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# CHAPTER 1

## Introduction

### 1-1 Product Specification

#### CPU

Intel Pentium 66/60/50 MHz processors clock  
Intel Pentium P54C processor

#### System Chipset

High performance SiS5511/5512/5513 share memory chipset, include high performance two channel PCI IDE

#### VGA Chipset

SiS6205 64 bit VGA with Playback function  
Share system memory up to 2MB which can be choiced by BIOS setup

#### Memory/Cache

High performance direct mapped cache controller with write-back scheme  
256KB SRAM on board and option to 512KB/1MB SRAMs  
Support 72-pin Fast Page and EDO DRAM SIMM  
Support four 72-pin memory sockets up to 128MB on board by using 1MB/ 2MB/4MB and 8MB x 32/36 parity or non-parity SIMM modules.  
4MB - 1MBx32/36                      8MB - 2MBx32/36                      16MB - 4MBx32/36  
32MB - 8MBx32/36  
Support FLASH EPROM (optional) for Windows 95 Plug & Play

#### Expansion Bus

Three PCI slots and three ISA slots

#### I/O Devices

Two PCI enhanced IDE interface for four device  
1.2/1.44MB Floppy  
Two faster serial ports  
One parallel port with EPP/ECP capability

#### Software Compatibility

Compatible with UNIX, NOVELL, WINDOWS 3.X, WINDOWS 95, WINDOW NT OS/2, and DOS etc.

#### BIOS

AWARD BIOS - Flash EPROM Option

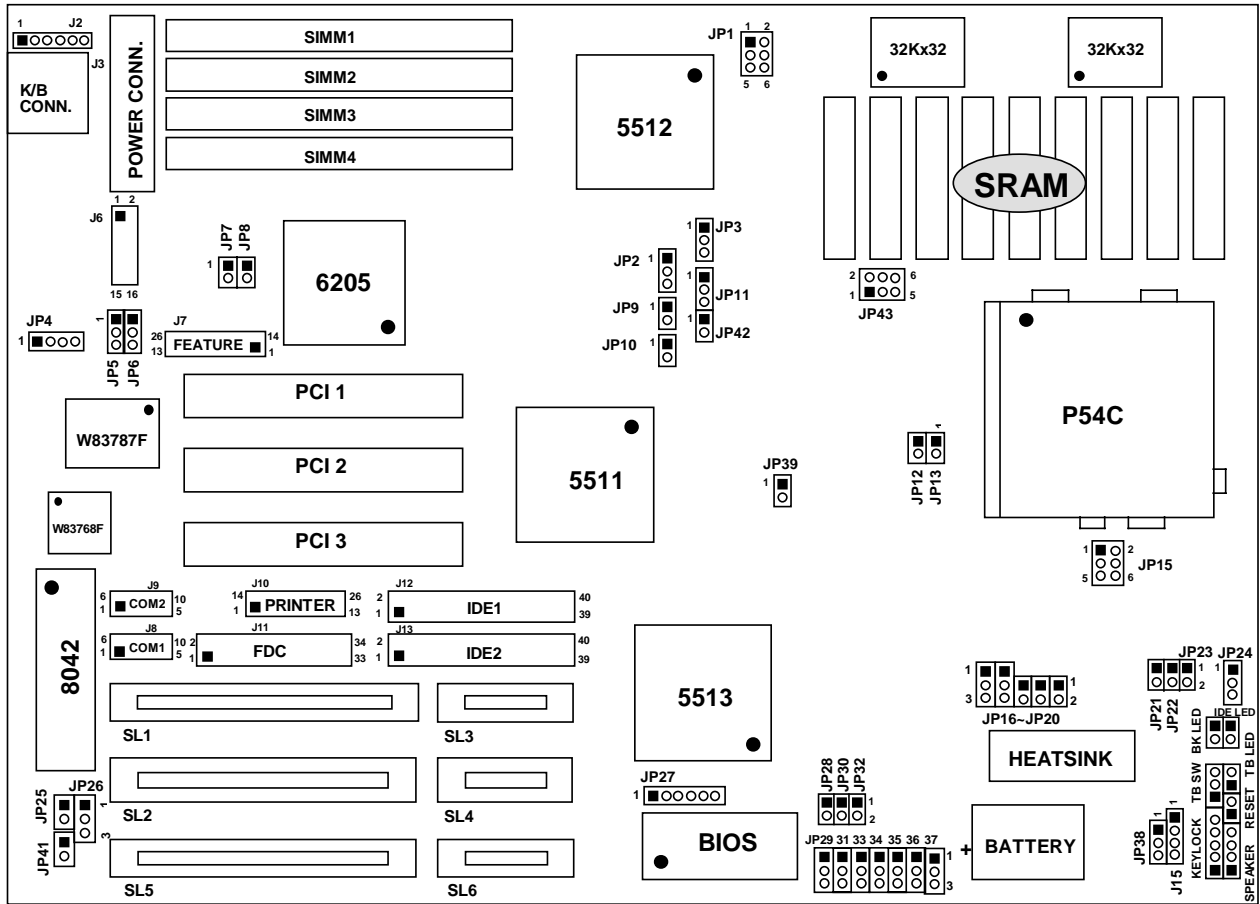
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# CHAPTER 2





























# Hardware Design



## 2-1 Motherboard Layout



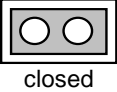
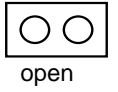
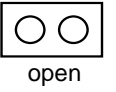
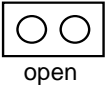
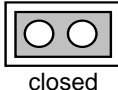
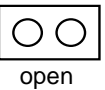
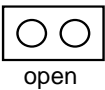
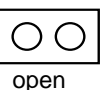
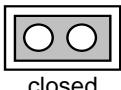
## 2-2 Jumper Setting

CPU Internal/External Clock Frequency Selection: **JP12, JP13, JP18, JP19**  
(WHITE color selector)

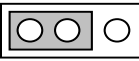
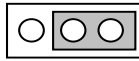
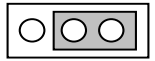
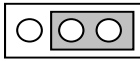
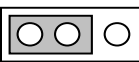

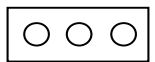
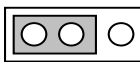

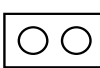
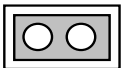

Internal clock	External clock	JP12	JP13	JP18	JP19	Factory Defaulty
166MHZ	66MHZ	 open	 closed	 closed	 closed	
150MHZ	60MHZ	 closed	 open	 closed	 closed	
133MHZ	66MHZ	 open	 closed	 open	 closed	*
120MHZ	60MHZ	 closed	 open	 open	 closed	
100MHZ	66MHZ	 open	 closed	 open	 open	
90MHZ	60MHZ	 closed	 open	 open	 open	
75MHZ	50MHZ	 closed	 closed	 open	 open	

Jumper no.	Setting	Color selector	Function	Factory Defaulty
JP39	 open   closed	BLACK	PCI CLK = 32MHZ  PCI CLK = 1/2 CPU CLK	*

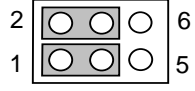
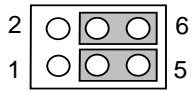
**CPU Voltage Selection: JP21, JP22, JP23 (YELLOW color selector)**

Jumper no.	JP21	JP22	JP23	Factory Defauly
3.3V	 closed	 open	 open	
3.45V	 open	 closed	 open	*
3.6V	 open	 open	 closed	

**SRAM Size Selection: JP3, JP11, JP42 (BLACK color selector)**

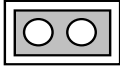
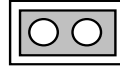
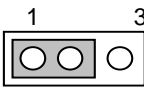


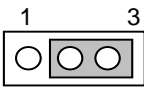
Cache Size	256KB	1MB	512K	
JP3	<div style="display: flex; justify-content: space-between; width: 100%;"> <span>1</span> <span>3</span> </div>  1-2 closed	<div style="display: flex; justify-content: space-between; width: 100%;"> <span>1</span> <span>3</span> </div>  2-3 closed	<div style="display: flex; justify-content: space-between; width: 100%;"> <span>1</span> <span>3</span> </div>  2-3 closed	<div style="display: flex; justify-content: space-between; width: 100%;"> <span>1</span> <span>3</span> </div>  2-3 closed
JP11	<div style="display: flex; justify-content: space-between; width: 100%;"> <span>1</span> <span>3</span> </div>  1-2 closed	<div style="display: flex; justify-content: space-between; width: 100%;"> <span>1</span> <span>3</span> </div>  2-3 closed	<div style="display: flex; justify-content: space-between; width: 100%;"> <span>1</span> <span>3</span> </div>  open	<div style="display: flex; justify-content: space-between; width: 100%;"> <span>1</span> <span>3</span> </div>  1-2 closed
JP42	 open	 open	 closed	 open
TAG U6	8Kx8	32Kx8	For Winbond 16Kx8	For Aster 16Kx8 or 32Kx8
DATA U7~U14	32Kx8	128Kx8	64Kx8	64Kx8

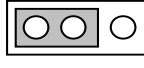
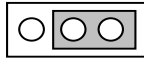
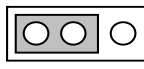
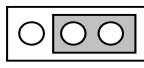

Jumper no.	Setting	Color selector	Function	Factory Defauly
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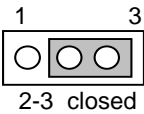
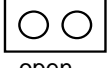
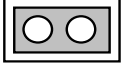
<b>JP1</b>	 1-3, 2-4 closed	YELLOW	PURE 3.3V SRAM	*
	 3-5, 4-6 closed		MIX MODE SRAM	







**OTHERS**

Color selector: GREEN

	<b>JP8</b>	<b>JP10</b>	<b>JP2</b>	<b>Factory Defauly</b>
<b>On Board VGA</b>	 closed	 closed	 1-2 closed	*
<b>ADDED VGA CARD</b>	 open	 open	 2-3 closed	

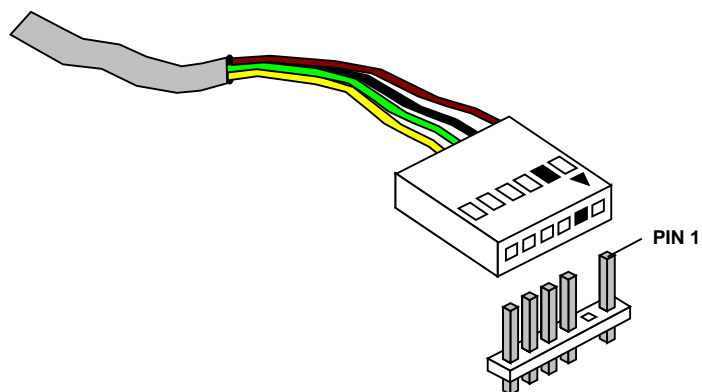
<b>Jumper</b>	<b>Setting</b>	<b>Color selector</b>	<b>Function</b>	<b>Factory Defauly</b>
<b>JP9</b>			Reserved	open
<b>JP16</b>	 1-2 closed	BLUE	CPU Inter Write Back	*
	 2-3 closed		CPU Inter Write Through	
<b>JP17</b>	 1-2 closed	BLUE	CPU Pipeline Disabled	*
	 2-3 closed		CPU Pipeline Enabled	
<b>JP24</b>	 1-2 closed	BLACK	Select 8042 RC	

	 <p>2-3 closed</p>		Select Break Switch For Suspend Mode	*
<b>JP23</b>	 <p>open</p>		Suspend Disabled	*
	 <p>closed</p>		Suspend Enabled	

Jumper	Setting	Color selector	Function	Factory Defauly
<b>JP25</b>	 <p>open</p>		Mono Monitor	*
	 <p>closed</p>		Color Monitor	
<b>JP38</b>	 <p>1-2 closed</p>	BLACK	On Board Battery	*
	 <p>2-3 closed</p>		Discharge CMOS	
<b>J15</b>			External Battery Jumper	
<b>JP41</b>	 <p>open</p>	BLACK	Release IRQ12 for ISA Bus	
	 <p>closed</p>		Select IRQ12 for PS/2 mouse	*

**J2:** PS/2 Mouse Connector





## Memory Module Combinations

Total Memory	SIMM4	SIMM3	SIMM2	SIMM1
4MB	4MB	-	-	-
8MB	4MB	4MB	-	-
	8MB	-	-	-
16MB	4MB	4MB	4MB	4MB
	8MB	8MB	-	-
	16MB	-	-	-
24MB	4MB	4MB	8MB	8MB
	8MB	8MB	4MB	4MB
32MB	16MB	16MB	-	-
	8MB	8MB	8MB	8MB
	32MB	-	-	-
40MB	4MB	4MB	16MB	16MB
	16MB	16MB	4MB	4MB
48MB	16MB	16MB	4MB	4MB
	8MB	8MB	16MB	16MB
64MB	16MB	16MB	16MB	16MB
72MB	32MB	32MB	4MB	4MB
80MB	32MB	32MB	8MB	8MB

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	8MB	8MB	32MB	32MB
96MB	16MB	16MB	32MB	32MB
	32MB	32MB	16MB	16MB
128MB	32MB	32MB	32MB	32MB

## CHAPTER 3

### AWARD BIOS SETUP

Award's ROM BIOS provides a built-in Setup program which allows user modify the basic system configuration and hardware parameters. The modified data will be stored in a battery-backed CMOS RAM so data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM stay unchanged unless here is configuration change in the system, such as hard drive replacement or new equipment is installed.

It is possible that CMOS had a battery failure which cause data lose in CMOS\_RAM. If so, re\_enter system configuration parameters become necessary.

#### To enter Setup Program

Power on the computer and press **<Del>** key immediately will bring you into BIOS **CMOS SETUP UTILITY**.

ROM PCI/ISA BIOS (2A51DJ1W)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.



Drive A : 1.2M , 5.25 in.	Base Memory : 640K
Drive B : None	Extended Memory : 13312K
Video : EGA/VGA	Other Memory : 384K
Halt On : All Errors	-----
	Total Memory : 14336K
Esc : Quit	↑ ↓ → ← : Select Item
F1 : Help	(Shift)F2: Change Color
	Pu/Pd/+/- : Modify

**Figure 3-2**

**NOTE:** If hard disk Primary Master/Slave and Secondary Master/Slave were used Auto, than the hard disk size and model will be auto-detect on display during POST.

**NOTE:** The "Halt On:" field is to determine when to halt the system by the BIOS is error occurred during POST.

## 3-2 BIOS FEATURES SETUP

Select the "**BIOS FEATURES SETUP**" option in the CMOS SETUP UTILITY menu allows user to change system related parameters in the displayed menu. This menu shows all of the manufacturer's default values of J-646. Again, user can move the cursor by pressing direction keys and <PgDn> of <PgUp> keys to modify the parameters. Pressing [F1] key to display help message of the selected item.

This setup program also provide 2 convient ways to load the default parameter data from BIOS [F6] or CMOS [F7] area if shown data is corrupted. This provide the system a capability to recover from any possible error.

ROM PCI/ISA BIOS (2A51DJ1W)  
 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	: Dsiabled
Quick Power On Self Test	: Disabled	D0000-D3FFF Shadow	: Disabled
Boot Sequence	: A,C	D4000-D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Up Floppy Seek	: Enabled	DC000-DFFFF Shadow	: Dsiabled
Boot Up Numlock Status	: On		
Boot Up System Speed	: High		
Gate A20 Option	: Fast		
Memory Parity Check	: Disabled		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		

PS/2 Mouse Function Control:Disabled	Esc: Quit      ↑ ↓ → ← : Select Item
PCI/VGA Palette Snoop : Disabled	F1 : Help                  Pu/Pd/+/-:Modify
	F5 : Old Values      (Shift)F2 : Color
	F6 : Load BIOS Defaults
	F7 : Load Setup Defaults

**Figure 3-3**

**Note:** The Security Option contains "setup" and "system". The "setup" indicates that the password setting is for CMOS only while the "system" indicates the password setting is for both CMOS and system boot up procedure.

**Virus Warning:** This category flashes on the screen. During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and the following error message will appear, in the mean time, you can run an anti-virus program to locate the problem. Default value is Disabled

- Enabled:** Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
- Disabled:** No warning message to appear when anything attempts to access the boot sector or hard disk partition table.

**CPU Internal Cache / External Cache:** These two categories speed up memory access. However, it depends on CPU/chipset design. The default value is Enable. If your CPU without Internal Cache then this item "CPU Internal Cache" will not be show.

- Enabled:** Enable cache
- Disabled:** Disable cache

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

- Enabled:** Enable quick POST
- Disabled:** Normal POST

**Boot Sequence:** This category determines which drive computer searches first for the DOS (Disk Operating System). Default value is A,C.

- A,C:** System will first search for floppy disk drive then hard disk drive.
- C,A:** System will first search for hard disk drive then floppy disk drive.

**Swap Floppy Drive:** The swap floppy drive. Default value is Disabled.

- Enabled:** Floppy A & B will be swapped under the DOS
- Disabled:** Floppy A & B will be not swap

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**Boot Up Floppy Seek:** During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks. The default value is Enabled.

**Enabled:** BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks.  
Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.

**Disabled:** BIOS will not search for the type of floppy disk drive by track number.  
Note that there will not be any warning message if the drive installed is 360K.

**Boot Up NumLock Status:** The default value is On.

**On:** Keypad is number keys.

**Off:** Keypad is arrow keys.

**Boot UP System Speed:** It selects the default system speed-the speed that the system will run at immediately after power up.

**High:** Set the speed to high.

**Low:** Set the speed to low.

**NOTE:** The board default value is **LOW** in the field. **Boot the system to controller turbo or De-turbo by Onboard Turbo Switch.**

**Gate A20 Option:** The default value is Fast.

**Normal:** The A20 signal is controlled by keyboard controller or chipset hardware.

**Fast:** Default: Fast. The A20 signal is controlled by Port 92 or chipset specific method.

**Typematic Rate Setting:** This determines the typematic rate.

**Enabled:** Enable typematic rate and typematic delay programming.

**Disabled:** Disable typematic rate and typematic delay programming. The system BIOS will use default value of this 2 items and the default is controlled by keyboard.

**Typematic Rate (Chars/Sec):**

6 : 6 characters per second	8 : 8 characters per second
10 : 10 characters per second	12 : 12 characters per second
15 : 15 characters per second	20 : 20 characters per second
24 : 24 characters per second	30 : 30 characters per second

**Typematic Delay (Msec)**

When holding a key, the time between the first and second character displayed.

250 : 250 msec

500 : 500 msec

750 : 750 msec

1000 : 1000 msec

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**Security Option:** This category allows you to limit access to the system and Setup, or just to Setup. The default value is 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 incorrect password is not entered at the prompt.

**NOTE:** To disable security, select **PASSWORD SETTING** at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

**Video BIOS Shadow:** It determines whether video BIOS will be copied to RAM, however, it is optional from chipset design. Video Shadow will increase the video speed.

**Enabled:** Video shadow is enabled

**Disabled:** Video shadow is disabled

C8000 - CBFFF Shadow:

CC000 - CFFFF Shadow:

D0000 - D3FFF Shadow:

D4000 - D7FFF Shadow:

D8000 - DBFFF Shadow:

DC000 - DFFFF Shadow:

These categories determine whether optional ROM will be copied to RAM by 16K byte or 32K byte per/unit and the size depends on chipset.

**Enabled:** Optional shadow is enabled.

**Disabled:** Optional shadow is disabled.

### 3-3 CHIPSET FEATURES SETUP

Choose the "**CHIPSET FEATURES SETUP**" in the CMOS SETUP UTILITY menu to display following menu.

ROM PCI/ISA BIOS (2A51DJ1W)  
CHIPSET FEATURES SETUP  
AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	Slow Refresh ( 1:4 )	: Enabled
L1 Cache Update Mode	: WB	ISA Bus Clock Frequency	: PCICLK/4
L2 Cache Update Mode	: WB	System BIOS Cacheable	: Enabled
L2 (WB) Tag Bit Length	: 7bits	Video BIOS Cacheable	: Enabled
Asyn. SRAM Leadoff Tim.	: R3 W4 Ck	Memory Hole At 15M-16M	: Disalbed
Asyn. SRAM Burst Tim.	: 2 Ck	VGA Shared Memory Size	: 1MB
Sync. SRAM Burst Tim.	: 3 Ck	VGA Memory Clock (MHz)	: 55
DRAM RAS to CAS delay	: 3 Ck		
RAS Active When Refresh	: 5 Ck		
CAS Delay In Posted-WR	: 1 Ck		
FP DRAM CAS Prec. Timing	: 1 Ck		
FP DRAM RAS Prec. Timing	: 4 Ck		
EDO CAS Pulse Width	: R1 W2 Ck		
EDO CAS Precharge Time	: 1 Ck		
EDO mole Timing	: 1 Ck		
EDO BRDY# Timing	: 1 Ck		
EDO RAS Precharge Timing	: 3 Ck		
EDO RAMW# Power Saving	: Disabled		
NA# Disable	: Disabled		
		Esc: Quit	↑ ↓ → ←: Select Item
		F1 : Help	Pu/Pd/+/-:Modify
		F5 : Old Values	(Shift)F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

**Figure 3-4**

**NOTE:** If you don't use the Onboard IDE connector, than use On-card (PCI or ISA card) IDE connector. You will set Onboard Primary IDE: Disabled an Onboard Secondary IDE: Disabled from CHIPSET FEATURES SETUP UTILITY.

The Onboard PCI IDE cable should be equal to or less than 18 inches (45 cm).

## 3-4 POWER MANAGEMENT SETUP

Choose the "POWER MANAGEMENT SETUP" in the CMOS SETUP UTILITY to display the following screen. This menu allows user to modify the power management parameters and IRQ signals. In general, these parameters should not be changed unless it's absolutely necessary.



ROM PCI/ISA BIOS (2A5IDJ1W+)  
POWER MANAGEMENT SETUP  
AWARD SOFTWARE, INC.

Power Management : Disabled	VGA Activity : Disable
PM Control by APM : Yes	IRQ3 (COM 2) : Enable
Video off Option : Susp, Stby → Off	IRQ4 (COM 1) : Enable
Video Off Method : V/H SYNC+Blank	IRQ5 (LPT 2) : Enable
Suspend Switch : Enable	IRQ6 (Floppy Disk) : Enable
Doze Speed (div by) : 2	IRQ7 (LPT 1) : Enable
Stdby Speed (div by): 3	IRQ8 (RTC Alarm) : Disable
 ** PM Timers **	IRQ9 (IRQ2 Redir) : Enable
HDD Off After : Disable	IRQ10 (Reserved) : Enable
Doze Mode : Disable	IRQ11 (Reserved) : Enable
Standby Mode : Disable	IRQ12 (PS/2 Mouse) : Enable
Suspend Mode : Disable	IRQ13 (Coprocessor) : Enable
 ** PM Events **	IRQ14 (Hard Disk) : Enable
COM Ports Activity : Enable	IRQ15 (Reserved) : Enable
LPT Ports Activity : Enable	Esc: Quit      ↑ ↓ → ←: Select Item
HDD Ports Activity : Enable	F1 : Help      Pu/Pd/+/-: Modify
PCI/ISA Master Act. : Enable	F5 : Old Values (Shift)F2 : Color
IRQ1-15 Activity : Enable	F6 : Load BIOS Defaults
	F7 : Load Setup Defaults

**Figure 3-5**

Again, user can move the cursor by pressing direction keys to the field need to be modified and press <PgDn> or <PgUp> to alter item selection. You can only change the content of Doze Mode, Standby Mode, and Suspend Mode when the Power Management is set to 'User Define'.

## 3-5 PCI CONFIGURATION SETUP

The PCI configuration program is for the user to modify the PCI IRQ signals when various PCI cards are inserted in the PCI slots.

**WARNING: Any misplacing IRQ could cause system hang up.**

ROM PCI/ISA BIOS (2A5IDJ1W)  
 PCI CONFIGURATION SETUP  
 AWARD SOFTWARE, INC.

PnP BIOS Auto-Config : Disabled	Primary IDE Prefetch : Disabled
1st Available IRQ : 10	Secondary IDE Prefetch : Disabled
2nd Available IRQ : 11	IDE Burst Mode : Enabled
3rd Available IRQ : 9	IDE Post Write : Enabled
4th Available IRQ : 12	IDE HDD Block Mode : Enabled
PCI IRQ Activated By : Level	Onboard FDD Controller : Enabled
PCI IDE IRQ Map To : PCI-AUTO	Onboard Serial Port 1 : COM1/3F8
Primary IDE INT# : A	Onboard Serial Port 2 : COM2/2F8
Secondary IDE INT# : B	Onboard Parallel Port : 378H/IRQ7
CPU-PCI Post Write Rate : 3 Ck	Onboard Parallel Mode : Normal
Latency for CPU-PCI : 1 Ck	
CPU-PCI Burst Mem Write : Enabled	
CPU-PCI Post Mem Write : Enabled	
Internal PCI/IDE : Both	Serial Port 2 IRQ Map to: IRQ3
IDE Primary Master PIO : Auto	Esc: Quit           ↑ ↓ → ←: Select Item
IDE Primary Slave PIO : Auto	F1 : Help           Pu/Pd/+/-:Modify
IDE Secondary Master PIO: Auto	F5 : Old Values   (Shift)F2 : Color
IDE Secondary Slave PIO : Auto	F6 : Load BIOS Defaults
	F7 : Load Setup Defaults

**Figure 3-6**

### 3-6 LOAD SETUP DEFAULTS

The "LOAD SETUP DEFAULTS" function loads the system default data directly from ROM and initialize associated hardware properly. This function will be necessary only when the system CMOS data is corrupted.

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ROM PCI/ISA BIOS (2A51DJ1W)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

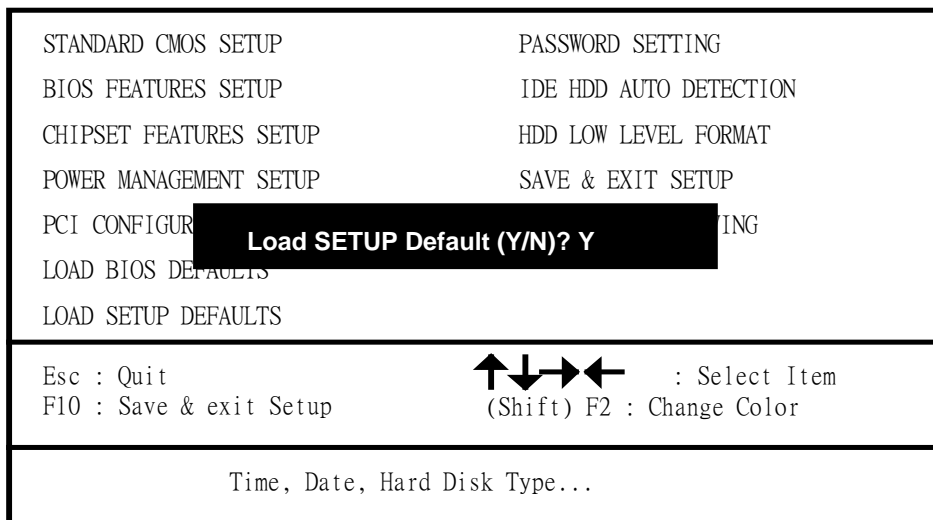


Figure 3-7

## 3-7 CHANGE PASSWORD

To change the password, choose the "**PASSWORD SETTING**" option from the CMOS SETUP UTILITY menu and press **<Enter>**.

**NOTE:** Either "Setup" or "System" must be selected in the "Security Option" of the FEATURES SETUP menu (Refer to Figure 3-3 for the details).

1. If CMOS is corrupted or the option was not used, a default password stored in the ROM will be used. The screen will display the following message:

**Enter Password:**

Press the **<Enter>** key to continue after proper password is given.

2. If CMOS is corrupted or the option was used earlier and the user wish to change default password, the SETUP UTILITY will display a message and ask for a confirmation.

**Confirm Password:**

3. After pressing the **<Enter>** key (ROM password if the option was not used) or current password (user-defined password), the user can change the password and store new one in CMOS RAM. A maximum of 8 characters can be entered.

## 3-8 IDE HDD Auto Detection

The "IDE HDD AUTO DETECTION" utility is a very useful tool especially when you do not know which kind of hard disk type you are using. You can use this utility to detect the correct disk type installed in the system automatically or you can set HARD DISK TYPE to Auto in the STANDARD CMOS SETUP. you don't need the "IDE HDD AUTO DETECTION" utility. The BIOS will Auto-detect the hard disk size and model on display during POST.

ROM PCI/ISA BIOS (2A59CJ19)  
 CMOS SETUP UTILITY  
 AWARD SOFTWARE, INC.

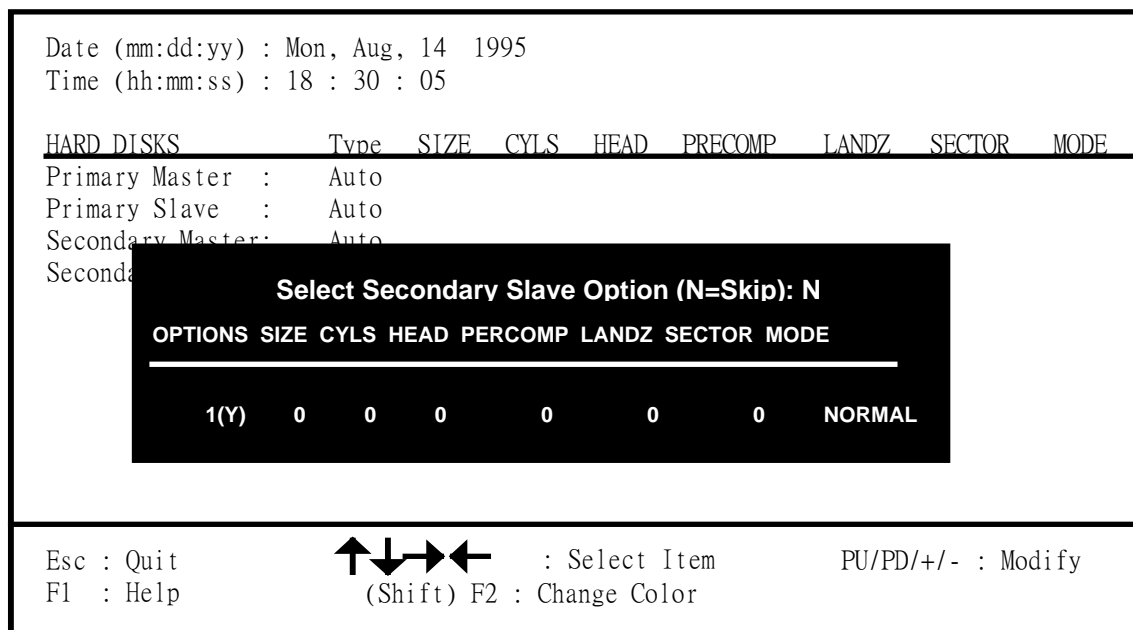


Figure 3-9

### NOTE: HDD Modes

The Award BIOS supports 3 HDD modes : **NORMAL, LBA & LARGE**

#### **NORMAL mode**

Generic access mode in which neither the BIOS nor the IDE controller will make any transformations during accessing.

The maximum number of cylinders, head & sectors for NORMAL mode are 1024, 16 & 63.

no.	Cylinder	(1024)
x no.	Head	( 16)
x no.	Sector	( 63)
x no.	per sector	( 512)
528 Megabytes		

---

---

If user set this HDD to NORMAL mode, the maximum accessible HDD size will be 528 Megabytes even though its physical size may be greater than that!

### **LBA (Logical Block Addressing) mode**

A new HDD accessing method to overcome the 528 Megabyte bottleneck. The number of cylinders, heads & sectors shown in setup may not be the number physically contained in the HDD.

During HDD accessing, the IDE controller will transform the logical address described by sector, head & cylinder into its own physical address inside the HDD.

The maximum HDD size supported by LBA mode is 8.4 Gigabytes which is obtained by the following formula:

$$\begin{array}{r} \text{no. Cylinder} \quad (1024) \\ \times \text{no. Head} \quad (255) \\ \times \text{no. Sector} \quad (63) \\ \hline \times \text{bytes per sector} \quad (512) \\ \hline \text{8.4 Gigabytes} \end{array}$$

### **LARGE mode**

Extended HDD access mode supported by Award Software.

Some IDE HDDs contain more than 1024 cylinder without LBA support (in some cases, user do not want LBA). The Award BIOS provides another alternative to support these kinds of LARGE mode:

<u>CYLS.HEAD</u>	<u>SECTOR</u>	<u>MODE</u>	
1120	16	59	NORMAL
560	32	59	LARGE

BIOS tricks DOS (or other OS) that the number of cylinders is less than 1024 by dividing it by 2. At the same time, the number of heads is multiplied by 2. A reverse transformation process will be made inside INT 12h in order to access the right HDD address the right HDD address!

Maximum HDD size:

$$\begin{array}{r} \text{no. Cylinder} \quad (1024) \\ \times \text{no. Head} \quad (32) \\ \times \text{no. Sector} \quad (63) \\ \hline \times \text{bytes per sector} \quad (512) \\ \hline \text{1 Gigabytes} \end{array}$$

### **NOTE:**

**To support LBA or LARGE mode of HDDs, there must be some softwares involved. All these softwares are located in the Award HDD Service Routine (INT 13h). It may be failed to access a HDD with LBA (LARGE) mode selected if you are running under a Operating System which replaces the whole INT 13h.**

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UNIX operating systems do not support either LBA or LARGE and must utilize the Standard mode. UNIX can support drives larger than 528MB.

## CHAPTER 4

### VGA Installation

#### 4-1 DOS Utility

##### Install Program: INSTDRV.EXE

1. The SiS drivers are in packed file form. You can use INSTDRV.EXE to unpack them before beginning installation.
2. To use INSTDRV.EXE, please follow the procedures below:
  - (1) Insert **SiS SVGA Drivers** in drive A or drive B.
  - (2) Run INSTDRV.EXE program.  
**A:\>instdrv <Enter>**
  - (3) From the main menu, select the desired application software.
  - (4) Follow the instructions from the screen to complete the process.
  - (5) After complete the process, exit INSTDRV.EXE program.
3. You should realize
  - (1) For some software packages (e.g. ADI packages, PCAD), their driver files can be put to any directory you prefer.
  - (2) For some software packages (e.g. WordPerfect, GEM/Ventura, VersaCAD/386, Lotus 1-2-3), the driver files must be put to where main program resides.
  - (3) For some software packages (e.g. OrCAD Rel. 4), they have their default directory for the drivers to reside.

Therefore, you should be very careful of the "drive:\directory" you assign for these drivers. Otherwise, the installation will fail.

##### SVGAUTL.EXE

SVGAUTL.EXE can supports three functions:

**Video Mode Setting** SiS 6205 supports many enhanced Text Mode and Graphic Mode, you can use SVGAUTL.EXE to select the desired video mode. For 720x400, 640x480, 800x600, 1024x768, and 1280x1024 resolutions

**Frame Rate Setting** SiS 6205 supports multiple frame rates. If your monitor could synchronize with these frame rates

**Power Saving Setting** SiS6205 also supports VESA DPMS Power Saving Modes. SVGAUTL.EXE can help you to set the capability.

To use SVGAUTL.EXE,

1. Type SVGAUTL in the directory where it resides.

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**C:\> SVGAUTL <Enter>** (suppose SVGAUTL.EXE resides in C:\)

2. The Main Menu would appear and direct you to configure SiS 6205.
3. When you complete configuration, you may save your preferences to "AUTOEXEC.BAT file and use it as your power-on (or hardware reset) default environment.

You can use SVGAUTL.EXE to default the parameter as you want. Follow the below procedure.

Syntax:

>SVGAUTL [/D:mode\_no] [/F0:n0] [/F1:n1] [/F2:n2] [/F3:n3] [/F4:n4] [/PA:ta] [/PB:tb]

/D: Set the Video Mode to be mode\_no which is a hex number.

For example: Set 1024x768 256 color graphic mode.

>SVGAUTL /D:38 <Enter>

/F0: Set the frame rate to be n0 Hz.

For example : Set 720x400 color text mode with 84Hz frame rate.

>SVGAUTL /F0:84 <Enter>

/F1: Set frame rate to be n1 Hz.

For example : Set 640x480 graphic mode with 60Hz frame rate

>SVGAUTL /F1:60 <Enter>

/F2: set frame rate to be n2 Hz.

For example : Set 800x600 graphic mode with 72Hz frame rate.

>SVGAUTL /F2:72 <Enter>

/F3: Set frame rate to be n3 Hz.

For example : Set 1024x768 graphic mode with 60Hz frame rate.

>SVGAUTL /F3:60 <Enter>

/F4: Set frame rate to be n4 Hz.

For example : Set 1280x1024 graphic mode with 60Hz frame rate.

>SVGAUTL /F4:60 <Enter>

/PA: Set Standby Timer to be ta minutes. (0 < ta < 15 min.)

For example : Set Standby Timer be 5 minutes.

>SVGAUTL /PA:5 <Enter>

/PB: Set Suspend Timer to be tb minutes. (0 < tb < 15 min.)

For example : Set Suspend Timer be 5 minutes.

>SVGAUTL /PB:5 <Enter>

**Note:**

1. **Suspend Time would be "ta + tb". (i.e. standby time + suspend time)**
2. **The timers will not be very accurate and would just be around the time.**

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## Video Mode Table

### Standard Mode

MODE	DISPLAY SIZE	COLORS SHADES	FRAME RATE.	H-SYNC.	VIDEO FREQ.
0	320x200	16	70	31.5 K	25.1 M
0*	320x350	16	70	31.5 K	25.1 M
0+	360x400	16	70	31.5 K	28.3 M
1	320x200	16	70	31.5 K	25.1 M
1*	320x350	16	70	31.5 K	25.1 M
1+	360x400	16	70	31.5 K	28.3 M
2	640x200	16	70	31.5 K	25.1 M
2*	640x350	16	70	31.5 K	25.1 M
2+	720x400	16	70	31.5 K	28.3 M
3	640x200	16	70	31.5 K	25.1 M
3*	640x350	16	70	31.5 K	25.1 M
3+	720x400	16	70	31.5 K	28.3 M
4	320x200	4	70	31.5 K	25.1 M
5	320x200	4	70	31.5 K	25.1 M
6	640x200	2	70	31.5 K	25.1 M
7*	720x350	4	70	31.5 K	28.3 M
7+	720x400	4	70	31.5 K	28.3 M
0D	320x200	16	70	31.5 K	25.1 M
0E	640x200	16	70	31.5 K	25.1 M
0F	640x350	2	70	31.5 K	25.1 M
10	640x350	16	70	31.5 K	25.1 M
11	640x480	2	60	31.5 K	25.1 M
12	640x480	16	60	31.5 K	25.1 M
13	320x200	256	70	31.5 K	25.1 M



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## Enhanced Mode

MODE	DISPLAY SIZE	COLORS SHADES	FRAME RATE.	H-SYNC.	VIDEO FREQ.
22	1056x352	16	70	30.5 K	40.0 M
23	1056x350	16	70	30.5 K	40.0 M
24	1056x364	16	70	30.5 K	40.0 M
25	640x480	16	60	31.5 K	25.1 M
26	720x480	16	60	31.5 K	25.1 M
29	800x600	16	56	35.1 K	30.0 M
29*	800x600	16	60	37.9 K	40.0 M
29+	800x600	16	72	48.0 K	50.0 M
29#	800x600	16	75	46.8 K	50.0 M
2A	800x600	16	56	35.1 K	36.0 M
2D	640x350	256	70	31.5 K	25.1 M
2E	640x480	256	60	31.5 K	25.1 M
2E*	640x480	256	72	37.9 K	31.5 M
2E+	640x480	256	75	37.5 K	31.5 M
2F	640x400	256	70	31.5 K	25.1 M
30	800x600	256	56	35.1 K	36.0 M
30*	800x600	256	60	37.9 K	40.0 M
30+	800x600	256	72	48.0 K	50.0 M
30#	800x600	256	75	46.8 K	50.0 M
37i	1024x768	16	87	35.5 K	44.9 M
37n	1024x768	16	60	48.4 K	65.0 M
37n+	1024x768	16	70	56.5 K	75.0 M
37n#	1024x768	16	75	60.2 K	80.0 M
38i	1024x768	256	87	35.5 K	44.9 M
38n	1024x768	256	60	48.4 K	65.0 M
38n+	1024x768	256	70	56.5 K	75.0 M
38n#	1024x 768	256	75	60.2 K	80.0 M
39i	1280x1024	16	89	48.8 K	80.0 M
39n	1280x1024	16	60	65.0 K	110.0 M
3Ai	1280x1024	256	89	48.8 K	80.0 M
3An	1280x1024	256	60	65.0 K	110.0 M
40	320x200	32K	70	31.5 K	25.1 M
41	320x200	64K	70	31.5 K	25.1 M
42	320x200	16.8M	70	31.5 K	25.1 M
43	640x480	32K	60	31.5 K	25.1 M
43*	640x480	32K	72	37.9 K	31.5 M
43+	640x480	32K	75	37.5 K	31.5 M

44	640x480	64K	60	31.5 K	25.1 M
44*	640x480	64K	72	37.9 K	31.5 M
44+	640x480	64K	75	37.5 K	31.5 M
45	640x480	16.8M	60	31.5 K	25.1 M
45*	640x480	16.8M	72	37.9 K	31.5 M
45+	640x480	16.8M	75	37.5 K	31.5 M
46	800x600	32K	56	35.1 K	36.0 M
46*	800x600	32K	60	37.9 K	40.0 M
46+	800x600	32K	72	48.0 K	50.0 M
46#	800x600	32K	75	46.8 K	50.0 M
47	800x600	64K	56	35.1 K	36.0 M
47*	800x600	64K	60	37.9 K	40.0 M
47+	800x600	64K	72	48.0 K	50.0 M
47#	800x600	64K	75	46.8 K	50.0 M
48	800x600	16.8M	56	35.1 K	36.0 M
48*	800x600	16.8M	60	37.9 K	40.0 M
48+	800x600	16.8M	72	48.0 K	50.0 M
48#	800x600	16.8M	75	46.8 K	50.0 M
49i	1024x768	32K	87	35.5 K	44.9 M
49n	1024x768	32K	60	48.4 K	65.0 M
49n+	1024x768	32K	70	56.5 K	75.0 M
49n#	1024x768	32K	75	60.2 K	80.0 M
4Ai	1024x768	64K	87	35.5 K	44.9 M
4An	1024x768	64K	60	48.4 K	65.0 M
4An+	1024x768	64K	70	56.5 K	75.0 M
4An#	1024x768	64K	75	60.2 K	80.0 M
4Bi	1024x768	16.8M	87	35.5 K	44.9 M
4Ci	1280x1024	32K	89	48.8 K	80.0 M
4Di	1280x1024	64K	89	48.8 K	80.0 M

**Note:**

(1) **i** - interlaced mode

**n** - noninterlaced mode

(2) For the limitation of memory bandwidth in 1MB DRAM configuration, the following video modes is not supported in 1MB configuration: modes 45\*, 45+, 46+, 46#, 47+, and 47#.

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## 4-2 Software Drivers

To make use of the advance features of SiS 6205, extended graphic and text modes are supported by software application drivers developed by SiS. The following applications are currently supported:

- 3D Studio Ver. 3.0
- AutoCAD/386 Release 11, 12
- Auto Shade/386 Ver. 2.0
- GEM 3.0/Ventura 2.0
- Lotus 1-2-3/Symphony Ver. 2.x
- MicroSoft Windows 3.1
- MicroSoft Windows NT Ver. 3.1 & 3.5
- MicroSoft Windows 95
- OrCad (SDT/VST/PCB) Rel 4
- OS/2 Presentation Manager 3.0
- P-CAD Ver. 6.06
- VersaCAD/386 Ver. 2.1
- Word Perfect 5.x & 6.0

### 4-2-1 Windows 3.1

#### Driver Files

1. The enclosed SiS 6205 Windows 3.1 driver contains the following files (in compressed format) :

<b>Setup Programs</b>	A group of programs used to setup drivers.
<b>VGA800.DR_</b>	800x600 16-color driver
<b>VGA1024.DR_</b>	1024x768 16-color driver
<b>VGA1280.DR_</b>	1280x1024 16-color driver
<b>VGA256.DR_</b>	256-color driver (for all resolution)
<b>VGA32K.DR_</b>	32K-color driver (for all resolution)
<b>VGA64K.DR_</b>	64K-color driver (for all resolution)
<b>VGA16M.DR_</b>	16M-color driver (for all resolution)
<b>VDD SIS.386</b>	Graber file for all resoution and color
<b>OEMSETUP.INF</b>	EMSETUP file for setup procedure
<b>OEM SIS.INF</b>	Same content as OEMSETUP.INF for setup procedure

#### Windows Setup

1. In "SiS VGA Driver" program group, choose "Setup" icon to enter setup screen.  
choose which options you would like to use.
2. After completing your selections, choose "OK".
3. Choose "Restart Winodws" to re-boot Windows using new settings. Or choose "Continue" to continue your current Windows processes.  
(But when you re-boot Windows, the new settings would take effect.)

---

---

## Power Saving Setup in Windows

1. In "SiS VGA Driver" program group, choose "power\_saver" icon to enter power\_saver setup screen, select which options you would like to use.
2. After completing the selections, choose "OK".

### Define\_Key

"Define\_Key" is used to define "hot keys" for zoom-in or zoom-out screen without entering setup program.

The operation principles of zoom-in and zoom-out are as follow:

- (1) The resolution change sequence for zoom-in is  
1024x768 ==> 800x600 ==> 640x480.
- (2) The resolution change sequence for zoom-out is  
640x480 ==> 800x600 ==> 1024x768.
- (3) But you must first be able to zoom-in before you may zoom-out, that means you can not get a resolution larger than that you setup.

To use this feature, please follow the following procedures.

1. In "SiS VGA Driver" program group, choose "Define Key" icon to enter "hot key" define screen. select which "hot key" you would like to use and enable it.
2. After completing the selections, choose "OK".

### Notes:

1. **The setup programs should be placed on the root of the diskette and the drivers should be placed on the subdirectory "\\windows".**
2. **All the driver files (i.e. "VGA\*.DRV") are in compressed format, therefore you can't use Windows Setup Program to setup them before they are de-compressed.**
3. **The power saver's timer settings would be effective even exit Windows back to DOS.**

## 4-2-2 OS/2 3.0

### Driver Files

The OS/2 3.0 driver files resides on the "SiS 6205 Driver Diskette Sub-directory OS2WARP (i.e. \OS2WARP)". The enclosed SiS 6205 OS/2 3.0 driver contains the following files:

<b>SISINST.CMD</b>	SiS driver install program
<b>SVGA.EXE</b>	SiS PMI Generator
<b>S768256.DL@</b>	SiS IBMDEV32.DLL Display Driver
<b>OTHERS</b>	Other files required during installation

### OS/2 Setup

1. Install your OS/2 system using "**VGA display**" option (i.e. standard VGA). Then start your OS/2 system.
2. Enter "OS/2 window" or "OS/2 full screen".
3. Insert "SiS 6205 Driver" diskette into OS/2 3.0 display driver directory and type  
SISINST [drive] <Enter>, (where [drive] is the boot drive character).

For example,

- 
- 
- \OS2WARP>SISINST C (suppose drive C is the boot drive)
4. All the Driver Files will be copied to a subdirectory C:\SISDRV.
  5. The "Display Driver Install" menu appears. Choose the "Primary Display Adapter" option. Click "OK".
  6. The "Primary Display Adapter Type" menu appears. "S Si6205 Super VGA Driver" is shown in the box. Click "OK" to continue.
  7. The "Display Driver Install" menu appears again. Click "OK" to continue.
  8. The "Select Display Resolution" menu appears. The following display drivers shown in the box:  
640x480      256 colors driver (default resolution)  
Choose this display driver.
  9. The "Source Directory" menu is shown on screen. Specify the "drive:\directory" holds the SiS 6205 OS/2 3.0 display drivers. (You can choose either A:\OS2WARP or C:\SISDRV in this case) The program would install the selected display driver for you.
  10. When the display driver installation is completed, shut down the system and restart your OS/2 3.0.
  11. SiS 6205 supports the following resolutions:  
640x480      256-colors  
800x600      256-colors  
1024x768      256-colors  
1280x1024   256-colors (only suits for 2MB)  
640x480      64K-colors  
800x600      64K-colors  
1024x768      64K-colors (only suits for 2MB)
  12. If you want to change resolution, run system icon of System Setup Group in PM, highlight the resolutin you want to use and quit, shut down the system and restart again.

### 4-2-3 Autodesk ADI 4.2 -Protected Mode

#### Driver Files

The enclosed SiS 6205 ADI driver contains the following file:

**RCPSIS.EXP**      SiS ADI Driver (for all resolutions & colors)

**Note: This version of ADI driver does not support 16-color operation.**

This driver fits for a series of Autodesk Inc. products including:

- (1) AutoCAD/386 R11
- (2) AutoCAD/386 R12
- (3) AutoShade/386 V2.0
- (4) 3D Studio V3.0

Their installtion procedures are different from one program to the others.

But the first step of installation is the same for all these programs, that is "To unpack and copy drivers to where you would like them to reside."

Therefore, we will state this step below.

#### **AutoCAD R11 Setup**

- 
- 
1. The following procedures assume that
    - (1) You have complete "unpack & copy" procedure.
    - (2) Your ADI 4.2 drivers are located in C:\ADI42.
  2. Add the following setting to your own batch file for AutoCAD R11 (say ACADR11.BAT) or to your "AUTOEXEC.BAT" file:  
**SET DSPADI=\ADI42\RCPSIS.EXP <Enter>**
  3. Delete the configure file ACAD.CFG resides in \ACAD directory.
  4. Type **ACADR11 <Enter>** to configure your AutoCAD R11 system.
  5. In "Select Display Device:" item, choose "ADI P386 V4.0/4.1 display."
  6. In "Select Display Resolution" screen, choose which display driver you want to use.
  7. Go through the whole instructions, and the system would start with the desired display setting.

### **AutoCAD R12 Setup**

1. The following procedures assume that
  - (1) You have complete "unpack & copy" procedure.
  - (2) Your SiS ADI 4.2 drivers are located in C:\ADI42.
  - (3) Your AutoCAD R12 program is located in C:\ACADR12.
  - (4) Your AutoCAD R12 default drivers are located in C:\ACADR12\DRV.
  - (5) Your AutoCAD R12 configure file ACAD.CFG is located in C:\ACADR12.
2. Copy the following driver file to C:\ACADR12\DRV: **RCPSIS.EXP**.  
You may complete this step by **COPY C:\ADI42\RCPSIS.EXP C:\ACADR12\DRV**.
3. Delete your original ACAD.CFG file. You may complete this step by  
**DEL C:\ACADR12\ACAD.CFG**.
4. Restart your AutoCAD R12 program as usual.
5. AutoCAD R12 will ask you to complete the configuration procedures since it can't find the configure file ACAD.CFG.
6. Follow the instructions of AutoCAD R12 to proceed configuration.
7. In "Available Video Displays:" item, choose the "SiS Super VGA ADI v4.2 Display and Rendering driver" item.
8. In "Select Display Resolution" screen, choose which display driver you want to use.

### **AutoShade R2.0 Setup**

- 
- 
1. The following procedures assume that
    - (1) You have complete "unpack & copy" procedure.
    - (2) Your ADI 4.2 drivers are located in C:\ADI42.
  2. Add the following settings to your batch file for AutoShade R2.0 (say SHADE2.BAT) or to your "AUTOEXEC.BAT" file.

For display driver setting, **SET DSPADI=\ADI42\RCPSIS.EXP**

For rendering driver setting, **SET RDPADI=\ADI42\RCPSIS.EXP**.

3. Delete the configure file SHADE.CFG.
4. Type **SHADE2 <Enter>** to re-configure the AutoShade.
5. While prompting "Select display device:", choose "P386 AutoDesk Device Interface display driver."
6. While prompting "Select rendering display driver:", choose "P386 AutoDesk Device Interface rendering driver."

### **3D Studio Version 3.0 Setup**

1. The following procedures assume that
  - (1) You have complete "unpack & copy" procedure.
  - (2) Your ADI 4.2 drivers are located in C:\ADI42.
2. Create your own **3D Studio V3.0 batch file (say 3DS3.BAT)** and add the following settings to it, or add the following settings to your "AUTOEXEC.BAT" file.

**(1) SET RCPADI=C:\ADI42\RCPSIS.EXP**

**(2) SET RDPADI=C:\ADI42\RCPSIS.EXP**

3. Execute the new 3DS batch file or reboot the computer using the new "AUTOEXEC.BAT" as to make the new settings effective.
4. Change your current working directory to \3DS3 (where your 3D Studio V3.0 usually resides).
5. Delete original configuration file "3DADI.CFG".
6. Type **3DS VIBCGF <Enter>** to configure your display environment.
7. After the "Company Register Screen" appears, press **<Enter>** to continue.
8. The "Video Environment Configuration Screen" will appear. Please follow the following procedures to configure your video display environment.
  - (1) In "Main-Display" item,
    - (a) Press **<Enter>** The selection menu will appear.
    - (b) In selection menu, move cursor to "**RCPADI**". Press **<Enter>** to select.
  - (2) In "Material-Display" item,
    - (a) Press **<Enter>** The selection menu will appear.
    - (b) In selection menu, move cursor to "**RCPADI**". Press **<Enter>** to select.
  - (3) In "Render-Display" item,

- 
- 
- (a) Press **<Enter>** The selection menu will appear.
  - (b) In selection menu, move cursor to "**RCPADI**" or "**RDPADI**". Press **<Enter>** to select.
  - (4) Complete the other selections and exit configuration.
9. After exit configure, 3DS will boot automatically using the environment you just select.
  10. If your previous configuration is OK, 3DS will ask you to make detail configuration for SiS 6205 drivers. If this didn't happen, please check your previous procedures or contact the technical support people.
  11. In the detail configuration for SiS 6205 drivers, just follow the instructions appear on the screen and make your own choice. If you are confused in anything, contact the technical support people for solution.
  12. After detail configuration, you will enter the 3DS main display screen and you may begin your 3D Studio work in the environment you make before.
  13. Once completing the detail configuration, you may enter 3D Studio in the same configuration simply by type **\3DS\3DS <Enter>** next time.
  14. If you want to change your video configuration, just follow the procedures mentioned before to re-configure.

## 4-2-4 WordPerfect V5.1

### Driver File

1. The enclosed SiS 6205 WordPerfect driver (packed file) is "**WP51.1**".
2. Being unpacked, the SiS 6205 WordPerfect driver "**WPSIS.VRS**" supports

#### Graphic Mode Resolution

640x350	16 Colors
640x480	16 Colors
800x600	16 Colors
1024x768	16 Colors
1280x1024	16 Colors

#### Text Mode Resolution

132x25  
132x28  
132x44

3. Use "INSTDRV.EXE" to unpack and copy drivers to where they should resides

### WordPerfect Setup



- 
- 
1. Run WordPerfect.
  2. From the Main menu, choose File menu.
  3. From the File menu, choose Setup menu.
  4. From the Setup menu, choose Display menu.
  5. For graphic mode configuration,
    - (1) From the "Setup: Display" menu, choose "Graphics Screen Type".
    - (2) From the "Setup: Graphics Driver" menu, choose "SiS 6205 SVGA (16 Color)".
    - (3) From the "Setup: Graphics Driver" menu, choose one of the following:

SiS 1024x768	16 Color
SiS 1280x1024	16 Color
SiS 640x350	16 Color
SiS 640x480	16 Color
SiS 800x600	16 Color
  6. for text mode configuration,
    - (1) From the "Setup: Display" menu, choose "Text Screen Type",
    - (2) From the "Setup: Text Driver" menu choose "SiS 6205 SVGA"
    - (3) From the "Setup: Text Driver" menu, choose from

SiS 132x25	16 Color Save Font
SiS 132x28	16 Color Save Font
SiS 132x44	16 Color Save Font
  7. Exit from the menus and restart WordPerfect.

## 4-2-5 GEM 3.0 / Ventura 2.0

### Driver Files

1. The enclosed SiS 6205 GEM / Ventura drivers (packed files) are
  - (1) **GEMDRV.1**
  - (2) **GEMDRV.2**
2. Being unpacked, the SiS 6205 GEM / Ventura drivers contain the following files:
  - (1) **SDFSIS86.VGA:** 800x600 16-color
  - (2) **SDFSIS1K.VGA:** 1024x768 16-color
3. Use "INSTDRV.EXE" to
  - (1) unpack and copy drivers to where they should reside,
  - (2) create new VP.BAT file.

### Ventura Setup --- Create New VP.BAT

To create new VP.BAT, please follow the following procedures:

1. In "Install and Setup GEM 3.0 / Ventura 2.0 Drivers" menu, select "B. Setup Ventura Batch File VP.BAT" to create new Ventura batch file VP.BAT using new driver. (To select, type "B".)
2. From the "Setup Ventura Batch File" screen, key in the drive letter for the hard disk where Ventura software resides.
3. From the "Setup Ventura Batch File" menu, choose from

---

---

800x600	16 Colors
1024x768	16 Colors

4. After the message "**Are you sure (Y/N) ?**" appears on the screen, keyin **'Y' <Enter>**.
5. After setup completes, exit INSTDRV.EXE program.
6. Use new "VP.BAT" to start your Ventura program.

## 4-2-6 PCAD 6.06

### Driver Files

1. The enclosed SiS 6205 PCAD drivers (packed files) are
  - (1) **PCAD.1**
  - (2) **PCAD.2**
  - (3) **PCAD.3**
2. Being unpacked, the SiS 6205 PCAD drivers contain the following files:
  - (1) **PSIS800.REX:** 800x 600 16 Colors
  - (2) **PSIS1K.REX:** 1024x 768 16 Colors
  - (3) **PSIS12.REX:** 1280x1024 16 Colors
3. Use "INSTDRV.EXE" to
  - (1) unpack and copy drivers to where they should resides,
  - (2) create new PCADDRV.SYS file.

### PCAD Setup --- Create New PCADDRV.SYS

To create new PCADDRV.SYS, please follow the following procedures:

1. In "Install and Setup PCAD 6.06 Drivers" menu, select "B. Setup Configure File PCADDRV.SYS" to create new PCADDRV.SYS using new driver. (To select, type "B".)
2. From the "Setup PCAD Config File" screen, keyin the drive letter of the hard disk where PCAD software resides.
3. From the "Setup PCAD Config File" screen, keyin the directory where the PCAD drivers reside.
4. From the "Setup PCAD Config File" menu, choose from

800x 600	16 Colors
1024x 768	16 Colors
1280x1024	16 Colors
5. After the message "**Are you sure (Y/N) ?**" appears on the screen, keyin **'Y' <Enter>**.
6. After setup completes, exit INSTDRV.EXE program.
7. Restart your PCAD program.

## 4-2-7 VersaCAD/386 2.1

### Driver Files

1. The enclosed SiS 6205 VersaCAD/386 drivers (packed files) are

- 
- 
- (1) **VCAD.1**
  - (2) **VCAD.E**
  2. Being unpacked, the SiS 6205 VersaCAD/386 driver "**VSIS.EXE**" supports

640x 480	16 Colors
800x 600	16 Colors
1024x 768	16 Colors
1280x1024	16 Colors
  3. This driver is a TSR (Terminate and Stay Resident) type program. You just need to execute once each time your computer is powered up.  
For this reason, it is recommended that this driver should be placed in your "AUTOEXEC.BAT" file.
  4. Use "INSTDRV.EXE" to
    - (1) unpack and copy driver VSIS.EXE
    - (2) unpack and copy configure file VSIS.CFG to where they should resides

### **VersaCAD/386 Setup**

1. Change the current "drive:\directory" path to where VersaCAD/386 resides.
2. Run this driver VSIS.EXE.  
For example:  

```
VCAD386>VSIS <Enter>
```
3. Run ENVIRO program.  
For example:  

```
VCAD386>ENVIRO <Enter>
```
4. From "ENVIRONMENT MENU" screen, press 'S' key to select screen configuration.
5. In prompt mode, select "SiS 6205" display driver. You can select various display resolution.
6. After selecting screen configuration, press 'X' key to save configuration
7. Exit ENVIRO program.
8. Restart your VersaCAD program.

## **4-2-8 OrCAD Rel. 4**

### **Driver Files**

1. The enclosed SiS 6205 OrCAD drivers (packed files) are
  - (1) **ORCAD.1**
  - (2) **ORCAD.2**
  - (3) **ORCAD.3**
2. Being unpacked, the SiS 6205 OrCAD drivers contain the following files:
  - (1) **ORSIS86.DRV:** 800x600 16 Colors
  - (2) **ORSIS1K.DRV:** 1024x768 16 Colors
  - (3) **ORSIS12.DRV:** 1280x1024 16 Colors
3. Use "INSTDRV.EXE" to
  - (1) unpack and copy drivers to where they should resides,
  - (2) create new SDT.CFG file.

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## OrCAD Display Setup

To setup SiS display driver for OrCAD, please follow the following procedures:

1. Enter OrCAD "Main Menu" screen.
2. For "Schematic Tools Configure", choose "Schematic Design Tools" to enter "Schematic Design Tools" screen.
3. In "Schmatic Design Tools" screen, choose "draft" block.
4. "Draft Menu" will appear, choose "Configure Schematic Tools" item to configure schematic tools.
5. "Configure Schematic Tools" screen will appear, choose "Driver Prefix" item and keyin where SiS OrCAD drivers reside (e.g. \ORCADESP\DRV).
6. In the same "Configure Schematic Tools" screen, choose "Configured Display Driver" item and keyin one of the SiS OrCAD drivers' name which you would like to use.
7. If you want to configure anything else, do as you like.
8. When you complete all the configuration, choose "OK" item to ask OrCAD program to save your configuration.
9. After configuration completes, you may use your OrCAD schematic tools in the configuration you just setup.
10. For all other tools configuration, please follow the Step 1 to the Step 9 stated before.

### Note:

**If you install your OrCAD program using default settings, it's reommended you should use default settings when you install SiS OrCAD drivers.**

## OrCAD SDT.CFG Setup

To create new SDT.CFG file, please follow the following procedures:

1. In "Install and Setup OrCAD rel 4 Drivers" menu, select "B. Setup Configure File SDT.CFG" to create new SDT.CFG using new driver. (To select, type "B".)
2. From the "Setup OrCAD r4 Driver Config File" screen, keyin the "drive:\directory" where your OrCAD program resides (default C:\ORCADEXE).
3. From the "Setup OrCAD r4 Driver Config File" screen, keyin the "drive:\directory" where the SiS OrCAD drivers reside (default C:\ORCADESP\DRV).
4. From the "Setup OrCAD Config File" menu, choose from

800x 600	16 Colors
1024x 768	16 Colors
1280x1024	16 Colors
5. After the message "**Are you sure (Y/N) ?**" appears on the screen, keyin '**Y**' <Enter>.
6. After setup completes, exit INSTDRV.EXE program.
7. Restart your OrCAD DRAFT.EXE program.

### Note:

**If you install your OrCAD program using default settings, it's reommended you should use default settings when you install SiS OrCAD drivers.**

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## 4-2-9 Lotus 2.x

### Driver Files

1. The enclosed SiS 6205 Lotus 1-2-3 drivers (packed files) are
  - (1) **LOTUS.1**
  - (2) **LOTUS.2**
  - (3) **LOTUS.3**
  - (4) **LOTUS.4**
2. Being unpacked, the SiS 6205 Lotus 1-2-3 drivers contain the following files:
  - (1) **TXT13225.DRV:** 132x25 Text
  - (2) **TXT13228.DRV:** 132x28 Text
  - (3) **TXT13244.DRV:** 132x44 Text
  - (4) **TXT8060.DRV:** 80x60 Text
3. Use "INSTDRV.EXE" to unpack and copy drivers to where they should reside.

### Lotus 1-2-3 Setup

1. Change the current "drive:\directory" path to where Lotus 1-2-3 software resides.
2. Run Lotus 1-2-3 install program.  
For example:  

**\123>install <Enter>**
3. Several menu choices will be presented on screen. Follow the instructions to add SiS drivers to the library:
  - (1) Press **<Enter>** key to begin.
  - (2) From the main menu, choose "Advanced Options".
  - (3) From the "Advanced Options" menu, choose "Add New Drivers to the Library".
  - (4) Press **<Enter>** key twice to return to the "Advanced Options" menu.
4. After returning to "Advanced Options" menu, follow the instructions to select the desired driver.
  - (1) Choose "Modify Current Driver Set" option.
  - (2) From the configuration menu, choose "Text Display" option.
  - (3) From the "Text Display" menu, select the desired driver.
  - (4) After returning to configuration menu, choose "Return to menu".
5. After returning to "Advanced Options" menu, follow the instructions to exit the INSTALL program.
  - (1) Choose "Save Changes" to save the changed configuration.
  - (2) Press RETURN key to accept the current set name.
  - (3) Press RETURN key again.
  - (4) From "Exit" menu, choose "Yes" option to terminate the INSTALL program.
6. Restart your Lotus 1-2-3 program.

## 4-2-10 Windows NT 3.5

### Driver Files

1. The enclosed SiS 6205 Windows NT 3.5 drivers are:  
**SISTAG**  
**SISV.SYS**

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**SISV256.DLL**

**SISV.DLL**

**OEMSETUP.INF**

2. At present only 16-color and 256-color drivers are available.
3. There is no "Unpack & Copy" procedure in Windows NT 3.5 driver installation.

### **Windows NT Setup**

1. Boot up Windows NT.
2. Run the following procedures:
  - a) Windows NT setup
  - b) Options
  - c) Change Systems Settings
  - d) Display
  - e) Other

Then respond to installation prompts.

## **4-2-11 Windows 95**

### **Driver Files**

1. The enclosed SiS 6205 Windows 95 drivers files are:

**ISMINI.VXD**

**IS205.INF**

**IS205.DRV**

**ISTOOL.EXE**

2. All the 16-color, 256, 64K and 16.7M colors drivers are available.

### **Windows 95 Setup**

1. Install and start your Windows 95 system.
2. Choose the "START" from the screen and select "SETTING" then choose "CONTROL PANEL"
3. In "CONTROL PANEL" screen, choose the "DISPLAY" icon, you can see the "DISPLAY PROPERTIES" screen.
4. Choose "SETTINGS" and select "CHANGE DISPLAY TYPE". You can see the "CHANGE DISPLAY TYPE" screen.
5. In "CHANGE DISPLAY TYPE" screen, choose "CHANGE", you can see the "SELECT DEVICE" screen.
6. In "SELECT DEVICE" screen, choose "HAVE DISK". Select the SiS Windows 95 driver diskette path. After the system copy the SiS6205 driver, the screen will show the "SiS6205".
7. Reboot the Windows 95.
8. After completing reboot process, if you want to change the color and resolution. Please follow the item 2,3 procedure, in the DISPLAY PROPERTIES TYPE" screen, you can change colors by "COLORS PALLETTE" and change the resolution by "DESKTOP AREA".

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## 4-2-12 SOFTWARE INSTALL PROCEDURE AND PLAY VIDEO CD

### Software Install Procedure:

1. System must install ready windows 3.1 or workgroup 3.11
2. Install SOUND CARD (Sound Blaster compatible version)
3. Install CD ROM
4. Insert **J-646 IDE DRIVER** diskette at A: driver  
<Enter> **A:**  
Type **Install** <Enter>  
Select install **DOS IDE DEVICE DRIVER** (have to pre-install DOS IDE DRIVER)  
Select install **WINDOWS 3.1 IDE DEVICE DRIVER**
5. Execute Windows  
Insert **J-646 WINDOWS VGA DRIVER** diskette at A: driver  
Execute SETUP  
Install ready, program will ask to insert "**MICRO SOFT VIDEO**" diskette  
Put **J-646 video for windows** diskette in driver A:, than to install MICRO SOFT VIDEO
6. Install XING V1.2  
In windows, insert **XING V1.2** diskette at A: driver  
Execute SETUP  
Install finished

### PLAY VIDEO CD MOVIE:

Under the Windows 3.1:

1. Execute SiS multimedia package icon
2. Execute VIDEO (at same time can choose graphic to set display resolution)
3. Execute MM PLAY

## 4-2-13 MMPLAY.EXE Button Description



: Power On/Off



: Open File & Type Control



: Minimize This Application



: Eject CD Title(Not implemented yet. Will be done at the end of Sep.)



: Fast Backward(Not implemented yet. Will be done at the end of Sep.)



: Fast Forward(Not implemented yet. Will be done at the end of Sep.)



: Pause



: Play



: Stop



: End



: Begin



: Volume increase





: Volume decrease

### **Operation Notes**

1. Sometimes the user cannot use the "open CD Movie" selection to open a CD title at the first time. It seems that some CD-player not working well with the XING Driver. However, once the CD title has been opened by the "open file" selection, the "open CD Movie" selection will function OK.
2. The application is not working with Mediamatics' software MPEG driver at this version.
3. The "normal size" and "full screen" are not supported at some modes. If any one of these two selections is not shown on the list, it implies that it is not supported by DCI at current mode. If shown, they are working well with DCI. To check which mode is supported, please refer to the table above.
4. The user of the shared memory mother board should be noted that the video performance at two slots of DRAM configuration is better than that of one slot configuration.

## **CHAPTER 5**

### **TEST REPORT**

**SYSTEM CONFIGURATION :**

**CPU:**

SERIES	VENDOR	SYSTEM CLOCK	PACKAGE 1.PGA, 2.PQFP 3.ON-BOARD
Pentium P54C	INTEL	100MHz	PGA

**BIOS:**

512K/1M	VENDOR	VERSION	DATE	WINBIOS/NORMAL
1M BYTE	AWARD	V4.50PG	09/07/95	NORMAL

**DRAM:**

TOTAL SIZE	VENDOR	SPEED	PACKAGE 72PIN,30PIN
16M BYTE	TI	70 NS	72PIN 4Mx4

**SRAM:**

TOTAL SIZE	VENDOR	SPEED	WRITE BACK,WRITE THROUGHT
256K BYTE	SEC	15 NS	WRITE BACK

**HDD:**

SIZE	VENDOR/TYPE	INTERFACE CARD	DOS TYPE
850M BYTE	CONNER CFA850A	PCI-IDE	6.20

**IDE/FDD:**

IDE/FDD	CHIP BRAND	BUS TYPE	INTERFACE CARD	IDE1/IDE2
FDD	WINBOND	ISA	BUILD IN	

**MONITOR:**

MONO/VGA	VGA CARD	BUS SLOT TYPE	DRAM SIZE
VGA	SIS 6205	BUILD IN	SHARE 2M

**MAIN BOARD HARD WARE FUNCTION**

ITEM	PASS/FAIL	MEMO
1. TURBO SWITCH		NA
2. TURBO LED DISPLAY	PASS	
3. SPEAKER	PASS	

4. POWER LED DISPLAY	PASS	
5. KEY LOCK	PASS	
6. CLEAR COMS RAM	PASS	
7. RESET	PASS	

### GREEN FUNCTION (POWER MANAGEMENT)

ITEM	PASS/FAIL	MEMO
1. DOZE	PASS	
2. SLEEP	PASS	
3. SUSPEND	PASS	
4. I/O ACTIVITY	PASS	

	CHIP BRAND	CLOCK	WIN NT / OS2	MEMO
1	Intel	75MHz	PASS	
2	Intel	90MHz	PASS	
3	Intel	100MHz	PASS	
4	Intel	120MHz	PASS	

DRAM	BRAND	SPEED	TEST QAPLUS	MEMO
1	EDO-MICROW	60NS	PASS	WINDOWS NT
2	STD-TI	70NS	PASS	
3	EDO-SEC	60NS	PASS	
4	STD-FUJI	70NS	PASS	

SRAM	BRAND	SPEED	SIZE	TEST QAPLUS	MEMO
1	SEC	15NS	256K	PASS	PIPELINE
2	WINBOND	15NS	256K	PASS	
3	WINBOND	20NS	512K	PASS	

GAME	NAME	USE EMM	PASS/FAIL	MEMO
1	DOOM2	YES	PASS	
2	ROTT	YES	PASS	

### GENERAL UTILITY TEST

MS-DOS			
PROGRAM	VERSION	TIMES	RESULT PASS/FAIL

ET	3.51	10	PASS
CELEM CACHE TEST	1.0	2	PASS
QAPLUS	4.6	1	PASS
AUTO CAD	R10	4	PASS
AUTO CAD	R11	1	PASS
AUTO CAD	R12	1	PASS
ORCAD	3.1	1	PASS

WINDOWS			
PROGRAM	VERSION	TIMES	RESULT PASS/FAIL
SPEEDY	1.0	3	PASS
DESIGER	3.01	1	PASS
QAPLUS FOR WINDOWS	5.0	1	PASS
WIN BENCH	3.11	1	PASS
WIN BENCH	4.0	1	PASS
WIN BENCH	95	1	PASS

### EVELUATION SOFTWARE/PERFORMANCE

PROGRAM	VERSION	RESULT
SPEEDCOM	2.0	CPU: 579.59 FPU: 1679.32 VIDEO: 10922.00
LAND MARK SPEED	6.0	CPU: 1040.20 FPU: 1685.23 VIDEO: 10922.00
POWER METER SPEED	1.8	CPU MIPS: 51.7
NORTON SPEED	8.0	OVERALL PERFORMANCE: 225.4 CPU SPEED: 316.0

### SOFTWARE RELIABILITY TEST

#### STEP1.

PROGRAM	VERSION	LOOP/TIMES	RESULT/PASS FAIL
QAPLUS	4.52	6	PASS

QAPLUS	5.13	1	PASS
CHECKIT	3.0	4	PASS
WINDOWS	3.1	3	PASS
WINSTON	95	2	PASS

**STEP2.**

PROGRAM	VERSION	TIMES	RESULT/PASS FAIL
OS/2 ENGLISH	3.0	1	PASS
INSTALL WINDOWS	3.1	2	PASS

**STEP3.**

PROGRAM	VERSION	TIMES	RESULT/PASS FAIL
DOS PC BENCH	9.0	1	PASS

**STEP4.**

PROGRAM	VERSION	TIMES	RESULT/PASS FAIL
NETWARE	3.12	1	PASS
WINDOW NT	3.1	1	PASS
WINDOW NT CHINES	3.5	1	PASS

**STEP5.**

PROGRAM	VERSION	TIMES	RESULT/PASS FAIL
WINDOWS CHINESE	3.1	1	PASS
WINDOWS CHINESE	95	1	PASS

**ADD ON CARD COMPATIBLE TEST**

VGA	CHIP BRAND	BUS TYPE	TOTAL DRAM	PASS/FAIL
1	MX-86010FC	ISA	1M	PASS

2	WD-90C30LR	ISA	1M	PASS
3	TRIDENT 8900	ISA	1M	PASS
4	REALTEC 3105E	ISA	1M	PASS
5	WDC WD-90C11	ISA	1M	PASS
6	HM-86304	ISA	1M	PASS
7	ET-3000AX	ISA	1M	PASS
8	S3 864	PCI	2M	PASS
9	TRIDENT 9440 AGI	PCI	2M	PASS
10	ET-4000 W32P	PCI	2M	PASS
11	CIRRUS 5434	PCI	2M	PASS
12	CIRRUS 5430	PCI	2M	PASS
13	AVANCE ALG 2301	PCI	2M	PASS
14	S3 968	PCI	4M	PASS

IDE	CHIP BRAND	BUS TYPE	PASS/FAIL
1	Winbond W83787F + W83758F	ISA	PASS
2	Gold Star Prime2C	ISA	PASS
3	CMD 640B	PCI	PASS

SCSI	CHIP BRAND	BUS TYPE	PASS/FAIL
1	NCR 53C810	PCI	PASS
2	Adaptec AIC-7870P	PCI	PASS

NET	CHIP BRAND	BUS TYPE	PASS/FAIL
1	S9152DR	ISA	PASS
2	UK0022 (YCL)	ISA	PASS
3	S9136AK	ISA	PASS
4	S9218AD	ISA	PASS
5	UMC 9003F	ISA	PASS
6	3COM 3C509	ISA	PASS
7	NE-32 PCI	PCI	PASS

SOUND	CHIP BRAND	BUS TYPE	PASS/FAIL
1	OPTI 929 (SOUND 16)	ISA	PASS
2	SOUND Blaster Pro	ISA	PASS

## VGA PERFORMANCE TEST

### DOS/APPLICATION

PROGRAM	VERSION	RESULT PASS/FAIL
SPEEDCOM	2.0	PASS
PC BENCH	8.0	PASS
NORTON	8.0	PASS

### WINDOWS/APPLICATION

PROGRAM	VERSION	640*480	800*600	1024*768	1280*1024
		STD COLOR	256 COLOR	256 COLOR	16 COLOR
WIN TAC	1.2	PASS			
WIN BENCH	3.11	PASS			
WIN BENCH	4.0	PASS			

## VGA Performance Comparison

Resolution	PCI		
	SIS 6205		
640*480*16	WB: WT:	5.36 9.96/A4	
640*480*256	WB: WT:	15.1 81.12	
640*480*32K	WB: WT:	11.7 133.72	
640*480*64K	WB: WT:	11.6 133.60	
640*480*1.6M	WB: WT:	4.56 63.06/A24	
800*600*16	WB: WT:	5.93 13.04/B4	
800*600*256	WB: WT:	13.9 93.46/B8	
800*600*32K	WB: WT:	10.09 136.50/B16	
800*600*64K	WB: WT:	11.1 142.00/B16	*. 1.6M COLOR WB: 4.08 WT: 55.40/B24
1024*768*16	WB: WT:	3.34 9.31/C4	
1024*768*256	WB: WT:	13.3 93.74/C8	
1024*768*32K	WB: WT:	9.46 109.64/C16	
1024*768*64K	WB: WT:	9.74 111.82/C16	
1280*1024*16	WB: WT:	3.4 11.52/D4	
1280*1024*256	WB: WT:	13.6 96.92/C8	
Landmark 2.0 Video		10922.00	
Byte / Video			

Software Windows WB:Winbench 95, WT:Wintach 1.2



