UM8810P-AIO

U S E R ' S A N MANUAL REV . 1 . 0

UM8810P-AIO

User's Manual

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1 Introduction

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, P24D, DX4, P24T
	AMD486 - DX/DX2/DXL/DXL2
	Cyrix - Cx486S/Cx486DX/DX2, 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 W/B and W/T policies are supported.
	Cache sizes options is 128/256/512KB
Memory Type:	Supports 4 SIMMs with memory size up to 64MB
	All support double side SIMM.
System BIOS:	Phoenix BIOS (128KB EPROM or Flash BIOS)
Slots :	Three 16-bit ISA slots
	One shared slot (including one 16-bit ISA slot and one PCI slot PCI1).
	Two PCI slots
I/O Connectors:	Two serial ports (16550 UART compatible)
	One parallel port
	One FDC connector
	Two PCI IDE connectors (Supports four IDE drives)
	One AT keyboard connector
Board:	4 layers
Form Factor:	3/4 Baby AT Size

1

2 System Memory

2.1 Memory Configurations

Contrains---The type of SIMM1/SIMM2 must be same. (if co-exist)
             The type of SIMM3/SIMM4 must be same. (if co-exist)

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

The following table lists all the possible DRAM of SIMM1/SIMM2 module
combinations.

SIMM1	SIMM2	Group Size
1 Mx36 single	None	4MB
None	1Mx36 single	4MB
1 Mx36 single	1Mx36 single	8MB
1 Mx36 double	None	8MB
None	1 Mx36 double	8MB
1 Mx36 double	1Mx36 double	16MB
2Mx36 single	None	8MB
None	2Mx36 single	8MB
2Mx36 single	2Mx 36 single	16MB
2Mx36 double	None	16MB
None	2Mx36 double	16MB
2Mx36 double	2Mx36 double	32MB
4Mx36 single	None	16MB
None	4Mx36 single	16MB
4Mx36 single	4Mx 36 single	32MB

Table 2- 1.   Memory Bank Configurations and Requirements
Continued.....

2

The following lists the illegal sample of SIMM1/SIMM2 module combinations.

SIMM 1	SIMM 2	Group Size
1 Mx36 single	1Mx36 double	(Single/double)
1 Mx36 double	1 Mx36 single	(double/single)
4Mx36 single	1 Mx36 single	(4M/1M)
1 Mx36 single	4Mx36 single	(1M/4M)

Note: The minimum gruop size of UM8810P-AIO is 2MB (except zero). If you use single side 256Kx36 SIMMs for UM8810P AIO, you must put two or four SIMMs on the mainboard.

2.2 Cache Memory Configuration

Option	TAG RAM (U31)	Cache Bank0 (U20, U21, U22, U23)	Cache Bank1 (U32, U33, U34, U35)
128K	32Kx8	32Kx8	Open
256K	32Kx8	32Kx8	32Kx8
512K	32Kx8	64Kx8	64Kx8
512K	32Kx8	128Kx8	Open

Table 2-2. Secondary Cache Memory Configurations

3

3 Jumper Settings and Connectors

3.1 Setting the Jumpers

The table below summarizes the appropriate functions and settings of each jumper on the UM8810P-AIO.

Function		Jumper Settings
CPU Type	Intel 80486DX/DX2 AMD Am486DX/DX2	JP1 8 open JP19 open JP20 short 1-2, 3-4 JP21 short 1-2 JP22 open JP23 open JP24 short I-2 JP27 open JP28 open JP31 short I-2 JP36 open JP37 short I-2 JP38 short I-2
	Intel 80487SX Overdrive (P23T)	JP18 open JP19 open JP20 short I-2, 3-4 JP21 short 2-3 JP22 open JP23 open JP24 short I-2 JP27 open JP28 open JP31 short 1-2 JP36 open JP37 short 1-2 JP38 short 1-2
	Intel 80486SX	JP1 8 open JP19 open JP20 short 2-3 JP21 open JP22 open JP23 open JP24 short 1-2 JP27 open JP28 open JP31 short I-2 JP36 open JP37 short I-2 JP38 short I-2

Table 3-1. Jumper Settings (Continued.....)

4

Function		Jumper Settings
CPU Type	**Intel 80486DX/DX2 (SL Enhance)**	**JP18** open **JP19** open **JP20** short I-2, 3-4 **JP21** short I-2 **JP22** short I-2 **JP23** open **JP24** short 2-3 **JP27** short 2-3, 4-5 **JP28** open **JP31** short I-2 **JP36** short I-2 **JP37** short I-2 **JP38** short I-2
	Intel 80486 SX/SX2 (SL Enhance)	**JP18** open **JP19** open **JP20** short 2-3 **JP21** open **JP22** short I-2 **JP23** open **JP24** short 2-3 **JP27** short 2-3, 4-5 **JP28** open **JP31** short I-2 **JP36** short I-2 **JP37** short I-2 **JP38** short I-2
	Intel 80486DX2 (P24D L1-WB)	**JP18** short **JP19** open **JP20** short I-2, 3-4 **JP21** short I-2 **JP22** short I-2, 3-4 **JP23** open **JP24** short 2-3 **JP27** short 2-3, 4-5 **JP28** open **JP31** short I-2 **JP36** short I-2 **JP37** short I-2 **JP38** short I-2

Table 3-1. Jumper Settings (Continued.. ...)

Function		Jumper Settings
CPU Type	Intel 80486DX4	JP18 open JP19 open JP20 short I-2, 3-4 JP21 short I-2 JP22 short I-2 JP23 open JP24 short 2-3 JP27 short 2-3, 4-5 JP28 open JP31 short 3-4 JP36 short I-2 JP37 short I-2 JP38 short I-2
	P24T	JP19 open JP20 short I-2, 3-4 JP21 short 2-3 JP22 short I-2 JP23 short I-2 JP24 short 2-3 JP27 short 2-3, 4-5 JP28 short 2-3 JP31 short I-2 JP36 short I-2 JP37 short I-2 JP38 short I-2
	Cyrix Cx486DX/DX2 (M7)	JP18 open JP19 short 2-3 JP20 short I-2, 3-4 JP21 short I-2 JP22 short 2-3 JP23 short 2-3 JP24 short 2-3 JP27 short I-2, 3-4 JP28 short 2-3 JP31 short I-2 JP36 short I-2 JP37 short I-2 JP38 short 2-3

Table 3-1. Jumper Settings (Continued. . . .)

Function		Jumper Settings
CPU Type	Cyrix Cx486S(M6)	JP18 open JP19 short 2-3 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 I-2 JP31 short I-2 JP36 short I-2 JP37 short I-2 JP38 short 2-3
	AMD Am486DXL/DXL2 UMC U5DS-SUPER	JP18 open JP19 open JP20 short I-2, 3-4 JP21 short I-2, 3-4 JP22 open JP23 open JP24 short I-2 JP27 open JP28 short 3-4 JP31 short I-2 JP36 short 2-3 JP37 short 2-3 JP38 short I-2
	UMC U5S-SUPER	JP18 open JP19 open JP20 short 2-3 JP21 short I-2, 3-4 JP22 open JP23 open JP24 short I-2 JP27 open JP28 short 3-4 JP31 short 1-2 JP36 short 2-3 JP37 short 2-3 JP38 short I-2
Cache Size	128KB - with 32Kx8	JP13 open JP14 short 1-2 JP16 short 2-3 JP33 open JP35 open
	256KB (default) - with 32Kx8	JP13 open JP14 short 2-3 JP16 short I-2 JP33 open JP35 short

Table 3-1. Jumper Settings (Continued.. ...)

Function		Jumper Settings
Cache Size	512KB - with 64Kx8	JP13 open JP14 short 2-3 JP1 6 short I-2 JP33 open JP35 short
	512KB - with 128Kx8	JP1 3 short I-2 JP1 4 short 2-3 JP1 6 short 2-3 JP33 short JP35 short
80486 DX4	3X CPU CLK	JP29 open
	2X CPU CLK	JP29 short
CPU CLK Select	25MHz	JP1 7 short 1-2 JP1 7 open 3-4, 5-6
	33MHz	JP1 7 short I-2, 3-4, 5-6
	40MHz	JP1 7 short I-2, 3-4 JP1 7 open 5-6
	50MHz	JP1 7 short 5-6 JP1 7 open I-2, 3-4
On-Board 37C665	Enable (default)	JP8 short I-2
	Disable	JP8 short 2-3
System ROM Selection	EPROM	JP6 open
	Flash ROM + 5Vcc programmable	JP6 short I-2
	Flash ROM + 12Vcc programmable	JP6 short 2-3
Parallel Port IRQ Selection	IRQ7 (default)	JP3 short I-2
	IRQ5	JP3 short 2-3
Parallel Port PRQ & DACK selection	DRQ1, DACK1	JP4 short 2-3 JP5 short I-2
	DRQ3, DACK3 (default)	JP4 short 1-2 JP5 short 2-3
On-Board IDE Controller	Enabled	JP1 2 open
	Disabled	JP1 2 short 5-6

Table 3-1. Jumper Settings

Note: *JP41, JP44 short for P24T only, others open* `(default).`

3.2 Connectors

There are several connectors located on the UM8810P-AIO. They are used to connect with some peripheral devices to enhance the operating perform- ance of the system. Refer to Figure 3.1 for the positions of all the connec- tors on the mainboard.

The following table lists the connectors on the UM8810P-AIO.

Connector	Function
PSI	Power Connector
J1	Serial Port2 Connector
J2	Serial Port1 Connector
J3	Parallel Port Connector
J4	PCI 1 Slot
J5	PCI 2 Slot
J6	PCI 3 Slot
J7	PCI IDE Primary Connector
J8	PCI IDE Secondary
J9	ISA FDD Connector
J10	Turbo Switch
J11	Turbo LED
J12	Reset Switch
J13	Speaker Connector
J14	Power LED & Keylock Connector
J15	Suspend Switch
J16	Primary PCI IDE HDD LED

Table 3-2. Mainboard Connectors

3.3 Board Layout
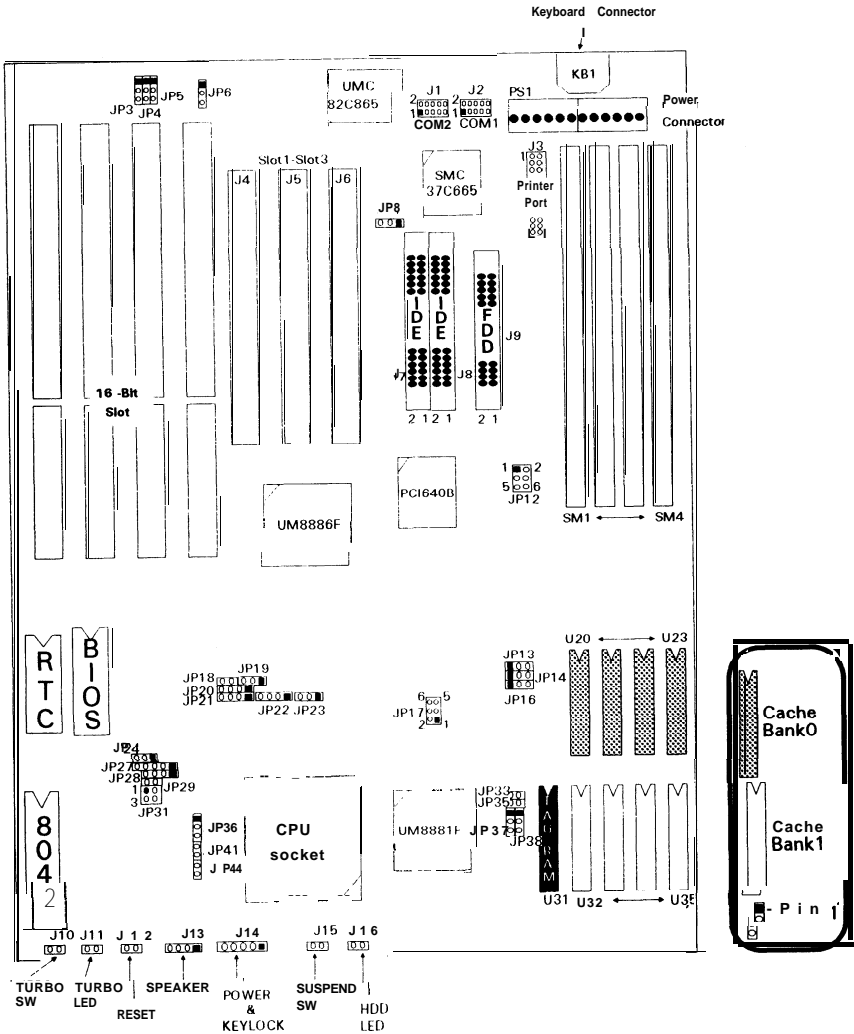
Figure 3-1. UM881 OP-Al0 Mainboard Layout

3.4 Graphical Descriptions of Jumper Settings

1

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

1

means that this jumper is set as "open."
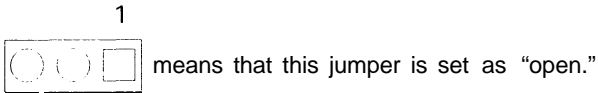
CPU Type

1. Intel 804860X DX2 AMD Am486DX/DX2 CPU installed on-board

JP18 JP19

JP20
JP21

1 **JP22** **JP23**

JP24

JP27
JP28

JP29
JP31

JP36

CPU

Socket

UM8881F

JP37 JP38

T

A

G
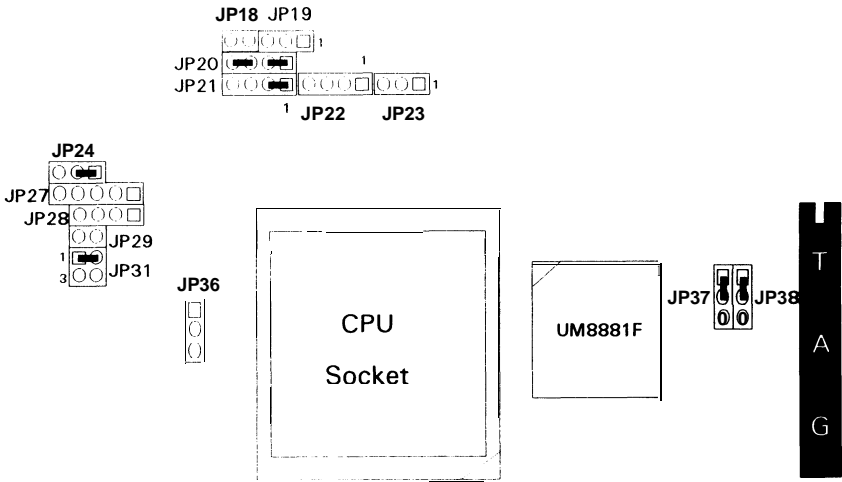
2. Intel 80487SX Overdrive (P23T)
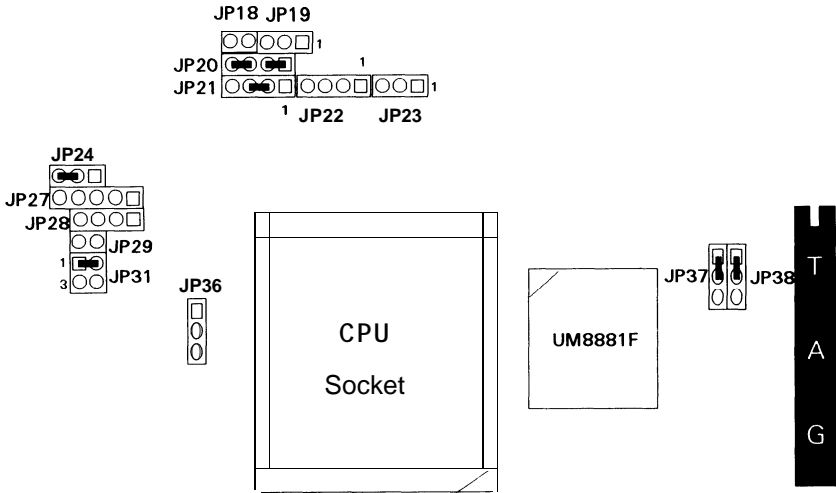
3. Intel 80486SX CPU installed on-board
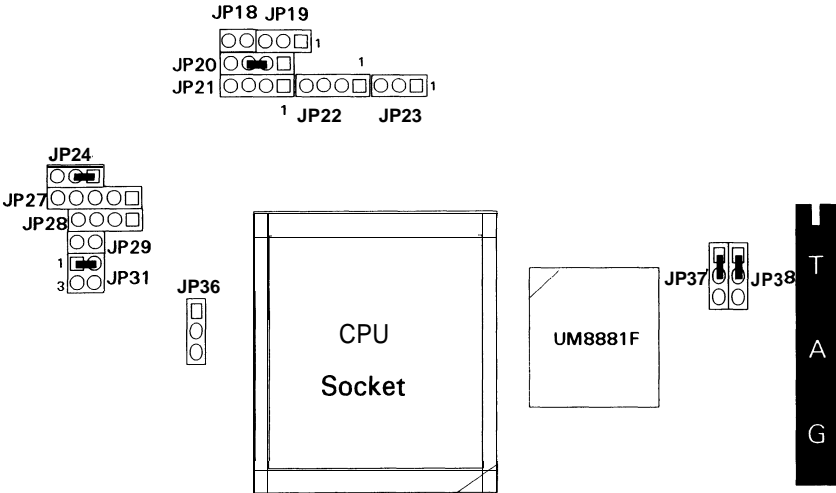
4. Intel 80486DX/DX2 (SL Enhance) CPU installed on-board

JP18 JP19
JP20
JP21
JP22 JP23

JP24
JP27
JP28
JP29
JP31
JP36

CPU
Socket

UM8881 F

JP37 JP38

T

A

G

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

JP18 JP19
JP20
JP21
JP22 JP23

JP24
JP27
JP28
JP29
JP31
JP36

CPU
Socket

UM8881F

JP37 JP38

T

A

G

13
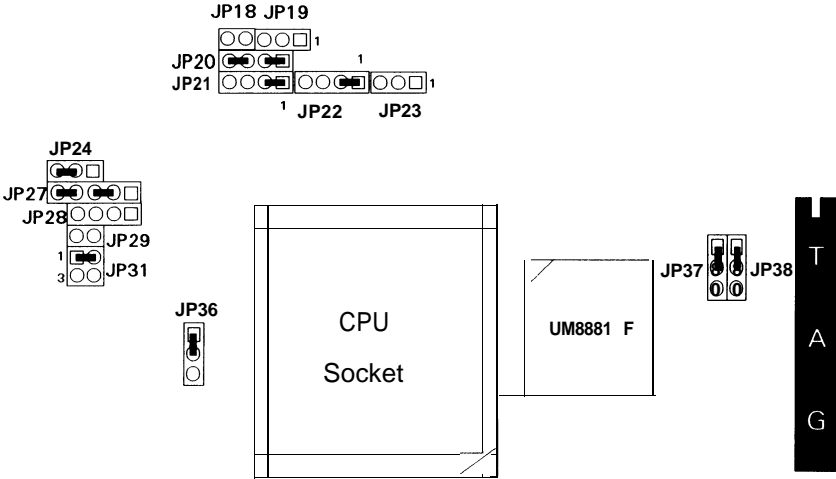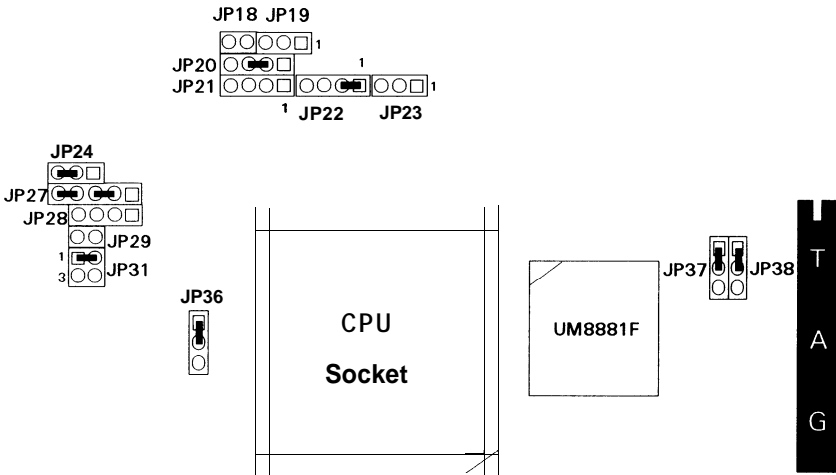
6. Intel 80486DX2(P24D LI-WB) CPU installed on-board
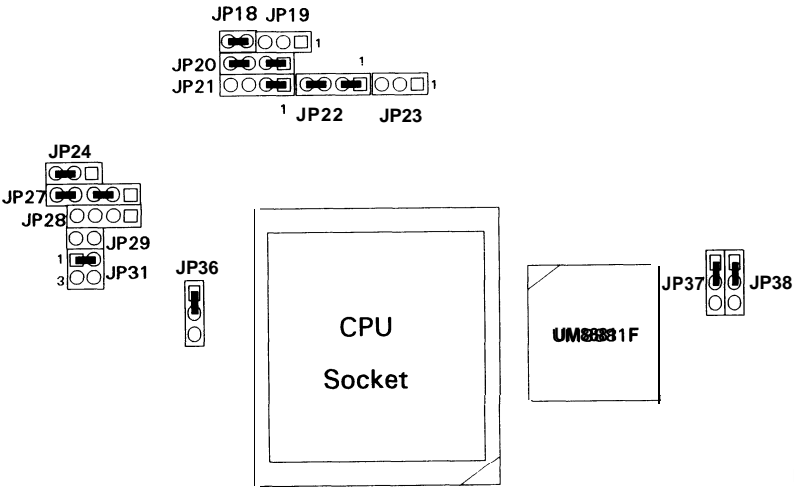
7. Intel 80486DX4 CPU installed on-board

14

8.P24T CPU installed on-board

```
        JP18  JP19
       ┌─────────┐ 1
JP20  ┌────────┐
JP21  └────────┘ ┌───────┐ ┌──────┐ 1
           1    JP22      JP23
```

```
JP24
JP27
JP28
      JP29
 1
 3    JP31    JP36
              JP41
              JP44
```

CPU Socket

UM8881F

JP37 JP38

T A G
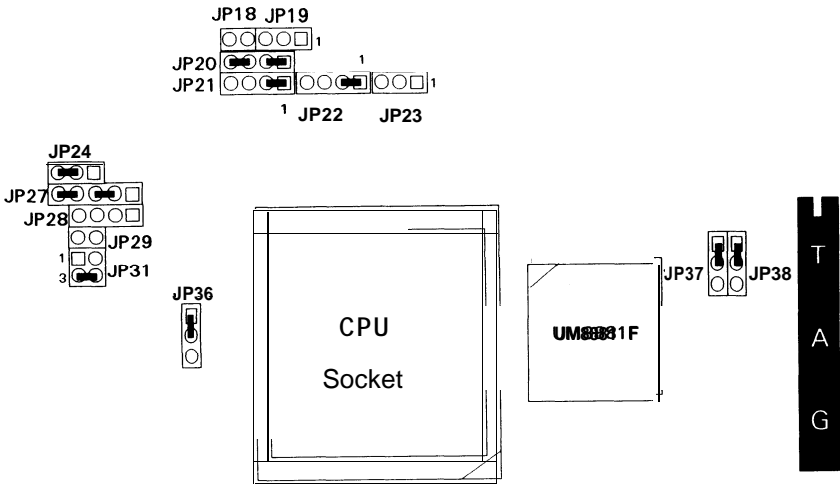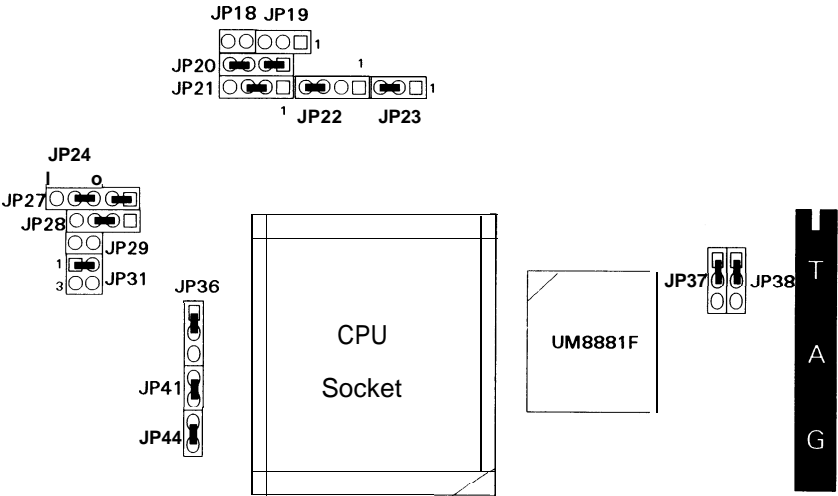
9. Cyrix Cx486DX/DX2(M7) CPU installed on-board

```
        JP18  JP19
       ┌─────────┐ 1
JP20  ┌────────┐
JP21  └────────┘ ┌───────┐ ┌──────┐ 1
           1    JP22      JP23
```

```
JP24
JP27
JP28
      JP29
 1
 3    JP31
              JP36
```

CPU Socket

UM8881F

JP37 JP38

T A G

15
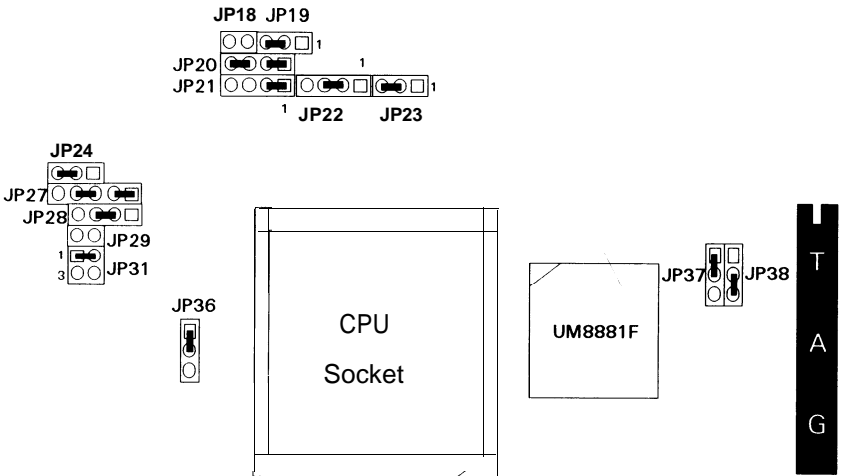
10. Cyrix Cx486S(M6) CPU installed on-board
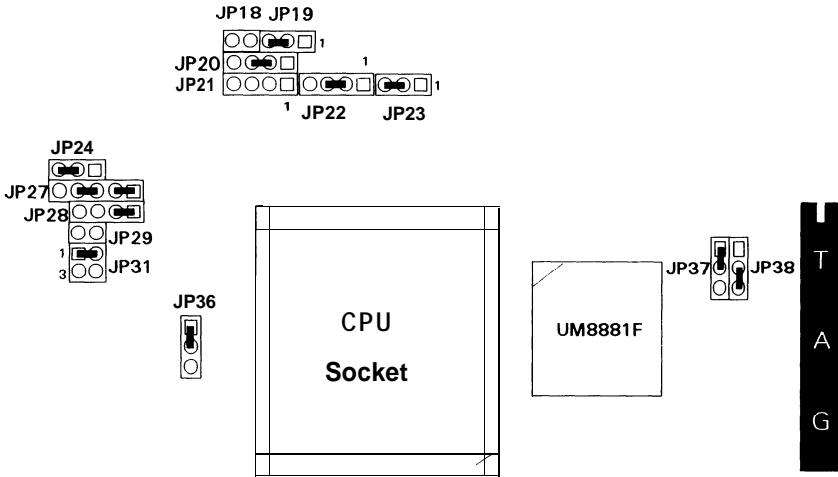
11. AMD Am486DXL/DXL2, UMC U5DS-SUPER CPU installed on-board
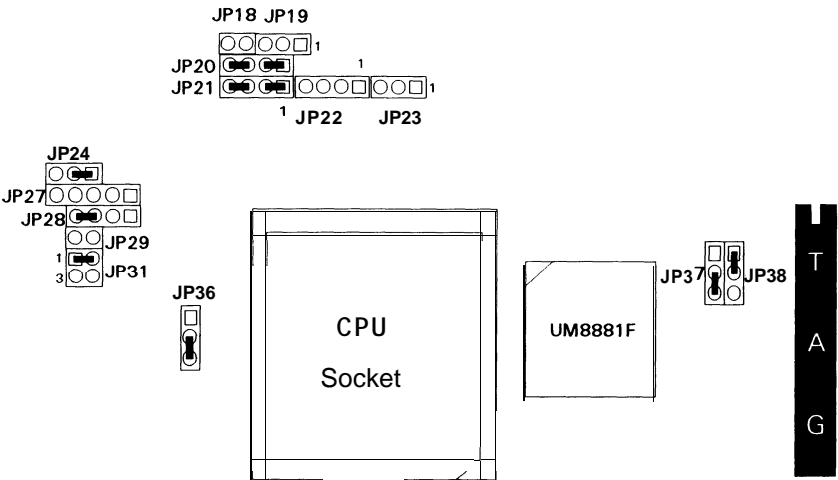
12. UMC U5S-SUPER CPU installed on-board

JP18 JP19

JP20
JP21

JP22   JP23

JP24
JP27
JP28
JP29
JP31   JP36

CPU
Socket

UM8881F

JP37   JP38

T
A
G
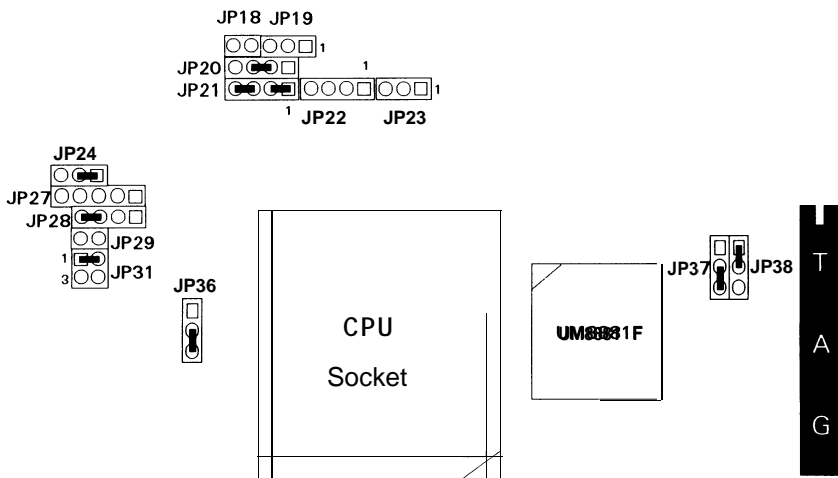
CPU Speed

1. 25MHz CPU Speed
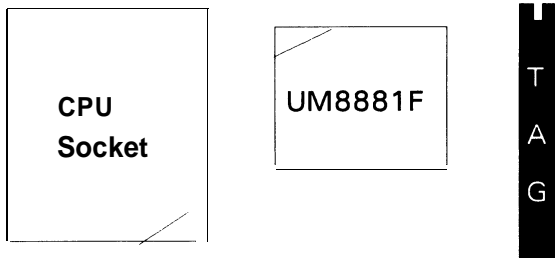
6 5
2 1
JP17

CPU
Socket

UM8881F

T
A
G

17

2. 33MHz CPU Speed

```
6 [●●] 5
  [●●]
2 [●●] 1
  JP17
```


CPU Socket | UM8881F | T A G

3. 40MHz CPU Speed

```
6 [○○] 5
  [●●]
2 [●●] 1
  JP17
```


CPU Socket | UM8881F | T A G

4. 50MHz CPU Speed

```
6 [●●] 5
  O O
2 O □ 1
  JP17
```

┌─────────┐   ┌─────────┐   ┌───┐
│   │   │   │   │ T │
│ CPU   │   │ UM8881F │   │   │
│ Socket │   │   │   │ A │
│   │   └─────────┘   │   │
│   │   │ G │
└─────────┘   └───┘

CPU Vcc Source

1. + 5V

```
1 [■■○]
3 O O
 JP31
```

┌───────────────┐
│ ┌───────────┐ │
│ │   │ │
│ │   CPU   │ │
│ │   │ │
│ │ Socket   │ │
│ │   │ │
│ └───────────┘ │
└───────────────┘

2. + 3.3V

```
1 ☐ ○
3 ▣
```
JP31

CPU
Socket
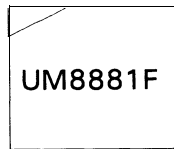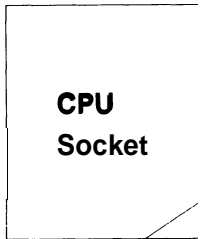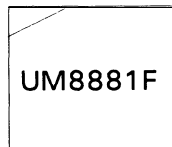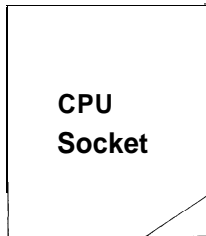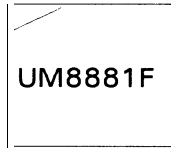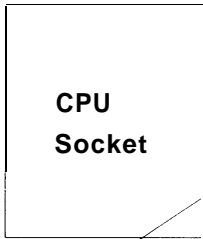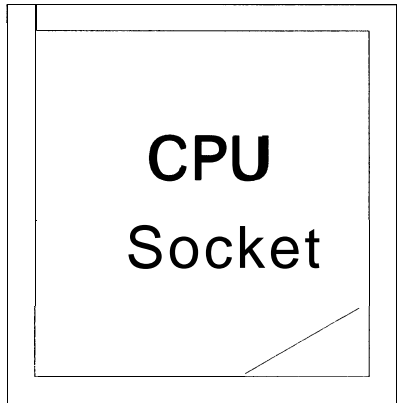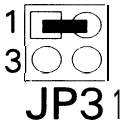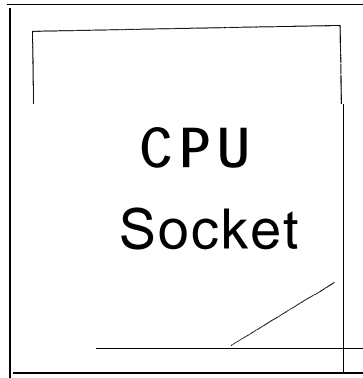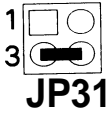
Cache Size Setting

1. 128KB (32Kx8) Cache Size

```
            1
JP13 ☐ ○○
JP14 ▣○
JP16 ☐ ▣
```

```
JP33 ○○
JP35 ○○
```

CPU
Socket

UM8881F

32Kx8 Empty Empty Empty Empty

2. 256KB (32Kx8) Cache Size

JP13
JP14
JP16

JP33
JP35

**CPU
Socket**

UM8881F

32Kx8 32Kx8 32Kx8 32Kx8 32Kx8

3. 512KB (64Kx8) Cache Size

JP13
JP14
JP16

JP33
JP35

**CPU
Socket**

UM8881 F

32Kx8 64Kx8 64Kx8 64Kx8 64Kx8
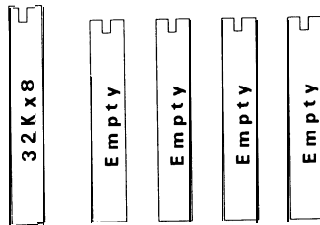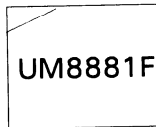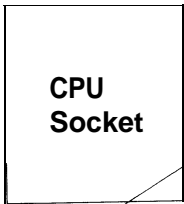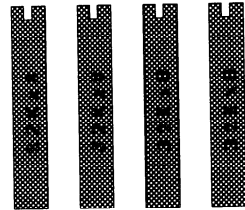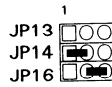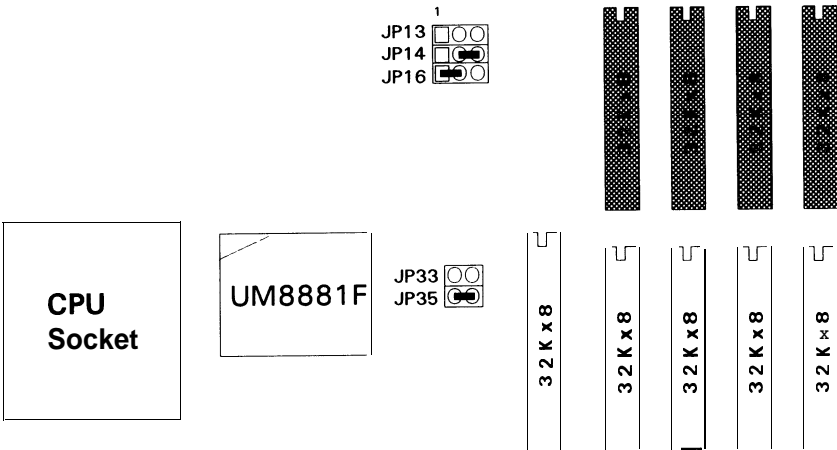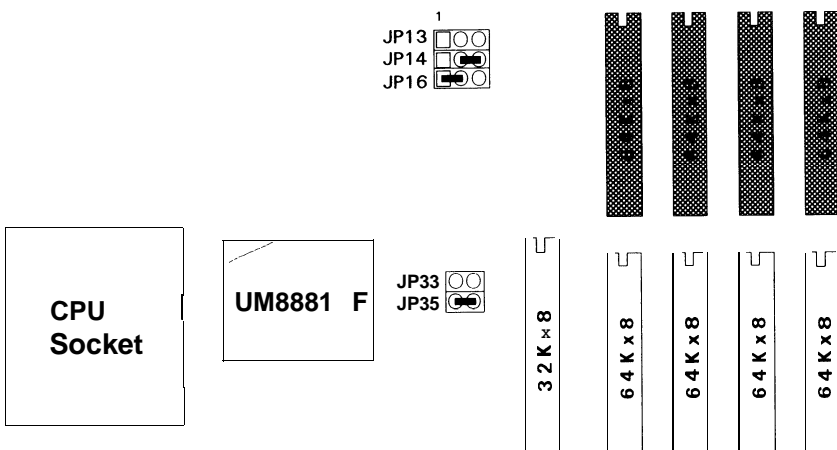
4. 512KB (128Kx8) Cache Size

JP13
JP14
JP16

CPU
Socket

UM8881F

JP33
JP35

32Kx8

EMPTY
w

EMPTY

EMPTY

EMPTY
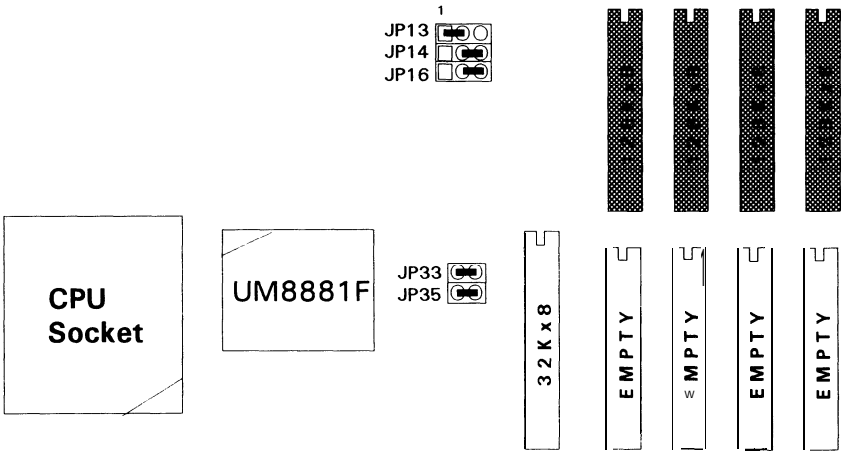
4 Built-in BIOS SETUP Program

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 fea-
tures 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.

```
        Phoenix Setup — Copyright 1992-94 Phoenix Technologies Ltd.


                        ┌─────────────────────────────┐
                        │         Main Menu           │
                        ├─────────────────────────────┤
                        │  . System setup             │
                        │  . Fixed Disk Setup         │
                        │  . Advanced System Setup    │
                        │  . Boot Options             │
                        │  . Security and Anti-Virus  │
                        │  . Green PC Features        │
                        │                             │
                        │   Load ROM Default Values   │
                        │   Load Values from CMOS     │
                        │                             │
                        │   Save Values to CMOS       │
                        └─────────────────────────────┘


          ↑↓ Move        Enter Select
          F1 Help          ESC Exit        F10 Save&Exit
```
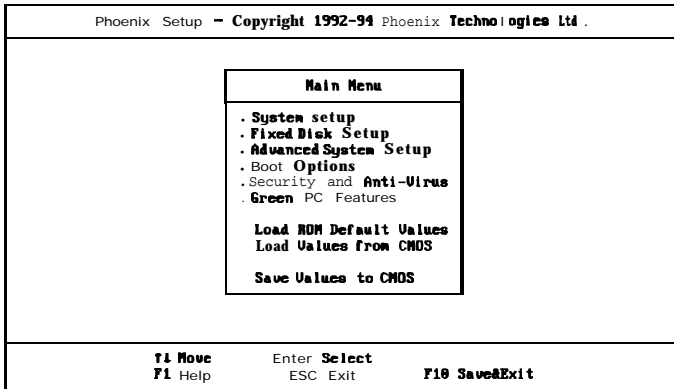
Figure 4-1.   SETUP Main Menu

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 restor-
ing 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 configura-
   tion 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 Chipset 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 unauthonzed access to the floppy disk drives.

■ **Green PC Features -** allows the timer settings for the DOZE, STANDBY and RESUME 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 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 > . The screen will display a warning message as shown below.

4.2 System Setup

```
        Phoenix Setup - Copyright 1992-M Phoenix Technologies Ltd.


                          System Setup

              System Time:        [16:58:59]
              System Date:        [04/01/1994]

              Video System :      [EGA / VGA]

              System Memory:         640 KB
              Extended Memory:         3 MB

              Diskette Drive A:   [Not Installed]
              Diskette Drive B:   [Not Installed]


   T↓ Move    ESC Exit   PgUp Previous Value      F5 Previous Configuration
              F1 Help    PgDn Next Value          F6 Default Configuration
```

Figure 4-2. System Setup

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 main-board..

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.

4.3 Fixed Disk Setup

The Fixed Disk Setup provides auto configuration of the hard drive installed
in the system. After pressing the < Enter > key on this item on the main
menu, the screen will display the following screen.

```
Phoenix Setup - Copyright 1992-94 Phoenix Technologies Ltd.




                    Fixed Disk Setup
          . Fixed Disk 0 Control (BootDrive)
          . Fixed Disk 1 Control
            Large Disk DOS Compatibility: [Enabled]




 ↑↓ Move    ESC Exit    PgUp Previous Value    F5 Previous Configuration
            F1 Help     PgDn Next Ualue        F6 Default Configuration
```
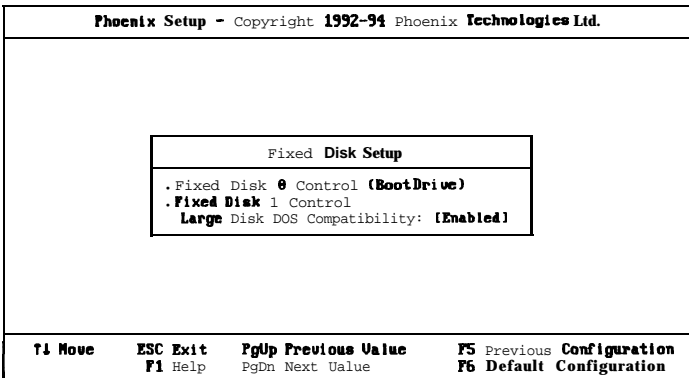
Figure 4-3. Fixed Disk Setup Screen 1

Once the program detects the type of hard disk *0* and/or 1 installed, it will
display the relative information such as the type, cylinders, heads, write pre-
compensation, landing zone, and number of sectors per track.

```
     Phoenix setup - Copyright 1992-94 Phoenix Technologies Ltd.


                    Fixed Disk 0 Control

          Autotype Fixed Disk:        [Press Enter]

          Type:                       [User]
          Cylinders:                  [ 6671
          Heads:                      [   81
          Sectors/Track:              [  33]
          Landing zone :              [ 6671
          Write precomp:              [None]

          Multi-Sector Transfers:     [Disabled]
          LBA Mode Control:           [Disabled]


               ↑↓ Move      Enter Select
               F1 Help        ESC Exit      F10 Save&Exit
```
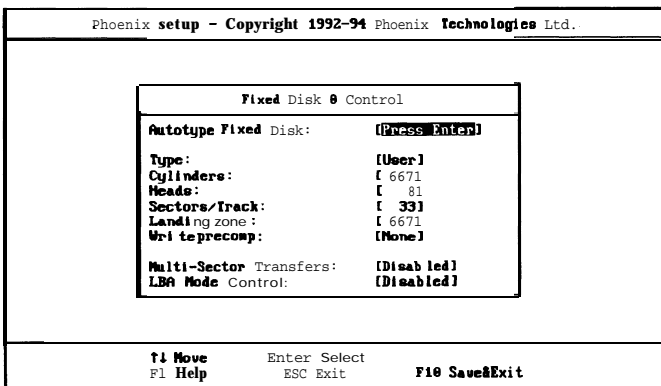
Figure 4-4. Fixed Disk Setup Screen 2

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

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 45 fills in remaining fields with values for predefined disk drives. "User" allows the user to fill in the remaining fields..

Cylinders - specifies the number of cylinders of the hard disk drive. The range of this option is from 1 to 1024.

Heads - specifies the number of read/write heads of the hard disk drive. The range of this option is from 1 to 16.

Sectors/Track - provides the number of sectors per track defined for the hard disk drive. The range is from 1 to 64.

Landing Zone - refers to the cylinder number where the disk drive heads (read/write) are positioned to when the disk drive is parked. The range of this option is from 1 to 1024.

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. The available options are from 1 to 1024 and None.

Large Disk DOS Compatibility - for Large Hard Disk Compatibility (Larger than 528MB) issue, you must enable this item except UNIX operating system.

LBA Mode Control - turns on or off the hard disk drive's LBA Mode support. Some HDD support more than 540MB and LBA Mode for data transfer. If your hard disk supports LBA Mode, you should enable (on) this option otherwise disable (off) it.

Warning: *LBA Mode and Large Disk DOS compatibility are new specifications which may not be fully supported by all operating systems. An example of which is the current version of UNIX system (R3, 2, 4) which is still unable to support the LBA function. Therefore, determine the specifications of your hard disk drive and operating system before selecting the drive's mode.*

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Addendum to *UM8810P-AIO* User's Manual Version 1.0-N. *1*

The **description** of DX4 on page 1, the **jumper settings** for Cache Size on page 8, the **Fixed Disk Setup screen 1 & 2** on page **26 ,** and the **Integrated Peripherals screen** information on page **28** of the UM8810P-AIO version 1.1 User's Manual have been modified

The modification are related to *the addition of description for DX4, the function categories* under CPU size jumper settings, *the change or addition of, the "IDE Adapter O/I Master", the"IDE Adapter O/l Slave"," the 32 Bit I/O",* and *"the LPT mode" &" CMD IDE Mode 3 Feature"* options within the Fixed Disk Setup screen 1/2 & Integrated Peripherals screen respectively. Please refer to the following for a detailed description of the changes implemented.

☆DX4 is only supported on the version of motherboard that has the 3.3V regulator. (Please verify before plugging any 3.3V CPU).

Function		Jumper Settings
Cache Size	512KB - with 64Kx8	JP13 open JP14 short 2-3 JP16 short 1-2 JP33 short JP35 short

```
        Phoenix Setup - Copyright 1985-94 Phoenix Technologies Ltd.




                         Fixed Disk Setup

               IDE Adapter 0 Master (C: 541 Mb)
               IDE Adapter 0 Slave (None)
               IDE Adapter 1 Master (None)
               IDE Adapter 1 Slave (None)

               Large Disk DOS Compatibility:[Enabled]




    ↑↓ Move    ESC Exit   PgUp Previous Value    F5 Previous Configuration
               F1 Help    PgDn Next Value        F6 Default Configuration
```

Figure *4-3.* Fixed Disk Setup Screen **1**

```
Phoenix Setup - Copyright 1985-94 Phoenix Technologies Ltd.


                  IDE  Adapter 0 Master (None)

         Autotype Fixed Disk:       [Press Enter]

         Type:                      [User]
         Cylinders:                 [ 667]
         Heads:                     [   8]
         Sectors/Track:             [  33]
         Write precomp:             [None]

         Multi-Sector Transfers:    [Disabled]
         LBA Mode Control:          [Disabled]
         32 Bit I/O:                [Disabled]


         ↑↓ Move          Enter  Select
         F1 Help           ESC Exit        F10 Save&Exit
```

Figure 4-4. Fixed Disk Setup Screen 2

32 bit I/O - it is only for PCI IDE card, if you want to use the ISA IDE card, you have to disable it.

```
Phoenix setup - Copyright 1985-94 Phoenix Technologies Ltd.


                    Integrated  Peripherals

         COM1 Port:               [ 3F8 , IRQ 4 ]
         COM2 Port:               [ 2F8 , IRQ 3 ]
         LPT Port:                [ 378 , IRQ 7 ]
         LPT Node:                [Standard ]
         Floppy controller:       [Enabled]
         CMD IDE Node 3 Feature:  [Enabled]



 ↑↓ Move      ESC Exit      PgUp Previous Value    F5 Previous Configuration
              F1 Help       PgDn Next Value        F6 Default Configuration
```
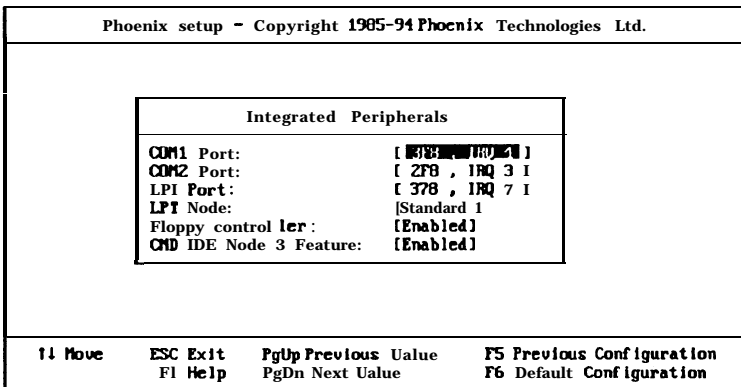
Figure 4-6. Integrated Peripherals Screen

CMD IDE Mode 3 Feature - enables 32 Bit I/O and CMD IDE Mode 3 Feature to support CMD DOS driver.

II

4.4 Advanced Chipset SETUP

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

```
Phoenix Setup — Copyright  1992-94  Phoenix  Technologies  Ltd.


                      Advanced System Setup

                        Warni ngt
                 Items on this ᵒ enu, if set incorrectly.
                 could   cause your system to malfunction.

              .  Integrated  Peripherals
              . Memory  Cache
              . Memory  Shadow
              . Advanced Chipset   Control
              . PCI Devices



        ↑↓ Move        Enter  Select
        F1 Help          ESC  Exit         F10 Save&Exit
```
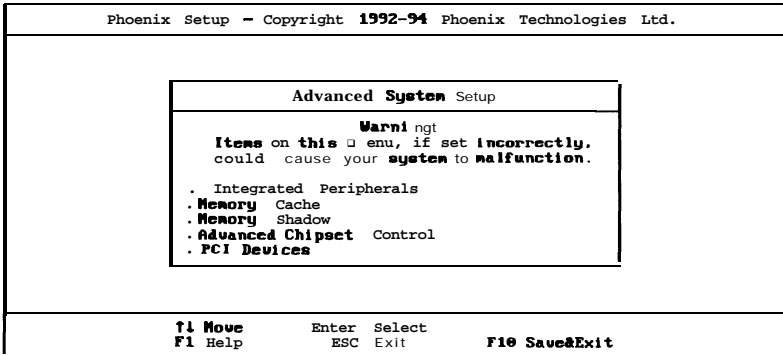
Figure 4-5. **Advanced System SETUP Screen**

Integrated Peripherals

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

```
          Phoenix Setup - Copyright  1992-94  Phoenix  Technologies Ltd..



               Integrated   Peripherals

          con Port 1:              [Enabled]
          con Port 2:              [Enabled]
          LPT Port:                [Enabled]
          Floppy  controller:      [Enabled]
          LPT Extended Hode:       [Standard]




  ↑↓ Move      ESC Exit     PgUp Previous Value    F5  Previous  Configuration
               Fl Help      PgDn Next Value        F6 Default Configuration
```

Figure 4-6. Integrated Peripherals

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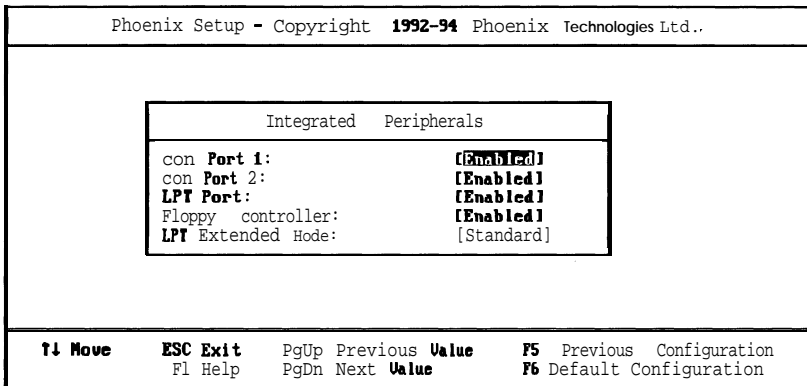
COM port 1- assigns the address of the primary serial port on-board. The available options are listed below.

- **Enabled (default)**
- **Disabled**

COM port *2* **-** assigns the address of the secondary serial port on-board. The available options are list below.

- **Enabled (default)**
- **Disable**

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 listed below.

- **Enabled (default)**
- **Disabled**

Floppy controller - sets the floppy controller mode of the **SMC** *665* I/O chip to either on or ff. The available options are:

- **Enabled (default)**
- **Disabled**

LPT Extended Mode- In **"ECP & EPP"** mode, EPP can select through the ECR register of ECP mode 100. **"Standard"** mode can be selected through the ECR register as mode 000. The available options are:

- **Standard (default)**
- **EPP Mode**
- **ECP Mode**
- **. ECP & EPP**

Memory Cache

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

```
┌─────────────────────────────────────────────────────────────────┐
│      Phoenix Setup - Copyright 1992-94 Phoenix technologies Ltd. │
│                                                                   │
│                                                                   │
│            ┌───────────────────────────────────────────┐         │
│            │    ▪       Memory Cache              1     │         │
│            ├───────────────────────────────────────────┤         │
│            │ External cache:          [Enabled]        │         │
│            │   System BIOS shadow:    [Non-Cacheable]  │         │
│            │   Video BIOS shadow:     [Non-Cacheable]  │         │
│            │ L2 cache Policy:         [Write Back]     │         │
│            │ Cache Speed:             [AUTO]           │         │
│            └───────────────────────────────────────────┘         │
│                                                                   │
│                                                                   │
├───────────────────────────────────────────────────────────────────┤
│ ↑↓ Move   ESC Exit   PgUp Previous Value   F5 Previous Configuration│
│           F1 Help    PgDn Next Value       P6 Default Configuration │
└─────────────────────────────────────────────────────────────────┘
```
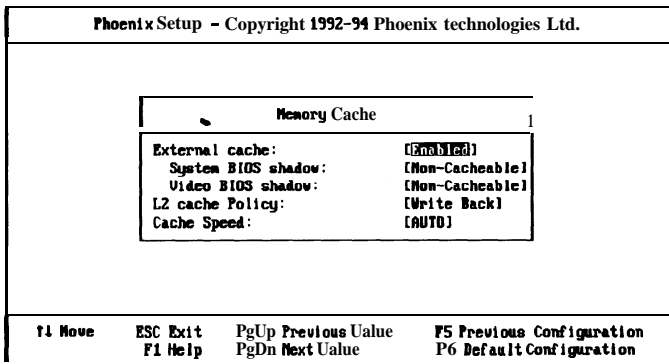
Figure 4-7. *Memory Cache Screen*

External Cache - sets the state of the external cache memory. The available options are:

- **Enabled (default)**   • **Disabled**

System BIOS shadow - if you have a shadowing of video BIOS, this memory function may be **"Cacheable".** Otherwise, select its default setting **"Non-Cacheable" .**

Video BIOS shadow - Shadowing is always set in the system BIOS. The **"Cacheable"** and **"Non-Cacheable"** (default) options allow setting of this memory function to either on or off.

L2 cache Policy - sets the L2 cache memory of the mainboard to either write-back **(Write Back - default)** or write-through **(Write-Through)** mode.

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 reguired 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 following are the available options.

- AUTO (default)
- 3-l-l-l
- 2-l-l-l
- 3-2-2-2
- 2-2-2-2

Memory Shadow

Select Memory Shadow from the Advanced System Setup main menu displays the following screen.
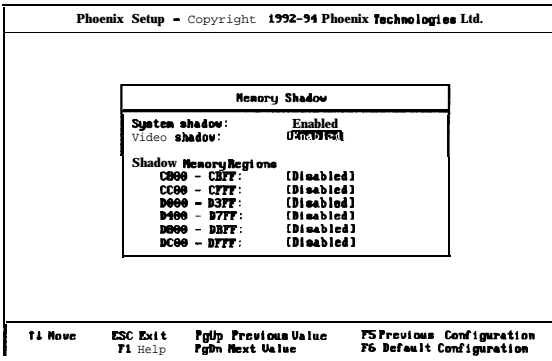
Figure **4-8.** *Memory Shadow Screen*

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

Video shadow - sets the mode of the system's video BIOS shadowing mode. The available options are:

- 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.

```
Phoenix  Setup - Copyright 1992-94 Phoenix Technologies Ltd.


              Advanced Chipsct Control

     DRAM Read wait state:       [AUTO]
     DRAM Urite wait state:      [AUTO]
     Residence of UGA card:      [PCI bus]
     Host-to-PC1  Wait  State:   [AUTO]
     PCI Parity Check:           [Disabled]
     DRAM Parity Check:          [Disabled]


 ↑↓ moue      ESC  Exit     PgUp Preuious Ualue    F5 Preuious Configuration
              F1 Help      PgDn Next Ualue         F6 Default Configuration
```

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.***

DRAM Read/Write wait state - determines the number of wait states to be inserted when the CPU Read/write data into the local DRAM. The following are the available options.

- AUTO (default)   - 3
- 2   - 1

H O

Residence of VGA card - selects VGA card for PCI or VL bus. The available options are:

- PCI bus (default)   - VL bus

Host - to - PCI Wait State - determines the number of Host - to - PCI wait
states. The available options are:

- ■   AUTO (default)
- ■   1
- ■   0

PCI Parity Check - enables or disables(default) the PCI parity check.

DRAM Parity Check - allows the system to check for the parity bit of
every DRAM module. The available options are:

- ■   Disabled (default)
- ■   Enabled

PCI Devices

Selecting Memory Shadow from the Advanced System Setup main menu dis-
plays the following screens.

```
           Phoenix  Setup - Copyright 1992-94 Phoenix Technologies Ltd.

                              PCI Devices

        PCI Bridge:
        (HCLK PCICLK):                         [AUTO]
        PCI-ISA BCLX Divider:                  [AUTO]
         IO Recovery (BCLK):                   [4]

        Base I/O Address:                      [3000]
        Baee Memory Address:                   [0010000000]
        Multimedia node:                       [Disabled]
        Pari ty : (which)                      [Disabled]

        PCI SLOT 1 INT A Set To:               [None]
           Edge/Level Select:                  [Level]


     ↑↓ Move     ESC Exit    PgUp Previous Value      F5 Previous Configuration
                 F1 Help     PgDn Next Value          F6 Default Configuration
```

Figure 4- 10. PCI Devices Screen 1

```
┌─────────────────────────────────────────────────────────────┐
│   Phoenix Setup ~ copyright 1992-94 Phoenix Technologies Ltd. │
│  ┌──────────────────────────────────────────────────────────┐│
│  │                       PCI Devices                        ││
│  │                                                          ││
│  │  PCI SLOT 2 INT A set To:              [FO]              ││
│  │     Edge/Level Select:                 [Level I          ││
│  │                                                          ││
│  │  PCI SLOT 3 INT A Set To:              [None]            ││
│  │     Edge/Level  Select:                [Level I          ││
│  │                                                          ││
│  │  PCI Devices, Slot 1:                                    ││
│  │     Enable Deuice:                     [Enabled]         ││
│  │     Enable Master:                     [Enabled]         ││
│  │     Use Default Latency Timer Value:   [Yes]            ││
│  │     Latency Timer Ua lue:              [0040]           ││
│  │                                                          ││
│  │  PCI Deuice, Slot 2:                                     ││
│  └──────────────────────────────────────────────────────────┘│
│  ↑↓ noue    ESC Exit   PgUp Previous Ualue   F5 Previous Configuration │
│             F1 Help    PgDn Next Value       F6 Default Configuration  │
└─────────────────────────────────────────────────────────────┘
```

Figure 4-11. PCI Devices Screen 2

```
┌─────────────────────────────────────────────────────────────┐
│   Phoenix Setup - Copyright 1992-94 Phoenix Technologies Ltd. │
│  ┌──────────────────────────────────────────────────────────┐│
│  │                       PCI Devices                        ││
│  │                                                          ││
│  │  PCI Deuice, Slot 2:                                     ││
│  │     Enable Deuice:                     [Enabled]         ││
│  │     Enable Master:                     [Enabled]         ││
│  │     Use Default Latency liner Ualue:   [Yes]            ││
│  │     Latency Timer Ua lue:              [0040]           ││
│  │                                                          ││
│  │  PC1 Device, Slot 3:                                     ││
│  │     Enable Dtuice:                     [Enabled]         ││
│  │     Enable Master:                     [Enabled]         ││
│  │     Use Default Latency Timer Ualue:   [Yes]            ││
│  │     Latency Timer Ua lue:              [0040]           ││
│  │                                                          ││
│  └──────────────────────────────────────────────────────────┘│
│  ↑↓ Move    ESC Exit   PgUp Previous Ualue   F5 Previous Configuration │
│             F1 Help    PgDn Next Ualue       F6 Default Configuration  │
└─────────────────────────────────────────────────────────────┘
```

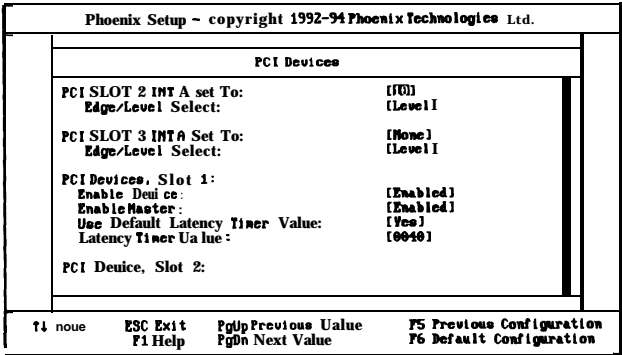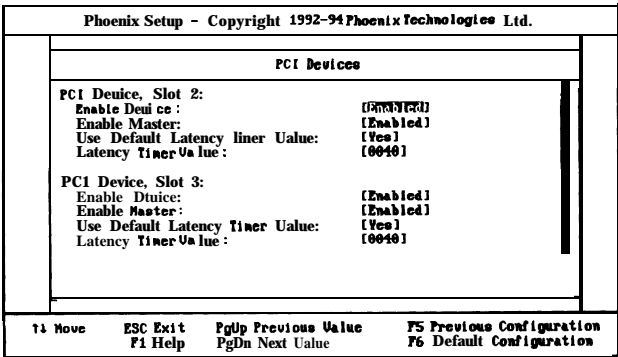**Figure 4- 12. PCI Devices Screen 3**

HCLK PCICLK - Host clk v.s PCI clK divider. The available options are:
- AUTO (default)
- 1 1/2
- 1 1

PCI - ISA BCLK Divider - PCI bus clk v.s. ISA bus clk divider. The available options are:
- AUTO (default)
- PCICLKI/2
- PCICLKI/3
- PCICLKI/4

IO Recovery (BCLK) - The available options are:
- 2
- 4 (default)
- 8
- 12

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Base I/O Address - refers to the base of I/O address ranges from which the PCI device resource requests are satisfied.

Base Memory Address - pertains to the base of 32-bit memory address range from which the PCI device resource requests are staisfied.

Multimedia mode - enables or disables palette snooping for multimedia card.

Parity - enables or disables the parity checking.

PCI Slot 1/2/3 INTx - program the IRQ associated with PCI INTX of slots 1, 2, 3 . The available IRQs are 3/4/5/7/9/10/11/12/14/15.

Edge/Level Select - programs the PCI IRQ to single edge or logic level.

Note: **a.**   ***The PCI IDE is IRQ 14 on board for primary IDE an IRQ15 for secondary IDE. Installing ISA cards using the same IRQ15 will create a conflict with the IRQ on board. To choose another IRQ for the ISA card or PCI card.***
             b.   ***If it disables on board PCI IDE, the IRQ14/1 5 are available for ISA/PCI cards.***

PCI Device, Slot 1/2/3:

    Enable Device - enables or disables PCI device as a slvae bus.

    Enable Master - enables or disables PCI device as a bus master.

    Use Default Latency Timer Value - If set as "Yes", there is no further need to program the Latency Timer Value.

        • Yes **(default)**   • **No**

    Latency Timer Value - specifies the length of time that the bus master will occupy the PCI bus. The available options are:

        • 0040 **(default)**   • **0000** - 00F8

4.5 Boot Options

```
Phoenix Setup - Copyright 1992-94 Phoenix Technologies Ltd.


                        Boot Options

        Boot sequence :         [A: then C:]
        Floppy check :          [Enabled]




  ↑↓ Move    ESC Exit    PgUp Previous Value    F5 Previous Configuration
             F1 Help     PgDn Next Value        F6 Default Configuration
```
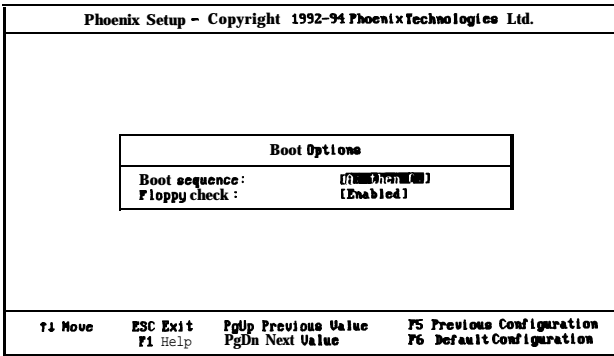
Figure 4- 13. Boot Options Screen

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

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

Floppy check - selects enable/disable for seeking floppy disk drive before boot.

4.6 Security and Anti-Virus

```
Phoenix Setup - Copyright 1992-94 Phoenix Technologies Ltd.



                Security and Anti-Virus

        Supervisor Password is    Disabled
        User Password is          Disabled
        Set Supervisor Password  [Press Enter]
        Set User Password         Press Enter

        Password on boot:        [Disabled]

        Diskette access :        [Supervisor]
        Fixed disk boot sector:[Normal]



  ↑↓ Move    Enter Set/Change Password   F5 Previous Configuration
  F1 Help        ESC Exit                F6 Default Configuration
```
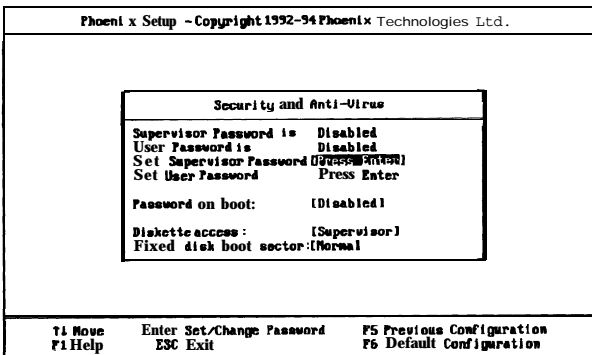
Figure 4- 14. Security and Anti-Virus Screen

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.

Fixed disk boot sector - allows the user to protect the hard disk drive's boot sector from unnecessary writing (e.g, using the format command under DOS). Setting this option to Normal makes writing on the boot sector possible. The available options are:

- Normal (default)
- Write Protect

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4.7 Green PC Features

```
Phoenix Setup - Copyright 1992-94 Phoenix Technologies Ltd.

                        Green PC Features

Power Saving Mode :                          [[Disabled]]
   System Doze    Timer:                     [15 sec]
   System Standby Timer:                     [2 min]
   System Suspend Timer:                     [2 min]
   VGA with Power Down feature:              [None]
   Non_SMI CPU support:                      [Generate IRQ10]
    IDE Hard Disk Standby Timer:             [Disabled]

             Advanced Power Management Setup
            System enters Doze/Standby modes by:

   VGA access euent:                         [Off]
   Hard Disk access event:                   [On]


↑↓ Move      ESC Exit      PgUp Previous Value     F5 Prcuious Configuration
             F1 Help       PgDn Next Value         F6 Default Configuration
```

Figure 4-15. Green PC Features Screen 1

```
Phoenix Setup - Copyright 1992-94 Phoenix Technologies Ltd.

                        Green PC Feature8

   Floppy access went:                       [On]
   Keyboard access event:                    [On]
   COM access event:                         [On]
   LPT access event: :                       [Off]
    ISA Master access event:                 [Off]
   PCI Master1 access euent:                 [On]
   PC! Master2 access event:                 [On]
   PCI Master3 access event:                 [On]

             System Wakeup from Suspend nodes by:

   IRQ1 [Keyboard) :                         [On]
   IRQ3  (COM2):                             [On]
                                                         ▲

↑↓ Move      ESC Exit      PgUp Previous Ualue     F5 Previous Configuration
             F1 Help       PgDn Next Value         F6 Default Configuration
```
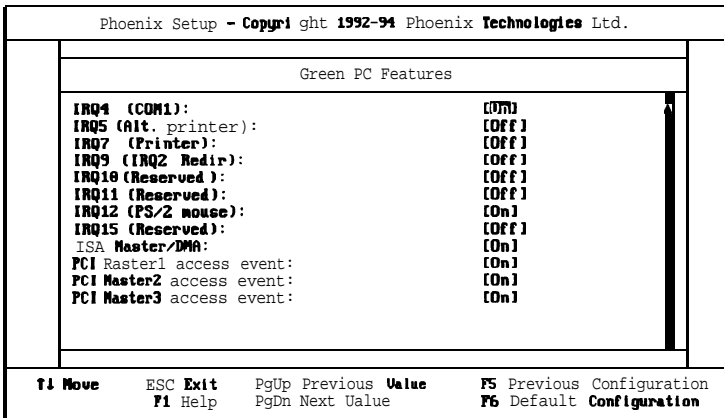
Figure 4-16. Green PC Features Screen 2

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```
        Phoenix Setup - Copyright 1992-94 Phoenix Technologies Ltd.

                              Green PC Features

    IRQ4  (COM1):                           [On]
    IRQ5 (Alt. printer):                    [Off]
    IRQ7  (Printer):                        [Off]
    IRQ9  (IRQ2 Redir):                     [Off]
    IRQ10 (Reserved ):                      [Off]
    IRQ11 (Reserved):                       [Off]
    IRQ12 (PS/2 mouse):                     [On]
    IRQ15 (Reserved):                       [Off]
     ISA Master/DMA:                        [On]
    PCI Master1 access event:               [On]
    PCI Master2 access event:               [On]
    PCI Master3 access event:               [On]



    ↑↓ Move      ESC Exit     PgUp Previous Value     F5 Previous Configuration
                 F1 Help      PgDn Next Value         F6 Default Configuration
```

Figure *4-* 17. *Green PC Features Screen 3*

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

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

- 15 sec **(default)**
- **30 sec**
- 1/2/4/8/1 **5 min**

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

- **2 min (default)**
- **Disabled**
- 4/8/16/32/64/1 **2812561512 min**

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

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

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

- **None (default)**
- **Standard**
- **VESA DPMS**

Non SMI CPU support - The available options are:

- Generate IRQ1 **0 (default)**
- **Generate IRQ15**

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IDE Hard Disk Standby Timer - The available options are:

- **Disabled (default)**
- **1, 2, 3-l 5 min**

Advanced Power Management Setup System enters power Doze/Standby up modes by: (Switch the following parameters to on or off)

- ■ VGA access event
- ● Floppy access event
- ■ COM access event
- ● ISA Master access event
- ■ PCI Master2 access event

- ■ Hard Disk access event
- ■ Keyboard access event
- ■ LPT access event
- ■ PCI Master1 access event
- ■ PCI Master3 access event

System Wakeup from Suspend modes by: (Switch the following parameters to on or off)

- ● IRQ1 (Keyboard)
- ● IRQ4 (COM1)
- ● IRQ7 (Printer)
- ■ IRQ10 (Reserved)
- ● IRQ12 (PS/2 mouse)
- ■ ISA Master/DMA

- ■ IRQ3 (COM2)
- ■ IRQ5 (Alt. printer)
- ■ IRQ9 (IRQ2 Redir)
- ■ IRQ1 1 (Reserved)
- ■ IRQ1 5 (Reserved)

4.8 Load ROM Default Values

If, during bootup, the BIOS program detects a problem in the integrity of the CMOS, 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.
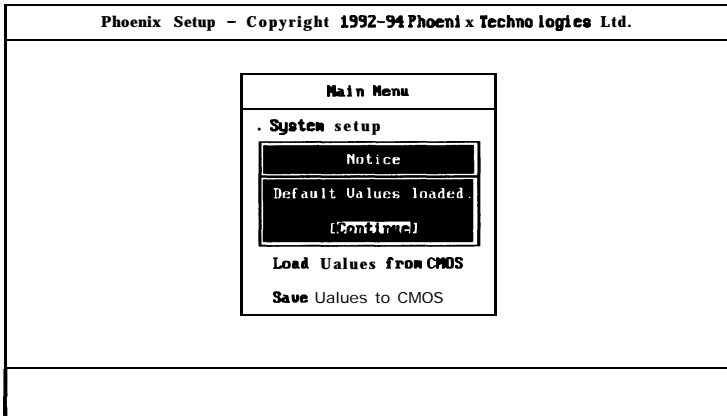

Figure 4-18. Load ROM Default Values Screen

4.9   Load Values from CMOS

If, during a Setup session, you change your mind about your selections and
have not yet saved the values to CMOS, you can restore the values you pre-
viously saved to CMOS.

Select Load Values from CMOS on the Main Menu and the program will
display the following screen.

```
┌─────────────────────────────────────────────────────────────┐
│      Phoenix  Setup - Copyright 1992-94 Phoenix  Technologies  Ltd. │
├─────────────────────────────────────────────────────────────┤
│                                                             │
│              ┌──────────────────────────────┐               │
│              │          kin Menu            │               │
│              ├──────────────────────────────┤               │
│              │ . system  setup              │               │
│              │  ┌────────────────────────┐  │               │
│              │  │        Notice          │  │               │
│              │  ├────────────────────────┤  │               │
│              │  │ Previous values loaded.│  │               │
│              │  │       [Continue]       │  │               │
│              │  └────────────────────────┘  │               │
│              │     Load Values from CMOS    │               │
│              │     Save Values to CMOS      │               │
│              └──────────────────────────────┘               │
│                                                             │
├─────────────────────────────────────────────────────────────┤
│                                                             │
└─────────────────────────────────────────────────────────────┘
```
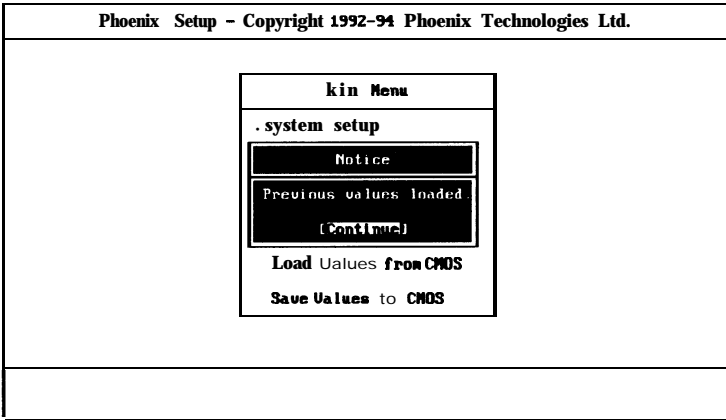
Figure 4- 19. Load Values from CMOS Screen

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. Unlike standard RAM memory, CMOS RAM is sustained by an on-board battery and stays on after you turn your system off.

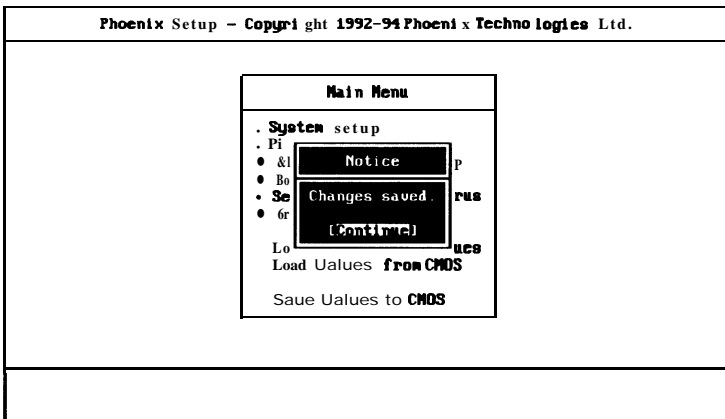After you save your selections, the program will display the following screen.

Figure 4-20. Save Values to CMOS Screen

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.

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4.11 Quitting SETUP

After making all modifications in the SETUP program, go to the option
"Save Values to CMOS" then press the < Enter > key or simply press the
< F 10 > key. The screen will display a message asking you whether you
would like to save and exit or not.

Use the arrow keys or press < Y > for Yes then the C Enter > key to save
your settings before exiting. Press < N > for No then the < Enter > key to
exit without saving.

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
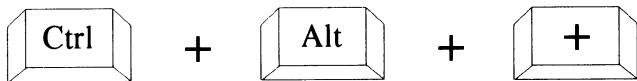or not.

Press < Y > for Yes then the < Enter > key to quit without saving, or press
< N > then the < Enter > key to save your settings first before exiting Setup.

Appendix A

Setting the System Speed

■   **High Speed**

Ctrl + Alt + +

■   **Low Speed**

Ctrl + Alt + −