# SY-5SSM

# Super 7 ™

# Motherboard

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Pentium® Class CPU supported
SiS530 PCI/AGP Motherboard
Micro-ATX Form Factor
3D AGP & Audio On-board

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## User's Guide

## &

## Technical Reference

## About This Guide

This User's Guide is for assisting system manufacturers and end users in setting up and installing the Motherboard. Information in this guide has been carefully checked for reliability; however, no guarantee is given as to the correctness of the contents. The information in this document is subject to change without notice.

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**Version 1.0**
**5SSM SERIAL**

FC Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE

**100%** POST CONSUMER
RECYCLED PAPER

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# Chapter 1

# **INTRODUCTION**

The **SY-5SSM** AGP/PCI Motherboard is a high-performance MICRO-ATX form-factor system board. **SY-5SSM** uses the SiS530 PCI Chipset technology and supports Pentium® class processors. This Motherboard is fully compatible with industry standards and adds many technical enhancements.

## **1-1  KEY FEATURES**

- ➢ Integrated 3D AGP accelerator supports UMA or non-UMA (option)
- ➢ 3D PnP PCI Audio onboard
- ➢ 1 MB L2 cache on board
- ➢ Supports CPU voltage from 2.0V to 3.5V in 0.1V increment
- ➢ PC98, ACPI, Ultra DMA 33/66
- ➢ Power-on by modem or alarm
- ➢ Supports Wake-On-LAN (WOL)
- ➢ Supports power-off by hot-key
- ➢ 3 x 32-bit bus mastering PCI slots
- ➢ 1 x 32-bit bus slaving PCI slot
- ➢ 2 x USB ports
- ➢ 1 x IrDA port
- ➢ Supports multiple-boot function
- ➢ Supports Pentium® class CPU with host bus clock of 66/100 MHz
- ➢ Supports system memory up to 768MBytes

## SY-5SSM PLATFORM FEATURES

| | |
|---|---|
| Board Size | 4-layer PCB, 22x24.4cm(8.7"x9.6"), MICRO-ATX Form Factor |
| Socket 7 | Socket for Pentium ® class CPUs with host bus frequency of 66/100MH; Supports:<br>➢ Intel Pentium® Processors P54C/P55C (100-233MHz)<br>➢ Cyrix 6x86 ™(PR166+-PR200+),<br> Cyrix 6x86 MX ™(PR166-PR266) and Cyrix M II ™ (300~350)<br>➢ AMD K5 ™(PR100-PR166), and AMD K6 ™(166-300) and AMD K6 ™2 (266~450)<br>➢ IDT WinChip ™C6/W2 (200/225MHz) |
| Chipset | SiS530 PCI/AGP Bus Chipset<br>3D AGP accelerator integrated |
| ATX Power | 20-pin Male Connector |
| CPUFAN | 3-pin CPU Cooling Fan Connector |
| CHAFAN | 3-pin Chassis Cooling Fan Connector |
| Memory | DIMM Bank (DIMM1 & DIMM2 & DIMM3)<br>➢ 168-pin Unbuffered SDRAM DIMM Module<br>➢ Supports 8~256MB DIMM in each Bank<br>➢ Supports ECC configuration |
| BIOS | System BIOS built-in, Award BIOS<br>➢ APM, ACPI and "Plug-and-Play" function<br>➢ Supports multiple-boot function |
| PCI Slots | 3 x 32-bit Bus Mastering Slots<br>1 x 32-bit Bus Slaving Slots |
| ISA Slots | 1 x 16-bit ISA Slots |
| IDE1, IDE2 | 2 x 40-pin Bus Mastering E-IDE/ATAPI Ports<br>➢ IDE1: Primary IDE Device Connector<br>➢ IDE2: Secondary IDE Device Connector<br>➢ Supports Ultra DMA 33/66 |
| FDC | 1 Floppy Disk Drive (FDD) Port<br>(Supports 1.2MB/1.44MB/2.88MB and LS120/3-mode FDD) |
| COM2 | 1 x 9-pin RS-232 Serial Connector |
| IR1 | 5-pin Serial Infrared Device Connector |
| Keylock | 5-pin KeyLock Connector |
| Reset | 2-pin Reset Switch Connector |
| Speaker | 4-pin PC Speaker Connector |

| ACPI_LED | 2-pin ACPI LED Connector |
| HDD_LED | 2-pin IDE Device LED Connector |
| PWRBT | ATX Power On/Off Switch 2-pin Connector |
| J1 | CPU Burst Mode Jumper |
| JP5 | CMOS Clear Jumper |
| JP9 | Enable/Disable Onboard Sound Function Jumpers |
| CD IN1,CD IN2 | |
| | 2 x CD Line-in 4-pin Connectors |
| JP30 | CPU Voltage Selection Jumper |
| JP32 | CPU Host Bus Frequency Jumpers |
| SW1 | CPU Multiplier Jumpers |
| JP44 | WOL (Wake-On-LAN) 3-pin Connector |

**BACK-PANEL FEATURES**

| PRT | 1 x Onboard 25-pin Female Parallel Printer Port |
| COM1 | 1 x Onboard RS-232 Serial Port |
| PS/2 KB | 1 x Onboard PS/2 Keyboard Connector |
| PS/2 Mouse | 1 x Onboard PS/2 Mouse Connector |
| USB1, USB2 | 2 x Onboard USB (Universal Serial Bus) Connectors |
| VGA | 1 x Onboard 15-pin VGA Port |
| JOYSTICK | 1 x Onboard 15-pin Joystick Port |
| LINE-OUT | 1 x Onboard Line-out Audio Stereo Jack |
| LINE-IN | 1 x Onboard Line-in Audio Stereo Jack |
| MIC JACK | 1 x Onboard Microphone Stereo Jack |

## 1-2  HANDLING THE MOTHERBOARD

To avoid damage to your Motherboard, follow these simple rules while unpacking:

➢ Before handling the Motherboard, ground yourself by grasping an unpainted portion of the system's metal chassis.

➢ Remove the Motherboard from its anti-static packaging. Hold the Motherboard by the edges and avoid touching its components.

➢ Check the Motherboard for damage. If any chip appears loose, press carefully to seat it firmly in its socket.

**STOP** *Warning:* Do not apply power if the Motherboard appears damaged. If there is damage to the board, contact your dealer immediately.

## 1-3  ELECTROSTATIC DISCHARGE PRECAUTIONS

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

To protect your equipment from electrostatic discharge, take the following precautions:

➢ Do not remove the anti-static packaging until you are ready to install.

➢ 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.

# Chapter 2

# HARDWARE SETUP

Congratulations on your purchase of **SY-5SSM** Super 7 ™

Motherboard. You are about to install and connect your new

Motherboard.

> *Note:* Do not unpack the Motherboard from its protective anti-static packaging until you have made the following preparations.

## 2-1  Preparations

Gather and prepare all the following hardware equipment to

complete the installation successfully:

1.   Pentium processor with CPU cooling fan.
2.   DIMM memory module
3.   Computer case and chassis with adequate power supply unit
4.   Monitor
5.   Keyboard
6.   Pointing Device (PS/2 mouse)
7.   Speaker(s) (optional)
8.   Disk Drives: HDD, CD-ROM, Floppy drive …
9.   External Peripherals: Printer, Plotter, and Modem (optional)
10.  Internal Peripherals: Modem and LAN cards (optional)

### *Frequently Asked Questions:*

● **Do I need to install a VGA card?**

● **Do I also need to install a sound card?**

The answer is NO to both questions above, since, for your convenience, the SY-5SSM Motherboard already features one built-in VGA port and three built-in audio-stereo ports (Line-out, Line-in, Microphone).

*Notice:* If you plan on using the onboard VGA and intend to install only one DRAM memory module, then this single DRAM *must be* installed in bank DIMM1.

● **What kind of speaker can connect to "Line-out" port?**

This Motherboard requires a speaker with built-in amplifier to generate proper output sound volume.

## 2-2  Unpacking the Motherboard

When unpacking the Motherboard, check for the following items:

➢ The **SY-5SSM** SiS530 PCI/AGP Motherboard

➢ This *Quick Start Guide* *

➢ The Installation CD-ROM *

➢ One IDE Device Flat Cable

➢ One Floppy Disk Drive Flat Cable

➢ One serial port flat cable with a 9-pin connector

* If your board comes with a driver disc and a paper manual, the Quick Start Guide and the CD-ROM are not included in the package.

> **STOP**
>
> *Warning:* Do not unpack the Motherboard from its anti-static packaging until you are ready to install it.

Like most electronic equipment, your Motherboard may be damaged by electrostatic discharge. To avoid permanent damage to components ground yourself while working by using a grounding strap. Otherwise, ground yourself frequently by touching the unpainted portion of the computer chassis to drain the static charges.

Handle the Motherboard carefully, holding it by the edges.

You are now ready to start the installation.

## 2-3  Installation Guide

We will now begin the installation of the Motherboard. Please follow the step-by-step procedure designed to lead you to a complete and correct installation.

### Step 1.    CPU Installation

Follow these instructions to install your Pentium ® class processor correctly.

Locate the CPU socket labeled Socket 7 on your Motherboard and note the distinctive pinhole arrangement.

Note the corresponding pinhole arrangement on the processor.
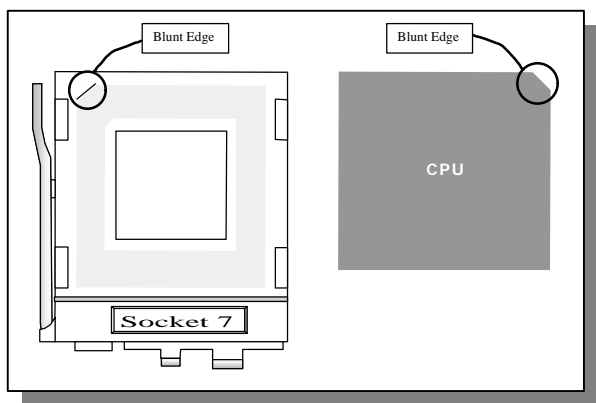
Follow these steps to install the CPU in the Socket 7:

1.    Lift the socket handle up to a vertical position.

2.    Align the blunt edge of the CPU with the matching pinhole distinctive edge on the socket.

3.    Seat the processor in the socket completely and without forcing.

4.    Then close the socket handle to secure the CPU in place.
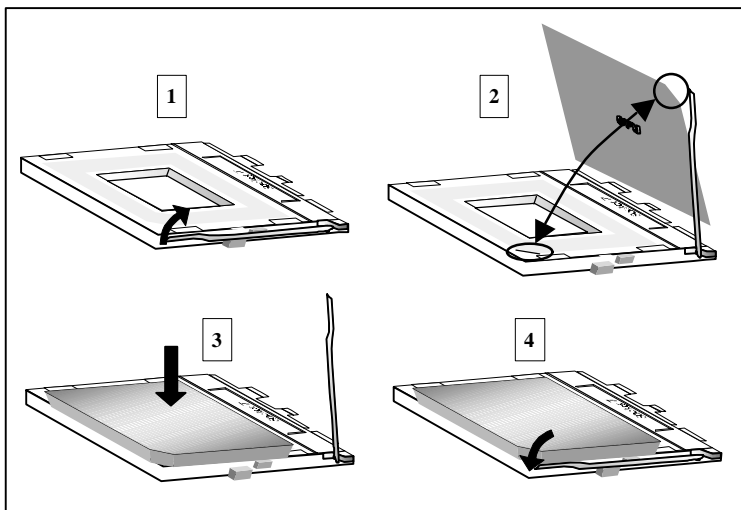


### Step 2.    CPU Fan Installation

Your Pentium® processor kit comes with a cooling fan. Mount the fan on the processor according to the instructions provided by the manufacturer. The fan is a key component that will ensure system stability. The fan prevents overheating, therefore prolonging the life of your CPU.

*Note:* Remember to connect the fan to the appropriate power source.

**Step 3.    CPU Voltage Setting (JP30)**



2 4 6 810

1 3 5 7 9
**CPU Voltage**
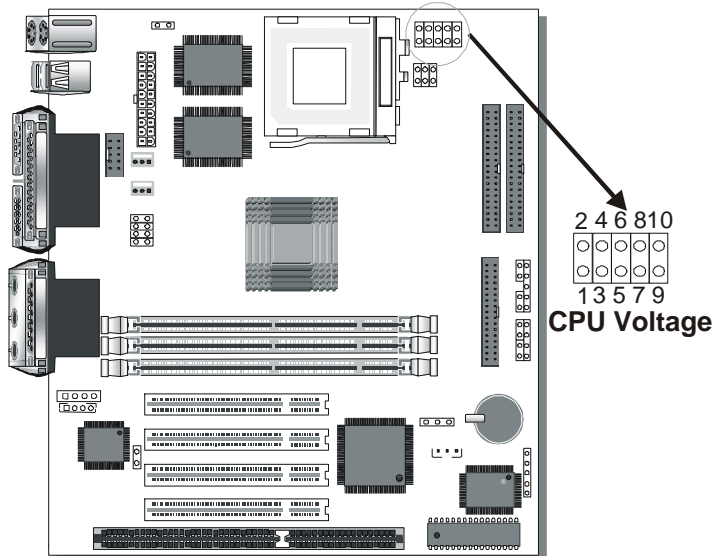
Please verify the correct voltage with your dealer before installation.
Use the following tables to set JP30 to the proper "Voltage Value",
according to the specifications marked on your CPU: This
Motherboard comes with pre-configured setting of CPU voltage.
However the voltage of your CPU maybe different with the default
setting.

● **CPU VOLTAGE SETTING (JP30)**
JP30 are the only jumpers that you need t4o set for your CPU
voltage on this Motherboard.
There are two kinds of CPU voltages currently on the market
depending on the CPU manufacturer:

➢ Single Voltage    (CPU: P54C, AMD-K5, Cyrix 6x86, IDT
   WinChip C6/W2)
➢ Dual Voltage      (CPU: P55C, AMD-K6, AMD-K6-2 Cyrix
   6x86L,Cyrix 6x86MX, Cyrix M II)

Those processors may come in various voltages on different markets. Therefore, always make sure you know the type of the CPU you are installing and adjust the settings on JP30 accordingly.

This Motherboard supports CPU voltages from 2.0 to 3.52V in 0.1V increments. Use the following tables to set the CPU voltage jumpers JP30 to match the voltage value of your CPU:

### *CPU Voltage Setting: JP30*

| Voltage Value | 1-2 | 3-4 | 5-6 | 7-8 | 9-10 |
|---|---|---|---|---|---|
| single3.5V* | open | **short** | **short** | **short** | **short** |
| single 3.3V | open | **short** | **short** | open | **short** |
| dual 3.2V | open | **short** | **short** | open | open |
| dual 3.1V | open | **short** | open | **short** | **short** |
| dual 3.0V | open | **short** | open | **short** | open |
| dual 2.9V | open | **short** | open | open | **short** |
| dual 2.8V | open | **short** | open | open | open |
| dual 2.7V | open | open | **short** | **short** | **short** |
| dual 2.6V | open | open | **short** | **short** | open |
| dual 2.5V | open | open | **short** | open | **short** |
| dual 2.4V | open | open | **short** | open | open |
| dual 2.3V | open | open | open | **short** | **short** |
| dual 2.2V | open | open | open | **short** | open |
| dual 2.1V | open | open | open | open | **short** |
| dual 2.0V | **short** | **short** | **short** | **short** | open |

**Voltage Settings for Various Processors**

| Processor<br>Voltage Setting | Voltage Value: JP30 |
| --- | --- |
| Intel P54C - 100<br>Intel P54C - 133 | Vcore:3.3V<br>V$_{I/O}$:3.3V |
| | |
| Intel P54C - 166<br>Intel P54C - 200 | Vcore:3.5V<br>V$_{I/O}$:3.5V |
| Intel P55C - 166<br>Intel P55C - 200<br>Intel P55C - 233 | Vcore:2.8V<br>V$_{I/O}$:3.3V |
| | |
| AMD K5 - PR100<br>AMD K5 - PR133<br>AMD K5 - PR166 | Vcore:3.5V<br>V$_{I/O}$:3.5V |
| AMD K6   166<br>AMD K6   200 | Vcore:2.9V<br>V$_{I/O}$:3.3V |
| AMD K6   233 | Vcore:3.2V<br>V$_{I/O}$:3.3V |
| AMD K6   266<br>AMD K6   300<br>AMD K6-2   266<br>AMD K6-2   300<br>AMD K6-2   333<br>AMD K6-2   350<br>AMD K6-2   366<br>AMD K6-2   380<br>AMD K6-2   400 | Vcore:2.2V<br>V$_{I/O}$:3.3V |
| AMD K6-2   450 | Vcore:2.3V<br>V$_{I/O}$:3.3V |
| | |

**Voltage Settings for Various Processors (continued)**

| Processor Voltage Setting | Voltage Value: JP30 |
|---|---|
| | |
| Cyrix 6x86(L) PR166+ Cyrix 6x86(L) PR200+ | The Cyrix 6x86(L) come in several versions with different voltages. Please ask your dealer for the correct voltage. |
| Cyrix 6x86MX-PR166* Cyrix 6x86MX-PR200* Cyrix 6x86MX-PR233* Cyrix 6x86MX-PR266* Cyrix M II 300* Cyrix M II 333* Cyrix M II 350* | Vcore:2.9V V$_{I/O}$:3.3V |
| IDT WinChip C6/W2-200 IDT WinChip C6/W2-225 | Vcore:3.5V V$_{I/O}$:3.5V |
| | |
| * Set the proper CPU voltage according to the marking on the CPU. | |

## Step 4.  CPU Frequency Setting (SW1,JP32)



**SW1**
Frequency Multiplier
2 4 6
1 3 5

**JP32**
Host Bus Frequency
8  7
6  5
4  3
2  1
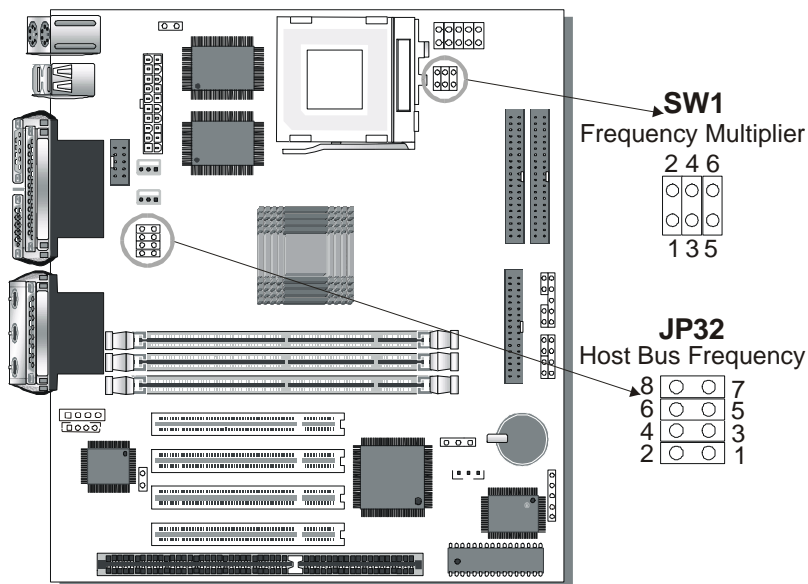
The SY-5SSM Motherboard is designed to support most Pentium® class processors currently on the market. Jumpers SW1 and JP32 are used to configure the Motherboard frequency parameters to match the working frequency of your CPU.

● **CPU FREQUENCY & SDRAM frequency SETTING (SW1,JP32)**

Configure the SW1 jumpers to the settings that match your CPU speed. Refer to the following tables to set the Frequency Multiplier and Host Bus Frequency of your CPU:

### *Frequency Multiplier: SW1*

| Multiplier | 1-2 | 3-4 | 5-6 |
|---|---|---|---|
| 1.5/3.5x | open | open | open |
| 2.0x | **short** | open | open |
| 2.5x | **short** | **short** | open |
| 3.0x | open | **short** | open |
| 4.0x | **short** | open | **short** |
| 4.5x | **short** | **short** | **short** |
| 5.0x | open | **short** | **short** |
| 5.5x | open | open | **short** |

### *Host Bus Frequency & SDRAM frequency: JP32*

| Host Bus Frequency | PCI | SDRAM | 1-2 | 3-4 | 5-6 | 7-8 |
|---|---|---|---|---|---|---|
| 66MHz | 33MHz | 66MHz | open | **short** | **short** | **short** |
| 75MHz | 30MHz | 75MHz | open | **short** | **short** | open |
| 83MHz | 33MHz | 55MHz | **short** | **short** | **short** | open |
| | | 83MHz | open | **short** | open | **short** |
| 90MHz | 30MHz | 90MHz | **short** | **short** | **short** | **short** |
| 95MHz | 31.7MHz | 63.4MHz | **short** | **short** | open | **short** |
| | | 95MHz | open | **short** | open | open |
| 100MHz | 33MHz | 100MHz | open | open | **short** | **short** |
| 105MHz | 35MHz | 70MHz | **short** | open | **short** | **short** |
| 112MHz | 37.5MHz | 75MHz | **short** | open | **short** | open |
| | | 112MHz | open | open | **short** | open |
| 124MHz | 31MHz | 82.6MHz | **short** | open | open | **short** |
| | | 124MHz | open | open | open | **short** |
| 133MHz | 33MHz | 88.9MHz | **short** | open | open | open |
| | | 133MHz | open | open | open | open |

***Example:*** If the working frequency of your CPU is 133MHz, then select Multiplier=2.0x and Host Bus Frequency=66Mhz accordingly.

Please refer to the following table that gives you the correct frequency settings for the specific brand and model of CPU you are installing on this Motherboard.

**Frequency Settings for Intel® Processors**

| Processor Frequency Setting | Ratio | Bus Clock | PCI Clock | CPU Host Bus Setting: JP32 | Frequency Multiplier: SW1 |
|---|---|---|---|---|---|
| | | | | | |
| Intel P54C - P100 | 1.5 x | 66MHz | 33MHz |  |  |
| Intel P54C - P133 | 2.0 x | 66MHz | 33MHz |  |  |
| Intel P54C - P166 | 2.5 x | 66MHz | 33MHz |  |  |
| Intel P54C - P200 | 3.0 x | 66MHz | 33MHz |  |  |
| Intel P55C - P166 | 2.5 x | 66MHz | 33MHz |  |  |
| Intel P55C - P200 | 3.0 x | 66MHz | 33MHz |  |  |
| Intel P55C - P233 | 3.5 x | 66MHz | 33MHz |  |  |
| ** Set the proper CPU frequency according to the marking on the CPU. | | | | | |

**Frequency Settings for AMD ™Processors**

| Processor Frequency Setting | Ratio | Bus Clock | PCI Clock | CPU Host Bus Setting: JP32 | Frequency Multiplier: SW1 |
|---|---|---|---|---|---|
| AMD K5 - PR100 | 1.5 x | 66MHz | 33MHz | | |
| AMD K5 - PR133 | 2.0 x | 66MHz | 33MHz | | |
| AMD K5 - PR166 | 2.5 x | 66MHz | 33MHz | | |
| AMD K6 - 166 | 2.5 x | 66MHz | 33MHz | | |
| AMD K6 - 200 | 3.0 x | 66MHz | 33MHz | | |
| AMD K6 - 233 | 3.5 x | 66MHz | 33MHz | | |
| AMD K6 - 266 | 4.0 x | 66MHz | 33MHz | | |
| AMD K6 - 300 | 4.5 x | 66MHz | 33MHz | | |
| AMD K6-2   266 | 4.0 x | 66MHz | 33MHz | | |
| AMD K6-2   300 | 4.5 x | 66MHz | 33MHz | | |
| AMD K6-2   300 | 3.0 x | 100MHz | 33MHz | | |
| AMD K6-2   333 | 5.0 x | 66MHz | 33MHz | | |

** Set the proper CPU frequency according to the marking on the CPU.

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## Frequency Settings for AMD ™ Processors (Continued)

| Processor Frequency Setting | Ratio | Bus Clock | PCI Clock | CPU Host Bus Setting: JP32 | Frequency Multiplier: SW1 |
|---|---|---|---|---|---|
| AMD K6-2  333 | 3.5 x | 95MHz | 31.7MHz | | |
| AMD K6-2  350 | 3.5 x | 100MHz | 33MHz | | |
| AMD K6-2  366 | 5.5 x | 66MHz | 33MHz | | |
| AMD K6-2  380 | 4.0 x | 95MHz | 31.7 | | |
| AMD K6-2  400 | 4.0 x | 100MHz | 33MHz | | |
| AMD K6-2  450 | 4.5 x | 100MHz | 33MHz | | |

\*\* Set the proper CPU frequency according to the marking on the CPU.

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**Frequency Settings for Cyrix ™Processors**

| Processor Frequency Setting | Ratio | Bus Clock | PCI Clock | CPU Host Bus Setting: JP32 | Frequency Multiplier: SW1 |
|---|---|---|---|---|---|
| Cyrix 6x86 - PR166+ | 2.0 x | 66MHz | 33MHz | 8 7 6 5 4 3 2 1 | 2 4 6 / 1 3 5 |
| Cyrix 6x86 - PR200+ | 2.0 x | 75MHz | 30MHz | 8 7 6 5 4 3 2 1 | 2 4 6 / 1 3 5 |
| Cyrix MX - PR166** | 2.0 x | 66MHz | 33MHz | 8 7 6 5 4 3 2 1 | 2 4 6 / 1 3 5 |
| Cyrix MX - PR200** | 2.5 x | 66MHz | 33MHz | 8 7 6 5 4 3 2 1 | 2 4 6 / 1 3 5 |
| Cyrix MX - PR200** | 2.0 x | 75MHz | 30MHz | 8 7 6 5 4 3 2 1 | 2 4 6 / 1 3 5 |
| Cyrix MX - PR233** | 2.5 x | 75MHz | 30MHz | 8 7 6 5 4 3 2 1 | 2 4 6 / 1 3 5 |
| Cyrix MX - PR266** | 2.5 x | 83MHz | 33MHz | 8 7 6 5 4 3 2 1 | 2 4 6 / 1 3 5 |
| Cyrix M II - 300** | 3.5 x | 66MHz | 33MHz | 8 7 6 5 4 3 2 1 | 2 4 6 / 1 3 5 |
| Cyrix M II - 300** | 3.0 x | 75MHz | 30MHz | 8 7 6 5 4 3 2 1 | 2 4 6 / 1 3 5 |
| Cyrix M II - 333** | 4.0 x | 66MHz | 33MHz | 8 7 6 5 4 3 2 1 | 2 4 6 / 1 3 5 |
| Cyrix M II - 333** | 3.5 x | 75MHz | 30MHz | 8 7 6 5 4 3 2 1 | 2 4 6 / 1 3 5 |
| Cyrix M II - 333** | 3.0 x | 83MHz | 33MHz | 8 7 6 5 4 3 2 1 | 2 4 6 / 1 3 5 |

**Frequency Settings for Cyrix ™Processors (Continued)**

| Processor Frequency Setting | Ratio | Bus Clock | PCI Clock | CPU Host Bus Setting: JP32 | Frequency Multiplier: SW1 |
|---|---|---|---|---|---|
| | | | | | |
| Cyrix M II - 333** | 2.5 x | 100MHz | 33MHz | 8 ▭ 7 / 6 ▭ 5 / 4 ○ ○ 3 / 2 ○ ○ 1 | 2 4 6 / 1 3 5 |
| Cyrix M II - 350** | 3.0 x | 100MHz | 33MHz | 8 ▭ 7 / 6 ▭ 5 / 4 ○ ○ 3 / 2 ○ ○ 1 | 2 4 6 / 1 3 5 |
| ** Set the proper CPU frequency according to the marking on the CPU. Over specification is not guaranteed. | | | | | |

**Frequency Settings for IDT ™Processors**

| Processor Frequency Setting | Ratio | Bus Clock | PCI Clock | CPU Host Bus Setting: JP32 | Frequency Multiplier: SW1 |
|---|---|---|---|---|---|
| | | | | | |
| IDT WinChip C6/W2-200 | 3.0 x | 66MHz | 33MHz | 8 ▭ 7 / 6 ▭ 5 / 4 ▭ 3 / 2 ○ ○ 1 | 2 4 6 / 1 3 5 |
| IDT WinChip C6/W2-225 | 3.0 x | 75MHz | 30MHz | 8 ○ ○ 7 / 6 ▭ 5 / 4 ○ ○ 3 / 2 ○ ○ 1 | 2 4 6 / 1 3 5 |
| ** Set the proper CPU frequency according to the marking on the CPU. | | | | | |

### Step 5. DRAM Module Installation

This Motherboard supports three DIMM banks from 8 to 256 MB with no other restrictions on memory configurations. You can install the memory in any combination without having to rely on a memory configuration table. Memory configuration is therefore "table-free" in any memory bank.
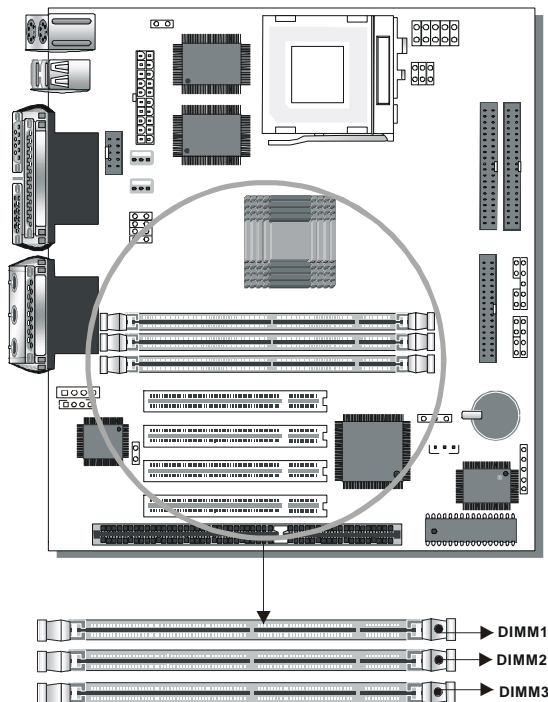


This Motherboard supports SDRAM memory modules.

## ● MEMORY CONFIGURATION

This Motherboard features 3 x DIMM Banks for 168-pin 3.3V
unbuffered DIMM modules

Your board comes with three DIMM sockets, providing support for
up to 768MB of main memory using DIMM modules from 8MB to
256MB. For 66MHz host bus CPUs use 12ns or faster DIMM
modules; for 83MHz or faster host bus CPUs use 8ns modules.

**Memory configuration Table**

| MEMORY CONFIGURATION | DIMM Banks | | |
|---|---|---|---|
| | **DIMM 1** | **DIMM 2** | **DIMM 3** |
| **RAM Type** | SDRAM | SDRAM | SDRAM |
| **Single RAM Module Size (MB)** | 8/16/32/64/128/256 | 8/16/32/64/128/256 | 8/16/32/64/128/256 |

### Step 6.   IDE Device Installation (HDD, CD-ROM)

This Motherboard offers two primary and secondary IDE device
connectors (IDE1, IDE2.) It can support up to four high-speed HDD
or CD-ROM.

Connect one side of the 40-pin flat cable to the IDE device (HDD or
CD-ROM) and plug the other end to the primary (IDE1) or secondary
(IDE2) directionally keyed IDE connector on the Motherboard.

This Motherboard can support up to four HDDs.

*Note: This motherboard supports Ultra DMA 33 and Ultra
DMA66 hard drives. Ultra ATA/66 hard drive requires a special
40-pin, 80-conductor cable.*

### Step 7.   Floppy Drive Installation

The system supports 5 possible floppy drive types: 720 KB, 1.2 MB,
1.44 MB, 2.88 MB, and LS-120. In addition, this Motherboard
supports a 3-mode (720KB/1.25MB/1.44MB) floppy commonly used
in Japan.

Connect one side of the 34-pin flat cable to the floppy drive and plug the other end to the floppy drive connector on the Motherboard. This Motherboard can support up to 2 floppy drives.

### Step 8. Front Panel Connections
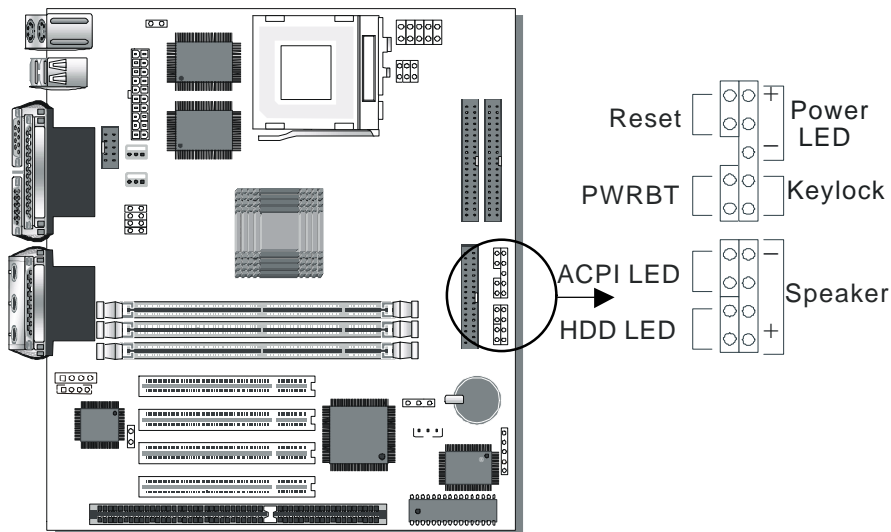


Plug the computer case's front panel devices to the corresponding connectors on the Motherboard.

### 1. Power LED & KeyLock

Plug the Power LED cable into the 5-pin Keylock connector.
Some systems may feature a KeyLock function with a front panel switch for enabling or disabling the keyboard. Connect the KeyLock switch to the 5-pin Keylock connector on the Motherboard.
Please install according to the following pin assignment: pin 1,3 are for Power LED and pin 4,5 are for Keylock.

### 2. Reset

Plug the Reset push-button cable into the 2-pin Reset connector on the Motherboard. Pushing the Reset button on the front panel will

cause the system to restart the boot-up sequence.

### 3.   Speaker

Attach the 4-pin PC speaker cable from the case to the Speaker connector on the Motherboard.

### 4.   ACPI/APM LED

Connecting the 2-pin ACPI LED cable to the corresponding ACPI/APM connector on the motherboard.
In full power on state, this LED will be always turned on.
In low power (suspend) state, this LED will be blinking.

### 5.   IDE LED

Attach the 2-pin IDE device LED cable to the corresponding IDE LED connector on the Motherboard. This will cause the LED to lighten when an IDE (HDD, CD-ROM) device is active.

### 6.   ATX Power On/Off Switch

Attach the 2-pin momentary type switch to the PWRBT connector for turning On or Off your ATX power supply.

### Step 9. Back Panel Connections

All external devices such as the keyboard, printer, PS/2 mouse, modem, USB, monitor, joystick and audio devices (speakers/ headphones, microphone and CD/cassette player) can be plugged directly onto the Motherboard back panel.

Only after you have fixed and locked the Motherboard to the computer case can you start connecting the external peripheral devices.

When connecting an external device, use the following figure to locate and identify which back panel connector to plug the device to.
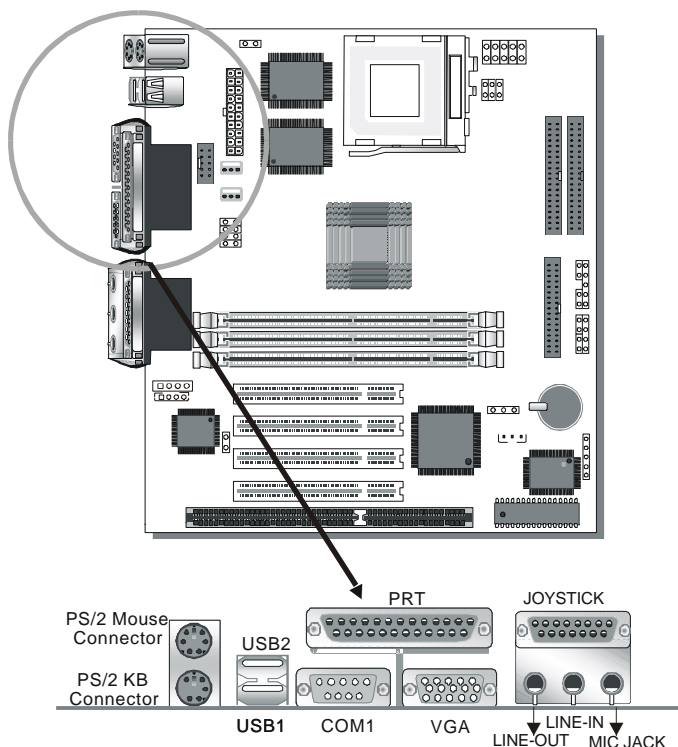


### 1. Onboard Serial Port COM1

External peripherals that use serial transmission scheme include:

- serial mouse,

-     and modem.

Plug the serial device cables directly into the COM1 9-pin male connector located at the rear panel of the Motherboard.

### 2.  Parallel Port PRT

This parallel port is used to connect the printer or other parallel devices.

Plug the parallel device cable into the 25-pin female connector located at the rear panel of the Motherboard.

### 3.  PS/2 Keyboard

Plug the keyboard jack directly into the 6-pin female PS/2 keyboard connector located at the rear panel of the Motherboard.

### 4.  PS/2 Mouse

Similarly, plug the mouse jack directly into the 6-pin female PS/2 mouse connector.

### 5.  Universal Serial Bus USB1/USB2

This Motherboard provides two USB ports for your additional devices. Plug the USB device jack into the available USB connector USB1 or USB2.

-     USB devices under Win98 are allowed.
-     With Win95, use the flow HCI V1.1 specifications.

### 6.  VGA monitor connector

Plug the monitor cable into the 15-pin female VGA connector located at the real panel of the motherboard.

### 7.  Onboard Joystick port/audio

This Motherboard provides Joystick port and audio.

-     Attach the joystick cable to the 15-pin JOYSTICK port at the rear panel of you motherboard.
-     This Motherboard features three built-in audio-stereo ports (labeled line-in, line-out, and mic jack) convenient to directly plug-in all your external audio devices.

## Step 10.   Other Connections
### 1.   Serial Port COM 2

In addition to the onboard serial connector COM1 located at the rear panel, your Motherboard comes with a second serial port COM2 equipped with a flat cable and external connector.

The Motherboard package includes one serial port flat cable with a 9-pin connector.

Plug the 9-pin end of the flat cable into the COM2 serial connector on the Motherboard, as shown in the figure below, then fix the external 9-pin connector to the rear panel of the computer case. Then plug your serial device cable directly into this 9-pin male connector located at the back of your computer.



9-pin male external serial connector

COM 2

9-pin serial flat cable

ATX Power
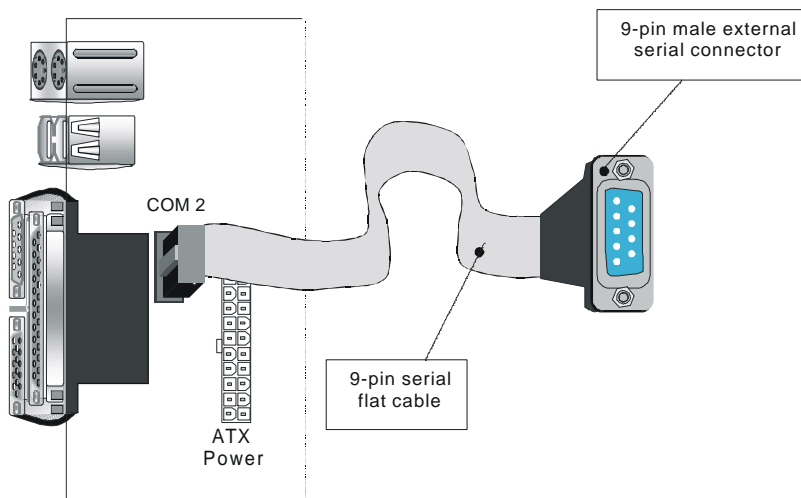
## 2. Wake-On-LAN (WOL)

Attach the 3-pin connector from the LAN card which supports the Wake-On-LAN (WOL) function to the JP44 connector on the Motherboard. This WOL function lets users wake up the connected computer through the LAN card.

Please install according to the following pin assignment:

```
Wake-On-LAN
JP44 Pin Assignment
5VSB    GND    MP - Wake-up

         1  2  3
         ■  ■  ■
```
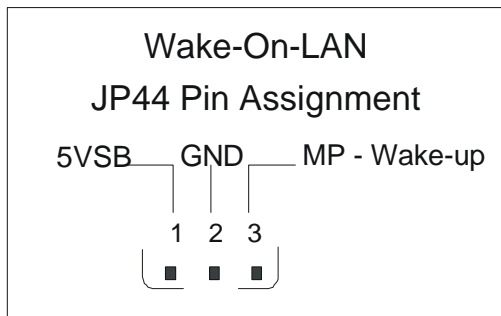
## 3. Infrared (IR1)

Plug the 5-pin infrared device cable to the IR1 connector. This will enable the infrared transfer function. This Motherboard meets both the ASKIR and HPSIR specifications.

Please install according to the following pin assignment:

```
Infrared (IR1) Connector
IR1 Pin Assignment
        IRTX ─── ○  5
        GND  ─── ○  4
        IRRX ─── ○  3
                    2
        VCC  ─── □  1
```
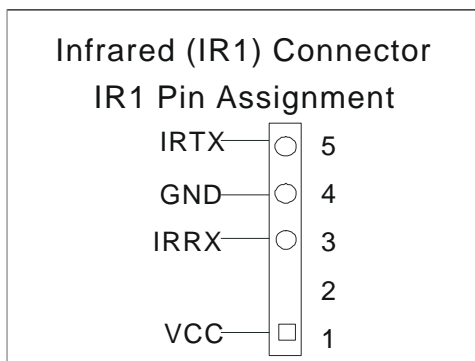
### 4. CD Line-in (CDIN1,CDIN2)

This Motherboard provides two CD-Line in connectors. Please connect the 4-pin audio cable from your CD-ROM drive to either CDIN1 or CDIN2. (It fits in only one, depending on the cable that came with your CD-ROM drive)

Please install according to the following pin assignment:

```
            CD Line-in :
          CD In1, CDIN2

   Left  GND GND Right
    |    |    |    |
   ┌──┐  ○    ○    ○     CD IN1
   │□│
   └──┘
    1    2    3    4

   GND Left  GND Right
    |    |    |    |
   ┌──┐  ○    ○    ○┐    CD IN2
   │□│
   └──┘
    1    2    3    4
```
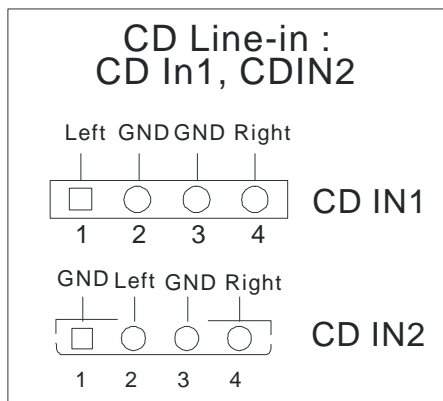
### 5. Other Display Cards

Insert other types of VGA cards into the PCI or ISA expansion slots according to card specifications.

**Step 11.  CPU Cooling Fan Installation**

After you have seated the CPU cooling fan properly on the processor, attach the 3-pin fan cable to the CPUFAN connector on the Motherboard.

To avoid damage to the system, install according to the following pin assignment:

CPU Cooling Fan
CPUFAN Pin Assignment

3  2  1

Sensor 12V  GND
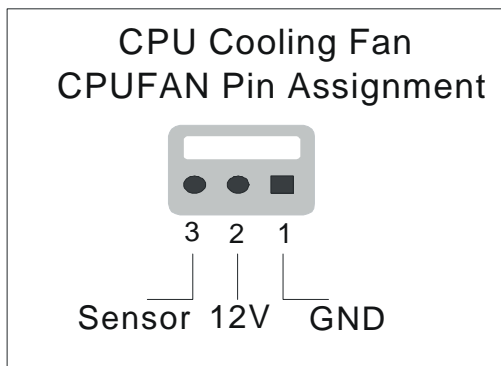
**Step 12.  Chassis Cooling Fan Installation**

After you have seated the Chassis cooling fan properly on the processor, attach the 3-pin fan cable to the CHAFAN connector on the Motherboard.

To avoid damage to the system, install according to the following pin assignment:

Chassis Cooling Fan
CHAFAN Pin Assignment

3  2  1

Sensor 12V  GND
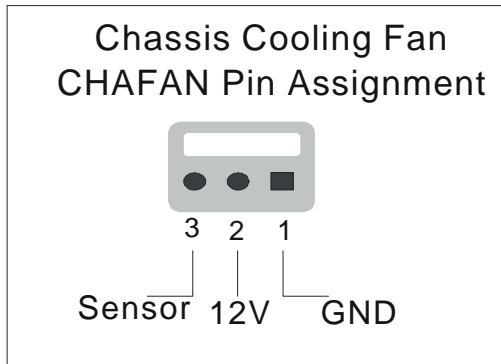
### Step 13. ATX Power Supply

Plug the connector from the power directly into the 20-pin male ATX PW connector on the Motherboard, as shown in the following figure.
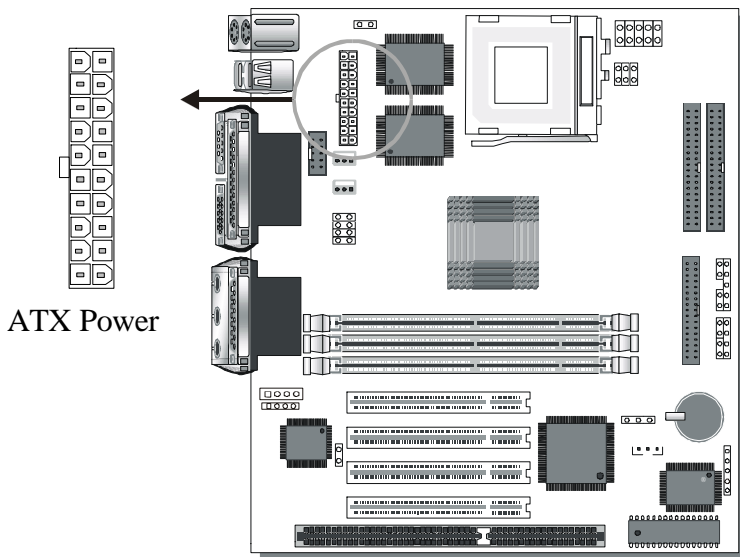


ATX Power

*Warning:* Follow these precautions to preserve your Motherboard from any remnant currents when connecting to ATX power supply:

**Turn off the power supply and unplug the power cord of the ATX power supply before connecting to ATX PW connector.**

The Motherboard requires a power supply with at least 200 Watts and a "power good" signal. Make sure the ATX power supply can take at least 10 mA* load on the 5V Standby lead (5VSB) to meet the standard ATX specification.

*\* Note:* If you use the Wake-On-LAN (WOL) function, make sure the ATX power supply can support at least 720 mA on the 5V Standby lead (5VSB).

Please install the ATX power according to the following pin assignment:

ATX Power

| | | |
|---|---|---|
| 3.3V | □□ | 3.3V |
| -12V | □□ | 3.3V |
| GND | □□ | GND |
| PS-ON | □□ | 5V |
| GND | □□ | GND |
| GND | □□ | 5V |
| GND | □□ | GND |
| -5V | □□ | PW-0K |
| 5V | □□ | 5VSB |
| 5V | □□ | 12V |

➢ **Pay special care to the directionality.**

## Step 14. Select the CPU Burst Mode (J1)

There are two types of CPU burst modes according to manufacturer design:

➢ Interleave Burst (CPU: Intel P54C/P55C, AMD K5/K6/K6-2, IDT WinChip)

➢ Linear Burst(CPU: Cyrix 6x86/L/MX/M II)

| | Interleave | Linear |
|---|---|---|
| **CPU Burst Mode** | **Intel® P54C/P55C**<br>**AMD ™K5/K6/K6-2**<br>**IDT WinChip** | **Cyrix ™6x86/L/MX/MII** |
| **J1 Setting** | When using Intel or AMD CPUs. ⊙1 ⊙2 | When using Cyrix type of CPU. ⊙1 ⊙2 |

If you are using a Cyrix ™6x86/L/MX/M II series CPU, set the burst mode to Linear by shorting jumper J1, and follow the following steps to select the correct Linear burst mode in BIOS:

1. During the boot-up initial sequence, press the [Delete] key to enter the BIOS setup menu.
2. Select the [CHIPSET FEATURES SETUP] section in BIOS.
3. In the [CHIPSET FEATURES SETUP] sub-menu, set the [Linear Burst] field to [Enabled].
4. Press [Esc] to return to the BIOS main menu.
5. Then choose [Save & Exit Setup] to re-boot your computer.

### Step 15.    CMOS Clearing (JP5)

After you have turned off your computer, clear the CMOS memory by momentarily shorting pins 2-3 on jumper JP5, for a few seconds. Then restore JP5 to the initial 1-2 jumper setting in order to recover and retain the default settings.

| CMOS Clearing | Clear CMOS Data | | Retain CMOS Data | |
|---|---|---|---|---|
| **JP5 Setting** | Short pin 2-3 for a few seconds to clear the CMOS | ⬛ 1  2  3 | Short pin 1-2 to retain new settings | ⬛ 1  2  3 |
| *Note:* You must unplug the ATX power cable from the ATX power connector when performing the CMOS Clear operation. | | | | |

### Step 16.   Set the Onboard Sound Options (JP9)

The onboard audio features of your Motherboard are controlled by jumpers JP9

Choose the available sound options among the following table:

| Sound Settings | JP9 |
|---|---|
| **Onboard Sound: Enable** | **short** |
| **Onboard Sound: Disable** | open |

### Step 17.   MULTI I/O ADDRESSES

Default settings for multi-I/O addresses are as follows:

| Port | I/O Address | IRQ | Status |
|---|---|---|---|
| **LPT1** | 378H | 7 | ECP + EPP |
| **COM1** | 3F8H | 4 | |
| **COM2** | 2F8H | 3 | |

> *Warning:* If a default I/O address conflicts with other I/O cards such as sound card, you must change one of the I/O addresses to remedy to this address conflict. (I/O addresses can be adjusted from the BIOS Setup Utility)

### Step 18.  CACHE CONFIGURATION

This Motherboard has a built-in 1MB Level 2 Pipelined Burst cache onboard to improve the system performance. The cacheable system memory size is 128MB.

### Step 19.  Power On

You have now completed the hardware installation of your Motherboard successfully.

1. Turn the power on
2. To enter the BIOS Setup Utility, press the <DEL> key while the system is performing the diagnostic checks,

> *Note:* If you have failed to enter the BIOS, wait until the boot up sequence is completed. Then push the RESET button and press <DEL> key again at the beginning of boot-up, during diagnostic checks.

Repeat this operation until you get the following screen.

3. The BIOS Setup screen appears:

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

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


  Esc  : Quit                  ↑↓→←  : Select Item
  F10  : Save & Exit Setup     (Shift) F2  : Change Color
                  Time, Date, Hard Disk Type…
```

You are now ready to configure your system with the BIOS setup
program. Go to Chapter 3: **BIOS SETUP**

# Chapter 3

# **BIOS SETUP UTILITY**

This Motherboard's BIOS setup program uses the ROM PCI/ISA
BIOS program from Award Software Inc.
To enter the Award BIOS program's Main Menu:
1.  Turn on or reboot the system.
2.  After the diagnostic checks, press the [Del] key to enter the
    Award BIOS Setup Utility.

| ROM PCI/ISA BIOS<br>CMOS SETUP UTILITY<br>AWARD SOFTWARE, INC. | |
|---|---|
| STANDARD CMOS SETUP | INTEGRATED PERIPHERALS |
| BIOS FEATURES SETUP | SUPERVISOR PASSWORD |
| CHIPSET FEATURES SETUP | USER PASSWORD |
| POWER MANAGEMENT SETUP | IDE HDD AUTO DETECTION |
| PNP/PCI CONFIGURATION | SAVE & EXIT SETUP |
| LOAD SETUP DEFAULTS | EXIT WITHOUT SAVING |
| LOAD BIOS DEFAULTS | |
| Esc  : Quit | ↑↓→← : Select Item |
| F10  : Save & Exit Setup | (Shift) F2  : Change Color |
| **Time, Date, Hard Disk Type…** | |

**Selecting items**

●  Use the arrow keys to move between items and select fields.

●  From the Main Menu press arrow keys to enter the selected
   submenu.

**Modifying selected items**

●  Use the [Up]/[Down] keys to modify values within the selected
   fields. Some fields let you enter values directly.

**Hot Keys:** Function keys give you access to a group of commands throughout the BIOS utility.

| Function | Command | Description |
|----------|---------|-------------|
| F1 | Help | Gives the list of options available for each item. |
| Shift F2 | Color | Change the color of the display window. |
| F5 | Old values | Restore the old values. These are the values that the user started the current session with. |
| F6 | Load BIOS Defaults | Loads all options with the BIOS Setup default values. |
| F7 | Load Setup Defaults | Loads all options with the Power-On default values. |
| F10 | Save & Exit Setup | Saves your changes and reboots the system. |
| [Esc] | Quit | Lets you return at anytime and from any location to the Main Menu. |

**SAVE AND EXIT SETUP**

Select the [SAVE & EXIT SETUP] option from the Main Menu to save data to CMOS and exit the setup utility. This option saves all your changes and causes the system to reboot.



Type [Y] to save the changes and exit or [N] to return to the Main Menu and keep current values.

**EXIT WITHOUT SAVING**

Selecting the [EXIT WITHOUT SAVING] option allows you to abandon all data and exit setup, therefore ignoring all your changes.



Type [Y] to abandon changes and exit or [N] to return to the Main Menu and keep current values.

## 3-1  STANDARD CMOS SETUP

Select the [STANDARD CMOS SETUP] option from the Main Menu
and press [Enter] key.

```
                            ROM PCI/ISA BIOS
                          STANDARD CMOS SETUP
                          AWARD SOFTWARE, INC.
  Date (mm:dd:yy)    : Fri, May 29 1998
  Time (hh:mm:ss)    : 9 : 42 : 43

  HARD DISKS          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  : None      0      0     0        0       0        0     - - - -
  Secondary Slave   : None      0      0     0        0       0        0     - - - -

  Drive A : 1.44M, 3.5 in.                      Base Memory:        640K
  Drive B : None                            Extended Memory:       3328K
  Floppy 3 Mode Support : Disabled             Other Memory:        128K

  Video  :  EGA/VGA
  Halt On  :   All Errors                      Total Memory:       4096K

  Esc   : Quit        ↑↓→←       : Select Item     PU/PD/+/-    : Modify
  F1    : Help      (Shift) F2   : Change Color     F3          : Toggle Calendar
```

This screen allows you to modify the basic CMOS settings.
After you have completed the changes, press [Esc] key to return to
the Main Menu.

### 3-1.1  Date & Time

|      | **Display** | **Setting** | **Please Note** |
|------|-------------|-------------|-----------------|
| **Date** | mm/dd/yyyy | Type the current date | You can also the PUp/PDn keys to toggle |
| **Time** | hh:mm:ss | Type the current time | 24-hour clock format 3:15 PM is displayed as 15:15:00 |

### 3-1.2 Hard Disks Type & Mode

Choose the type and mode for the hard disks that you have already installed.

| Primary (Secondary) Master & Slave | Setting | Description | Note |
|---|---|---|---|
| **Type** | Auto | BIOS detects hard disk type automatically. | Default |
| | 1-47 | Selects standard hard disk type. | |
| | User | User defines the type of hard disk. | |
| **Mode** | Auto | BIOS detects hard disk mode automatically. | Default |
| | Normal | Normal IDE hard disk | <528MB |
| | LBA | Enhanced IDE hard disk | >528MB |
| | Large | Large IDE hard disk (for certain hard disk) | |

*Note:* If you have any questions on your hard disk type or mode, ask your hard disk provider or previous user for details.

### 3-1.3 Floppy Drives

| Floppy Drives | Setting | Description | Note |
|---|---|---|---|
| **Drives A & B** | 360KB, 5.25 in. | | |
| | 1.2MB, 5.25 in. | | |
| | 720KB, 3.5 in. | | |
| | 1.44MB, 3.5 in. | | Default |
| | 2.88MB, 3.5 in. | | |
| | None | Not installed | |
| **Floppy 3-Mode Support** | Disabled | | Default |
| | Drive A Drive B Both | Supports 3-mode floppy diskette: 740KB/1.25MB/1.44MB on selected disk drive. | Special disk drive commonly used in Japan |

### 3-1.4  Video

Select the video mode: EGA/VGA (Default), CGA 40, CGA 80,
Mono (Monochrome).

### 3-1.5  Halt On

When the BIOS detects system errors, this function will stop the
system. Select which type of error will cause the system halt: All
Errors (Default), No Errors, All But Diskette, All But Keyboard, All
But Disk/Key.

## 3-2  BIOS FEATURES SETUP

Select the [BIOS FEATURES SETUP] option from the Main Menu
and press [Enter] key.

```
                          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
Quick Power On Self Test    : Enabled      D0000-D3FFF Shadow    : Disabled
Boot Sequence               : A, C, SCSI   D4000-D7FFF Shadow    : Disabled
Swap Floppy Drive           : Disabled     D8000-DBFFF Shadow    : Disabled
Boot Up NumLock Status      : On           DC000-DFFFF Shadow    : Disabled
Memory Parity /ECC Check    : Enabled
Typematic Rate Setting      : Disabled

Typematic Rate (Chars/Sec)  : 6

Typematic Delay (Msec)      : 250

Security Option             : Setup

PCI/VGA Palette Snoop       : Disabled

Assign IRQ For VGA          : Enabled

OS Select For DRAM > 64MB   : Non-OS2

HDD S.M.A.R.T capability     : Disabled
Report No FDD For WIN 95    : No           ESC  : Quit       ↑↓→← : Select Item
                                           F1   : Help       PU/PD/+/- : Modify
                                           F5   : Old Values  (Shift) F2  : Color
                                           F6   : Load BIOS Defaults
                                           F7   : Load Setup Defaults
```

After you have completed the changes, press [Esc] key and follow
the instructions on your screen to save your settings or exit without
saving.

### 3-2.1  Virus Warning

|  | Setting | Description | Note |
|---|---|---|---|
| **Virus Warning** | Disabled | | Default |
| | Enabled | Enable this option to protect the boot sectors and partition tables of your hard disk. Any attempt to write to them will the system to halt and display a warning message. | |

### 3-2.2  Cache Memory Options

|  | Setting | Description | Note |
|---|---|---|---|
| **CPU Internal Cache** | Disabled | | |
| | Enabled | Enables the CPU's internal cache. | Default |
| | | | |
| **External Cache** | Disabled | | |
| | Enabled | Enables the external memory. | Default |
| | | | |

### 3-2.3 System Boot Control Settings

| System Boot Control Settings | Setting | Description | Note |
|---|---|---|---|
| **Quick Power On Self Test** | Disabled | | |
| | Enabled | Provides a fast POTS at boot-up. | Default |
| **Boot Sequence** | A, C, SCSI<br>C, A, SCSI<br>C, CD-ROM, A<br>CD-ROM, C, A<br>D, A, SCSI<br>E, A, SCSI<br>F, A, SCSI<br>SCSI, A, C<br>SCSI, C, A<br>C only<br>LS/ZIP, C | Choose the boot sequence adapted to your needs, for example:<br>● [A, C, SCSI] means the BIOS will look for an operating system first in drive A, then in drive C, and eventually in SCSI device. | |
| **Swap Floppy Drive** | Disabled | | Default |
| | Enabled | Changes the sequence of A and B drives. | |
| **Boot Up NumLock Status** | On | Puts numeric keypad in NumLock mode at boot-up. | Default |
| | Off | Puts numeric keypad in arrow key mode at boot-up. | |
| **Memory Parity Check/ ECC Check** | Enabled | This allows to perform a redundancy check on the parity bit in the data strings. This method is used for error detection when the parity is not found. | Default |
| | Disabled | | |

### 3-2.4  Typematic Settings

| Typematic Settings | Setting | Description | Note |
|---|---|---|---|
| | | | |
| **Typematic Rate Setting** | Disabled | | Default |
| | Enabled | Enables to adjust the keystroke repeat rate. | |
| The following [Typematic Rate] and [Typematic Delay] fields are active only if [Typematic Rate Setting] is set to [Enabled] | | | |
| | | | |
| **Typematic Rate (Chars/Sec)** | 6 (Char/sec) 8 (Char/sec) 10 (Char/sec) 12 (Char/sec) 15 (Char/sec) 20 (Char/sec) 24 (Char/sec) 30 (Char/sec) | Choose the rate at which a character is repeated when holding down a key. | Default |
| | | | |
| **Typematic Delay (Msec)** | 250 (msec) 500 (msec) 750 (msec) 1000 (msec) | Choose how long after you press a key down the character begins repeating. | Default |

### 3-2.5 Other Control Options

| Other Control Options | Setting | Description | Note |
|---|---|---|---|
| | | | |
| **Security Option** | Setup | Use this feature to prevent Unauthorized system boot-up or use of BIOS Setup. "Setup", If a password is set, the password prompt only appears if you attempt to enter the Setup program. | Default |
| | System | Each time the system is booted the password prompt appears. | |
| | | | |
| **PCI/VGA Palette Snoop** | Disabled | | Default |
| | Enabled | | |
| | The color of the monitor may be altered when using an MPEG card. Enable this option to restore the monitor's normal color. | | |
| | | | |
| **Assign IRQ For VGA** | Disabled | | |
| | **Enabled** | | Default |
| | | | |
| **OS Select for DRAM>64MB** | OS2 | When using an OS2 operating system. | |
| | Non-OS2 | When using another, non-OS2 operating system. | Default |
| | | | |
| **HDD S.M.A.R.T. capability** | Disabled | | Default |
| | **Enabled** | | |
| | | | |
| **Report No FDD For WIN 95** | No | Windows will reserve INT 6 for your FDD, whether it is Disabled or not. | Default |
| | Yes | Windows will release IRQ line 6 (normally used by the Floppy Disk Drive) after you disable you on-board FDD and set this field to [Yes]. | |

**Other Control Options (Continued)**

| Other Control Options | Setting | Description | Note |
|---|---|---|---|
| | | | |
| **Video or Adapter BIOS Shadow** | Disabled | | |
| | Enabled | | Default |
| | The BIOS is shadowed in a 16K segment if it is enabled and if it has BIOS present. These 16 segments can be shadowed from ROM to RAM. BIOS shadow copies BIOS code from slower ROM to faster RAM. BIOS can then execute from RAM. | | |

## 3-3  CHIPSET FEATURES SETUP

🛑 *Caution:* Change these settings only if you are already familiar with the Chipset.

The [CHIPSET FEATURES SETUP] option changes the values of the chipset registers. These registers control the system options in the computer.

| ROM PCI/ISA BIOS |
| :---: |
| CHIPSET FEATURES SETUP |
| AWARD SOFTWARE, INC. |

| | | |
| --- | --- | --- |
| Auto Configuration | : Enabled | |
| Ref/Act Command Delay | : 6T | |
| Refresh Queue Depth | : 12 | |
| RAS Precharge Time | : 3T | |
| RAS to CAS Delay | : 3T | |
| | | |
| Linear Mode SRAM Support | :Disable | |
| ECC Function Support | : Enabled | |
| AGP Aperture Size | : 64MB | |
| System BIOS Cacheable | : Enabled | |
| Video BIOS Cacheable | : Enabled | |
| Memory Hole at 15M-16M | : Disabled | |
| | | |
| Spread Spectrum | : Disable | ESC : Quit          ↑↓→← : Select Item |
| | | F1   : Help          PU/PD/+/- : Modify |
| | | F5   : Old Values  (Shift) F2   : Color |
| | | F6   : Load BIOS Defaults |
| | | F7   : Load Setup Defaults |

After you have completed the changes, press [Esc] and follow the instructions on your screen to save your settings or exit without saving.

The following table describes each field in the CHIPSET FEATURES SETUP Menu and how to configure each parameter.

### CHIPSET FEATURES SETUP

| CHIPSET FEATURES | Setting | Description | Note |
|---|---|---|---|
| | | | |
| **Auto Configuration** | Disabled | | |
| | Enabled | It is strongly recommended to enable this option so that the system automatically sets all chipset feature options on the left panel of the screen (except for cache update & BIOS cacheable). | Default |
| | | | |
| The following fields are READ-ONLY if [Auto Configuration] is set to [Enabled] | | | |
| | | | |
| **Ref/Act Command Delay** | 6T<br>5T,7T, 8T | Set the DRAM clock of the refresh command to refresh/active command delay. | Default |
| | | | |
| **Refresh Queue Depth** | 12<br>0, 4, 8, | Set the depth of refresh queue. | Default |
| | | | |
| **RAS Precharge Time** | 3T<br>2T, 4T, 5T | The precharge time is the number of cycles it takes for the RAS to accumulate its charge before DRAM refreshes. If insufficient time is allowed, refresh may be incomplete and the DRAM may fail to retain data. | Default |
| | | | |
| **RAS to CAS Delay** | 3T<br>2T,4T,5T | 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). | Default |

**CHIPSET FEATURES SETUP (Continued)**

| CHIPSET FEATURES | Setting | Description | Note |
|---|---|---|---|
| | | | |
| **Linear Mode SRAM Support** | Disable | Select *Enabled* if your system contains a CPU that requires linear mode (e.g., Cyrix M1/M2 CPU). | Default |
| | Enable | | |
| | | | |
| **ECC Function Support** | Disabled | Enable/Disable the ECC (error-correcting code) function support. | |
| | Enabled | | Default |
| | | | |
| **AGP Aperture Size** | 64MB 4 MB, 8MB, 16 MB, 32 MB, 128 MB, 256 MB | 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. | Default |
| | | | |
| **System BIOS Cacheable** | Disabled | | |
| | Enabled | The ROM area F0000H-FFFFFH is cacheable. | Default |
| | | | |
| **Video BIOS Cacheable** | Disabled | | |
| | Enabled | The video BIOS C0000H-C7FFFH is cacheable. | Default |

**CHIPSET FEATURES SETUP (Continued)**

| CHIPSET FEATURES | Setting | Description | Note |
|---|---|---|---|
| | | | |
| **Memory Hole At 15M-16M** | Disabled | | Default |
| | Enabled | Some interface cards will map their ROM address to this area. If this occurs, select [Enabled] in this field. | |
| | 0.5-8 MB | | |
| **Spread Spectrum** | Disabled | | Default |
| | 0.25%(Cntr) | When using Spread Spectrum 0.25%(Cntr) for FCC or DOC testing. | |
| | 0.50%(Down) | When using Spread Spectrum 0.50%(Down) for FCC or DOC testing. | |

## 3-4  POWER MANAGEMENT SETUP

The [POWER MANAGEMENT SETUP] sets the system's power saving functions.

```
                      ROM PCI/ISA BIOS
                  POWER MANAGEMENT SETUP
                    AWARD SOFTWARE, INC.
ACPI function          : Enabled   VGA Activity            : Enabled
Power Management       : User Define   IRQ [2-7,9-15], NMI     : Enabled
Video Off Option       : Susp, Stby  -> Off   IRQ 8 Break Suspend     : Disabled
Video Off Method       : V/H SYNC+Blank   Power Button Over Ride  : Instant-Off
Switch Function        : Break/Wake   Power ON by Ring        : Enabled
Doze Speed (div by)    : 2/8
Stadby Speed (div by)  : 1/8   KB Power ON Password : Enter
MODEM Use IRQ          : 9   power up by Alarm       : Disabled
Hot Key Function AS    : Power Off

   ** PM Timers **
HDD Off After          : Disabled
Doze Mode              : Disabled
Standby Mode           : Disabled
 Suspend Mode          : Disabled
   ** PM Events **                     ESC  : Quit        ↑↓→←  : Select Item
 HDD Ports Activity     : Enabled       F1    : Help         PU/PD/+/- : Modify
 COM Ports Activity     : Enabled       F5    : Old Values  (Shift) F2   : Color
 LPT Ports Activity     : Enabled       F6    : Load BIOS Defaults

                                        F7    : Load Setup Defaults
```

After you have completed the Power Management Setup, press [Esc] to return to the Main Menu.

### 3-4.1 Power Management Controls

| Power Management Controls | Setting | Description | | Note |
|---|---|---|---|---|
| | | | | |
| **ACPI function** | Disabled | | | Default |
| | Enabled | Enabled if you use Windows 98 and want to use ACPI | | |
| | | | | |
| **Power Management** | User Define | Lets you define the HDD and system power down times. | | |
| | | Doze timer | Standby timer | Suspend timer |
| | Min Saving | 40 Min | 40 Min | 40 Min |
| | Max Saving | 20 Sec | 20 Sec | 20 Sec |
| | | | | |
| **Video Off Option** | Suspend ->Off | The monitor will be switched off in suspend mode, | | Default |
| | All Modes ->Off | the monitor will be switched off in all power saving modes | | |
| | Always On | | | |
| | | | | |
| **Video Off Method** | V/H SYNC+Blank | Selects the method by which the monitor is blanked. | | Default |
| | Blank screen DPMS Supported | | | |
| | | | | |
| **Switch Function** | Break/Wake | 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. | | Default |
| | Deturbo, Break, Disabled | | | |
| | | | | |
| **Doze Speed (div by)** | 2/8 | Sets the CPU's speed during Doze mode. The speed is reduced to a fraction of the CPU's normal speed. | | Default |
| | 1~8 | | | |

**Power Management Controls (Continued)**

| Power Management Controls | Setting | Description | Note |
|---|---|---|---|
| | | | |
| **Stdby Speed (div by)** | 1/8 | 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. | Default |
| | 1~8 | | |
| | | | |
| **Modem Use IRQ** | 3 | Assigns an IRQ# to the modem device. | Default |
| | 3-11, NA | | |
| | | | |
| **Hot Key Function As** | Power Off | Enables to power off the system by pressing the appropriate hot-key combination: | Default |
| | Disabled Suspend | **Ctrl** + **Alt** + ←(**BackSpace**) | |

### 3-4.2  PM Timers

| PM Timers | Setting | Description | Note |
|---|---|---|---|
| | | | |
| The following [HDD Power Down] field may be configured only if [Power Management] is set to [User Define] | | | |
| | | | |
| **HDD Off After** | Disabled | 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 or Suspend. | Default |
| | 1-15Min | | Some older model HDDs may not support this advanced function. |
| The following [Doze Mode] field may be configured only if [Power Management] is set to [User Define] | | | |
| | | | |
| **Doze Mode** | Disable | | Default |
| | 10Sec 1Min-4Hour | When the set time has elapsed, BIOS sends a command to the system to enter Doze Mode. | System clock drops to 33MHz. |
| | | | |
| The following [Standby Mode] field may be configured only if [Power Management] is set to [User Define] | | | |
| **Standby Mode** | Disable | | Default |
| | 10Sec 1Min-4Hour | When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.) | |
| | | | |
| The following [Suspend Mode] field may be configured only if [Power Management] is set to [User Define] | | | |
| **Suspend Mode** | Disable | | Default |
| | 10Sec 1Min-4Hour | When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.) | |

### 3-4.3 PM Events

| PM Events | Setting | Description | Note |
|---|---|---|---|
| | | | |
| **HDD Ports Activity** | Disabled | | |
| | Enabled | When set to Enabled (default), any event occurring at a HDD (serial) port will awaken a system which has been powered down. | Default |
| | | | |
| **COM Ports Activity** | Disabled | | |
| | Enabled | When set to Enabled (default), any event occurring at a hard or floppy drive port will awaken a system which has been powered down. | Default |
| | | | |
| **LPT Ports Activity** | Disabled | | |
| | Enabled | When set to Enabled (default), any event occurring at a LPT (printer) port will awaken a system which has been powered down. | Default |
| | | | |
| **VGA Activity** | Disabled | | Default |
| | Enabled | When set to Enabled (default), any event occurring at VGA will awaken a system which has been powered down. | |
| | | | |
| *The 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.* When set Enabled, activity will neither prevent the system from going into a power management mode nor awaken it. | | | |
| **IRQ [3-7,9-15], NMI** | Disabled | | |
| | Enabled | | Default |

**PM Events (Continued)**

| PM Events | Setting | Description | Note |
|-----------|---------|-------------|------|
| | | | |
| **IRQ 8 Break Suspend** | Disabled | | Default |
| | Enabled | You can *Enable* or *Disable* monitoring of IRQ8 (the Real Time Clock) so it does not awaken the system from Suspend mode. | |
| | | | |
| **Power Button Over Ride** | Delay 4 Sec | You could press the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung." | |
| | Instant-Off | | Default |
| | | | |
| **Power ON by Ring** | Disabled | | |
| | Enabled | When you select *Enabled,* a signal from ring returns the system to Full On state. | Default |
| | | | |
| **KB Power ON Password** | Enter | When you set a password for keyboard, The password you set the keyboard that returns the system to Full On state. | Default |
| | | | |
| **Power Up by Alarm** | Disabled | | Default |
| | Enabled | When you select *Enabled,* the following fields appear. They let you set the alarm that returns the system to Full On state. | |

## 3-5  PNP/PCI CONFIGURATION SETUP

This option sets the Motherboard's PCI Slots.

| ROM PCI/ISA BIOS<br>PNP/PCI CONFIGURATION SETUP<br>AWARD SOFTWARE, INC. | |
|---|---|
| Resources Controlled By   : Manual<br>Reset Configuration Data   : Disabled | PCI IRQ Actived By        : Level<br>Assign IRQ For USB        : Enabled |
| IRQ-3   assigned to      : Legacy ISA<br>IRQ-4   assigned to      : Legacy ISA<br>IRQ-5   assigned to      : PCI/ISA PnP<br>IRQ-7   assigned to      : Legacy ISA<br>IRQ-9   assigned to      : PCI/ISA PnP<br>IRQ-10 assigned to      : PCI/ISA PnP<br>IRQ-11 assigned to      : PCI/ISA PnP<br>IRQ-12 assigned to      : PCI/ISA PnP<br>IRQ-14 assigned to      : Legacy ISA<br>IRQ-15 assigned to      : Legacy ISA<br>DMA-0 assigned to       : PCI/ISA PnP | Slot 1 Use IRQ No.   : Auto<br>Slot 2 Use IRQ No.   : Auto<br>Slot 3 Use IRQ No.   : Auto<br>Slot 4 Use IRQ No.   : Auto |
| DMA-1 assigned to       : PCI/ISA PnP<br>DMA-3 assigned to       : PCI/ISA PnP<br>DMA-5 assigned to       : PCI/ISA PnP<br>DMA-6 assigned to       : PCI/ISA PnP<br>DMA-7 assigned to       : PCI/ISA PnP | ESC  : Quit            ↑↓→← : Select Item<br>F1    : Help           PU/PD/+/- : Modify<br>F5    : Old Values    (Shift) F2  : Color<br>F6    : Load BIOS Defaults<br>F7    : Load Setup Defaults |

*Note:* Starred (*) items will disappear when the [Resources Controlled By] option is set to [Auto].

After you have completed the PCI Slot Configuration, press [Esc] and follow the instructions on your screen to save your settings or exit without saving.

### 3-5.1 PNP/PCI Configuration Controls

| PNP/PCI Controls | Setting | Description | Note |
|---|---|---|---|
| | | | |
| Resources Controlled By | Manual | BIOS does not manage PCI/ISA PnP card IRQ assignment. Requires to assign IRQ-# and DMA-# to PCI or ISA PnP manually. IRQ-3,4,5,7,9,10,11,12,14,15 assigned to: _ DMA-0,1,3,5,6,7 assigned to: _ | |
| | Auto | The Plug-and-Play BIOS auto manages PCI/ISA PnP card IRQ assignment automatically. | **Recommended** |
| | | | |
| Reset Configuration Data | Disabled | Retain PnP configuration data in BIOS. | Default |
| | Enabled | Reset PnP configuration data in BIOS. | |

### 3-5.2 PNP/PCI Configuration Setup

| PNP/PCI Setup | Setting | Description | Note |
|---|---|---|---|
| If [Resources Controlled By] is set to [Manual] | | | |
| IRQ-# and DMA-# assigned to: | PCI/ISA PnP | Choose IRQ-# and DMA-# assigned to PCI/ISA PnP card. | IRQ-3,4,5,7,9,10, 11,12,14,15 DMA-0,1,3,5,6,7 |
| | Legacy ISA | Choose IRQ-# and DMA-# assigned to Legacy ISA card. | IRQ-3,4,5,7,9,10, 11,12,14,15 DMA-0,1,3,5,6,7 |
| | | | |
| PCI IRQ Actived No. | Level | This sets the method by which the PCI bus recognizes that an IRQ service is being requested by a device. | Default |
| | Edge | | |
| | | | |
| Assign IRQ For USB | Disabled | | |
| | Enabled | Enable RSB IRQ | Default |

### 3-5.3 PNP/PCI Configuration Setup

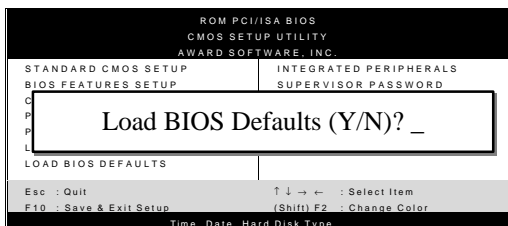| PNP/PCI Setup | Setting | Description | Note |
|---|---|---|---|
| Under this item the user can assign an IRQ to a PCI slot. However, there under some conditions the IRQ will not be assigned as selected under this item:<br>1. IRQs 0, 1, 2, 6, 8, 13 can NOT be assigned, because they are fixed.<br>2. IRQs 5, 9, 10, 11 are available<br>3. IRQs 3,4,7,12,14 and 15 will only be assigned if they are free. See the   table below on how to free them: | | | |
| Interrupt | How to set the BIOS to release the IRQ to the PnP Interrupt pool: | | |
| Line | PnP / PCI configuration | Integrated Peripherals | |
| IRQ 15 | IRQ 15:   **PCI / ISA PnP** | On-Chip Secondary PCI IDE:   **disabled** | |
| IRQ 14 | IRQ 14:   **PCI / ISA PnP** | On-Chip Primary PCI IDE:   **disabled** | |
| IRQ 12 | IRQ 12:   **PCI / ISA PnP** | *Interrupt 12 will be released by the PnP BIOS automatically if the PS/2 Mouse Port is not used.* | |
| IRQ 7 | IRQ 7:   **PCI / ISA PnP** | Onboard parallel port:   **disabled** | |
| IRQ 4 | IRQ 4:   **PCI / ISA PnP** | Onboard Serial port 1:   **disabled** | |
| IRQ 3 | IRQ 3:   **PCI / ISA PnP** | Onboard Serial port 2:   **disabled** | |
| 4. Your OS may reassign another interrupt to a PCI slot after BIOS passes   control to the OS, especially if you use Windows 95, 98 or NT. | | | |
| **Slot 1/2/3/4 Use IRQ NO.** | Auto | | Default |

## 3-6  LOAD SETUP DEFAULTS

Select the [LOAD SETUP DEFAULTS] option from the Main Menu to load the system values you have previously saved. This option is recommended if you need to reset the system setup and to retrieve the old values.
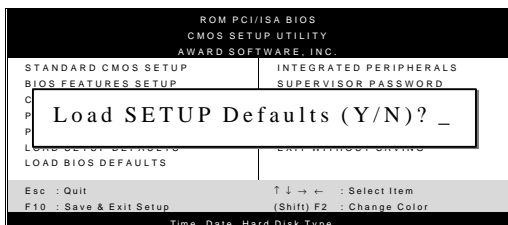
```
                    ROM PCI/ISA BIOS
                   CMOS SETUP UTILITY
                  AWARD SOFTWARE, INC.
 STANDARD CMOS SETUP              INTEGRATED PERIPHERALS
 BIOS FEATURES SETUP              SUPERVISOR PASSWORD
 C
 P    Load SETUP Defaults (Y/N)? _
 P
 LOAD SETUP DEFAULTS              EXIT WITHOUT SAVING
 LOAD BIOS DEFAULTS

 Esc  : Quit                      ↑ ↓ → ←   : Select Item
 F10  : Save & Exit Setup         (Shift) F2  : Change Color
               Time, Date, Hard Disk Type...
```

Type [Y] to use the Setup Defaults followed by [Enter] or otherwise [N] to return to the Main Menu and keep current values.

## 3-7  LOAD BIOS DEFAULTS

Select the [LOAD BIOS DEFAULTS] option from the Main Menu to load the system default values. BIOS Defaults values are adjusted to yield high performance.

```
                    ROM PCI/ISA BIOS
                   CMOS SETUP UTILITY
                  AWARD SOFTWARE, INC.
 STANDARD CMOS SETUP              INTEGRATED PERIPHERALS
 BIOS FEATURES SETUP              SUPERVISOR PASSWORD
 C
 P    Load BIOS Defaults (Y/N)? _
 P
 L
 LOAD BIOS DEFAULTS

 Esc  : Quit                      ↑ ↓ → ←   : Select Item
 F10  : Save & Exit Setup         (Shift) F2  : Change Color
               Time, Date, Hard Disk Type...
```

Type [Y] to use the Setup Defaults followed by [Enter] or otherwise [N] to return to the Main Menu and keep current values.

**STOP**

*Warning:* If you run into any problems after loading BIOS DEFAULTS, please load the SETUP DEFAULTS for stable performance.

## 3-8 INTEGRATED PERIPHERALS



*Caution:* Change these settings only if you are already familiar with the Chipset.

The [INTEGRATED PERIPHERALS] option changes the values of the chipset registers. These registers control the system options in the computer.

The following screen shows default settings.

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

| | | | |
|---|---|---|---|
| Internal PCI/IDE | : Both | Onboard Parallel Port | : 378 |
| IDE Primary Master PIO | : Auto | Parallel Port Mode | : SPP |
| IDE Primary Slave PIO | : Auto | | |
| IDE Secondary Master PIO | : Auto | | |
| IDE Secondary Slave PIO | : Auto | PS/2 mouse function | : Enabled |
| Primary Master UDMA | : Auto | USB Controller | : Enabled |
| Primary Slave UDMA | : Auto | USB Keyboard Support | : Disabled |
| Secondary Master UDMA | : Auto | | |
| Secondary Slave UDMA | : Auto | Init Display First | : PCI Slot |
| IDE Burst Mode | : Enabled | VGA Shared Memory Size | : 2 MB |
| IDE Data Port Post Write | : Disabled | Current CPU Temperature | : 28 ½ C / 82 ½ F |
| IDE HDD Block Mode | : Enabled | Current FAN1 Speed | : 0 RPM |
| | | Current FAN2 Speed | : 0 RPM |
| Onboard FDC Controller | : Enabled | +12 (V) : 0 V +5(v) : 0 V |
| Onboard Serial Port 1 | : 3F8/IRQ4 | 3.3 (V) : 0 V vco(v) : 0 V |
| Onboard Serial Port 2 | : 2F8/IRQ3 | | |
| IR Address Select | : Disabled | ESC : Quit ↑↓→← : Select Item |
| | | F1 : Help PU/PD/+/- : Modify |
| | | F5 : Old Values (Shift) F2 : Color |
| | | F6 : Load BIOS Defaults |
| | | F7 : Load Setup Defaults |

The following tables describe each field in the INTEGRATED PERIPHERALS Menu and provide instructions on how to configure the IDE controls, FDC controls, and the onboard serial and parallel ports.

### 3-8.1 IDE Device Controls

| IDE Controls | Setting | Description | Note |
|---|---|---|---|
| **Internal PCI/IDE** | Both | Selects which PCI IDE controller to use. | Default |
| | Disabled | | |
| | Primary | | |
| | Secondary | | |
| The following fields may be configured only if [Internal PCI/IDE] is set to [Both], [Primary], or [Secondary]. | | | |
| **IDE**<br>➢ **Primary Master PIO**<br>➢ **Primary Slave PIO**<br>➢ **Secondary Master PIO**<br>➢ **Secondary Slave PIO** | Mode 0-4 | 0 is the slowest speed 4 is the fastest speed | |
| | Auto | For better performance and stability, we suggest you use the Auto setting to set the HDD control timing. | Default |
| ➢**Primary Master UltraDMA**<br>➢**Primary Slave UltraDMA**<br>➢**Secondary Master U-DMA**<br>➢**Secondary Slave U-DMA** | Disabled | | |
| | Auto | Select Auto to enable Ultra DMA Mode support. | Default |
| The following field may be configured only if [Internal PCI/IDE] is set to [Both], [Primary], or [Secondary]. | | | |
| **IDE Burst Mode** | Disabled | | |
| | Enabled | Select this option if your hard disk support this function. | Default |
| **IDE Data Port Post Write** | Disabled | | |
| | Enabled | Select this option if your hard disk support this function. | Default |
| **IDE HDD Block Mode** | Disabled | | |
| | Enabled | Invokes multi-sector transfer instead of one sector per transfer. Not all HDDs support this function. | Default |

### 3-8.2  FDC Controls

| FDC Controls | Setting | Description | Note |
|---|---|---|---|
| **Onboard FDC controller** | Disabled | Turn off the on-board floppy controller | |
| | Enabled | Use the on-board floppy controller | Default |

### 3-8.3  Onboard Serial Ports

| Onboard Serial Ports | Setting | Description | Note |
|---|---|---|---|
| **Onboard Serial Port 1** **Onboard Serial Port 2** | Disabled | | |
| | 3F8/IRQ4 | Choose serial port 1 & 2's I/O address. | Default (port 1) |
| | 2F8/IRQ3 | Do not set port 1 & 2 to the same address except for Disabled or Auto. | Default (port 2) |
| | 3E8/IRQ4 | | |
| | 2E8/IRQ3 | | |
| | Auto | | |

### 3-8.4  IR Address

| IR Address | Setting | Description | Note |
|---|---|---|---|
| **IR Address Select** | Disabled | | Default |
| | 3F8H, 2F8H, 3E8H, 2E8H | Select IR address. | |

### 3-8.5  Onboard Parallel Ports

| Onboard Parallel Ports | Setting | Description | Note |
|---|---|---|---|
| **Onboard Parallel Port** | 378 | Choose the printer I/O address. | Default |
| | Disabled | | |
| | 3BC | | |
| | 278 | | |

### 3-8.6 Parallel Ports

| Parallel Ports | Setting | Description | Note |
|---|---|---|---|
| **Parallel Port Mode** | ECP + EPP | The mode depends on your external device that connects to this port. | |
| | Normal | | Default |
| | EPP | | |
| | ECP | | |

### 3-8.7 PS/2 mouse Controls

| PS/2 mouse Controls | Setting | Description | Note |
|---|---|---|---|
| **PS/2 mouse function** | Disabled | If your system has a PS/2 mouse port and you install a serial pointing device, select *Disabled.* | |
| | Enabled | | Default |

### 3-8.8 USB Controls

| USB Controls | Setting | Description | Note |
|---|---|---|---|
| **USB Controller** | Disabled | | |
| | Enabled | Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals. | Default |
| **USB Keyboard Support** | Disabled | | Default |
| | Enabled | Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard. | |

### 3-8.9 Init Display Controls

| Init Display Controls | Setting | Description | Note |
|---|---|---|---|
| **Init Display First** | PCI Slot | Choose which card – AGP Display card or PCI VGA card – to initialize first. | Default |

### 3-8.10  VGA Shared Control Setting

| VGA Shared Control Setting | Setting | Description | Note |
|---|---|---|---|
| **VGA Shared Memory Size** | 2 MB 4-8 MB None | VGA memory size shared with system memory. | Default |

### 3-8.11CPU Device Monitoring

| CPU Device Monitoring | Setting | Description | Note |
|---|---|---|---|
| | | | |
| **Current CPU/System Temperature** | °C/°F | Show the current status of CPU temperature. | |
| | | | |
| **Current FAN1/ FAN2 Speed** | 1/2 RPM | These fields display the *current* speed of up to two fans, if your computer contains a monitoring system. | |
| | | | |
| **+12V,3.3V, +5V,Vcore** | V | These fields display the *current* voltage of up to seven voltage input lines, if your computer contains a monitoring system. | |

## 3-9   SUPERVISOR PASSWORD

Based on the setting you have made in the [Security Option] of the [BIOS FEATURES SETUP] section, the password prevents access to the system or the setup program by unauthorized users. Follow this procedure to set a new password or disable the password:

1.   Choose [BIOS FEATURES SETUP] in the Main Menu and press [Enter]. Select the [Security Options] item and set the field to:
    a.   [System]: The password is required every time the system is booted. This means only a person who knows the password can use this computer.
    b.   [Setup]: The password is required only when you attempt to enter the BIOS Setup program.

2.   Choose [SUPERVISOR PASSWORD] from the Main Menu and press [Enter]. The following prompt appear:

> Enter Password:

*Warning:* If you forget or lose the password, the only way to access the system is to set jumper JP5 to clear the CMOS RAM. All setup information is lost and you must run the BIOS setup program again.

*Note:* If you do not wish to use the password function, press [Enter] directly and the following message appears:
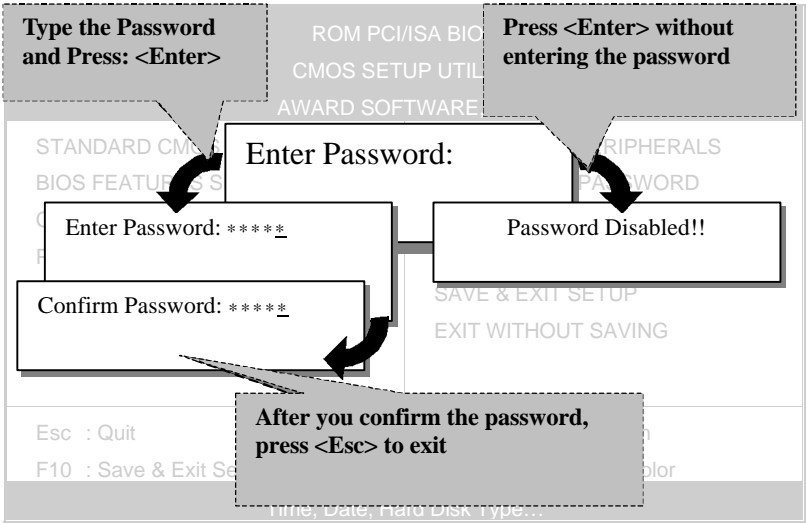
> Password Disabled!!

3.    Enter your new password and press [Enter]. The following
       message appears, prompting to confirm the new password:

> Confirm Password:

4.    Re-enter your password and then press [Enter] to exit to the
       Main Menu.

This diagram outlines the password selection procedure:



## 3-10  USER PASSWORD

When the user password option is on, you are not allowed to change
any setting in the [CMOS SETUP UTILITY] except for changing the
user's password.

The password setting procedure is similar to that for the
[SUPERVISOR PASSWORD] (Refer to section 3-9).

## 3-11  IDE HDD AUTO DETECTION

This Main Menu function automatically detects the hard disk type
and configures the STANDARD CMOS SETUP accordingly.

**ROM PCI/ISA BIOS**
**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

| OPTIONS | SIZE | CYLS | HEAD | PRECOMP | LANDZ | SECTOR | MODE |
|---|---|---|---|---|---|---|---|
| 2(Y) | 1707 | 827 | 64 | 0 | 3308 | 63 | LBA |
| 1 | 1707 | 3309 | 16 | 65535 | 3308 | 63 | NORMAL |
| 3 | 1707 | 827 | 64 | 65535 | 3308 | 63 | LARGE |

Note: Some Oses( SCO-UNIX Before v5.0) must use "NORMAL" for installation

ESC : Skip

*Note:* This function is only valid for IDE type of hard disk drives.

# Chapter 4

# **DRIVERS INSTALLATION**

Your SY-5SSM Super 7 ™Motherboard comes with a CD-ROM labeled "SOYO CD." The SOYO CD contains the user's manual file for your new Motherboard, the drivers software available for installation, and a database in HTML format with information on SOYO Motherboards and other products.

***Step 1.*** Insert the SOYO CD into the CD-ROM drive

The SOYO CD will auto-run, and the SOYO CD Start Up Menu will display as shown below.
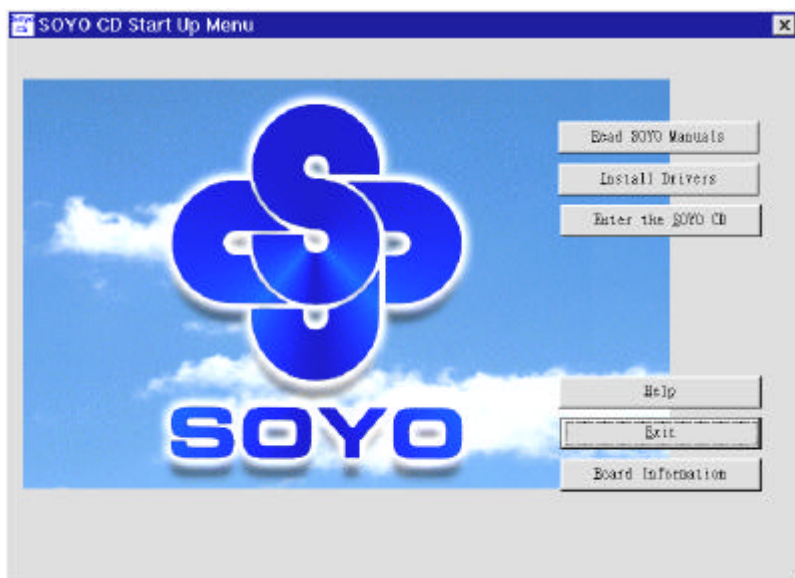


**(SOYO CD Start Up Program Menu)**

The SOYO CD Start Up Program automatically detects which SOYO Motherboard you own and displays the corresponding model name.

***Step 2.***  Install Drivers and Utilities

Click the Install Drivers button to display the list of drivers software that can be installed with your Motherboard. The Start Up program displays the drivers available for the particular model of Motherboard you own.
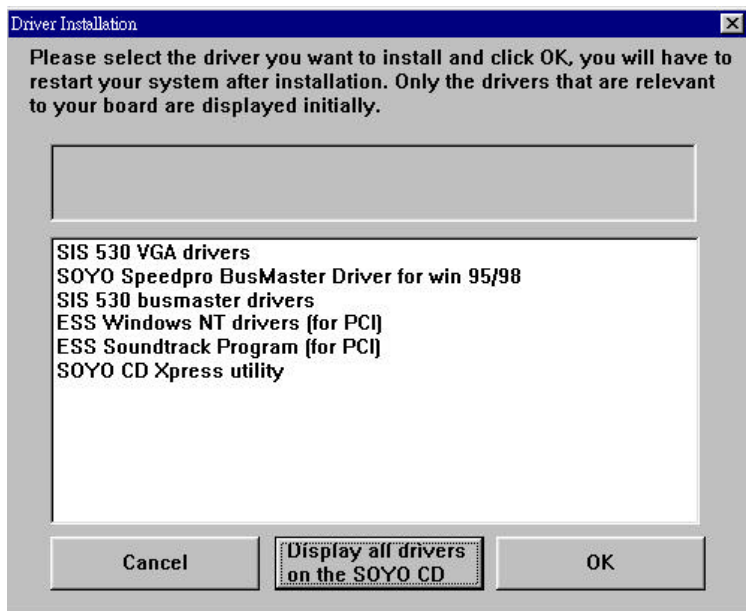


**(Driver Installation Menu)**

We recommend that you only install those drivers. A short description of all available drivers follows:

➢ **SiS 530 VGA drivers**
The SiS VGA driver for windows 95/98 must be installed to make use of your on board VGA function. (For WinNT read the instructions in back of the Manual)

➢ **SOYO SpeedPro BusMaster Driver for Windows 95/98**
Without the busmaster drivers the CPU will need to be involved every time data is read from or written to the Harddisk. The busmaster drivers make use of DMA (Direct Memory Access) to relieve the CPU of this burden, thus speeding up the system. The SOYO SpeedPro driver makes use of an advanced caching algorithm, which gives it an advantage over other busmaster drivers.

> *Note: If you install the SOYO SpeedPro busmaster drivers,*
> *you can NOT install the SiS busmaster drivers.*

## ➤ **SiS 530 busmaster drivers**
The SiS Busmaster drivers for Windows 95/98 will speed up your harddisk. Only install ONE type of busmaster driver and first uninstall your previous busmaster drivers before installing a new version. (For Windows NT read the instructions in the back of the Manual)

## ➤ **ESS Windows NT drivers (for PCI)**
These are the Windows NT drivers for the on board soundchip. Make sure to first install these drivers before installing the ESS Soundtrack Program. For the Windows 95/98 ESS drivers please read the installation steps in the back of this manual.

## ➤ **ESS Soundtrack Program (for PCI)**
With this application program the user can make use of the on board sound chip. Before installing the ESS Soundtrack Program, you MUST first install the ESS drivers for Windows 9x or NT.

## ➤ **SOYO CD Xpress utility**
This utility will enhance your CD-ROM Drive data-thoughput by

using space on the Harddisk as cache. This way application

programs can access data faster. This utility is suitable for Windows

95/98.

Select which driver you want to install and click *OK,* or click *Cancel* to return to the main menu. When the installation program of a driver starts running the SOYO-CD will exit. After finishing the installation, restart the SOYO-CD and install the next driver.

*Note: Once you have selected a driver, the system will automatically exit the SOYO CD to begin the driver installation program. When the installation is complete, most drivers require to restart your system before they can become active.*

If you want to see all the drivers available on the SOYO –CD, click

the Display all drivers on the SOYO CD button. Do NOT install

drivers that are not suitable for your board, otherwise your system

may crash.

***Step 3.*** Enter the SOYO CD

Click the ***Enter SOYO CD*** button to enter the SOYO HTML database. The Start Up program will activate the default HTML browser installed on your system (for example, Internet Explorer or Netscape) to visualize the contents of the SOYO CD.

The SOYO CD contains useful information about your Motherboard and other SOYO products available in as many as eleven different languages. For your convenience, this information is available in HTML format, similar to the format widely used on the Internet.



**(SOYO CD HTML Database in English\*)**

(\* The list of menu options may vary between languages)

***Note:*** If no HTML browser is installed on your system, the Start Up program will prompt you on whether or not you would like to install the Internet Explorer\* browser. Click YES to install the HTML browser. After the installation is complete, please restart your system. Then re-run the SOYO CD and you will be able to browse the SOYO HTML database.

*(\* Internet Explorer is a Microsoft Trademark)*

# Chapter 5

# **Onboard VGA and Audio**

## **5-1  Onboard VGA**

This Motherboard offers an onboard Video Graphics Accelerator (VGA), provided by the SiS530 chipset and related application programs.

*Note:* Please refer to Chapter 5 - *SiS VGA Driver Installation* for a detailed procedure on how to install the video driver depending on the particular environment ( Win NT 4.0, Win 95/98) installed on your system.

### **Features**

- Shared system memory area: 2MB to 8MB
- Support 32-bit AGP 1.0 bus standard
- Built-in 64-bit BITBLT graphics engine
- Built-in programmable 24-bit true-color RAMDAC
- Support SGRAM/SDRAM
- Support the super high resolution graphics modes:
  - ◆ 640x480 4/8/16/32 bpp @85Hz NI
  - ◆ 800x600 8/16/32 bpp @ 85Hz NI
  - ◆ 1024x768 8/16/32 bpp @ 85Hz NI
  - ◆ 1280x1024 8/16/32 bpp @ 85 Hz NI (32-bpp mode for local frame buffer only)
  - ◆ 1600x1200 8/16 bpp @ 256 colors 85Hz NI (16-bpp mode for local frame buffer only)
  - ◆ Supports virtual screen up to 2048x2048
  - ◆ Supports 80/132 columns text modes

**Video Functions**

● Support single frame buffer architecture to save the DRAM cost

● Support graphics/video overlay function by color-key and/or chroma-key operations

● Support multi-format Video For windows such as YUV420, YUV422, RGB565, and RGB555

● Support YUV-to-RGB color space conversion

● Support Microsoft Video For Windows

● Support DCI Drivers

● Support Direct Draw Drivers

● Support Direct MPEG Drivers

**Connecting to the VGA Port**

To connect your computer screen, attach one end of the video cable supplied with your VGA monitor to the corresponding port at the back of the monitor and plug the other end into the 15-pin VGA port at the back panel of the Motherboard.
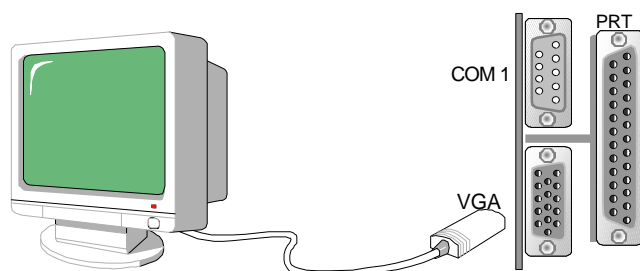
## 5-2  Onboard Joystick Port

A joystick, in computer graphics, is a lever with at least two degrees of freedom used as an input device. The joystick is normally used as a locator in at least a 2-D plane.

The joystick device is most widely used in video games applications. Attach the joystick cable to the 15-pin JOYSTICK port at the rear panel of your Motherboard.

## 5-3  Onboard Audio

This Motherboard features three built-in audio-stereo ports (labeled line-in, line-out, and mic jack) convenient to directly plug-in all your external audio devices. Your SY-5SSM Motherboard is making use of the ES1938 sound chipset technology and applications programs.

*Note:* Please refer to *Chapter 7- ES1938 Audio Driver Installation* for a detailed procedure on how to install the audio driver depending on the particular environment (DOS, Win NT 4.0, Win 9x, Win 3.1) installed on your system.

### Features

 Single, high performance, mixed-signal, 16-bit stereo VLSI chip
 PCI bus specification, revision 2.1
 Full native DOS games compatibility, via three technologies:
    TDMA
    DDMA
    PC/PCI
 High-Quality ESFM music synthesizer
 Dynamic range (SNR) over 80 dB
 Integrated Spatializer ® 3-D audio effects processor

**Software Support**

- ● Windows 3.1
- ● Windows 95/98
- ● Windows NT 4.0
- ● Windows Sound System
- ● All DOS-based Games

**Compatibility**

- ● Sound Blaster ™
- ● Sound Blaster Pro ™
- ● Sound Blaster 16 ™Emulation
- ● Windows Sound System ™

**Connecting your Audio Devices**

You can connect audio devices to the following ports:

- headphones or pre-amplified speakers to the "line-out" port;
- a line-in device such as CD/Cassette player to the "line-in" port;
- a microphone to the "mic" port.
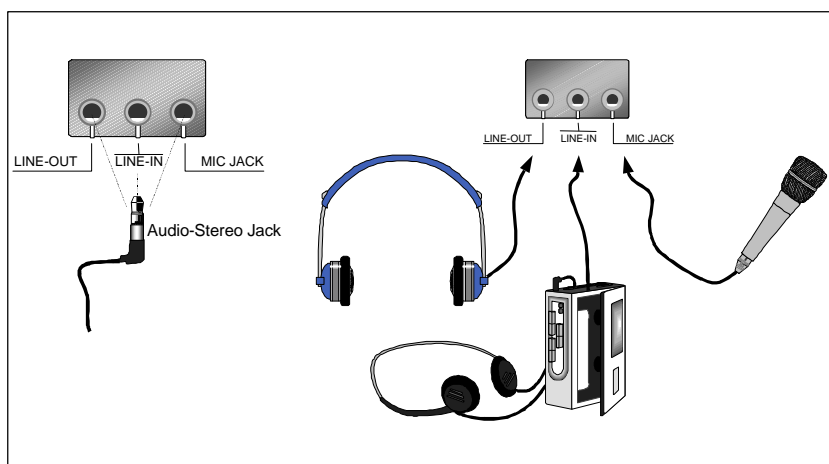
**Connecting Speakers**

You can connect external speakers to the "Line-out" port on your SY-5SSM Motherboard.



*(Amplified Speakers)*
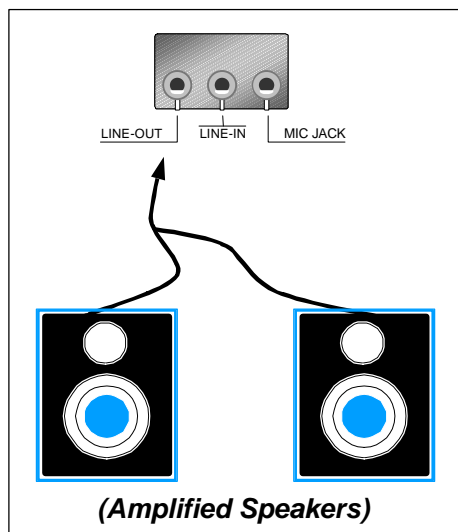
*Note:* This Motherboard requires a speaker with **built-in amplifier (Amplified Speaker)** to generate proper output sound volume.

**Using the ESS Audio Driver**

To access the ESS ™Sound Mixer audio driver controls, follow these steps:

1. Open the Windows 95/98 **[Start]** menu.

2. Select **[Programs], [Accessories],** and **[Multimedia]** path.

3. Find and click the **[Volume Control]** option to run the application.

The audio control panel appears as shown in the following figure. The audio mixer gives control of the sound inputs of all audio devices. You can adjust the internal volume and balance of each individual audio device. Also, this audio mixer lets you apply ave sound effects.

> *Important:* The **[Playback]** volume controls the master output sound volume of your system. Depending on the speaker you use you will need to adjust both the volume control on the speaker itself and the audio volume control menu under Windows 95/98 to get the proper sound output.
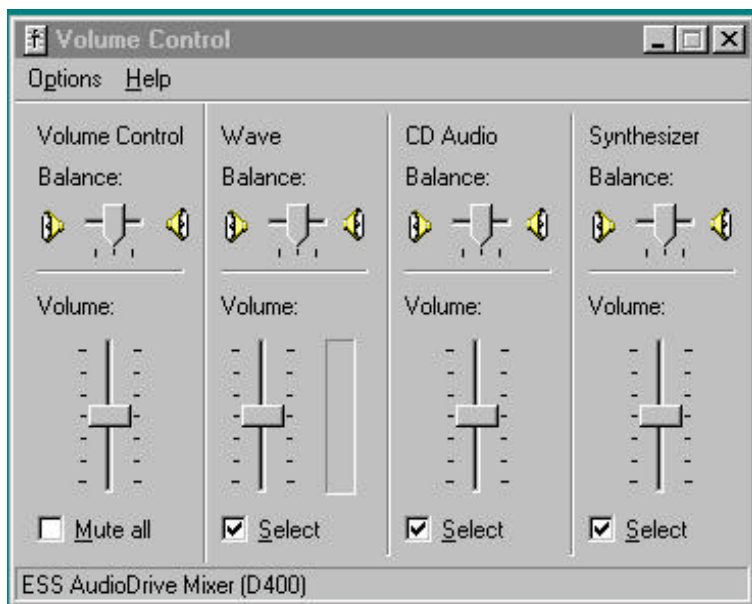
# Chapter 6

# **SIS VGA DRIVER INSTALLATION**

## *Introduction*

Your SY-5SSM Motherboard is equipped with the SiS530 chipset that offers extended graphics and text modes capabilities. To make use the advanced features of the SiS530 chipset, you will need to install software drivers and application programs included on the CD-ROM.

This section describes how to perform the SiS VGA driver installation for **Microsoft Windows NT** environment. The Windows 95/98 drivers can be installed automatically through the SOYO CD. Refer to page 16. For other application programs, and if you are using an operating system other than WinNT, please refer to the *SiS VGA Driver Installation* section in *SY-5SSM Motherboard User's Guide and Technical Reference* online manual included on the CD-ROM.

## *Windows NT Drivers*

### *Driver Files*
The enclosed SiS 530 Windows NT drivers files are:

- ◆ **SiS530.INT**
- ◆ **SiS530P.SYS**
- ◆ **SiS530V.Dll**

All the 16-color, 256-color, 32K/64K-color, and 16M-color drivers are available.

### *Installation*
1.  Click [Start] menu and select [Control Pane] from Settings group.
2.  Select [Display] icon.

3.  Select [Settings] index in the display properties sheet.
4.  Select [Change Display Type] button.
5.  Select [Change ..] button in [Adapter Type] group.
6.  Select [Have Disk] button.
7.  Place CD-ROM disk into the CD drive.
8.  When the [Install from Disk] dialog box appears, type the directory storing the drivers and click [OK]. The directory in the CD-ROM is at
    **D:\DRIVER\SI530VGA\WINNT40.**
9.  The [Select Device] dialog box will appear, showing the driver. Click on [OK] and the driver will be installed.
10. Select [Close] or [Apply] button from display properties sheet.
11. A message will appear stating you must restart the Windows 95 system, select [Yes] to restart.
12. After restarting, Windows 95 will run on 640x480x256 color, 75NI.

## *Selecting Resolution, Color Depth and Refresh Rate*

1.  Click [Start] menu and select Control Panel from Settings group.
2.  Select Display icon.
3.  Select Settings.
4.  Select Color Palette to change between 16 colors, 256 colors, Hi color, and True color.
5.  To select desktop resolution size, go to the Desktop area and use the slide bar to change resolution from 640x480, 800x600, 1024x768, and 1280x1024.
6.  Select Display Modes.
7.  Select value in Refresh rate list box to change the screen refresh rate.
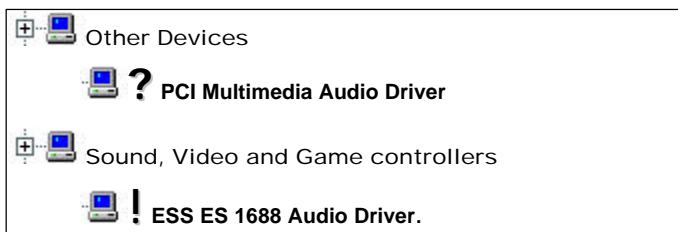8.  Click [OK] or [Apply].

Chapter 7

# ESS ™AUDIO DRIVER INSTALLATION

This section describes how to perform the ESS ™audio driver installation in **Windows® 95/98** environment. The Windows NT drivers can be installed automatically through the SOYO CD. Refer to page 16.

After first installing Windows® 95/98, follow these steps:

1. From the desktop, click [Start] menu and select [Control Panel] from [Settings] group.

2. Select the [System] icon.

3. Select the [Device Manager] tab; use the scroll bar to locate the following devices and, if these entries exist, remove them:

> ⊞ 🖳 Other Devices
>
> 　　🖳 ❓ **PCI Multimedia Audio Driver**
>
> ⊞ 🖳 Sound, Video and Game controllers
>
> 　　🖳 ❗ **ESS ES 1688 Audio Driver.**

   ***Note:*** To remove a device, highlight the item you want to take out from your system and press the [Remove] button.

4. Then, click [Refresh].

5. Insert the SOYO CD into the CD-ROM drive.

6. When the "Update Driver Wizard" appears, click [Next].

7. The installation wizard will prompt you on the location of the new audio driver you want to install. Click [Other Location].

8. Click the [Browse] button.

9. Select the "D:\DRIVERS\ESS-PCI\Win9x" path, and click [OK].

10. Now let Windows® 95/98 automatically copy the .inf driver files and configure the ESS sound chip.

This completes the Windows® 95/98 installation. The program will continue to load and when it is complete, you should hear the Windows® 95/98 start-up wave file.