

**SiS530**

**Pentium<sup>®</sup> processor  
Based AGPset MAIN BOARD**

*User's Manual*

# SiS530

## Pentium® processor based AGPset Mainboard Manual Version 1.0

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This equipment generates, uses and can radiate radio frequency energy. If not installed and used properly, in strict accordance with the manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help and for additional suggestions.

The user may find the following booklet prepared by the Federal Communications Commission helpful "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock 004-000-00345-4

## **CE Notice**

This device complies with the requirements of the EEC directive 89/336/EEC with regard to EMC (Electromagnetic Compatibility). Following standards are applied to this product, in order to achieve compliance with the EMC:

- Immunity is in accordance with EN 50082-1 (1992).
- Emissions are in accordance with EN 55022 (1987) Class B.

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# 1

## INTRODUCTION

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Congratulations on your purchase of the **SiS530** computer mainboard.

SiS530 is a high performance, cost effective, and energy efficient mainboard for the implementation of PCI, and ISA in desktop personal computer systems from 66MHz to 100MHz based on 64-bit Socket-7 super-scalar processors.

SiS530 mainboard is a highly integrated IBM PC/ATX compatible ATX form-factor system board designed to meet the industry's most demanding desktop applications. Based on the SiS530 chipset supports 3D AGP VGA chip and 3D PCI Audio chip.

SiS530 accept AMD K6-III, K6-2, K6, K5, Intel Pentium MMX, Pentium P54C, WinChip C6, WinChip 2, WinChip 2A and Cyrix M II, Cyrix/IBM 6x86MX, 6x86(L) processors and also features high-performance pipelined burst secondary cache memory support with size of 1024KB. The memory subsystem is designed supports standard SDRAM, and 100MHz SDRAM.

SiS530 provides a new level of I/O integration. SiS530 chipset provides increased integration and improved performance over other chipset designs.

The SiS530 chipset provides an integrated Bus Mastering IDE controller with two high performance Ultra 33/66 DMA IDE interfaces for up to four IDE devices.

The onboard I/O controller provides the standard PC I/O functions: floppy interface, two FIFO serial ports, an IrDA device port and a SPP/EPP/ECP capable parallel port.

Up to three PCI local bus slots provide a high bandwidth data path for data-movement intensive functions such as graphics, and up to one ISA slots complete the I/O function.

SiS530 provides the foundation for cost effective, high performance, highly expandable platforms, which deliver the latest in Pentium processor and I/O standard.

SiS530 Mainboard is carefully designed for the demanding PC user who wants high performance and many intelligent features in a compact package:

# 2

## FEATURES

### **Specification**

#### **Chipset**

Features SiS530 Chipset with I/O subsystems

#### **Main Processor**

AMD K6-III 400~450 MHz, K6-2 266~450 MHz, K6 166~300 MHz, K5 PR133~PR166, Intel Pentium MMX (P55C) 166~233 MHz, Pentium (P54C) 100~200 MHz, Cyrix M II 166~333, Cyrix/IBM 6x86MX PR200~PR333, 6x86(L) P166+~P200+, WinChip C6 200~225MHz, WinChip 2 200~266MHz, WinChip 2A 200~266MHz

#### **Secondary Cache**

Onboard 512KB or 1024KB Pipelined Burst Cache.

#### **Versatile Memory Supports**

Equipped with three DIMM sockets for (8, 16, 32, 64, 128 or 256 MB) 168-pin 66MHz or 100MHz PC SDRAM memory modules up to 768 MB.

#### **Expansion Slots**

Provides three 32-bit PCI slots, one 16-bit ISA slots.

#### **Onboard I/O Chip**

One Floppy port  
One PS/2 mouse and Keyboard connector  
Two high-speed UART compatible serial port  
Serial Port 2 can also be directed from COM2 to the Infrared Module for wireless connections  
One parallel port with ECP and EPP capabilities

#### **Onboard PCI Bus Master IDE Controller**

Two Ultra DMA/33 Bus Master IDE Ports supports four IDE devices up to 33 MB/sec IDE transfers and supports Enhanced PIO Modes 3 and 4 and Bus Master IDE DMA Mode 2 devices

#### **Built-in High Performance 3D AGP VGA**

Supports shared memory 2MB, 4MB or 8MB selectable in BIOS setup 64-bit data interface  
Integrated 24-bit true color RAMDAL up to 230MHz pixel clock  
Integrated high performance and quality 3D engine  
Integrated two 96 x 64 video line buffer for MPEG video playback

**Onboard Audio:**

YAMAHA PCI Audio Controller AC97 Codec provide:

True full duplex playback and capture with different sampling rate

Hardware Wavetable synthesizer including GM compatibility

Hardware Sound Blaster Pro compatible

**Onboard 20-pin ATX Power Supply**

ATX power supply unit can connect to the 20-pin ATX power connector onboard, supporting Suspend and soft-on/off by dual-function power button.

**Advanced Power Management**

Features three power savings modes: **Doze**, **Standby**, and **Suspend**.

Supports **ACPI (Advanced Configuration and Power Interface)** function.

ACPI provides more efficient Energy Saving Features controlled by your operating system that supports OS Direct Power Management (OSPM) functionality.

**System BIOS**

Provides licensed Award BIOS V4.51PG on 2MB Flash EEPROM.

Supports Green PC, Desktop Management Interface (DMI), PnP, ACPI, NCR SCSI BIOS and Virus Protection.

**Board Size:**

ATX form factor size 244mm x 205mm.

**Advanced Features:**

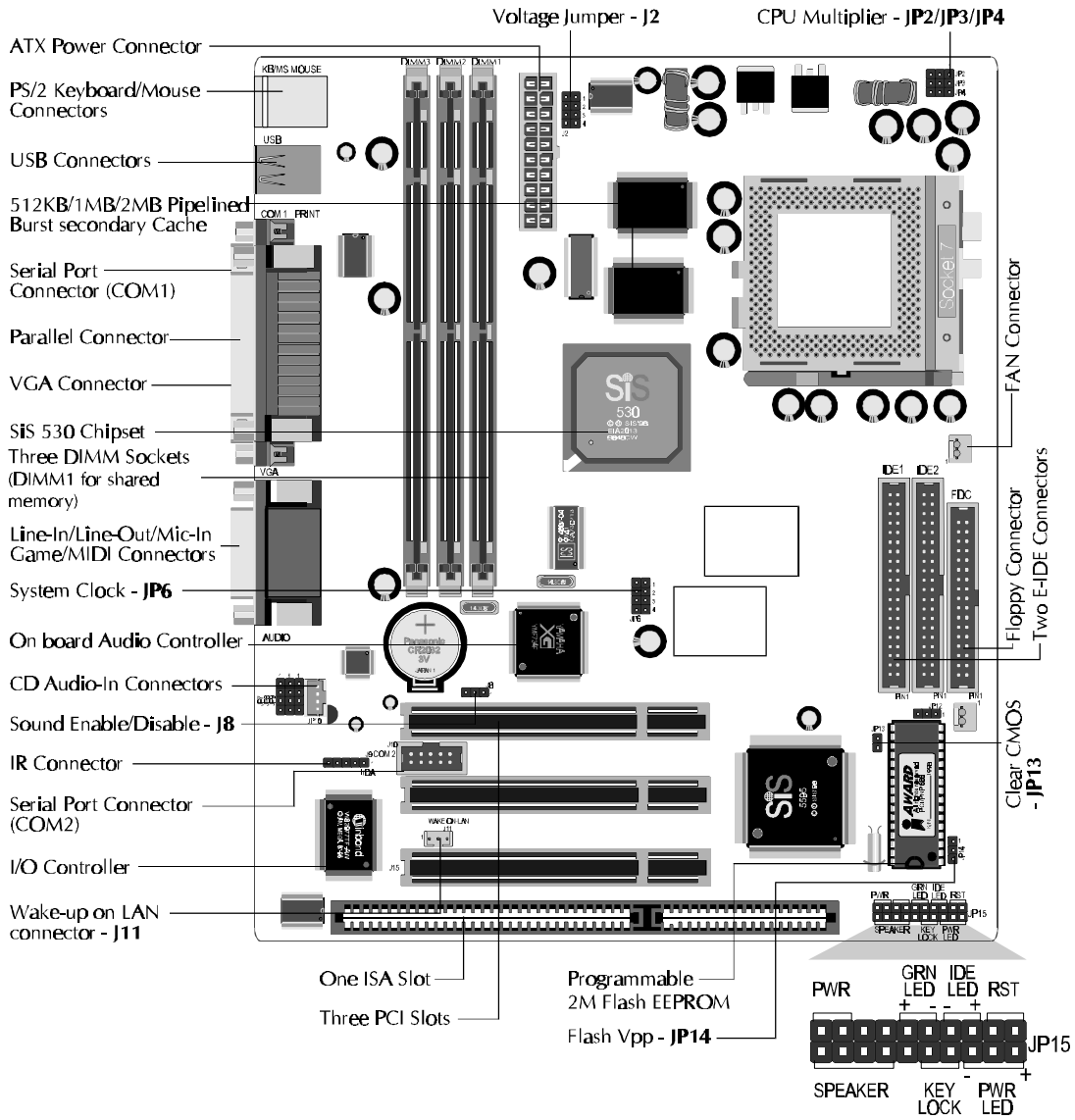
- **Low EMI** -- Spread Spectrum built in -  $\pm 0.5\%$  or  $\pm 0.3\%$  modulation and automatic clock shut-off of unused PCI/SDRAMS slots to reduce the EMI.
- **Dual Function Power Button** -- The system can be one of two states, one is Suspend mode and the other is the Soft-off mode. Pushing the power button for less than 4 seconds will place the system into Suspend mode. When push the power button for more than 4 seconds, the system enters the Soft-off mode.
- **Wake-On-LAN** -- The system will power-on automatically by activating of LAN. (This function support Intel LAN card only).
- **Modem Ring Power-on** -- The system will power-on automatically by activating of modem ring.
- **Voltages Monitoring** -- System voltages levels are monitored to ensure stable current to main board components.  
System voltages include V<sub>core</sub> and V<sub>TT</sub> for CPU, and +5V, +12V, -5V, -12V for system.
- **FAN Status Monitoring** -- To prevent CPU overheat, CPU fans is monitored for RPM and failure. (CPU Cooling FAN with RPM sensor is required)

**Accessories:**

- The SiS530 Mainboard
- User's manual for mainboard
- Cable set for ATA/33 IDE x 1 (or optional ATA/66 IDE x 1), Floppy x 1, COM2 x 1
- CD for drivers pack



# Accessories of SiS530



# 3

## HARDWARE INSTALLATION

### **Install The CPU**

#### **The Installation Processor**

SiS530 mainboard provides a 321-pin ZIF Socket7 for AMD K6-III, K6-2, K6, K5, Intel Pentium MMX, Pentium P54C, WinChip C6, WinChip 2, WinChip 2A and Cyrix M II, Cyrix/IBM 6x86MX, 6x86(L) processors. The CPU that came with the mainboard should have a fan attached to it to prevent overheating. If this is not the case then purchase a fan before you turn on your system.

To install a CPU, locate the ZIF Socket7 and open it by first pulling the lever sideways away from the socket then upwards to a 90-degree right angle. Insert the CPU with the correct orientation as shown.(Figure 3-1) Use the notched corner of the CPU as your guide. The notched corner should point towards the end of the lever. Notice that there is one blank area where one hole is missing from that corner of the square array of pin holes. Because the CPU has a corner pin of the four corner, the CPU will only fit in the one orientation, hold down on the CPU and close the socket's lever.

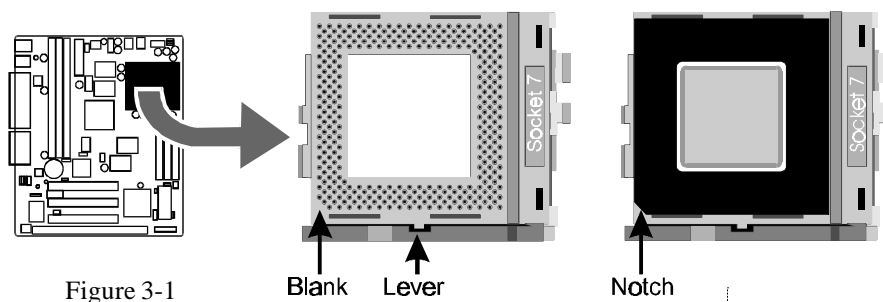


Figure 3-1

Then you should have a CPU fan that will cover the face of the CPU. Apply thermal jelly to the CPU metallic top and then install the fan onto the CPU. (Figure 3-2 )

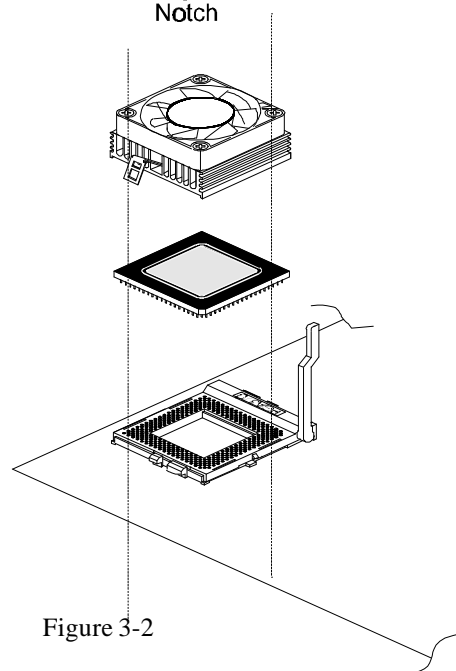




Figure 3-2

This chapter is designed for explaining how to configure the SiS530 hardware. After you install the main board, you can set jumpers, install memory on the main board, and make case connectors. Refer to this chapter whenever you upgrade or reconfigure your system.

## Jumpers

This section describe the necessary procedures and proper jumper settings to configure the SiS530 main board.

Several hardware settings are made through the use of jumper caps to connect jumper pins on the main board. The jumper's pin 1 on main board will be on the top or on the left when holding the main board with the keyboard connector away from yourself.

Jumpers with two pins will be shown as  for Close (On) and  for Open (Off). To connect the pins, simply place a plastic jumper cap over the two pins.

### System Clock and CPU Clock Multiplier - JP6 and JP2/JP3/JP4

SiS530 mainboard features a clock generator to provide adjustable system clock frequency. JP6 is a 8-pin jumpers which determine the system clock frequency 66 MHz to 100 MHz. and JP2/JP3/JP4 is a 3-pin jumper which determine the processor clock ratio from 2X to 5.5X.

Figure 3-3 shows the position of JP6 and JP2/JP3/JP4 and J2 on the mainboard.

Table 3-1 shows adjustable System clock and SDRAM clock on jumper JP6.

Table 3-2 shows adjustable CPU Clock Ratios on jumper JP2/JP3/JP4.

Table 3-3 shows adjustable CPU Voltage on jumper J2.

Table 3-4 shows CPU Configuration Table.

### CPU Voltages - J2

Jumper group J2 are used to adjust onboard voltages output from Switching regulators to CPU.

Further more, SiS530 Mainboard provide intelligent CPU Voltages detecting and auto-adjusting function.

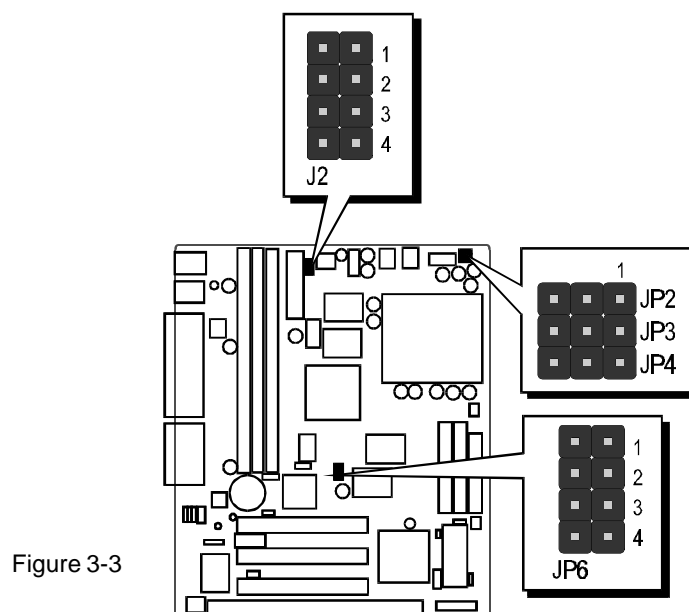


Figure 3-3

System Clock									
CPU (MHz)	66.7		75	83.3	90	95		100	
SDRAM (MHz)	66.7	100.05	75	83.3	90	63.3	95	66.7	100
JP6									

Table 3-1

Multiplier - JP2/JP3/JP4							
2 X	2.5 X	3 X	3.5 X	4 X	4.5 X	5 X	5.5 X

Table 3-2

Voltage - J2							
2.0 V	2.1 V	2.2 V	2.3 V	2.4 V	2.5 V	2.6 V	2.7 V
2.8 V	2.9 V	3.0 V	3.1 V	3.2 V	3.3 V	3.4 V	3.5 V

Table 3-3

## CPU Configuration Table

Table 3-4

Processor	Speed	System Clock	Multiplier	Processor	Speed	System Clock	Multiplier	Processor	Speed	System Clock	Multiplier	Processor	Speed	System Clock	Multiplier
Intel Pentium P55C MMX	233 MHz	66 MHz	3.5 x	AMD K6-III	450 MHz	100 MHz	4.5 x	AMD K5	PR166	66 MHz	2.5 x	Cyrix M II	M II-380	100 MHz	3 x
	200 MHz	66 MHz	3 x		400 MHz	100 MHz	4 x		PR133	66 MHz	1.5 x		M II-366	100 MHz	2.5 x
	166 MHz	66 MHz	2.5 x		450 MHz	100 MHz	4.5 x		P200+	75 MHz	2 x		M II-366	83 MHz	3.5 x
Intel Pentium P54C	200 MHz	66 MHz	3 x	AMD K6-2	400 MHz	100 MHz	4 x	Cyrix/IBM 6x86 (L)	P166+	66 MHz	2 x	Cyrix M II	M II-350	95 MHz	3 x
	166 MHz	66 MHz	2.5 x		380 MHz	95 MHz	4 x		PR333	100 MHz	2.5 x		M II-333	83 MHz	3 x
	133 MHz	66 MHz	2 x		366 MHz	66 MHz	5.5 x		PR333	83 MHz	3 x		M II-333	75 MHz	3.5 x
	100 MHz	66 MHz	1.5 x		350 MHz	100 MHz	3.5 x		PR300	75 MHz	3 x		M II-333	66 MHz	4 x
WinChip C6	225 MHz	75 MHz	3 x	AMD K6	333 MHz	95 MHz	3.5 x	Cyrix/IBM 6x86MX	PR300	66 MHz	3.5 x	Cyrix M II	M II-300	95 MHz	2.5 x
	200 MHz	66 MHz	3 x		333 MHz	66 MHz	5 x		PR266	83 MHz	2.5 X		M II-300	75 MHz	3 x
WinChip 2	266 MHz	66 MHz	4 x	AMD K6	300 MHz	100 MHz	3 x	Cyrix M II	PR266	66 MHz	3.5 X	Cyrix M II	M II-300	66 MHz	3.5 x
	250 MHz	83 MHz	3 x		300 MHz	66 MHz	4.5 x		PR233	75 MHz	2.5 x		M II-266	83 MHz	2.5 x
	225 MHz	75 MHz	3 x		266 MHz	66 MHz	4 x		PR233	66 MHz	3 x		M II-266	66 MHz	3 x
WinChip 2A	200 MHz	66 MHz	3 x	AMD K6	300 MHz	66 MHz	4.5 x	Cyrix M II	PR200	75 MHz	2 x	Cyrix M II	M II-233	100 MHz	2 x
	266 MHz	66 MHz	4 x		266 MHz	66 MHz	4 x		PR200	66 MHz	2.5 x		M II-233	83 MHz	2 x
	250 MHz	100 MHz	2.5 x		233 MHz	66 MHz	3.5 x		M II-466	100 MHz	4 x		M II-233	75 MHz	2.5 x
	233 MHz	66 MHz	3.5 x		200 MHz	66 MHz	3 x		M II-450	95 MHz	4 x		M II-200	75 MHz	2 x
	200 MHz	66 MHz	3 x		166 MHz	66 MHz	2.5 x		M II-433	100 MHz	3.5 x		M II-200	66 MHz	2.5 x
								M II-400	95 MHz	3.5 x		M II-166	66 MHz	2 x	
								M II-400	83 MHz	4 x					

### AMD K6-3 Series CPUs Settings

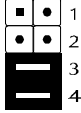
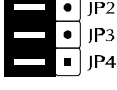
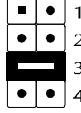
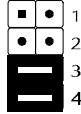
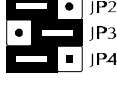
Processor	Speed	Frequency Setting JP6, JP2/JP3/JP4		Vcore/Vio - J2
AMD K6-III	450 MHz 100MHz x 4.5			 2.4V / 3.3V
	400 MHz 100MHz x 4			

Table 3-5

### AMD K6-2 Series CPUs Settings

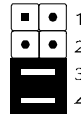
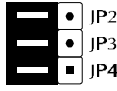
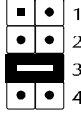
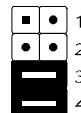
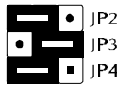
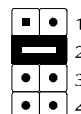

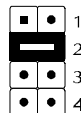
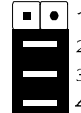
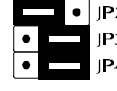
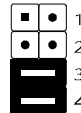
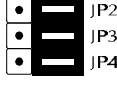
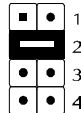
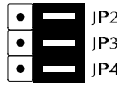
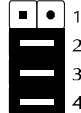
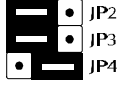
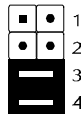

Processor	Speed	Frequency Setting JP6, JP2/JP3/JP4		Vcore/Vio - J2
AMD-K6-2	450 MHz 100MHz x 4.5			 2.4V / 3.3V
	400 MHz 100MHz x 4			
	380 MHz 95MHz x 4			 2.2V / 3.3V
	366 MHz 66MHz x 5.5			
	350 MHz 100MHz x 3.5			
	333 MHz 95MHz x 3.5			
	333 MHz 66MHz x 5			
	300 MHz 100MHz x 3			

Table 3-6

### AMD K6-2 Series CPUs Settings

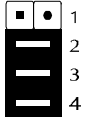
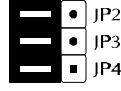
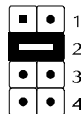
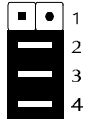

Processor	Speed	Frequency Setting JP6, JP2/JP3/JP4	Vcore/Vio - J2	
AMD K6-2	300 MHz 66MHz x 4.5	 1 2 3 4	 JP2 JP3 JP4	 1 2 3 4  2.2V/3.3V
	266 MHz 66MHz x 4	 1 2 3 4	 JP2 JP3 JP4	

Table 3-7

### AMD-K6 Series CPUs Settings

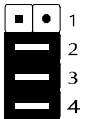
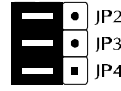
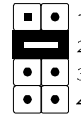
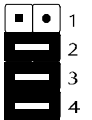
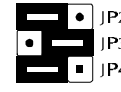
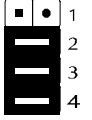
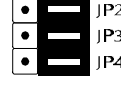
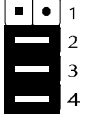
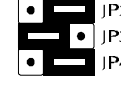
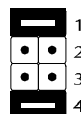
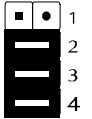
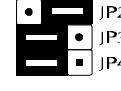
Processor	Speed	Frequency Setting JP6, JP2/3/4	Vcore/Vio - J2	
AMD K6	300 MHz 66MHz x 4.5	 1 2 3 4	 JP2 JP3 JP4	 1 2 3 4  2.2V / 3.3V
	266 MHz 66MHz x 4	 1 2 3 4	 JP2 JP3 JP4	
	233 MHz 66MHz x 3.5	 1 2 3 4	 JP2 JP3 JP4	
	200 MHz 66MHz x 3	 1 2 3 4	 JP2 JP3 JP4	 1 2 3 4  2.9V / 3.3V
	166 MHz 66MHz x 2.5	 1 2 3 4	 JP2 JP3 JP4	

Table 3-8

*Note :The voltage of AMD-K6 233MHz may vary from market and CPU core.  
Please ask your CPU provider for detail.*

### AMD-K5 Series CPUs Settings

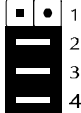


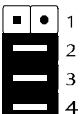

Processor	Speed	Frequency Setting JP6, JP2/JP3/JP4	Vcore/Vio - J2	
AMD-K5	PR166 66MHz x 2.5	 1 2 3 4	 JP2 JP3 JP4	 1 2 3 4 3.52V / 3.52V
	PR133 66MHz x 1.5	 1 2 3 4	 JP2 JP3 JP4	

Table 3-9

### Intel Pentium MMX (P55C) Series CPUs Settings

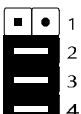

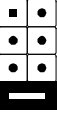
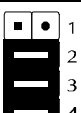

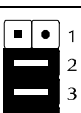

Processor	Speed	Frequency Setting JP6, JP2/JP3/JP4	Vcore/Vio - J2	
Intel Pentium MMX(P55C)	233 MHz 66MHz x 3.5	 1 2 3 4	 JP2 JP3 JP4	 1 2 3 4 2.8V / 3.3V
	200 MHz 66MHz x 3	 1 2 3 4	 JP2 JP3 JP4	
	166 MHz 66MHz x 2.5	 1 2 3 4	 JP2 JP3 JP4	

Table 3-10

### Intel Pentium (P54C) Series Settings

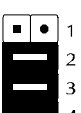


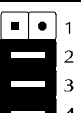

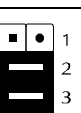

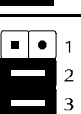

Processor	Speed	Frequency Setting JP6, JP2/JP3/JP4	Vcore/Vio - J2	
Intel Pentium (P54C)	200 MHz 66MHz x 3	 1 2 3 4	 JP2 JP3 JP4	 1 2 3 4 3.3V / 3.3V
	166 MHz 66MHz x 2.5	 1 2 3 4	 JP2 JP3 JP4	
	133 MHz 66MHz x 2	 1 2 3 4	 JP2 JP3 JP4	
	100 MHz 66MHz x 1.5	 1 2 3 4	 JP2 JP3 JP4	

Table 3-11

### Cyrix/IBM 6x86MX Series CPUs Settings

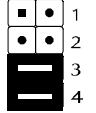

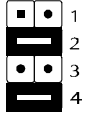

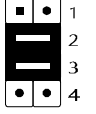

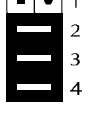
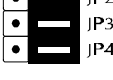
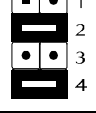

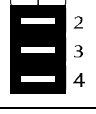
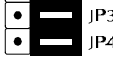
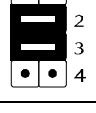

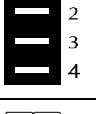

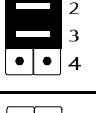

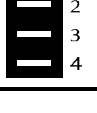

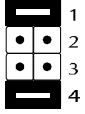
Processor	Speed	Frequency Setting JP6, JP2/JP3/JP4	Vcore / Vio - J2
Cyrix/IBM 6x86MX	PR333 100MHz x 2.5		
	PR333 83MHz x 3		
	PR300 75MHz x 3		
	PR300 66MHz x 3.5		
	PR266 83MHz x 2.5		
	PR266 66MHz x 3.5		
	PR233 75MHz x 2.5		
	PR233 66MHz x 3		
	PR200 75MHz x 2		
	PR200 66MHz x 2.5		
			2.9V / 3.3V

Table 3-12



### Cyrix MII Series CPUs Settings

Processor	Speed	Frequency Setting JP6, JP2/JP3/JP4	Vcore / Vio - J2
Cyrix MII	M II-466 100MHz x 4	JP2 JP3 JP4	 2.9V/3.3V
	M II-450 95MHz x 4	JP2 JP3 JP4	
	M II-433 100MHz x 3.5	JP2 JP3 JP4	
	M II-400 95MHz x 3.5	JP2 JP3 JP4	
	M II-400 83MHz x 4	JP2 JP3 JP4	
	M II-380 100MHz x 3	JP2 JP3 JP4	
	M II-366 100MHz x 2.5	JP2 JP3 JP4	
	M II-366 83MHz x 3.5	JP2 JP3 JP4	
	M II-350 95MHz x 3	JP2 JP3 JP4	
	M II-333 83MHz x 3	JP2 JP3 JP4	
	M II-333 75MHz x 3.5	JP2 JP3 JP4	

Table 3-13

### Cyrix MII Series CPUs Settings

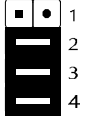

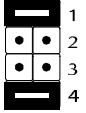
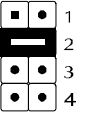
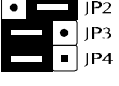
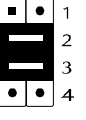

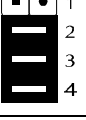
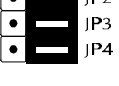
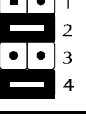


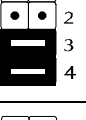
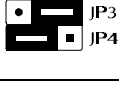
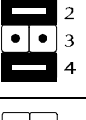

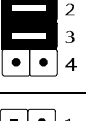

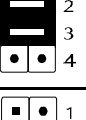

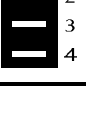
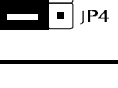
Processor	Speed	Frequency Setting JP6, JP2/JP3/JP4	Vcore / Vio - J2	
Cyrix MII	M II-333 66MHz x 4	 1 2 3 4	 JP2 JP3 JP4	 2.9V/3.3V
	M II-300 95MHz x 2.5	 1 2 3 4	 JP2 JP3 JP4	
	M II-300 75MHz x 3	 1 2 3 4	 JP2 JP3 JP4	
	M II-300 66MHz x 3.5	 1 2 3 4	 JP2 JP3 JP4	
	M II-266 83MHz x 2.5	 1 2 3 4	 JP2 JP3 JP4	
	M II-266 66MHz x 3	 1 2 3 4	 JP2 JP3 JP4	
	M II-233 100MHz x 2	 1 2 3 4	 JP2 JP3 JP4	
	M II-233 83MHz x 2	 1 2 3 4	 JP2 JP3 JP4	
	M II-233 75MHz x 2.5	 1 2 3 4	 JP2 JP3 JP4	
	M II-200 75MHz x 2	 1 2 3 4	 JP2 JP3 JP4	
	M II-200 66MHz x 2.5	 1 2 3 4	 JP2 JP3 JP4	

Table 3-14

### Cyrix MII Series CPUs Settings

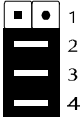
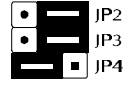
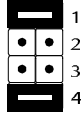
Processor	Speed	Frequency Setting JP6, JP2/JP3/JP4		Vcore / Vio - J2
Cyrix MII	M II-166 66MHz x 2			 2.9V/3.3V

Table 3-15

### Cyrix/IBM 6x86(L) Series CPUs Settings

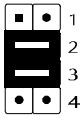
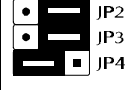
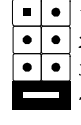
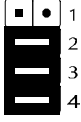
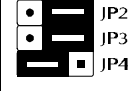
Processor	Speed	Frequency Setting JP6, JP2/JP3/JP4		Vcore / Vio - J2
Cyrix/IBM 6x86L	P200+ 75MHz x 2			 2.8V/3.3V
	P166+ 66MHz x 2			

Table 3-16

### WinChip C6 Series CPUs Settings

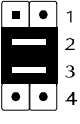
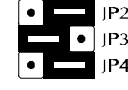

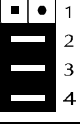
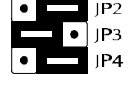
Processor	Speed	Frequency Setting JP6, JP2/JP3/JP4		Vcore / Vio - J2
WinChip C6	225 MHz 75MHz x 3			 3.52V / 3.52V
	200 MHz 66MHz x 3			

Table 3-17

### WinChip 2 Series CPUs Settings



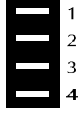






Processor	Speed	Frequency Setting JP6, JP2/JP3/JP4		Vcore/Vio - J2
WinChip 2	266 MHz 66MHz x 4			 3.52V / 3.52V
	250 MHz 83MHz x 3			
	225 MHz 75MHz x 3			
	200 MHz 66MHz x 3			

Table 3-18

### WinChip 2A Series CPUs Settings



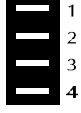
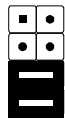


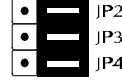


Processor	Speed	Frequency Setting JP6, JP2/JP3/JP4		Vcore/Vio - J2
WinChip 2A	266 MHz 66MHz x 4			 3.52V / 3.52V
	250 MHz 100MHz x 2.5			
	233 MHz 66MHz x 3.5			
	200 MHz 66MHz x 3			

Table 3-19

## On Board Audio Controller Setting - J8

SiS530 mainboard provides on-board QSound HSP dynamic 3-D positional audio controller chip. Jumper J8 is used to enabled or disabled it.

 1 On-board Audio Controller Enabled


 1 On-board Audio Controller Disabled


## Clear CMOS - JP13

SiS530 mainboard supports jumper **JP13** for discharging mainboard's CMOS memory.

This jumper can clear the CMOS data stored in the CMOS memory. To clear the CMOS data please follow listed steps:

- 1) Turn off the PC,
- 2) Insert mini jumper from JP13 pin on, for a brief while,
- 3) Remove mini jumper from JP13,
- 4) Turn on the PC.


 Clear CMOS


 Normal Operation

## Flash EEPROM Vpp - JP14

SiS530 mainboard supports two types of Flash EEPROM:

5 volt and 12 volt. By setting up jumper JP14, the main board can use both 5V or 12V flash EEPROM with new system BIOS files as they come available.

 1 JP14 Pin 1-2 Close for 12V Flash EEPROM

 1 JP14 Pin 2-3 Close for 5V Flash EEPROM

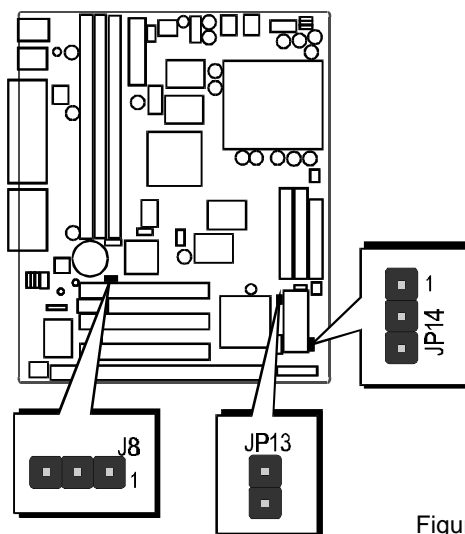


Figure 3-4

## Connectors

### Front Panel Connectors (JP15)

➤ **Speaker Connector - SPEAKER**

PC speaker connector may attach a 4-pin PC speaker cable from the case to this connector.

➤ **HDD LED Connector - IDE LED**

Attach a 2-pin IDE drive LED cable to this connector. The LED lights when an IDE device is active.

➤ **ATX Power On/Off Switch Connector - PW ON**

Attach a 2-pin momentary type switch to this connector for turning on or off your ATX power supply.

➤ **Hardware Reset Connector - RST**

Attach 2-pin hardware reset switch to it. Closing the reset switch restarts the system.

➤ **PW-LED Connector - PW LED**

Power LED connector is a 3-pin connector for attached to the case's Power LED.

➤ **KEYLOCK Connector - KEYLOCK**

Keylock connector is a 2-pin connector for a lock that may be installed on the system case for enabling or disabling the keyboard.

➤ **GLLED Connector - GREEN LED**

Attach a 2-pin Green LED cable to it. The Green LED lights when the system get into power saving mode.

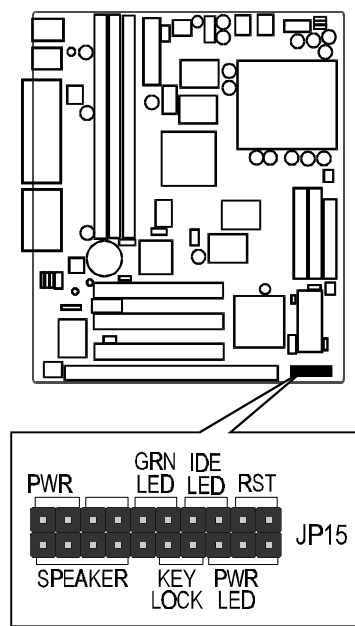


Figure 3-5

## Back Panel Connectors

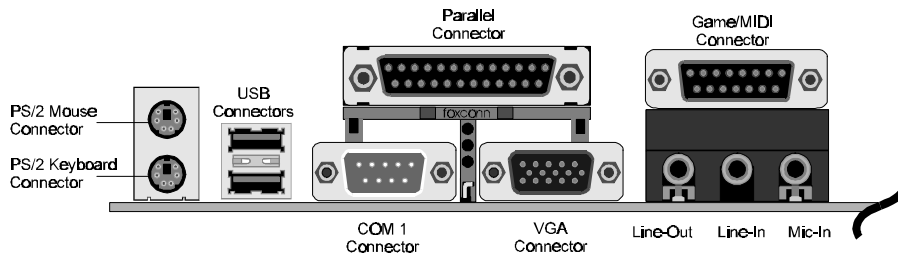


Figure 3-6

### ➤ COM1 Connectors

This mainboard can accommodate up to one serial devices on COM1 .

Attach a serial device cable to the DB9 serial port COM1 at the back panel of your computer.

### ➤ VGA Connectors

One 15-pin VGA connector is located at the rear panel of the mainboard.

### ➤ PS/2 Keyboard & PS/2 Mouse Connector

Two 6-pin female PS/2 keyboard & Mouse connectors are located at the rear panel of the main board. Depending on the computer housing you use (desktop or minitower), the PS/2 Mouse connector is situated at the top of the PS/2 Keyboard connector when the mainboard is laid into a desktop, as opposed to a mini-tower where the PS/2 Mouse connector is located at the right of the PS/2 Keyboard's. Plug the PS/2 keyboard and mouse jacks into their corresponding connectors.

### ➤ Parallel Port Connector

One DB25 female parallel connector is located at the rear panel of the mainboard. Plug the connection cable from your parallel device (printer, scanner, etc.) into this connector.

### ➤ USB1/USB2 Port Connectors

Two female connectors USB1/USB2 share the same USB (Universal Serial Bus) bracket at the rear panel of your mainboard. Plug each USB device jack into an available USB1/USB2 connector.

### ➤ Line-Out

Line-Out is a stereo output through which the combined signal of all internal and external audio sources on the board is output. It can be connected to 1/8-inch TRS stereo headphones or to amplified speakers.

### ➤ Line-In

Line-In is a stereo line-level input that accepts a 1/8-inch TRS stereo plug. It can be used as a source for digital sound recording, a source to be mixed with the output, or both.

➤ **Mic-In**

MIC-IN is a 1/8-inch jack that provides a mono input. It can use a dynamic mono or stereo microphone with a resistance of not more than 600 ohms.

➤ **GAME/MIDI**

The GAME/MIDI port is a 15-pin female connector. This port can be connected to any IBM PC compatible game with a 15-pin D-sub connector.

➤ **MIDI Instrument Connection**

You need a MIDI adapter to connect a MIDI instrument to the sound card. The MIDI adapter can be connected to the Joystick/MIDE port. You will also need MIDI sequencing software to run MIDI instruments with your computer.

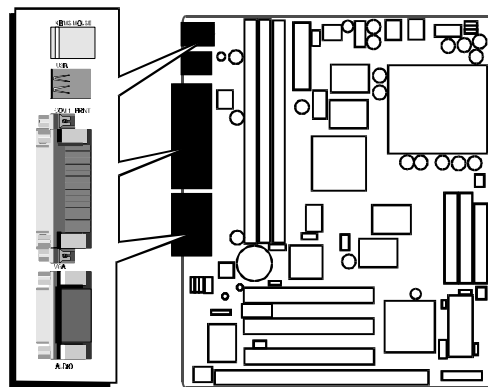


Figure 3-7

## Other Connectors

➤ **ATX Power Supply Connector - J4**

It is a 20-pin male header connector is connected to the ATX power supply. The plug of the power supply will only insert in one orientation because of the different hole shade and size. Find the proper orientation and push down firmly making sure that the pins are aligned.

➤ **IR Connector - J9**

If you have an Infrared device, this mainboard can implement IR (Infrared) transfer and meet both ASKIR and HPSIR specifications. To enable the IR transfer function, follow these steps:

**Step 1.** Attach the 5-pin infrared device cable to J9 connector. (Refer to the above diagram for IR pin assignment.)

**Step 2.** Configure the Infrared transfer mode in the UR2 Mode field of Integrated Peripherals menu in BIOS Setup. This mainboard supports IrDA 1.0, ASKIR, MIR 0.57M and MIR 1.15M transfer modes. FIR is not currently supported.

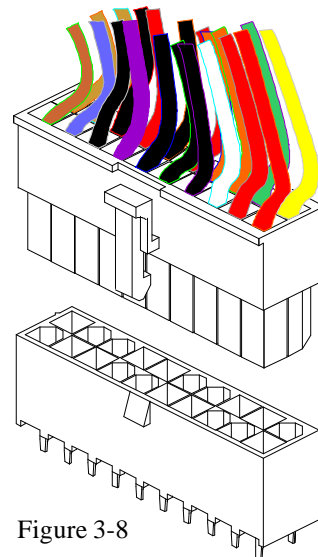


Figure 3-8

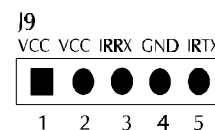


Figure 3-9



➤ **Audio Connectors JP7/JP8/JP9/JP10**

JP7:

- 1=LVIDEO
- 2=Ground
- 3=Ground
- 4=RVIDEO

JP9:

- 1=Left Channel
- 2=Ground
- 3=Ground
- 4=Right Channel

JP8:

- 1=LAUX
- 2=Ground
- 3=Ground
- 4=RAUX

JP10:

- 1=Ground
- 2=Right Channel
- 3=Ground
- 4=Left Channel

➤ **CPU, Chassis Fan connectors - FAN1, FAN2**

The main board provides three onboard 12V cooling fan power connectors. Depending on the fan maker, the wiring and plug may be different. The red wire should be connected to +12V and black wire should be connected to ground (GND).

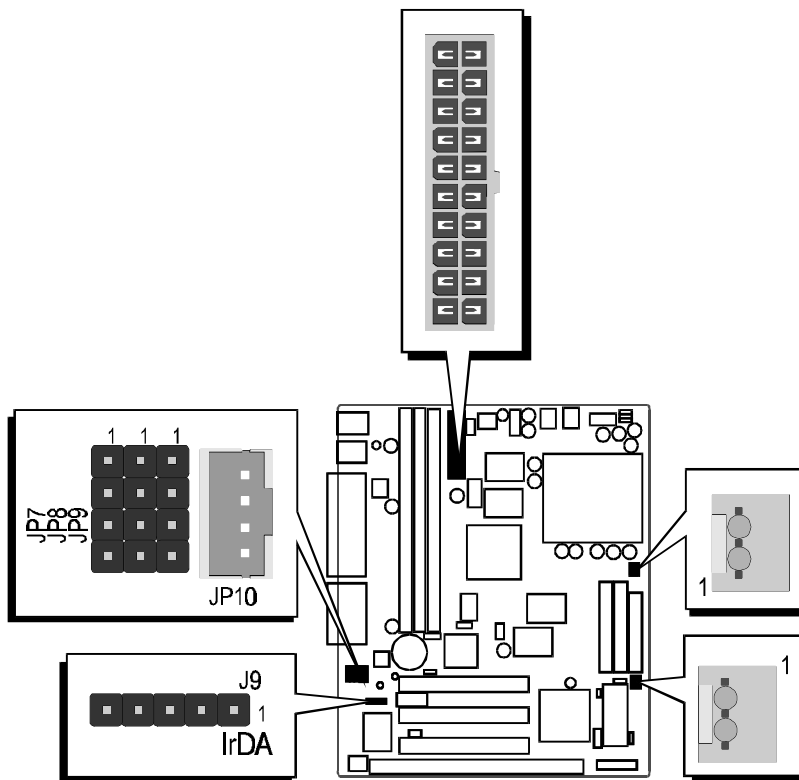


Figure 3-10

➤ **Wake-On-LAN Connector - J11**

Attach a 3-pin connector from the LAN card which supports the Wake-On-LAN (WOL) function. This function lets users wake up the connected system through the LAN card.

➤ **Enhanced IDE, Floppy and COM2 connectors**

The mainboard features two 40-pin dual-channel ATA/33/66 device connectors (IDE1/IDE2) providing support for up to four IDE devices, such as CD-ROM and Hard Disk Drivers (H.D.D.). This mainboard also includes one 34-pin floppy disk controller (FDC) to accommodate the Floppy Disk Drive (F.D.D.). This mainboard also includes one 10-pin ribbon cable for COM2.

This mainboard comes with one 40-pin ribbon cable to connect to IDE H.D.D and one 34-pin ribbon cable for F.D.D.

● **Ribbon cables are directional, therefore, make sure to always connect with the red cable-strip on the same side as pin #1 of the IDE1/IDE2 or FDC connector on the mainboard.**

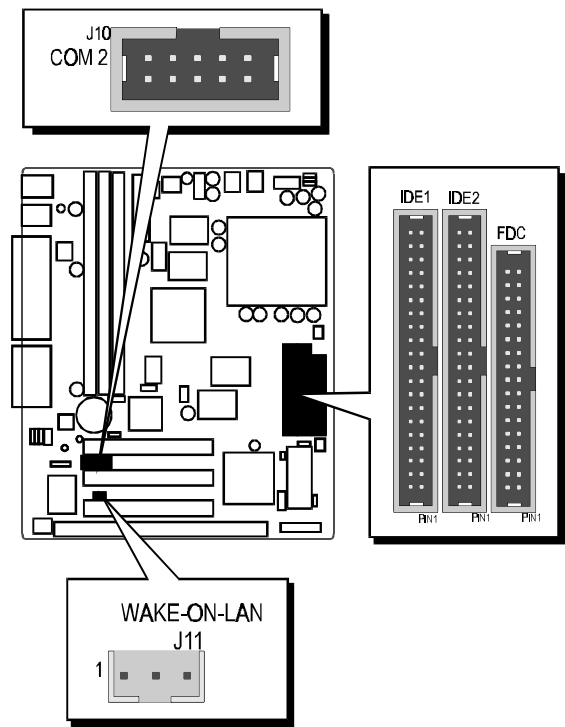


Figure 3-11

# 4

## MEMORY CONFIGURATION

The SiS530 mainboard provides three 168-pin DIMM sockets that make it possible to install from 8MB up to 768MB of SDRAM. The DIMM socket support 8MB, 16MB, 32MB, 64MB, 128 and 256MB 3.3V single- or double-side SDRAM DIMM.

The three DIMM sockets are arranged in three banks of one socket each, each bank provides a 64/72-bit wide data path.

### ⌘ Install Memory

Install memory in any or all of the banks and in any combination, as follows:

DIMM Socket	Memory Modules	Module Quantity
DIMM 1	8MB, 16MB, 32MB, 64MB, 128, and 256MB 168-pin 3.3V SDRAM DIMM	x 1
DIMM 2	8MB, 16MB, 32MB, 64MB, 128, and 256MB 168-pin 3.3V SDRAM DIMM	x 1
DIMM 3	8MB, 16MB, 32MB, 64MB, 128, and 256MB 168-pin 3.3V SDRAM DIMM	x 1

Table 4-1

### ⌘ Shared memory for Integrated AGP VGA

This SiS530 mainboard feature a built-in 3D graphics controller, the graphics controller uses a shared memory architecture that allows it share either 2MB, 4MB or 8MB of system's memory.

To fulfill shared memory architecture, DIMM 1 must be installed.

### ⌘ Upgrade Memory

You can easily upgrade the system memory by inserting additional SDRAM modules in available DIMM banks. The total system memory is calculated by simply adding up the memory in all DIMM banks. After upgrade, the new system memory value will automatically be computed and displayed by the BIOS Standard CMOS Setup menu.

# 5

## FLASH UTILITY

This chapter briefly discusses Award Flash utility provides instructions to guide you through updating your old BIOS. The file name we use to program here is test.bin, and the file name to save old BIOS is SIS530.OLD. Please note that those file names are not absolute. They are only examples to let you have a more clear understanding of the updating process.

### How to Begin

1. Please type "aw dflash" and press the **ENTER** key to begin the updating process.
2. Once you enter, you will see a main menu displaying:
3. Move the cursor to "File Name to Program:"
4. Type the program name "test.bin", and then press the ENTER key.
5. At the bottom of the menu, you will be requested to answer:

**"Do You Want to Save BIOS (Y/N)? "**

```
FLASH MEMORY WRITER V6.31
(C)Award Software 1998 All Rights Reserved

For XXXXXX,XXXXXXXX-XXXXXXXXX  DATE: 09/25/97
Flash Type - XXXXXXXXXXXXXXXXX

File Name to Program : test.bin

Error Message: Do You Want To Save Bios (Y/N)
```

The following manual is intended to guide you through the process of both "No" and "Yes" cases respectively.

#### If "No"

If you do not wish to save the old BIOS:

1. Please type "N", and then press the ENTER key.
2. Then you will be requested to answer:

**"Are You Sure to Program? "**

3. Answer "No" if you do not want to program, and then it will exit.

```
FLASH MEMORY WRITER V6.31
(C)Award Software 1998 All Rights Reserved

For XXXXXX,XXXXXXXX-XXXXXXXXX  DATE: 09/25/97
Flash Type - XXXXXXXXXXXXXXXXX

File Name to Program : test.bin
File Name to Save   : sis530.old

Error Message:
```

**If "Yes"**

To save the old BIOS:

1. Please respond "Y", and then press the ENTER key.
2. Move the cursor to "File Name to Save: "
3. Type file name "SIS530.OLD", and then press the ENTER key. (Your old BIOS will be saved in the file name you create. In this case, the old BIOS is saved in the file name, SIS530.OLD).
4. Then you will be requested to answer:  
**"Are You Sure to Program (Y/N)? "**
5. Type "Y" to begin programming, and press the ENTER key.
6. When the programming is finished, the showing message will appear:
7. Once you see the showing message "Power Off or Reset System", please restart your system.
8. When you power on the computer again, you will find your old BIOS has already been successfully updated.

To view a complete usage of FLASH utility, please type "awdf flash /?" and press the ENTER key.

**Notes About Award Flash Utility**

Please note that Award Flash Utility cannot run under EMM386 or QEMM. Thus, when executing the command "awdf flash", an error message will appear:

**"Error Message: Failure Due to EMM386 or QEMM !"**

# 6

## BIOS SETUP

SiS530 BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed RAM so that it retains the Setup information when the power is turned off.

### Entering Setup

Power on the computer and press <Del> immediately will allow you to enter Setup. The other way to enter Setup is to power on the computer, when the below message appear briefly at the bottom of the screen during the POST (Power On Self Test), press <Del> key or simultaneously press <Ctrl>,<Alt>, and <Esc> keys.

#### **“Press DEL to enter SETUP”**

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF the ON or pressing the “RESET” button on the system case. You may also restart by simultaneously press <Ctrl>,<Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to,

#### **“Press F1 to Continue, DEL To Enter Setup”**

## Main Menu

After you turn on the power, press <DEL> while the BIOS is performing the POST (Power-On Self Test) diagnostic checks to enter the BIOS Setup program. The BIOS Main Menu displays as shown below.

ROM PCI/ISA BIOS (2A51MH29) CMOS SETUP UTILITY AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	PASSWORD SETTING
CHIPSET FEATURES SETUP	IDE HDD AUTO DETECTION
POWER MANAGEMENT SETUP	SAVE & EXIT SETUP
PNP/PCI CONFIGURATION	EXIT WITHOUT SAVING
LOAD BIOS DEFAULTS	
LOAD SETUP DEFAULTS	
Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color

### Standard CMOS setup

This setup page includes all items in a standard compatible BIOS.

### BIOS features setup

This setup page includes all items of Award special enhanced features.

### Chipset features setup

This setup page includes all items of chipset features.

### Power Management Setup

This setup page includes all items of Power Management features.

### PnP/PCI Configuration setup

This item specifies the value (in units of PCI bus blocks) of the latency timer for the PCI bus master and the IRQ level for PCI device. Power-on with BIOS defaults

### Load BIOS Defaults

BIOS defaults loads the values required by the System for the maximum performance. However, you can change the parameter through each Setup Menu.

### Load Setup Defaults

Setup defaults loads the values required by the system for the O.K. performance. However, you can change the parameter through each Setup Menu.

### Integrated Peripherals

This setup page includes all items of peripheral features.

### **Password Setting**

Change, set, or disable supervisor password. It allows you to limit access to the system and Setup, or just to Setup.

### **IDE HDD auto detection**

Automatically configure IDE hard disk drive parameters.

### **Save & Exit setup**

Save CMOS value change to CMOS and exit setup

### **Exit without saving**

Abandon all CMOS value changes and exit setup.



**Setting some items in the BIOS utility to incorrect values may cause system malfunctions !**



## Standard CMOS Setup

```
ROM PCI/ISA BIOS (2A51MH29)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Tue, May 4 1999
Time (hh:mm:ss) : 13 : 24 : 24

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

Drive A : 1.44M, 3.5 in.
Drive B : None

Video : EGA/UGA
Halt On : All Errors

Base Memory:  0K
Extended Memory: 0K
Other Memory: 512K
-----
Total Memory: 512K

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

### Date

The date format is <day>, <month> <date> <year>. Press <F3> to show the calendar.

### Time

The time format is <hour> <minute> <second>. The time is calculated base on the 24-hour military-time clock. For example, 5 p.m. is 17:00:00.

### Hard Disks

This item identify the types of hard disk drives that has been installed in the computer. There are 46 predefined types and a user definable type.

Press PgUp or PgDn to select a numbered hard disk type or type the number and press <Enter>. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this item.

If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.

If you select Type User, related information is asked to be entered to the following items. Enter the information directly from the keyboard and press <Enter>. Those information should be provided in the documentation from your hard disk vendor or the system manufacturer.

The user may also set those items to AUTO to auto configure hard disk drives parameter when system power-on.

If a hard disk drive has not been installed select NONE and press <Enter>.

### **Drive A type / Drive B type**

This item specifies the types of floppy disk drive A or drive B that has been installed in the system.

### **Video**

This item selects the type of adapter used for the primary system monitor that must match your video display card and monitor. Although secondary monitors are supported, you do not have to select the type in Setup.

### **Halt on**

This item determines if the system will stop, when an error is detected during power up.

### **Memory**

This item is display-only. It is automatically detected by POST (Power On Self Test) of the BIOS.

#### ➤ **Base Memory**

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memory installed on the mainboard, or 640K for systems with 640K or more memory installed on the mainboard.

#### ➤ **Extended Memory**

The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1MB in the CPU's memory address map.

## BIOS Features Setup

ROM PCI/ISA BIOS (2A51MH29) 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 Floppy Seek	: Enabled	DC000-DFFFF Shadow	: Disabled
Boot Up NumLock Status	: On		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
PCI/UGA Palette Snoop	: Disabled		
OS Select For DRAM > 64MB	: Non-OS2		
Report No FDD For WIN 95	: Yes		
		ESC : Quit	F10 : Select Item
		F1 : Help	F5/PD/+/- : Modify
		F5 : Old Values (Shift)	F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

### Virus Warning

When this item is enabled, the Award BIOS will monitor the boot sector and partition table of the hard disk drive for any attempt at modification. If an attempt is made, the BIOS will halt the system and the following error message will appear. Afterwards, if necessary, you will be able to run an anti-virus program to locate and remove the problem before any damage is done.

**!WARNING!**  
Disk boot sector is to be modified  
Type "Y" to accept write or "N" to abort write  
Award Software, Inc.

➤ *The choice: Enabled, Disabled.*

### CPU Internal / External Cache

This item enables CPU internal cache and external cache to speed up memory access.

➤ *The choice: Enabled, Disabled.*

### Quick Power On Self Test

This item speeds up Power On Self Test (POST) after you power on the computer. If it is set to Enabled, BIOS will shorten or skip some check items during POST.

➤ *The choice: Enabled, Disabled.*

### **Boot Sequence**

This item determines which drive computer searches first for the disk operating system. Default setting is A, C, SCSI.

BIOS also support system boot from CD-ROM drive or SCSI hard disk drive.

- *The choice: (A,C,SCSI), (C,A,SCSI), (C,CDROM,A), (D,A,SCSI), (E,A,SCSI), (F,A,SCSI), (SCSI,A,C), (SCSI,C,A), (C only), (LS/ZIP,C)*

### **Swap Floppy Drive**

When this item enables, the BIOS will swap floppy drive assignments so that Drive A: will function as Drive B: and Drive B: as Drive A:.

- *The choice: Enabled, Disabled.*

### **Boot Up Floppy Seek**

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks.

- *The choice: Enabled, Disabled.*

### **Boot Up NumLock Status**

When this option enables, BIOS turns on *Num Lock* when system is powered on.

- *The choice: On, Off.*

### **Typematic Rate Setting / Typematic Rate / Typematic Delay**

This determines if the typematic rate and typematic delay are to be used. When the typematic rate setting is enabled, **typematic rate** allows you select the rate at which the keys are accelerated and **typematic delay** allows you to select the delay between when the key was first depressed and when the acceleration begins.

- *Typematic Rate Setting: Enabled, Disabled.*
- *Typematic Rate: 6, 8, 10, 12, 15, 20, 24, 30.*
- *Typematic Delay: 250, 500, 750, 1000.*

### **Security Option**

This item allows you to limit access to the System and Setup, or just to Setup.

- *System*                    The System will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
- *Setup*                     The System will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

### **PCI/VGA Palette Snoop**

This item must be set to enabled if there is a MPEG ISA card installed in the system, and disabled if there is no MPEG ISA card installed in the system.

- *The choice: Enabled, Disabled.*

### **OS Select For DRAM > 64MB**

This item allows you to access the memory that over 64 MB in OS/2.

- *The choice: Non-OS2, OS2.*

### **Report No FDD For WIN 95**

This item enable for report No FDD for WIN 95 if No FDD install.

➤ *The choice: Yes, No.*

### **Video BIOS Shadow**

Determines whether video BIOS will be copied to RAM. However, it is optional depending on chipset design. Video Shadow will increase the video speed.

➤ *The choice: Enabled, Disabled.*

### **C8000-CBFFF Shadow/DC000-DFFFF Shadow**

These categories determine whether option ROMs will be copied to RAM. An example of such option ROM would be support of SCSI Add-on card.

➤ *The choice: Enabled, Disabled.*

## Chipset Features Setup

ROM PCI/ISA BIOS (2A51MH29) CHIPSET FEATURES SETUP AWARD SOFTWARE, INC.	
RAS Precharge Time : 3T	
RAS to CAS Delay : 3T	
L2 Cache Burst RD Cycle : Delay 1 T	
Asyn/Sync Mode CPU/DRAM : Asynchronous	
SDRAM CAS Latency : 3T	
SDRAM WR Retire Rate : X-1-1-1	
DRAM Opt RAS Precharge : Disabled	
PCI Peer Concurrency : Enabled	
CPU to PCI Burst Mem. WR : Enabled	
CPU to PCI Post Write : Enabled	
AGP Aperture Size : 64MB	
System BIOS Cacheable : Enabled	
Vidco BIOS Cacheable : Enabled	
Memory Hole at 15M-16M : Disabled	
PCI Post Write Buffer : Enabled	
PCI Delayed Transaction : Enabled	
Auto Detect DIMM/PCI Clk : Disabled	
Spread Spectrum : Disabled	
ESC : Quit	↑↓←→ : Select Item
F1 : Help	FU/PD/+/- : Modify
F5 : Old Values	(Shift)F2 : Color
F6 : Load BIOS Defaults	
F7 : Load Setup Defaults	

### **RAS Precharge Time**

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.

➤ *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.*

### **L2 Cache Burst RD Cycle**

These timing numbers are the pattern of cycles the CPU uses to read data from the cache.

➤ *The choice: Normal, Delay 1T.*

### **Asyn/Sync Mode CPU/DRAM**

This feature can only be enabled when the frequency of CPU clock and the frequency of DRAM clock are the same and the skew between these two clocks should be zero.

➤ *The choice: Asynchronous, Synchronous*

### **SDRAM CAS Latency**

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer.

- *The choice: 2T, 3T.*

### **SDRAM WR Retire Rate**

The system designer must select the correct timing for data transfers from the write buffer to memory, according to DRAM specifications

- *The choice: 0WS, 1WS*

### **DRAM Opt RAS Precharge**

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.

- *The choice: Enabled, Disabled.*

### **PCI Peer Concurrency**

Peer concurrency means that more than one PCI device can be active at a time.

- *The choice: Enabled, Disabled.*

### **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.

- *Choices are Enabled, Disabled.*

### **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.*

### **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](http://www.agpforum.org) for APG information.

- *The choice: 4 MB, 8MB, 16 MB, 32 MB, 64 MB, 128 MB, 256MB.*

### **System BIOS Cacheable**

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, 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 system BIOS ROM at C0000h-F7FFFh, 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**

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*

### **PCI Post Write Buffer**

Enable/disable PCI post write buffer.

➤ *The choice: Enabled, Disabled.*

### **PCI Delayed Transaction**

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.

➤ *The choice: Enabled, Disabled.*

### **Auto Detect DIMM/PCI Clk**

Enabling this item allow system auto detect and close clock signal to empty DIMM/PCI slot to reduce EMI.

➤ *The choice: Enabled, Disabled.*

### **Spread Spectrum**

This item allows the user to enable Spread Spectrum Modulated to reduce the EMI. The Choice: 0.25% (CNTR), 0.5% (Down) and Disabled.



## Power Management Setup

ROM PCI/ISA BIOS (2A51MH29) POWER MANAGEMENT SETUP AWARD SOFTWARE, INC.	
ACPI function : Enabled	UGA Activity : Enabled
Power Management : User Define	IRQ [3-7,9-15],NMI : Enabled
Video Off Option : Susp,Stby -> Off	IRQ 8 Break Suspend : Disabled
Video Off Method : U/H SYNC+Blank	Power Button Over Ride : Instant Off
Doze Speed (div by): 2/8	Ring Power Up Control : Enabled
Stby Speed(div by): 1/8	LAN Power On Control : Enabled
MODEM Use IRQ : 9	KB Power ON Password : Enter
** PM Timers **	Power Up by Alarm : Disabled
HDD Off After : Disable	
Doze Mode : Disable	
Standby Mode : Disable	
Suspend Mode : Disable	
** PM Events **	
HDD Ports Activity : Enabled	ESC : Quit           ↑↓←→ : Select Item
COM Ports Activity : Enabled	F1 : Help            PU/PD/+/- : Modify
LPT Ports Activity : Enabled	F5 : Old Values (Shift)F2 : Color
	F6 : Load BIOS Defaults
	F7 : Load Setup Defaults

### ACPI function

Select Enabled if your system has an ACPI function.

➤ *The choice: Enabled, Disabled*

### 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**                         No power management. Disables all four modes
- **Min. Power Saving**             Minimum power management. Doze Mode = 1 hr., Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.
- **Max. Power Saving**             Maximum power management — ONLY AVAILABLE FOR SL CPU'S. Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.
- **User Defined**                    Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

### **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.

### **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.*

## **\*\*\*\*\* PM Timers \*\*\*\*\***

The following four modes are Green PC power saving functions which are only user 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 or Suspend. 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.

- *The choice: 10 Sec, 1 Min, 10 Min, 30 Min, 1 Hour, 2 Hours, 4 Hours, Disabled.*

### **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.

- *The choice: 10 Sec, 1 Min, 10 Min, 30 Min, 1 Hour, 2 Hours, 4 Hours, Disabled.*

### **Suspend Mode**

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

- *The choice: 10 Sec, 1 Min, 10 Min, 30 Min, 1 Hour, 2 Hours, 4 Hours, Disabled.*

## **\*\*\*\*\* 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.

When On (or named, in the case of LPT & COM), any activity from one of the listed system peripheral devices or IRQs wakes up the system.

### **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.

- *The choice: Enabled, Disabled.*

### **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.

- *The choice: Enabled, Disabled.*

### **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

- *The choice: Enabled, Disabled.*

### **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 Break Suspend* : 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**

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."

➤ *The choice: Instant-Off, Delay 4 Sec.*

### **Ring Power Up Control**

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

➤ *The choice: Enabled, Disabled.*

### **LAN Power On Control**

When you select Enabled, a signal from LAN returns the system to Full On state.

➤ *The choice: Enabled, Disabled.*

### **KB Power ON Password**

When you set a password for keyboard, The password you set the keyboard that returns the system to Full On state.

### **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*

## PNP / PCI Configuration Setup

ROM PCI/ISA BIOS (2A51MH29) PNP/PCI CONFIGURATION AWARD SOFTWARE, INC.	
Resources Controlled By : Manual Reset Configuration Data : Disabled	PCI IRQ Activated By : Level
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 : PCI/ISA PnP	
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 : PCI/ISA PnP	
IRQ-15 assigned to : PCI/ISA PnP	
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 F6 : Load BIOS Defaults F7 : Load Setup Defaults

### 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.*

### IRQ3/4/5/7/9/10/11/12/14/15.

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.*

### **DMA0/1/3/5/6/7 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 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.*

### **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.*

## Integrated Peripherals Setup

ROM PCI/ISA BIOS (2A51MH29) INTEGRATED PERIPHERALS AWARD SOFTWARE, INC.	
Internal PCI/IDE : Both	Onboard Parallel Mode : SPP
IDE Primary Master PIO : Auto	ECP Mode Use DMA : 3
IDE Primary Slave PIO : Auto	Parallel Port EPP Type : EPP1.9
IDE Secondary Master PIO : Auto	PS/2 mouse function : Enabled
IDE Secondary Slave PIO : Auto	USB Controller : Enabled
Primary Master UltraDMA : Auto	USB Keyboard Support : Disabled
Primary Slave UltraDMA : Auto	Init Display First : PCI Slot
Secondary Master UltraDMA : Auto	UGA Shared Memory Size : 4 MB
Secondary Slave UltraDMA : Auto	UGA Memory Clock (MHz) : 100
IDE Burst Mode : Enabled	Current CPU Temperature : XX°CXX°F
IDE Data Port Post Write : Disabled	Current CPUFAN1 Speed : XXXXRPM
IDE HDD Block Mode : Enabled	Current CPUFAN2 Speed : XXXXRPM
Onboard FDD Controller : Enabled	+12V : XXV +5V : XXV
Onboard Serial Port 1 : Auto	+3.3V : XXV Ucore : XXV
Onboard Serial Port 2 : Auto	ESC : Quit F10 : Select Item
UART 2 Mode : Standard	F1 : Help F11/PD/+/- : Modify
IR Function Duplex : Half	F5 : Old Values (Shift) F2 : Color
RxD , TxD Active : Hi,Hi	F6 : Load BIOS Defaults
Onboard Parallel Port : 378/IRQ7	F7 : Load Setup Defaults

### Internal PCI/IDE

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

➤ *The choice: Primary, Secondary, Both, Disabled.*

### 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.*

### Primary/Secondary Master/Slave UDMA

UDMA (Ultra DMA) is a DMA data transfer protocol 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 UDMA fields (for each of up to 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, Disabled.*

### 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 Data Port Post Write**

Selecting Enabled speeds up processing of drive reads and writes, 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

➤ *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 Port 1/Port 2**

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

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

### **UART 2 Mode**

The second serial port offers these InfraRed interface modes.

➤ *Choices are Standard, ASKIR, HPSIR.*

### **IR Function Duplex**

This item allows you to select the IR function when your select the UART 2 Mode is ASKIR

➤ *Choices are Half, Full.*

### **RxD, TxD Active**

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

➤ *Choices are "Hi, Hi", "Lo, Lo", "Lo, Hi", "Hi, Lo".*

### **Onboard Parallel Port**

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

➤ *The choice: 378/IRQ7, 278/IRQ5, 3BC/IRQ7, Disabled.*

### **Onboard Parallel Mode**

Select an operating mode for the onboard parallel (printer) port. Select SPP unless you are certain your hardware and software both support one of the other available modes.



- *The choice: SPP, EPP, ECP, ECP+E PP.*

### **ECP Mode Use DMA**

Select a DMA channel for the parallel port for use during ECP mode.

- *The choice: 3, 1.*

### **Parallel Port EPP Type**

This item allows you to determine the IR transfer mode of onboard I/O chip.

- *Choices are EPP1.9, EPP1.7.*

### **PS/2 mouse function**

If your system has a PS/2 mouse port and you install a serial pointing device, select Disabled.

- *The choice: Enabled, Disabled.*

### **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**

This item is used to defined USB Keyboard is *Enabled* or *Disabled*.

### **Init Display First**

This item allows you to decide to active which bus first (PCI Slot or AGP first).

- *The choice: PCI Slot, AGP.*

### **VGA Shared Memory Size**

Specify the size of system memory to allocate for video memory, form 2MB to 8MB.

- *The choice: 2MB, 4MB, 8MB.*

### **VGA Memory Clock**

Set the speed (MHz) of the VGA memory clock.

- *The choice: 66, 75, 83, 100.*

### **Current CPU Temperature**

This field displays the current CPU temperature, if your computer contains a monitoring system.

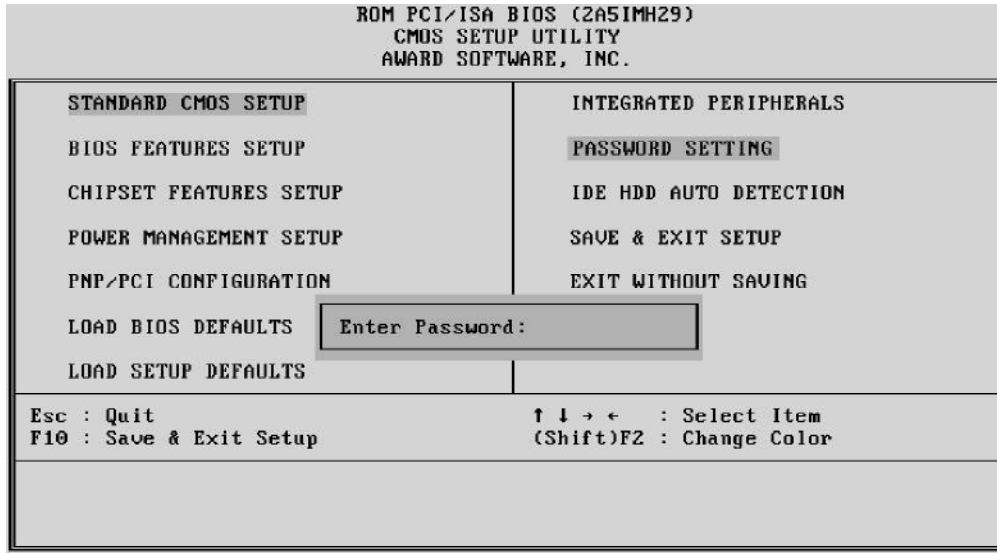
### **Current CPUFAN1/2 Speed**

These fields display the current speed of up to two CPU fans, if your computer contains a monitoring system.

### **+3.3V~+12V**

The mainboard support CPU and mainboard voltages monitoring. The onboard hardware monitor is able to detect the voltages output of the voltage regulators and power supply.

## Password Setting



### Password Setting

You can prevent unauthorized access to your system by setting a security password. The system will prompt for the correct password every time the user tries to run the BIOS Setup Utility.

### Enter Password

Type the password (a valid password may contain up to 8 alphanumeric characters) and press <Enter>. You will be prompted to re-type to confirm the new password. You may press <Esc> at any time to abort the selection and not enter a new password.

### Password Disable

To disable the current password, just press <Enter> when you are prompted to enter the new password. A message will confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

If you select System at Security Option of BIOS Features Setup Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup. If you select Setup at Security Option of BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

**Warning :** Retain a record of your password in a safe place. If you forget the password, the only way to access the system again is to clear CMOS memory; please refer to "Clear CMOS".

# 7

## INTEGRATED SIS AGP VGA

### *Features*

#### ***Integrated Super AGP for Hardware 2D/3D Graphics Accelerators***

- **Supports AGP 1.0 compliant configuration setting**

- ✧ Supports tightly coupled 64 bits 100MHz host interface to VGA to speed up GUI performance and the video playback frame rate.
- ✧ Built-in programmable 24-bit true-color RAMDAC up to 230MHz pixel clock
- ✧ Supports loadable RAMDAC for gamma correction in high color and true color modes
- ✧ Shared System Memory Area 4MB and 8MB
- ✧ Supports DVD Hardware Accelerator
- ✧ Built-in Direct Draw Accelerator

- **Supports super high resolution graphics modes**

- ✧ 640x480                      256/32K/64K/16M colors 85Hz NI
- ✧ 800x600                      256/32K/64K/16M colors 85Hz NI
- ✧ 1024x768                      256/32K/64K/16M colors 85Hz NI
- ✧ 1280x1024                      256/32K/64K/16M colors 85 Hz NI
- ✧ 1600x1200                      256/32K/64K colors 85Hz NI

- **Power Management**

- ✧ Supports VESA Display Power Management Signaling (DPMS) compliant VGA monitor for power management
- ✧ Supports direct I/O command to force graphics controller into standby /suspend/off state

- **Multimedia Application**

- ✧ Supports DDC1 and DDC2B specifications
- ✧ Supports RAMDAC snoop for multimedia applications

## *Drivers Overview*

To make use of the advance features of SiS Integrated AGP VGA Controller, extended graphics modes are bundled on the attached CD-ROM, the following multi-language drivers are currently supported:

- MicroSoft Windows 95/98
- MicroSoft Windows NT Ver. 4.0
- ✦ Both Microsoft Windows 95/98 and NT4.0 SiS AGP VGA Drivers support 15 languages setup utilities include:

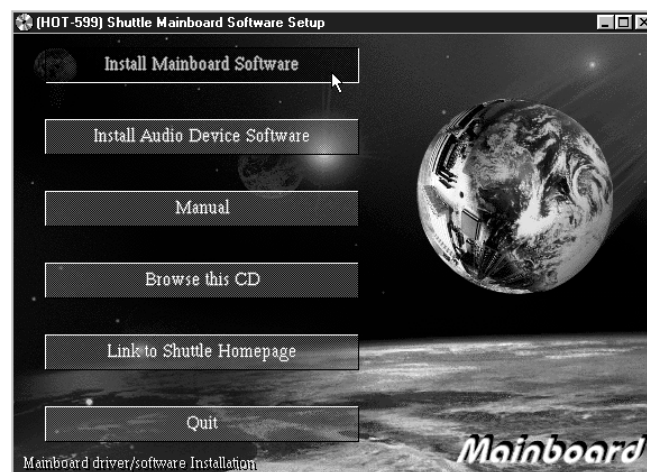
1. Simple Chinese	2. Traditional Chinese	3. Danish
4. Dutch	5. English	6. French
7. German	8. Italian	9. Japanese
10. Korean	11. Norwegian	12. Portuguese
13. Russian	14. Spanish	15. Swedish

## *Windows 95/98 Drivers*

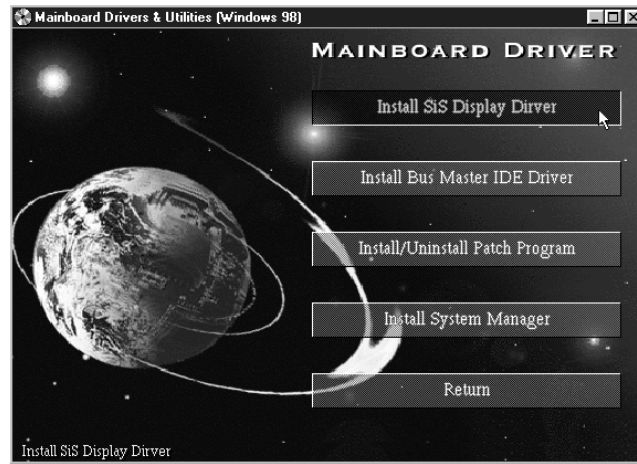
### **CD AutoRun Setup**

The AutoRun setup feature can run with CD. This utility will enable you to install drivers for Windows 95/98. As the CD is inserted (assuming the auto-insertion feature is enabled under your Windows operating system. Otherwise, double-click the My Computer icon on your Windows Desktop, then Right-click on your CD-ROM drive icon to explore the directory and click on AutoRun.) the **Shuttle Mainboard Software Setup** window will appear on your screen.

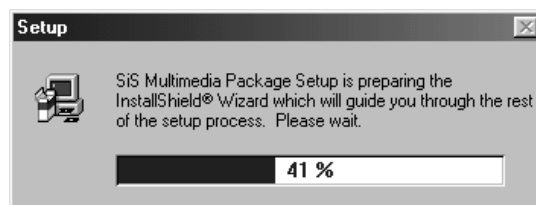
1. Select using your pointing device (e.g. mouse) on the "**Install Mainboard Software**" bar.



2. Then "**Mainboard Drivers & Utilities**" windows will appear on your screen. Click on the "**Install SiS Display Driver**" bar.



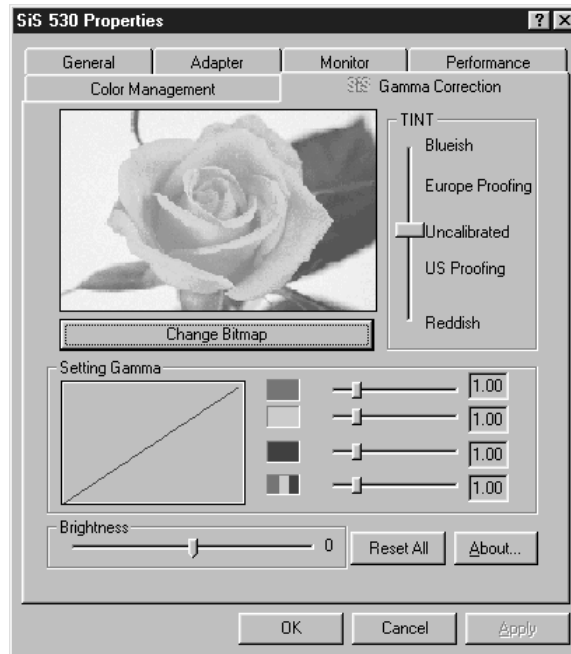
3. Once you made your selection, a **Setup** window which automatically runs the installation.



4. When the files are done copying make sure you **reboot** the system to insure that the files are installed correctly.



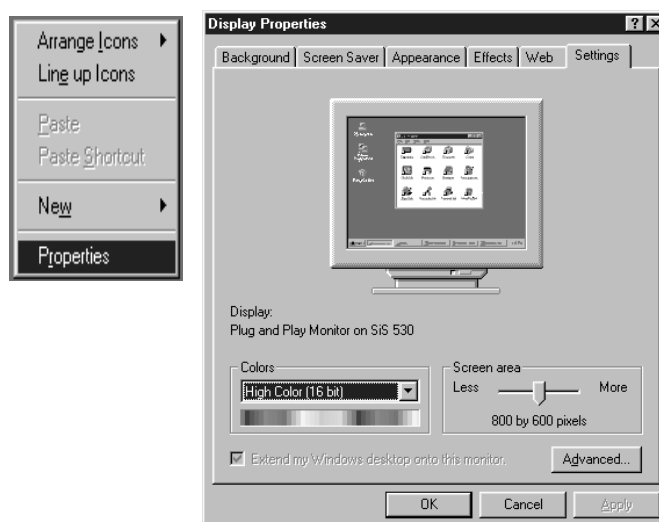
There is a additional items “**SiS Gamma Correction**”, may be added depends on the mode setting. It would appear on 16-bit color (64K-color) and 24-bit color (true color). i.e. In 16-color modes, gamma correction function is not support.



## Display Driver

### Using “Display Modes”

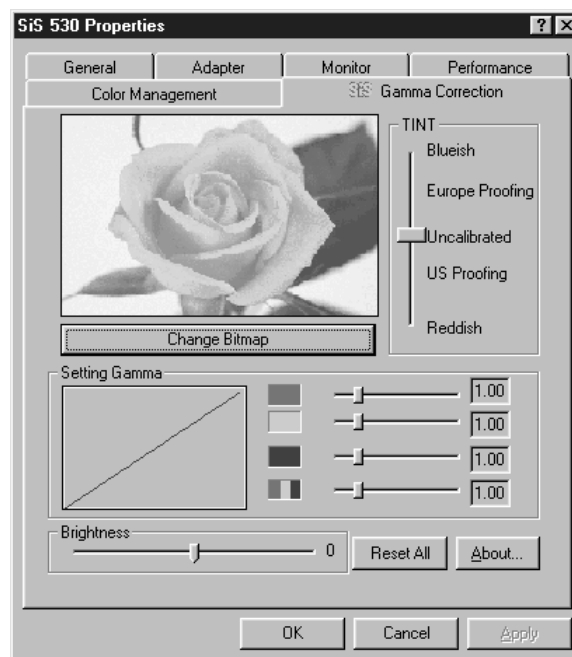
1. Click the right button on the mouse then select the **Properties** item, “**Display Properties**” Screen will show up, then click on the **Setting** tab.



2. On "**Display Modes**" item and you may select desired resolution by changing "Screen area" pointer and desired color by changing "Color" value.
3. After completing selection, select "OK" or "Apply" to complete the whole setting.

### **Using "SiS Gamma Correction"**

1. On the "Display Modes" Screen select Advanced button, then "**SiS530 Properties**" screen will display, and you will find that "SiS Gamma Correction" item had been added.
2. First select "**SiS Gamma Correction**" item and you may
  - Use "Setting Gamma" to fine tune your color monitor color style.
  - Use "Setting TINT" to rough tune your color monitor color style.
  - Use "Default" to return to the original pro-gram default setting.
  - Use "Brightness" to turn your monitor to brighter or darker.
3. After completing selection, select "OK" or "Apply" to complete the whole setting.

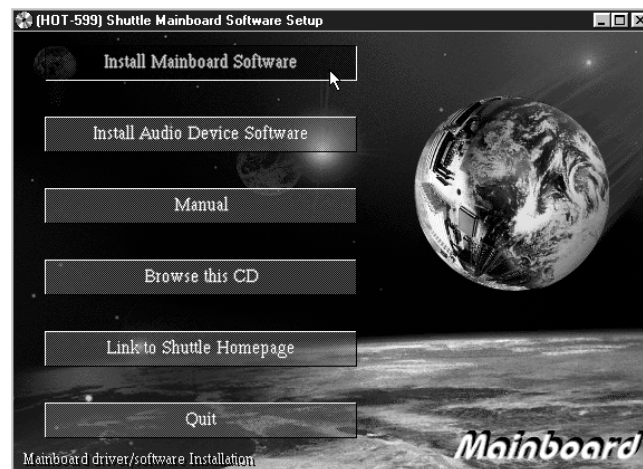


## *Windows NT4.0 Driver*

### **CD AutoRun Setup**

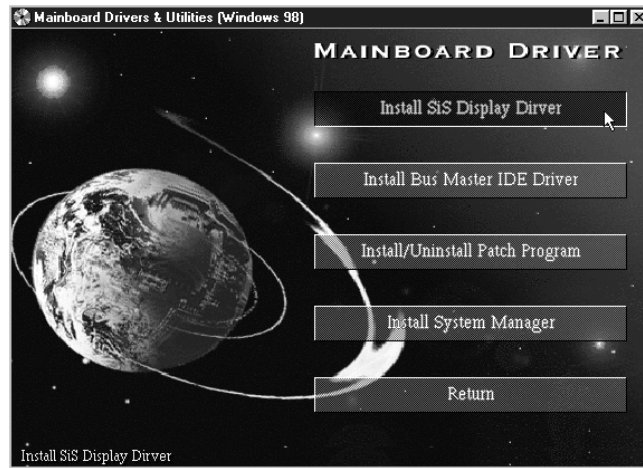
The AutoRun setup feature can run with CD. This utility will enable you to install drivers for Windows 95/98. As the CD is inserted (assuming the auto-insertion feature is enabled under your Windows operating system. Otherwise, double-click the My Computer icon on your Windows Desktop, then Right-click on your CD-ROM drive icon to explore the directory and click on AutoRun) the **Shuttle Mainboard Software Setup** window will appear on your screen.

1. Select using your pointing device (e.g. mouse) on the "**Install Mainboard Software**" bar.





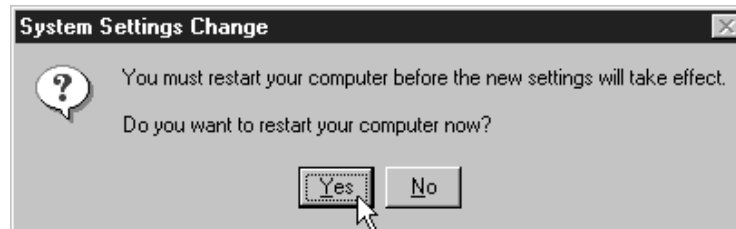
2. Then "**Mainboard Drivers & Utilities**" windows will appear on your screen. Click on the "**Install SiS Display Driver**" bar.



3. Once you made your selection, a **Setup Note** window will display to ask you close other applications if you want to install SiS AGP VGA Windows NT driver, click on the OK button.



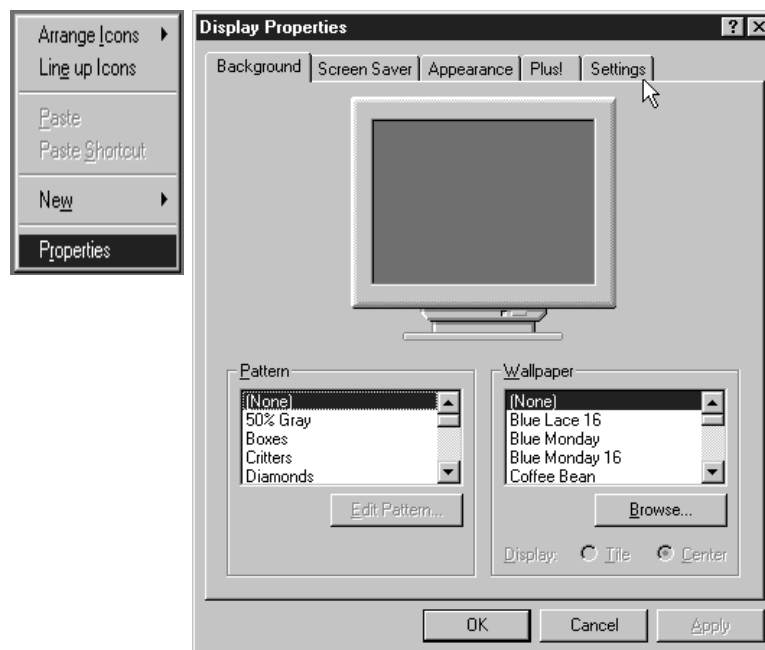
3. When you made your selection, **Setup program** automatically runs the installation.
4. Once the files are done copying, make sure you **reboot** the system to insure that the files are installed correctly.



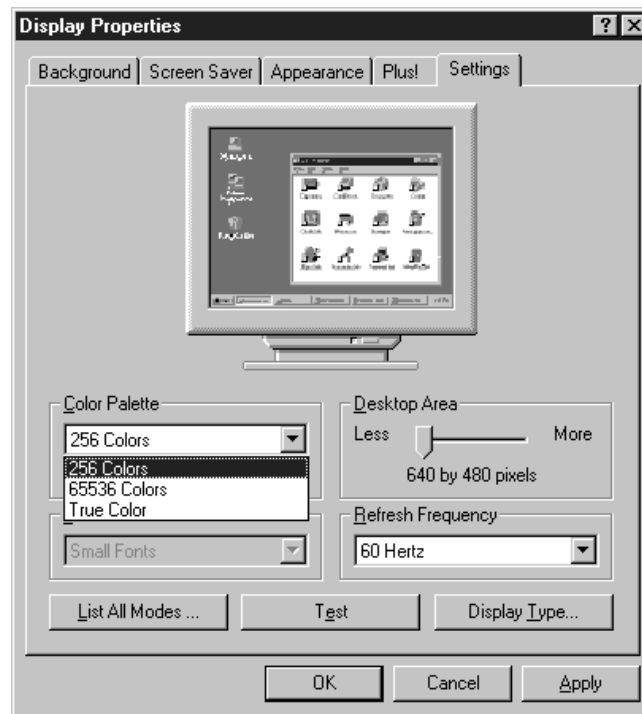
## Display Driver

### Using "Display Modes"

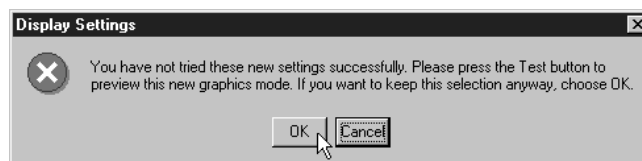
1. Click the right button on the mouse then select the **Properties** item, "Display Properties" Screen will show up.



2. Click on the **Setting** tab.
3. On “**Display Modes**” item and you may select desired resolution by changing “Desktop area” pointer, desired color by changing “Color palette” value, desired font size by changing “Font size”, and desired refresh rate by changing “Refresh rate”.



4. After completing selection, Windows NT will ask for display testing for new display mode, click on the TEST button to perform display mode test and then select “OK” or “Apply” to complete the whole setting



# 8

## ONBOARD YAMAHA DS-XG

### *Features*

#### **Onboard YAMAHA YMF740 audio controller**

- ✧ PCI 2.1 compliant
- ✧ PC'97/PC'98 specification compliant
- ✧ True full duplex playback and capture with different sampling rate
- ✧ Maximum 32-voice XG capital wavetable
- ✧ DirectSound and DirectMusic hardware accelerator
- ✧ Legacy audio compatibility
  - Genuine OPL3
  - Hardware Sound Blaster Pro compatibility
  - MPU401 UART mode MIDI interface
  - Joystick

## **Install YAMAHA DS-XG Windows 95/98 Driver**

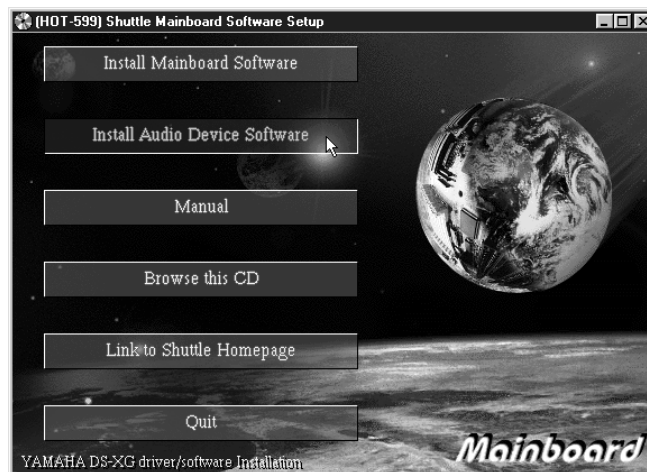
This guide describes the procedures for installing the onboard Yamaha DS-XG device driver software for Windows 95/98. The following procedures will be covered in each section:

Installing the DS-XG Device Driver Software in Windows 95/98

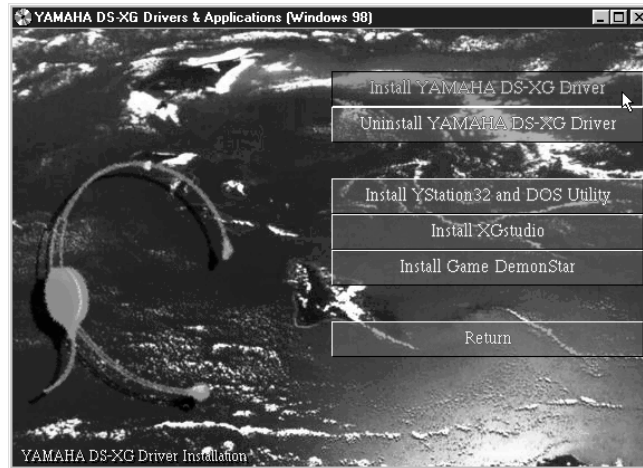
Verifying the DS-XG device driver installation

In order to properly install the DS-XG device driver to your computer, following order the sections contained in this guide.

1. Insert the installation CD into the CD-ROM driver.
2. If autorun is enabled on your system, the "**Shuttle Mainboard Software Setup**" will appear on your screen. Otherwise, double-click the My Computer icon on your Windows Desktop, then Right-click on your CD-ROM drive icon to explore the directory and click on **AutoRun**.



3. Select the "**Install Audio Device Software**" button after YAMAHA DS-XG Drivers & Applications screen is appeared.

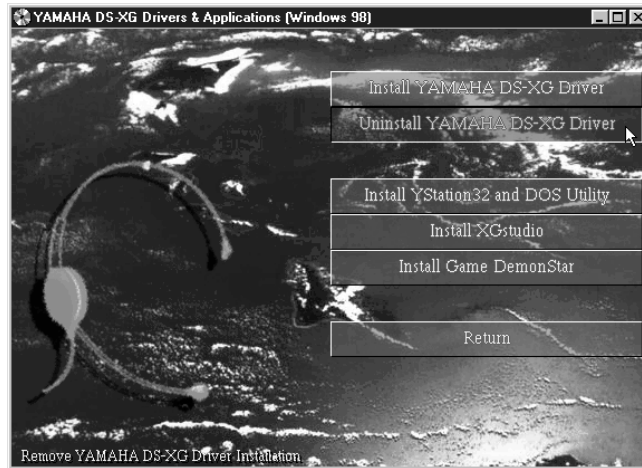


4. Once you made your selection, install wizard will automatically runs the installation. When the files are done copying make sure you **reboot** the system to insure that the files are installed correctly.

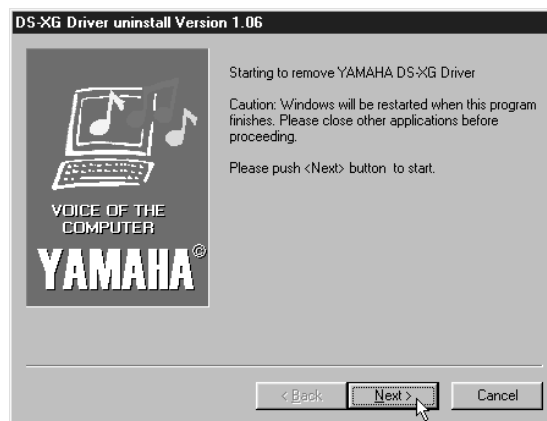


## *✎ Uninstall YAMAHA DS-XG Driver for Windows 95/98*

1. Uninstallation is like Installation, please refer "**Install YAMAHA DS-XG Driver**". It is different from decisions, please select "**Uninstall YAMAHA DS-XG Driver**", If succeeded a uninstaller wizard will be appeared.



2. Follow the instructions on screen to complete uninstallation.

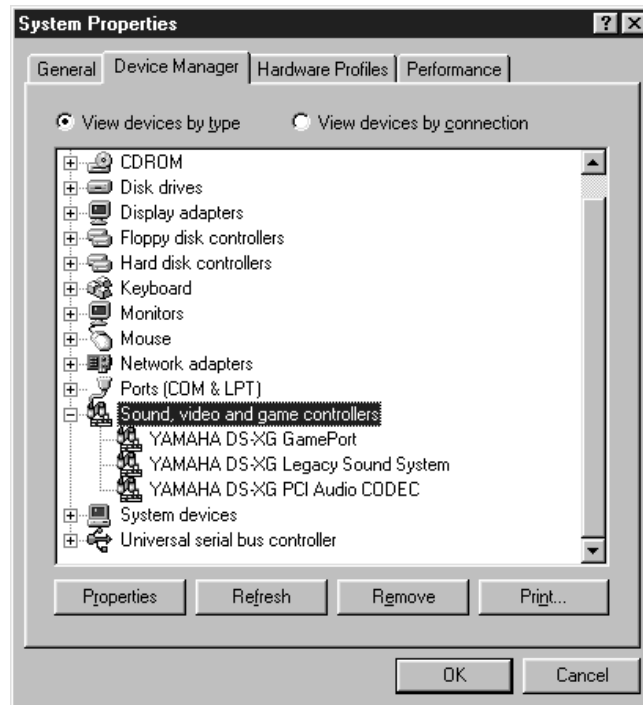


## *Verifying the DS-XG Device Driver Installation*

This section explains how to verify if the DS-XG device driver and software were installed successfully. To see if the DS-XG device driver has been installed successfully, complete the following steps:

1. Click the **Start** button on the Windows taskbar.
2. Highlight **Settings** and click on the **Control Panel** icon.
3. The Control Panel now appears. Double-click the **System** icon.
4. The System Properties window now appears. Click on the **Device Manager** tab as shown in figure below. The **Device Manager** page now appears as shown.
5. In the hierarchical directory structure illustrated above, double-click on **Sound, video and game controllers** and verify that YAMAHA DS-XG Device Manager is listed as shown.

- YAMAHA DS-XG GamePort
- YAMAHA DS-XG Legacy Sound System
- YAMAHA DS-XG PCI Audio CODEC





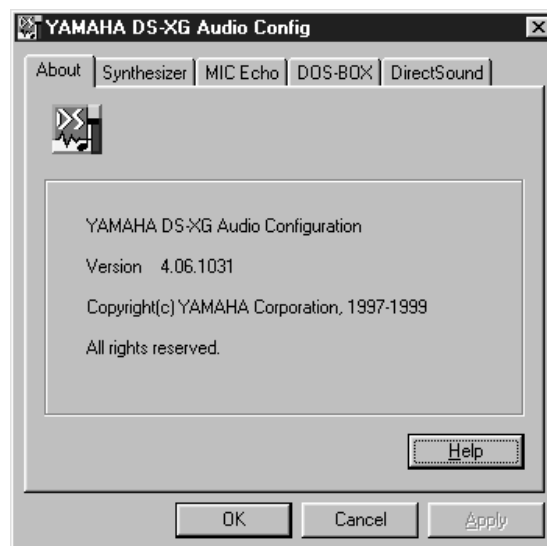
## **YAMAHA DS-XG Audio Config**

Once all DS-XG device drivers and software are installed, you can adjust the the yamaha DS-XG audio config by following the procedures in this section.

1. Click the **Start** button on the Windows taskbar.
2. Click on the **Settings** and then **Control Panel** icon.
3. The Control Panel now appears. Double-click the **YAMAHA DS-XG Audio Config** icon.



4. The **YAMAHA DS-XG Audio Config** window now appears.



## **Synthesizer effects**

The Synthesizer Effects option allows you to enable the MIDI synthesizer. Using the MIDI synthesizer, you can richly enhance the acoustic sound variations with features such as reverberation, chorus and variation. Simply click on the check-box associated with the desired feature.

The MIDI synthesizer utilizes the Wavetable sound generation method, supports the three command-compatible interface modes, and is fully compliant with the XG specification proposed by YAMAHA.

### **Reverberation**

When selected, the Reverberation option adds a resounding effect to the acoustic sound and provides concert hall ambience to the echo-back sound.

### **Chorus**

The Chorus feature provides a chorale effect to the musical sound.

### **Variation**

Variation allows the alteration of sound effects such as distortion and overdrive. Reverberation and Chorus are also features that can be adjusted using Variation.

## **MIC Echo**

The MIC Echo feature applies an echo sound effect to the microphone input and enables changes to the current Mic echo setting status.

Note that recording will be disabled while Mic echo is being used and will not be enabled until Mic echo is turned off. The Mic echo sound effect will also become invalid once Windows is restarted. Volume control is performed by adjusting the microphone input level in the standard Windows volume control tool.

### **Enable**

When selected, the Enable feature applies the Mic echo sound effect to the microphone input.

### **Delay Time**

The Delay Time function allows you to set a Mic echo repetitive cycle period. To lengthen the cycle period, move the slide bar to the right.

**Feedback**

The Feedback Gain function allows you to set a Mic echo duration period. To lengthen the duration period, move the slide bar to the right.

**Sound resource viewer for DOS-BOX**

This feature supports DOS applications running in the Windows DOS-BOX.

**MPU401 Out**

The function transfer MIDI data to the MPU401 as DOS application outputs to either the MIDI port interface or internal XG synthesizer.

**Serial**

The External Midi option produces MIDI data externally through the MPU401-compatible MIDI port.

**XG**

The XG Synthesizer feature transfers MIDI data to the internal XG synthesizer for producing acoustic sound outputs. Volume control is adjusted using MIDI with the standard Windows volume control tool.

**DirectSound**

The DirectSound H/W Accelerator handles the DirectSound application and minimizes CPU utilization. If the hardware accelerator and the DirectSound application do not function properly, click the checkbox to correct the problem (DO NOT click the checkbox while the application is running).

**Game Trouble Shooting**

When playing DirectSound game "NHL97", noises occur occasionally. Click the checkbox to correct the problem (Please do not click this when you don't play this game).

**Enable**

Checking this box enables the H/W accelerator.

**Disable**

Checking this box disables the H/W accelerator and enables the DirectSound application.

### **Install YStation32 and DOS Utility**

(Directory path:\Audio\App\YStation\)

The YStation32 consists of CD, MIDI and WAVE Players. The WAVE component can record and playback wave format files, DOS utility is also installed and will be activated in "restart the computer in MS-DOS mode".

### **Install XGstudio**

(Directory Path:\Audio\App\XGstudio\)

**XGstudio Mixer:** Playback the AVI file (movie data) or BMP file (picture data) in Sync with MIDI files.

**XGstudio Player:** Playback the MIDI file

### **Install Game Demonstrate**

(Directory Path:\Audio\App\Game\)

This is a XG midi supported space shooting game (shareware).

## **Install YAMAHA DS-XG Windows NT4.0 Driver**

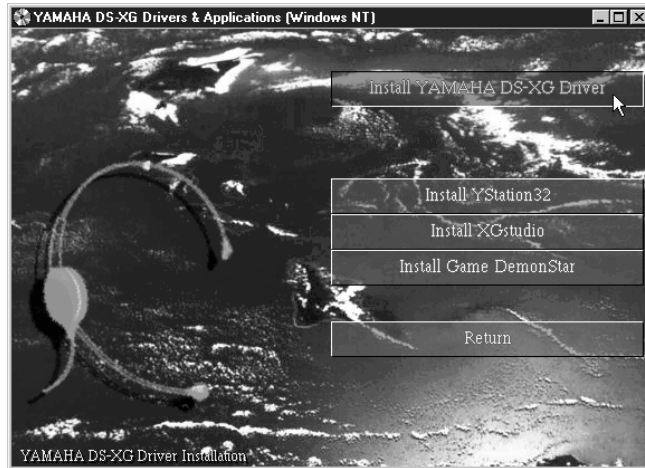
This guide describes the necessary procedures for installing the DS-XG device driver software for Windows NT 4.0. The following procedures will Install the DS-XG Device Driver Software

In order to properly install the DS-XG device driver to your computer, follow in order the sections contained in this guide.

1. Insert the installation CD into the CD-ROM driver.
2. If AutoRun is enabled on your system, the "Shuttle Mainboard Software Setup" will appear on your screen. Otherwise, double-click the My Computer icon on your Windows Desktop, then Right-click on your CD-ROM drive icon to explore the directory and click on **AutoRun**.



3. Select the "Install Audio Device Software" button after YAMAHA DS-XG Drivers & Applications screen is appeared.



4. Once you made your selection, install wizard will automatically runs the installation. When the files are done copying make sure you reboot the system to insure that the files are installed correctly.



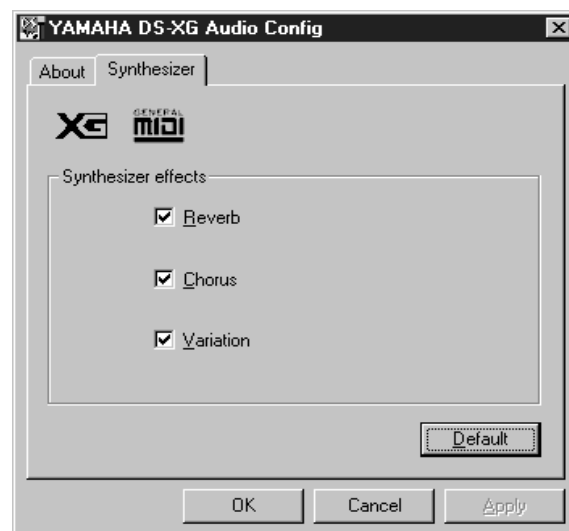
## **YAMAHA DS-XG Audio Config**

Once all DS-XG device drivers and software are installed, you can adjust the the yamaha DS-XG audio config by following the procedures in this section.

1. Click the **Start** button on the Windows taskbar.
2. Click on the **Settings** and then **Control Panel** icon.
3. The Control Panel now appears. Double-click the **YAMAHA DS-XG Audio Config** icon.



4. The **YAMAHA DS-XG Audio Config** window now appears.



## **Synthesizer effects**

The Synthesizer Effects option allows you to enable the MIDI synthesizer. Using the MIDI synthesizer, you can richly enhance the acoustic sound variations with features such as reverberation, chorus and variation. Simply click on the check-box associated with the desired feature.

The MIDI synthesizer utilizes the Wavetable sound generation method, supports the three command-compatible interface modes, and is fully compliant with the XG specification proposed by YAMAHA.

### **Reverberation**

When selected, the Reverberation option adds a resounding effect to the acoustic sound and provides concert hall ambience to the echo-back sound.

### **Chorus**

The Chorus feature provides a chorale effect to the musical sound.

### **Variation**

Variation allows the alteration of sound effects such as distortion and overdrive. Reverberation and Chorus are also features that can be adjusted using Variation.



### Installing AMD K6-2, K6-III CPU:

1. For AMD K6-2 450 MHz, K6-III 400MHz, and K6-III 450MHz CPUs, the actual CPU Vcore voltage is 2.4V instead of 2.2V. With these CPU's, you must use the manual Vcore voltage setting with jumpers. The setting of 2.4V Vcore is indicated in the Installation Guide.  
For SiS530, please refer to Table 3-3 (J2 jumper 3 on ).

### Installing Windows 95:

1. In the BIOS setup, under "PNP/PCI Configuration"  
Change the setting to "Win95" for "IRQ routing miniport driver" option
2. A patch file is required if the CPU in use is 350MHz or above. This patch file can be obtained from AMD's web-site at:  
***[http://www.amd.com/products/cpg/k623d/download\\_win95\\_patch.html](http://www.amd.com/products/cpg/k623d/download_win95_patch.html)***

Since this patch cannot be loaded until Windows 95 had finished installation or booting, CPU speed must first be set to a lower clock speed (300Mhz). Then after Windows 95 can successfully start up, run the patch file installation. After that, turn off the power and set the CPU clock speed back to the normal speed.

### Installing Windows 98:

1. In the BIOS setup, under "PNP/PCI Configuration"  
Change the setting to "Win98" for "IRQ routing miniport driver" option.  
*\*There is no need to install the VIA IrQ Routing Driver. If you have already installed this Driver, then set "IRQ routing miniport driver" option to "VIA" or "Win95".*

### Installing AGP video card:

1. Find out if the video card installed requires the USB (Universal Serial Bus) port. Consult the manual of the video card for this information. The USB port can be used by switching the "On Chip USB" option (under "Chipset Features Setup") to "Enable". The USB driver has to be installed properly under Windows. Windows 98 can install the USB driver automatically. For Windows 95, only release 2.0 or later can support USB, but the driver is bundled with release 2.1 or later.
2. For every AGP card, a VGARTD driver is required. It is found in the CD that comes with the MB. The driver is in <CD:\MAINBRD\VGARTD\VIA\>. Install this driver before the AGP video card's driver is installed.