



About This Guide

This User's Guide is for assisting system manufacturers and end users in setting up and installing the mainboard. Information in this guide has been carefully checked for reliability; however, no guarantee is given as to the correctness of the contents. The information in this document is subject to change without notice.

Copyright Notice

Copyright 1994, Soyo Technology Co. Ltd. All rights reserved. This manual is copyrighted by Soyo Technology Co., Ltd. You may not reproduce, transmit, transcribe, store in a retrieval system, or translate into any language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual, or otherwise, any part of this publication without express written permission of Soyo Technology Co., Ltd.

Trademarks

Soyo is a registered trademark of Soyo Technology Co., Ltd. All trademarks are the property of their owners.

Disclaimer

Soyo Technology Co., Ltd. makes no representations or warranties regarding the contents of this manual. We reserve the right to revise the manual or make changes in the specifications of the product described within it at any time without notice and without obligation to notify any person of such revision or change. The information contained in this manual is provided for general use by our customers. Our customers should be aware that the personal computer field is the subject of many patents. Our customers should ensure that they take appropriate action so that their use of our products does not infringe upon any patents. It is the policy of Soyo Technology Co., Ltd. to respect the valid patent rights of third parties and not to infringe upon or assist others to infringe upon such rights.

Restricted rights legend

Use, duplication, or disclosure by the Government is subject to restrictions set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at 252.Z77-7013.

Edition: June 1994

Version 3.0

30/D/E/F SERIAL



Table of Contents

Electrostatic Discharge Precautions	ii
Chapter 1: Introduction	1
Key Features	1
Unpacking the Mainboard	2
Mainboard Layout w/ default settings*	3
Chapter 2: Hardware Setup	4
JP3: Display Type Settings	4
JP5: CMOS Reset Jumper	4
JP19: Berg Jumper (Green Jumper)	5
JP21: 5Volt / 3.3Volt CPU Selector	5
JP31, JP32: PCI Bus Clock Mode	6
JP42: Green PC Power Control	6
VESA Local Bus Configuration	7
JP1: VESA Local Bus Clock Configuration (Factory setting)	7
JP2: VESA Wait State Configuration (Factory setting)	7
CPU Type Configuration	8
Intel/AMD CPU Jumper Settings	8
Cyrrix CPU Jumper Settings	16
Cache Configuration	18
Cache Jumper Settings	18
Cache Size and RAM Locations	18
Memory Configuration	21
Connectors	23
J17 - Keylock & Power LED Connector	23
J18 - Speaker Connector	23
J19 - Hardware Reset Control	23
J20 - External Battery Connector	23
J21 - Turbo Switch Connector	23

J22 - Turbo LED Connector.....	23
J13- Keyboard Connector.....	24
PL1 - Power Supply Connectors.....	24

Chapter 3: BIOS Setup.....	25
Standard CMOS Setup.....	26
BIOS Features Setup.....	27
Chipset Features Setup.....	30
Power Management Setup.....	31
PCI Configuration Setup.....	34
Load Setup Defaults.....	35
Password Setting.....	36
IDE HDD Auto Detection.....	36

Introduction

The 486 PCI mainboard is a high-performance system board that supports 486DX2/DX/SX/SL Enhanced 486, P24T, P24D, DX4, and Cyrix M7 CPUs. The mainboard is fully compatible with industry standards, while incorporating many technical enhancements.

The 486 PCI mainboard offers superior system performance, compatibility, and reliability, and is the ideal choice for a wide variety of system applications.

Key Features

- Fully AT compatible. Supports 486DX2/DX/SX/SL Enhanced 486, P24T, P24D, 486DX4 (P24C), Cyrix M7 CPUs and AMD CPUs.
- Supports internal cache (CPU) write-back (P24T, P24D, M7) systems
- Supports Power Management Mode
 - Supports the SMM and the SMI
 - CPU Stop Clock Function
 - Three Power Saving States (normal/doze/ sleep)
 - Supports the APM control
 - Supports Berg Switch control
 - Power Saving also on non-SMI CPU
 - More System Event Monitoring and the Power Saving Control
- Direct map cache controller that supports 128K, 256K or 512K cache size
- Fast page burst mode DRAM controller
- Memory configurations from 1MB to 128MB using combinations of 80ns 256K, 512K, 1M, 2M, 4M, 8M and 16M SIMM modules. Uses four 72-pin SIMM.
- Shadow RAM in increments of 32KB
- Hardware turbo speed switch
- Four 16-bit ISA slots, two VESA slots, and four master PCI slots
- Support for both 5V and 3.3V microprocessors.

Unpacking the Mainboard

The mainboard package contains:

- The 486 PCI Mainboard
- This User's Guide

Note: Do not unpack the mainboard until you are ready to install it.

Follow the precautions below while unpacking the mainboard.

1. Before handling the mainboard, ground yourself by grasping an unpainted portion of the system's metal chassis.
2. Remove the mainboard from its anti-static packaging and place it on a grounded surface, component side up.
3. Check the mainboard for damage. If any chip appears loose, press carefully to seat it firmly in its socket.

Do not apply power if the mainboard appears damaged. If there is damage to the board contact your dealer immediately.

Mainboard Layout w/ default settings*

*Default settings are for an Intel DX2-66 SL Enhanced CPU, 256K cache, and sync mode.

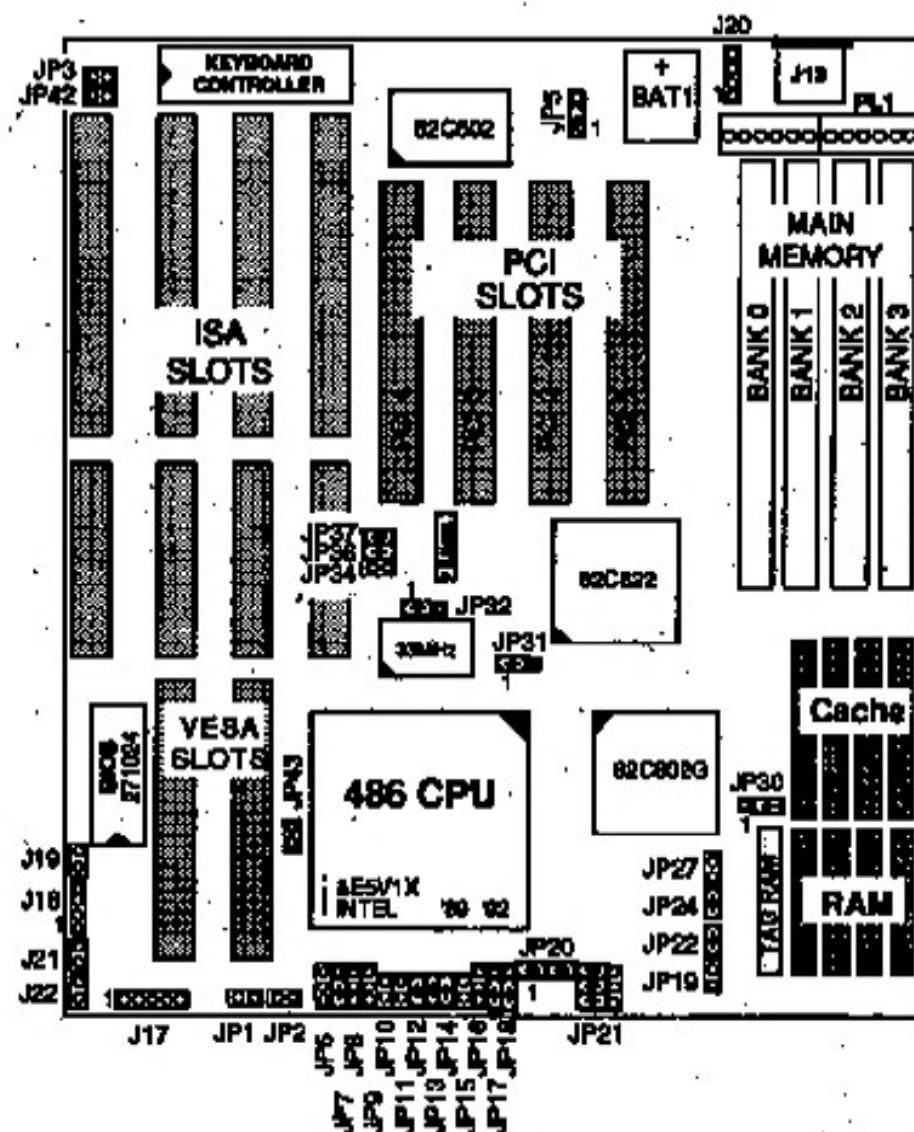




Figure 1-1. Mainboard Layout

This chapter explains how to configure the mainboard's hardware. After you install the mainboard, you can set jumpers install memory and a coprocessor on the mainboard and make case connections. Refer to this chapter whenever you upgrade or reconfigure your system.

CAUTION: Turn off power to the mainboard, system chassis, and peripheral devices before performing any work on the mainboard or system.



JP3: Display Type Settings

JP3 configures the mainboard for use with a color or monochrome monitor.

Display Type	JP3
Monochrome (Default)	
Color/BGA/VGA	



JP5: CMOS Reset Jumper

Jumper JP5 lets you discharge CMOS memory in the event you forget your password or encounter a BIOS Setup problem. Before you install the mainboard make sure that JP5 is set to retain CMOS memory.

CMOS Setting	JP5
Retain CMOS Data (Default)	
Discharge CMOS	

JP19: Berg Jumper (Green Jumper)



Toggle this jumper to force the system to enter the 8 MHz (Standby) mode. Press any key or move the mouse to wake the system to full speed mode.

Function	JP19
Normal (default)	
Forced into Green function	

JP21: 5Volt / 3.3Volt CPU Selector

Set jumper JP21 to configure the CPU voltage.





Caution: Before installing your CPU check its voltage and make sure JP21 is set correctly. Otherwise, you may damage the CPU.

	5Volts (Intel/AMD/Cyrix/P24D/P24T)	3.3Volts (Intel 486DX4 / Cyrix DX2-80)
JP21		

Note: If you use a CPU not listed in this manual, please contact your dealer to determine the correct CPU voltage.

JP31, JP32: PCI Bus Clock Mode

Jumpers JP31 and JP32 set the PCI bus clock mode for either ASYNC mode or SYNC mode.

Clock Mode	JP31	JP32	CPU
ASYNC mode	 1 2 3	 1 2 3	DX-40/50
SYNC mode	 1 2 3	 1 2 3	SX/DX-25/33, DX2-50/66, DX4-75/100

AMB X1-133

- Note:**
- For ASYNC mode the PCI clock = 33MHz
For SYNC mode the PCI clock = system clock
 - When the system clock equals 40/50 MHz, you cannot set the PCI clock for SYNC mode, because PCI does not work at speeds greater than 33 MHz.
 - You must set the PCI Configuration Setup in the BIOS setup program to ASYNC or SYNC depending on the settings of JP31 and JP32. (See page 34.)

JP42: Green PC Power Control



This jumper controls Green PC Power, where the output status is low active. Pin 1 is the GND pin.

- Note:** The Green PC Power must accept a low input signal and the BIOS POWER MANAGEMENT function must be Enabled.



VESA Local Bus Configuration

The 486 PCI mainboard features two VESA local bus slots that you can configure for a wide range of VESA adapters at different system clock speeds for optimal performance. Jumper JP1 lets you set the local bus for system clock speeds above 33MHz. Jumper JP2 lets you insert 1 wait-state on the local bus.

JP1: VESA Local Bus Clock Configuration (Factory setting)

CPU Clock Speed	JP1
Less than or equal to 33MHz	
Greater than 33MHz (default)	

JP2: VESA Wait State Configuration (Factory setting)

Local Bus Wait States	JP2
0 wait-state	
1 wait-state (default)	

CPU Type Configuration

Configure the 486 PCI mainboard's CPU by inserting the specified CPU and setting jumpers as described in the diagrams that follow. Note that the CPU Type jumpers on the mainboard have **yellow** caps and the Clock Setting jumpers have **red** caps.

Intel/AMD CPU Jumper Settings

Intel/AMD

486SX- 25/33 Settings (Sync Mode)

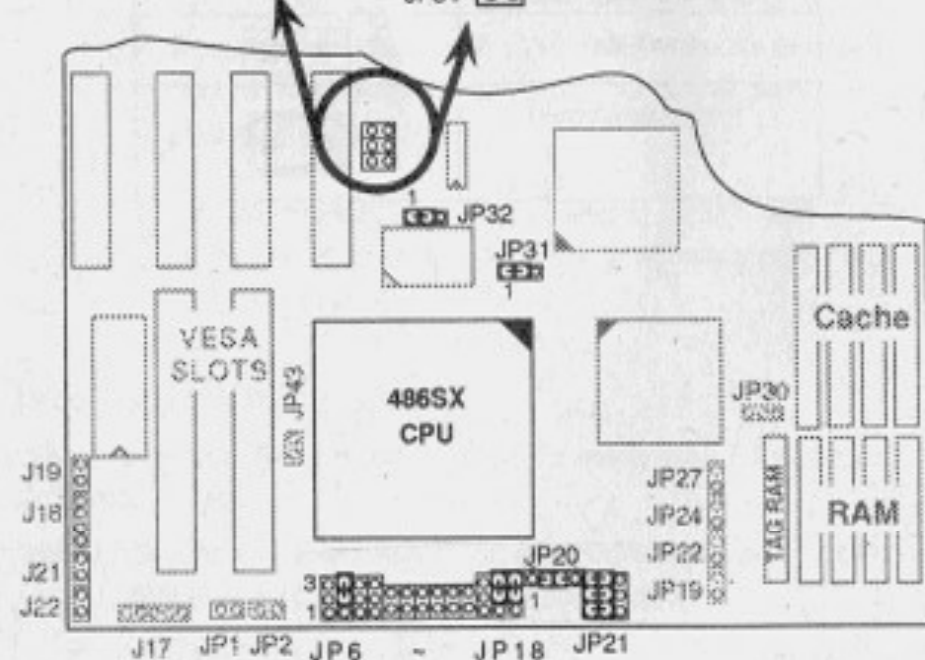
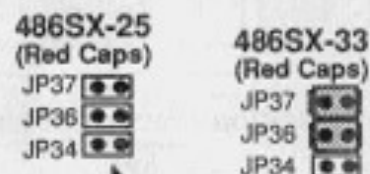


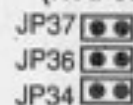
Figure 2-1. 486SX-25/33 jumper Settings

Note: You must set the "PCI Bus Clock" item in the BIOS program's PCI Configuration Setup screen to **Sync** mode. See page 34.

Intel/AMD

486DX- 25/33 & DX2-50/66 Settings (Sync Mode)

486DX-25, 486DX2-50* (Red Caps)



486DX-33, 486DX2-66* (Red Caps)

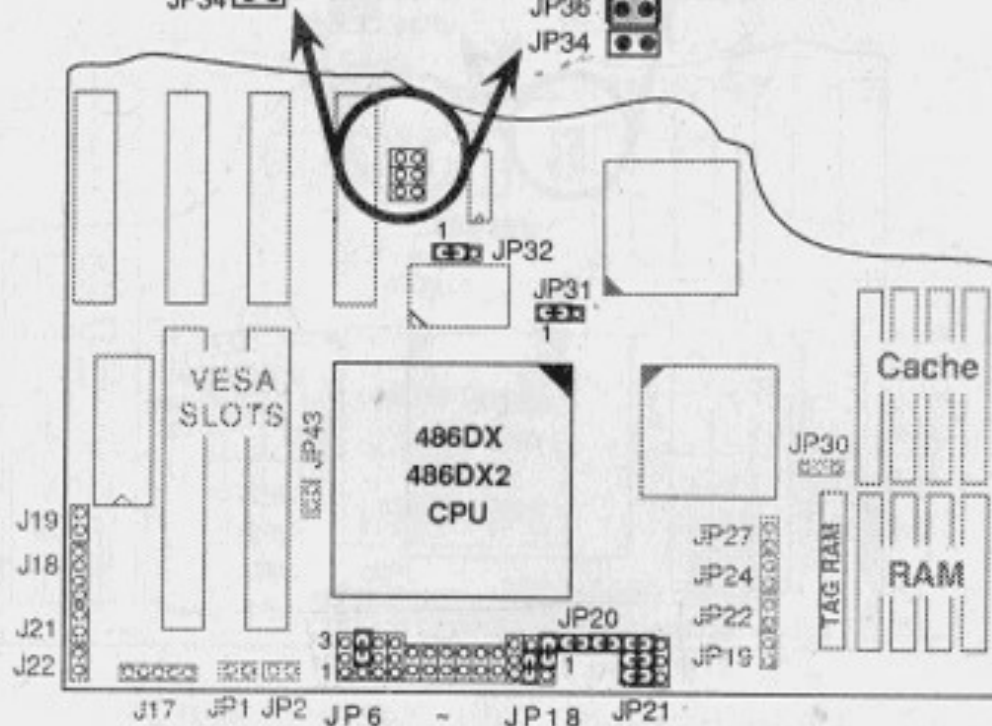


Figure 2-2. 486DX-25/33/40/50, 486DX2-50/66 Jumper Settings

* For these CPUs a cooling fan is necessary for system stability.

Note: You must set the "PCI Bus Clock" item in the BIOS program's PCI Configuration Setup screen to **Sync** mode. See page 34.

Intel/AMD 486DX-40/50 Settings (Async Mode)

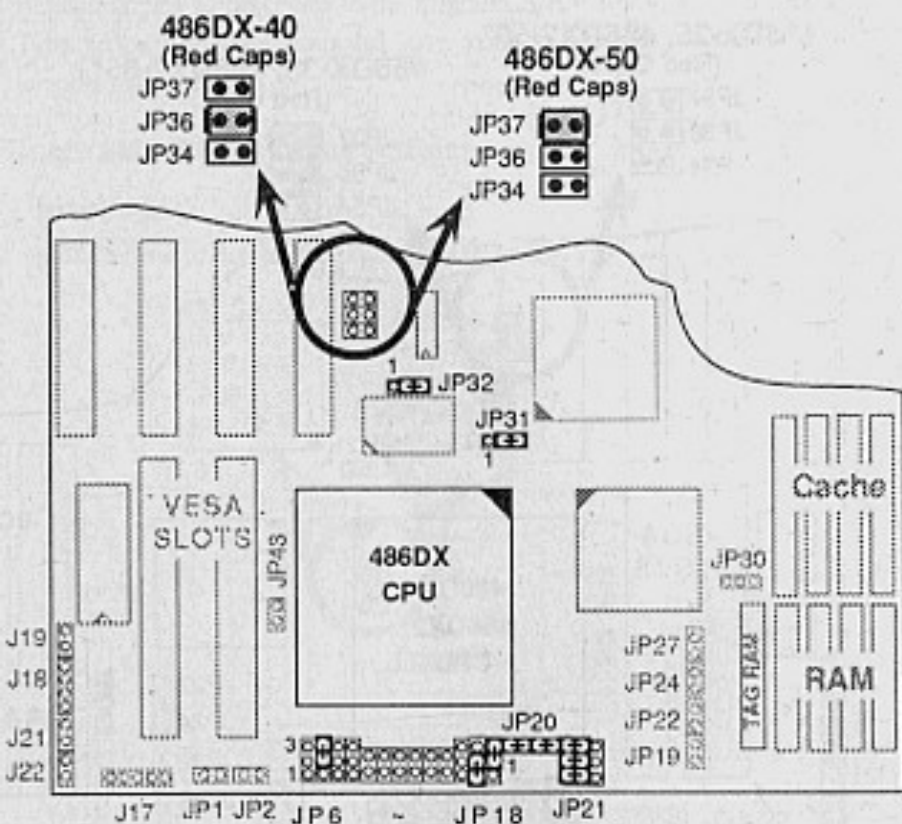


Figure 2-3. 486DX-40/50 Jumper Settings

* For these CPUs a cooling fan is necessary for system stability.

Note: You must set the "PCI Bus Clock" item in the BIOS program's PCI Configuration Setup screen to **Async** mode. See page 34.

Intel 486DX-25/33SL, DX2-50/66 SL Settings (Sync Mode) (Intel Green CPU)

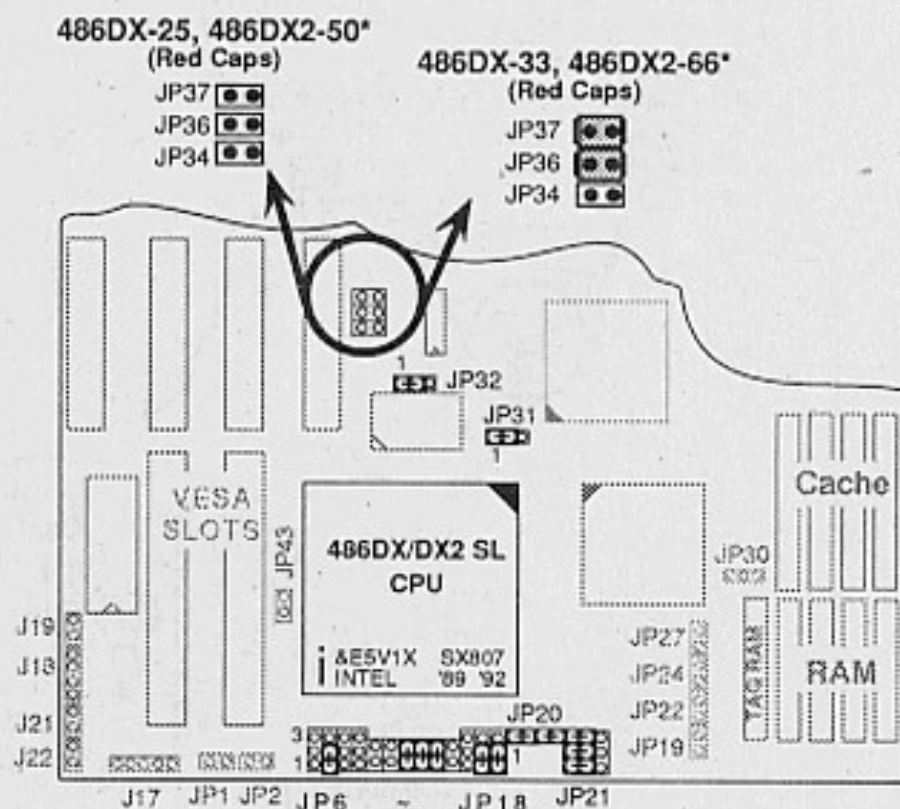


Figure 2-4. 486DX-25/33, DX2-50/66 SL Jumper Settings

* For these CPUs a cooling fan is necessary for system stability.

Note: You must set the "PCI Bus Clock" item in the BIOS program's PCI Configuration Setup screen to **Sync** mode. See page 34.

Intel 486DX-40/50 SL Settings (Async Mode) (Intel Green CPU)

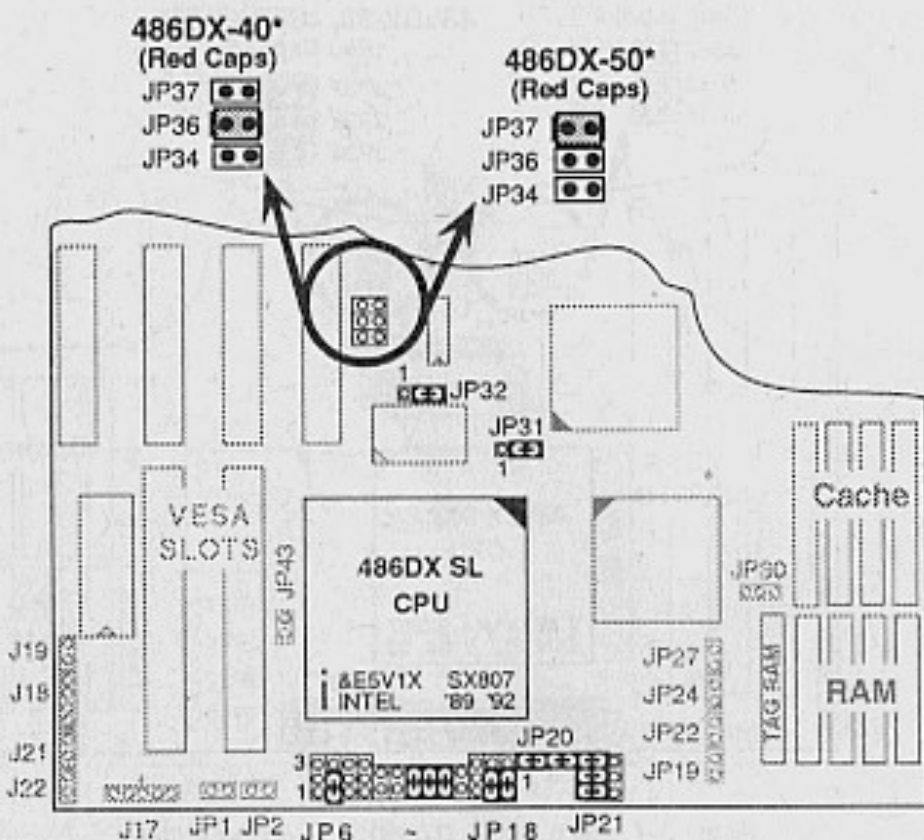


Figure 2-5. 486DX-40/50 SL Jumper Settings

* For these CPUs a cooling fan is necessary for system stability.

Note: You must set the "PCI Bus Clock" item in the BIOS program's PCI Configuration Setup screen to **Async** mode. See page 34.

Intel 486DX4-75/100 Settings (Sync Mode) (Intel Green CPU)

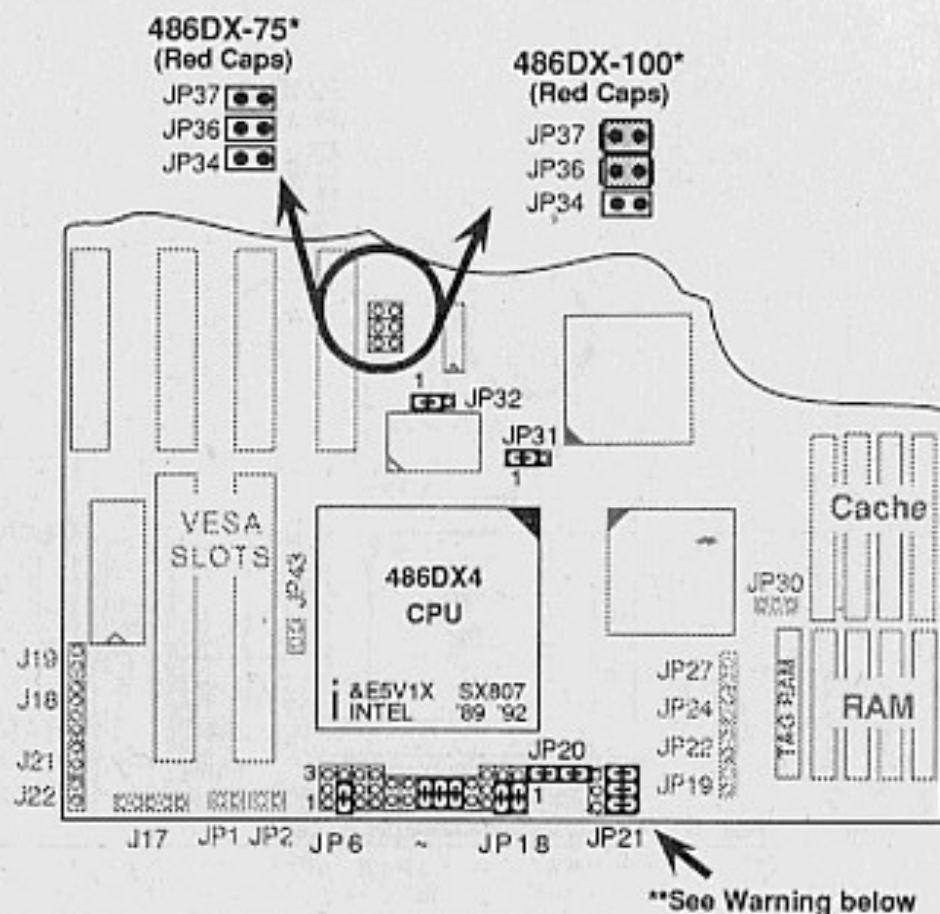


Figure 2-6. 486DX4 Jumper Setting

* For this CPU a cooling fan is necessary for system stability.

WARNING: For the DX4 CPU you must set JP21 to change the voltage to 3.3V. If you do not set JP21 correctly as shown above, you will damage the CPU.

Note: You must set the "PCI Bus Clock" item in the BIOS program's PCI Configuration Setup screen to **Sync** mode. See page 34.