1 Introduction

Your 80486 PCI motherboard is a full-featured IBM PC/AT compatible board offering a unique modular architecture that lets you upgrade the system simply by replacing the CPU. The board supports the local PCI bus and the following high-performance CPUs:

- Intel/AMD 486DX/DX2/DX4
- Intel 486SX
- Intel SL SX and Intel SL DX/DX2/DX4
- Intel P24T and P24D
- Cyrix 486 M9 and M7
- UMC 486
- AMD Enhanced DX2/DX4 Writeback
- AMD Enhanced SX Writeback

The motherboard is fully compatible with the thousands of software applications developed for IBM PC/AT compatible computers. The control logic provides high-speed performance for the most advanced multi-user/multi tasking applications available today.

The boards high-performance 32 or 64 bit Peripheral Component Interconnect (PCI) local bus lets you add highly integrated peripheral controller components, peripheral add-in boards, and processor/memory systems. The Industry Standard Architecture (ISA) bus slots allow you to choose from thousands of 8 and 16 bit industry standard add-on boards. A floppy disk-drive controller, IDE hard drive controller, serial ports (16550), and parallel port

(with EPP and ECP modes) are included so that you can easily connect peripheral devices without using expansion slots. In addition, an IDE hard disk drive controller is included so you can connect up to four IDE hard disk drives.

The board supports up to 128MB of onboard DRAM memory. Best of all, it automatically detects installed memory modules, so it is not necessary to configure memory with jumper switches. It also offers optional SRAM cache memory (128K, 256K, or 512K) to reduce the number of wait states caused by low speed I/O devices.

1.1 Features

•High Speed Upgradable CPU

•Selectable CPU Voltage: 3.3v, 3.45v, 4.0v, 5.0v

•On Board clock generator lets you change CPU speed by jumper switch

•ZIF (Zero Insertion Force) CPU Socket

•Three Master PCI bus slots (rev. 2.0)

•Three 16 bit I/O slots

•Auto detection of installed memory; no configuration is necessary

•Optional 128k, 256k or 512k SRAM memory

•On board Intelligent Drive Electronics (IDE) hard disk drive controller; supports mode 3 and mode 4 hard drives

•On board peripheral ports:

- Two on board serial ports (16550)

- Parellel port with bi-directional lines; supports Enhanced Parallel Port (EPP) and Extended Capabilities Port (ECP)

•On board floppy disk drive controller

•Licenced Award BIOS

•Selectable BIOS type: EPROM, 5v flash memory, 12v flash memory

•Lithium battery

•Shadow RAM for ROM BIOS and video ROM to improve system performance

•Hardware “Green” function

•CPU stop clock mode for Intel/Cyrix CPUs

1.2 Unpacking

The main board comes securly packaged in a sturdy cardboard shipping carton. In addition to this Users Guide, the shipping carton contains:

•The Main Board

•Cables: IDE, FDD, serial and parallel port

•IDE Drivers distribution floppy disk: includes drivers for Windows 3.1, Windows NT 3.x, OS/2 2.x, and Novell Netware

If any of these items is damaged or missing, contact the dealer from whom you purchased the main board. Save the shipping materials and carton in case you want to ship or store the board in the future.

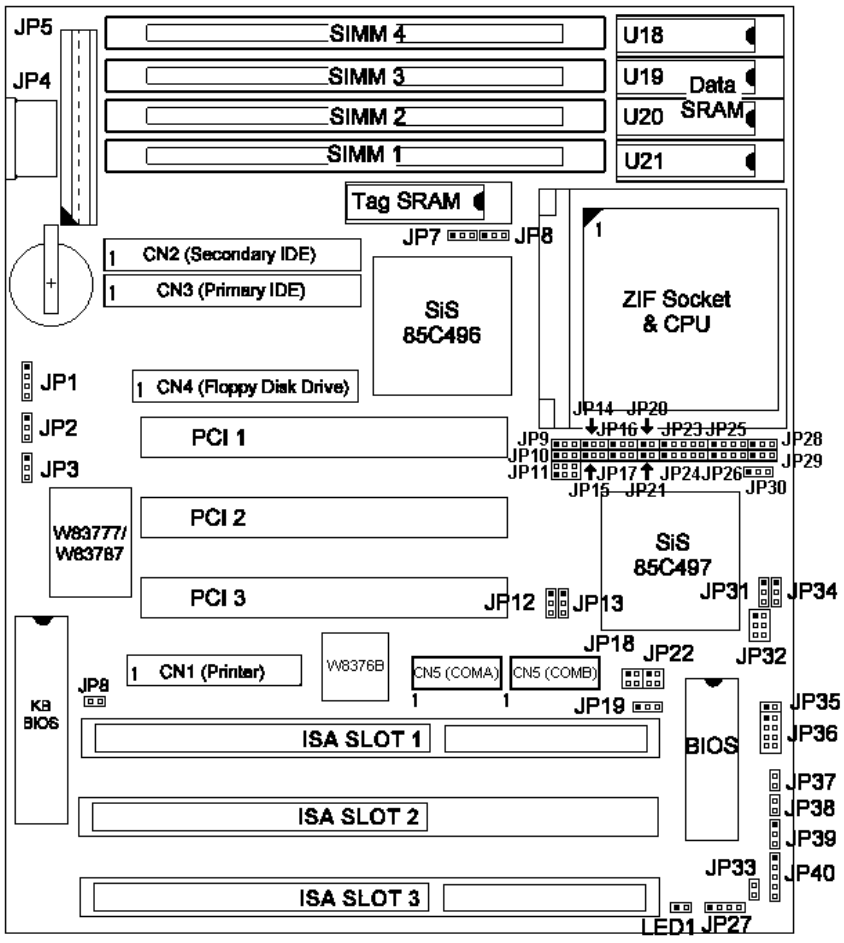
NOTE: Leave the board in its original packing until you are ready to intall it

Inside the carton, the main board is sandwiched between sheets of sponge and packed in an anti-static bag. After you unpack the board, inspect it for damage. Press down all the integrated circuits to make sure they are properly seated in their sockets. Do not apply power to the board if it appears to have been damaged.

1.4 The Motherboard Layout

The layout diagram shows the locations of connectors, major components, and jumper switches on the motherboardboard.

Figure 1: The Motherboard Layout



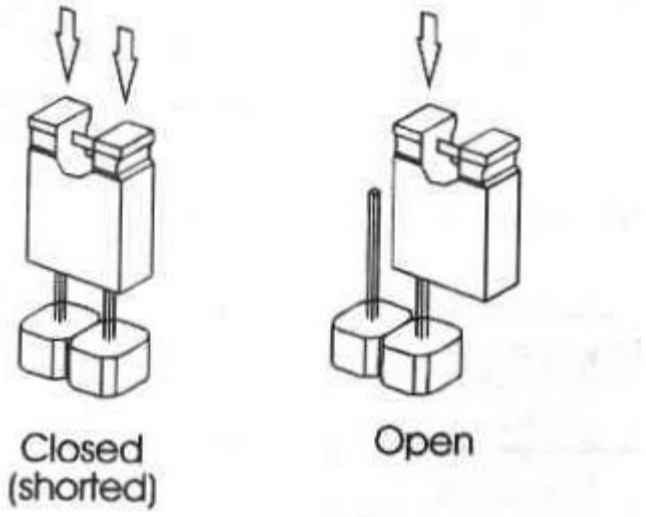
The jumper switches and their functions are listed in the table below.

Jumper	Function
JP2 & JP3	Clear BIOS Setup Data
JP6	Monochrome/Color Selection
JP7 & JP8	Cache Size Selector
JP9 & JP10	CPU Type Selection
JP14 - JP17	
JP20 - JP21	
JP23 - JP26	
JP28 - JP30	
JP11 & JP12	Clock Speed Selection
JP13	Factory Preset. Testing Purposes Only
JP18	DREQ Signal Select For ECP/EPP Function
JP19	BIOS Type Selection
JP22	DACK Signal Select For ECP/EPP Function
JP31, JP32, JP34	CPU Voltage Select

2 Setting Up The Motherboard

You can configure the operating characteristics of the motherboard by setting jumper switches on the board. This chapter presents a detailed description of the jumper switches. Refer to figure 1 in chapter 1 for the positions of the jumpers on the board.

A jumper switch is closed (sometimes refered to as shorted) with the plastic cap inserted over two pins of the jumper. A jumper is open with the plastic cap inserted over one or no pin(s) of the jum



Note: When a jumper is open, keep the plastic cap inserted over one pin of the jumper so you don't lose it.

JP2 & JP3: Clear BIOS Setup Data

These jumpers let you clear the BIOS setup data stored in CMOS memory.

BIOS Setup Data	JP3	JP2
Maintain BIOS setup in CMOS memory		
Clear BIOS setup data		

Note: We recommend that only experienced technicians attempt to use these jumpers to clear BIOS setup data

JP6: Monochrome/Color Monitor

This jumper lets you choose between a color or monochrome

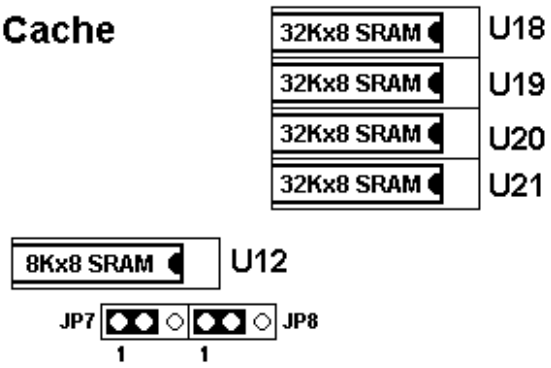
Monitor	JP6
Color Monitor	
Monochrome Monitor	

monitor. The default setting is color (closed)

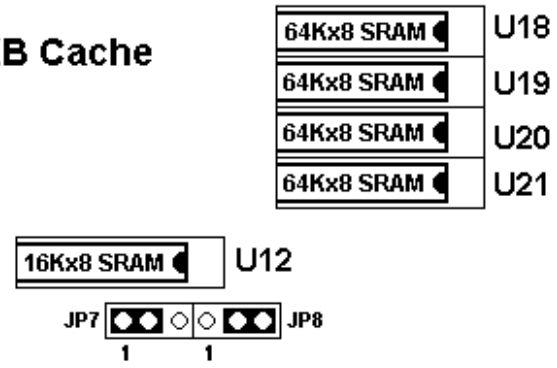
JP7 & JP8: Cache Memory Information

Use these jumpers to configure SRAM memory. The motherboard has sockets for 128k, 256k or 512k of SRAM cache memory. The figure below shows the installed SRAM chips and cache size configuration settings.

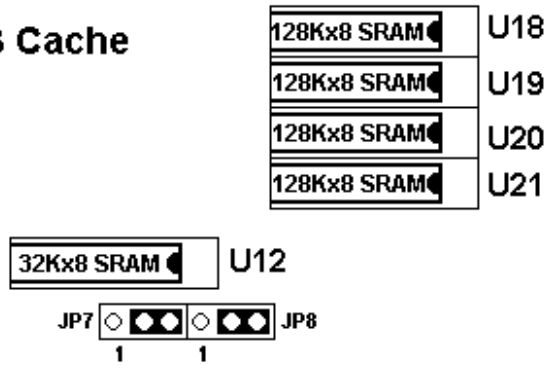
128KB Cache



256KB Cache

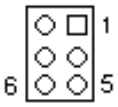
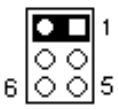
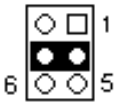


512KB Cache



JP11 & JP12:CPU Clock Speed

Use JP11 & JP 12 to select the external clock speed of the CPU. Calculate the clock speed according the the following formula:
Ext Clock Speed x CPU Clock Multiplier = CPU Speed
Example: If you have an Intel 486 DX2/66 CPU and the CPU clock multiplier is set to 2, set the external clock speed to 33Mhz.
Note: depending on the installed CPU, you will either use JP16 or JP30 to set the clock multiplier

Clock Speed	JP12	JP11	CPU Type
25 MHz			SX-25 DX-25 DX2-50
33 MHz			SX-33 DX-33 DX2-66 DX4-100
40 MHz			SX-40 DX-40 DX2-80 DX4-120
50 MHz			DX-50

JP13: Factory Preset

This jumper is used for testing purposes only. Its setting is factory preset.

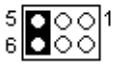
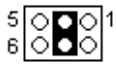
JP22: DACK Signal For ECP/EPP Function

Use this jumper to select a DACK signal for the ECP/EPP Function

Signal	JP22
DACK1 (default)	
DACK3	

JP31, JP32 & JP34: CPU Voltage

Use JP31, JP32 & JP34 to select the CPU voltage.

Voltage	JP31	JP34	JP32
3.3v			
3.45v			
4.0v			
5v			[Any Setting]

WARNING!

Selecting the wrong voltage may severely damage your CPU. For voltage information, refer to the documentation provided with the CPU.

JP9-JP10, JP14-JP17, JP20-JP21, JP23-JP26 & JP28-JP30: CPU Type

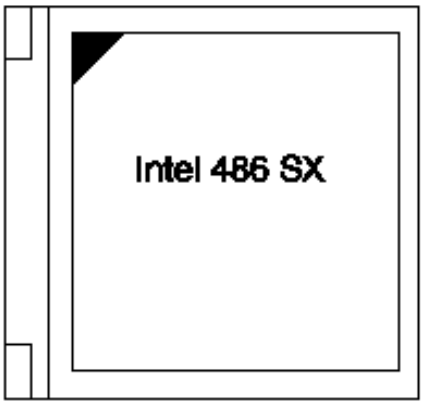
The main board supports a wide variety of high performance CPUs:

•Intel 486SX
•Intel/AMD 486DX/DX2/DX4
•Intel SL SX and Intel SL DX/DX2/DX4
•Intel P24T and P24D
•Cyrix 486 M9 and 486 M7
•UMC 486
•AMD Enhanced DX2/DX4 Writeback
•AMD Enhanced SX Writeback

The setting for each supported CPU type are shown below.

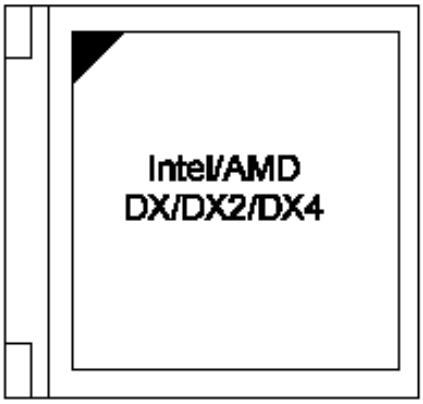
Note: to use a CPU not listed in this manual, please contact your dealer to determine the correct CPU settings.

Intel 486 SX


Intel 486 SX


JP14 JP16 JP20 JP23 JP25
JP9
JP10
JP28
JP29
JP15 JP17 JP21 JP24 JP26

Intel/AMD DX/DX2/DX4



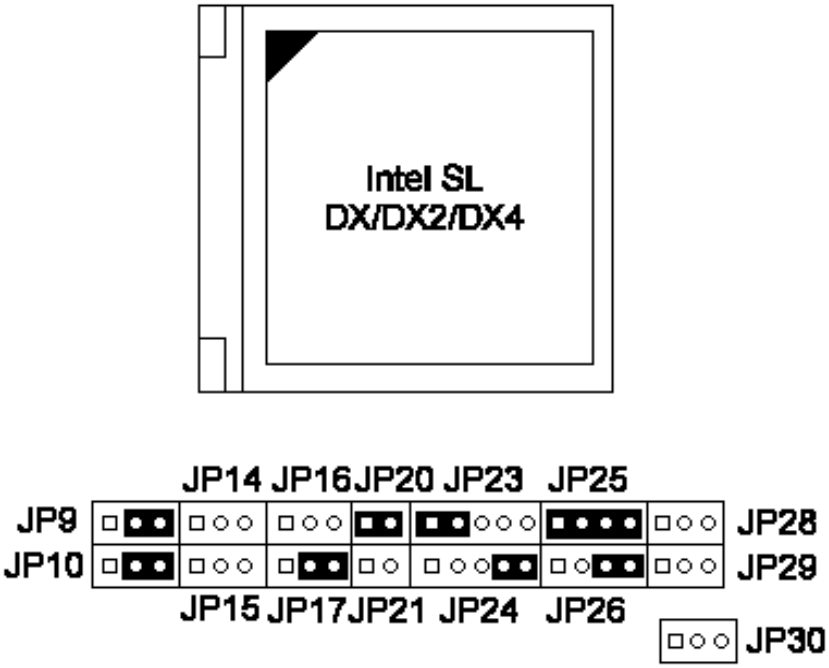
For the Intel 486 DX4, you can use JP30 to choose the clock multiplier: 2x, 2.5x, or 3x (the default clock)

Intel 486 DX4 CPU: Clock Multiplier	JP30
2X Clock	
2.5X Clock	
3X Clock	

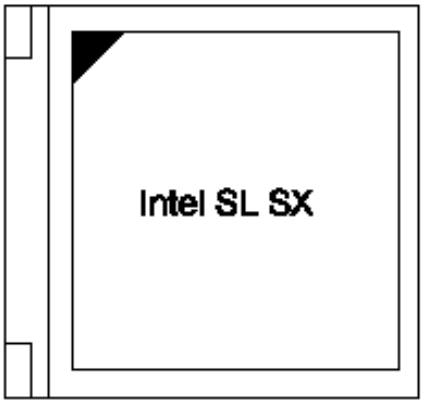
For the AMD 486 DX2/DX4, you can use JP16 to choose the clock multiplier:

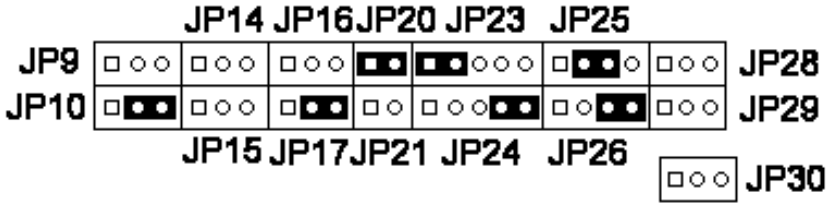
AMD 486 DX2/DX4 CPU: Clock Multiplier	JP16
2X Clock (486 DX2)	
3X Clock (486 DX4)	

Intel SL DX/DX2/DX4

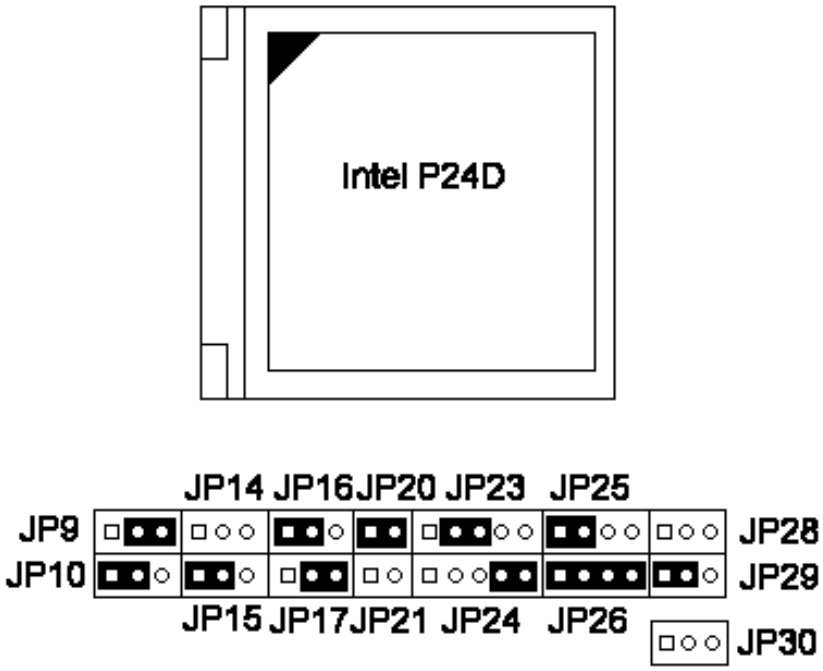


Intel SL SX


Intel SL SX


JP14 JP16 JP20 JP23 JP25
JP9
JP10
JP28
JP29
JP15 JP17 JP21 JP24 JP26
JP30

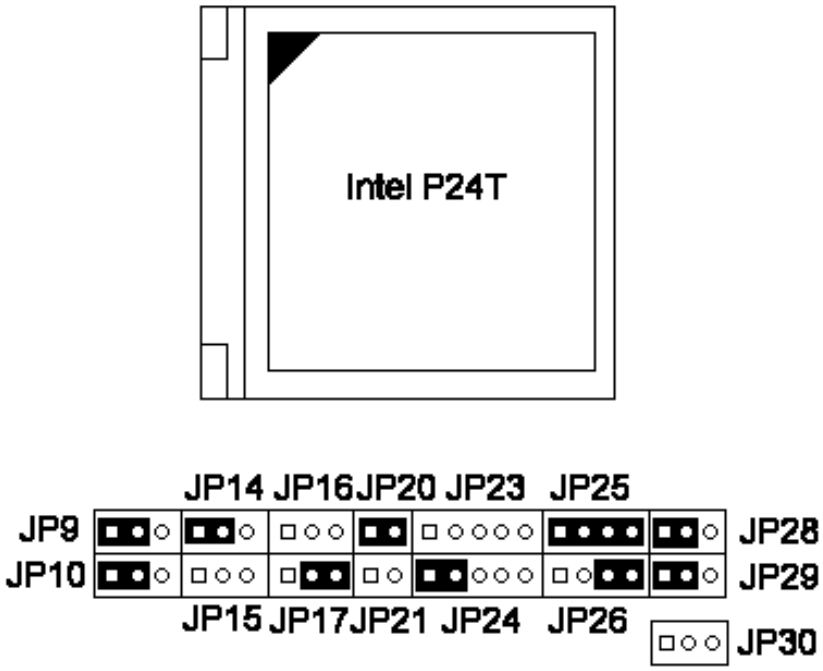
Intel P24D



For the Intel P24D CPU, you can use JP16 to select the write-back (default) or write-through.

Intel P24D CPU: Write-Back/Write-Through Select	JP16
Write-Back	1
Write-Through	1

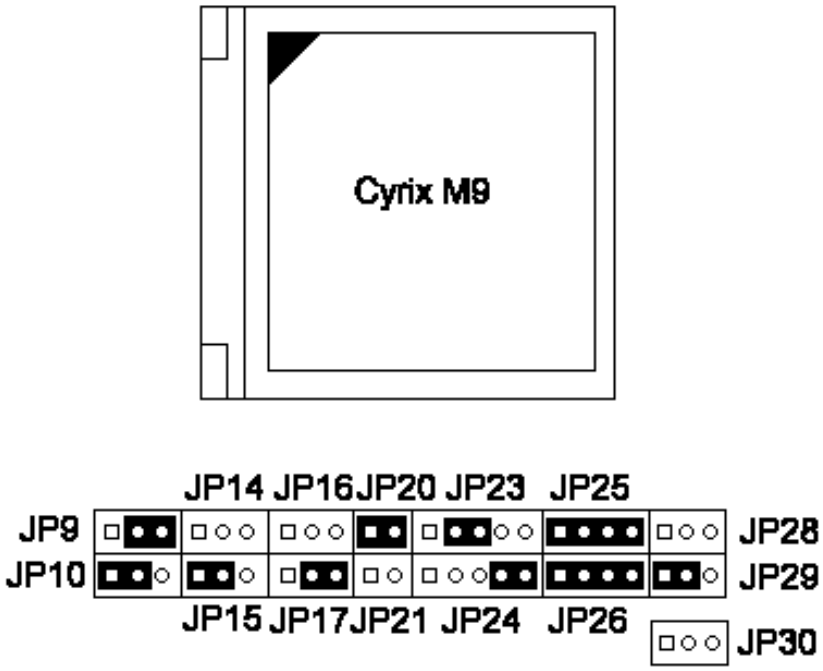
Intel P24T



For the Intel P24T, you can use JP14 to select write-back or write-through.

P24T Write-Back/Write-Through	JP14
Write-Through	
Write-Back	

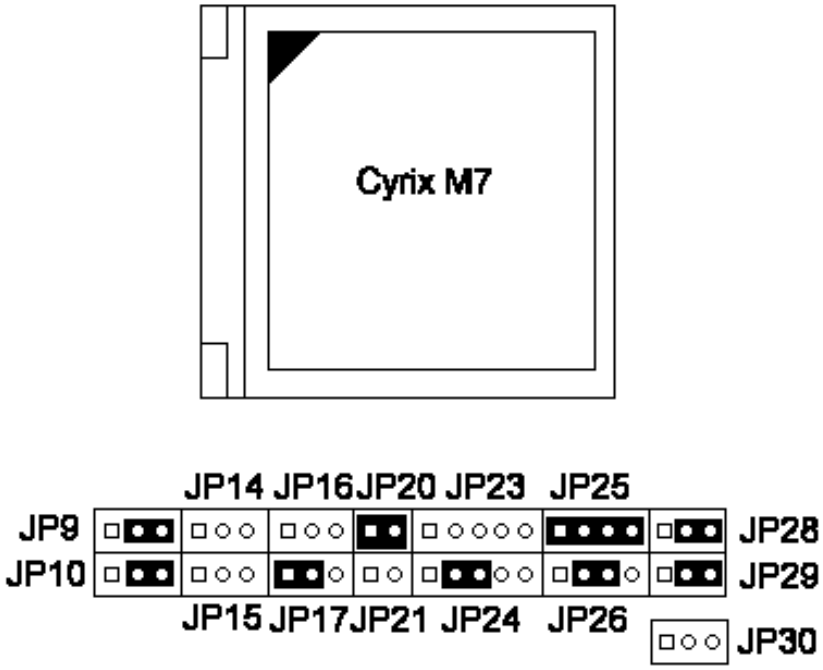
Cyrix M9



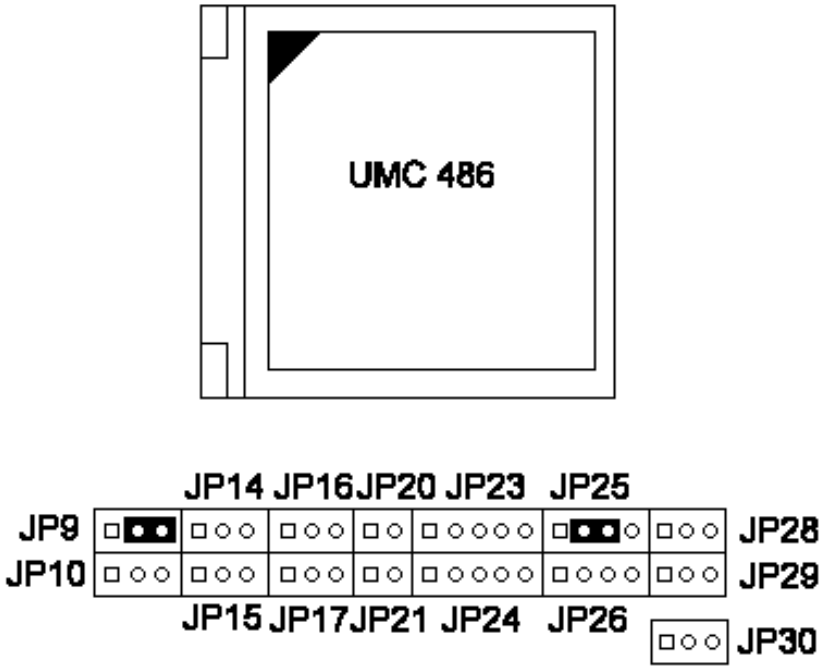
For the M9, you can use JP30 to choose the clock multiplier; 2x or 3x (default) clock speed

M9 CPU: Clock Multiplier	JP30
2X Clock	1
3X Clock	1

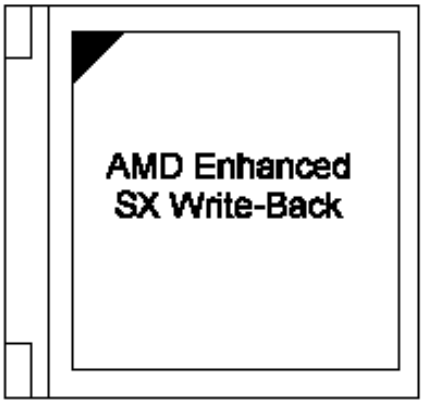
Cyrix M7

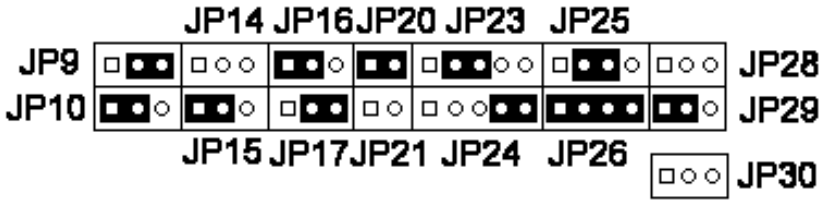

Cyrix M7
JP14 JP16 JP20 JP23 JP25
JP9
JP10
JP28
JP29
JP15 JP17 JP21 JP24 JP26
JP30

UMC 486


UMC 486
JP14 JP16 JP20 JP23 JP25
JP9
JP10
JP28
JP29
JP15 JP17 JP21 JP24 JP26
JP30

AMD Enhanced SX Write-Back





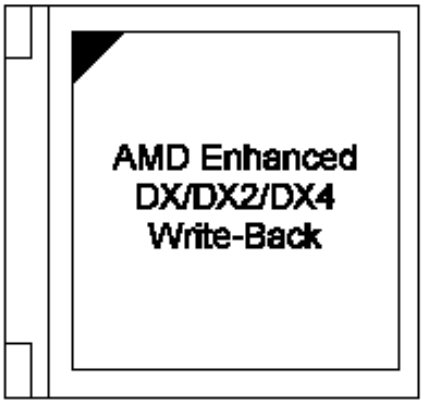
For the AMD Enhanced SX Write-Back CPU, you can use JP16 to select write-back (default) or write-through

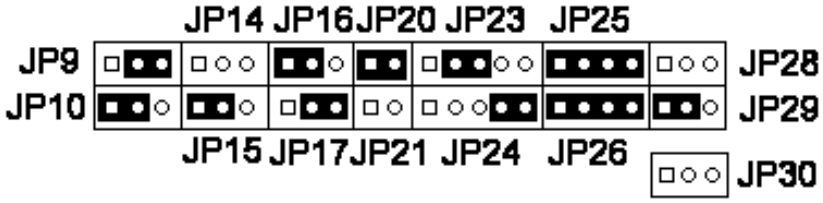
AMD Enhanced Write-Back CPU: Write-Back/Write-Through Select	JP16
Write-Back	
Write-Through	

You can also use JP30 to choose the clock multiplier: 2x or 3x(default) clock

AMD Enhanced Write-Back CPU: Clock Multiplier	JP30
2X Clock	
3X Clock	

AMD Enhanced DX/DX2/DX4 Write-Back





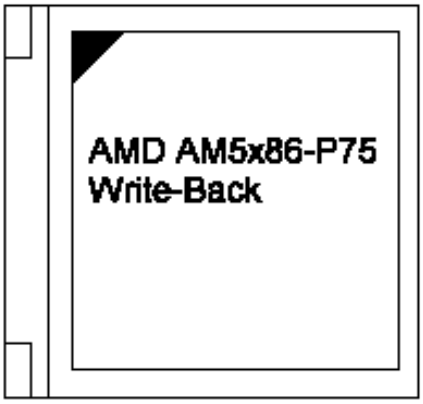
For the AMD Enhanced DX/DX2/DX4 Write-Back CPU, you can use JP16 to select write-back (default) or write-through

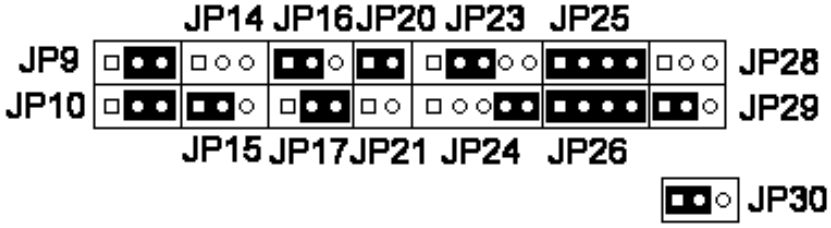
AMD Enhanced Write-Back CPU: Write-Back/Write-Through Select	JP16
Write-Back	
Write-Through	

You can also use JP30 to choose the clock multiplier: 2x or 3x (default) clock

AMD Enhanced Write-Back CPU: Clock Multiplier	JP30
2X Clock	
3X Clock	

AMD AM5x86-P75 (486DX4-133) Write-Back





***NOTE: BIOS MUST BE KM-S4-1v4.2 OR HIGHER
For the AMD AM5x86-P75 Write-Back CPU, you can use JP16 to select write-back (default) or write-through
You can also use JP30 to choose the clock multiplier: 2x or 3x (default) clock

JP27:Speaker Connector

attach the system speaker to this connector

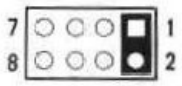
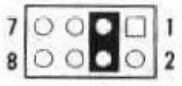
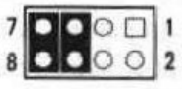
JP33: IDE Active LED Connecor

This connector is usually connected to the LED indicator on the front of an IDE hard disk drive. The LEDlights when the drive is active.

JP35: Standby Mode Switch Connector
This connector is usually connected by a lead to a push button on the front of the system case. Press the button to enter the power saving standby mode.

JP36: Power Saving Output Signal Connector

This connector specifies that, for the selected power saving mode, the voltage level will go from high to low when the system enters the selected mode. When the system wakes up, the voltage goes from low to high.

Signal	JP36	Voltage Level
Enter Doze Mode		High --> Low
Enter Suspend Mode		High --> Low
Enter Standby Mode		High --> Low

JP39:Turbo Switch

This connector sets the default speed of the CPU clock. This connector is usually connected by a lead to a Turbo/Normal switch on the front of the system case.

Default Clock Speed	JP39
High-speed (turbo) operation	
Normal (low-speed) operation	

You can change between high speed and low speed operation by pressing the Turbo/Normal switch on the front of the system case, or by pressing the following key combonation simutaneously:

CTRL, ALT and "-": **Switches the CPU to low speed**

CTRL, ALT and "+": **Switches the CPU to high speed**