UM8810P AIO

User's Manual (for Phoenix BIOS)

V3.0

August, 1995

This mainboard requires correct configuration information; otherwise, a malfunction may result.

Static electricity can cause serious damage to integrated circuit chips. To avoid building up a static electric charging on your body, be sure you discharge any static electricity by grounding yourself before handling the chips. If chips are handed from one *person to another, they should touch hands first, then pass the* chips.

Information presented in this publication has been carefully checked for reliability; however, no responsibility is assumed for inaccuracies. The information contained in this document is subject to change without notice.

Contact your dealer for warranty details.

Trademarks

All brand and product names used in this manual may be trademarks or registered trademarks of their respective companies.

Table of Contents

1 Introduction

The UM8810P AIO is a 4-layer, 3/4 Baby AT size PCB. It includes UMC UM8881, UM8886 system chipset, CMD PCI0640B PCI Bus IDE controller, SMC37C665 super I/O controller and UMC 82C865 I/O TTL Integration.

1.1 General Specifications

Processor☆: Intel i486 series - SX/SX2/DX/DX2/DX4, Overdrive
AMD486 - DX/DX2/DX4
Cyrix - Cx486S/Cx486DX/DX2/DX4, Cx5X86 (M1SC)
UMC486

Chipset: UMC UM8881 (Host Bridge for 486)
UMC UM8886 (ISA Bridge Controller)
CMD PCI0640B (PCI Bus IDE Controller)
SMC37C665 (Super I/O Controller)
UMC 82C865 (I/O TTL Integration)

Cache Size: Both cache write-back and write-through policies are supported
Cache sizes options are 128/256/512KB

Memory: Supports four SIMM sockets with memory size up to 128MB
All support double side SIMM.

System BIOS: Phoenix BIOS (128KB EPROM or Flash ROM)

Slots : Three 16-bit ISA slots
One set of shared slots that includes one 16-bit ISA slot (S4) and one PCI slot (J4).
Two PCI slots

I/O Connectors: Two serial ports (16550 UART compatible)
One parallel port (STANDARD\ECP\EPP)
One FDC connector
Two PCI IDE connectors (Supports four IDE drives)
One AT keyboard connector

Board: 4 layers

Form Factor: 3/4 Baby AT

Note: *3.3V CPU is only supported on the version of UM8810P AIO mainboard that shipped with a 3.3V regulator module. Please verify the jumper setting of the regulator module before plugging any 3.3V CPU.*

1.2 Features

- **CPU:**
  - ZIF socket 3 supports Intel 486SX/SX2/DX/DX2/DX4, Overdrive, AMD DX/DX2/DX4, Cyrix 486S/DX/DX2/DX4 (M6,M7), Cx5X86(M1SC) and UMC U5 CPU.
- **BIOS:**
  - Phoenix BIOS with flash ROM supported.
    - APM specification V1.1
    - PCI specification V2.0
    - PNP specification V1.0a
- **Cache:**
  - Supports the write-back and write-through mode of CPU's internal first level (L1) cache.
  - Supports the direct map second level (L2) cache in write-back and write-through.
  - Flexible cache size from 128KB to 512KB.
- **Memory:**
  - Sophisticated page mode DRAM controller.
  - 4 pieces of 72-pin SIMM socket with memory size from 2MB to 128MB. All support double density SIMMs.
  - Staggered CAS-before-RAS hidden DRAM refresh.
- **RTC:**
  - Provides RTC and NV RAM direct interface.
  - Uses Dallas 12887 compatible RTC module.
  - Clear CMOS function if Dallas 12887A compatible chip installed.
- **Slot:**
  - 4 ISA slots with 100% ISA compatible functions.
  - 3 PCI slots all support PCI master.
    - PCI specification version 2.0.
    - Supports X-2-2-2 PCI to DRAM burst access.
    - Supports CPU to PCI post write buffer.
    - Supports concurrent CPU and PCI bus operations.
- **IDE:**
  - CMD 0640B 32-bit PCI IDE chip supports up to 4 IDE drives.
    - Supports up to PIO mode 3 timing.

- Supports the most complete 32-bit driver in the industry (DOS, Windows 3.1x, Windows NT3.1/3.5, OS/2, Novell and SCO Unix).

■ **FDC:**

» 2 floppy drives support 360K, 720K, 1.2M, 1.44M, 2.88MB and 3D mode floppy drives.

■ **I/O:**

» 1 multi-mode parallel port with chip-protect circuitry.

» Supports standard, enhanced (EPP), high speed (ECP) mode.

» 2 high speed 16C550 compatible UARTS.

■ **KBC:**

» AMIKEY-II keyboard controller.

■ **Power Management:**

» Compatible with EPA "Energy-Star" specification.

» Fully compatible with Microsoft APM.

» Supports SMM function for INTEL SL enhanced, Cyrix, UMC CPU.

» Supports 4 power management modes:

Green Function	CPU Clock	HDD	Display
Disable	Full-on	Normal	on
Doze	1/2	Idle	on
Standby	1/4	Standby	Standby
Suspend	0 MHz	Sleep	off

This Page Intentionally Left Blank.

2 Memory Configurations

In this chapter, the system memory and external cache memory configurations are discussed. Users are recommended to read through this chapter before installing or removing memory.

2.1 System Memory

UM8810P AIO provides tremendous flexibility DRAM configurations and uses SIMM (Single-In-line Memory Module) for its system memory. It accepts a minimum of 2MB and a maximum of 128MB memory size. There are four memory banks (SIMM1 to SIMM4) which support 1/2/4/8/16/32 MB size 72-pin, single and/or double-density memory modules.

Important: *The DRAM module (SIMM) can be inserted into any one of the four SIMM sockets. But if you want to insert two SIMMs into SIMM1 and SIMM2 sockets, the two SIMMs must be the same type (same size and same density). Equally, if you insert two SIMMs into SIMM3 and SIMM4 sockets, they must be the same type.*

The DRAM type of SIMM1 & SIMM2 is independent of SIMM3 & SIMM4.

SIMM1	SIMM2	SIMM3	SIMM4	Total Size
None	None or same as SIMM1	None	None or same as SIMM3	2MB
1MB		1MB		-
2MB		2MB		-
4MB		4MB		-
16MB		16MB		-
32MB		32MB		128MB

Table 2-1. Memory Configurations and Requirements

The following table lists some **unacceptable** DRAM combinations for your reference.

SIMM1	SIMM2	SIMM3	SIMM4	Mistake
1MB (single)	None	None	None	The minimum memory size of UM8810P AIO is 2MB.
1MB (single)	2MB (double)	None	None	different SIMM type on SIMM1 and SIMM2
None	None	1MB (single)	2MB (double)	different SIMMs type on SIMM3 and SIMM4

2.2 Cache Memory Configurations

Option	TAG RAM (U31)	Cache Bank 0 (U20, U21, U22, U23)	Cache Bank 1 (U32, U33, U34, U35)
128K	32Kx8-15	32Kx8	-
256K		32Kx8	32Kx8
512K		64Kx8	64Kx8
512K		128Kx8	-

Table 2-2. External Cache Memory Configurations

3 Jumper Settings and Connectors

3.1 What kind of CPU are you using ?

This section contains the detail descriptions of Intel, AMD, Cyrix, and UMC CPU. Before you setting the jumpers, you should read this section to know the CPU voltage, CPU clock, etc.

■ **Intel CPU:**

» **Intel486 SX SL Enhance processor**

A80486SX-xx:	Product No. - Frequency (either 25 or 33 MHz)
FFFFFFFF:	FPO#
&E5V1XSX###:	&E=SL Enhance; 5 volt; 1X clock; spec#

» **IntelSX2 SL Enhance processor**

A80486SX2-50:	Product No. - Frequency (50MHz)
FFFFFFFF:	FPO#
&E5V1XSX###:	&E=SL Enhance; 5 volt; 1X clock; spec#

» **Intel486 DX SL Enhance processor**

A80486DX-33:	Product No. - Frequency (33 MHz)
FFFFFFFF:	FPO#
&E5V1XSX###:	&E=SL Enhance; 5 volt; 1X clock; spec#

» **IntelDX2 SL Enhance processor**

A80486DX2-xx:	Product No. - Frequency (either 50 or 66 MHz)
FFFFFFFF:	FPO#
&E5V1XSX###:	&E=SL Enhance; 5 volt; 1X clock; spec#

» **IntelDX2 SL Enhance L1-WB processor (P24D)**

A80486DX2-xx:	Product No. - Frequency (either 50 or 66 MHz)
FFFFFFFF:	FPO#
&EW5V1XSX###:	&E=SL Enhance; W=L1-Write Back; 5 volt; 1X clock; SX954/SX955

» **IntelDX4 SL Enhance processor (P24C)**

A80486DX4-xx:	Product No. - Frequency (either 75 or 100 MHz)
FFFFFFFF:	FPO#
&E3VOLTSX###:	&E=SL Enhance; 3.3 volt; New S-spec#

» **IntelDX2 OverDrive processor**

DX2ODPR-xx:	Product No. - Frequency (either 50 or 66 MHz)
FFFFFFFF:	FPO#
##### v4.0:	SL Enhance; 5 volt

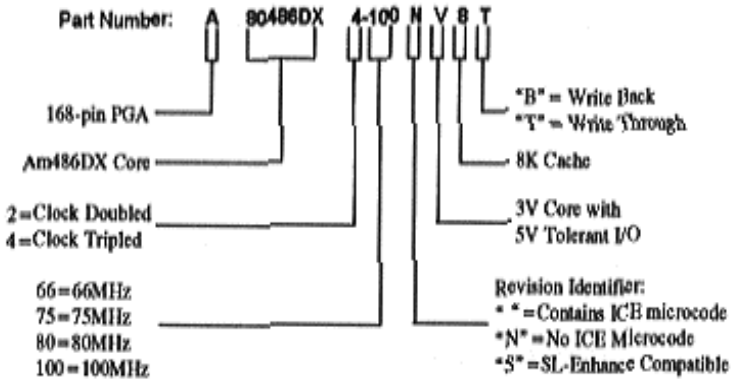
» **IntelDX4 OverDrive processor**

DX4ODPR-xx:	Product No. - Frequency (either 75 or 100 MHz)
FFFFFFFF:	FPO#
##### v1.x:	SL Enhance; 5 volt

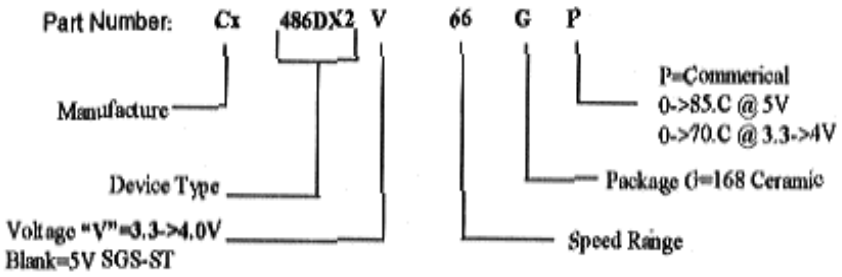
» **IntelDX/SX/DX2/SX2 Non-SL Enhance processor**

A80486xx-xx:	Product No. - Frequency (25/33/50/66 MHz)
FFFFFFFF:	FPO#
SX###:	5 volt

■ AMD CPU:



■ Cyrix CPU:



CPU Type	CxDX4-100GP4	DxDX4-100GP
Surface Mark	Cx486DX4-100GP DX4-P/O 3.45V	Cx486DX4-100GP 3.45V

Note: *SGS, TI and IBM CPU are compatible with Cyrix CPU. Please contact with your CPU vendor for the detailed infromation.*

Part Number	CPU Frequency	Nominal Voltage	Voltage range
Cx486DX2-V60	50MHz	3.3 or 3.6 Volts	3.15-3.75 Volts
Cx486DX2-V66	66MHz	3.6 Volts	3.45-3.75 Volts
Cx486DX2-V80	80MHz	4.0 Volts	3.8-4.2 Volts
CxDX4-100GP	100MHz	3.45 Volts	3.45-3.6 Volts
CxDX4-100GP4	100MHz	3.45 Volts	3.45-3.6 Volts
Cx5X86-100/120GP	100/120MHz	3.45 Volts	3.45-3.6 Volts

■ **UMC CPU:**

Part Number	Frequency	Pakage	Socket Type
U5S-SUPER25	25MHz	168PGA	SX Socket
U5S-SUPER33	33MHz	168PGA	SX Socket
U5S-SUPER40	40MHz	168PGA	SX Socket
U5SD-SUPER25	25MHz	168PGA	DX Socket
U5SD-SUPER33	33MHz	168PGA	DX Socket
U5SD-SUPER40	40MHz	168PGA	DX Socket

Note: *If there are no "V" (Voltage) on the surface of your AMD, Cyrix, or UMC CPU, the meaning is 5V core CPU.*

3.2 Setting the Jumpers

The table below summarizes the appropriate functions and settings of each jumper on the UM8810P AIO. You can refer to the "Graphic Descriptions of Jumper Settings" section.

Function		Jumper Settings
CPU Type	Intel 80486 DX/DX2 AMD Am486 DX/DX2/DX4 NV8T	JP18 open JP19 open JP20 short 1-2, 3-4 JP21 short 1-2 JP22 open JP23 open JP24 short 1-2 JP27 open JP28 open JP36 open JP37 short 1-2 JP38 short 1-2 JP44 open
	Intel 80487SX Overdrive (ODP)	JP18 open JP19 open JP20 short 1-2, 3-4 JP21 short 2-3 JP22 open JP23 open JP24 short 1-2 JP27 open JP28 open JP36 open JP37 short 1-2 JP38 short 1-2 JP44 open
	Intel 80486SX	JP18 open JP19 open JP20 short 2-3 JP21 open JP22 open JP23 open JP24 short 1-2 JP25 short 1-2 JP27 open JP28 open JP36 open JP37 short 1-2 JP38 short 1-2 JP44 open

Continued .....

Function		Jumper Settings
CPU Type	Intel 80486 DX/DX2/DX4 (SL Enhance, L1 Write-Through) Overdrive DX2/DX4 ODPR	JP18 open JP19 open JP20 short 1-2, 3-4 JP21 short 1-2 JP22 short 1-2 JP23 open JP24 short 2-3 JP27 short 2-3, 4-5 JP28 open JP36 short 1-2 JP37 short 1-2 JP38 short 1-2 JP44 open
	Intel 80486 SX/SX2 (SL Enhance)	JP18 open JP19 open JP20 short 2-3 JP21 open JP22 short 1-2 JP23 open JP24 short 2-3 JP27 short 2-3, 4-5 JP28 open JP36 short 1-2 JP37 short 1-2 JP38 short 1-2 JP44 open
	Intel 80486 DX2/DX4 (SL Enhance, L1 Write-Back) AMD Am486 DX2/DX4 SV8B Cyrix Cx5X86-100/120GP (M1SC)☆	JP18 short JP19 open JP20 short 1-2, 3-4 JP21 short 1-2 JP22 short 1-2, 3-4 JP23 open JP24 short 2-3 JP27 short 2-3, 4-5 JP28 open JP36 short 1-2 JP37 short 1-2 JP38 short 1-2 JP44 open

Continued .....

☆: *The "HCLK PCICLK" option in the BIOS setup program must be set to "1 1/2" (refer to the description of "* ***PCI Control (HCLK PCICLK)****" on Page 4-12). (PCI Bus Clock=20MHz), but AHA-3940/AHA-2940 might run abnormally. This notice is for Cx5X86-120GP CPU only.*

Function		Jumper Settings
CPU Type	Intel PODP5V (P24T)	JP18 open JP19 open JP20 short 1-2, 3-4 JP21 short 2-3 JP22 short 1-2 JP23 short 1-2 JP24 short 2-3 JP27 short 2-3, 4-5 JP28 short 1-2 JP36 short 1-2 JP37 short 1-2 JP38 short 1-2 JP44 short
	Cyrix Cx486 DX/DX2/DX4 Cyrix CxDX4-100GP (M7)	JP18 open JP19 short JP20 short 1-2, 3-4 JP21 short 1-2 JP22 short 2-3 JP23 short 2-3 JP24 short 2-3 JP25 short 1-2 JP27 short 1-2, 3-4 JP28 short 2-3 JP36 short 1-2 JP37 short 1-2 JP38 short 2-3 JP44 open
	Cyrix CxDX4-100GP4	JP18 short JP19 open ☆ JP20 short 1-2, 3-4 JP21 short 1-2 ☆ JP22 short 1-2, 3-4 JP23 open JP24 short 2-3 JP25 short 1-2 JP27 short 2-3, 4-5 JP28 open JP36 short 1-2 JP37 short 1-2 JP38 short 2-3 JP44 open
	Cyrix Cx486S	JP18 open JP19 short JP20 short 2-3 JP21 open JP22 short 2-3 JP23 short 2-3 JP24 short 2-3 JP27 short 1-2, 3-4 JP28 short 2-3 JP36 short 1-2 JP37 short 1-2 JP38 short 2-3 JP44 open

Continued .....

☆: *The pin 2 of JP19 and pin 3 of JP21 are connected with naked wire.*

Function		Jumper Settings
CPU Type	UMC U5SD-SUPER	JP18 open JP19 open JP20 short 1-2, 3-4 JP21 short 1-2, 3-4 JP22 open JP23 open JP24 short 1-2 JP27 open JP28 short 3-4 JP36 short 2-3 JP37 short 2-3 JP38 short 1-2 JP44 open
	UMC U5S-SUPER	JP18 open JP19 open JP20 short 2-3 JP21 short 1-2, 3-4 JP22 open JP23 open JP24 short 1-2 JP27 open JP28 short 3-4 JP36 short 2-3 JP37 short 2-3 JP38 short 1-2 JP44 open
AMD Am486 DX2/DX4 NV8T	3X CPU CLK	JP25 short 1-2 (default)
	2X CPU CLK☆	JP25 short 2-3
Intel 80486 DX4 **AMD Am486 DX2/DX4 SV8B**	3X CPU CLK	JP29 open (default)
	2X CPU CLK	JP29 short
Host Clock Select	25MHz	JP17 short 1-2
	33MHz	JP17 short 1-2, 3-4, 5-6
	40MHz	JP17 short 1-2, 3-4
	50MHz	JP17 short 5-6
CPU Voltage Select	+5V	JP10 short
	+3.3V/+3.45V/+3.6V/+4.0V	JP10 VR-100 or VR-102

Continued .....

☆: *If you install the Am486DX2-66/80 NV8T on board, you must select the 2X CPU CLK (JP25 short 2-3).*

Function		Jumper Settings
Cache Size	128KB (with 32Kx8 SRAM)	JP13 open JP14 short 1-2 JP16 short 2-3 JP33 open JP35 open
	256KB (with 32Kx8 SRAM) (default)	JP13 open JP14 short 2-3 JP16 short 1-2 JP33 open JP35 short
	512KB (with 64Kx8 SRAM)	JP13 open JP14 short 2-3 JP16 short 1-2 JP33 short JP35 short
	512KB (with 128Kx8 SRAM)	JP13 short 1-2 JP14 short 2-3 JP16 short 2-3 JP33 short JP35 short
Clear RTC CMOS Data	Normal	JP30 open
	Clear	JP30 short
On-board Multi I/O 37C665	Enable (default)	JP8 short 1-2
	Disable	JP8 short 2-3
System ROM Select	EPROM	JP6 open
	Flash ROM +5V programmable	JP6 short 1-2
	Flash ROM +12V programmable	JP6 short 2-3
Parallel Port PRQ & DACK Select	DRQ1, DACK1	JP4 short 2-3 JP5 short 1-2
	DRQ3, DACK3 (default)	JP4 short 1-2 JP5 short 2-3
On-board IDE Controller	Enable (always)	JP12 open
	Controlled by BIOS (default)	JP12 short

Table 3-1. Jumper Settings

3.3 Connectors

The following table lists the connectors located on the UM8810P AIO. They are used to connect with some peripheral devices to enhance the operating performance of the system. Please refer to the Mainboard Layout Figure on next page for the positions of all the connectors.

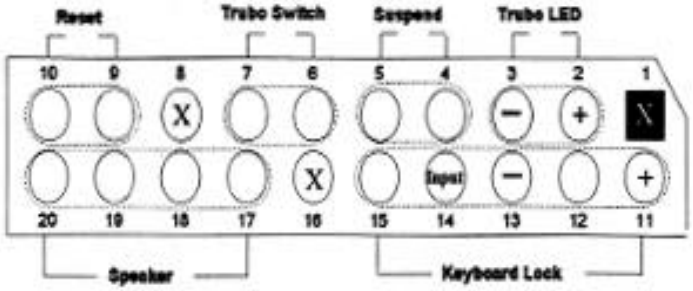
Connector	Function
J1	Serial Port 2 Connector
J2	Serial Port 1 Connector
J3	Parallel Port Connector
J7	PCI IDE Primary Connector
J8	PCI IDE Secondary Connector
J9	ISA FDD Connector
J11	
	X: No Connector.
J12	HDD LED
J17	PS/2 Keyboard Connector (optional)
J18	PS/2 Mouse Connector
J19	PS/2 Mouse 5-pin Jumper (optional)
PS1	Power Connector

Table 3-2. Connectors

3.4 Board Layout

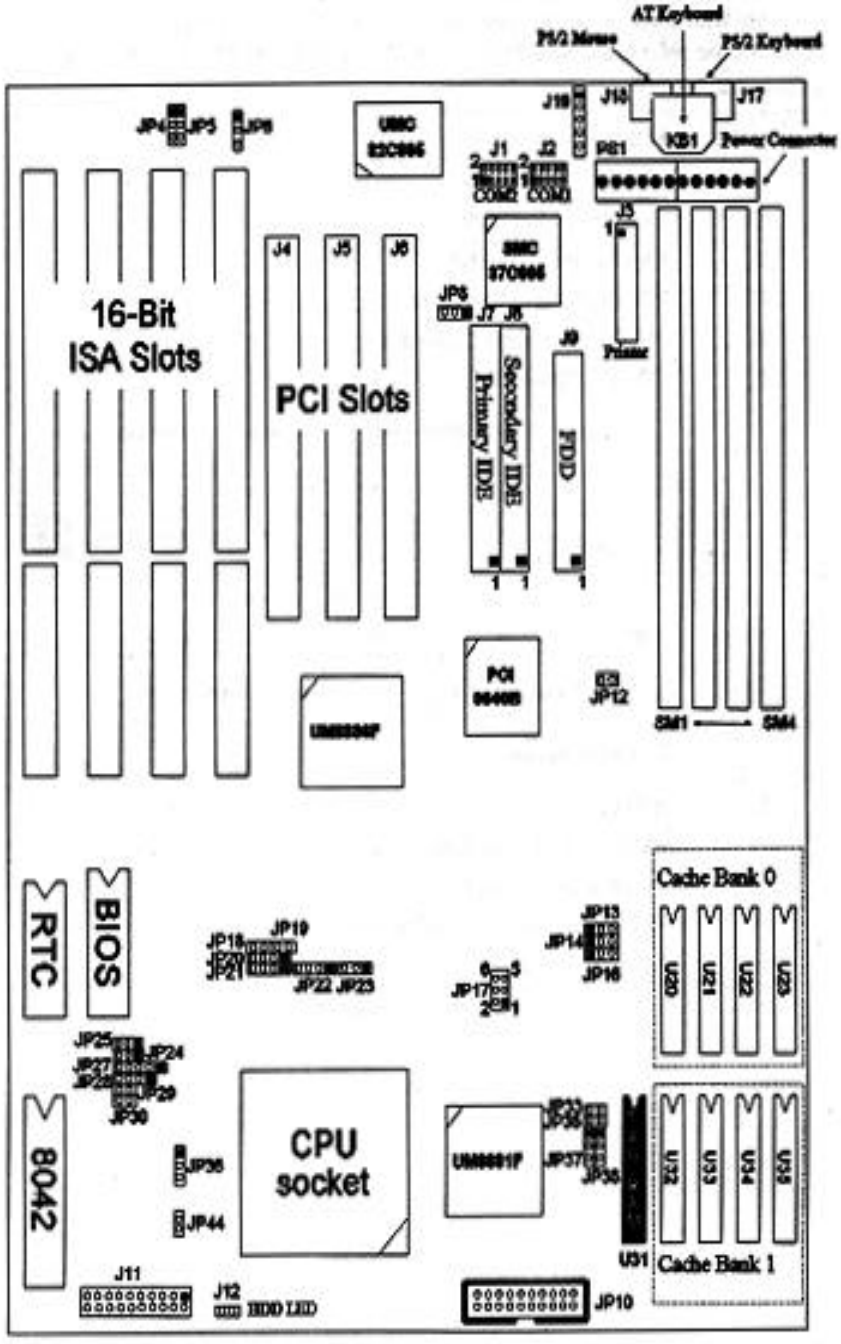
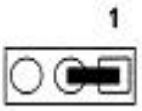
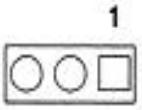


Figure 3-1. UM8810P AIO Mainboard Layout

3.5 Graphical Descriptions of Jumper Settings



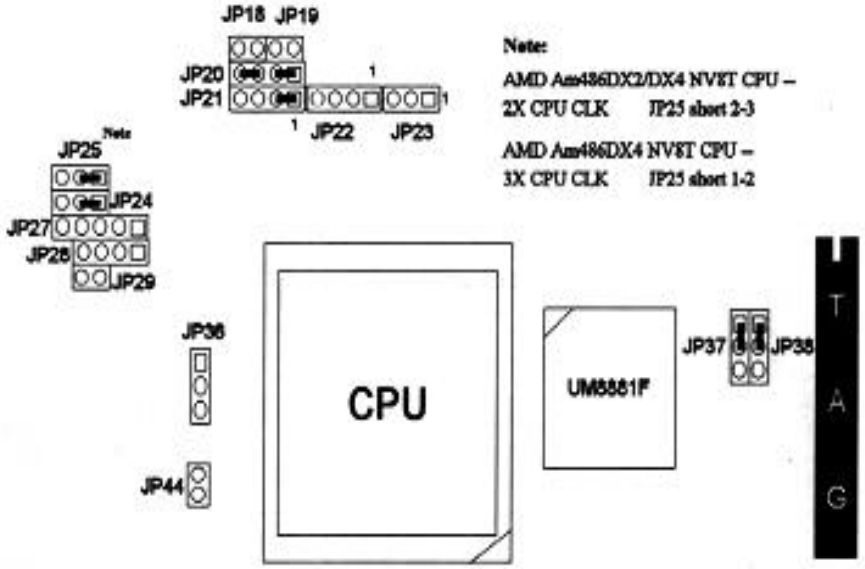
signifies pins 1 & 2 are set as "short."



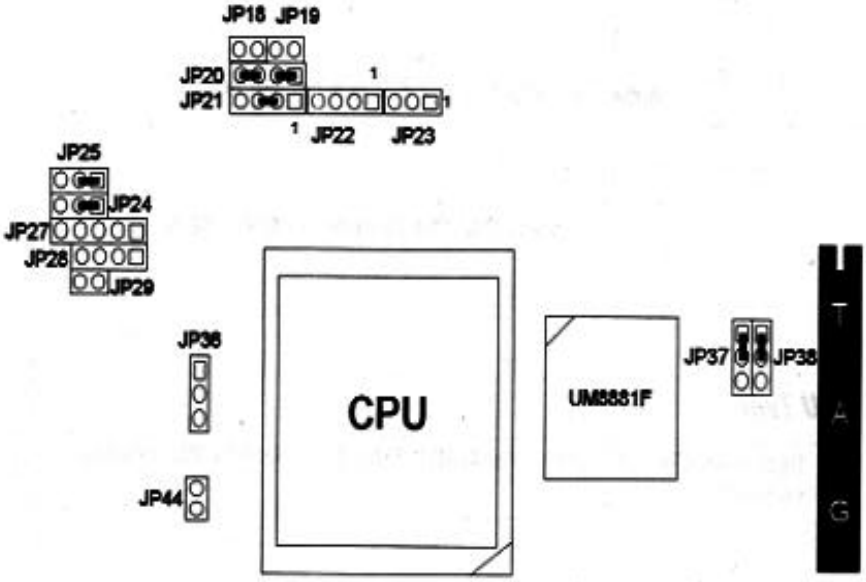
means that this jumper is set as "open."

CPU Type

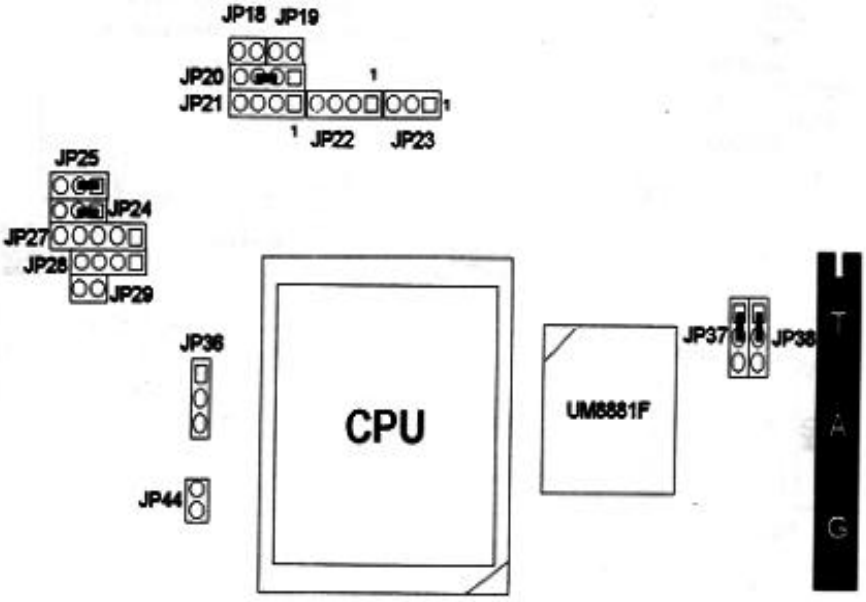
1. Intel 80486DX/DX2, AMD Am486DX/DX2/DX4 NV8T CPU installed on board



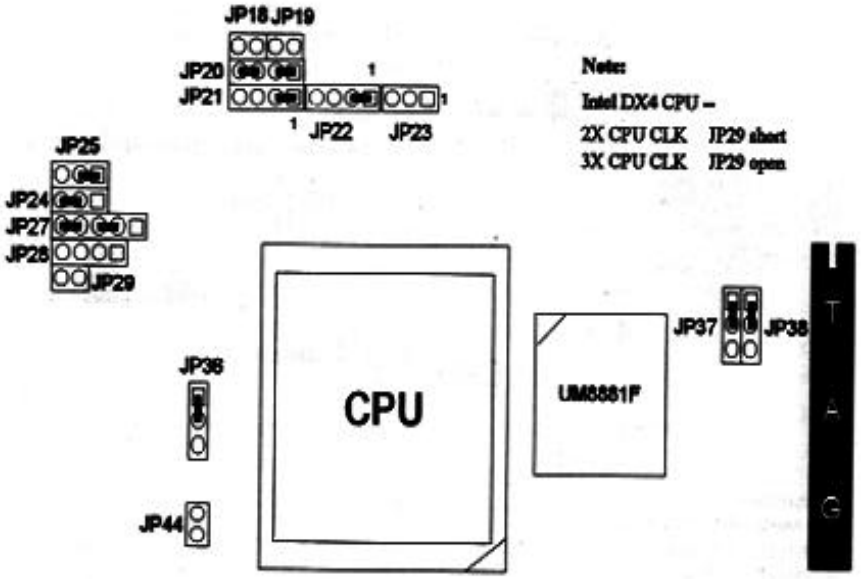
2. Intel 80487SX, Overdrive (ODP) CPU installed on board



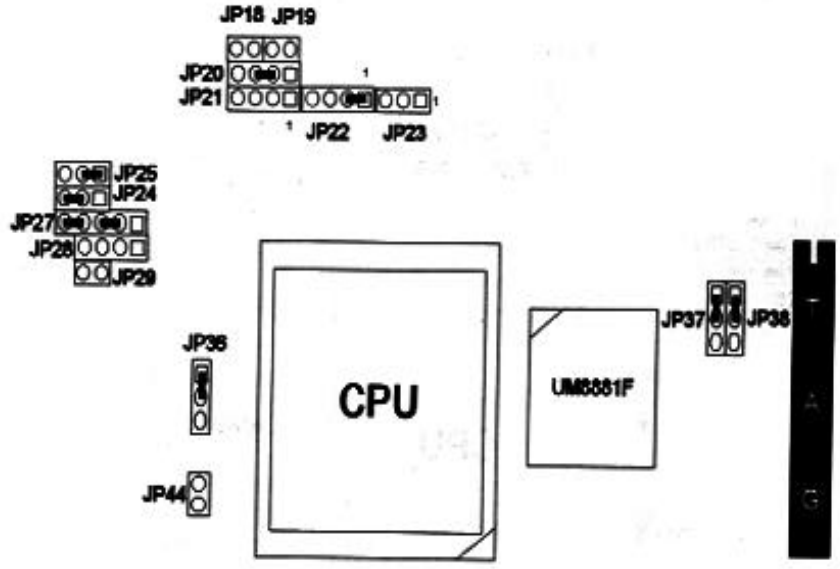
3. Intel 80486SX CPU installed on board



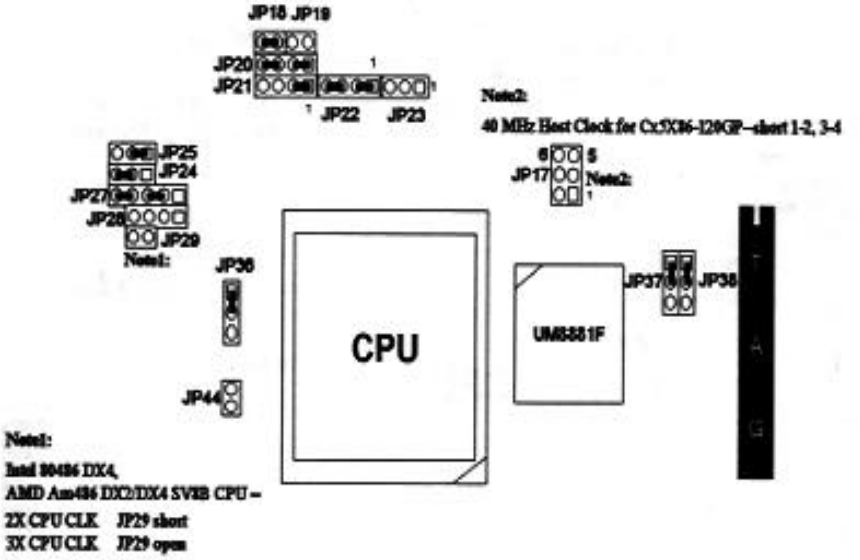
4. Intel 80486DX/DX2/DX4 (SL Enhance, L1 Write-Through), Overdrive DX2/DX4 (ODPR) CPU installed on board



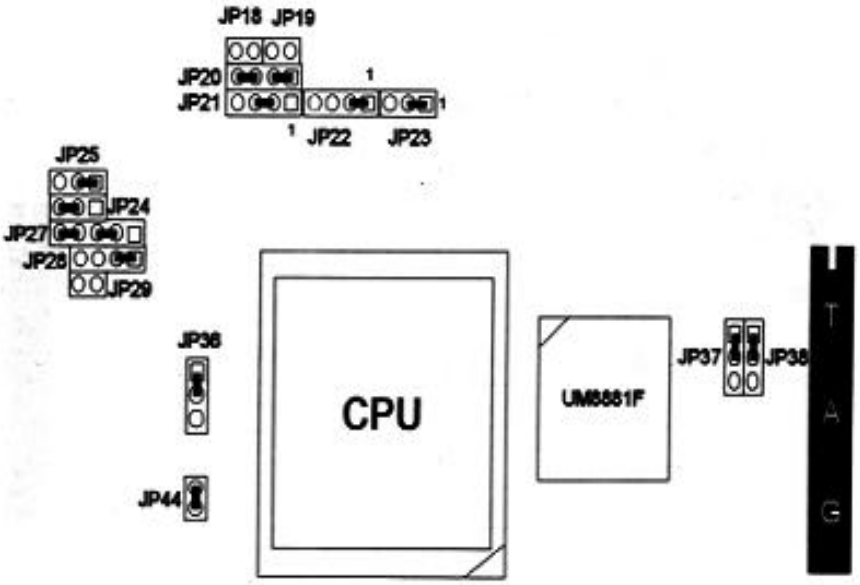
5. Intel 80486SX/SX2 (SL Enhance) CPU installed on board



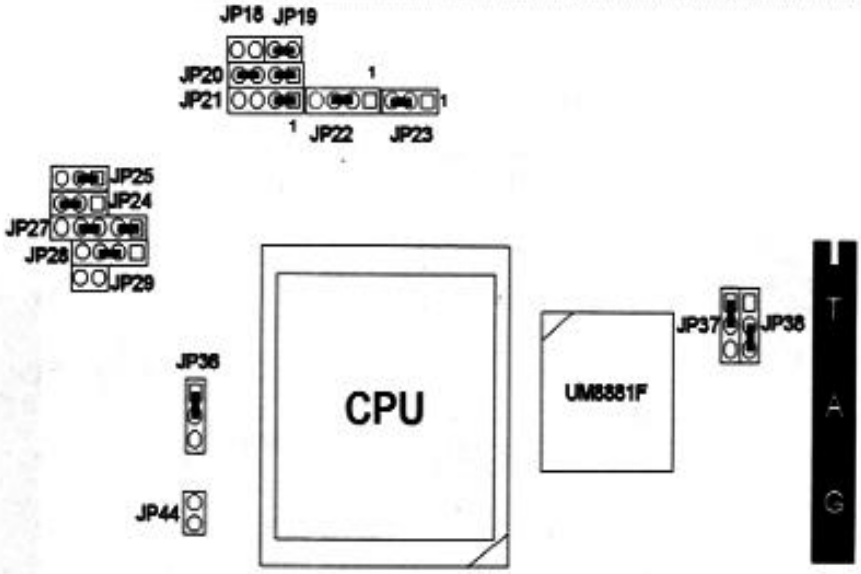
6. Intel 80486DX2/DX4 (SL Enhance, L1 Write-Back),
   AMD Am486DX2/DX4 SV8B CPU installed on board
   Cyrix Cx5X86-100/120GP (M1SC)



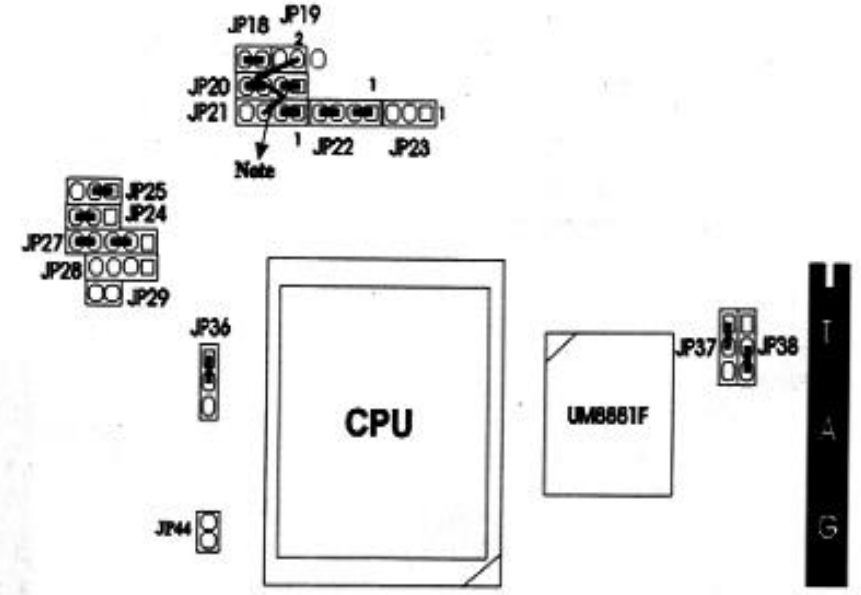
7. Intel PODP5V (P24T) CPU installed on board



8. Cyrix Cx486DX/DX2/DX4
   Cyrix CxDX4-100GP (M7) CPU installed on board

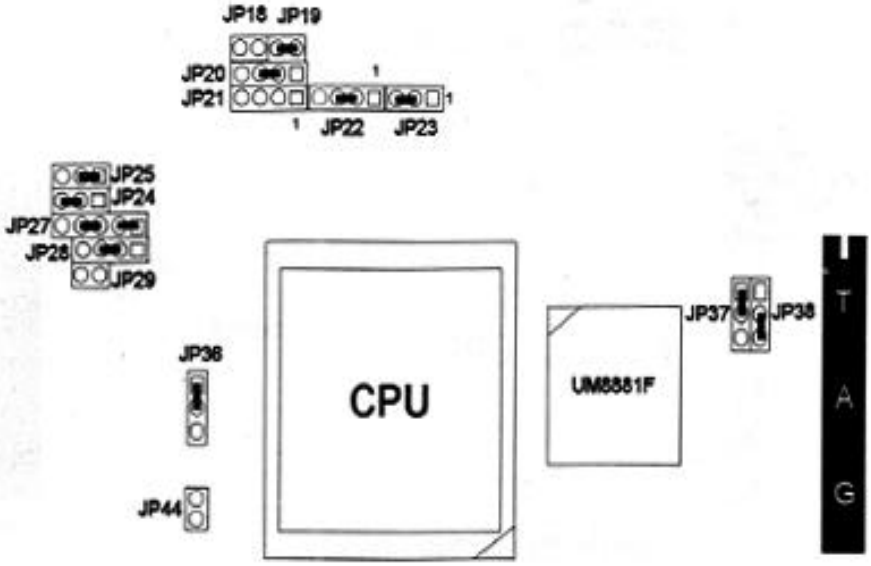


9. Cyrix CxDX4-100GP4 CPU installed on board

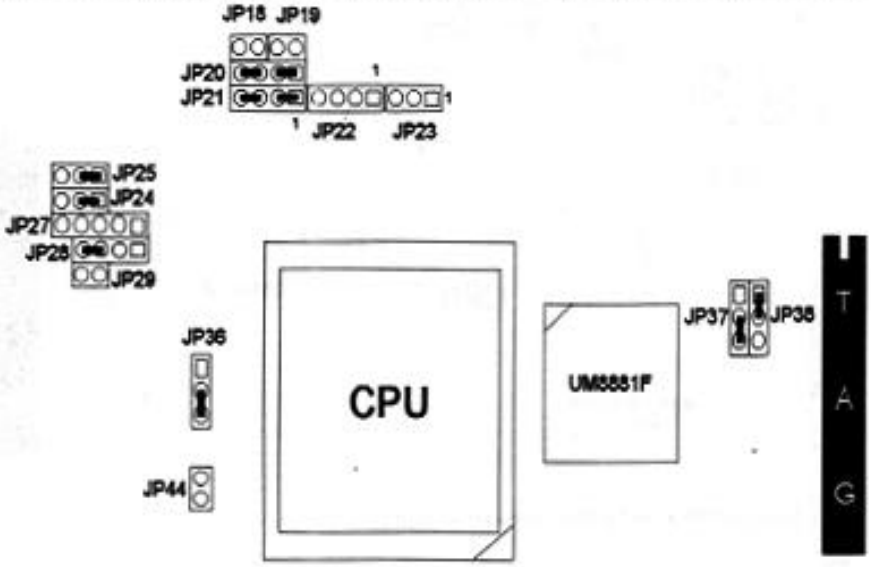


Note: The pin 2 of JP19 and pin 3 of JP21 are connected with naked wire.

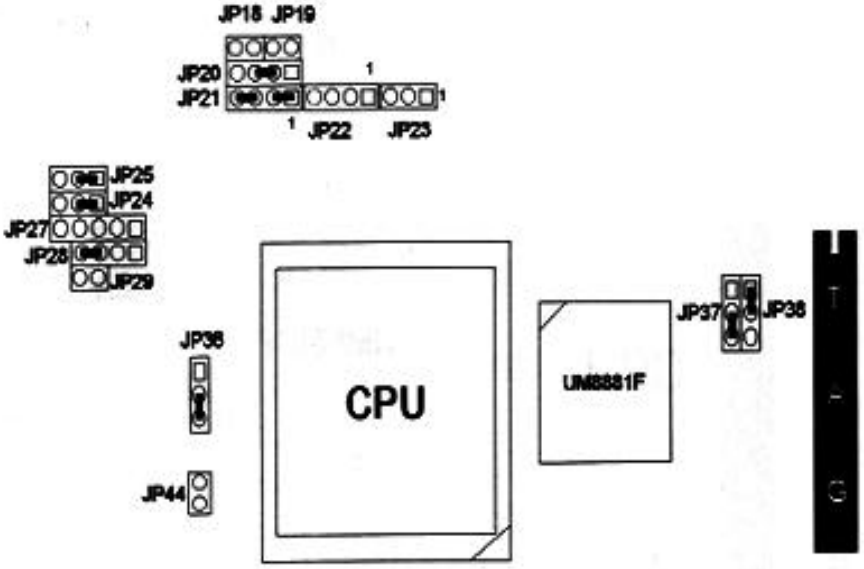
10. Cyrix Cx486S CPU installed on board



11. UMC U5SD-SUPER CPU installed on board

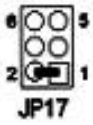


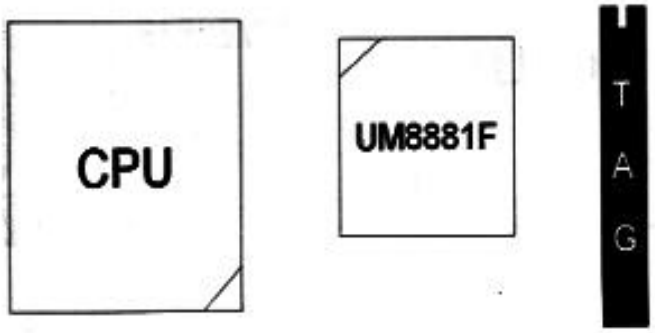
11. UMC U5S-SUPER CPU installed on board



Host Clock Select

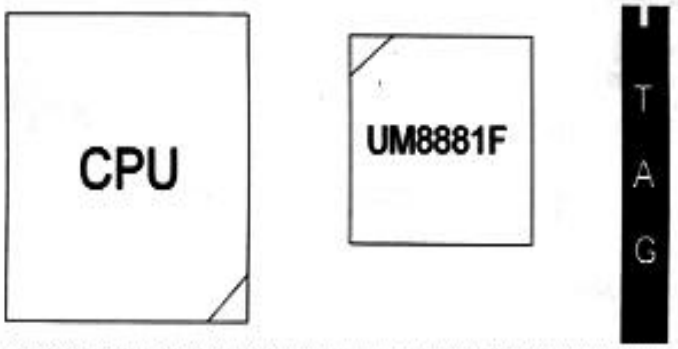
1. 25MHz



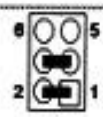


2. 33MHz

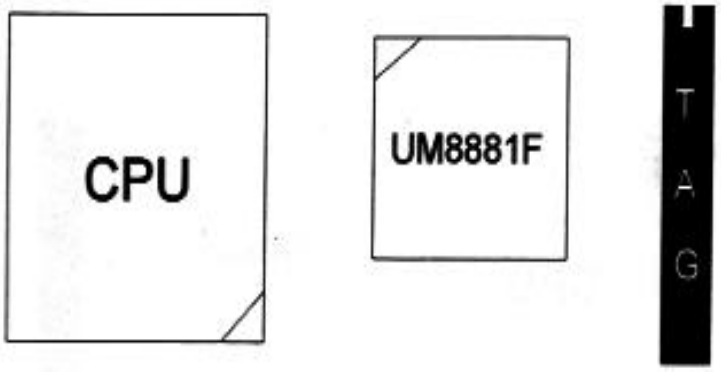
JP17



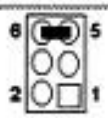
3. 40MHz



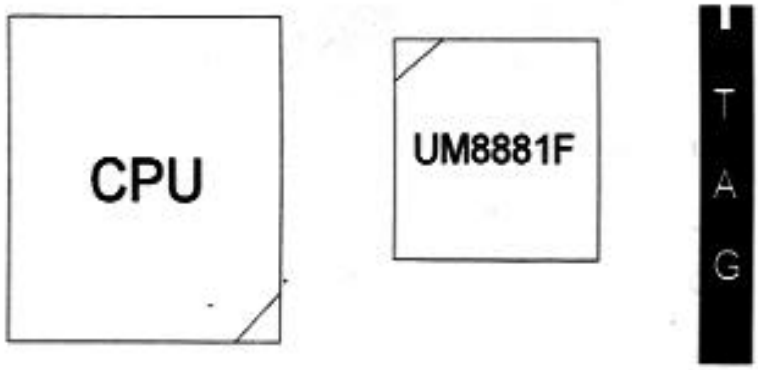
JP17



4. 50MHz

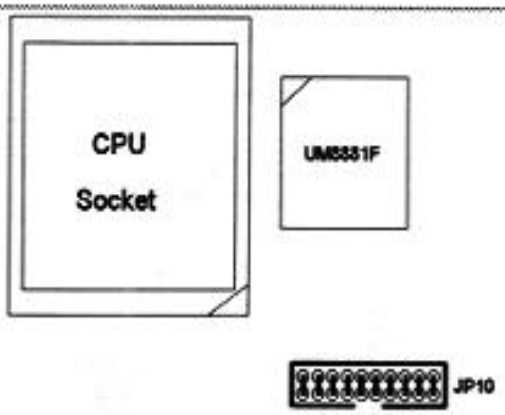


JP17

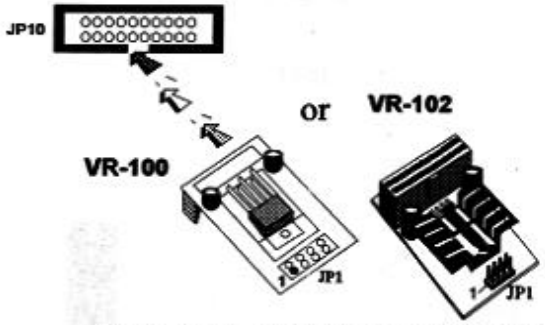


CPU Vcc Source

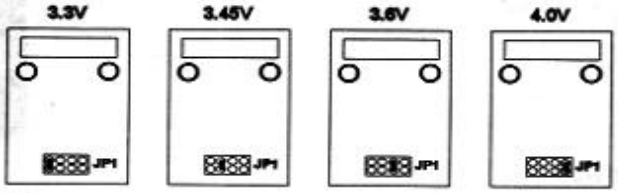
1. +5V



2. +3.3V/+3.45V/+3.6V/+4.0V

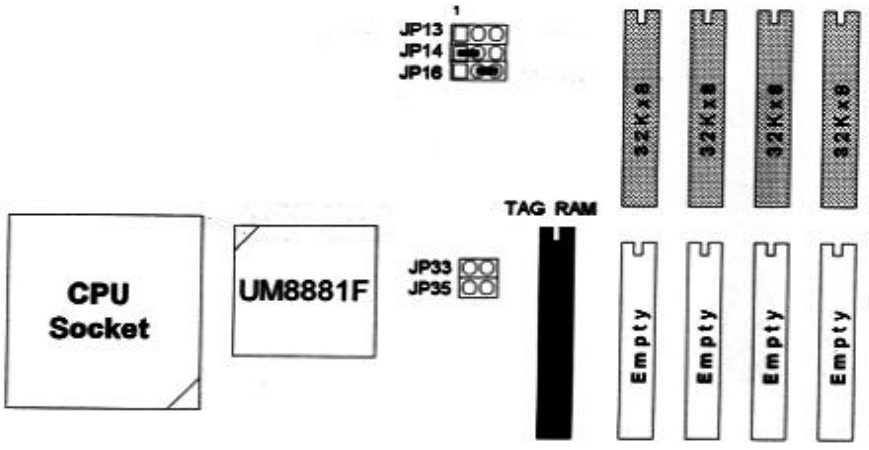


Jumper Settings for VR-100 and VR-102

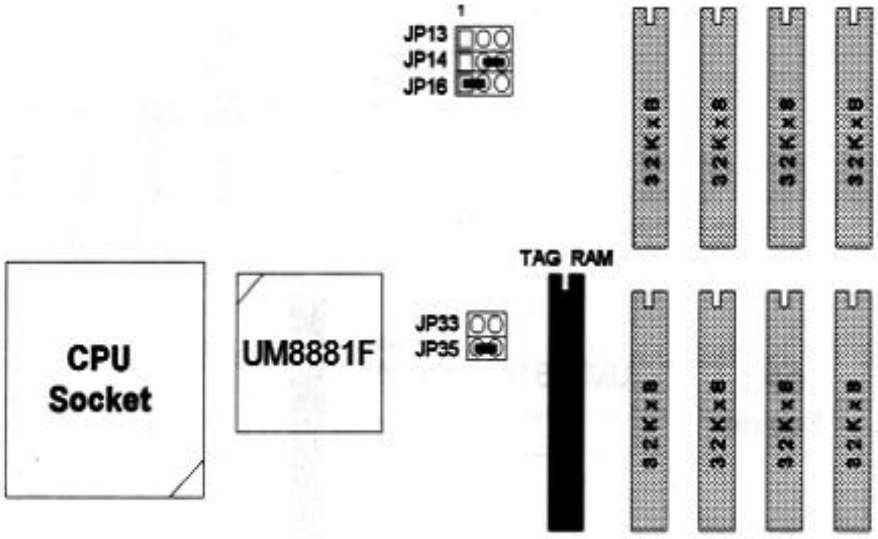


Cache Size

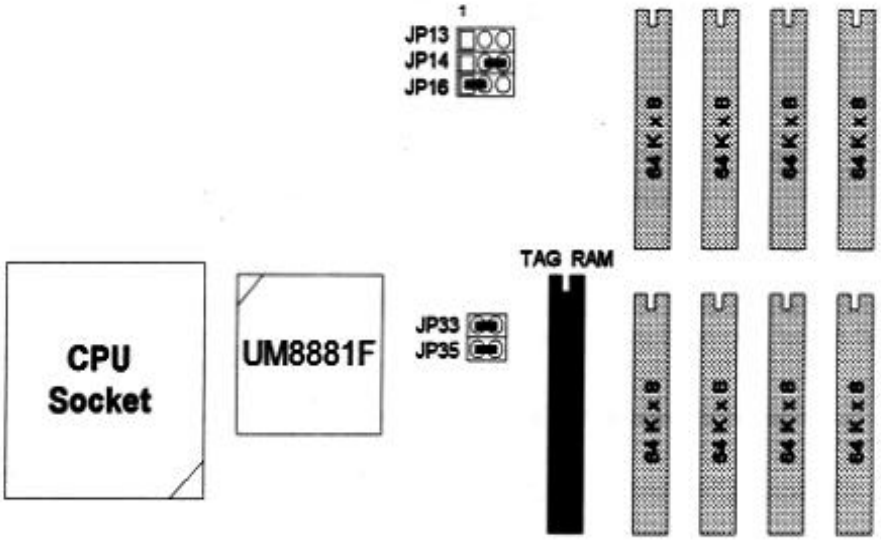
1. 128KB (with 32Kx8 SRAM)



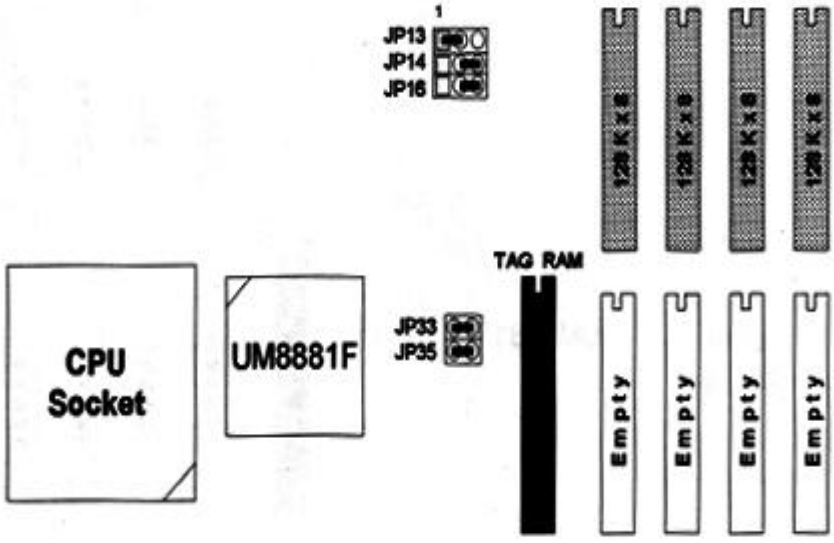
2. 256KB (with 32Kx8 SRAM)



3. 512KB (with 64Kx8 SRAM)



4. 512KB (with 128Kx8 SRAM)



4 Built-in BIOS Setup Program

4.1 Setup Program

Use the BIOS for UM8810P AIO to record changes in your hardware and to control its special features. The Setup program uses a number of menus in which you can specify changes to your hardware and turn the special features to on or off.

To enter the BIOS Setup program, turn on or reboot the system. Press the <DEL> key when the system displays the following message:

Press <DEL> to enter Setup. The following screen will then be displayed.

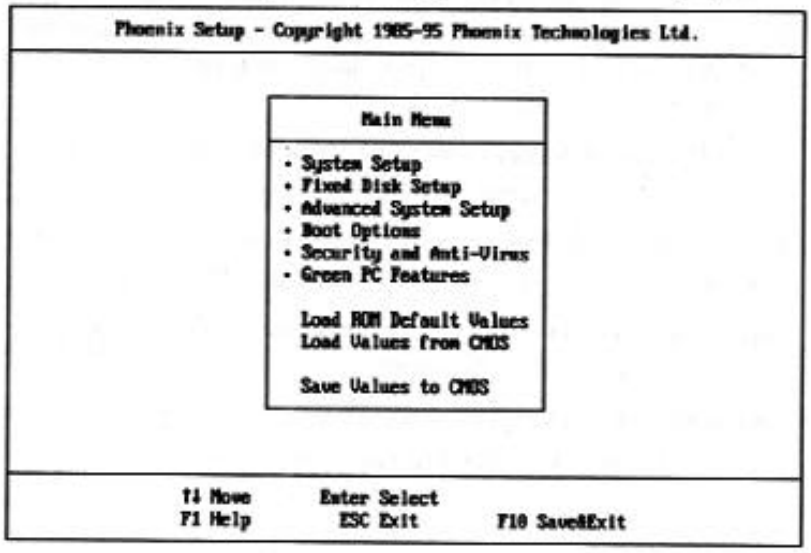


Figure 4-1. Setup Main Menu

It is highly recommended that you list down all the values of the Setup program before making any changes. Doing so will save a lot of time restoring the system back in the event of a configuration memory loss.

Note: *On-screen instructions at the bottom of each screen explain how to use the program.*

- **System Setup** - allows checking or modification of general configuration information.

- **Fixed Disk Setup** - allows for automatic detection of the hard disk drive type including the number of cylinders and heads, write pre-compensation time, read/write head landing zone, and number of sectors per track.
- **Advanced System Setup** - sets the various system options for the user, including the internal/external cache memory functions, ISA features, video and system shadowing etc.
- **Boot Options** - determines the sequence with which the system will proceed when booting the operating system.
- **Security and Anti-Virus** - provides special access for the user to enter the operating system and Setup program, and restricts unauthorized access to the floppy disk drives.
- **Green PC Features** - allows the timer settings for the Doze, Standby and Suspend modes. It also lists the SMI events by which the system wakes up from Standby or Suspend modes. If the device is not active, Power Management Function will slow down the CPU speed and both IDE and monitor will be put into Doze, Standby, or Suspend mode.
- **Load ROM Default Values** - allows for automatic configuration of all the above options using the values in the ROM BIOS table.
- **Load Values from CMOS** - allows for automatic configuration of all the above options using the previous values saved in the CMOS SRAM.
- **Save Values to CMOS** - saves the changes you have made in the Setup program, then quits and reboots the system.

To choose an item from the Setup main menu, move the cursor to appropriate line using the Up<↑> and Down<↓> arrow keys and press <Enter>.

4.2 System Setup

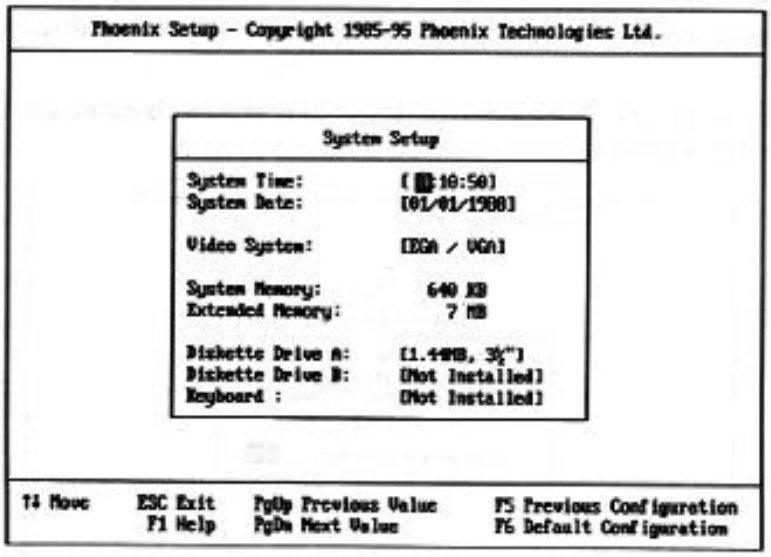


Figure 4-2. System Setup Screen

System Time- includes hour, minutes, seconds but only the values of hour and minute can be set.

System Date - allows manual setting of the electronic calendar on the mainboard.

Video System - specifies the display adapter installed.

System Memory and Extended Memory - displays important information about your system which includes the conventional and extended memory sizes. They are updated automatically by the Setup program according to the status detected by the BIOS self-test. This section of the System Setup screen is for viewing purpose only and manual modifications are not allowed.

Diskette Drives A: and B: - specify the capacity and format of the floppy drives installed in your system

Keyboard - selects ***"Installed" or "Not Installed"*** (default) for the keyboard during Power On Self Test. Normally, it should be set as ***"Installed"***.

4.3 Fixed Disk Setup

The Fixed Disk Setup provides auto configuration of the hard drive(s) installed in the system and setting of the operating system from which the IDE drive(s) will access data from.

After pressing the <Enter> key on this item on the main menu, the screen will display the following screen.

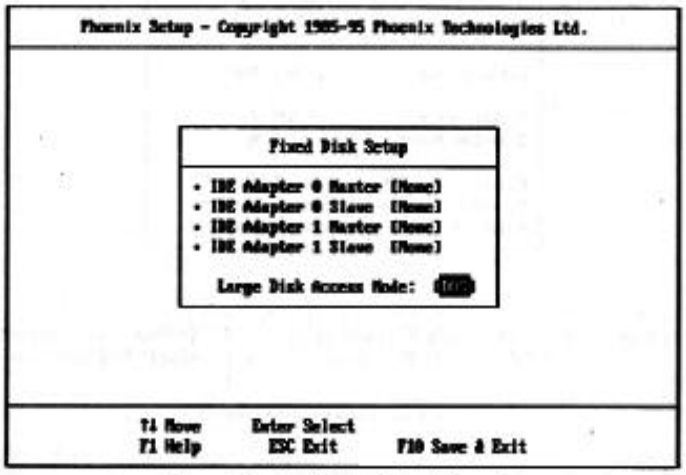


Figure 4-3. Fixed Disk Setup Screen 1

IDE Adapter 0(/1) Master(/Slave) - Once the program detects the type of hard disk installed on IDE adapter 0/1 Master/Slave, it will displays the following screen.

If the program fails to detect the hard disk(s) or the <Enter> key was not pressed in the Autotype Fixed Disk option, manual setting of the values is recommended.

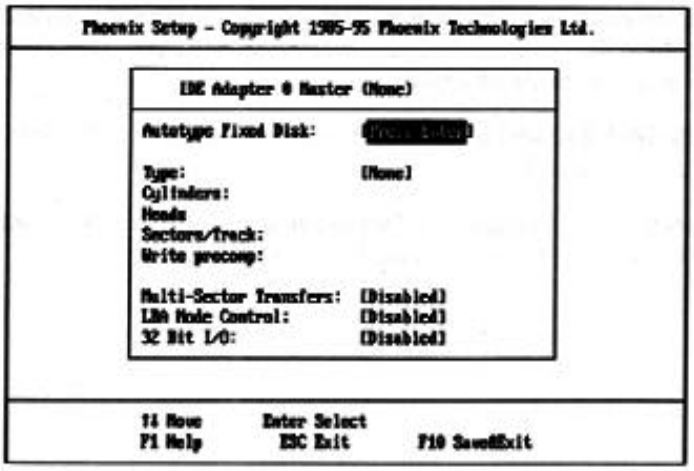


Figure 4-4. Fixed Disk Setup Screen 2

Large Disk Access mode - the default setting for this option is ***"DOS"*** for systems using the MS-DOS, otherwise select ***"OTHER."***

Autotype Fixed Disk - detects the type of fixed disk 0 and/or 1 installed. If successful, it fills the remaining fields on this menu.

Type - ***1 to 39*** fills in remaining fields with values for predefined disk drives. ***"User"*** allows the user to fill in the remaining fields. The available options are:

- 1,2,3....39
- Auto
- User
- None (default)

Cylinders - specifies the number of cylinders of the hard disk drive.

Heads - specifies the number of read/write heads of the hard disk drive.

Sectors/Track - provides the number of sectors per track defined for the hard disk drive.

Landing Zone - refers to the cylinder number where the disk drive heads (read/write) are positioned to when the disk drive is parked.

Write Precomp - refers the cylinder number, above which, disk drive operations require reduced write current. Also specifies the number of cylinder at which to change the write timing.

Multi-Sector Transfers - determines the number of sectors per block for multiple sector transfers. The available options are ***2/4/8/16 sectors***, ***"Auto"*** which refers to the size the disk returns when queried, and ***"Disabled"*** (default).

LBA Mode Control - turns on or off the hard disk drive's LBA Mode support. Some HDD specifications support LBA mode for data transfer. If your hard disk supports LBA mode, you should **enable** (on) this option otherwise ***disable*** (off) (default) it.

32 Bit I/O - refers to the setting of the 32-bit transfer rate of the hard disk drive(s). Normally, I/O transfer cycles are accessed in 16 bits however by enabling this option, system transfer cycles perform faster because the BIOS reads hard disk data twice before it sends request signals to the CPU. The default setting of this option is ***"Disabled."***

4.4 Advanced System Setup

The Advanced System Setup allows the user to program three main groups of parameters under the Advanced System Setup namely the System Timing, the Memory Shadow, and the Advanced chipset Control. This BIOS Setup parameter is designed for programmers who wish to fine tune the on-board chipset.

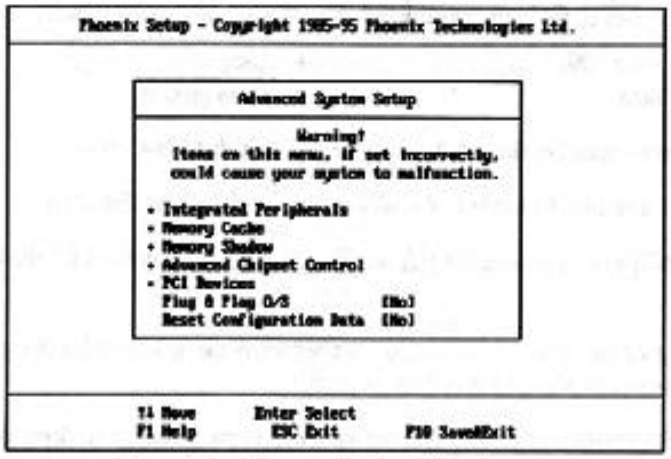


Figure 4-5. Advanced System Setup Screen

Plug & Play O/S - Select *" Yes"* to use a Plug & Play capable operating system; otherwise, select *" No"* (default).

Reset Configuration Data- Select *" Yes"* to clear the System Configuration Data; otherwise, select *"No"* (default).

Integrated Peripherals

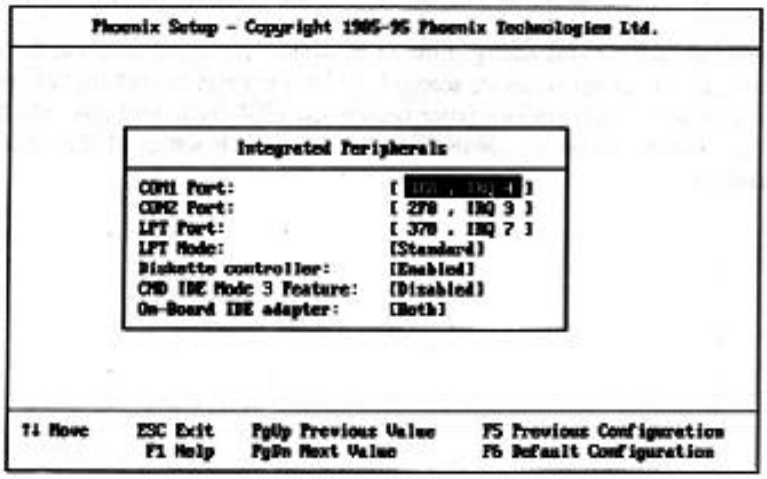


Figure 4-6. Integrated Peripherals

Selecting Integrated Peripherals from the Advanced System Setup main menu displays the above screen. The actual features displayed depend on the capabilities of your system's hardware.

COM 1/2 port - assign the addresses of the primary and secondary serial ports on-board. The available options are:

- 3F8, IRQ 4 (COM1 default)
- 2F8, IRQ 3 (COM2 default)
- 3E8, IRQ 4
- 2E8, IRQ 3
- Auto
- Disabled

LPT port - assigns the address of the parallel port on-board. This option also prevents the system from encountering any conflict when an add-on card with parallel port is installed in the future. The available options are:

- 278, IRQ 7
- 378, IRQ 7 (default)
- 3BC, IRQ 7
- 278, IRQ 5
- 378, IRQ 5
- 3BC, IRQ 5
- Auto
- Disabled

LPT Mode - sets the parallel port mode according to the mode of your parallel port device. The available options are:

- Standard (default)
- EPP
- ECP

Diskette controller - sets the diskette controller mode of the SMC FDC37C665 I/O chip to either on or off. The available options are:

- Enabled (default)
- Disabled

CMD IDE Mode 3 Feature - permits access into the option ROM at segment E800 of the system BIOS. The option ROM then programs the timing registers of the CMD PCI0640B into a faster speed (minimum of 180ns - to IDE Mode 3 hard drivers only), and turns on the Mode 3 feature of the installed hard drive. In the event that the installed hard disk drive does not support Mode 3, the option ROM will still program the timing registers to an acceptable rate compared to the chip's default timings. In general, this option enhances the hard drive's performance. The available options are:

- Disabled (default)
- Enabled

On-Board IDE adapter - enables or disables On-Board local bus IDE adapter. The available options are:

- Primary
- Both (default)
- Disabled ☆

☆: *Users have to set JP12 short (default) for "On-board IDE controller" (refer to Page 3-7, Table 3-1, Jumper Settings); otherwise, you can not disable the "On-Board IDE adapter" via the BIOS setup.*

Memory Cache

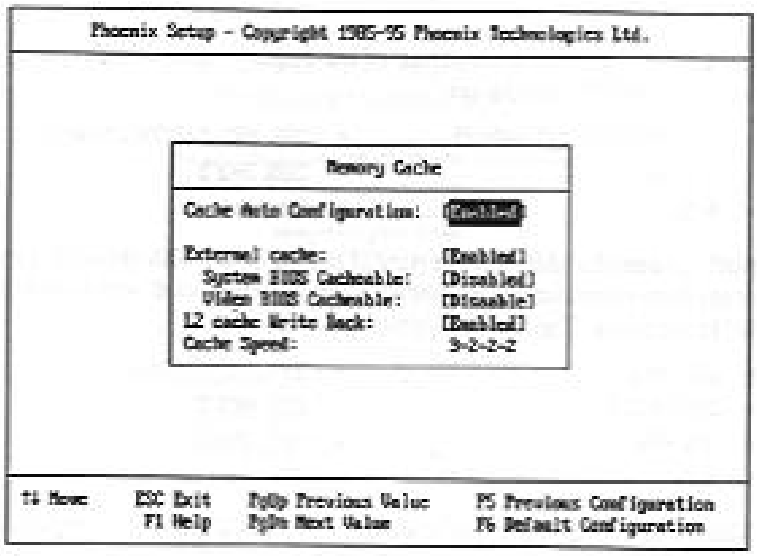


Figure 4-7. Memory Cache Screen

Selecting Memory Cache from the Advanced System Setup main menu displays the following screen.

Cache Auto Configuration - sets this item to ***enabled*** (default), system will decide the Cache Speed by the CPU speed. On the other hand, user has to assign the Cache Speed when set to ***disabled***.

External Cache - sets the operation of the secondary cache on-board.

- Enabled (default)
- Disabled

System BIOS Cacheable- must be ***enabled*** if user desires the system BIOS be cacheable. Otherwise, sets this option to ***disabled*** (default).

Video BIOS Cacheable - must be ***enabled*** if user desires the video BIOS be cacheable. Otherwise, sets this option to ***disabled*** (default).

L2 Cache Write Back - to ***enable*** (default) or ***disable*** the write back function for secondary cache memory .

Cache Speed - determines the number of cycle times to be inserted when CPU reads data to SRAM. The setting depends on the speed of the CPU and SRAM. If the CPU is of high speed, the time required by SRAM to process data will need an extension, with the exception of some SRAMs that are fast enough to catch up with the speed of the CPU. The available options are:

- 3-2-2-2
- 2-2-2-2
- 3-1-1-1
- 2-1-1-1

Memory Shadow

Selecting Memory Shadow from the Advanced System Setup main menu displays the following screen. The actual features displayed depend on the capabilities of your system's hardware.

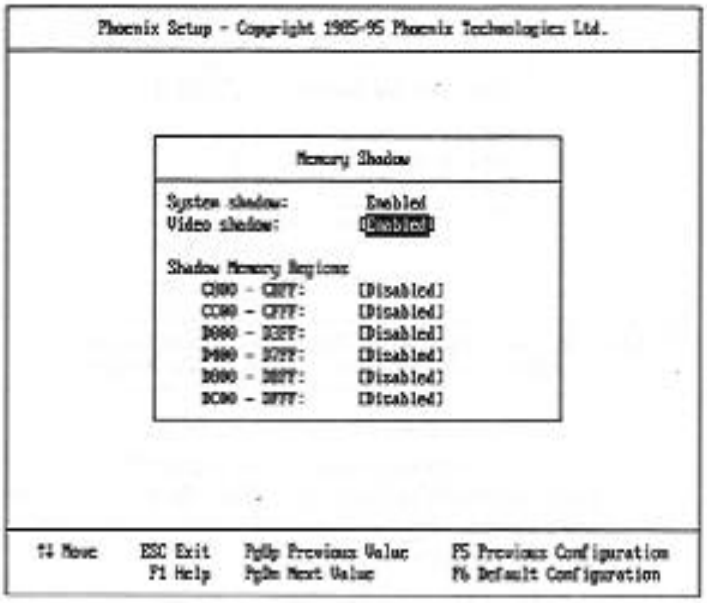


Figure 4-8. Memory Shadow Screen

System shadow - allows shadowing of the system BIOS and improves the system performance. This option is always set as *"Enabled."*

Video shadow - sets the mode of the system's video BIOS shadowing mode.

- Enabled (default)
- Disabled

Shadow Memory Regions - shadows the option ROM located in the specified blocks of memory, and can improve the system performance.

Note: *Some option ROMs do not work properly when shadowed.*

Advanced Chipset Control

Selecting Advanced Chipset Control from the Advanced System Setup main menu displays the following screen. Technicians use this menu when changing values in the chipset register and optimizing the system's performance.

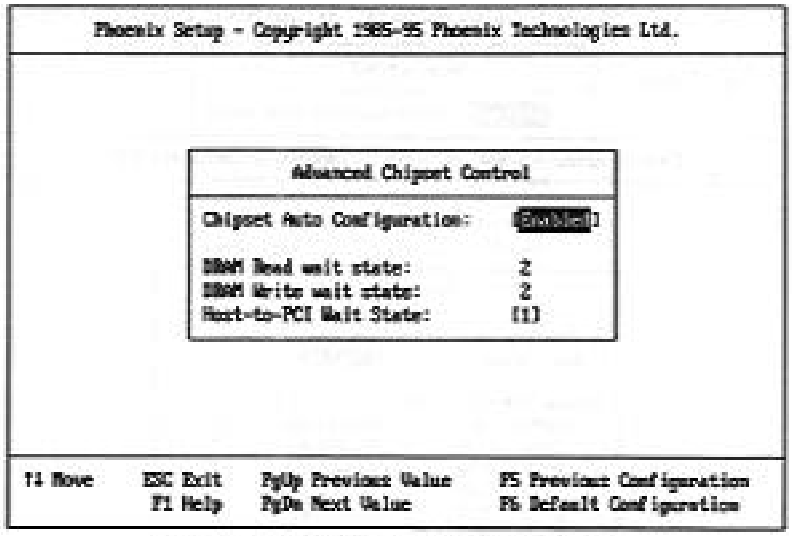


Figure 4-9. Advanced Chipset Control Screen

Note: *The contents of this menu depends on the chipset installed on your mainboard, and chipsets vary widely. Consult your dealer or the <F1> help screens before changing the items on this menu. Incorrect settings can cause your system to malfunction.*

Chipset Auto Configuration -If the option is ***"Enabled"***, the parameters of **"DRAM Read Wait State"** and **"DRAM Write Wait State"** will be useless. If the options is ***"Disabled"***, the users seleted values for the above parameters, individually described below, will be used.

DRAM Read wait state - determines the number of wait states to be inserted when the CPU reads data into the local DRAM. Fewer wait states are recommended to improve the system performance.

- 0
- 1
- 2 (default)
- 3

DRAM Write wait state - determines the number of wait states to be inserted when the CPU writes data into the local DRAM. Fewer wait states are recommended to improve the system performance.

- 0
- 1
- 2 (default)
- 3

Host-to-PCI Wait State - pertains to the delay time before the CPU (Host Bus) writes data into the PCI Bus. The available options are:

- 0
- 1 (default)

PCI Devices

Selecting PCI Devices from the Advanced System Setup main menu displays the following screen. Technicians use this menu when changing values in the chipset register and optimizing the system's performance.

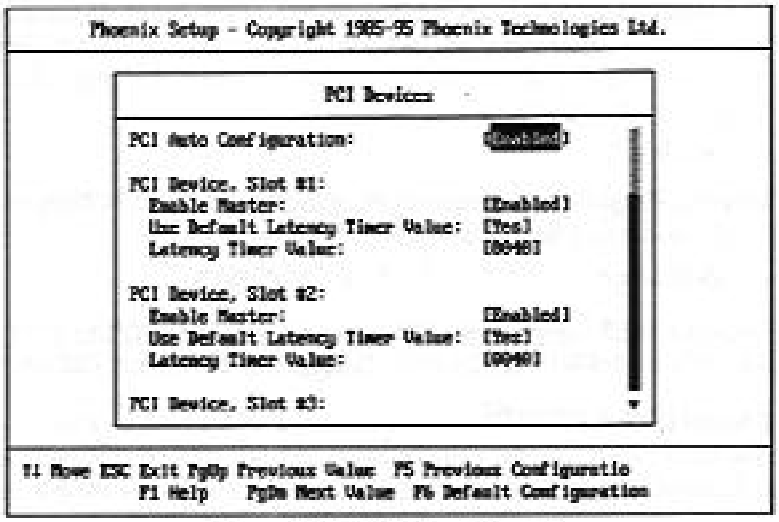


Figure 4-10. PCI Devices Screen 1

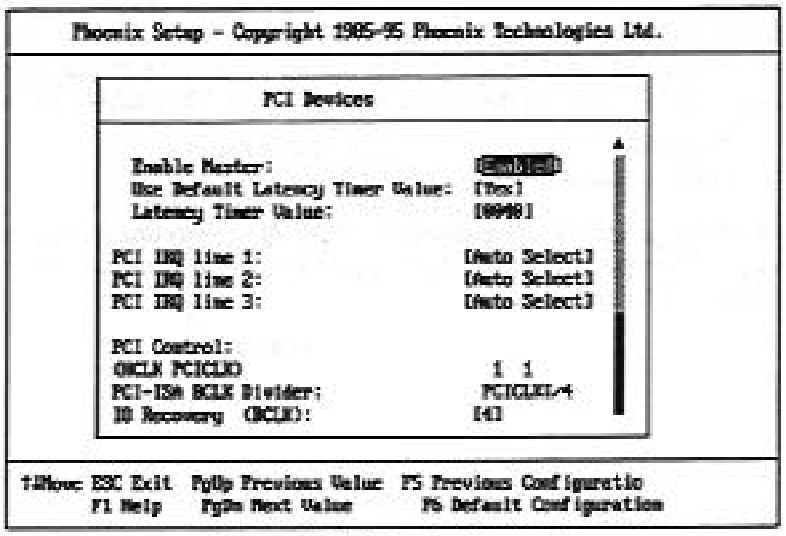


Figure 4-11. PCI Devices Screen 2

PCI Auto Configuration -If the option is ***"Enabled"***, the parameters of ***"PCI Control*: (HCLK PCICLK)" and *"PCI-ISA BCLK Divider"*** will be useless. If the options is ***"Disabled"***, the users seleted values for the above parameters will be used.

PCI Device, Slot 1/2/3 :

Enable Master - enables selected device as a PCI Bus master and checks whether the PCI card is a master or not.

- Enabled (default)
- Disabled

Use Default Latency Timer Value - determines whether or not the default value for the Latency Timer will be loaded or the succeeding Latency Timer Value will be used. If set to ***"Yes"***, no further programming is required in the Latency Timer Value option.

- Yes (default)
- No

Latency Timer Value - pertains to the maximum number of PCI Bus clocks that the master may burst. The available options are:

- 0040 (default)
- 0000 - 00F8

PCI IRQ line 1/2/3- program the IRQ associated with PCI IRQ line 1/2/3. The available IRQs are 3/5/9/10/11/12/14/15 , ***Disabled*** and ***Auto Select.*** (default)

PCI Control (HCLK PCICLK) - indicates the speed of the clock control bits on the UM8886 ISA Bridge Controller chip. Selecting "AUTO" (default) allows the system to determine the best clock speed for both PCI and Host buses. The available options are:

- 1 1 (default)
- 1 1/2

PCI-ISA BCLK Divider - determines the PCI Bus clock input to the ISA Bus Controller (UM8886). This cycle time is then utilized by UM8886 to assemble or disassemble current unclaimed PCI memory cycles to the ISA Bus. This operation depends on the data size of the PCI cycle and the bus size of the ISA slave. The available options are:

- PCICLKI/2
- PCICLKI/3
- PCICLKI/4 (default)

I/O Recovery - used to specify the 16-bit I/O command recovery time for some add-on cards that cannot work properly. It is recommended to set this option at a "low" value to enhance the I/O performance.

- 2
- 4 (default)
- 8
- 12

4.5 Boot Options

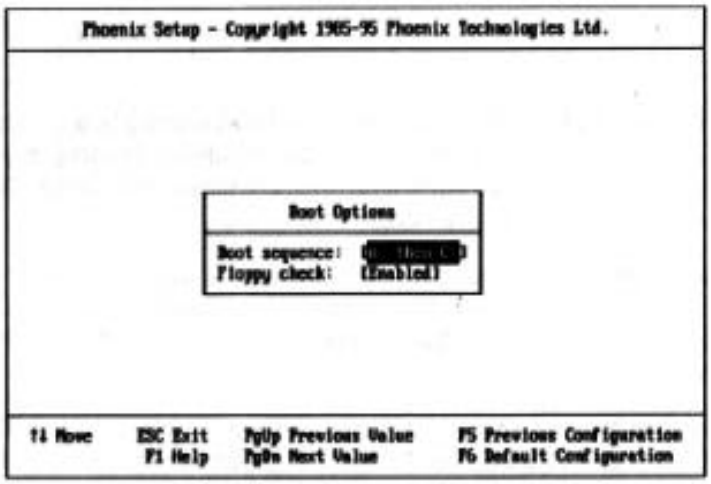


Figure 4-12. Boot Options Screen

Boot sequence - sets the sequence from where the BIOS will attempt to load the operating system. The options are:

- A: then C: (default)
- C: then A:
- C: only

Floppy check - allows the system to search and verify the floppy drives during boot. The default value for this option is ***"Enabled."***

4.6 Security and Anti-Virus

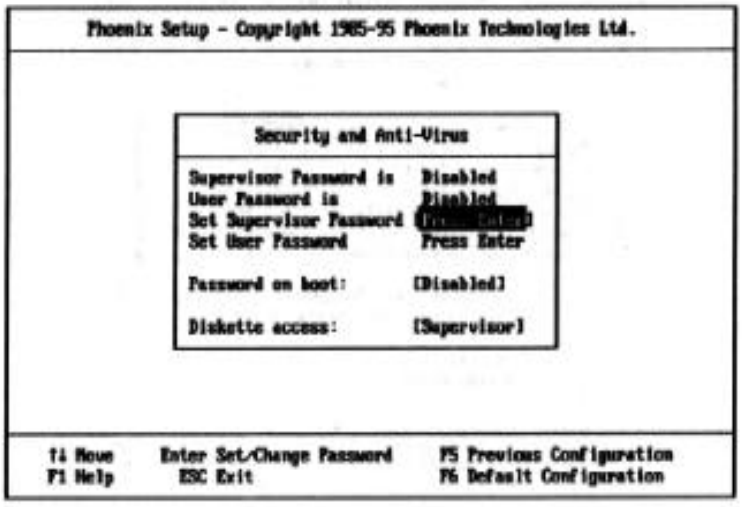


Figure 4-13. Security and Anti-Virus Screen

Supervisor Password is - shows whether the supervisor password is ***"Enabled"*** or ***"Disabled"*** (default).

User Password is - shows whether the user password is ***"Enabled"*** or ***"Disabled"*** (default).

Set Supervisor Password - requires a password when entering Setup. the passwords are not case sensitive. Pressing the <Enter> key will display a message requiring for the supervisor password which can be up to seven alphanumeric characters. This option also gives full access to the Setup menus.

Set User Password - Pressing the <Enter> key will display a message requiring for the user password which can be up to seven alphanumeric characters. This option also gives restricted access to the Setup menus and requires the setting of the Supervisor Password first.

Password on boot - determines whether the password is required on boot. The option needs the setting of the Supervisor Password. If Supervisor Password is set and this option is ***"Disabled"*** (default), BIOS assumes that the user is booting.

Diskette access - restricts the use of floppy drives only to the supervisor when set as ***"Supervisor"*** (default). Also, choosing *Supervisor* for this option will require the setting of the Supervisor Password. Setting it as ***"User"*** allows access to the floppy drives at any time.

4.7 Green PC Features

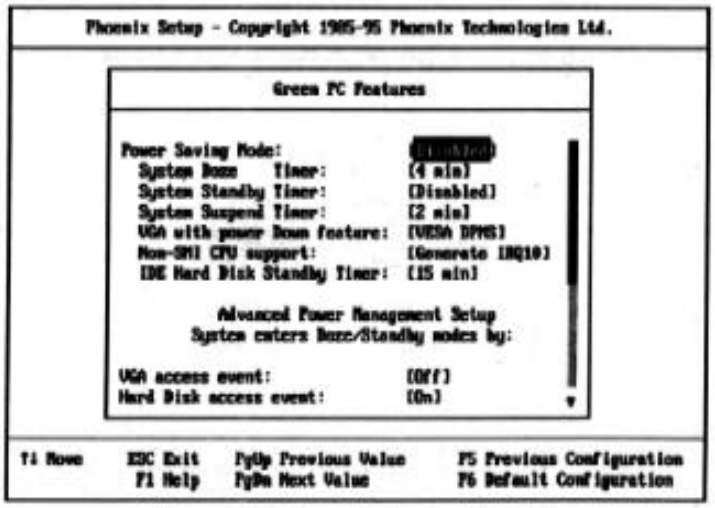


Figure 4-14. Green PC Features Screen 1

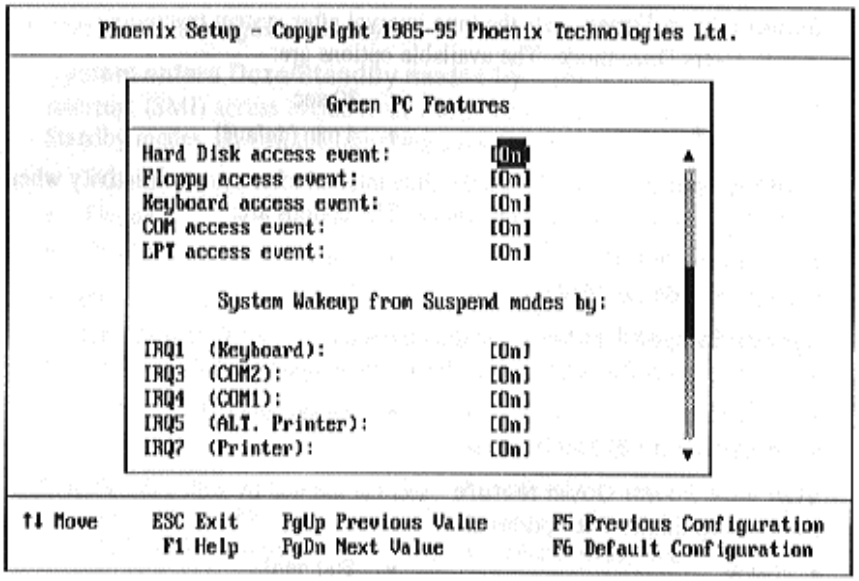


Figure 4-15. Green PC Features Screen 2

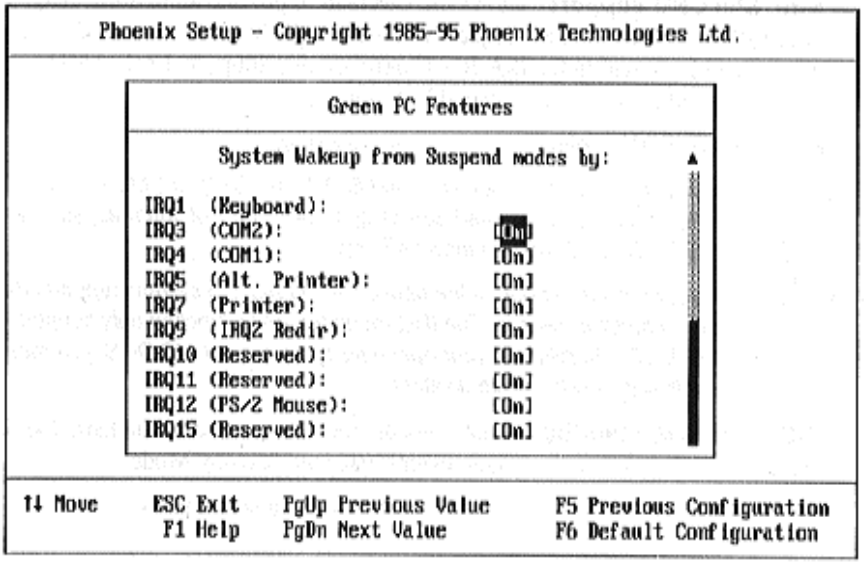


Figure 4-16. Green PC Features Screen 3

Power Saving Mode - enables or disables the power saving mode feature of the chipset. Once enabled, the values of the following options can be set.

- Enabled
- Disabled **(default)**

System Doze Timer - sets the time interval after system inactivity when the system enters Doze mode. The available options are:

- 15 sec
- 30 sec
- 1/2/8 sec
- 4 min (default)

System Standby Timer - sets the time interval after system inactivity when the system events enters Standby mode. The options are:

- Disabled (default)
- 2 mins
- 4/8/16/32/64/128/256/512 mins

System Suspend Timer - sets the time interval after system inactivity when the system enters Suspend mode. The available options are:

- Disabled
- 2 mins (default)
- 4/8/16/32/64/128/256/512 mins

VGA with Power Down feature - sets the method by which the VGA chip enters Sleep mode. The options are:

- None
- Standard
- VESA DPMS VGA (default)

Non_SMI CPU support - allows the UM8886 to provide an optional IRQ15 or IRQ10 to replace the SMI request when a non-SMM CPU is used. The flexible control logic within the ISA Bus Controller chip supports Intel, AMD, and Cyrix SMM-like signals. The available options are:

- Generate IRQ10 (default)
- Generate IRQ15

Note 1: *If your CPU is Intel S-series, Cx486S (S2, DX, DX2) or UMC U5 series CPU, it can support varied operating systems for SMI features, such as, MS-DOS, OS/2, and Windows NT, etc.*

Note 2: *If your CPU is not one of the above CPU types, the system supports IRQ green-function service. The IRQ mode for green-function only supports MS-DOS, Therefore, if your operating system is not MS-DOS, you must set Power Saving Mode disabled.*

IDE Hard Disk Standby Timer - sets the time interval, after the hard disk is detected inactive, when the system events enter the Standby Mode.

- Disabled
- 1 - 15 (default) min.

Advanced Power Management Setup

System enters Doze/Standby modes by - lists the System Management Interrupt (SMI) access events from which the system wakes up from Doze or Standby modes. Switch the following parameters to ***"On"*** or ***"Off."***

- VGA
- Floopy
- COM
- Hard Disk
- Keyboard
- LPT

System Wakeup from Suspend modes by - lists the SMI access events from which the system wakes up from Suspend mode. Switch the following parameters to ***"On"*** or ***"Off."***

- IRQ1 (Keyboard)
- IRQ4 (COM1)
- IRQ7 (Printer)
- IRQ10 (Reserved)
- IRQ12 (PS/2 mouse)
- IRQ3 (COM2)
- IRQ5 (Alt. printer)
- IRQ9 (IRQ2 Redir)
- IRQ11 (Reserved)
- IRQ15 (Reserved)

4.8 Load ROM Default Values

Press "**Load ROM Default Values**" in the screen of "Main Menu" (Figure 4-1). After loading the default values, press <Enter> to continue.

If the BIOS program detects a problem in the integrity of the CMOS during bootup, it will display a message asking you to either press the <DEL> key to run Setup or the <F1> key to resume booting. This probably means that the CMOS values have been corrupted or modified incorrectly, perhaps by an application program that changes data stored in CMOS.

Press the <F1> key to resume the boot or <DEL> to run Setup with the ROM default values already loaded in the menus. You can make other changes before saving the values to CMOS.

4.9 Load Values from CMOS

If you change your mind about your selections and have not yet saved the values to CMOS, you can restore the values you previously saved to CMOS. Then, select "**Load Values from CMOS**" on the Main Menu (Figure 4-1).

4.10 Save Values to CMOS

After making your selections on the Setup menus, always select "**Save Values to CMOS**" in order to make them operative. The screen will then display a message asking you whether you would like to *save and exit* or not. Unlike standard RAM memory, CMOS RAM is sustained by an on-board battery and stays on after you turn your system off.

If you attempt to exit without saving, the program will ask you if you would like to save the changes made before exiting.

During bootup, BIOS for the chipset attempts to load the values you saved in the CMOS RAM. If the values saved in the CMOS cause the system boot to fail, reboot and press the <DEL> key to enter Setup. In Setup, you may load the ROM default values (as described in the section 4.8) or try to change the values that caused the boot to fail.

If you made changes to the CMOS values and then press the <ESC> key, the program will prompt you whether you would like to Quit without saving or not.

Appendix A

Setting the System Speed

There are two methods in changing the system processing speed of your UM8810P AIO. The first method is implemented through the hardware turbo switch J11. The second method, software setting, requires the simultaneous pressing of several keys on the keyboard known as hot-keys. You may change the speed during normal operate while working with your application program.

The hot-key combinates for setting the system speed on your UM8810P AIO are shown on the following diagrams.

- **High Speed**

- **Low Speed**