

**386SX SUNTAC CHIP
SYSTEM BOARD
USER'S MANUAL**

Chisony

386 - 20 MHz

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CHAPTER 1

INTRODUCTION

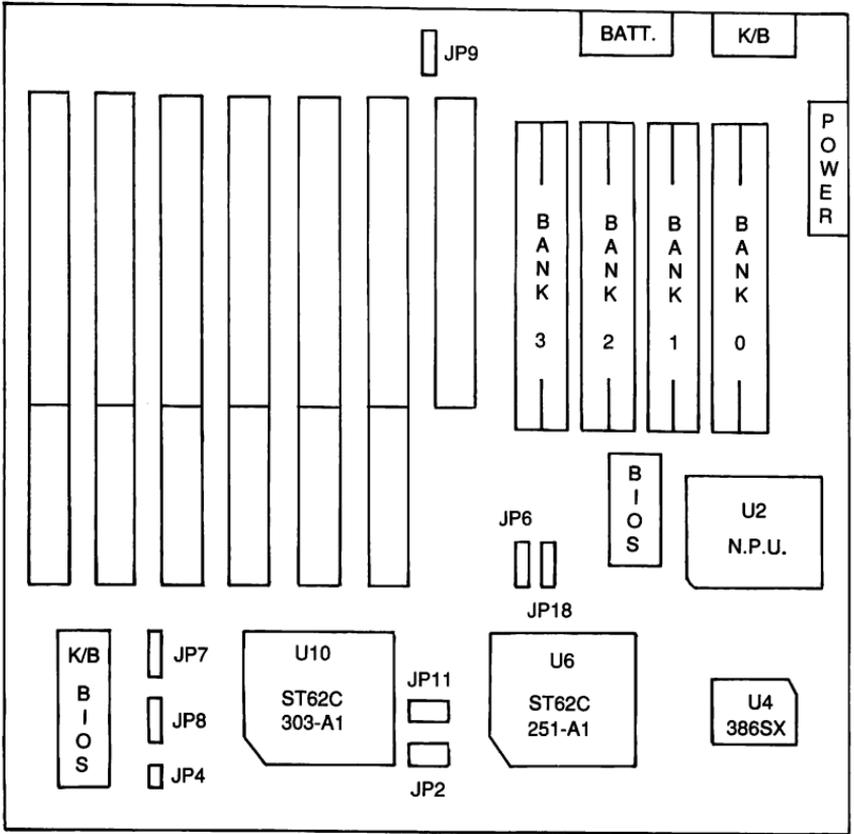
1-1 Features:

1. Fully IBM PC/AT compatible.
2. Support 16/20MHZ Page/Interleave mode.
3. Support up to 8MB on Board Memory.
4. Flexible and efficient Shadow RAM implementation.
5. Supports LIM EMS 4.0E Release 1.10.
6. Independent 8284 clock circuit to optimize 80387 operation.
7. Asynchronous AT Bus clock design.
8. Socket for 80387 Numeric Processor.
9. With six 16Bit and one 8Bit expansion slots.
10. Support 1MB, 2MB, 4MB and 8MB RAM.
11. Half Size 220mm(L)x 220mm(W) with 4 Layer P.C.Board.

CHAPTER 2

MAINBOARD INSTALLATION

2-1 Board Layout:



2-2 Jumper Setting

1. Keyboard Lock and LED Connector (**Keylock**)

Pin	Description
1	LED Power
2	KEY
3	Ground
4	Keyboard Inhibitor
5	Ground

2. Speaker Connector (**Speaker**)

Pin	Description
1	Speaker Data Out
2	N.C.
3	Ground
4	+5V

3. Turbo mode LED (**TUR-LED**)

Pin	Description
1	Anode (+)
2	Cathode (-)

4. External Battery Connector (**JP9**)

Pin	Description
1	Battery +6V
2	N.C.
3	Ground
4	Ground

5. EPROM Type Select Jumper (**JP6, JP18**)

EPROM	JP6	JP18
27256	1-2 ON	1-2 ON
27512	2-3 ON	2-3 ON

6. Display Mode Select (**JP8**)

Display Mode	JP8
Color	ON
Mono	OFF

7. Turbo/Normal 8042 Software Control Pin (**JP4, JP7**)

O/P Pin	JP4	JP7
Pin 23	OFF	2-3
Pin 32	OFF	1-2
Pin 27	ON	OFF

8. Parity Bit Disable/Enable Selection Jumper (**JP2**)

Pin	Description
ON	Enable
OFF	Disable

9. B14M Use CS62C303-A1 or OSC3 Selection Jumper (**JP11**)

JP11	Description
ON	CS62C303-A1 Enable
OFF	OSC3 or 74F74 Enable

CHAPTER 3

MEMORY CONFIGURATION

3-1 Memory Configuration

Memory Module	Bank 0	Bank 1	Bank 2	Bank 3	Total Size
256K Module	256Kx2				512KB
	256Kx2	256Kx2			1MB
	256Kx2	256Kx2	256Kx2	256Kx2	2MB
1MB Module	1MB x2				2MB
	1MB x2	1MB x2			4MB
	1MB x2	1MB x2	1MB x2	1MB x2	8MB

CHAPTER 4

BIOS SET UP

4-1 Bios Set Up

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines are divided into two phases:

System Test and Initialization (test and initialize system boards for normal operation), and

System Configuration Verification (compare defined configuration with hardware actually installed).

The AMI BIOS performs the various diagnostic checks at the time the system is powered up; if an error is encountered the error will be reported in one of two different ways:

Error occurs before the display device is initialized:

A series of beeps will be transmitted. Beep codes are found in Appendix A.

Error occurs after the display device is initialized:

The screen will display the error message. In case of a non-fatal error, a prompt to press <F1> key may also appear on the screen.

Normally, if the POST are completed, the following message appears:

“Hit if you want to run SETUP”

When you press key, system will show you the “**AMI BIOS SETUP UTILITIES**” screen (Figure 1). The highlighted bar will stay in **Standard CMOS SETUP**. If you want to change Time, Date, Hard Disk Type etc (see Appendix B). Hit any key, system will show you a “**WARNING INFORMATION**” on the screen (Figure 2).

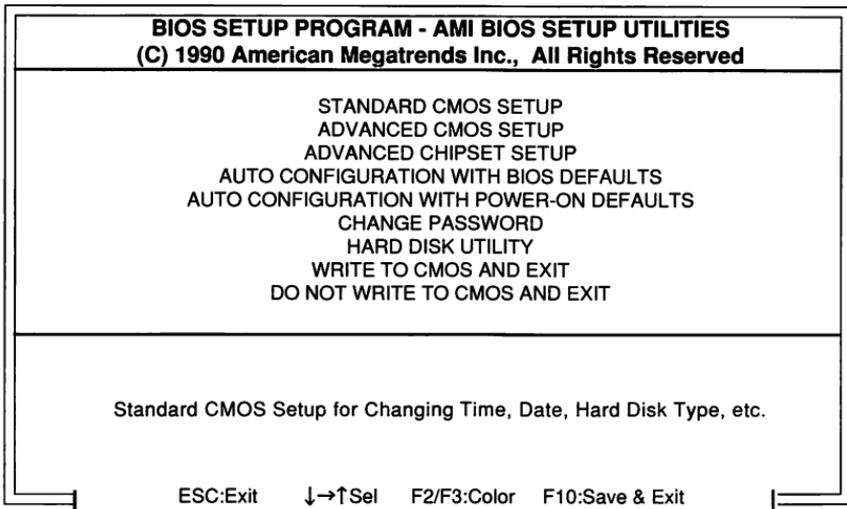


Figure 1

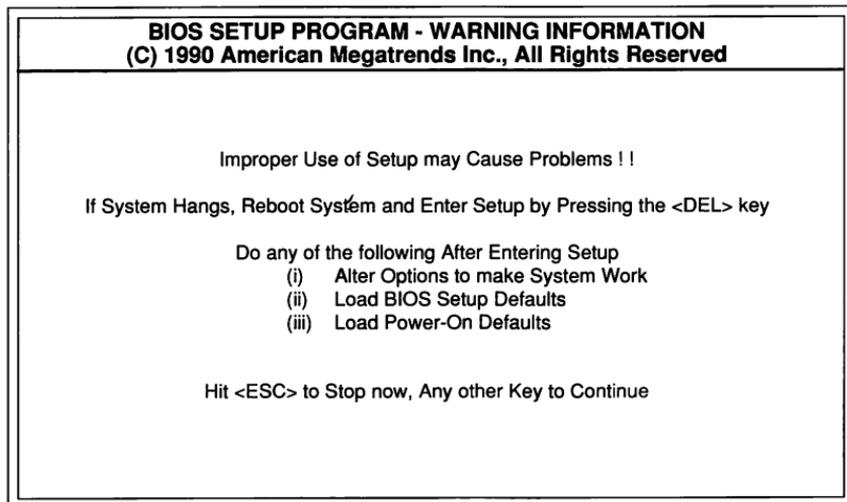


Figure 2

Read carefully on the warning message and hit any key to continue, a **STANDARD CMOS SETUP** screen will be shown as below (Figure 3):

BIOS SETUP PROGRAM - STANDARD CMOS SETUP
(C) 1990 American Megatrends Inc., All Rights Reserved

Date (mn/date/year) : Tue, Jan 01 1980 Base memory : 640KB
Time (hour/min/sec) : 00 : 39 : 05 Ext. memory : 1408 KB
Daylight saving : Disabled Cyln Head WPcom LZone Sect Size
Hard disk C: type : Not Installed
Hard disk D: type : Not Installed
Floppy drive A : Not Installed
Floppy drive B : Not Installed
Primary display : VGA/PGA/EGA
Keyboard : Installed

Month : Jan, Feb, Dec
Date : 01, 02, 03, 31
Year : 1901, 1902, 2099

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2
3	4	5	6	7	8	9

ESC:Exit ↓→↑Select F2/F3:Color PU/PD:Modify

Figure 3

Use the |→| key to highlight the parameter that you want to change, and then use the <PgUp> or <PgDn> key to modify the values.

Check your system configuration and change the values to meet your system configuration. Hit "ESC" key when properly setup. System will return to the main menu. Let's go into the **ADVANCED CMOS SETUP** by pressing the < > Key and hit <Return>. System will appear you again the **WARNING INFORMATION**, Hit any key to the **ADVANCED CMOS SETUP** screen (Figure 4) as shown below:

BIOS SETUP PROGRAM - ADVANCED CMOS SETUP	
(C) 1990 American Megatrends Inc., All Rights Reserved	
Typematic Rate Programming : Disabled	Password Checking Option : Disabled
Typematic Rate Delay (msec) : 500	Video ROM e000,32K : Enabled
Typematic Rate (Chars/Sec) : 15	System ROM Shadow F000,64K: Enabled
Above 1 MB Memory Test : Disabled	CPU SPEED : Low
Memory Test Tick Sound : Enabled	EMS OPTION : Enabled
Memory Parity Error Check : Enabled	AT BUS SPEED : ATASYSNC
Hit Message Display : Enabled	
Hard Disk Type 47 RAM Area : 0:300	
Wait For <F1> If Any Error : Enabled	
System Boot Up Num Lock : On	
Numeric Processor Test : Enabled	
Weitek Processor : Absent	
Floppy Drive Seek At Boot : Disabled	
System Boot Up Sequence : A:, C:	
System Boot Up CPU Speed : High	
Cache Memory Controller : Enabled	
Fast Gate A20 Option : Enabled	
Turbo Switch Function : Enabled	
ESC:Exit ↓→↑Sel (Ctrl) Pu/Pd:Modify F1:Help F2/F3:Color	
F5:Old Values F6:BIOS Setup Defaults F7:Power-On Defaults	

Figure 4

We suggest the user use the **BIOS SETUP DEFAULT** (press <F6>), then change some of the major items for your personal requirement such as:

System Boot Up Sequence:

Chose system boots from floppy drive A: first (if present), and then hard disk C: (A:, C:), or boots from hard disk C: first (if present), and then floppy drive A: (C:, A:).

System Boot Up CPU Speed:

Choices for CPU speed "High" or "Low". The default speed is "Low".

Password Check Option:

The default option is "Disabled". The prompt for the password will NOT appear when the system is re-booted.

If the "Always" option is chosen, system will need a correct password to boot the system.

If the "Setup" option is chosen, system will NOT prompt you password when system is turned on, but will need a password if user attempts to enter the Setup program.

When you have setup properly, press <F10> and save to CMOS and Exit. System will re-boot again. Now you have a system which recognized all the equipment that you have equipped with.

APPENDIX A

BIOS ERROR BEEP CODES

During the POST (Power On Self Test) routines, which are performed each time the system is powered on, error may occur.

Non-fatal errors are those which, in most cases, allow the system to continue the boot up process. The error messages normally appear on the screen.

Fatal errors are those which will not allow the system to continue the boot-up procedure. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

These fatal errors are usually communicated through a series of audible beeps. The numbers on the fatal error list below correspond to the number of beeps for the corresponding error. All error listed, with the exception of #8, are fatal errors.

No. of Beeps	Error Message
1	Refresh Failure - The memory refresh circuitry of the motherboard is faulty.
2	Parity Error - A parity error was detected in the base memory (the first block of 64KB) of the system.
3	Base 64KB Memory Failure - A memory failure occurred within the first 64KB of memory.
4	Timer Not Operational - Timer #1 on the system board has failed to function properly.
5	Processor Error - The CPU on the system board has generated an error.

No. of Beeps**Error Message**

-
- | | |
|-----------|--|
| 6 | 8042 - Gate A20 Failure - The keyboard control (8042) contains the Gate A20 switch which allows the CPU to operate in virtual mode. This error message means that the BIOS is not able to switch the CPU into protected mode. |
| 7 | Processor Exception Interrupt Error - The CPU on the motherboard has generated an exception interrupt. |
| 8 | Display Memory Read/Write Error - The system video adapter is either missing or its memory is faulty. PLEASE NOTE: This is not a fatal error. |
| 9 | ROM Checksum Error - The ROM checksum value does not match the value encoded in the BIOS. |
| 10 | CMOS Shutdown Register Read/Write Error - The shutdown register for the CMOS memory has failed. |

APPENDIX B

AMI BIOS HARD DISK DRIVE TABLE

TYPE	CYLN	READS	W/PCOMP	L-ZONE	CAPACITY
1	306	4	128	305	10 MB
2	615	4	300	615	20
3	615	6	300	615	31
4	940	8	512	914	62
5	940	6	512	940	47
6	615	4	FFFF	615	20
7	462	8	256	511	31
8	733	5	FFFF	733	30
9	900	15	FFFF	901	112
10	820	3	FFFF	820	20
11	855	5	FFFF	855	35
12	855	7	FFFF	855	50
13	306	8	128	319	20
14	733	7	FFFF	733	43
15	000	0	0000	000	00
16	612	4	0000	663	20
17	977	5	300	977	41
18	977	7	FFFF	977	57
19	1027	7	512	1023	60
20	733	5	300	732	30
21	733	7	300	732	43
22	733	5	300	732	30
23	306	4	0000	336	10
24	925	7	0000	925	54
25	925	9	FFFF	925	69
26	754	7	754	754	44
27	754	11	FFFF	754	69
28	699	7	256	699	41
29	823	10	FFFF	823	68

TYPE	CYLN	READS	W/PCOMP	L-ZONE	CAPACITY
30	918	7	918	918	53
31	1024	11	FFFF	1024	94
32	1024	15	FFFF	1024	128
33	1024	5	1024	1024	43
34	612	2	128	612	10
35	1024	9	FFFF	1024	77
36	1024	8	512	1024	68
37	615	8	128	615	41
38	987	3	987	987	25
39	987	7	987	987	57
40	820	6	820	820	41
41	977	5	977	977	41
42	981	5	981	981	41
43	830	7	512	930	48
44	830	10	FFFF	830	69
45	917	15	FFFF	918	114
46	1244	15	FFFF	1223	152
47	USER TYPE				

