



SBC82702 Series
All-In-One Half-Size CPU Card
With DualView Display and SATA
User's Manual

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If you replace wrong batteries, it causes the danger of explosion. It is recommended by the manufacturer that you follow the manufacturer's instructions to only replace the same or equivalent type of battery, and dispose of used ones.

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ESD Precautions

Computer boards have integrated circuits sensitive to static electricity. To prevent chipsets from electrostatic discharge damage, please take care of the following jobs with precautions:

- Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.
- Before holding the board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. It discharges static electricity from your body.
- Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components.

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MEMO

Chapter 1

Introduction



SBC82702 is an ISA Half-Size board with low power fanless VIA Eden V4/C7 CPUs, and integrated chipsets VIA CN700, VT8237R+ and ITE8888G to support DualView, Dual Fast Ethernet, CRT and LVDS display. To simplify the system integration, it has unique embedded features on super I/Os, Graphics with DualView, LCD (CRT & LVDS), Ethernet (Gigabit & Fast), solid state disk, all on a single board. Its two serial ports (1 x RS-232, 1 x RS-232/422/485) with +5V power capability and simple automation control are exclusive designs to adopt an extensive array of PC peripherals.

Designed for the professional embedded developers, the VIA EDEN embedded board **SBC82702** is virtually ultimate one-step solution for embedded system applications. In addition, built-in Watchdog Timer enhances the system reliability that makes this board eminent above all others.

1.1 Specifications

- **CPU:** low power fanless VIA Eden V4/C7 CPUs
- **System Chipset:** VIA CN700
- **CPU Frequency:** Up to 1GHz
- **BIOS:**
 - Phoenix-Award BIOS, Y2K compliant
 - 4Mbit Flash, DMI, Plug and Play
 - PXE Ethernet Boot ROM
 - "Load Optimized Default" to backup customized Setting in the BIOS flash chip to prevent from CMOS battery fail
- **System Memory:**
 - 2 x 240-pin DIMM sockets
 - Maximum to 2GB DDR2 memory
- **Onboard IDE:**
 - 1* PATA-133 with 40-pin box-header
 - PATA-100 as PIO Mode 0-4, DMA Mode 0-2 and Ultra DMA-33/66/100/133
 - 2 channels of SATA-150 with IDE mode supported
- **Compact Flash Socket:**
 - One Compact Flash Type II Socket
- **Onboard Multi-I/O**
 - One floppy port (34-pin box header)
 - One SPP/EPP/ECP parallel port (box header)
 - Two 16550 UARTs compatible serial ports with +5V power output in pin 1 or pin 9 via jumper setting
 - ◆ 1 x RS-232 (box header)
 - ◆ 1x RS-232/422/485 box header and selectable via jumper setting(COM2)
- **Graphics:**
 - Supports dual channel 24-bit LVDS
 - Memory size maximum up to 64 MB frame buffer
 - Supports DualView features.

- **Expansion Interface**
 - 16-Bit ISA Bus Expansion golden figures
- **USB Interface:** 4 USB in compliance with USB Spec. Rev. 2.0
- **Watchdog Timer:**
 - 0~255 seconds; up to 255 levels
- **Ethernet:**
 - 2x default RTL8100C for 10/100Base-T or optional 2x RTL8110SC for 10/100/1000Base-T
- **Audio:**
 - Realtek AC'97 codec audio
 - Amplify for speaker-out with 2.5W for each channel
 - MIC-in, Line-in, Line-out/Speaker-out (jumper selectable)
- **Power Management:**
 - ACPI (Advanced Configuration and Power Interface) /APM
- **Form Factor:**
 - **Half-Size form factor**



NOTE: All specifications and images are subject to change without notice.

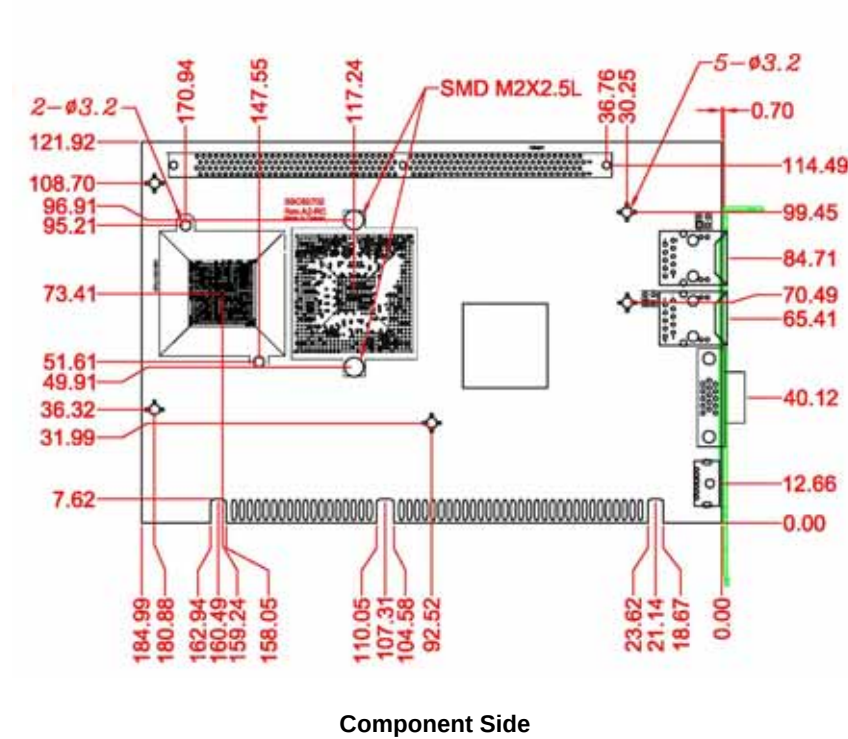
1.2 Utilities Supported

- Chipset Driver
- VGA Driver
- LAN Driver
- Audio Driver

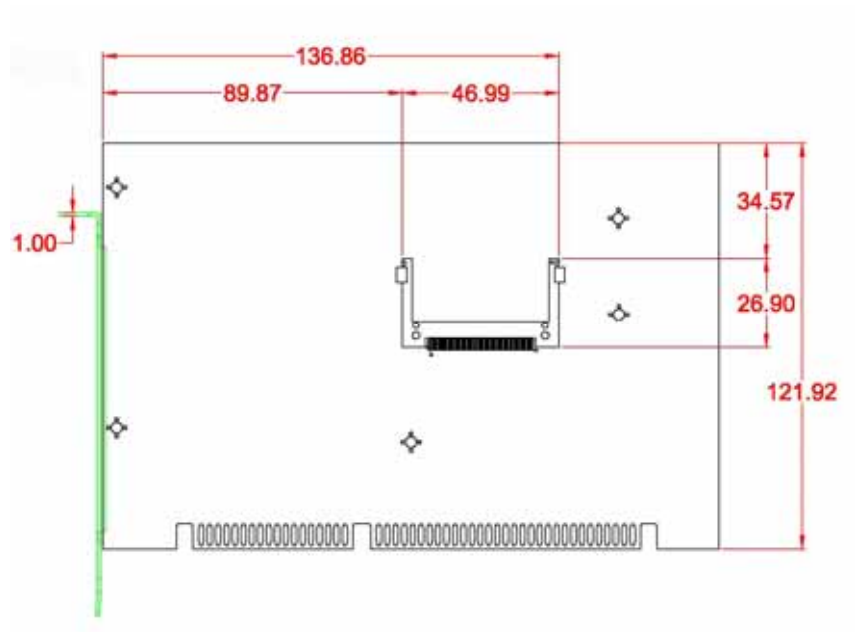
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Chapter 2 Jumpers and Connectors

2.1 Board Dimensions and Fixing Holes



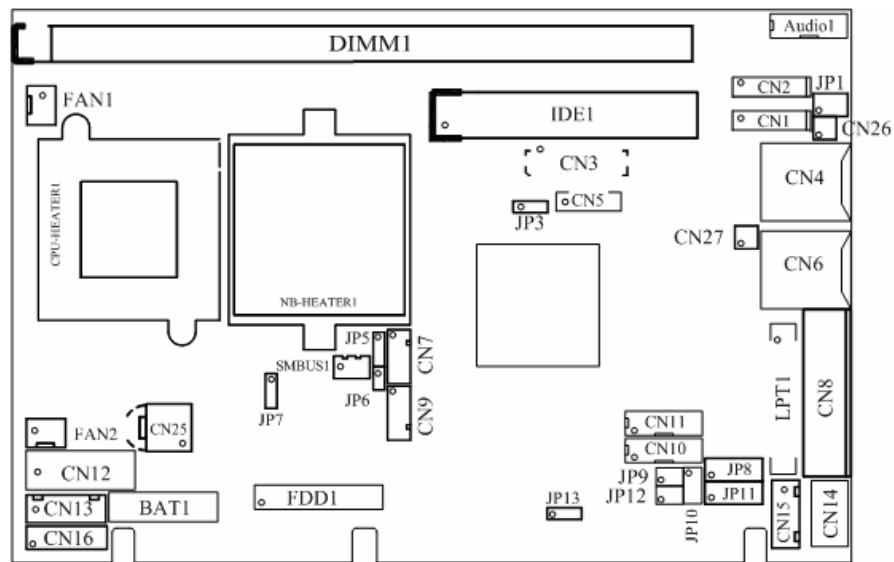
Note: The Limited Height of Component Side is 30 mm.



Solder Side

 **Note:** The Limited Height of Solder Side is 9 mm.

2.2 Board Layout



○ Pin1

Component Side

2.3 Jumper Settings

Proper jumper settings configure the **SBC82702** to meet your application purpose. We are herewith listing a summary table of all jumpers and default settings for onboard devices, respectively.

Here is a list of jumper settings :

Jumper	Default Setting		Jumper Setting
JP7	Clear CMOS Setting: Normal		Short 1-2
JP5	CompactFlash Voltage Selection Default: 3.3V		Short 2-3
JP13	Power Supply Selection: ATX power supply		Short 2-3
JP12	COM2 Mode Select: RS-232		Short 3-5, 4-6
JP9	COM2 Mode Select: RS-232		Short 3-5, 4-6
JP11	COM1 Mode Select	CN10 Pin 1: DCD	Short 7-9
		CN10 Pin 9: RI	Short 8-10
JP10	COM2 Mode Select: RS-232		Short 1-2
JP8	COM2 Mode Select	CN11 Pin 1: DCD	Short 7-9
		CN11 Pin 8: RI	Short 8-10
JP1	Audio Line Out/Speaker Out: Line Out		Short 1-3, 2-4
JP3	Flat Panel 1 Power Selection: Default: 3.3V		Short 2-3

2.3.1 CMOS Clear Jumper: JP7

You may need to use this jumper is to clear the CMOS memory if incorrect settings in the Setup Utility.

Description	Function	Jumper Setting
CMOS Clear	Normal (Default)	
	Clear CMOS	

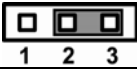
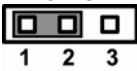
2.3.2 Compact Flash Power Jumper: JP5

Connect the device's power cable to this jumper and correctly set it for the Compact Flash Card.

Description	Function	Jumper Setting
CompactFlash Power Select	5V	
	3.3V (Default)	

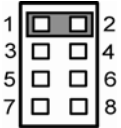
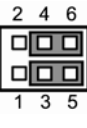
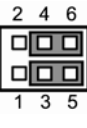
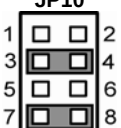
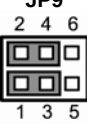
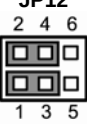
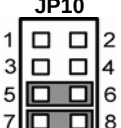
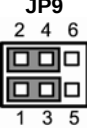
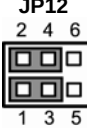
2.3.3 Power Supply Selection Jumper: JP13

This jumper let you select either the AT or ATX power supply.

Description	Function	Jumper Setting
Power Supply Selection	ATX POWER (Default)	JP13 
	AT POWER	JP13 

2.3.4 COM1 Mode Select for Type Jumpers: JP10, JP9, JP12

These jumpers select the COM1 port's communication mode to operate RS-232 or RS-422/485.

Description	Function	Jumper Setting		
COM1	RS-232 (Default)	JP10 	JP9 	JP12 
	RS-422	JP10 	JP9 	JP12 
	RS-485	JP10 	JP9 	JP12 

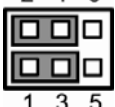
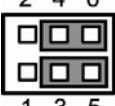
2.3.5 COM1~COM2 Mode Jumpers: JP11, JP8

These jumpers select the COM1, COM2, COM3, COM4 ports' DCD and RI mode.

Description	Function	Jumper Setting
COM1 (CN10)	Pin 1=5V	JP11
	Pin 1=12V	JP11
	*Pin 1=DCD	JP11
	Pin 9=5V	JP11
	Pin 9=12V	JP11
	*Pin 9=RI	JP11

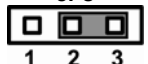
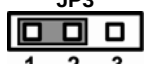
Description	Function	Jumper Setting
COM2 (CN11)	Pin 1=5V	JP8
	Pin 1=12V	JP8
	*Pin 1=DCD	JP8
	Pin 8=5V	JP8
	Pin 8=12V	JP8
	*Pin 8=RI	JP8

2.3.6 Audio Output Select Jumper: JP1

Description	Function	Jumper Setting
Audio Output Selection	Line Out	JP1 2 4 6  1 3 5
	Speak Out (Default)	JP1 2 4 6  1 3 5

2.3.7 Power Selection of Flat Panel 1'ST Connector (VDDM1 of LVDS1): JP3

This jumper is to select Flat Panel 1'ST connector power supply.

Description	Function	Jumper Setting
VDDM	3.3V (Default)	JP3  1 2 3
	5V	JP3  1 2 3

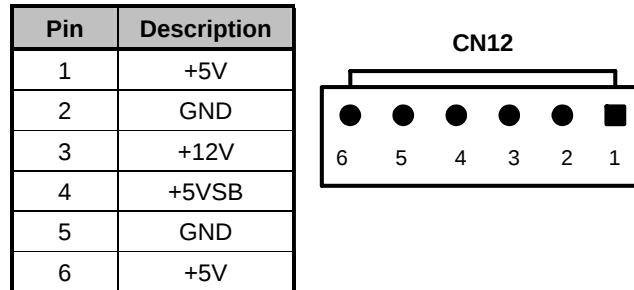
2.4 Connectors

Connectors connect the CPU card with other parts of the system. Loose or improper connection might cause problems. Make sure all connectors are properly and firmly connected. Here is a summary table shows you all connectors on the SBC82702 Series.

Connectors	Label
Power Connector	CN12
IDE Connector	IDE1
F.D.D Connector	FDD1
LVDS Inverter Connector	CN5
LVDS Connector	CN3
Flat Panel Bezel Connector	CN16
Audio Connector	AUDIO1
COM1 Connector	CN10
LPT port Connector	LPT1
Ethernet Connectors	CN4, CN6
USB Connectors	CN7, CN9
COM2 Connector	CN11
Keyboard and Mouse Connector	CN14
CRT VGA Connector	CN8
Compact Flash Connector	CF1
DDR2 SODIMM Socket (Reverse)	DIMM1
FAN Power Connectors	FAN1, FAN2
ACPI Connector	CN13
12V POWER Connector	CN25
KEYBOAED EXTERNAL Connector	CN15
SMBUS Connector	SMBUS1
SATA Connector	CN1, CN2
LAN EXTERNAL LED Connector	CN26, CN27

2.4.1 Power Connector: CN12

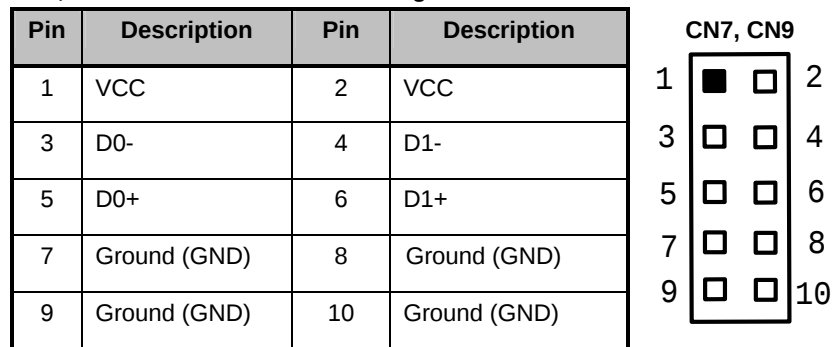
Use this connector to connect standard power supply +12V & +5V inputs. This card runs in full functions only with 5V only input power. 12V input power is required for LCD interface only.



2.4.2 USB1~4 Connectors: CN7, CN9

The 10-pin standard Universal Serial Bus (USB) connectors CN7.CN9 are for installing peripheral devices supporting the USB interface.

CN7, CN9: USB Connector Pin Assignment

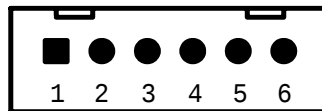


2.4.3 ACPI Connector: CN13

It is to support remote power on/off for turning off the system through software control while using the ATX-compliant power supply.

Pin	Description	Pin	Description
1	EXTSMI	2	GND
3	POWER BUTTOM	4	GND
5	SUSB	6	+5VSB

CN13



2.4.4 Enhanced IDE Interface Connector: IDE1

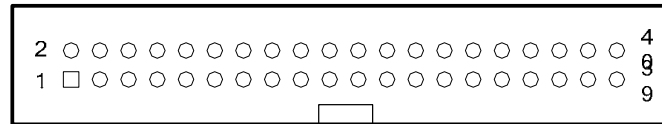
There is a PCI bus enhanced IDE controller that supports master/slave mode and post write transaction mechanisms with 64-byte buffer and master data transaction.

40-pin IDE Interface Connector:

Pin	Description	Pin	Description	Pin	Description
1	Reset #	2	GND	3	Data 7
4	Data 8	5	Data 6	6	Data 9
7	Data 5	8	Data 10	9	Data 4
10	Data 11	11	Data 3	12	Data 12
13	Data 2	14	Data 13	15	Data 1
16	Data 14	17	Data 0	18	Data 15
19	GND	20	No connector	21	No connector
22	GND	23	IOW #	24	GND
25	IOR #	26	GND	27	IOCHRDY
28	No connector	29	No connector	30	GND-Default
31	Interrupt	32	No connector	33	SA1
34	No connector	35	SA0	36	SA2

Pin	Description	Pin	Description	Pin	Description
37	HDC CS0 #	38	HDC CSI #	39	HDD Active #
40	GND	41	VCC	42	VCC
43	GND	44	N.C		

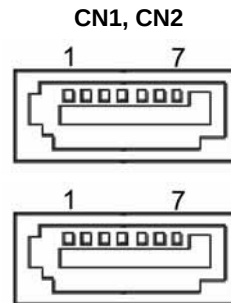
IDE1



2.4.5 SATA Connectors: CN1, CN2

These SATA connectors are for high-speed SATA interface ports and they can be connected to hard disk devices.

Pin	Description
1	GND
2	SATA_TX+
3	SATA_TX-
4	GND
5	SATA_RX-
6	SATA_RX+
7	GND



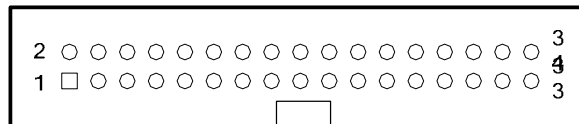
2.4.6 FDD Connector: FDD1

The board provides a 34-pin header type connector, FDD1, supporting up to two floppy drives. The floppy drives may be any one of the following types: 5.25" 360KB/1.2MB and 3.5" 720KB/1.44MB/2.88MB.

FDD1: FDD Connector Pin Assignment

Pin	Description	Pin	Description	Pin	Description
1	GND	2	Reduce write current	3	GND
4	N/C	5	GND	6	N/C
7	GND	8	Index #	9	GND
10	Motor enable A #	11	GND	12	Drive select B #
13	GND	14	Drive select A #	15	GND
16	Motor enable B #	17	GND	18	Direction #
19	GND	20	STEP #	21	GND
22	Write data #	23	GND	24	Write gate #
25	GND	26	Track #	27	GND
28	Write protect #	29	GND	30	Read data #
31	GND	32	Side 1 select #	33	GND
34	Disk change #				

FDD1



2.4.7 LVDS/LCD Connectors: CN3, CN5, CN8

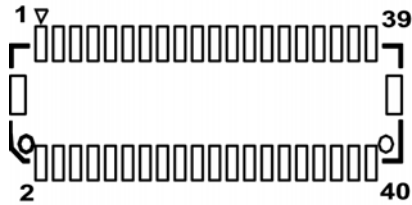
There are several connectors to support CRT VGA and flat panel displays. **CN8** is a standard 15-pin connector commonly used for the CRT VGA display, **CN3** a JST SHDR-40V-S-B 40-pin connector for LVDS Interface LCD, and **CN5** a DF13-7S-1.25C 7 pin Connector for Inverter.

CN3: JST SHDR-40V-S-B 40 pin connector

It is strongly recommended to use the matching connector JST SHDR-40V-S-B 40-pin for LVDS on the board.

Pin	Description	Pin	Description
1	VCCM	2	VCCM
3	VCCM	4	VCCM
5	VCCM	6	VCCM
7	N.C.	8	N.C.
9	GND	10	GND
11	Channel B D3-	12	Channel B D0-
13	Channel B D3+	14	Channel B D0+
15	GND	16	GND
17	Channel B CLK-	18	Channel B D1-
19	Channel B CLK+	20	Channel B D1+
21	GND	22	GND
23	Channel A D0-	24	Channel B D2-
25	Channel A D0+	26	Channel B D2+
27	GND	28	GND
29	Channel A D1-	30	Channel A D3-
31	Channel A D1+	32	Channel A D3+
33	GND	34	GND
35	Channel A D2-	36	Channel A CLK-
37	Channel A D2+	38	Channel A CLK+
39	GND	40	GND

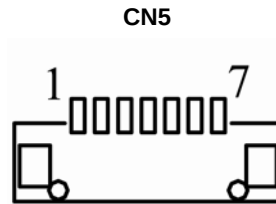
CN3



CN5: DF13-7S-1.25C 7 pin Connector for Inverter

It is strongly recommended to use the DF13-7S-1.25C 7-pin connector for inverter on the board.

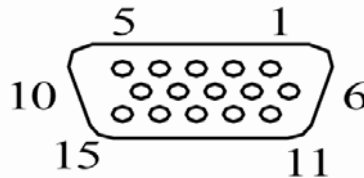
Pin	Description
1	12V
2	12V
3	5V
4	ENAB
5	GND
6	GND
7	GND



CN8: 15-pin CRT VGA Connector

Pin	Description	Pin	Description	Pin	Description
1	Red	2	Green	3	Blue
4	N/A	5	GND	6	GND
7	GND	8	GND	9	VCC
10	GND	11	N/A	12	DDC DAT
13	Horizontal Sync	14	Vertical Sync	15	DDC CLK

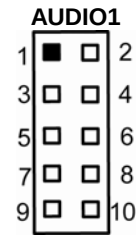
CN8



2.4.8 Audio Connector: AUDIO1

AUDIO1 is a 10-pin connector to support the audio interface.

Pin	Description	Pin	Description
1	MIC-IN	2	GND
3	Line In L	4	GND
5	Line In R	6	GND
7	Audio Out L	8	GND
9	Audio Out R	10	GND

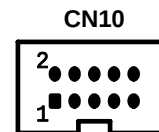


2.4.9 Serial Port Interface Connectors: CN10, CN11

The board has two combo connectors for serial ports, +5V/12V power on pin 1 and 8, or pin 1 and 9, depending on jumper selection. The pin assignment is listed as below:

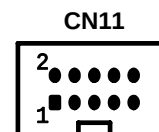
COM1 Port Connector: CN10

Pin	Signal	Pin	Signal
1	Data Carrier Detect (DCD)	2	Data Set Ready (DSR)
3	Receive Data (RXD)	4	Request to Send (RTS)
5	Transmit Data (TXD)	6	Clear to Send (CTS)
7	Data Terminal Ready (DTR)	8	Ring Indicator (RI)
9	Ground (GND)	10	NC



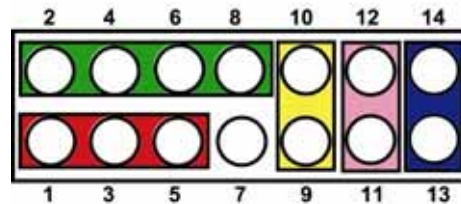
COM2 Port Connector: CN11

Pin	Signal	Pin	Signal
1	Data Carrier Detect (DCD)	2	Data Set Ready (DSR)
3	Receive Data (RXD)	4	Request to Send (RTS)
5	Transmit Data (TXD)	6	Clear to Send (CTS)



7	Data Terminal Ready (DTR)	8	Ring Indicator (RI)
9	Ground (GND)	10	NC

2.4.10 Flat Panel Bezel Connector: CN16



■ Power LED

This 3-pin connector named as Pin 1 and Pin 5 connect the system power LED indicator to such a switch on the case. Pin 1 is assigned as +, and Pin 5 as -. The Power LED lights up when the system is powered ON.

■ External Speaker and Internal Buzzer Connector

Pin 2, 4, 6 and 8 can be connected to the case-mounted speaker unit or internal buzzer. While connecting the CPU card to an internal buzzer, please short pins 2-4; while connecting to an external speaker, you need to set pins 2-4 to Open and connect the speaker cable to pin 8 (+) and pin 2 (-).

■ ATX Power On/Off Button

This 2-pin connector named as Pin 9 and 10 connect the front panel's ATX power button to the CPU card, which allows users to control ATX power supply to be power on/off.

■ System Reset Switch

Pin 11 and 12 can be connected to the case-mounted reset switch that reboots your computer, not turns OFF the power switch. It is a better way to reboot your system for a longer life of the system's power supply.

■ **HDD Activity LED**

This connection is linked to hard drive activity LED on the control panel. LED flashes when HDD is being accessed. Pin 13 and 14 connect the hard disk drive to the front panel HDD LED, Pin 13 assigned as -, and Pin 14 as +.

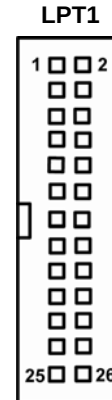
2.4.11 Parallel Port Connector: LPT1

There is a multi-mode parallel port LPT1 that supports the following modes:

1. **Standard mode:**
IBM PC/XT, PC/AT and PS/2™ compatible with bi-directional parallel port
2. **Enhanced mode:**
Enhance parallel port (EPP) compatible with EPP 1.7 and EPP 1.9 (IEEE 1284 compliant)
3. **High speed mode:**
Microsoft and Hewlett Packard extended capabilities port (ECP)
IEEE 1284 compliant

Please refer to next page for LPT1 pin assignment table.

Pin	Description	Pin	Description
1	Strobe#	2	Auto Form Feed#
3	Data 0	4	Error#
5	Data 1	6	Initialize#
7	Data 2	8	Printer Select In#
9	Data 3	10	GND
11	Data 4	12	GND
13	Data 5	14	GND
15	Data 6	16	GND
17	Data 7	18	GND
19	Acknowledge#	20	GND
21	Busy	22	GND
23	Paper Empty#	24	GND
25	Printer Select	26	NC

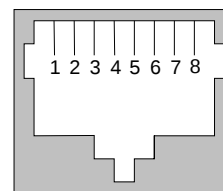


2.4.12 Ethernet RJ-45 Connectors: CN4, CN6

The board is equipped with a high performance Plug and Play Ethernet interface fully compliant with the IEEE 802.3 standard. To connect the board to 10-Base-T or 100-Base-T hub, just plug one end of cable to the Ethernet connector and connect the other end (phone jack) to a 10-Base-T or 100-Base-T hub.

CN4 & CN6: RJ-45 Connector Pin Assignment

Pin	Signal
1	Tx+ (Data transmission positive)
2	Tx- (Data transmission negative)
3	Rx+ (Data reception positive)
4	RJ45 termination
5	RJ45 termination
6	Rx- (Data reception negative)
7	RJ45 termination
8	RJ45 termination

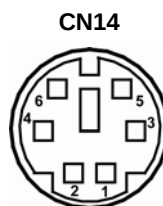


RJ-45

2.4.13 Keyboard and PS/2 Mouse Connector: CN14

The board supports a keyboard and Mouse interface. Connector CN14 is a DIN connector for PS/2 keyboard Connection VIA "Y" Cable.

Pin	Description
1	Keyboard Data
2	Mouse Data
3	GND
4	VCC
5	Keyboard Clock
6	Mouse Clock



2.4.14 Compact Flash Connector: CF1

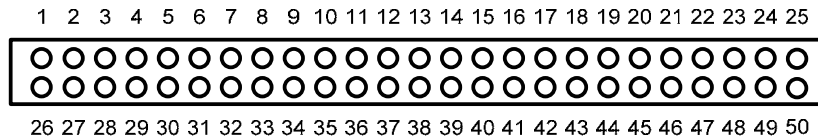
It is equipped with a Compact Flash disk type-II socket on the solder side to support an IDE interface Compact Flash disk card with DMA mode supported. The socket itself is especially designed to avoid incorrect installation of the Compact Flash disk card. When installing or removing the Compact Flash disk card, please make sure that the system power is off. The Compact Flash disk card is defaulted as the C: or D: disk drive in your PC system.

CF1: Compact Flash Socket pin assignment:

Pin	Description	Pin	Description
1	GND	26	CD1-
2	Data 3	27	Data 11
3	Data 4	28	Data 12
4	Data 5	29	Data 13
5	Data 6	30	Data 14
6	Data 7	31	Data 15
7	CS0#	32	CS1#
8	Address 10	33	VS1#
9	ATASEL	34	IORD#
10	Address 9	35	IOWR#

Pin	Description	Pin	Description
11	Address 8	36	WE#
12	Address 7	37	INTR
13	VCC	38	VCC
14	Address 6	39	CSEL#
15	Address 5	40	VS2#
16	Address 4	41	RESET#
17	Address 3	42	IORDY#
18	Address 2	43	DMAREQ
19	Address 1	44	DMAACK-
20	Address 0	45	DASP#
21	Data 0	46	PDIAG#
22	Data 1	47	Data 8
23	Data 2	48	Data 9
24	IOCS16#	49	Data 10
25	CD2#	50	GND

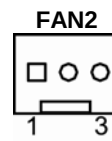
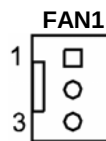
CF1: Compact Flash Socket



2.4.15 CPU Fan Connectors: FAN1, FAN2

A CPU fan is always needed for cooling CPU heat. The CPU fan connectors FAN1 and FAN2 provide power to the CPU fan.

Pin	Description
1	GND
2	+12V
3	Sensor



2.4.16 SMBUS Connector: SMBUS1

Connector SMBUS1 is for SMBUS interface support.

Pin	Description
1	SMBUS DATA
2	SMBUS CLK
3	GND

SMBUS1

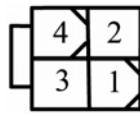
A diagram of the SMBUS1 connector, which is a 3-pin header. The pins are labeled 1, 2, and 3 from top to bottom. Pin 1 is the top pin, pin 2 is the middle pin, and pin 3 is the bottom pin.

2.4.17 ATX Power Connector: CN25

Connect the power cable to CN25 for ATX power supply.

Pin	Description
1	GND
2	GND
3	12V
4	12V

CN25

A diagram of the CN25 connector, which is a 4-pin header. The pins are labeled 1, 2, 3, and 4. Pin 1 is at the bottom right, pin 2 is at the top right, pin 3 is at the bottom left, and pin 4 is at the top left.

MEMO

Chapter 3

Hardware Description

3.1 Microprocessors

The **SBC82702** Series supports VIA V4 architecture CPUs, which make your system operated under Windows XP and Linux environments. The system performance depends on the onboard microprocessor. Make sure your installed microprocessor with all correct settings that prevents the CPU from damages.

3.2 BIOS

The **SBC82702** uses Award Plug and Play BIOS with a single 4Mbit Flash EPROM.

3.3 System Memory

The **SBC82702** Series industrial CPU card supports one 240-pin DDR2 SODIMM socket for a maximum memory of 1GB DDR2 SDRAMs. The memory module can come in sizes of 64MB, 128MB, 256MB, 512MB and 1GB.

3.4 I/O Port Address Map

There are total 1KB port addresses available for assignment to other devices via I/O expansion cards.

Address	Devices
000-01F	DMA controller #1
020-03F	Interrupt controller #1
040-05F	Timer
060-06F	Keyboard controller
070-07F	Real time clock, NMI
080-09F	DMA page register
0A0-0BF	Interrupt controller #2
0C0-0DF	DMA controller #2
0F0	Clear math coprocessor busy signal
0F1	Reset math coprocessor
0F8-0FF	Math processor
1F0-1F8	Fixed disk controller
250-25F	HR I/O
300-31F	Prototype card
380-38F	SDLC #2
3A0-3AF	SDLC #1
3B0-3BF	MDA video card (including LPT1)
3C0-3CF	EGA card
3D0-3DF	CGA card
3F8-3FF	Serial port #1 (COM1)
3E8-3EF	Serial port #3 (COM3)
2F8-2FF	Serial port #2 (COM2)
2E8-2EF	Serial port #4 (COM4)
3F0-3FF	Super I/O

3.5 Interrupt Controller

The **SBC82702 Series** is a 100% PC compatible control board. It consists of 16 interrupt request lines, and four out of them can be programmable. The mapping list of the 16 interrupt request lines is shown as the following table.

IRQ	Parity check error
IRQ0	System timer output
IRQ1	Keyboard
IRQ2	Interrupt rerouting from IRQ8 through IRQ15
IRQ3	Serial port #2
IRQ4	Serial port #1
IRQ5	PCI Device Share
IRQ7	Parallel port #1
IRQ8	Real time clock
IRQ9	ACPI Controller
IRQ10	Serial port #3
IRQ11	Serial port #4
IRQ12	PS/2 Mouse
IRQ13	Math coprocessor
IRQ14	Primary IDE channel
IRQ15	—

MEMO

Chapter 4

Award BIOS Utility

The Phoenix-Award BIOS provides users with a built-in Setup program to modify basic system configuration. All configured parameters are stored in a battery-backed-up RAM (CMOS RAM) to save the Setup information whenever the power is turned off.

4.1 Entering Setup

There are two ways to enter the Setup program. You may either turn ON the computer and press immediately, or press the and/or <Ctrl>, <Alt>, and <Esc> keys simultaneously when the following message appears at the bottom of the screen during POST (Power on Self Test).

TO ENTER SETUP PRESS DEL KEY

If the message disappears before you respond and you still want to enter Setup, please restart the system to try it again. Turning the system power OFF and ON, pressing the "RESET" button on the system case or simultaneously pressing <Ctrl>, <Alt>, and keys can restart the system. If you do not press keys at the right time and the system doesn't boot, an error message will pop out to prompt you the following information:

PRESS <F1> TO CONTINUE, <CTRL-ALT-ESC> OR TO ENTER SETUP

4.2 Control Keys

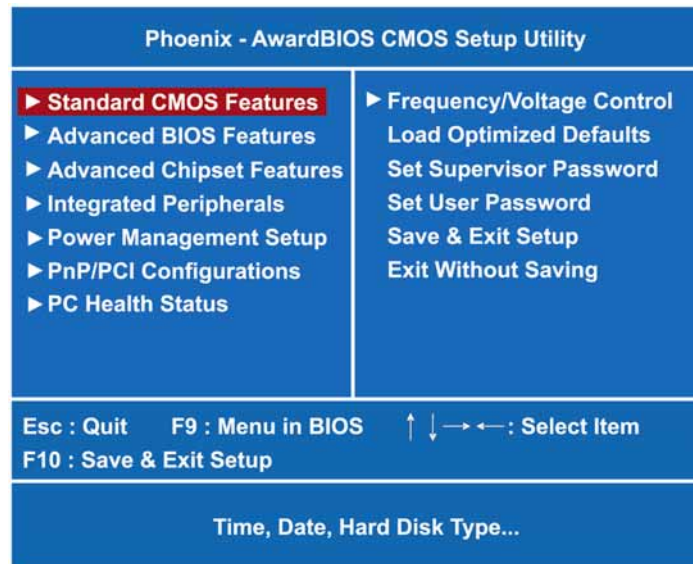
Up arrow	Move cursor to the previous item
Down arrow	Move cursor to the next item
Left arrow	Move cursor to the item on the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu -- Quit and delete changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp/“+” key	Increase the numeric value or make changes
PgDn/“-” key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift) F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Reserved
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the Setup default, only for Option Page Setup Menu
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

4.3 Getting Help

- **Main Menu**
The online description of the highlighted setup function is displayed at the bottom of the screen.
- **Status Page Setup Menu / Option Page Setup Menu**
Press <F1> to pop out a small Help window that provides the description of using appropriate keys and possible selections for highlighted items. Press <F1> or <Esc> to exit the Help Window.

4.4 The Main Menu

Once you enter the Award BIOS CMOS Setup Utility, the Main Menu appears on the screen. In the Main Menu, there are several Setup functions and a couple of Exit options for your selection. Use arrow keys to select the Setup Page you intend to configure then press <Enter> to accept or enter its sub-menu.



NOTE: If your computer can not boot after making and saving system changes with Setup, the Award BIOS will reset your system to the CMOS default settings via its built-in override feature.

It is strongly recommended that you should avoid changing the chipset's defaults. Both Award and your system manufacturer have carefully set up these defaults that provide the best performance and reliability.

4.5 Standard CMOS Setup Menu

The Standard CMOS Setup Menu displays basic information about your system. Use arrow keys to highlight each item, and use <PgUp> or <PgDn> key to select the value you want in each item.

Phoenix - AwardBIOS CMOS Setup Utility Standard CMOS Features		
Date (mm:dd:yy)	Sun, Apr 4 1999	Item Help Menu Level ► Change the day, month, year and century.
Time (hh:mm:ss)	10 : 50 : 55	
► IDE Channel 0 Master		
► IDE Channel 0 Slave		
► IDE Channel 1 Master		
► IDE Channel 1 Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Video	[EGA/VGA]	
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	64512K	
Total Memory	65536K	

↑ ↓ → ← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F7: Optimized Defaults

- Date**

The date format is <day>, <date> <month> <year>. Press <F3> to show the calendar.

day	It is determined by the BIOS and read only, from Sunday to Saturday.
date	It can be keyed with the numerical/ function key, from 1 to 31.
month	It is from January to December.
year	It shows the current year of BIOS.

- Time**

This item shows current time of your system with the format <hour> <minute> <second>. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

- **IDE Primary Master/Primary Slave**

The categories identify the types of one channel that have been installed in the computer. There are 45 predefined types and 2 users definable types are for Enhanced IDE BIOS. Type 1 to Type 45 is predefined. Type User is user-definable.

Press <PgUp>/<+> or <PgDn>/<-> to select a numbered hard disk type or type the number and press <Enter>. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information within this category. If your hard disk drive type does not match or is not listed, you can use Type User to define your own drive type manually.

If you select Type User, related information is asked to be entered to the following items. Enter the information directly from the keyboard and press <Enter>. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is ESDI, select "Type 1".

If the controller of HDD interface is SCSI, select "None".

If the controller of HDD interface is CD-ROM, select "None".

CYLS.	number of cylinders	LANDZONE	landing zone
HEADS	number of heads	SECTORS	number of sectors
PRECOMP	write precom	MODE	HDD access mode

If there is no hard disk drive installed, select NONE and press <Enter>.

- **Dive A type**

The item identifies the types of floppy disk installed in the computer.

None	No floppy drive installed
360K, 3.5 in	3.5 inch PC-type standard drive; 360Kb Mini ITXcity
1.2M, 3.5 in	3.5 inch AT-type high-density drive; 1.2MB Mini ITXcity
720K, 3.5 in	3.5 inch double-sided drive; 720Kb Mini ITXcity
1.44M, 3.5 in	3.5 inch double-sided drive; 1.44MB Mini ITXcity
2.88M, 3.5 in	3.5 inch double-sided drive; 2.88MB Mini ITXcity

- **Video**

Select the display adapter type for your system.

- **Halt On**

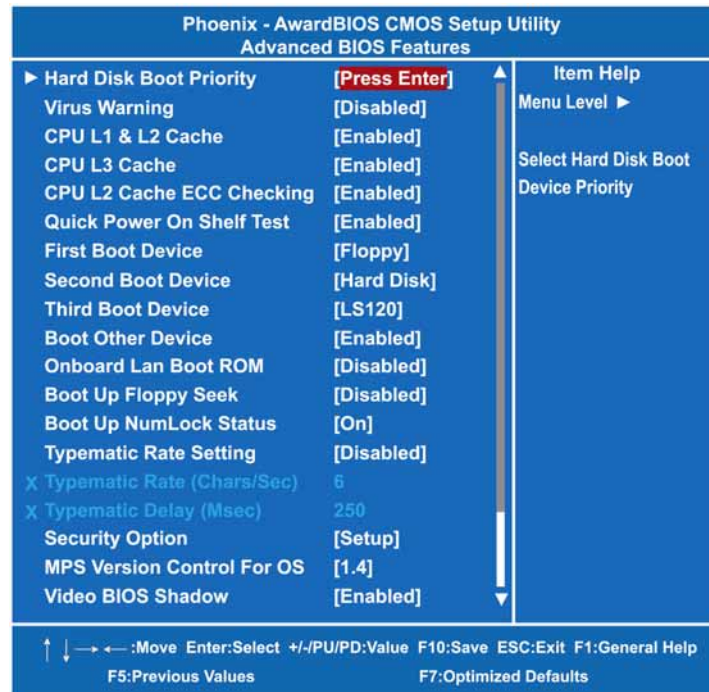
This field determines whether the system will halt if an error is detected during power up.

No errors	The system boot will halt on any error detected. (default)
All errors	Whenever the BIOS detect a non-fatal error, the system will stop and you will be prompted.
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 keyboard or disk error; it will stop for all other errors.

Press <Esc> to return to the Main Menu page.

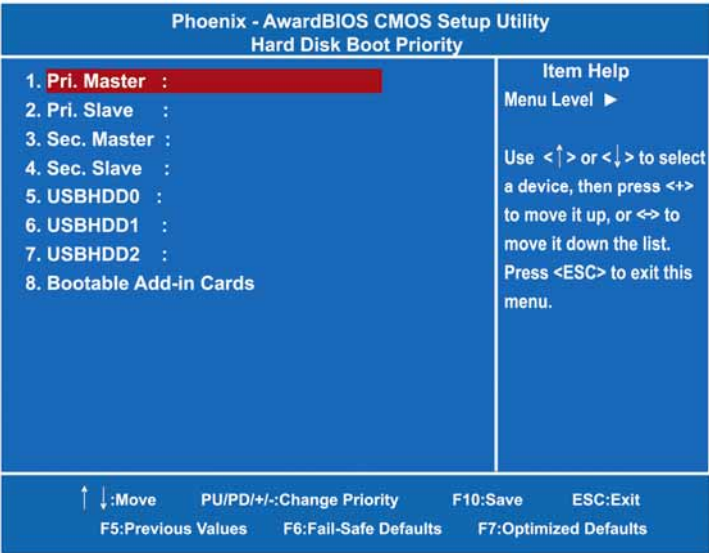
4.6 Advanced BIOS Features

This section allows you to configure and improve your system, to set up some system features according to your preference.



● **Hard Disk Boot Priority**

Scroll to this item and press <Enter> to view the sub menu to decide the disk boot priority.



Press <Esc> to return to the Advanced BIOS Features page.

● **Virus Warning**

This option flashes on the screen. During and after the system boot up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system with the following message. You can run an anti-virus program to locate the problem. The default setting is "Disabled".

! WARNING !

Disk boot sector is to be modified

Type "Y" to accept write or "N" to abort write

Award Software, Inc.

Enabled	Activates automatically when the system boots up causing a warning message to appear when there is an attempt to access the boot sector or hard disk partition table.
---------	---

Disabled	No warning message will appear when attempts to access the boot sector or hard disk partition table are made.
-----------------	---



NOTE: This function is only available with DOS and other operating systems that do not trap INT13.

- **CPU L1 & L2 Cache /L3 Cache**

These items enable or disable the actual CPU internal level 1/2 cache or level 3 cache function. Leave these items at default value for better performance.

Enabled	Enable cache
Disabled	Disable cache

- **CPU L2 Cache ECC Checking**

When enabled, this allows ECC checking of the CPU's L2 cache. By default, this field is "Enabled".

- **Quick Power On Self Test**

This option speeds up Power on Self Test (POST) after you turn on the system power. If set as Enabled, BIOS will shorten or skip some check items during POST. The default setting is "Enabled".

Enabled	Enable Quick POST
Disabled	Normal POST

- **First/Second/Third Boot Device**

These items allow the selection of the 1st, 2nd, and 3rd devices that the system will search for during its boot-up sequence. The wide range of selection includes Floppy, LS120, ZIP100, HDD0~3, SCSI, and CDROM.

- **Boot Other Device**

This item allows the user to enable/disable the boot device not listed on the First/Second/Third boot devices option above. The default setting is "Enabled".

- **Onboard Lan Boot ROM**

This item allows you to decide to boot from whether LAN1 or LAN2. The options available are "LAN1, LAN2, Disabled".

- **Boot Up Floppy Seek**

During POST, BIOS will determine the floppy disk drive type, 40 or 80 tracks. 360Kb type is 40 tracks while 720Kb, 1.2MB and

1.44MB are all 80 tracks. The default value is "Enabled".

Enabled	BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.
Disabled	BIOS will not search for the type of floppy disk drive by track number. There will be no warning message displayed if the drive installed is 360K.

- **Boot Up NumLock Status**

Selects power on state for NumLock. The default value is "On".

- **Typematic Rate Setting**

This determines the typematic rate of the keyboard. The default value is "Disabled".

Enabled	Enable typematic rate and typematic delay programming
Disabled	Disable typematic rate and typematic delay programming. The system BIOS will use default value of these 2 items and the default is controlled by keyboard.

- **Typematic Rate (Chars/Sec)**

This option refers to the number of characters the keyboard can type per second. The default value is "6".

6	6 characters per second
8	8 characters per second
10	10 characters per second
12	12 characters per second
15	15 characters per second
20	20 characters per second
24	24 characters per second
30	30 characters per second

- **Typematic Delay (Msec)**

This option sets the display time interval from the first to the second character when holding a key. The default value is "250".

250	250 msec
500	500 msec
750	750 msec
1000	1000 msec

- **Security Option**

This item allows you to limit access to the system and Setup, or just to Setup. The default value is "Setup".

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



NOTE: To disable security, select *PASSWORD SETTING* at Main Menu and then you will be asked to enter password. Do not type anything, just press <Enter> and it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

- **MPS Version Control For OS**

This item specifies the version of the Multiprocessor Specification (MPS). Version 1.4 has extended configuration tables to improve support for multiple PCI bus configurations and provide future expandability.

- **Video BIOS Shadow**

Enable this parameter to turn on BIOS ROM shadowing for the block of memory normally used for standard VGA video ROM code.

Press <Esc> to return to the Main Menu page.

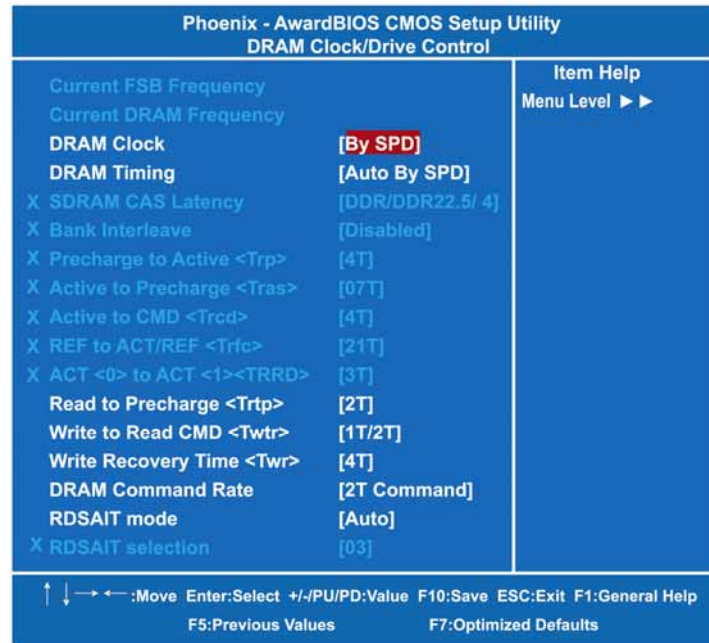
4.7 Advanced Chipset Features

Since the features in this section are related to the chipset on the CPU board and are completely optimized, you are not recommended to change the default settings in this setup table unless you are well oriented with the chipset features.

Phoenix - AwardBIOS CMOS Setup Utility		
Advanced Chipset Features		
▶ DRAM Clock/Drive Control	[Press Enter]	Item Help Menu Level ▶
▶ AGP & P2P Bridge Control	[Press Enter]	
▶ CPU & PCI Bus Control	[Press Enter]	
Memory Hole	[Disabled]	
System BIOS Cacheable	[Disaabled]	
Video RAM Cacheable	[Disabled]	
↑ ↓ → ← :Move Enter:Select +/-PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F7:Optimized Defaults		

● DRAM Clock/Drive Control

Scroll to this item and press <Enter> to view the sub menu DRAM Clock/Drive Control.



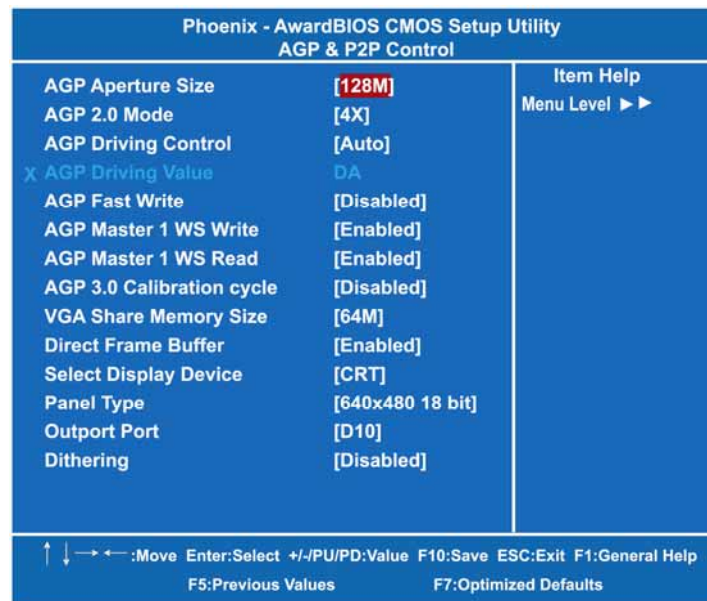
- **Current FSB/DRAM Frequency**
Those two items are read-only to show the current FSB and DRAM.
- **DRAM Clock**
Use this item to adjust memory speed. Option By SPD (Serial Detect Presence) makes it possible to do an automatic selection.
- **DRAM Timing**
Use this item to increase the timing of the memory. This is related to the cooling of memory.
- **SDRAM CAS Latency**
When synchronous DRAM is installed, the DRAM timing determines the CAS latency's clock cycles. It is strongly recommended to keep this item at default value specified by the system designer.
- **Bank Interleave**
Select 2-Bank or 4-Bank interleave for 64-Mb SDRAM.

- **Read to Precharge (Trtp)**
Use this item to adjust time interval between a read and a precharge command.
- **Write to CMD (Twtr)**
The default time setting is 1T/2T.
- **Write Recovery Time (Twr)**
Use this item to specify the time (in cycles of clock) necessarily inserted between the operation of valid writing memory and a cooling report.
- **DRAM Command Rate**
Use this item to manually define the chipset-to-memory latency values.
- **RDSAIT Mode**
This item is to select the RDSAIT mode auto or manual.

Press <Esc> to return to the Advanced Chipset Featurs page.

- **AGP & P2P Bridge Control**

Use this item to set AGP and P2P Bridge controls for allocating system RAM amount to AGP for video purposes. Scroll to this item and press <Enter> to view the sub menu AGP & P2P Bridge Control.



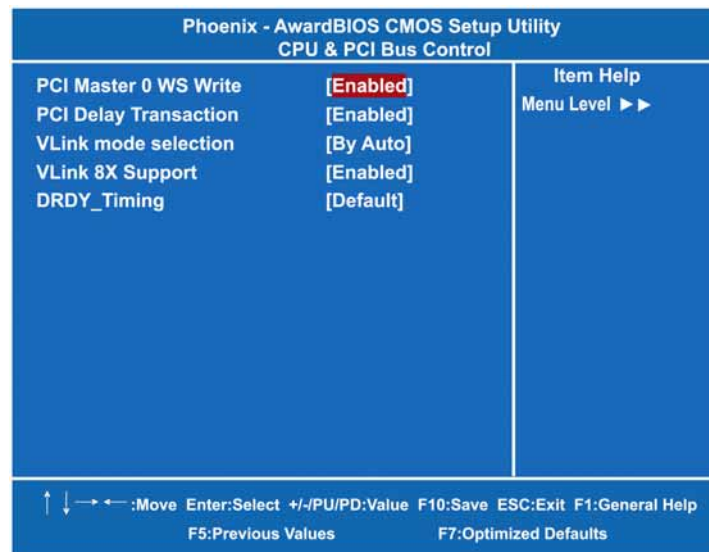
- **AGP Aperture Size**
This item controls the memory space allocation to AGP for display. The aperture is a portion of the PCI memory address range dedicated to graphics memory address space.
- **AGP 2.0 Mode**
This item decides the AGP Mode of the integrated graphics.
- **AGP Master 1 WS Write**
When this item is enabled, the write to the AGP (Accelerated Graphics Port) will be executed with one wait state.
- **AGP Master 1 WS Read**
When this item is enabled, the read to the AGP (Accelerated Graphics Port) will be executed with one wait state.
- **VGA Share Memory Size**
This item controls the amount of the system memory

allocated to the integrated graphics processor when the system boots up.

Press <Esc> to return to the Advanced Chipset Features page.

- **CPU & PCI Bus Control**

Use this item to enable the immediate Write to PCI Bus, or disable it for a later execution. Scroll to this item and press <Enter> to view the sub menu CPU & PCI Bus Control.



- **PCI Master 0 WS Write**
When this item is enabled, the writes to the PCI bus will be executed with zero wait state.
- **PCI Delay Transaction**
The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select "Enabled" to support compliance with PCI specification version 2.1.

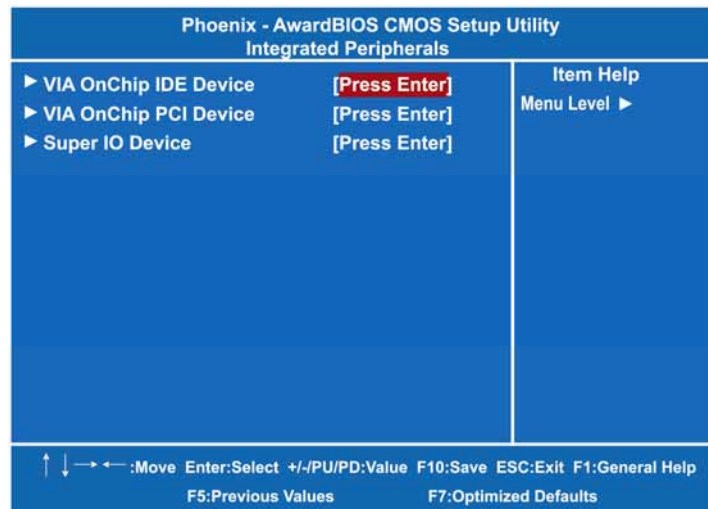
Press <Esc> to return to the Advanced Chipset Features page.

- **Memory Hole**
You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements. The default value is "Disabled".
- **System BIOS Cacheable**
Use this item to enable or disable the system BIOS cache.
- **Video RAM Cacheable**
Use this item to enable or disable the video RAM cache.

Press <Esc> to return to the Main Menu page.

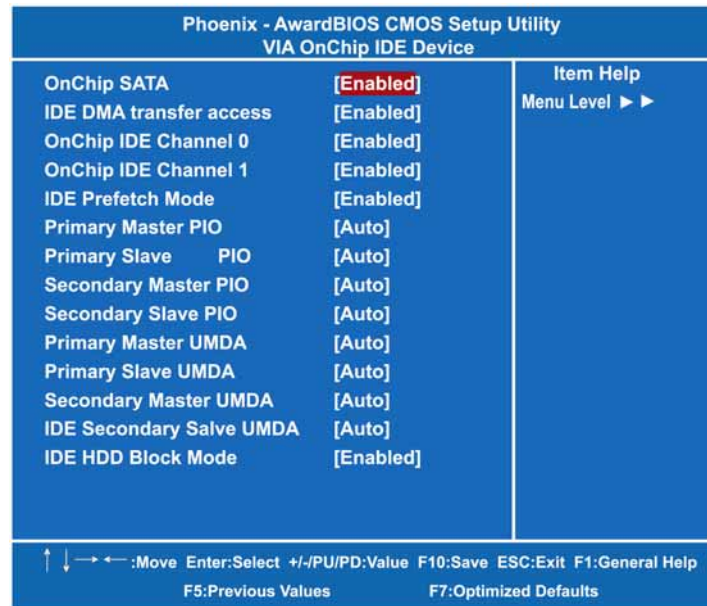
4.8 Integrated Peripherals

This section allows you to configure your SuperIO Device, IDE Function and Onboard Device.



- **VIA OnChip IDE Device**

Scroll to this item and press <Enter> to view the sub menu VIA OnChip IDE Device.



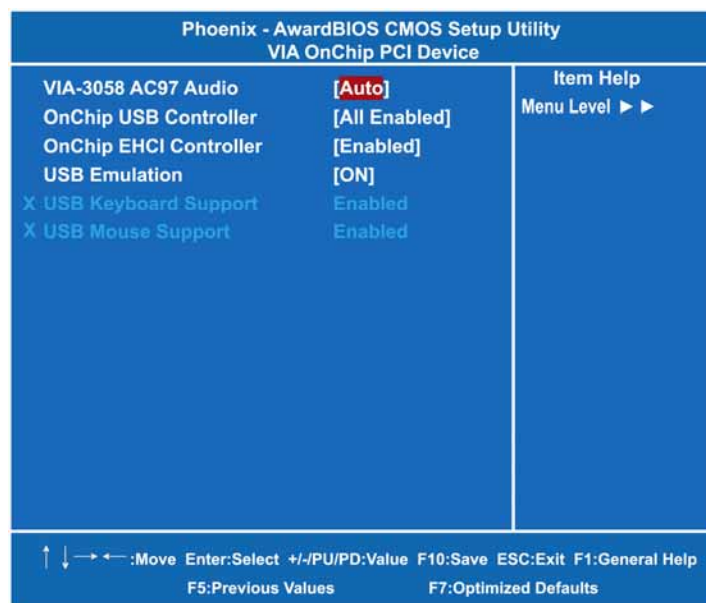
- **OnChip SATA**
Enable this item to set the SATA channel to IDE Mode.
- **IDE DMA transfer access**
Automatic data transfer between system memory and IDE device with minimum CPU intervention. This improves data throughput and frees CPU to perform other tasks.
- **OnChip IDE Channel 0/1**
The board supports two channel of ordinary IDE interface. Select "Enabled" to activate each channel separately.
- **IDE Prefetch Mode**
Selecting "Enabled" reduces latency between each drive read/write cycle, but may cause instability in IDE subsystems that cannot support such fast performance. If you are getting disk drive errors, try setting this value to Disabled. This field does not appear when the Internal PCI/IDE field, above, is Disabled.

- **IDE Master/Slave PIO**
The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 to 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.
- **IDE Master/Slave UDMA**
Select the mode of operation for the IDE drive. Ultra DMA-33/66/100/133 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver. If your hard drive and your system software both support Ultra DMA-33/66/100/133, select Auto to enable UDMA mode by BIOS.
- **IDE HDD Block Mode**
Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select
Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

Press <Esc> to return to the Integrated Peripherals page.

- **VIA OnChip PCI Device**

Scroll to this item and press <Enter> to view the sub menu VIA OnChip PCI Device.



- **VIA-3058 AC97 Audio**
Set this item Auto to enable VIA-3058 AC97 Audio chipset.
- **OnChip USB Controller**
Enable this item if you are using the USB in the system. You should disable this item if a higher-level controller is added.
- **OnChip EHCI Controller**
Enable this item if you are using the EHCI (USB2.0) controller in the system.
- **USB Emulation**
Enable this item to boot the hard drive by a USB device.
- **USB Keyboard Support**
Enable this item if the system has a Universal Serial Bus (USB) controller, and you have a USB keyboard.
- **USB Mouse Support**
Enable this item to boot the hard drive by a USB mouse.

Press <Esc> to return to the Integrated Peripherals page.

- **Super IO Device**

Scroll to this item and press <Enter> to view the sub menu Super IO Device.

Phoenix - AwardBIOS CMOS Setup Utility		
Super IO Device		
Onboard FDC Controller	[Enabled]	Item Help Menu Level ►►
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Serial Port 2	[2F8/IRQ3]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	
EPP Mode Select	[EPP1.7]	
ECP Mode Use DMA	[3]	
↑ ↓ → ← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F7: Optimized Defaults		

- **Onboard FDC Controller**
Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled in this field. The options available are Enabled, Disabled.
- **Onboard Serial Port 1 / 2**
Select an address and corresponding interrupt for the serial port. Options: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.
- **Onboard Parallel Port**
This item allows you to determine access onboard parallel port controller with which I/O address. The options available are 378H/IRQ7, 278H/IRQ5, 3BC/IRQ7, Disabled.
- **Parallel Port Mode**
Select an operating mode for the onboard parallel (printer) port. Select Normal unless your hardware and software require one of the other modes offered in this field. The

options available are EPP1.9, ECP, SPP, ECPEPP1.7, EPP1.7.

- **EPP Mode Select**
Select EPP port type 1.7 or 1.9.
- **ECP Mode Use DMA**
Select a DMA channel for the parallel port for use during ECP mode.

Press <Esc> to return to the Integrated Peripherals page, and press it again to the Main Menu.

4.9 Power Management Setup

The Power Management Setup allows you to save energy of your system effectively. It will shut down the hard disk and turn OFF video display after a period of inactivity.

Phoenix - AwardBIOS CMOS Setup Utility		
Power Management Setup		
ACPI function	[Enabled]	Item Help Menu Level ►
ACPI Suspend Type	[S1<POS>]	
Power Management Option	[User Define]	
HDD Power Down	[Disabled]	
Suspend Mode	[Disabled]	
Video Off Option	[Suspend -> Off]	
Video Off Method	[V/H SYNC+Blank]	
MODEM Use IRQ	[3]	
Soft-Off by PWRBTN	[Instang-Off]	
Ac Loss Auto Restart	[Off]	
► IRQ/Event Activity Detect	[Press Enter]	

↑ ↓ → ← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help F5:Previous Values F7:Optimized Defaults		
--	--	--

- **ACPI Function**

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI). The function is always Enabled.

- **ACPI Suspend Type**

This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, such as Windows 98SE, Windows ME and Windows 2000, you can choose to enter the Standby mode in S1 (POS) or S3 (STR) fashion through the setting of this field. Options are:

[S1(POS)] The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system context.

[S3(STR)] The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when a "wake up" event occurs.

- **Power Management**

This option allows you to select the type of power Management. The options available are APM, ACPI.

- **HDD Power Down**

If HDD activity is not detected for the length of time specified in this field, the hard disk drive will be powered down while all other devices remain active.

- **Suspend Mode**

After the selected period of system inactivity (1 minute to 1 hour), all devices except the CPU shut off. The default value is "Disabled".

Disabled	System will never enter SUSPEND mode
1/2/4/6/8/10/20/30/40	Defines the continuous idle time before the system entering SUSPEND mode.
Min/1 Hr	If any item defined in (J) is enabled & active, SUSPEND timer will be reloaded

- **Video Off Option**

This setting is used to control the mode in which the monitor will shut down. Setting options are:

Always On	Monitor remains on during power-saving modes.
Suspend → Off	Monitor blanked when system enters Suspend mode.
Susp, Stby → Off	Monitor blanked when system enters either Suspend or Standby mode.
All Modes → Off	Monitor blanked when system enters any power saving.

- **Video Off Method**

This setting determines the manner in which the monitor is blanked.

- **Modem Use IRQ**

3, 4, 5, 7, 9, 10, 11, NA	For external modem, 3 or 4 will be used for card type modem. It is up to card definition. Default is 3.
----------------------------------	---

- **Soft-Off by PWRBTN**

This option only works with systems using an ATX power supply. It also allows the user to define which type of soft power OFF sequence the system will follow. The default value is *"Instant-Off"*.

Instant-Off	This option follows the conventional manner systems perform when power is turned OFF. Instant-Off is a soft power OFF sequence requiring only the switching of the power supply button to OFF
Delay 4 Sec.	Upon turning OFF system from the power switch, this option will delay the complete system power OFF sequence by approximately 4 seconds. Within this delay period, system will temporarily enter into Suspend Mode enabling you to restart the system at once.

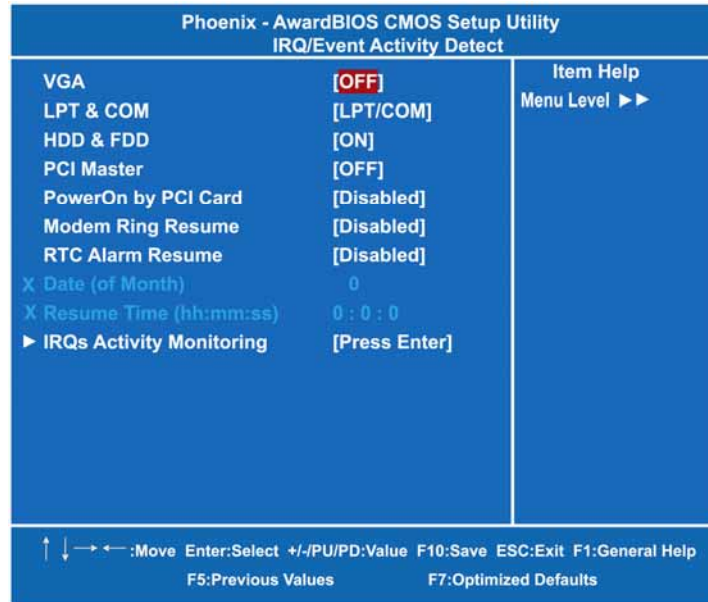
- **Ac Loss Auto Restart**

This setting specifies whether your system will reboot after a power failure or interrupt occurs. Available settings are:

Off	Leaves the computer in the power off state.
On	Leaves the computer in the power on state.
Former-sts	Restores the system to the status before power failure or interrupt occurred.

- **IRQ/Event Activity Detect**

Scroll to this item and press <Enter> to view the sub menu IRQ/Event Activity Detect.



Press <Esc> to return to the Power Management Setup page, and press it again to return to the Main Menu.

4.10 PnP/PCI Configuration Setup

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

Phoenix - AwardBIOS CMOS Setup Utility PnP/PCI Configurations		
PNP OS Installed	[No]	Item Help Menu Level ► Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto(ESCD)]	
X IRQ Resources	Press Enter	
X DMA Resources	Press Enter	
PCI/VGA Palette Snoop	[Disabled]	
Assign IRQ For VGA	[Enabled]	
Assign IRQ For USB	[Enabled]	

↑ ↓ → ← :Move Enter:Select +/-PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7:Optimized Defaults

- PNP OS Installed**
 Select Yes if the system operating environment is Plug-and-Play aware (e.g., Windows 95). The default value is "No".
- Reset Configuration Data**
 Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup or if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The options available are Enabled and Disabled.
- Resources Controlled By**
 The Award Plug and Play BIOS can automatically configure all the

boot and Plug and Play-compatible devices. If you select Auto, all the interrupt request (IRQ), DMA assignment, and Used DMA fields disappear, as the BIOS automatically assigns them. The default value is *“Manual”*.

- **IRQ Resources**

When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt:

1. Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1).
2. PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

The default value is *“PCI/ISA PnP”*.

- **DMA Resources**

When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt:

1. Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific DMA channel.
2. PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

The default value is *“PCI/ISA PnP”*.

- **PCI/VGA Palette Snoop**

Some non-standard VGA display cards may not show colors properly. This field allows you to set whether MPEG ISA/VESA VGA Cards can work with PCI/VGA or not. When enabled, a PCI/VGA can work with a MPEG ISA/VESA VGA card. When disabled, a PCI/VGA cannot work with a MPEG ISA/VESA Card.

- **Assign IRQ For VGA**

The Enabled item allows the BIOS to auto-route an IRQ for use by a VGA card.

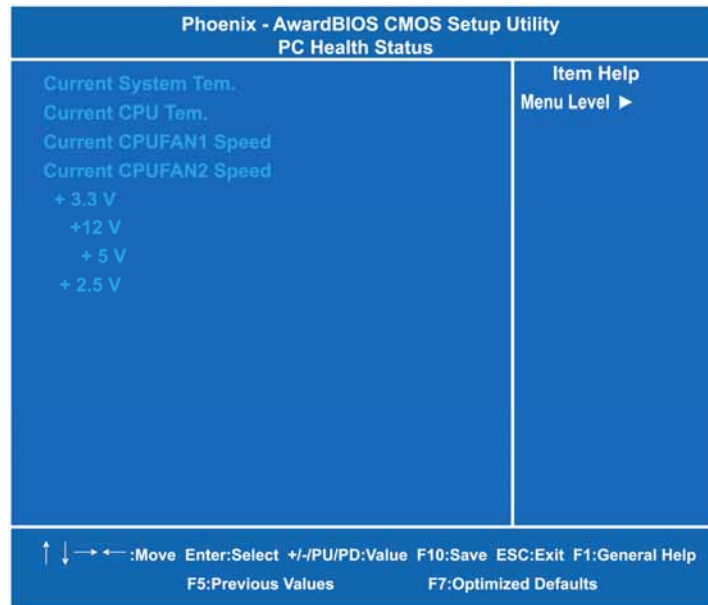
- **Assign IRQ For USB**

It enables or disables IRQ allocation for the USB (Universal Serial Bus). Enable this if you are using a USB device.

Press <ESC> to return to the Main Menu page.

4.11 PC Health Status

This section supports hardware monitoring that lets you monitor those parameters for critical voltages, temperatures and fan speed of the board.

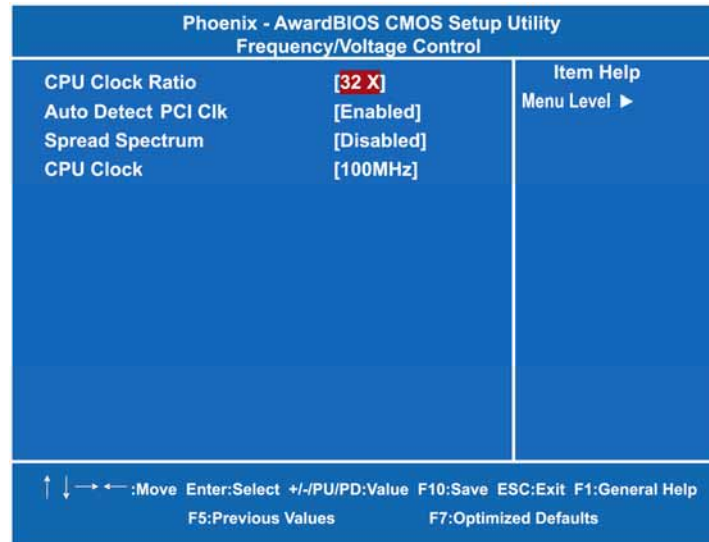


- **Current CPU Temperature**
These read-only fields reflect the functions of the hardware thermal sensor that monitors the chip blocks and system temperatures to ensure the system is stable.
- **Current SYSTEM Temperature**
Show you the current system1 temperature.
- **Current CPU FAN Speed**
These optional and read-only items show current speeds in RPM (Revolution Per Minute) for the CPU fan and chassis fan as monitored by the hardware monitoring IC.

Press <ESC> to return to the Main Menu page.

4.12 Frequency/Voltage Control

This section is to control the CPU frequency and Supply Voltage, DIMM OverVoltage and AGP voltage.

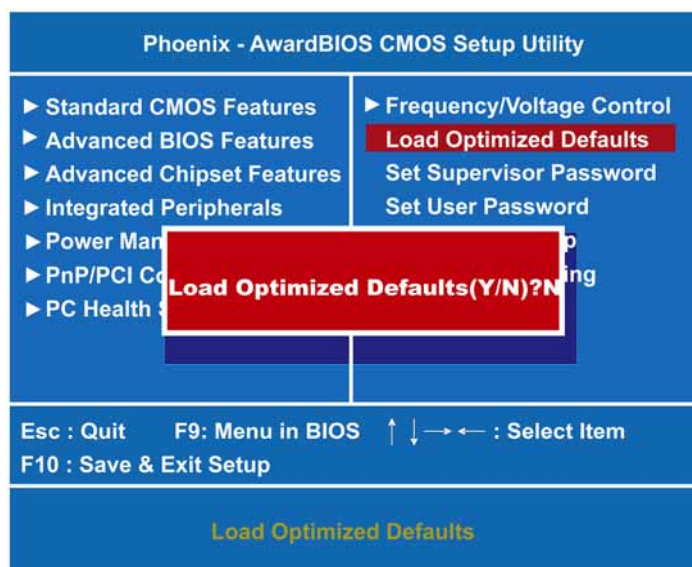


- CPU Clock Ratio**
 Use this item to select a multiplier to set the CPU frequency.
- Auto Detect PCI Clk**
 The enabled item can automatically disable the clock source for a PCI slot which does not have a module in it, reducing EMI (ElectroMagnetic Interference).
- Spread Spectrum**
 If spread spectrum is enabled, EMI (ElectroMagnetic Interference) generated by the system can be significantly reduced.
- CPU Clock**
 This item enables you to increment the CPU's clock generator at 1MHz step. This works together with CPU Clock Ratio (above) to set the CPU operating frequency.

Press <ESC> to return to the Main Menu page.

4.13 Load Optimized Defaults

This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.



To load SETUP defaults value to CMOS SRAM, enter “Y”. If not, enter “N”.

4.14 Set Supervisor/User Password

You can set either supervisor or user password, or both of them. The differences between are:

1. **Supervisor password:** can enter and change the options of the setup menus.
2. **User password:** just can enter but do not have the right to change the options of the setup menus.

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password with eight characters at most, and press <Enter>. The password typed will now clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable password, just press <Enter> when you are prompted to enter password. A message will confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

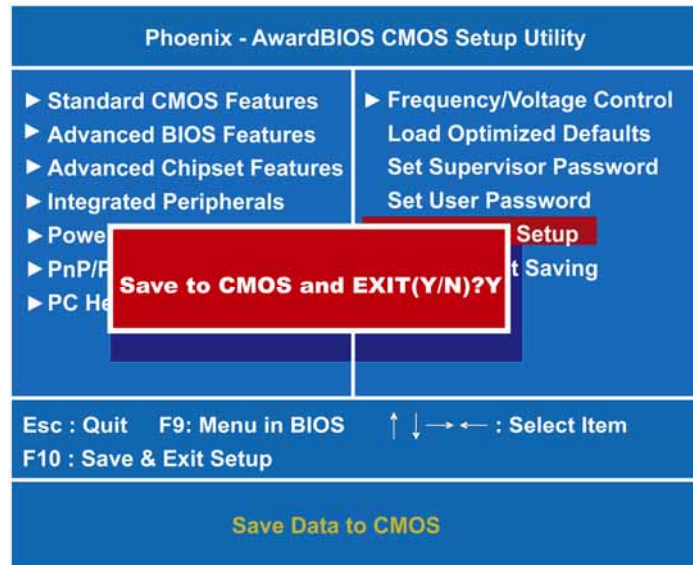
When a password is enabled, you have to type it every time you enter Setup. This prevents any unauthorized person from changing your system configuration.

Additionally when a password is enabled, you can also require the BIOS to request a password every time the system reboots. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to "System", the password is required during boot up and entry into Setup. If set as "Setup", prompting will only occur prior to entering Setup.

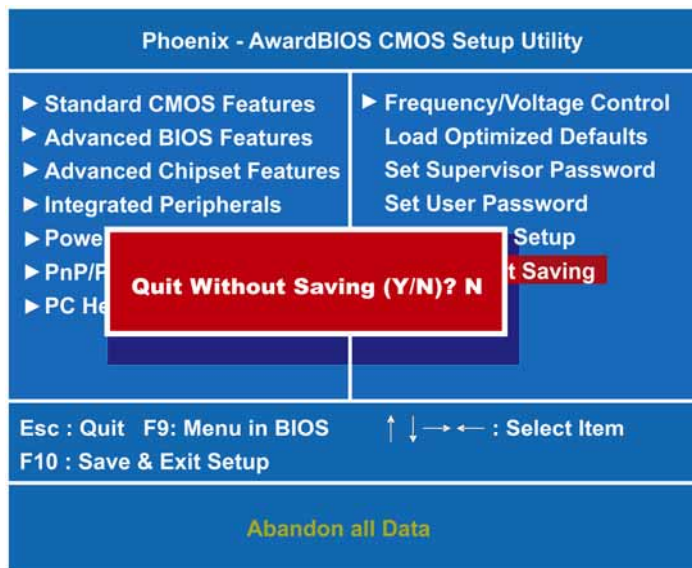
4.15 Save & Exit Setup

This allows you to determine whether or not to accept the modifications. Typing "Y" quits the setup utility and saves all changes into the CMOS memory. Typing "N" brings you back to Setup utility.



4.16 Exit Without Saving

Select this option to exit the Setup utility without saving the changes you have made in this session. Typing “Y” will quit the Setup utility without saving the modifications. Typing “N” will return you to Setup utility.



MEMO

Appendix A

Watchdog Timer

Watchdog Timer Setting

After the system stops working for a while, it can be auto-reset by the Watchdog Timer. The integrated Watchdog Timer can be set up in the system reset mode by program.

Using the Watchdog Function

Start

↓

Un-Lock WDT:

O 2E 87 ; Un-lock super I/O

O 2E 87 ; Un-lock super I/O

↓

Select Logic device:

O 2E 07

O 2F 08

↓

Activate WDT:

O 2E 30

O 2F 01

↓

Set Second or Minute :

O 2E F5

O 2F N N=00 or 08(See below table)

↓

Set base timer :

O 2E F6

O 2F M=00,01,02,...FF(Hex) ,Value=0 to 255

↓

WDT counting re-set timer :

O 2E F6

O 2F M ; M=00,01,02,...FF(See below table)

; IF to disable WDT:

O 2E 30

O 2F 00 ; Can be disable at any time

- Timeout Value Range
 - 1 to 255
 - Minute / Second
- Program Sample

Watchdog Timer can be set to system reset after 5-second timeout.

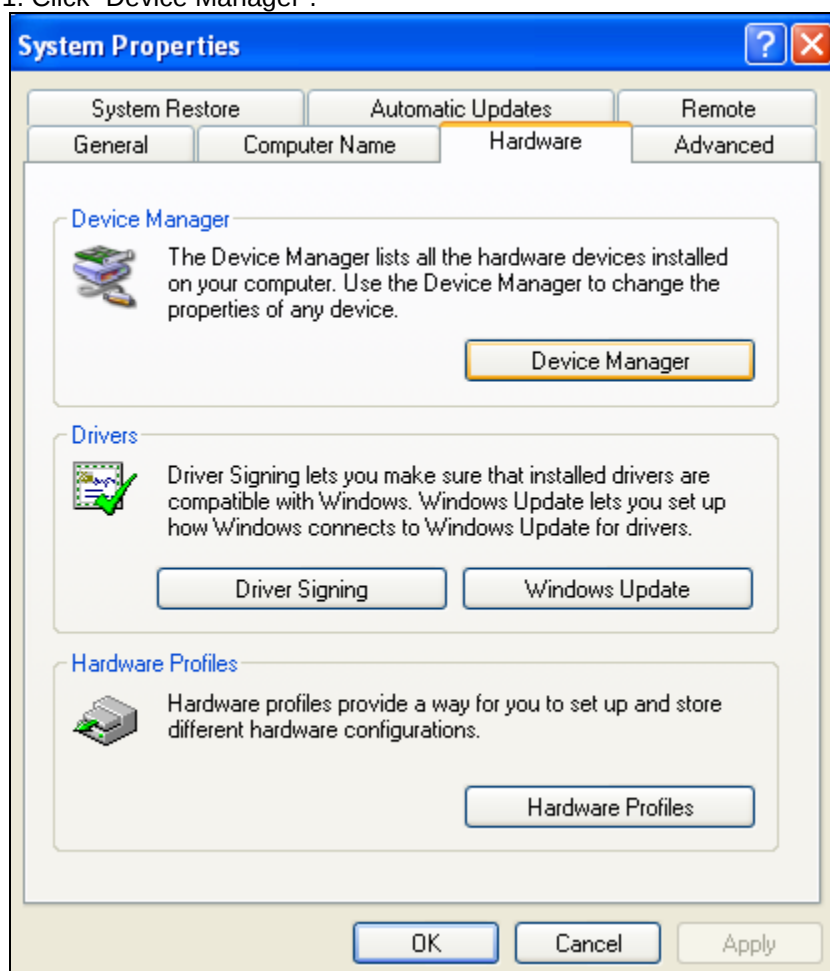
2E, 87	
2E, 87	
2E, 07	
2F, 08	Logical Device 8
2E, 30	Activate
2F, 01	
2E, F5	
2F, N	Set Minute or Second N=08 (Min),00(Sec)
2E, F6	
2F, M	Set Value M = 00 ~ FF

Appendix B

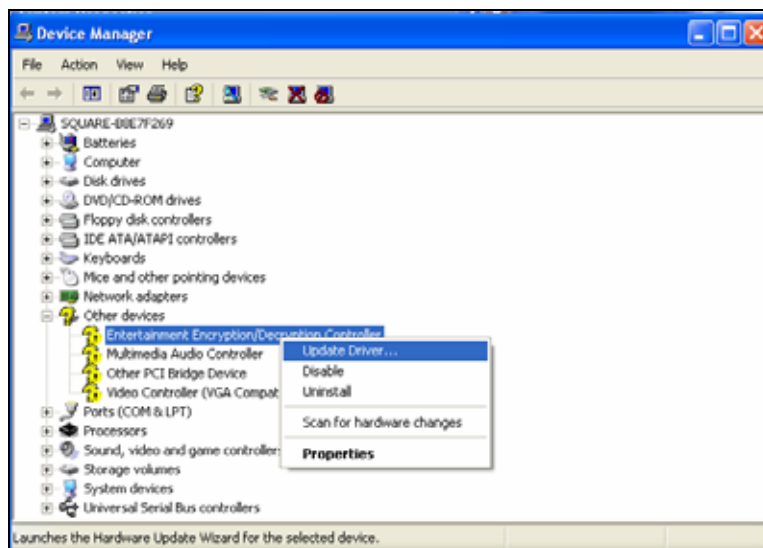
Installation of Drivers

Installation of AES Driver

1. Click "Device Manager".



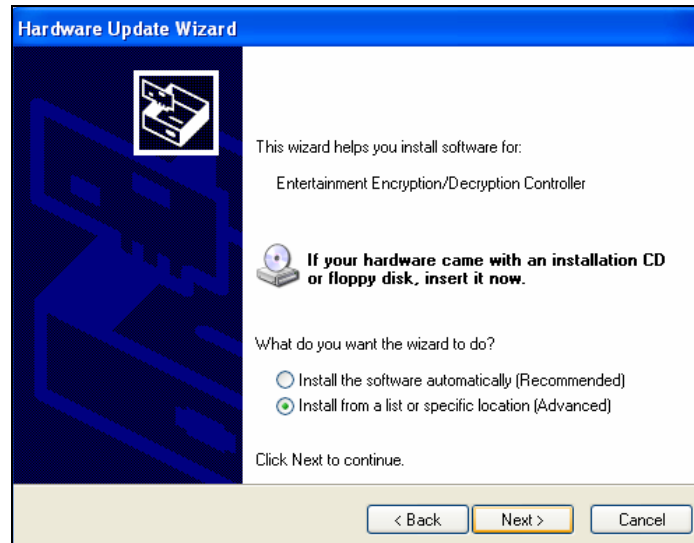
2. Click "Update Driver".



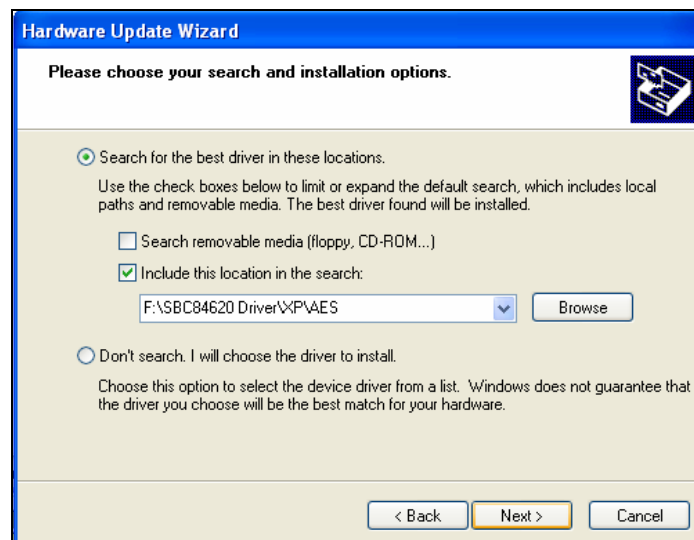
3. Click on next



4. Click on next



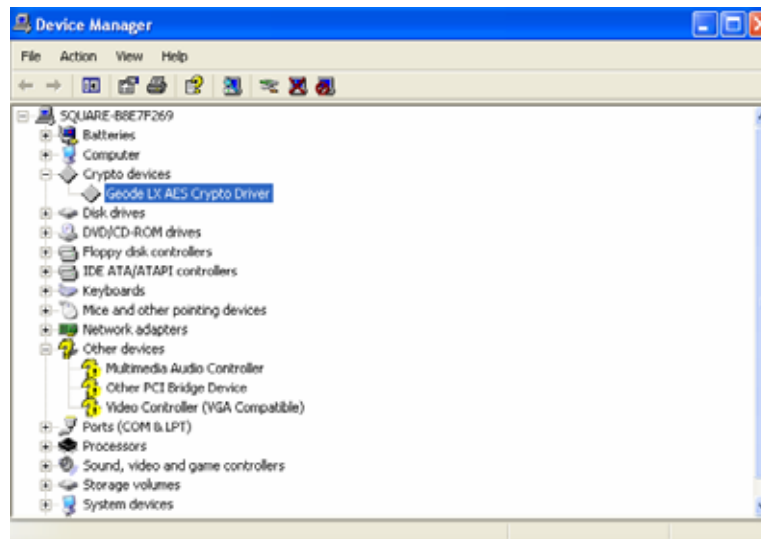
5. Select AES Driver Folder then Click on next.



6. Click on Finish

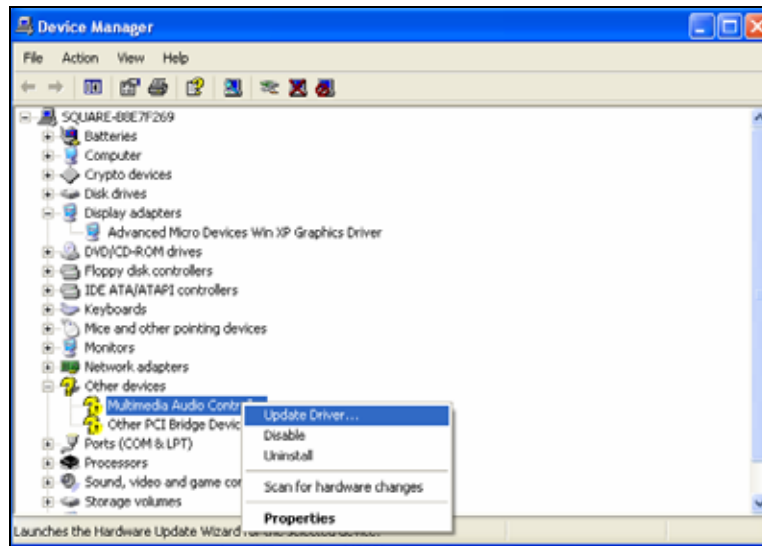


7. Geode LX AES Crypto Driver installed finish.

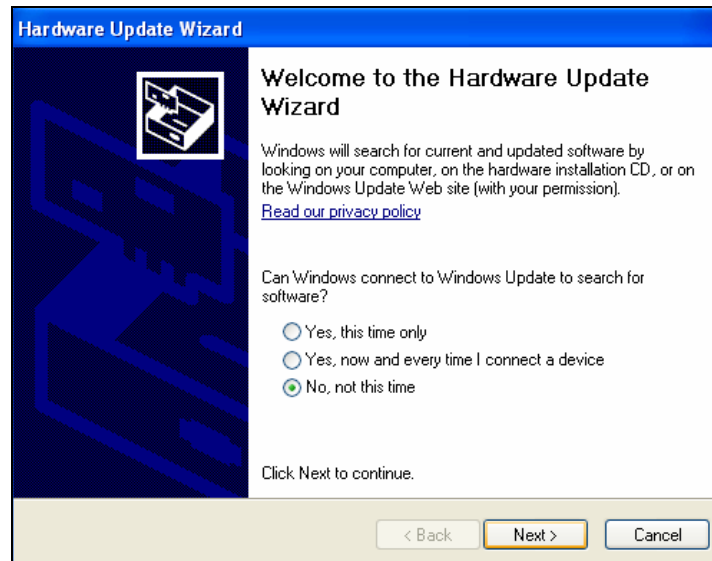


Installation of Audio Driver

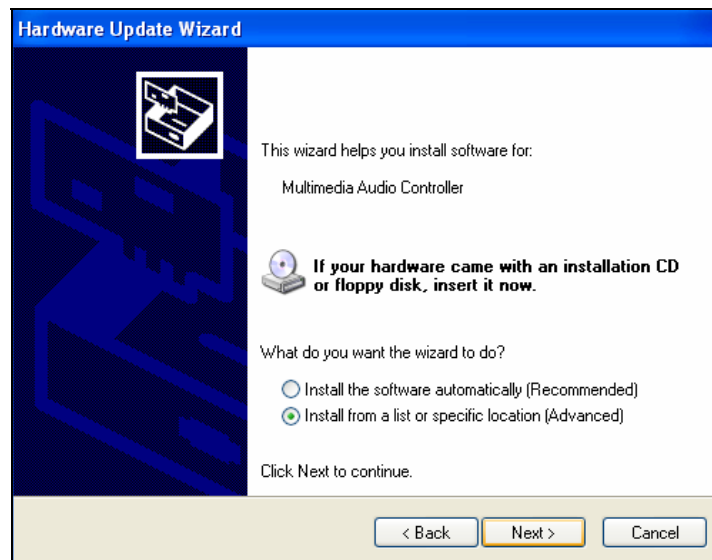
1. Open device manager, right click on Multimedia Audio Control and click on update Driver.



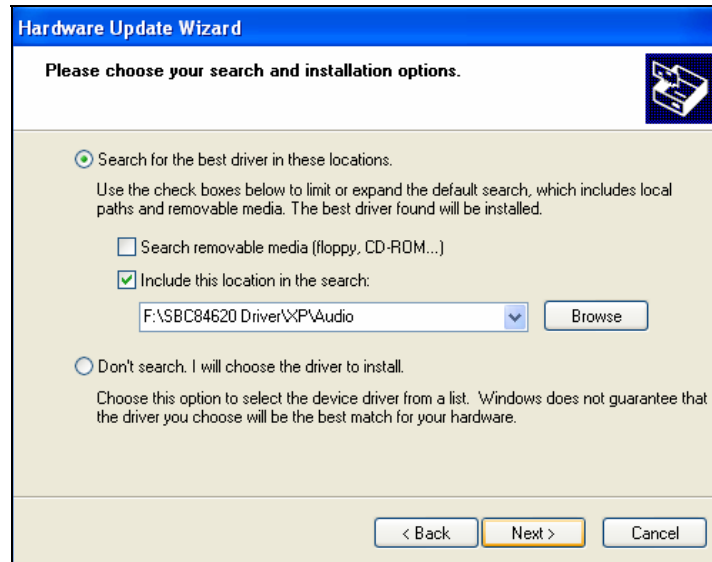
2. Click on next



3. Click on next



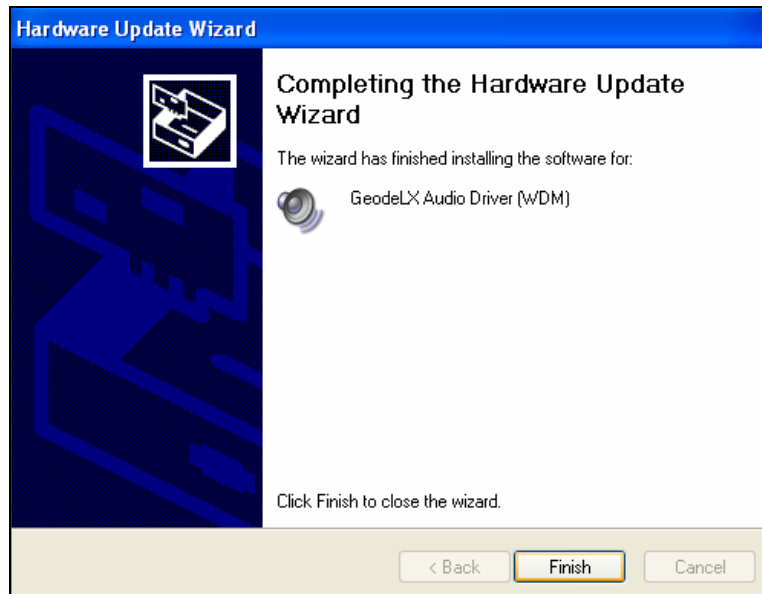
4. Select Audio Driver Folder then Click on next.



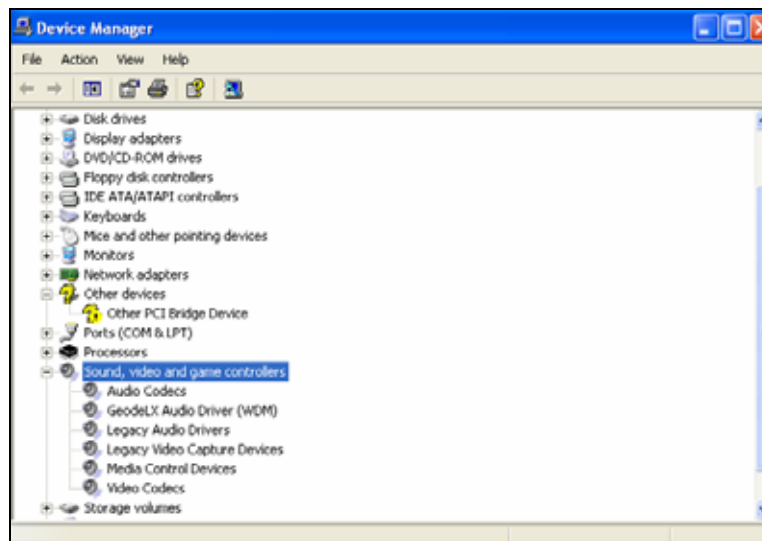
5. Click "Continue Anyway"



6. Click Finish

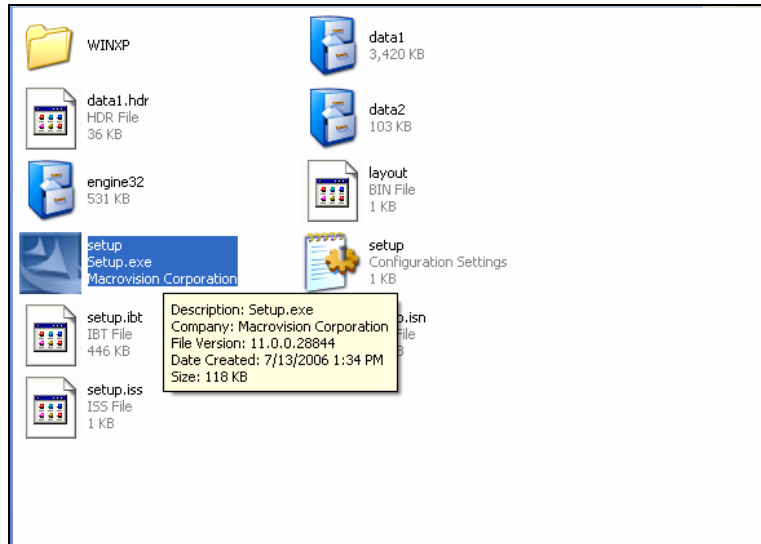


7. Audio Driver installed finish.

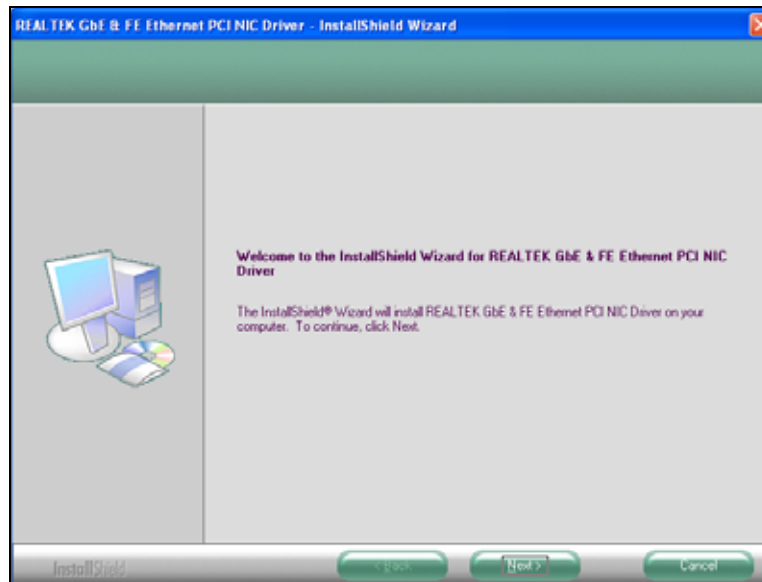


Installation of LAN driver

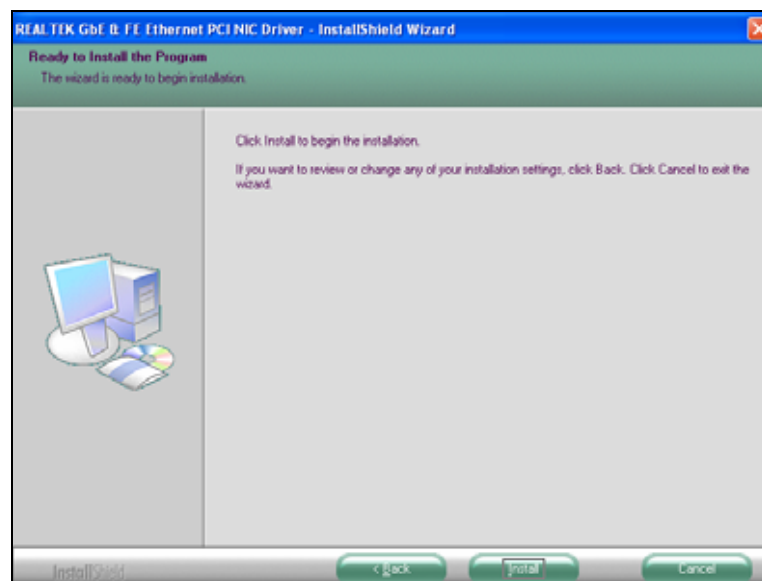
1. Click Setup



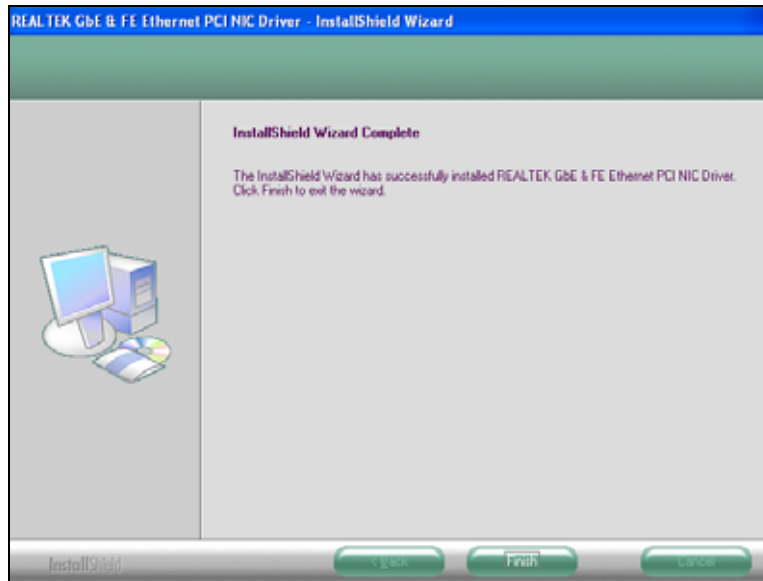
2. Click on Next



3. Click on Install

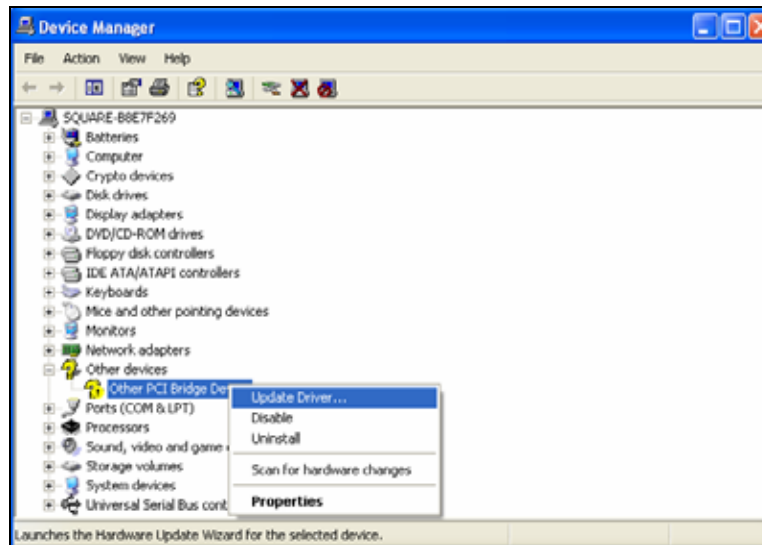


4. Click on Finish

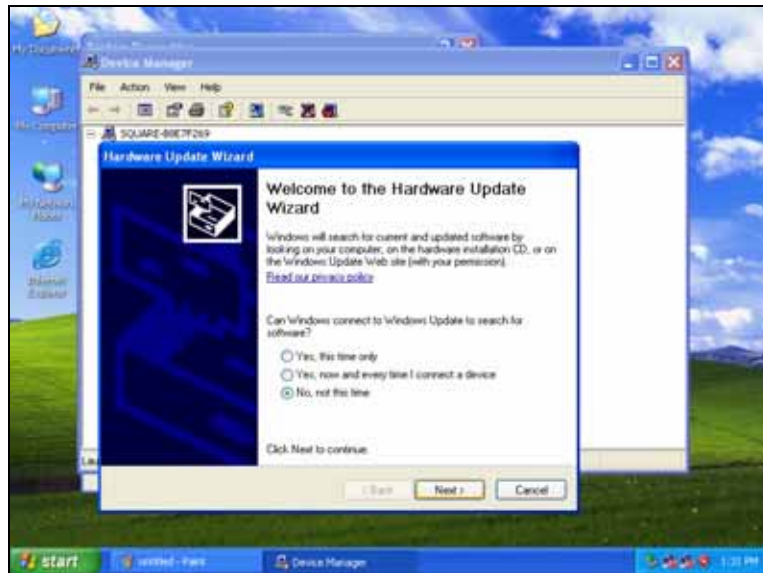


Installation of PCI Bridge Driver

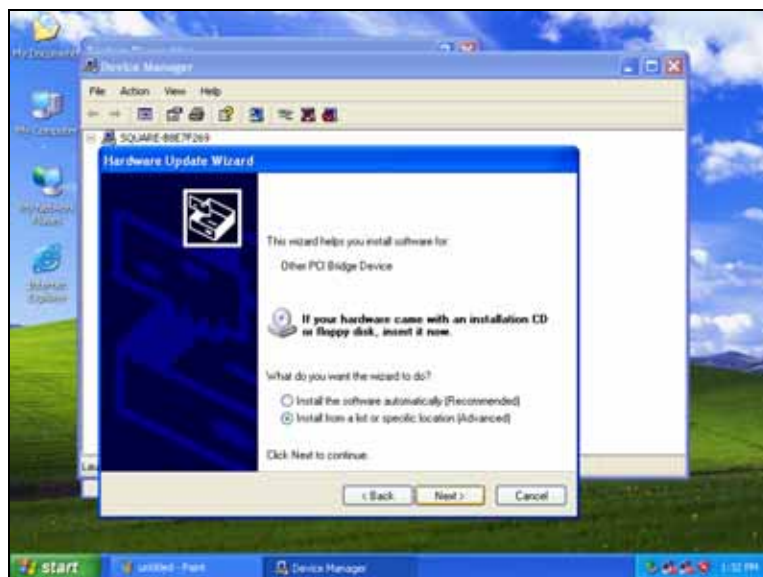
1. Open device manager, right click on Other PCI Bridge Device and click on update Driver.



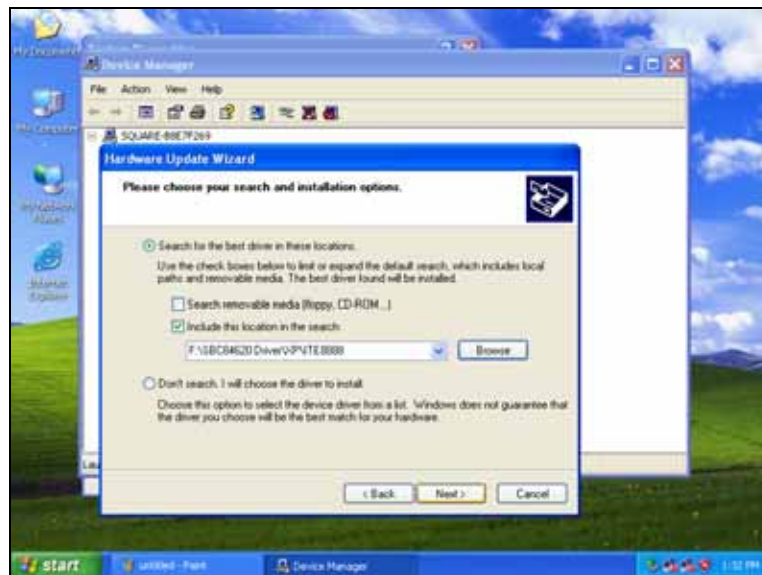
2. Click on next



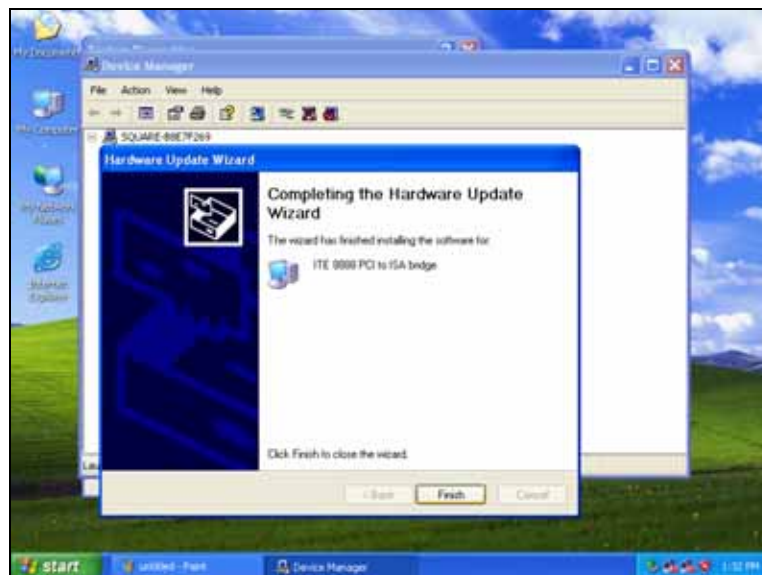
3. Click on next



4. Search the right directory of PCI Bridge for ITE8888 driver.

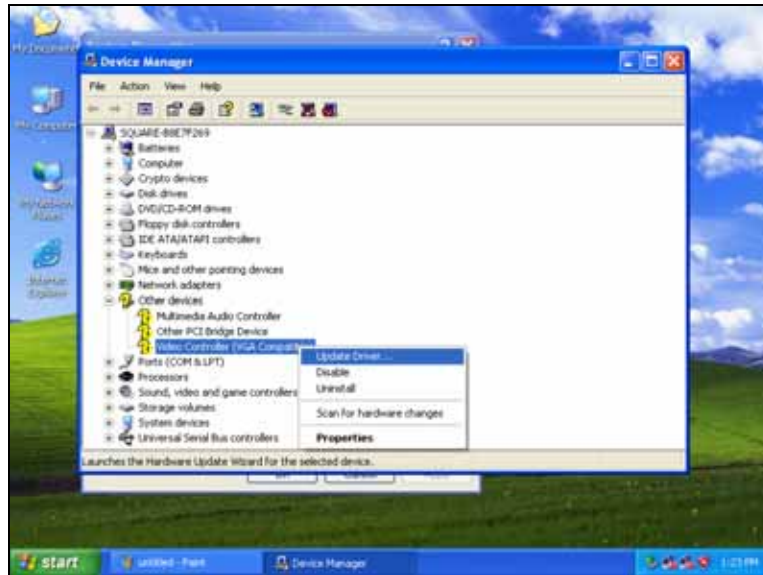


5. Click on Finish



Installation of VGA Driver

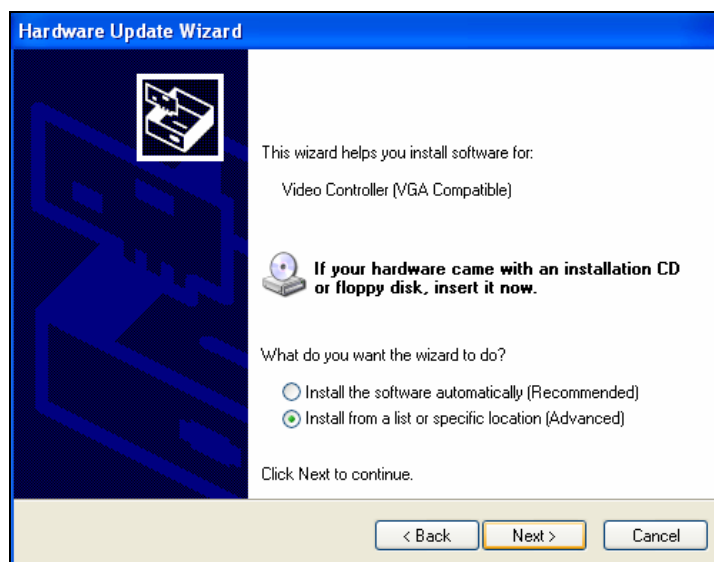
1. Open device manage, right click on Video Controller and click on update Driver.



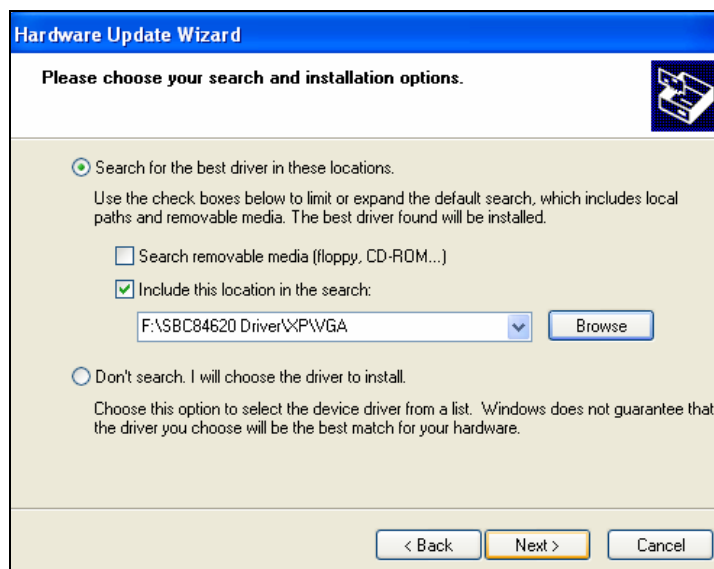
2. Click on Next



3. Click on next



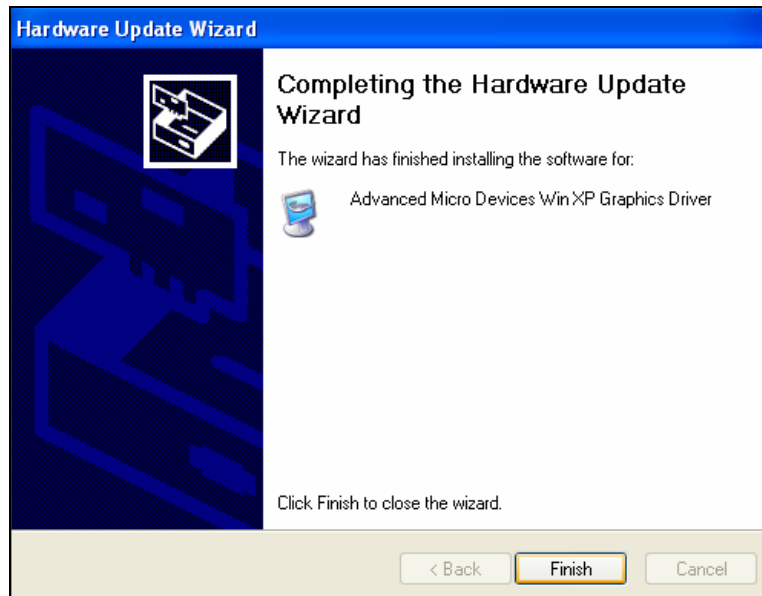
4. Click on next



5. Click on Continue Anyway



6. Click on Finish



*** After installed all Driver. Please reboot the system.**