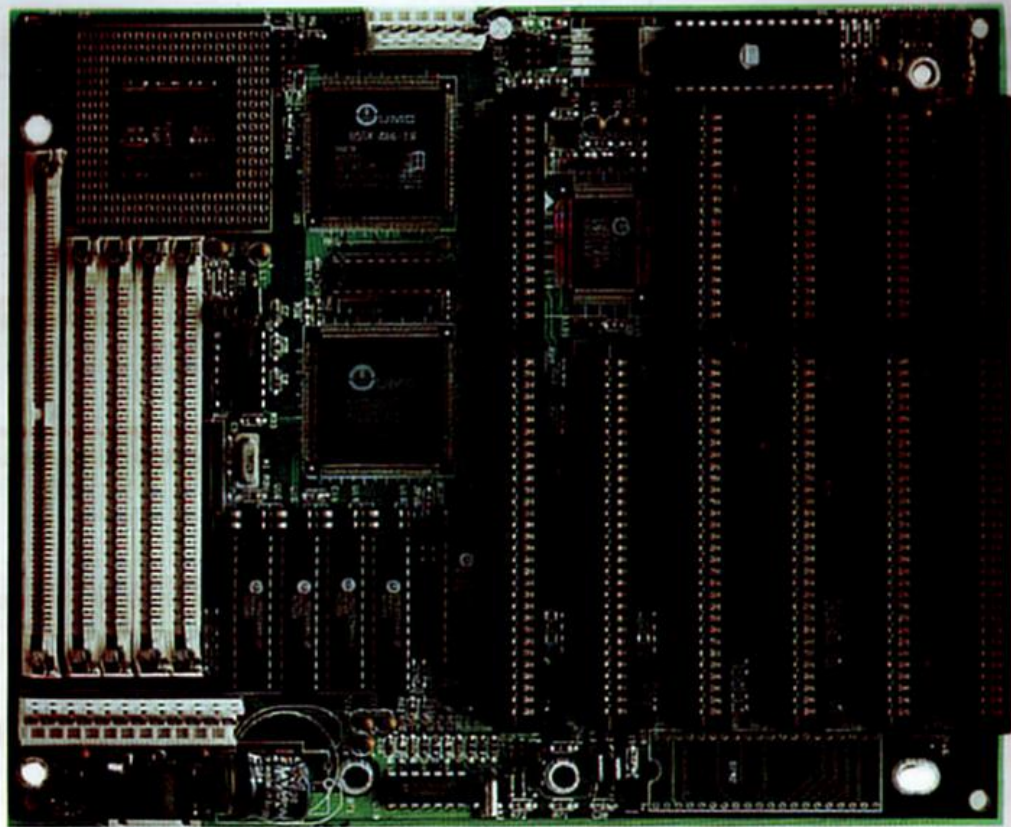


# UMC-486 CACHE

## ISA M/B

### user's manual

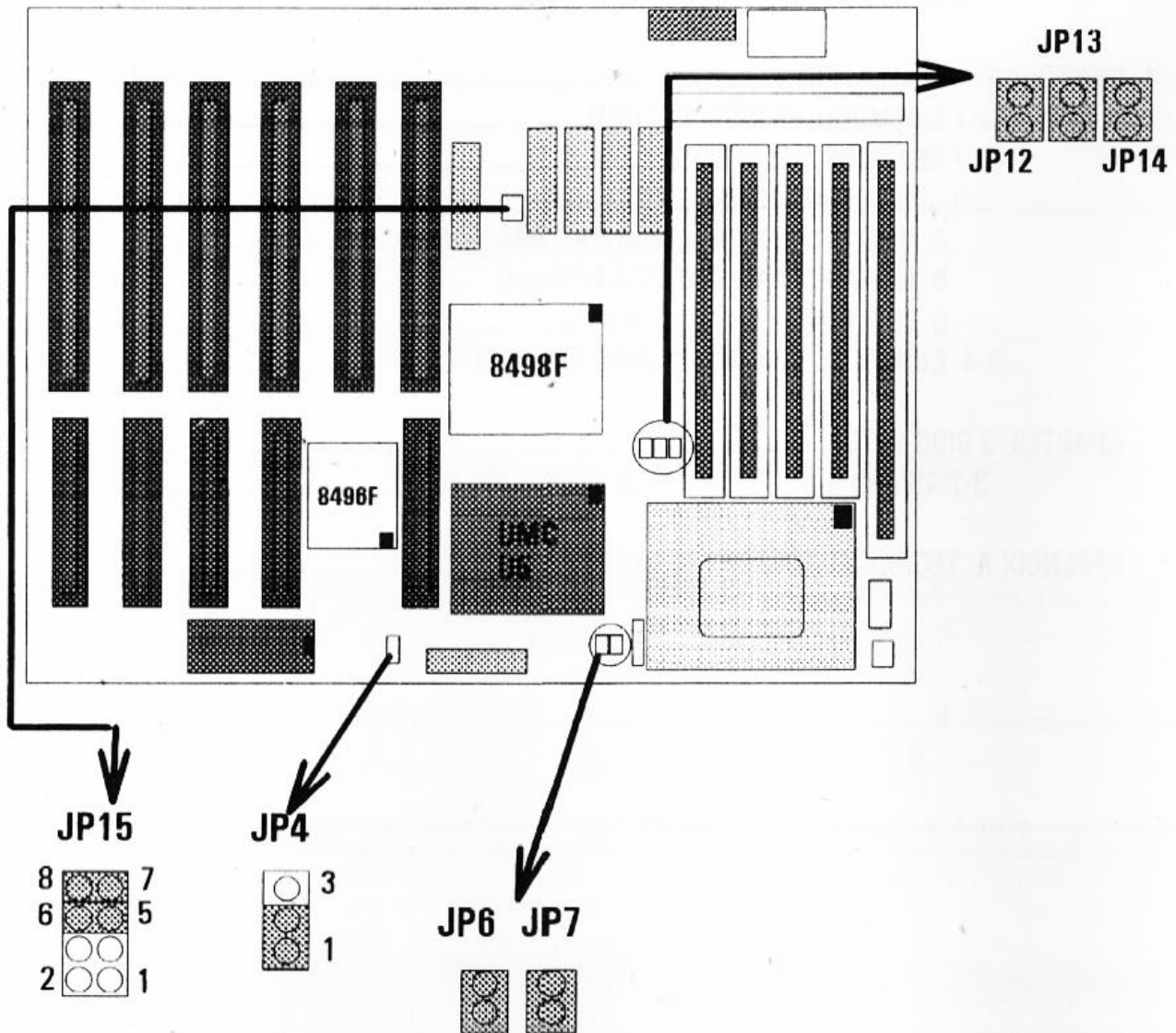


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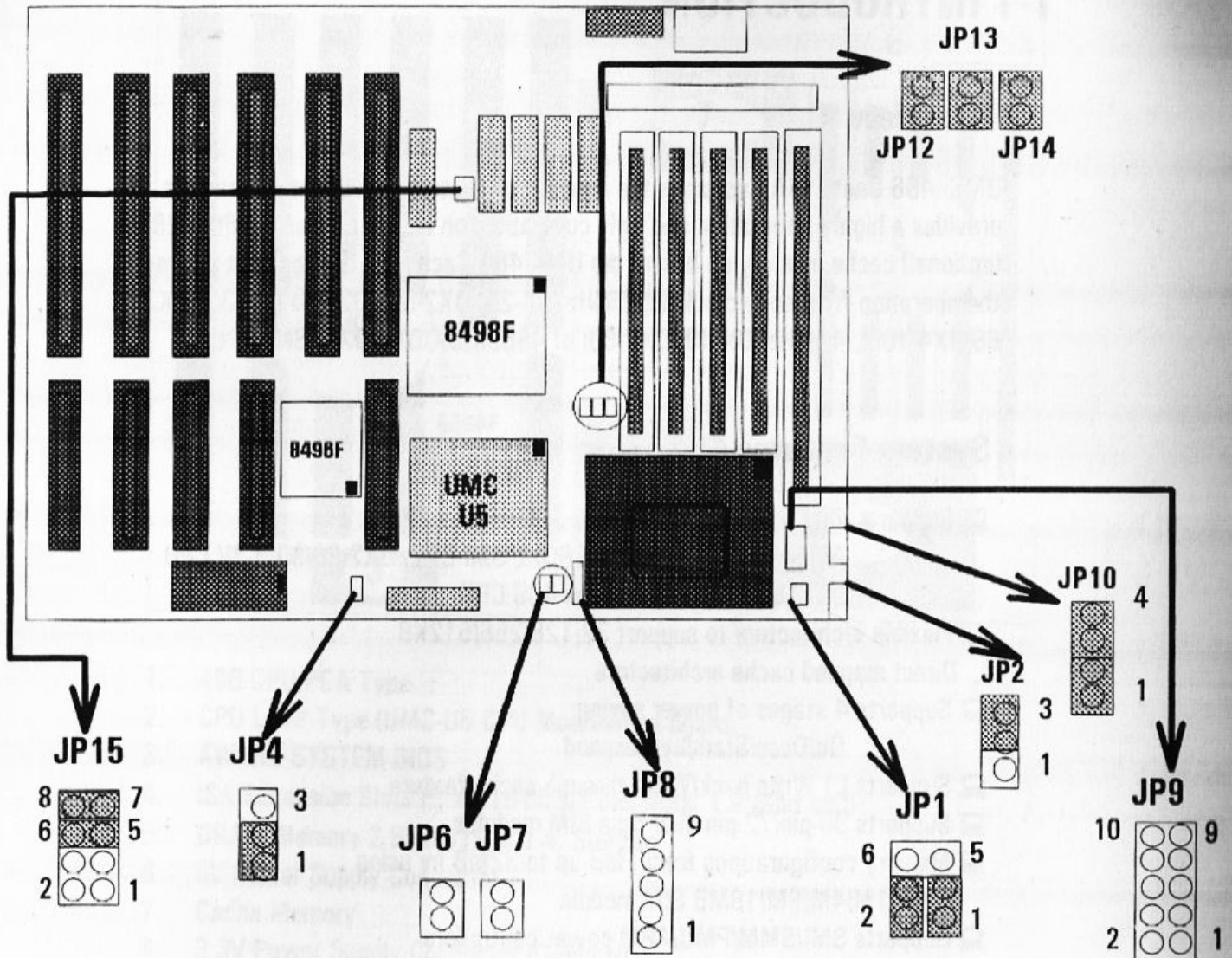
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# UMC-486 CACHE ISA M/B QUICK REFERENCE

[A] UMC U5 (LQFP) CPU ON-BOARD W/128K CHACE MEMORY SETTING:



**[B] PGA 486 CPU SOCKET W/128K CACHE MEMORY SETTING:  
(AMD 486DX2-66 DEFAULT)**



**[C] COLOR JUMPER CAPS CLASSIFICATION:**

1. White: CPU Type Selection
2. Yellow; System Clock Selection
3. Red: Regulator Voltage Selection (for CPU)
4. Black: Factory Setting



# CHAPTER 1 INTRODUCTION

## 1-1 INTRODUCTION

### Overview

UMC- 486 Cache ISA System is the reaction of cost-effective motherboard. It provides a highly integration and fully compatible on PC/AT platform. With 128KB (optional) cache memory on board, the UMC 486 Cache ISA System can support the operation frequency clock at 25MHz (DX-25, DX2-50), 33MHz (DX-33, DX2-66,DX4-100), 40MHz (DX-40, DX2-80) of 486SX/DX/DX2/DX4, SMI CPUs.

### System Features

-  Supports Intel 486SX/DX/DX2/DX4  
 AMD 486SX/DX/DX2, 486DXL SMI CPU, DX2-66/80 3.3V CPU  
 UMC U5 486 SX/DX, Cyrix 486 CPU
-  Flexible architecture to support 32/128/256/512KB  
 Direct mapped cache architecture
-  Supports 4 stages of power saving:  
 On/Doze/Standby/Suspend
-  Supports L1 Write back/Write through cache feature
-  Supports 30-pin/72-pin dual type SIM modules
-  Memory configurations from 1MB up to 32MB by using  
 256K/1M/4M/8M/16MB SIM module
-  Supports SMI/SMM/PMU/APM power controllers
-  Supports LBA mode hard disks

### REMARKS

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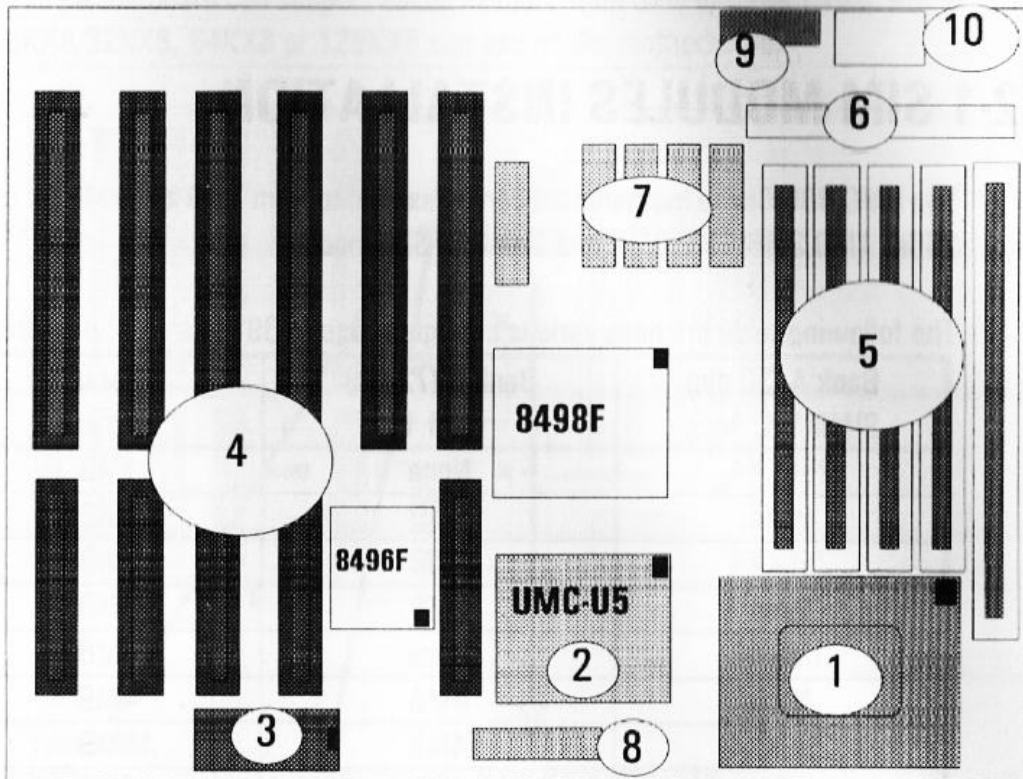
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## 1-2 UMC-486 M/B LAYOUT



1. 486 CPU PGA Type
2. CPU LQFP Type (UMC-U5 CPU Mounted on board)
3. AWARD SYSTEM BIOS
4. ISA Expansion Slots (5 \* 16-bit AT bus slots, 1 \* 8-bit slot)
5. DRAM Memory 2 Banks (SIM 1-4, SIM 5)
6. 5V Power Supply Connector
7. Cache Memory
8. 3.3V Power Supply Connector (Optional)
9. Back-up Battery
10. Keyboard Connector

# CHAPTER 2 INSTALLATION

## 2-1 SIM MODULES INSTALLATION

The UMC 486 Cache motherboard can be expanded from 1MB to 32MB by using 256K, 1MB, 2MB, 4MB, 8MB and 16MB of SIM module.

The following table provides various configurations of 30-pin and 72-pin module.

Bank A (30-pin) SIMM1-4, 4pcs	Bank B (72-pin) SIM 1	Total Memory
256KX4	None	1MB
None	1MB	1MB
256KX4	1MB	2MB
None	2MB	2MB
1MBX4	None	4MB
None	4MB	4MB
256KX4	4MB	5MB
1MBX4	4MB	8MB
None	8MB	8MB
1MBX4	8MB	12MB
4MBX4	None	16MB
4MBX4	8MB	24MB
4MBX4	16MB	32MB

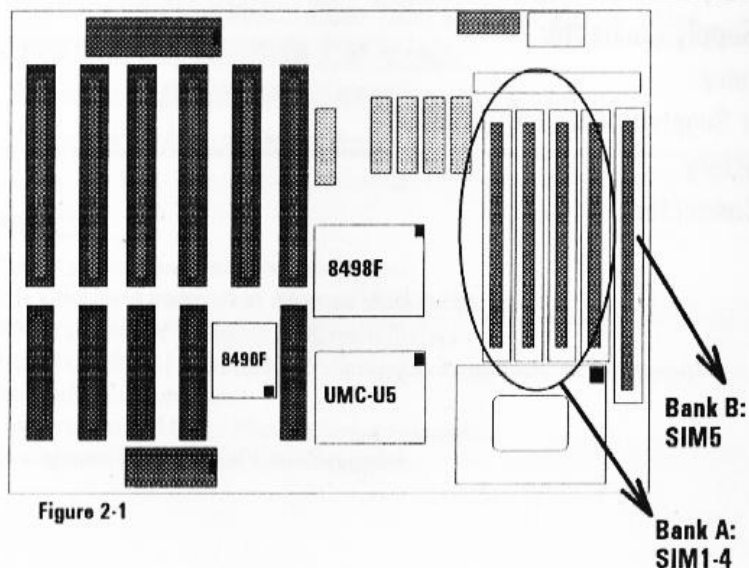
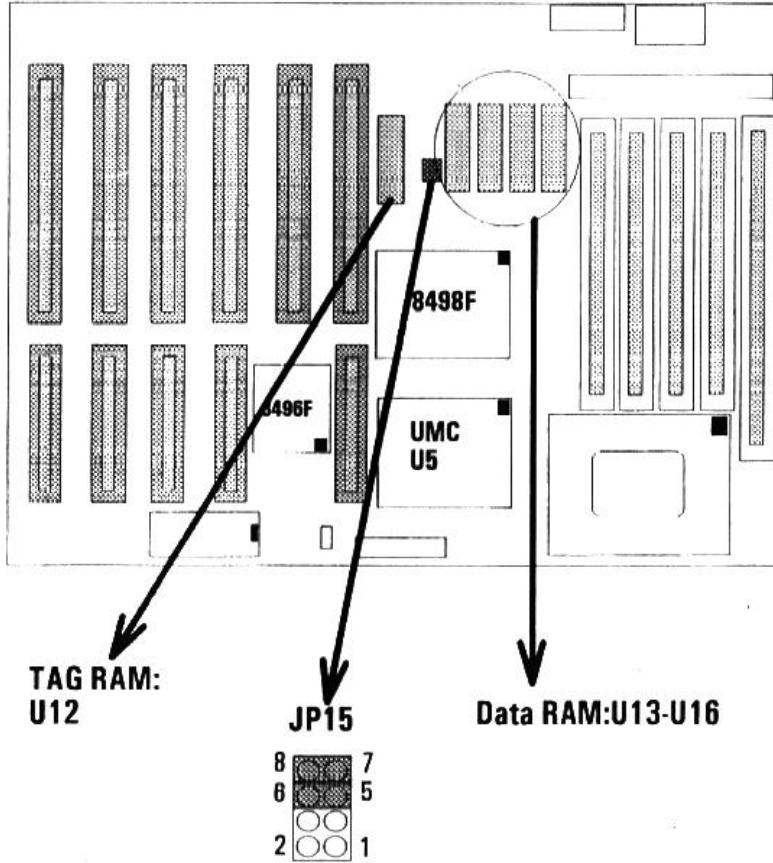


Figure 2-1

## 2-2 CACHE MEMORY INSTALLTION

The motherboard can support cache memory from 32K to 512K bytes. Any of 8KX8,32KX8, 64KX8 or 128KX8 can use on the motherborad.



**Cache Configuration Size**

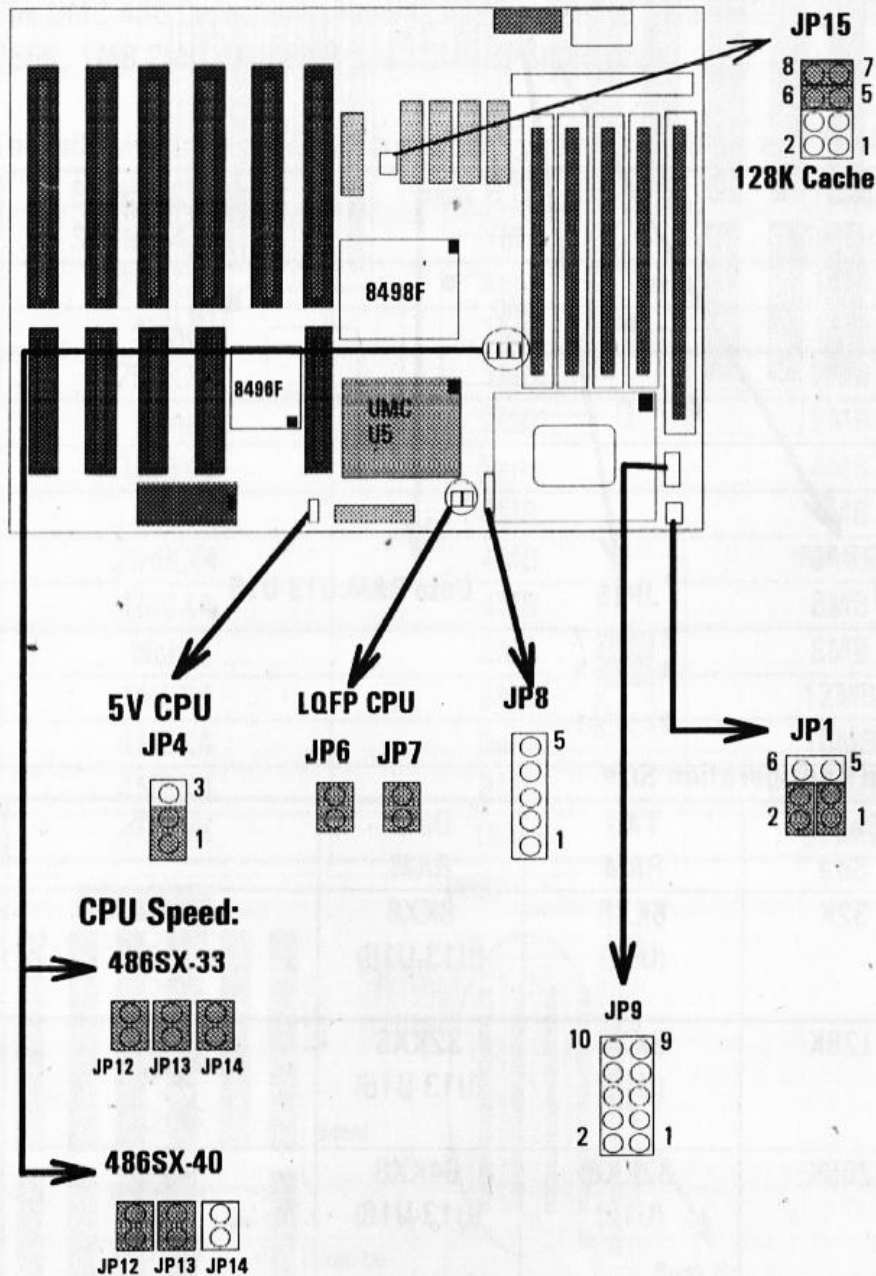
Cache Size	TAG RAM	Data RAM	JP15
32K	8KX8 (U12)	8KX8 (U13-U16)	
128K	8KX8 (U12)	32KX8 (U13-U16)	
256K	32KX8 (U12)	64KX8 (U13-U16)	
512K	32KX8 (U12)	128KX8 (U13-U16)	



## 2-3 CPU INSTALLATION

The UMC 486 Cache ISA system can be Configured to Certain CPU by setting jumpers as described in the following diagrams.

### A. UMC CPU (LQFP Package) 486 U5 Settings

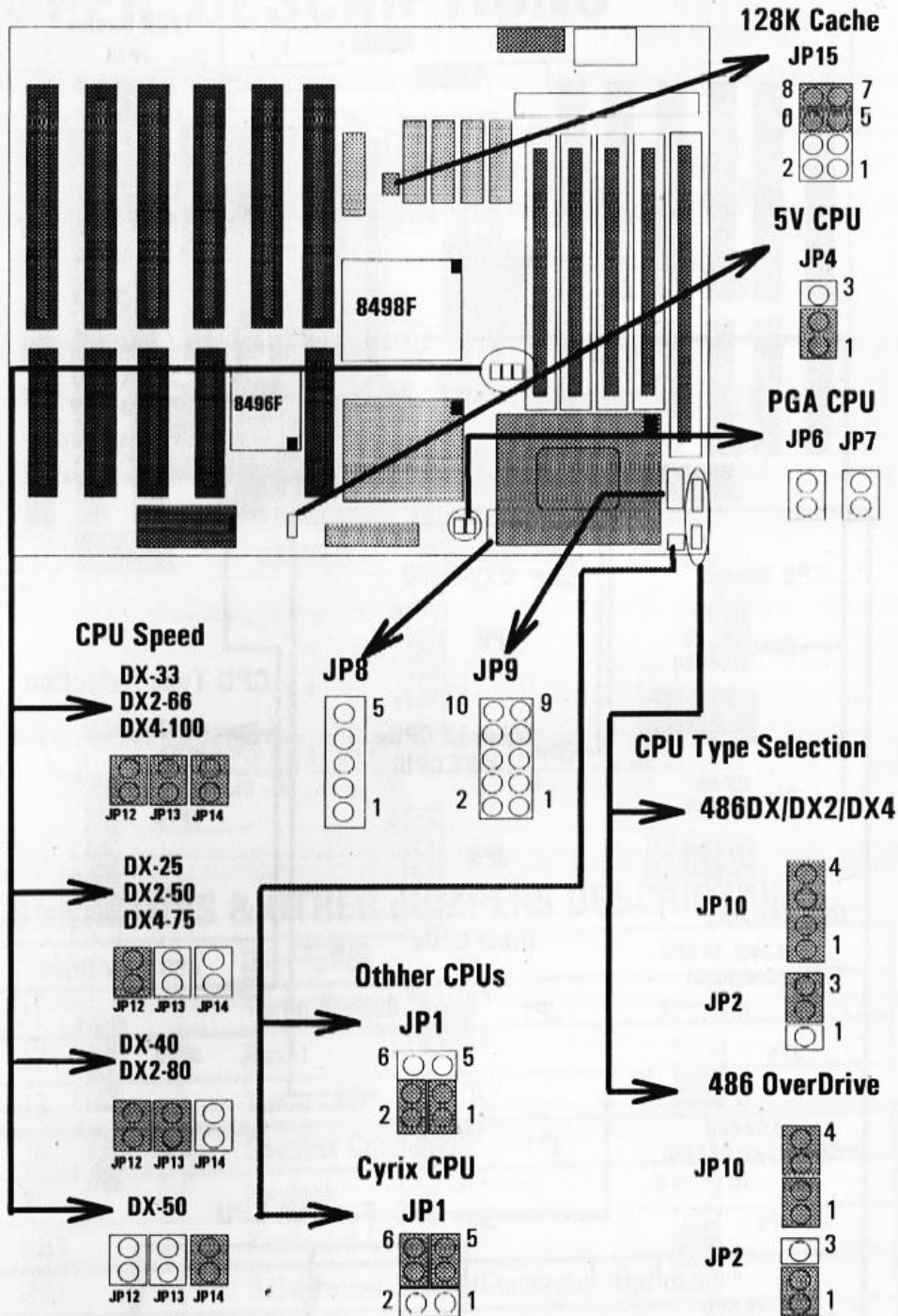


※Notes: JP1 dedicated for using Cyrix CPU.

JP8 dedicated for using AMD 3.3V DX2-66/80 CPU.

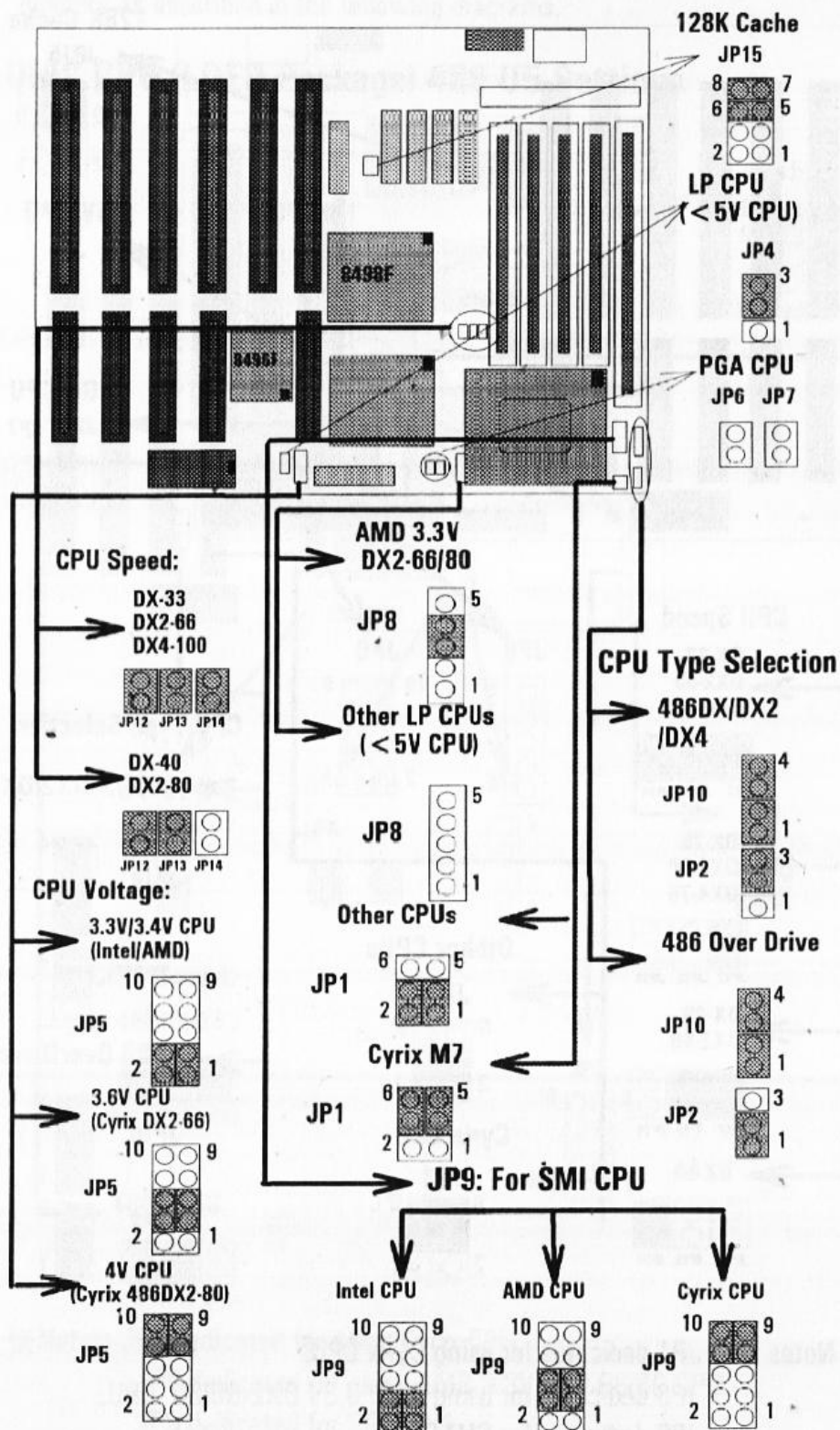
JP9 dedicated for SMI CPU.

## B. Intel/AMD/Cyrix CPU (5V PGA Package) DX-25/33/40/50, DX2-50/66/80 & DX4-75/100 Settings



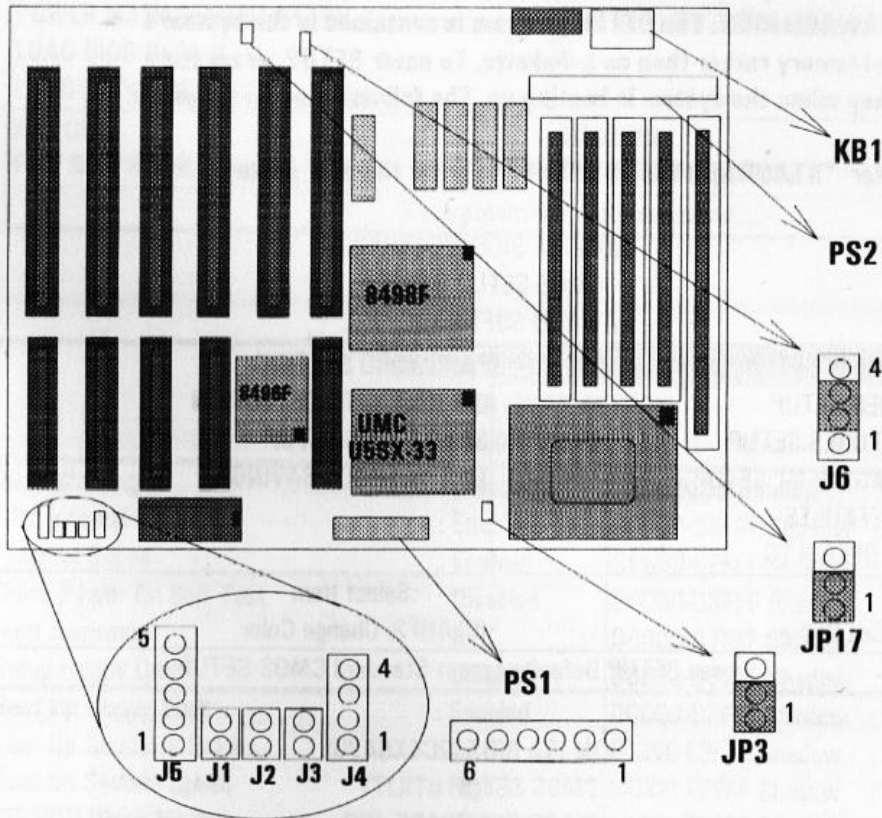
- ※ Notes :
- JP1 dedicates for using Cyrix CPU.
  - JP8 dedicates for using AMD 3.3V DX2-66/80 CPU.
  - JP9 dedicates for SMI CPU.

### C. LOW POWER CPU (< 5V CPU) - Intel/AMD DX4-100, AMD486DX2-66/80, Cyrix DX2-66/80



※NOTE: CYRIX CPU DOSE NOT SUPPORT GREEN FUNCTION.

## 2-4 CONNECTORS & OTHER JUMPER DESCRIPTIONS



### CONNECTORS & OTHER JUMPERS DESCRIPTIONS

Connector	Description
J1	Turbo Switch
J2	Reset
J3	Turbo LED
J4	Speaker Connector
J5	Keylock
KB1	Keyboard Connector
PS1	3.3V-Power Supply Connector (Optional)
PS2	5V Power Supply Connector
J6	External Battery Connector 2-3: Use Internal Battery (Default) 3-4: Clear C-MOS BIOS Setup Data
JP3	1-2: For Using Intel DX4 (Stop Clock) (Default)

# 3-1 AWARD BIOS SYSTEM CONFIGURATION SETUP

This section will explain how to set up the system configuration (CMOS) under the AWARD BIOS. The SETUP program is contained in the system's Read-Only-Memory rather than on a diskette. To enter SETUP, press the <Del> key when the system is booting up. The following menu appears:

Please enter "STANDARD CMOS SETUP" to enter the next screen.

ROM ISA BIOS (2C4X6A20)  
 CMOS SETUP UTILITY  
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	SAVE & EXIT SETUP
POWER MANAGEMENT SETUP	EXIT WITHOUT SAVING
LOAD BIOS DEFAULTS	
LOAD SETUP DEFAULTS	
Esc: Quit	:Select Item
F10: Save & Exit Setup	(Shift)F2: Change Color
Load SETUP Defaults except Standard CMOS SETUP	

ROM ISA BIOS (2C4X6A20)  
 CMOS SETUP UTILITY  
 AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Sun, Jan 2 1994	
Time(hh:mm:ss) : 0 : 18 : 36	
	CYLS. HEADS PRECOMP LANDZONE SECTORS MODE
Drive C: None (0Mb)	0 0 0 0 0 .....
Drive D: None (0Mb)	0 0 0 0 0 .....
Drive A: None	
Drive B: None	
Video : EGA/VGA	Base Memory : 640K
	Extended memory : 19456K
	Other Memory : 384K
Halt On: ALL Errors	-----
	Total Memory : 20480K
Esc : Quit :Select Item	PU/PD/+/- : Modify
F1 : Help (Shift) F2: Change Color	

ROM ISA BIOS (2C4X6A20)  
 CMOS SETUP UTILITY  
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	PASSWORD SETTING
<b>BIOS FEATURES SETUP</b>	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	SAVE & EXIT SETUP
POWER MANAGEMENT SETUP	EXIT WITHOUT SAVING
LOAD BIOS DEFAULTS	
LOAD SETUP DEFAULTS	
Esc: Quit	Select Item
F10: Save & Exit Setup	(Shift)F2: Change Color
Virus protection, Boot sequence ...	

ROM ISA BIOS (2C4X6A20)  
 BIOS FEATURES SETUP  
 AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Videa 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	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	E0000-E3FFF Shadow	: Disabled
Boot Up System Speed	: High	E4000-E7FFF Shadow	: Disabled
IDE HDD Block Mode	: Disabled	E8000-EBFFF Shadow	: Disabled
Gate A20 Option	: Fast	EC000-EFFFF Shadow	: Disabled
Memory Parity Check	: Enabled		
Typematic Rate Setting	: Disabled		
Typematic Rate(Chars/Sec)	: 6	Esc : Quit	: Select Item
Typematic Delay(Msec)	: 250	F1 : Help	PU/PD/+/- : Modify
Security Option	: Setup	F5 : Old Values (Shift)F2:Color	
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

ROM ISA BIOS (2C4X6A20)  
 CMOS SETUP UTILITY  
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
<b>CHIPSET FEATURES SETUP</b>	SAVE & EXIT SETUP
POWER MANAGEMENT SETUP	EXIT WITHOUT SAVING
LOAD BIOS DEFAULTS	
LOAD SETUP DEFAULTS	
Esc: Quit	:Select Item
F10: Save & Exit Setup	(Shift)F2:Change Color
At clock, DRAM timings ....	

✧ The setup is for U5-33MHz CPU.

ROM ISA BIOS (2C4X6A20)  
 BIOS FEATURES SETUP  
 AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	Hold CPU Percentage	: 1/1
DRAM Wait State select	: 1 WS	Alt Bit in Tag SRAM	: 7+1 Bits
DRAM Page Mode	: Fast	ISA Bus Refresh Mode	: Fast
L2 Cache Read Wait State	: 3-1-1-1	LQWA20# Select	: Chipset
L2 Cache Write Wait State	: 1 WS	RC Reset Select	: Chipset
L1 Cache Update Scheme	: Wr-Through	Weitek type coprocessor	: Absent
System BIOS Cacheable	: Int & Ext	DRAM Refresh Method	: RAS Only
Video BIOS Cacheable	: Int & Ext		
Keyboard Controller Clock	: 9.5Mhz		
ISA Bus Clock Option	: CLKI/4		
I/O Recovery (Bus/Dnboard)	: 5 / 3		
Weitek Ready Out Delay	: 2 WS		
Local Ready Delay Setting	: Delay 1T		
Signal LDEV# Sample Time	: In T2	Esc: Quit	:Select Item
CPU ADS# Delay 1T or Not	: No Delay	F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(SHIFT)F2: Color
Flush Cache When Deturbo	: Enabled	F6 : Load BIOS Defaults	
Force Miss When Deturbo	: Enabled	F7 : Load Setup Defaults	

※ The setup is for 486DX2-66MHz/DX4-100MHz CPU.

ROM ISA BIOS (2C4X6A20)

CHIPSET FEATURES SETUP

AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	Hold CPU Percentage	: 1/1
DRAM Wait State select	: 1 WS	Alt Bit in Tag SRAM	: 7+1 Bits
DRAM Page Mode	: Fast	ISA Bus Refresh Mode	: Fast
L2 Cache Read Wait State	: 3-1-1-1	LOWA20# Select	: Chipset
L2 Cache Write Wait State	: 1 WS	RC Reset Select	: Chipset
L1 Cache Update Scheme	: Wr-Through	Weitek Type Coprocessor	: Absent
System BIOS Cacheable	: Int & Ext	DRAM Refresh Method	: RAS Only
Video BIOS Cacheable	: Int & Ext		
Keyboard Controller Clock	: 9.5Mhz		
ISA Bus Clock Option	: CLKI/4		
I/O Recovery (Bud/Onboard)	: 5 / 3		
Weitek Ready Out Delay	: 2 WS		
Local Ready Delay Setting	: Delay 1T		
Signal LDEV# Sample Time	: In T2	Esc: Quit	Select Item
CPU ADS# Delay 1T or Not	: No Delay	F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(SHIFT)F2: Color
Flush Cache When Deturbo	: Enabled	F6 : Load BIOS Defaults	
Force Miss When Deturbo	: Enabled	F7 : Load Setup Defaults	

※ The setup is for U5-40MHz, DX2-80MHz CPU.

Auto Configuration	: Enabled	Hold CPU Percentage	: 1/1
DRAM Wait State select	: 1 WS	Alt Bit in Tag SRAM	: 7+1 Bits
DRAM Page Mode	: Normal	ISA Bus Refresh Mode	: Fast
L2 Cache Read Wait State	: 3-2-2-2	LOWA20# Select	: Chipset
L2 Cache Write Wait State	: 1 WS	RC Reset Select	: Chipset
L1 Cache Update Scheme	: Wr-Through	Weitek Type Coprocessor	: Absent
System BIOS Cacheable	: Int & Ext	DRAM Refresh Method	: RAS Only
Video BIOS Cacheable	: Int & Ext		
Keyboard Controller Clock	: 9.5Mhz		
ISA Bus Clock Option	: CLKI/5		
I/O Recovery (Bus/Onboard)	: 5 / 3		
Weitek Ready Out Delay	: 2 WS		
Local Ready Delay Setting	: Delay 1T		
Signal LDEV# Sample Time	: In T2	Esc: Quit	:Select Item
CPU ADS# Delay 1T or Not	: No Delay	F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(SHIFT)F2: Color
Flush Cache When Deturbo	: Enabled	F6 : Load BIOS Defaults	
Force Miss When Deturbo	: Enabled	F7 : Load Setup Defaults	



CHAPTER 8 BIOS SETUP

ROM ISA BIOS (2C4X8A20)

CMOS SETUP UTILITY

AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	SAVE & EXIT SETUP
<b>POWER MANAGEMENT SETUP</b>	EXIT WITHOUT SAVING
LOAD BIOS DEFAULTS	
LOAD SETUP DEFAULTS	
Esc : Quit	:Select Item
F10: Save & Exit Setup	(Shift)F2:Change Color
Sleep Timer, Suspend Timer .....	

ROM ISA BIOS (2C4X8A20)

POWER MANAGEMENT SETUP

AWARD SOFTWARE, INC.

Power Management	: Disabled	* Monitor Even In Full On Mode	
PM Control by APM	: Enabled	VESA Slave Activity	: Disabled
Video Off Method	: DPMS Support	LPT Port Activity	: Enabled
HDD Standby Timer	: Disabled	COM Port Activity	: Enabled
Doze Timer Select	: 512 Min	ISA Master Activity	: Enabled
Standby Timer Select	: 512 Min	IDE Activity	: Enabled
Inactive Timer Select	: 512 Min	Floppy Activity	: Enabled
		VGA Activity	: Disabled
		Keyboard Activity	: Enabled
Control Item	: CPU CLK VGA		
Doze Mode Control	: 1/4 CLKI On		
Standby Mode Control	: 1/8 CLKI Off		
Inactive Mode Control	: STOP CLK Off		
Suspend Switch Select	: Enabled	Esc: Quit	: Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(SHIFT)F2: Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

CHAPTER 3 BIOS SETUP

ROM ISA BIOS (2C4X6A20)  
 CMOS SETUP UTILITY  
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	<b>SAVE &amp; EXIT SETUP</b>
POWER MANAGEMENT SETUP	EXIT WITHOUT SAVING
LOAD BIOS DEFAULTS	
LOAD SETUP DEFAULTS	
Esc : Quit	:Select Item
F10: Save & Exit Setup	(SHIFT)F2:Change Color
Save data to CMOS & Exit setup	

ROM ISA BIOS (2C4X6A20)  
 CMOS SETUP UTILITY  
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	SAVE & EXIT SETUP
POWER MANAGEMENT SETUP	EXIT WITHOUT SAVING
LOAD BIOS DEFAULTS	<b>SAVE to CMOS and EXIT (Y/N): Y</b>
LOAD SETUP DEFAULTS	
Esc : Quit	:Select Item
F10: Save & Exit Setup	(Shift)F2:Change Color
Changed/Set/Disabled Password	

# APPENDIX A

## TECHNICAL SUPPORT REQUEST FORM

If the motherboard doesn't function properly, please complete the following information and return it to your supplier. If further information is needed, please attach separate sheets.

Model No : \_\_\_\_\_ Serial No. : \_\_\_\_\_

Date of Purchase : \_\_\_\_\_

### Hardware :

	Brand	Model	Speed	D'ty
CPU				
Math. Coprocessor				
SIM Module				
Cache Memory				
TAG RAM				

### SOFTWARE:

SYSTEM BIOS: \_\_\_\_\_ <A> AMI, <W> AWARD, <P> PHOENIX.

SYSTEM BIOS: Version \_\_\_\_\_ Date Code \_\_\_\_\_

Keyboard BIOS: Brand \_\_\_\_\_ Version \_\_\_\_\_

Hard Disk Interface Controller: \_\_\_\_\_ IDE, \_\_\_\_\_ SCSI, \_\_\_\_\_ Other: \_\_\_\_\_

Brand Name : \_\_\_\_\_ Cache Size (if any) : \_\_\_\_\_

Bus Interface: \_\_\_\_\_ ISA, \_\_\_\_\_ VESA, \_\_\_\_\_ PCI

Hard Disk Brand Name: \_\_\_\_\_, Model: \_\_\_\_\_, Capacity: \_\_\_\_\_

Display Controller Brand Name: \_\_\_\_\_, Model: \_\_\_\_\_

Controller Chip Brand Name: \_\_\_\_\_, Model: \_\_\_\_\_

### Other Add-On Card Information:

Add-on Card	Bus Interface	Model	Remark

