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Notice

Introduction of system

This mainboard is designed to take advantage of the latest industry technology to provide you with the ultimate solution in data processing. In the tradition of its predecessors, this mainboard continues a commitment to reliability and performance and strives for full compliance and compatibility with industry software and hardware standards.

U8868 Features:

1. Contains on board I/O facilities that include a serial port, a parallel port, a PS/2 mouse port, a PS/2 keyboard port, audio ports, USB ports and a game port.

2. Contains on board IDE facilities for IDE devices such as hard disks and CD-ROM Drives.

3. Supports the Intel Pentium ® 4 processor, a leading edge processor. Complies with PC Micro-ATX form factor specifications.

4. Supports popular operating systems such as Windows NT, Windows 2000, Windows ME, Windows XP, Novell, LINUX and SCO UNIX.

Mainboard Features

1. Features Introduction

1-1. Hardware

CPU:
1.Provides Socket-478.
2.Supports the Intel Pentium ® 4 processor providing the new generation power for high-end workstations and servers.

Speed:
1.Runing at 400 MHz Front Side Bus frequency.
2.Supports up to 2.4 GHz CPU core speeds.
3.The 33MHz 32 bit PCI 2.2 compliant.
4.The 66MHz AGP 2.0 compliant interface supports 1x, 2x and 4x data transfer mode.

Chipset:
Chipset – VIA VT8751 (P4M266)/ VT8235.

Super I/O
Chipset – ITE 8705

DRAM Memory:
1.Supports 200MHz, 266MHz DDR SDRAM devices.
2.Supports 64Mb, 128Mb, 256Mb and 512Mb technologies for x8 and 16 devices.
3.Max of 2 Double-Sided DDR SDRAM with unbuffered / Registered.
4.The largest memory capacity is 2 GB.

Shadow RAM:
Motherboard is equipped with a memory controller providing shadow RAM and support for ROM BIOS.

Green Functionality:
1.Supports Award BIOS ™ power management functionality.
2.Has a power down timer from 1 to 15 minutes.

BUS Slots:
1.Contains 1 AGP slot.
2.Contains 1 CNR slot.
3. Contains 3 32-bit PCI bus slots

Flash Memory:
1.Supports flash memory functionality.
2.Supports ESCD functionality.

Built in VGA:

1. High Resolution CRT RGB Interface
1.250 MHz RAMDAC on chip with Gamma Correction.
2.Horizontal / Vertical Sync outputs compliant with Monitor Power Management protocols.
3.I^2C Serial Bus for DDC Monitor Communications.

2. 2D Hardware Acceleration Features
1. ROP3 Ternary Raster Operation BitBLTs.
2. 8, 16 and 32 bpp mode acceleration.

3. Integrated Savage4 2D/ 3D Graphics Controller and Video Accelerator
1. Optimized Shared Memory Architecture (SMA).
2. 16 / 32 MB frame buffer using system memory.

3. Floating-point triangle setup engine.
4. Single circle 128-bit 3D architecture.
5. 8M triangles /second setup engine.
6. 140M pixels second trilinear fill rate.
7. Full internal AGP 4x performance.
8. Microsoft Direct X texture compression.
9. Next generation, 128-bit 2D graphics engine.
10. High quality DVD video playback.
11. 2D / 3D resolutions up to 1920x1440.

4. 3D Rendering Features

1. Single-pass multiple textures.
2. Anisotropic filtering.
3. 8-bit stencil buffer.
4. 32-bit true color rendering.
5. Specular lighting and diffuse shading.
6. Alpha blending modes.
7. Massive 2K x 2K textures.
8. MPEG-2 video textures.
9. Vertex and table fog.
10. 16 or 24-bit Z-buffering.
11. Reflection mapping, texture morphing, shadows, procedural textures and atmospheric effects.

Built in IDE Facilities:

1.Supports four IDE hard disk drives.
2.Supports PIO Mode 4, Master Mode, and high performance hard disk drives.
3.Supports disk transfer rates up to 133 MB/second.
4.Supports Ultra DMA 33, Ultra DMA 66, Ultra DMA 100, Ultra DMA 133 Bus Master Modes.
5.Supports IDE interface with CD-ROM.
6.Supports high capacity hard disk drives.
7.Supports LBA mode.

AC'97 Sound Codec Onboard:

1.AC-LINK protocol comfliance.
2.Compliant with AC'97 specification.
3.18-bit full duplex stereo ADC, DACs.
4.SNR>95 Bb throughmixer and DAC.

I/O facilities:

1.One multi-mode Parallel Port capable of supporting the following specifications:
Standard & Bidirection Parallel Port.
Enhanced Parallel Port (EPP).
Extended Capabilities Port (ECP).
Normal
2.Supports one serial port, 16550 UART.
3.Supports Infrared Data Transmission using IrDA.
4.Supports PS/2 mouse and PS/2 keyboard.
5.Supports 360KB, 720KB, 1.2MB, 1.44MB, and 2.88MB floppy disk drives.

Universal Serial Bus:

Supports two back panel Universal Serial Bus Port and four front panel Universal Serial Bus Ports.

Hardware Monitor Function:

1.Monitors CPU Fan Speed.
2.Monitors System Voltage.

Dimensions (MATX form-factor):

24.5cm x 22.8cm (WxL)

1-2. BIOS & Software

1.Award legal BIOS.
2.Supports APM1.2.
3.Supports USB Function.
4.Supports ACPI.

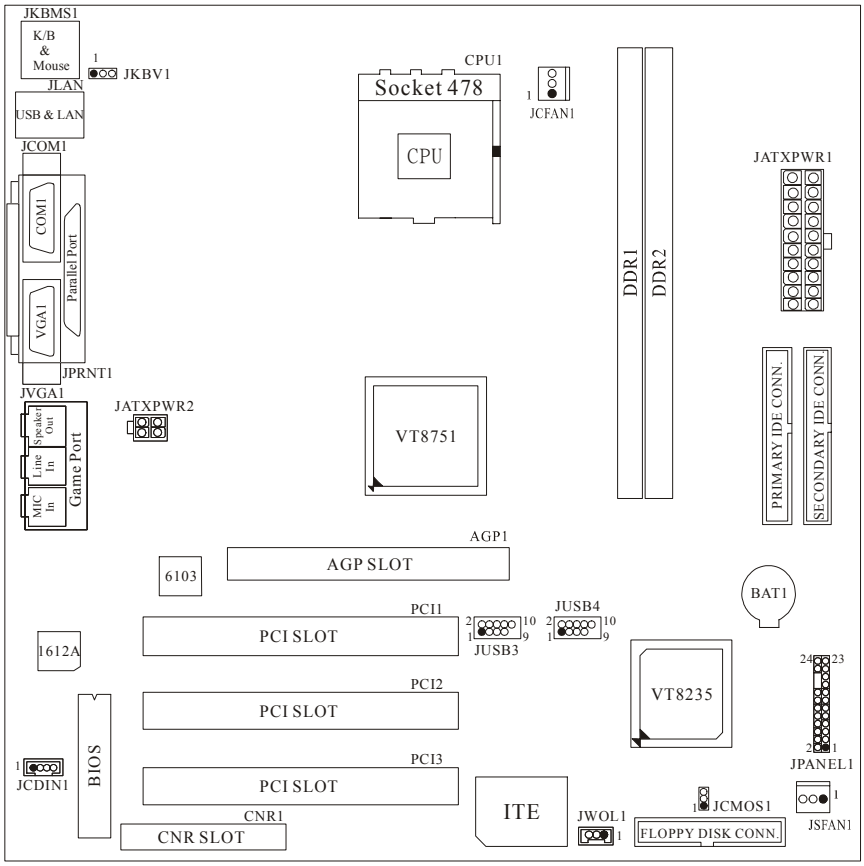
Operating System:
Offers the highest performance for MS-DOS, Windows NT, Windows 2000, Windows ME, Windows XP, Novell, LINUX, and SCO UNIX etc.

1-3. Package Contents

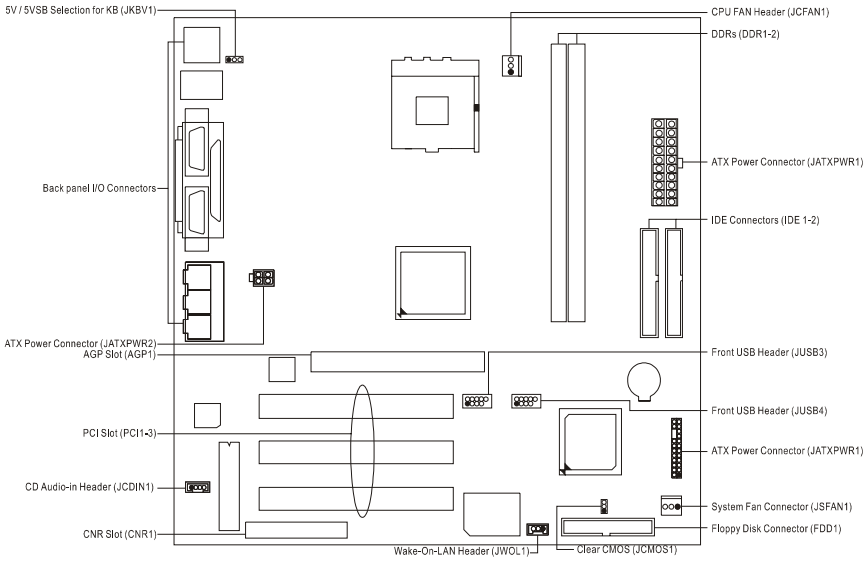
1.HDD Cable.
2.FDD Cable.
3.Flash Memory Writer for BIOS Update.
4.USB Cable (Optional).
5.Rear I/O Panel for MATX Case (Optional).
6.Fully Setup Driver CD.

2. Mainboard Configuration

2-1. Layout of U8868

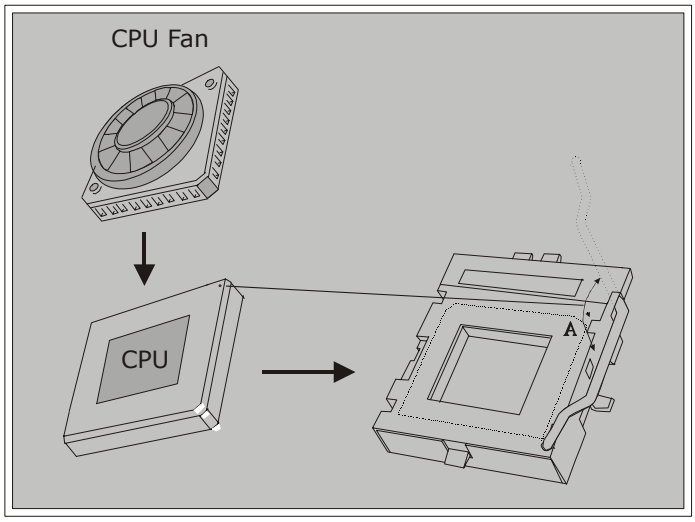


2-2. Component Index



3. CPU Configuration

3-1. CPU Socket 478 Configuration Steps:

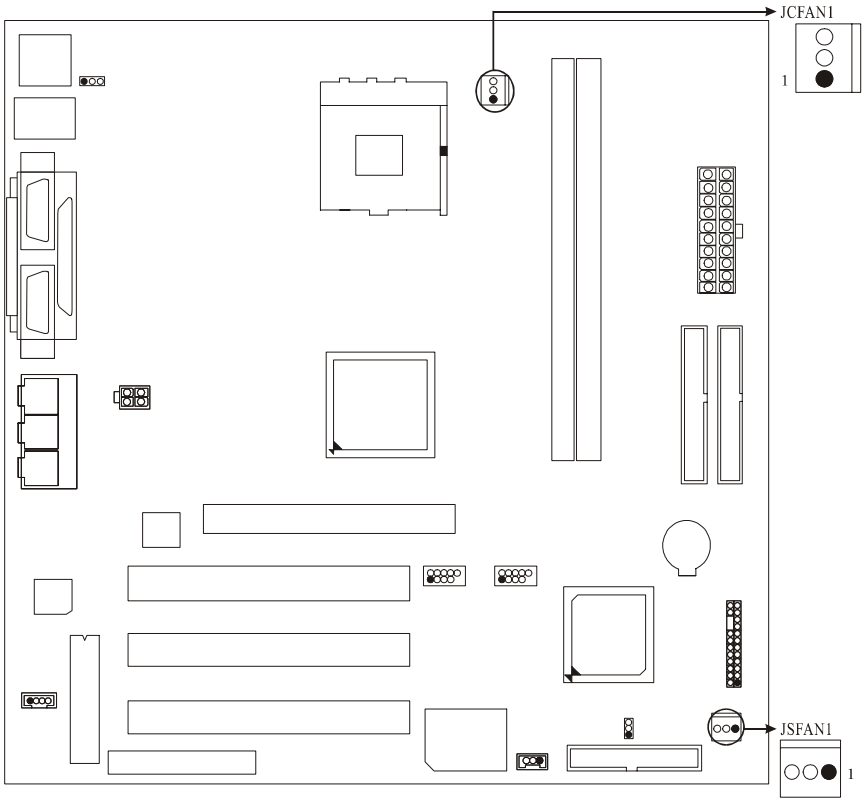


1. Pull the lever sideways away from the socket then raise the lever up to a 90-degree angle.

2. Locate Pin A in the socket and look for the white dot or cut edge in the CPU. Match Pin A with the white dot/cut edge then insert the CPU.

3. Press the lever down. Then Put the fan on the CPU and buckle it and put the fan's power port into the JCFAN1, then to complete the installation.

CPU Configuration Layout



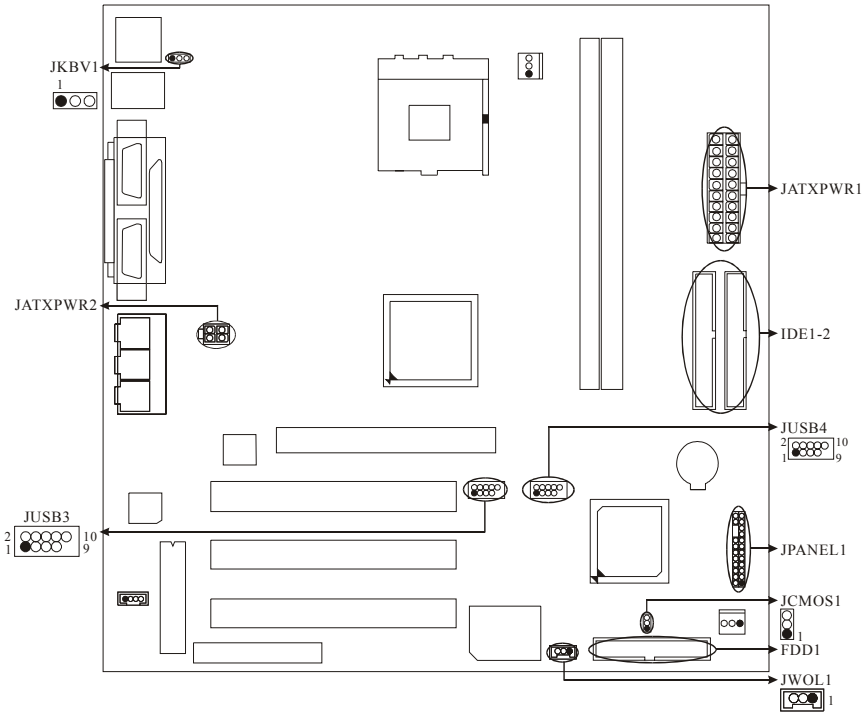
3-2. CPU Fan Header: JCFAN1

Pin No.	Assignment
1	Ground
2	+12V
3	Sense

3-3. System Fan Header: JSFAN1

Pin No.	Assignment
1	Ground
2	+12V
3	Sense

4. Jumpers, Headers & Connectors



4-1. Front Panel Connector: JPANEL1

Pin No.	Assignment	Function	Pin No.	Assignment	Function
1	+5V	Speaker Connector	2	Sleep Control	Sleep Button
3	NA		4	Ground	
5	NA		6	NA	NA
7	Speaker		8	Power LED (+)	POWER LED
9	HDD LED (+)	Hard Drive LED	10	Power LED (+)	
11	HDD LED (-)		12	Power LED (-)	
13	Ground	Reset Button	14	Power Button	Power-on Button
15	Reset Control		16	Ground	
17	NA		18	KEY	
19	NA	IrDA Connector	20	KEY	IrDA Connector
21	VCC5		22	Ground	
23	IRTX		24	IRRX	

SPK (Speaker Connector)

An offboard speaker can be installed on the motherboard as a manufacturing option. An offboard speaker can be connected to the motherboard at the front panel connector. The speaker (onboard or offboard) provides error beep code information during the Power On Self-Test when the computer cannot use the video interface. The speaker is not connected to the audio subsystem and does not receive output from the audio subsystem.

RST (Reset Button)

This connector can be attached to a momentary SPST switch. This switch is usually open and when closed will cause the motherboard to reset and run the POST (Power On Self Test).

POW-LED (Power LED Connector)

This connector can be attached to an LED on the front panel of a computer case. The LED will illuminate while the computer is powered on.

HLED (Hard Drive LED Connector)

This connector can be attached to an LED on the front panel of a computer case. The LED will flicker during disk activity. This disk activity only applies to those IDE drives directly attached to the system board.

IR (Infrared Connector)

This connector is used to attach to an infrared sensing device. After the IrDA interface is configured, connectionless data transfer to and from portable devices such as laptops, PDAs is possible.

SLP (Sleep/Green Button)

This connector is used to conserve energy by powering down the monitor and the hard disk when not in use. To configure this option, you need to connect a button from the front panel to this connector. Depressing the button will power down the monitor and hard drives until the system is invoked by any keyboard activity, mouse activity, modem activity or when the sleep button is depressed again. APM (Advanced Power Management) must be enabled in the system BIOS and the APM driver must be loaded.

ON/OFF (Power Button)

This connector can be attached to a front panel power switch. The switch must pull the Power Button pin to ground for at least 50 ms to signal the power supply to switch on or off. (The time required is due to internal debounce circuitry on the system board). At least two seconds must pass before the power supply will recognize another on/off signal.

4-2. ATX 20-pin Power Connector: JATXPWR1

PIN	Assignment	PIN	Assignment
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	Ground	13	Ground
4	5V	14	PS_ON
5	Ground	15	Ground
6	5V	16	Ground
7	Ground	17	Ground
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V

4-3. Hard Disk Connectors: IDE1/IDE2

This mainboard has a 32-bit Enhanced PCI IDE Controller that provides PIO Mode 0~4, Bus Master, and Ultra DMA / 33, Ultra DMA / 66,Ultra DMA / 100 functionality. It has two HDD connectors IDE1 (primary) and IDE2 (secondary).

- **IDE1 (Primary IDE Connector)**

The first hard drive should always be connected to IDE1. IDE1 can connect a Master and a Slave drive. You must configure the second hard drive on IDE1 to Slave mode by setting the jumper accordingly.

- **IDE2 (Secondary IDE Connector)**

The IDE2 controller can also support a Master and a Slave drive. The configuration is similar to IDE1. The second drive on this controller must be set to slave mode.

4-4. Floppy Disk Connector: FDD1

The motherboard provides a standard floppy disk connector (FDC) that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector supports the provided floppy drive ribbon cables.

4-5. Wake On LAN Header: JWOL1

Pin No.	Assignment
1	5V SB
2	Ground
3	Wake up

4-6. Clear CMOS Jumper: JCMOS1

JCMOS1	Assignment
1 3 1-2 Closed	Normal Operation (default)
1 3 2-3 Closed	Clear CMOS Data

The following procedures are for resetting the BIOS password. It is important to follow these instructions closely.

※ Clear CMOS Procedures:

1. Remove AC power line.
2. Make JCMOS1 (2-3) closed.

3. Wait for five seconds.
4. Make JCMOS1 (1-2) closed.
5. Let AC power on.
6. Reset your desired password or clear the CMOS data.

4-7. Front USB Header: JUSB3

(JUSB3)

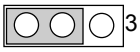
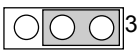
Pin	Assignment	Pin	Assignment
1	+5V(fused)	**2**	+5V(fused)
3	USBP2-	**4**	USBP3-
5	USBP2+	**6**	USBP3+
7	Ground	**8**	Ground
9	KEY	**10**	NC

4-8. Front USB Header: JUSB4

(JUSB4)

Pin	Assignment	Pin	Assignment
1	+5V(fused)	**2**	+5V(fused)
3	USBP2-	**4**	USBP3-
5	USBP2+	**6**	USBP3+
7	Ground	**8**	Ground
9	KEY	**10**	NC

4-9. 5V / 5VSB Selection for KB: JKBV1

JKBV1	Assignment
 1-2 Closed	5V
 2-3 Closed	5V_SB

4-10. ATX 12V Power Connector: JATXPWR2

PIN	Assignment	PIN	Assignment
1	12V	3	Ground
2	12V	4	Ground

5. RAM Module Configuration

5-1. DDR SDRAM

DRAM Access Time: 2.5V Unbuffered DDR SDRAM PC1600/ PC2100 Type required.

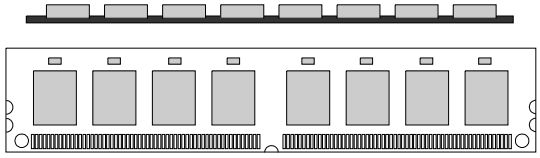
DRAM Type: 128MB/ 256MB/ 512MB/ 1GB DIMM Module (184 pin)

Total Memory Size with unbuffer DIMMs

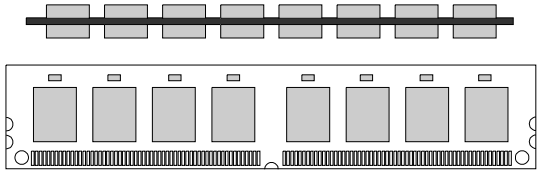
(Only for reference)

DIMM Socket Location	DDR Module	Total Memory Size (MB)
DDR 1	64MB/128MB/256MB/512MB/1GB *1	Max is 2GB
DDR 2	64MB/128MB/256MB/512MB/1GB *1	

5-2. How to install DDR DIMM Module

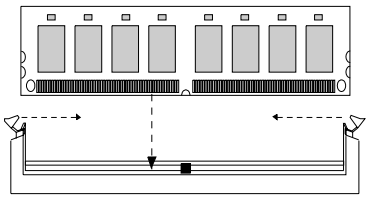


Single Sided DIMM

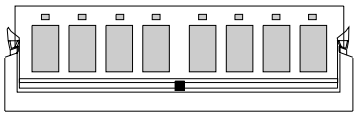


Double Sided DIMM

1. The DDR DIMM socket has a " Plastic Safety Tab", and the DDR DIMM memory module has an Asymmetrical notch", so the DDR DIMM memory module can only fit into the slot in one direction.

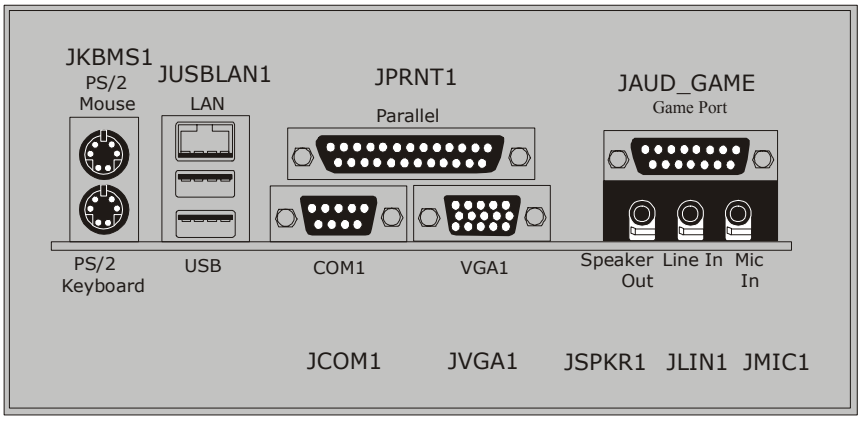


2. Push the tabs out. Insert the DDR DIMM memory modules into the socket at a 90-degree angle, then push down vertically so that it will fit into the place.



3. The Mounting Holes and plastic tabs should fit over the edge and hold the DDR DIMM memory modules in place.

6. Peripheral Port Features



6-1. PS/2 Mouse / Keyboard Connector: JKBMS1

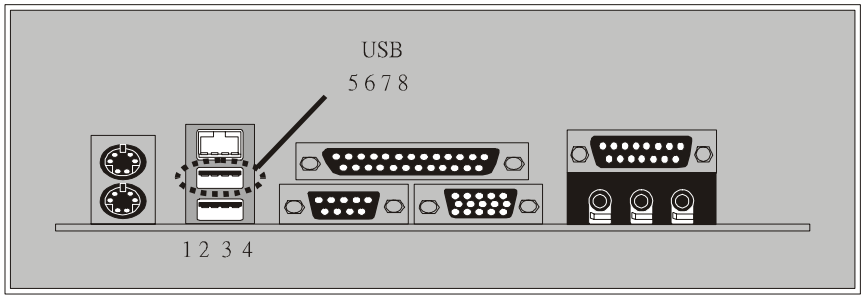
The motherboard provides a standard PS/2 mouse / Keyboard mini DIN connector for attaching a PS/2 mouse. You can plug a PS/2 mouse / Keyboard directly into this connector. The connector location and pin definition are shown below:

PS/2 Mouse / Keyboard Connectors

Pin	Assignment
1	Data
2	No connect
3	Ground
4	+5 V (fused)
5	Clock
6	No connect

6-2. USB & LAN Port Connectors: JUSBLAN1

6-2-1. USB Connectors:



USB Connector (the below one)

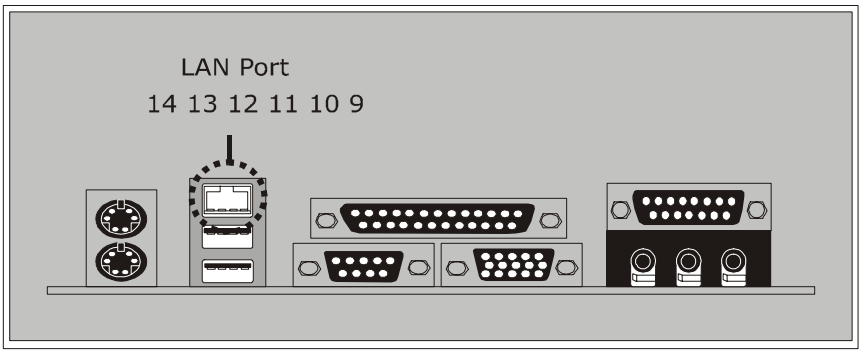
Pin	Assignment
1	+5 V (fused)
2	USBP1-
3	USBP1+
4	Ground

USB Connector (the above one)

Pin	Assignment
5	+5 V (fused)
6	USBP2-
7	USBP2+
8	Ground

6-2-2. LAN Port Connector

This connector allows you to connect to the Internet through a Local Area Network (LAN). You can set up the connection by entering account information provided by your ISP.



LAN Port Connector

Pin	Assignment
9	VCC3
10	TD+
11	TD-
12	RD+
13	RD-
14	NC

6-3. Serial and Parallel Interface Ports

This system comes equipped with one serial port and one parallel port. Both types of interface ports will be explained in this chapter.

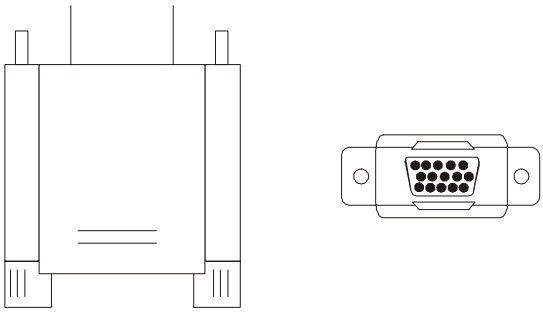
6-3-1. The Serial Interface: JCOM1

The serial interface port is sometimes referred to as an RS-232 port or an asynchronous communication port. Mice, printers, modems and other peripheral devices can be connected to a serial port. The serial port can also be used to connect your computer with another computer system.

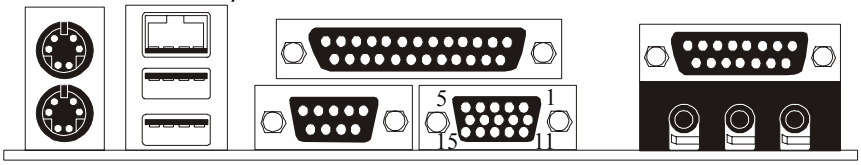
Connectivity
The serial ports can be used in many ways, and it may be necessary to become familiar with the pinout diagram. The following chart gives you the function of each pin on the 9-pin connector and some of the 25-pin connector. This information can be used when configuring certain software programs to work with the serial ports.

Signal	Name	DB9 PIN	DB25 PIN
DCD	Data Carrier Detect	1	8
RX	Receive Data	2	3
TX	Transmit Data	3	2
DTR	Data Terminal Ready	4	20
GND	Signal Ground	5	7
DSR	Data Set Ready	6	6
RTS	Request to Send	7	4
CTS	Clear to Send	8	5
RI	Ring Indicator	9	22

6-3-2Video Graphics Adapter Port: JVGA1



This motherboard has built in video facilities. Your monitor will attach directly to JVGA1 connector on the motherboard.



JVGA1

Pin No.	Assignment	Pin No.	Assignment
1	Red	2	Green
3	Blue	4	NC
5	Ground	6	Ground
7	Ground	8	Ground
9	+5V	10	Ground
11	NC	12	DDC/Data
13	HSYNC	14	VSYNC
15	DDC/CLK		

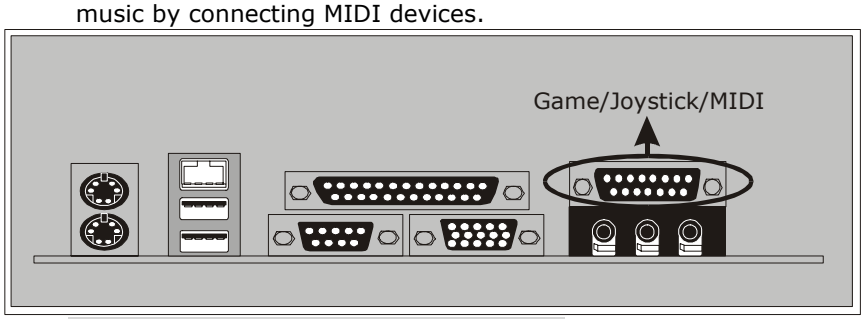
6-3-3. Parallel Interface Port: JPRNT1

Unlike the serial ports, parallel interface port has been standardized and should not present any difficulty interfacing peripherals to your system. Sometimes called centronics port, the parallel port is almost exclusively used with printers. The parallel port on your system has a 25-pin, DB25 connector. The pinout for the parallel port are shown in the table below.

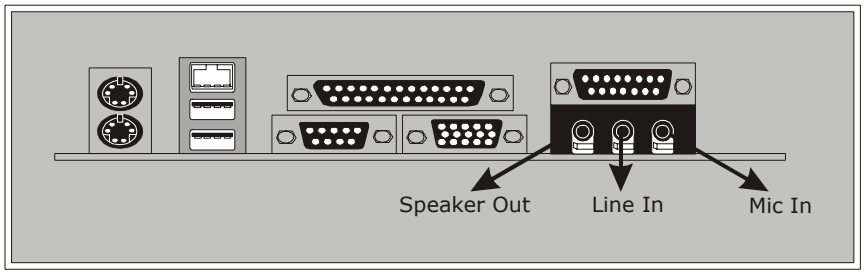
Pin	Signal
1	-Strobe
2	Data 0
3	Data 1
4	Data 2
5	Data 3
6	Data 4
7	Data 5
8	Data 6
9	Data 7
10	-Ack
11	Busy
12	Paper Empty
13	+Select
14	-Auto FDXT
15	-Error
16	-Init
17	-SLCTN
18	Ground
19	Ground
20	Ground
21	Ground
22	Ground
23	Ground
24	Ground
25	Ground

6-4. Game (Joystick/MIDI) Port Connector: JAUD_GAME

This connector allows you to connect a joystick or game pad for playing computer games. Also, you may play or edit professional music by connecting MIDI devices.

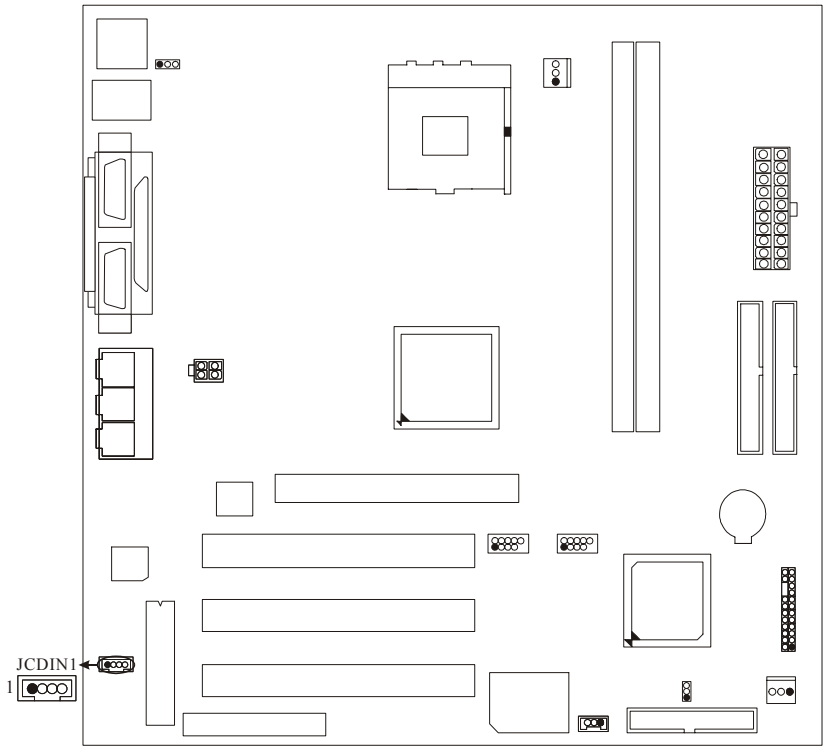


6-5. Audio Port Connectors: JSPKR1/JLIN1/JMIC1



1. **Speaker Out** is used to connect speakers or headphones for audio output.
2. **Line In** can be connected to the external CD player, Tape player or other audio devices for audio input.
3. **Mic In** is used to connect a microphone, which allows you to input sounds and voices.

6-6. Audio Subsystem



6-6-1. CD-ROM Audio-In Header: JCDIN1

Pin No.	Assignment
1	Left Channel Input
2	Ground
3	Ground
4	Right Channel Input

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BIOS Setup

Introduction

This manual discussed Award™ Setup program built into the ROM BIOS. The Setup program allows users to modify the basic system configuration. This special information is then stored in battery-backed RAM so that it retains the Setup information when the power is turned off.

The Award BIOS™ installed in your computer system's ROM (Read Only Memory) is a custom version of an industry standard BIOS. This means that it supports Intel™ processors input/output system. The BIOS provides critical low-level support for standard devices such as disk drives and serial and parallel ports.

Adding important has customized the Award BIOS™, but nonstandard, features such as virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

The rest of this manual is intended to guide you through the process of configuring your system using Setup.

Plug and Play Support

These AWARD BIOS supports the Plug and Play Version 1.0A specification. ESCD (Extended System Configuration Data) write is supported.

EPA Green PC Support

This AWARD BIOS supports Version 1.03 of the EPA Green PC specification.

APM Support

These AWARD BIOS supports Version 1.1&1.2 of the Advanced Power Management (APM) specification. Power management features are implemented via the System Management Interrupt (SMI). Sleep and Suspend power management modes are supported. Power to the hard disk drives and video monitors can be managed by this AWARD BIOS.

PCI Bus Support

This AWARD BIOS also supports Version 2.1 of the Intel PCI (Peripheral Component Interconnect) local bus specification.

DRAM Support

DDR DRAM are supported.

Supported CPUs

This AWARD BIOS supports the Intel™ CPU.

Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the <PgUp> and <PgDn> keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program by using the keyboard.

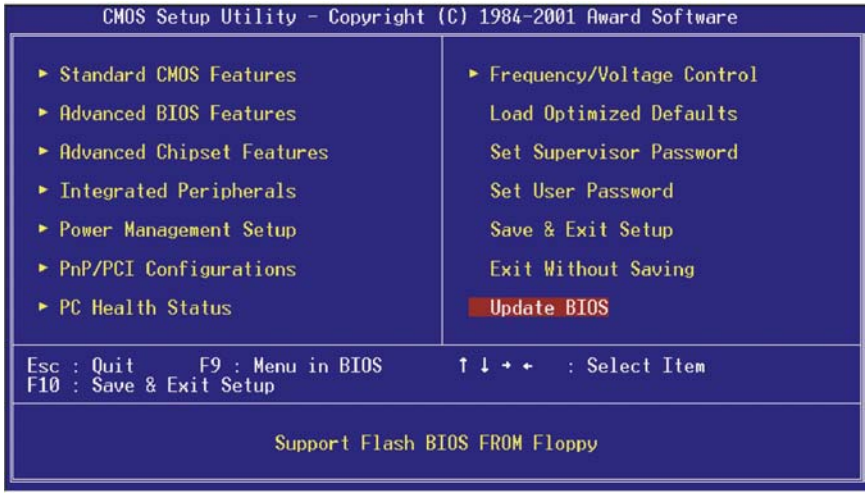
Keystroke	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left (menu bar)
Right arrow	Move to the item on the right (menu bar)
Esc	Main Menu: Quit without saving changes Submenus: Exit Current page to the next higher level menu
Move Enter	Move to the item you desired
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ Key	Increase the numeric value or make changes
- Key	Decrease the numeric value or make changes
F1 key	General help on Setup navigation keys
F5 key	Load previous values from CMOS
F7 key	Load the optimized defaults
F10 key	Save all the CMOS changes and exit

Main Menu

Once you enter Award BIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

The information about BIOS defaults on manual is just for reference; please refer to the BIOS installed on board, for update information.

■ **Figure 1. Main Menu**



Standard CMOS Features

This submenu contains industry standard configurable options.

Advanced BIOS Features

This submenu allows you to configure enhanced features of the BIOS.

Advanced Chipset Features

This submenu allows you to configure special chipset features.

Integrated Peripherals

This submenu allows you to configure certain IDE hard drive options and Programmed Input/ Output features.

Power Management Setup

This submenu allows you to configure the power management features.

PnP/PCI Configurations

This submenu allows you to configure certain “Plug and Play” and PCI options.

PC Health Status

This submenu allows you to monitor the hardware of your system.

Frequency/Voltage Control

This submenu allows you to change CPU clock ratio.
(However, when you try to change different CPU clock ratio, you should check your CPU frequency in advance. The CPU clock ratio should be changed depending on your CPU frequency.)

Load Optimized Defaults

This selection allows you to reload the BIOS when the system is having problems particularly with the boot sequence. These configurations are factory settings optimized for this system. A confirmation message will be displayed before defaults are set.

Set Supervisor Password

Setting the supervisor password will prohibit everyone except the supervisor from making changes using the CMOS Setup Utility. You will be prompted with to enter a password.

Set User Password

If the Supervisor Password is not set, then the User Password will function in the same way as the Supervisor Password. If the Supervisor Password is set and the User Password is set, the "User" will only be able to view configurations but will not be able to change them.

Save & Exit Setup

Save all configuration changes to CMOS(memory) and exit setup. Confirmation message will be displayed before proceeding.

Exit Without Saving

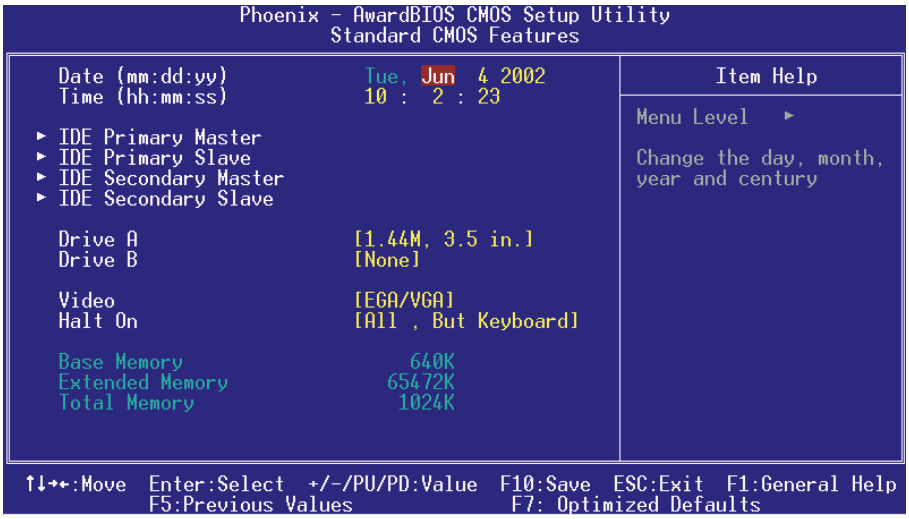
Abandon all changes made during the current session and exit setup. Confirmation message will be displayed before proceeding.

Update BIOS

This submenu allows you to update bios.

Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the<PgUp> or <PgDn> keys to select the value you want in each item.



■ **Figure 2. Standard CMOS Setup**

Main Menu Selections

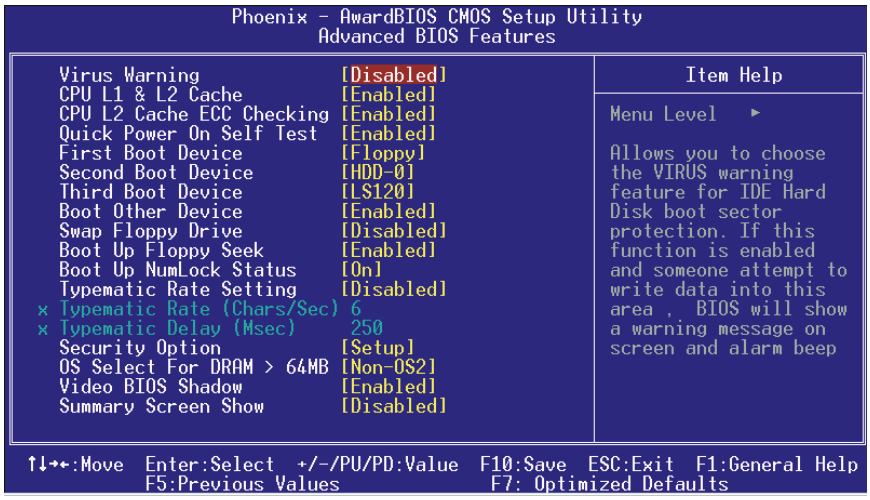
This table shows the selections that you can make on the Main Menu.

Item	Options	Description
Date	MM DD YYYY	Set the system date. Note that the 'Day' automatically changes when you set the date.
Time	HH MM SS	Set the system internal clock.
IDE Primary Master	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options
IDE Primary Slave	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
IDE Secondary Master	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
IDE Secondary Slave	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
Drive A Drive B	360K, 5.25 in 1.2M, 5.25 in 720K, 3.5 in 1.44M, 3.5 in 2.88M, 3.5 in None	Select the type of floppy disk drive installed in your system.
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device.

Item	Options	Description
Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/ Key	Select the situation in which you want the BIOS to stop the POST process and notify you.
Base Memory	N/A	Displays the amount of conventional memory detected during boot up.
Extended Memory	N/A	Displays the amount of extended memory detected during boot up.
Total Memory	N/A	Displays the total memory available in the system.

Advanced BIOS Features

■ **Figure 3. Advanced BIOS Setup**



Virus Warning

This option allows you to choose the VIRUS Warning feature that is used to protect the IDE Hard Disk boot sector. If this function is enabled and an attempt is made to write to the boot sector, BIOS will display a warning message on the screen and sound an alarm beep.

Disabled (default) Virus protection is disabled.

Enabled Virus protection is activated.

CPU L1 & L2 Cache

Depending on the CPU/chipset in use, you may be able to increase memory access time with this option.

Enabled (default) Enable cache.

Disabled Disable cache.

CPU L2 Cache ECC Checking

This item allows you to enable/disable CPU L2 Cache ECC Checking.

The Choices: Enabled (default), Disabled.

Quick Power On Self Test

Enabling this option will cause an abridged version of the Power On Self-Test (POST) to execute after you power up the computer.
Enabled (default) Enable quick POST.
Disabled Normal POST.

First /Second/Third/ Boot Other Device

These BIOS attempts to load the operating system from the devices in the sequence selected in these items.
The Choices: Floppy, LS120, HDD-0, SCSI, CDROM, HDD-1, HDD-2, HDD-3, ZIP100, LAN, Enabled, Disabled.

Swap Floppy Drive

For systems with two floppy drives, this option allows you to swap logical drive assignments.
The Choices: Enabled, **Disabled** (default).

Boot Up Floppy Seek

Enabling this option will test the floppy drives to determine if they have 40 or 80 tracks. Disabling this option reduces the time it takes to boot-up.
The Choices: Enabled (default), Disabled.

Boot Up NumLock Status

Selects the NumLock. State after power on.
The Choices: On (default) Numpad is number keys.
Off Numpad is arrow keys.

Typematic Rate Setting

When a key is held down, the keystroke will repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be configured.
The Choices: Disabled (default), Enabled.

Typematic Rate (Chars/Sec)

Sets the rate at which a keystroke is repeated when you hold the key down.
The Choices: 6 (default), 8,10,12,15,20,24,30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke.
The Choices: 250 (default), 500,750,1000.

Security Option

This option will enable only individuals with passwords to bring the system online and/or to use the CMOS Setup Utility.
System A password is required for the system to boot and is also required to access the Setup Utility.
Setup (default) A password is required to access the Setup Utility only.
This will only apply if passwords are set from the Setup main menu.

OS Select For DRAM > 64MB

A choice other than Non-OS2 is only used for OS2 systems with memory exceeding 64MB.
The Choices: Non-OS2 (default), OS2.

Video BIOS Shadow

Determines whether video BIOS will be copied to RAM for faster execution.
The Choices: Enabled (default) Optional ROM is enabled.
Disabled Optional ROM is disabled.

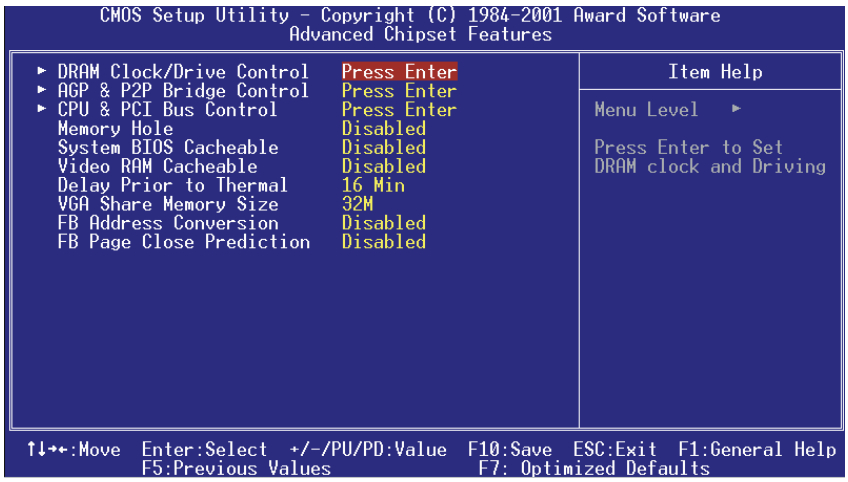
Summary Screen Show

This item allows you to enable/ disable the summary screen. Summary screen means system configuration and PCI device listing.
The Choices: Enabled, **Disabled** (default).

Advanced Chipset Features

This submenu allows you to configure the specific features of the chipset installed on your system. This chipset manages bus speeds and access to system memory resources, such as DRAM and external cache. It also coordinates communications with the PCI bus. The default settings that came with your system have been optimized and therefore should not be changed unless you are suspicious that the settings have been changed incorrectly.

■ **Figure 4. Advanced Chipset Setup**



DRAM Clock/Drive Control

To control the Clock. If you highlight the literal “Press Enter” next to the “DRAM Clock” label and then press the enter key, it will take you a submenu with the following options:

DRAM Clock
This item determines DRAM clock following 100MHz, 133MHz or By SPD.
The Choices: 100MHz, 133MHz, **By SPD** (default).

DRAM Timing
This item determines DRAM clock/ timing follow SPD or not.
The Choices: By SPD(default), Manual.

SDRAM CAS Latency
When DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.
The Choices: 2.5, **2** (default).

Bank Interleave
This item allows you to enable or disable the bank interleave feature.
The Choices: Disabled (default).

Precharge to Active (Trp)
This items allows you to specify the delay from precharge command to activate command.
The Choices: 2T, **3T** (default).

Active to Precharge (Tras)
This items allows you to specify the minimum bank active time.
The Choices: 6T (default), 5T.

Active to CMD (Trcd)
Use this item to specify the delay from the activation of a bank to the time that a read or write command is accepted.
The Choices: 2T, **3T** (default).

DRAM Command Rate
This item controls clock cycle that must occur between the last valid write operation and the next command.
The Choices: 1T Command, **2T Command** (default).

DRAM Burst Len
The Choices: 4 (default), 8.

CPU read DRAM Mode
The Choices: Medium (default), Slow, Fast.

AGP & P2P Bridge Control

If you highlight the literal “Press Enter” next to the “AGP & P2P Bridge Control” label and then press the enter key, it will take you a submenu with the following options:

AGP Aperture Size
Select the size of the Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for

graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.
The Choices: 64M (default), 256M, 128M, 32M, 16M, 8M, 4M.

AGP Mode
This item allows you to select the AGP Mode.
The Choices: 4X (default), 2X, 1X.

AGP Driving Control
By choosing "Auto" the system BIOS will the AGP output Buffer Drive strength P Ctrl by AGP Card. By choosing "Manual", it allows user to set AGP output Buffer Drive strength P Ctrl by manual.
The Choices: Auto (default), Manual.

AGP Driving Value
While AGP driving control item set to "Manual", it allows user to set AGP driving.
The Choices: DA (default).

AGP Fast Write
The Choices: Enabled, **Disabled** (default).

AGP Master 1 WS Write
When Enabled, writes to the AGP (Accelerated Graphics Port) are executed with one wait states.
The Choices: Disabled (default), Enabled.

AGP Master 1 WS Read
When Enabled, read to the AGP (Accelerated Graphics Port) are executed with one wait states.
The Choices: Disabled (default), Enabled.

CPU & PCI Bus Control

If you highlight the literal "Press Enter" next to the "CPU & PCI Bus Control" label and then press the enter key, it will take you a submenu with the following options:

CPU to PCI Write Buffer
When enabled, up to four Dwords of data. Can be written to the PCI bus without interrupting the CPU. When disabled, a write buffer is not used and the CPU read cycle will not be completed until the PCI bus signals that it is ready to receive the data.
The Choices: Enabled (default), Disabled.

PCI Master 0 WS Write
When Enabled, writes to the PCI bus are executed with zero-wait

states.
The Choices: Enabled, **Disabled** (default).

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.
The Choices: Disabled, **Enabled** (default).

Memory Hole

When enabled, you can reserve an area of system memory for ISA adapter ROM. When this area is reserved , it cannot be cached. Refer to the user documentation of the peripheral you are installing for more information.
The Choices: Disabled (default), 15M – 16M.

System BIOS Cacheable

Selecting the "Enabled" option allows caching of the system BIOS ROM at F0000h-FFFFFh which can improve system performance. However, any programs writing to this area of memory will cause conflicts and result in system errors.
The Choices: Enabled, **Disabled** (default).

Video RAM Cacheable

Enabling this option allows caching of the video RAM, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

The Choices: Enabled, **Disabled** (default).

Delay Prior to Thermal

The time periods would correspond to the amount of time required to boot various supported configurations. Example selections include 4, 8, 16, 32 minutes. The watchdog timer would generate an SMI, presenting the BIOS an opportunity to enable the TCC in non-ACPI compliant operating systems.
The Choices: 16Min (default), 4Min, 8Min, 32Min.

VGA Share Memory Size

This item allows you to select the VGA share memory size.
The Choices: 32M (default), 8M, 16M, Disabled.

FB Address Conversion

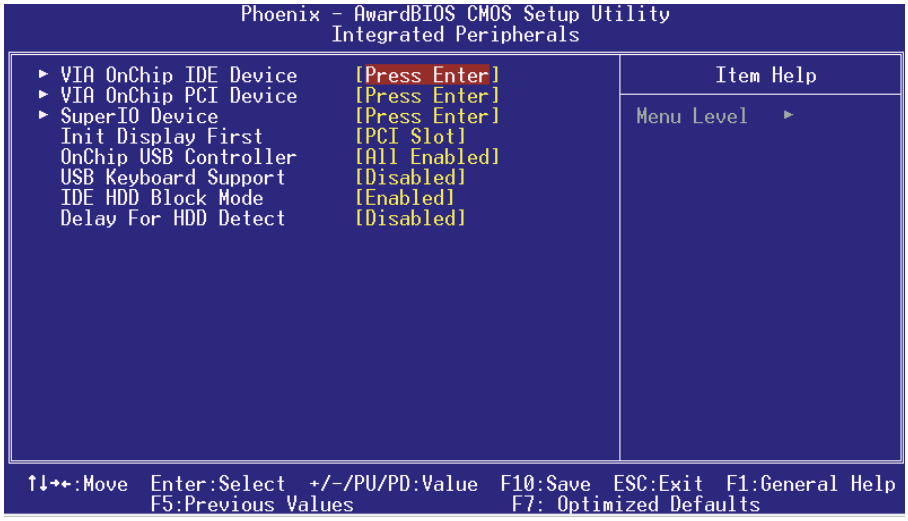
Setting this bit further optimizes the MA table for VGA frame buffer accesses according to the DRAM page size in use. Setting this should improve VGA performance especially in tiling address mode. This but cannot be used the same time as CPU Direct Access FB mode. If used, this bit must be set before enabling the internal VGA to prevent display corruption.
The Choices: Enabled (default), Disabled.

FB Page Close Prediction

This feature automatically close the FB DRAM pages that are no longer needed in tiling address mode. This bit can be set / cleared any time. This feature will show maximum performance increase if frame buffer address conversion is also enabled.
The Choices: Enabled (default), Disabled.

Integrated Peripherals

■ **Figure 5. Integrated Peripherals**



VIA OnChip IDE Device

If you highlight the literal “Press Enter” next to the “VIA OnChip IDE Device” label and then press the enter key, it will take you a submenu with the following options:

IDE DMA transfer access
The Choices: Enabled (default), Disabled.

OnChip IDE Channel 0/1
The motherboard chipset contains a PCI IDE interface with support for two IDE channels. Select “Enabled” to activate the first and/or second IDE interface. Select “Disabled” to deactivate an interface if you are going to install a primary and/or secondary add-in IDE interface.
The Choices: Enabled (default), Disabled.

IDE Prefetch Mode
The “onboard” IDE drive interfaces supports IDE prefetching for faster drive access. If the interface does not support prefetching. If you install a primary and/or secondary add-in IDE interface, set this option to “Disabled”.
The Choices: Enabled (default), Disabled.

Primary / Secondary /Master / Slave PIO
The IDE PIO (Programmed Input / Output) fields let you set a PIO mode (0-4) for each of the IDE devices that the onboard IDE interface supports. Modes 0 to 4 will increased performance progressively. In Auto mode, the system automatically determines the best mode for each device.
The Choices: Auto (default), Mode0, Mode1, Mode2, Mode3, Mode4.

Primary / Secondary /Master / Slave UDMA
Ultra DMA/100 functionality can be implemented if it is supported by the IDE hard drives in your system. As well, your operating environment requires a DMA driver (Windows 95 OSR2 or a third party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/100, select Auto to enable BIOS support.
The Choices: Auto (default), Disabled.

VIA OnChip PCI Device

If you highlight the literal "Press Enter" next to the "VIA OnChip PCI Device" label and then press the enter key, it will take you a submenu with the following options:

VIA-3058 AC97 Audio
This option allows you to control the onboard AC97 audio.
The Choices: Auto (default), Disabled.

VIA-3068 MC97 Modem
This option allows you to control the onboard MC97 modem.
The Choices: Auto (default), Disabled.

VIA-3043 OnChip LAN
This option allows you to control the onboard LAN.
The Choices: Enabled (default), Disabled.

Onboard LAN Boot ROM
This item allows you to enable or disable Onboard LAN Boot ROM.
The Choices: Disabled (default), Enabled.

Super IO Device

If you highlight the literal "Press Enter" next to the "Super IO Device" label and then press the enter key, it will take you a submenu with the following options:

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 install and FDC or the system has no floppy drive, select Disabled in this field.
The Choices: Enabled (default), Disabled.

Onboard Serial Port 1
Select an address and corresponding interrupt for the first and second serial ports.
The Choices: Disabled, **3F8/IRQ4** (default), 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Auto.

Onboard Serial Port 2
Select an address and corresponding interrupt for the first and second serial ports.
The Choices: Disabled, **2F8/IRQ3** (default), 3F8/IRQ4, 3E8/IRQ4, 2E8/IRQ3, Auto.

UART Mode Select
This item allows you to determine which Infra Red (IR) function of onboard I/O chip.
The Choices: Normal (default), AS KIR, IrDA.

UR2 Duplex Mode
Select the value required by the IR device connected to the IR port. Full-duplex mode permits simultaneous two-direction transmission. Half-duplex mode permits transmission in one direction only at a time.
The Choices: Half (default), Full.

Onboard Parallel Port
This item allows you to determine access onboard parallel port controller with which I/O Address.
The Choices: 378/IRQ7 (default), 278/IRQ5, 3BC/IRQ7, Disabled.

Parallel Port Mode
The default value is SPP.
The Choices:

SPP(default)	Using Parallel port as Standard Printer Port.
EPP	Using Parallel Port as Enhanced Parallel Port.
ECP	Using Parallel port as Extended Capabilities Port.
ECP+EPP	Using Parallel port as ECP & EPP mode.

ECP Mode Use DMA
Select a DMA Channel for the port.
The Choices: 3 (default), 1.

Game Port Address
Game Port I/O Address.
The Choices: 201 (default), 209, Disabled.

Midi Port Address
Midi Port Base I/O Address.
The Choices: 330 (default),300, 290**,** Disabled.

Midi Port IRQ
This determines the IRQ in which the Midi Port can use.
The Choices: 5, **10** (default).

Init Display First

With systems that have multiple video cards, this option determines whether the primary display uses a PCI Slot or an AGP Slot.
The Choices: PCI Slot (default), AGP.

OnChip USB Controller

This option should be enabled if your system has a USB installed on the system board. You will need to disable this feature if you add a higher performance controller.
The Choices: All Enabled (default), All Disabled, 1&2 USB Port, 2&3 USB Port, 1&3 USB Port, 1 USB Port, 2 USB Port, 3 USB Port.

USB Keyboard Support

Enables support for USB attached keyboards.
The Choices: Disabled (default), Enabled.

IDE HDD Block Mode

Block mode is otherwise known as block transfer, multiple commands, or multiple sector read/write. Select the "Enabled" option if your IDE hard drive supports block mode (most new drives do). The system will automatically determine the optimal number of blocks to read and write per sector.
The Choices: Enabled (default), Disabled.

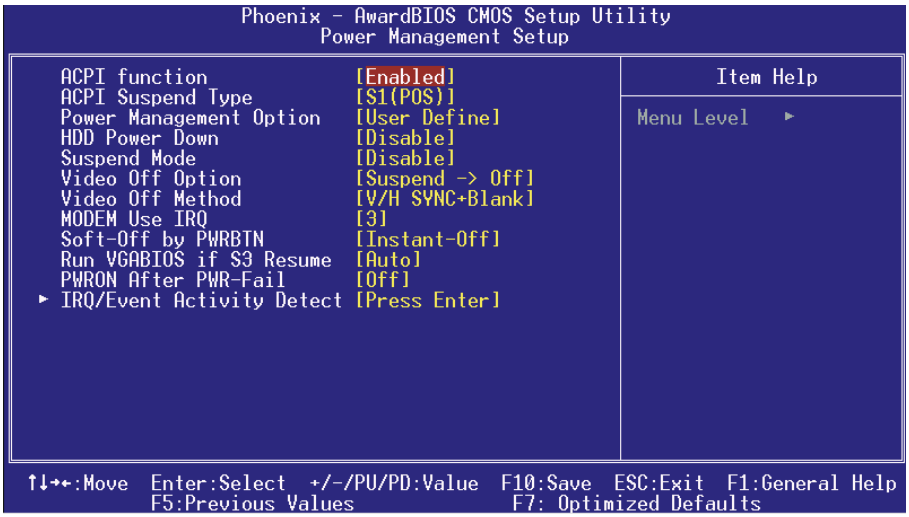
Delay For HDD Detect

The Choices: Disabled (default), Enabled.

Power Management Setup

The Power Management Setup Menu allows you to configure your system to utilize energy conservation and power up/power down features.

■ **Figure 6. Power Management Setup**



ACPI function

This item displays the status of the Advanced Configuration and Power Management (ACPI).

The Choices: Enabled (default), Disabled.

ACPI Suspend Type

The item allows you to select the suspend type under the ACPI operating system.

The Choices: S1 (POS) (default) Power on Suspend.

S3 (STR) Suspend to RAM.

Power Management Option

This category allows you to select the type (or degree) of power saving and is directly related to the following mode:

Suspend Mode.

There are four options of Power Management, three of which have fixed mode settings

Min. Power Saving

Minimum power management.
Suspend Mode = 1 hr.

Max. Power Saving

Maximum power management only available for sl CPU's.
Suspend Mode = 1 min.

User Defined (default)

Allows you to set each mode individually.
When not disabled, each of the ranges are from 1 min. to 1 hr.

HDD Power Down

When enabled, the hard disk drive will power down and after a set time of system inactivity. All other devices remain active.
The Choices: Disabled (default), 1 Min, 2 Min, 3 Min, 4 Min, 5 Min, 6 Min, 7 Min,8 Min, 9 Min, 10 Min, 11 Min, 12 Min, 13 Min, 14 Min, 15Min.

Suspend Mode

The item allows you to select the suspend type under ACPI operating system.
The Choices: Disabled (default), 1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 20 Min, 30 Min, 40 Min, 1 Hour.

Video Off Option

This field determines when to activate the video off feature for monitor power management.
The Choices: Suspend→Off (default), Always on.

Video Off Method

This option determines the manner in which the monitor is goes blank.

V/H SYNC+Blank (default)

This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

Blank Screen
This option only writes blanks to the video buffer.

DPMS Support
Initial display power management signaling.

Modem Use IRQ

This determines the IRQ, which can be applied in MODEM use.
The Choices: 3 (default), 4 / 5 / 7 / 9 / 10 / 11 / NA

Soft-Off by PWRBTN

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung."
The Choices: Delay 4 Sec, **Instant-Off** (default).

Run VGABIOS if S3 Resume

The Choices: Auto (default), Yes, No.

PWRON After PWR-Fail

This field determines the action the system will automatically take when power is restored to a system that had lost power previously without any subsequent manual intervention. There are 3 sources that provide current to the CMOS area that retains these Power-On instructions; the motherboard battery (3V), the Power Supply (5VSB), and the Power Supply (3.3V). While AC is not supplying power, the motherboard uses the motherboard battery (3V). If AC power is supplied and the Power Supply is not turned on, 5VSB from the Power Supply is used. When the Power Supply is eventually turned on 3.3V from the Power Supply will be used.
There are 3 options: "Former-Sts", "On", "Off".

"Off" (default)	Means always set CMOS to the "Off" status when AC power is lost.
"On"	Means always set CMOS to the "On" status when AC power is lost
"Former-Sts"	Means to maintain the last status of the CMOS when AC power is lost.

For example: If set to "Former-Sts" and AC power is lost when system is live, then after AC power is restored, the system will automatically power on. If AC power is lost when system is not live, system will remain powered off.

IRQ/Event Activity Detect

If you highlight the literal "Press Enter" next to the "IRQ/Event Activity Detect" label and then press the enter key, it will take you a submenu with the following options:

VGA

When set to **On**, any event occurring at a VGA Port will awaken a system which has been powered down.
The Choices: Off (default), On.

LPT & COM
When this option is set to **On**, any event occurring at a COM(serial)/LPT (printer) port will awaken a system which has been powered down.
The Choices: LPT/COM (default), COM, LPT, NONE.

HDD & FDD
When this option is set to **On**, any event occurring on a hard drive or a floppy drive will awaken a system which has been powered down.
The Choices: On (default), Off.

PCI Master
When set to **On**, you need a LAN add-on card which supports the power function. It should also support the wake-up on LAN jump.
The Choices: Off (default), On.

PowerOn by PCI Card
When you select Enabled, a PME signal from PCI card returns the system to Full ON state.
The Choices: Disabled (default), Enabled.

Wake Up On LAN/Ring
To use this function, you need a LAN add-on card which support power on function. It should also support the wake-up on LAN jump.
Disabled (default) Wake up on LAN/Ring not supported.
Enabled Wake up on LAN/Ring supported.

RTC Alarm Resume
When "Enabled", you can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.
The Choices: Enabled, **Disabled** (default).

Date (of Month)
You can choose which month the system will boot up. This field is only configurable when "RTC Resume" is set to "Enabled".

Resume Time (hh:mm:ss)
You can choose the hour, minute and second the system will boot up. This field is only configurable when "RTC Resume" is set to "Enabled".

IRQs Activity Monitoring

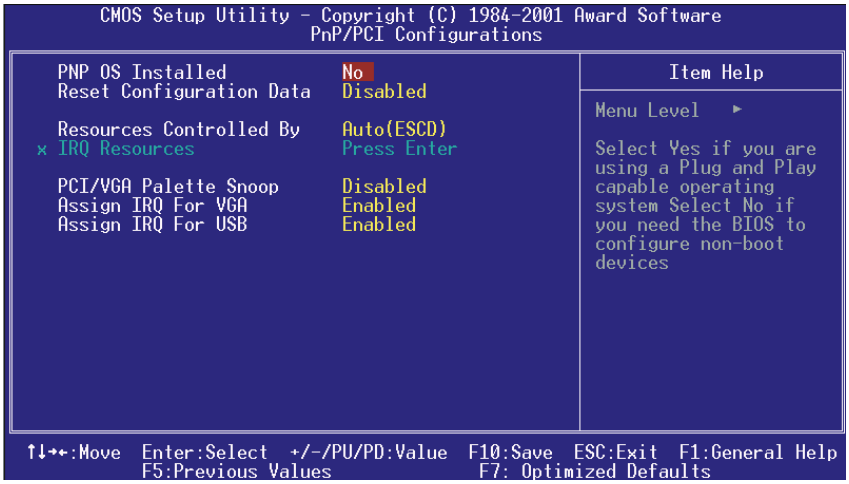
Press Enter to access another sub menu used to configure the different wake up events (i.e. wake on LPT & COMM activity).

Primary INTR	On
IRQ3 (COM2)	Disabled
IRQ4 (COM1)	Enabled
IRQ5 (LPT2)	Enabled
IRQ6 (Floppy Disk)	Enabled
IRQ7 (LPT1)	Enabled
IRQ8 (RTC Alarm)	Disabled
IRQ9 (IRQ2 Redir)	Disabled
IRQ10 (Reserved)	Disabled
IRQ11 (Reserved)	Disabled
IRQ12 (PS/2 Mouse)	Enabled
IRQ13 (Coprocessor)	Enabled
IRQ14 (Hard Disk)	Enabled
IRQ15 (Reserved)	Disabled

PnP/PCI Configurations

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 of 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.

■ **Figure 7. PnP/PCI Configurations**



PNP OS Installed

When set to YES, BIOS will only initialize the PnP cards used for the boot sequence (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Window™ 95. When set to NO, BIOS will initialize all the PnP cards. For non-PnP operating systems (DOS, Netware™), this option must set to NO.

The Choices: No (default), Yes.

Reset Configuration Data

The system BIOS supports the PnP feature which requires the system to record which resources are assigned and protects resources from conflict. Every peripheral device has a node, which is called ESCD. This node records which resources are assigned to it. The system needs to record and update ESCD to the memory locations. These locations (4K) are reserved in the system BIOS.

If the Disabled (default) option is chosen, the system's ESCD will update only when the new configuration varies from the last one. If the Enabled option is chosen, the system is forced to update ESCDs and then is automatically set to the "Disabled" mode.

IRQ-3	assigned to: PCI Device
IRQ-4	assigned to: PCI Device
IRQ-5	assigned to: PCI Device
IRQ-7	assigned to: PCI Device
IRQ-9	assigned to: PCI Device
IRQ-10	assigned to: PCI Device
IRQ-11	assigned to: PCI Device
IRQ-12	assigned to: PCI Device
IRQ-14	assigned to: PCI Device
IRQ-15	assigned to: PCI Device

The above settings will be shown on the screen only if "Manual" is chosen for the resources controlled by function.
Legacy is the term, which signifies that a resource is assigned to the ISA Bus and provides non-PnP ISA add-on cards. PCI / ISA PnP signifies that a resource is assigned to the PCI Bus or provides for ISA PnP add-on cards and peripherals.
The Choices: Disabled (default), Enabled.

Resources Controlled By

By Choosing "**Auto**" (default), the system BIOS will detect the system resources and automatically assign the relative IRQ and DMA channel for each peripheral.
By Choosing "Manual", the user will need to assign IRQ & DMA for add-on cards. Be sure that there are no IRQ/DMA and I/O port conflicts.

IRQ Resources

This submenu will allow you to assign each system interrupt a type, depending on the type of device using the interrupt. When you press the "Press Enter" tag, you will be directed to a submenu that will allow you to configure the system interrupts. This is only configurable when "Resources Controlled By" is set to "Manual".

PCI / VGA Palette Snoop

Choose Disabled or Enabled. Some graphic controllers which are not VGA compatible take the output from a VGA controller and map it to their display as a way to provide boot information and VGA compatibility.

However, the color information coming from the VGA controller is drawn from the palette table inside the VGA controller to generate the proper colors, and the graphic controller needs to know what is in the palette of the VGA controller.

To do this, the non-VGA graphic controller watches for the Write access to the VGA palette and registers the snoop data. In PCI based systems, where the VGA controller is on the PCI bus and a non-VGA graphic controller is on an ISA bus, the Write Access to the palette will not show up on the ISA bus if the PCI VGA controller responds to the Write.

In this case, the PCI VGA controller should not respond to the Write, it should only snoop the data and permit the access to be forwarded to the ISA bus. The non-VGA ISA graphic controller can then snoop the data on the ISA bus. Unless you have the above situation, you should disable this option.
The Choices: Disabled (default) Disables the function.
Enabled Enables the function.

Assign IRQ For VGA

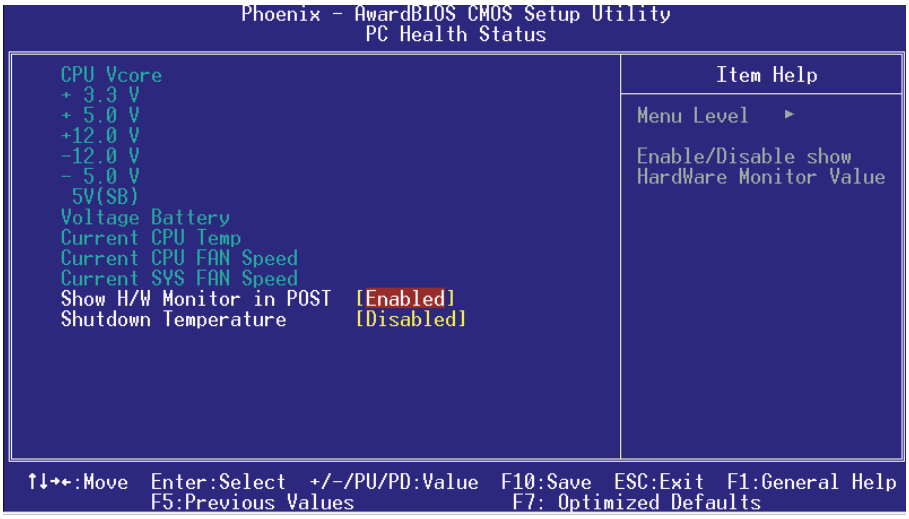
This item allows the users to choose which IRQ to assign for the VGA.
The Choices: Enabled (default), Disabled.

Assign IRQ For USB

This item allows the users to choose which IRQ to assign for the USB.
The Choices: Enabled (default), Disabled.

PC Health Status

■ **Figure 8. PC Health Status**



CPU Vcore +3.3V, +5V, +12V, -12V, -5V, 5VSB(V), Voltage Battery

Detect the system's voltage status automatically.

Current CPU Temperature

This field displays the current temperature of CPU.

Current CPU FAN Speed

This field displays the current speed of CPU fan.

Current SYS FAN Speed

This field displays the current speed SYSTEM fan.

Show H/W Monitor in POST

If your computer contains a monitoring system, it will show PC health status during POST stage.

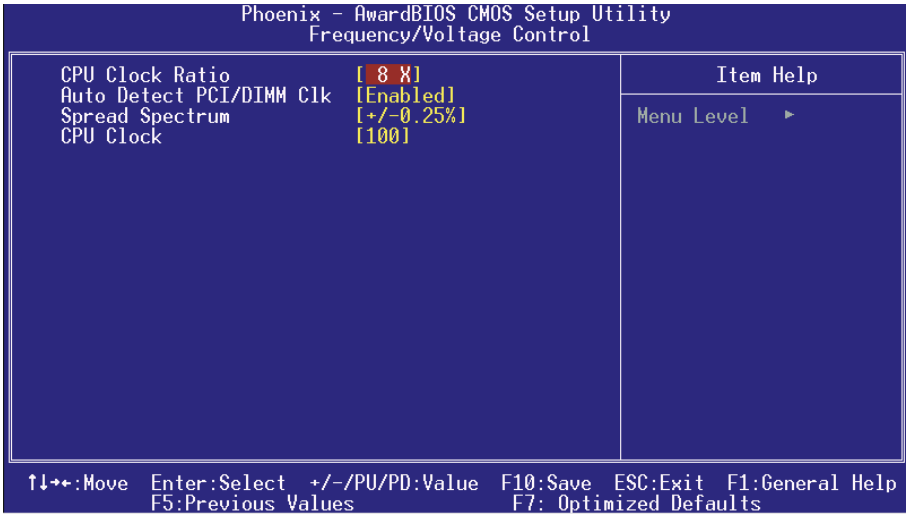
The Choices: Disabled, **Enabled** (default).

Shutdown Temperature

This item allows you to set the shutdown temperature of the CPU in order not to be damaged by the overheated temperature. When this function is enabled, the system will automatically shutdown if the CPU temperature reaches the shutdown temperature. This function only works under Windows 98 ACPI mode.
The Choices: Disabled (default), 60℃/140℉, 65℃/149℉, 70℃/158℉.

Frequency/Voltage Control

- **Frequency/Voltage Control**



CPU Ratio

This item allows you to select the CPU Ratio.
The Choices: X8 (default), X9, X10, X11, X12, X13, X14, X15, X16, X17, X18, X19, X20, X21, X22, X23.

Auto Detect PCI / DIMM Clk

This item allows you to enable/disable auto detect DIMM/PCI Clock.
The Choices: Enabled (default), Disabled.

Spread Spectrum

This item allows you to enable/disable the Spread Spectrum function.
The Choices:+/ -0.25 (default), Disabled, -0.5%, +/ -0.5%, +/ -0.38%.

CPU Clock

This item allows you to select CPU Host Clock.
The Choices: 100MHz (Min) (default) ~ 132MHz (Max).

If unfortunately, the system's frequency that you are selected is

not functioning, there are two methods of booting-up the system.

Method 1: Clear the CMOS data by setting the JCMOS1 ((2-3) closed)) as "ON" status. All the CMOS data will be loaded as defaults setting.

Method 2: Press the <Insert> key and Power button simultaneously, after that keep-on pressing the <Insert> key until the power-on screen showed. This action will boot-up the system according to FSB of the processor.