QB701-B Series

Qseven Board
User's Manual

A19730301

Copyright

Trademarks

FCC and DOC Statement on Class B

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

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

Notice:

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

Table of Contents

About this Manual

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

Warranty

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

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

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

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

Static Electricity Precautions

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

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

2. Wear an antistatic wrist strap.

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

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

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

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

Safety Measures

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

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

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.

- ☑ One QB701-B Series board
- ☑ One heat sink
- ☑ One drivers/utilities disk
- ☑ One QR (Quick Reference)

Optional Items

- ☑ Q7-100 carrier board kit
- ☑ Cable kit for carrier board
- ☑ Two standoff bolts
- ☑ Two sets of nut and bolt
- ☑ One bracket

The board and accessories in the package may not come similar to the information listed above. This may differ in accordance with 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.

Chapter 1 - Introduction

Specifications

Chipset	• Intel® EG20T PCH (Platform Controller Hub)
Expansion Interfaces	• Supports USB interface: - 7 Host and 1 Host/Client (selectable) • Supports LPC Interface • Supports SMB and I²C interfaces • Supports 3 PCIe x1 interfaces • Supports CAN-bus (Controller-Area Network) interface
Graphics	• Intel® GMA 600 • Supports up to 400MHz graphics frequency • Ultra low power integrated 3D graphics • High definition hardware video decoder and encoder engine • Supports LVDS and SDVO interfaces - LVDS: Supports pixel clock depths of 18/24-bit, single channel, max. pixel clock of 80MHz, equates to 1280x768 @ 60Hz - SDVO: Up to 160MHz pixel clock, equates to 1280x1024 @ 85Hz
Audio	• Supports High Definition Audio interface
LAN	• Integrated Intel® PCH GbE MAC • One Micrel KSZ9021RNI Ethernet PHY • Supports 10Mbps, 100Mbps and 1Gbps data transmission • IEEE 802.3 (10/100Mbps) and IEEE 802.3ab (1Gbps) compliant
SDIO/MMC	• Supports 1 SDIO/MMC • Supports SDA Standard Ver 1.0, SD memory card specification Ver 2.0, SDIO card specification Ver 1.0, MMC System specification Ver 4.1 • Conforms to Secure Digital Host Controller (SDHC) speed class 6
Serial ATA	• Supports two Serial ATA interfaces - One port shared with SSD • SATA speed up to 3Gb/s (SATA 2.0)
BIOS	• 16Mbit SPI Flash BIOS (UEFI BIOS)
Energy Efficient Design	• Supports ACPI 2.0/1.0 specification • Enhanced Intel® SpeedStep Technology
Power	• Input: VCC_RTC, 5V standby, 5V
TPM (option)	• Provides a Trusted PC for secure transactions • Provides software license protection, enforcement and password protection
Watchdog Timer	• Software programmable from 1 to 255 seconds

Humidity	• 10% to 90%
PCB	• Dimensions - Qseven form factor - 70mm (2.76”) x 70mm (2.76”) • Compliance - Qseven specification revision 1.2

PROCESSOR / MEMORY / TEMPERATURE / SSD

Model	Processor	Memory	Temperature	SSD Onboard
QB701-B620T101	Intel® Atom E620T	1GB DDR2 onboard	-20°C to 70°C	-
QB701-B640T101	Intel® Atom E640T	1GB DDR2 onboard	-20°C to 70°C	-
QB701-B660T101	Intel® Atom E660T	1GB DDR2 onboard	-20°C to 70°C	-
QB701-B680T101	Intel® Atom E680T	1GB DDR2 onboard	-20°C to 70°C	-
QB701-B620T011	Intel® Atom E620T	512MB DDR2 onboard	-20°C to 70°C	2GB
QB701-B640T121	Intel® Atom E640T	1GB DDR2 onboard	-20°C to 70°C	4GB
QB701-B680T201	Intel® Atom E680T	2GB DDR2 onboard	-20°C to 70°C	-
QB701-B620100	Intel® Atom E620	1GB DDR2 onboard	0°C to 60°C	-
QB701-B640100	Intel® Atom E640	1GB DDR2 onboard	0°C to 60°C	-
QB701-B660100	Intel® Atom E660	1GB DDR2 onboard	0°C to 60°C	-
QB701-B680100	Intel® Atom E680	1GB DDR2 onboard	0°C to 60°C	-

Features

DDR2

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

Graphics

The integrated Intel® HD graphics engine delivers an excellent blend of graphics performance and features to meet business needs. It provides excellent video and 3D graphics with outstanding graphics responsiveness. These enhancements deliver the performance and compatibility needed for today's and tomorrow's business applications. Supports LVDS and SDVO display outputs.

Serial ATA

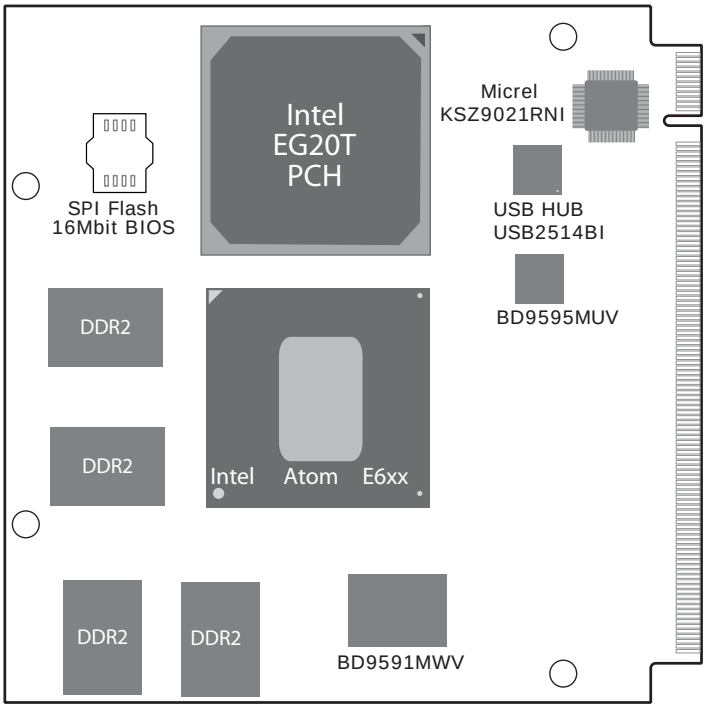
Serial ATA is a storage interface that is compliant with SATA 2.0a specification. With speed of up to 3Gb/s (SATA 2.0), it improves hard drive performance faster than the standard parallel ATA whose data transfer rate is 100MB/s. The bandwidth of the SATA 3.0 will be limited by carrier board design.

Gigabit LAN

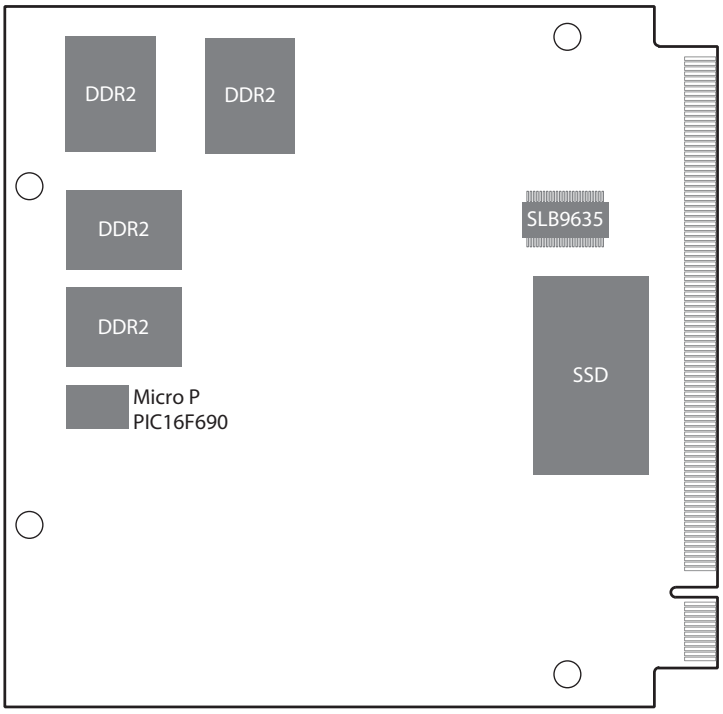
The Micrel KSZ9021RNI Ethernet Phy controller supports up to 1Gbps data transmission.

Chapter 2 - Hardware Installation

Board Layout

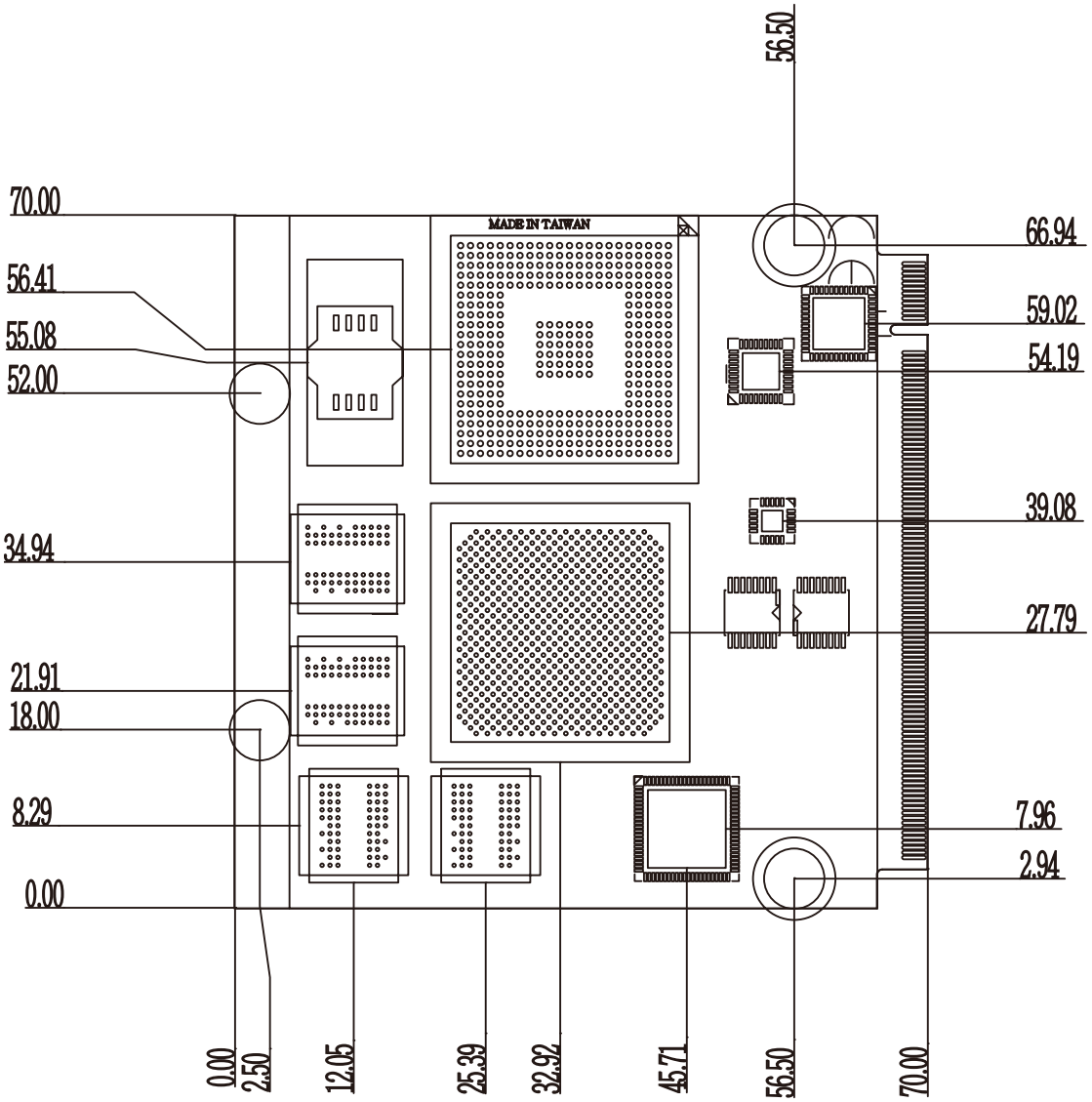


Top View



Bottom View

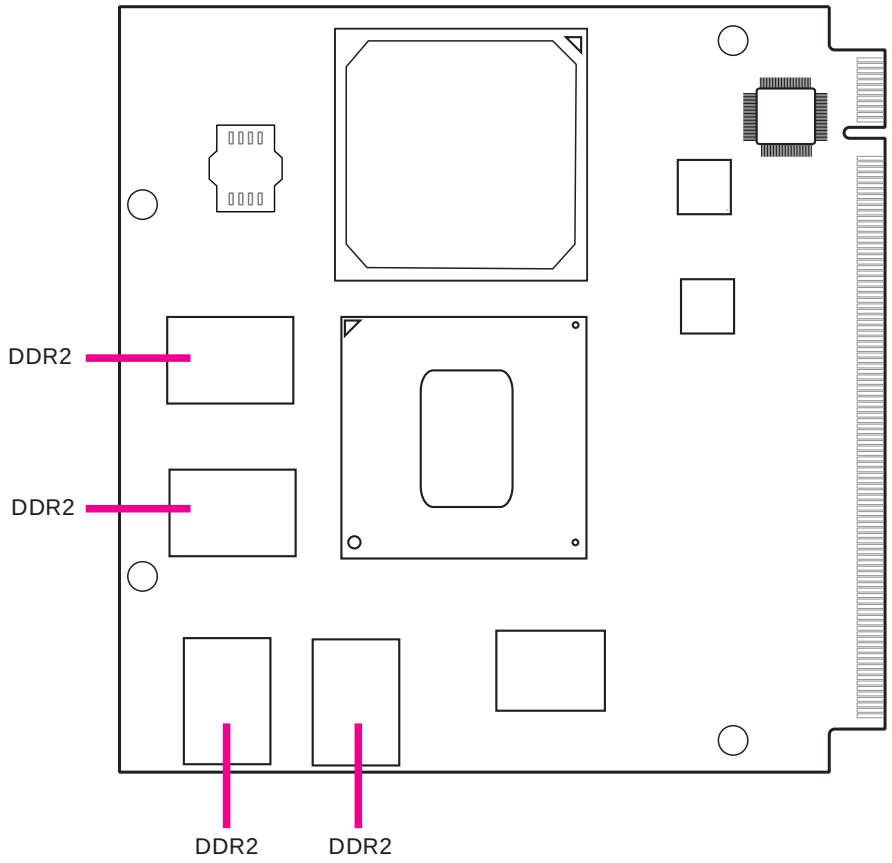
Mechanical Diagram



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

System Memory

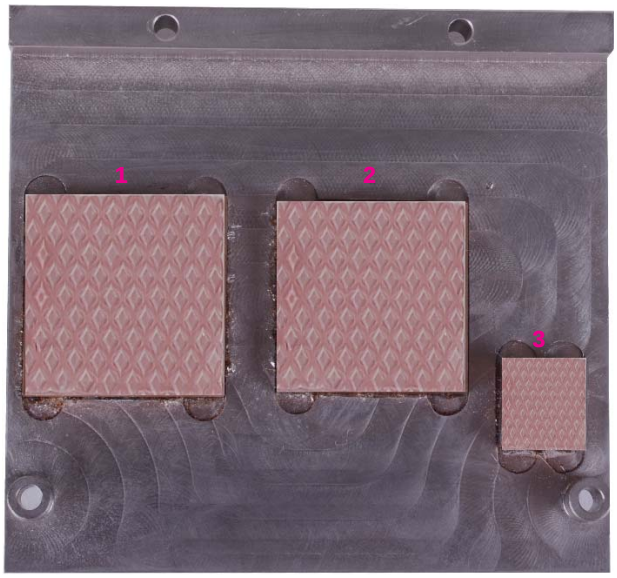
The system board is equipped with memory down (single 32-bit channel) that support DDR2.



Cooling Option

Heat Sink with Cooling Fan

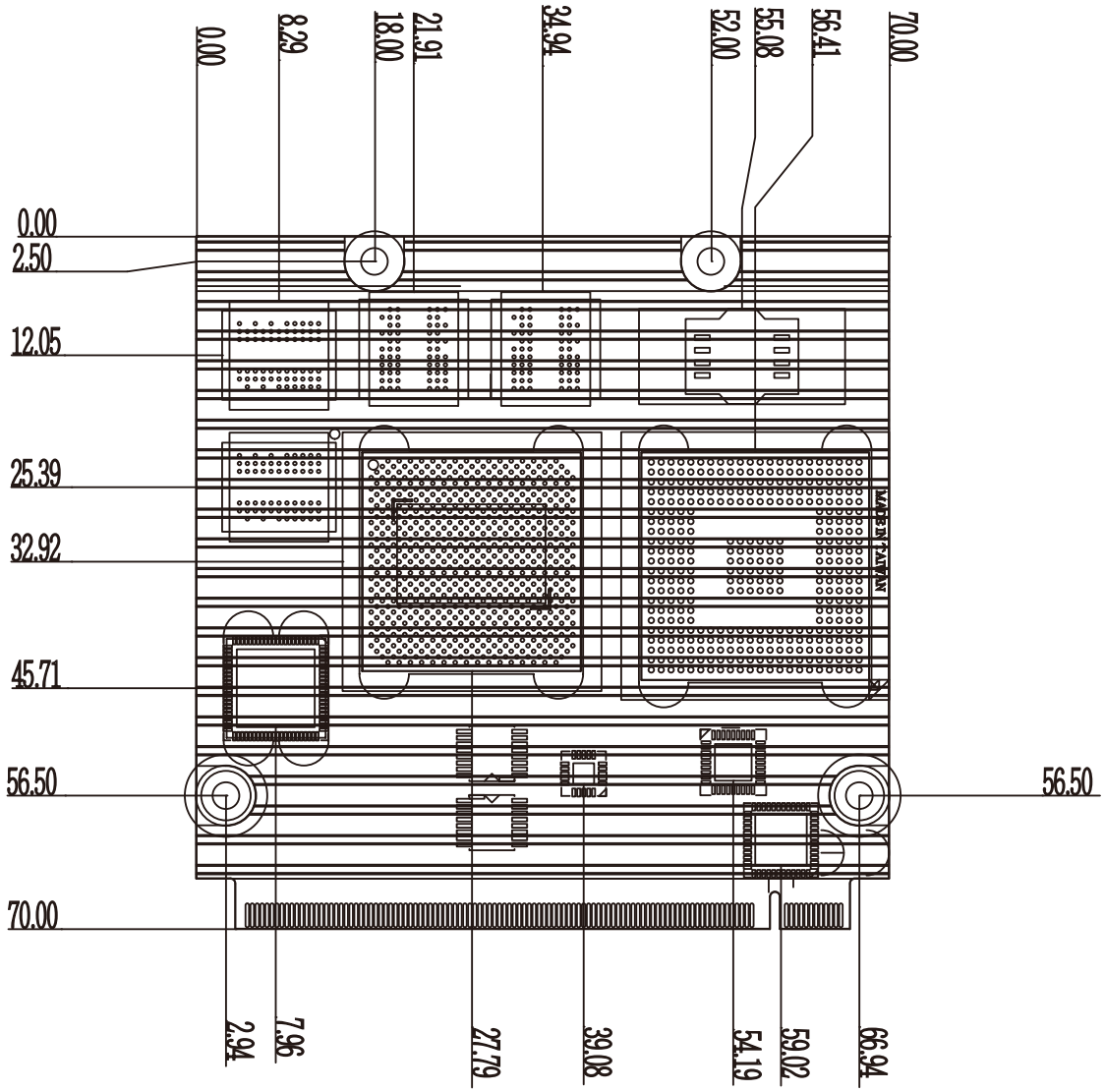
Top View of the Heat Sink



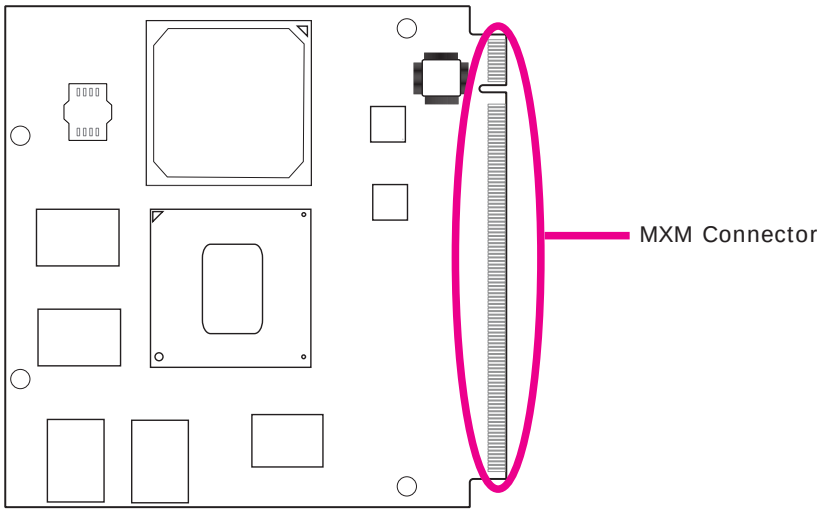
Bottom View of the Heat Sink

- "1", "2" and "3" denote the locations of the thermal pads designed to contact the corresponding components that are on QB701-B Series.
- Remove the plastic covering from the thermal pads prior to mounting the heat sink onto QB701-B Series.

Dimensions


0.00
8.29
18.00
21.91
34.94
52.00
55.08
56.41
70.00
0.00
2.50
12.05
25.39
32.92
45.71
56.50
70.00
56.50
2.94
7.96
27.79
39.08
54.19
59.02
66.94

MXM Connector



The MXM connector is used to interface with the carrier board. Insert QB701-B series to the MXM connector on the carrier board. Refer to the following page for the pin function of this connector.

Refer to “Installing QB701-B Series onto a Carrier Board” section for more information.

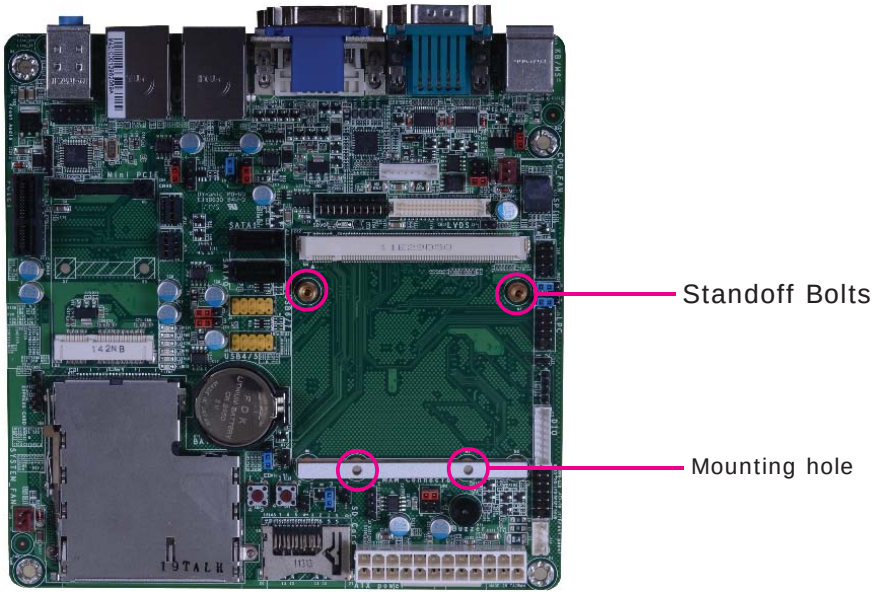
1	GND	2	GND
3	GBE_MDI3-	4	GBE_MDI2-
5	GBE_MDI3+	6	GBE_MDI2+
7	GBE_LINK100-(NC)	8	GBE_LINK1000-(NC)
9	GBE_MDI1-	10	GBE_MDI0-
11	GBE_MDI1+	12	GBE_MDI0+
13	GBE_LINK-	14	GBE_ACT-
15	GBE_CTREF(NC)	16	SUS_S5-
17	WAKE-	18	SUS_S3-
19	SUS_STAT-	20	PWRBTN-
21	SLP_BTN-	22	LID_BTN-
23	GND	24	GND
KEY			
25	GND	26	PWGIN
27	BATLOW-	28	RSTBTN-
29	SATA0_TX+	30	SATA1_TX+
31	SATA0_TX-	32	SATA1_TX-
33	SATA_ACT-	34	GND
35	SATA0_RX+	36	SATA1_RX+
37	SATA0_RX-	38	SATA1_RX-
39	GND	40	GND
41	BIOS_DISABLE-/BOOT_ALT-	42	SDIO_CLK
43	SDIO_CD-	44	SDIO_LED
45	SDIO_CMD	46	SDIO_WP
47	SDIO_PWR-	48	SDIO_DATA1
49	SDIO_DATA0	50	SDIO_DATA3
51	SDIO_DATA2	52	SDIO_DATA5
53	SDIO_DATA4	54	SDIO_DATA7
55	SDIO_DATA6	56	RSVD(NC)
57	GND	58	GND
59	HDA_SYNC	60	SMB_CLK
61	HDA_RST-	62	SMB_DATA
63	HDA_BITCLK	64	SMB_ALERT-
65	HDA_SDI	66	I2C_CLK
67	HDA_SDO	68	I2C_DATA
69	THRM-	70	WDTRIG-
71	THRMTRIP-	72	WDOUT
73	GND	74	GND
75	USB_P7-	76	USB_P6-
77	USB_P7+	78	USB_P6+
79	USB_6_7_OC-	80	USB_4_5_OC-
81	USB_P7+	82	USB_P4-
83	USB_P5+	84	USB_P4+
85	USB_2_3_OC-	86	USB_0_1_OC-
87	USB_P3-	88	USB_P2-
89	USB_P3+	90	USB_P2+
91	USB_CC	92	USB_ID
93	USB_P1-	94	USB_P0-
95	USB_P1+	96	USB_P0+
97	GND	98	GND
99	LVDS_A0+	100	LVDS_B0+(NC)
101	LVDS_A0-	102	LVDS_B0-(NC)
103	LVDS_A1+	104	LVDS_B1+(NC)
105	LVDS_A1-	106	LVDS_B1-(NC)
107	LVDS_A2+	108	LVDS_B2+(NC)
109	LVDS_A2-	110	LVDS_B2-(NC)
111	LVDS_PPEN	112	LVDS_BLEN
113	LVDS_A3+	114	LVDS_B3+(NC)

115	LVDS_A3-	116	LVDS_B3-(NC)
117	GND	118	GND
119	LVDS_A_CLK+	120	LVDS_B_CLK+(NC)
121	LVDS_A_CLK-	122	LVDS_B_CLK-(NC)
123	LVDS_BLT_CTRL/GP_PWN_OUT0	124	RSVD
125	LVDS_DID_DAT/GP_I2C_DAT	126	LVDS_BLC_DAT(NC)
127	LVDS_DID_CLK/GP_I2C_CLK	128	LVDS_BLC_CLK(NC)
129	CAN0_TX	130	CAN0_RX
131	SDVO_BCLK+	132	SDVO_INT+
133	SDVO_BCLK-	134	SDVO_INT-
135	GND	136	GND
137	SDVO_GREEN+	138	SDVO_FLDSTALL+
139	SDVO_GREEN-	140	SDVO_FLDSTALL-
141	GND	142	GND
143	SDVO_BLUE+	144	SDVO_TVCLKIN+
145	SDVO_BLUE-	146	SDVO_TVCLKIN-
147	GND	148	GND
149	SDVO_RED+	150	SDVO_CTRL_DAT
151	SDVO_RED-	152	SDVO_CTRL_CLK
153	HDMI_HPD-	154	DP_HPD-(NC)
155	PCIE_CLK_REF+	156	PCIE_WAKE-
157	PCIE_CLK_REF-	158	PCIE_RST-
159	GND	160	GND
161	PCIE3_TX+(NC)	162	PCIE3_RX+(NC)
163	PCIE3_TX-(NC)	164	PCIE3_RX-(NC)
165	GND	166	GND
167	PCIE2_TX+	168	PCIE2_RX+
169	PCIE2_TX-	170	PCIE2_RX-
171	EXCD0_PERST-	172	EXCD1_PERST-
173	PCIE1_TX+	174	PCIE1_RX+
175	PCIE1_TX-	176	PCIE1_RX-
177	EXCD0_CPPE-	178	EXCD1_CPPE-
179	PCIE0_TX+	180	PCIE0_RX+
181	PCIE0_TX-	182	PCIE0_RX-
183	GND	184	GND
185	LPC_AD0	186	LPC_AD1
187	LPC_AD2	188	LPC_AD3
189	LPC_CLK	190	LPC_FRAME-
191	SERIRQ	192	LPC_LDRQ-(NC)
193	VCC_RTC	194	SPKR/GP_PWM_OUT2
195	FAN_TACHOIN/GP_TIMER_IN	196	FAN_PWMOUT/GP_PWM_OUT1
197	GND	198	GND
199	SPI_MOSI	200	SPI_CS0-
201	SPI_MISO	202	SPI_CS1-(NC)
203	SPI_SCK	204	MFG_NC4
205	VCC_5VSB	206	VCC_5VSB
207	MFG_NC0(NC)	208	MFG_NC2
209	MFG_NC1	210	MFG_NC3(NC)
211	VCC	212	VCC
213	VCC	214	VCC
215	VCC	216	VCC
217	VCC	218	VCC
219	VCC	220	VCC
221	VCC	222	VCC
223	VCC	224	VCC
225	VCC	226	VCC
227	VCC	228	VCC
229	VCC	230	VCC
	VCC		VCC

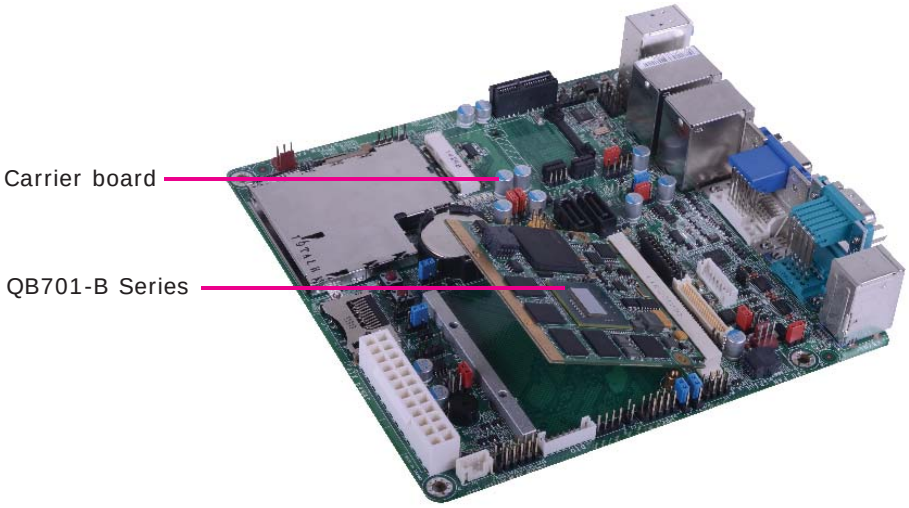
Installing QB701-B Series onto a Carrier Board

Important:
The carrier board used in this section is for reference purpose only and may not resemble your carrier board. These illustrations are mainly to guide you on how to install QB701-B Series onto the carrier board of your choice.

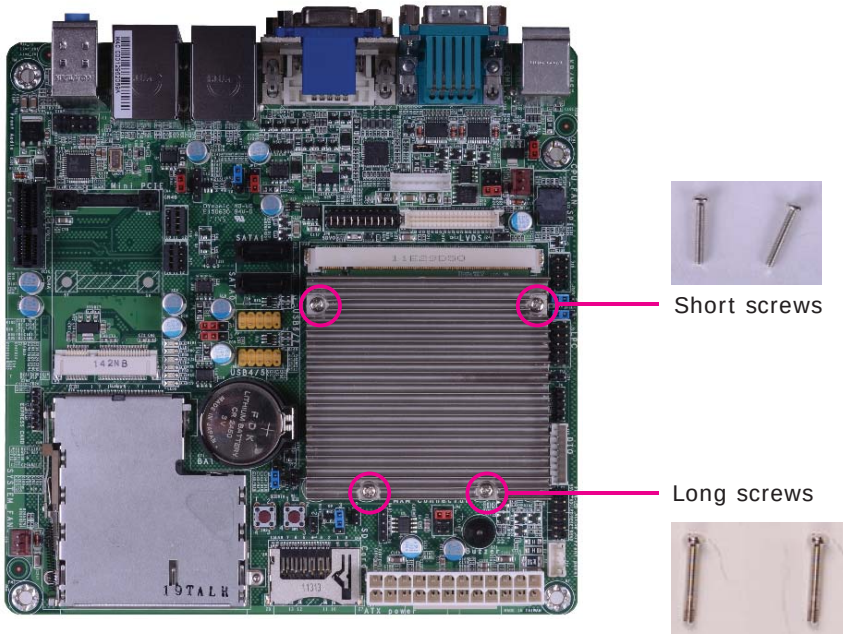
1. The photo below shows the locations of the mounting holes and the bolts already fixed in place.



2. Grasping QB701-B Series by its edges, insert it into the carrier board, and you will hear a distinctive¨click¨ indicating QB701-B Series is correctly locked into position.



3. Press down QB701-B Series and put on the heat sink on top of QB701-B Series with its mounting holes and bolts aligned on the carrier board. Use the mounting screw to fix QB701-B Series and heat sink on place.



Chapter 3 - BIOS Setup

Note:
QB701-B Series support WinXP driver only. Win7 and Linux is available only upon request.

Overview

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

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

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

Default Configuration

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

Entering the BIOS Setup Utility

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

The BIOS Setup Utility does not require an operating system to run. After you power up the system, the BIOS message appears on the screen and the memory count begins. After the memory test, the message “Press DEL to run setup” will appear on the screen. If the message disappears before you respond, restart the system or press the “Reset” button. You may also restart the system by pressing the <Ctrl> <Alt> and <Del> keys simultaneously.

Legends

Keys	Function
Right and Left arrows	Moves the highlight left or right to select a menu.
Up and Down arrows	Moves the highlight up or down between submenus or fields.
<Esc>	Exits to the BIOS Setup Utility.
+ (plus key)	Scrolls forward through the values or options of the highlighted field.
- (minus key)	Scrolls backward through the values or options of the highlighted field.
Tab	Selects a field.
<F1>	Displays General Help.
<F4>	Saves and exits the Setup program.
<Enter>	Press <Enter> to enter the highlighted submenu.

Scroll Bar

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

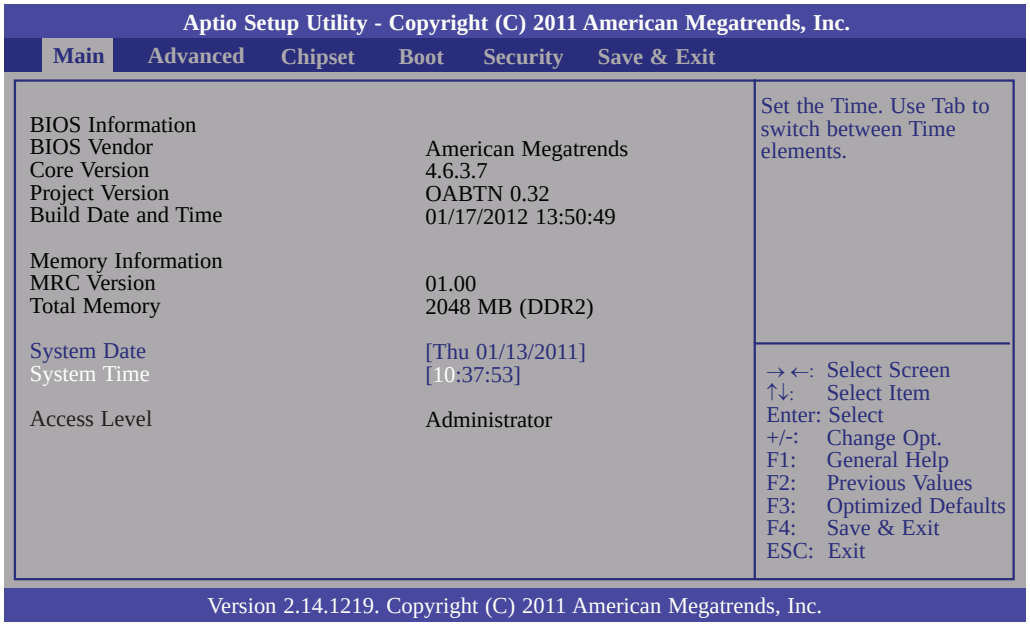
Submenu

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

AMI BIOS Setup Utility

Main

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



System Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1980 to 2099.

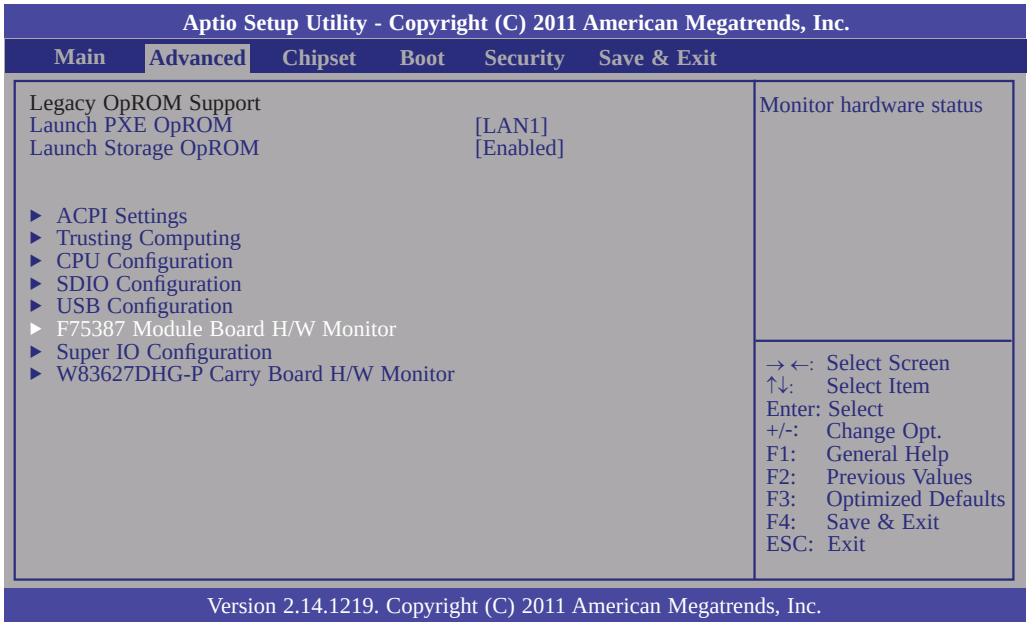
System Time

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

Advanced

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

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



Launch PXE OpROM

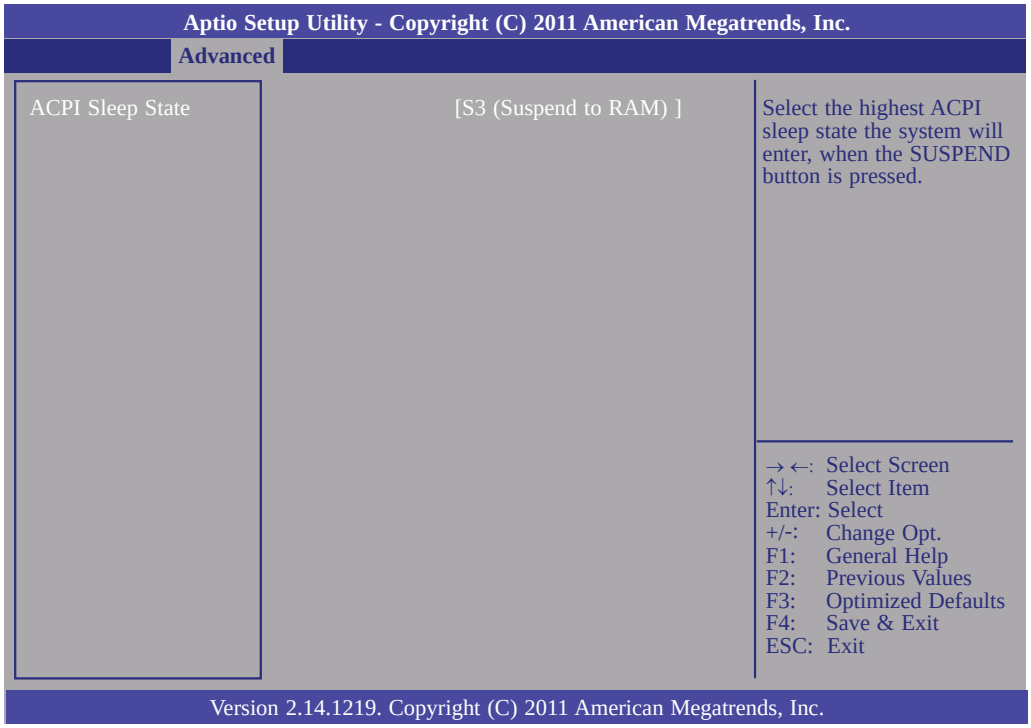
Enables or disables the boot option for legacy network devices.

Launch Storage OpROM

Enables or disables the boot option for legacy mass storage devices with option ROM.

ACPI Settings

This section is used to configure the ACPI Settings.



ACPI Sleep State

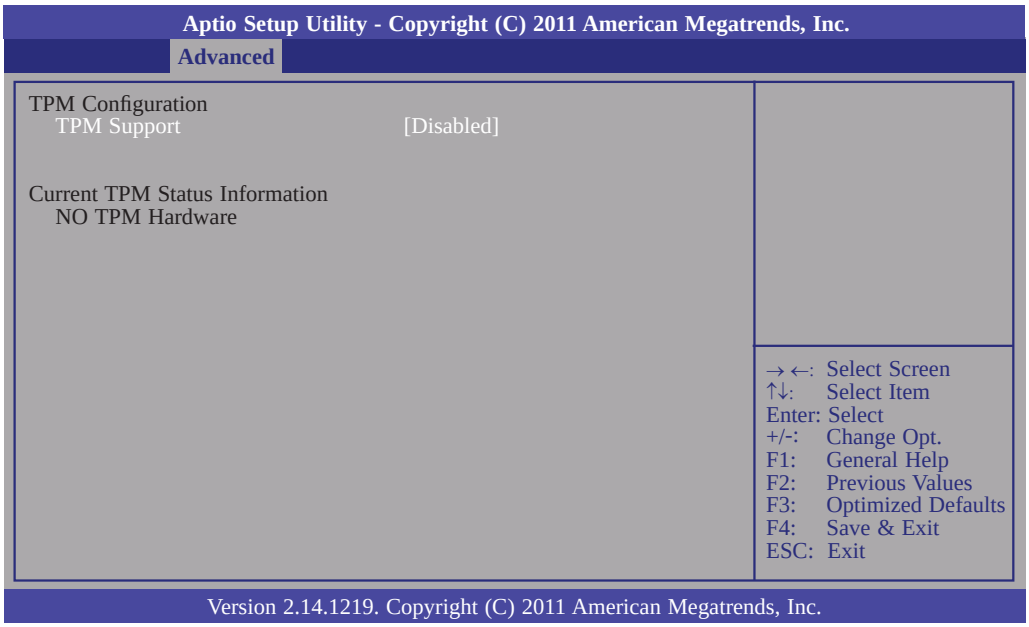
Selects the highest ACPI sleep state the system will enter when the Suspend button is pressed.

S1(POS) Enables the Power On Suspend function.

S3(STR) Enables the Suspend to RAM function.

Trusting Computing (option)

This section configures settings relevant to Trusting Computing innovations.

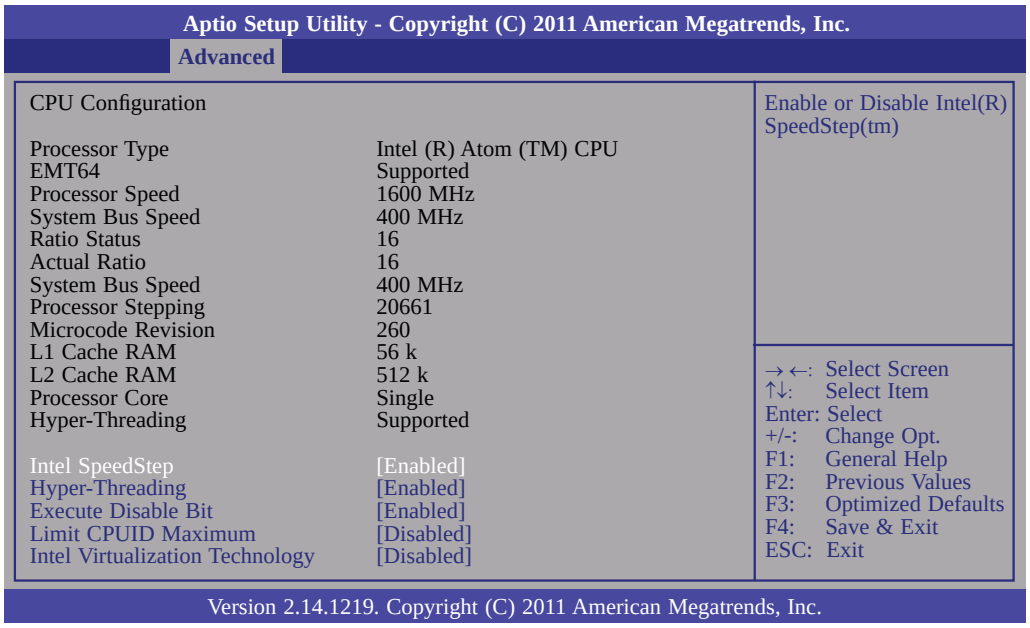


TPM Support

Enables or Disables TPM. O.S. will not show TPM. Resetting the platform is required.

CPU Configuration

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



Intel SpeedStep

Enabled or disabled Intel(R) SpeedStep(tm).

Hyper-threading

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

Execute Disable Bit

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

Limit CUPID Maximum

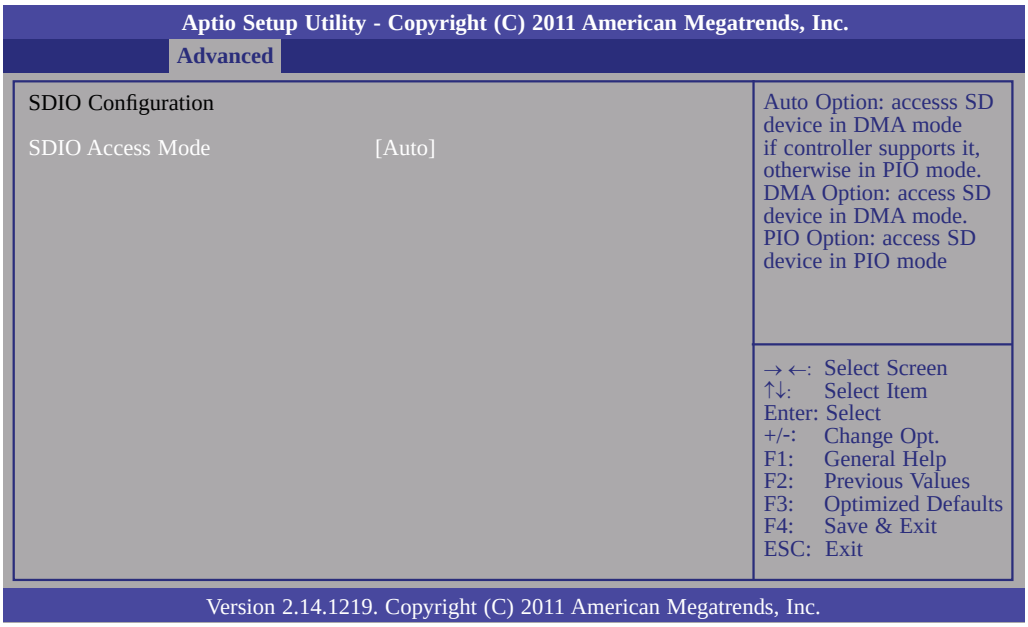
The CPUID instruction of some newer CPUs will return a value greater than 3. The default is Disabled because this problem does not exist in the Windows series operating systems. If you are using an operating system other than Windows, this problem may occur. To avoid this problem, enable this field to limit the return value to 3 or less than 3.

Intel Virtualization Technology

When this field is set to Enabled, the VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

SDIO Configuration

This section is used to configure the SDIO.



SDIO Access Mode

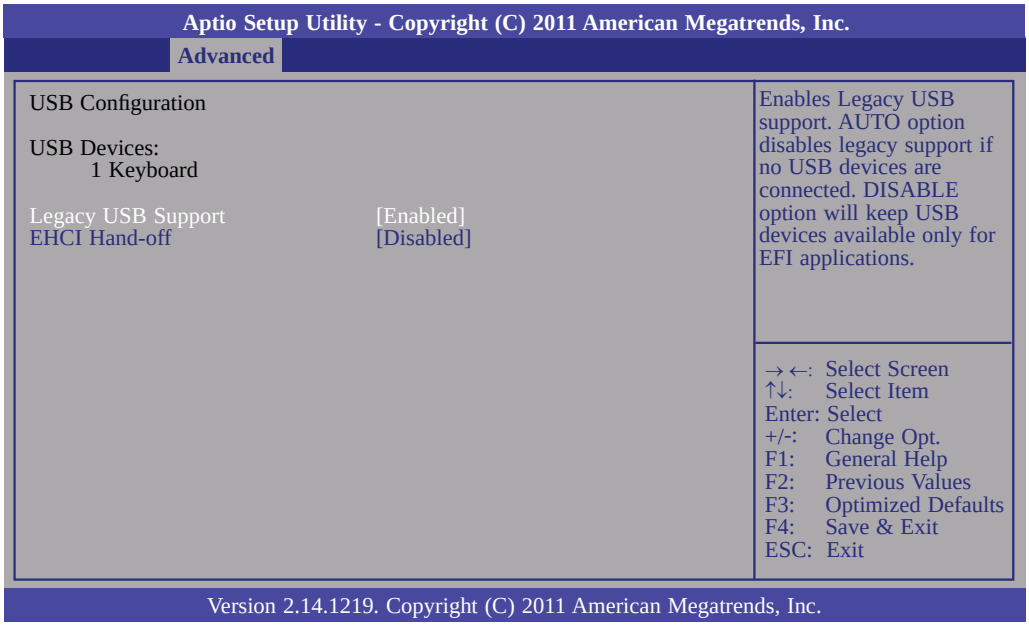
Auto Option: Access SD device in DMA mode if controller supports it, otherwise it is in PIO mode.

DMA Option: Access SD device in DMA mode.

PIO Option: Access SD device in PIO mode.

USB Configuration

This section is used to configure USB.



Legacy USB Support

Enabled
Enables legacy USB.

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

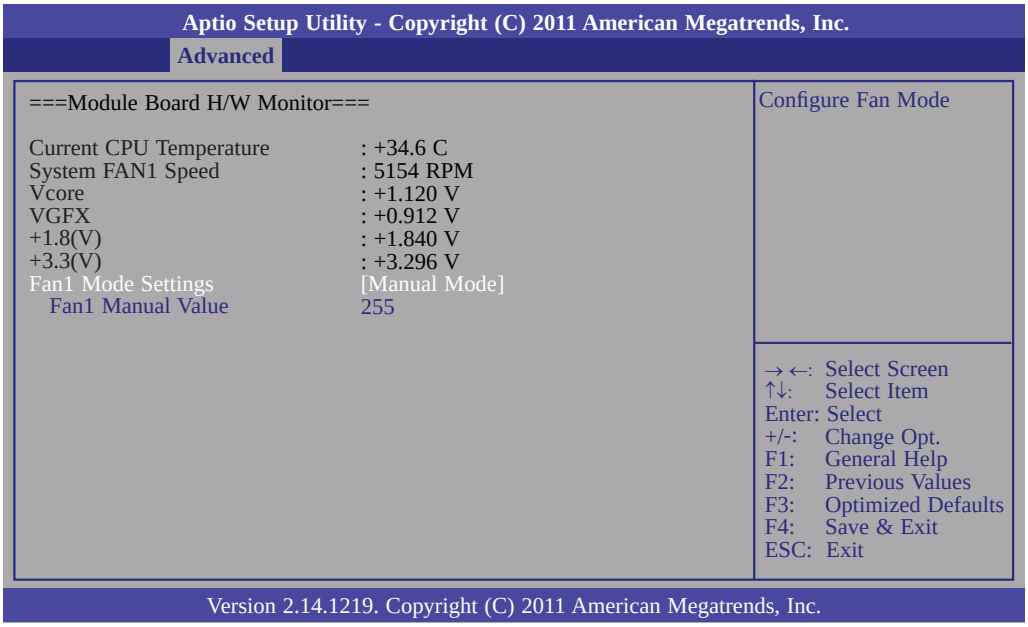
Disabled
Keeps USB devices available only for EFI applications.

EHCI Hand-off

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

Module Board H/W Monitor

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

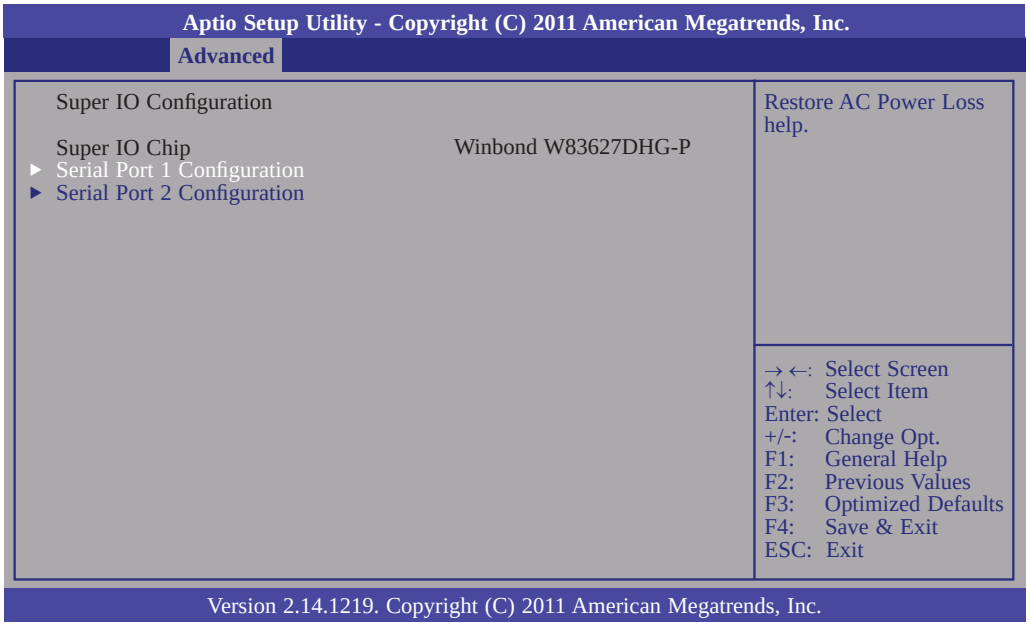


Fan1 Mode Settings

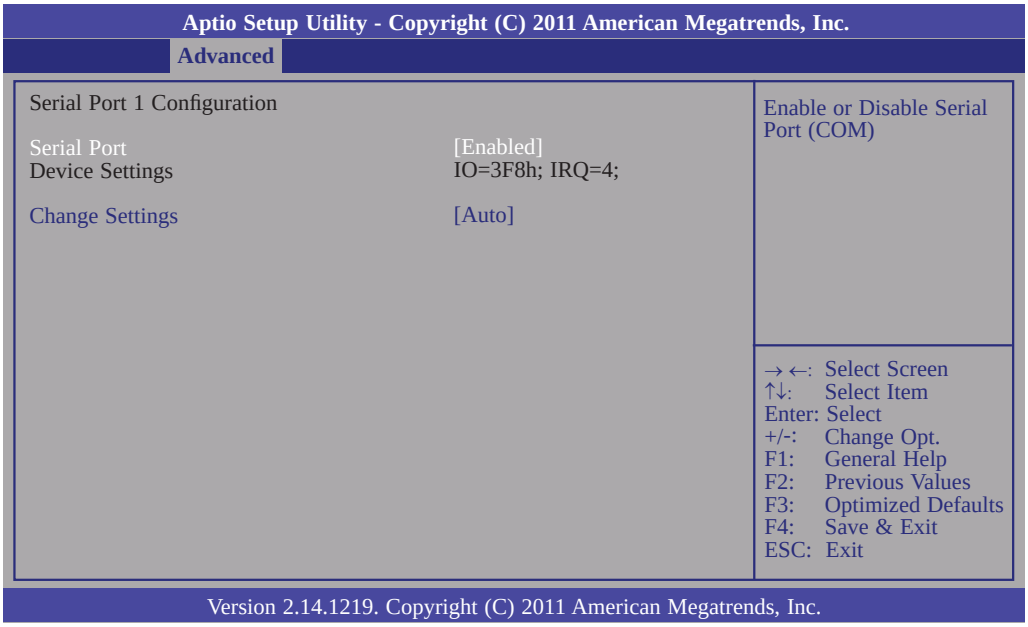
Configure the fan mode.

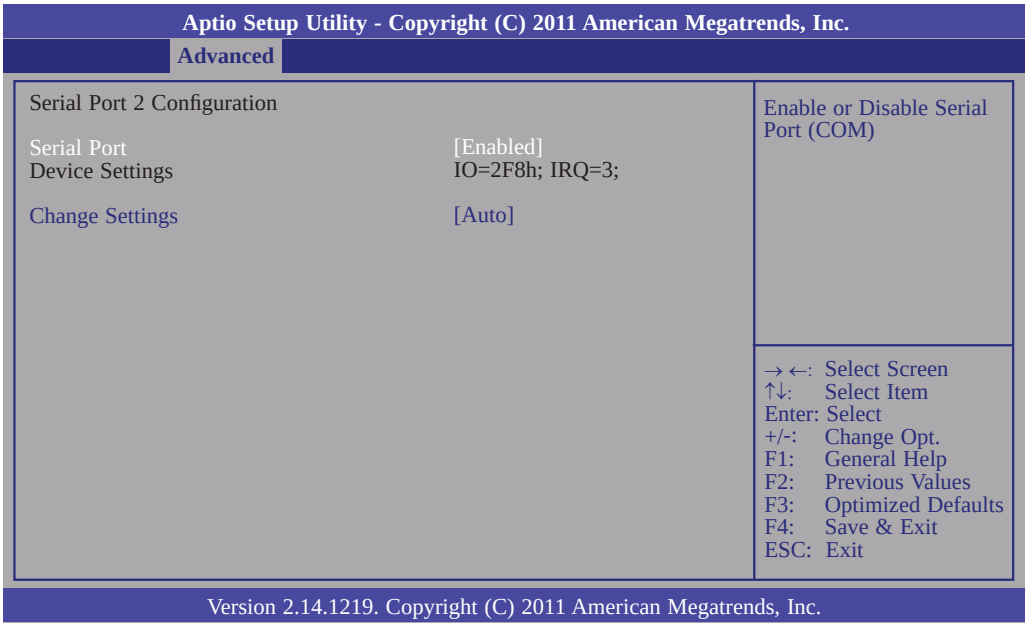
Super IO Configuration

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



Serial Port 1 Configuration to Serial Port 2 Configuration





Serial Port

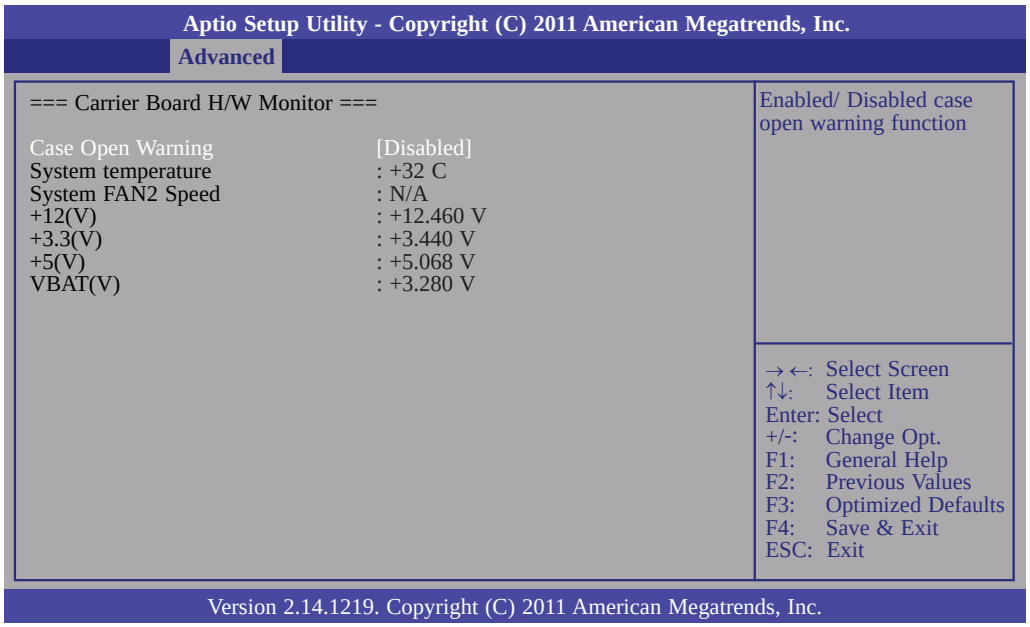
Enables or disables the serial port.

Change Settings

Selects the IO/IRQ setting of the I/O device.

Carrier Board H/W Monitor

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

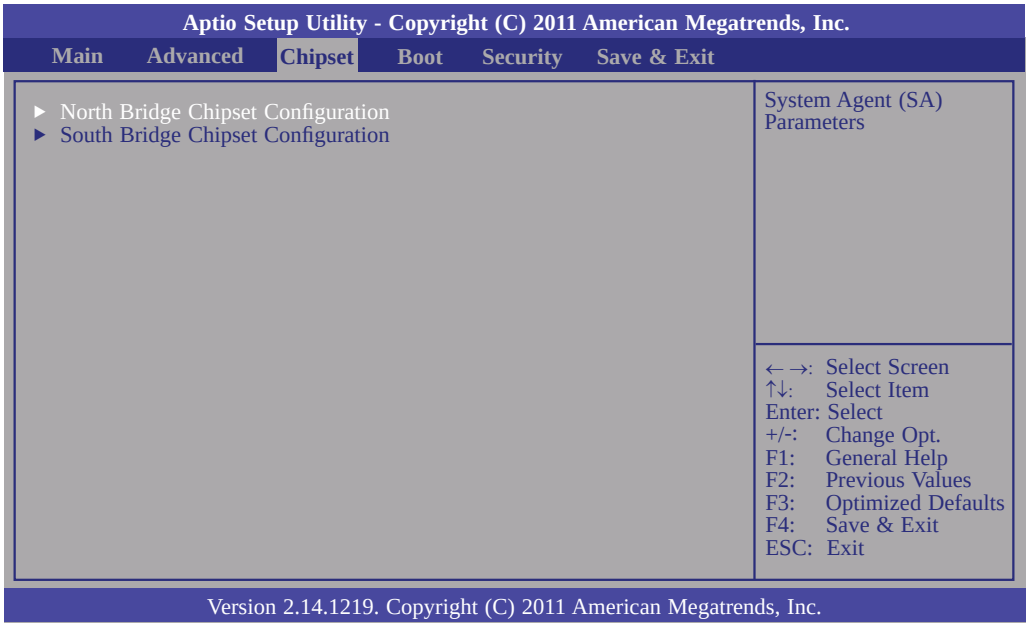


Case Open Warning

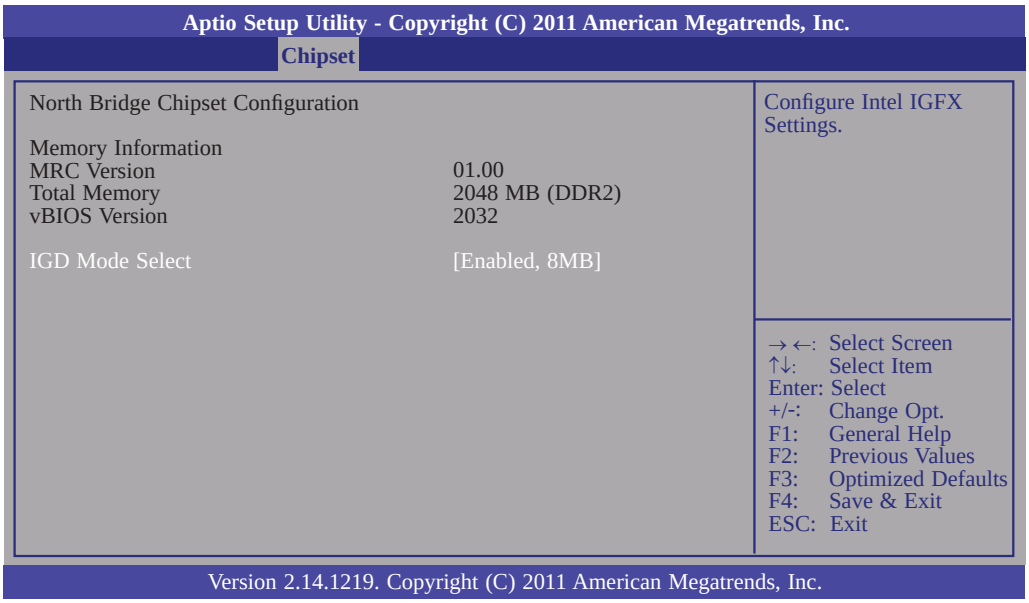
Enabled or disabled the case open warning function.

Chipset

Configures relevant chipset functions.



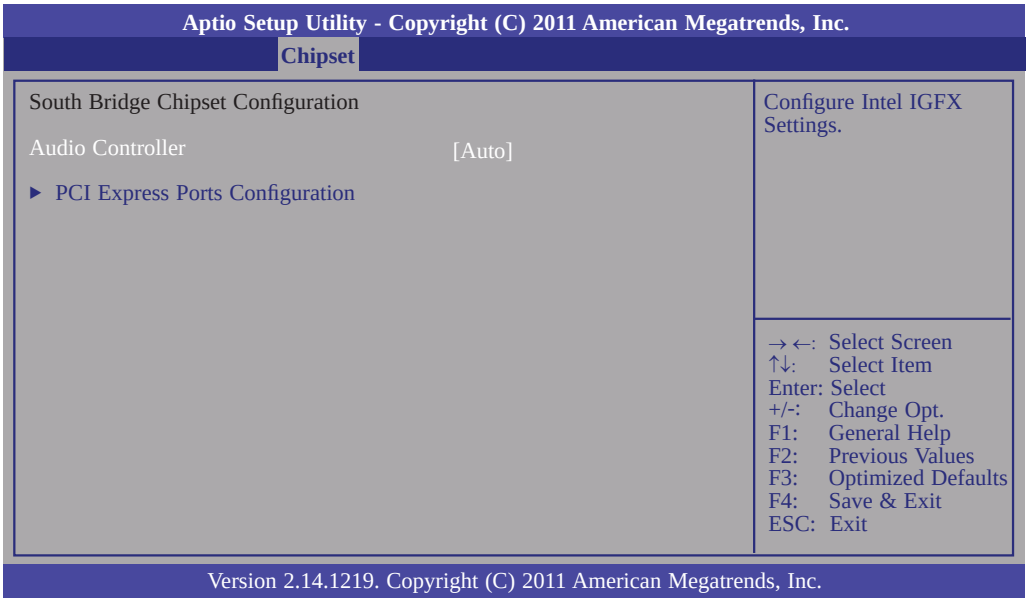
North Bridge Chipset Configuration



IGD Mode Select

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

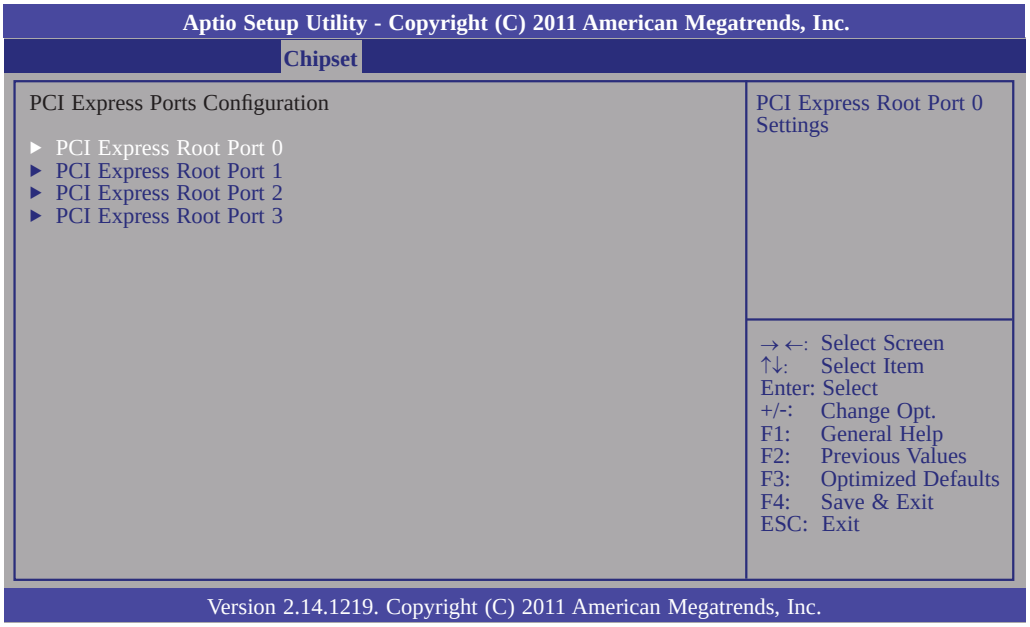
South Bridge Chipset Configuration



IGD Mode Select

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

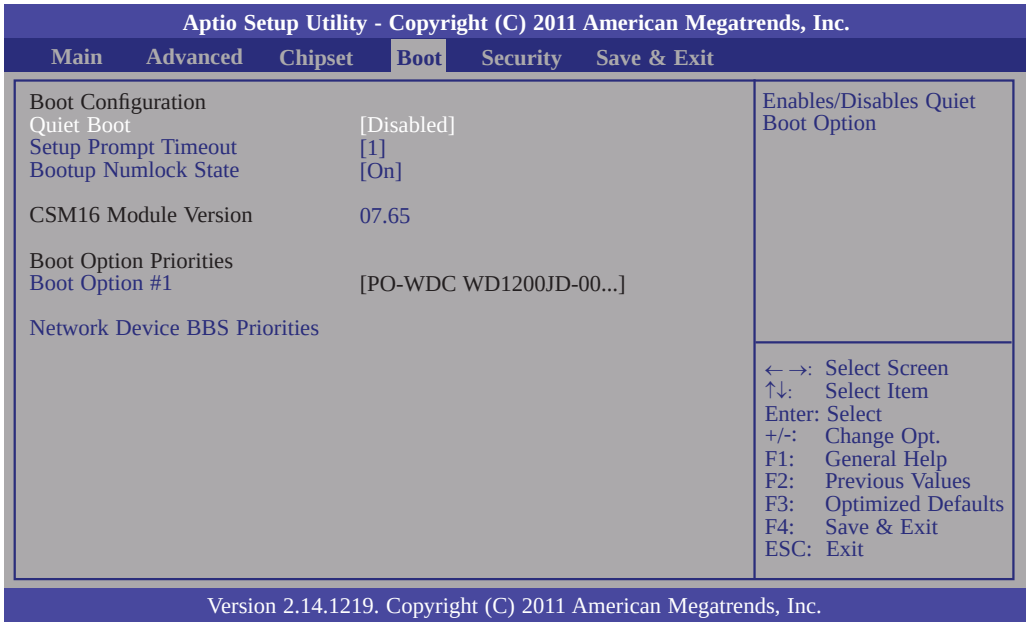
PCI Express Ports Configuration



PCI Express Root Port 0 to PCI Express Root Port 3

Controls the PCI Express Root Port.

Boot



Setup Prompt Timeout

Selects the number of seconds to wait for the setup activation key. 65535(0xFFFF) denotes indefinite waiting.

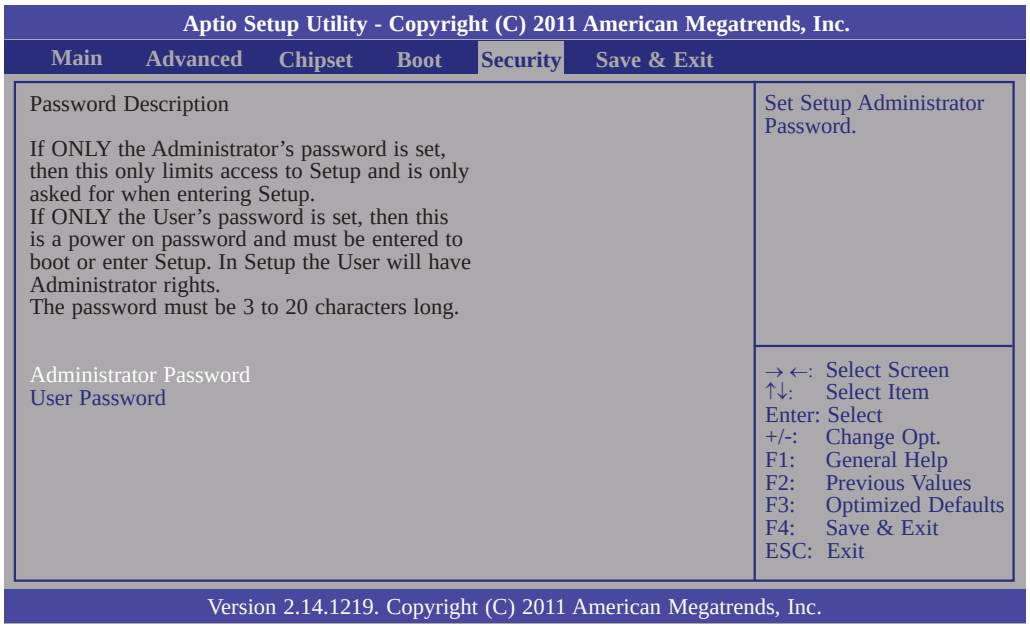
Bootup NumLock State

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.

Quiet Boot

Enables or disables the quiet boot function.

Security



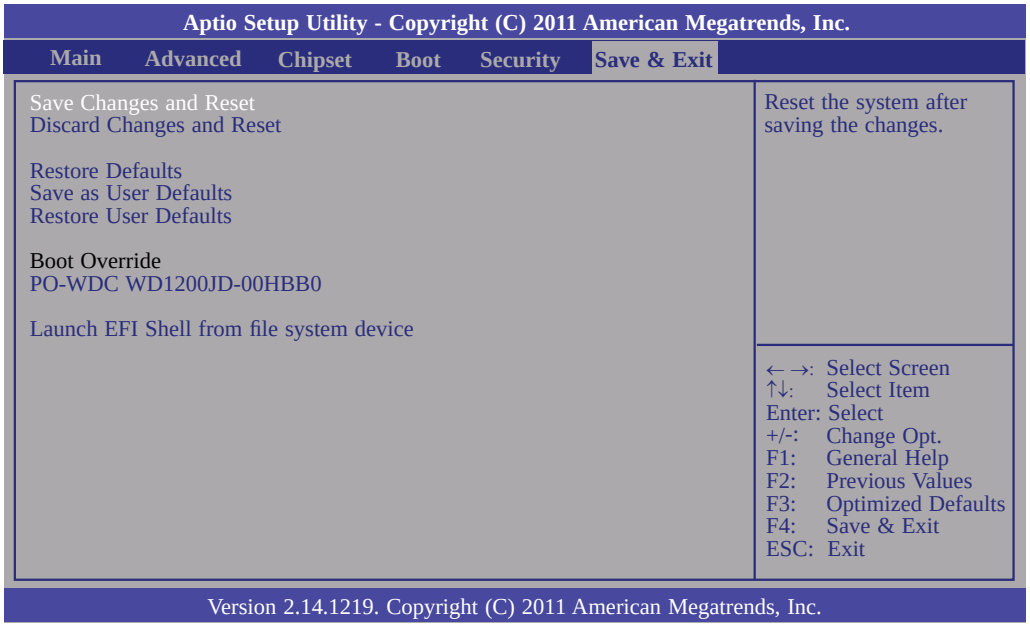
Administrator Password

Sets the administrator password.

User Password

Sets the user password.

Save & Exit



Save Changes and Reset

To save the changes, select this field and then press <Enter>. A dialog box will appear. Select Yes to reset the system after saving all changes made.

Discard Changes and Reset

To discard the changes, select this field and then press <Enter>. A dialog box will appear. Select Yes to reset the system setup without saving any changes.

Restore Defaults

To restore and load the optimized default values, select this field and then press <Enter>. A dialog box will appear. Select Yes to restore the default values of all the setup options.

Save as User Defaults

To save changes done so far as user default, select this field and then press <Enter>. A dialog box will appear. Select Yes to save values as user default.

Restore User Defaults

To restore user default to all the setup options, select this field and then press <Enter>. A dialog box will appear. Select Yes to restore user default.

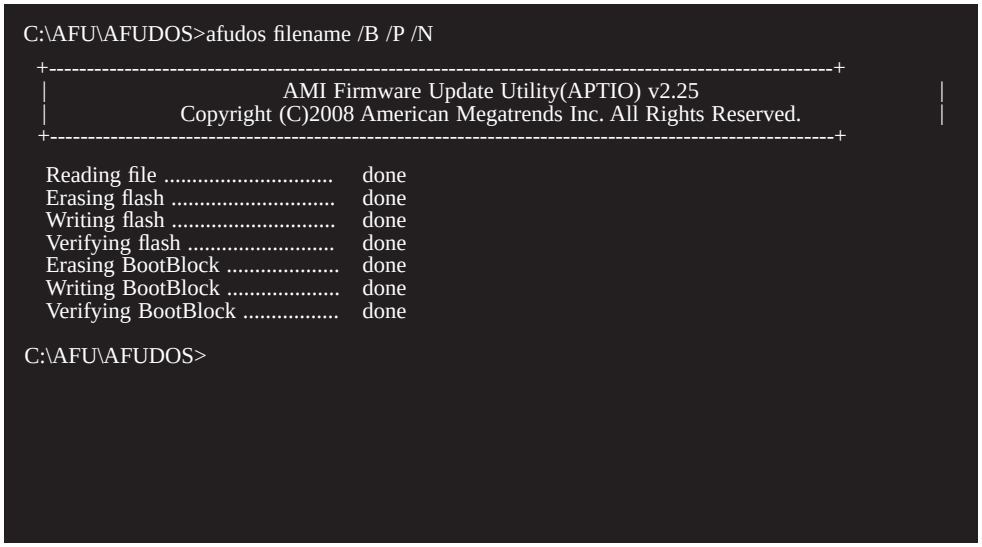
Updating the BIOS

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

To execute the utility, type:

A:> AFUDOS BIOS_File_Name /b /p /n

then press <Enter>.



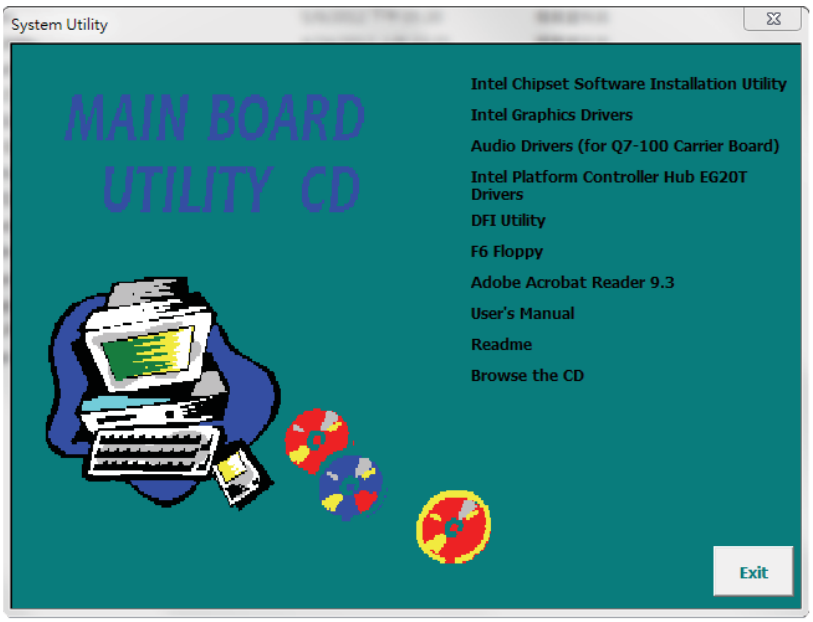
After finishing BIOS update, please turn off the AC power. Wait about 10 seconds and then turn on the AC power again.

Chapter 4 - Supported Software

Note:
QB701-B Series support WinXP driver only. Win7 driver is available only upon request.

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

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



Intel Chipset Software Installation Utility

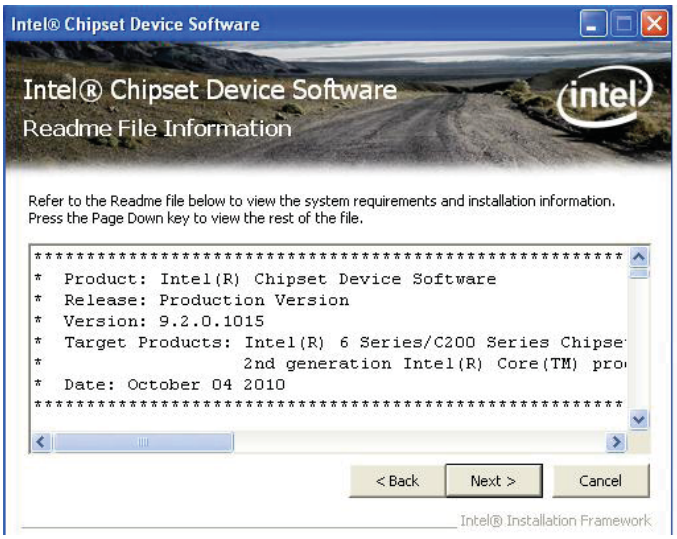
The Intel Chipset Device Software is used for updating Windows® INF files so that the Intel chipset can be recognized and configured properly in the system.

To install the utility, click “Intel Chipset Device Software” 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.

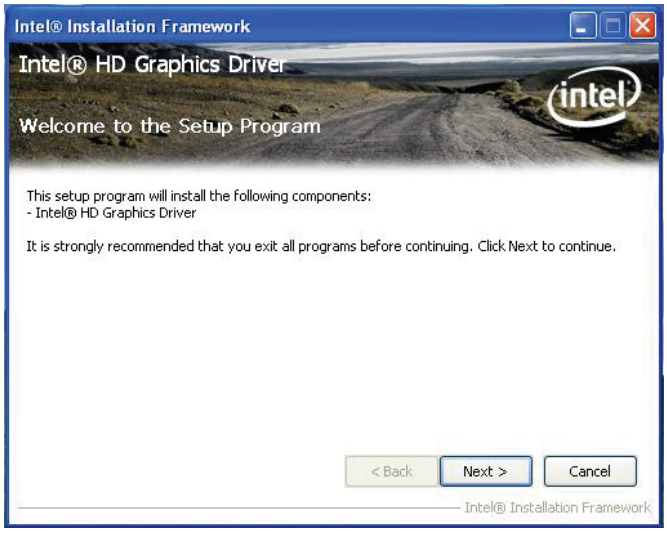
5. Click “Yes, I want to restart this computer now” then click Finish.

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

Intel Graphics Drivers

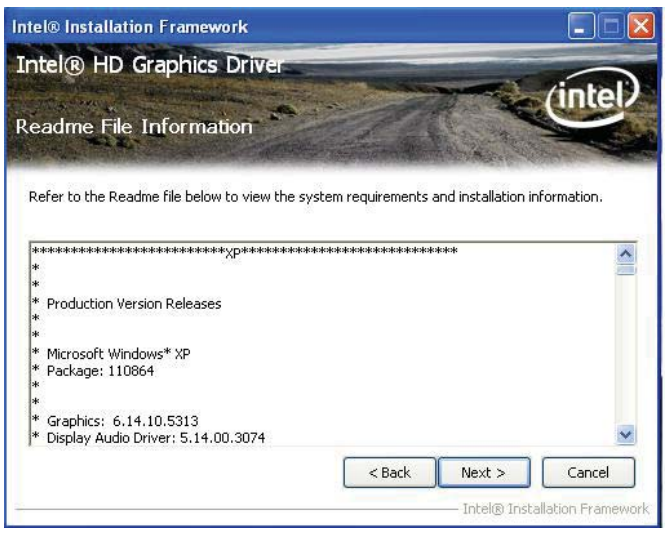
To install the driver, click “Intel Graphics Drivers” on the main menu.

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

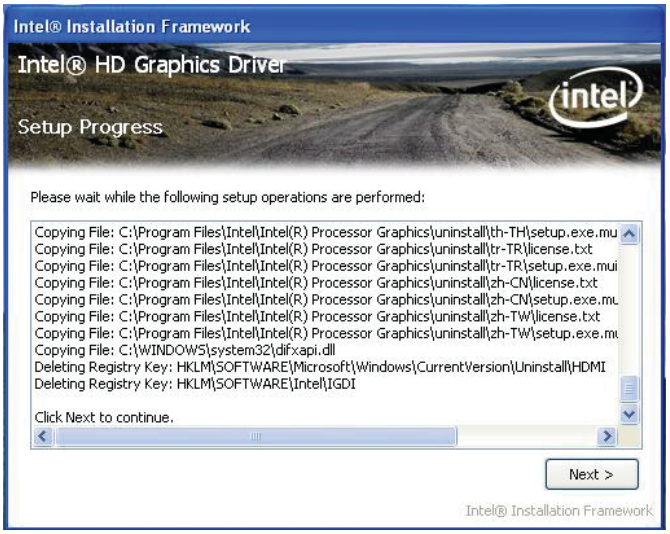


2. Read the license agreement then click Yes.

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



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



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

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

Audio Drivers (for Q7-100 carrier board)

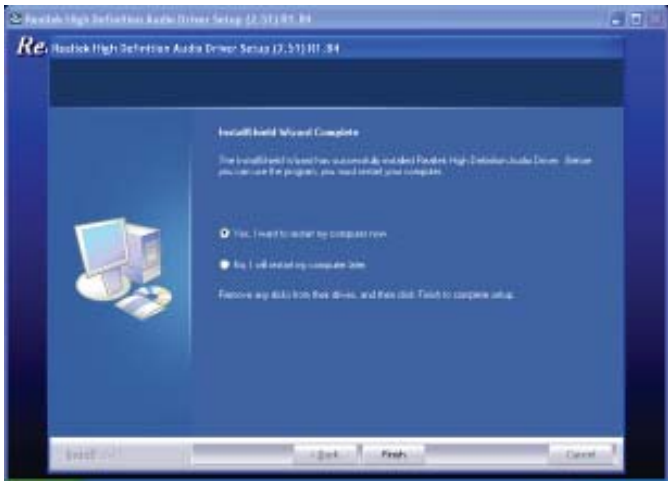
To install the driver, click “Audio Drivers” on the main menu.

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

2. Follow the remainder of the steps 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.



Intel Platform Controller Hub EG20t Drivers

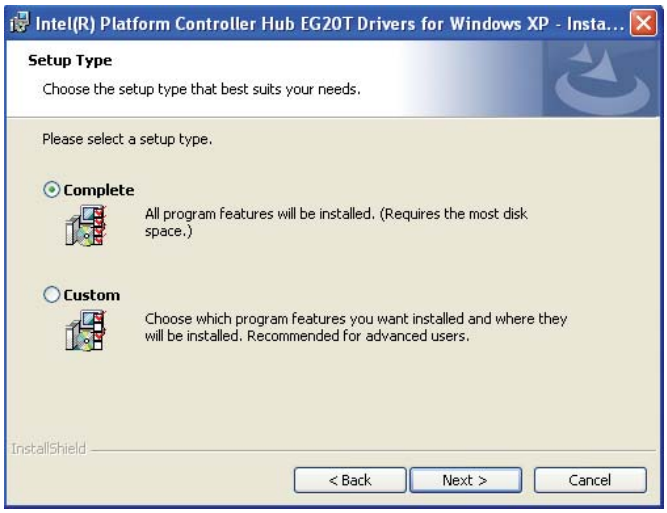
To install the driver, click “Intel Platform Controller Hub EG20t Drivers” on the main menu.

1. Setup is now preparing to install the driver.

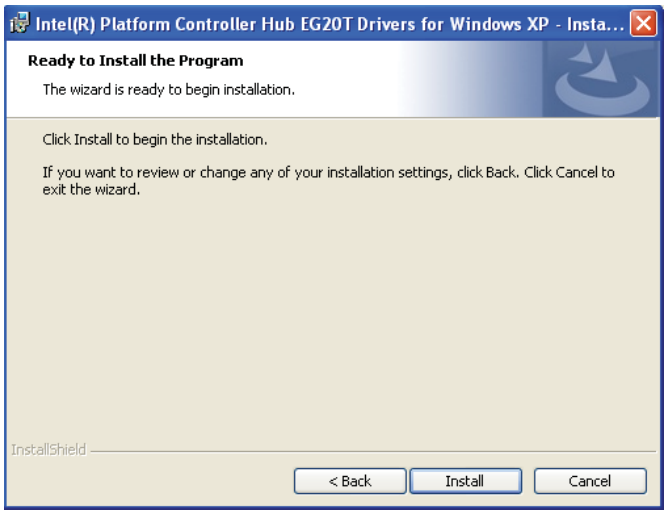
2. Setup is now ready to install the driver. Click Next.

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

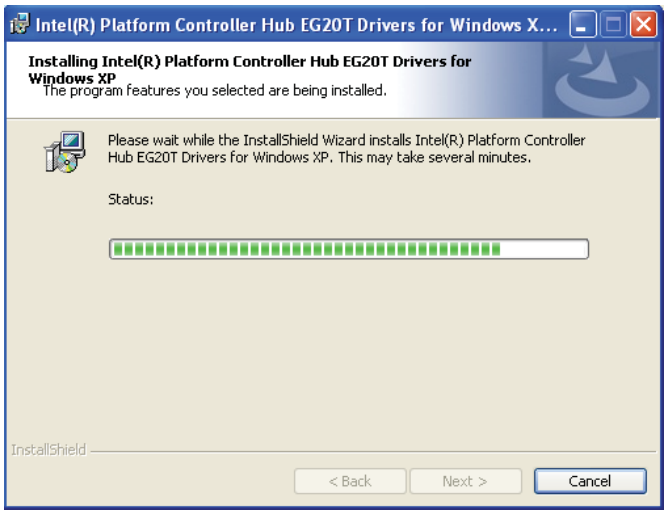
4. Click Next.



5. Click Install to begin installation.



6. Wait until the driver is being installed, then click Next.



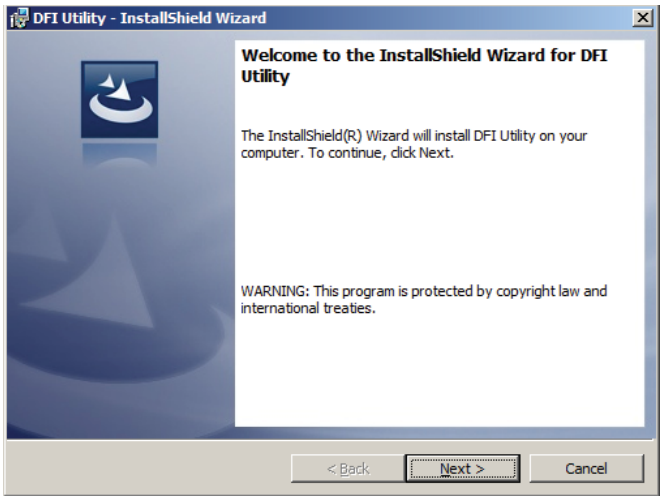
7. Click Continue Anyway or Stop Installation.

8. Click Finish to exit installation.

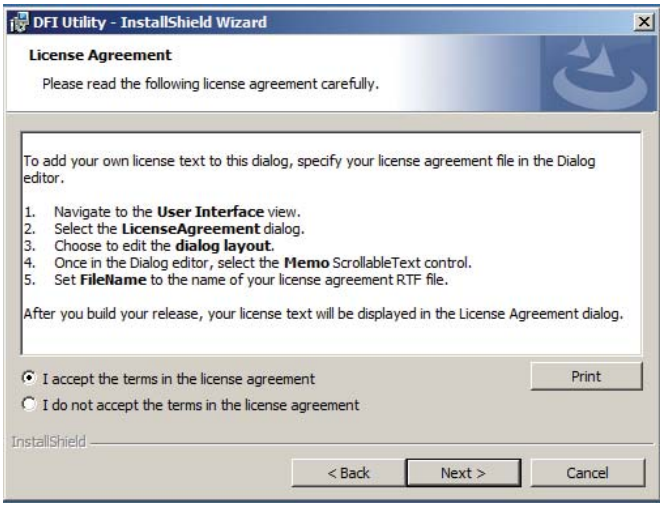
DFI Utility

DFI Utility provides information about the board, HW Health, Watchdog, DIO, and Backlight. To access the utility, click “DFI Utility” on the main menu.

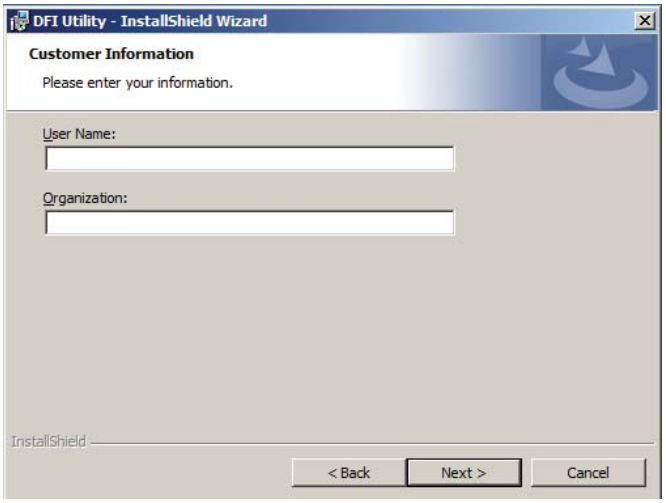
1. Setup is ready to install the DFI Utility drifer. Click Next.



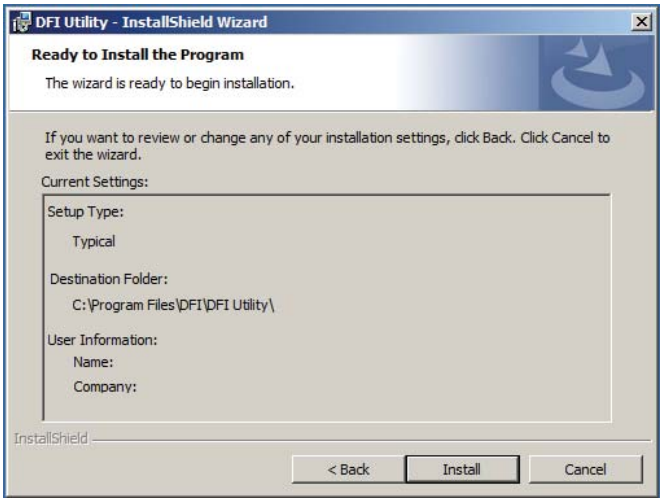
2. Click “I accept the terms in the license agreement” and then click Next.



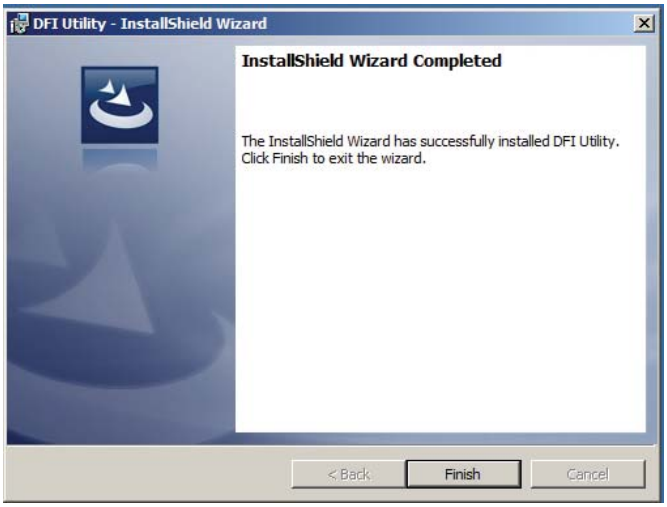
3. Enter “User Name” and “Organization” information and then click Next.



4. Click Install to begin the installation.



5. After completing installation, click Finish.



The DFI Utility icon will appear on the desktop. Double-click the icon to open the utility.

F6 Floppy Configuration Utility

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

1. Insert a blank floppy diskette.

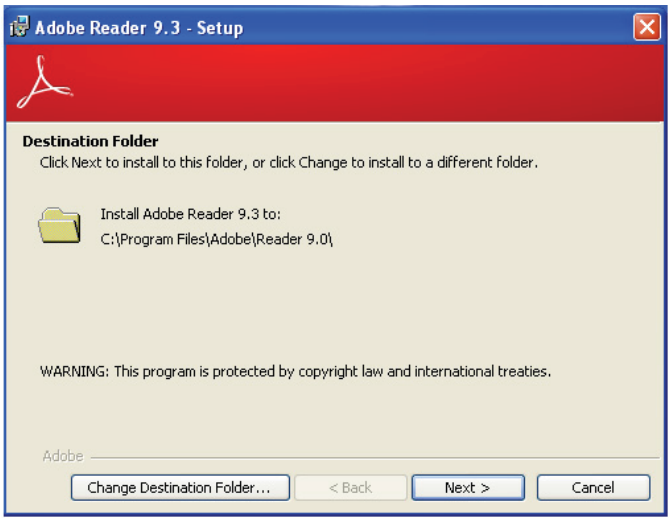
2. Locate for the drivers in the CD then copy them to the floppy diskette. The CD includes drivers for both 32-bit and 64-bit operating systems. The path to the drivers are shown below.

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

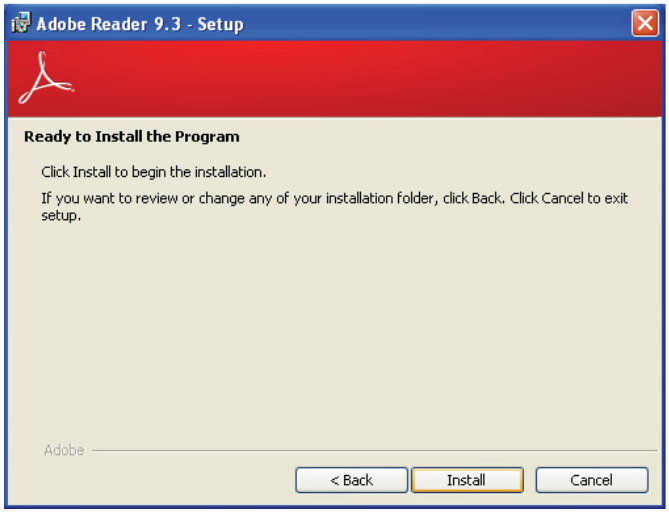
Adobe Acrobat Reader 9.3

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

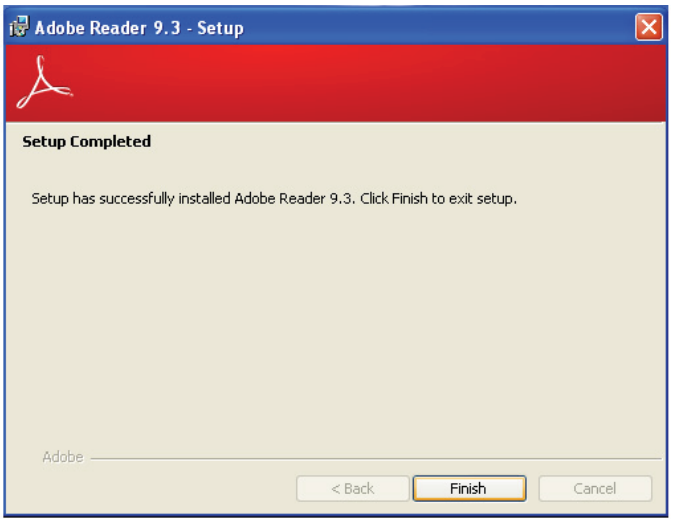
1. Click Next to install or click Change Destination Folder to select another folder.



2. Click Install to begin installation.



3. Click Finish to exit installation.



Appendix A - NLITE and AHCI Installation Guide

nLite

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

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

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

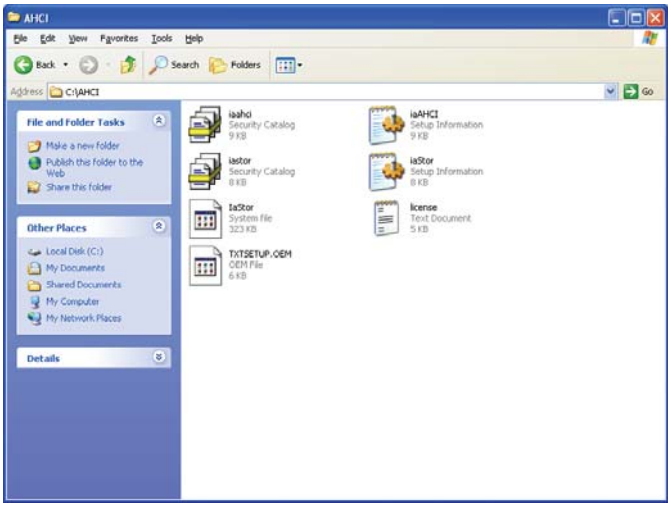
   http://www.nliteos.com/download.html

2. Install nLite.

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

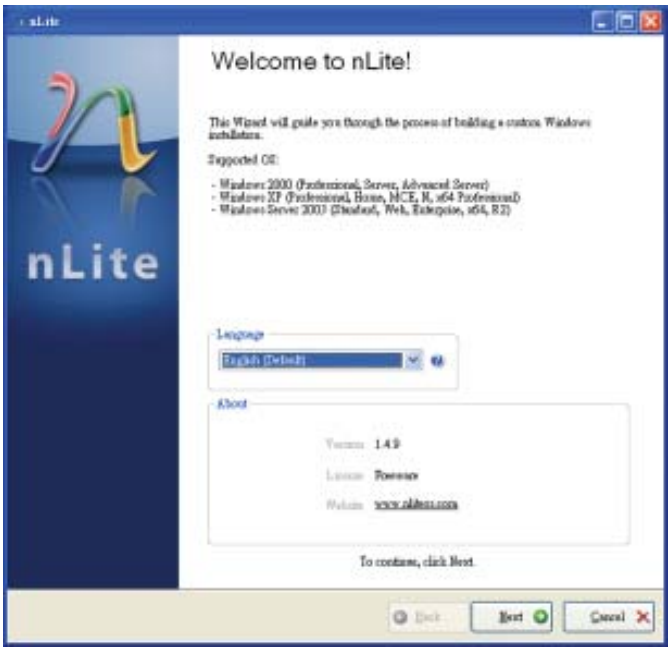
3. Download relevant RAID/AHCI driver files from Intel's website. The drivers you choose will depend on the operating system and chipset used by your computer.

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



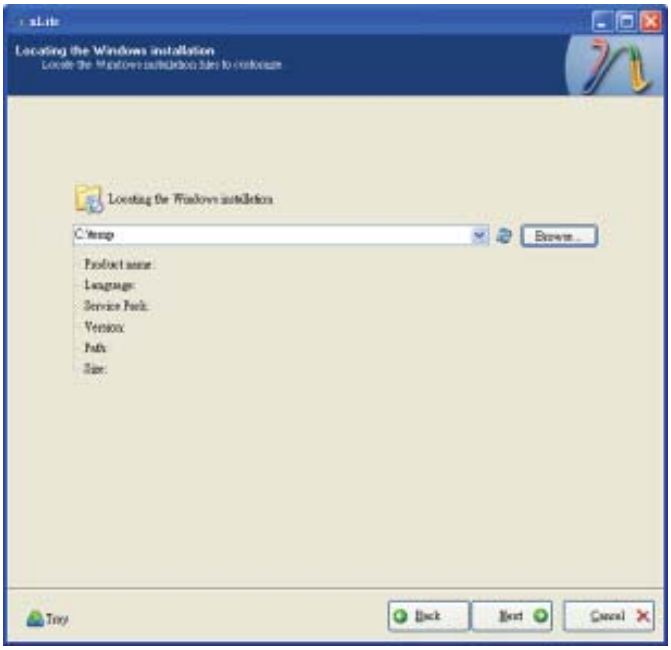
4. Insert the XP installation disc into an optical drive.

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

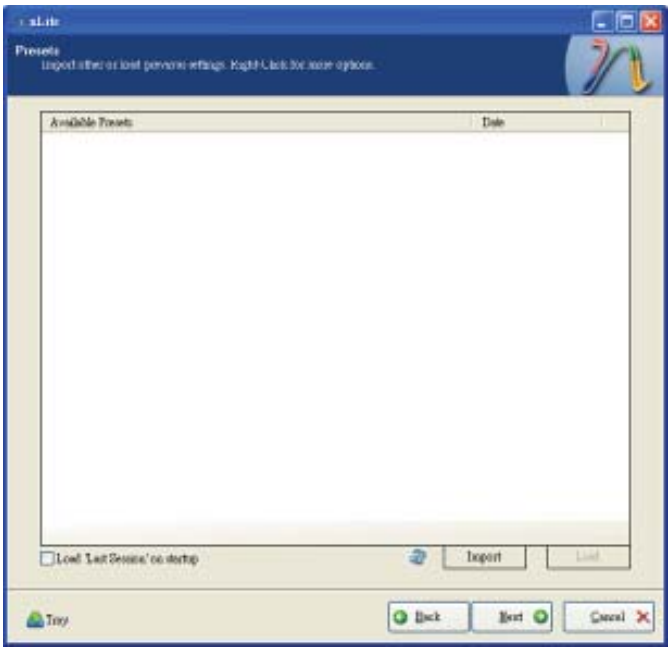


6. Click **Next** to temporarily save the Windows installation files to the designated default folder.

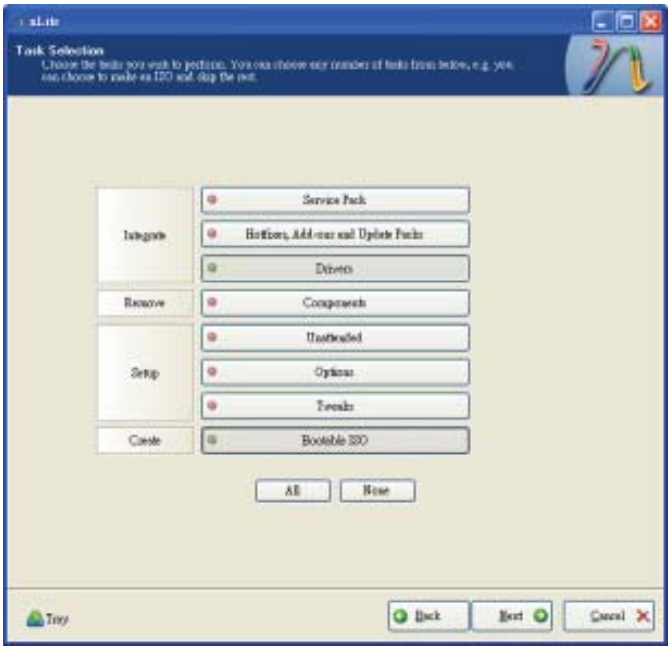
   If you want to save them in another folder, click **Browse**, select the folder and then click **Next**.



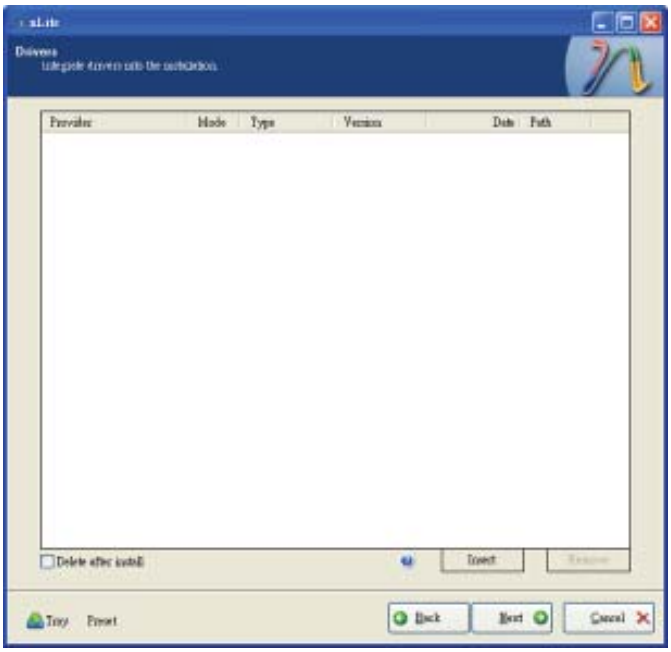
7. Click **Next**.



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



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

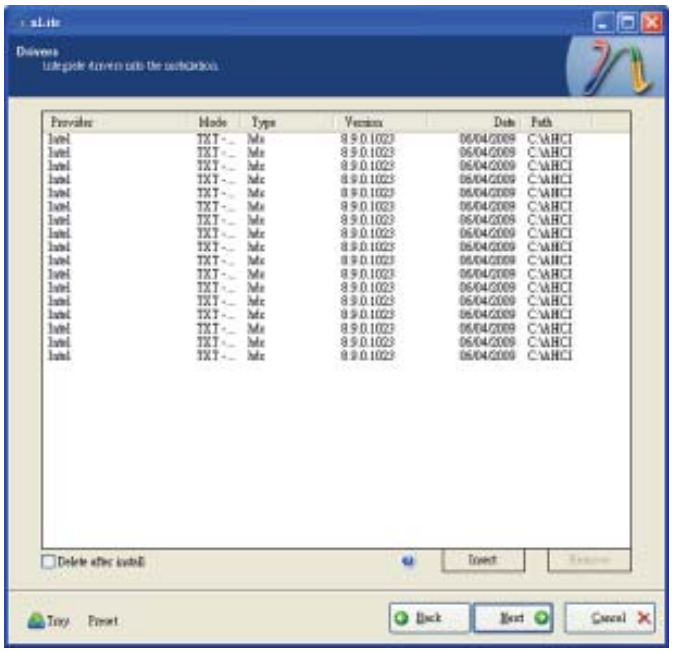


10. Select only the drivers appropriate for the Windows version that you are using and then click **OK**.

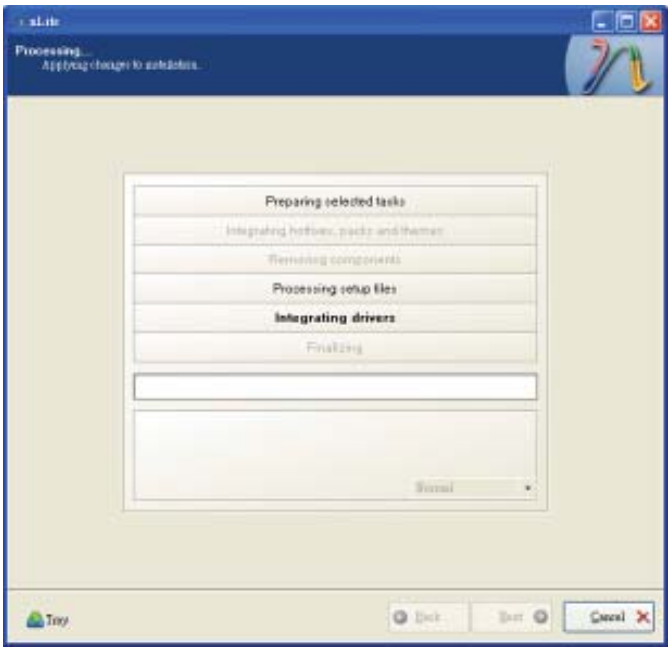
    Integrating 64-bit drivers into 32-bit Windows or vice versa will cause file load errors and failed installation.

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

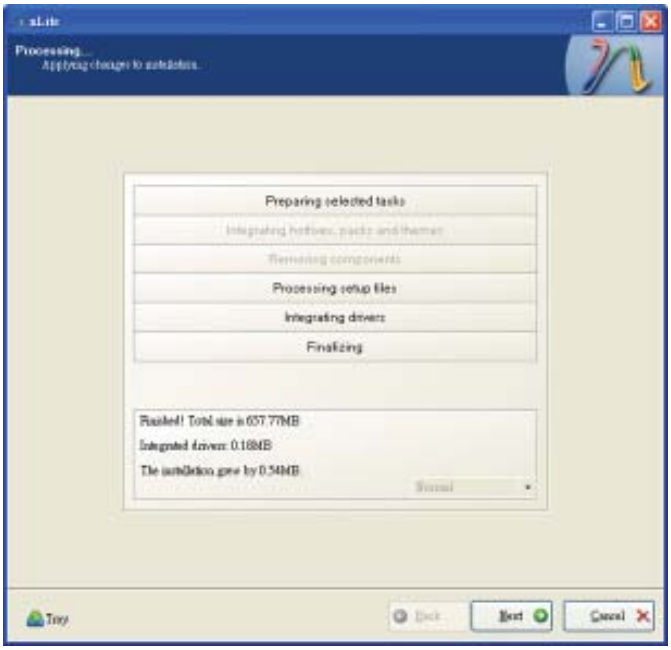
12. Click **Next**.



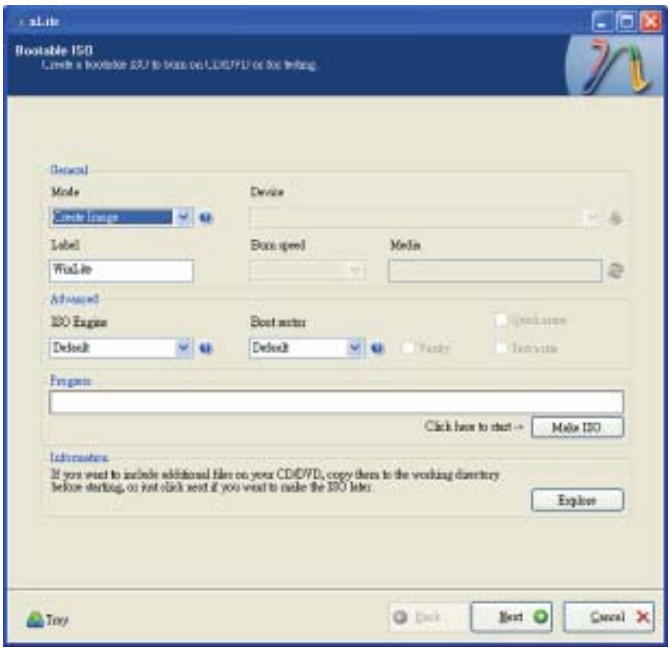
13. The program is currently integrating the drivers and applying changes to the installation.



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

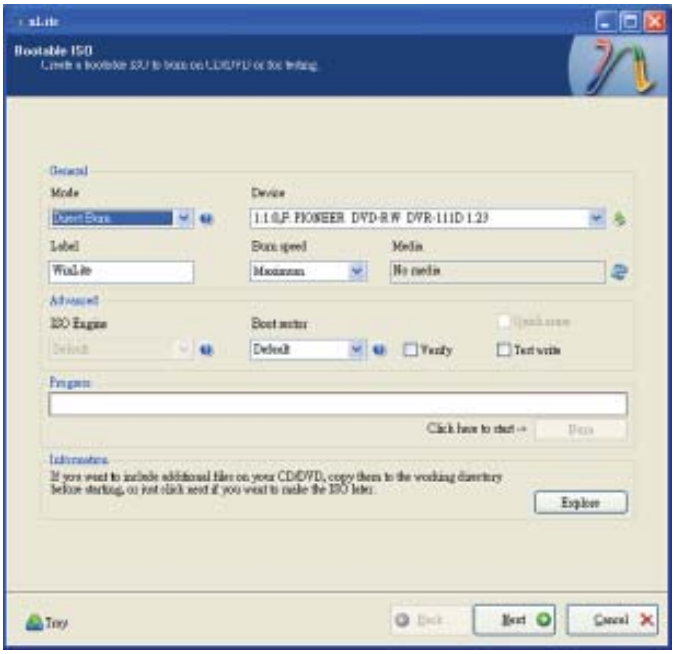


15. To create an image, select the **Create Image** mode under the General section and then click **Next**.



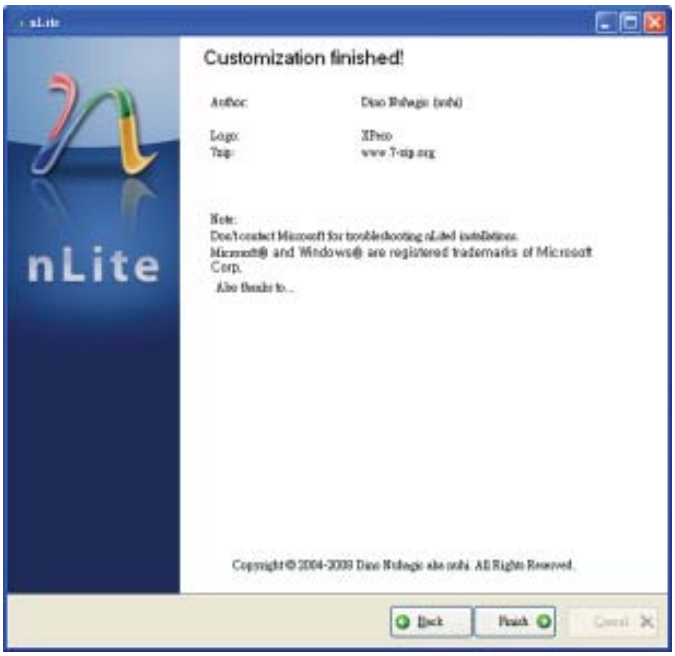
16. Or you can choose to burn it directly to a disc by selecting the **Direct Burn** mode under the General section.

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



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

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



AHCI

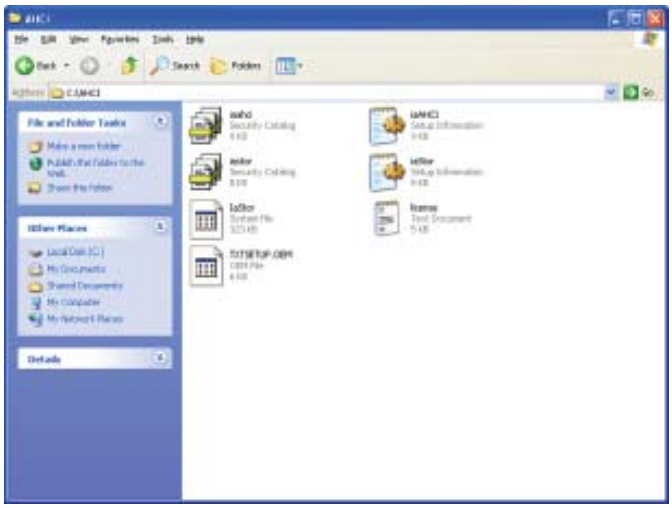
The installation steps below will guide you in configuring your SATA drive to AHCI mode.

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

2. Install Windows XP but do not press F6.

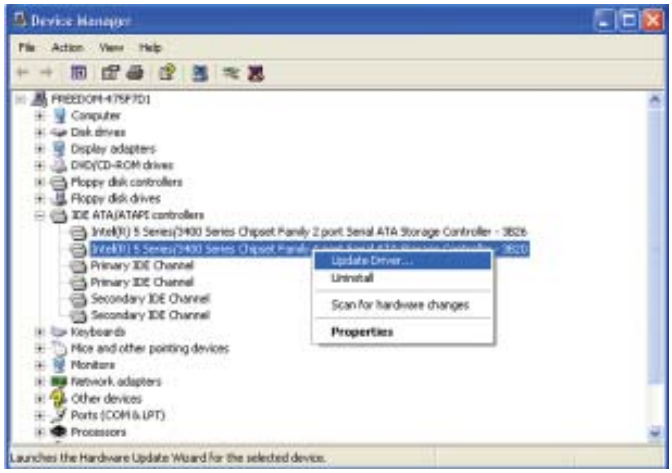
3. Download relevant RAID/AHCI driver files supported by the motherboard chipset from Intel's website.

   Transfer the downloaded driver files to C:\AHCI.



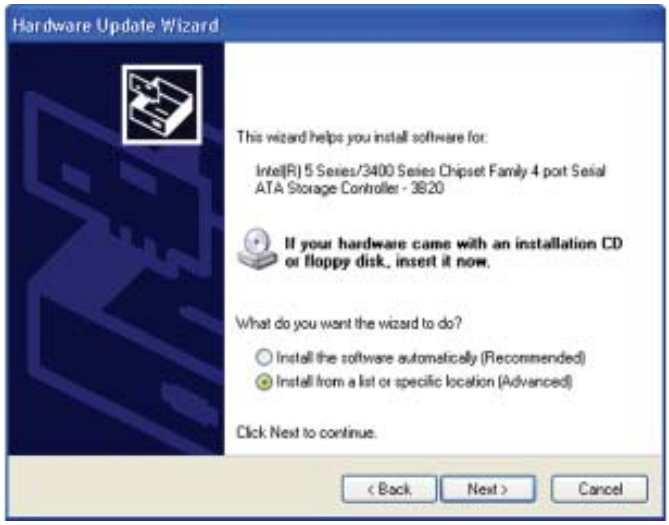
4. Open Device Manager and right click on one of the Intel Serial ATA Storage Controllers, then select **Update Driver**.

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

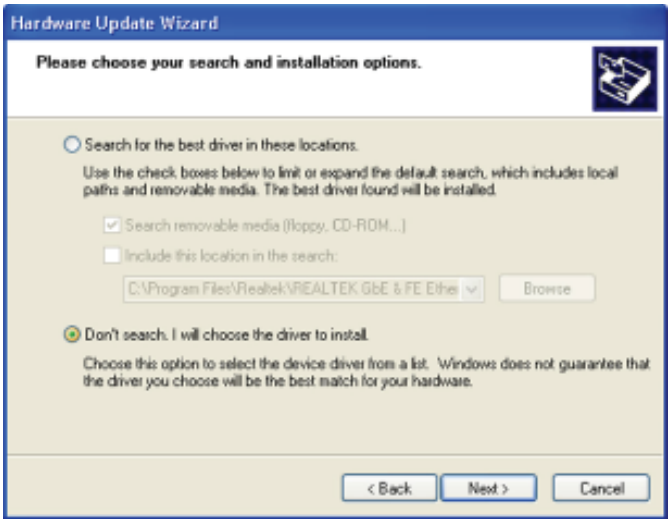


5. In the Hardware Update Wizard dialog box, select **"No, not this time"** then click **Next**.

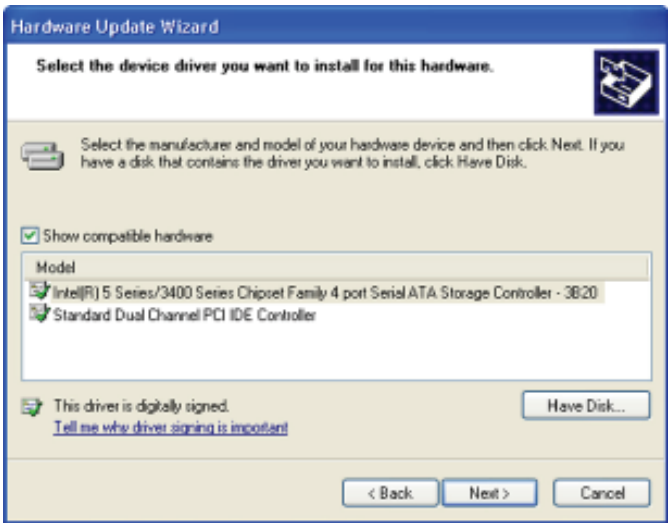
6. Select **"Install from a list or specific location (Advanced)"** and then click **Next**.



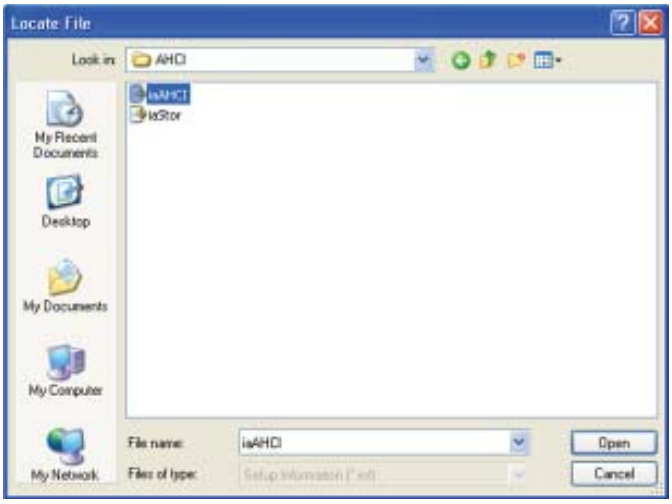
7. Select **"Don't search. I will choose the driver to install"** and then click **Next**.



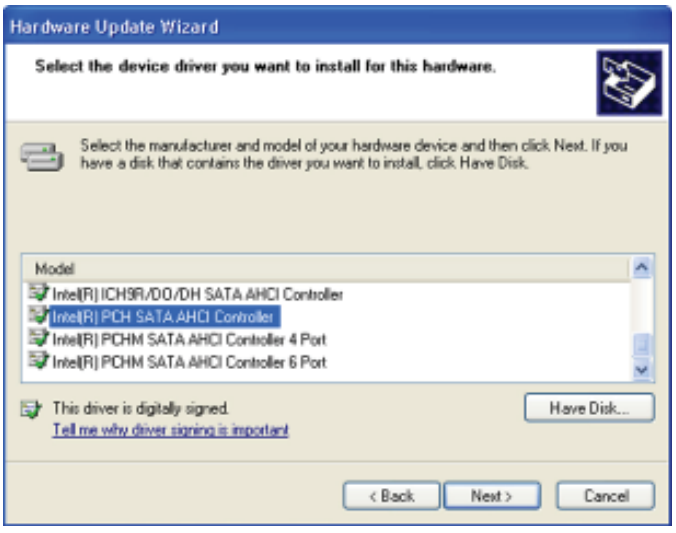
8. Click **"Have Disk"**.



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



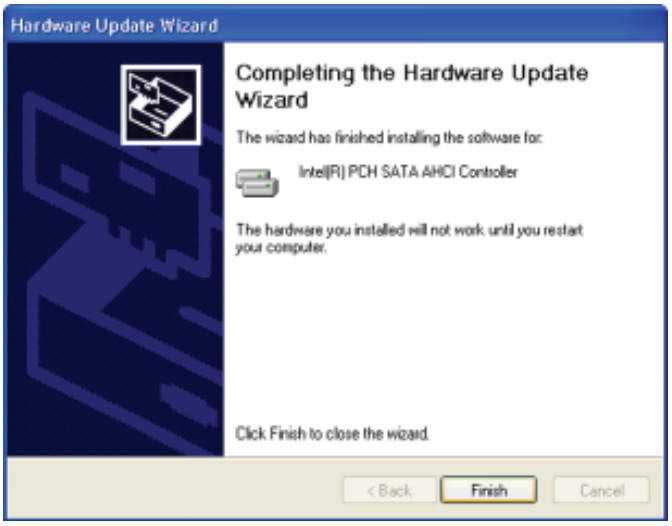
10. Select the appropriate AHCI Controller of your hardware device and then click **Next**.



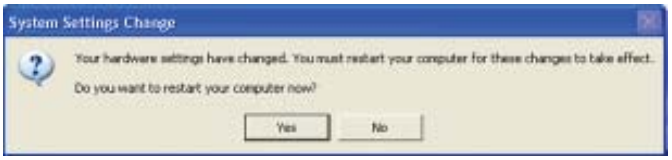
11. A warning message appeared because the selected SATA controller did not match your hardware device.

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

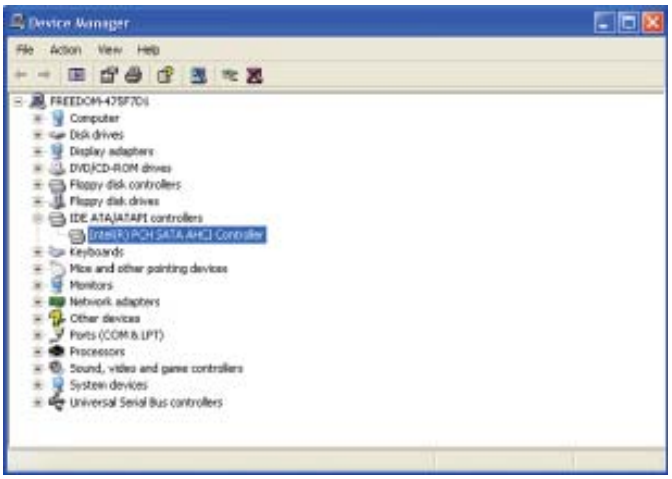
12. Click **Finish**.



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



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



Appendix B - System Error Message

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

Error Messages

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

CMOS BATTERY HAS FAILED

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

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

CMOS CHECKSUM ERROR

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

DISPLAY SWITCH IS SET INCORRECTLY

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

Appendix C - Troubleshooting

Troubleshooting Checklist

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

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

1. The power switch of each peripheral device is turned on.

2. All cables and power cords are tightly connected.

3. The electrical outlet to which your peripheral devices are connected is working. Test the outlet by plugging in a lamp or other electrical device.

4. The monitor is turned on.

5. The display's brightness and contrast controls are adjusted properly.

6. All add-in boards in the expansion slots are seated securely.

7. Any add-in board you have installed is designed for your system and is set up correctly.

Monitor/Display

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

1. Make sure that the monitor's power switch is on.

2. Check that one end of the monitor's power cord is properly attached to the monitor and the other end is plugged into a working AC outlet. If necessary, try another outlet.

3. Check that the video input cable is properly attached to the monitor and the system's display adapter.

4. Adjust the brightness of the display by turning the monitor's brightness control knob.

The picture seems to be constantly moving.

1. The monitor has lost its vertical sync. Adjust the monitor's vertical sync.

2. Move away any objects, such as another monitor or fan, that may be creating a magnetic field around the display.

3. Make sure your video card's output frequencies are supported by this monitor.

The screen seems to be constantly wavering.

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

Power Supply

When the computer is turned on, nothing happens.

1. Check that one end of the AC power cord is plugged into a live outlet and the other end properly plugged into the back of the system.

2. Make sure that the voltage selection switch on the back panel is set for the correct type of voltage you are using.

3. The power cord may have a "short" or "open". Inspect the cord and install a new one if necessary.

Hard Drive

Hard disk failure.

1. Make sure the correct drive type for the hard disk drive has been entered in the BIOS.

2. If the system is configured with two hard drives, make sure the bootable (first) hard drive is configured as Master and the second hard drive is configured as Slave. The master hard drive must have an active/bootable partition.

Excessively long formatting period.

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

Serial Port

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

1. Make sure that the serial device's power is turned on and that the device is on-line.

2. Verify that the device is plugged into the correct serial port on the rear of the computer.

3. Verify that the attached serial device works by attaching it to a serial port that is working and configured correctly. If the serial device does not work, either the cable or the serial device has a problem. If the serial device works, the problem may be due to the onboard I/O or the address setting.

4. Make sure the COM settings and I/O address are configured correctly.

Keyboard

Nothing happens when a key on the keyboard was pressed.

1. Make sure the keyboard is properly connected.

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

System Board

1. Make sure the add-in card is seated securely in the expansion slot. If the add-in card is loose, power off the system, re-install the card and power up the system.

2. Check the jumper settings to ensure that the jumpers are properly set.

3. Verify that all memory modules are seated securely into the memory sockets.

4. Make sure the memory modules are in the correct locations.

5. If the board fails to function, place the board on a flat surface and seat all socketed components. Gently press each component into the socket.

6. If you made changes to the BIOS settings, re-enter setup and load the BIOS defaults.