User's Manual

EPIA-NX

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September 3, 2007

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FCC-B Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his personal expense.

Notice 1

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

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE

Safety Instructions

1. Always read the safety instructions carefully.
2. Keep this User's Manual for future reference.
3. Keep this equipment away from humidity.
4. Lay this equipment on a reliable flat surface before setting it up.
5. The openings on the enclosure are for air convection hence protects the equipment from overheating. DO NOT COVER THE OPENINGS.
6. Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
7. Place the power cord in such a way that people cannot step on it. Do not place anything over the power cord.
8. Always unplug the power cord before inserting any add-on card or module.
9. All cautions and warnings on the equipment should be noted.
10. Never pour any liquid into the opening. Liquid can cause damage or electrical shock.
11. If any of the following situations arises, get the equipment checked by a service personnel:
    - The power cord or plug is damaged
    - Liquid has penetrated into the equipment
    - The equipment has been exposed to moisture
    - The equipment has not work well or you cannot get it work according to User's Manual.
    - The equipment has dropped and damaged
    - If the equipment has obvious sign of breakage
12. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT UNCONDITIONED, STORAGE TEMPERATURE ABOVE 60 C (140F), IT MAY DAMAGE THE EQUIPMENT.

CAUTION: Explosion or serious damage may occur if the battery is incorrectly replaced. Replace only with the same or equivalent battery type recommended by the manufacturer.

BOX CONTENTS

- ☐ One VIA Nano-ITX mainboard
- ☐ One Quick Installation Guide
- ☐ One ATA-133/100 IDE ribbon cable
- ☐ One PS2 KB/MS cable
- ☐ One VGA cable
- ☐ One USB cable
- ☐ One power cable
- ☐ One driver and utilities CD

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CHAPTER 1

Specifications

The ultra-compact and highly integrated VIA EPIA-NX Nano-ITX mainboard is the smallest form-factor available today. Through a high level of integration, the Nano-ITX measures at only 50% of the size of a Mini-ITX mainboard. The mainboard enables the creation of an exciting new generation of small, ergonomic, innovative and affordable embedded systems.

MAINBOARD SPECIFICATIONS

CPU

- Supports VIA C7 1.5GHz NanoBGA2 Processor
- Supports VIA Eden 1.2GHz NanoBGA2 Processor

Chipset

- VIA CX700M2 Advanced All-in-one System Processor

Graphics

- Integrated UniChrome™ Pro II 3D/2D AGP with MPEG-2/4 and WMV9 Video Decoding Acceleration

Audio

- VIA VT1708A High Definition Audio Codec

Memory

- 1 x DDR2 533 DIMM slot (up to 1 GB)

Expansion Slot

- 1 x miniPCI slot

IDE

- 1 x UltraDMA 133/100 connector (2.0mm 40-pin header)

LAN

- VIA VT6107 10/100 Mbps Fast Ethernet Controller or VT6122 Gigabit Ethernet Controller (Optional)

Back Panel I/O Port

- 1 x RJ-45

Onboard I/O Connectors

- 1 x USB pin connector for 6 additional USB 2.0 ports
- 1 x LPC header
- 1 x PS2 mouse/keyboard header
- 2 x Fan pin connectors for CPU and System fans
- 1 x LVDS panel connector
- 1 x DVO connector to support 2nd LVDS panel (VT1636 add-on card required)
- 1 x Audio connector: Line-out, Line-in, MIC-in, and S/PDIF out
- 1 x TV out connector for Composite, S-Video, or Component (YPbPr)
- 1 x Video pin connector for VGA output, CCIR656/601 video input and SMBUS
- 2 x SATA connectors
- 1 x Nano-ITX power connector

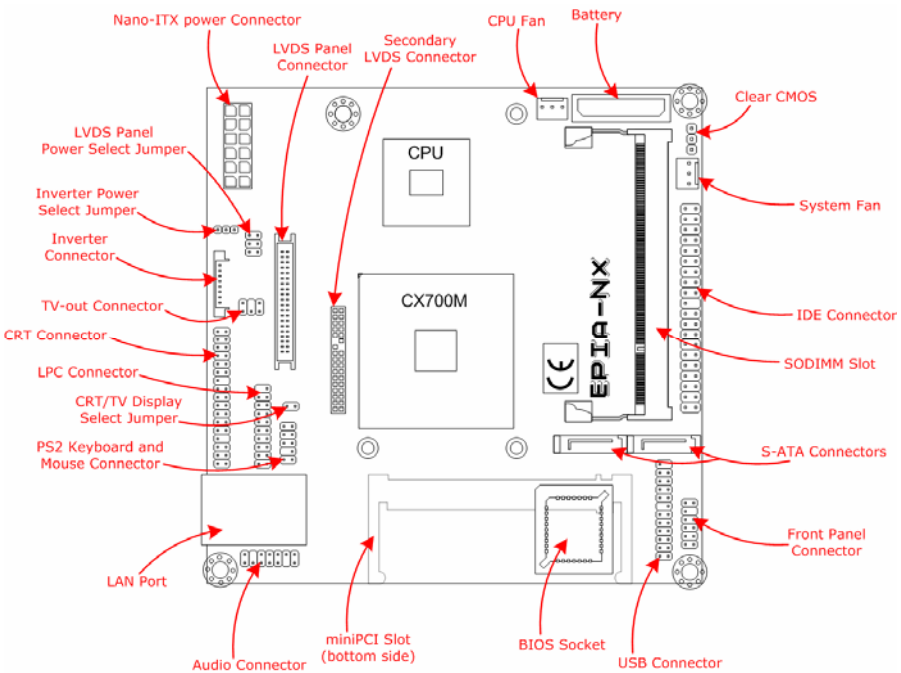
BIOS

- Award BIOS with LPC 4/8Mbit flash memory capacity

Form Factor

- Nano-ITX (8 layers)
- 12 cm X 12 cm

MAINBOARD LAYOUT



BACK PANEL LAYOUT

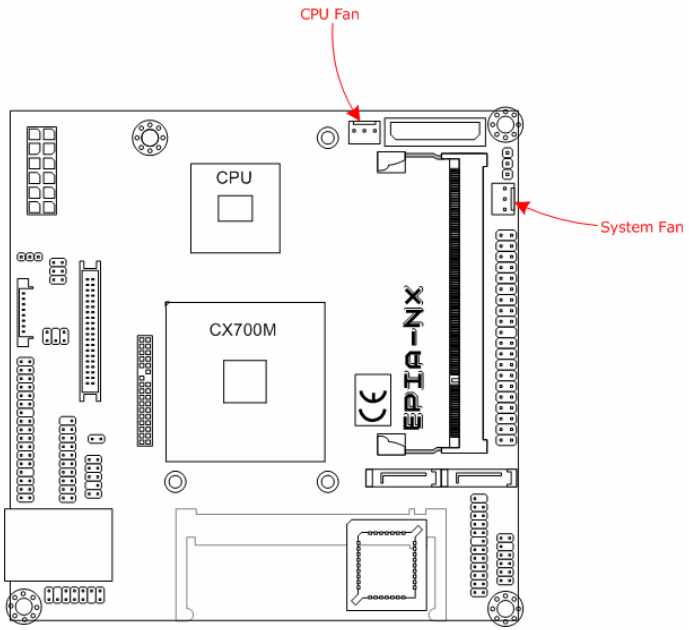
CHAPTER 2

Installation

This chapter provides you with information about hardware installation procedures. It is recommended to use a grounded wrist strap before handling computer components. Electrostatic discharge (ESD) can damage some components.

CPU

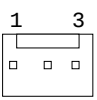
The VIA EPIA-NX Nano-ITX mainboard can support VIA C7 NanoBGA2 and VIA Eden NanoBGA2 processors. The processor requires a heatsink with fan for 1.5GHz SKU and a fanless heatsink for 1.2GHz SKU.



CPU Fan and System Fan: CPU_FAN and SYS_FAN

The CPU_FAN (CPU fan) and SYS_FAN (system fan) run on +12V and maintain system cooling. When connecting the wire to the connectors, always be aware that the red wire (positive wire) should be connected to +12V. The black wire is Ground and should always be connected to GND.

Pin	Signal
1	NC
2	+12V
3	GND

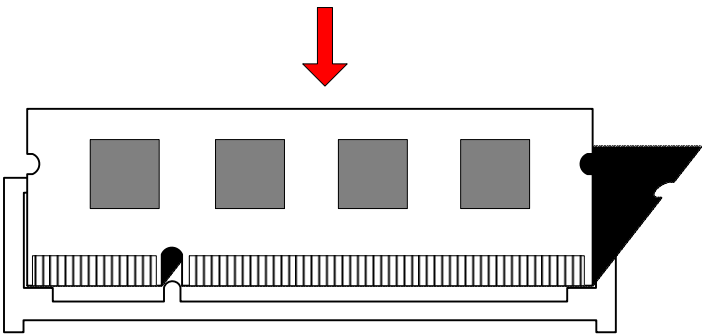


MEMORY MODULE INSTALLATION

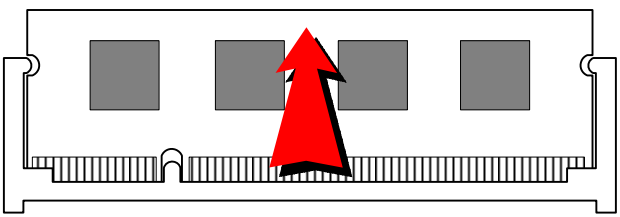
Memory Slot: DDR2_SODIMM

The VIA EPIA-NX Nano-ITX mainboard provides one SODIMM slot for DDR2 533 SDRAM memory modules and supports memory sizes up to 1GB.

Insert the SODIMM module at a 45 degree angle.



Push the SODIMM module back towards the board until the clips lock the module in place.



Available DDR2 SDRAM Configurations

Refer to the table below for available DDR2 SDRAM configurations on the mainboard.

Slot	Module Size	Total
SODIMM	64MB, 128MB, 256MB, 512MB, 1GB	64MB-1GB
Maximum supported system memory		64MB-1GB

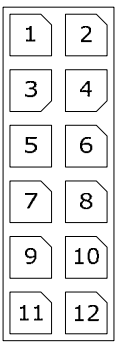
CONNECTING THE POWER SUPPLY

The VIA EPIA-NX Nano-ITX mainboard supports a Nano-ITX power supply for the power system. Before inserting the power supply connector, always make sure that all components are installed correctly to ensure that no damage will be caused.

Nano-ITX 12-Pin Power Connector

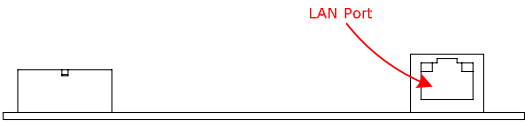
To connect the power supply, make sure the power plug is inserted in the proper orientation and the pins are aligned. Then push down the plug firmly into the connector.

Pin	Signal
1	+3.3V
2	+3.3V
3	+3.3V
4	+5VSUS
5	GND
6	+12V
7	-PSON
8	+5V
9	GND
10	+5V
11	GND
12	PWRGD



BACK PANEL PORTS

The back panel has the following layout:



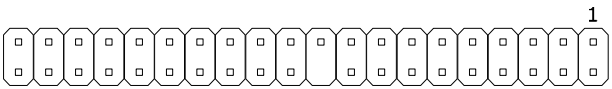
RJ45 LAN Port

The mainboard provides a standard RJ45 port for enabling connections to networks.

CONNECTORS

IDE Connector: IDE

The mainboard has an Ultra DMA 133/100 controller. You can connect up to two IDE devices in any combination.



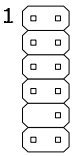
If two drives are connected to a single cable, the jumper on the second drive must be set to slave mode. Refer to the drive documentation supplied by the vendor for the jumper settings.

Pin	Signal	Pin	Signal
1	#IDE_RST	2	GND
3	PD_7	4	PD_8
5	PD_6	6	PD_9
7	PD_5	8	PD_10
9	PD_4	10	PD_11
11	PD_3	12	PD_12
13	PD_2	14	PD_13
15	PD_1	16	PD_14
17	PD_0	18	PD_15
19	GND	20	NC
21	#PD_REQ	22	GND
23	#PD_IOW	24	GND
25	#PD_IOR	26	GND
27	#PD_RDY	28	PRIMARY
29	#PD_ACK	30	GND
31	PD_IRQ15	32	NC
33	PD_A1	34	IDE_DMADET
35	PD_A0	36	PD_A2
37	#PD_CS1	38	#PD_CS3
39	#HD_LED1	40	GND

Case Connector: FPNL

The FPNL pin header allows you to connect the power switch, reset switch, power LED, HDD LED and the case speaker.

Pin	Signal	Pin	Signal
1	+PWR_LED	2	+HD_LED
3	+PWR_LED	4	-HD_LED
5	-PWR_LED	6	PW_BN
7	SPEAK+	8	GND
9	KEY	10	RST_SW
11	SPEAK-	12	GND



Power Switch (PW_BN)

Connect to a 2-pin power button switch. Pressing this button will turn the system power on or off.

Reset Switch (RST_SW)

The reset switch is used to reboot the system rather than turning the power ON/OFF. Avoid rebooting the system, if the HDD is still working. Connect the reset switch from the system case to this pin.

Power LED (PWR_LED)

The LED will light when the system is on. If the system is in S1 (POS - Power On Suspend) or S3 (STR - Suspend To RAM) state, the LED will blink.

HDD LED (HD_LED)

HDD LED shows the activity of a hard disk drive. Avoid turning the power off when the HDD LED still has a lit. Connect the HDD LED from the system case to this pin.

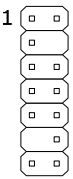
Speaker (SPEAK)

The speaker from the system case is connected to this pin.

Audio Connector: AUDIO

This is an interface for connections to external audio devices.

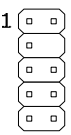
Pin	Signal	Pin	Signal
1	SPDIF_OUT	2	+5V
3	GND	4	KEY
5	LINEOUT_R	6	LINEOUT_L
7	LINEIN_R	8	LINEIN_L
9	MICIN1_R	10	MICIN1_L
11	KEY	12	NC
13	AGND	14	AGND



KBMS Connector: KB/MS

The mainboard provides a PS2 pin header to attach a PS2 keyboard and mouse.

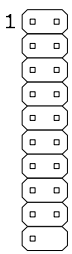
Pin	Signal	Pin	Signal
1	VCCE	2	VCCE
3	NC	4	KEY
5	GND	6	GND
7	KB_DT	8	MS_DT
9	KB_CK	10	MS_CK



LPC Connector: LPC

This pin connector is for LPC devices.

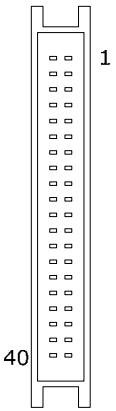
Pin	Signal	Pin	Signal
1	LAD1	2	LPCCLK1
3	-PCIRSTX	4	GND
5	LAD0	6	SIO_48_OSC
7	LAD2	8	-LFRAME
9	SERIRQ	10	LAD3
11	-LDRQ1	12	-EXTSMI
13	+5V	14	+3.3V
15	+5V	16	+3.3V
17	GND	18	GND
19	GND	20	Key



LVDS Panel Connector: PANEL

The LVDS Panel connector allows you to connect the panel's LVDS cable directly to support LVDS panel without any need of a daughter card.

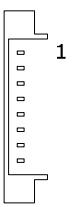
Pin	Signal	Pin	Signal
1	-LD2C4	2	PVDD
3	+LD2C4	4	PVDD
5	GND	6	GND
7	-LD2C5	8	GND
9	+LD2C5	10	-LD1C0
11	GND	12	+LD1C0
13	-LD2C6	14	GND
15	+LD2C6	16	-LD1C1
17	GND	18	+LD1C1
19	-LCLK2	20	GND
21	+LCLK2	22	-LD1C2
23	GND	24	+LD1C2
25	-LD2C7	26	GND
27	+LD2C7	28	-LCLK1
29	NC	30	+LCLK1
31	NC	32	GND
33	NC	34	-LD1C3
35	NC	36	+LD1C3
37	NC	38	GPIOA_CLK
39	NC	40	GPIOB_DATA



Inverter Connector

The mainboard provides an inverter for supplying power to the backlight of the LCD panel.

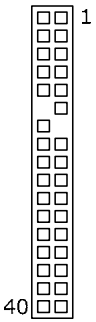
Pin	Signal
1	IVDD
2	IVDD
3	BLON
4	NC
5	BLON
6	BR_CNTR
7	GND
8	GND



Secondary LVDS Connector: LVDS (Special BIOS needs to be requested through FAE to enable this function)

The Secondary LVDS connector allows you to connect a second LVDS panel. A LVDS-08 add-on card is required for this to function.

Pin	Signal	Pin	Signal
1	+12V	2	+5V
3	+12V	4	+5V
5	+12V	6	+5V
7	GND	8	GND
9	+3.3V	10	GND
11	+3.3V	12	KEY
13	KEY	14	DVP1D1 (AC2)
15	DVP1D0 (AB3)	16	DVP1D3 (AD4)
17	DVP1D2 (AC3)	18	DVP1D5 (AD3)
19	DVP1D4 (AC1)	20	GND
21	GND	22	DVP1D9 (AG5)
23	DVP1D6 (AD1)	24	DVP1D7 (AF5)
25	DVP1D8 (AE3)	26	DVP1D11 (AG3)
27	DVP1D10 (AF3)	28	GND
29	GND	30	DVP1DCLK (AD2)
31	DVP1DDE (AG4)	32	GND
33	DVP1DVS (AC4)	34	ENVDD2 (Y5)
35	DVP1DHS (AB4)	36	ENVBLD2 (Y6)
37	GND	38	-PCIRSTX
39	SPD1 (AA1)	40	SPCLK1 (AA2)



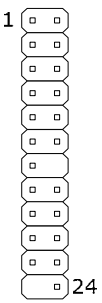
Serial ATA Connectors: SATA1 and SATA2

These next generation connectors support the thin Serial ATA cables for primary internal storage devices. The current Serial ATA interface allows up to 150MB/s data transfer rate, faster than the standard parallel ATA with 133 MB/s (Ultra DMA).

USB Pin Connector: USB

The mainboard provides 1 USB pin connector that allows up to 6 USB 2.0 ports to be added. This port can be used to connect high-speed USB interface peripherals such as USB HDD, digital cameras, MP3 players, printers, modem and the like.

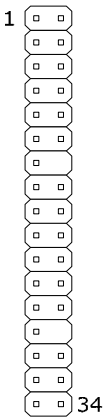
Pin	Signal	Pin	Signal
1	VUSB0	2	VUSB2
3	USBD_T0+	4	USBD_T2+
5	USBD_T0-	6	USBD_T2-
7	GND	8	GND
9	USBD_T1-	10	USBD_T3-
11	USBD_T1+	12	USBD_T3+
13	GND	14	KEY
15	VUSB4	16	VUSB4
17	USBD_T4-	18	USBD_T5-
19	USBD_T4+	20	USBD_T5+
21	GND	22	GND
23	KEY	24	GND



CRT, Video Capture and SMBus Connector

The mainboard provides a single connector for the CRT, Video Capture and SMBus interfaces.

Pin	Signal	Pin	Signal
1	GND	2	+5V
3	AR	4	SPD2
5	AG	6	SPDCLK2
7	AB	8	HSYNC
9	GND	10	VSYNC
11	GND	12	GND
13	GND	14	KEY
15	GND	16	CAP0D0
17	CAP0D7	18	CAP0D4
19	CAP0D6	20	CAP0D5
21	CAP0HS	22	CAP0D2
23	CAP0D1	24	CAP0D3
25	CAP0VS	26	CAP0CLK
27	SPD1	28	KEY
29	SPCLK1	30	GND
31	GND	32	SMBCK
33	SMBDT	34	+3.3V



TV-out Connector

The mainboard provides a connector for adding Composite, S-Video, and Component TV-out ports.

Pin	Signal	Pin	Signal
1	Y (Y, G)	2	GND
3	Pb (C, R)	4	KEY
5	Pr (CVBS, B)	6	GND

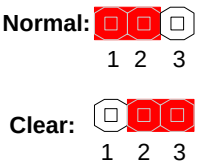
JUMPERS

The mainboard provides jumpers for setting some mainboard functions. This section will explain how to change the settings of the mainboard functions using the jumpers.

Clear CMOS: CLEAR_CMOS

The onboard CMOS RAM stores system configuration data and has an onboard battery power supply. To reset the CMOS settings, set the jumper on pins 2 and 3 while the system is off. Return the jumper to pins 1 and 2 afterwards. Setting the jumper while the system is on will damage the mainboard.

Setting	1	2	3
Normal Operation	ON	ON	OFF
Clear CMOS setting	OFF	ON	ON

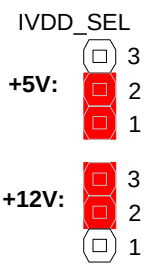


WARNING: Except when clearing the RTC RAM, never remove the cap on CLEAR_CMOS1 jumper default position. Removing the cap will cause system boot failure. Avoid clearing the CMOS while the system is on; it will damage the mainboard.

Inverter Selector: IVDD_SEL

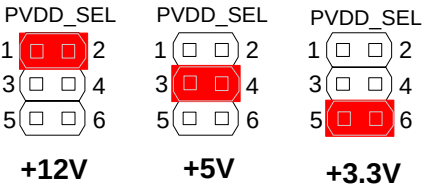
IVDD is the VCC selector jumper to determine the input voltage of the panel inverter for panel's back-light.

Setting	1	2	3
+5V	ON	ON	OFF
+12V	OFF	ON	ON



Panel Power Selector: PVDD_SEL

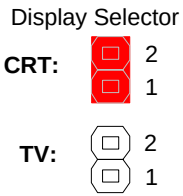
PVDD is the VCC selector jumper to determine the panel's signal voltage.



Setting	1	2	3	4	5	6
+12V	ON	ON	OFF	OFF	OFF	OFF
+5V	OFF	OFF	ON	ON	OFF	OFF
+3.3V	OFF	OFF	OFF	OFF	ON	ON

Display Selector

The jumper is the VCC selector jumper to determine a TV or a CRT display.

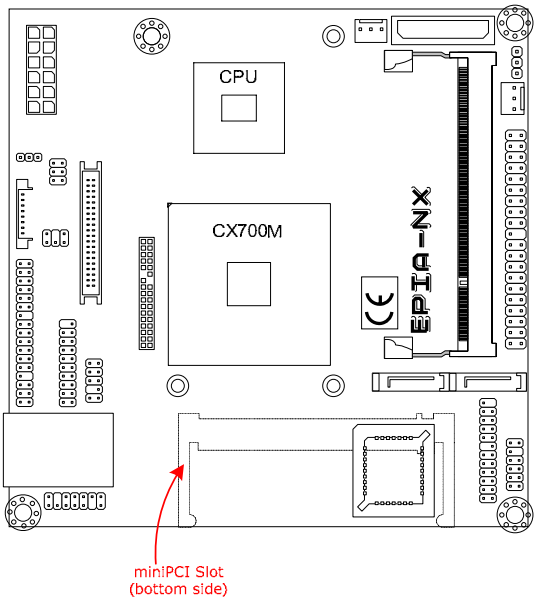


Setting	1	2
CRT	ON	ON
TV	OFF	OFF

SLOTS

Mini Peripheral Component Interconnect: MINIPCI

The miniPCI slot allows you to insert a miniPCI expansion card. First unplug the power supply before adding or removing expansion cards. Read the documentation for the expansion card to see if any changes to the system are necessary.



PCI Interrupt Request Routing

The IRQ (interrupt request line) are hardware lines over which devices can send interrupt signals to the microprocessor. The "PCI & LAN" IRQ pins are typically connected to the PCI bus INT A# ~ INT D# pins as follows:

	Order 1	Order 2	Order 3	Order 4
miniPCI Slot	INT B#	INT C#	INT D#	INT A#

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CHAPTER 3

BIOS Setup

This chapter gives a detailed explanation of the BIOS setup functions.

ENTERING SETUP

Power on the computer and press <Delete> during the beginning of the boot sequence to enter the BIOS setup menu. If you missed the BIOS setup entry point, you may restart the system and try again.

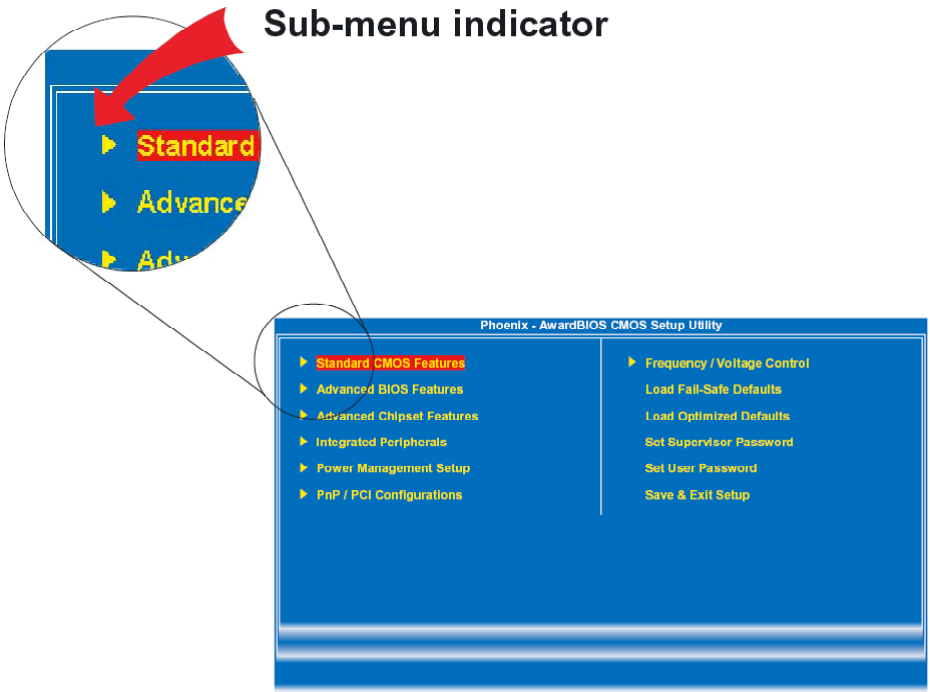
CONTROL KEYS

Keys	Description
Up Arrow	Move to the previous item
Down Arrow	Move to the next item
Left Arrow	Move to the item in the left side
Right Arrow	Move to the item in the right side
Enter	Select the item
Escape	Jumps to the Exit menu or returns to the main menu from a submenu
Page Up / +	Increase the numeric value or make changes
Page Down / -	Decrease the numeric value or make changes
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
F5	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6	Load the default CMOS value from Fail-Safe default table, only for Option Page Setup Menu
F7	Load Optimized defaults
F9	Jumps to the Main Menu
F10	Save all the CMOS changes and exit

NAVIGATING THE BIOS MENUS

The main menu displays all the BIOS setup categories. Use the Up/Down/ Left/Right arrow keys to select any item or sub-menu. Description of the selected/highlighted category is displayed at the bottom of the screen.

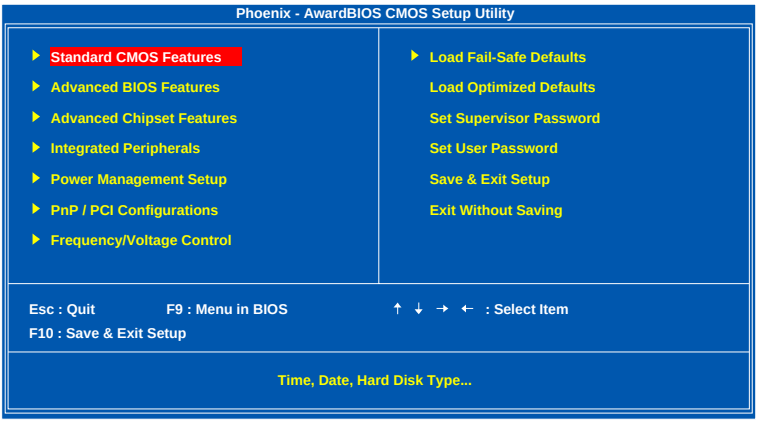
An arrow symbol next to a field indicates that a sub-menu is available (see figure below). Press <Enter> to display the sub-menu. To exit the sub-menu, press <Esc>.



GETTING HELP

The BIOS setup program provides a “General Help” screen. You can display this screen from any menu/sub-menu by pressing <F1>. The help screen displays the keys for using and navigating the BIOS setup. Press <Esc> to exit the help screen.

MAIN MENU



Standard CMOS Features

Use this menu to set basic system configurations.

Advanced BIOS Features

Use this menu to set the advanced features available on your system.

Advanced Chipset Features

Use this menu to set chipset specific features and optimize system performance.

Integrated Peripherals

Use this menu to set onboard peripherals features.

Power Management Setup

Use this menu to set onboard power management functions.

PnP/PCI Configurations

Use this menu to set the PnP and PCI configurations.

Frequency/Voltage Control

Use this menu to set the system frequency and voltage control.

Load Fail-Safe Defaults

Use this menu option to load the BIOS default settings for minimal and stable system operations.

Load Optimized Defaults

Use this menu option to load BIOS default settings for optimal and high performance system operations.

Set Supervisor Password

Use this menu option to set the BIOS supervisor password.

Set User Password

Use this menu option to set the BIOS user password.

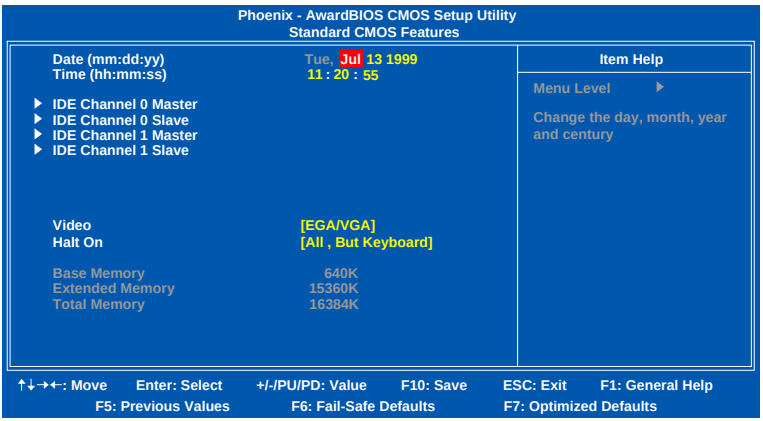
Save & Exit Setup

Save BIOS setting changes and exit setup.

Exit Without Saving

Discard all BIOS setting changes and exit setup.

STANDARD CMOS FEATURES



Date

The date format is [Day, Month Date Year]

Time

The time format is [Hour : Minute : Second]

Halt On

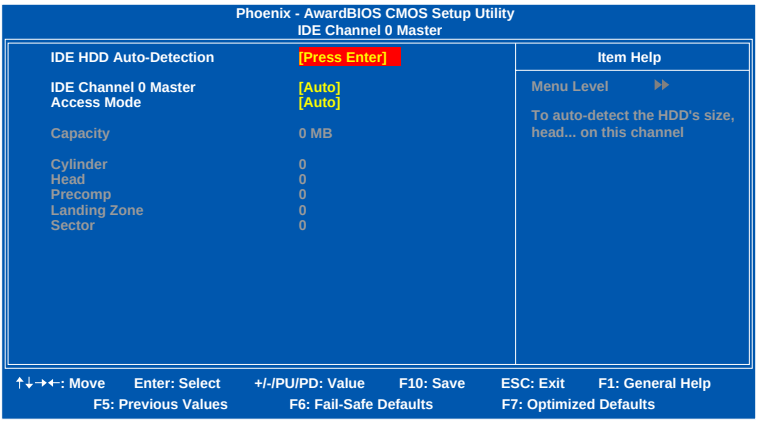
Sets the system's response to specific boot errors. Below is a table that details the possible settings.

Setting	Description
All Errors	System halts when any error is detected
No Errors	System does not halt for any error
All, But Keyboard	System halts for all non-key errors

Video

Settings: [EGA/VGA, CGA 40, CGA 80, MONO]

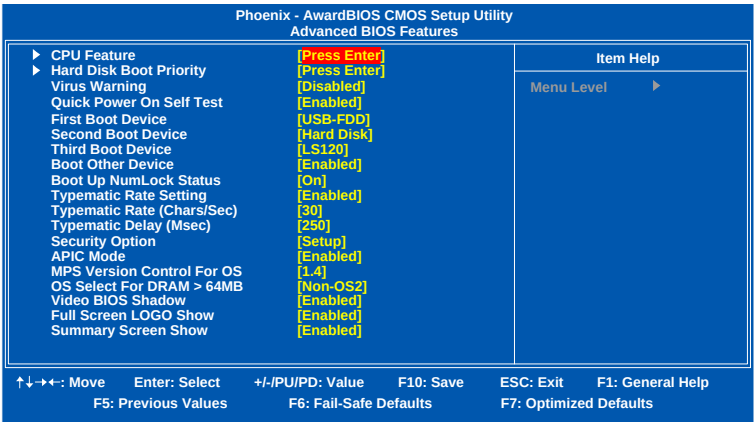
IDE DRIVES



The specifications of your drive must match with the drive table. The hard disk will not work properly if you enter incorrect information in this category. Select "Auto" whenever possible. If you select "Manual", make sure the information is from your hard disk vendor or system manufacturer. Below is a table that details required hard drive information when using the "Manual" mode.

Setting	Description
IDE Channel	The name of this match the name of the menu. Settings: [None, Auto, Manual]
Access Mode	Settings: [CHS, LBA, Large, Auto]
Capacity	Formatted size of the storage device
Cylinder	Number of cylinders
Head	Number of heads
Precomp	Write precompensation
Landing Zone	Cylinder location of the landing zone
Sector	Number of sectors

ADVANCED BIOS FEATURES



Virus Warning

Setting	Description
Enabled	Turns on hard disk boot sector virus protection
Disabled	Turns off hard disk boot sector virus protection

Quick Power On Self-Test

Shortens Power On Self-Test (POST) cycle to enable shorter boot up time.

Setting	Description
Enabled	Shorten Power On Self Test (POST) cycle and bootup time
Disabled	Standard Power On Self Test (POST)

First/Second/Third Boot Device

Set the boot device sequence as BIOS attempts to load the disk operating system.

Setting	Description
LS120	Boot from LS-120 drive
Hard Disk	Boot from the HDD
CD-ROM	Boot from CD-ROM
ZIP100	Boot from ATAPI ZIP drive
USB-FDD	Boot from USB floppy drive
USB-ZIP	Boot from USB ZIP drive
USB-CDROM	Boot from USB CDROM
Legacy LAN	Boot from network drive
Disabled	Disable the boot device sequence

Boot Other Device

Enables the system to boot from alternate devices if the system fails to boot from the “First/Second/Third Boot Device” list.

Setting	Description
Enabled	Enable alternate boot device
Disabled	No alternate boot device allowed

Boot Up NumLock Status

Set the NumLock status when the system is powered on.

Setting	Description
On	Forces keypad to behave as 10-key
Off	Forces keypad to behave as arrow keys

Typematic Rate Setting

Enables “Typematic Rate” and “Typematic Delay” functions.

Settings: [Enabled, Disabled]

Typematic Rate (Chars/Sec)

This item sets the rate (characters/second) at which the system retrieves a signal from a depressed key.

Settings: [6, 8, 10, 12, 15, 20, 24, 30]

Typematic Delay (Msec)

This item sets the delay between when the key was first pressed and when the system begins to repeat the signal from the depressed key.

Settings: [250, 500, 750, 1000]

Security Option

Selects whether the password is required every time the System boots, or only when you enter Setup.

Setting	Description
Setup	Password prompt appears only when end users try to run BIOS Setup
System	Password prompt appears every time when the computer is powered on and when end users try to run BIOS Setup

APIC Mode

Enables APIC (Advanced Programmable Interrupt Controller) functionality.

Settings: [Enabled, Disabled]

MPS Variation Control for OS

Settings: [1.1, 1.4]

OS Select For DRAM > 64MB

Select OS2 only if you are running OS/2 operating system with greater than 64MB of RAM on the system.

Settings: [Non-OS2, OS2]

Video BIOS Shadow

Enabled copies Video BIOS to shadow RAM Improves performance.

Settings: [Enabled, Disabled]

Full Screen Logo Show

Show full screen logo during BIOS boot up process.

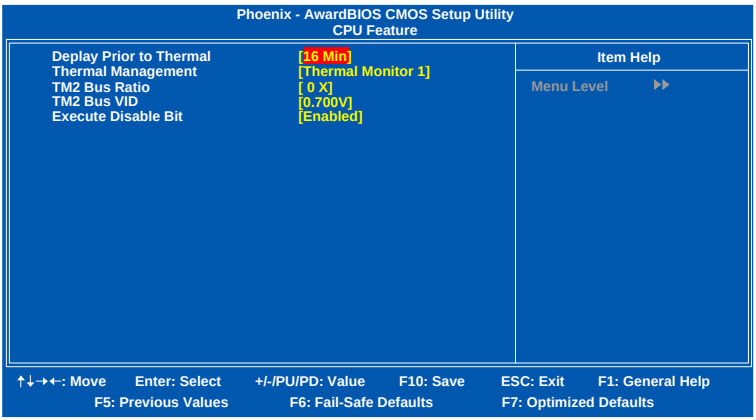
Settings: [Enabled, Disabled]

Summary Screen Show

Show summary screen.

Settings: [Enabled, Disabled]

CPU FEATURE



Deplay Prior to Thermal

Settings: [4 Min, 8 Min, 16 Min, 32 Min]

Thermal Management

This item sets CPU's thermal control rule to protect CPU from overheat.

Setting	Description
Thermal Monitor 1	On-die throtting
Thermal Monitor 2	Ratio & VID transition

TM2 Bus Ratio

This item sets the frequency (bus ratio) of the throttled performance that will be initiated when the on die sensor goes from not hot to hot.

Key in a DEC number.

Settings: [Min = 0, Max = 255]

TM2 Bus VID

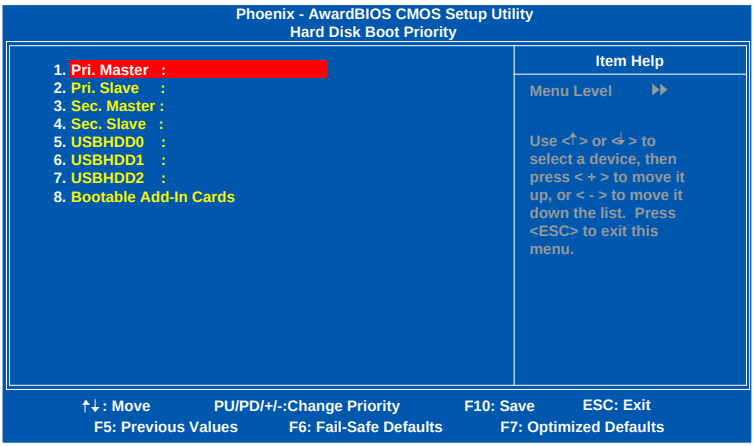
This item sets the voltage of the throttled performance that will be initiated when the on die sensor goes from not hot to hot.

Settings: [0.700V, 0.716V, 0.732V, 0.748V, 0.764V, 0.780V, 0.796V, 0.812V, 0.828V, 0.844V, 0.860V, 0.876V, 0.892V, 0.908V, 0.924V, 0.940V, 0.956V, 0.972V, 0.988V, 1.004V, 1.020V, 1.036V, 1.052V, 1.068V, 1.084V, 1.100V, 1.116V, 1.132V, 1.148V, 1.164V, 1.180V, 1.196V, 1.212V, 1.228V, 1.244V, 1.260V, 1.276V, 1.292V, 1.308V, 1.324V, 1.340V, 1.356V, 1.372V, 1.388V, 1.404V, 1.420V, 1.436V, 1.452V, 1.468V, 1.484V, 1.500V, 1.516V, 1.532V, 1.548V, 1.564V, 1.580V, 1.596V, 1.612V, 1.628V, 1.644V, 1.660V, 1.676V, 1.692V, 1.708]

Execute Disable Bit

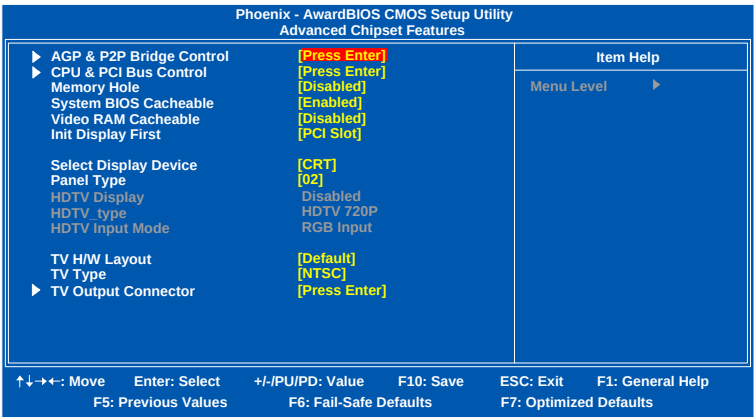
Settings: [Enabled, Disabled]

HARD DISK BOOT PRIORITY



This is for setting the priority of the hard disk boot order when the “Hard Disk” option is selected in the “[First/Second/Third] Boot Device” menu item.

ADVANCED CHIPSET FEATURES



WARNING: The Advanced Chipset Features menu is used for optimizing the chipset functions. Do not change these settings unless you are familiar with the chipset.

Memory Hole

Settings: [Disabled, 15M – 16M]

System BIOS Cacheable

Settings: [Disabled, Enabled]

Video RAM Cacheable

Settings: [Disabled, Enabled]

Init Display First

Settings: [PCI Slot, AGP]

Select Display Device

This setting refers to the type of display being used with the system.

Settings: [CRT, LCD, CRT+LCD, TV, LCD+TV]

Panel Type

This setting refers to the native resolution of the display being used with the system.

Key in a HEX number.

Settings: [Min = 0000, Max = 000F]

TV H/W Layout

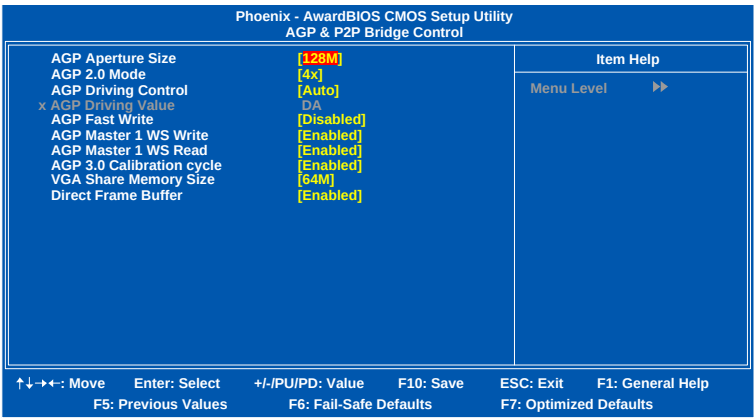
Settings: [Default, COMPOSITE+S-Video, COMP.+R/G/B, COMP.+Y/Cb/Cr, COMP.+SDTV-R,G,B, COMP.+SDTV-Y,Cb,Cr, COMPOSITE, S-Video, R/G/B, Y/Cb/Cr, SDTV - R,G,B, SDTV - Y,Cb,Cr, S-Video+R,G,B, S-Video+Y,Cb,Cr]

TV Type

This setting refers to the native resolution of the display being used with the system.

Settings: [NTSC, PAL]

AGP & P2P BRIDGE CONTROL



AGP Aperture Size

This setting controls how much memory space can be allocated to AGP for video purposes. The aperture is a portion of the PCI memory address range dedicated to graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

Settings: [32MB, 64MB, 128MB, 256MB, 512MB, 1G]

AGP 2.0 Mode

This mainboard supports the AGP 4x interface. When the AGP 4x video card is used, it can transfer video data at 1066MB/s. AGP 4x is backward compatible, leave the default 4x mode on. AGP 4x mode can be detected automatically once you plug in the AGP 4x card.

Settings: [4x, 2x, 1x]

AGP Driving Control

This item is used to signal driving current on AGP cards to auto or manual.

Settings: [Auto, Manual]

AGP Fast Write

This item is used to enable or disable the caching of display data for the video memory of the processor.

Settings: [Enabled, Disabled]

AGP Master 1 WS Write

Settings:[Enabled, Disabled]

AGP Master 1 WS Read

Settings:[Enabled, Disabled]

AGP 3.0 Calibration Cycle

Settings: [Enabled, Disabled]

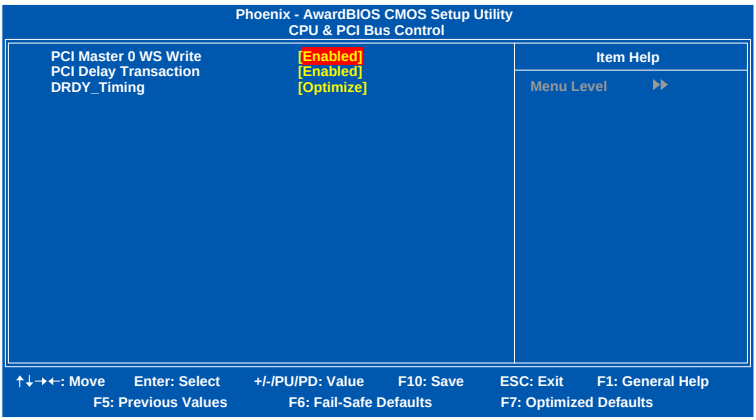
VGA Share Memory Size

Settings: [Disabled, 32M, 64M, 128M]

Direct Frame Buffer

Settings: [Enabled, Disabled]

CPU & PCI BUS CONTROL



PCI Master 0 WS Write

Settings: [Enabled, Disabled]

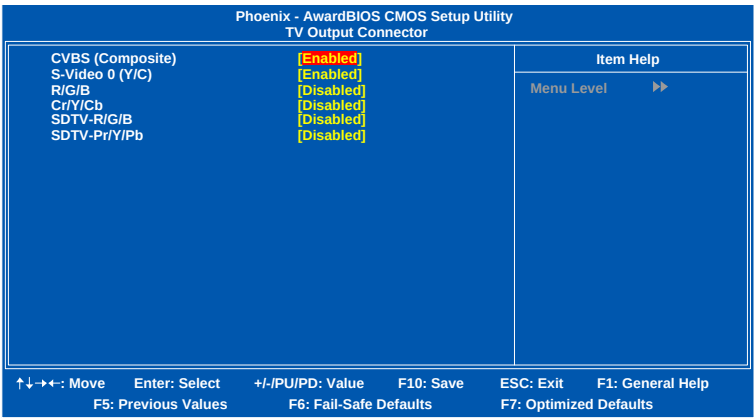
PCI Delay Transaction

Settings: [Enabled, Disabled]

DRDY_Timing

Settings: [Slowest, Default, Optimize]

TV OUTPUT CONNECTOR



CVBS (Composite)

Settings: [Enabled, Disabled]

S-Video 0 (Y/C)

Settings: [Enabled, Disabled]

R/G/B

Settings: [Enabled, Disabled]

Cr/Y/Cb

Settings: [Enabled, Disabled]

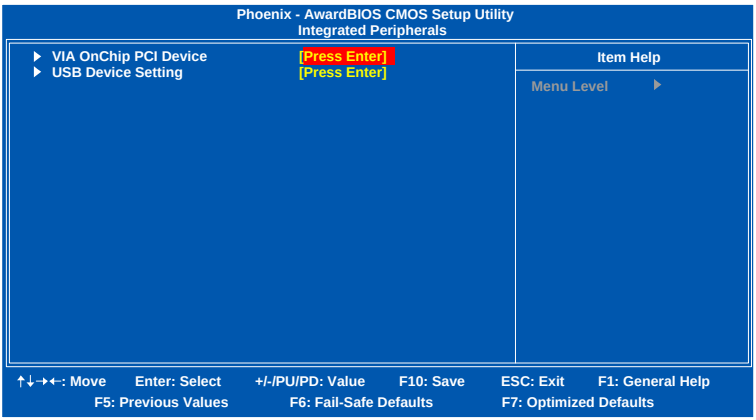
SDTV-R/G/B

Settings: [Enabled, Disabled]

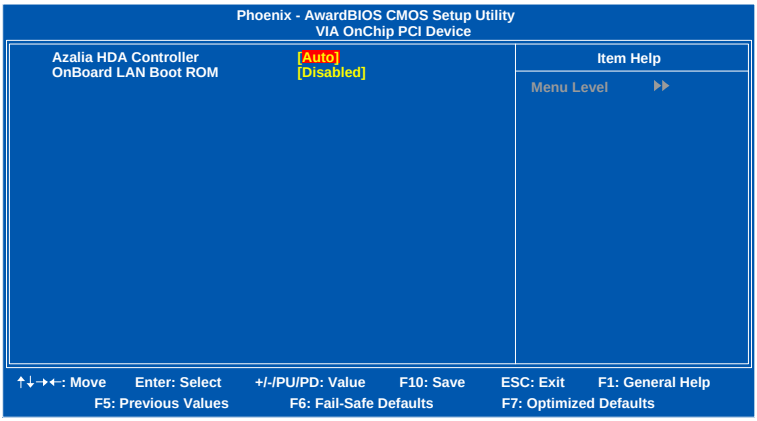
SDTV-Pr/Y/Pb

Settings: [Enabled, Disabled]

INTEGRATED PERIPHERALS



VIA ONCHIP PCI DEVICE



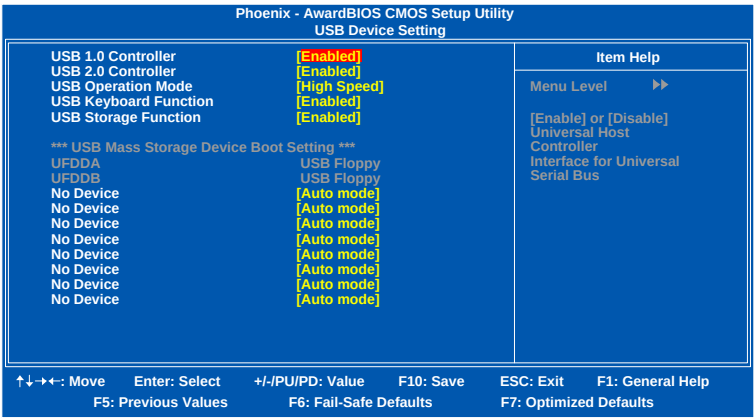
Azalia HAD Controller

Settings: [Auto, Disabled]

OnBoard LAN Boot ROM

Settings: [Enabled, Disabled]

USB DEVICE SETTING



USB 1.0 Controller

Enable or disable Universal Host Controller Interface for Universal Serial Bus.

Settings: [Enabled, Disabled]

USB 2.0 Controller

Enable or disable Enhanced Host Controller Interface for Universal Serial Bus.

Settings: [Enabled, Disabled]

USB Operation Mode

Auto decide USB device operation mode.

Setting	Description
High Speed	If USB device was high speed device, then it operated on high speed mode. If USB device was full/low speed device, then it operated on full/low speed mode.
Full/Low Speed	All of USB Device operated on full/low speed mode

USB Keyboard Function

Enable or disable Legacy support of USB Keyboard

Settings: [Enabled, Disabled]

USB Storage Function

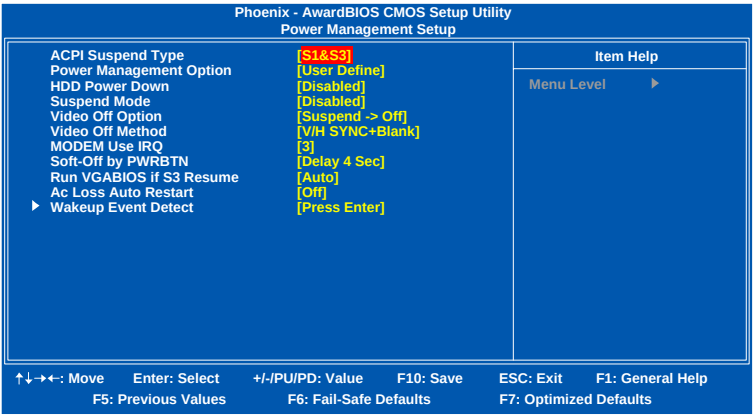
Enable or disable Legacy support of USB Mass Storage

Settings: [Enabled, Disabled]

No Device

Setting	Description
Auto mode	According to contents of USB MSD decide boot up type.
FDD mode	The USB MSD always boot up as flooppy disk.
HDD mode	The USB MSD always boot up as hard disc.

POWER MANAGEMENT SETUP



ACPI Suspend Type

Setting	Description
S1(POS)	S1/Power On Suspend (POS) is a low power state. In this state, no system context (CPU or chipset) is lost and hardware maintains all system contexts.
S3(STR)	S3/Suspend To RAM (STR) is a power-down state. In this state, power is supplied only to essential components such as main memory and wakeup-capable devices. The system context is saved to main memory, and context is restored from the memory when a "wakeup" event occurs.
S1 & S3	Depends on the OS to select S1 or S3.

Power Management Option

Settings: [User Define, Min Saving, Max Saving]

HDD Power Down

Sets the length of time for a period of inactivity before powering down the hard disk.

Settings: [Disabled, 1~15(minutes)]

Suspend Mode

Settings:[Disabled, 1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 20 Min, 30 Min, 40 Min, 1 Hour]

Video Off Option

Select whether or not to turn off the screen when system enters power saving mode, ACPI OS such as Windows XP will override this option.

Setting	Description
Always On	Screen is always on even when system enters power saving mode
Suspend -> Off	Screen is turned off when system enters power saving mode

Video Off Method

Settings:[Blank Screen, V/H SYNC+Blank, DPMS Support]

MODEM Use IRQ

Settings: [NA, 3, 4, 5, 7, 9, 10, 11]

Soft-Off by PWRBTN

Setting	Description
Delay 4 Sec	System is turned off if power button is pressed for more than four seconds
Instant-Off	Power button functions as a normal power-on/-off button

Run VGABIOS if S3 Resume

Select whether to run VGA BIOS if resuming from S3 state. This is only necessary for older VGA drivers.

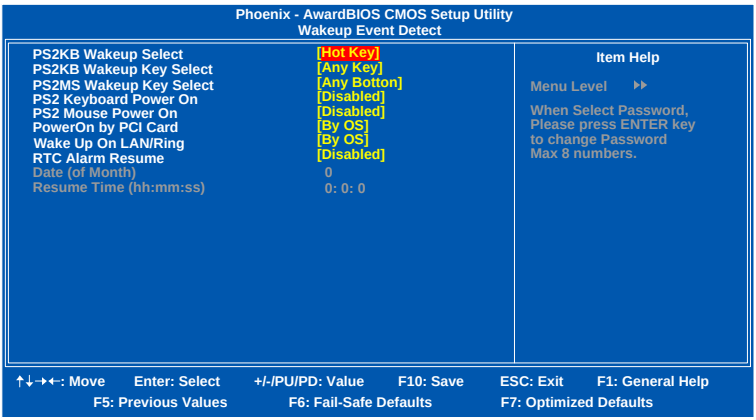
Settings: [Auto, Yes, No]

AC Loss Auto restart

The field defines how the system will respond after an AC power loss during system operation.

Setting	Description
Off	Keeps the system in an off state until the power button is pressed
On	Restarts the system when the power is back
Former-Sts	Former-Sts

WAKEUP EVENT DETECT



PS2KB Wakeup Select

When selecting Password, press Enter to change password. The maximum number of characters is eight.

Settings: [Hot Key, Password]

PS2KB Wakeup Key Select

Sets a Hot Key to restore the system from the power saving mode to an active state.

Settings: [Ctrl+F1, Ctrl+F2, Ctrl+F3, Ctrl+F4, Ctrl+F5, Ctrl+F6, Ctrl+F7, Ctrl+F8, Ctrl+F9, Ctrl+F10, Ctrl+F11, Ctrl+F12, Power, Wake, Any Key]

PS2MS Wakeup Key Select

Enables any mouse activity to restore the system from the power saving mode to an active state.

Settings: [Any Botton, Left Botton, Right Botton]

PS2 Keyboard Power On

Settings: [Disabled, Enabled]

PS2 Mouse Power On

Settings: [Disabled, Enabled]

PowerOn by PCI Card

Enables activity detected from any PCI card to power up the system or resume from a suspended state. Such PCI cards include LAN, onboard USB ports, etc.

Settings: [By OS, Enabled]

Wake Up On LAN/Ring

Settings: [By OS, Enabled]

RTC Alarm Resume

Sets a scheduled time and/or date to automatically power on the system.

Settings: [Disabled, Enabled]

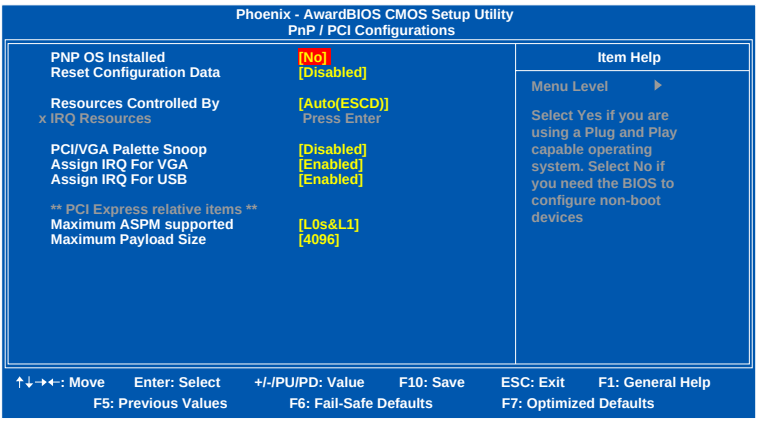
Date (of Month)

The field specifies the date for “RTC Alarm Resume”.

Resume Time (hh:mm:ss)

The field specifies the time for “RTC Alarm Resume”.

PNP/PCI CONFIGURATIONS



NOTE: This section covers some very technical items and it is strongly recommended to leave the default settings as is unless you are an experienced user.

PNP OS Installed

Setting	Description
Yes	BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system
No	BIOS will initialize all the PnP cards

Reset Configuration Data

This field should usually be left “Disabled”.

Setting	Description
Enabled	Resets the ESCD (Extended System Configuration Data) after exiting BIOS Setup if a newly installed PCI card or the system configuration prevents the operating system from loading
Disabled	Default setting

Resource Controlled By

Enables the BIOS to automatically configure all the Plug-and-Play compatible devices.

Setting	Description
Auto(ESCD)	BIOS will automatically assign IRQ, DMA and memory base address fields
Manual	Unlocks “IRQ Resources” for manual configuration

PCI/VGA Palette Snoop

Settings: [Disabled, Enabled]

Assign IRQ For VGA/USB

Assign IRQ for VGA and USB devices.

Settings: [Disabled, Enabled]

Maximum ASPM supported

Control maximum level of ASPM supported on the given PCI Express links on the system.

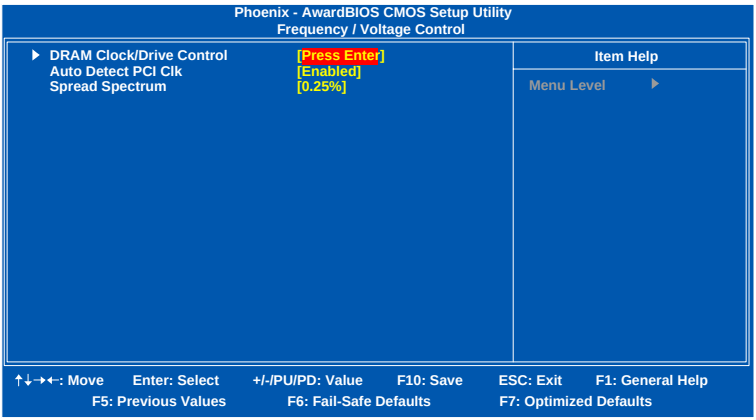
Settings: [L0, L0s, L1, L0s&L1]

Maximum Payload Size

Set maximum TLP payload size for the PCI Express devices. The unit is byte.

Settings: [128, 256, 512, 1024, 2048, 4096]

FREQUENCY / VOLTAGE CONTROL



DRAM Clock

The chipset supports synchronous and asynchronous mode between host clock and DRAM clock frequency.

Settings: [By SPD, 100 MHz, 133 MHz, 166 MHz, 200MHz, 266MHz]

Auto Detect PCI Clk

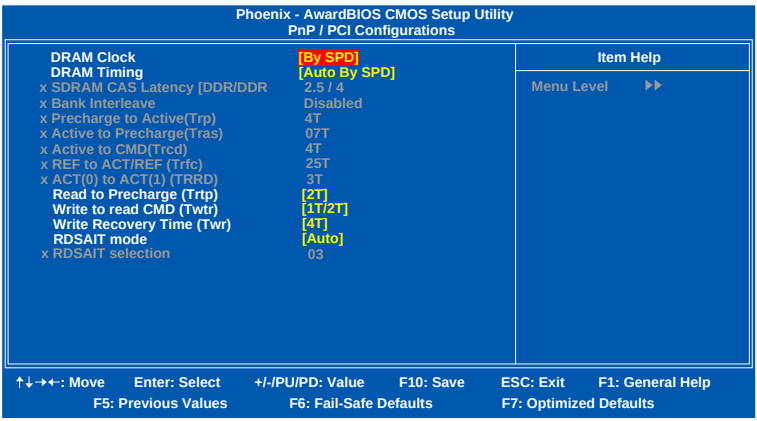
Settings: [Disabled, Enabled]

Spread Spectrum

When the mainboard's clock generator pulses, the extreme values (spikes) of the pulses create EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves.

Settings: [Disabled, 0.20%, 0.25%, 0.35%]

DRAM CLOCK/DRIVE CONTROL



DRAM Clock

The chipset supports synchronous and asynchronous mode between host clock and DRAM clock frequency.

Settings: [By SPD, 100 MHz, 133 MHz, 166 MHz, 200MHz, 266MHz, 333MHz

DRAM Timing

The value in this field depends on the memory modules installed in your system. Changing the value from the factory setting is not recommended unless you install new memory that has a different performance rating than the original modules.

Settings: [Manual, Auto By SPD]

Read to Precharge (Trtp)

Settings: [2T, 3T]

Write to Read CMD (Trtp)

Settings: [1T/2T, 2T/3T]

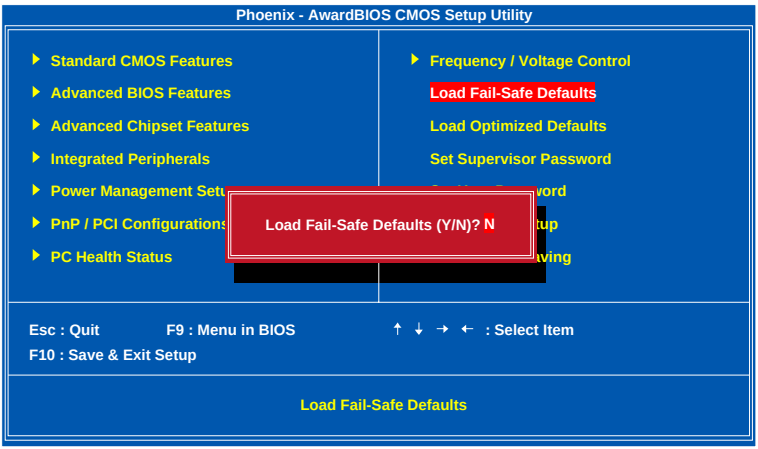
Write Recovery Time (Twr)

Settings: [2T, 3T, 4T, 5T]

RDSAIT mode

Settings: [Manual, Auto]

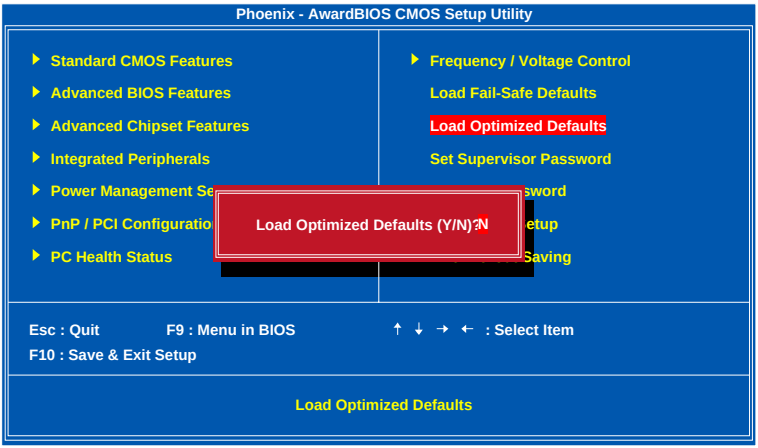
LOAD FAIL-SAFE DEFAULTS



This option is for restoring all the default fail-safe BIOS settings. These values are set by the mainboard manufacturer to provide a stable system with basic performance.

Entering “Y” loads the default fail-safe BIOS values.

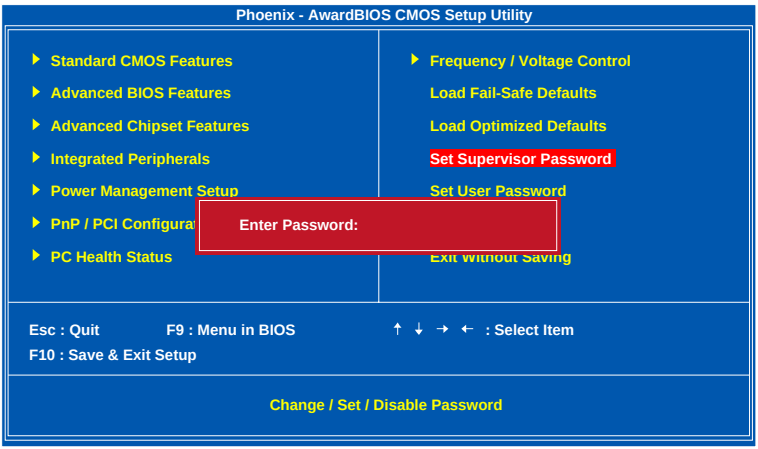
LOAD OPTIMIZED DEFAULTS



This option is for restoring all the default optimized BIOS settings. The default optimized values are set by the mainboard manufacturer to provide a stable system with optimized performance.

Entering “Y” loads the default optimized BIOS values.

SET SUPERVISOR / USER PASSWORD



This option is for setting a password for entering BIOS Setup. When a password has been set, a password prompt will be displayed whenever BIOS Setup is run. This prevents an unauthorized person from changing any part of your system configuration.

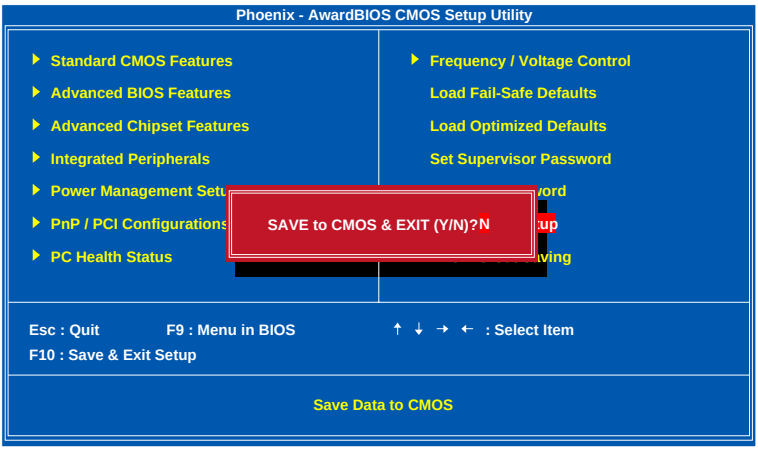
There are two types of passwords you can set. A supervisor password and a user password. When a supervisor password is used, the BIOS Setup program can be accessed and the BIOS settings can be changed. When a user password is used, the BIOS Setup program can be accessed but the BIOS settings cannot be changed.

To set the password, type the password (up to eight characters in length) and press <Enter>. The password typed now will clear any previously set password from CMOS memory. The new password will need to be reentered to be confirmed. To cancel the process press <Esc>.

To disable the password, press <Enter> when prompted to enter a new password. A message will show up to confirm disabling the password. To cancel the process press <Esc>.

Additionally, when a password is enabled, the BIOS can be set to request the password each time the system is booted. This would prevent unauthorized use of the system. See “Security Option” in the “Advanced BIOS Features” section for more details.

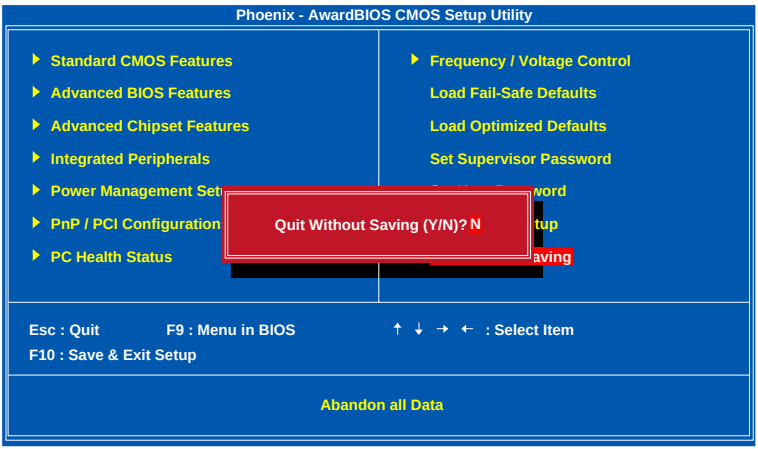
SAVE & EXIT SETUP



Entering “Y” saves any changes made and exits the program.

Entering “N” will cancel the exit request.

EXIT WITHOUT SAVING



Entering “Y” discards any changes made and exits the program.

Entering “N” will cancel the exit request.

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CHAPTER 4

Driver Installation

This chapter gives you brief descriptions of each mainboard driver and application. You must install the VIA chipset drivers first before installing other drivers such as audio or VGA drivers. The applications will only function correctly if the necessary drivers are already installed.

DRIVER UTILITIES

Getting Started

The mainboard includes a Driver Utilities CD that contains the driver utilities and software for enhancing the performance of the mainboard. If the CD is missing from the retail box, please contact the local dealer for the CD.

Note: The driver utilities and software are updated from time to time. The latest updated versions are available at http://www.viaembedded.com./

Running the Driver Utilities CD

To start using the CD, insert the CD into the CD-ROM or DVD-ROM drive. The CD should run automatically after closing the CD-ROM or DVD-ROM drive. The driver utilities and software menu screen should then appear on the screen. If the CD does not run automatically, click on the “Start” button and select “Run...” Then type: "D:\Setup.exe".

> **NOTE:** D: might not be the drive letter of the CD-ROM/DVD-ROM in your system.

CD CONTENT

- ☐ **VIA 4in1 Drivers:** Contains VIA ATAPI Vendor Support Driver (enables the performance enhancing bus mastering functions on ATA-capable Hard Disk Drives and ensures IDE device compatibility), AGP VxD Driver (provides service routines to your VGA driver and interface directly to hardware, providing fast graphical access), IRQ Routing Miniport Driver (sets the system's PCI IRQ routing sequence) and VIA INF Driver (enables the VIA Power Management function).
- ☐ **VIA Graphics Driver:** Enhances the onboard VIA graphic chip.
- ☐ **VIA Audio Driver:** Enhances the onboard VIA audio chip.
- ☐ **VIA USB 2.0 Driver:** Enhances VIA USB 2.0 ports.
- ☐ **VIA LAN Driver:** Enhances the onboard VIA 10/100M LAN chip.
- ☐ **VIA GigaLAN Driver:** Enhances the onboard optional VIA VT6122 10/100/1000M LAN chip.
- ☐ **VIA RAID Driver:** Support for SATA RAID devices.