



# User Manual

Version 1.0

## **MB-62020**

# Ultra Low Power Fanless Intel<sup>®</sup> Atom<sup>™</sup> based COM Express Module



[sales@win-ent.com](mailto:sales@win-ent.com)

+1 (978) 688-2000

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## **Chapter 1. General Information**

### **1.1 Introduction**

As a member of the Intel® Embedded and Communications Alliance, WIN Enterprises has extended its family of COM Express Module product line. With Intel latest ultra low power solution, MB-62020 is the ideal choice for the applications that demand low power and fan-less environment.

MB-62020 adopts the Intel® Atom™ processor Z5xx series and Intel® System Controller Hub US15W, with total TDP less than 5 watts. It supports SO-DIMM system memory slot for DDR2 SDRAM up to 2GB, and comes with one SD card slot on module.

The COM Express module shows advantages of faster time to market, reduced product development cost and risk and easily adapts to various embedded applications. As a professional OEM/ODM solution provider in the Industrial PC (IPC) market, WIN Enterprises provides the customize service of COM Express carrier board to meet the specific project requirements.

## 1.2 Specification

### ■ System

CPU	Intel® Atom processor Z5xx series Onboard Z530 SC 1.6GHz FSB 533MHz Z510 SC 1.1GHz FSB 400MHz
BIOS	AMI® 1MB SPI BIOS
System Chipset	Intel® System Controller Hub US15W
System Memory	1 x 200-pin DDRII socket supports DDR 533/400 max. up to 2GB w/o ECC registered
Expansion Interface	Two PCI-Express x1 One PCI 2.3 32bits 33MHz
Battery	Lithium 3V/200mAH

### ■ I/O

I/O Interface	2 x SATA, 1 x Ultra ATA100/66, 1 x SDIO w/SD card slot, 1 x LPC & I2C bus
USB	6 x USB ports, USB 2.0 compliant ( 5 USB host, 1 USB client)
Audio	High definition audio interface

### ■ Ethernet

Chipset	One Intel® 82574L, PCI-E x1 interface One ASIX AX88772A, USB interface
Speed	10/100/1000Mbps 10/100Mbps
Interface	2 x RJ-45
Standard	IEEE 802.3 10/100/1000 Mbps Compliant Physical Layer IEEE 802.3 10/100 Mbps Compliant Physical Layer

### ■ Display

Chipset	Intel® System Controller Hub US15W
Memory Size	Max. up to 256MB sharing system memory
Resolution	LCD display mode: 1024 x 768@16bpp (60Hz)
LCD/ LVDS Interface	18/24-bitTFT LCD

### ■ Mechanical and Environment

Form Factor	PICMG COM Express COMPACT form factor, pin-out type II
Dimension ( L x W )	95mm (L) x 95mm (W) (3.8" L x 3.8" W)
Operating Temperature	0°C ~ 60°C ( 32°F ~ 140°F )

Operating Humidity	10% ~ 95 relative humidity, non-condensing
Storage Temperature	-20°C ~ 85°C ( -4°F ~ 185°F )
Storage Humidity	10% ~ 85% relative humidity, non-condensing

#### ■ Power

Power Supply Voltage	AT or ATX power, +5V ± 5%, +12V ± 5%
Power Consumption	8~12W

#### ■ Packing List

<ul style="list-style-type: none"> <li>• 1 x MB-62020 SBC</li> <li>• 1 x CD (Manual, Quick installation guide, Utility driver)</li> </ul>
---

## 1.3 Precautions

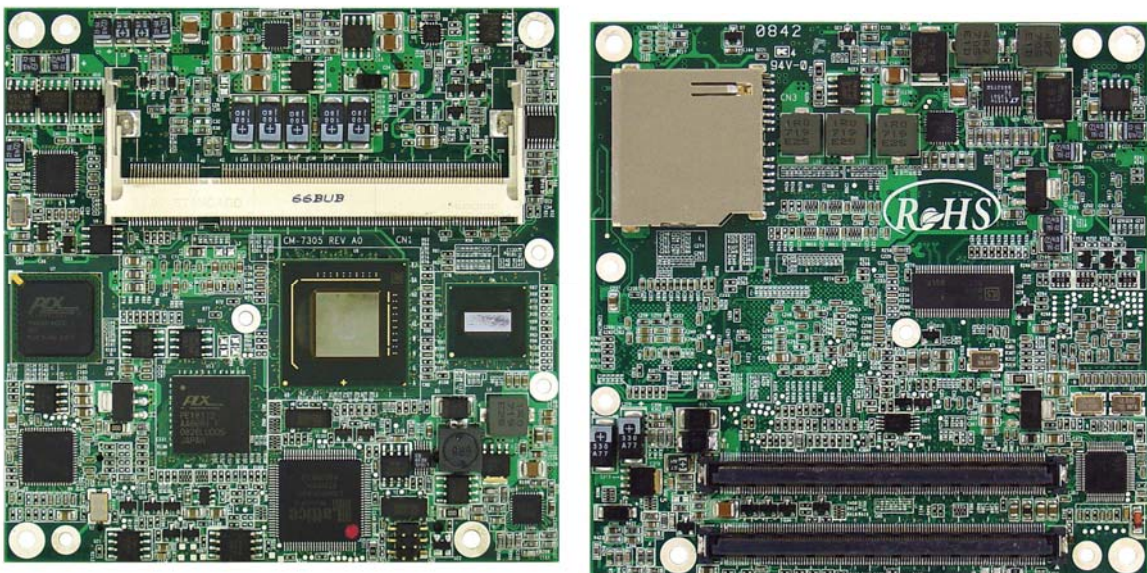
Make sure you properly ground yourself before handling the MB-62020 board or other system components. Electrostatic discharge can be easily damage the MB-62020 board.

Do not remove the anti-static packing until you are ready to install the MB-62020 board.

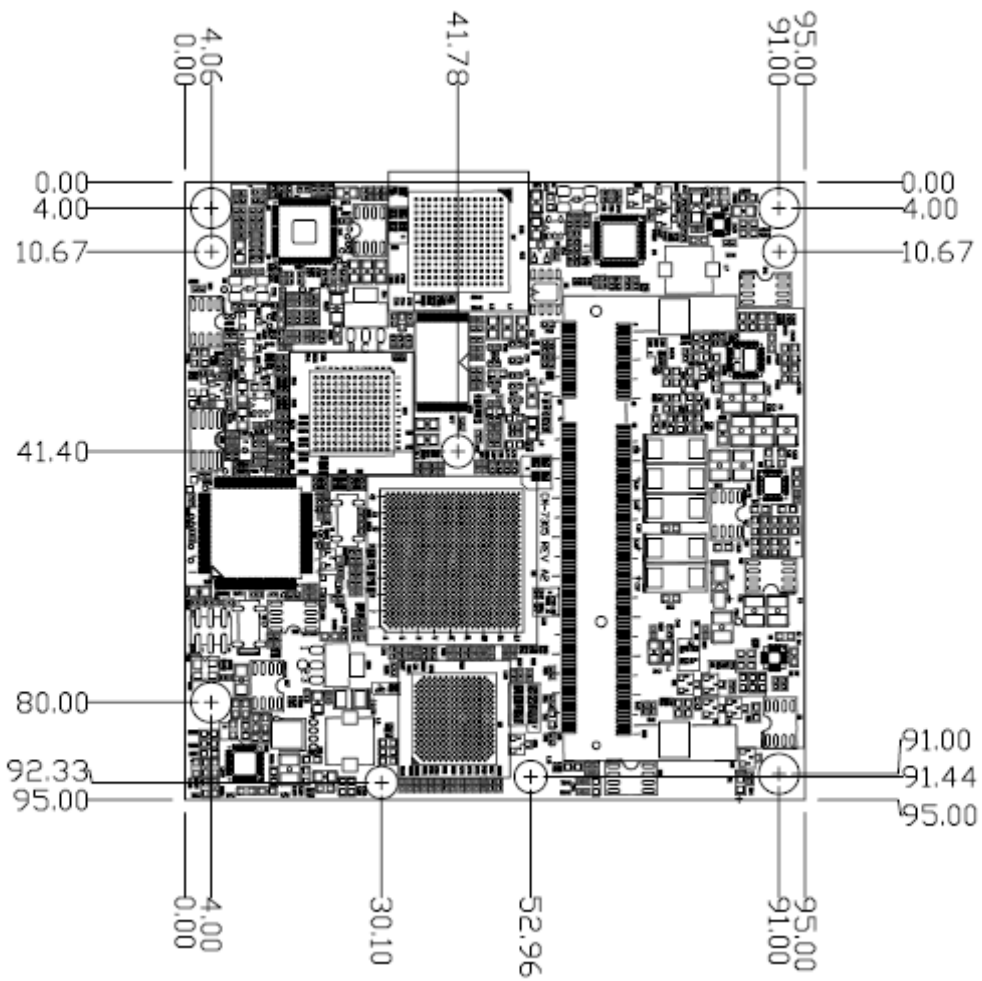
Ground yourself before removing any system component from it protective anti-static packaging. To ground yourself, grasp the expansion slot covers or other unpainted parts of the computer chassis.

Handle the MB-62020 board by its edges and avoid touching its component.

## 1.4 Board Layout



## 1-5 Board Dimensions



Board Dimensions (mm) (Component Side)

## Chapter 2. Connector/Jumper Configuration

### COM Express Connector Pin Out:

A1	GND	GND	B1
A2	GBED_MDI3-	GBED_ACT#	B2
A3	GBED_MDI3+	LPC_FRAME#	B3
A4	GBED_LINK100#	LPC_ADD	B4
A5	GBED_LINK1000#	LPC_AD1	B5
A6	GBED_MDI2-	LPC_AD2	B6
A7	GBED_MDI2+	LPC_AD3	B7
A8	GBED_LINK#	LPC_DRQ0#	B8
A9	GBED_MDI1-	LPC_DRQ1#	B9
A10	GBED_MDI1+	LPC_CLK	B10
A11	GND	GND	B11
A12	GBED_MDI0-	PWRBTN#	B12
A13	GBED_MDI0+	SMB_CLK	B13
A14	GBED_CTREF	SMB_DAT	B14
A15	SUS_S3#	SMB_ALERT#	B15
A16	SATA0_TX+	SATA1_TX+	B16
A17	SATA0_TX-	SATA1_TX-	B17
A18	SUS_S4#	SUS_STAT#	B18
A19	SATA0_RX+	SATA1_RX+	B19
A20	SATA0_RX-	SATA1_RX-	B20
A21	GND	GND	B21
A22	SATA2_TX+	SATA3_TX+	B22
A23	SATA2_TX-	SATA3_TX-	B23
A24	SUS_S5#	PWR_OK	B24
A25	SATA2_RX+	SATA3_RX+	B25
A26	SATA2_RX-	SATA3_RX-	B26
A27	BATLOW#	WDT	B27
A28	ATA_ACT#	AC_SDIN2	B28
A29	AC_SYNC	AC_SDIN1	B29
A30	AC_RST#	AC_SDIN0	B30
A31	GND	GND	B31
A32	AC_BITCLK	SPKR	B32
A33	AC_SDOUT	I2C_CLK	B33
A34	BIOS_DISABLE#	I2C_DAT	B34
A35	THRMTRIP#	THRM#	B35
A36	USB6-	USB7-	B36
A37	USB6+	USB7+	B37
A38	USB_6_7_OC#	USB_4_5_OC#	B38
A39	USB4-	USB5-	B39
A40	USB4+	USB5+	B40
A41	GND	GND	B41
A42	USB2-	USB3-	B42
A43	USB2+	USB3+	B43
A44	USB_2_3_OC#	USB_0_1_OC#	B44
A45	USB0-	USB1-	B45
A46	USB0+	USB1+	B46
A47	VCC_RTC	EXCD1_PERST#	B47
A48	EXCD0_PERST#	EXCD1_CPPE#	B48
A49	EXCD0_CPPE#	SYS_RESET#	B49
A50	LPC_SERIRQ	CB_RESET#	B50
A51	GND	GND	B51
A52	PCIE_TX5+	PCIE_RX5+	B52
A53	PCIE_TX5-	PCIE_RX5-	B53
A54	GPI0	GPO1	B54
A55	PCIE_TX4+	PCIE_RX4+	B55
A56	PCIE_TX4-	PCIE_RX4-	B56
A57	GND	GPO2	B57
A58	PCIE_TX3+	PCIE_RX3+	B58
A59	PCIE_TX3-	PCIE_RX3-	B59
A60	GND	GND	B60

COM\_EXPRESS\_TYPE2\_AB

Note: Symbol (X) means signal is not used.

X A61	PCIE_TX2+	PCIE_RX2+	B61	X
X A62	PCIE_TX2-	PCIE_RX2-	B62	X
A63	GPI1	GPO3	B63	
A64	PCIE_TX1+	PCIE_RX1+	B64	
A65	PCIE_TX1-	PCIE_RX1-	B65	
A66	GND	WAKE0#	B66	
A67	GPI2	WAKE1#	B67	
A68	PCIE_TX0+	PCIE_RX0+	B68	
A69	PCIE_TX0-	PCIE_RX0-	B69	
A70	GND	GND	B70	
A71	LVDS_A0+	LVDS_B0+	B71	X
A72	LVDS_A0-	LVDS_B0-	B72	X
A73	LVDS_A1+	LVDS_B1+	B73	X
A74	LVDS_A1-	LVDS_B1-	B74	X
A75	LVDS_A2+	LVDS_B2+	B75	X
A76	LVDS_A2-	LVDS_B2-	B76	X
A77	LVDS_VDD_EN	LVDS_B3+	B77	X
A78	LVDS_A3+	LVDS_B3-	B78	X
A79	LVDS_A3-	LVDS_BKLT_EN	B79	X
A80	GND	GND	B80	
A81	LVDS_A_CK+	LVDS_B_CK+	B81	X
A82	LVDS_A_CK-	LVDS_B_CK-	B82	X
A83	LVDS_I2C_CK	LVDS_BKLT_CTRL	B83	X
A84	LVDS_I2C_DAT	VCC_5V_SBY	B84	
A85	GPI3	VCC_5V_SBY	B85	
A86	KBD_RST#	VCC_5V_SBY	B86	
A87	KBD_A20GATE	VCC_5V_SBY	B87	
A88	PCIE0_CK_REF+	RSVD	B88	X
A89	PCIE0_CK_REF-	VGA_RED	B89	X
A90	GND	GND	B90	
X A91	RSVD	VGA_GRN	B91	X
X A92	RSVD	VGA_BLU	B92	X
A93	GPO0	VGA_HSYNC	B93	X
X A94	RSVD	VGA_VSYNC	B94	X
X A95	RSVD	VGA_I2C_CK	B95	X
A96	GND	VGA_I2C_DAT	B96	X
A97	VCC_12V	TV_DAC_A	B97	X
A98	VCC_12V	TV_DAC_B	B98	X
A99	VCC_12V	TV_DAC_C	B99	X
A100	GND	GND	B100	
A101	VCC_12V	VCC_12V	B101	
A102	VCC_12V	VCC_12V	B102	
A103	VCC_12V	VCC_12V	B103	
A104	VCC_12V	VCC_12V	B104	
A105	VCC_12V	VCC_12V	B105	
A106	VCC_12V	VCC_12V	B106	
A107	VCC_12V	VCC_12V	B107	
A108	VCC_12V	VCC_12V	B108	
A109	VCC_12V	VCC_12V	B109	
A110	GND	GND	B110	

COM\_EXPRESS\_TYPE2\_AB



Note: Symbol (X) means the signal is not used.

C1	GND	GND	D1
C2	IDE_D7	IDE_D5	D2
C3	IDE_D6	IDE_D10	D3
C4	IDE_D3	IDE_D11	D4
C5	IDE_D15	IDE_D12	D5
C6	IDE_D8	IDE_D4	D6
C7	IDE_D9	IDE_D0	D7
C8	IDE_D2	IDE_REQ	D8
C9	IDE_D13	IDE_IOW#	D9
C10	IDE_D1	IDE_ACK#	D10
C11	GND	GND	D11
C12	IDE_D14	IDE_IRQ	D12
C13	IDE_IORDY	IDE_A0	D13
C14	IDE_IOR#	IDE_A1	D14
C15	PCI_PME#	IDE_A2	D15
C16	PCI_GNT2#	IDE_CS1#	D16
C17	PCI_REQ2#	IDE_CS3#	D17
C18	PCI_GNT1#	IDE_RESET#	D18
C19	PCI_REQ1#	PCI_GNT3#	D19
C20	PCI_GNT0#	PCI_REQ3#	D20
C21	GND	GND	D21
C22	PCI_REQ0#	PCI_AD1	D22
C23	PCI_RESET#	PCI_AD3	D23
C24	PCI_AD0	PCI_AD5	D24
C25	PCI_AD2	PCI_AD7	D25
C26	PCI_AD4	PCI_C/BE0#	D26
C27	PCI_AD6	PCI_AD9	D27
C28	PCI_AD8	PCI_AD11	D28
C29	PCI_AD10	PCI_AD13	D29
C30	PCI_AD12	PCI_AD15	D30
C31	GND	GND	D31
C32	PCI_AD14	PCI_PAR	D32
C33	PCI_C/BE1#	PCI_SERR#	D33
C34	PCI_PERR#	PCI_STOP#	D34
C35	PCI_LOCK#	PCI_TRDY#	D35
C36	PCI_DEVSEL#	PCI_FRAME#	D36
C37	PCI_TRDY#	PCI_AD16	D37
C38	PCI_C/BE2#	PCI_AD18	D38
C39	PCI_AD17	PCI_AD20	D39
C40	PCI_AD19	PCI_AD22	D40
C41	GND	GND	D41
C42	PCI_AD21	PCI_AD24	D42
C43	PCI_AD23	PCI_AD26	D43
C44	PCI_C/BE3#	PCI_AD28	D44
C45	PCI_AD25	PCI_AD30	D45
C46	PCI_AD27	PCI_IRQ#	D46
C47	PCI_AD29	PCI_IRQD#	D47
C48	PCI_AD31	PCI_CLKRUN#	D48
C49	PCI_IRQA#	PCI_M56EN	D49
C50	PCI_IRQB#	PCI_CLK	D50
C51	GND	GND	D51
C52	PEG_RX0+	PEG_TXD+	D52
C53	PEG_RX0-	PEG_TX0-	D53
X C54	TYPE0#	PEG_LANE RV#	D54
C55	PEG_RX1+	PEG_TX1+	D55
C56	PEG_RX1-	PEG_TX1-	D56
X C57	TYPE1#	TYPE2#	D57 X
C58	PEG_RX2+	PEG_TX2+	D58
C59	PEG_RX2-	PEG_TX2-	D59
C60	GND	GND	D60

COM\_EXPRESS\_TYPE2\_CD

Note: Symbol (X) means the signal is not used.

<del>X</del> C61	PEG_RX3+	PEG_TX3+	D61
<del>X</del> C62	PEG_RX3-	PEG_TX3-	D62
<del>X</del> C63	RSVD	RSVD	D63 X
<del>X</del> C64	RSVD	RSVD	D64 X
<del>X</del> C65	PEG_RX4+	PEG_TX4+	D65 X
<del>X</del> C66	PEG_RX4-	PEG_TX4-	D66 X
<del>X</del> C67	RSVD	GND	D67
<del>X</del> C68	PEG_RX5+	PEG_TX5+	D68 X
<del>X</del> C69	PEG_RX5-	PEG_TX5-	D69 X
<del>X</del> C70	GND	GND	D70
<del>X</del> C71	PEG_RX6+	PEG_TX6+	D71 X
<del>X</del> C72	PEG_RX6-	PEG_TX6-	D72 X
<del>X</del> C73	SDV0_DATA	SDV0_CLK	D73
<del>X</del> C74	PEG_RX7+	PEG_TX7+	D74 X
<del>X</del> C75	PEG_RX7-	PEG_TX7-	D75 X
<del>X</del> C76	GND	GND	D76
<del>X</del> C77	RSVD	IDE_CBLID#	D77
<del>X</del> C78	PEG_RX8+	PEG_TX8+	D78 X
<del>X</del> C79	PEG_RX8-	PEG_TX8-	D79 X
<del>X</del> C80	GND	GND	D80
<del>X</del> C81	PEG_RX9+	PEG_TX9+	D81 X
<del>X</del> C82	PEG_RX9-	PEG_TX9-	D82 X
<del>X</del> C83	RSVD	RSVD	D83 X
<del>X</del> C84	GND	GND	D84
<del>X</del> C85	PEG_RX10+	PEG_TX10+	D85 X
<del>X</del> C86	PEG_RX10-	PEG_TX10-	D86 X
<del>X</del> C87	GND	GND	D87
<del>X</del> C88	PEG_RX11+	PEG_TX11+	D88 X
<del>X</del> C89	PEG_RX11-	PEG_TX11-	D89 X
<del>X</del> C90	GND	GND	D90
<del>X</del> C91	PEG_RX12+	PEG_TX12+	D91 X
<del>X</del> C92	PEG_RX12-	PEG_TX12-	D92 X
<del>X</del> C93	GND	GND	D93
<del>X</del> C94	PEG_RX13+	PEG_TX13+	D94 X
<del>X</del> C95	PEG_RX13-	PEG_TX13-	D95 X
<del>X</del> C96	GND	GND	D96
<del>X</del> C97	RSVD	PEG_ENABLE#	D97 X
<del>X</del> C98	PEG_RX14+	PEG_TX14+	D98 X
<del>X</del> C99	PEG_RX14-	PEG_TX14-	D99 X
<del>X</del> C100	GND	GND	D100
<del>X</del> C101	PEG_RX15+	PEG_TX15+	D101 X
<del>X</del> C102	PEG_RX15-	PEG_TX15-	D102 X
<del>X</del> C103	GND	GND	D103
<del>X</del> C104	VCC_12V	VCC_12V	D104
<del>X</del> C105	VCC_12V	VCC_12V	D105
<del>X</del> C106	VCC_12V	VCC_12V	D106
<del>X</del> C107	VCC_12V	VCC_12V	D107
<del>X</del> C108	VCC_12V	VCC_12V	D108
<del>X</del> C109	VCC_12V	VCC_12V	D109
<del>X</del> C110	GND	GND	D110

COM\_EXPRESS\_TYPE2\_CD

For base board connector and jumper setting, please reference the MB-73220 COM Express evaluation board quick setup guide.

## Chapter 3. BIOS Setup

### 3.1 Entering the CMOS Setup Program

Use the CMOS Setup program to modify the system parameters to reflect the options installed in your system and to customize your system. For example, you should run the Setup program after you:

1. Received an error code at startup
2. Install another disk drive
3. Use your system after not having used it for a long time
4. Find the original setup missing
5. Replace the battery
6. Change to a different type of CPU
7. Run the Flash program to update the system BIOS

Run the CMOS Setup program after you turn on the system. On-screen instructions explain how to use the program.

#### ↓ Enter the CMOS Setup program's main menu as follows:

1. Turn on or reboot the system. After the BIOS performs a series of diagnostic checks, the following message appears:  
"Press DEL to enter SETUP"
2. Press the <DEL> key to enter CMOS Setup program. The main menu appears:

```

BIOS SETUP UTILITY
Main  Advanced  PCIPnP  Boot  Security  Chipset  Exit

System Overview
-----
AMIBIOS
Version   :08.00.15
Build Date:09/11/09
ID        :71100009

Processor

Speed     :255MHz
Count     :255

System Memory
Size      :1019MB

System Time           [14:12:57]
System Date           [Fri 09/11/2009]

CMC Lo-Module:0D2.025x, Hi-Module:0D2.017x

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

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

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

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```

3. Choose a setup option with the arrow keys and press <Enter>. See the following sections for a brief description of each setup option.

**AMIBIOS:** Displays the auto-detected BIOS information.

**Processor:** Displays the auto-detected CPU specification.

**System Memory:** Displays the auto-detected system memory.

**SystemTime: [hour:min:sec]**

This item allows you to set the system time.

**System Date: [Day mm/dd/yyyy]**

This item allows you to set the system date.

In the main menu, press F10 (“Save Changes and Exit”) to save your changes and reboot the system. Choosing “Discard Changes and Exit” ignores your changes and exits the program. Pressing <ESC> anywhere in the program returns you to the main menu.

## 3.2 Menu Options

The main menu options of the CMOS Setup program are described in the following and the following sections of this chapter.

**Main:** For changing the basic system configurations.

**Advanced:** For changing the advanced system settings.

**PCIPnP:** For changing the advanced PCI/PnP Settings.

**Boot:** For changing the system boot configurations.

**Security:** Use this menu to set User and Supervisor Passwords.

**Chipset:** For changing the chipset settings.

**Exit:** For selecting the exit options and loading default settings.

### 3.3 Advanced Menu

The Advanced menu items allow you to change the settings for the CPU and other system devices.

#### Use the Advanced Setup option as follows:

1. Choose "Advanced" from the main menu. The following screen appears:



2. Use the arrow keys to move between fields. Modify the selected field using the PgUP/PgDN/+/- keys. Some fields let you enter numeric values directly.
3. After you have finished with the Advanced setup, press the <ESC> key to return to the main menu.

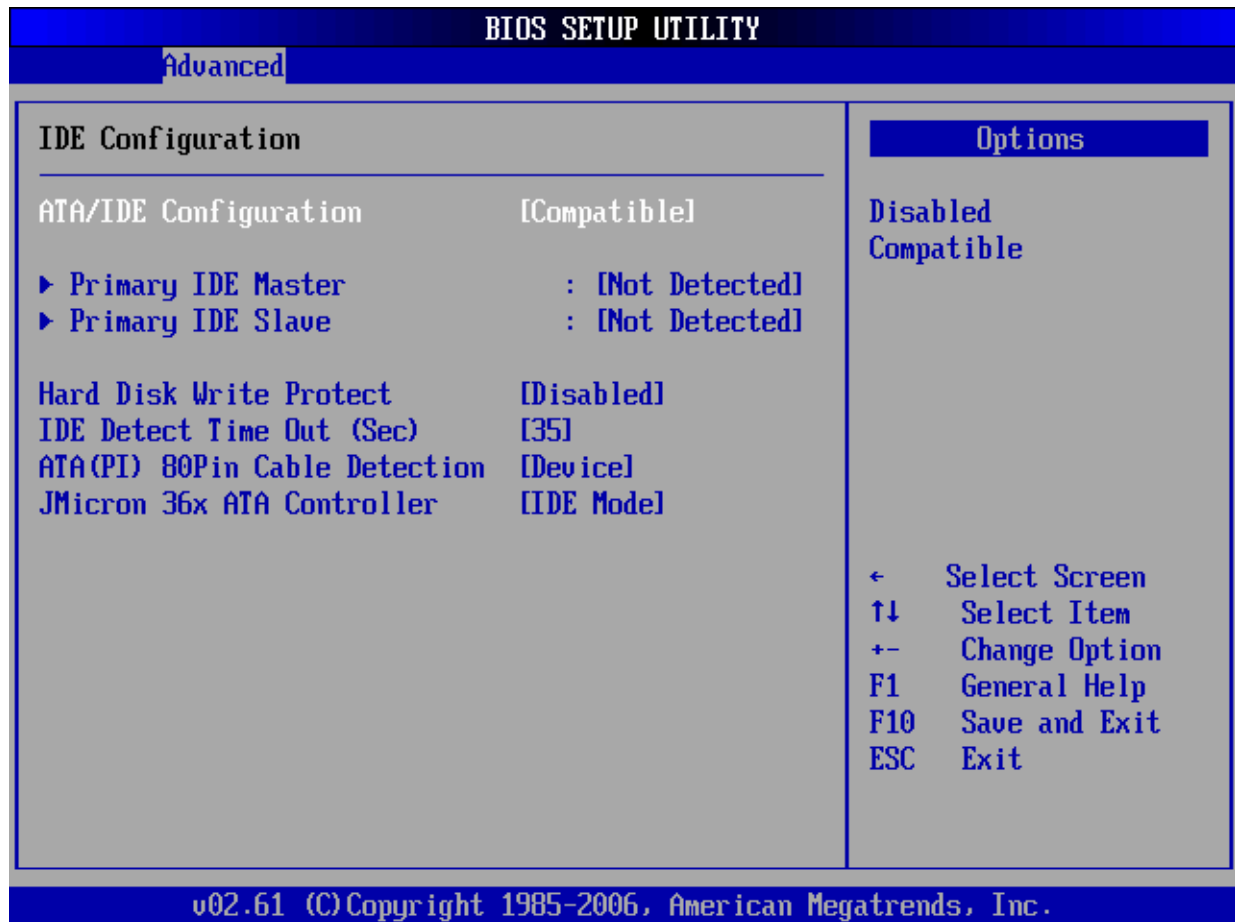
### 3.3.1 CPU Configuration

This sub menu shows the CPU-related information which is automatically detected by BIOS.

BIOS SETUP UTILITY	
Advanced	
Configure advanced CPU settings Module Version:3F.11 <hr/> Manufacturer: Intel  Frequency :1.10GHz FSB Speed :400MHz Cache L1 :0 KB Cache L2 :0 KB Ratio Actual Value:11  Max CPUID Value Limit [Disabled] Execute-Disable Bit Capability [Enabled] Intel(R) SpeedStep(tm) tech [Enabled] Intel(R) C-STATE tech [Enabled] Enhanced C-States [Enabled]	Disabled for WindowsXP  ← Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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### 3.3.2 IDE Configuration

This sub menu allows you to set or change the configurations for the IDE devices installed in the system.



#### Primary \* IDE Master

This information is auto-detected by BIOS and is not user-configurable. It will show "Not Detected" if no IDE device is installed in the system.

#### Primary IDE Slave

This information is auto-detected by BIOS and is not user-configurable. It will show "Not Detected" if no IDE device is installed in the system.

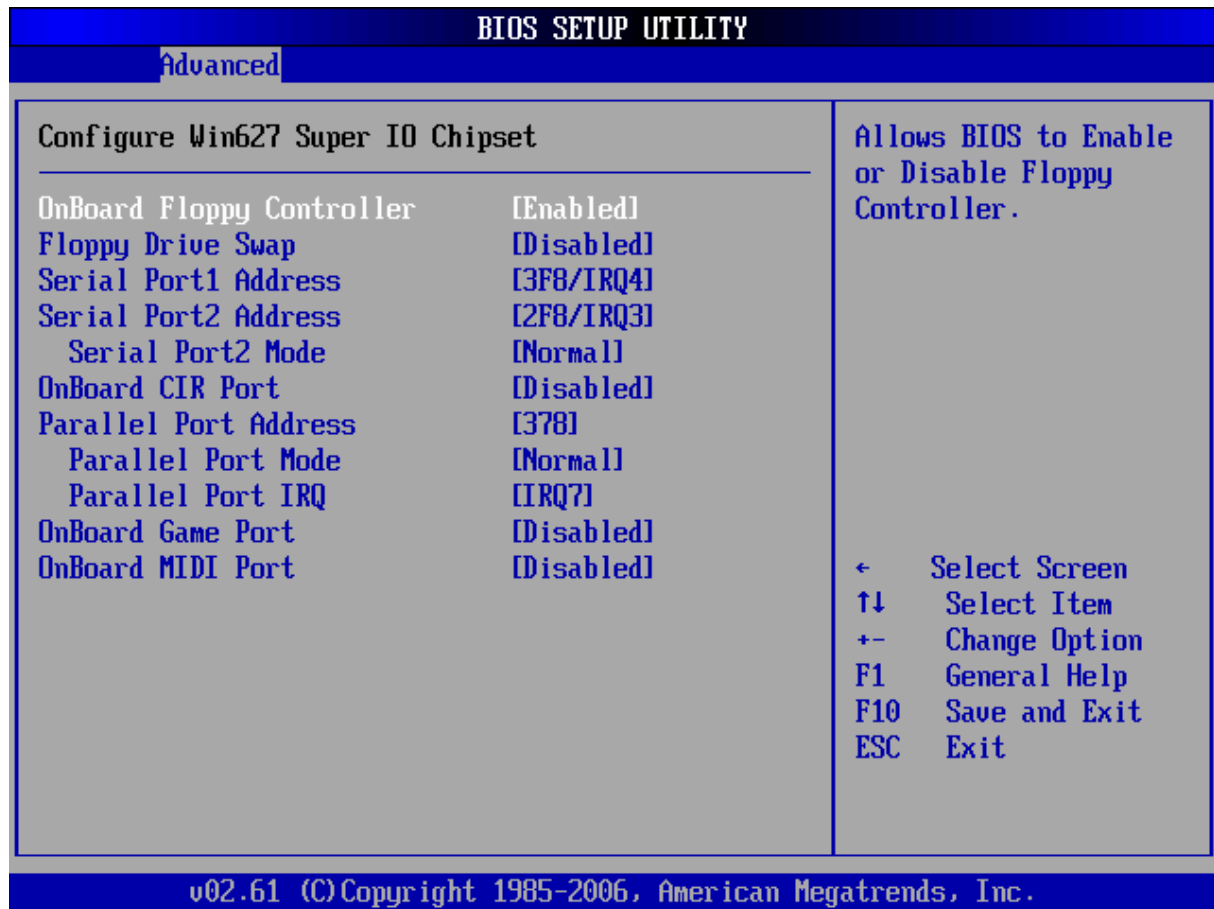
Following screens allow you to setup the parameters of IDE devices.



BIOS SETUP UTILITY	
Advanced	
<b>Primary IDE Master</b> <hr/> Device :Not Detected <hr/> Type [Auto] LBA/Large Mode [Auto] Block (Multi-Sector Transfer) [Auto] PIO Mode [Auto] DMA Mode [Auto] S.M.A.R.T. [Auto] 32Bit Data Transfer [Enabled]	Select the type of device connected to the system.          ← Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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BIOS SETUP UTILITY	
Advanced	
<b>Primary IDE Slave</b> <hr/> Device :Not Detected <hr/> Type [Auto] LBA/Large Mode [Auto] Block (Multi-Sector Transfer) [Auto] PIO Mode [Auto] DMA Mode [Auto] S.M.A.R.T. [Auto] 32Bit Data Transfer [Enabled]	Select the type of device connected to the system.          ← Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit
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### 3.3.3 Super IO Configuration



**Serial Port1 Address: [3F8/IRQ4]**

Selects the Serial Port1 base address and IRQ.

**Serial Port2 Address: [2F8/IRQ3]**

Selects the Serial Port2 base address and IRQ.

**Parallel Port Address: [378]**

Selects the Parallel Port base addresses.

**Parallel Port Mode: [Normal]**

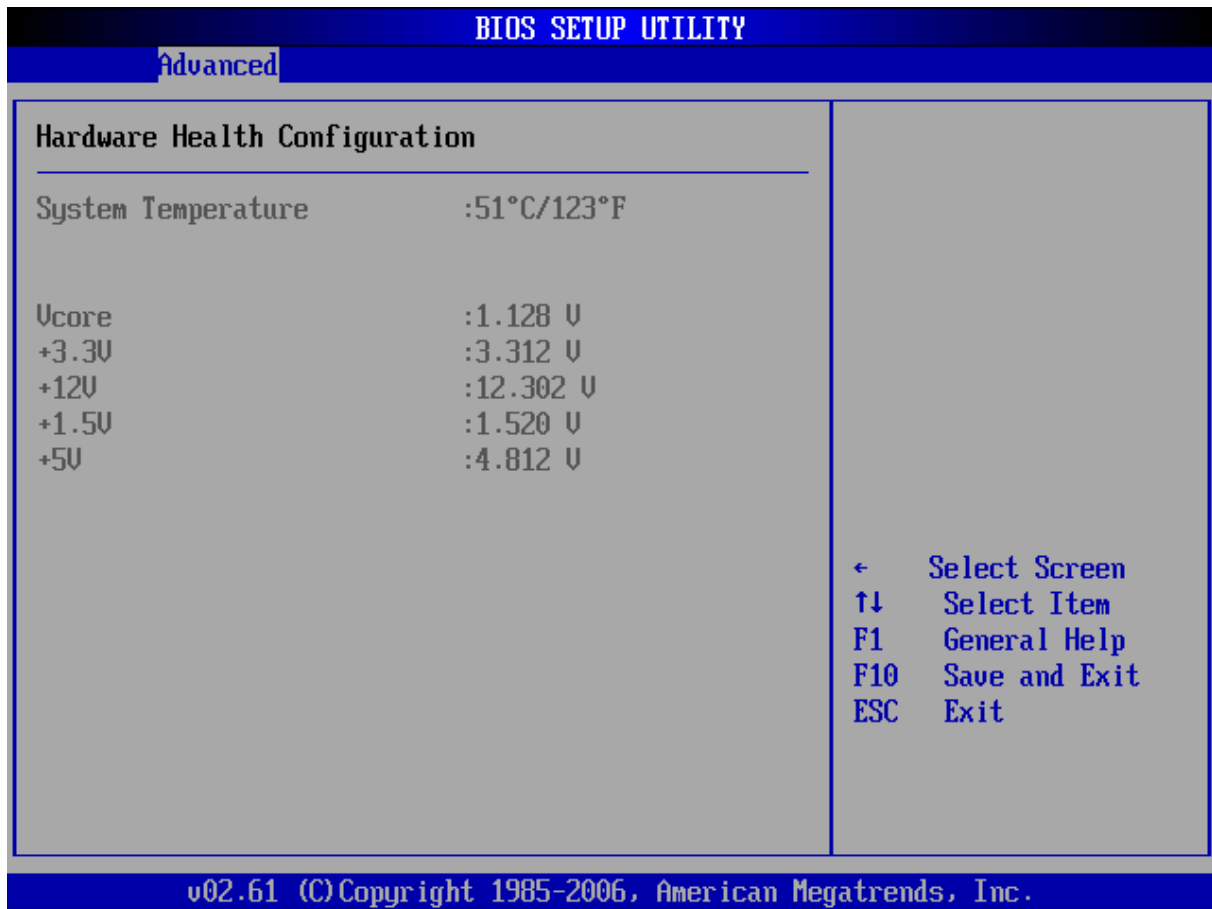
Selects the Parallel Port mode.

**Parallel Port IRQ: [IRQ7]**

Selects the Parallel Port IRQ.

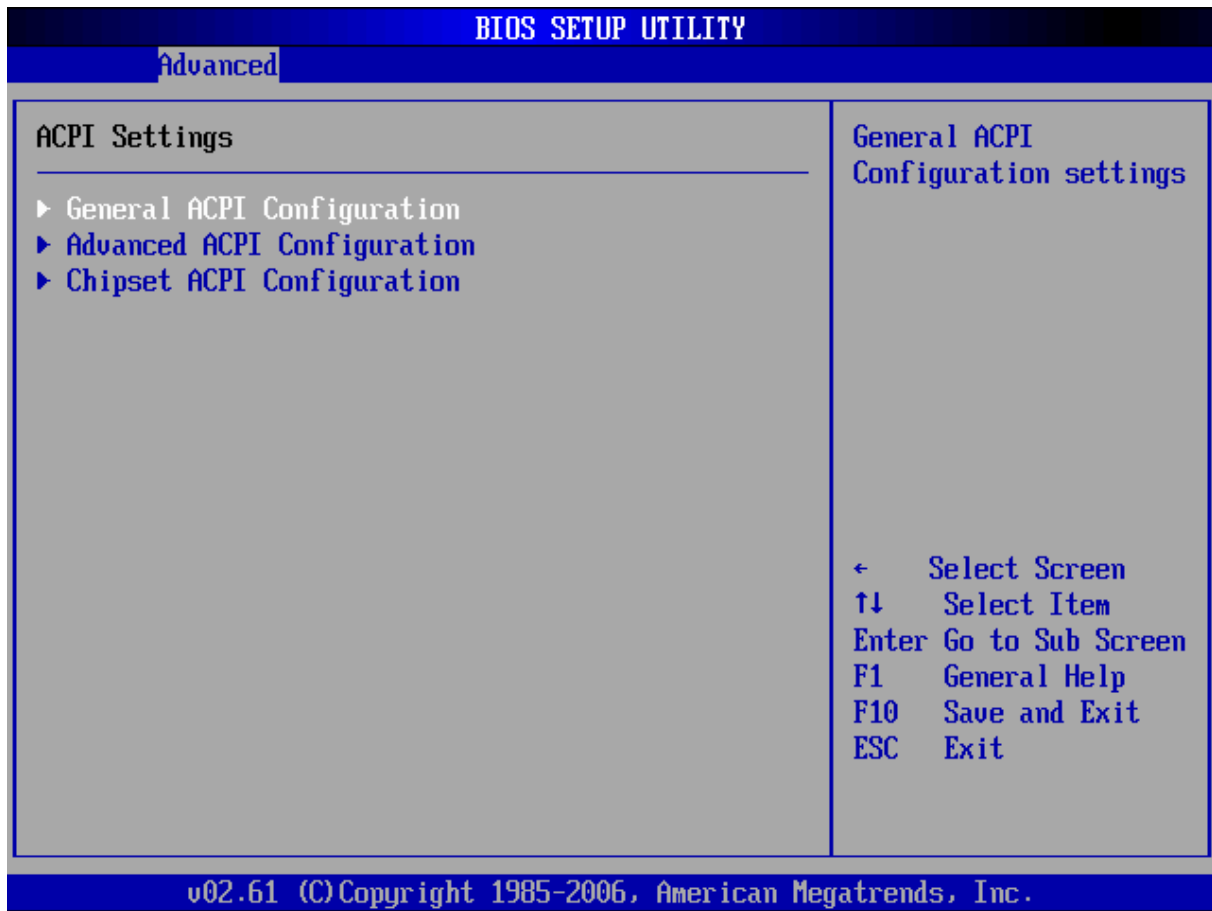
### 3.3.4 Hardware Health Configuration

This screen shows you the CPU core voltage, System voltage, System temperature.



### 3.3.5 ACPI Configuration

This sub menu is used to change the settings for the ACPI.



This sub menu is used to change the settings for the ACPI.

BIOS SETUP UTILITY	
Advanced	
<b>General ACPI Configuration</b>	
Suspend mode	[S3 (STR)]
Repost Video on S3 Resume	[No]
Select the ACPI state used for System Suspend.	
← Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit	
v02.61 (C) Copyright 1985-2006, American Megatrends, Inc.	

BIOS SETUP UTILITY	
Advanced	
<b>Advanced ACPI Configuration</b>	
ACPI Version Features	[ACPI v3.0]
ACPI APIC support	[Enabled]
AMI OEMB table	[Enabled]
Headless mode	[Disabled]
Enable RSDP pointers to 64-bit Fixed System Description Tables. Di ACPI version has some	
← Select Screen ↑↓ Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit	
v02.61 (C) Copyright 1985-2006, American Megatrends, Inc.	

**Advanced ACPI Configuration:**

This sub menu configures additional ACPI options. It contains below sub-menus:

**ACPI Version Features: [ACPI v3.0]**

This item allows you to enable or disable RSPD pointers to 64-bit Fixed System Description Tables.

**ACPI APIC support: [Enabled]**

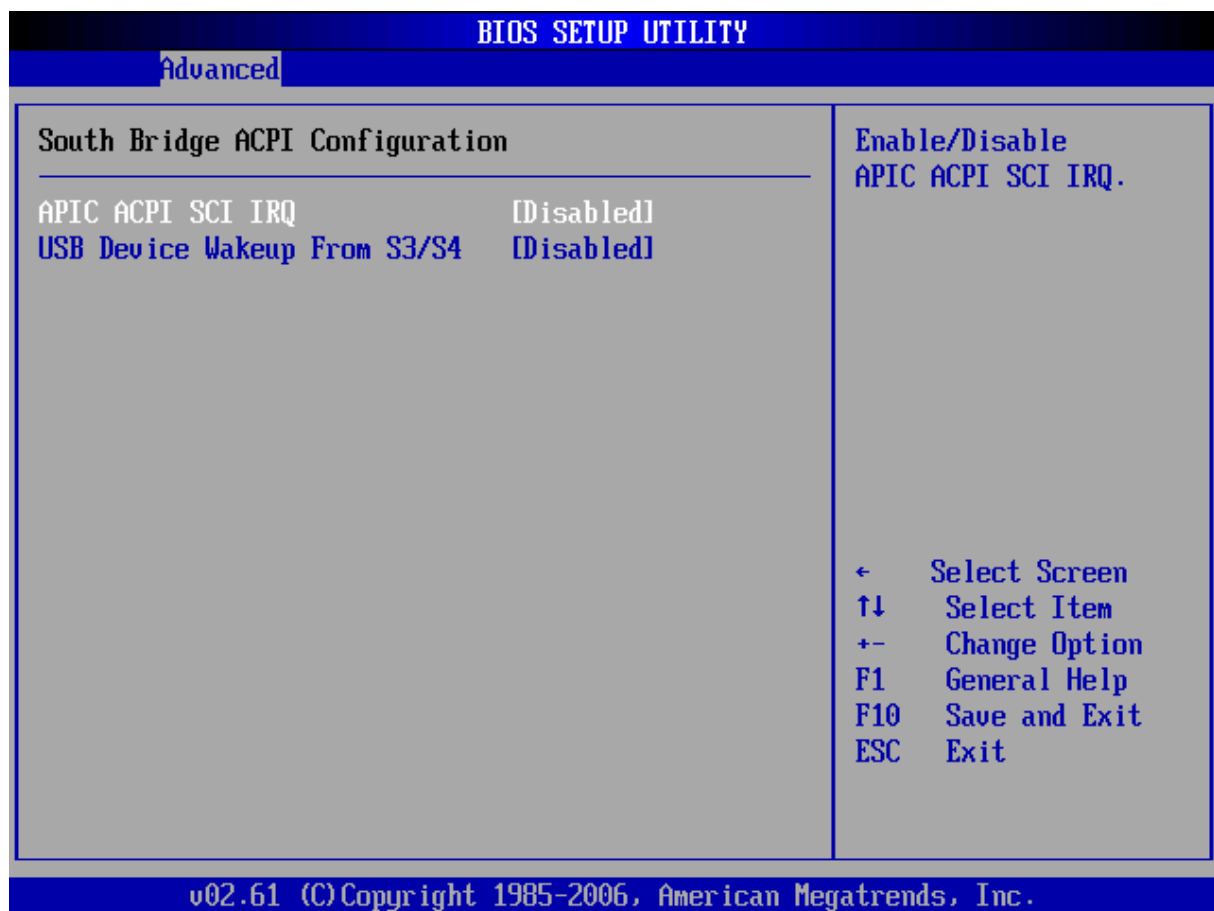
This item allows you to enable or disable APIC features.

**AMI OEMB table: [Enabled]**

This item allows you to enable or disable OEMB features.

**Headless mode: [Disabled]**

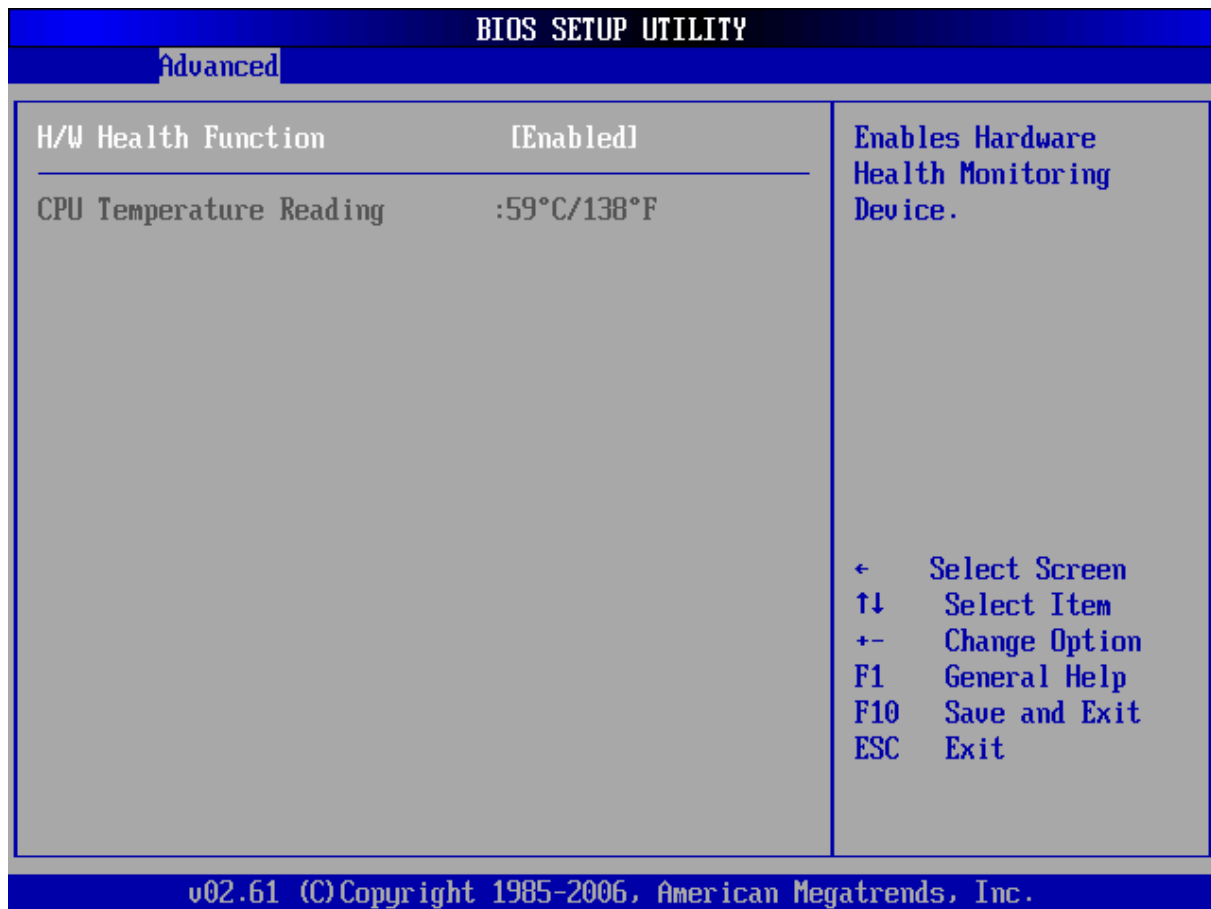
This item allows you to enable or disable headless features.



This sub menu is used to change the bridge settings for the ACPI.

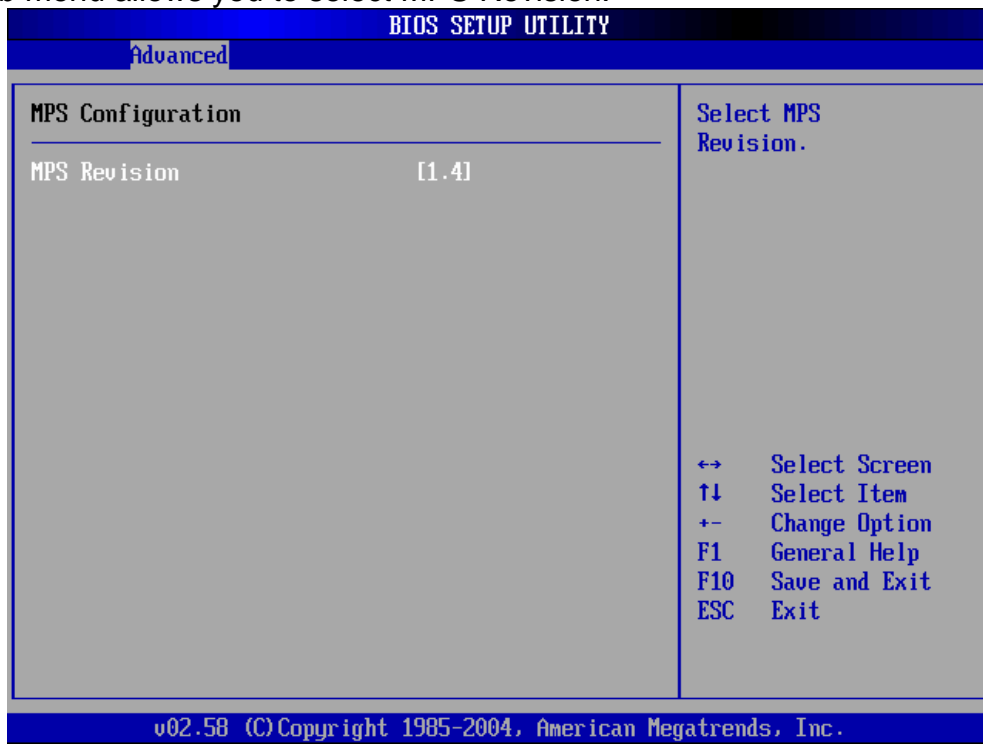
### 3.3.6 H/W Health Function

This sub menu shows the CPU temperature:



### 3.3.7 MPS Configuration

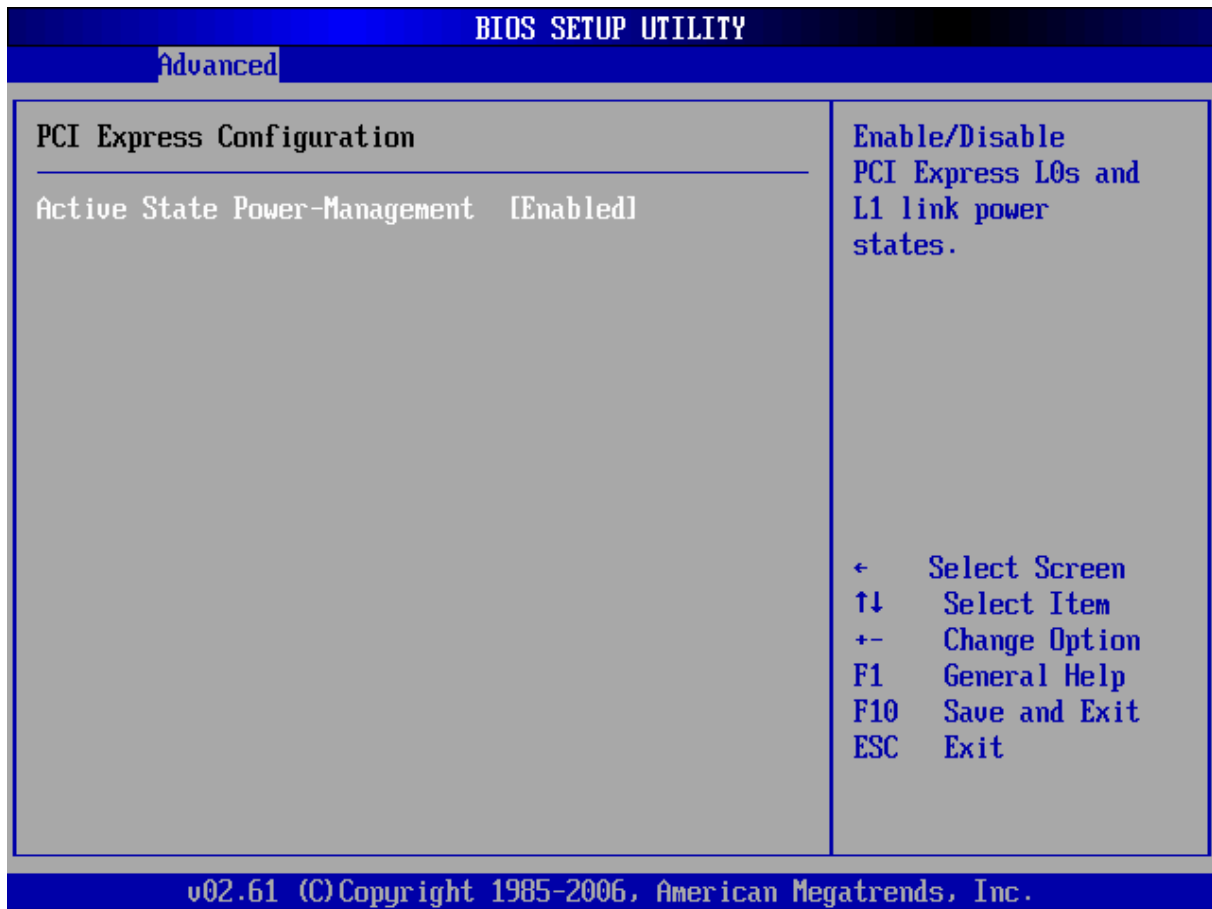
This sub menu allows you to select MPS Revision.





### 3.3.8 PCI Express Configuration

This sub menu allows you to enable or disable Active State Power-Management :



### 3.3.9 Smbios Configuration

This sub menu allows you to enable or disable Smbios :



### 3.3.10 USB Configuration

This sub menu allows you to change the USB-related features.



#### Legacy USB Support: [Enabled]

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

#### USB 2.0 Controller Mode: [FullSpeed]

This item allows you to configure the USB 2.0 controller in HiSpeed(480Mbps) or FullSpeed(12Mbps).

#### BIOS EHCI Hand-Off

This item allows you to Enable/Disable BIOS EHCI Hand-Off

#### USB Mass Storage Device Configuration

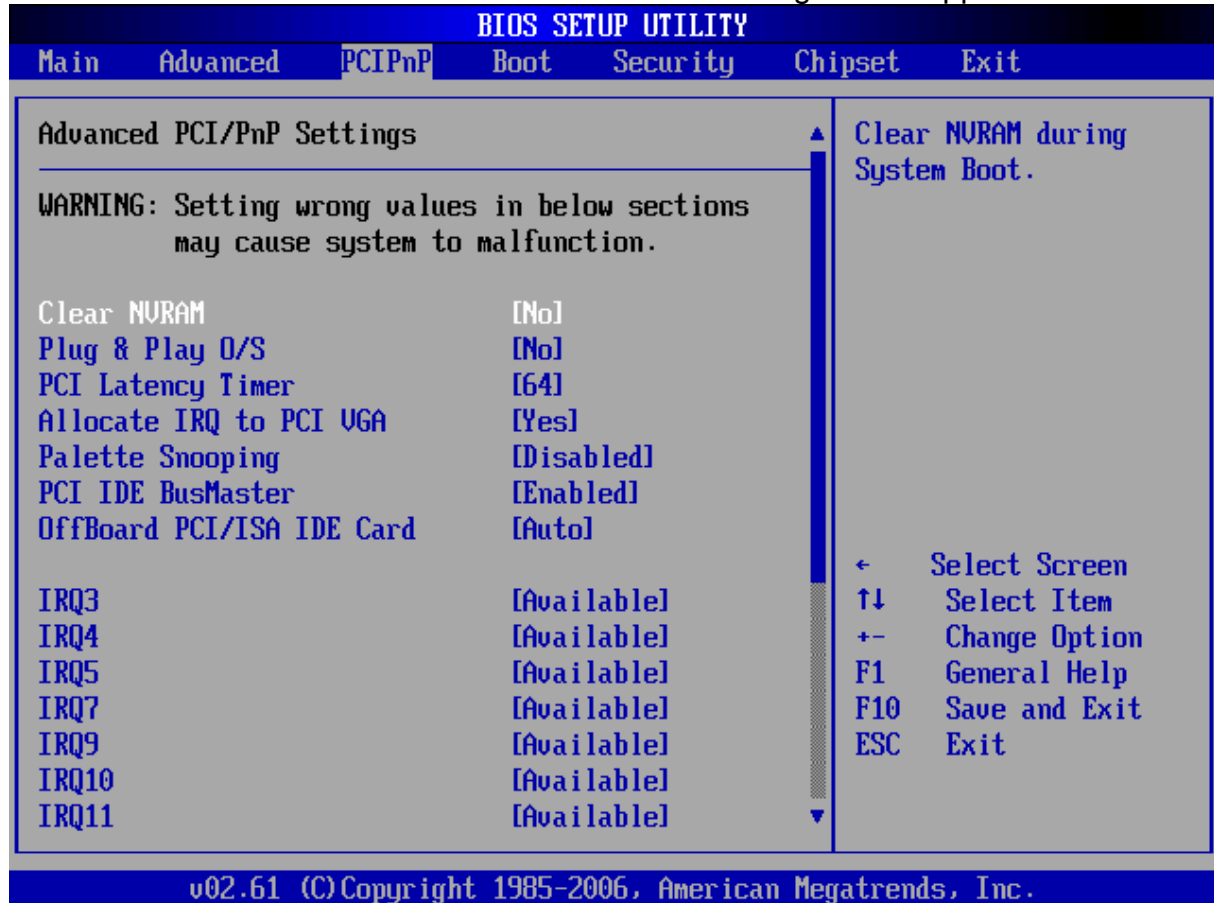
This item allows you to configure USB Mass Storage Device

### 3.4 PCIPnP Menu

This PCIPnP menu items allow you to change the settings for the advanced PCI/PnP.

Use the PCIPnP Setup option as follows:

1. Choose "PCIPnP" from the main menu. The following screen appears:



2. Use the arrow keys to move between items and to select values. Modify the selected fields using the PgUP/PgDN keys. Press the <F1> "Help" key for information on the available options:

3. After you have finished with the PCIPnP Setup, press the <ESC> key to return to the main menu.

#### Clear NVRAM

This item allows you to clear the BIOS setting

#### Plug & Play O/S: [No]

No: lets the BIOS configure all the devices in the system.

Yes: lets the OS configure Plug & Play devices not required for boot if your system has a Plug & Play operating system.

#### PCI Latency Timer: [64]

This item allows you to select the value in units of PCI clocks for the PCI device latency timer register. This setting controls how many PCI clocks each PCI device

can hold the bus before another PCI device takes over.

**Allocate IRQ to PCI VGA: [Yes]**

BIOS assigns an IRQ to PCI VGA card if the card requests for an IRQ.

**Palette Snooping: [Disabled]**

This item allows you to enable or disable the feature. When set to [Enabled], the palette snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the device can function correctly.

**PCI IDE BusMaster: [Enabled]**

This item allows you to enable or disable the feature.

Enable: BIOS uses PCI bus mastering for reading/writing to IDE devices.

**OffBoard PCI/ISA IDE Card**

This item allows you to configure the setting of OffBoard PCI/ISA IDE Card.

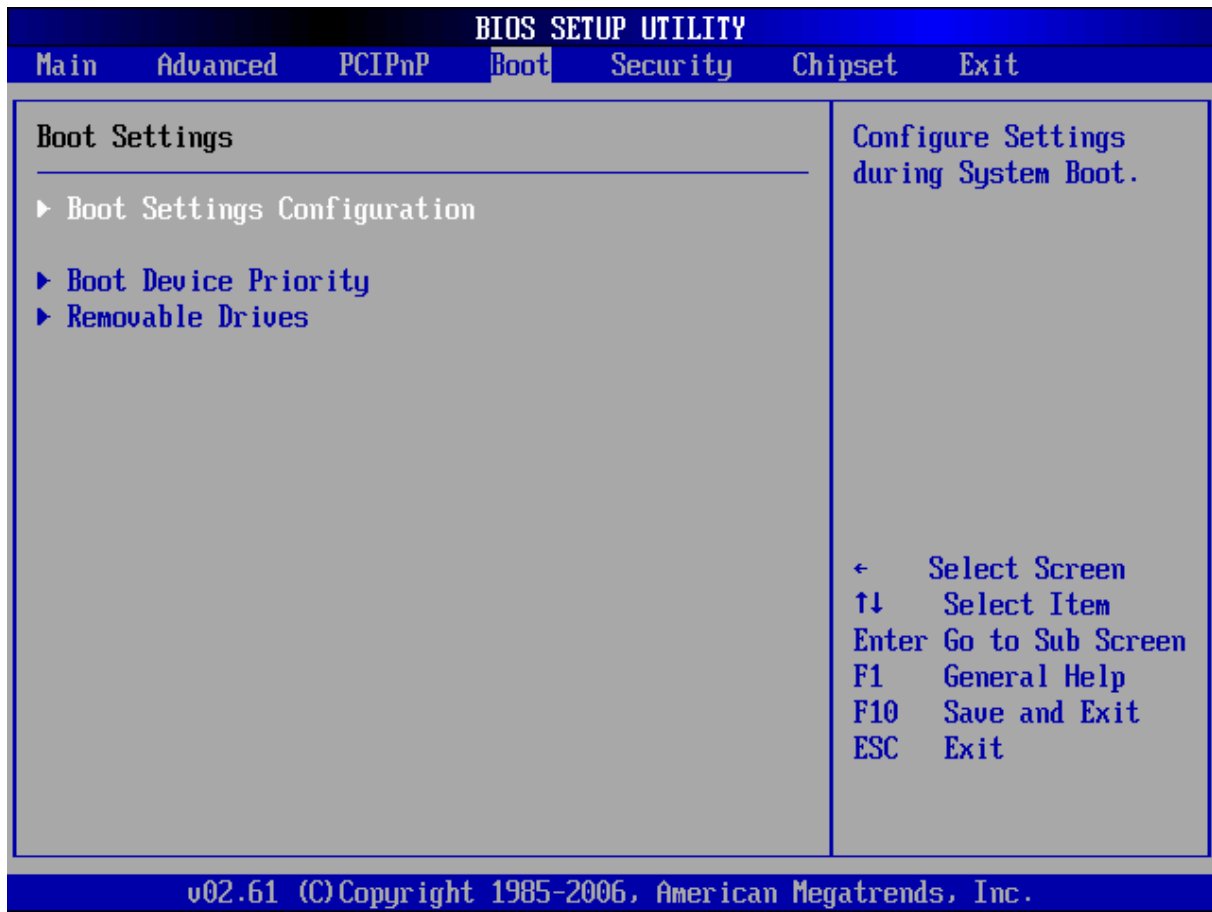
**Reserved Memory Size: [Disabled]**

This item allows you to select the reserved memory for legacy ISA devices.

### 3.5 Boot Menu

↓ Use the **Boot Setup** option as follows:

1. Choose "Boot" from the main menu. The following screen appears:

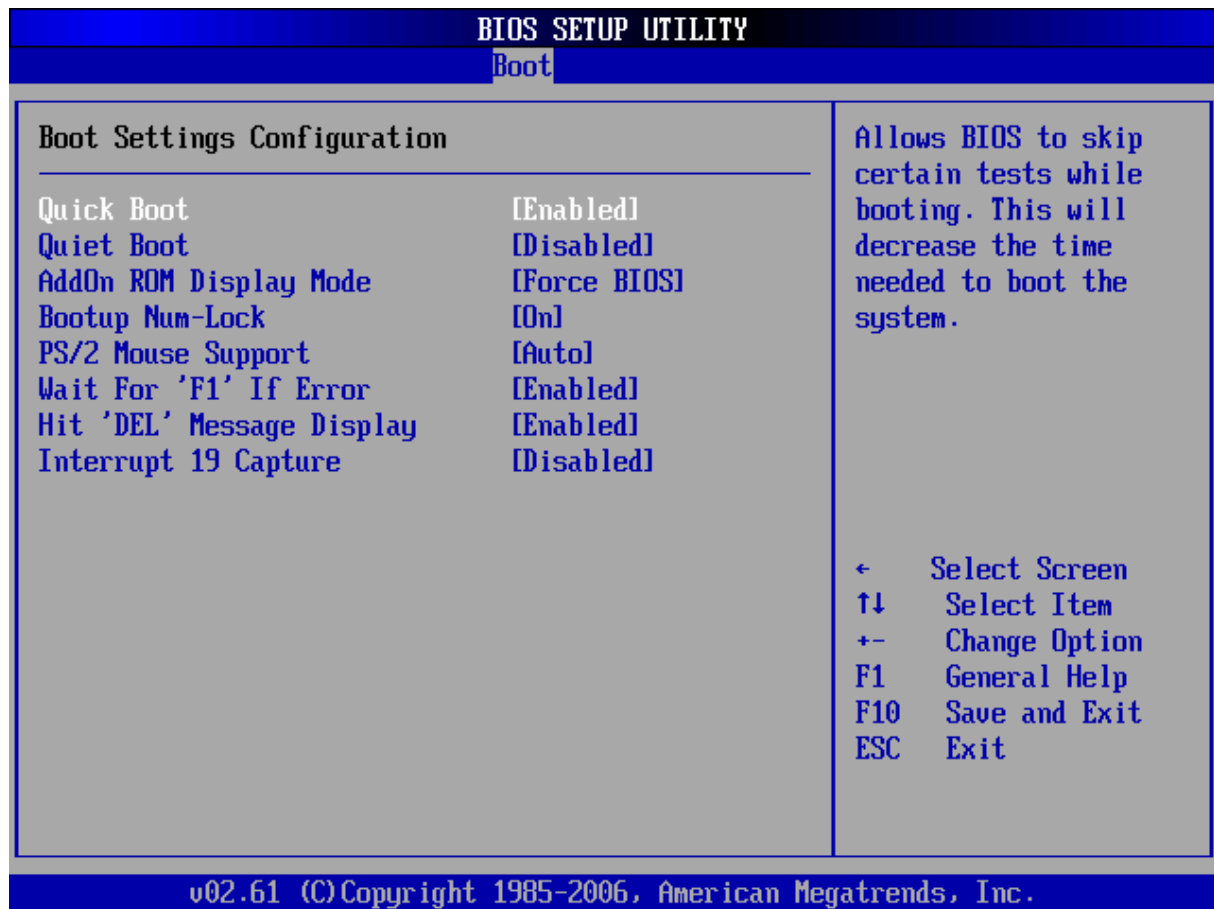


2. Move between items and select values by using the arrow keys. Modify the selected fields using the PnUP/PgDN Keys. For information on the various options, press <F1> key .

3. After you have finished with the Boot setup, press the <ESC> key to return to the main menu.

### 3.5.1 Boot Settings Configuration

This item is used to configure system boot setting with below sub menus:



#### Quick Boot: [Enabled]

This item allows BIOS to skip certain tests (POST, Power On Self Tests) while booting. This will decrease the time needed to boot the system.

#### Quiet Boot: [Disabled]

This item allows you to enable or disable the full screen logo display feature. Disabled: displays normal POST messages.

#### AddOn ROM Display Mode: [Force BIOS]

Allows you to configure AddOn ROM Display Mode.

#### Bootup Num-Lock: [On]

Allows you to select the Power-on state for the Num-Lock.

#### PS/2 Mouse Support: [Auto]

Allows you to configure PS/2 mouse support mode.

#### Wait for F1 if Error: [Enabled]

Allows you to enable or disable the wait for F1 if error function.

#### Hit Del Message Display: [Enabled]

Allows you to enable or disable the hit del message display function.

**Interrupt 19 Capture: [Disabled]**

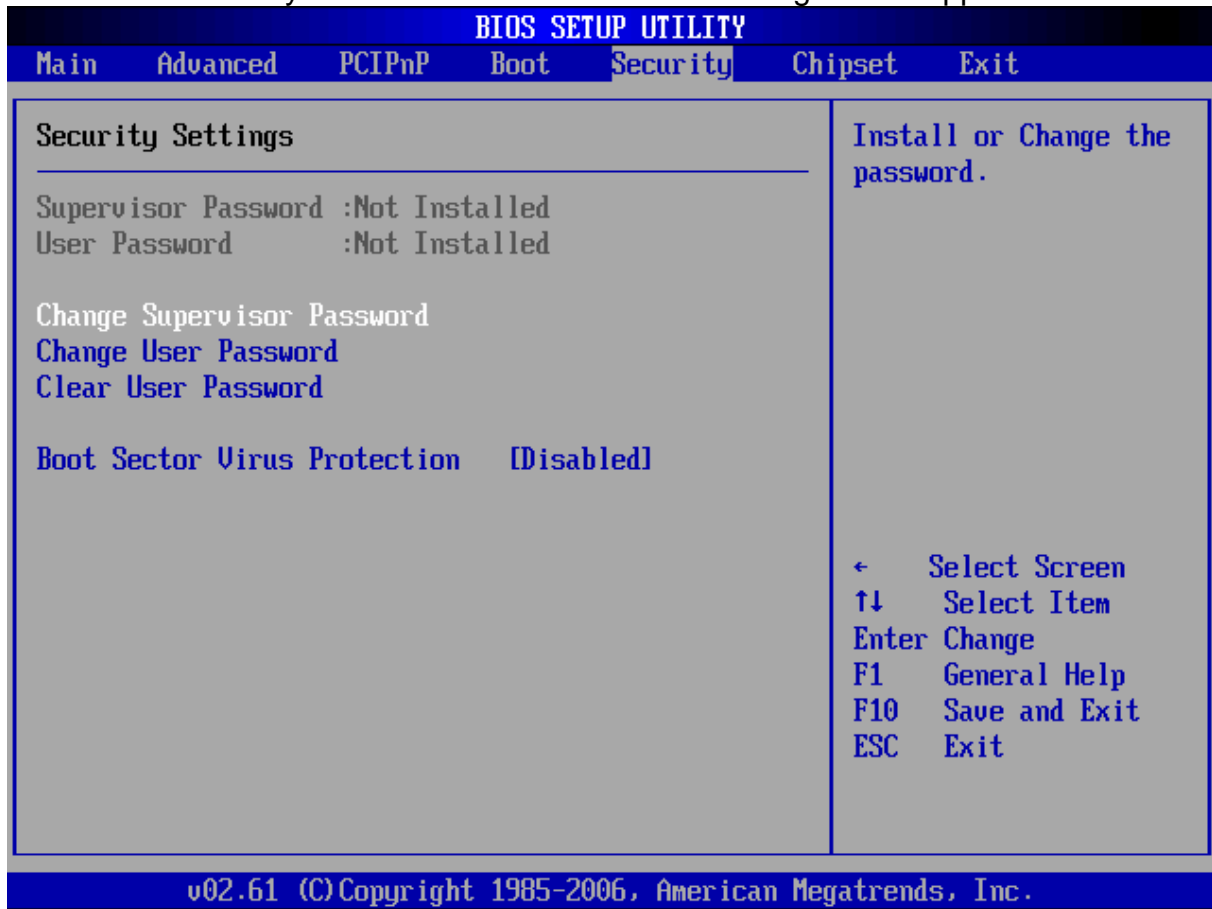
This item allows the option ROMs to trap Interrupt 19.



## 3.6 Security Menu

↓ Use the Security Setup option as follows:

1. Choose "Security" from the main menu. The following screen appears:



2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDN keys. Please press the <F1> key for information on the various options.
3. After you have finished with the Security setup, press the <ESC> key to return to the main menu.

### Change Supervisor Password:

This item allows you to set or change the supervisor password. The Supervisor Password item on top of the screen shows the default Not Installed. After you have set a password, this item shows Installed.

### Change User Password:

This item allows you to set or change the user password. The User Password item on top of the screen shows the default Not Installed. After you have set a password, this item shows Installed.

### Clear User Password:

This item allows you to clear the user password.

### Boot Sector Virus Protection: [Disabled]

This item allows you to enable or disable the boot sector virus protection. If enabled,

AMI BIOS will issue a warning when a virus or program attempts to write to the hard disk's boot sector or attempts to execute disk format command.

### 3.7 Chipset Menu

↓ Use the Chipset Setup option as follows:

1. Choose "Chipset" from the main menu. The following screen appears.



2. Move between items and select values by using the arrow keys. Modify the selected field the PgUP/PgDN keys. For information on the various options, press <F1> key.
3. After you have finished with the Chipset Setup, press the <ESC> key to return to the main menu.

### 3.7.1 North Bridge Configuration



#### **Primary Graphics Adapter: [PCIe/IGD]**

This item allows you to set the graphic adapter.

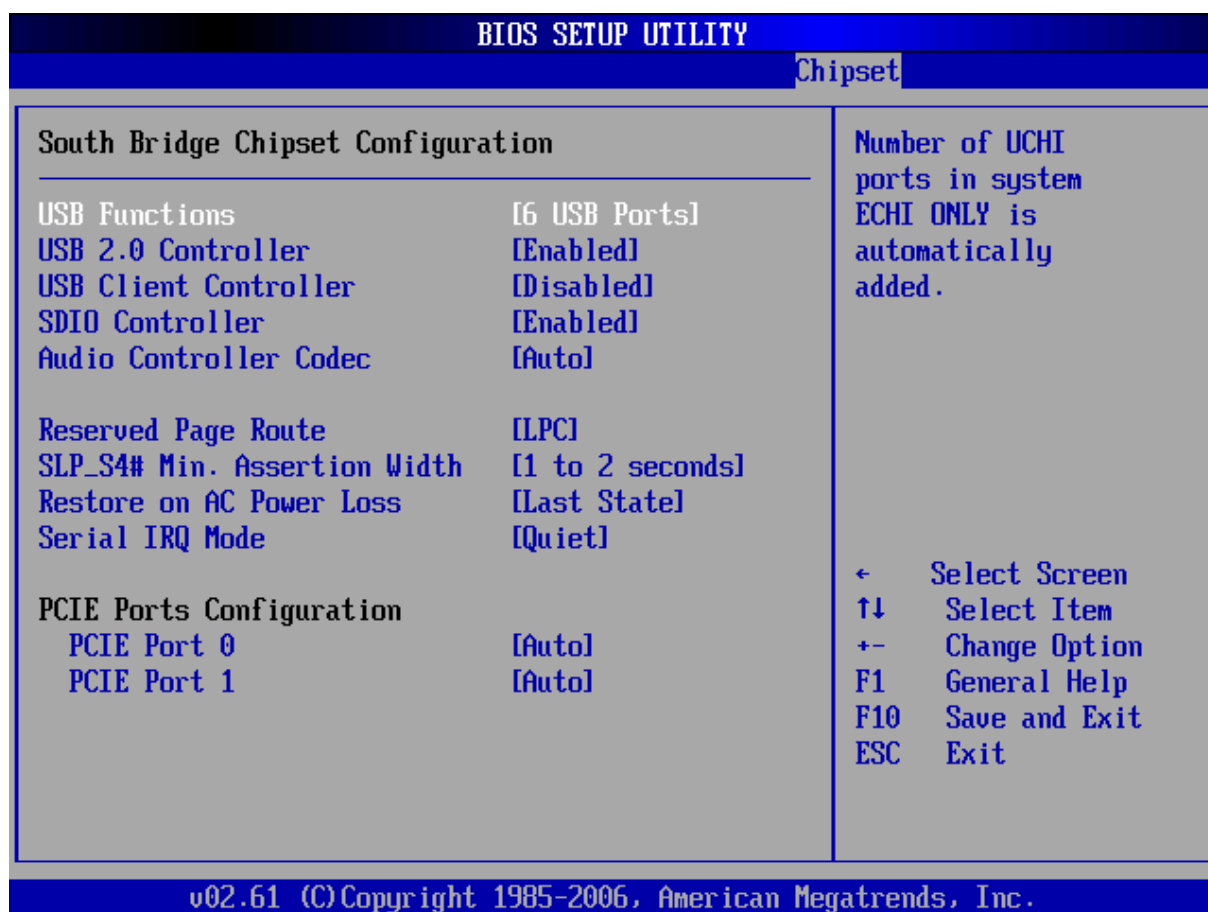
#### **Internal Graphics Mode Select : [Enabled, 4MB]**

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

#### **Boot Display Configuration**

This item allows you to configure Boot Display Function.

### 3.7.2 South Bridge Configuration



#### USB Functions: [6 USB Ports]

This item allows you to setup the USB ports.

#### USB 2.0 Controller: [Enabled]

This item allows you to enable or disable the USB 2.0 controller.

#### USB Client Controller: [Disabled]

This item allows you to enable or disable the USB Client controller.

#### SDIO Controller: [Enabled]

This item allows you to enable or disable the SDIO controller.

#### Audio Controller Codec: [Auto]

This item allows you to enable or disable the Audio controller.

#### Reserved Page Route: [LPC]

This item allows you to setup the reserved page route.

#### Restore on AC Power Loss: [Last State]

This item allows you to setup the restore on AC power loss.

#### Serial IRQ Mode: [Quiet]

This item allows you to setup the serial IRQ mode.

**PCIE Ports Configuration**

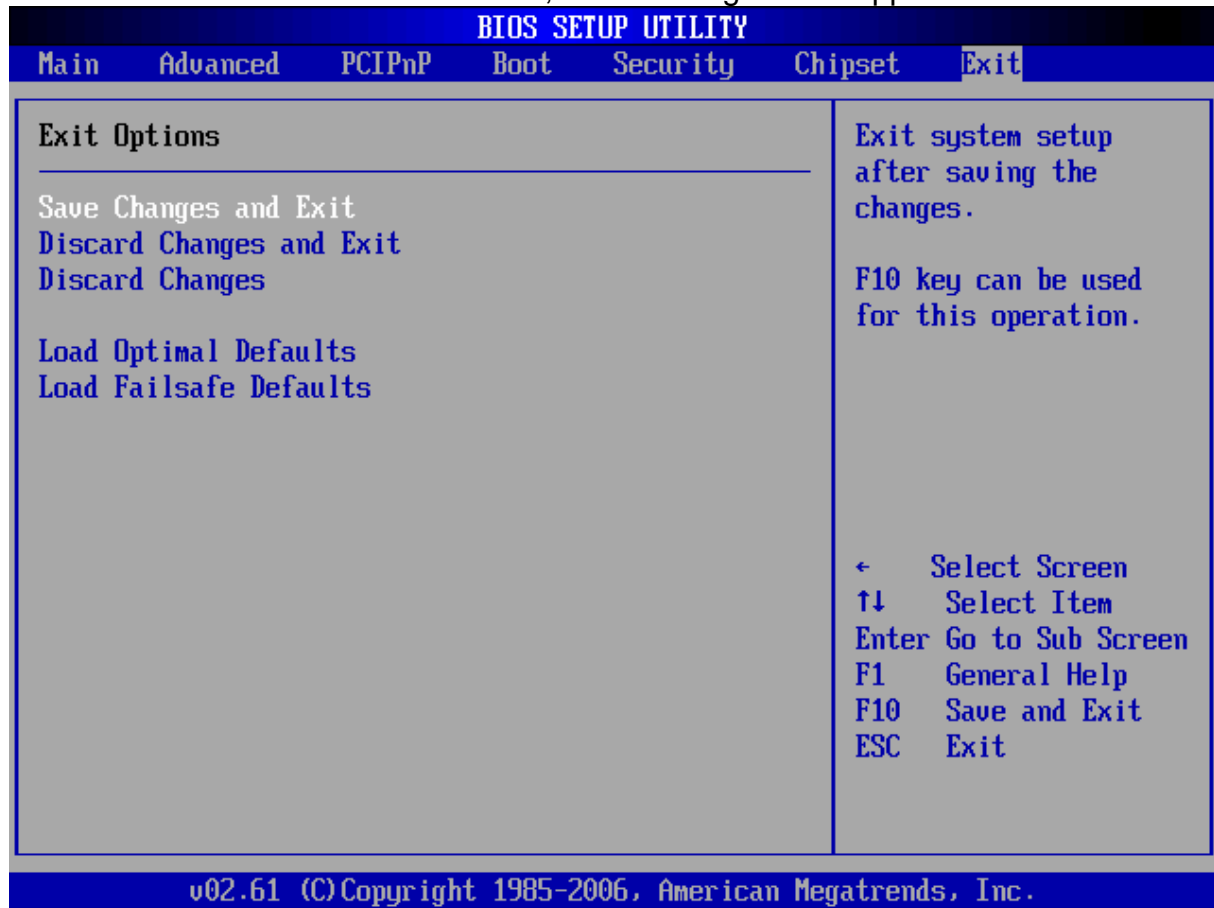
This item allows you to setup the PCIE ports.

### 3.8 Exit

The item allows you to save or discard your changes to the BIOS items, and load the optimal defaults or failsafe defaults for the BIOS items.

↓ **Use the Exit option as follows:**

1. Choose "Exit" from the main menu, the following screen appears.



2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDN keys. For information on the various options, please press <F1> key.
3. Please press the <ESC> key to return the main menu after finishing with the Exit Options.

#### **Save Changes and Exit:**

Save changes of values to CMOS and exit the CMOS setup program. F10 key can be used for this operation.

#### **Discard Changes and Exit:**

Discard all CMOS changes and exit the CMOS setup program. ESC key can be used for this operation.

#### **Discard Changes:**

Discard all CMOS changes and load the previously saved values. F7 key can be

used for this operation.

**Load Optimal Defaults:**

This item allows you to load optimal defaults for each of the parameters on the Setup menus, which will provide the best performance settings for your system. F9 key can be used for this operation.

**Load Failsafe Defaults:**

This item allows you to load failsafe defaults for each of the parameters on the Setup menus, which will provide the most stable performance settings. F8 key can be used for this operation.



## Chapter 4. Software & Driver Installation

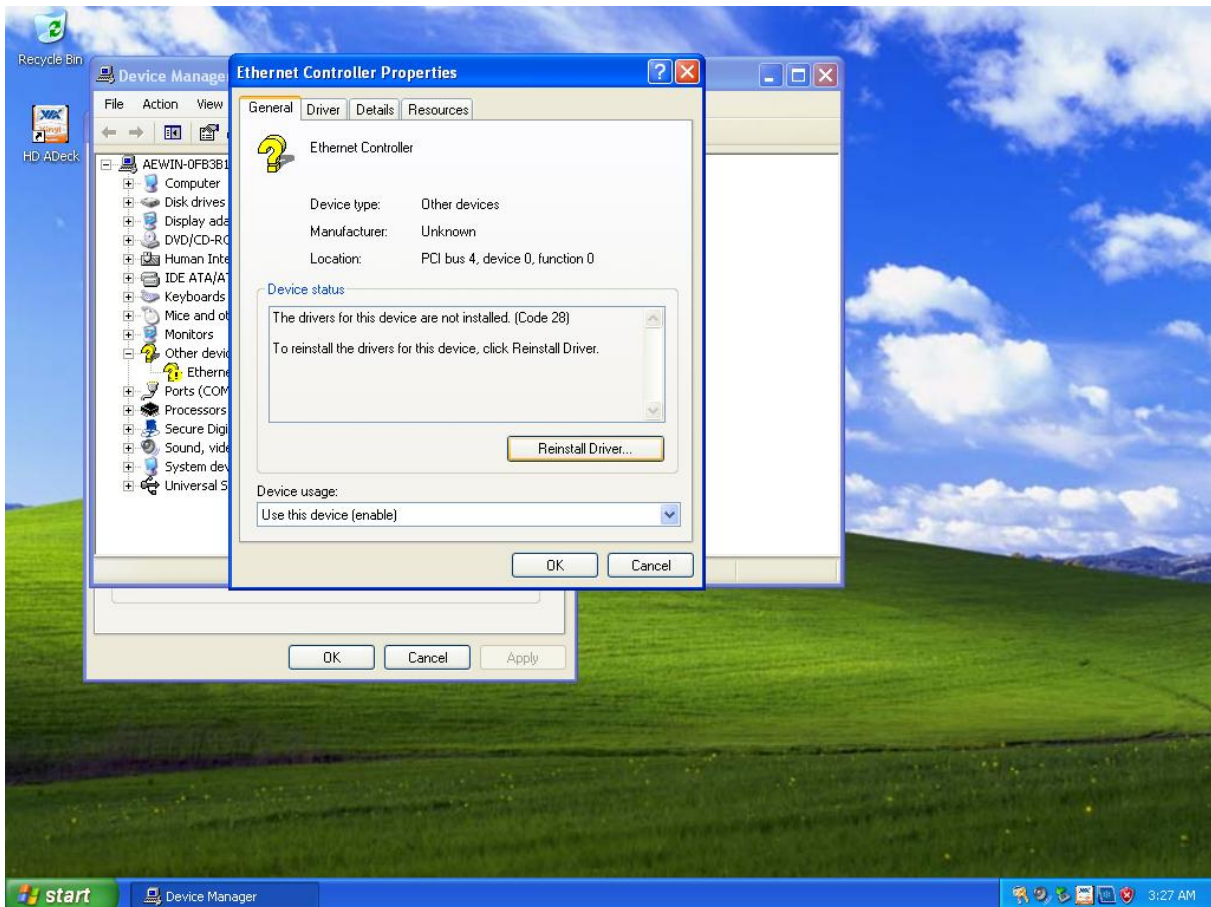
The operation system and driver installation procedure must be performed first.

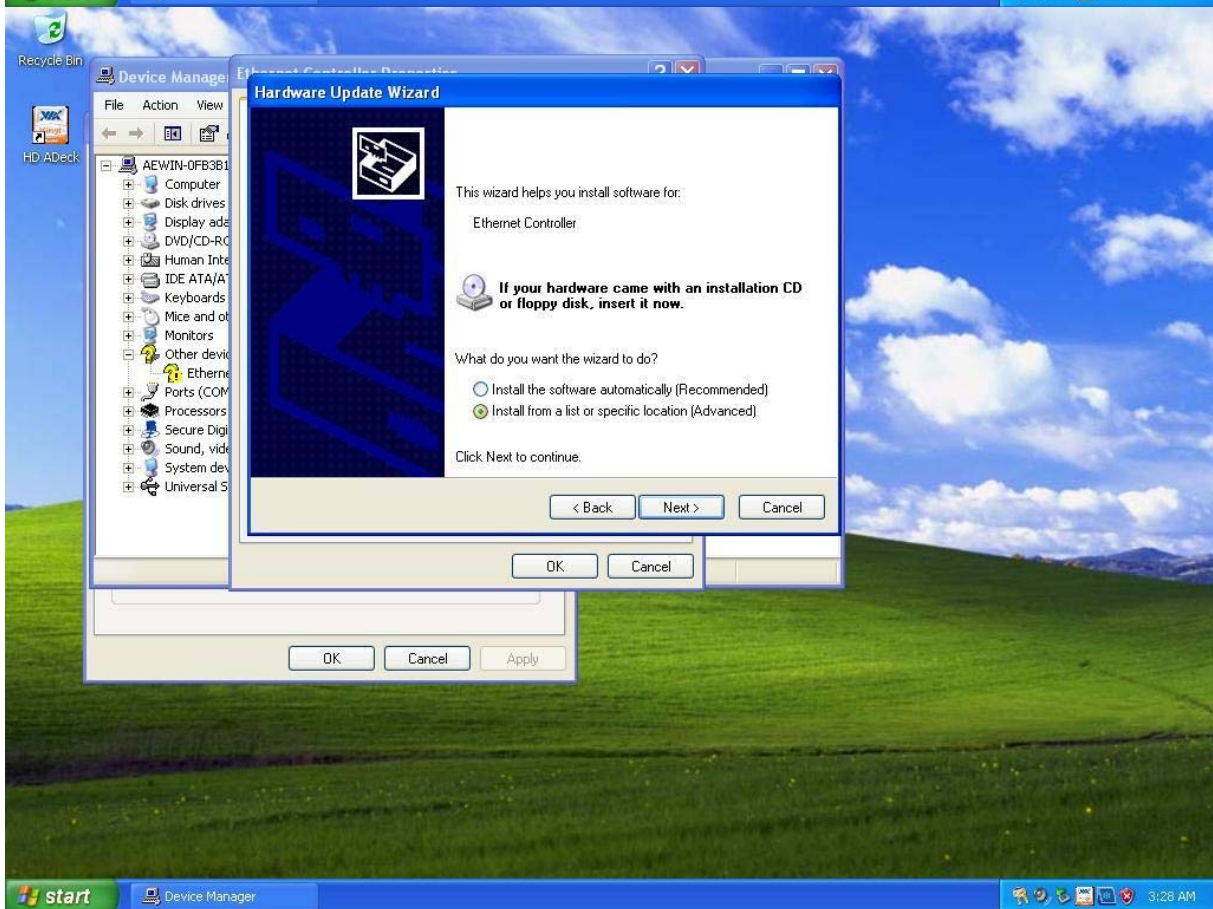
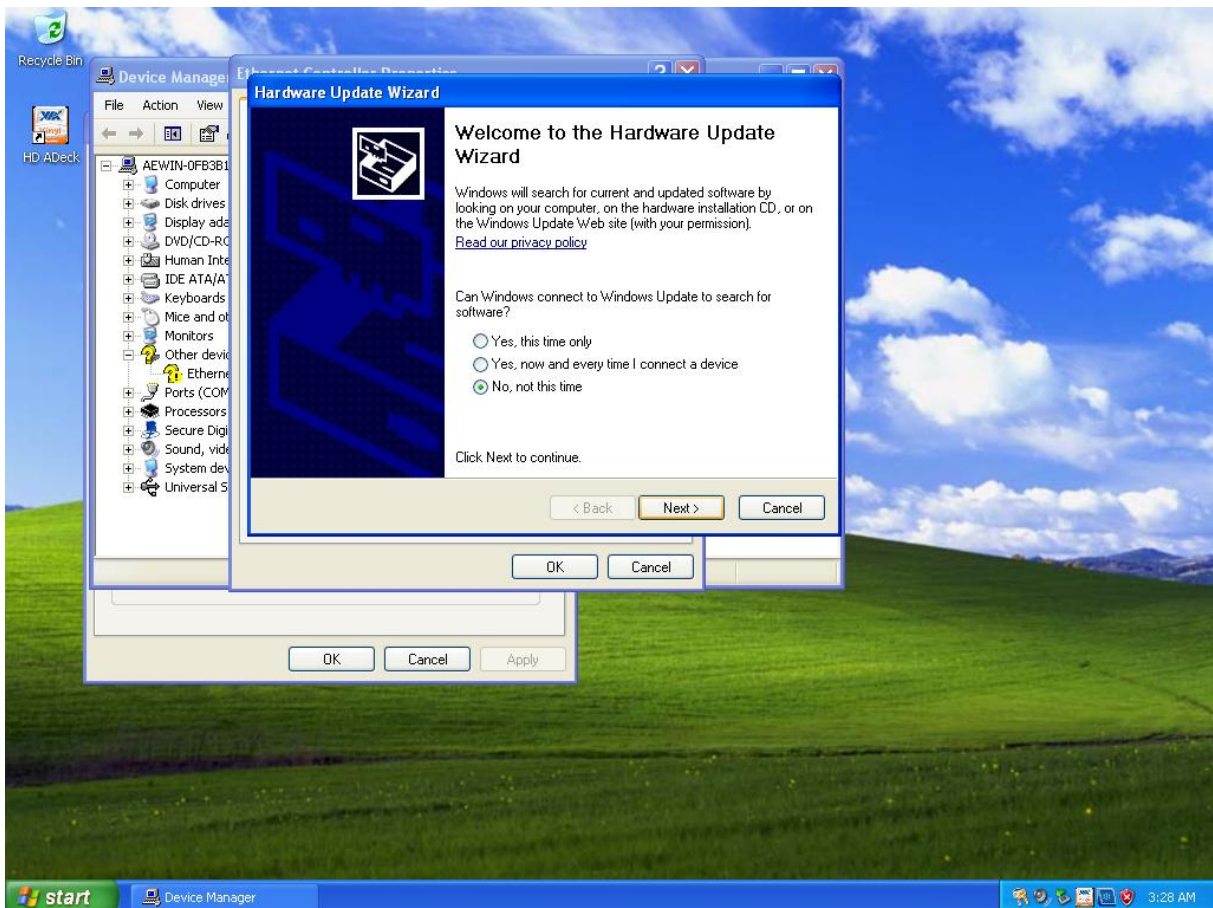
### 4.1 Operation System Installation

Please install the OS first after setup the hardware.

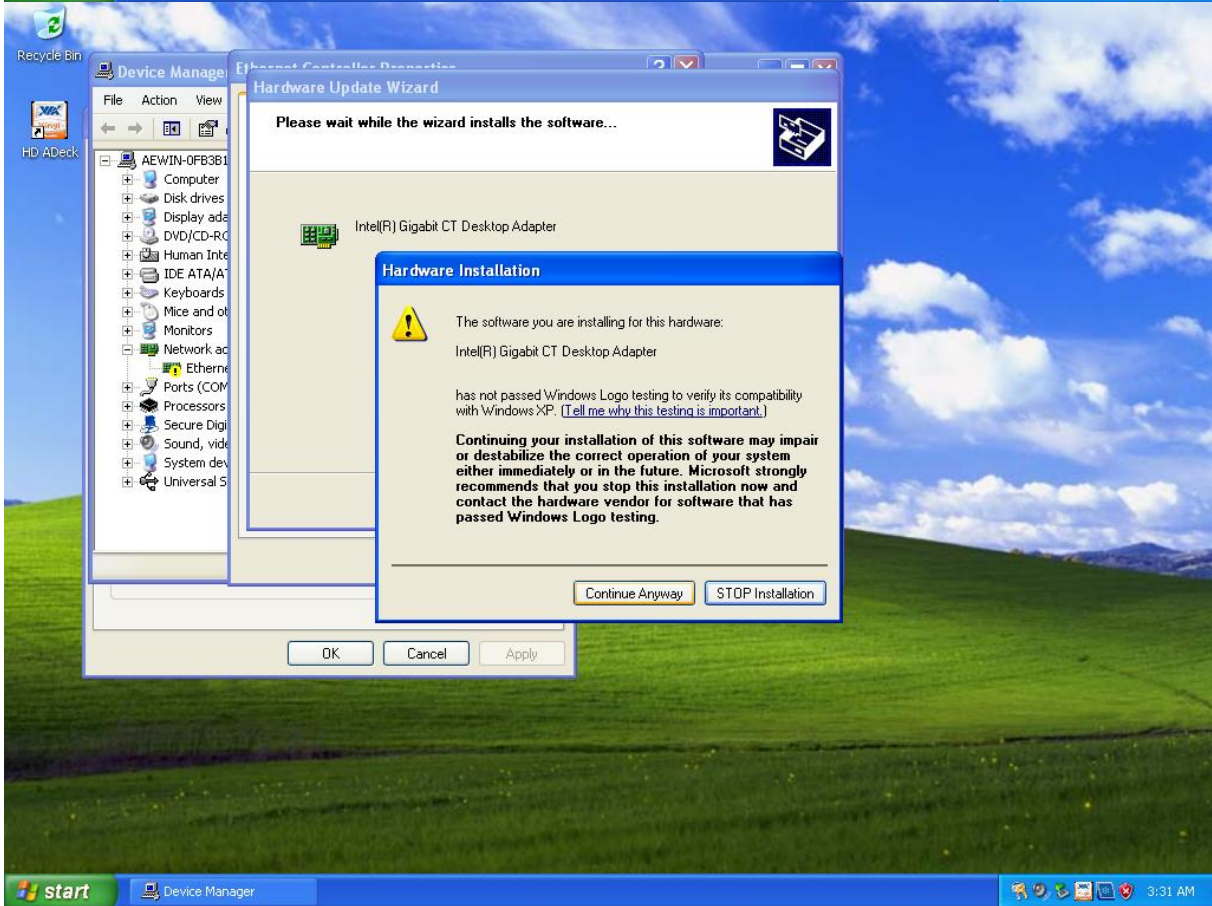
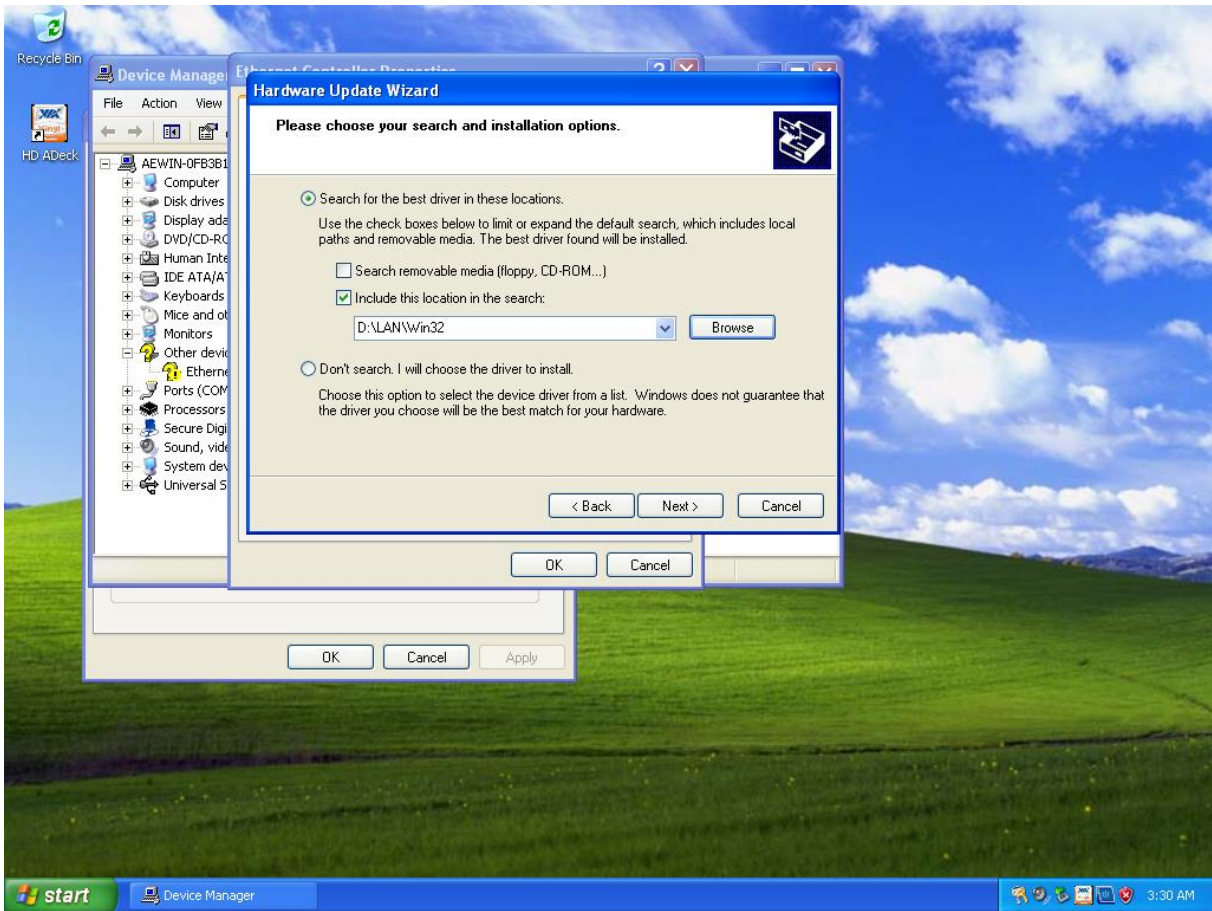
### 4.2 Ethernet Driver Installation

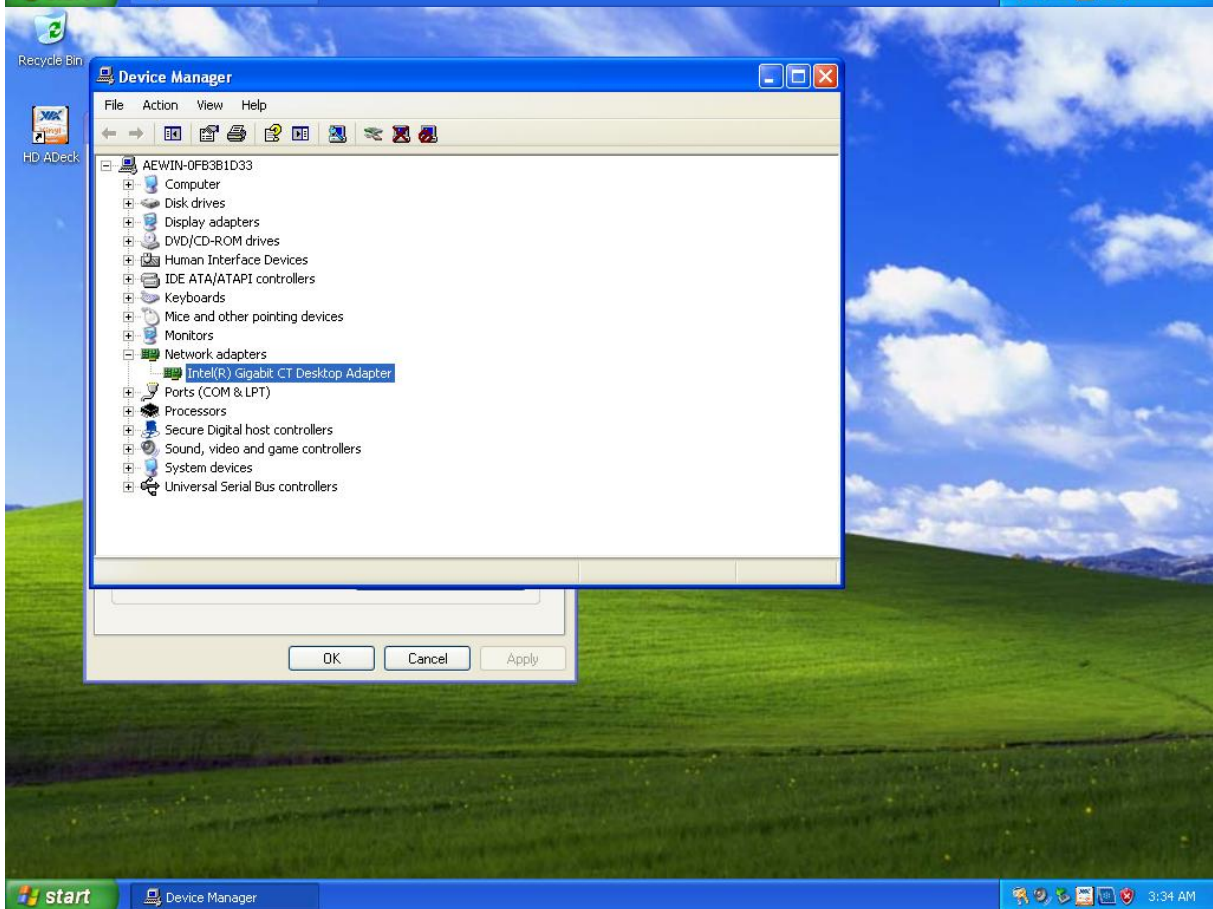
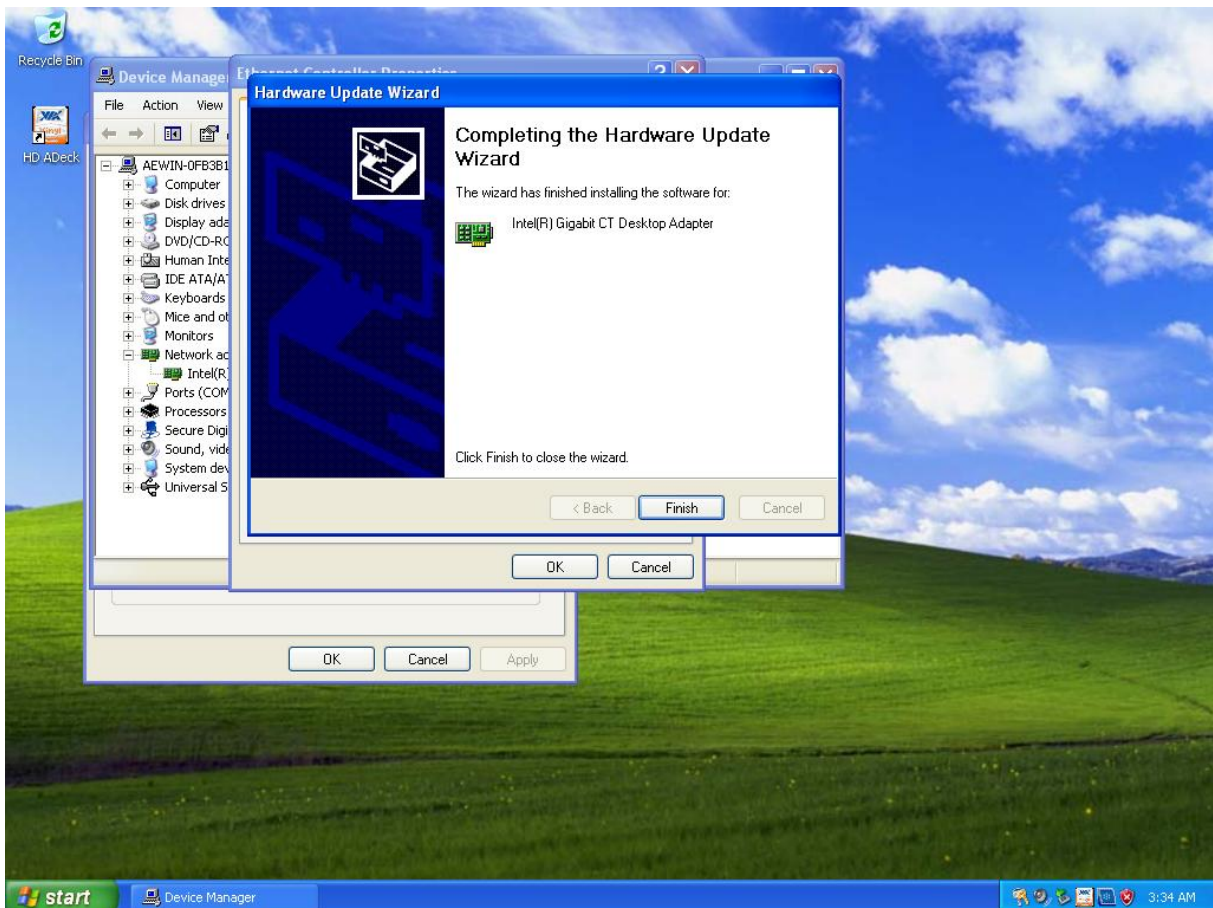
It supports one 10/100 and GbE Ethernet





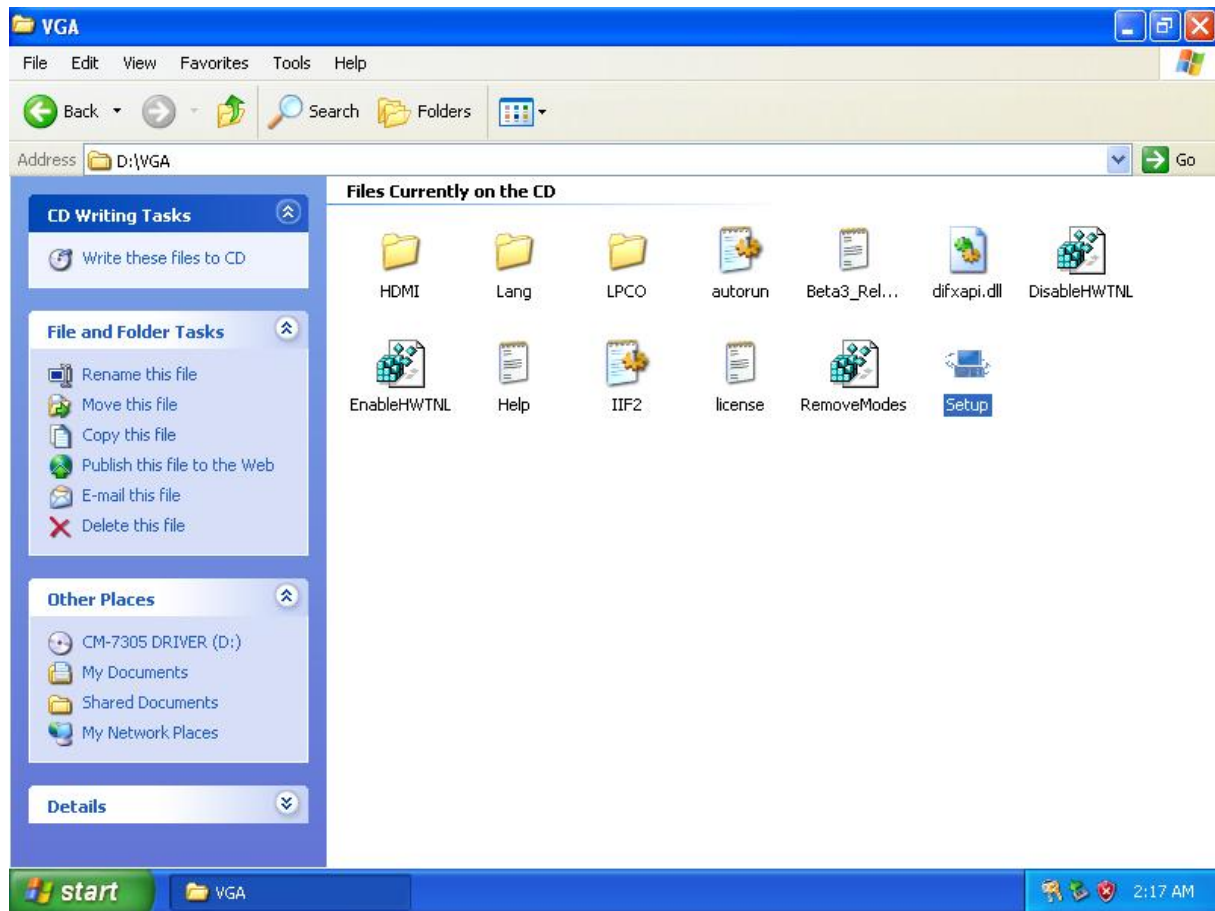


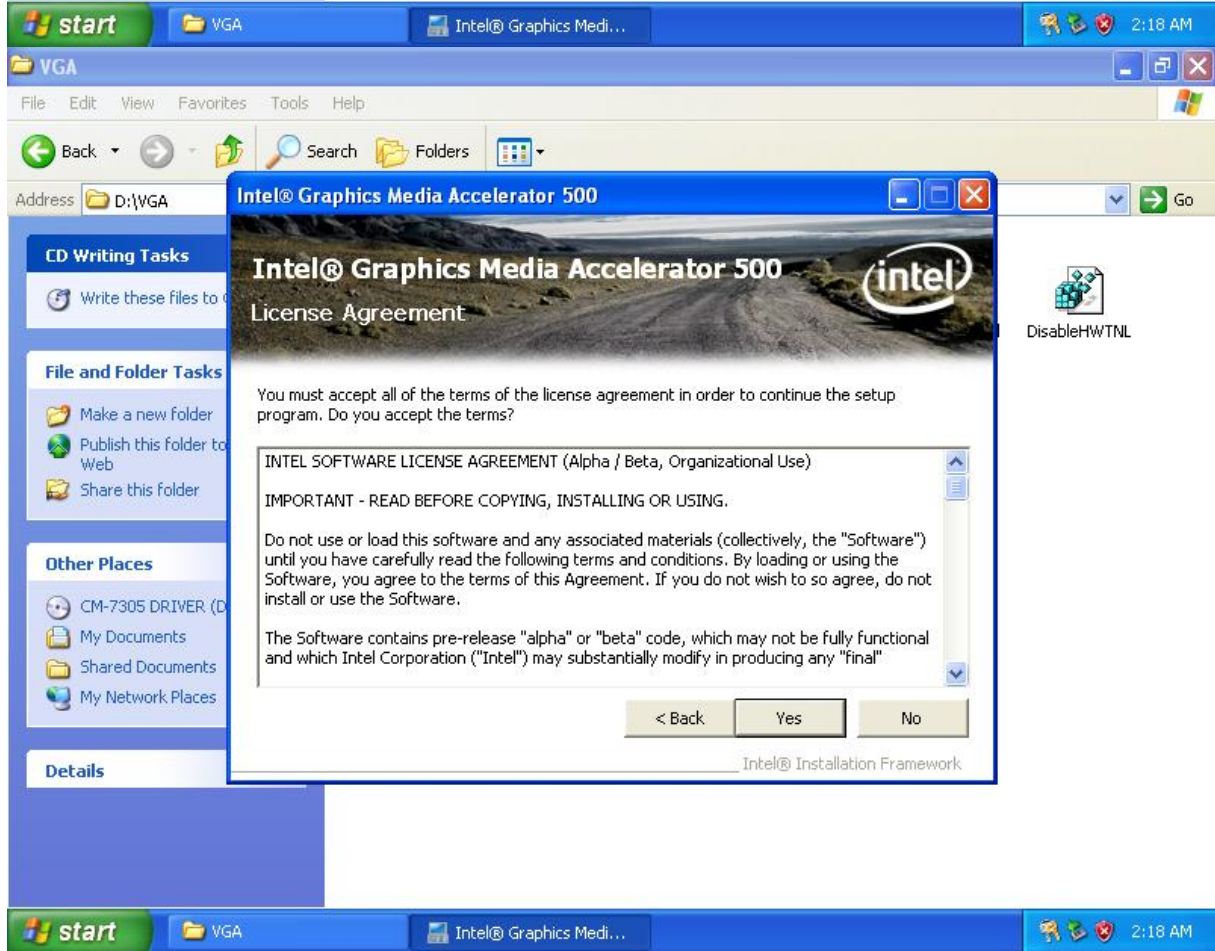
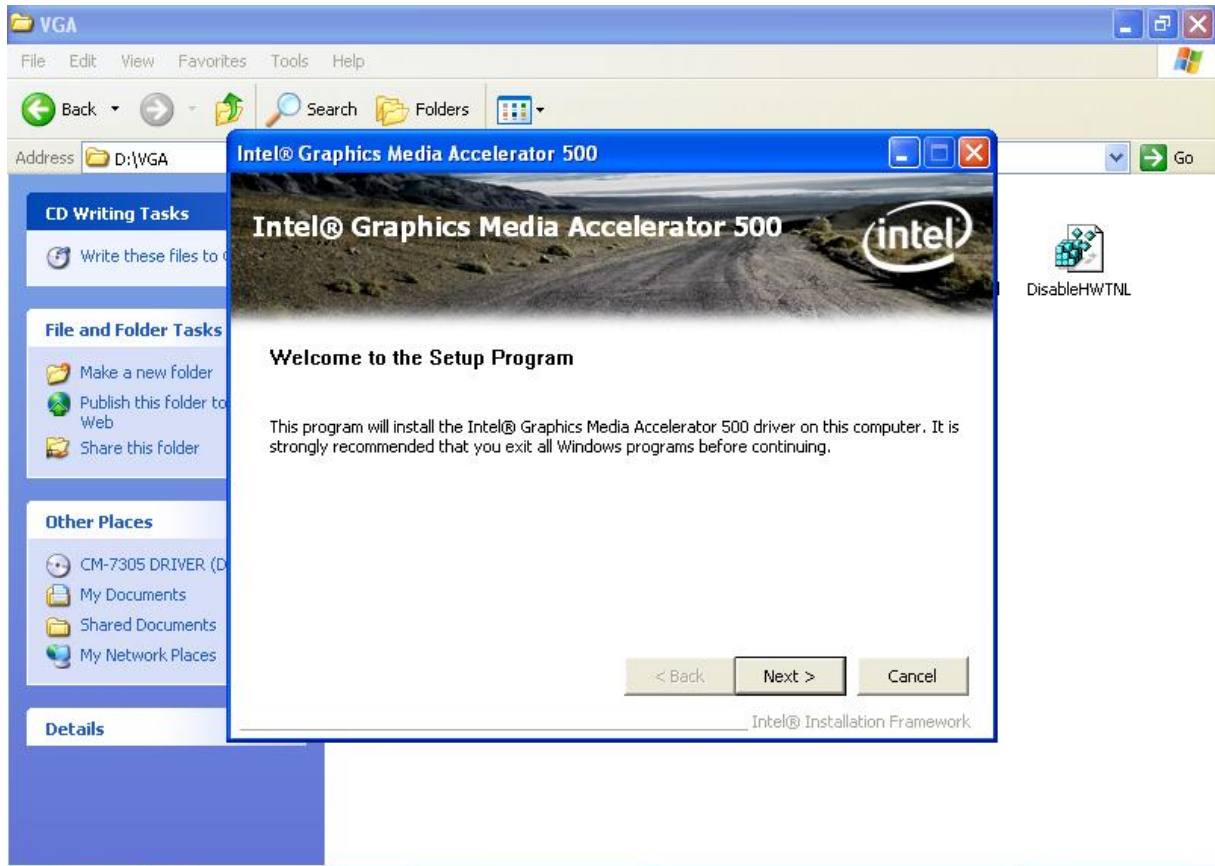


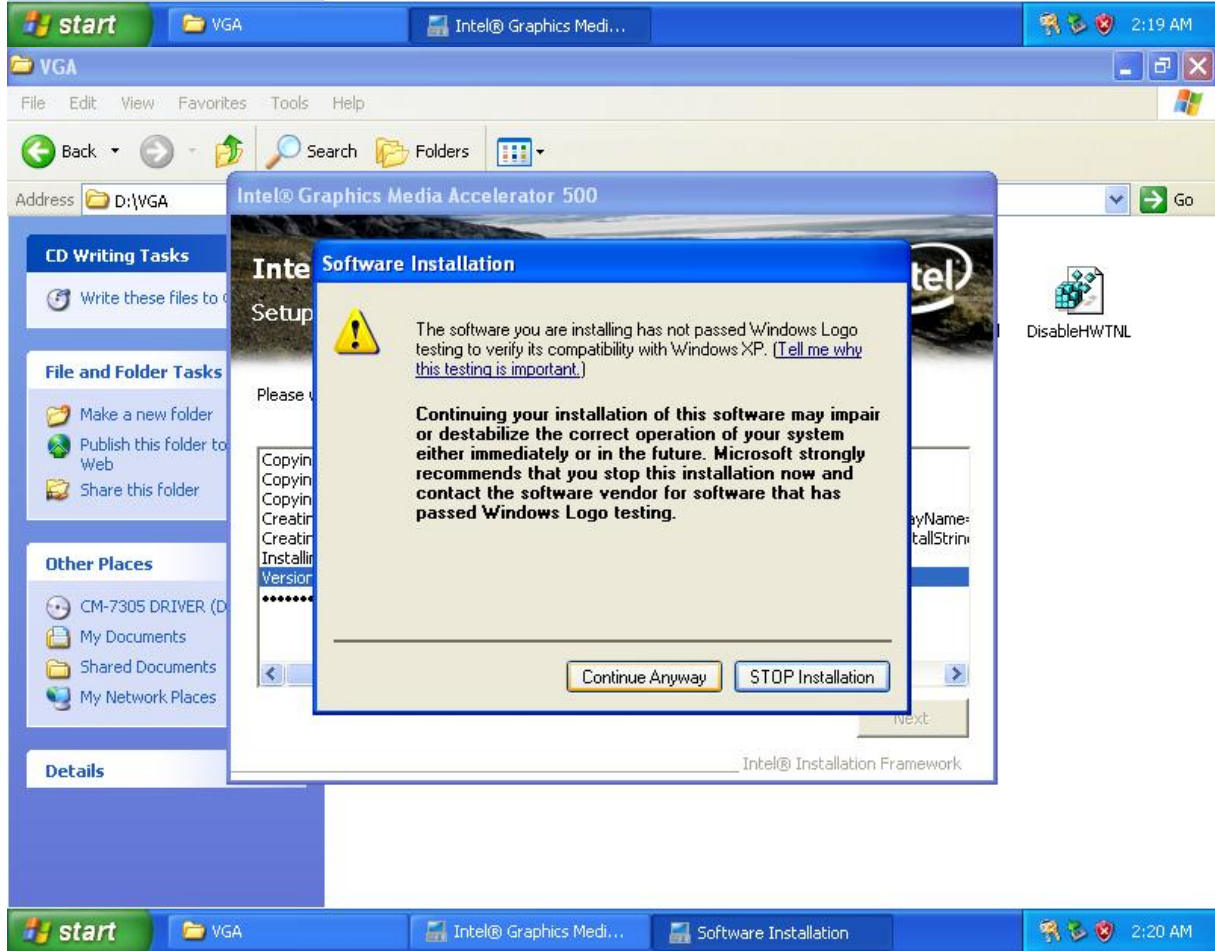
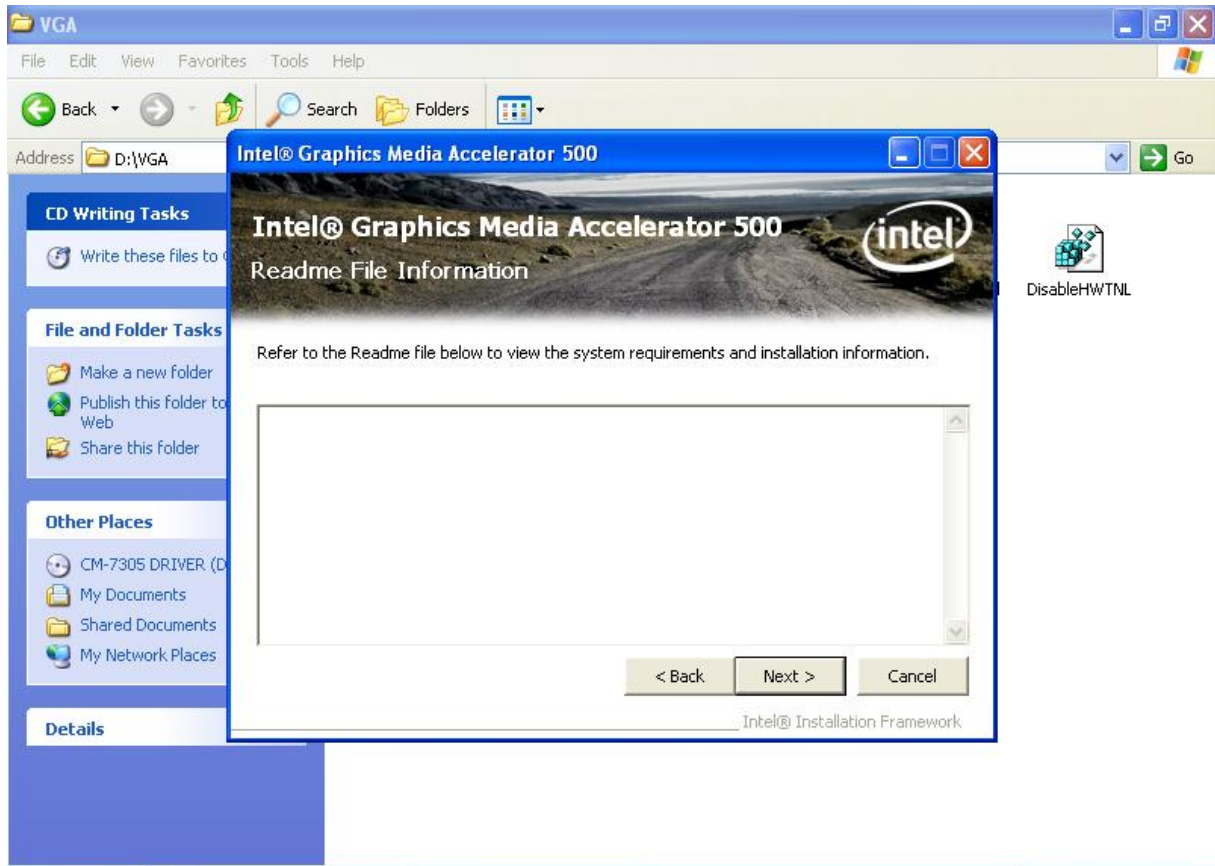




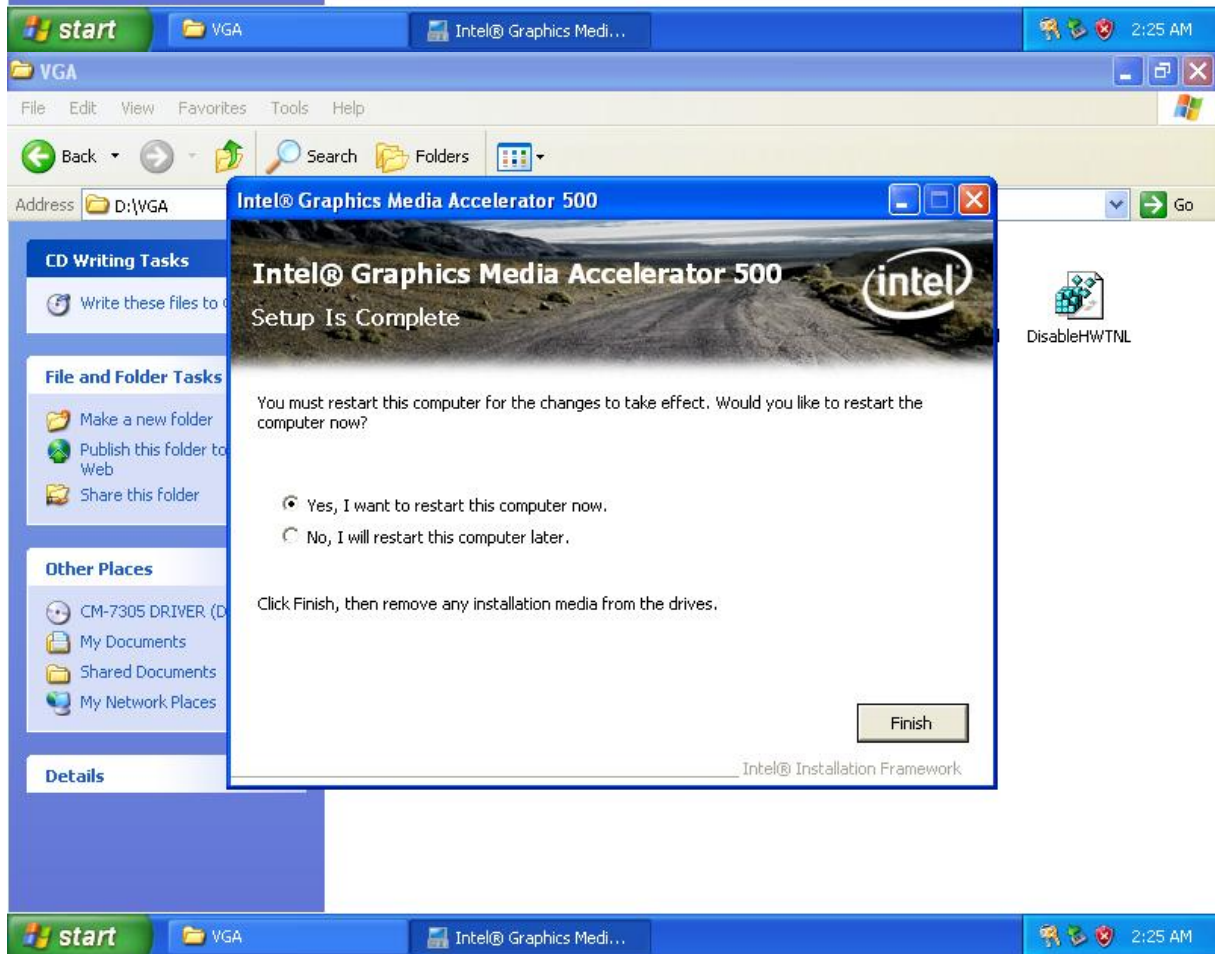
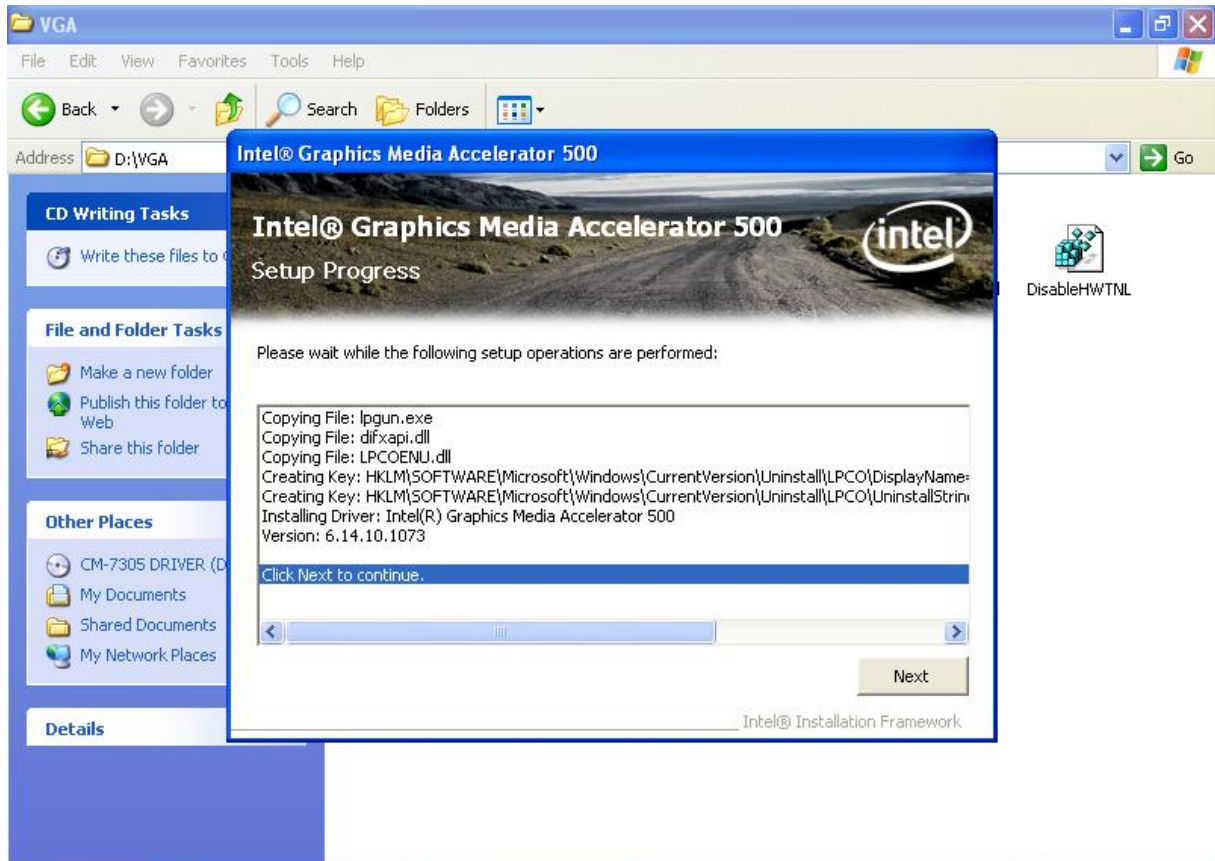
## 4.3 VGA Driver Installation





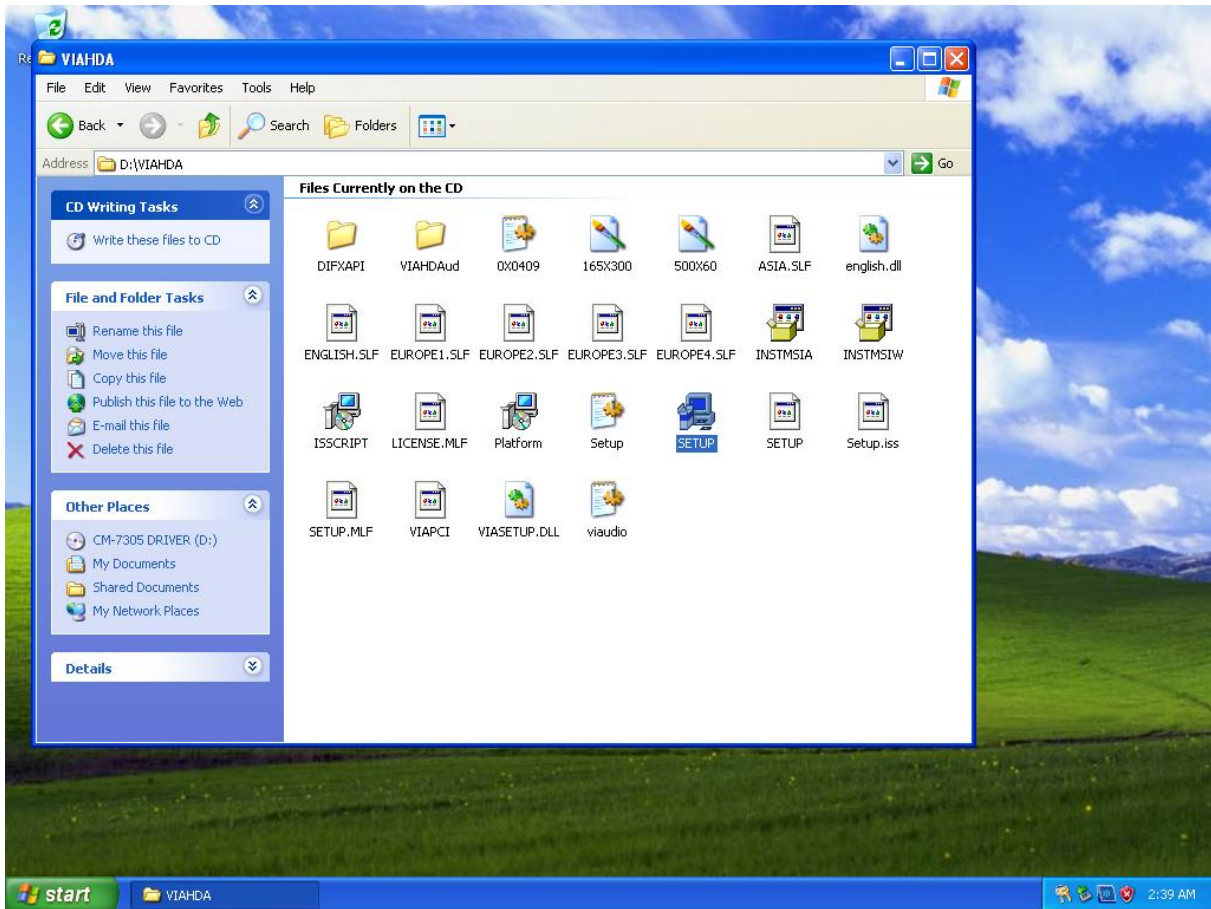


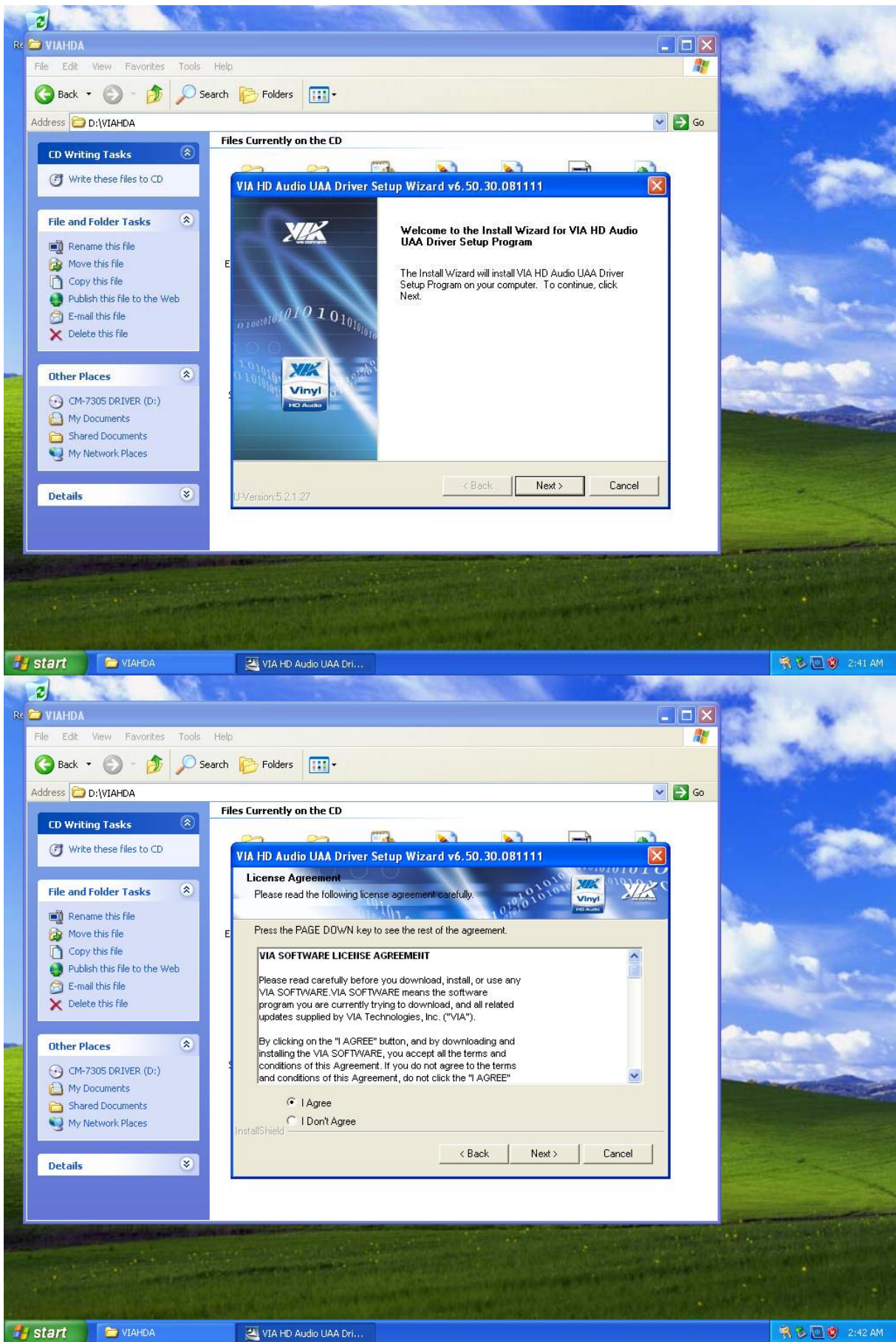




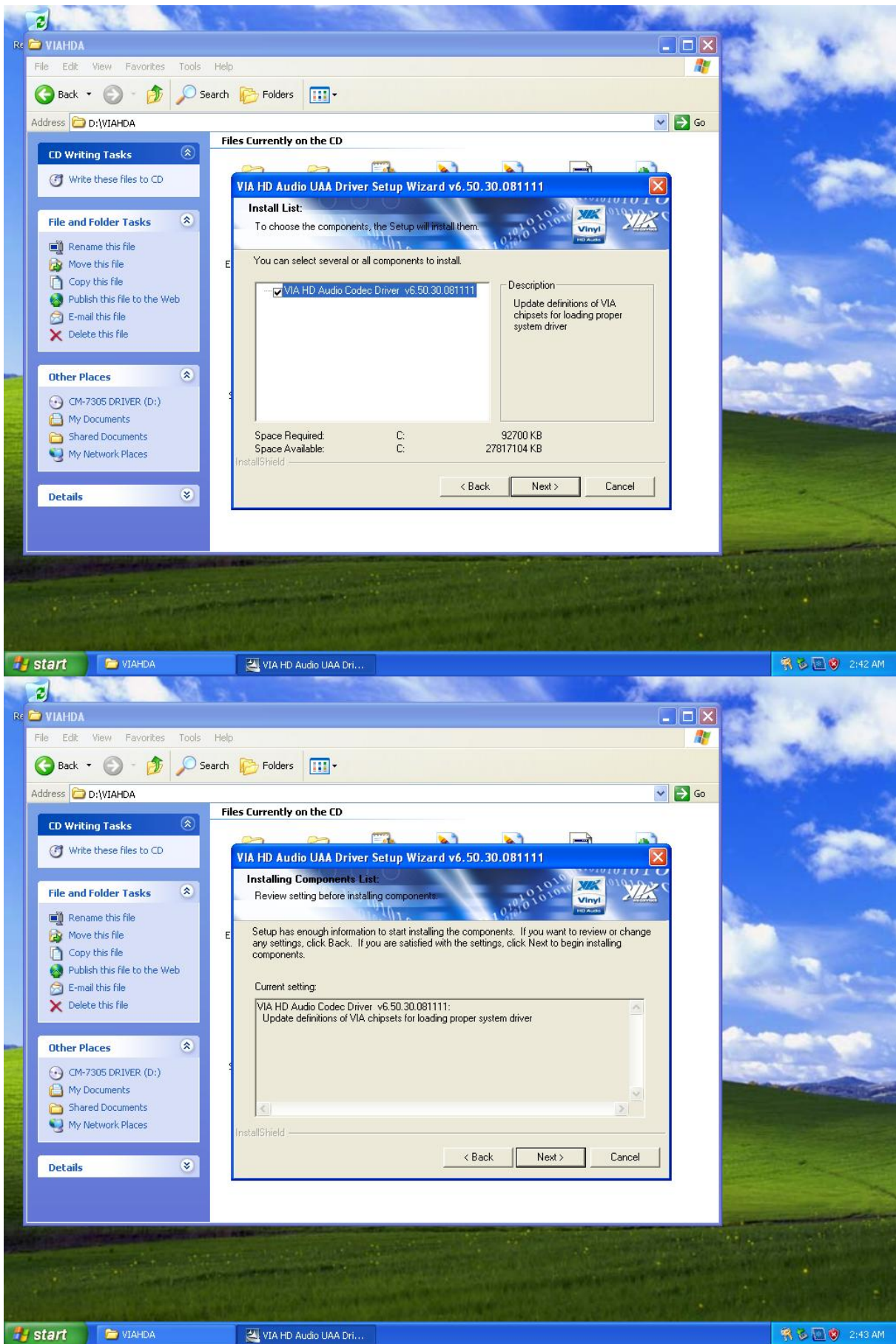


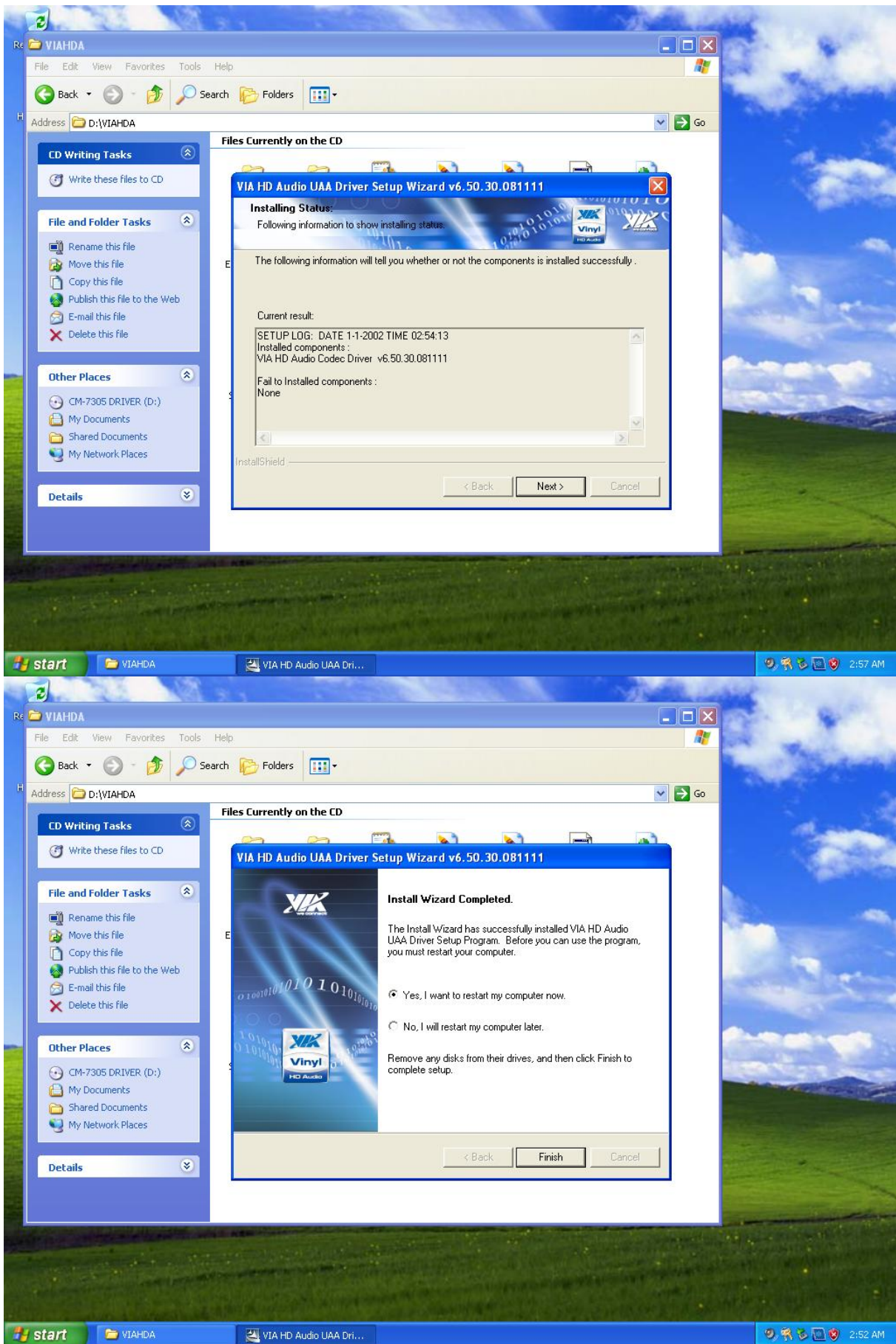
## 4.4 Audio Driver Installation













## 4.5 Intel Chipset Device Software Installation

