

R-626

**AT FORM SiS AGP 686 MAINBOARD
USER'S MANUAL**



Introduction

Welcome to use the Rise Computer Inc. next generation high performance P- II system mainboard --- **R-626**. The R-626 using the high performance SiS 5600 Chipset that will deliver superior performance on your personal computer.

About This User's Guide

This User's Guide is for assisting system manufacturers and end users in setting up and installing the mainboard. Information in this guide has been carefully checked for reliability; however, there may still be inaccuracies and information in this document is subject to change without notice.

DISCLAIMER

The information in this manual has been carefully checked and is believed to be accurate. We assumes no responsibility for any inaccuracies that may still be contained in this manual. We reserves the right to make changes to this material at any time without notice.

REMARK

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1. INTRODUCTION

1.1. Preface

Welcome to use the R626 P- II system mainboard. This manual explains how to use this mainboard and install upgrades. It has overview of the design and features of the board and provides useful information if you want to change the configuration of the board, or a system it is installed in.

1.2. Key Features

The R626 P- II system mainboard is a high-performance system board that support Intel Pentium II family CPUs. There has many performance and system features integrated onto the mainboard, including the following :

- ❑ Supports Slot 1 for Intel Pentium II CPU 233MHz /266/300/333MHz(66MHz) 350/400/450/500/....(100MHz)
- ❑ Chipset : SiS 5600, 5595.
- ❑ Pentium II CPU Built-in (0K/256K/ 512KB) L2 Cache.
- ❑ Supports 3 Banks of DIMMs (Three -168PIN DIMM Sockets).
 - Supports SDRAM from 4MB up to 1.5GB of total main memory.
 - Supports Fast Page (FP) and Extended Data Out (EDO) Mode DRAM and SDRAM (PC 100)
- ❑ Two 16-bit ISA Slots and
Four 32-bit PCI Bus Master Mode Slots.
One Accelerated Graphics port (AGP) Slot.
- ❑ Fast PCI IDE Interface:
 - Supports 2 PCI Bus Master IDE Ports. (up to Four IDE drivers)
 - Supports PIO Mode 4 and Ultra DMA/33 Transfers.
- ❑ Universal Serial Bus Controller.
 - Host / HUB Controller.
 - Two USB Ports.

【1】

- ❑ Advanced Configuration and Power Interface (ACPI)
- ❑ High Performance Synchronous Switching Regulator
- ❑ Wake Up Timer: Date/Time auto wake up function.
(For ATX power supply use only)
- ❑ On-board I / O support :
 - 2 Serial Port Connectors (16550 Fast UART compatible)
 - 1 Parallel Port Connector(with EPP and ECP capabilities)
 - 1 Floppy Disk Connector (support 2 FD drives).
 - 1 PS/2 Mouse Connector.
 - 1 PS/2 Keyboard Connector.
 - 1 IrDA Connector.
- ❑ BIOS support :
 - Plug and Play (PnP), DMI, Green Function.
 - 1M-bit Flash EPROM.
- ❑ AT Form Factor : 22cm x 25cm or 8.7" x 9.8" (4 Layers)

1.3. Static Electricity Precautions

Make sure you ground yourself before handling the mainboard or other system components. Electrostatic discharge can easily damage the components. Note that you must take special precaution when handling the mainboard in dry or air-conditioned environments.

Take these precautions to protect you equipment from electrostatic discharge :

- Do not remove the anti-static packaging until you are ready to install the system board and other system components.
- Ground yourself before removing any system component from its protective anti-static packaging. To ground yourself grasp the expansion slot covers or other unpainted portions of the computer chassis.
- Frequently ground yourself while working, or use a grounding strap.
- Handle the system board by the edges and avoid touching its components.

2. HARDWARE INSTALLATION

This chapter explains how to configure the system main board hardware. After you install the main board, you can set jumpers and make case connections. Refer to this chapter whenever you upgrade or reconfigure your system.

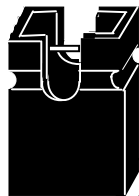
CAUTION : Turn off power to the main board, system chassis, and peripheral devices before performing any work on the main board or system.

2.1. Jumper Setting Summary

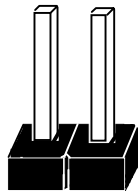
Regarding hardware settings on the board. They specify configuration options for various features. The settings are made using something called a "Jumper". A jumper is a set of two or more metal pins in a plastic base attached to the mainboard. A plastic jumper "cap" with a metal plate inside fits over two pins to create an electrical contact between them. The contact establishes a hardware setting.

Some jumpers have two pins, other have three or more. The jumper are sometimes combined into sets called jumper "blocks", where all the jumpers in the block must be set together to establish a hardware setting. The next figures show how this locks.

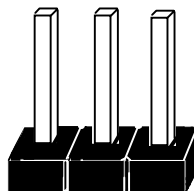
Jumpers and caps



Jumper cap



2-Pin Jumper



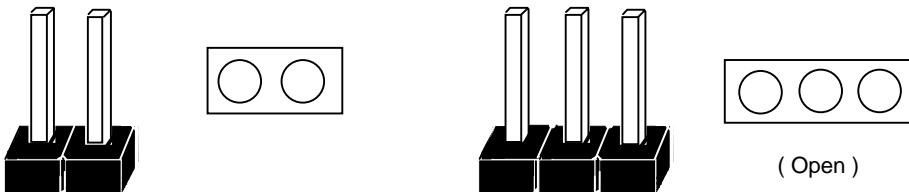
3-Pin Jumper

【2】

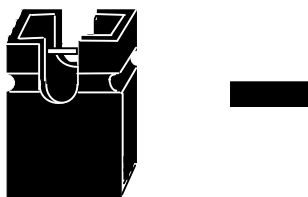
Most jumper settings are printed on the board in a stylized bird's-eye view, with which pins to connect for each setting marked by a bar connecting two pins. For example, if a jumper has three pins, connecting or "shorting", the first and second pins creates one setting and shorting the second and third pins creates another. The same type of diagrams are used in this manual. The jumpers are always shown from the same point of view as shown in the whole board diagram in this chapter.

Jumpers diagrams

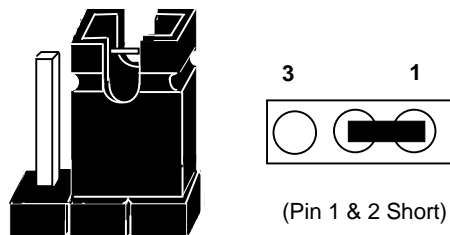
Jumpers are shown like this



Jumper caps like this



Jumper settings like this



2.1.1. CPU Clock Rate : JP8, JP9, JP10, JP11

CPU Clock Rate				
Rate	JP8	JP9	JP10	JP11
2.0X	1-2	1-2	1-2	1-2
2.5X	1-2	1-2	1-2	2-3
3.0X	1-2	1-2	2-3	1-2
3.5X	1-2	1-2	2-3	2-3
4.0X	2-3	1-2	1-2	1-2
4.5X	2-3	1-2	1-2	2-3
5.0X	2-3	1-2	2-3	1-2
5.5X	2-3	1-2	2-3	2-3
6.0X	1-2	2-3	1-2	1-2

2.1.2: CPU & Bus Clock Select : JP4

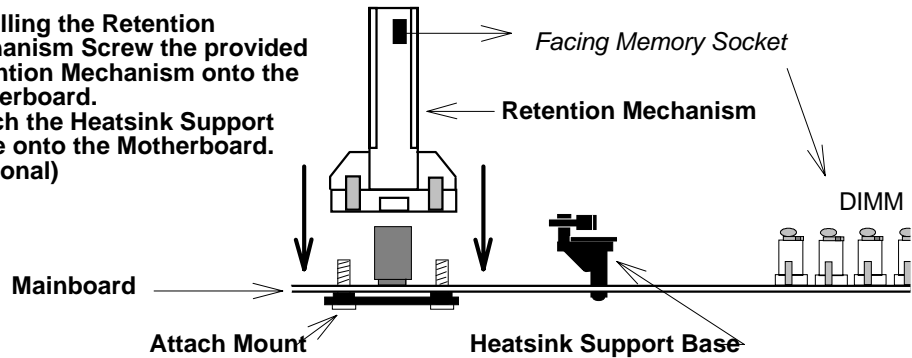
JP4			CPU CLK	AGP CLK	PCI CLK
1-2	3-4	5-6	MHz	MHz	MHz
Open	Open	Open	100	66.6	33.3
Open	Close	Open	83.3	66.6	33.3
Open	Open	Close	75	75	37.5
Open	Close	Close	66.8	66.8	33.4

2.1.3: Future Function Jumper: JP7

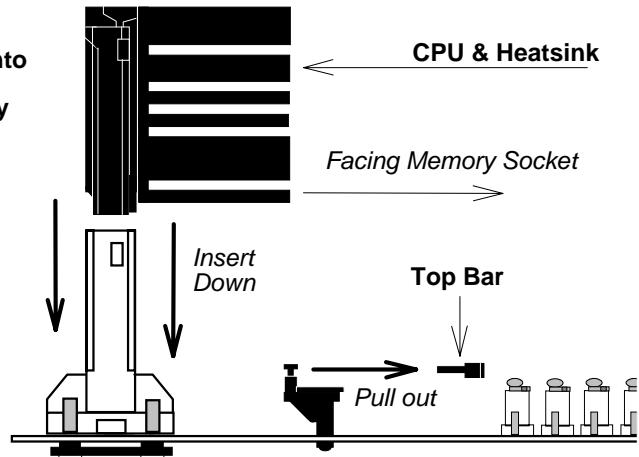
Function	JP7
Default Setting	2-3 Close

【2】**Installing the Pentium II CPU**

- Step 1:** (1) Installing the Retention Mechanism
Screw the provided Retention Mechanism onto the Motherboard.
(2) Attach the Heatsink Support Base onto the Motherboard. (optional)

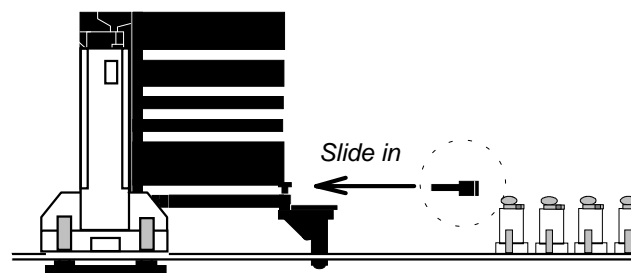


- Step 2:** (1) Insert the Pentium II CPU into the Retention Mechanism. Making sure the CPU is fully inserted into the CPU Slot, and the Heatsink is facing the memory Sockets.



- (2) Snap the Top Bar onto the rigid pins of the Heatsink Support Base. (optional)

- Step 3:** Slide the Top Bar into the Heatsink and Lock it. (optional)



* **(optional)** : If Pentium II CPU come with Large Heatsink.

2.1.4. ATX Power ON/OFF Switch : PW-BN

1. If "Power Button Over Ride" of Power Management Setup is setted to "Instant Off"

When the system is OFF, press This button system will ON.
To turn the system OFF, press this button again.
(The Switch connect to a two-pin push bottom.)

2. If "Power Button Over Ride" of Power Management Setup is setted to "Delay 4 sec."

When the system is OFF, press This button system will ON.
Press this button again, system will enter to Suspend Mode, then press this button and hold for 4 second, the system will OFF.

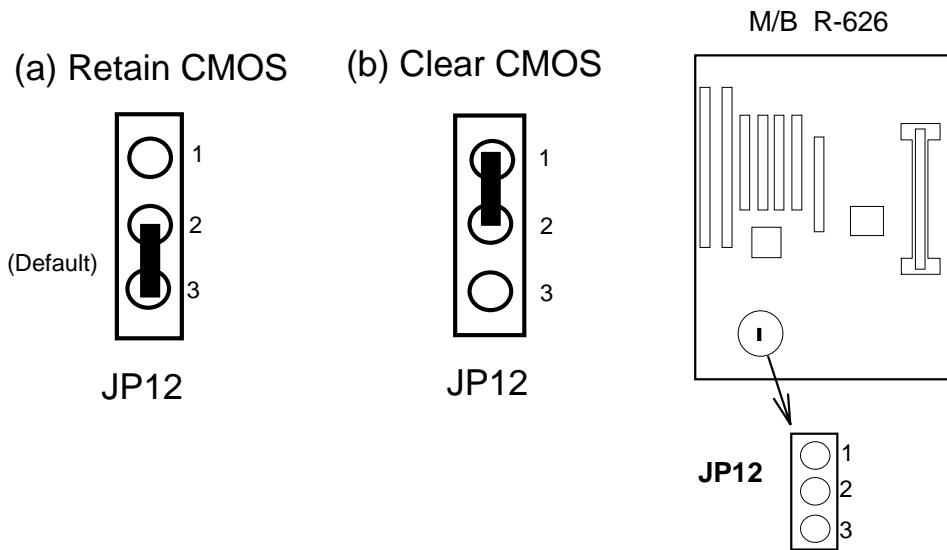
Note: Please make sure the AC Power Switch which on the Power Supply already switch to ON.(If your Power Supply have AC Power Switch)

2.1.5. CMOS Clear Jumper : JP12

Clear the CMOS memory by momentarily shorting this Jumper;
then Open the Jumper to retain new setting.

Function	JP12
Clear CMOS	1-2 Close
Normal Operation	2-3 Close

【2】



How to Update BIOS (Flash ROM)

1. Copy the Flash Utility to a bootable diskette.

AWDFLASH.EXE : for AWARD BIOS.
AMIFLASH.COM : for AMI BIOS.

2. Copy the new bios file to the diskette.

***.BIN : is AWARD BIOS.**
***.ROM : is AMI BIOS.**

3. Turn the power off.

4. Turn the system on and run the Flash utility.

5. Follow the prompt and input the file name.

6. Save the old BIOS and when prompt to program hit " Y ".

7. After the BIOS is Flash, turn off the system and clear the CMOS.

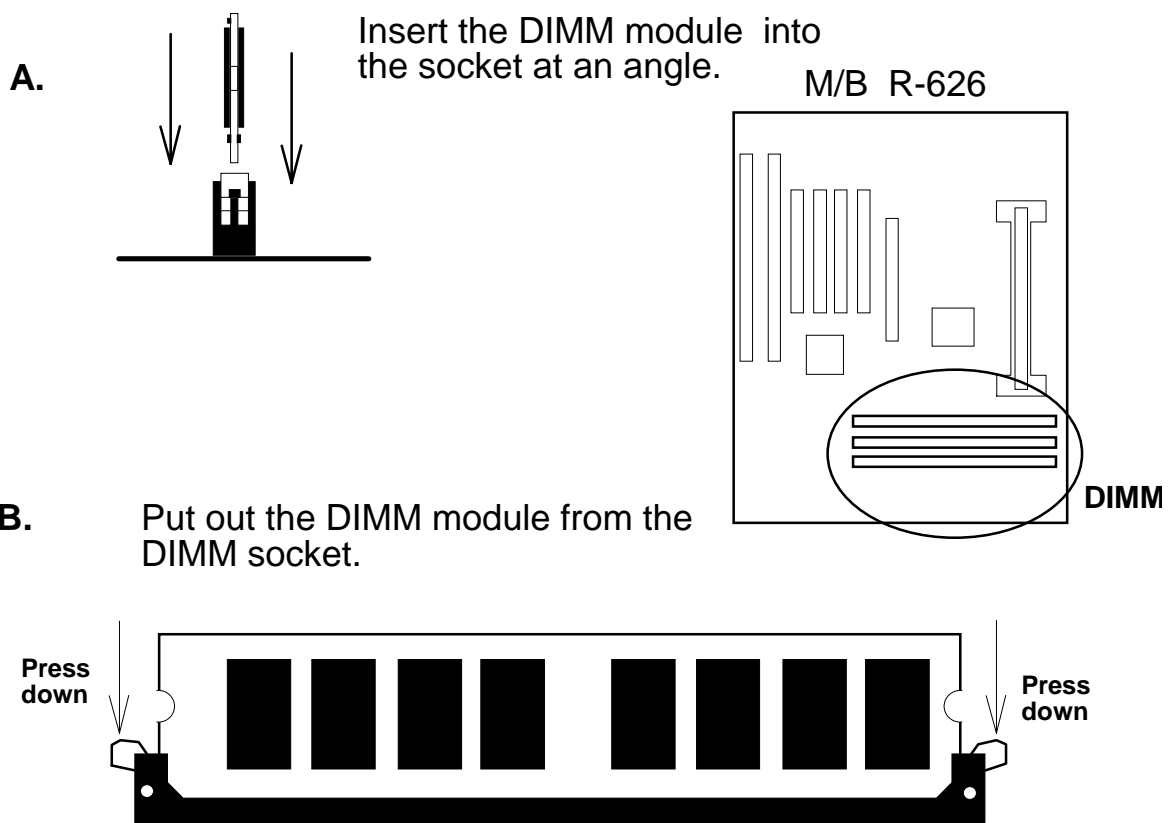
2.1.6. Upgrading System Memory

The R626 mainboard can use 3- 168pin SDRAM DIMM and the system memory can be upgraded up to 1.5GB, or the mainboard can use 3-168pin 3.3v EDO/FP DIMM and the system memory can be upgraded from 4MB to 1.5GB.

Each of module can be either single or double-sided.

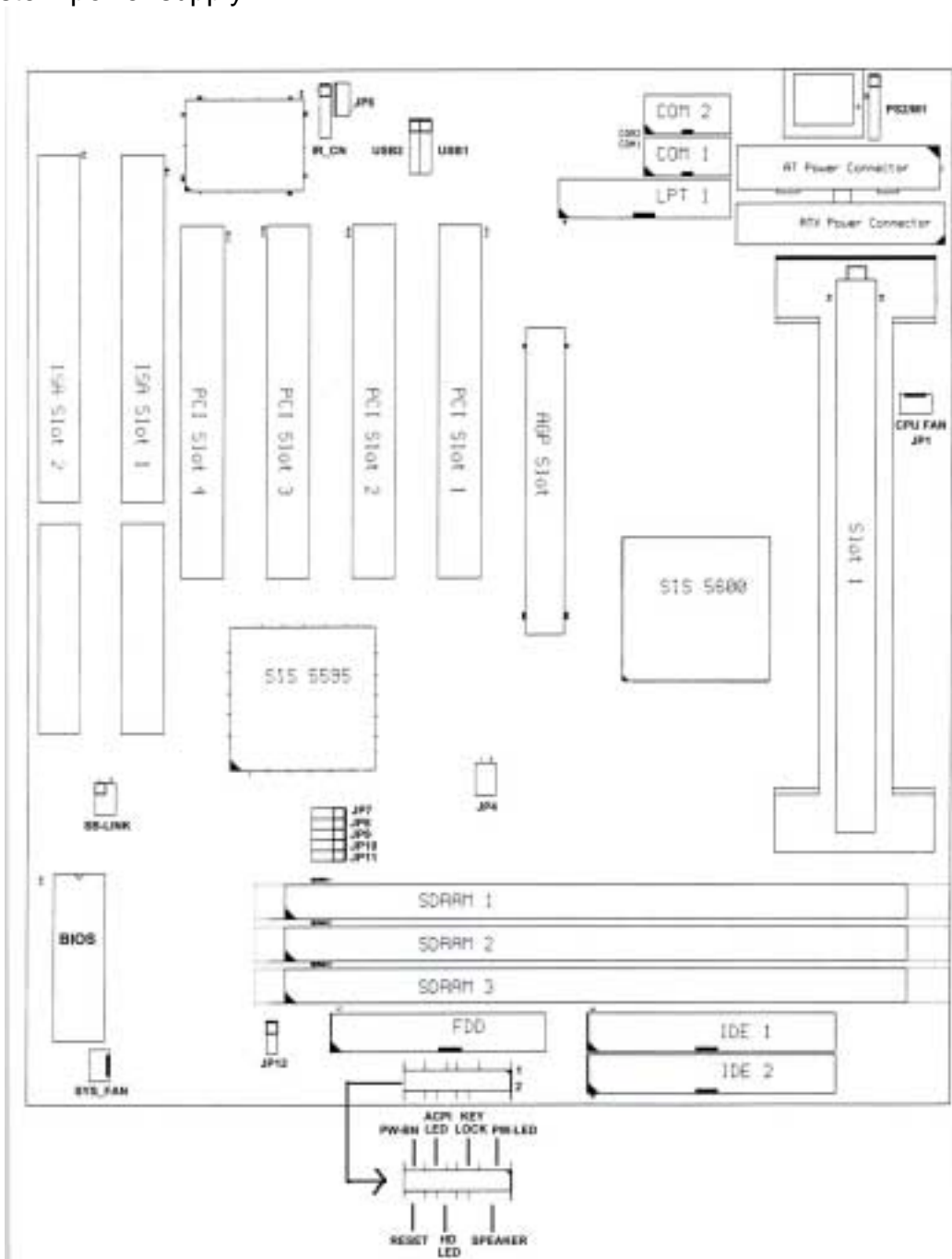
DRAM TYPE : 3.3v 168pin Fast Page Mode(FP) or Extended Data Output(EDO) or PC 100 SDRAM.
DRAM Speed : 60ns or faster.
Parity : Either parity or non-parity.
(Require Parity Memory to Support ECC)

Installing a DIMM Module

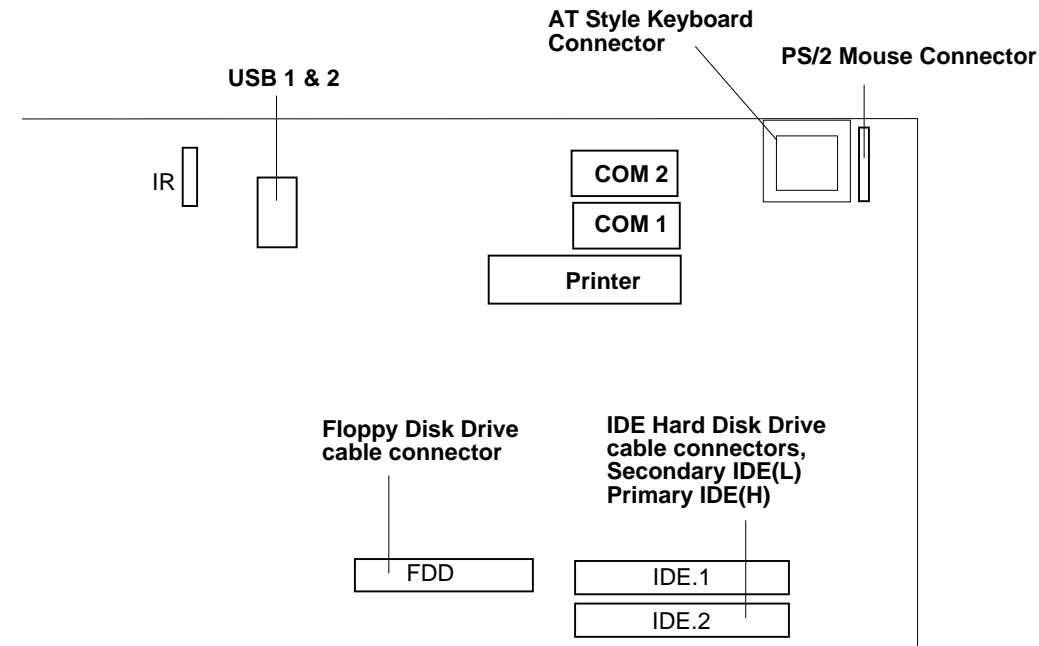


2.2. Connectors

The Connectors are made of the same component as the jumper switches. There are connectors for the switches and indicator lights from the system case. There are also connectors for the on-board I/O port and the leads from a system power supply.



2.2.1 I/O Ports .



When you connect a ribbon cable to any of these I/O connectors, you must orient the cable connector so that the Pin 1 edge of the cable is at the Pin 1 end of the on-board connector.

The pin 1 edge of the ribbon cable is colored to identify it.

Port & Controller Cables

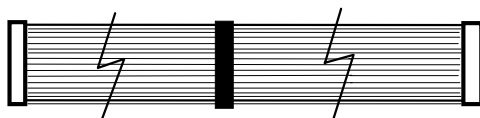
The mainboard comes with One IDE ribbon connector cable and One Floppy Disk drive ribbon connector cable.

The COM1, COM2 and LPT with D-Type Connector On-board.

(1) Floppy Drive ribbon cable



(3) IDE Drive ribbon cable



2.2.2 External Connections

There are several connectors on the system board for switches and indicator lights from the system case. The connectors are made of the same components as the jumper switches.

KEYLOCK	Connector for both a case-mounted lock and a Power-On LED.
SPEAKER	Connector for the lead from a speaker mounted inside the system case.
RESET	Connector for the lead from a Reset switch mounted on the system case.
HD LED	Connector for IDE activity LED.
CN1	AT Form Power Supply Connector.
CN2	ATX Form Power Supply Connector.
PW-BN	ATX Power ON/OFF Switch. (refer Page 2-5)
ACPI LED	For Future used.

USB1, USB2 Two USB ports connector.

Pin assignment of the USB Connectors as following :

USB 1	Pin Name
Pin 1	SBV0
Pin 2	-SBD0
Pin 3	+SBD0
Pin 4	SBG0

USB 2	Pin Name
Pin 1	SBV1
Pin 2	-SBD1
Pin 3	+SBD1
Pin 4	SBG1

IR IR Connector.

Pin assignment :

Pin Number	Pin Name
Pin 1	+ 5V
Pin 2	-----
Pin 3	IR RxL
Pin 4	GND
Pin 5	IRTX

3. BIOS Setup

This SiS 5600 motherboard comes with the AWARD BIOS from Award Software Inc. Enter the Award BIOS program's Main Menu as follows:

1. Turn on or reboot the system. After a series of diagnostic checks, the following message will appear:

PRESS TO ENTER SETUP

2. Press the key and the main program screen appears as in the following page.

```
ROM PCI/ISA BIOS
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.
```

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	SAVE & EXIT SETUP
POWER MANAGEMENT SETUP	EXIT WITHOUT SAVING
PNP / PCI CONFIGURATION	
INTEGRATED PERIPHERALS	
LOAD SETUP DEFAULTS	
Esc: Quit	↑ ↓ → ← : Select Item
F10: Save & Exit Setup	(Shift)F2: Change Color
Time, Date,	Hard Disk Type...

3. Using one of the arrows on your keyboard to select an option and press <Enter>. Modify the system parameters to reflect the options installed in the system.
4. You may return to the Main Menu anytime by press <ESC>.
5. In the Main Menu, "SAVE AND EXIT SETUP" saves your changes and reboots the system, and "EXIT WITHOUT SAVING" ignores your changes and exits the program.

3.1 Standard CMOS Setup

Standard CMOS Setup allows you to record some basic system hardware configuration and set the system clock and error handling. You only need to modify the configuration values of this option when you change your system hardware configuration or the configuration stored in the CMOS memory got lost or damaged.

Run the Standard CMOS Setup as follows:

1. Choose "STANDARD CMOS SETUP" from the Main Menu and a screen with a list of options appears.

ROM PCI/ISA BIOS STANDARD CMOS SETUP AWARD SOFTWARE, INC																	
Date (mm:dd:yy) :		Thu, Jan. 1		1998													
Time (hh:mm:ss) :		15: 45		: 10													
HARD DISK	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE									
Primary Master	: Auto	0	0	0	0	0	0	Auto									
Primary Slave	: None	0	0	0	0	0	0	-----									
Secondary Master	: Auto	0	0	0	0	0	0	Auto									
Secondary Slave	: None	0	0	0	0	0	0	-----									
Drive A: 1.44M, 3.5 in.				<table border="1"> <tr> <td>Base Memory :</td> <td>640K</td> </tr> <tr> <td>Extended Memory :</td> <td>31744K</td> </tr> <tr> <td>Other Memory :</td> <td>384K</td> </tr> <tr> <td>Total Memory :</td> <td>32768K</td> </tr> </table>						Base Memory :	640K	Extended Memory :	31744K	Other Memory :	384K	Total Memory :	32768K
Base Memory :	640K																
Extended Memory :	31744K																
Other Memory :	384K																
Total Memory :	32768K																
Drive B: None																	
Video : EGA/VGA																	
Halt On: All, But Keyboard																	
ESC:Quit		↑ ↓ → ← :Select		Item		PU/PD/+/- :Modify											
F11:Help		(Shift)F2		:Change		Color											

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options follows:

Date (mm/dd/yy)	Set the current date and time.
Time (hh/mm/ss)	Type the current time.
Primary (Secondary) Master & Slave	This field records the specifications for all non-SCSI hard disk drives installed in your system. Refer to the respective documentation on how to install the drivers.

Drive A & B	Set this field to the types of floppy disk drives installed in your system. The choices are: 360KB, 5.25 in., 1.2MB, 5.25 in., 720KB, 3.5 in., 1.44M, 3.5 in. (default), 2.88MB, 3.5 in., or None
Video	Set this field to the type of video display card installed in the system. The choice are: Monochrome; Color 40x25; VGA/EGA (default); or Color 80x25
Halt On	Set this field to the type of errors that will cause the system to halt. The choices are: All Errors (default); No Errors; All, But Keyboard; All, But Diskette; or All, but Disk/Key

3. Press <Esc> to return the Main Menu when you finish setting up in the "Standard CMOS Setup".

3.2 BIOS Features Setup

BIOS Features Setup allows you to improve your system performance or set up some system features according to your preference.

Run the BIOS Features Setup as follows:

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

ROM PCI/ISA BIOS
 BIOS FEATURES SETUP
 AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
CPU L2 Cache ECC Checking	: Enabled	D0000-D3FFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D4000-D7FFF Shadow	: Disabled
Boot Sequence	: A-C-SCSI	D8000-DBFFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	DC000-DFFFF Shadow	: Disabled
Boot Up Floppy Seek	: Disabled		
Boot Up Numlock Status	: On		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
PCI/VGA Palette Snoop	: Disabled		
OS Select For DRAM > 64MB	: Non-OS2		
Report No FDD For WIN 95	: Yes		
		ESC: Quit ↑ ↓ → ← : Select Item	
		F1 : Help PU/PD/+/- : Modify	
		F5 : Old Values (Shift)F2 : Color	
		F7 : Load Setup Defaults	

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys. An explanation of the <F> keys follows:

<F1>: "Help" gives options available for each item.

Shift<F2>: Change color.

<F5>: Get the previous values. These values are the values with which the user started the current session.

<F6>: Load all options with the BIOS default values.

<F7>: Load all options with the Setup default values.

A short description of screen options follows:

**Virus Warning
 Cache**

Enabled:
 Activates automatically when the system boots up causing a warning message to appear if there is

anything attempts to access the boot sector or hard disk partition table.

Disabled:

No warning message will appear when there is something attempts to access the boot sector or hard disk partition table

Note: *Many diagnostic (or boot manager) programs which attempt to access the boot sector table can cause the above warning message. If you will be running such a program, we recommend that you disable the virus protection first.*

CPU Internal Cache Choose Enabled (default) or Disabled. This option allows you to enable or disable the CPU's internal cache.

External Cache Choose Enabled (default) or Disabled. This option allows you to enable or disable the external cache memory.

Quick Power On Self Test Choose Enabled (default) or Disabled. This option allows you to speed up the Power On Self Test routine.

Boot Sequence Default is "A, C, SCSI". This option determines which drive to look for first for an operating system.

Swap Floppy Drive Choose Enabled or Disabled (default). This option swaps floppy drive assignments when it is enabled.

Boot Up Floppy Seek Enabled (default): During POST, BIOS checks the track number of the floppy disk drive to see whether it is 40 or 80 tracks.

Boot Up Num Lock Status Choose On (default) or Off. This option lets user to activate the NumLock function at boot-up.

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

Typematic Rate (Chars/Sec)	Range between 6 (default) and 30 characters per second. This option controls the speed of repeating keystrokes.
Typematic Delay (Msec)	Choose 250 (default), 500, 750, and 1000. This option sets the time interval for displaying the first and the second characters.
Security Option	Choose System or Setup (default). This option is to prevent unauthorized system boot-up or use of BIOS Setup.
PCI/VGA Palette Snoop	Choose Enabled or Disabled (default). It determines whether the MPEG ISA cards can work with PCI/VGA or not.
OS Select for DRAM > 64MB	Non-OS2 (default): For Non-OS/2 system. OS: For OS/2 system.
Report No FDD for WIN 95	Yes: BIOS reports "NO FDD" to Win95. No (default): BIOS will not report "NO FDD" to Win95.
Video BIOS Shadow	Enabled (default): Map the VGA BIOS to system RAM. Disabled: Don't map the VGA BIOS to system RAM.
C8000-CBFFF to DC000-DFFFF Shadow	These options are used to shadow other expansion card ROMs.

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

3.3 Chipset Features Setup

Chipset Features Setup changes the values of the chipset registers. These

registers control the system options.

Run the Chipset Features Setup as follows:

ROM PCI/ISA BIOS CHIPSET FEATURES SETUP AWARD SOFTWARE, INC.	
Auto Configuration : Enabled RAS Pulse Width Refresh : 5T RAS Precharge Time : 3T RAS to CAS Delay : 2T CPU to PCI Post Write : Enabled Starting Point of Paging : 2T ECC Function for Bank 0 : Disabled ECC Function for Bank 1 : Disabled ECC Function for Bank 2 : Disabled SDRAM CAS Latency : 3T SDRAM WR Retire Rate : X-2-2-2 SDRAM Wait State Control : 1WS RAMW# Assertion Timing : 3T CAS Precharge Time (ED0) : 2T CAS# Pulse Width for ED0 : 2T CAS Precharge Time (FP) : 2T CAS# Pulse Width for FP : 2T CPU to PCI Burst Mem. WR : Disabled SDRAM Input Signals : Delay 0.5ns SDRAM Output Signals : Lead 0.0ns	AGP Aperture Size : 64MB System BIOS Cacheable : Enabled Video BIOS Cacheable : Enabled Memory Hole at 15M-16M : Disabled Concurrent function (MEM) : Enabled Concurrent function (PCI) : Enabled CPU Pipeline Control : Enabled PCI Delay Transaction : Enabled ESC : Quit ↑ ↓ → ← : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F7 : Load Setup Defaults

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options follows:

Auto Configuration Choose Enabled (default) or Disabled. The system sets all options on the left side of the screen automatically when choose Enabled.

RAS Pulse Width Refresh Select the number of CPU clock cycles allotted for the RAS pulse refresh, according to DRAM specifications.

The choice: 4T, 5T, 6T, 7T.

【3】

RAS Precharge Time The precharge time is the number of cycles it takes for the RAS to accumulate its charge before DRAM refresh. If insufficient time is allowed, refresh may be incomplete and the DRAM may fail to retain data.

The choice: 2T, 3T, 4T, 5T.

**RAS to CAS
Delay**

When DRAM is refreshed, both rows and columns are addressed separately. This setup item allows you to determine the timing of the transition from RAS (row address strobe) to CAS (column address strobe).

The choice: 2T, 3T, 4T, 5T.

**CPU to PCI Post
Write**

Select enabled to use a fast buffer for posting writes to memory. Using a fast buffer releases the CPU before completion of a write cycle to DRAM.

The choice: Enabled, Disabled.

**Starting Point of
Paging**

This value controls the start timing of memory paging operations.

The choice: 1T, 2T, 4T, 8T.

**ECC Function for
Bank 0
Bank 1
Bank 2**

Those items only can used, when system memory support ECC Correction function.

**SDRAM CAS
Latency**

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

The choice: 2T, 3T.

**SDRAM WR
Retire Rate**

Select the correct timing for data transfers from the write buffer to memory, according to DRAM specifications.

The choice: X-1-1-1, X-2-2-2.

SDRAM Wait State Control

Select the correct timing for data transfers from the write buffer to memory, according to DRAM specifications.

The choice: 0WS, 1WS.

RAMW# Assertion Timing

RAMW is an output signal to enable local memory writes. The system designer select Normal or Faster (by one timer tick) according to DRAM specifications.

The choice: 2T, 3T.

CAS Precharge Time (EDO)

Select the number of CPU clocks allocated for the CAS# signal to accumulate its charge before the EDO RAM is refreshed. If insufficient time is allowed, refresh may be incomplete and data lost.

The choice: 1T, 1T/2T, 2T.

CAS# Pulse Width for EDO

The system designer must set duration of a CAS signal pulse (in timer ticks).

The choice: 2T

CAS Precharge Time (FP)

This item allows you to select CAS precharge time for FP RAM.

The choice: 1T, 1T/2T, 2T.

CAS# Pulse Width for FP

The system designer must set duration of a CAS signal pulse for FP RAM.

The choice: 1T, 2T.

CPU to PCI Burst Mem. WR Select enabled permits PCI burst memory write cycles, for faster performance. When disabled, performance is slightly slower, but more reliable.

The choice: Disabled, Enabled.

SDRAM Input Signals Adjust the system memory timing to match the SDRAM memory modules.

The choice: Lead 0.0ns, Delay 0.5ns, Delay 1.0ns, Delay 1.5ns, Delay 2.0ns, Delay 2.5ns, Delay 3.0ns

SDRAM Output Signals Adjust the system memory timing to match the SDRAM memory modules.

The choice: Lead 2.5ns, Lead 2.0ns, Lead 1.5ns, Lead 1.0ns, Lead 0.5ns, Lead 0.0ns, Delay 0.5ns

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. See www.agpforum.org for AGP information.

The choice: 4M, 8M, 16M, 32M, 64M, 128M, 256M.

System BIOS Cacheable Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

The choice: Enabled, Disabled.

Video BIOS Cacheable Selecting Enabled allows caching of the VGA BIOS ROM at C0000h-CFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

The choice: Enabled, Disabled.

**Memory Hole at
15M - 16M**

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

The choice: Enabled, Disabled.

**Concurrent
Function (MEM)**

Enable/Disable the CPU & PCI Concurrently Access Memory function.

**Concurrent
Function (PCI)**

Enable/Disable the CPU & PCI Concurrently Access PCI Bus function.

**CPU Pipeline
Control**

Control the CPU running in Pipeline Mode or none Pipeline Mode.

**PCI Delay
Transaction**

Use the default setting.

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

3.4 Power Management Setup

The Power Management Setup sets the system's power saving functions.

1. Choose "POWER MANAGEMENT SETUP" from the Main Menu and a

screen with a list of options appears.

ROM PCI/ISA BIOS POWER MANAGEMENT SETUP AWARD SOFTWARE, INC.	
<pre> ACPI function : Enabled Power Management : User Define PM Control by APM : Yes Video Off Option : Susp-Stby ->Off Video Off Method : V/H SYNC+Blank Switch Function : Braek/Wake Doze Speed (div by) : 2/8 Stdby Speed (div by) : 4/8 MODEM Use IR# : 3 Hot Key Function As : Power Off **PM Timers ** HDD Off After : Disabled Doze Mode : Disabled Standby Mode : Disabled Suspend Mode : Disabled **PM Events ** HDD Ports Activity : Enabled COM Ports Activity : Enabled LPT Ports Activity : Enabled </pre>	<pre> VGA Activity : Enabled IR# [3-7, 9-15], NMI : Enabled IR# 8 Break Suspend : Disabled Power Button Over Ride : Instant Off Ring Power Up Control : Disabled GPIO5 Power Up Control : Disabled KB Power ON Password : Enter Power Up by Alarm : Enabled Month Alarm : NA Day of Month Alarm : 0 Week Alarm *** SUN MON TUE WED THU FRI SAT *** Off Off Off Off Off Off Off Time (hh:mm:ss) Alarm : 0 : 0 : 0 ESC : Quit ↑ ↓ → ← : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F7 : Load Setup Defaults </pre>

- Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options follows:

Power Management

This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes. See the section PM Timers for a brief description of each mode.

This table describes each power management mode:

Disable (default)	No power management. Disables four modes
-------------------	--

Min. Power Saving	Minimum power management. Doze Mode=4 hr. Standby Mode =4 hr., Suspend Mode =4 hr.
Max. Power Saving	Maximum power management . Doze Mode=10 sec. Standby Mode= 10 sec., Suspend Mode=10 sec.
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to hr. except for HDD Power Down which ranges from 1 min. to 4 hr. and disable.

PM Control by APM When enabled, an Advanced Power Management device will be activated to enhance to Max. Power Saving mode and stop the CPU internal clock. If Advance Power Management (APM) is installed on your system, selecting Yes gives better power savings.

If the Max. Power Saving is not enabled, this will be preset to No.

Video Off Option When enabled, this feature allows the VGA adapter to operate in a power saving mode.

Always On	Monitor will remain on during power saving modes.
Suspend -- > Off	Monitor blanked when the systems enters the Suspend mode.
Susp, Stby --> Off	Monitor blanked when the system enters either Suspend or Standby modes.
All Modes --> Off	Monitor blanked when the system enters any power saving mode.

Video Off Method This determines the manner in which the monitor is blanked.

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	Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards to select video power management values.

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

The choice: Break/Wake, Disabled.

Doze Speed (Div by) Sets the CPU's speed during Doze mode. The speed is reduced to a fraction of the CPU's normal speed. The divisors range from 1 to 8

The choice: 1~8.

Stdby Speed(Div by) Select a divisor to reduce the CPU speed during Standby mode to a fraction of the full CPU speed. The speed is reduced to a fraction of the CPU's normal speed. The divisors range from 1 to 8-0.

The choice: 1~8.

MODEM Use IRQ Name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.

The choice: 3,4,5,7,9,10,11,NA.

Hot Key Function Power Off: When you use ATX power, use hot key to power off computer.
As Suspend : Use hot key enter the Suspend Mode.
(** Hot Key : Ctrl + Alt + ←Backspace)

The choice: Suspend, Power Off, Disabled.

PM Timers

The following four modes are Green PC power saving functions which are only use configurable when User Defined Power Management has been selected. See above for available selections.

HDD Off After By default, this item is Disabled, meaning that no matter the mode the rest of the system, the hard drive will remain ready. Otherwise, you have a range of choices from 1 to 15 minutes. This means that you can elect to have your hard disk drive be turned off after a selected number of minutes or when the rest of the system goes into a Suspend mode.

Doze Mode When enabled and after the set time of system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.

Standby Mode When enabled and after the set time of system inactivity, the fixed disk drive and the video would be shut off while all other devices still operate at full speed.

Suspend Mode When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

PM Events

You may disable activity monitoring of some common I/O events and interrupt requests so they do not wake up the system. The default wake-up event is keyboard activity.

HDD Ports Activity When set to On (default), any event occurring at a HDD (serial) port will awaken a system which has been powered down.

COM Ports Activity When set to On (default), any event occurring at a hard or floppy drive port will awaken a system which has been powered down.

LPT Ports Activity When set to On (default), any event occurring at a LPT (printer) port will awaken a system which has been powered down.

VGA Activity When set to On (default), any event occurring at VGA will awaken a system which has been powered down.

The following is a list of IRQ's, Interrupt ReQuests, which can be exempted much as the COM ports and LPT ports above can. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

As above, the choices are On and Off.

When set On, activity will neither prevent the system from going into a power management mode nor awaken it.

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

- **IRQ 8 Braek Suspend:** you can Enable or Disable monitoring of IRQ 8 (the Real Time Clock) so it does not awaken the system from Suspend mode.

Power Button Over Ride When you select "Delay 4 sec.", pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung."

The choice: Delay 4 sec., Instant off, Disabled.

Ring Power Up Control When you select Enabled, a signal from ring returns the system to Full On state.

The choice: Enabled, Disabled.

GPI05 Power Up Control	For future used.
KB Power On Password	Get into the "Enter", then you have to key in your password, and it will request you to key in again. (It will "Disable", if your re-confirmed password is not correct or you just Enter directly.) Then, you have to save it. After that , under the power off condition, you can key in the password to power on directly. (When the electric power of public is not disappear, then the function will continue.) re-open the computer directly to key in the password.
Power Up by Alarm	When you select Enabled, the following fields appear. They let you set the alarm that returns the system to Full On state. The choice: Enabled, Disabled.
Month Alarm	Select a month (1-12) or NA if you want the alarm active during all month.
Day of Month Alarm	Select a date in the month. Select 0(zero) if you prefer to set a weekly alarm (below)
Week Alarm	Turn the alarm On and Off on specific days.
Time (hh:mm:ss) Alarm	Set the time you want the alarm to go off on the days when it's activated.

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

3.5 PnP/PCI Configuration Setup

PnP/PCI Configuration Setup configures the PCI bus slots.

Run the Chipset Features Setup as follows:

1. Choose "PnP/PCI CONFIGURATION SETUP" from the Main Menu and a screen with a list of options appears.

ROM PCI/ISA BIOS PNP/PCI CONFIGURATION AWARD SOFTWARE, INC.			
Resources Controlled By	: Manual	PCI IRQ Activated By	: Level
Reset Configuration Data	: Disabled	PCI IDE IRQ Map To	: ISA
IRQ-3	assigned to	: PCI/ISA PnP	
IRQ-4	assigned to	: PCI/ISA PnP	
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	
DMA-7	assigned to	: PCI/ISA PnP	
		ESC : Quit	↑ ↓ → ← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F7 : Load Setup Defaults	

2. Use one of the arrow keys to move between option and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options follows:

Resource controlled by

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows® 95.

The choice: Auto, Manual.

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot.

The Choice: Enabled, Disabled.

IRQ n Assigned to

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

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1).

PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

The choice: Legacy ISA, PCI/ISA PnP.

DMA n Assigned to

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

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific DMA channel

PCI/ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

The choice: Legacy ISA, PCI/ISA PnP.

PCI IRQ Activated by

This sets the method by which the PCI bus recognizes that an IRQ service is being requested by a device. Under all circumstances, you should retain the default configuration unless advised otherwise by your system's manufacturer.

The choice: Level, Edge.

PCI IDE IRQ Map to

This allows you to configure your system to the type of IDE disk controller in use. By default, Setup assumes that your controller is an ISA (Industry Standard Architecture) device rather than a PCI controller. The more apparent difference is the type of slot being used.

If you have equipped your system with a PCI controller, changing this allows you to specify which slot has the

controller and which PCI interrupt (A, B, C or D) is associated with the connected hard drives.

Remember that this setting refers to the hard disk drive itself, rather than individual partitions. Since each IDE controller supports two separate hard drives, you can select the INT# for each. Again, you will note that the primary has a lower interrupt than the secondary as described in "Slot x Using INT#" above.

Selecting "PCI Auto" allows the system to automatically determine how your IDE disk system is configured.

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

3.6 Integrated Peripherals

The Integrated Peripherals option changes the values of the Chipset registers. These registers control system options in the computer.

1. Choose "INTEGRATED PERIPHERALS" from the Main Menu and a screen with a list of options appears.

ROM PCI/ISA BIOS
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

Internal PCI/IDE	: Both	Onboard Parallel Port	: 378/IRQ7
IDE Primary Master PIO	: Auto	Onboard Parallel Mode	: SPP
IDE Primary Slave PIO	: Auto	ECP Mode Use DMA	: 3
IDE Secondary Master PIO	: Auto	Parallel Port EPP Type	: EPP1.9
IDE Secondary Slave PIO	: Auto	PS/2 mouse function	: Enabled
Primary Master UltraDMA	: Auto	Current System Temp.	:
Primary Slave UltraDMA	: Auto	Current SYSFAN1 Speed	:
Secondary Master UltraDMA	: Auto	Current CPUFAN2 Speed	:
Secondary Slave UltraDMA	: Auto	IN0(V) : 5.18 V	IN1(V) : 3.27 V
IDE Burst Mode	: Enabled	IN2(V) : 2.46 V	IN3(V) : 1.95 V
IDE HDD Block Mode	: Enabled		
Init Display First	: PCI Slot		
Onboard FDD Controller	: Enabled		
Onboard Serial Port 1	: 3F8/IRQ4		
Onboard Serial Port 2	: 2F8/IRQ3		
UART 2 Mode	: ASKIR		
IR Function Duplex	: Half		
RxD, TxD Active	: Hi, Hi		
USB Controller	: Enabled		
USB Keyboard Support	: Disabled		

- Use one of the arrow keys to move between options and modify the selected options by using PgUp/PgDn/+/- keys.

A short description of screen options follows:

Internal PCI/IDE

This chipset contains a internal PCI IDE interface with support for two IDE channels.

The choice: Primary, Secondary, Both.

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**IDE Primary/
Secondary/Master/
Slave PIO**

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Primary/

UDMA (Ultra DMA) is a DMA data transfer protocol

**Secondary/Master/
Slave UDMA**

that utilizes ATA commands and the ATA bus to allow DMA commands to transfer data at a maximum burst rate of 33 MB/s. When you select Auto in the four IDE devices that the internal PCI IDE interface supports), the system automatically determines the optimal data transfer rate for each IDE device.

The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Burst Mode

Selecting Enabled reduces latency between each drive read/write cycle, but may cause instability in IDE subsystems that cannot support such fast performance. If you are getting disk drive errors, try setting this value to Disabled. This field does not appear when the Internal PCI/IDE field, above, is Disabled.

The choice: Enabled, Disabled.

**IDE HDD Block
Mode**

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary and/or secondary IDE interface. Select Disabled to deactivate this interface, if you install a primary and/or secondary add-in IDE interface IDE interface.

Enabled	Secondary HDD controller used
Disabled	Secondary HDD controller not used

**Onboard FDD
Controller**

This should be enabled if your system has a floppy disk drive (FDD) installed on the system board and you wish to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.

The choice: Enabled, Disabled.

**Onboard Serial
Port1/Port2**

This item allows you to determine access onboard serial port 1/port 2 controller with which I/O address.

The choice: 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Disabled, Auto.

UART 2 Mode This item allows you to determine which Infra Red (IR) function of onboard I/O chip.

The choice: Standard, ASKIR, HPSIR.

IR Function Duplex This item allows you to select the IR function when you select the UART 2 Mode is ASKIR.

The choice: Half, Full.

RxD, TxD Active This item allows you to determine the active of RxD, TxD.

The choice: "Hi,Hi", "Lo,Lo", "Lo,Hi", "Hi,Lo".

USB Controller Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.

The choice: Enabled, Disabled.

USB Keyboard Support Support legacy USB Keyboard

The choice: Enabled, Disabled.

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Onboard Parallel Port This item allows you to determine access onboard parallel port controller with which I/O address.

The choice: 378H/IRQ7, 278H/IRQ5, 3BCH/IRQ7, Disabled.

Onboard Parallel Mode Select an operating mode for the onboard parallel (printer) port. Normal EPP (Extended Parallel Port) ECP (Extended Capabilities Port) CEP+EPP PC AT parallel port Bidirectional port Fast, buffered port Fast buffered, bidirectional port.

Select Normal unless you are certain your hardware & software both support EPP or ECP mode.

	The choice: SPP, ECP/EPP, ECP, EPP/SPP.
ECP Mode Use DMA	Select DMA channel for the parallel port for use during ECP mode. The choice: 3, 1.
Parallel Port EPP Type	Select EPP port type 1.7 or 1.9 The choice: EPP1.9, EPP1.7.
PS/2 Mouse function	If your system has a PS/2 mouse port and you install serial pointing device, select Disabled. The choice: Enabled, Disabled.
Current System Temp.	Detect the System temperature.
Current SYSFAN1 Speed	Detect the System Fan Speed if the System have Fan.
Current CPUFAN2 Speed	Detect the CPU Fan Speed.
IN0 (V)~ IN3 (V)	IN0 (V) : System +5V Voltage IN1 (V) : System +3.3V Voltage IN2 (V) : +2.5V Voltage for CPU IN3 (V) : Current CPU Vcore Voltage

3. Press <ESC> and follow the screen instructions to save or disregard your settings.

3.7 Load Setup Defaults

Load Setup Defaults option loads the default system values to the system configuration fields. If the CMOS is corrupted the defaults are loaded automatically. Choose this option and the following message appears:

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

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

3.8 Supervisor/User Password

These two options allows you to set your system passwords. Normally, supervisor has a higher right to change the CMOS setup option than the user. The way to set up the passwords for both Supervisor and User are as follow:

1. Choose "Change Password" in the Main Menu and press <Enter>. The following message appears:

"Enter Password:"

2. The first time you run this option, enter your password up to only 8 characters and press <Enter>. The screen does not display the entered characters.
3. After you enter your password, the following message appears prompting you to confirm the new password:

"Confirm Password"

4. Enter exact the same password you just typed again to confirm the password and press <Enter>.
5. Move the cursor to Save & Exit Setup to save the password.

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6. If you need to delete the password you entered before, choose the Supervisor Password and press <Enter>. It will delete the password that you had before.
7. Move the cursor to Save & Exit Setup to save the option you did, otherwise the old password will still be there when you turn on your machine next time.
8. Press <ESC> to exit to the Main Menu.

Note: *If you forget or lose the password, the only way to access the system is to clear the CMOS RAM by setting JBAT1. All setup information will be lost and you need to run the BIOS setup program again.*

3.9 IDE HDD Auto Detection

IDE HDD Auto Detection detects the parameters of an IDE hard disk drive and automatically enters them to the Standard CMOS Setup screen.

The screen will ask you to select a specific hard disk for Primary Master after you select this option. If you accept a hard disk detected by the BIOS, you can enter "Y" to confirm and then press <Enter> to check 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 to back to the Main Menu.

3.10 Save & Exit Setup

Save & Exit Setup allows you to save all modifications you have specified into the CMOS memory. Highlight this option on the Main Menu and the following message appears:

"SAVE to CMOS and EXIT (Y/N)? Y"

Press <Enter> key to save the configuration changes.

3.11 Exit Without Saving

Exit Without Saving allows you to exit the Setup utility without saving the modifications that you have specified. Highlight this option on the Main Menu and the following message appears:

"Quit Without Saving (Y/N) ? N"

You may change the prompt to "Y" and press <Enter> key to leave this option.

