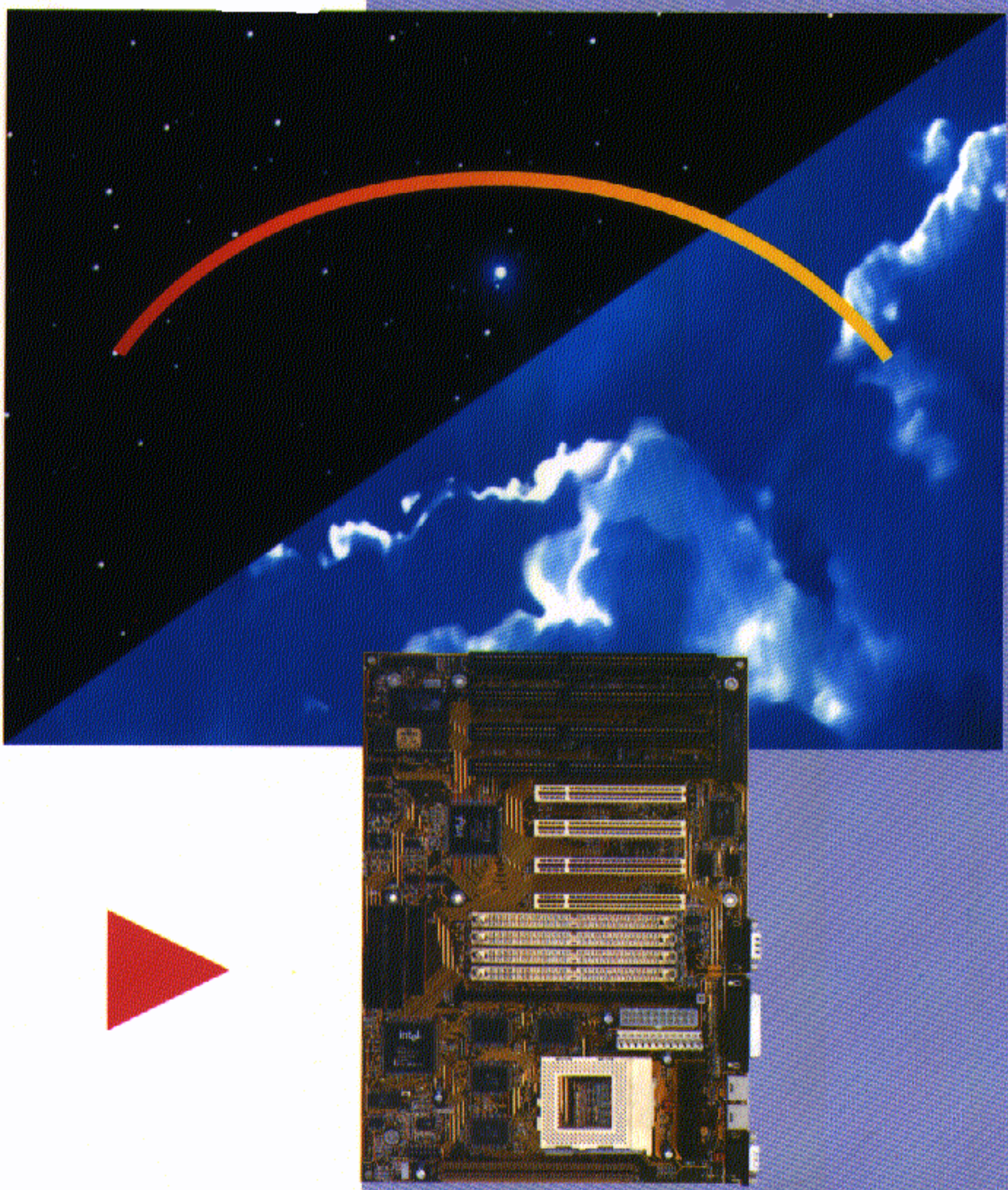
PCI

PENTIUM® TR8

MAINBOARD



USER'S MANUAL

MS-5136

PCI Pentium® TR8 ATX MB

(Intel® 430VX Chipset)

FLASH BIOS

AMI® / AWARD® PnP BIOS

PCI IDE

Dual channel, Supports 4 HDD/ CD-ROM (PIO Mode & Bus Master)

CHIPSET

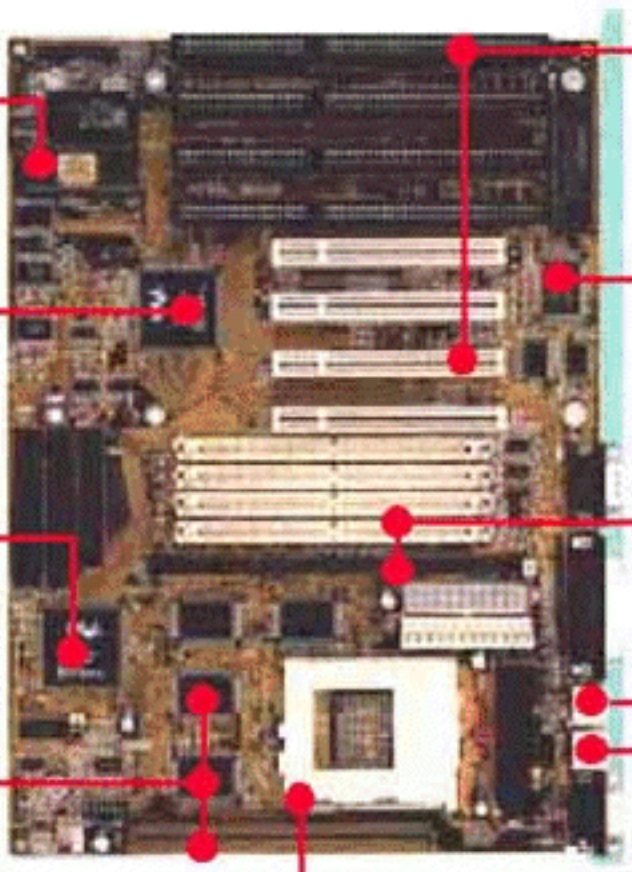
Intel® 430VX

L2 CACHE

256/512K PB cache on board or by COAST module

CPU SOCKET

ZIF Socket 7, Dual voltage regulators, Supports Intel® Pentium® 75-200 MHz, 150-200 MHz P55C or Cyrix® & AMD® CPU



SLOTS

4 16-bit ISA
4 32-bit PCI

SUPER I/O

16550 Fast UART, EPP/ ECP Printer Port & IrDA header

MEMORY

72-pin SIMM x 4, 168-pin DIMM x 1 for SDRAM, Max. 128MB on board, Supports FP, EDO & SDRAM

CONNECTOR

PS/2 K/B + PS/2 Mouse

USB CONN.

Dual Ports (reserved)

SIZE & FORM FACTOR

30.5 x 22 cm ATX

CLICK HERE FOR MORE INFO

Version 1.2

CE

FCC-B Radio Frequency Interference Statement

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

Notice 1
The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2
Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RESEAU.

Edition

July 1996

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Table of Contents

Chapter 1: Introduction

Chapter 2: Hardware Installation

Chapter 1

INTRODUCTION

The **PCI Pentium™ TR8** system board is a high-performance personal computer system board based on a 3.3V version of the Pentium microprocessor -- the P54 microprocessor. The system board supports the Peripheral Component Interconnect (PCI) Local Bus standard and provides four 32-bit PCI bus master slots.

The system board uses the highly integrated Intel 82430VX Chipset to support the PCI / ISA and Green standards, and to provide the Host / PCI bridge. The 82430VX chip set integrates all system control functions.

1.1 System Board Specifications

CPU:

- Socket 7 supports Intel®Pentium™ family--P54C and P55C 75/90/100/120/133/150/166/200MHz.
- The Cyrix®6x86 and AMD®K5 are also supported.

Chip Set:

- Intel® 82430VX chip set.

Main Memory:

- Supports three memory banks using four 72-pin SIMM sockets and one 168-pin DIMM sockets.
- Up to 128 Mbytes main memory.
- Supports EDO Hyper Page Mode DRAM or Standard Fast Page mode DRAM, and SDRAM.

Note: DIMM socket is optional.

Cache Memory:

- On-board 256KB cache memory
- Upgradeable to 512KB cache with one 256KB COAST module plugged into J3.

Slots:

- Four 32-bit Master PCI Bus slots and four 16-bit ISA bus slots. One shared slot that can be used as ISA or PCI.

On-Board Peripherals:

- On-Board peripherals include:
  - —1 floppy port supports 2 FDD
  - —2 serial ports (ComA + ComB)
  - —1 Parallel port supports ECP or EPP mode
  - —2 PCI Bus Master IDE ports (up to four IDE HDD)
  - —USB (Reserved)

Remote Control:

- Supports Remote Control Power ON/OFF operations

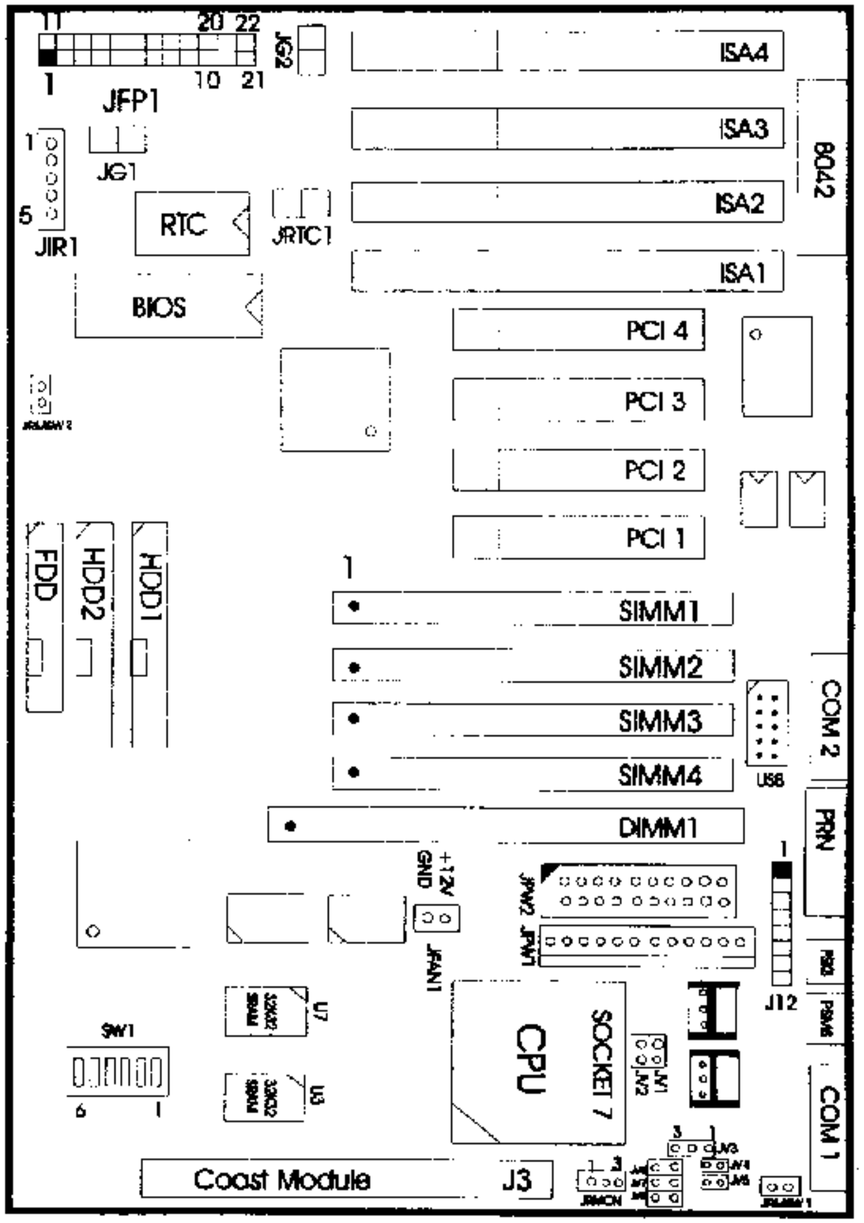
Dimensions:

- ATX Form Factor
- 22 cm(L) × 30.5 cm(W) × 4 layer PCB

Mounting:

- 8 mounting holes

System Board Layout



CPU Speed Setting (SW1)

Adjust SW1 (Dip switch) to set CPU speed. Figure 2-1 shows the location of SW1.

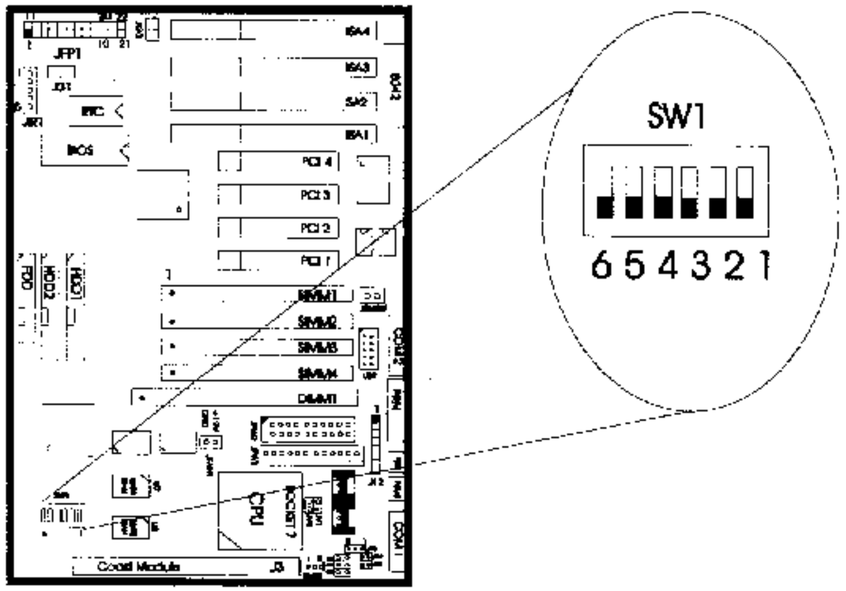
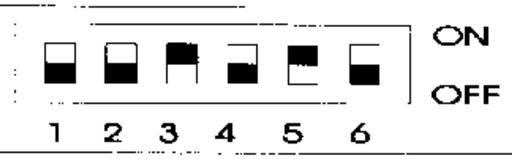
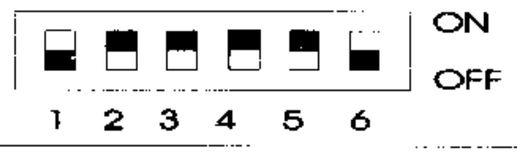
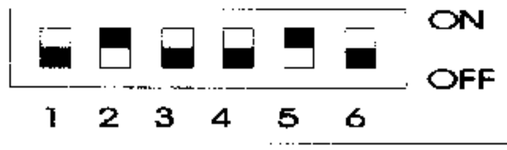


Figure 2-1

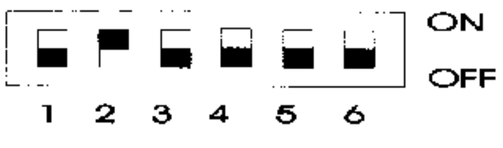
INTEL P54C CPU SPEED SETTING

CPU SPEED	SW1 Settings
75MHZ	ON / OFF — 1 2 3 4 5 6
90MHZ	ON / OFF — 1 2 3 4 5 6
100MHZ	ON / OFF — 1 2 3 4 5 6
120MHZ	ON / OFF — 1 2 3 4 5 6
133MHZ	ON / OFF — 1 2 3 4 5 6
150MHZ	ON / OFF — 1 2 3 4 5 6
166MHZ	ON / OFF — 1 2 3 4 5 6
200MHZ	ON / OFF — 1 2 3 4 5 6

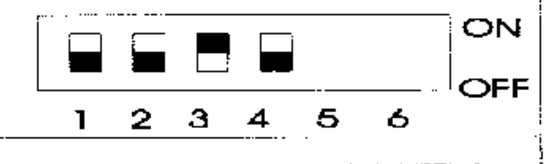
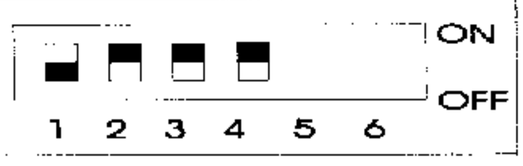
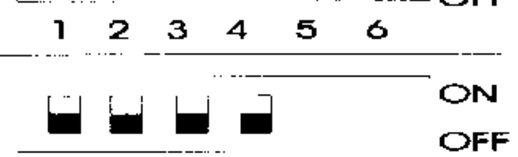
CYRIX 6x86 CPU SPEED SETTING

CPU SPEED	SW1 Settings
P120+ (100MHZ)	
P133+ (110MHZ)	
P150+ (120MHZ)	
P166+ (133MHZ)	

AMD 5k86 CPU SPEED SETTING

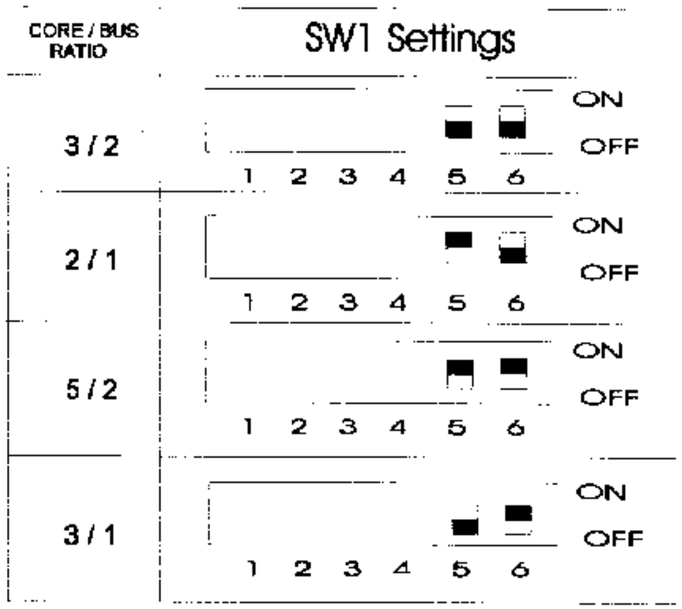
CPU SPEED	SW1 Settings
P75 (75MHZ)	
P90 (90MHZ)	

Note 1: The 4 Host Clock Frequencies that the system supports are 50MHz, 55MHz, 60MHz, and 66.6MHz.(By adusting pins 1,2,3,and 4 of SW1 the Host Clock Frequency can be selected). See the following chart to set the different Host Clock frequencies.

HOST CLK	SW1 Settings
50MHz	
55MHz	
60MHz	
66MHz	

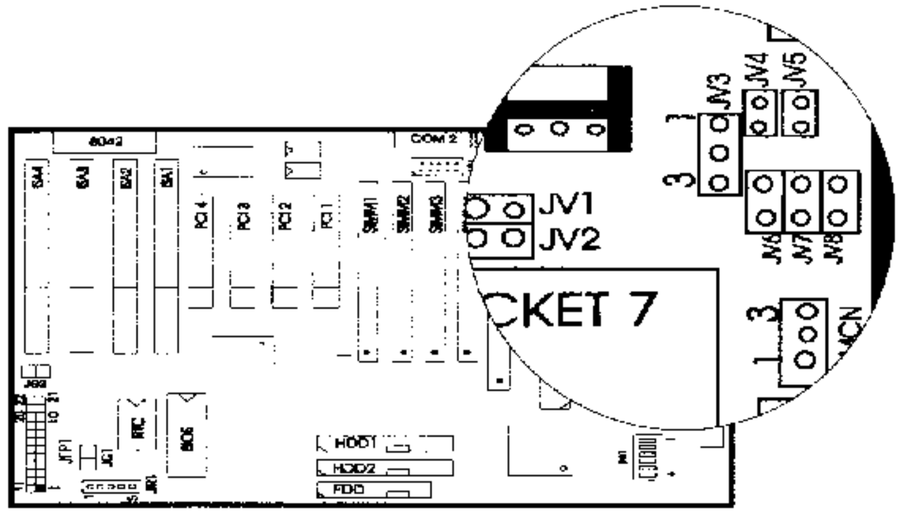
Note 2: Pins #5 and #6 of the DIP Switch SW1 are used to set the Core/Bus (Fraction) ratio of the CPU. The actual core speed of the CPU is the Host Clock Frequency multiplied by the Core/Bus ratio. For example:

if Host Clock = 66.6MHz
Core/Bus ratio = 3/2
then CPU core speed = Host Clock x Core/Bus ratio
= 66.6MHz x 3/2
= 100MHz



Note 3:The PCI Bus Clock is the Host Clock Frequency divided by 2.

CPU Voltage Setting: JV1-JV8

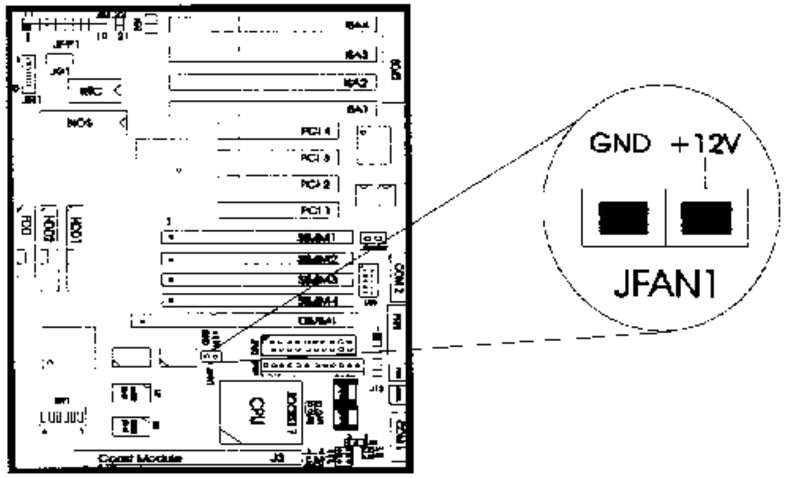


CPU Voltage Selection: JV1-JV8

Vcore	VI/O	JV1-JV2	JV3	JV4-JV8
3.38	3.38	JV1 JV2	1 2 3	JV4 Short: JV4,JV5 / JV6,JV7,JV8
3.52	3.52			JV5 Short
2.5	3.3	JV1	1 2 3	JV6 Short
2.8	3.3	JV2 Open		JV7 Short
2.9	3.3			JV8 Short

CPU Fan Power Connector (JFAN1)

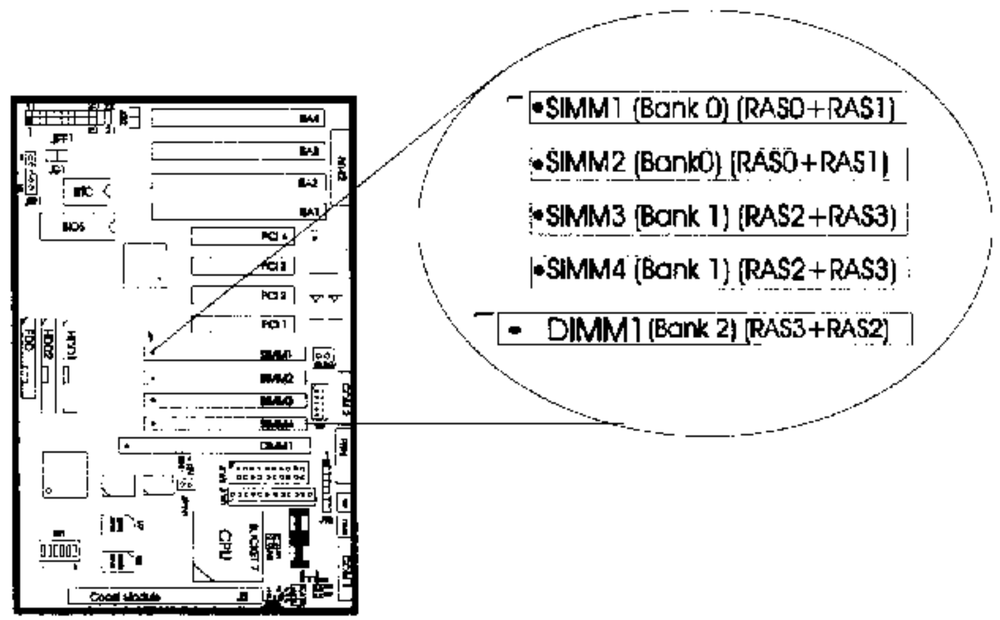
JFAN1 connector supports +12V voltage for CPU fan use.



Memory Installation

Memory Bank Configuration

The system board supports a maximum of 128M of memory, and provides four 72-pin SIMMs (Single In-line Memory Module) and one 168-pin DIMM sockets. Each bank supports 4M, 8M, 16M, and 32M. That is, 2MB and 16MB is the minimum and maximum for one 72-pin single side memory module. And 4MB and 32MB is the minimum and maximum for one 72-pin single side memory module. This board supports 4 RAS. Each RAS supports memory ranging from 4MB to 32MB.



Warning! Memory bank 0 & 1's SIMM power level is 5 volts. Memory bank 2's DIMM power level is 3.3.volts. We suggest not to install both the SIMM & DIMM at the same time. But if you want to install both SIMM &DIMM slot, you must use a 3.3 volt DIMM with 5 volt I/O signal tolerance otherwise it may cause damage to the DIMM..

Note 1: Important! The DIMM bank only support 3.3V EDO, 3.3V FP and unbuffered 3.3V 2-clock type SDRAM Module. It can't support 4-clock type SDRAM Module.

Note 2: Make sure the SIMM banks are using the same type and equal size and density memory.

Note 3:To operate properly at least two 72-pin SIMM module must be installed in the same bank or the one 168-pin DIMM module must be installed. The system cannot operate with only one 72-pin SIMM module installed.

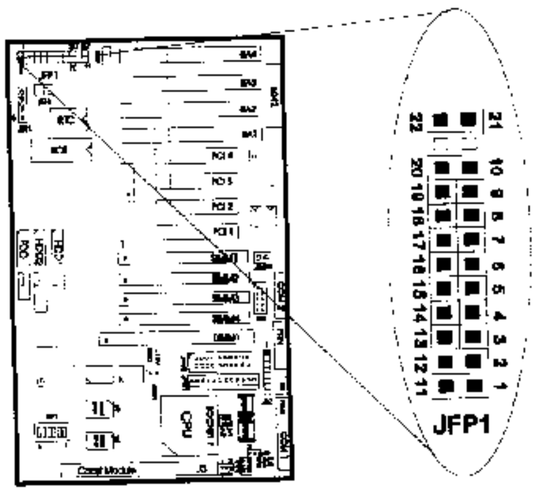
Note 4: This mainboard supports Table Free so memory can be installed on Bank 0 (SIMM1 + SIMM2),Bank 1 (SIMM3 + SIMM4), or Bank 2 (DIMM1).

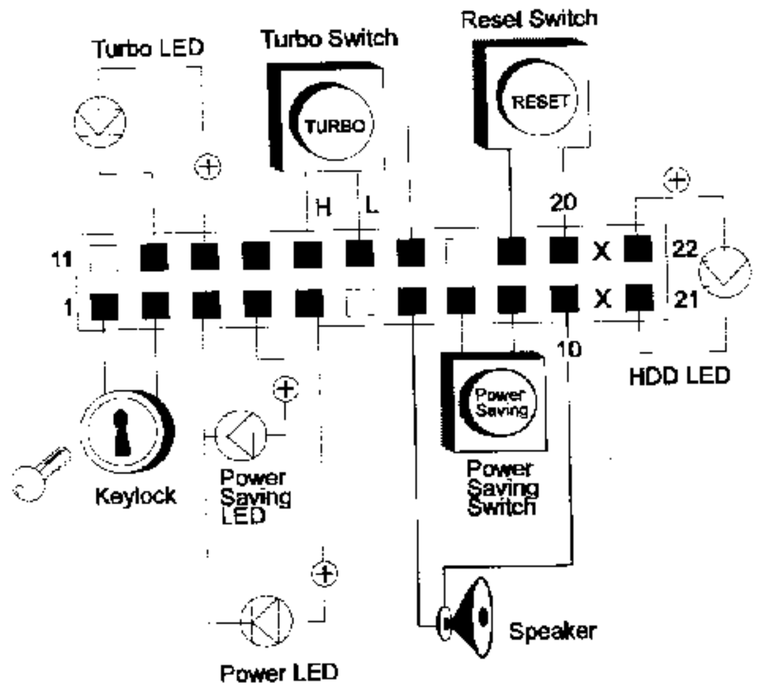
S=Single D=Double X=Not Installed

SIMM1+SIMM2 Bank 0	SIMM3+SIMM4 Bank 1	DIMM1 Bank 2
S	X	X
S	S	X
S	D	X
D	X	X
D	S	X
D	D	X
X	S	X
X	X	S
X	D	X
X	X	D

Case connector: (JFP1)

The Turbo LED, Turbo Switch, Hardware Reset, Key lock, Power LED, Power Saving LED, Sleep Switch, Speaker,and HDD LED all connect to the JFP1 connector block as below.



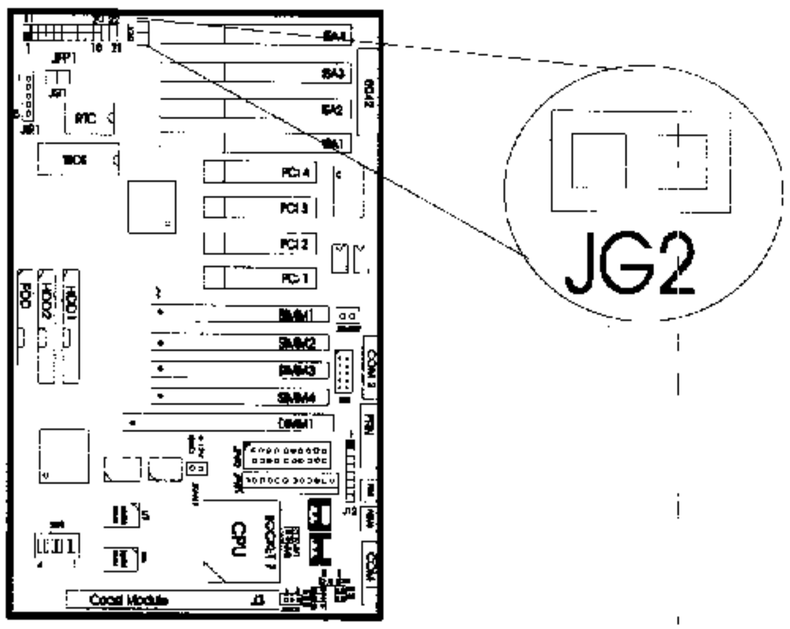


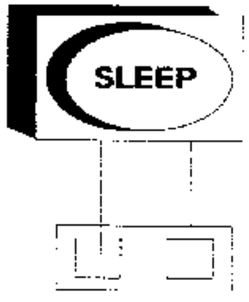
Note : The hardware Turbo switch is not functional. The Turbo LED is always ON and cannot be toggled.

Power Saving Switch Connector: JG2

Attach a power saving switch to this connector. When the switch is pressed, the system immediately goes into suspend mode. Press any key and the system wakes up.

Note: you should enable the Power Management Mode (At Bios Setup) to use this function.

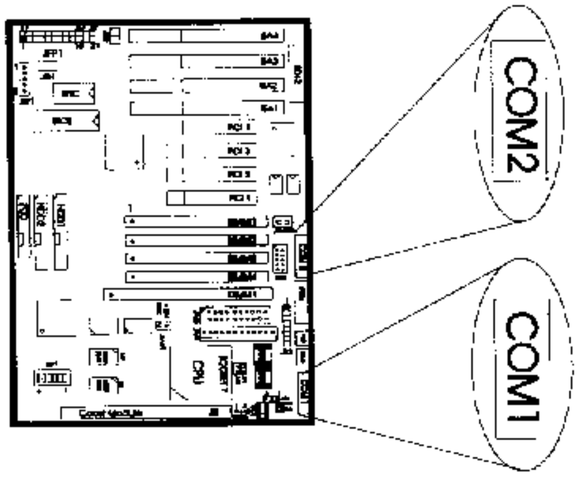




JG2

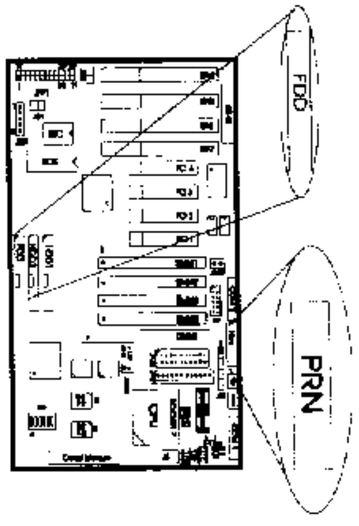
Onboard Peripheral Connector: COM1, COM2, FDD, PRN, HDD1, and HDD2

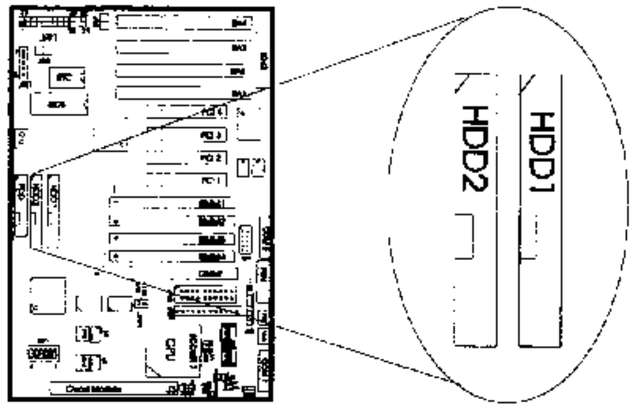
COM1 connector is for serial port COMA, and **COM2** is for serial port COMB.



The **FDD** connector is for the floppy drive.

The **PRN** connector is for parallel port LPT1,LPT2,or LPT3.

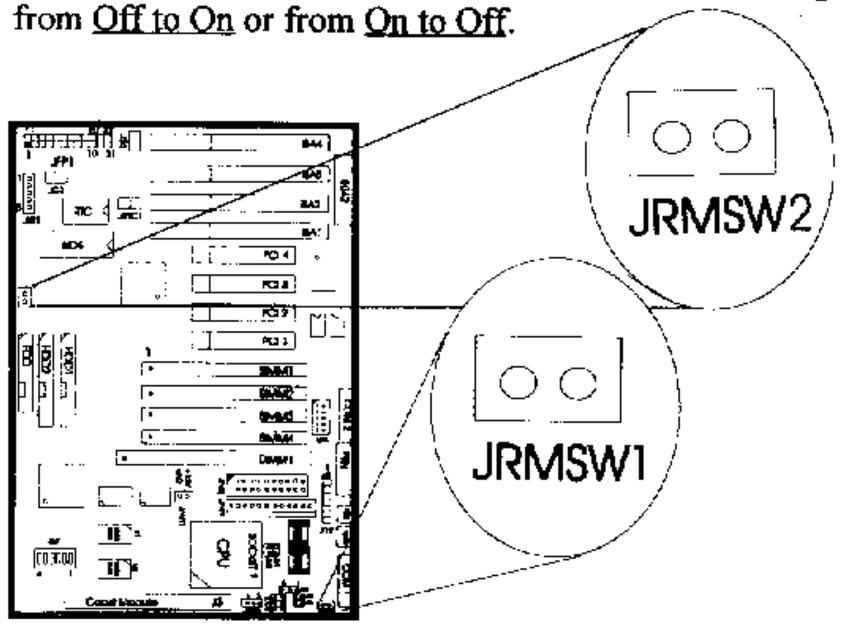




HDD1 connector is for primary IDE channel. **HDD2** connector is for secondary IDE channel.

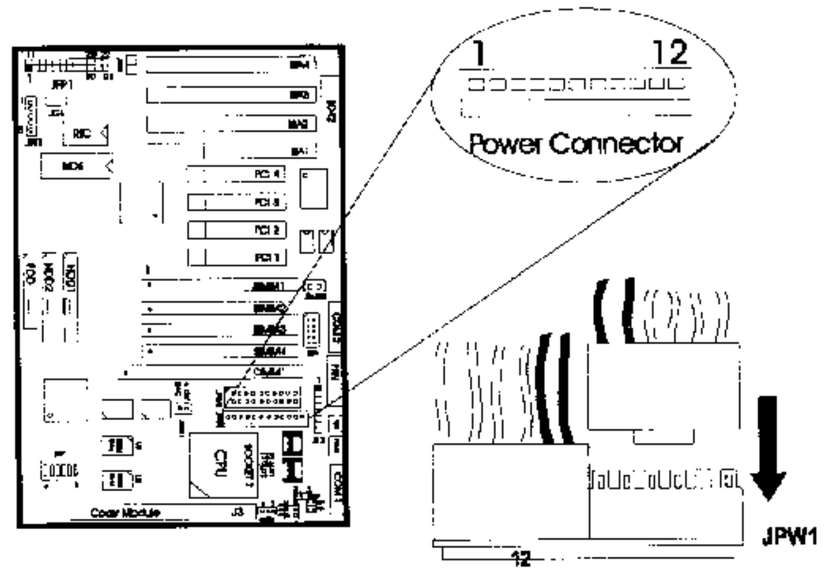
Remote Power On/Off Switch: JRMSW1 or JRMSW2

Connect to a 2-pin push button switch. Every time the switch is shorted by pushing it once, the power supply will change its status from Off to On or from On to Off.



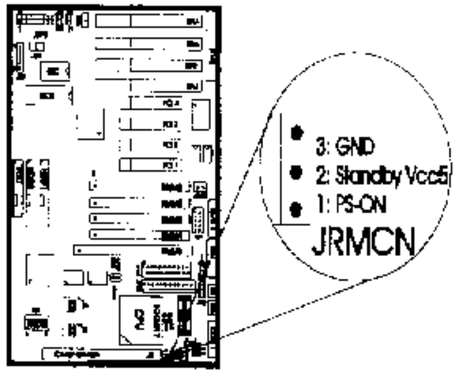
Power Supply Connector: JPW1

JPW1 is a standard 12-pin AT-type connector. Be sure to attach the connectors with the two black wires at the center, as shown below.



Pin	Description	Pin	Description
1	Power Good	7	Ground
2	+5V DC	8	Ground
3	+12V DC	9	-5V DC
4	-12V DC	10	+5V DC
5	Ground	11	+5V DC
6	Ground	12	+5V DC

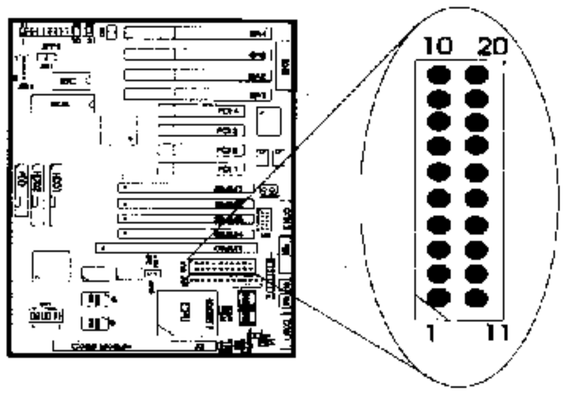
Remote Power Connector: JRMCN



If the power supply supports a remote On/Off function use the 3-pin remote power connector "JRMCN" to connect it.

ATX 20-Pin Power Connector: JPW2

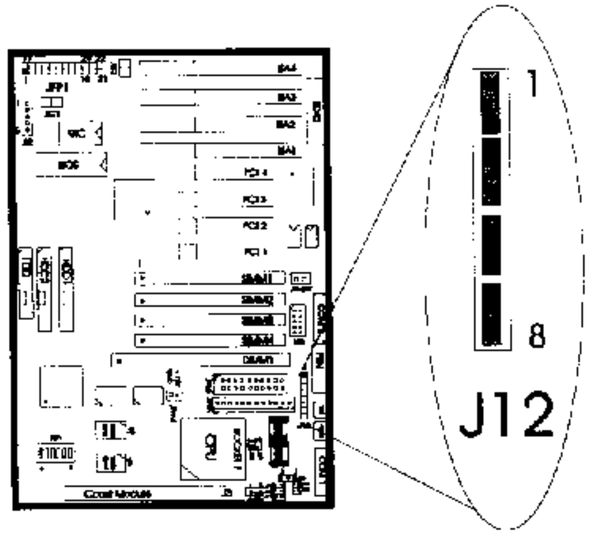
This type of connector already supports the remote On/Off function. If you use an ATX power supply you don't need to connect JRMCN.



Pin	Description	Pin	Description
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	Power Good	18	-5V
9	Standby Vcc5	19	5V
10	12V	20	5V

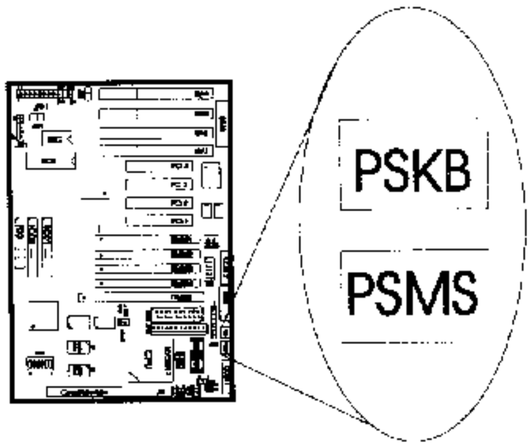
PS/2 Keyboard and Mouse Connector (Reserved): J12

J12 is reserved. The default setting is as follows.



PS/2 Keyboard Connector: PSKB

This is a standard six-pin female mini-DIN connector. You can plug a PS/2 keyboard cable directly into this connector.



PS/2 Mouse Connector: PSMS

You can attach a PS/2 Mouse with a six-pin mini-DIN connector directly to the system board with this connector.

Chapter 3

AWARD BIOS User's Guide

Award's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed RAM (CMOS RAM) so that it retains the Setup information when the power is turned off.

Entering Setup

Turn on the computer and press **<Del>** immediately will allow you to enter Setup. The other way to enter Setup is to power on the computer, when the below message appears briefly at the bottom of the screen , press **<Del>** key.

> TO ENTER SETUP BEFORE BOOT PRESS **<DEL>** KEY
>
> PRESS **<F1>** TO CONTINUE, **<CTRL-ALT-ESC>** OR **<DEL>** TO ENTER SETUP

The Main Menu

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from ten setup functions and two exit choices. Use arrow keys to select among the items and press **<Enter>** to accept or enter the sub-menu.

ROM PCI/ISA BIOS (2A4IBG33)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERAL
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO ETECTION
PNP / PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	

Esc : Quit — ↑↓→← : Select Item
F10 : Save & Exit Setup — (Shift) F2 : Change Color

Time, Date, Hard Disk Type...

Standard CMOS Setup Menu

1. Choose "STANDARD CMOS SETUP" from the Main Menu and a screen (as below) with a list of items appears.

2. Use the arrow keys to highlight the item and then use the **<PgUp>** or **<PgDn>** keys to modify the value.

ROM PCI/ISA BIOS (2A5IA000)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Fri, Apr 7 1995
Time(hh:mm:ss) : 00:00:00

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDE	SECTOR	MODE
Primary Master	: AUTO	0	0	0	0	0	0	AUTO
Primary Slave	: AUTO	0	0	0	0	0	0	AUTO
Secondary Master	: AUTO	0	0	0	0	0	0	AUTO
Secondary Slave	: AUTO	0	0	0	0	0	0	AUTO

Drive A : 1.44M, 3. 5in.
Drive B : None
Video : EGA / VGA
Halt On : All Errors

Base Memory : 640K
Extended Memory : 3328K
Other Memory : 128K
Total Memory : 4096K

ESC : Quit — ↑↓→← : Select Item — PU / PD / + / - : Modify
F1 : Help — (Shift) F2 : Change Color

3. If the HARD DISK TYPE is set to Auto, it is not necessary to use IDE HDD AUTO DETECTION. However, if you can not boot up your system when the HARD DISKS TYPE is Auto, then you need to use the IDE HDD AUTO DETECTION.

4. After you have fininshed with this Setup program, press the **<ESC>** key to return to the Main Menu.

BIOS Features Setup Menu

1. Choose "BIOS FEATURES SETUP" from the Main Menu and a screen (as below) with a list of items appears.

2. Use the arrow keys to highlight the item and then use the **<PgUp>** or **<PgDn>** keys to modify the value.

ROM PCI/ISA BIOS (2A4IBG33)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	:
CPU Internal Cache	: Enabled	Enabled	
External Cache	: Enabled	C8000-CFFFF Shadow	:
Boot Sequence	: A ,C	Disabled	
Boot Up Floppy Seek	: Enabled	D0000-D7FFF Shadow	:
Boot Up NumLock Status	: On	Disabled	
Security Option	: Setup	D8000-DFFFF Shadow	:
		Disabled	
		ESC : Quit	↑↓→←: Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

3. After you have fininshed with this Setup program press the **<ESC>** key to return to the Main Menu.

A short description of the screen items follows:

Virus Warning Choose Enabled or Disabled.
Enabled: During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and a error message will appear
Disabled: Will disable this function.

CPU Internal Cache Choose Enabled or Disabled. This option enables or disables the CPU's internal cache.

External Cache Choose Enabled or Disabled. This option enable or disable the L2 cache memory.

Boot Sequence This option determines which drive the computer searches first for the disk operating system. The available settings are "A:,C:',and "C:,A:".

Swap Floppy Drive Choose Enabled or Disabled. This option swaps drive A: and drive B:.

Boot Up Num Lock Status Choose On or Off. On puts numeric keypad in Num Lock mode at boot-up. Off puts this keypad in arrow key mode at boot-up.

Typematic Rate Setting Choose Enabled or Disabled. Enable this option to adjust the keystroke repeat rate.

Typematic Rate (chr/sec) Choose the rate a character keeps repeating.

Typematic Delay (Msec) Choose the time after you press a key before a character begins repeating.

Security Option Choose "System" to prevent unauthorized system boot-up or choose "Setup" to prevent unauthorized use of BIOS Setup.

PCI VGA Palette Snooping 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 the boot information and the VGA compatibility. However, the color information coming from the VGA controller is drawn from the palette

(Cont.)

table inside the VGA controller. In order for the graphic controller to generate the proper colors, 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 Write access to the VGA palette, registers and snoops the data. In PCI-based systems where the VGA controller is on the PCI bus and a non-VGA graphic controller is on the ISA bus, the Write access to the palette will not show up on the ISA bus if the PCI VGA controller responds to the Writes. In this case the PCE 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. If you don't have the one of the above situations disable this option.

Chipset Feautures Setup Menu

1. Choose "CHIPSET FEATURES SETUP" from the Main Menu and a screen (as below) with a list of items appears.

2. Use the arrow keys to highlight the item and then use the **<PgUp>** or **<PgDn>** keys to modify the value.

ROM PCI/ISA BIOS (2A4IBG33)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

DRAM Timing : 70ns ISA Clock : PCICLK/4	
	ESC : Quit ↑ ↓ → ←: Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

3. After you have fininshed this Setup program, press the <ESC> key to return to the Main Menu.

A short description of the screen items follows:

DRAM Timing Choose 70ns or 60ns depending on the DRAM used.

ISA CLOCK Choose ISA clock equal = PCI clock divide 3 or divide 4.

Power Management Setup Menu

1. Choose "POWER MANAGEMENT FEATURES SETUP" from the Main Menu and a screen (as below) with a list of items appears.

2. Use the arrow keys to highlight the item and then use the **<PgUp>** or **<PgDn>** keys to modify the value.

ROM PCI/ISA BIOS (2A4IBG33)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management /APM : Disabled	
PM Control by APM : Yes	
Video Off Method : V/H SYNC + Blank	
Doze Mode : Disabled	** Power Down & Resource Events **
Standby Mode : Disabled	IRQ3 (COM 2) : Off
Suspend Mode : Disabled	IRQ4 (COM 1) : On
HDD Power Down : Disable	IRQ5 (LPT 2) : Off
** Wakeup Events in Doze & Standby **	IRQ6 (Floppy Disk) : On
IRQ 3 :OFF	IRQ7 (LPT 1) : ON
IRQ 4 :ON	IRQ8 (RTC Alarm) : Off
IRQ 8 :ON	IRQ9 (IRQ2 Redir) : On
IRQ 12 :ON	IRQ10 (Reserved) : Off
	IRQ11 (Reserved) : Off
	IRQ12 (PS/2 Mouse) : On
	IRQ13 (Coprocessor) : Off
	IRQ14 (Hard Disk) : ON
	IRQ15 (Reserved) : ON
	ESC: Quit ↑↓→←: Select Item
	F1 : Help PU / PD / + / - : Modify
	F5 : Old Values (Shift)F2 : Color
	F6 : Load BIOS Defaults
	F7 : Load Setup Defaults

3. After you have fininshed this Setup program, press the **<ESC>** key to return to the Main Menu.

A short description of the screen items follows:

Power Management Choose Disabled or Others. Disabled doesn't allow the system to utilize the Green Function; If Others is chosen the system uses the Green function and has the option of using the Green Timer.

PM Control by APM Choose Yes or NO. Choose Yes when the operating system has the APM function, otherwise choose No.

Video Off Method Choose Blank Screen, DPMS, or V/H Sync+Blank. Choose either DPMS or V/H Sync+Blank when the monitor has the Green function. Choose Blank when the monitor doesn't have the Green function .

Standby Mode Suspend Mode Choose the mode for the different timers. The Standby Mode turns off the VGA monitor. The Suspend Mode turns off the CPU and saves the system's energy.

Wakeup Events in Doze & Standby The system will wakeup from the Standby Mode when any of the options below occurs.

Power Down & Resume Events The system will enter the Power Down Mode when any of the options below occurs.

PNP/PCI Configuration

1. Choose "PNP/PCI CONFIGURATION " from the Main Menu and a screen (as below) with a list of items appears.

2. Use the arrow keys to highlight the item and then use the **<PgUp>** or **<PgDn>** keys to modify the value.

3. After you have fininshed this Setup program, press the **<ESC>** key to return to the Main Menu.

ROM PCI/ISA BIOS (2A4IBG33)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

Resource Controlled by	:Manual	
IRQ-3 assigned to	:Legacy ISA	
IRQ-4 assigned to	:Legacy ISA	
IRQ-5 assigned to	:PCI/ISA PnP	
IRQ-7 assigned to	:Legacy ISA	
IRQ-9 assigned to	: PCI/ISA PnP	
IRQ-10 assigned to	: PCI/ISA PnP	
IRQ-11 assigned to	: PCI/ISA PnP	
IRQ-12 assigned to	: PCI/ISA PnP	
IRQ-14 assigned to	:Legacy ISA	
IRQ-15 assigned to	:Legacy ISA	
DMA-0 assigned to	:PCI/ISA PnP	
DMA-1 assigned to	:PCI/ISA PnP	
DMA-3 assigned to	:PCI/ISA PnP	
DMA-5 assigned to	:PCI/ISA PnP	
DMA-6 assigned to	:PCI/ISA PnP	ESC: Quit ↑↓→←: Select Item
DMA-7 assigned to	:PCI/ISA PnP	F1 : Help PU / PD / + / - : Modify
		F5 : Old Values (Shift)F2 : Color
		F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

A short description of the screen items follows:

Resources Controlled by Choose Manual or Auto. The BIOS will check the IRQ/DMA channel number on the ISA and PCI card automatically. Under Manual the IRQ/DMA channel number needs to be checked manually.

IRQ-3~DMA-7 assigned to Choose Legacy ISA or PCI/ISA PnP. If ISA card has no Plug & Play function then choose Legacy ISA..

Load Setup Defaults

This item loads the default system values. If the CMOS is corrupted the defaults are loaded automatically. Choose theis item and the following message appears:

"Load Setup Defaults (Y/N)? N"

To use the Setup defaults, change the prompt to "Y" and press **<Enter>.**

Integrated Peripherals

1. Choose "INTEGRATED PERIPHERALS " from the Main Menu and a screen (as below) with a list of items appears.

2. Use the arrow keys to highlight the item and then use the **<PgUp>** or **<PgDn>** keys to modify the value.

ROM PCI/ISA BIOS (2A4IBG33)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

IDE HDD Block Mode	:Enabled	
IDE Primary Master PIO	:Enabled	
IDE Primary Slave PIO	:Enabled	
IDE Secondary Master PIO	:Auto	
IDE Secondary Slave PIO	:Auto	
On-Chip Primay PCI IDE	:Auto	
On-Chip Secondary PCI IDE	:Auto	
Onboard FDD Controller	:Enabled	
Onboard Serial Port 1	:3F8/IRQ4	
Onboard Serial Port 2	:2F8/IRQ3	ESC: Quit ↑↓→←: Select Item
UART 2 Mode	:Standard	F1 : Help PU / PD / + / - : Modify
Onboard Parallel Port 7	:378H/IRQ	F5 : Old Values (Shift)F2 : Color
Onboard Parallel Mode	:SPP	F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

3. After you have fininshed this Setup program, press the **<ESC>** key to return to the Main Menu.

A short description of the screen items follows:

IDE HDD Block Mode	Choose Disabled or Others. If hard disk size is larger than 540MB, choose Enabled; and if the hard disk size is smaller than 540MB, check with hard disk vendor to decide which one should be selected. If using the IDE HDD Auto Detection option, the BIOS will choose this option automatically
Onchip Primary/Second ar IDE	If using ISA IDE choose Disabled Primary or Secondary PCI IDE.
IDE Primary Master PIO	Choose Auto or Mode 0`4. The BIOS will detect the HDD Mode type automatically when you choose Auto. Set to a lower mode than Auto when hard disk becomes unstable.
Onboard FDD Controller	Choose Disabled or Enabled. Choose Disabled when using an ISA card with FDD function, or, choose Enabled to use the onboard FDD connector.
Onboard Serial port1	Choose 3F8/IRQ4,2F8/IRQ3,3E8/IRQ4,2E8/IRQ3, or Disabled. Choose Onboard COM1 connector to use I/O port address/IRQ for 3F8/IRQ4, or others.

Supervisor/User Password Setting

This setting lets you configure the system so that a password is required each time the system boots or an attempt is made to enter the Setup program. Supervisor Password allows you to change all CMOS settings but the User Password setting doesn't have this function if you have set the Supervisor Password. The method for setting up the password is as follows:

1. Choose "Supervisor Password" or "User Password" in the Main Menu and press **<Enter>**. the following message appears:
   "ENTER PASSWORD:"

2. The first time you run this option, enter a password up to 8 characters and press **<Enter>.** The screen does not display the entered characters. For no password press **<Enter>.**

3. After entering the password, the following message appears prompting the user to confirm the password: "Confirm Password:"

4. Enter the same password you previously typed to confirm the password and press **<Enter>.**

5. Move the cursor to Save & Exit Setup to save the password.

6. If you need to delete the previously entered password, choose the Password and press **<Enter>.** It will delete the previous password.

7. Move the cursor to Save & Exit Setup to save the new settings. If you don't the old password will still be used the next time your machine is used.

IDE HDD Auto Detection

You can use this utility to automatically detect most hard drives.

When you enter this utility, the screen asks you to select a specific hard disk for Primary Master. If you accept a hard disk detected by the BIOS, you can enter "**Y**" to confirm and then press **<Enter>** to check the next hard disk. This function allows you to check four hard disks and you may press the **<Esc>** after the **<Enter>** to skip this function and go back to the Main Menu.

ROM/PCI/ISA BOPS (2XXXXXXX)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

HARD DISKS TYPE SIZE CYLS HEAD PRECOMP LANDZ SECTOR MODE

Primary Master:

Select Primary Master Option (N=Skip):N

OPTION	SIZE	CYLS	HEADS	PRECOMP	LANDZONE	SECTORS	MODE
1(Y)	516	1120	16	65535	1119	59	NORMAL
2	516	524	32	0	1119	63	LBA

Chapter 4

AMI BIOS USER'S GUIDE

The system configuration information and chipset register information is stored in the CMOS RAM. This information is retained by a battery when the power is off. Enter the Bios setup (if needed) to modify this information.

The following chapter explains how to enter BIOS and what the functions of each setting are.

ENTER BIOS SETUP

Enter the AMI setup Program's Main Menu as follows:

1. Turn on or reboot the system. The following screen appears with a serial of diagnostic check.

AMIBIOS (C) 1995 American Megatrends Inc.,

Hit <DEL> if you want to run setup

(C) American Megatrends Inc.,

51-XXXX-001169-00101111-071595-82430VX-F

2. When the "Hit <DEL>" message appears, press <DEL> key to enter the BIOS setup screen.

Note : If you don't want to modify the original CMOS settings, then just wait until the system boots up without pressing any keys.

3. After pressing the <DEL> key ,the BIOS Setup screen (as below) will be displayed.

```
AMIBIOS SETUP - BIOS SETUP UTILITIES
(C) 1995 American Megatrends, Inc. All Rights Reserved

                Standard CMOS Setup
                Advanced CMOS Setup
                Advanced Chipset Setup
              Power Management Setup
                PCI / Plug and Play Setup
                Peripheral Setup
                Change User Password
              Change Supervisor Password
                Change Language Setting
          Auto Configuration with Optimal Settings
        Auto Configuration with Fail Safe Settings
                Save Settings and Exit
              Exit without Saving

     Standard CMOS Setup for changing time,date, etc.
ESC : Exit  ↑↓: Sel  F2/F3 : Color  F10 : Save & Exit
```

4. Using the <↑> and <↓> key to move the hightlight scroll up or down.
5. Using the <ENTER> key to enter the option.

6.To exit press <ESC>. To save and exit press <F10>.

7. Section 3-2 to 3-7 will describe the option in details.

STANDARD CMOS SETUP

1. Press <ENTER> on "Standard CMOS Setup" of MAIN MENU SCREEN and the following screen appears.

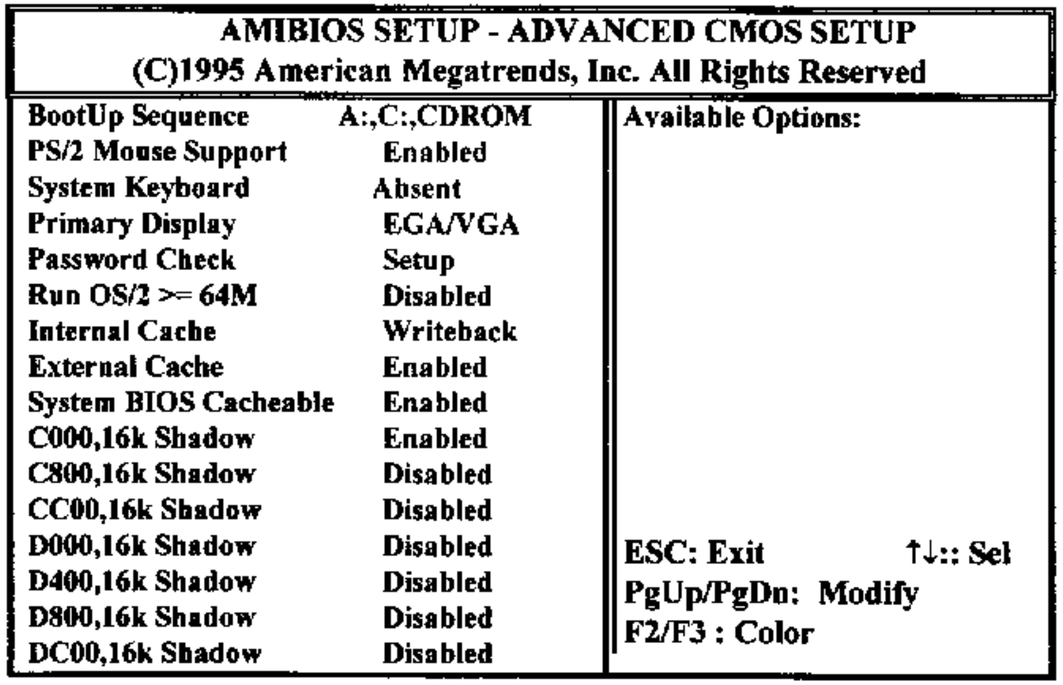
```
AMIBIOS SETUP - STANDARD CMOS SETUP
(C)1995 American Megatrends, Inc. All Rights Reserved

Date (mm/dd/yyyy) :   Wed, Mar 20, 1996
Time (hh/mm/ss) :     16:19:52

Floppy Drive A:       3 1/2 ,1.44M
Floppy Drive B:       Not Installed

                                                LBA   BLK  PIO  32Bit
          Type  Size Cyin Head WPcom Sec        Mode  Mode Mode Mode
Pri Master : AUTO                             ON    ON   ON   AUTO
Pri Slave  : AUTO                             ON    ON   ON   AUTO
Sec Master : AUTO                             ON    ON   ON   AUTO
Sec Slave  : AUTO                             ON    ON   ON   AUTO

Month :   Jan    - Dec                    ESC:Exit ↑↓:Sel
Day:      01 - 31                         PgUp/PgDn:Modify
Year: 1901-2099                           F2/F3:Color
```

2. Using <↑> ,and <↓> to choose the item. Using <PgUp>, and <PgDn> keys to modify the highlight item.

3. After you have finished with Standard CMOS Setup, press <Esc> to return to the main menu screen.

ADVANCED CMOS SETUP

1. Press <ENTER> on "Advanced CMOS Setup" of MAIN MENU SCREEN and the following screen will appear.



AMIBIOS SETUP - ADVANCED CMOS SETUP
(C)1995 American Megatrends, Inc. All Rights Reserved

BootUp Sequence	A:,C:,CDROM	Available Options:
PS/2 Mouse Support	Enabled	
System Keyboard	Absent	
Primary Display	EGA/VGA	
Password Check	Setup	
Run OS/2 >= 64M	Disabled	
Internal Cache	Writeback	
External Cache	Enabled	
System BIOS Cacheable	Enabled	
C000,16k Shadow	Enabled	
C800,16k Shadow	Disabled	
CC00,16k Shadow	Disabled	
D000,16k Shadow	Disabled	ESC: Exit ↑↓:: Sel
D400,16k Shadow	Disabled	PgUp/PgDn: Modify
D800,16k Shadow	Disabled	F2/F3 : Color
DC00,16k Shadow	Disabled	

2. Using <↑> ,and <↓> to choose the item. Using <PgUp>,and <PgDn> keys to modify the highlight item.
3. After you have finished with Advanced CMOS Setup, press <Esc> to return to the main menu screen.

A short description of this screen's items follows:

BootUp Sequence The BIOS first attempts to boot from drive A: and then , if unsuccessful, from hard disk C: and then from the CD ROM. You can set the sequence with

this option.

BootUp Num-Lock Decides if the numeric keypad will be **:ON or OFF** ,used as a number keys or arrow keys.If OFF: the numeric keypad will be used for numbers and the LED will be "OFF.". If ON: the numeric keypad will be used for ARROW functions and the LED will be "ON."

PS/2 Mouse Support Choose Enabled or Disabled. Enabled has the Auto-detect function of this BIOS detect the existence of the PS/2 mouse. If the PS/2 mouse is installed then IRQ12 willl be assigned to it. If the PS/2 mouse isn't installed the IRQ12 will be released to another card. The Disabled setting has IRQ12 always assigned to another card.

System Keyboard

Choose Absent or Present. When Absent is chosen the keyboard is not tested at boot-up. When Present is chosen and a keyboard is not attached to the system a keyboard error message appears on the screen.

Primary Display Choose display type: EGA/VGA or MONO.

Password Check Choose Setup, or Always. "Setup" requires a password to enter BIOS setup. "Always" requires a password on Boot Up to load operating system, or enter BIOS Setup.

Run OS/2 >= 64M Only the system is OS/2 and system memory ≥ 64MB. Then this option must be enabled.

Internal Cache Writeback: enables the CPU's internal cache. Although some CPUs support write-through cache, it degrades performance. Therefore this item has no "Write-through" option.

External Cache Enable: enables L2 (external cache) Disable: disables L2 cache.

System BIOS Choose Disabled or Enabled. Chooses whether the system BIOS should be cacheable (F000,64K).

C000,16K Shadow: Choose whether the ISA ROM and use (C000,16K) should be shadow to (C000,16K).

C800,16K Shadow: Choose whether the ISA ROM and use (C800,16K) should be shadow to (C800,16K)..

CC00,16K Shadow: Choose whether the ISA ROM and use (CC00,16K) should be shadow to (CC00,16K)..

D000,16K Shadow: Choose whether the ISA ROM and use (D000,16K) should be shadow to (D000,16K)..

D400,16K Shadow: Choose whether the ISA ROM and use (D400,16K) should be shadow to (D400,16K)..

D800,16K Shadow: Choose whether the ISA ROM and use (D800,16K) should be shadow to (D800,16K)..

DC00,16K Shadow: Choose whether the ISA ROM and use (DC00,16K) should be shadow to (DC00,16K)..

ADVANCED CHIPSET SETUP

1. Press <ENTER> on "Advanced Chipset Setup" of MAIN MENU SCREEN and the screen as below will dispaly.

AMIBIOS SETUP - ADVANCED CHIPSET SETUP (C)1995 American Megatrends, Inc. All Rights Reserved		
Memory Hole	Disabled	Available option:
DRAM Timing Setting	Auto	Disabled
8Bit I/O Recovery Time (Sysclk)	Disabled	512-640K
16Bit I/O Recovery Time (Sysclk)	Disabled	15-16M
USB	Disabled	
		ESC:Exit ↑↓:Sel
		PgUp/PgDn:Modify
		F2/F3 : Color

2. Using <↑> ,and <↓> to choose the item. Using <PgUp>,and <PgDn> keys to modify the highlight item.
3. After you have finished with Advanced Chipset Setup, press <Esc> to return to the main menu screen.

A Short description of the screen's items follows:

Memory Hole 512-640K/15-16M are reserved for the card that has memory for this region. Disable: All on board memory is used by the system. 512-640K: The on board memory in this range will not be used and the OS demands on this region will be passed to the ISA. 15-16M: The on board memory in this range will not be used and OS demands in this area will be passed to the ISA.

Note: If the memory hole is set for 15-16M and the on board memory is greater than 16M, some testing application will only test 14M and report only 14M memory on the system..

DRAM TIMING: Auto: the system default setting is 60ns for EDO and 70ns for Fast Page. If the memory specifications are different from the Auto: chage the option to manual,and set 60ns or 70ns according the memory installed.

Note : If 60ns and 70ns memory be used at the same time then the dram timing must be set as 70ns.

8 Bit I/O Recovery Time Choose the time (system clock) will be inserted when two continue 8 bit I/O cycle occur.

16 Bit I/O Recovery Time Choose the time (system clock) will be inserted when two continue 16 bit I/O cycle occur.

USB This function is reserved. The default setting is disabled.

POWER MANAGEMENT SETUP

1. Press <ENTER> on "Power Management Setup" of MAIN MENU SCREEN and the following screen will be displayed.

AMIBIOS SETUP - POWER MANAGEMENT SETUP (C)1995 American Megatrends, Inc. All Rights Reserved		
Power Management/APM	Disabled	Available Options:
Instant-On Timeout (Minute)	Disabled	Enabled
Video Power Down Mode	Disabled	Inst-ON
Hard Disk Power Down Mode	Disabled	Disabled
Standby Time Out (Minute)	Disabled	
Suspend Time Out (Minute)	Disabled	
IRQ3 Active (at suspend)	Wake Up	
IRQ4 Active (at suspend)	Ignore	
IRQ5 Active (at suspend)	Ignore	
IRQ7 Active (at suspend)	Wake Up	
IRQ9 Active (at suspend)	Ignore	
IRQ10 Active (at suspend)	Ignore	
IRQ11 Active (at suspend)	Ignore	
IRQ12 Active (at suspend)	Wake Up	
IRQ13 Active (at suspend)	Ingnore	ESC:Exit ↑↓:SEL
IRQ14 Active (at suspend)	Wake Up	PgUp/PgDn:Modify
IRQ15 Active (at suspend)	WakeUp	F2/F3 : Color

2. Using <↑> ,and <↓> to choose the item. Using <PgUp>,and <PgDn> keys to modify the highlight item.
3. After you have finished with Power Management Setup, press <Esc> to return to the main menu screen.

A short description of this screen's items follows:

Advanced Power Management (APM) Choose Enabled or Disabled. This option enables or disables the green PC features.

Instant-On Timeout (Minute) Choose the time setting for supporting Windows95 Instant-On. This default setting is disabled.

Video Power Down Mode Choose Standby, Suspend, or OFF. The Standby mode truns off the H.Sync of the VGA. The Suspend mode turns off the V. SYNC of the VGA. The OFF mode turns off the VH.SYNC and V.SYNC of the VGA.

Note : this function depends on the VGA card.

HDD Power Down Mode

Standby Timeout(Minute) The time system will wait before entering stand

Suspend Time OUT
1. When the standby mode is disabled and the suspend time has expired the system enters suspend mode from normal mode.
2.When the standby mode is set , and system has entered standby mode, then the suspend timers will begin to count. When the suspend time has expired the system will enter suspend mode from standby mode.

IRQ3/4/5/7/9/10/11/12/13/14 Active (at suspend) Choose WakeUP or Disabled
1. Reload the Standby Timer countdown the break events occur during the Normal mode.
2. Return back to the Normal mode from the suspend mode.Also reload the Standby and the Suspend Time countdown.

PCI / PLUG AND PLAY SETUP

1. Press <ENTER> on "PCI/PLUG and PLAY Setup" of MAIN MENU SCREEN and the following screen will be displayed.

AMIBIOS SETUP - PCI/PLUG AND PLAY SETUP (C)1995 American Megatrends, Inc. All Rights Reserved		
PCI IRQ Priority Auto Setting	Yes	Available Options
1st Available IRQ	IRQ11	
2nd Available IRQ	IRQ10	
3rd Available IRQ	IRQ9	
4th Available IRQ	IRQ12	
PCI VGA Palette Snoop	Disabled	
PCI IDE BusMaster	Disabled	
OffBoard PCI IDE Card	Auto	
OffBoard PCI IDE Primary IRQ	Disabled	
OffBoard PCI IDE Secondary IRQ	Disabled	ESC:Exit ↑↓:Sel
Reserved Memory Size	Disabled	PgUp/PgDn:Modify
Reserved Memory Address	C0000	F2/F3 : Color

2. Using <↑> ,and <↓> to choose the item. Using <PgUp>,and <PgDn> keys to modify the highlight item.

3. After you have finished with PCI/Plug and Play Setup, press <Esc> to return to the main menu screen.

A short description of this screen's items follows:

PCI IRQ Priority Auto Setting — Set the PCI IRQ routing priority. **Yes**: PCI IRQ routing will be done by the BIOS. **No**: PCI IRQ routin will according "1st, 2nd, 3rd, and 4th Available IRQ" option.

1st Available IRQ — Choose the IRQ which is to be the priority for PCI.

2nd Available IRQ — Choose the IRQ which is the second priority for PCI.

3rd Available IRQ — Choose the IRQ which is the third priority for PCI.

4th Available IRQ — Choose the IRQ which is the fourth priority for PCI.

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 the boot information and the VGA compatibility. However, the color information coming from the VGA controller is drawn from the palette table inside the VGA controller. In order for the graphic controller to generate the proper colors, 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 Write access to the VGA palette, registers and snoops the data. In

PCI-based systems where the VGA controller is on the PCI bus and a non-VGA graphic controller is on the ISA bus, the Write access to the palette will not show up on the ISA bus if the PCI VGA controller responds to the Writes. In this case the PCE 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. If you don't have the one of the above situations disable this option.

PERIPHERAL SETUP

1. Press <ENTER> on "PCI/PLUG and PLAY Setup" and the following screen will be displayed.

AMIBIOS SETUP - PERIPHERAL SETUP (C)1995 American Megatrends, Inc. All Rights Reserved		
OnBoard FDC	ENABLE	Available
Drive A, B, Exchanged	No	Options:
OnBoard Serial Port1	3F8	Enabled
Serial Port2 Mode	Normal	Disabled
IR Duplex Mode	Full	Auto
OnBoard Parallel Port	378	
Parallel Port Mode	SPP/EPP	
Parallel Port DMA Channel	Disabled	
Parallel Port IRQ	7	ESC:Exit ↑↓:Sel
OnBoard IDE	Both	PgUp/PgDn:Modif
Hard Disk Delay Time	Disabled	F2/F3 : Color

2. Using <↑> ,and <↓> to choose the item. Using <PgUp>,and <PgDn> keys to modify the highlight item.
3. After you have finished with PCI/Plug and Play Setup, press <Esc> to return to the main menu screen.

A short description of this screen's items follows:

OnBoard FDC Choose Enabled or Disabled. The default setting enables the on-board FDC. If want to use off board FDC(i.e.ISA card), then choose disabled.

Drive A, B Exchange Choose Enabled or Disabled. The system board supports the diskette drive A/B exchange feature. If this item is Enabled, then FDD A becomes FDD B and FDD B becomes FDD A.

OnBoard Serial Port1 Choose COM1 (3F8),COM2 (2F8), COM3 (3E8), or COM4 (2E8) to use serial port 1.

OnBoard Serial Port2 Choose COM1 (3F8), COM2(2F8), COM3 (3E8), or COM4 (2E8) to use serial port2.

Serial port2 Mode Choose onboard serial port2 operates with COMB or Ir function.

IR Duplex Mode If serial port2 mode is normal then this option is not available. If serial port2 mode is Ir function then full or half are available options.

OnBoard Parallel Port Choose LPT1 (378), LPT2 (278), LPT3 (3BC) or disabled to set the use of the on-board parallel port.

Parallel Port Mode Choose Extend or Normal. You can set the Parallel Extend Mode only when this item is set to Extended.

Parallel Port DMA Channel This option can be configured in either the ECP mode or the ECP & EPP mode. These two modes may need to use one DMA channel. Below is the procedure for using the DMA channel when it is needed.

1. Choose Extended for the Parallel Port mode.
2. Choose ECP or ECP & EPP for the Parallel Extended mode.
3. Choose DMA1 or DMA3 for the Parallel Port DMA.

Parallel Port IRQ Choose IRQ 5 or 7. The interrupt of the on-board parallel port is connected to the chip set and is routed to the IRQ line by the BIOS's program.

OnBoard IDE Choose Both Primary, Secondary, or Disabled to enable ,or disable onboard IDE channel (primary & secondary)function. "**Both**" onboard IDE's primary and secondary channel is enabled. "**Primary**" only primary channel is enabled and secondary channel is disabled. "**Secondary**" only secondary channel is enabled and primary channel is disabled."**Disabled**"both primary & secondary channels will be disabled.

Hard Disk Delay Time Disabled, 5sec.,10sec.,15sec. options.Some hard disk drives need more time to boot so choose the desired delay time before boot-up.