

M7SXG

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This device complies with Part 15 of the FCC Rules. Operation of this device is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Accessories: This device has been tested and found to comply with the limits of a Class B digital device; the accessories associated with this equipment are as follows:

1. Shielded serial cable. (Can be obtained from multiple retail outlets)
2. Shielded printer cable. (Can be obtained from multiple retail outlets)
3. Shielded video cable. (Can be obtained from multiple retail outlets)
4. Shielded power cord. (Provided by manufacturer)

These accessories are required to ensure compliance with FCC Rules. It is the responsibility of the user to provide and use these accessories properly.

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1. Reorient / relocate the receiving antenna.
2. Increase the separation between the equipment and the receiver.
3. Connect the equipment into an outlet from a different circuit where the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

Caution: Changes or modifications that is not expressly approved by the manufacturer could void the user's authority to operate the equipment.

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Cet appareil numérique n'émet pas de bruits radioélectriques dépassant les limites appliquées aux appareils numériques de Class B prescrits dans le règlement du brouillage radioélectrique edict par le minister Des Communications du Canada.

Contents

Introduction	1-1
1. Motherboard Description	1-2
1.1 Features	1-2
1.1.1 Hardware.....	1-2
1.1.2 BIOS	1-6
1.1.3 Software.....	1-6
1.1.4 Accessories	1-6
1.2 Motherboard Installation.....	1-7
1.2.1 System Block Diagram.....	1-7
1.2.2 Layout of Motherboard.....	1-8
1.2.3 Quick Reference.....	1-8
1.2.3 Quick Reference.....	1-9
1.3 CPU Installation.....	1-10
1.3.1 CPU Installation Procedure: Socket 478	1-10
1.3.2 CPU Fan Header: JCFAN1	1-11
1.3.3 System Fan Header: JSFAN1 (Optional).....	1-11
1.4 RAM Module Installation	1-12
1.4.1 DIMM.....	1-12
1.4.2 How to install a DIMM Module	1-13
1.5 Slots	1-14
1.5.1 AGP (Accelerated Graphics Port) Slot.....	1-15
1.5.2 CNR (Communication Network Riser) Slot.....	1-15
1.5.3 PCI (Peripheral Component Interconnect) Slots.....	1-15

Contents

1.6 Connectors, Headers & Jumpers	1-16
1.6.1 Front Panel Connector: JPANEL1	1-17
1.6.2 ATX 20-pin Power Connector: JATXPWR1	1-19
1.6.3 ATX 12V Power Connector: JATXPWR2	1-19
1.6.4 DIMM Power Voltage Selection: JDIMMPWR1	1-19
1.6.5 AUX Power Connector: JAUXPWR1 (Optional)	1-20
1.6.6 Hard Disk Connectors: IDE1/IDE2	1-20
1.6.7 Floppy Disk Connector: FDD1	1-20
1.6.8 Wake On LAN Header: JWOL1	1-21
1.6.9 Clear CMOS Jumper: JCMOS1	1-21
1.6.10 Front USB Headers: JUSB1/JUSB2	1-22
1.7 Peripheral Port.....	1-23
1.7.1 PS/2 Mouse / Keyboard Connector: JKBMS1	1-23
1.7.2 USB & LAN Connectors: JUSBLAN1	1-24
1.7.3 VGA Connector: JVGA1	1-25
1.7.4 Serial and Parallel Interface Ports.....	1-26
1.7.4.1 The Serial Interface: JCOM1	1-26
1.7.4.2 Parallel Interface Port: JPRNT1	1-28
1.7.5 Game (Joystick/MIDI) Port Connector: JGAME1	1-29
1.7.6 Audio Port Connectors: JSPKR1/JLIN1/JMIC1	1-29
1.7.7 Audio Subsystem	1-30
1.7.7.1 CD-ROM Audio-In Header: JCDIN1	1-31
1.7.7.2 CD-ROM Audio-In Header: JCDIN2	1-31
1.7.7.3 Front Panel Audio Header: JAUDIO1	1-31

Contents

1.7.7.4 Telephony Audio Header: JTAD1.....	1-31
2. BIOS Setup.....	2-1
2.1 Main Menu.....	2-3
2.2 Standard CMOS Features.....	2-6
2.3 Advanced BIOS Features.....	2-9
2.4 Advanced Chipset Features.....	2-13
2.5 Integrated Peripherals	2-15
2.6 Power Management Setup.....	2-21
2.7 PnP/PCI Configurations	2-24
2.8 PC Health Status	2-27
2.9 Frequency Control.....	2-29
3. Trouble Shooting.....	3-1

Introduction

System Overview

Congratulations on the purchase of your new system! This motherboard 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 motherboard continues the commitment of reliability, performance and strives for full compliance and compatibility with industry software and hardware standards.

M7SXG Highlights:

- ▶ Contains on board I/O facilities, which include one serial port, a parallel port, a PS/2 mouse port, a PS/2 keyboard port, audio ports, USB ports, a game port and a VGA port.
- ▶ Contains on board IDE facilities for IDE devices such as hard disks and CD-ROM Drives.
- ▶ Supports the Intel Pentium® 4 (Socket 478) processor, a leading edge processor which brings to you the latest technology in micro architecture design, graphics performance, system bus design, cache architecture and much more.
- ▶ Complies with PC Micro ATX form factor specifications.
- ▶ Supports popular operating systems such as Windows 95/98, Windows NT, Windows 2000, Windows ME, Windows XP, Novell and SCO UNIX.

1. Motherboard Description

1.1 Features

1.1.1 Hardware

CPU

- Provides Socket-478.
- Supports the Intel Pentium® 4 processor providing the new generation power for high-end workstations system.

Speed

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

Chipset

- SiS 650/645, SiS 961.
- Winbond W83697HF.

DRAM Memory

- Supports 200MHz, 266MHz or 333MHz(only for SiS 645) DDR SDRAM devices.
- Supports 128Mb, 256Mb ,512Mb and 1GB technologies.
- Max of 2 Double-Sided DIMMs with unbuffer (without ECC) PC2100/PC1600/PC2700(only for SiS 645).
- The largest memory capacity is 2 GB for unbuffer DIMMs.

Shadow RAM

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

Green Functionality

- Supports Award BIOS™ power management functionality.
- Has a power down timer from 1 to 15 minutes.
- Wakes from power saving sleep mode with any keyboard or mouse activity.

BUS Slots

- One AGP slot (support AGP v2.0 compliant).
- One CNR slot.
- Three 32-bit PCI bus slots.

Flash Memory

- Supports flash memory functionality.
- Supports ESCD functionality.

Built in IDE Facilities

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

AC'97 Sound Codec Onboard

- AC-LINK protocol compliance.
- Compliant with AC'97 2.2 specification.
- 18-bit full duplex stereo ADC, DACs.
- SNR>95 dB through mixer and DAC.
- AC-3 playback required for PVD applications.

Onboard Graphic

- High Performance and High Quality 3D Accelerator:
Built-in a high performance 256-bit 3D engine.
Built-in a high quality 3D engine.
- High Performance 2D Accelerator.
- MPEG-2/1 Video Decoder:
MPEG-2 ISO/IEC 13818-2 MP@HL and MPEG-1 ISO/IEC 11172-2 standards compliant.
Built-in advanced hardware DVD acceleration logic.
Support AGP bus master/LFB-mode code fetching.
Half pixel resolution in motion compensation.
Support VCD, DVD and HDTV (all ATSC modes) decoding.
Direct DVD to TV playback.
- Video Accelerator.
- High Integration:
Built-in 64x128 CRT FIFOs to support ultra high resolution graphics modes and reduce CPU wait-state.

I/O facilities

- One multi-mode Parallel Port capable of supporting the following specifications:
Standard & Bidirection Parallel Port.
Enhanced Parallel Port (EPP).
Extended Capabilities Port (ECP).
- Supports one serial ports, 16550 UART.
- Supports Infrared Data Transmission using IrDA.
- Supports 360KB, 720KB, 1.2MB, 1.44MB, and 2.88MB floppy disk drives.

Universal Serial Bus

- Supports two back panel Universal Serial Bus Ports and four front panel Universal Serial Bus Ports (optional).
- Supports 48 MHz USB.

BIOS Hardware Monitor Function

- Monitors CPU Fan Speed.
- Monitors System Fan Speed.
- Monitors System Voltage.

Dimensions (Micro ATX form-factor)

- 24.5cm x 24.5cm (WxL)

1.1.2 BIOS

- Award BIOS.
- Supports APM1.2.
- Supports USB Function.
- Supports ACPI.
- BIOS Update.

1.1.3 Software

Operating System

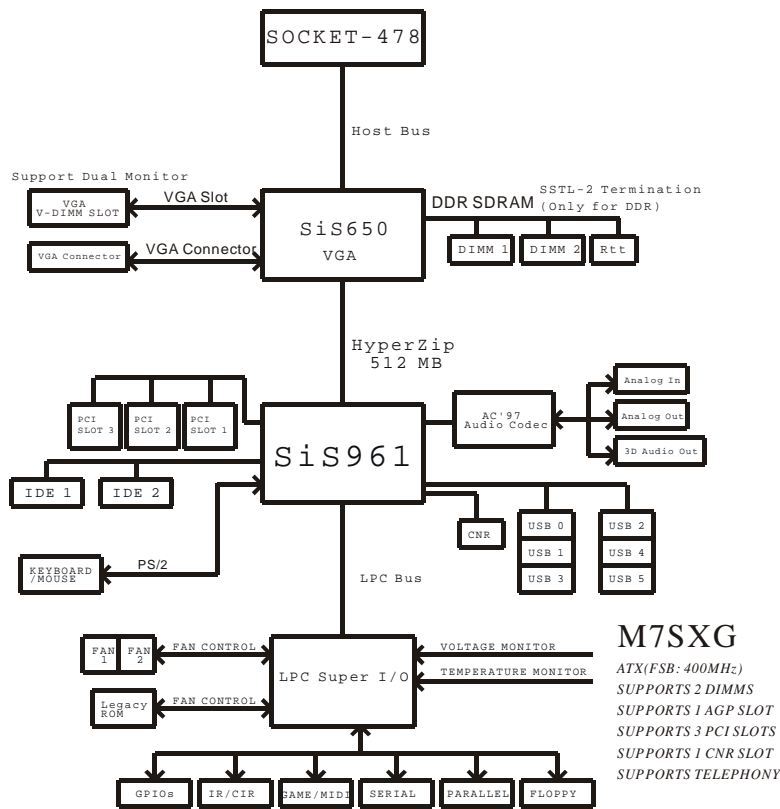
- Offers the highest performance for MS-DOS, Windows NT, Windows 2000, Windows 95/98, Windows ME, Windows XP, Novell, SCO UNIX etc.

1.1.4 Accessories

- HDD Cable.
- FDD Cable.
- Flash Memory Writer for BIOS Update.
- JUSB1/JUSB2 Cable (Optional).
- Rear I/O Panel for Micro ATX Case (Optional).
- Fully Setup Driver CD.

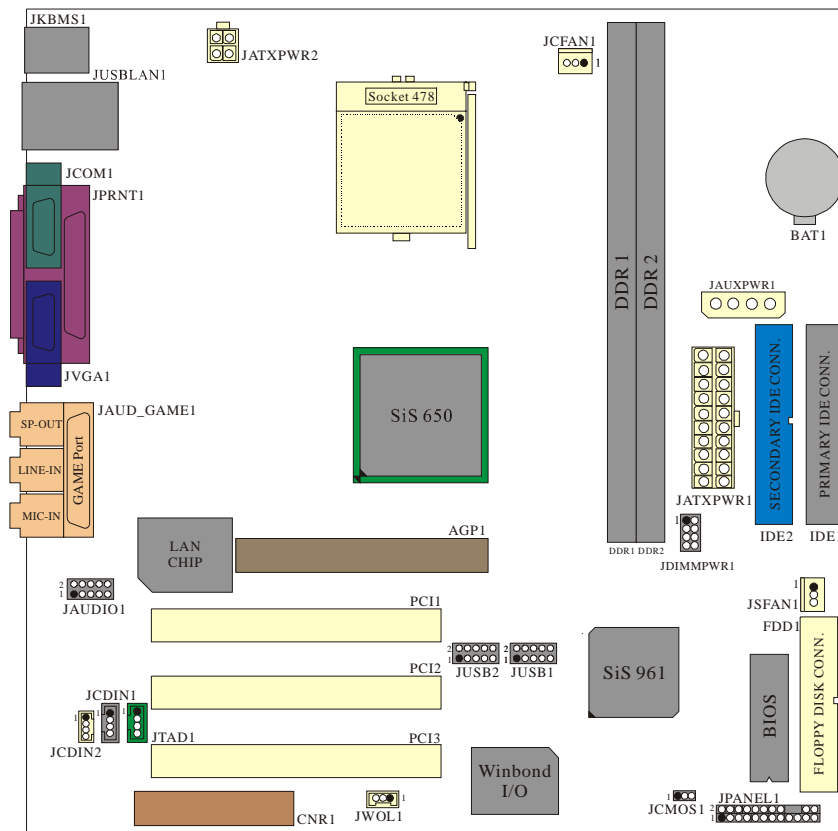
1.2 Motherboard Installation

1.2.1 System Block Diagram

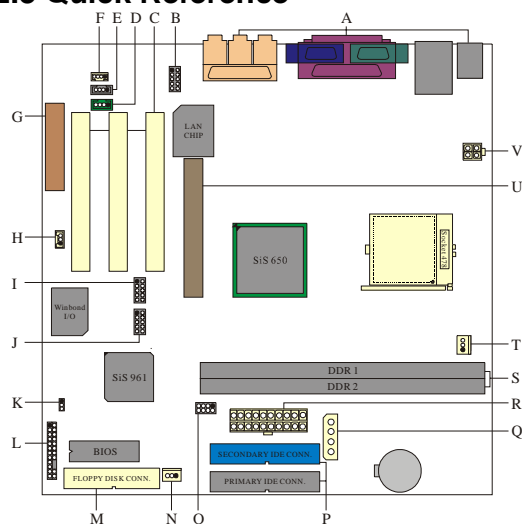


1.2.2 Layout of Motherboard

Model No. M7SXG



1.2.3 Quick Reference

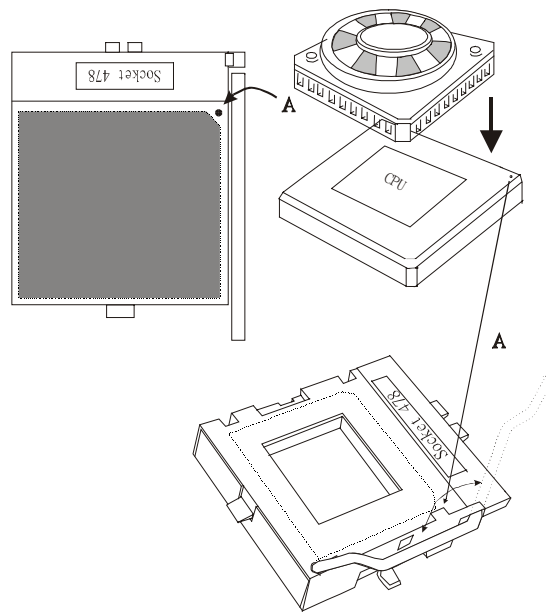


- | | |
|---|---|
| A. Back Panel I/O Connectors | M. Floppy Disk Connector (FDD1) |
| B. Front Audio Header (JAUDIO1) | N. System FAN Header (*JSFAN1) |
| C. PCI BUS Slots (PCI1-3) | O. DIMM Power Voltage Selection Header (JDIMMPWR1) |
| D. Telephony Header (JTAD1) | P. IDE Connectors (IDE1-2) |
| E. CD Audio-In Header (JCDIN1) | Q. AUX Power Connector (*JAUXPWR1) |
| F. CD Audio-In Header (JCDIN2) | R. ATX Power Connector (JATXPWR1) |
| G. CNR Slot (CNR1) | S. DDR DIMMs (DDR 1-2) |
| H. Wake-On-LAN Header (JWOL1) | T. CPU FAN Header (JCFAN1) |
| I. Front USB Header (JUSB2) | U. AGP Slot (AGP1) |
| J. Front USB Header (JUSB1) | V. ATX 12V Power Connector (JATXPWR2) |
| K. Clear CMOS (JCMOS1) | |
| L. Front Panel Connector (JPANEL1) | |

NOTE: The "*" mark mean that the function is optional.

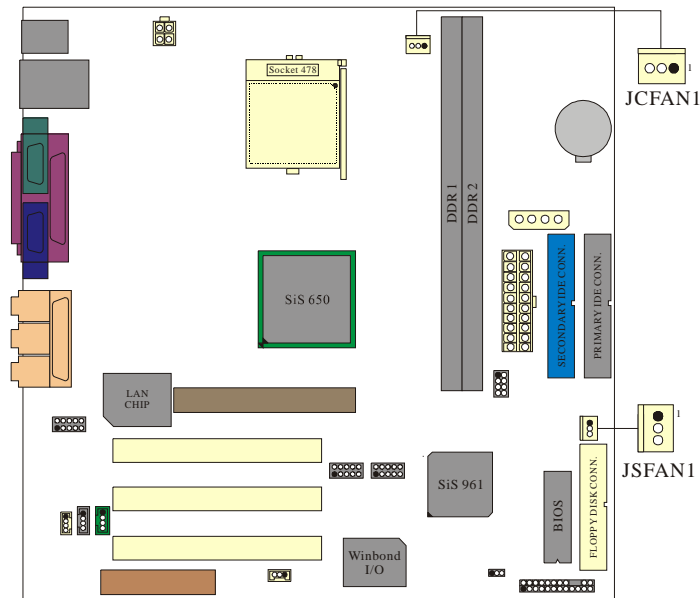
1.3 CPU Installation

1.3.1 CPU Installation Procedure: Socket 478



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.
4. Put the fan on the CPU by buckling it and then put the fan's power port into the JCFAN1, then the installation will be completed.

CPU Installation Layout



1.3.2 CPU Fan Header: JCFAN1

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

1.3.3 System Fan Header: JSFAN1 (Optional)

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

1.4 RAM Module Installation

1.4.1 DIMM

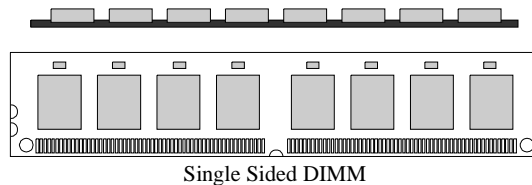
DRAM Access Time: 2.5V Unbuffered DDR SDRAM (without ECC) PC1600/
PC2100/ PC2700 Type required.

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

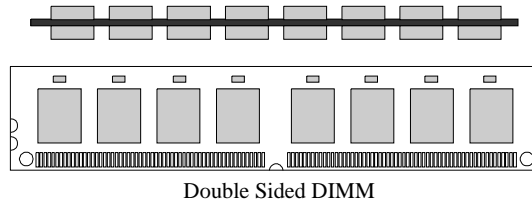
Total Memory Size with unbuffer DIMMs
(Only for reference)

Total Memory Size (MB)	DIMM 1	DIMM 2
128 M	128 M	----
256 M	256 M	----
512 M	512 M	----
1 G	1 G	----
256 M	128 M	128 M
384 M	256 M	128 M
640 M	512 M	128 M
1128 M	1 G	128 M
384 M	128 M	256 M
512 M	256 M	256 M
768 M	512 M	256 M
1256 M	1 G	256 M
640 M	128 M	512 M
768 M	256 M	512 M
1028 M	512 M	512 M
1512 M	1 G	512 M
1128 M	128 M	1 G
1256 M	256 M	1 G
1512 M	512 M	1 G
2 G	1 G	1 G

1.4.2 How to install a DIMM Module



Single Sided DIMM

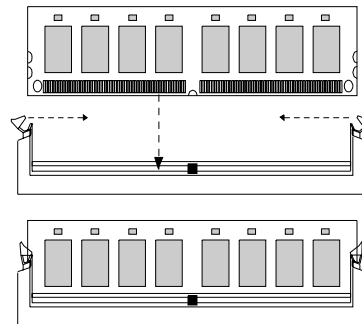


Double Sided DIMM

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

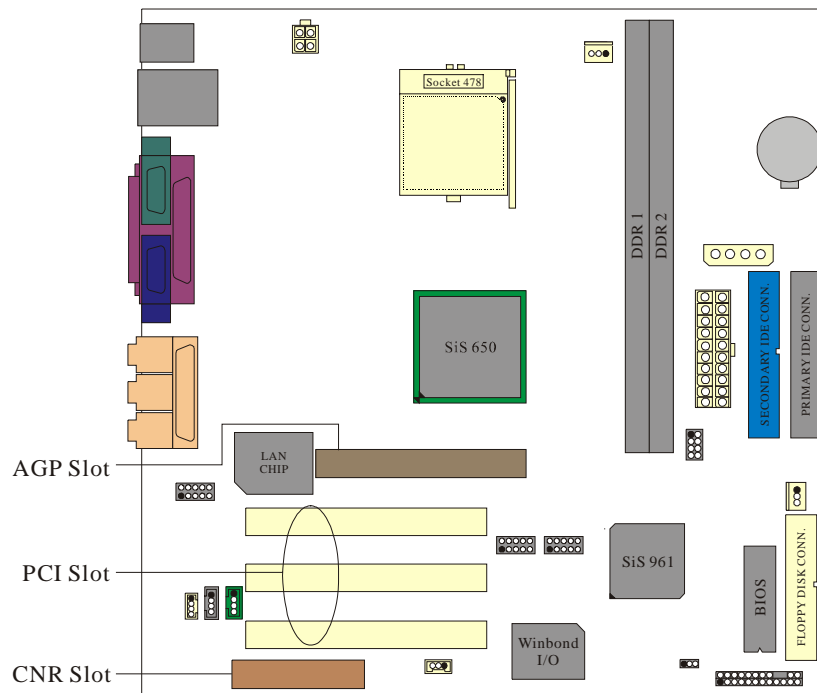
2. Push the tabs out. Insert the DIMM memory modules into the socket at a 90-degree angle, then push down vertically so that it will fit into the place.

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



1.5 Slots

The slots in this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.



1.5.1 AGP (Accelerated Graphics Port) Slot

Unlike the mouse ports, keyboard ports and printer ports, this motherboard has built in video facilities and one of the expansion slot for a video card. Your monitor will attach directly to that video card. This motherboard supports video cards for PCI slot, but it is also equipped with an Accelerated Graphics Port (AGP). An AGP card will take advantage of AGP technology for improved video efficiency and performance, especially with 3D graphics.

1.5.2 CNR (Communication Network Riser) Slot

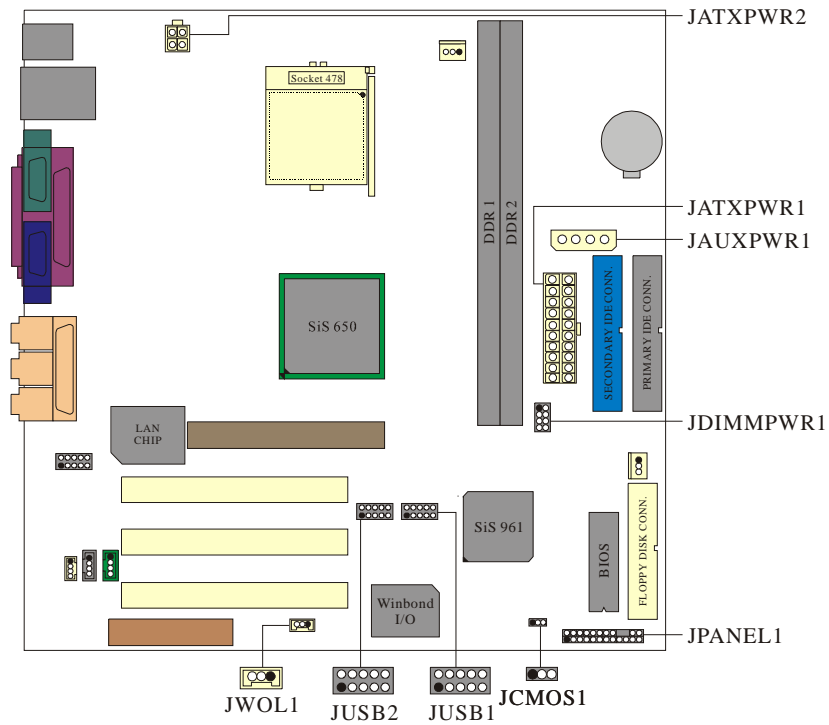
The CNR specification is an open Industry Standard Architecture and it defines a hardware scalable riser card interface, which supports audio, network and modem only.

1.5.3 PCI (Peripheral Component Interconnect) Slots

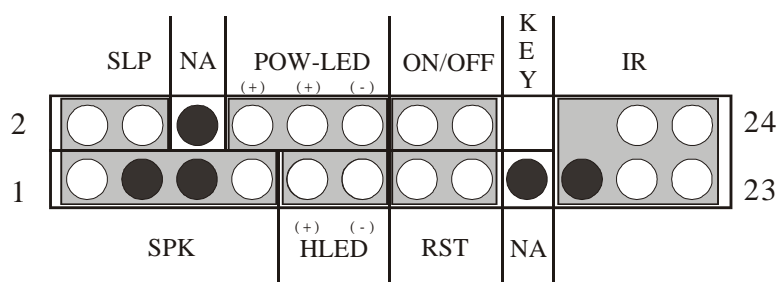
This motherboard is equipped with 3 standard PCI slots. PCI stands for Peripheral Component Interconnect, it is a bus standard for expansion cards and it is designated as 32 bit.

1.6 Connectors, Headers & Jumpers

The connectors, headers and jumpers introduced below provide you lots of capabilities such as power supply, front panel signal revelation, IDE hard disk connection, floppy disk connection, Wake On LAN function and USB connection. Noticeably, a jumper has two or more pins that can be covered by a plastic jumper cap, allowing you to select different system options.



1.6.1 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	
7	Speaker		8	Power LED (+)	POWER LED
9	HDD 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	IrDA Connector	18	KEY	IrDA Connector
19	NA		20	KEY	
21	+5V		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.

1.6.2 ATX 20-pin Power Connector: JATXPWR1

This connector supports the power button on-board. Using the ATX power supply, function such as Soft Power Off is supported on this motherboard. This power connector supports instant power-on functionality, which means that the system will boot up instantly when the power connector is inserted on the board.

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

1.6.3 ATX 12V Power Connector: JATXPWR2

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

1.6.4 DIMM Power Voltage Selection: JDIMMPWR1

Pin	DDR DIMM Voltage
1-2	+2.55V (Default)
3-4	+2.65V
5-6	+2.75V
7-8	+2.85V

* It's strongly recommended to set DDR DIMM voltage in default setting 2.55V.

1.6.5 AUX Power Connector: JAUXPWR1 (Optional)

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

1.6.6 Hard Disk Connectors: IDE1/IDE2

The motherboard 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). You can connect up to four hard disk drives, a CD-ROM, a 120MB Floppy (reserved for future BIOS) and other devices to IDE1 and IDE2. These connectors support the IDE hard disk cable provided.

- **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.



1.6.7 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.

1.6.8 Wake On LAN Header: JWOL1

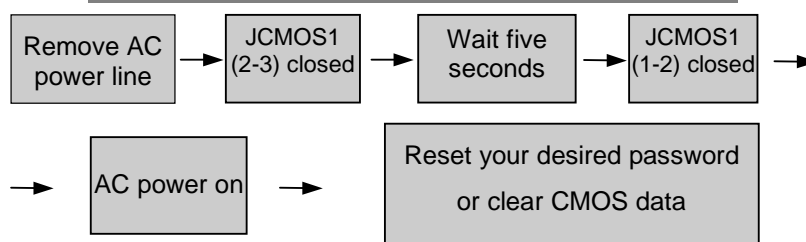
Pin No.	Assignment
1	5V SB
2	Ground
3	Wake up

1.6.9 Clear CMOS Jumper: JCMOS1

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



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



1.6.10 Front USB Headers: JUSB1/JUSB2



Note: Before you install these two headers, make sure the pin assignments are corresponded to the table below, otherwise, it may cause great damage to your USB device.

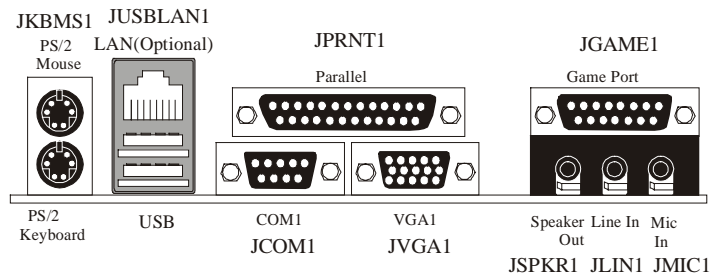
(JUSB1)

Pin	Assignment	Pin	Assignment
1	+5V	2	+5V
3	USB2 Data(-)	4	USB3 Data(-)
5	USB2 Data(+)	6	USB3 Data(+)
7	Ground	8	Ground
9	KEY	10	NC

(JUSB2)

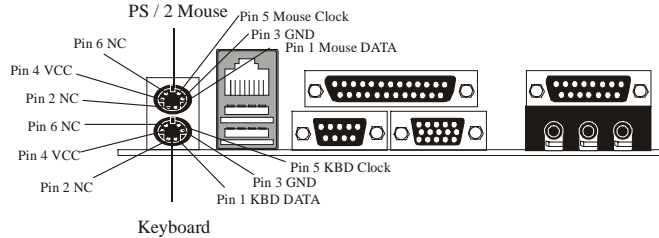
Pin	Assignment	Pin	Assignment
1	+5V	2	+5V
3	USB4 Data(-)	4	USB5 Data(-)
5	USB4 Data(+)	6	USB5 Data(+)
7	Ground	8	Ground
9	KEY	10	NC

1.7 Peripheral Port



1.7.1 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:

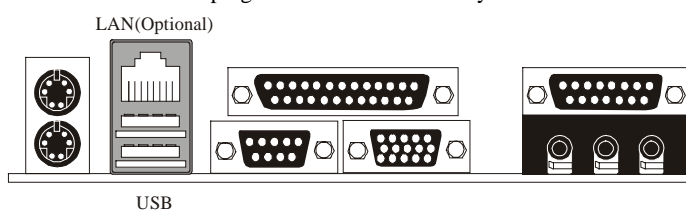


PS/2 Mouse / Keyboard Connectors

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

1.7.2 USB & LAN Connectors: JUSBLAN1

The motherboard provides a **OHCI (Open Host Controller Interface) Universal Serial Bus Roots** for attaching USB devices such as: keyboard, mouse and other USB devices. You can plug the USB devices directly into this connector.



Stacked USB Connectors

Pin	Assignment
1 (5)	+5 V (fused)
2 (6)	USBP0- [USBP1-]
3 (7)	USBP0+ [USBP1+]
4 (8)	Ground

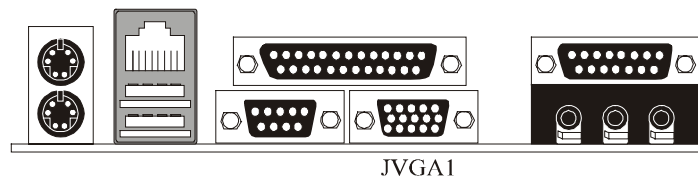
Signal names in brackets ([]) are for USB Port 1.

Stacked LAN Connector

Pin	Assignment	Pin	Assignment
1	TDP	7	NC
2	TDN	8	NC
3	RDP	9	VCC3 SBY
4	NC	10	TX LED
5	NC	11	VCC3 SBY
6	RDN	12	RX LED

1.7.3 VGA Connector: JVGA1

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



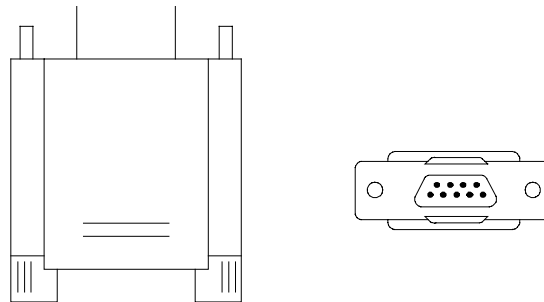
Pin	Assignment	Pin	Assignment
1	Red	2	Green
3	Blue	4	NC
5	Ground	6	Ground
7	Ground	8	Ground
9	5V	10	Ground
11	NC	12	DDC/Data
13	HS/NC	14	VSYNC
15	DDC/CLK		

1.7.4 Serial and Parallel Interface Ports

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

1.7.4.1 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. If you wish to transfer the contents of your hard disk to another system it can be accomplished by using each machine's serial port.



The serial ports on this system have two 9-pin connectors. Some older computer systems and peripherals used to be equipped with only one 25-pin connector. Should you need to connect your 9-pin serial port to an older 25-pin serial port, you can purchase a 9-to-25 pin adapter.

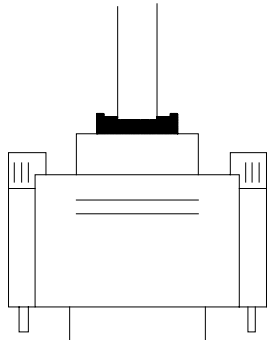
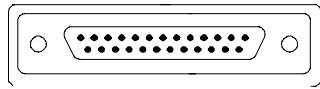
Connectivity

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

1.7.4.2 Parallel Interface Port: JPRNT1

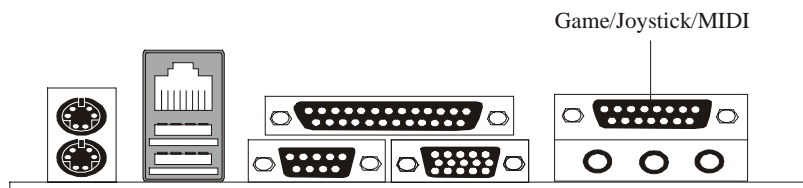
Unlike the serial ports, parallel interface port has been standardized and should not present any difficulty interfacing peripherals to your system. Sometimes called centronics port, the parallel port is almost exclusively used with printers. The parallel port on your system has a 25-pin, DB25 connector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



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

1.7.5 Game (Joystick/MIDI) Port Connector: JGAME1

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.

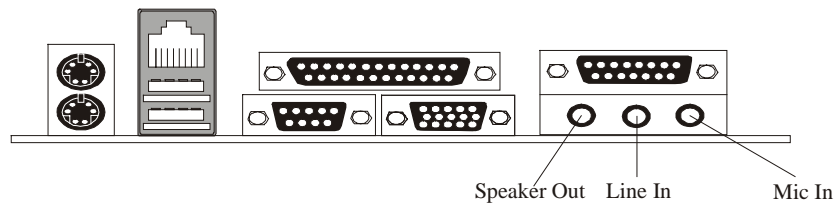


1.7.6 Audio Port Connectors: JSPKR1/JLIN1/JMIC1

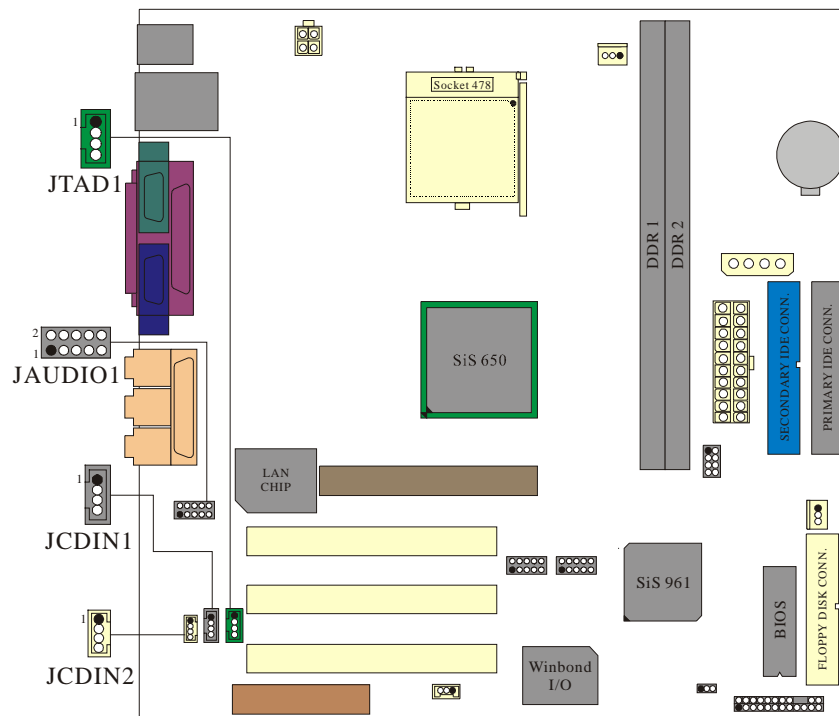
Speaker Out is used to connect speakers or headphones for audio output.

Line In can be connected to the external CD player, Tape player or other audio devices for audio input.

Mic In is used to connect a microphone which allows you to input sounds and voices.



1.7.7 Audio Subsystem



1.7.7.1 CD-ROM Audio-In Header: JCDIN1

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

1.7.7.2 CD-ROM Audio-In Header: JCDIN2

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

1.7.7.3 Front Panel Audio Header: JAUDIO1

Pin No.	Assignment	Pin No.	Assignment
1	Mic In	2	Ground
3	Mic Power	4	Audio Power
5	RT Line Out	6	RT Line Out
7	Reserved	8	
9	LFT Line Out	10	LFT Line Out

1.7.7.4 Telephony Audio Header: JTAD1

Pin No.	Assignment
1	MONO_IN
2	Ground
3	Ground
4	MONO_OUT

2. 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 SDRAM supported.

Supported CPUs

This AWARD BIOS supports the Intel Pentium® 4 (Socket 478) processor.

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
Esc key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu – Exit Current page and return to Main Menu
F1 key	General help on Setup navigation keys
F5 key	Load previous values from CMOS
F6 key	Load the fail-safe defaults from BIOS default table
F7 key	Load the optimized defaults
F10 key	Save all the CMOS changes and exit

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.)

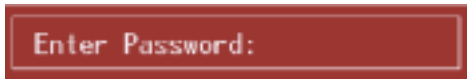
Load Optimized Defaults

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.



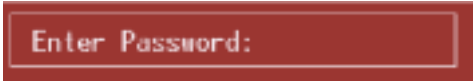
Set Supervisor Password

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.



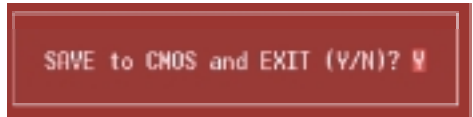
Set User Password

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

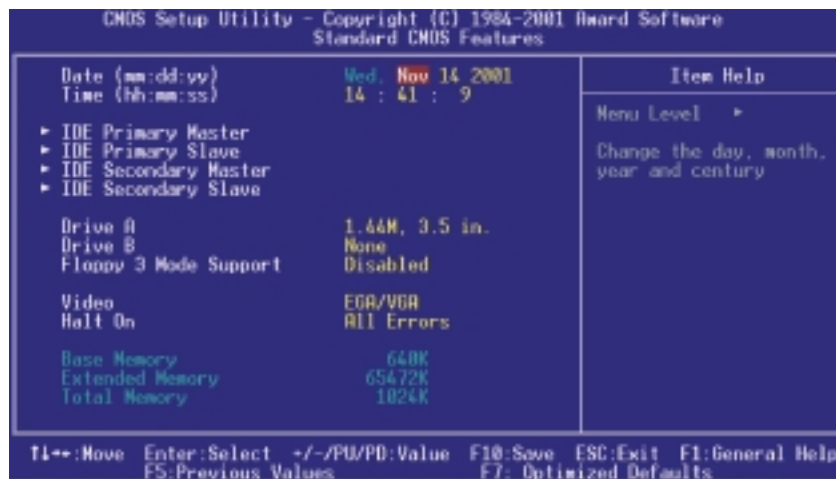
This submenu allows you to update bios.



2.2 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

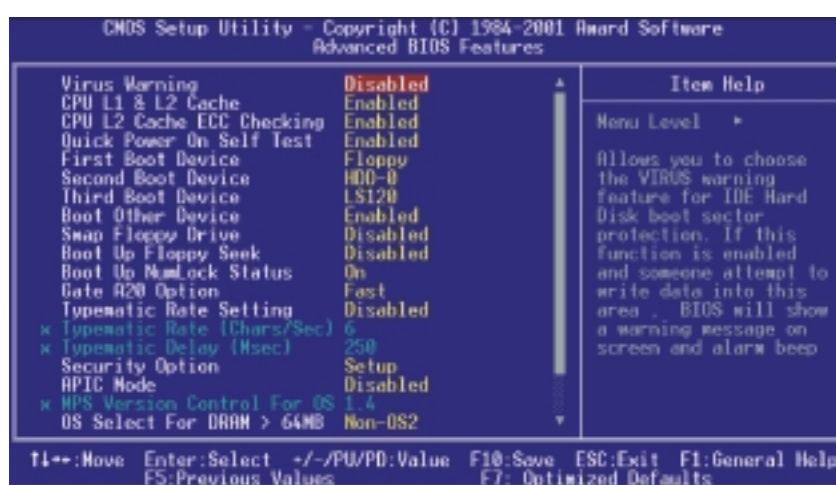
This table shows the selections that you can make on the Main Menu.

Item	Options	Description
Date	MM DD YYYY	Set the system date. Note that the 'Day' automatically changes when you set the date.
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.

2.3 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, HPT370, 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.

On (default) Numpad is number keys.
Off Numpad is arrow keys.

Gate A20 Option

Select if chipset or keyboard controller should control Gate A20.

Normal	A pin in the keyboard controller controls Gate A20.
Fast (default)	Lets chipset control Gate A20.

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.

APIC Mode

Selecting Enabled APIC device mode reporting from the BIOS to the operating system.

The Choices: Disabled (default), Enabled.

MPS Version Control For OS

The BIOS supports version 1.1 and 1.4 of the Intel multiprocessor specification. Select the version supported by the operation system running on this computer.

The Choices: 1.4 (default), 1.1.

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.

HDD S.M.A.R.T. Capability

This item allows you to enable/disable open the S.M.A.R.T. quick function of the hard disk.

The Choices: Disabled (default), Enabled.

Report No FDD For WIN 95

Whether report no FDD for WIN 95 or not.

The Choices: No (default), Yes.

Video BIOS Shadow

Determines whether video BIOS will be copied to RAM for faster execution.

Enabled (default)	Optional ROM is enabled.
Disabled	Optional ROM is disabled.

Small Logo(EPA) Show

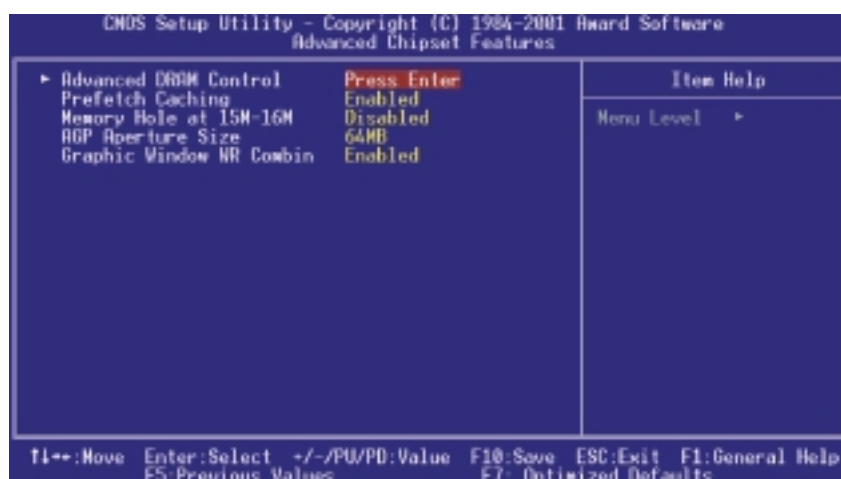
This item allows you to enable/disable display the small EPA logo.

The Choices: Disabled (default), Enabled.

2.4 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



Advanced DRAM Control

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

System Performance

This item allows you to choose the system performance which you want.

The Choices: **Normal Mode** (default), Safe Mode, Fast Mode, Turbo Mode, Ultra Mode.

CAS Latency Setting

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.

The Choices: Auto (default), 2T, 2.5T.

DRAM Addr/Cmd Rate

This item allows you select DRAM Addr/Cmd Rate

The Choices: Auto (default), 1T, 2T.

Prefetch Caching

This item allows you enable/disable Prefetch Caching.

The Choices: Enabled (default), Disabled.

Memory Hole at 15M-16M

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), Enabled.

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: 4M, 8M,16M, 32M, **64M** (default), 128M, 256M.

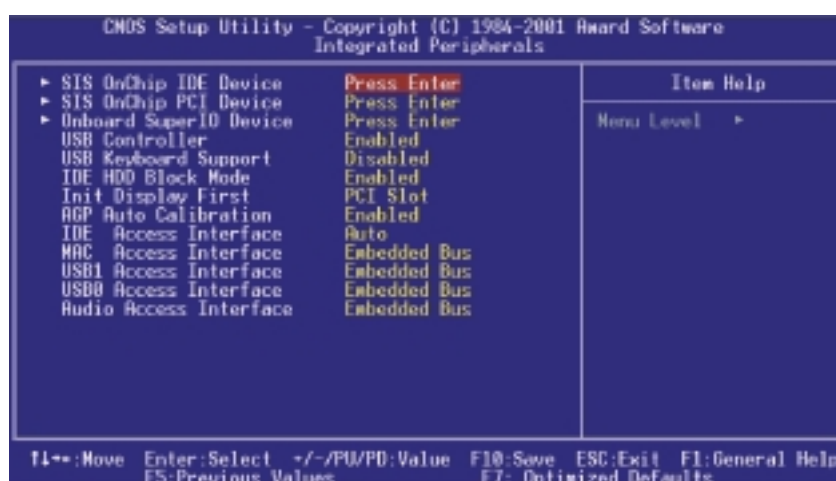
Graphic Window WR Combin

This item allows you enable/disable Graphic Window WR Combin.

The Choices: Enabled (default), Disabled.

2.5 Integrated Peripherals

■ Figure 5. Integrated Peripherals



SIS OnChip IDE Device

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

Internal PCI/IDE

This item allows you select Internal PCI/IDE.

The Choices: **Both** (default), Disabled, Primary, Secondary.

IDE 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 through 4 provide successively increased performance. 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 UltraUDMA

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.

IDE Burst Mode

This item allows you enable/disable IDE Burst Mode.

The Choices: Enabled (default), Disabled.

SIS OnChip PCI Device

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

SIS-7012 AC97 AUDIO

This option allows you to control the onboard AC97 audio.

The Choices: Enabled (default), Disabled.

SIS-7013 S/W Modem

This option allows you to control the onboard S/W modem.

The Choices: Disabled (default), Enabled.

SIS-900 10/100M ETHERNET

This option allows you to control the onboard LAN.

The Choices: Disabled (default), Enabled.

SiS-900 MAC Address Input**System Share Memory Size (Only for M7SXH)**

This item allows you select System Share Memory Size

The Choices: 32 MB (default), 4MB, 8MB, 16MB, 64MB.

Onboard SuperIO Device

If you highlight the literal "Press Enter" next to the "Onboard 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, AS KIR, IrDA.

RxD, TxD Active

This item allows you to determine which Infrared (IR) function of onboard I/O chip.

The Choices: Hi / Lo (default), Hi / Hi, Lo / Hi, Lo / Lo.

IR Transmission Delay

This item allows you to enable/disable IR transmission delay.

The Choices: Enabled (default), Disabled.

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.

Use IR Pins

Consult your IR peripheral documentation to select the correct setting of the TxD and RxD signals.

The Choices: **IR-Rx2Tx2** (default), RxD2, TxD2.

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.

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.

EPP Mode Select

Select EPP port type 1.7 or 1.9.

The Choices: **EPP 1.7**(default), EPP1.9.

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).

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: Enabled (default), Disabled.

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.

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.

AGP Auto Calibration

This item allows you enable/disable AGP Auto Calibration.

The Choices: Enabled (default), Disabled.

IDE Access Interface

This item allows you select the IDE Access Interface.

The Choices: Auto (default), Embedded Bus, PCI Bus.

MAC Access Interface

This item allows you select the MAC Access Interface.

The Choices: Embedded Bus (default), PCI Bus.

USB1 Access Interface

This item allows you select the USB1 Access Interface.

The Choices: **Embedded Bus** (default), PCI Bus.

USB0 Access Interface

This item allows you select the USB0 Access Interface.

The Choices: **Embedded Bus** (default), PCI Bus.

Audio Access Interface

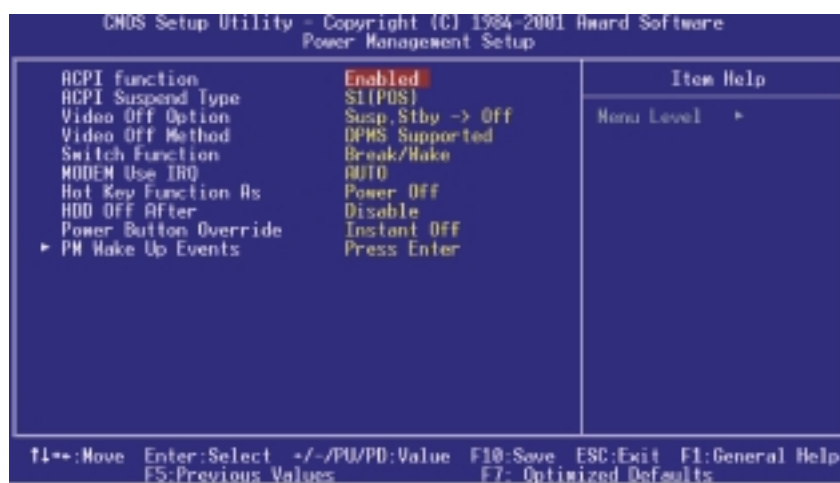
This item allows you select the Audio Access Interface

The Choices: **Embedded Bus** (default), PCI Bus.

2.6 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
S1 & S3

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

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 (default)

Initial display power management signaling.

Switch Function

You can choose whether or not to permit your system or enter complete suspend mode. Suspend mode offers greater power savings, with a correspondingly longer with a correspondingly longer awakening period.

The Choices: Break/ Wake (default), Disabled.

Modem Use IRQ

This determines the IRQ, which can be applied in MODEM use.

The Choices: Auto (default), 3, 4, 5, 7, 9, 10, 11, NA.

Hot Key Function As

This item allows you select Hot Key Function As Power Off.

The Choices: Power Off (default), Disabled, Suspend.

Power Button Override

When you select Enabled, 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: Instant Off (default), Delay 4 Sec.

PM Wake Up Events

If you highlight the literal “Press Enter” next to the “PM Wake Up Events” label and then press the enter key, it will take you a submenu with the following options:

IRQ [3-7, 9-15], NMI

This item allows you enable/disable IRQ [3-7,9-15] NMI.

The Choices: Enabled (default), Disabled.

IRQ 8 Break Suspend

This item allows you enable/disable IRQ8 Break Suspend.

The Choices: Disabled (default), Enabled.

RING Power Up Control

This item allows you to control the RING Power Up.

The Choices: Enabled (default), Disabled.

MACPME Power Up Control

This item allows you to control the MACPME Power Up.

The Choices: Enabled (default), Disabled.

PCIPME Power Up Control

This item allows you to control the PCIPME Power Up.

The Choices: Enabled (default), Disabled.

Power Up by Alarm

When you select Enabled, fields appear that let you set the alarm that returns the system to Full On state.

The Choices: Disabled (default), Enabled.

Month Alarm

Select a month (1-12) or NA if you want the alarm active during all months

Day of Month Alarm

Select a date in the month. Select 0 if you prefer to set a weekly alarm.

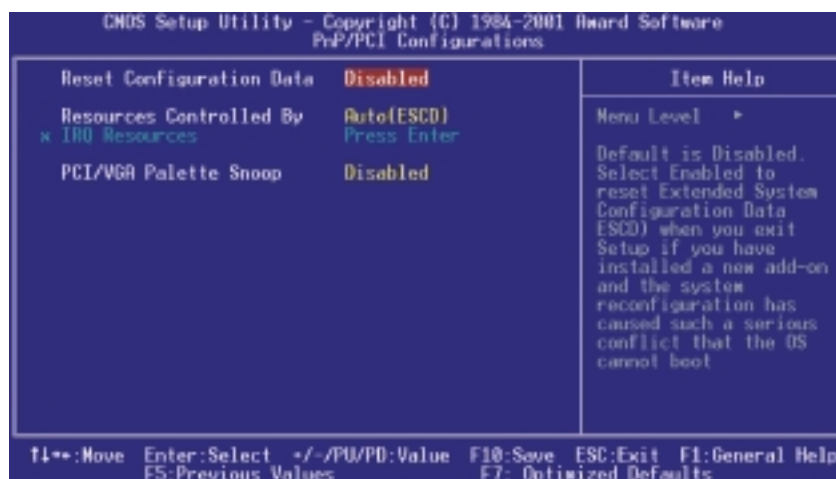
Time (hh:mm:ss) Alarm

Set the time you want the alarm to go off on the days when it is activated.

2.7 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



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.

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”.

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

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.

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.

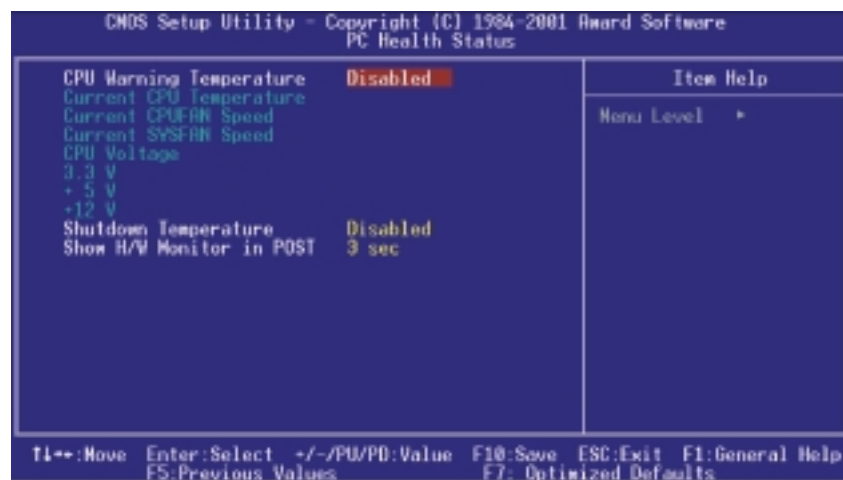
However, the color information coming from the VGA controller is drawn from the palette table inside the VGA controller to generate the proper colors, and the graphic controller needs to know what is in the palette of the VGA controller. To do this, the non-VGA graphic controller watches for the Write 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), Enabled.

2.8 PC Health Status

■ Figure 8. PC Health Status



CPU Warning Temperature

This item allows you to set the warning temperature of the CPU in order not to be damaged by the overheated temperature. When this function is enabled, the system will warn you if the CPU temperature reaches the warning temperature.

The Choices: Disabled (default), 50°C/122°F, 53°C/127°F, 56°C/133°F, 60°C/140°F, 63°C/145°F, 66°C/151°F, 70°C/158°F.

Current CPU1 Temperature

This field displays the current temperature of CPU.

Current CPUFAN Speed

This field displays the current speed of CPU fan.

Current SYSFAN Speed

This field displays the current speed SYSTEM fan.

CPU Voltage 3.3V, +5V, +12V

Detect the system's voltage status automatically.

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°C/140°F, 65°C/149°F, 70°C/158°F, 75°C/167°F.

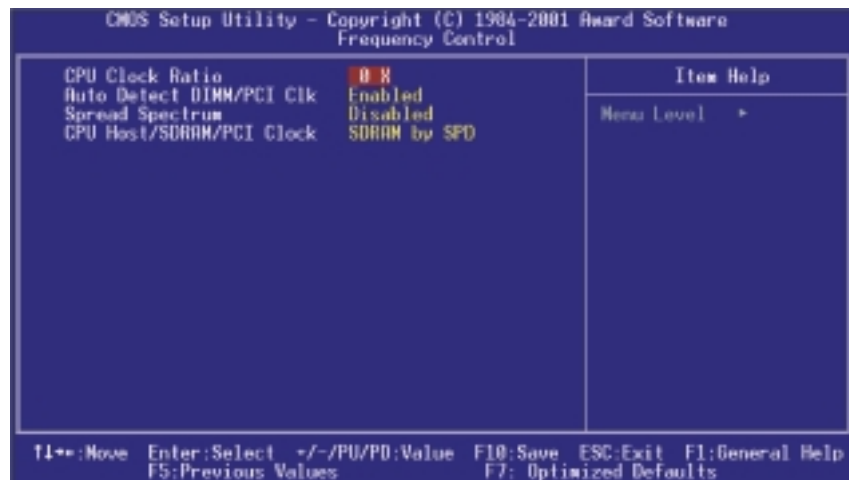
Show H/W Monitor in POST

If your computer contains a monitoring system, it will show PC health status during POST stage. The item offers several delay time for you to choose.

The Choices: None, 1sec, 2sec, **3 sec** (default).

2.9 Frequency Control

■ Figure 9. Frequency Control



CPU Clock Ratio

This item allows you to select the CPU Ratio.

The Choices: 0X (default), X8, X9, X10~ X50.

Auto Detect DIMM/PCI 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: Enabled (default), Disabled.

CPU Host/SDRAM/PCI Clock

This item allows you to select CPU Host/SDRAM/PCI Clock.

The Choices: **SDRAM by SPD** (default), 100/100/33 MHz, 100/133/33 MHz, 100/166/33 MHz, 105/140/35 MHz, 108/144/36 MHz, 112/140/31 MHz.



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.

3. Trouble Shooting

PROBLEM

No power to the system at all. Power light does not illuminate, fan inside power supply does not turn on. Indicator light on keyboard does not turn on.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Power cable is unplugged.	Visually inspect power cable.	Make sure power cable is securely plugged in.
Defective power cable.	Visually inspect the cable; try another cable.	Replace cable.
Power supply failure.	Power cable and wall socket are OK, but system is still dead.	Contact technical support.
Faulty wall outlet; circuit breaker or fuse blown.	Plug in device known to work in socket and test	Use different socket, repair outlet, reset circuit breaker or replace fuse.

PROBLEM

System inoperative. Keyboard lights are on, power indicator lights are lit, hard drive is spinning.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Memory DIMM is partially dislodged from the slot on the motherboard.	Turn off computer. Take cover off system unit. Check the DIMM to ensure it is securely seated in the slot.	Using even pressure on both ends of the DIMM, press down firmly until the module snaps into place.

PROBLEM

System does not boot from hard disk drive, can be booted from CD-ROM drive.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Connector between hard drive and system board unplugged.	When attempting to run the FDISK utility you get a message, INVALID DRIVE SPECIFICATION.	Check cable running from disk to disk controller board. Make sure both ends are securely plugged in; check the drive type in the standard CMOS setup.
Damaged hard disk or disk controller.	Format hard disk; if unable to do so the hard disk may be defective.	Contact technical support.
Hard disk directory or FAT is scrambled.	Run the FDISK program, format the hard drive. Copy data that was backed up onto hard drive.	Backing up the hard drive is extremely important. All hard disks are capable of breaking down at any time.

PROBLEM

System only boots from CD-ROM. Hard disk can be read and applications can be used but booting from hard disk is impossible.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Hard Disk boot program has been destroyed.	A number of causes could be behind this.	Back up data and applications files. Reformat the hard drive. Re-install applications and data using backup disks.

PROBLEM

Error message reading "SECTOR NOT FOUND" or other error messages not allowing certain data to be retrieved.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
A number of causes could be behind this.	Use a file by file backup instead of an image backup to backup the hard disk.	Back up any salvageable data. Then low level format, partition, and high level format the hard drive. Re-install all saved data when completed.

PROBLEM

Screen message says "Invalid Configuration" or "CMOS Failure."

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Incorrect information entered into the configuration (setup) program.	Check the configuration program. Replace any incorrect information.	Review system's equipment . Make sure correct information is in setup.

PROBLEM

Screen is blank.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
No power to monitor.		Check the power connectors to monitor and to system. Make sure monitor is connected to display card.
Monitor not connected to computer.		See instructions above.

PROBLEM

No screen.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Memory problem.		Reboot computer. Reinstall memory, make sure that all memory modules are installed in correct sockets.
Computer virus.		Use anti-virus programs to detect and clean viruses.

PROBLEM

Screen goes blank periodically.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Screen saver is enabled.		Disable screen saver.

PROBLEM

Keyboard failure.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Keyboard is disconnected.		Reconnect keyboard. Check keys again, if no improvement replace keyboard.

PROBLEM

No color on screen.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Faulty Monitor.		If possible, connect monitor to another system. If no color replace monitor.
CMOS incorrectly set up.		Call technical support.

PROBLEM

C: drive failure.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Hard drive cable not connected properly.		Check hard drive cable.

PROBLEM

Cannot boot system after installing second hard drive.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Master/slave jumpers not set correctly.		Set master/slave jumpers correctly.
Hard drives not compatible / different manufacturers.		Run SETUP program and select correct drive types. Call drive manufacturers for compatibility with other drives.

PROBLEM

Missing operating system on hard drive.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
CMOS setup has been changed.		Run setup and select correct drive type.

PROBLEM

Certain keys do not function.

PROBABLE CAUSE	DIAGNOSIS	SOLUTION
Keys jammed or defective.		Replace keyboard.

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