MotherBoard


# MotherBoard

User's Manual

# TM 486SPS

## PCI BUS 486 MOTHERBOARD

## USER'S MANUAL

VER: 1.0

Note:





# Mainboard Feature Introduction

## *Specifications*

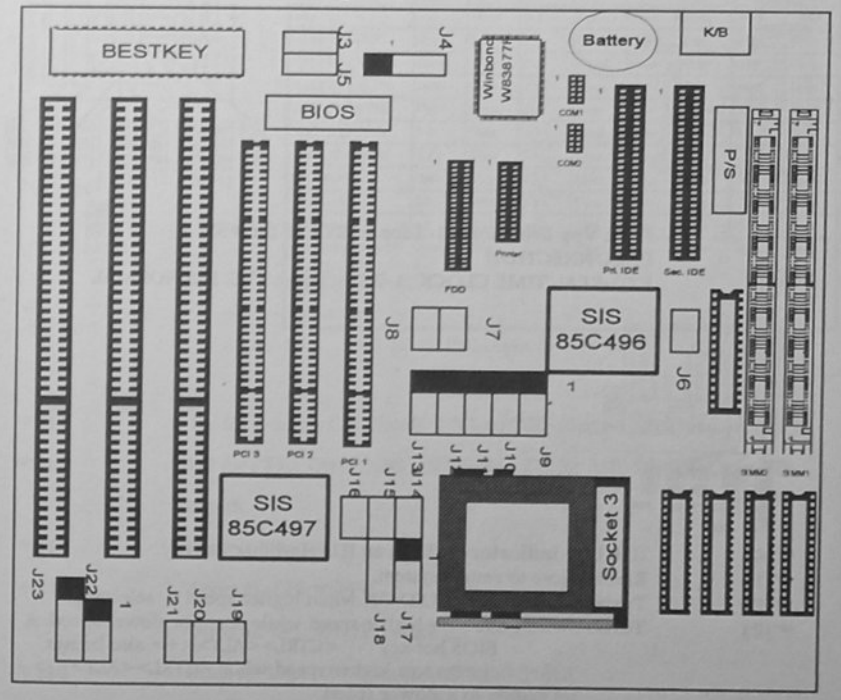
| | |
|---|---|
| CPU ZIF Socket | ◆ ZIF 168 PIN<br>◆ 25Mhz to 160MHZ<br>◆ Intel SX,SX-SL,DX,DX-SLDX2,DX4,P24T,P24D,3.3V,3.45V. AMD DXL,DX2,DX4,3.45V.CYRIX S2,DX,DX2(M6/M7),.5x86, UMC and compatible CPU |
| Chipsets | ◆ Mainboard: SiS 85C496/497 PCI/ISA chipset. SiS 85C496 PCI & CPU Memory Controller (PCM). SiS85C497 AT Bus Controller & Megacell (ATM)<br>◆ Enhanced I/O: Winbond W83787F/W83877F for 1.44M FDD, or W83777F/W83768 for 2.88M FDD |
| Memory | ◆ 32-bit Cache.<br>◆ Supports two 72-pin SIMM, SIMM1 and SIMM2. Single side SIMM two banks or double side SIMM four banks.<br>◆ 1MB to 64MB SIMM, upto 128MB memory<br>◆ One SIMM, at least, on board.<br>◆ Table-free DRAM configuration DRAM CAS before RAS refresh. |
| Cache | ◆ 32-bit Cache<br>◆ Implements level-tow (L2), external cache write-through or write back design, featuring four 28/32-pin DIP SRAM sockets, one TAG RAMs needed, if the external cache is Write Back.<br>◆ External cache size is 128K, 256K, and 512K 5V cache ram. Supports L1 cache write back CPU (P24T/P24D/M7/Cyrix 5x86, AMD P75). |
| Expansion Slots | ◆ Builds three 16-bit ISA slots and three PCI v.2 master slots (PCI1 to PCI3) |

| | |
|---|---|
| Enhanced PCI IDE & ISA I/O | ◆ Build in enhanced IDE controller.<br>◆ Supports 4 PCI IDE devices, Mode 3 and Mode 4 and CD-ROM driver. BIOS auto detects HDD mode.<br>◆ Two Serial ports with 16550, one Parallel<br>◆ port with ECP/EPP pocket device, bi-direction, one game port, two FDD. Through ECP/EPP, you can increase the performance of printer or connect SCSI or IDE devices.<br>◆ Controlled by BIOS. Disable I/O function by BIOS in order to install an I/O card. Set COM1 and COM2 as COM3 and COM4 by BIOS. |
| System Green BIOS | ◆ Flash BIOS option on board, AWARD dark green BIOS, Plug & Play, PnP function.<br>◆ Auto configuration for PCI add-on cards.<br>◆ CPU stop-clock, real zero clock for CPU<br>◆ I/O devices power saving, APM & SMI<br>◆ Implements the EPA Energy Star PC specification with Deep Green system design.<br>◆ Full-on: System runs in full speed CPU clock.<br>◆ Doze: System scales-down CPU clock.<br>◆ Standby: System scales-down the CPU clock, and turns off video display, and spin-off hard disk driver.<br>◆ Suspend: With SMM CPU, stop CPU clock in suspend mode. |



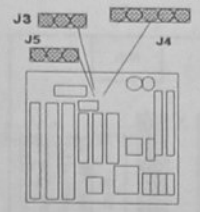
## Setup Guide

### *Mainboard Layout Drawing*

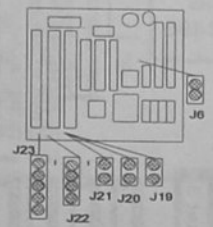


## *Jumper & Connector Setting*

### Connector Location



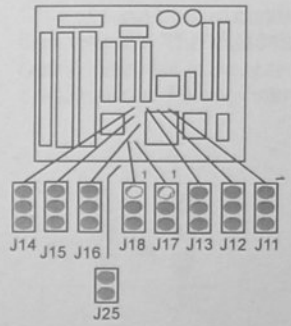

☞J3 Flash Vpp Selection : 1-2 for +12V 2-3 for +5V
☞J4 IR CONNECTION
☞J5 RTC-REAL TIME CLOCK :1-2 Discharge RTC. 2-3 NORMAL




☞J6 IDE LED indicator- LED on en IDE Harddisk activity.
☞J19 Reset -Close to restart system.
☞J20 Turbo LED indicator-LED ON when higher speed is selected.
☞J21 Turbo Switch:Close for higher speed while open for slower speed. A BIOS hot key <CTRL><ALT><+> also brings system to a higher speed while <CTRL><ALT><-> set system to a slower speed.
☞J22 Speaker-connect to the system's speaker for eeping.
1.Speaker 2.N/C
3.GND 4.GND
☞J23 KeyLock - Keyboard lock switch & Power LED connector.
1.POWER lED(+) 2.N/c
3.GND 4.Keylock 5.GND



CPU SELECTION



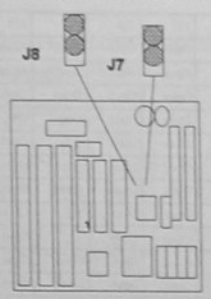

CPU SELECTION Table

| | J11 | J12 | J13 | J14 | J15 | J16 | J17 | J18 |
|---|---|---|---|---|---|---|---|---|
| Intel DX2-66(5 V) | 2-3 | Open | 2-3 | Close | Open | Open | Open | Open |
| Intel DX4-100 | Open | Open | 2-3 | Close | Open | Open | Open | Open |
| Intel SX | 1-2 | Open | 2-3 | Open | Open | Open | Open | Open |
| AMD(SV8B)DX | Open | 2-3 | 2-3 | Close | Open | Open | Open | Open |
| AMD DX2(3V) | Open | 2-3 | 2-3 | Close | Close | Open | 2-3 | Open |
| AMD DX2-66 (5V) | Open | Open | 2-3 | Close | Open | Open | Open | Open |
| AMD DX4-NV8T | Open | Open | 2-3 | Close | Open | Open | Open | Open |
| AMD DX4-SV8B | 2-3 | Open | 2-3 | Close | Open | Open | 1-2 | Open |
| AMD X5-133/160 | 2-3 | Open | 2-3 | Close | Close | Open | 1-2 | Open |
| Cyrix DX2-50 | Open | Open | 2-3 | Close | Close | Open | Open | Open |
| Cyrix 5x86 | 2-3 | Open | 2-3 | Close | Open | Open | Open | Open |
| UMC U5 | 1-2 | Open | 2-3 | Open | Open | Open | Open | Open |
| Cyrix DX4-100 (M7) TI DX4-100 SGS DX4-100 IBM DX4-100 | Open | Open | 2-3 | Close | Close | Open | Open | Open |

J25 Short for 5V CPU , Open for 3.3V CPU

☞J11 1-2 for S-series CPU (Intel). 2-3 for P24D , Cyrix 5x86. Open for others.
☞J12 1-2 for P24D, Cyrix 5x86, AMD 5x86 . 2-3 for AMD DX-V8B Open for others.
☞J13 Short 2-3 for all
☞ J14 Short for CPU w/FPU
Open for CPU w/o FPU (U5S, SX Series)
☞J15 Open for Intel DX4 Cyrix & AMD 5x86 3*CLK
Close for Intel DX4 Cyrix & AMD 5x86 2* CLK
☞J16 Short for P24T, P24D, Cyrix 5x86, AMD 5x86
☞ J17 AMD DX series CPU CLK Selection & P24D WB/WT Selection.
☞J18 P24T WB/WT Selection. Other CPU Open.

## CPU CLOCK Selection

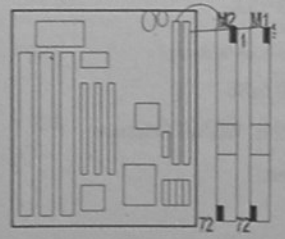



☞J7
☞J8

| CPU CLK | J7 | J8 |
|---|---|---|
| 25 MHz | OPEN | OPEN |
| 33 MHz | CLOSE | CLOSE |
| 40 MHz | CLOSE | OPEN |
| 50 MHz | OPEN | CLOSE |

## System Memory Configuration

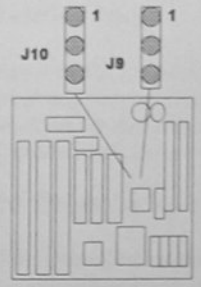
The TM486SPS supports "Table Free" DRAM configuration and different type of settings for the system memory. There is no jumper nor connector needed for memory configuration. You can choice any SIMM socket to insert any type of 72 pins SIMM which you have.

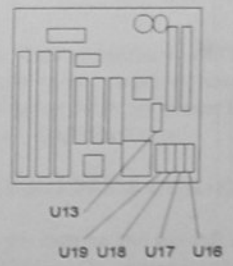





## Cache Memory Configuration

The second level of cache is installed in the motherboard to increase the system performance. The TM486SPS supports different type of combinations for the cache installation. Jumper 9,10 settings are used to differential such combinations. Please refer to following configurations for the details.

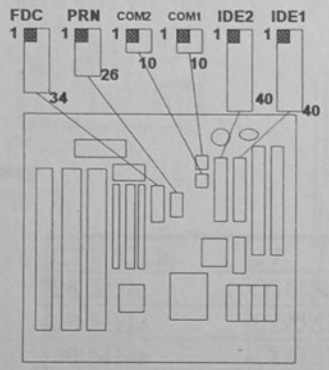



| CACHE SIZE | TAG SRAM (U13) | Data SRAM Install | JUMPER 9 | JUMPER 10 |
|---|---|---|---|---|
| 128KB | 8K8 x 1<br>16K8 x 1<br>32K8 x 1 | 32K8 x 4<br>U16,17,18,19 | 1-2 | 1-2 |
| 256KB | 16K8 x 1<br>32K8 x 1 | 64K8 x 4<br>U16,17,18,19 | 2-3 | 2-3 |
| 512KB | 32K8 x 1 | 128K8 x 4<br>U16,17,18,19 | 2-3 | 1-2 |

### Super multi-I/O Controller

The TM486SPS built in (Winbond W83877F) super multi-I/O controller. It supports 1 floppy port (up to 2.88MB), 1 parallel port(EPP/ECP optional) and 2 serial ports (16550 fast UART compatible). And all of the ports can be ENABLE or DISABLE by BIOS Utility.




CN1: IDE I
CN2: IDE II
CN3: Serial Port 1 (COM1)
CN4: Serial Port 2 (COM2)
CN5: Parallel Port (Printer)
CN6: Floopy Port



## Award BIOS Setup

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

### Entering Setup

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

**TO ENTER SETUP BEFORE BOOT PRESS CTRL-ALT-ESC OR DEL KEY**

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

**PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP**

### Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

### Status Page Setup Menu/Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for highlighted item. To exit the Help Window press <Esc>.

## *The Main Menu*

Once you enter Award BIOS CMOS Setup Utility, the Main Menu will appear on the Screen.. Use arrow keys to select among the items and press to accept or enter the **sub-menu.**

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

| | |
|---|---|
| STANDARD CMOS SETUP | PASSWORD SETTING |
| BIOS FEATURE SETUP | IDE HDD AUTO DETECTION |
| CHIPSET FEATURES SETUP | HDD LOW LEVEL FORMAT |
| POWER MANAGEMENT SETUP | SAVE & EXIT SETUP |
| PCI & ONBOARD I/O SETUP | EXIT WITHOUT SAVING |
| LOAD BIOS DEFAULTS | |
| LOAD SETUP DEFAULTS | |
| Esc : Quit | ←↑↓→ : Select Item |
| F10 : Save & Exit Setup | (Shift) F2 : Change Color |

**Standard CMOS Setup**

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

**BIOS Features Setup**

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

**Chipset Features Setup**

This setup page includes all the items of chipset special features.

☞ Notice: For using Sseagte 850MB(ST3581A) and Seagate 630MB(ST3630A), LBA Mode has to be set up to Mode 0,1or 2 instead of 3, 4 or Auto.



**Power Management Setup**

This menu provides with green functions by allowing users to set the timeout value for monitor and HDD

**PCI & ONBOARD I/O SETUP**

This menu allows user to modify PCI & Onbaord I/O function

**Load BIOS Defaults**

BIOS defaults indicates the most appropriate value of the system parameter which the system would be in minimum performance.

**Load Setup Defaults**

Chipset defaults indicates the values required by the system for the maximum performance.

**Password Setting**

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

**IDE HDD Auto Detection**

Automatically configure hard disk parameters.

**Save & Exit Setup**

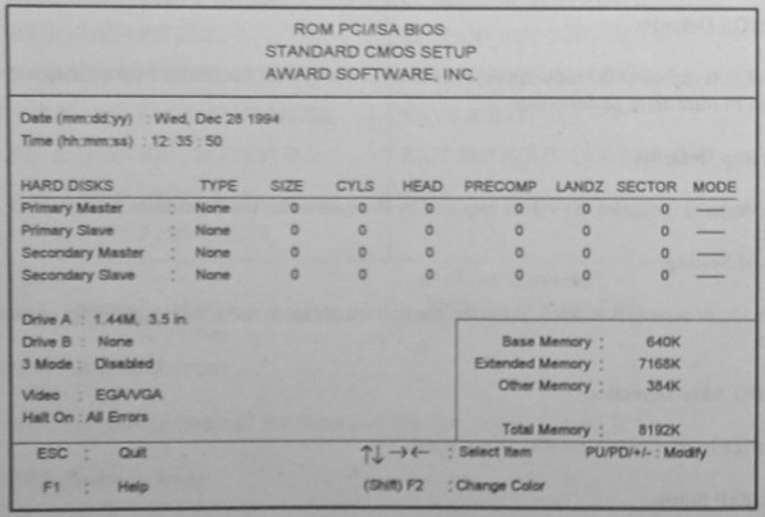
Save CMOS value changes to CMOS and exit setup.

**Exit Without Saving**

Abandon all CMOS value changes and exit setup.

## Standard CMOS Setup

The item in Standard CMOS Setup Menu are divided into several categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.






### Virus Warning

This category flashes on the screen. During and after 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 anti-virus program to locate the problem.

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

**Enabled** Activate 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 attempt 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 Enabled.

**Enabled** : Enabled cache

**Disabled** : Disabled 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 hard disk operation system (i.e., DOS).

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

**Swap Floppy Drive**

Users can enable this item so that the BIOS will see the hardware "Drive A:" as "Drive B:"", and hardware "Drive B:"" as "Drive A:"".

**Boot Up Floppy Seek**

During POST, BIOS will determine if the Floppy disk drive installed is 40 or 80 tracks. 360 K type is 40 tracks while 720K, 1.2M and 1.44M drive type as they are all 80 tracks.

**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

**Gate A20 Option**

The Gate A20 Option default setting is fast.". This is the optimum setting for this mainboard.

**Typematic Rate Setting**

This determines the typematic rate.
**Enabled** : Enable typematic rate
**Disabled** : Disable typematic rate

**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 hold a key, the time between the first and second character displayed.

**250** : 250 msec
**500** : 500 msec

**750** : 750 msec

**1000** : 1000 msec

**Security Option**

This category allows you to limit access to the system and Setup, or just to Setup.

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

**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/DC000-DFFFF Shadow**

These categories determine whether optional ROM will be copied to RAM by 16K byte.

**Enabled** : Optional shadow is enabled

**Disabled** : Optional shadow is disabled



This category determines how much power consumption for system after selecting below items. Default value is Disable. The following pages tell you the options of each item & describe the meanings of each options.

| Item | Options | Descriptions |
|---|---|---|
| A. Power Management | 1. Disable | Global Power Management will be disabled |
| | 2. User Define | Users can configure their own power management |
| | 3. Min Saving | Pre-defined timer values are used such that all timers are in their MAX value |
| | 4. Max Saving | Pre-defined timer values are used such that all timers MIN value |

## Load BIOS Default

When you access "Load BIOS Default", the following message appears:

```
Load BIOS Default (Y/N) ?N
```

The BIOS Default values are the "worst case" default, and are the most stable values for the system. Use them if the system is performing erratically due to hardware problems. To load the Setup Default values, press <Y> then <Enter>.

## Load Setup Default

When you access "Load Setup Default", you are shown the following message:

```
Load Setup Default (Y/N) ?N
```

The Setup Default values represent the "best case" default, and should provided optimum system performance. To load the BIOS Default values, press <Y> then <Enter>.

## Password Setting

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

```
ENTER PASSWORD
```

Type the password, up to eight characters, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.



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

## IDE HDD Auto Detection

This feature allows you to check all the informations on your hard disk formation. When you access "IDE HDD Auto Detection", the system executes auto detection.

At the prompt, it represents all the informations on your HDD, and you are asked:

Do you accept this drive C: (Y/N) ?

1 If you accept the test result, press [Y] then [Enter] and the result is saved, then the system continues to detect another HDD.

2 If not, press [N] then [enter] and the system continues to detect another HDD.

**Exiting the Setup Program**

To exit the Setup program, do the following:

If you want to save your change:

a. At the Main menu, select "Save & Exit Setup", then press [Enter]

b. Press [Y] then [Enter] to confirm. The system will boot with your new BIOS setting in effect .

If you want to abandon your changes:

a. At the Main Menu, select "Exit Without Saving", then press [Enter].

b. Press [Y] then [Enter] to confirm. The system will reboot with the original BIOS setting in effect.