S7AX Motherboard

User's Manual

Product Name: S7AX

Manual Revision: English,1.7

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Chapter 1. Introduction

1.1 Product Overview

Thank you for purchasing the **S7AX** motherboard. This motherboard utilizes **ALi**'s latest technology, namely **Aladdin V** chipset. We have conducted a motherboard compatibility test with a variety of hardware and software, such as CPUs, memory, display card, CD ROM, Novell, MS Office....etc and has passed NSTL Year 2000 certification test program.
We set high standards on our quality control, with absolute confidence, we believe this product is the wisest choice.
This manual is composed of three sections. The first section is the introduction of this motherboard, and the second section explains the proper procedure to setup the motherboard, and the third section provides information on how to setup the CMOS. The last section states the installation of device driver.

Features:

- Support Desktop Management Interface (DMI) through BIOS.
- Support Accelerated Graphics Port (AGP) cards for high performance.
- Modem Remote Ring On.
- RTC Wake Up Alarm: Program the date/time to wake up your system.
- Support Advanced Configuration Power Interface (ACPI).
- BIOS Green feature function, and Plug & Play Flash ROM.

1.2 Content

The **S7AX** motherboard contains the following items:

- The S7AX Motherboard.
- A IDE Ribbon Cable.
- A Floppy Ribbon Cable.
- A Set of Serial Ribbon Cable.
- A Parallel Port and A PS/2 Mouse Port.
- One Driver Diskette.
- User's Manual.

1.3 Specifications

CPU:	-Supports all socket 7 processors.
	-Supports 60/66/68.5/75/83.3/95/100MHz host bus frequency.
Chipset:	-ALi Aladdin V M1542 & M1543 chipset.
SIMM:	-Supports 60ns or faster Extended Data Output (EDO) or Fast Page Mode (FPM) SIMM in 1 banks, 2x72-pin 32-bit sockets using 4/8/16 /32/64MB memory.
	-Supports up to a maximum of 128 MB main memory.
DIMM:	-Supports 66MHz or faster 3.3V in 2 168-pin banks, 2x168 -pin 64-bit DIMM sockets using 8/16/32/64/128/256 MB memory.
	-Supports up to a maximum of 512 MB main memory.
L2 Cache:	-Onboard 512KB Pipeline Burst Cache.
IDE:	-Dual channel PIO and PCI Bus Master IDE ports support up to 4 EIDE devices for HDD or CD-ROM.
	-Supports PIO Modes up to Mode 5 timing, and multiword DMA Mode 0, 1, 2.

	-Supports Ultra DMA 33 (UDMA) with data transfer rate up to 33 MB/Sec.
	-Supports 120MB Floppy Drive.
I/O Devices:	-One FDD control port supports two of the 5.25" or 3.5" floppy drives up to 2.88 MB.
	-Two high-speed 16550 UART compatible serial ports
	-One parallel ports with ECP/ EPP compatibility.
	-One PS/2 mouse port
	-One AT Keyboard connector
BIOS:	-Award BIOS V.4.51 with built-in Anti-Virus, DMI support, and green function.(Plug-and-Play BIOS)
	-Supports CD-ROM, SCSI, and LS120/ZIP boot up.
	-Supports ACPI function.
IR Port:	-One IrDA/ASKIR compatible Infrared interface port. (Cable optional)
USB Ports:	-Two Universal Serial Bus (USB) ports support up to 127 peripheral devices.
	-Supports FSC(12MB/Sec)and LS(1.5MB/Sec)serial transfer. (Cable optional)
Power:	-Supports AT and ATX power Connectors.
	-On-board PWM Switching Power.
	-Supports Modem remote Ring-On function when using ATX power supply.
	-Supports software power off function.
	-Supports RTC Wake-Up.
Slots:	-One 32-bit AGP expansion slot.
	-Four 32-bit PCI expansion slots.
	-Two 16-bit ISA expansion slots.
O.S.:	-Supports Windows 95/98, Windows NT, MS-DOS V. 6.22, OS/2, Novell, Unix, SCO UNIX.....
Dimension;	-22 cm x 25 cm BABY AT Form factor

1.4 MotherBoard Layout
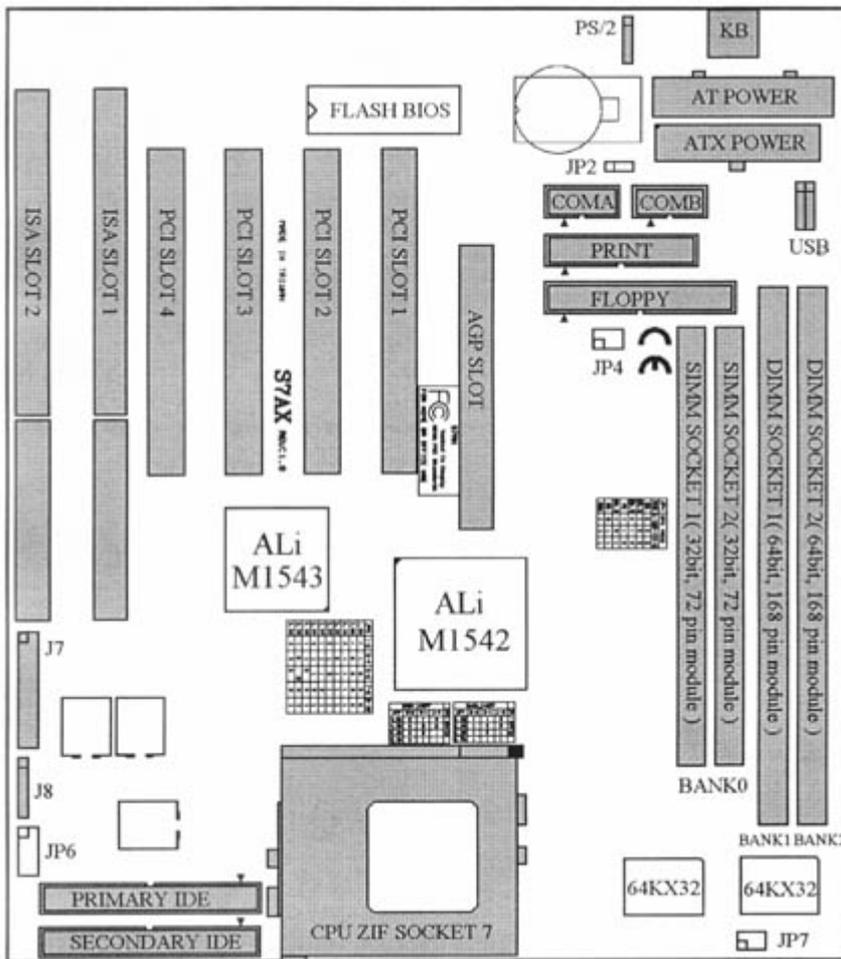
Chapter 2. Hardware Setup

2.1 Installation Procedure

1. Jumper settings (BIOS and CPU)
2. Installation of CPU
3. Installation of Memory
4. I/O Connections & Panel Connections

2.1.1 Jumper Settings

In this manual , **(1-2) represents the first and second pins of the jumper. (2-3) represents the second and third pins of the jumper, and so on. "ON" means put on the jumper cap and "OFF" means remove the jumper cap**. On the motherboard, you will see three sets of jumpers with different color jumper caps:

Yellow Jumper Caps: Sets the Function of Flash CMOS.
                         JP2
Green Jumper Caps: Sets the type and speed of CPU.
                         P4, JP7
Red Jumper Caps: Sets the voltage of CPU.
                         JP6

WARNING: Electronic parts are Static sensitive. To prevent damage to the computer and its parts please take the following measures.
-Work on a surface such as concrete, linoleum or hard wood floor.
-Ground yourself with either a properly installed grounding strap or by touching a major electrical appliance long enough to discharge the static.

2.1.2 Clearing the CMOS (Yellow Jumper Caps)

JP2: CMOS Function Selection
        1-2:Normal Operation.(Default Setting)
        2-3:Clear data.

How to Clear the CMOS Setting

1. Turn off the power.
2. Remove power cable from power connector.
3. Remove Yellow Jumper Cap from JP2(1-2)and put on JP2 (2-3)to remove the CMOS setting.
4. Remove Yellow Jumper Cap from JP2(2-3)and put on JP2(1-2).
5. Connect power cable back to power connector.
6. Turn on the power.
7. While the system reboots, press <DEL> key to set the BIOS setup.

JP2 CMOS Function Selection
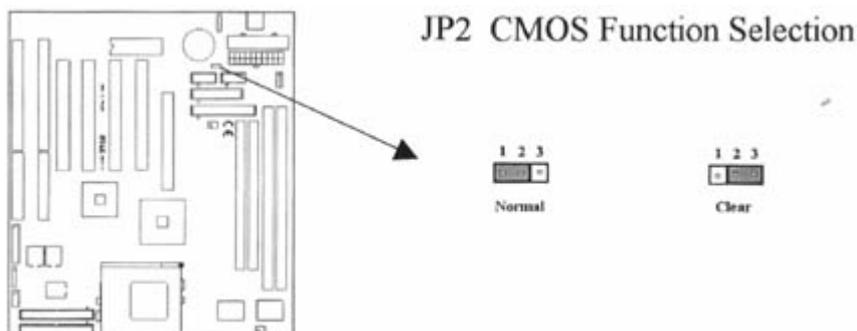
2.1.3 CPU Voltage Selection (Red Jumper Caps)

Before the use of this motherboard, make sure all jumpers are set correctly. The wrong setting might damage the CPU and the motherboard.
CPU Voltage may vary. Check with CPU manufacturer for it's correct voltage.
The printing 1 on mainboard means opening (OFF) the jumper cap and 0 means closing (ON) the jumper cap.

CPU Brand	CPU TYPE	CPU VOLTAGE	JP6				
			1-2	3-4	5-6	7-8	9-10
		1.3V	OFF	OFF	OFF	OFF	ON

|							
		1.4V	OFF	ON	OFF	OFF	ON
		1.5V	OFF	OFF	ON	OFF	ON
		1.6V	OFF	ON	ON	OFF	ON
		1.7V	OFF	OFF	OFF	ON	ON
		1.8V	OFF	ON	OFF	ON	ON
		1.9V	OFF	OFF	ON	ON	ON
AMD	500PLUS	2.0V	OFF	ON	ON	ON	ON
		2.1V	ON	OFF	OFF	OFF	OFF
AMD	K6-2, K6-III AFx	2.2V	OFF	ON	OFF	OFF	OFF
AMD	K6-2/550 AGR	2.3V	ON	ON	OFF	OFF	OFF
AMD	K6-2, K6-III AHx	2.4V	OFF	OFF	ON	OFF	OFF
		2.5V	ON	OFF	ON	OFF	OFF
		2.6V	OFF	ON	ON	OFF	OFF
		2.7V	ON	ON	ON	OFF	OFF
Intel/Cyrix	P55C-MMX/6x86L	2.8V	OFF	OFF	OFF	ON	OFF
AMD/Cyrix	K6-166/200, 6x86MX, M II	2.9V	ON	OFF	OFF	ON	OFF
		3.0V	OFF	ON	OFF	ON	OFF
		3.1V	ON	ON	OFF	ON	OFF
AMD	K6-233	3.2V	OFF	OFF	ON	ON	OFF
Intel	P54C	3.3V	ON	OFF	ON	ON	OFF
		3.4V	OFF	ON	ON	ON	OFF
AMD/Cyrix	K5/6x86	3.5V	ON	ON	ON	ON	OFF

JP6 CPU Volatge Selection

1.9V 2.0V 2.1V 2.2V 2.4V 2.5V

2.8V 2.9V 3.2V 3.3V 3.5V
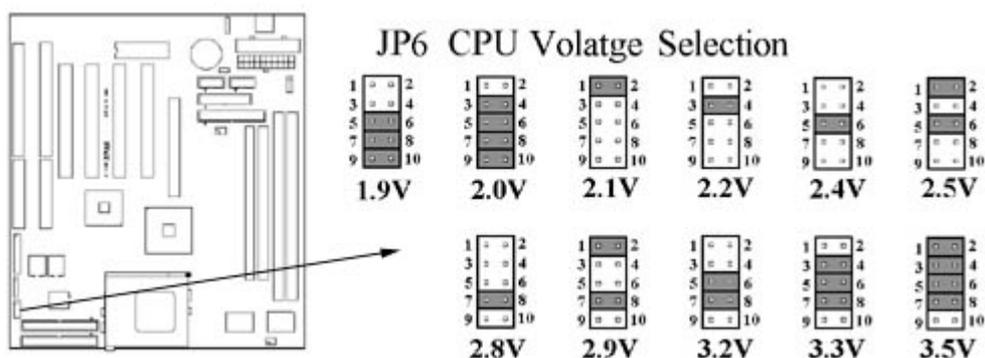
2.1.4 CPU External Clock Selection (Green Jumper Caps)

CPU Clock	JP4		
	1-2	3-4	5-6
60 MHz	ON	ON	ON
66.8 MHz	OFF	ON	ON
68.5 MHz	ON	OFF	ON
75 MHz	ON	ON	OFF
83.3 MHz	OFF	ON	OFF
95 MHz	ON	OFF	OFF
100 MHz	OFF	OFF	OFF

JP4 CPU Clock Select

60 MHz 66.8 MHz 68.5 MHz 75 MHz

83.3 MHz 95 MHz 100 MHz
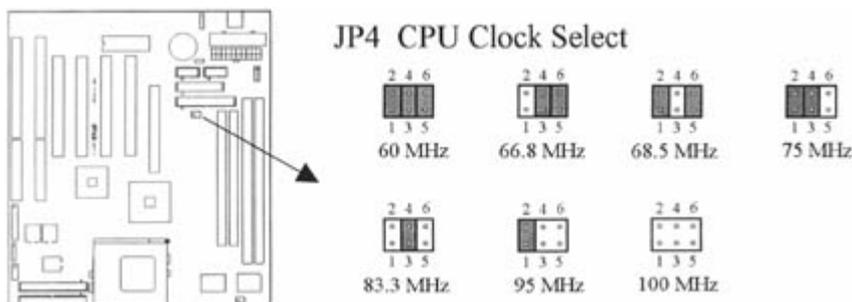
2.1.5 CPU BF Ratio Selection (Green Jumper Caps)

BUS/CORE	JP7		
	5-6	3-4	1-2

2.0X	OFF	OFF	ON
2.5X	OFF	ON	ON
3.0X	OFF	ON	OFF
1.5X / 3.5X	OFF	OFF	OFF
4.0X	ON	OFF	ON
4.5X	ON	ON	ON
5.0X	ON	ON	OFF
5.5X	ON	OFF	OFF

JP7 BF Ratio Select
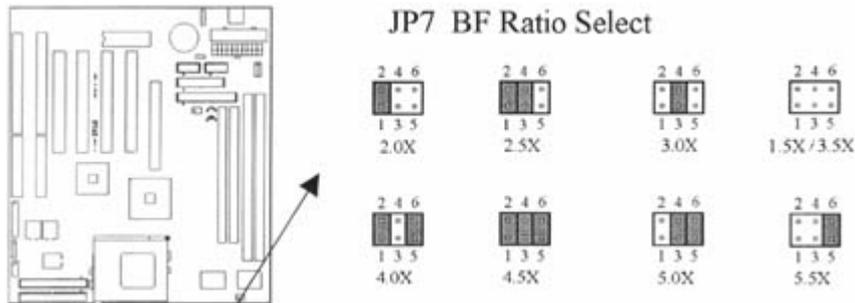
2.1.6 CPU Type and Speed Selection

CPU TYPE	CLOCK	JP4	JP7
Pentium 120	60MHz*2.0	1-2, 3-4, 5-6	1-2
Pentium 133	66MHz*2.0	3-4, 5-6	1-2
Pentium 166(MMX)	66MHz*2.5	3-4, 5-6	1-2, 3-4
Pentium 200(MMX)	66MHz*3.0	3-4, 5-6	3-4
Pentium 233(MMX)	66MHz*3.5	3-4, 5-6	None
AMD K5-PR133	66MHz*2.0	3-4, 5-6	1-2
AMD K6/166	66MHz*2.5	3-4, 5-6	1-2, 3-4
AMD K6/200	66MHz*3.0	3-4, 5-6	3-4
AMD K6/233	66MHz*3.5	3-4, 5-6	None
AMD K6/266, K6-2/266	66MHz*4.0	3-4, 5-6	1-2, 5-6
AMD K6/300, K6-2/300	66MHz*4.5	3-4, 5-6	1-2, 3-4, 5-6
AMD K6-2/333	66MHz*5.0	3-4, 5-6	3-4, 5-6
AMD K6-2/333	95MHz*3.5	1-2	None
AMD K6-2/300	100MHz*3.0	None	3-4
AMD K6-2/350	100MHz*3.5	None	None
AMD K6-2/366	66MHz*5.5	3-4, 5-6	5-6
AMD K6-2/380	95MHz*4.0	1-2	1-2, 5-6
AMD K6-2/400	100MHz*4.0	None	1-2, 5-6
AMD K6-2/450	100MHz*4.5	None	1-2, 3-4, 5-6
AMD K6-2/475	95MHz*5.0	1-2	3-4, 5-6
AMD K6-2/500	100MHz*5.0	None	3-4, 5-6
AMD K6-2/550	100MHz*5.5	None	5-6
AMD K6-III/400	100MHz*4.0	None	1-2, 5-6

AMD K6-III/450	100MHz*4.5	None	1-2, 3-4, 5-6
AMD K6-III/500	100MHz*5.0	None	3-4, 5-6
Cyrix 6x86L-PR150+	60MHz*2.0	1-2, 3-4, 5-6	1-2
Cyrix 6x86L-PR166+	66MHz*2.0	3-4, 5-6	1-2
Cyrix 6x86L-PR200+	75MHz*2.0	1-2, 3-4	1-2
Cyrix 6x86MX-PR166(60MHz)	60MHz*2.5	1-2, 3-4, 5-6	1-2, 3-4
Cyrix 6x86MX-PR166(66MHz)	66MHz*2.0	3-4, 5-6	1-2
Cyrix 6x86MX-PR200(66MHz)	66MHz*2.5	3-4, 5-6	1-2, 3-4
Cyrix 6x86MX-PR200(75MHz)	75MHz*2.0	1-2, 3-4	1-2
Cyrix 6x86MX-PR233(75MHz)	75MHz*2.5	1-2, 3-4	1-2, 3-4
Cyrix 6x86MX-PR233(83MHz)	83MHz*2.0	3-4	1-2
Cyrix 6x86MX-PR266(83MHz)	83MHz*2.5	3-4	1-2, 3-4
Cyrix 6x86MX-PR300(75MHz)	75MHz*3.0	1-2, 3-4	3-4
Cyrix M II-300 (66MHz)	66MHz*3.5	3-4, 5-6	None
Cyrix M II-300 (75MHz)	75MHz*3.0	1-2, 3-4	3-4
Cyrix M II-333 (83MHz)	83MHz*3.0	3-4	3-4
Cyrix M II-350 (95MHz)	95MHz*3.0	1-2	3-4
Cyrix M II-366 (100MHz)	100MHz*3.0	None	3-4

The CPU setting table will be revised at every opportunity. If you have a new CPU which does not appear on the table,
check with the CPU manufacturer or vendor for the CPU setting information.

2.2 Installation of CPU

Before installing CPU, make sure the power is off. Locate the white color level bar on the ZIF socket.
Push level bar away from the socket and pull upward 90 degrees. Insert the CPU into the socket.
Make sure the notch of the CPU corresponds with the white dot on the ZIF socket (the corner without
pin socket). Do not push in the CPU. Make sure all pins are aligned with the CPU socket. ON the level
bar.

2.3 Installation of Memory

S7AX motherboard has 2x72-pin 32bit SIMM sockets divided into 1 bank and 2x168-pin 64-bit DIMM
sockets divided into 2 banks. Make sure you fill up each bank and use the same brand and same
capacity memory in the same bank. This will increase the system reliability.

2.3.1 Installation of 72-pin SIMM (Single Inline Memory Module)

1. Before inserting the SIMM, make sure the PIN1 of the SIMM matches with the PIN1 on the SIMM socket.
2. Insert SIMM into the SIMM socket at a 45-degree angle. Do not push in.
3. After inserting the SIMM, flip the SIMM back to a vertical 90-degrees and you will feel a click.

### 2.3.2 Installation of 168-pin DIMM (Dual Inline Memory Module)

1.Before inserting the DIMM, make sure the pin1 of the DIMM matches with the pin1 on the DIMM

socket.
2. Insert DIMM into the DIMM sockets at a 90-degree angle and press down.

2.3.3 Removal of 168-pin DIMM

1. Press the holding clips on both sides of the socket outward to release the DIMM.
2. Gently pull the DIMM out of the socket.

Install DIMM   Remove DIMM
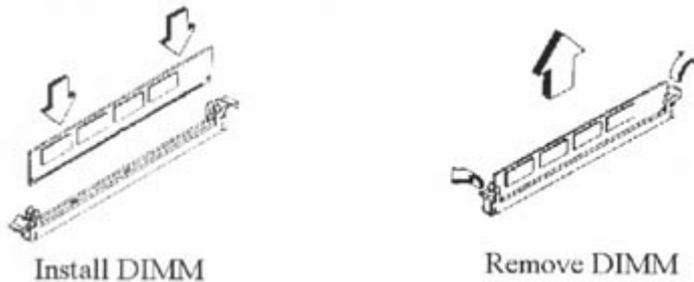
2.3.4 Memory Configuration

	Bank 0	Bank 1	Bank 2
Total System Memory	72pin Socket SIMM 1&2	168pin Socket DIMM 1	168pin Socket DIMM 2
8MB	4MBx2pcs -	- 8MB	- -
16MB	8MBx2pcs -	- 16MB	- -
32MB	16MBx2pcs - -	- 16MB 32MB	- 16MB -
64MB	32MBx2pcs - -	- 32MB 64MB	- 32MB -
128MB	64MBx2pcs - -	- 64MB 128MB	- 64MB -
256MB	- -	128MB 256MB	128MB -
512MB	-	256MB	256MB

2.4 I/O Connections/Panel Connections

2.4.1 I/O Connections

PW1   AT Power Connector
PW2   ATX Power Connector
KB1   Keyboard Connector
J9, J10   Primary/ Secondary IDE Connectors
J6   Floppy Disk Drive Connector
J5   Printer Port
J2, J3   Serial Ports 1 & 2
J1   PS/2 Mouse Port
          Pin 1:MS_DATA
          Pin 2:NC
          Pin 3:GND
          Pin 4:Vcc
          Pin 5:MS_CLK
J4   USB Connector (Cable optional)
          Pin 1, 6:Vcc
          Pin 2, 7:DATA-
          Pin 3, 8:DATA+
          Pin 4, 9:GND

The Vcc pin is commonly red wire and the Ground pin is black wire on most USB cable. Please install USB cable to appropriate pin connector of the USB

J8   IR Connector (Cable optional)

    Pin 1:Vcc

    Pin 2:Reserved

    Pin 3:IRRX

    Pin 4:GND

    Pin 5:IRTX

    Pin 6:Reserved

2.4.2 Panel Connection (24-pin J7)

J7 Connector	Function
GREENLED	Suspend Mode LED
PWRLED	Power LED
KEYLK	Keylock Switch
SPKR	Speaker
RESET	Reset Switch
IDELED	HardDisk Active LED
PWRBNT	ATX Power Button Connector
SMISW	Sleep Switch

If you want to use SMISW, please set "Power Management Setup"Dock I/O SMI enable.

WARNING: To avoid the system from failing, turn off the power before connecting any devices to the system.
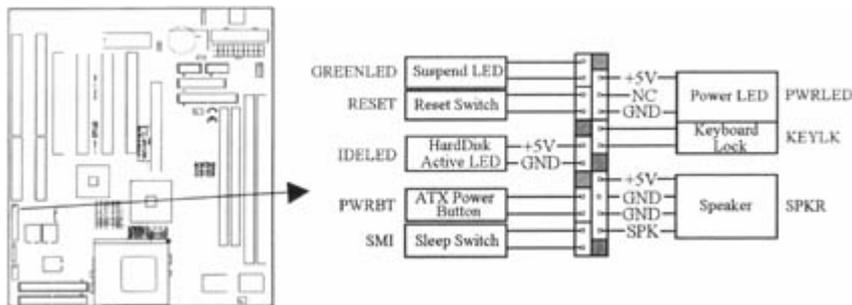
Chapter 3. BIOS Setup

3.1 CMOS Setup Utility

To activate CMOS Setup, press <DEL> key immediately after you turn on the system. The following message "Press DEL to enter SETUP" should appear in the lower left hand corner of your screen. When you enter the CMOS Setup Utility, the Main Menu will be displayed (Figure 3-1). You can use arrow keys to select your function, press <Enter> key to accept the selection and enter the sub-menu.

Figure 3-1. CMOS Setup Utility Main Screen

ROM PCI/ISA BIOS (XXXXXXXX)

CMOS SETUP UTILITY

AWARD SOFTWARE, INC.

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

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

3.2 Standard CMOS Setup

With the sub-menu (**Figure 3-2**), you can setup the; system date, system time, hard and floppy drive type, and display adapter type. Please refer to your equipment specification when changing the setup. Use arrow keys to highlight items, and use <PageUp>, <PageDown>, <+>, or <-> keys to scroll through the available options.

Figure 3-2. Standard CMOS Setup Screen

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

```
Date (mm:dd:yy) : Wed, Dec  10 1997
Time(hh:mm:ss)  :  17 : 52 : 00

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 , 3.5in.
Drive B        : None
                                         Base Memory :    640K
                                     Extended Memory : 31744K
Video          : EGA / VGA              Other Memory :    384K

Halt On        : All Errors             Total Memory : 32768K

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

3.2.1 Date

To assign the system date, the format is "mm.dd.yy". The input range for the Month is 1-12. Range for Date is 1-31. Range for Year is 1994-2079. System BIOS will calculate the day of the week automatically.

3.2.2 Time

To assign the system time, the format is "hh:mm:ss". The setting is in military time. When entering 2:34pm enter "14:34:00".

3.2.3 Hard Disks Setting

The BIOS supports Dual-Channel PIO and PCI Bus Master IDE ports. Each port supports one master and one slave hard drive. You can use <PageUp> or <PageDown> key to change hard drive type. Incorrect setting may result in boot up error or system hang.
If your hard disk drive is not listed, you can select Type "USER" to define your own drive manually. We recommend that you select Type "AUTO" for all drives. The BIOS will auto-detect the hard disk drive and CD-ROM drive at the POST stage.
If your hard disk drive is a SCSI device, please select "None" for your hard drive setting.

3.2.4 Floppy Drives A&B Setting

Select your floppy disk drive type. Options are 360KB(5.25"), 720KB(3.5"), 1.2MB(5.25"), 1.44MB(3.5"), 2.88MB(3.5").

3.2.5 Floppy 3 Mode Support

This is required to support older Japanese floppy drives. Floppy 3 Mode support will allow reading and writing of 1.2MB (as opposed to 1.44MB) on a 3.5-inch diskette.

3.2.6 Video Display Adapter Setting

Select the display adapter type for your system. Options are EGA/VGA, MONO, CGA40 and CGA80.

3.2.7 Halt On

This function allows the system to halt when an error is detected during Power-On Self-Test.

3.3 BIOS Features Setup

The sub-menu (**Figure 3-3**) includes all AWARD enhanced functions. The correct setting can enhance boot up efficiency. You can assign system speed, setup sequence, typematic and system password setting. You can enter <F1> key for help on highlighted topics. If you want to restore values before the changes you just made, press <F5> key. If you want to restore default value, press <F6> or <F7> key.

Figure 3-3. BIOS FEATURES SETUP SCREEN

ROM PCI / ISA BIOS (XXXXXXXX)
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	: Disabled	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		
Boot Up System Speed	: High		
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
PCI/VGA Palette Snoop	: Disabled	ESC : Quit ↑↓→←: Select Item	
Assign IRQ For VGA	: Enabled	F1 : Help PU/PD/+/- : Modify	
OS Select For DRAM>64MB	: Non-OS2	F5 : Old Values (Shift) F2 : Color	
Report No FDD For WIN 95	: Yes	F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

3.3.1 Virus Warning

When enabled, the BIOS will monitor the boot sector and the partition table on the hard drive for any attempt to modify. If an attempt is detected, the BIOS will halt the system and prompt the warning message. Select "Disabled" if you are installing a new operating system.

3.3.2 CPU Internal/External Cache

These options are to enable or disable CPU Internal (L1) Cache, or External (L2) Cache.

3.3.3 Quick Power On Self Test

Select "Enabled" to speed up time required to complete Power-On Self-Test.

3.3.4 Boot Sequence

This option allows user to assign boot sequence of the system. Available options are A, C, D, E, F, CD-ROM, SCSI and LS120/ZIP.

3.3.5 Swap Floppy Drive

When enabled, physical drive A will be assigned to logical drive B, and physical drive B will be assigned to logical drive A.

3.3.6 Boot Up Floppy Seek

The system will detect and verify operation of the floppy drive type .

3.3.7 Boot Up Numlock Status

The option allows the <NumLock> key to be activated after system boot up.

3.3.8 Boot Up System Speed

This option selects system boot up speed.

3.3.9 Typematic Rate Setting

Select "Enabled" to configure "Typematic Rate" and "Typematic Delay" functions.

3.3.10 Typematic Rate

Use this option to set the rate at which a character keeps repeating while you hold down a key.

3.3.11 Typematic Delay

Select "Enabled" to set the length of delay before key strokes to repeat. Available options are "250", "500", "750", and "1000".

3.3.12 Security Option

You can select whether the password is required every time the system boots or only when you enter the Setup. You can assign "Supervisor Password" and "User Password" in the main CMOS Setup Utility Screen.

3.3.13 PCI/VGA Palette Snoop

Enable this option to correct screen color shifts, when there is a combination of VGA cards, accelerator cards, or MPEG cards present.

3.3.14 OS Select for DRAM > 64MB

If you are using OS/2 operating system and installed memory is larger than 64MB. You need to have the setting in the enable mode.

3.3.15 Report No FDD For WIN 95

While the FDD in " STANDARD CMOS SETUP " is set to NONE, set this option to No to release IRQ6 for passing Win95 logo. This option is irrelevant under normal operation .

3.3.16 Video BIOS Shadow

Video shadow copies BIOS code from slower ROM to faster RAM. BIOS can then execute from RAM.

3.3.17 C8000-CBFFF /DC000-DFFFF Shadow

Optional firmware will be copied from ROM to RAM. When this option is enabled.

3.4 Chipset Features Setup

These settings are intended for the Chipset function on the motherboard. Fine tuning these options, enhances the performance of the system.

Figure 3.4 CHIPSET FEATURES SETUP SCREEN

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

```
Auto Configuration          : Enabled
L2 TAG RAM Size             : 8
AT BUS Clock                : CLK2/4
DRAM Timing                 : Normal
SDRAM CAS Latency           : 3
Pipelined Function          : Disabled
Graphics Aperture Size      : 64 MB
DRAM Data Integrity Mode    : Disabled
Memory Hole At 15M-16M      : Disabled
Host Read DRAM Command Mode : Syn.
AGP Read Burst              : Enabled
ISA Line Buffer             : Disabled
Passive Release             : Enabled
Delay Transaction           : Disabled
Primary Frame Buffer        : 16 MB
VGA Frame Buffer            : Enabled
Data Merge                  : Disabled
IO Recovery Period          : 2 us

ESC :  Quit           ↑ ↓ → ←: Select Item
F1  :  Help           PU/PD/+/- :  Modify
F5  :  Old Values     (Shift) F2 :  Color
F6  :  Load BIOS Defaults
F7  :  Load Setup Defaults
```

3.4.1 Auto Configuration

The optimum value for the chipset and CPU will be automatically loaded when enabled.

3.4.2 L2 TAG RAM Size

The system uses tag bits to determine the status of data in the L2 cache. Set this field to match the specifications (8 or 10 bits) of the installed tag RAM chip.

3.4.3 AT BUS Clock

You can set the speed of the AT bus in terms of a fraction of the CPU clock speed (PCLK2), or at the fixed speed of 7.16 MHz.

3.4.4 DRAM Timing

The value in this field depends on performance parameters of the installed memory chips (DRAM). Do not change the value from the factory setting unless you install new memory that has a different performance rating than the original DRAMs.

3.4.5 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.

3.4.6 Pipelined Function

When *Enabled,* the controller signals the CPU for a new memory address before all data transfers for the current cycles are complete, resulting in faster performance .

3.4.7 Graphics Aperture Size

Choose 4, 8, 16, 32, 64, 128, 256MB. Memory-mapped, graphics data structures can reside in the Graphics Aperture.

3.4.8 DRAM Data Integrity Mode

Select *Parity* or *ECC* (error-correcting code), according to the type of installed DRAM.

3.4.9 Memory Hole At 15M-16M

Enabling this feature reserves 15MB to 16MB memory address space to ISA expansion cards that specifically require this setting. This makes the memory from 15MB and up unavailable to the system. Expansion cards can only access memory up to 16MB.

3.4.10 Host Read DRAM Command Mode

This item allows you to select the type of Host Read DRAM Command Mode.

3.4.11 AGP Read Burst

This function enable AGP read burst mode. That will enhance AGP performance. But some AGP VGA card

need to disable this function to match most program. Such as Trident 3DImage9850 chipset AGP VGA card.

3.4.12 ISA Line Buffer

The PCI to ISA Bridge has an 8-byte bi-directional line buffer for ISA or DMA bus master memory reads from or writes to the PCI bus. When *Enabled,* an ISA or DMA bus master can pre-fetch two double words to the line buffer for a read cycle.

3.4.13 Passive Release

This function is used to meet the latency of the ISA bus master. Try to enable or disable it, if you have ISA card compatibility problem.

3.4.14 Delayed Transaction

This function is used to meet the latency of PCI cycles to from ISA bus. Try to enable or disable it, if you have ISA card compatibility problem.

3.4.15 Primary Frame Buffer

Select a size for the PCI frame buffer. The size of the buffer should not impinge on local memory.

3.4.16 VGA Frame Buffer

When *Enabled*, a fixed VGA frame buffer from A000h to BFFFh and a CPU-to-PCI write buffer are implemented.

3.4.17 Data Merge

This field controls the word-merge feature for frame buffer cycles. When Enabled, this controller checks the eight CPU Byte Enable signals to determine if data words read from the PCI bus by the CPU can be merged.

3.5 Power Management Setup

Power management decreases power usage under the pre-defined standby time range.

Figure 3-5. POWER MANAGEMENT SETUP SCREEN

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

```
ACPI Function            : Disabled          ** External Switch **
Power Management         : User Define    Power Button         : Power off
PM Control by APM        : Yes            Dock I/O SMI         : Disabled
MODEM Use IRQ            : 3
Video Off Option         : Susp, Stby -> off
Video Off Method         : DPMS Support

    ** PM Monitor **
HDD Power Down           : Disabled
Doze Mode                : Disabled
Standby Mode             : Disabled
Suspend Mode             : Disabled

    ** PM Events **
Primary HDD              : Disabled    ESC : Quit        ↑↓ → ←: Select Item
Floppy                   : Disabled    F1  : Help        PU/PD/+/- : Modify
COM Ports                : Enabled     F5  : Old Values  (Shift) F2 : Color
Keyboard                 : Enabled     F6  : Load BIOS Defaults
LPT Ports                : Disabled    F7  : Load Setup Defaults
```

3.5.1 ACPI Function

This item allows you to enable or disable the function of Advanced Configuration and Power Interface which offers improved power management .

3.5.2 Power Management

Disable	Disable Power Management.
Mini Saving	System starts power saving function when the inactivity period exceeds 1 hour.

Max Saving	System starts power saving function when the inactivity period exceeds 1 min.
User Defined	Allows user to define the inactivity period before power saving function activates,

3.5.3 PM Control by APM

Select "Yes" if your system has Advanced Power Management (APM).

3.5.4 MODEM Use IRQ

This determines the IRQ in which the MODEM can use.

3.5.5 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.

3.5.6 Video Off Method

This field defines the video off features. The following options are available: DPMS Support, Blank Screen, V/H SYNC+Blank. The DPMS (Display Power Management System) features allow the BIOS to control the video display card if it supports the DPMS feature.

3.5.7 HDD Power Down

When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

3.5.8 Doze Mode

When system is inactive after the predefined time limit, system performance will drop down. This is the first level of Power Management.

3.5.9 Standby Mode

System turns off the video signal and the fixed drives. This is the second level of Power Management.

3.5.10 Suspend Mode

System further shuts down all devices except for CPU itself. This is the third level of Power Management.

3.5.11 PM Events

When Enabled, an event occurring on each device listed below restarts the global time for Standby mode.

3.5.12 Power Button

This item allows you to select the function of power button.

3.5.13 Dock I/O SMI

This item allows you to enable or disable the function of DOCK I/O SMI.

3.6 PNP/PCI Configuration Setup

Figure 3.6 PNP/PCI CONFIGURATION SETUP

ROM PCI / ISA BIOS (XXXXXXXX)

PNP/PCI CONFIGURATION

AWARD SOFTWARE, INC.

```
PNP OS Installed          : No        PCI IDE 2nd Channel    : Disabled
                                      PCI IRQ Actived By     : Level
Resources Controlled By   : Auto
Reset Configuration Data  : Disabled  PCI IDE IRQ Map To     : ISA




                                      ESC : Quit          ↑↓→←: Select Item
                                      F1  : Help          PU/PD/+/- : Modify
                                      F5  : Old Values     (Shift) F2 : Color
                                      F6  : Load BIOS Defaults
                                      F7  : Load Setup Defaults
```

3.6.1 PNP OS Installed

This field allows you to use a Plug-and-Play (PnP) operating system.
Please set it as No if the operation system has no PnP function or to avoid reassigning the IRQs by the operation system.

3.6.2 Resources Controlled By

Default setting is "Auto". This setting allows the BIOS to self detect setting and Plug-and-Play devices during start up. The user can select and configure IRQs under "Manual" mode.

3.6.3 Reset Configuration Data

In case a conflict occurs after you assign the IRQs or after you configure your system, you can enable this function to allow your system to automatically reset your configuration and reassign the IRQs, DMAs, and I/O address.

3.6.4 IRQ-xx assigned to

If your ISA card is not PnP compatible and requires a special IRQ to support its function, set the selected IRQ to Legacy ISA. This setting informs the PnP BIOS to reserve the selected IRQ for the installed legacy ISA card.

3.6.5 DMA-x assigned to

If your ISA card is not PnP compatible and requires a special DMA channel to support its function, set the selected DMA channel to Legacy ISA. This setting informs the PnP BIOS to reserve the selected DMA channel for the installed legacy ISA card.

3.6.6 PCI IDE 2nd Channel

Select Disabled to deactivate the onboard PCI IDE second channel interface, if you install a secondary add-in IDE interface.

3.6.7 PCI IRQ Actived 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.

3.6.8 PCI IDE IRQ Map To

Some old PCI IDE add-on cards are not fully PnP compatible. These cards require you to specify the slot in use to allow the BIOS to properly configure the PnP resources.

3.6.9 Primary/Secondary IDE INT#

These two items, in conjunction with item PCI IDE IRQ Map To, specify the IRQ routing of the primary or secondary channel of the PCI IDE add-on card.

3.7 Integrated Peripherals

You can control Input and Output functions from this screen.

Figure 3-7 Integrated Peripherals

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

On-Chip Primary IDE	: Enabled	KBC Clock Source	: 8MHz
Master PIO	: Auto	Onboard FDC Controller	: Enabled
Slave PIO	: Auto	Onboard UART Port 1	: 3F8/IRQ4
Master Ultra DMA	: Auto	Onboard UART Port 2	: 2F8/IRQ3
Slave Ultra DMA	: Auto	UART2 Mode	: Normal
On-Chip Secondary IDE	: Enabled		
Master PIO	: Auto	Onboard Parallel Port	: 378/IRQ7
Slave PIO	: Auto	Parallel Port Mode	: SPP
Master Ultra DMA	: Auto		
Slave Ultra DMA	: Auto		
IDE HDD Block Mode	: Enabled	ESC : Quit	↑↓→←: Select Item
On-Chip USB Controller	: Disabled	F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
Init Display First	: PCI Slot	F6 : Load BIOS Defaults	
Ring In Controller	: Disabled	F7 : Load Setup Defaults	
RTC Alarm Controller	: Disabled		

3.7.1 On-Chip Primary IDE

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary IDE interface. Select Disabled to deactivate this interface.

3.7.2 On-Chip Secondary IDE

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the secondary IDE interface. Select Disabled to deactivate this interface

3.7.3 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.

3.7.4 IDE Primary & Secondary Master/Slave UDMA

Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.

3.7.5 IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

3.7.6 On-Chip USB Controller

Select Enabled if your system contains a Universal Serial Bus (USB) controller.

3.7.7 USB Keyboard Support

This item lets you enable or disable the USB keyboard driver within the onboard BIOS.

3.7.8 Ring In Controller (for ATX Power Supply)

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the external modem) awakens the system from a soft off state.

3.7.9 RTC Alarm Controller (for ATX Power Supply)

When *Enabled,* your can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.

3.7.10 Date Alarm

Select a date in the month. Select 0 (zero) if you prefer to set a weekly alarm (below).

3.7.11 Hour/Minute/Second Alarm

Select a specific timing of Alarm Controller.

3.7.12 Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled in this field.

3.7.13 Onboard UART Port 1 & 2

Select an address and corresponding interrupt for the first/second serial port. The default value for the first serial port is "3F8/IRQ4" and the second serial port is "2F8/IRQ3".

3.7.14 UART2 Mode

Select to activate the Infrared transfer function.

3.7.15 Half Duplex time-out

This item allows you to select the IR function when you're select the UR 1/2 Mode is ASKIR

3.7.16 Onboard Parallel Port

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

3.7.17 Parallel Port Mode

Select an operating mode for the parallel port. Mode options are SPP, EPP, ECP and ECP+EPP.

3.7.11 ECP Mode Use DMA

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

3.8 Load BIOS Defaults

This loads the standard BIOS default values. To select, highlight it and press the <Enter> key. Then press the <Y> and <Enter> keys to confirm. Otherwise, press the <N> key to cancel.

3.9 Load Setup Defaults

This feature loads the setup default values from BIOS default table. To select, highlight it and press the <Enter> key. Then press the <Y> and <Enter> keys to confirm. Otherwise, press the <?N> key to cancel.

3.10 Supervisor/User Password

You can assign, modify, or cancel password settings. To modify, highlight "Supervisor Password" or "User Password" and press the <Enter> key. The screen will prompt you ("Enter Password:"). Enter your password. The maximum size of the password is 8 characters. System will prompt you to reenter the password to verify. Remember the passwords are case sensitive.

If you want to remove the passwords, either delete passwords or press <Enter> when prompting for new password.
If you want it to require password upon initial system startup and upon entering the CMOS Setup Utility, you will need to change the selection of the (Security Option) under (BIOS FEATURES SETUP) to "System".
If the setting is "Setup", the system will only require the password you activate CMOS Setup Utility.

3.11 IDE HDD Auto Detection

If your system has an IDE hard drive, you can use this function to detect its parameters and enter them into the Standard CMOS Setup automatically.
This routine only detects one set of parameters. If your hard disk is formatted using different parameters than those detected, you have to enter the parameters manually. If the parameters listed do not match the ones used to format the disk, the information on that disk will not be accessible. If the

auto-detected parameters displayed do not match those that are used for your drive, ignore them. Type N to reject the values and enter the correct ones manually from the Standard CMOS Setup screen.

3.12 Exit CMOS Setup Utility

Press the <F10> key to save the setup and exit. Press <ESC> key to exit without saving. Either saving or not saving modifications, screen will prompt user to confirm, and system will reboot on exit.

Chapter 4. AGP & IDE Driver Installation

Please refer to the readme.txt file that in S7AX Driver Disk first then follow the instruction to setup AGP & IDE driver.

FC

Declaration of Conformity

According to 47 CFR, Part 2 and 15 of the FCC Rules

The following designated product

EQUIPMENT : MAIN BOARD

MODEL NO. : S7AX

Which is the Class B digital device complies with 47 CFR Parts 2 and 15 of the FCC rules.
Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

C E

Declaration of Conformity

The following designated product

EQUIPMENT : MAIN BOARD

MODEL NO. : S7AX

Complies with the essential protection requirements of Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. To the judgment of the product with regard to

NSTL

NSTL" Year 2000 Test" Certification Letter

March 31, 1999
Testing Date : March 31, 1999
Certification Date : March 31, 1999
Certification Number : NCY2000-990331-007

S7AX system has passed NSTL Year 2000 certification test program. The Year 2000 test program tests a personal computer for its ability to support the year 2000.

The Year 2000 certification test has been done under the following system configuration:

System Model Name	: S7AX
Hardware Revision	: REV.1.02
CPU Model	: AMD K6-233/66 MHz
On Board Memory / L2 Cache	: PC100 SDRAM DIMM 32MBx1 / 512KB
System BIOS	: Award Modular BIOS v4.51PG S7AX
	VER:1.071
	10/20/1998-ALADDIN5-2A5KKTP9C-00