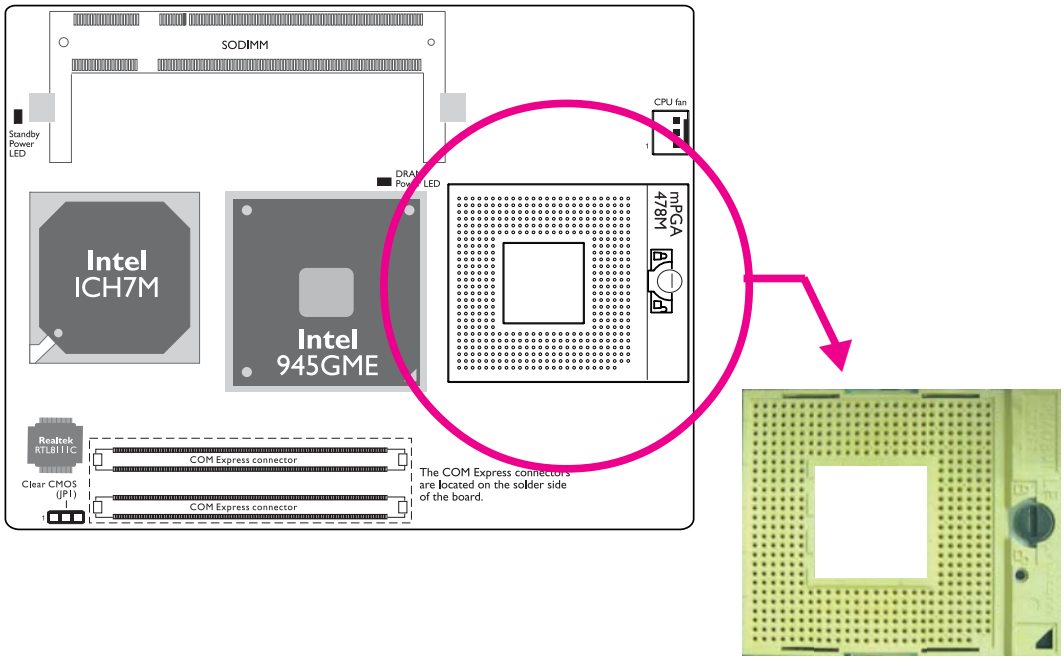
CPU

Overview

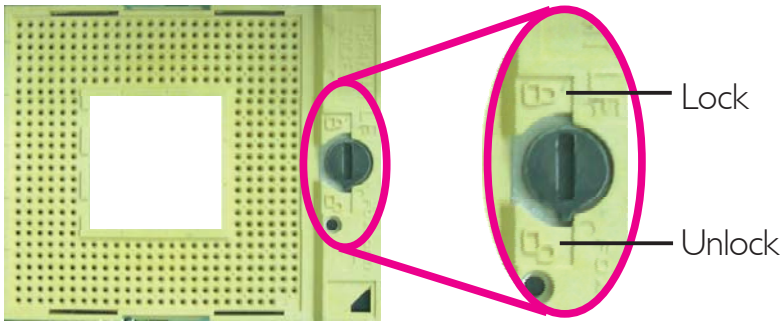
The board is equipped with a surface mount mPGA478M CPU socket.

Installing the CPU

1. Make sure the PC and all other peripheral devices connected to it has been powered down.
2. Disconnect all power cords and cables.
3. Locate the mPGA478M socket on the board.



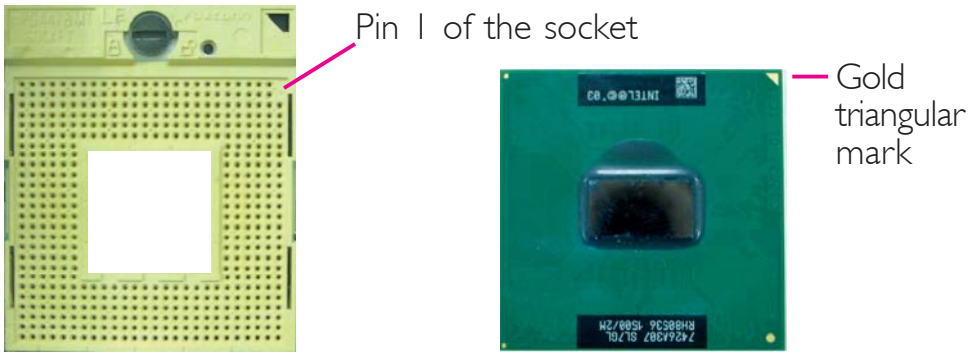
4. Use a screwdriver to turn the screw to its unlock position.



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

Important:

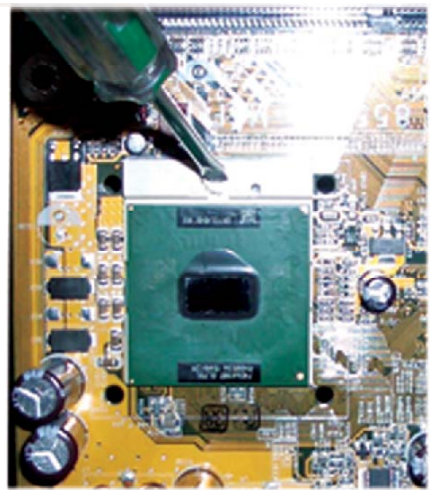
1. ***Only Use Intel® Core™ Duo/Solo processor or Intel® Celeron® M processor manufactured on 65nm technology.*** *Intel Pentium M and Intel Celeron M processors manufactured on 0.13 micron and 90nm technology are not supported. Installing an incompatible processor will cause severe damage to both the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



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

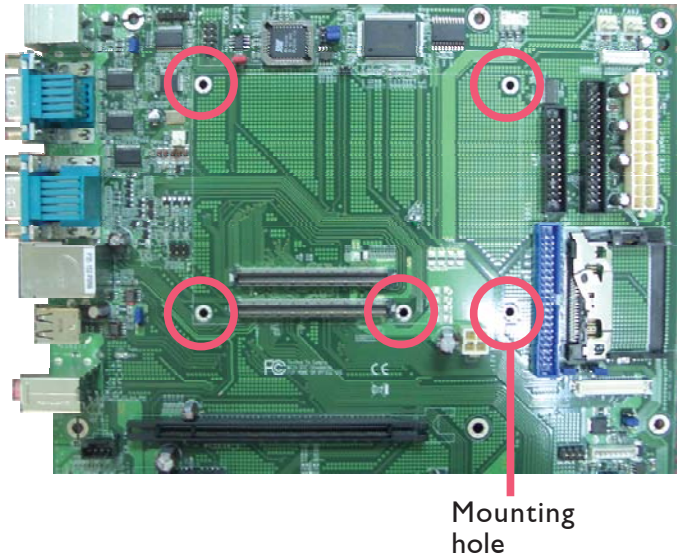
Important:

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

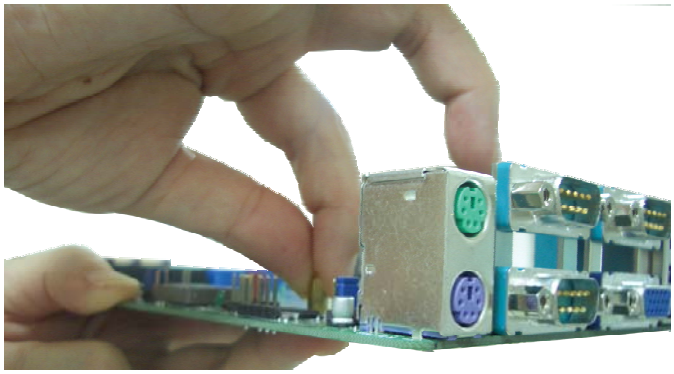


Installing G5C900-B on the Carrier Board

1. Insert the screws into the mounting holes - from the bottom through the top of the carrier board.

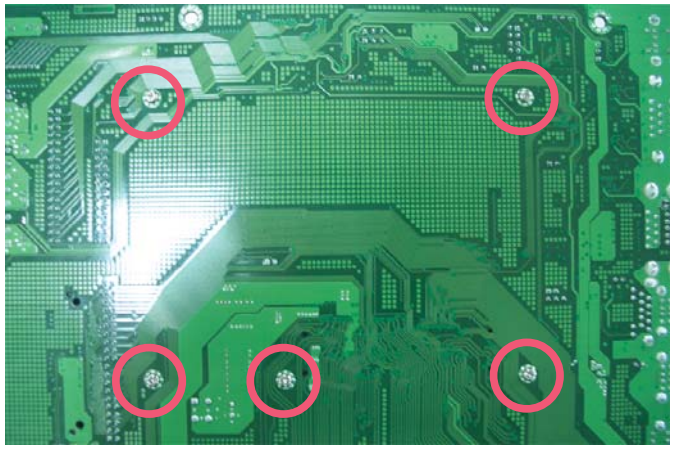


2. From the top side of the board, fasten the bolts into the screws.

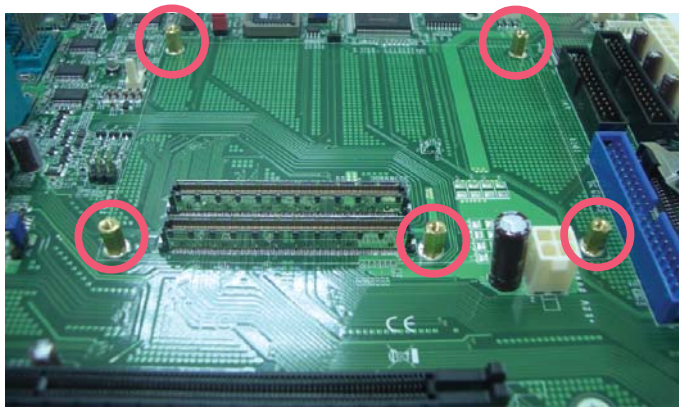


COM Express Board

3. The right photo shows the solder side of the board with the screws already fixed in place.

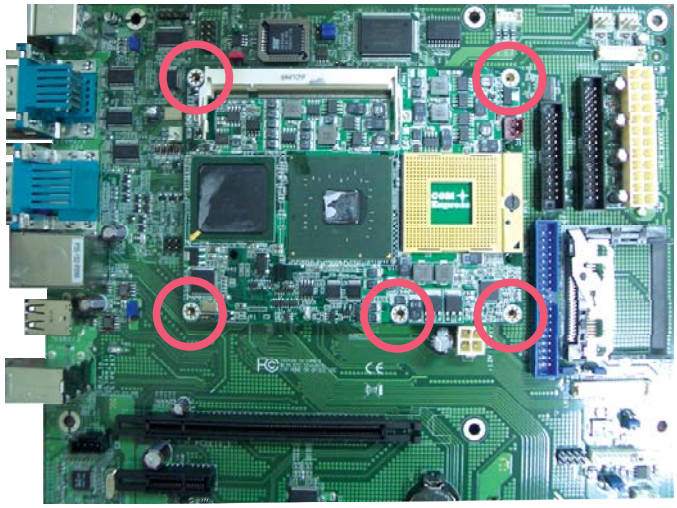


4. The right photo shows the component side of the board with the bolts already fixed in place.



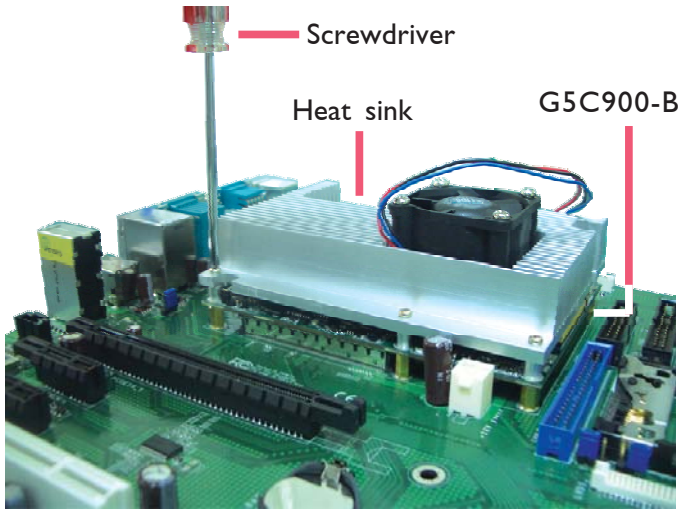
5. Grasping G5C900-B by its edges, position it on top of the carrier board with its mounting holes aligned with the bolts on the carrier board. This will also align the COM Express connectors of the two boards to each other.

   Press G5C900-B down firmly until it is completely seated on the COM Express connectors of the carrier board.



6. Position the heat sink on top of G5C900-B with the heat sink's mounting holes aligned with the mounting holes of G5C900-B.

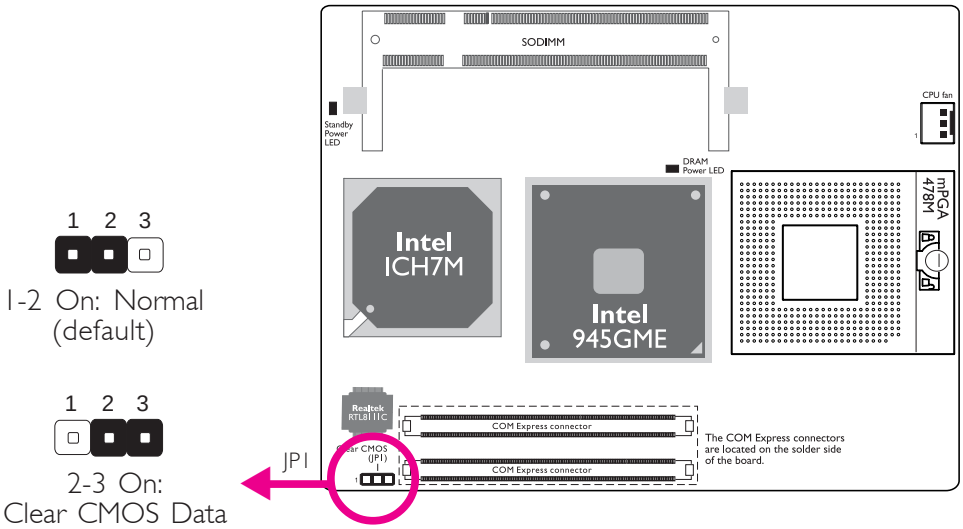
   Use the provided long screws to secure the heat sink to the board.



7. Connect the cooling fan's cable connector to the CPU fan connector on the board.

Jumper Settings

Clear CMOS Data



If you encounter the following,

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

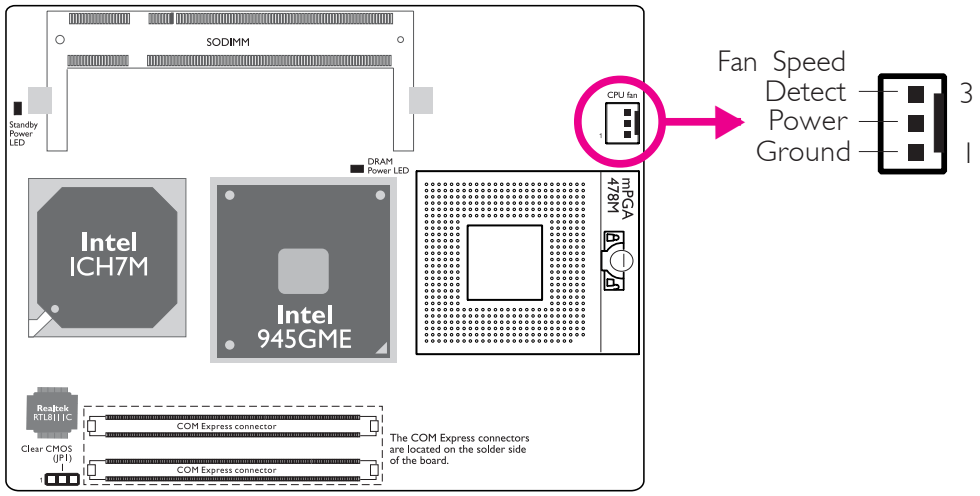
you can reconfigure the system with the default values stored in the ROM BIOS.

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

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

Connectors

CPU Fan Connector



Connect the CPU fan's cable connector to the CPU fan connector (J1) on the board. The cooling fan will provide adequate airflow throughout the chassis to prevent overheating the CPU and board components.

BIOS Setting

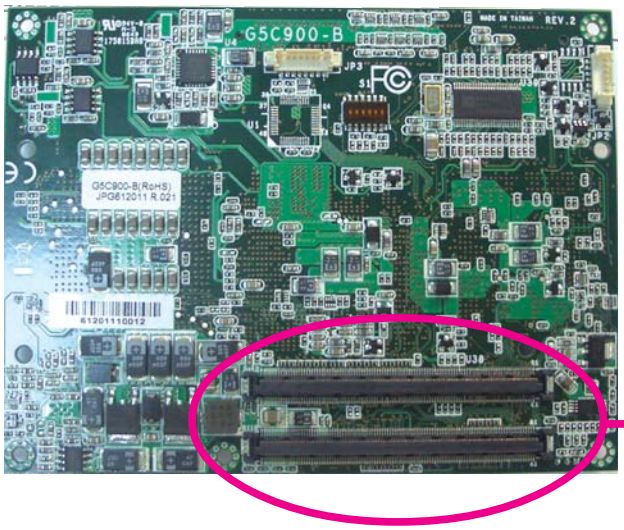
The "PC Health Status" submenu of the BIOS will display the current speed of the cooling fan. Refer to chapter 3 of the carrier board manual for more information.

COM Express Board

COM Express Connectors

The COM Express connectors are used to interface the G5C900-B COM Express board to the carrier board.

Connect the COM Express connectors, lcoated on the solder side of the board, to the COM Express connectors on the carrier board. Refer to the "Installing G5C900-B on the Carrier Board" section for more information.



Refer to the following pages for the pin functions of these connectors.

Row A

1	GND	56	PCIE_TX5-
2	GBE0_MDI3-	57	GND
3	GBE0_MDI3+	58	PCIE_TX4+
4	GBE0_LINK100#	59	PCIE_TX4-
5	GBE0_LINK1000#	60	GND
6	GBE0_MDI2-	61	PCIE_TX2+
7	GBE0_MDI2+	62	PCIE_TX2-
8	GBE0_LINK#	63	**GPIO13**
9	GBE0_MDI1-	64	PCIE_TX1+
10	GBE0_MDI1+	65	PCIE_TX1-
11	GND	66	GND
12	GBE0_MDI0-	67	**GPIO14**
13	GBE0_MDI0+	68	PCIE_TX0+
14	GBE0_CTREF	69	PCIE_TX0-
15	SUS_S3#	70	GND
16	SATA0_TX+	71	LVDS_A0+
17	SATA0_TX-	72	LVDS_A0-
18	SUS_S4#	73	LVDS_A1+
19	SATA0_RX+	74	LVDS_A1-
20	SATA0_RX-	75	LVDS_A2+
21	GND	76	LVDS_A2-
22	SATA2_TX+	77	LVDS_VDD_EN
23	SATA2_TX-	78	MCH_RSVD_13
24	SUS_S5#	79	MCH_RSVD_12
25	SATA2_RX+	80	GND
26	SATA2_RX-	81	LVDS_A_CK+
27	BATLOW#	82	LVDS_A_CK-
28	ATA_ACT#	83	LVDS_I2C_CK
29	AC_SYNC	84	LVDS_I2C_DAT
30	AC_RST#	85	**GPIO15**
31	GND	86	KBD_RST#
32	AC_BITCLK	87	KBD_A20GATE
33	AC_SDOUT	88	PCIE0_CK_REF+
34	BIOS_DESABLE#	89	PCIE0_CK_REF-
35	THRMTRIP#	90	GND
36	USB6-	91	**N.C.**
37	USB6+	92	**N.C.**
38	USB_6_7_OC#	93	**GPIO6**
39	USB4-	94	**N.C.**
40	USB4+	95	**N.C.**
41	GND	96	GND
42	USB2-	97	VCC_12V
43	USB2+	98	VCC_12V
44	USB_2_3_OC#	99	VCC_12V
45	USB0-	100	GND
46	USB0+	101	VCC_12V
47	VCC_RTC	102	VCC_12V
48	EXCD0_PERST#	103	VCC_12V
49	EXCD0_CPPE#	104	VCC_12V
50	LPC_SERIRQ	105	VCC_12V
51	GND	106	VCC_12V
52	**N.C.**	107	VCC_12V
53	**N.C.**	108	VCC_12V
54	**GPIO12**	109	VCC_12V
55	PCIE_TX5+	110	GND

Row B

1	GND	56	PCIE_RX5-
2	GBE_ACT#	57	**GPIO38**
3	LPC_FRAME#	58	PCIE_RX4+
4	LPC_AD0	59	PCIE_RX4-
5	LPC_AD1	60	GND
6	LPC_AD2	61	PCIE_RX2+
7	LPC_AD3	62	PCIE_RX2-
8	LPC_DRQ0#	63	**GPIO39**
9	LPC_DRQ1#	64	PCIE_RX1+
10	LPC_CLK	65	PCIE_RX1-
11	GND	66	WAKE0#
12	PWRBTN#	67	ICH_IR
13	SMB_CK	68	PCIE_RX0+
14	SMB_DAT	69	PCIE_RX0-
15	SMB_ALERT#	70	GND
16	**N.C.**	71	LVDS_B0+
17	**N.C.**	72	LVDS_B0-
18	SUS_STAT#	73	LVDS_B1+
19	**N.C.**	74	LVDS_B1-
20	**N.C.**	75	LVDS_B2+
21	GND	76	LVDS_B2-
22	**N.C.**	77	MCH_RSVD_15
23	**N.C.**	78	MCH_RSVD_14
24	PWR_OK	79	LVDS_BKLT_EN
25	**N.C.**	80	GND
26	**N.C.**	81	LVDS_B_CK+
27	WDT	82	LVDS_B_CK-
28	AC_SDIN2	83	LVDS_BKLT_CTRL
29	AC_SDIN1	84	VCC_5V_SBY
30	AC_SDIN0	85	VCC_5V_SBY
31	GND	86	VCC_5V_SBY
32	SPKR	87	VCC_5V_SBY
33	SMLINK0	88	**N.C.**
34	SMLINK1	89	VGA_RED
35	THRM#	90	GND
36	USB7-	91	VGA_GRN
37	USB7+	92	VGA_BLU
38	USB_4_5_OC#	93	VGA_HSYNC
39	USB5-	94	VGA_VSYNC
40	USB5+	95	VGA_I2C_CK
41	GND	96	VGA_I2C_DAT
42	USB3-	97	**N.C.**
43	USB3+	98	**N.C.**
44	USB_0_1_OC#	99	**N.C.**
45	USB1-	100	GND
46	USB1+	101	VCC_12V
47	EXCD1_PERST#	102	VCC_12V
48	EXCD1_CPPE#	103	VCC_12V
49	SYS_RESET#	104	VCC_12V
50	CB_RESET#	105	VCC_12V
51	GND	106	VCC_12V
52	**N.C.**	107	VCC_12V
53	**N.C.**	108	VCC_12V
54	**GPIO7**	109	VCC_12V
55	PCIE_RX5+	110	GND

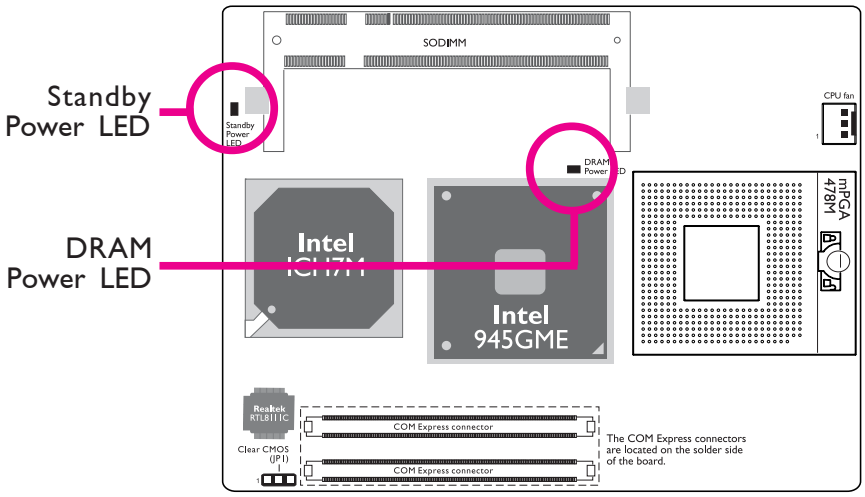
Row C

1	GND	56	PEG_RX1-
2	IDE_D7	57	**N.C.**
3	IDE_D6	58	PEG_RX2+
4	IDE_D3	59	PEG_RX2-
5	IDE_D15	60	GND
6	IDE_D8	61	PEG_RX3+
7	IDE_D9	62	PEG_RX3-
8	IDE_D2	63	**N.C.**
9	IDE_D13	64	**N.C.**
10	IDE_D1	65	PEG_RX4+
11	GND	66	PEG_RX4-
12	IDE_D14	67	**N.C.**
13	IDE_IORDY	68	PEG_RX5+
14	IDE_IOR#	69	PEG_RX5-
15	PCI_PME#	70	GND
16	PCI_GNT2#	71	PEG_RX6+
17	PCI_REQ2#	72	PEG_RX6-
18	PCI_GNT1#	73	SDVO_DATA
19	PCI_REQ1#	74	PEG_RX7+
20	PCI_GNT0#	75	PEG_RX7-
21	GND	76	GND
22	PCI_REQ0#	77	**N.C.**
23	PCI_RESET#	78	PEG_RX8+
24	PCI_AD0	79	PEG_RX8-
25	PCI_AD2	80	GND
26	PCI_AD4	81	PEG_RX9+
27	PCI_AD6	82	PEG_RX9-
28	PCI_AD8	83	**N.C.**
29	PCI_AD10	84	GND
30	PCI_AD12	85	PEG_RX10+
31	GND	86	PEG_RX10-
32	PCI_AD14	87	GND
33	PCI_C/BE1#	88	PEG_RX11+
34	PCI_PERR#	89	PEG_RX11-
35	PCI_LOCK#	90	GND
36	PCI_DEVSEL#	91	PEG_RX12+
37	PCI_IRDY#	92	PEG_RX12-
38	PCI_C/BE2#	93	GND
39	PCI_AD17	94	PEG_RX13+
40	PCI_AD19	95	PEG_RX13-
41	GND	96	GND
42	PCI_AD21	97	**N.C.**
43	PCI_AD23	98	PEG_RX14+
44	PCI_C/BE3#	99	PEG_RX14-
45	PCI_AD25	100	GND
46	PCI_AD27	101	PEG_RX15+
47	PCI_AD29	102	PEG_RX15-
48	PCI_AD31	103	GND
49	PCI_IRQA#	104	VCC_12V
50	PCI_IRQB#	105	VCC_12V
51	GND	106	VCC_12V
52	PEG_RX0+	107	VCC_12V
53	PEG_RX0-	108	VCC_12V
54	**N.C.**	109	VCC_12V
55	PEG_RX1+	110	GND

Row D

1	GND	56	PEG_TX1-
2	IDE_D5	57	**N.C.**
3	IDE_D10	58	PEG_TX2+
4	IDE_D11	59	PEG_TX2-
5	IDE_D12	60	GND
6	IDE_D4	61	PEG_TX3+
7	IDE_D0	62	PEG_TX3-
8	IDE_REQ	63	**N.C.**
9	IDE_LOW#	64	**N.C.**
10	IDE_ACK#	65	PEG_TX4+
11	GND	66	PEG_TX4-
12	IDE_IRQ	67	GND
13	IDE_A0	68	PEG_TX5+
14	IDE_A1	69	PEG_TX5-
15	IDE_A2	70	GND
16	IDE_CS1	71	PEG_TX6+
17	IDE_CS3	72	PEG_TX6-
18	IDE_RESET#	73	SDVO_CLK
19	PCI_GNT3#	74	PEG_TX7+
20	PCI_REQ3#	75	PEG_TX7-
21	GND	76	GND
22	PCI_AD1	77	IDE_CBLID#
23	PCI_AD3	78	PEG_TX8+
24	PCI_AD5	79	PEG_TX8-
25	PCI_AD7	80	GND
26	**PCI_C/BE0#**	81	PEG_TX9+
27	**PCI_AD9**	82	PEG_TX9-
28	PCI_AD11	83	**N.C.**
29	PCI_AD13	84	GND
30	PCI_AD15	85	PEG_TX10+
31	GND	86	PEG_TX10-
32	PCI_PAR	87	GND
33	PCI_SERR#	88	PEG_TX11+
34	PCI_STOP#	89	PEG_TX11-
35	PCI_TRDY#	90	GND
36	PCI_FRAME#	91	PEG_TX12+
37	PCI_AD16	92	PEG_TX12-
38	PCI_AD18	93	GND
39	PCI_AD20	94	PEG_TX13+
40	PCI_AD22	95	PEG_TX13-
41	GND	96	GND
42	PCI_AD24	97	PEG_ENABLE#
43	PCI_AD26	98	PEG_TX14+
44	PCI_AD28	99	PEG_TX14-
45	PCI_AD30	100	GND
46	PCI_IRQC#	101	PEG_TX15+
47	PCI_IRQD#	102	PEG_TX15-
48	PCI_CLKRUN#	103	GND
49	**RSVD**	104	VCC_12V
50	PCI_CLK	105	VCC_12V
51	GND	106	VCC_12V
52	PEG_TX0+	107	VCC_12V
53	PEG_TX0-	108	VCC_12V
54	PEG_LANE_RV#	109	VCC_12V
55	PEG_TX1+	110	GND

LEDs



DRAM Power LED

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

Standby Power LED

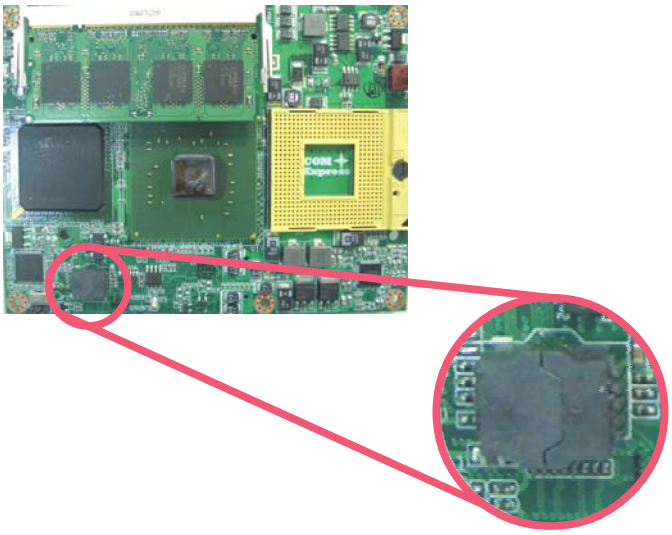
This LED will light when the system is in the standby mode.

Important:

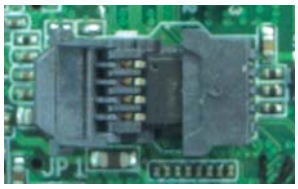
If the DRAM Power LED or Standby Power LED is lighted, you must power-off the system then turn off the power supply's switch or unplug the power cord prior to installing any memory modules or add-in cards.

SPI Flash ROM Socket

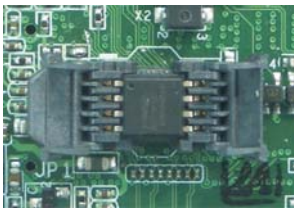
1. The photo on the right shows the location of the SPI flash ROM socket.



2. If you need to replace the ROM, open the left cover first then the right cover of the socket.

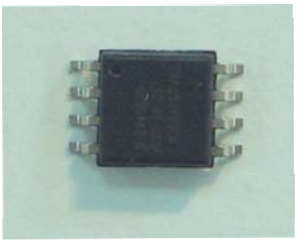


Open left cover



Open right cover

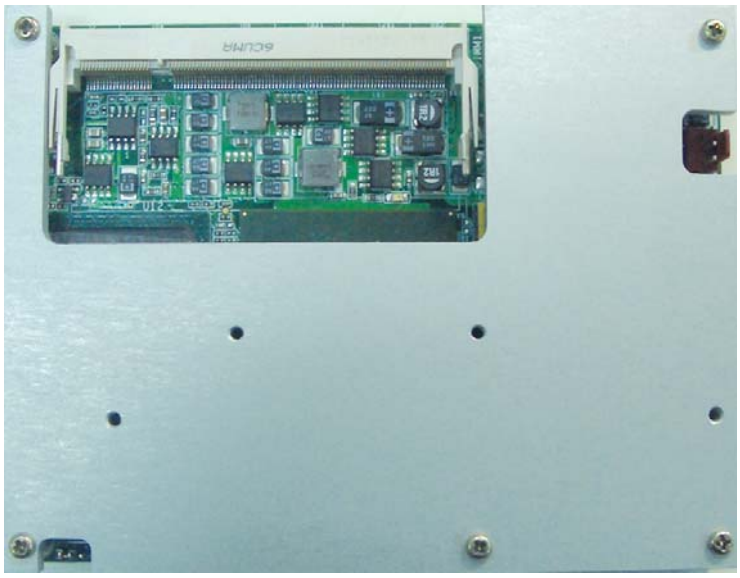
3. Take out the ROM and replace it with a new one. Close the right cover first then the left cover.



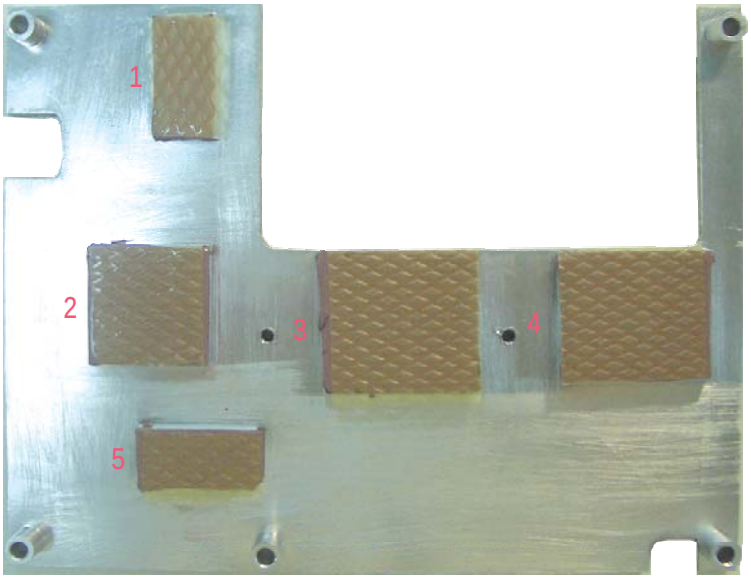
SPI Flash ROM

Cooling Options

Heatspreader



Heatspreader on G5C900-B (top view)

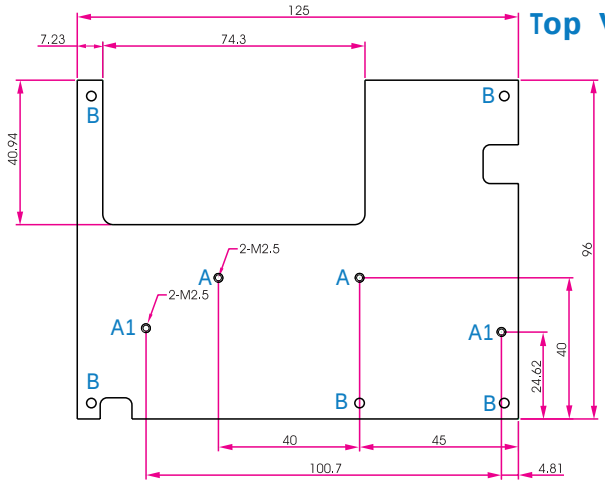


Bottom View of the Heatspreader

- "1" to "5" denote the locations of the thermal pads designed to contact the corresponding components that are on G5C900-B.
- Remove the plastic covering from the thermal pads prior to mounting the heatspreader onto G5C900-B.

COM Express Board

Dimensions



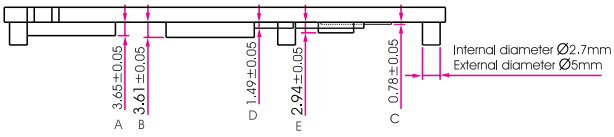
Top View

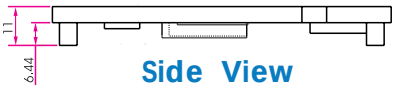
"A" and "A1" mounting holes

- These mounting holes are used to secure the heatspreader onto G5C900-B.
- "A" - Use M2.5 screws with minimum length of 3.7 mm.
  "A1" - Use M2.5 screws with minimum length of 13 mm.

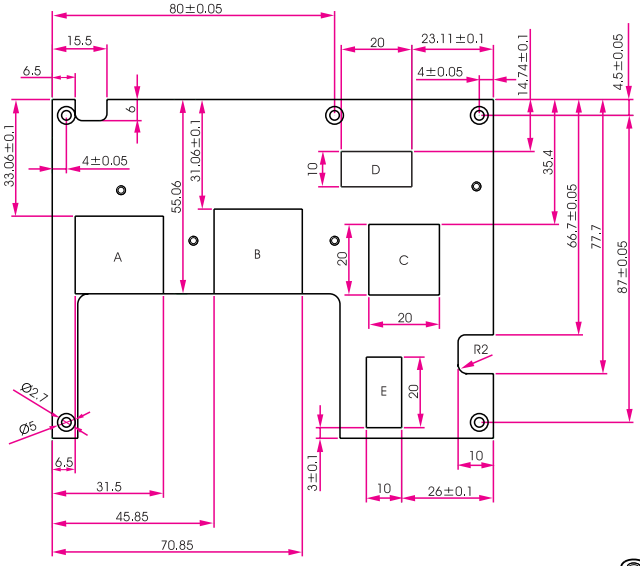
"B" mounting posts

- These mounting posts are used to mount the heatspreader and G5C900-B assembly onto the carrier board.
- Use M2.5 screws with minimum length of 15 mm.

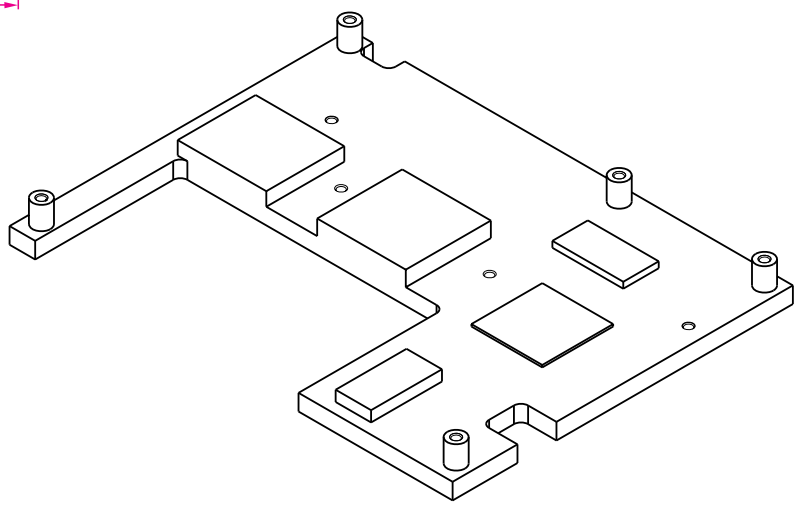




Side View



Bottom View



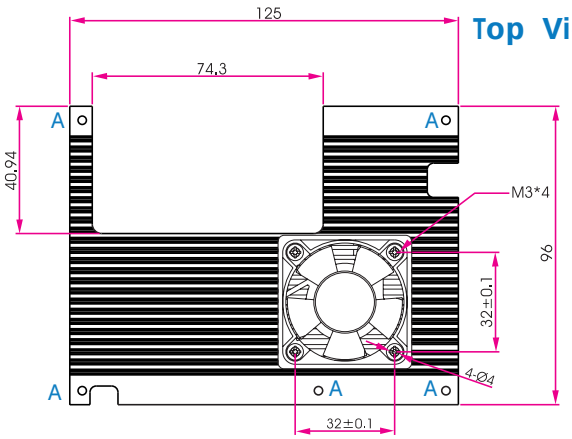
Heat Sink with Cooling Fan

Heat Sink with Cooling Fan on G5C900-B (top view)

Bottom View of the Heat Sink

- "1" to "3" denote the locations of the thermal pads designed to contact the corresponding components that are on G5C900-B.
- Remove the plastic covering from the thermal pads prior to mounting the heat sink onto G5C900-B.

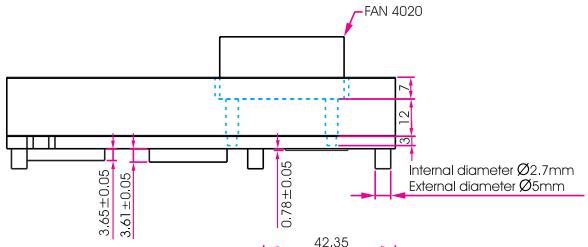
Dimensions

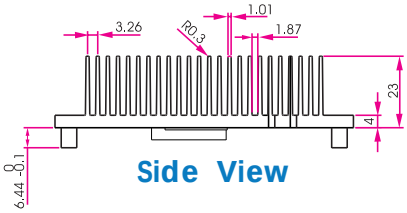


Top View

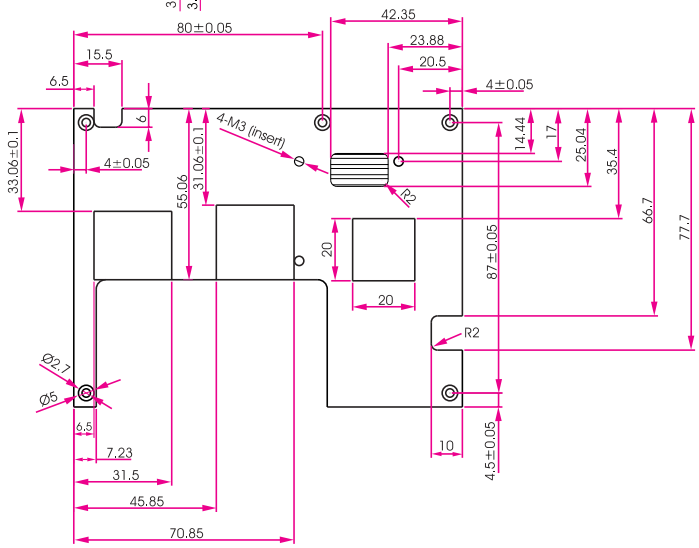
"A" mounting posts

- These mounting posts are used to mount the heat sink and G5C900-B assembly onto the carrier board.
- Use M2.5 screws with minimum length of 15 mm.





Side View



Bottom View

BIOS Setup

Award BIOS Setup Utility

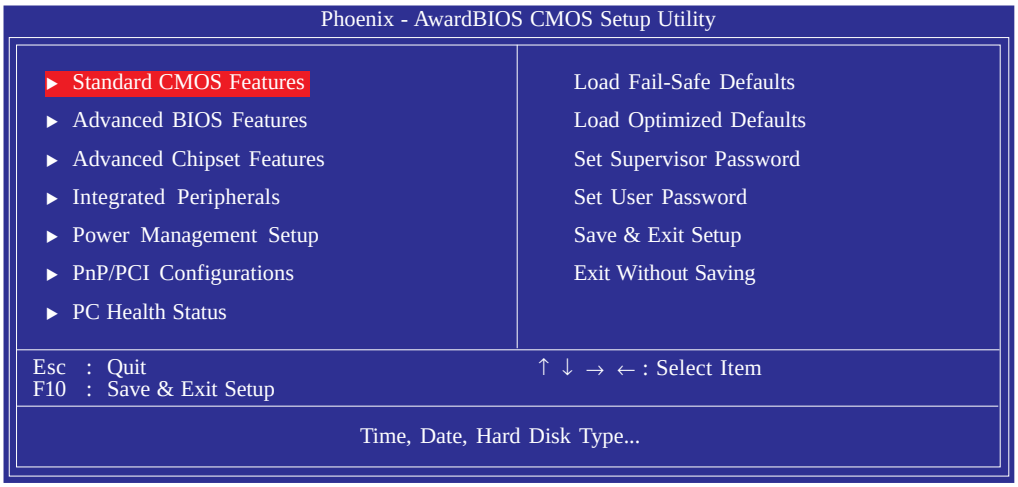
The Basic Input/Output System (BIOS) is a program that takes care of the basic level of communication between the processor and peripherals. In addition, the BIOS also contains codes for various advanced features found in this system board. This chapter explains the Setup Utility for the Award BIOS.

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

Press DEL to enter setup

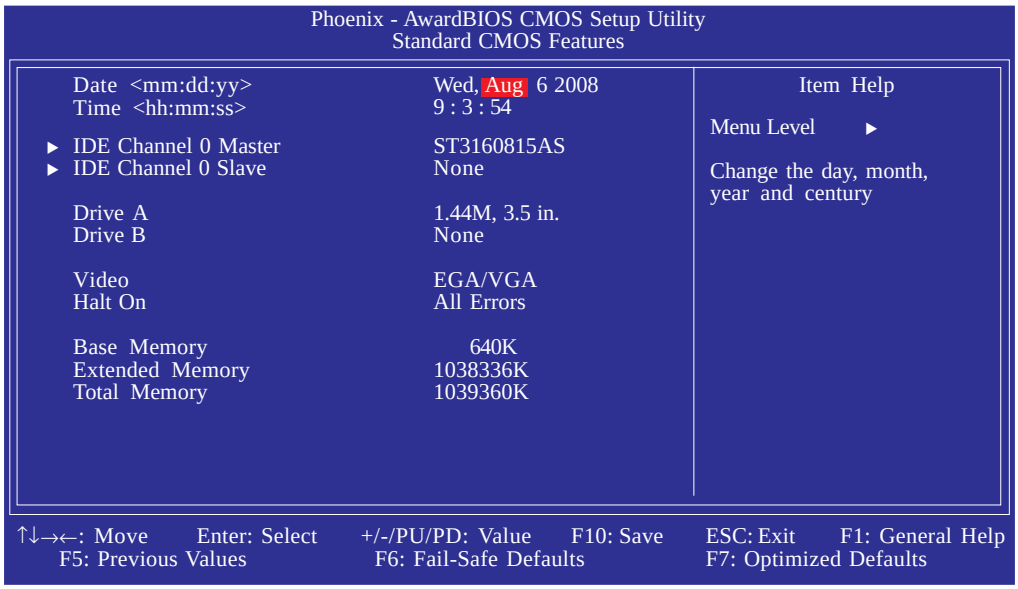
If the message disappears before you respond, restart the system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> and <Del> keys simultaneously.

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



Standard CMOS Features

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



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

Date

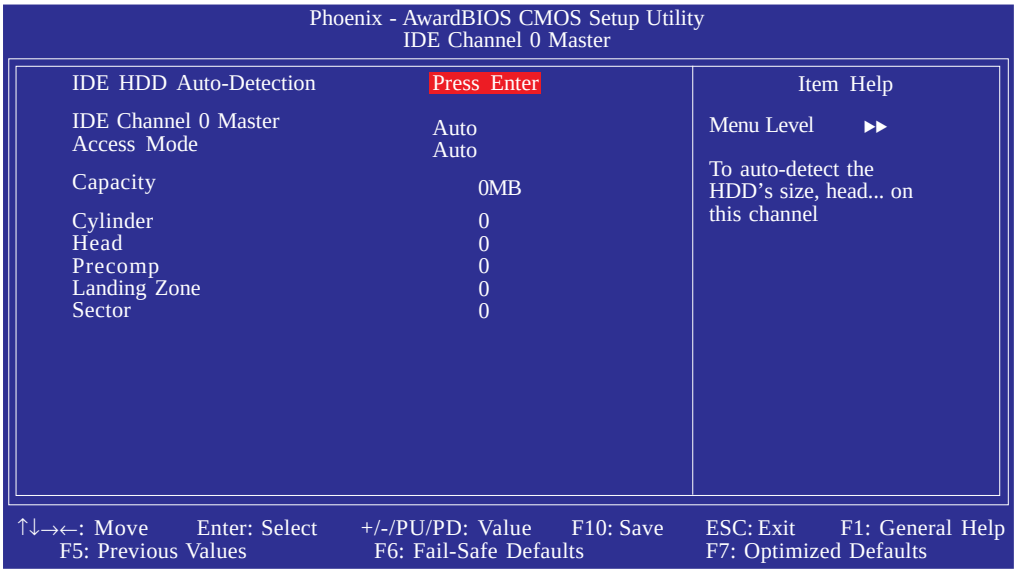
The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1999 to 2099.

Time

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

IDE Channel 0 Master and IDE Channel 0 Slave

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



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

IDE HDD Auto Detection

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

IDE Channel 0 Master and IDE Channel 0 Slave

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

Access Mode

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

COM Express Board

Capacity

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

Cylinder

This field displays the number of cylinders.

Head

This field displays the number of read/write heads.

Precomp

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

Landing Zone

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

Sector

This field displays the number sectors per track.

Drive A and Drive B

This field identifies the type of floppy disk drive installed.

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

Video

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

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

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

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

Mono Monochrome adapter. Includes high resolution monochrome adapters.

Halt On

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

No Errors The system boot will not stop for any errors detected.

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

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

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

All, But Disk/Key The system boot will not stop for a disk or keyboard error; it will stop for all other errors.

Base Memory

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

COM Express Board

Extended Memory

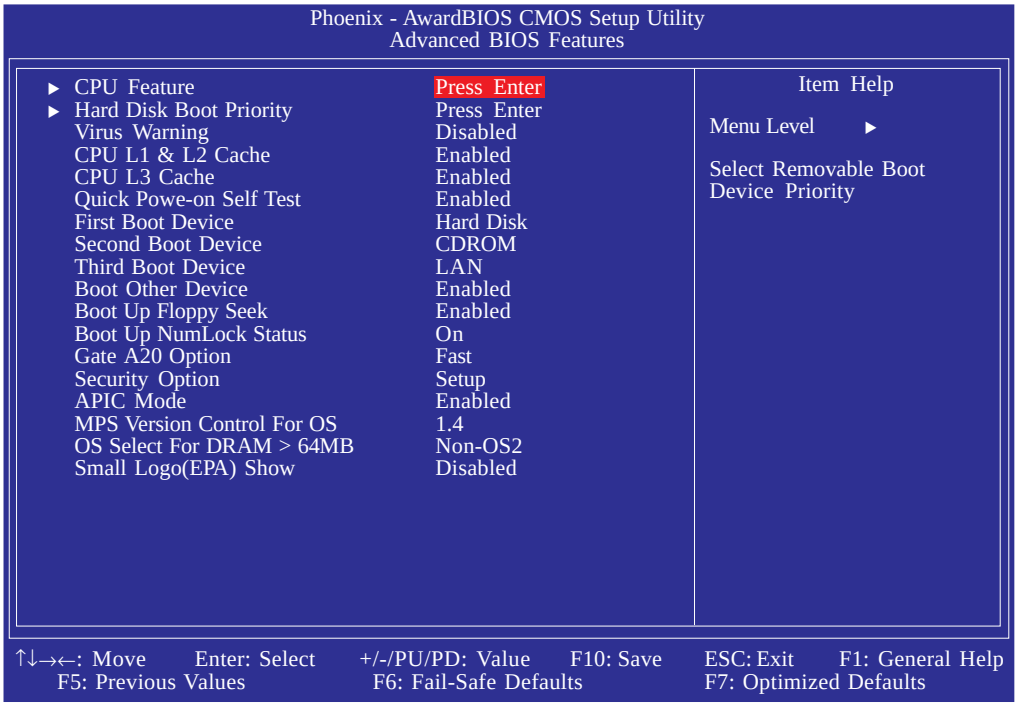
Displays the amount of extended memory detected during boot-up.

Total Memory

Displays the total memory available in the system.

Advanced BIOS Features

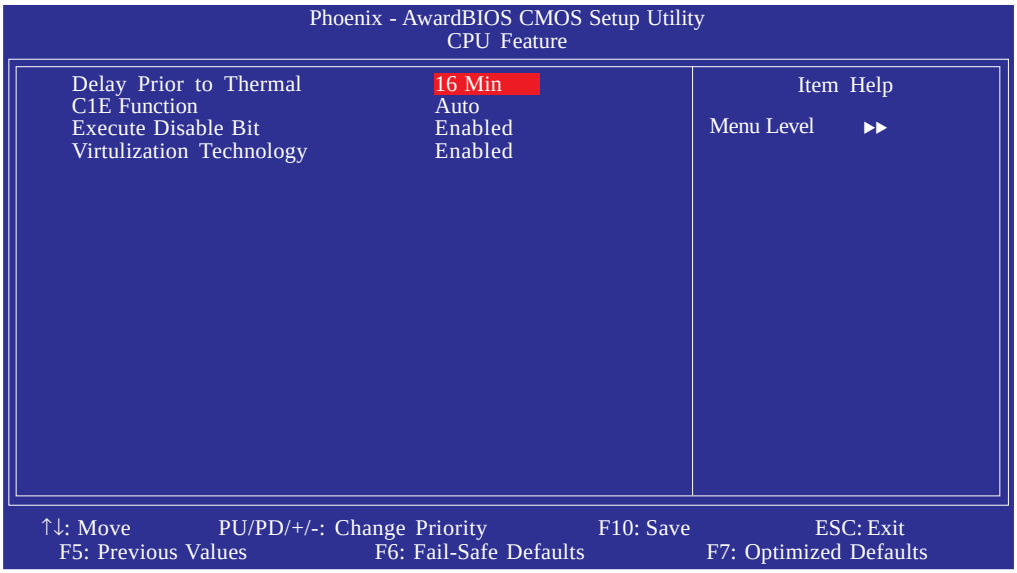
The Advanced BIOS Features allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.



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

CPU Feature

This field is used to configure the CPU that is installed on the system board. Move the cursor to this field then press <Enter>.



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

Delay Prior To Thermal

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

C1E Function

The options are Auto and Disabled.

Execute Disable Bit

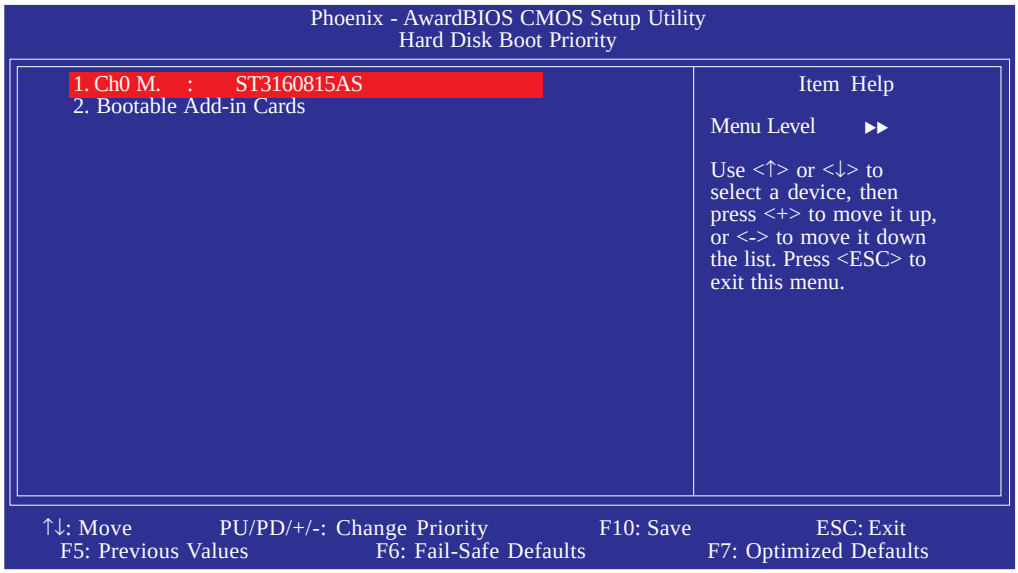
When this field is set to Disabled, it will force the XD feature flag to always return to 0.

Virtualization Technology

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

Hard Disk Boot Priority

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



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

Virus Warning

This field protects the boot sector and partition table of your hard disk drive. When this field is enabled, the Award BIOS will monitor the boot sector and partition table of the hard disk drive. If an attempt is made to write to the boot sector or partition table of the hard disk drive, the BIOS will halt the system and an error message will appear.

After seeing the error message, if necessary, you will be able to run an anti-virus program to locate and remove the problem before any damage is done.

Many disk diagnostic programs which attempt to access the boot sector table will cause the warning message to appear. If you are running such a program, we recommend that you first disable this field. Also, disable this field if you are installing or running certain operating systems like Windows® 98/2000/ME/XP or the operating system may not install nor work.

CPU L1 and L2 Cache

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

CPU L3 Cache

This field is used to enable or disable the CPU's L3 cache.

Quick Power On Self Test

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

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

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

Boot Up Floppy Seek

When enabled, the BIOS will check whether the floppy disk drive installed is 40 or 80 tracks. Note that the BIOS cannot distinguish between 720K, 1.2M, 1.44M and 2.88M drive types as they are all 80 tracks. When disabled, the BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360KB.

Boot Up NumLock Status

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

Gate A20 Option

This entry allows you to select how gate A20 is handled. Gate A20 is a device used to address memory above 1 Mbyte. Initially, gate A20 was handled via the keyboard controller. Today, while keyboards still provide this support, it is more common, and much faster, for the system chipset to provide support for gate A20.

Security Option

This field determines when the system will prompt for the password - everytime the system boots or only when you enter the BIOS setup. Set the password in the Set Supervisor/User Password submenu.

System The system will not boot and access to Setup will be denied unless the correct password is entered at the prompt.

Setup The system will boot, but access to Setup will be denied unless the correct password is entered at the prompt.

APIC Mode

Leave this field in its default setting.

MPS Version Control for OS

This field is used to select the MPS version used by the system.

OS Select for DRAM > 64MB

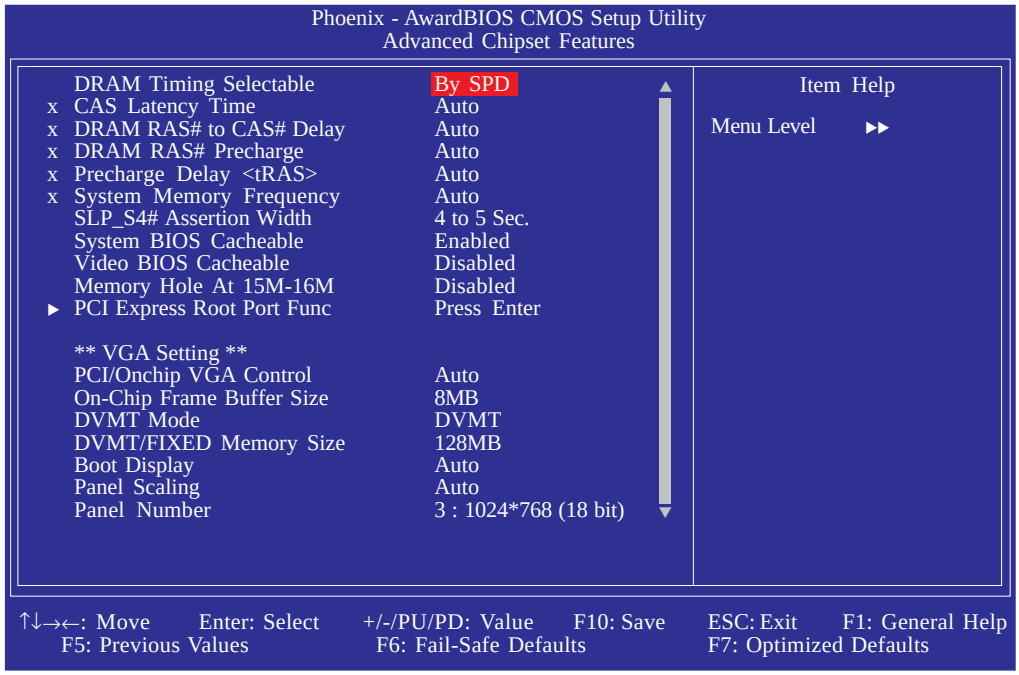
This field allows you to access the memory that is over 64MB in OS/2. The options are: Non-OS2 and OS2.

Small Logo(EPA) Show

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

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

Advanced Chipset Features



The screen above list all the fields available in the Advanced Chipset Features submenu, for ease of reference in this manual. In the actual CMOS setup, you have to use the scroll bar to view the fields. The settings on the screen are for reference only. Your version may not be identical to this one.

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

DRAM Timing Selectable

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

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

Time" to "System Memory Frequency" fields will show the default settings by SPD.

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

CAS Latency Time

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

DRAM RAS# to CAS# Delay

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

DRAM RAS# Precharge

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

Precharge Delay (tRAS)

The options are Auto and 4 to15.

System Memory Frequency

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

SLP_S4# Assertion Width

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

System BIOS Cacheable

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

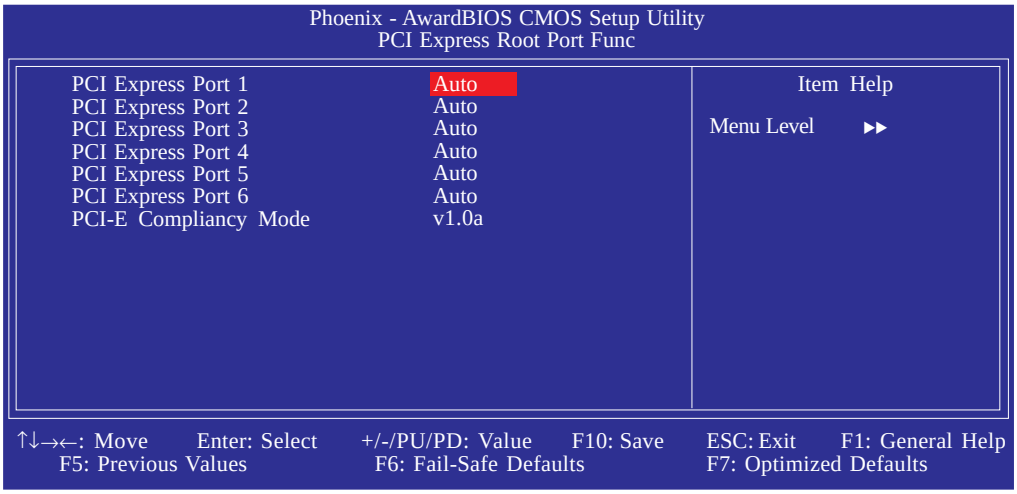
Video BIOS Cacheable

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

Memory Hole At 15M-16M

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

PCI Express Root Port Func



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

PCI Express Port 1 to PCI Express Port 6

These fields are used to enable or disable the PCI Express port function.

PCI-E Compliancy Mode

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

PCI/Onchip VGA Control

Onchip VGA Select this option if you want the system to boot the onboard VGA.

PCI Port Select this option if you want the system to boot the graphics PCI add-in card.

On-Chip Frame Buffer Size

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

DVMT Mode

The options are DVMT, Fixed and Both.

DVMT/Fixed Memory Size

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

Boot Display

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

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

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

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

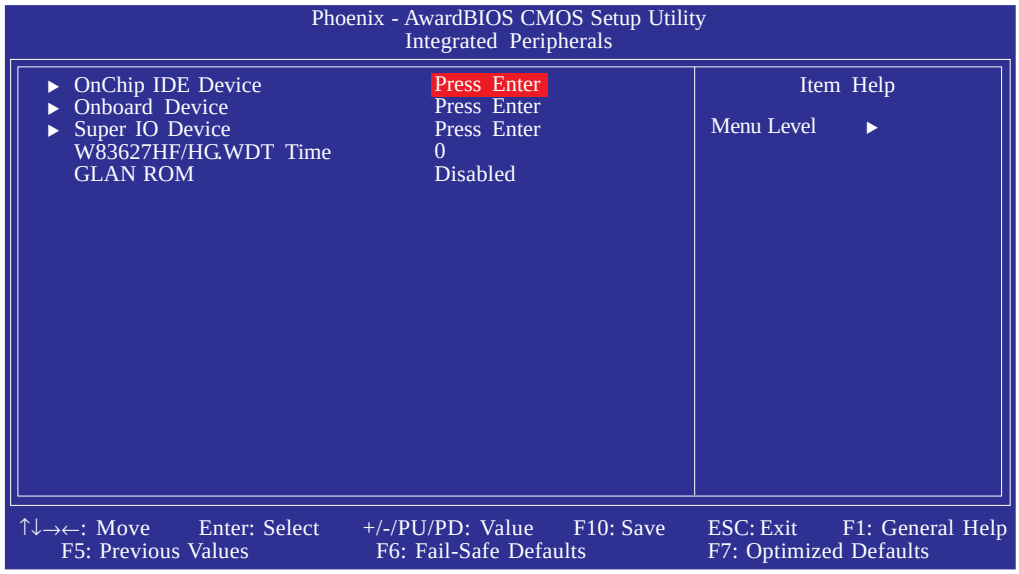
Panel Scaling

This options are Auto, On and Off.

Panel Number

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

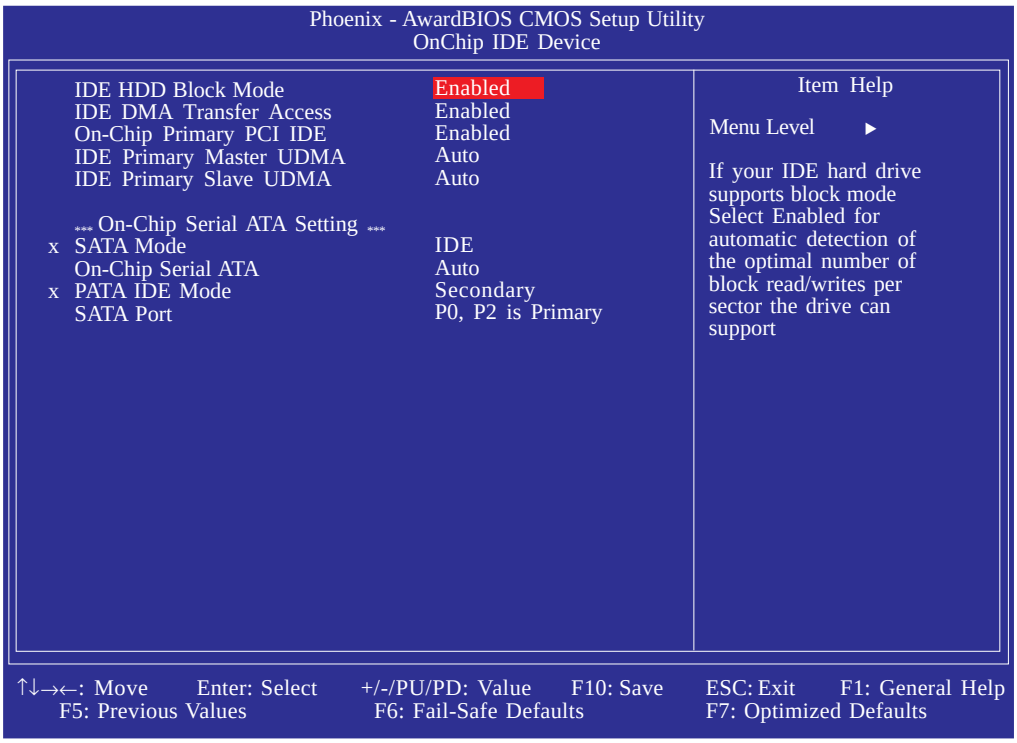
Integrated Peripherals



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

OnChip IDE Device

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



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

IDE HDD Block Mode

Enabled The IDE HDD uses the block mode. The system BIOS will check the hard disk drive for the maximum block size the system can transfer. The block size will depend on the type of hard disk drive.

Disabled The IDE HDD uses the standard mode.

IDE DMA Transfer Access

This field is used to enable or disable the DMA transfer function of an IDE hard drive.

On-Chip Primary PCI IDE

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

IDE Primary Master/Slave UDMA

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

Auto The BIOS will automatically detect the settings for you.

Disabled The BIOS will not detect these categories.

SATA Mode

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

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

On-Chip Serial ATA

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

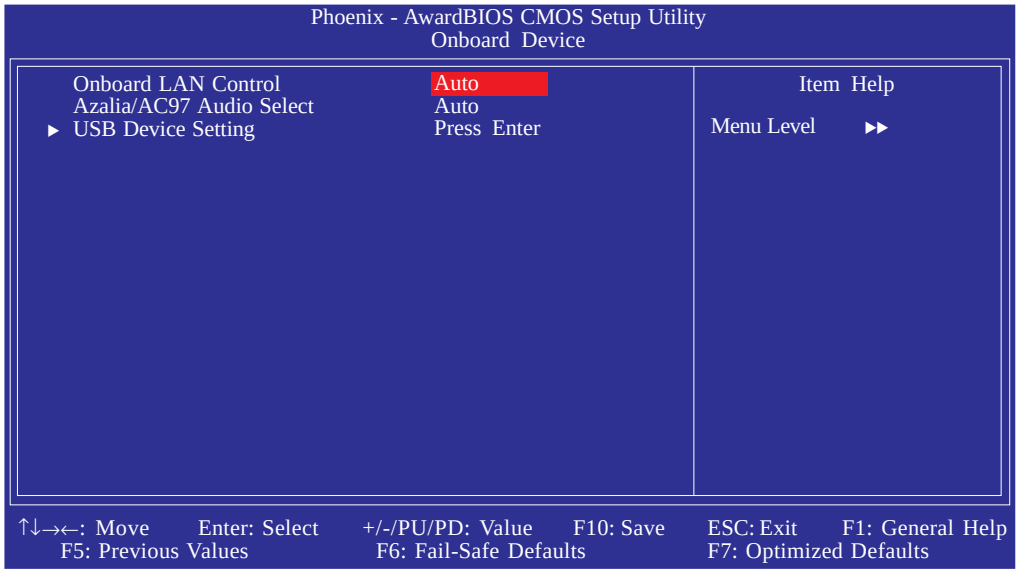
PATA IDE Mode and SATA Port

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

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

Onboard Device

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



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

Onboard LAN Control

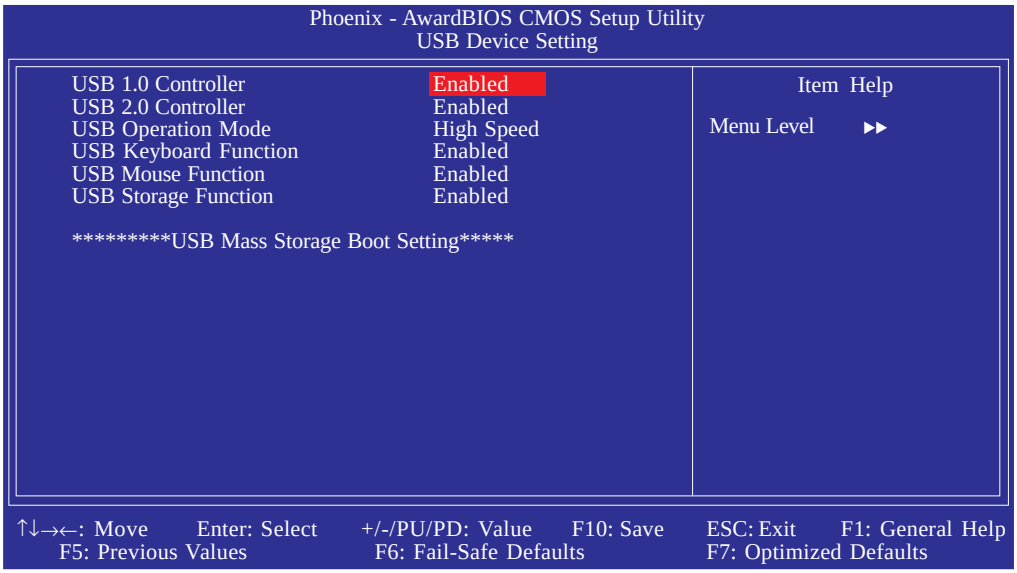
This field is used to enable or disable the onboard LAN.

Azalia/AC97 Audio Select

Azalia/AC97	Enables the onboard Azalia/AC97 CODEC.
Disabled	Disables the onboard audio. Disable the onboard audio when using an audio PCI card.

USB Device Setting

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



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

USB Controller

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

USB 2.0 Controller

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

USB Operation Mode

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

USB Keyboard Support

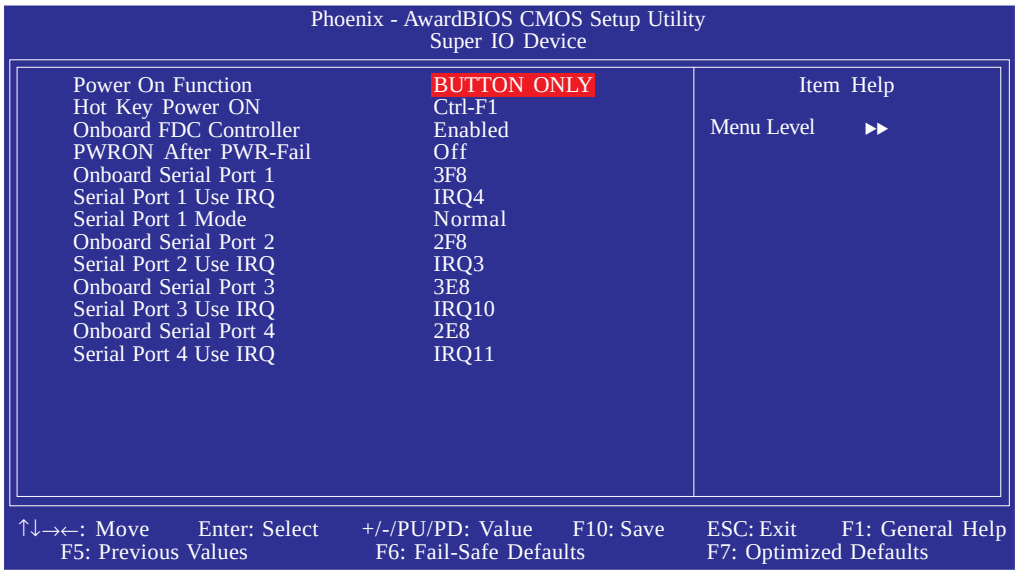
Due to the limited space of the BIOS ROM, the support for legacy USB mouse (in DOS mode) is by default set to Disabled. With more BIOS ROM space available, it will be able to support more advanced features as well as provide compatibility to a wide variety of peripheral devices. If a PS/2 mouse is not available and you need to use a USB mouse to install Windows (installation is performed in DOS mode) or run any program under DOS, set this field to Enabled.

USB Storage Function

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

Super IO Device

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



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

Power On Function

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

Keyboard 98 When this option is selected, press the "wake up" key of the Windows® 98 compatible keyboard to power-on the system.

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

Hot Key When this option is selected, select the function key you would like to use to power-on the system in the "Hot Key Power On" field.

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

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

Any Key Press any key to power-on the system.

Hot Key Power On

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

Onboard FDC Controller

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

PWRON After PWR-Fail

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

Onboard Serial Port 1, Onboard Serial Port 2, Onboard Serial Port 3 and Onboard Serial Port 4

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

Note:

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

COM Express Board

Serial Port 1 Mode

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

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

Serial Port 1 Use IRQ, Serial Port 2 Use IRQ, Serial Port 3 Use IRQ and Serial Port 4 Use IRQ

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

W83627HF/HG.WDT Time

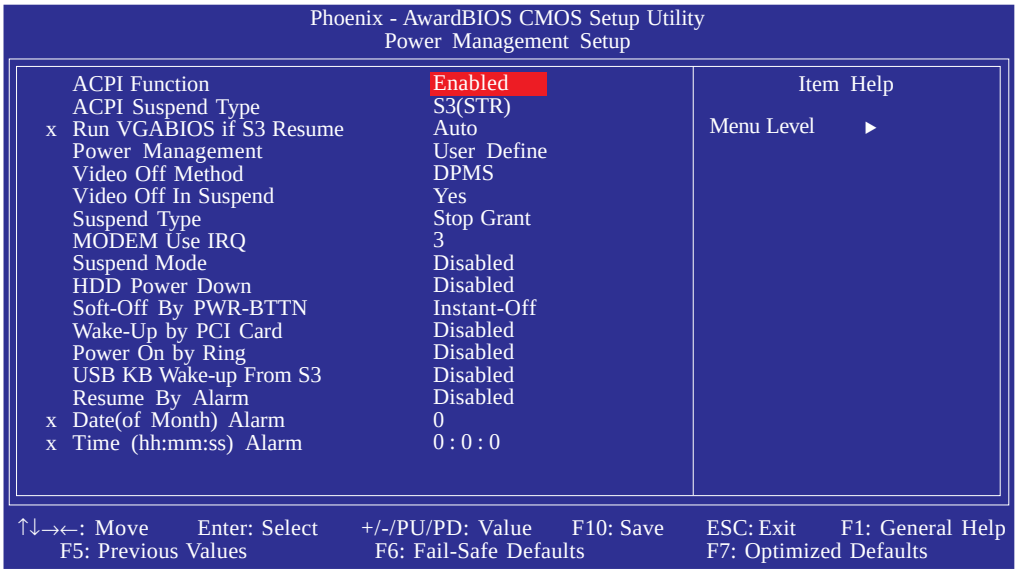
This field is used to select the time interval of the Watchdog timer. If the system hangs or fails to function, it will reset at the set time interval so that your system will continue to operate.

GLAN ROM

Enable this field if you wish to use the boot ROM (instead of a disk drive) to boot-up the system and access the local area network directly. If you wish to change the boot ROM's settings, type the <Shift> and <F10> keys simultaneously when prompted during boot-up. Take note: you will be able to access the boot ROM's program (by typing <Shift> + <F10>) only when this field is enabled.

Power Management Setup

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



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

ACPI Function

This function should be enabled only in operating systems that support ACPI. Currently, only Windows® 98/2000/ME/XP supports this function. If you want to use the Suspend to RAM function, make sure this field is enabled then select "S3(STR)" in the "ACPI Suspend Type" field.

ACPI Suspend Type

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

S1(POS) Enables the Power On Suspend function.

S3(STR) Enables the Suspend to RAM function. If you are using the Windows® 98 operating system, refer to "Using the Suspend to RAM Function" in appendix B for more information.

Run VGABIOS if S3 Resume

When this field is set to Auto, the system will initialize the VGA BIOS when it wakes up from the S3 state. This can be configured only if the "ACPI Suspend Type" field is set to "S3(STR)".

Power Management

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

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

Video Off Method

This determines the manner in which the monitor is blanked.

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

Video Off In Suspend

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

Suspend Type

The options are Stop Grant and PwrOn Suspend.

MODEM Use IRQ

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

Suspend Mode

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

HDD Power Down

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

Soft-Off by PWR-BTTN

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

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

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

Wake-Up By PCI Card

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

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

Power On By Ring

When this field is set to Enabled, the system will power-on to respond to calls coming from a modem. Refer to "Wake-On-Ring Connector" in chapter 2 for more information.

USB KB Wake-Up From S3

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

Resume By Alarm

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

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

Date (of Month) Alarm

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

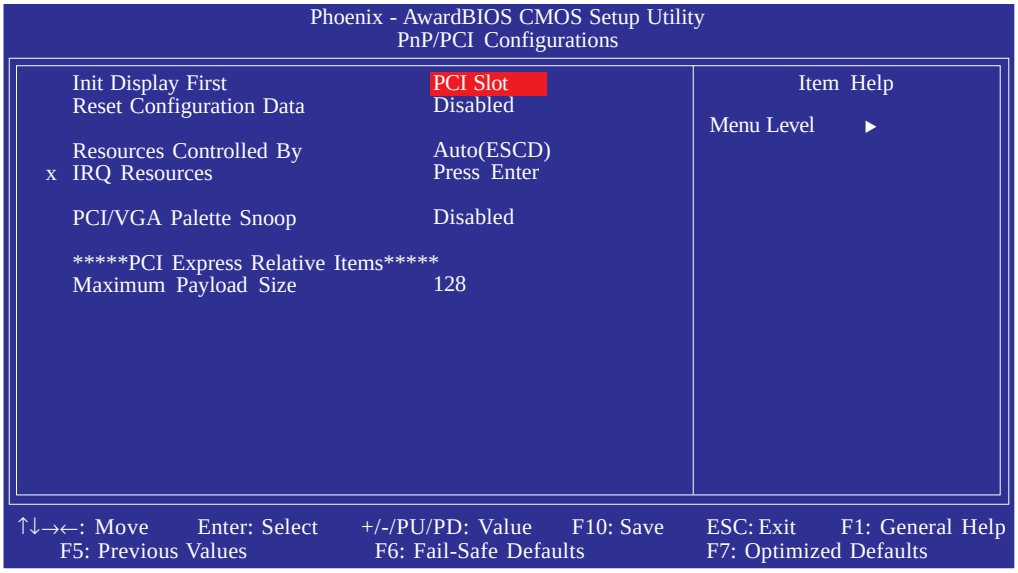
1-31 Select a date you would like the system to power-on. The system will power-on on the set date, and time set in the "Time (hh:mm:ss) Alarm" field.

Time (hh:mm:ss) Alarm

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

PnP/PCI Configurations

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



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

Init Display First

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

PCI Slot When the system boots, it will first initialize PCI.

Reset Configuration Data

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

Disabled The BIOS will not reset the configuration data.

Resources Controlled By

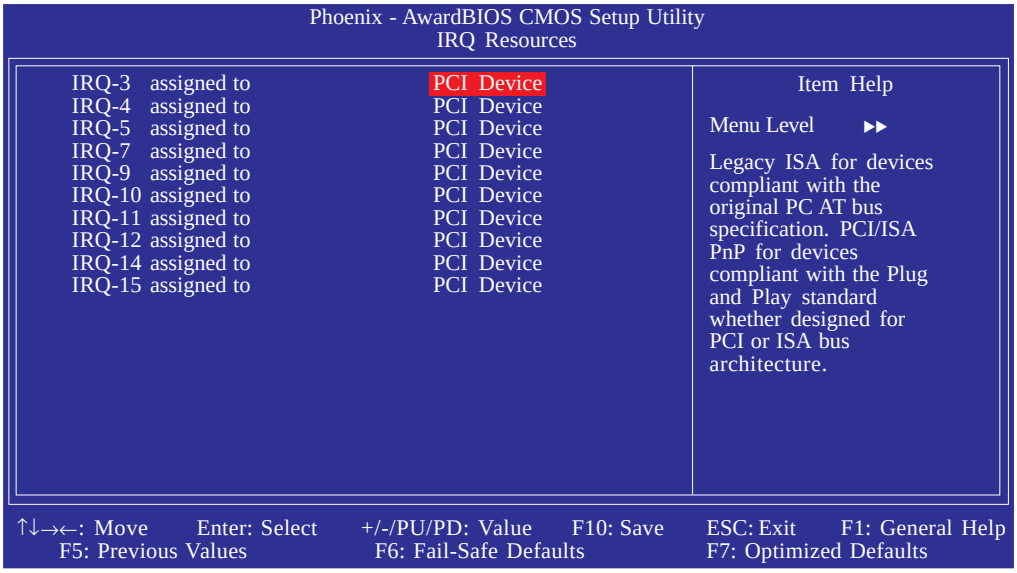
The Award Plug and Play BIOS has the capability to automatically configure all of the boot and Plug and Play compatible devices.

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

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

IRQ Resources

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



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

PCI/VGA Palette Snoop

This field determines whether the MPEG ISA/VESA VGA cards can work with PCI/VGA or not. The default value is Disabled.

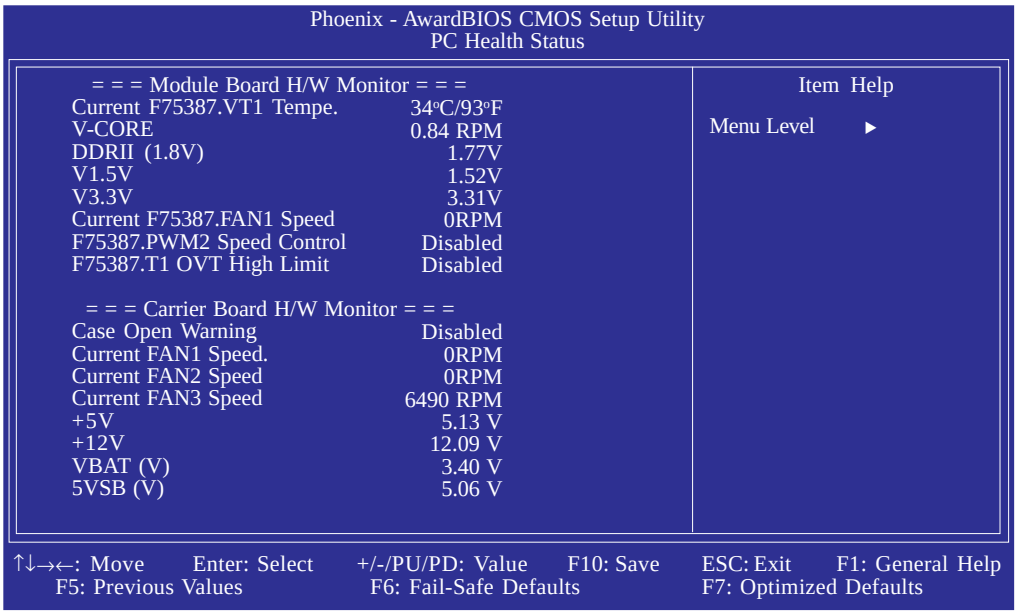
Enabled MPEG ISA/VESA VGA cards work with PCI/VGA.

Disabled MPEG ISA/VESA VGA cards does not work with PCI/VGA.

Maximum Payload Size

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

PC Health Status



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

Module Board H/W Monitor

The fields in this section are used to monitor the COM Express board.

Current F75387.VT1 Tempe. to Current F75387.Fan1 Speed

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

F75387.PWM2 Speed Control

The options are Disabled, 30/40°C, 40/50°C and 50/70°C.

F75387.T1 OVT High Limit

The options are Disabled, 100°C, 90°C and 80°C.

Carrier Board H/W Monitor

The fields in this section are used to monitor the Carrier board.

Case Open Warning

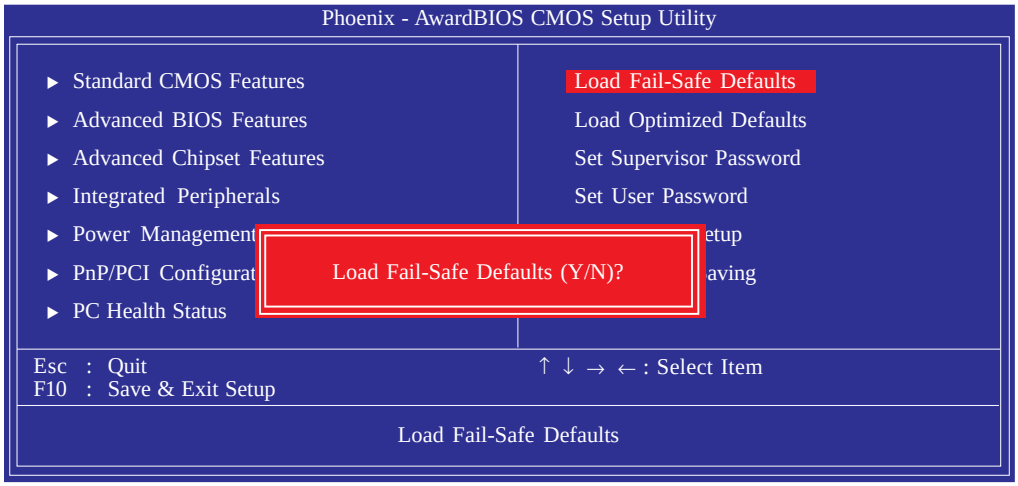
Set this field to Enabled to allow the system to alert you of a chassis intrusion event.

Current FAN1 Speed to 5VSB(V)

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

Load Fail-Safe Defaults

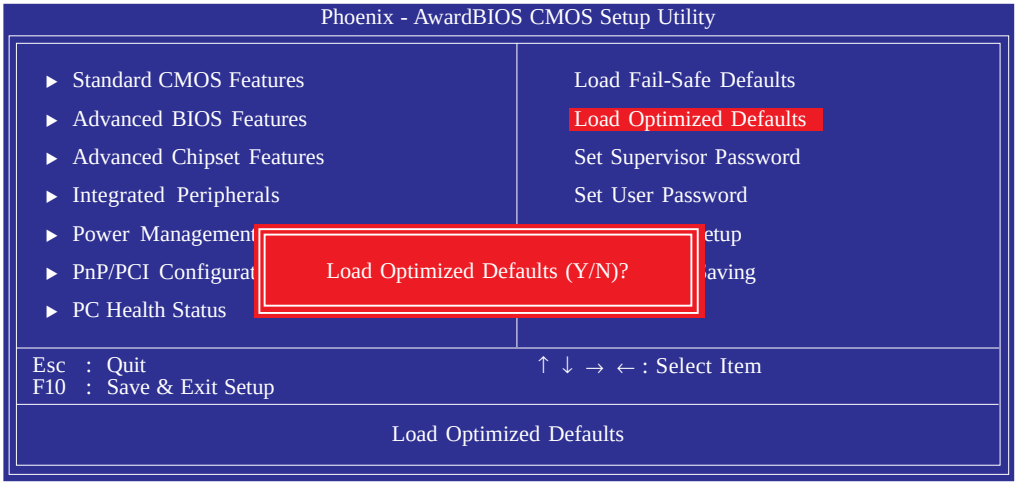
The "Load Fail-Safe Defaults" option loads the troubleshooting default values permanently stored in the ROM chips. These settings are not optimal and turn off all high performance features. You should use these values only if you have hardware problems. Highlight this option in the main menu and press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



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

Load Optimized Defaults

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

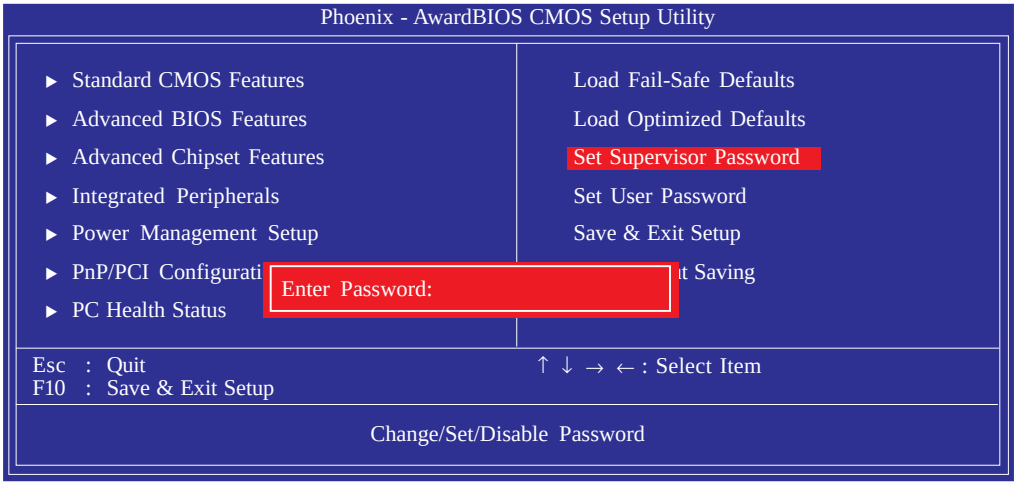


Type <Y> and press <Enter> to load the Setup default values.

Set Supervisor Password

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

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



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

Confirm Password:

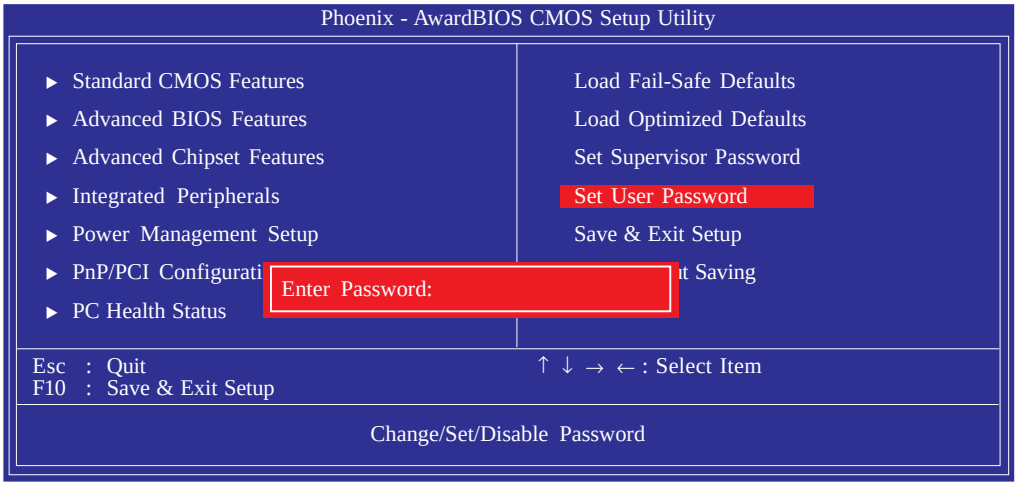
You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set Supervisor Password" and press <Enter>, instead of typing in a new password. Press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

Set User Password

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

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

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



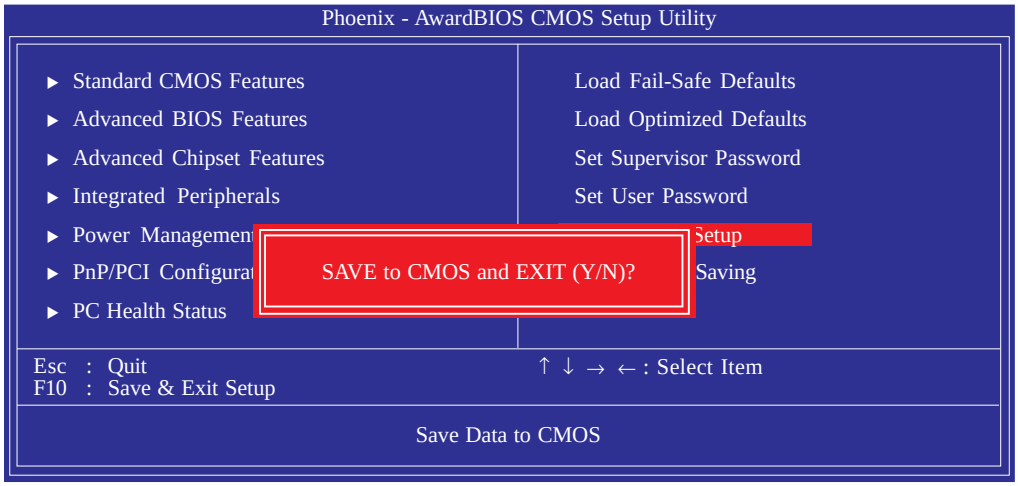
Type in the password. You are limited to eight characters. When done, the message below will appear:

Confirm Password:

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

Save & Exit Setup

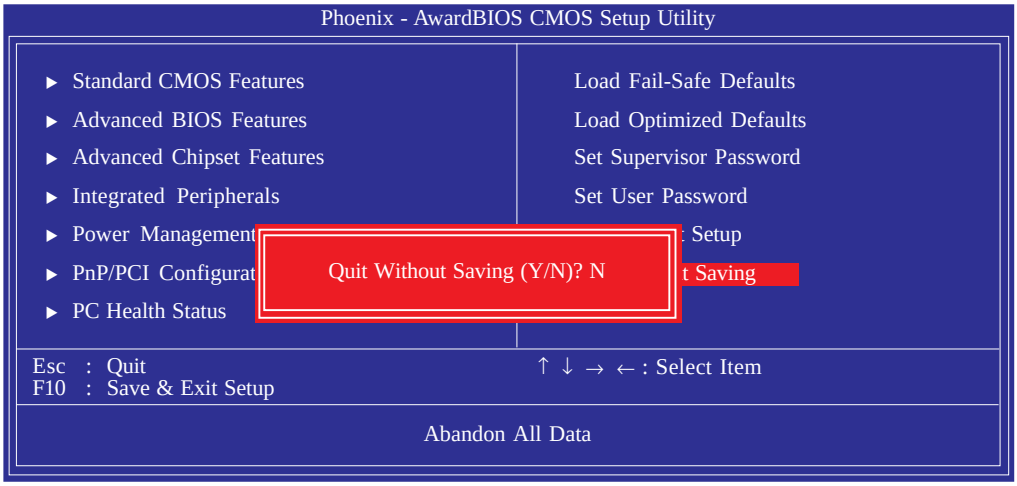
When all the changes have been made, highlight "Save & Exit Setup" and press <Enter>.



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

Exit Without Saving

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



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

Updating the BIOS

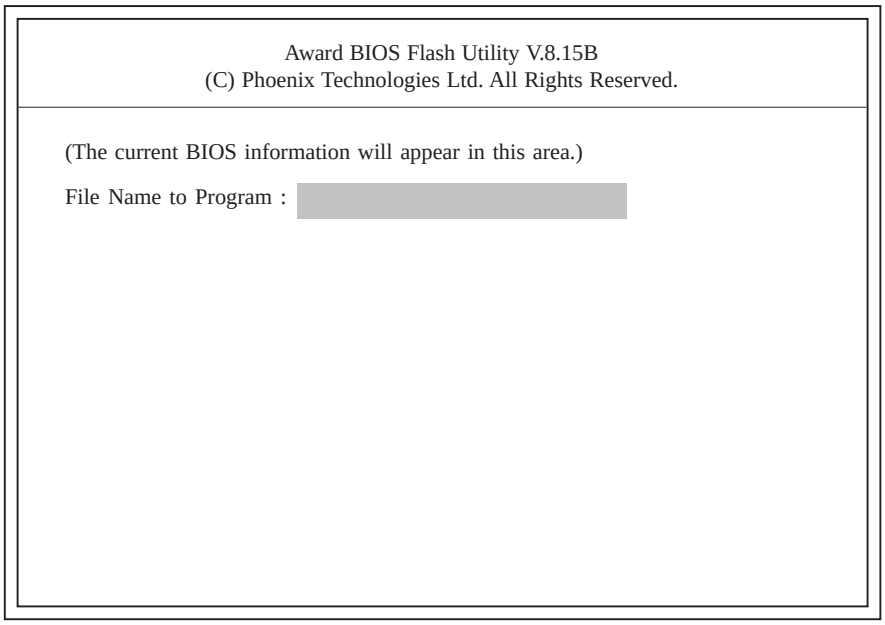
To update the BIOS, you will need the new BIOS file and a flash utility, AWDFLASH.EXE. Please contact technical support or your sales representative for the files.

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

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

3. Save the setting and reboot the system.

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



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

6. The following will appear:

   Do You Want to Save BIOS (Y/N)

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

7. The following will then appear:

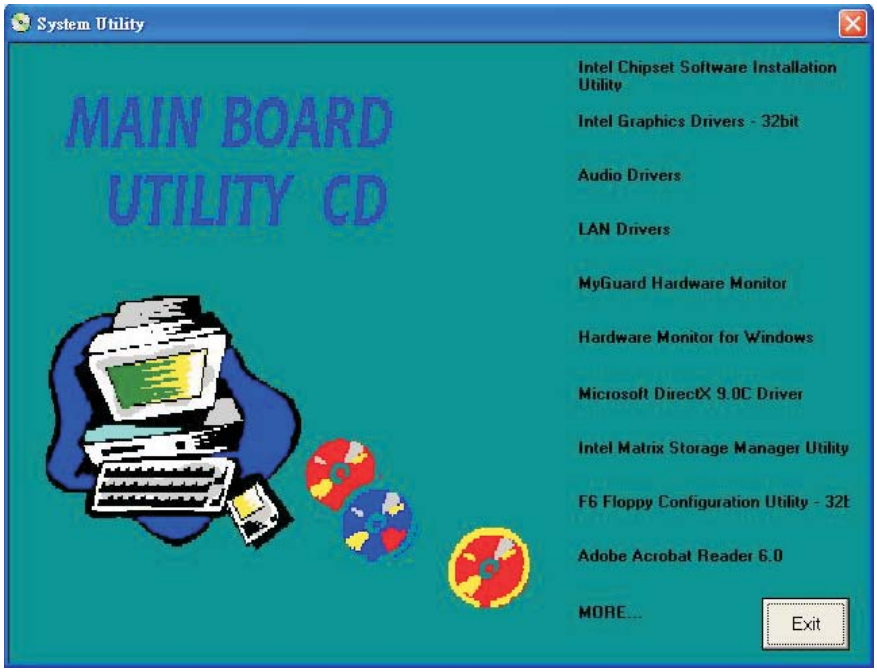
   Press "Y" to Program or "N" to Exit

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

Chapter 4 - Supported Software

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

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



Drivers for Windows Vista System

Intel Chipset Software Installation Utility

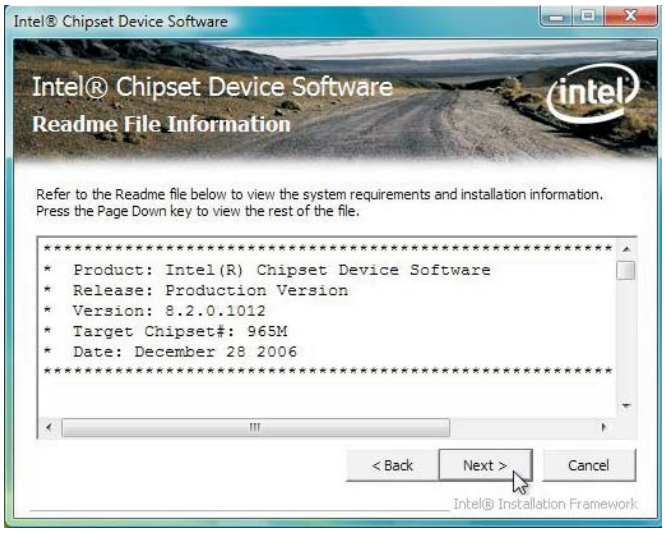
The Intel Chipset Software Installation Utility is used for updating Windows® INF files so that the Intel chipset can be recognized and configured properly in the system.

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

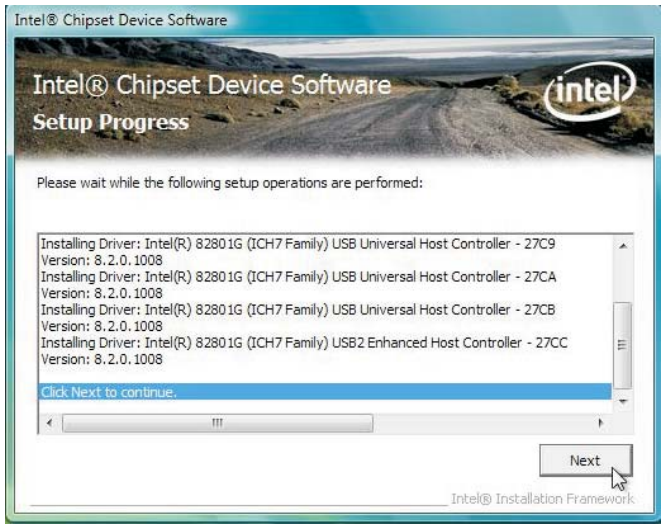
1. Setup is now ready to install the utility. Click Next.

2. Read the license agreement then click Yes.

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



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

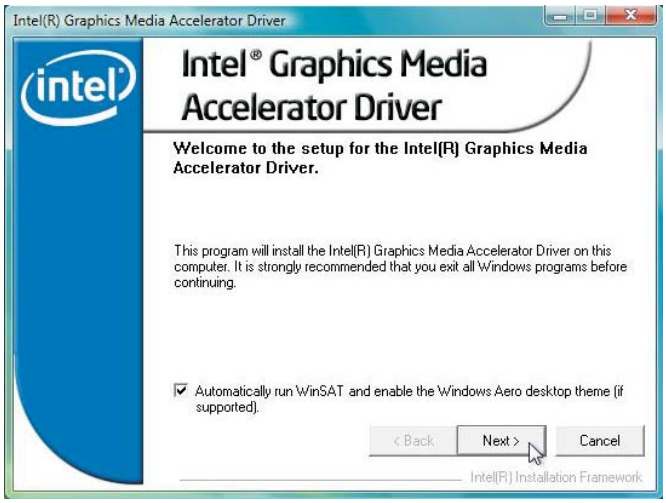


5. After completing installation, click Finish to exit setup.

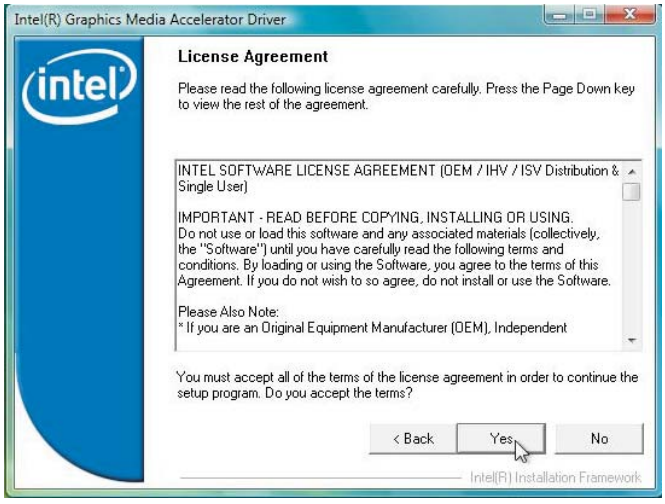
Intel Graphics Drivers

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

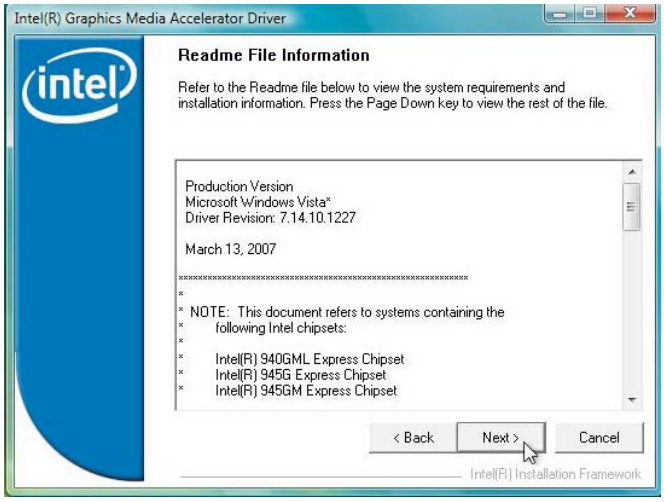
1. Setup is now ready to install the graphics driver. Click Next.



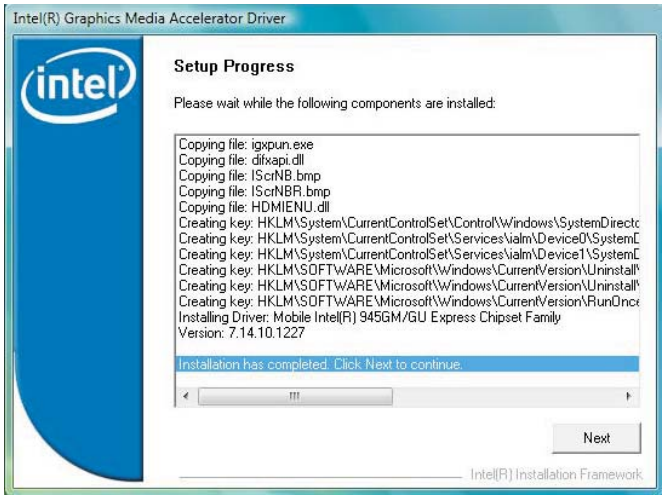
2. Read the license agreement then click Yes.



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

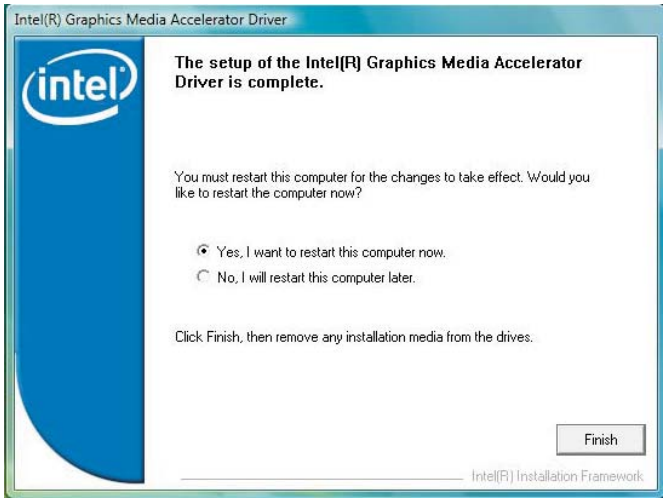


4. Setup is now installing the driver. Click Next to continue.



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

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

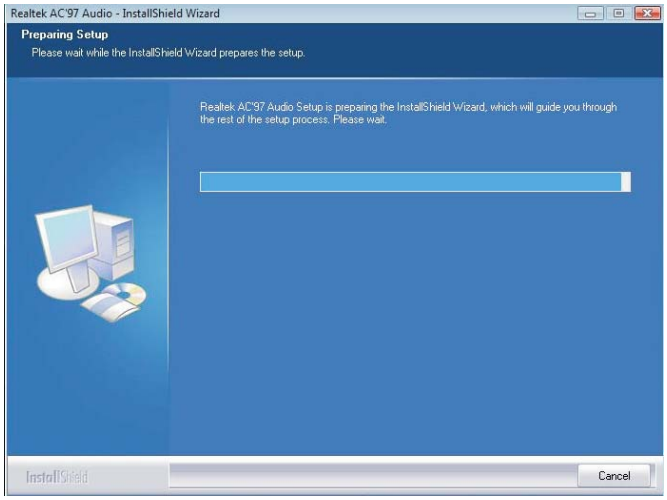


Audio Drivers

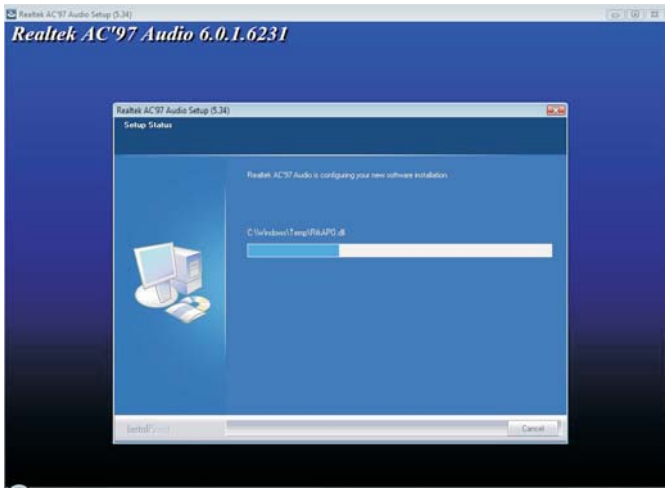
To install the utility, click "Audio Drivers" on the main menu.

1. Click Next to start the installation.

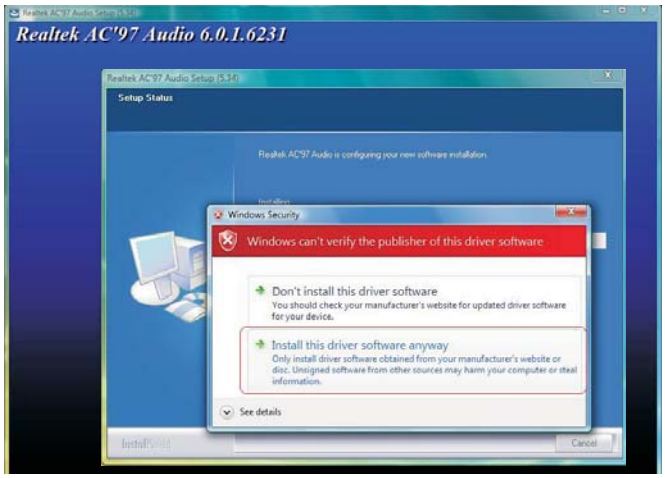
2. Setup is preparing to install the driver.



3. Setup is configuring the new software installation.



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



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

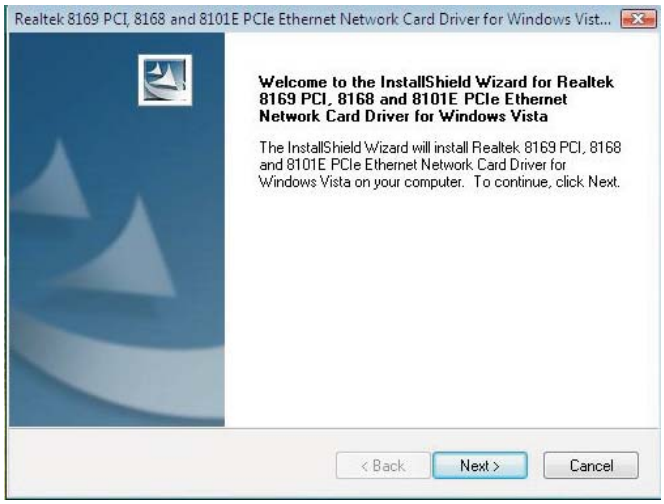
5. Click "Yes, I want to restart my computer now" then click Finish.

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

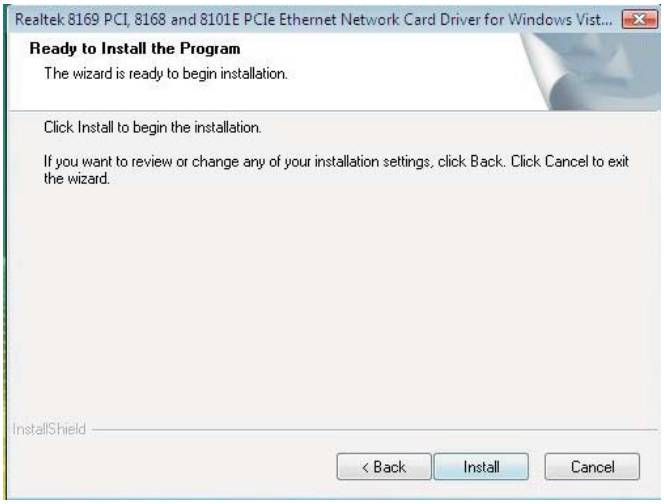
LAN Drivers

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

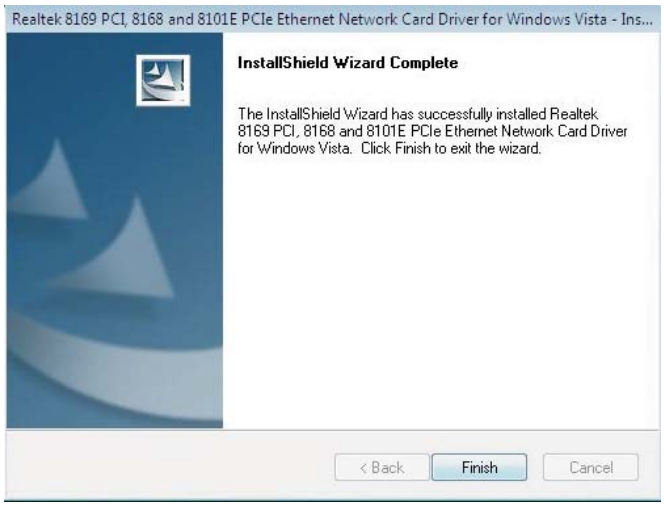
1. Setup is now ready to install the driver. Click Next.



2. Click Install to begin installation.



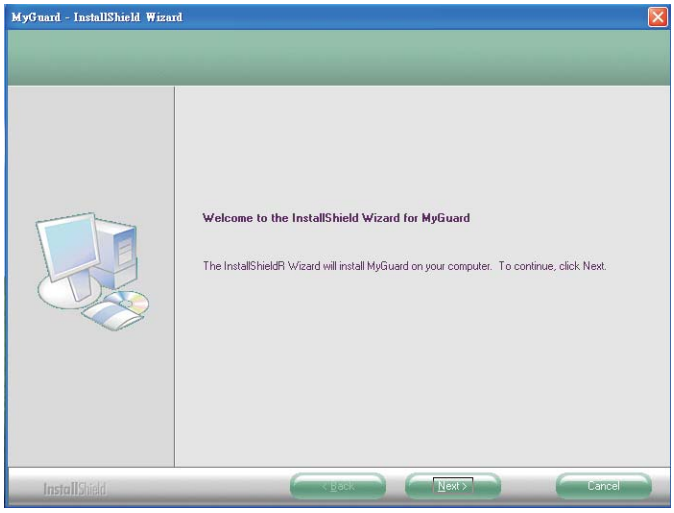
3. After completing installation, click Finish to exit setup.



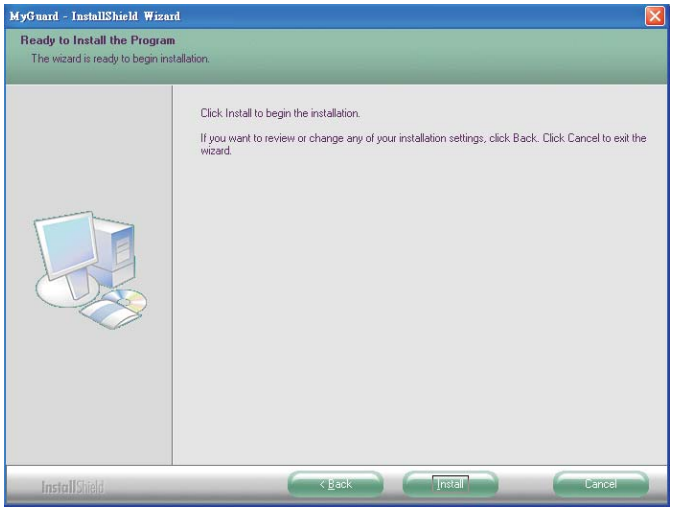
MyGuard Hardware Monitor

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

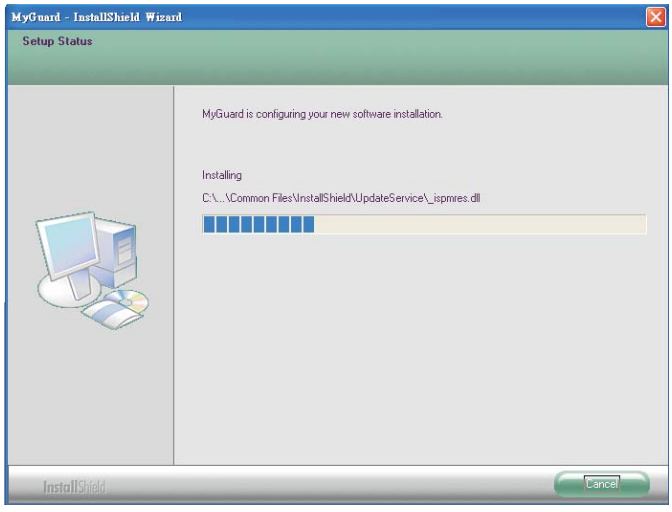
1. Setup is now ready to install the utility. Click Next.



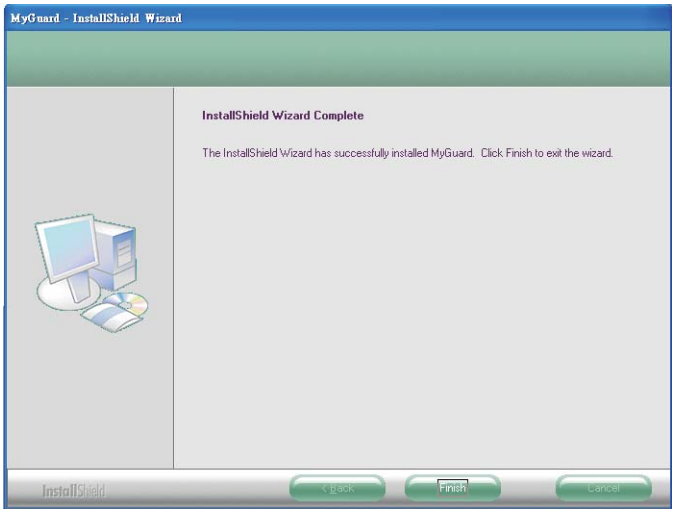
2. Click Install to begin installation.



3. Setup is currently installing the utility.



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

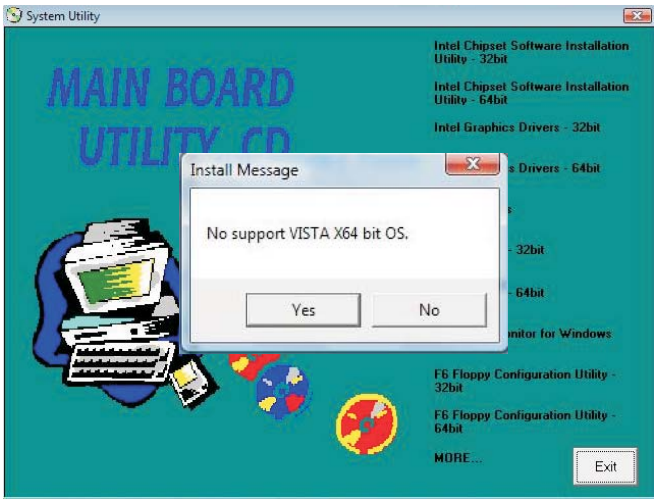


Hardware Monitor for Windows

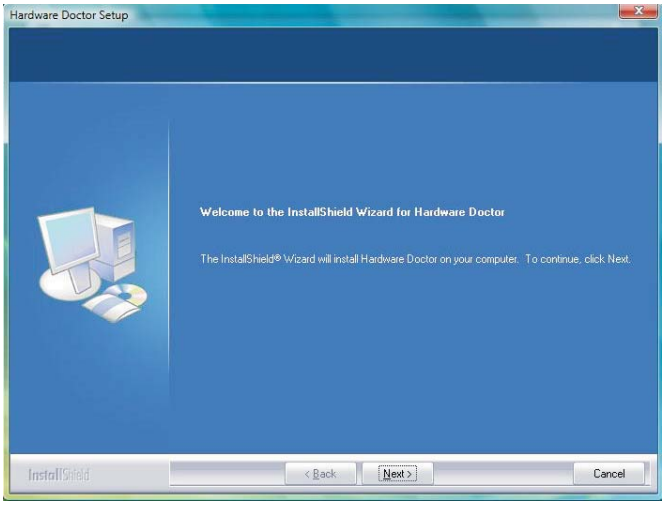
The system board comes with the Hardware Monitor for Windows utility. This utility is capable of monitoring the system's temperature, fan speed, voltage, etc. and allows you to manually set a range (Highest and Lowest Limit) to the items being monitored. If the settings/values are over or under the set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

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

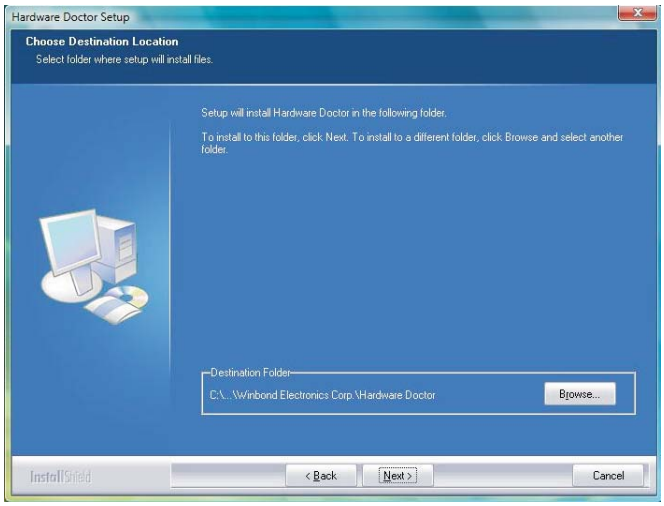
1. Click Yes to continue.



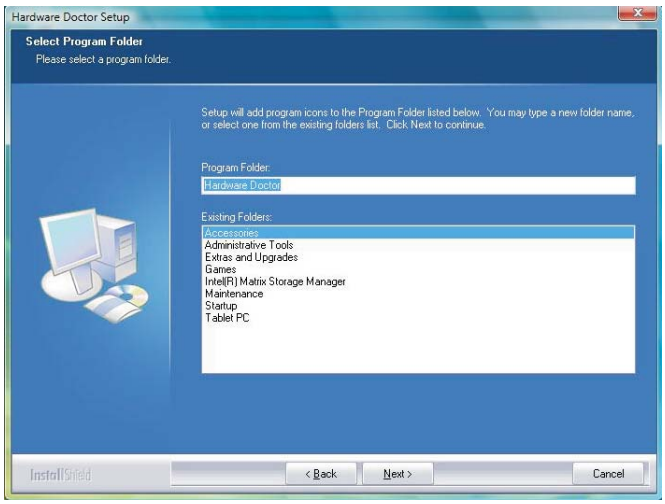
2. Setup is now ready to install the utility. Click Next.



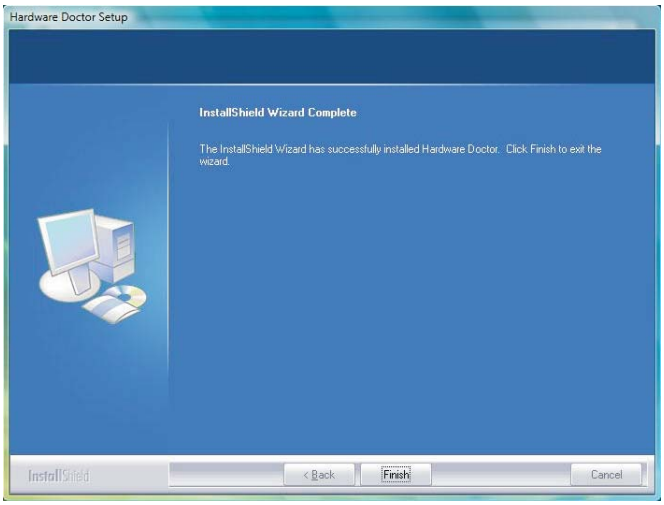
3. Click Next to install or click Browse to select another folder.



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



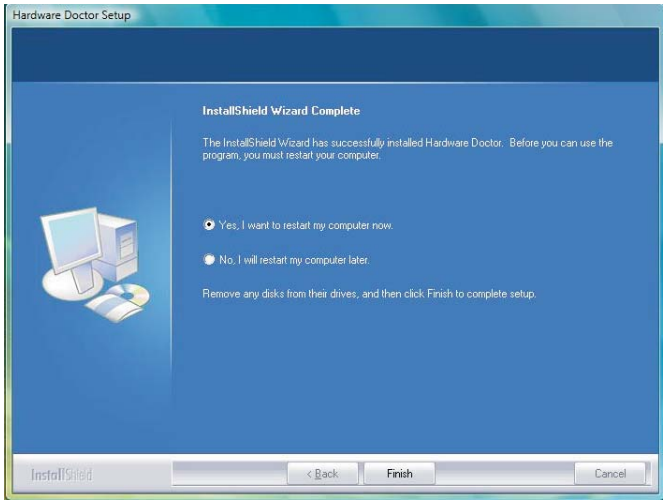
5. After completing installation, click Finish to exit setup.



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

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

   Restarting the system will allow the utility to take effect.

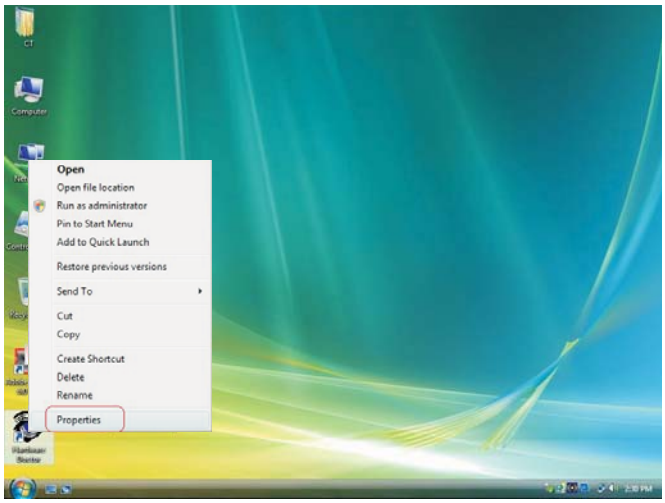


4 Supported Software

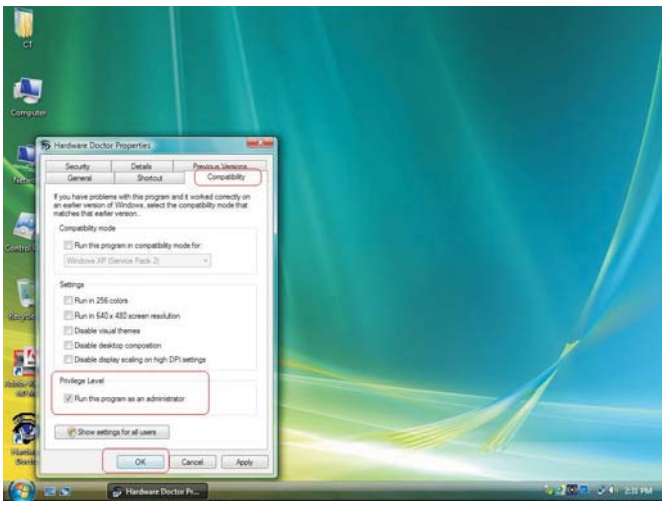
Using the Hardware Monitor for Windows Utility

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

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



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



4. You can now access the utility.

4 Supported Software

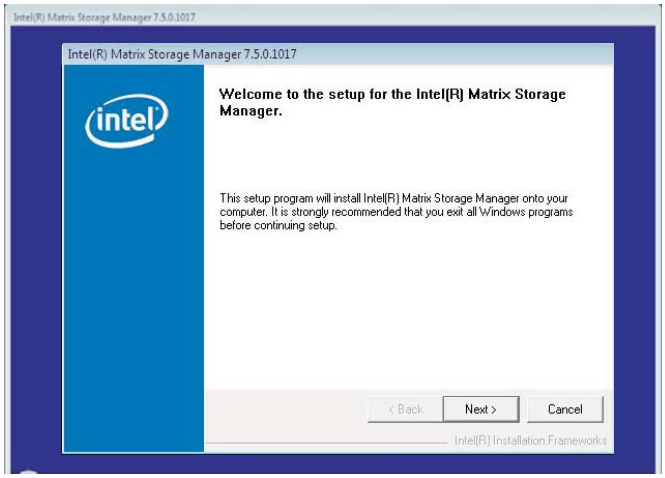
Intel Matrix Storage Manager Utility

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

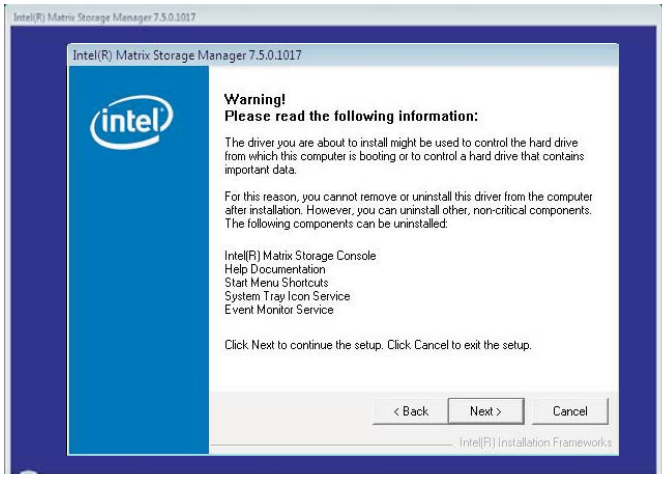
Note:
This utility is supported only when the SATA Mode field is set to AHCI. (The SATA Mode field is in the OnChip IDE Device section, Integrated Peripherals submenu of the BIOS utility.)

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

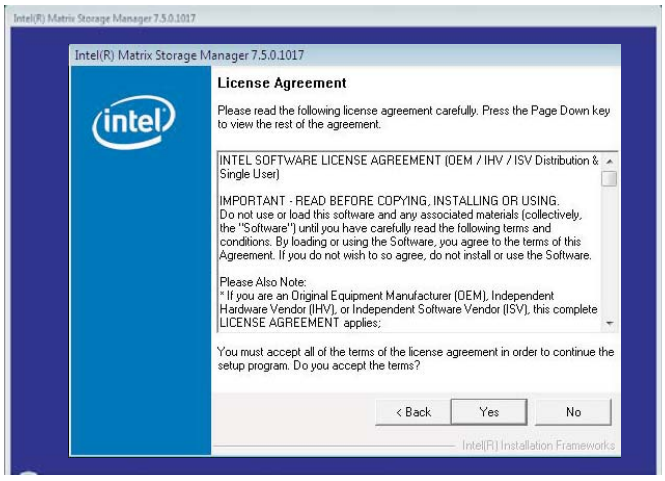
1. Setup is now ready to install the utility. Click Next.



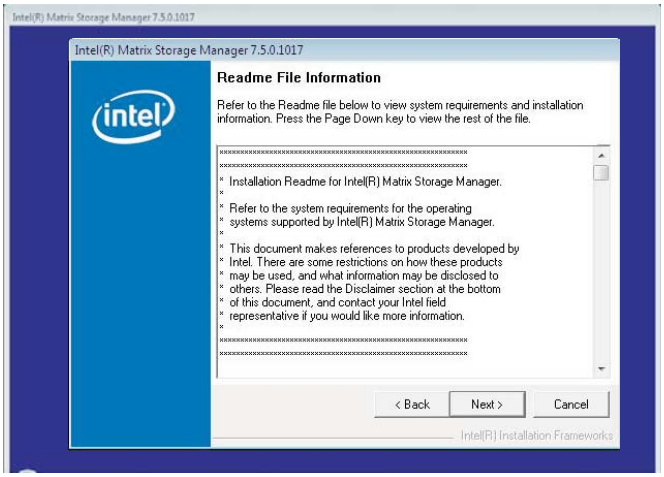
2. Read the Warning information carefully then click Next to begin installation.



3. Read the license agreement then click Yes.

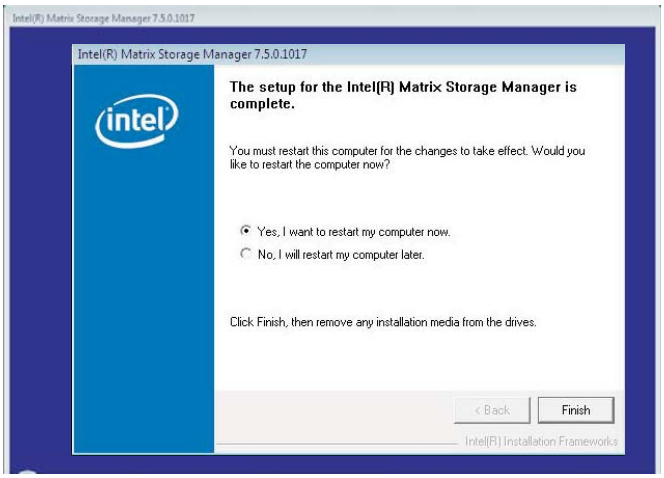


4. Go through the readme document for system requirements and installation tips then click Next.



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

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

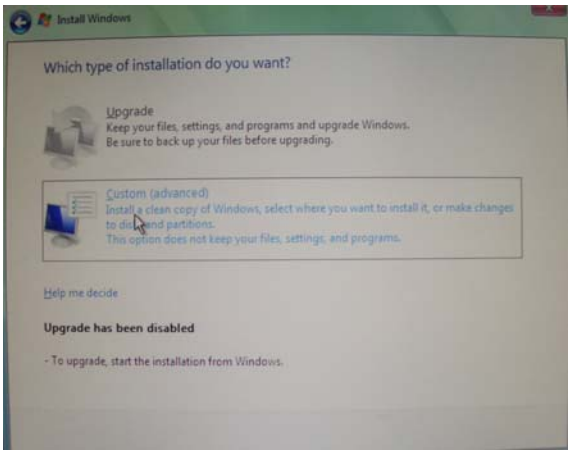


Installing the AHCI Driver During Windows Vista Installation

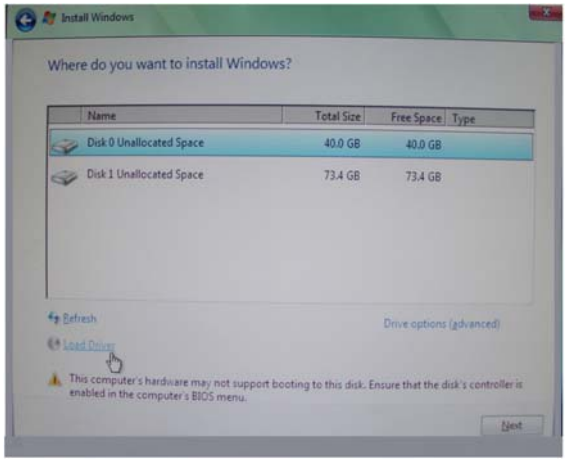
The AHCI driver must be installed during Windows® Vista installation. This is required in order to install the operating system onto a hard drive when in AHCI mode.

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

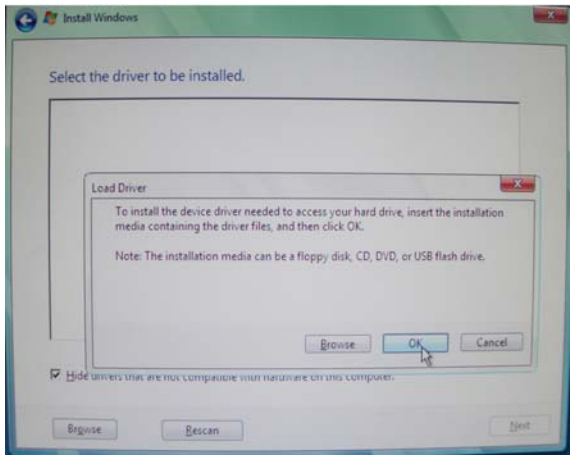
   When the screen on the right appears, click Custom (advanced).



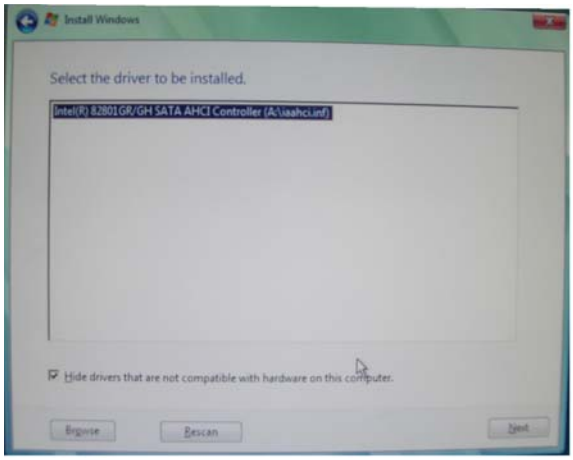
2. Select Load Driver.



3. Insert the provided floppy diskette then click OK.



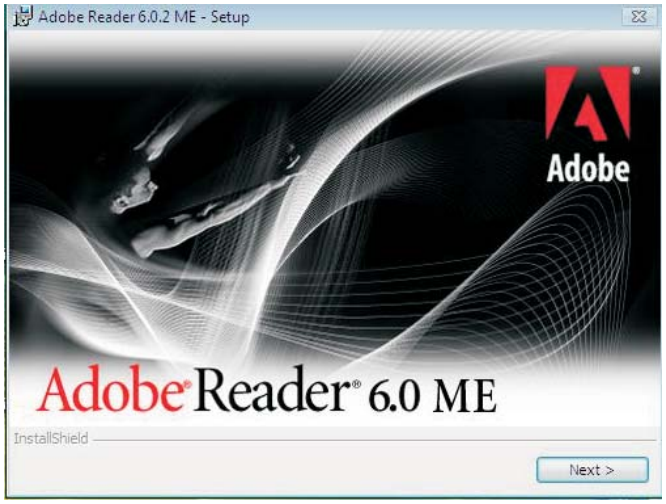
4. The screen on the right will appear. Select the driver.



Adobe Acrobat Reader 6.0 (English Version)

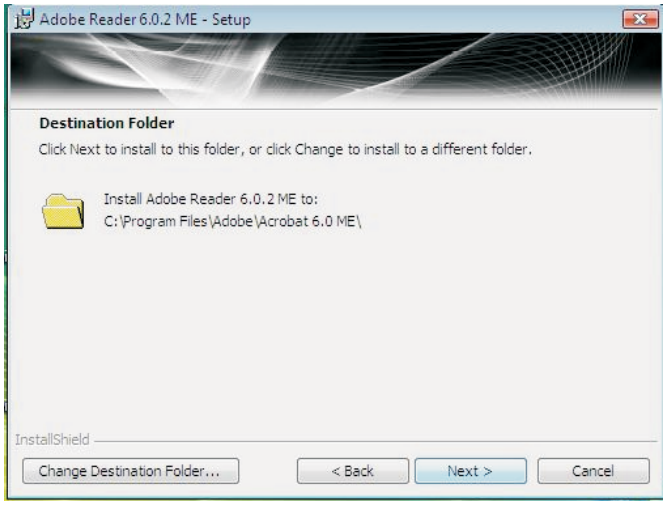
To install, click "Adobe Acrobat Reader 6.0 (English Version)" on the main menu.

1. Click Next to continue.

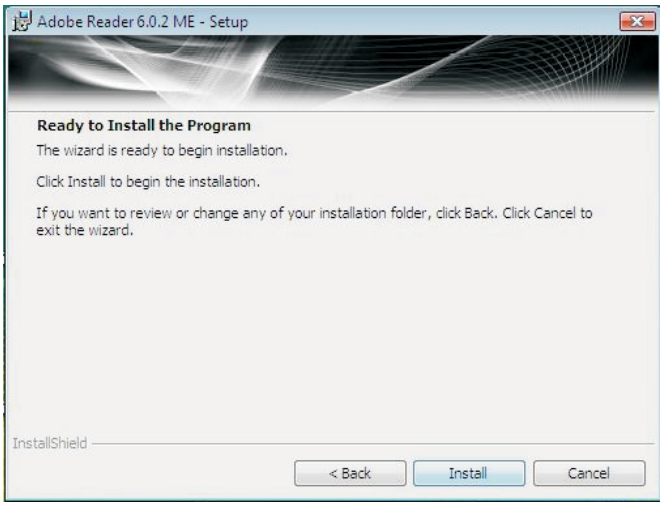


2. Setup is now ready to install. Click Next.

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



4. Click Install to begin installation.



5. Click Finish to exit installaion.

Creating an AHCI Driver Floppy Diskette under Vista

The system board package includes floppy diskettes which are needed when you install the AHCI driver during Windows Vista installation. If in any case you lost the diskette, you can create another one by following the steps below.

1. Insert the provided CD into a CD-ROM drive.
2. The execution files are located in:

   drive:>\AHCI_RAID\F6FLOPPY
3. Run f6flpy32.exe (for 32-bit system) or f6flpy64.exe (for 64-bit system).
4. Insert a blank floppy diskette then click OK.
5. The system will format and write the necessary driver files into the diskette.

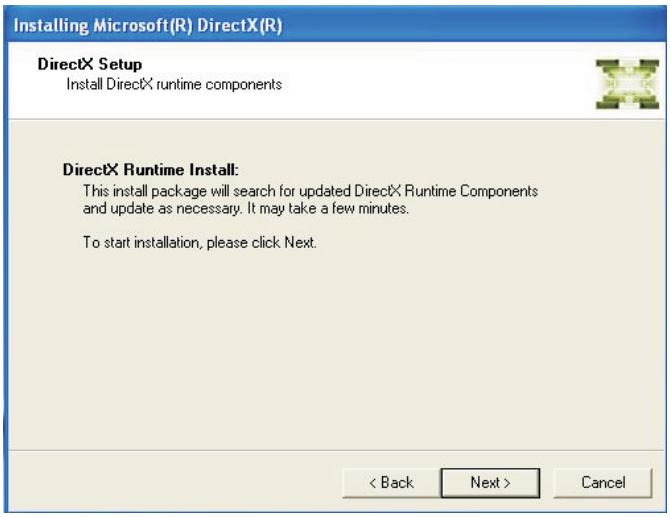
Drivers for Windows XP System

Microsoft DirectX 9.0C Driver

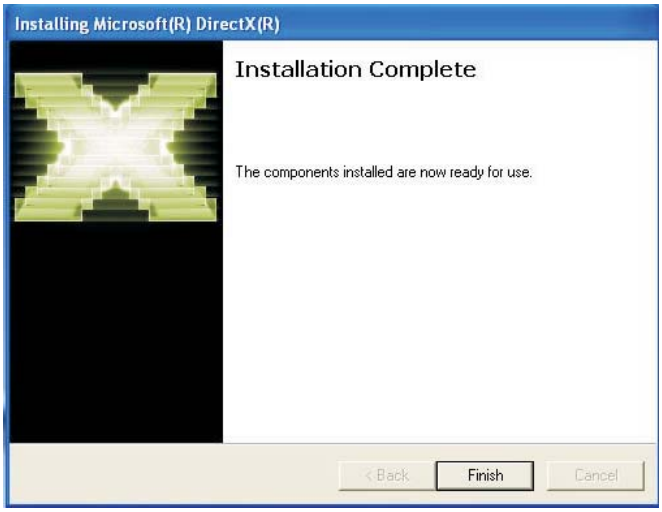
To install the utility, click "Microsoft DirectX 9.0C Driver" on the main menu.

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

2. To start installation, click Next.



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



Intel Chipset Software Installation Utility

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

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

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

2. Read the license agreement then click Yes.

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

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

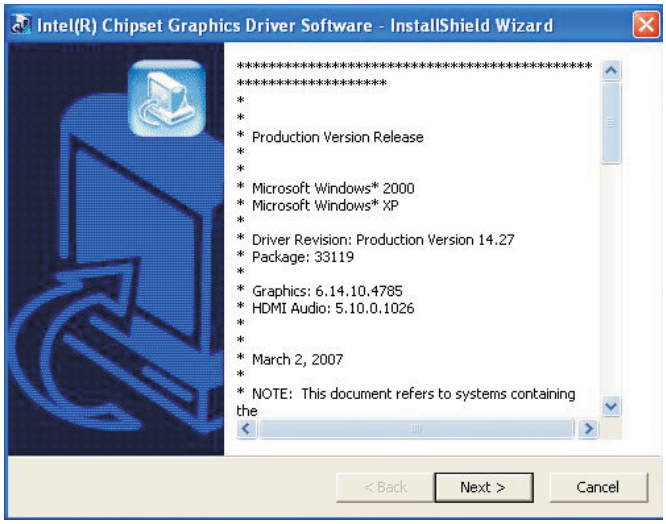
5. Click "Yes, I want to restart this computer now" then click Finish.

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

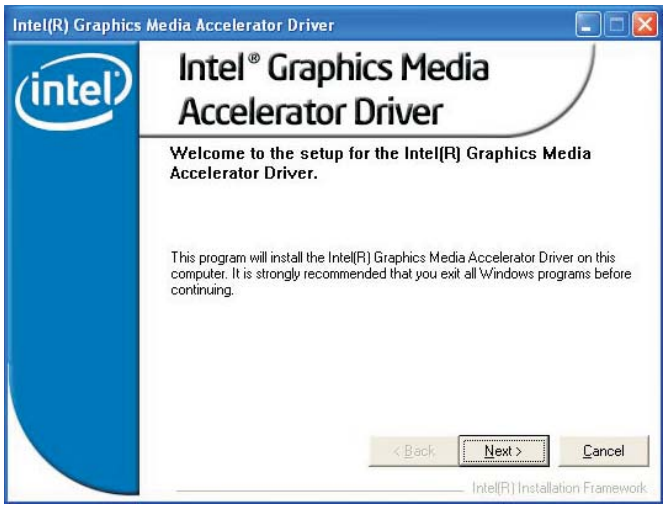
Intel Graphics Drivers

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

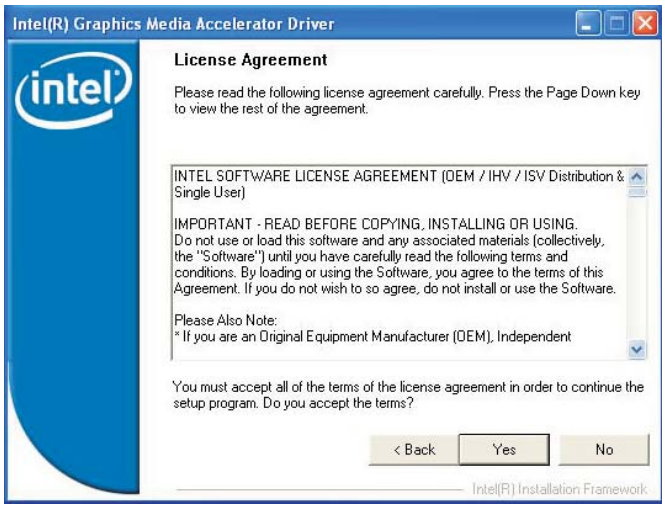
1. To start installation, click Next.



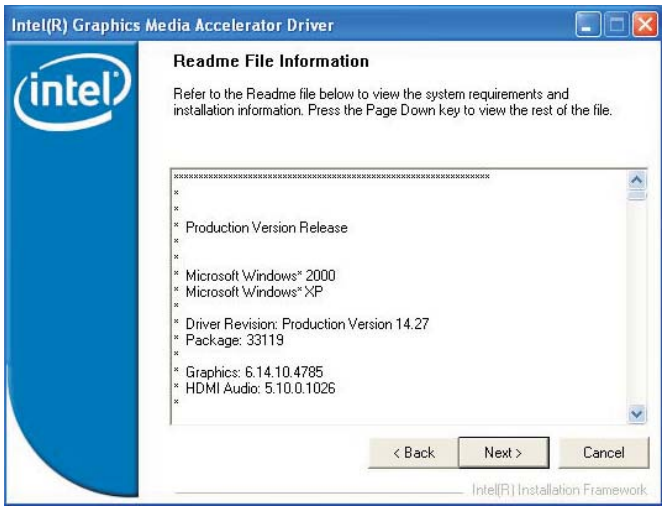
2. Setup is now ready to install the graphics driver. Click Next.



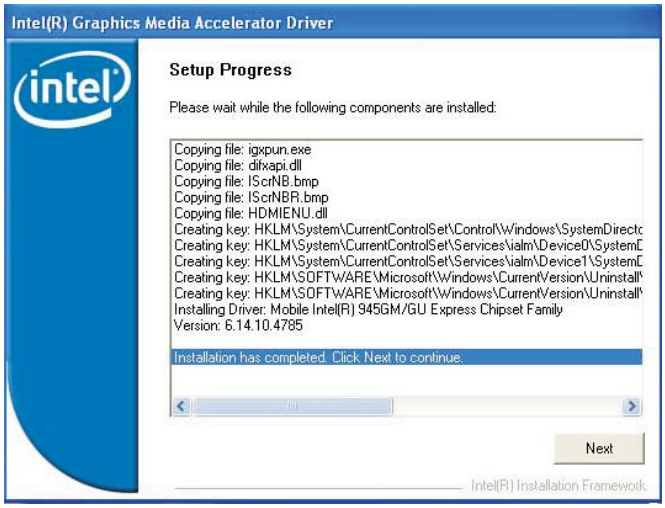
3. Read the license agreement then click Yes.



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

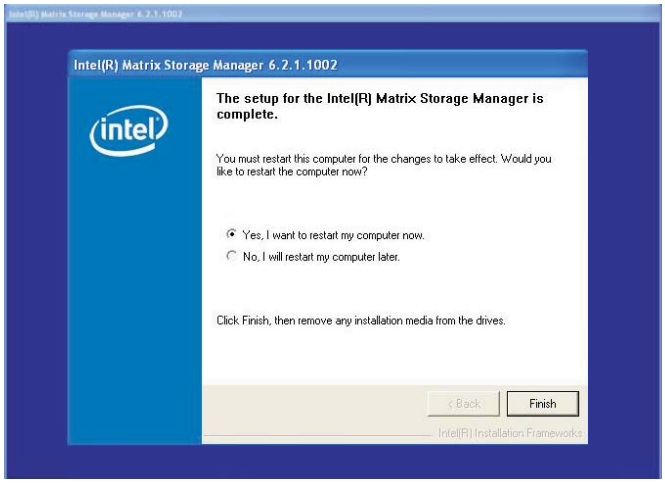


5. Setup is now installing the driver. Click Next to continue.



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

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

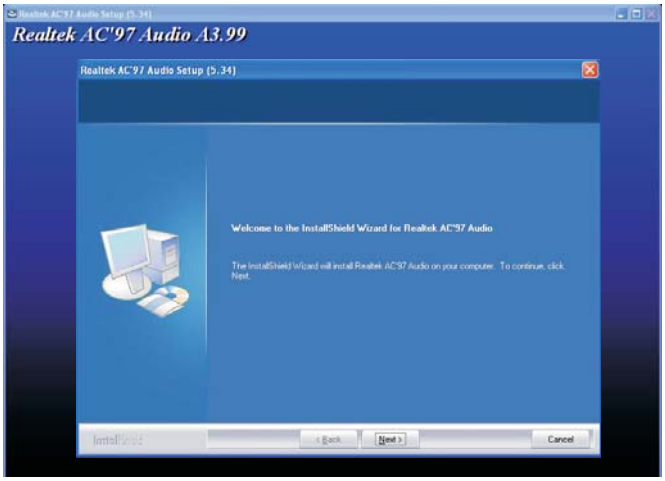


Audio Drivers

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

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

2. Follow the remainder of the steps that appeared on the screen; clicking "next" each time you finish a step.



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

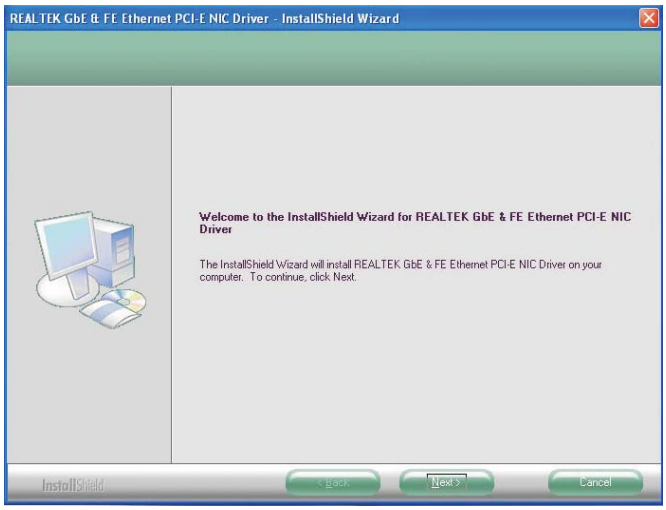
   Restarting the system will allow the new software installation to take effect.

4 Supported Software

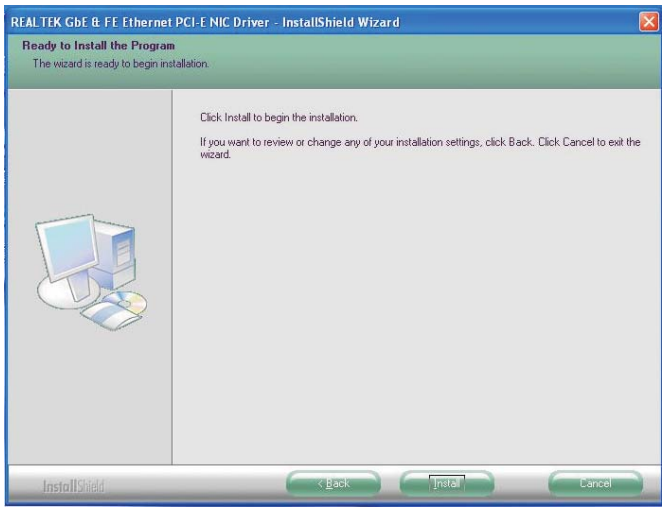
LAN Drivers

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

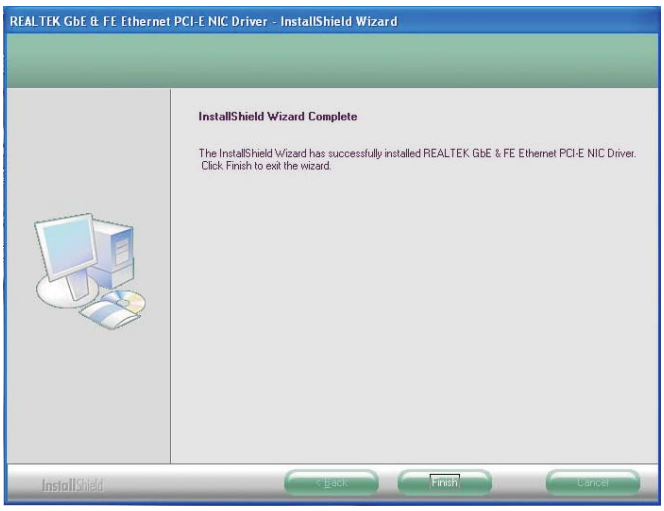
1. Setup is now ready to install the driver. Click Next.



2. Click Install to begin installation.



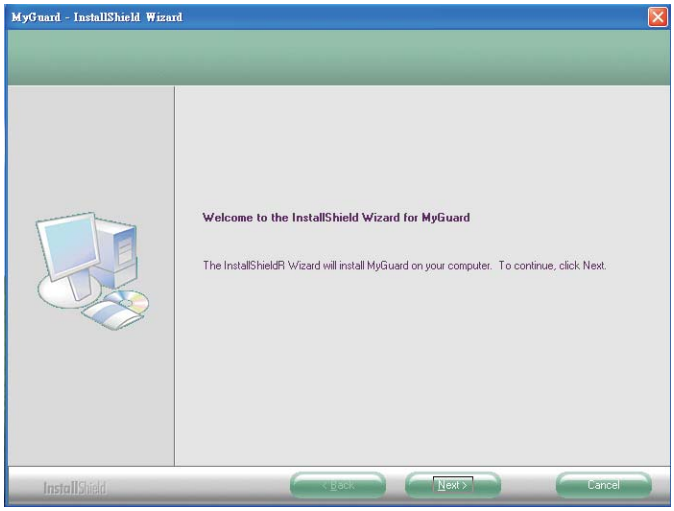
3. After completing installation, click Finish to exit setup.



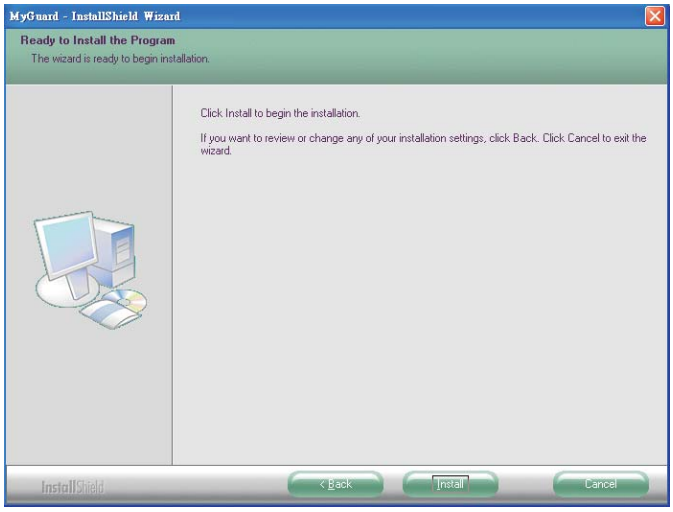
MyGuard Hardware Monitor

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

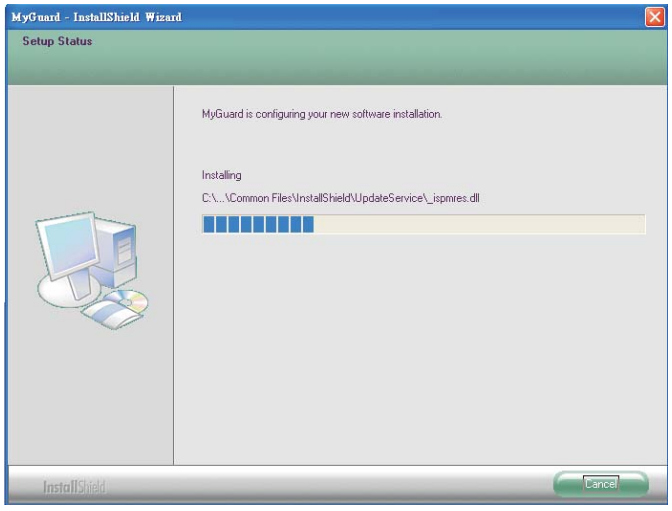
1. Setup is now ready to install the utility. Click Next.



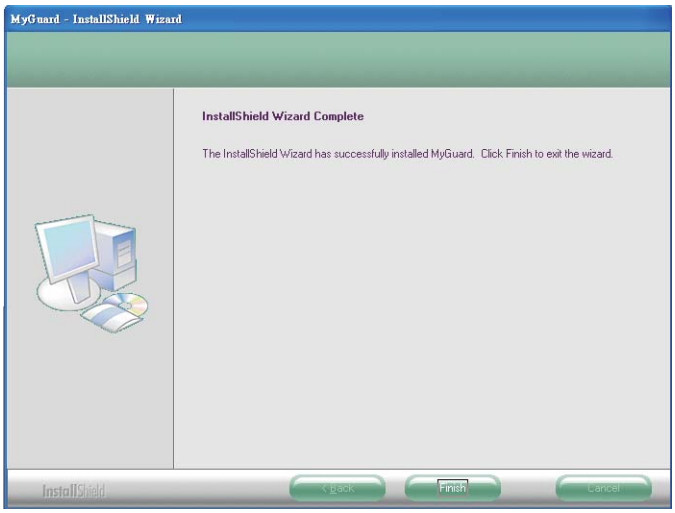
2. Click Install to begin installation.



3. Setup is currently installing the utility.



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



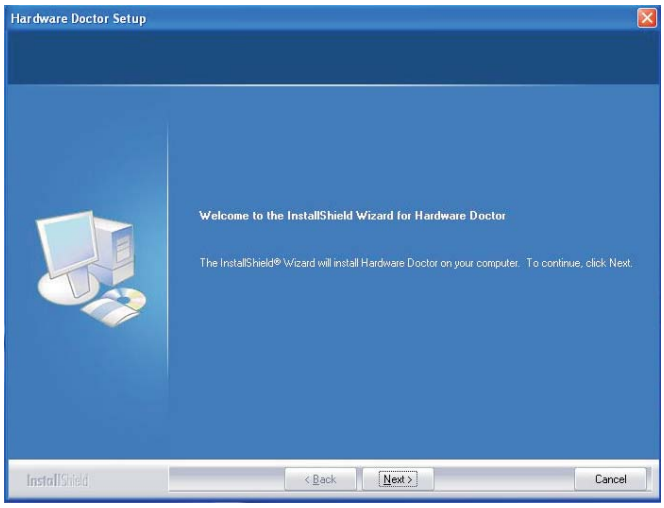
4 Supported Software

Hardware Monitor for Windows

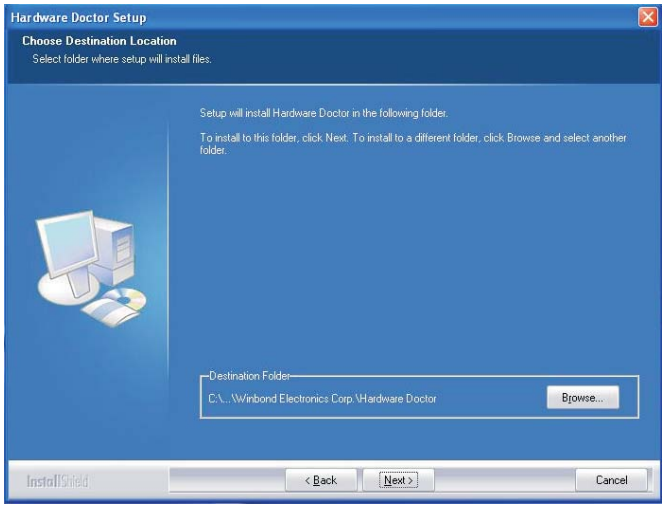
The system board comes with the Hardware Monitor for Windows utility. This utility is capable of monitoring the system's temperature, fan speed, voltage, etc. and allows you to manually set a range (Highest and Lowest Limit) to the items being monitored. If the settings/values are over or under the set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

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

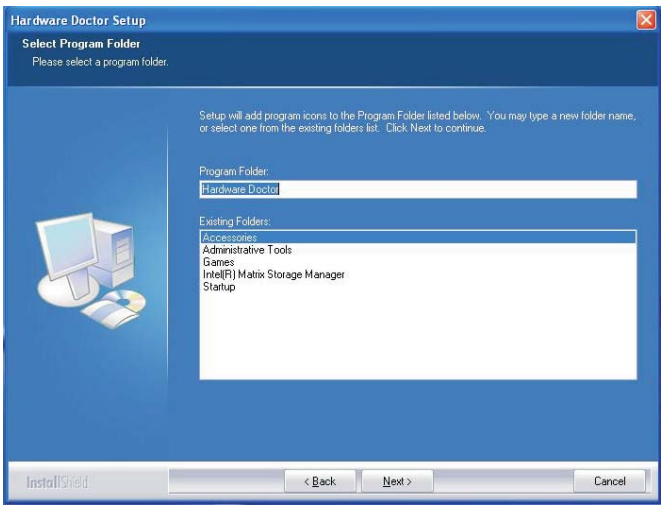
1. Setup is now ready to install the utility. Click Next.



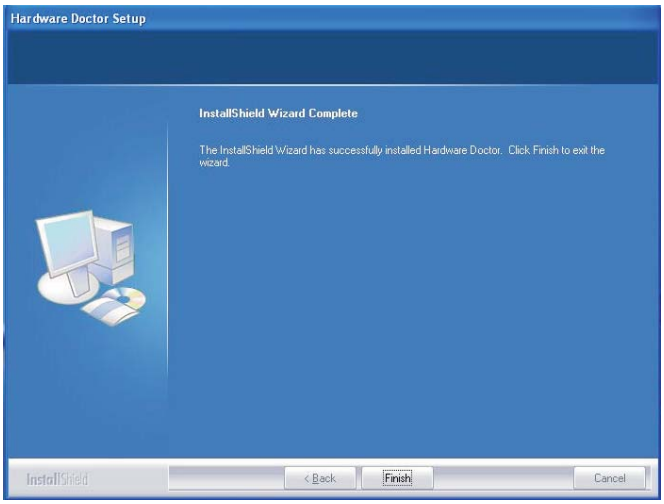
2. Click Next to install or click Browse to select another folder.



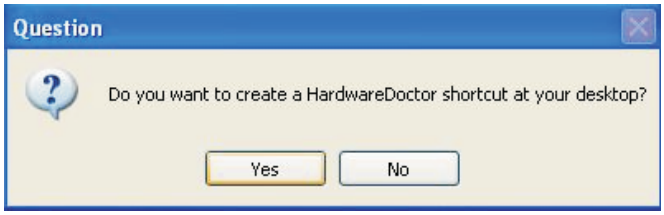
3. Click Next to add the program icon to the Program Folder.



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

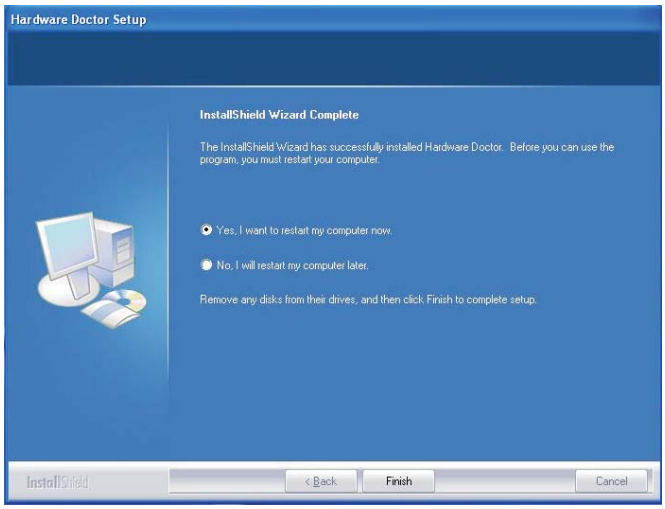


5. Click Yes if you want to create a Hardware Doctor shortcut at your desktop.



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

   Restarting the system will allow the driver to take effect.



Intel Matrix Storage Manager Utility

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

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

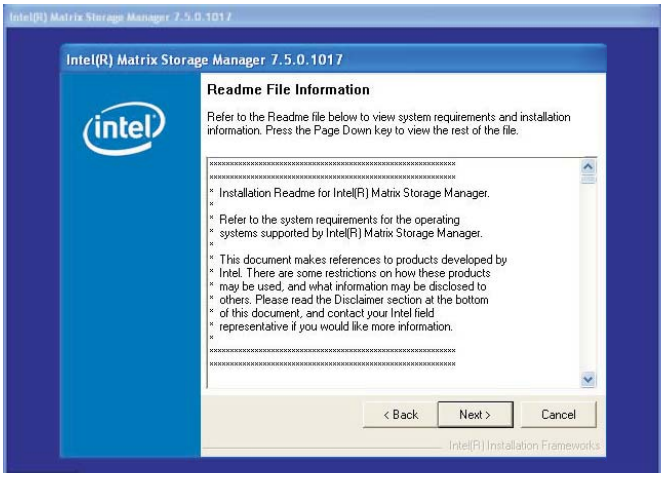
To install the utility, click "Intel Matrix Storage Manager Utility" on the main menu.

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

2. Read the Warning information carefully then click Next.

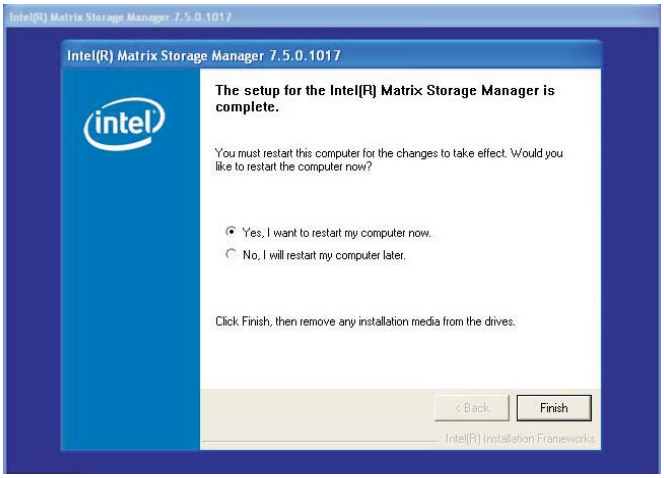
3. Read the license agreement then click Yes.

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



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

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

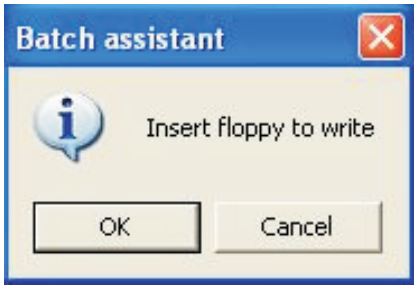


AHCI for F6 During Windows Setup Floppy Driver

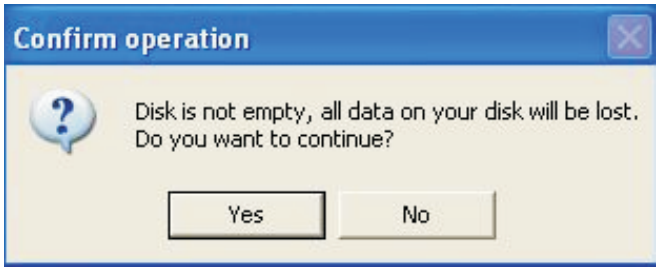
This is used to create a floppy driver diskette needed when you install Windows® XP using the F6 installation method. This will allow you to install the operating system onto a hard drive when in AHCI mode.

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

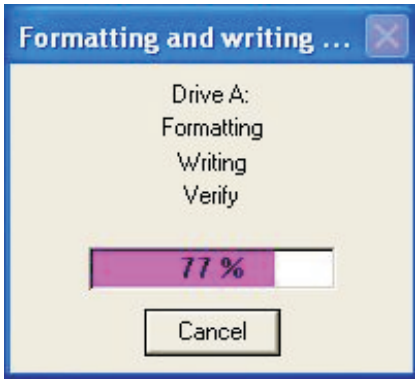
1. Insert a blank floppy diskette then click OK.



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



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

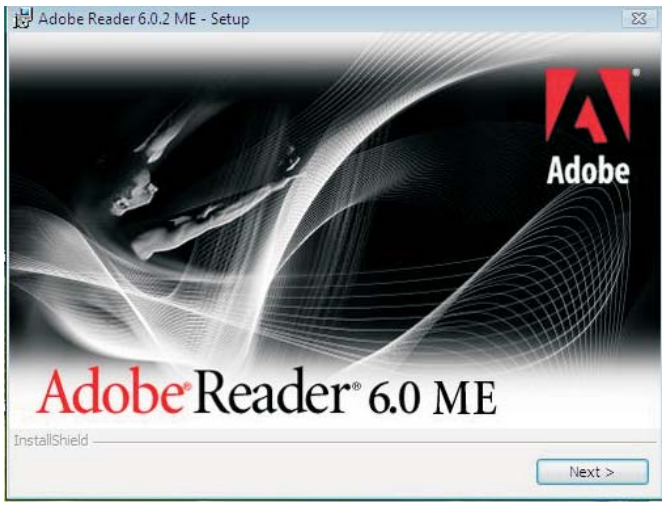


4 Supported Software

Adobe Acrobat Reader 6.0 (English Version)

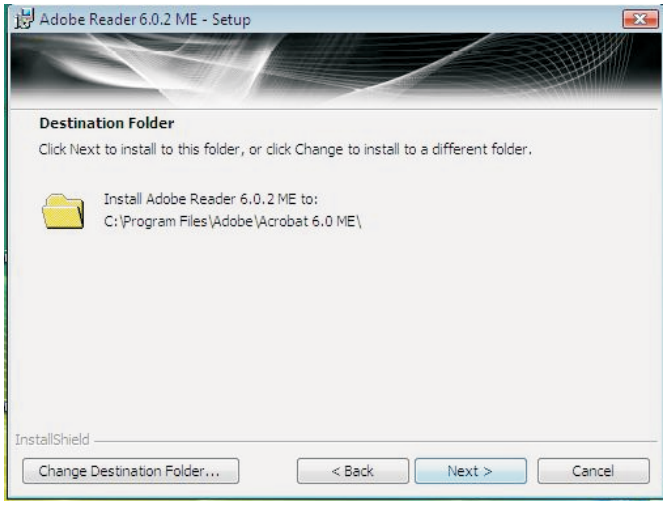
To install, click "Adobe Acrobat Reader 6.0 (English Version)" on the main menu.

1. Click Next to continue.

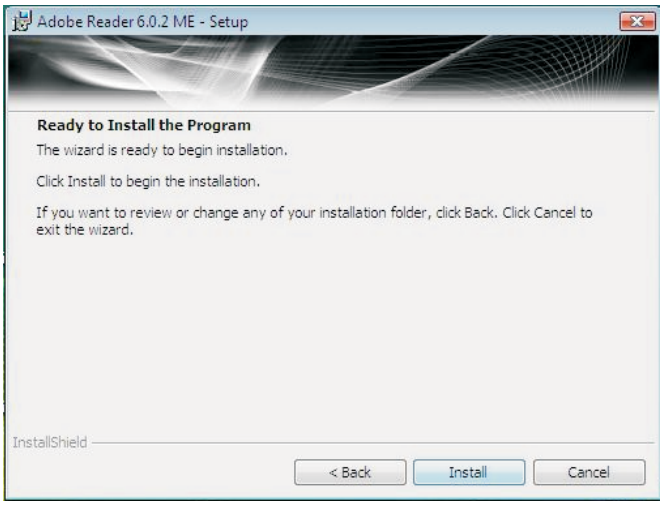


2. Setup is now ready to install. Click Next.

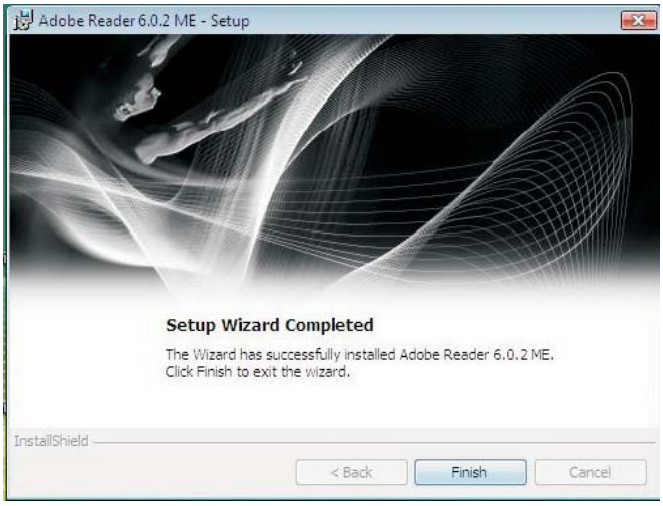
3. Click Next to install or click Change Destination Folder to select another folder.



4. Click Install to begin installation.



5. Click Finish to exit installaion.



Installing the AHCI Driver During Windows XP Installation

The AHCI driver must be installed during the Windows® XP installation using the F6 installation method. This is required in order to install the operating system onto a hard drive when in AHCI mode.

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

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

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
;------------------
Superlo_CFG_Port   EQU  2Eh   ;Super I/O Config port. (2Eh/4Eh)
Superlo_DAT_Port   EQU  Superlo_CFG_Port + 1

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

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

mSuperio_Exit_Config      Macro
    mov        dx, Superlo_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
```