CH-880C

Motherboard

User's Manual

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3. BIOS Setup

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Chapter 1

Introduction

The mainboard is a 486-based PC/AT system and provides Dark Green function.

Three PCI slots support high performance add-on cards, optimized for running software operation in high performance, such as OS/2, Windows/386, WIndows 3.1, XENIX, UNIX and so on.

And Dark Green function is designed for saving power consumption. This mainboard can provide numerous work frequency, uses different kinds of CPU, compatible for CPU upgrade.

And on board voltage regulator support the 3 volt CPU series. It meet the low power consumption requirement of the system. And on board built-in super I/O that support ECP/EPP/SPP, parallel port, Floppy and Enhanced IDE interface that provide the basic requirement of the end user.

Features

- Processor: Socket 3 ZIF socket/CPU clock support 25/33/40/50 MHz.
  On board regulator that support 3.15/3.3/3.45/3.6/4.0 Volt.
  - Intel   P24T/P24D/i486DX4/i486DX2/i486DX/i486SX2/i486SX.
  - Cyrix   Cx486DX2/Cx486DX/Cx486S/Cx486DX2-V/M9.
  - AMD   Am486DX4/Am486DX2/Am486DX/Enhanced Am486.
  - UMC   U5-S.

- Cache
  - Level 1 and Level 2 support Write Back or Write Through.
  - Level 2 Cache size up to 1 MB (256K/512K/1M optional configuration).
  - Level 2 SRAM type support 32Kx8/64Kx8/128Kx8 for 5 Volt SRAM.

- Memory
  - Memory size support up to 256MB.
  - Four 72 pin SIMM socket for single side and double side module.

- Green Function
  - BIOS support APM function.
  - BIOS support SMM for CPU stop clock.
  - BIOS support Hard disk drive standby mode.
  - BIOS support VGA monitor DPMS standby mode.
  - Hardware power down suspend switch support.

- I/O Interface
  - Keyboard support optional PC/AT type or PS/2 type.
  - One floppy disk drive connector that support up to 2.88M of FDD.
  - Two IDE connector that support two channel for four enhanced IDE.
  - Two 16C550 compatible with serial port pin header connector.
  - One EPP/ECP/SPP parallel port pinheader connector.

- Expansion slot type
  - 4 ISA 16-bit slots.
  - 3 PCI master slots. (one share slot with ISA)

Chapter 2

Hardware Description

CPU Installation

⇦ PIN 1

U27
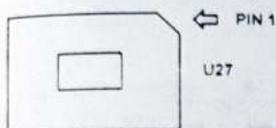
CAUTION
1. Before installing the CPU into the socket, please be sure that pin 1 is in the right position.
2. Before powering on the system, please make sure to choose the right jumper setting for your CPU. Also carefully check the correct rating

General Jumpers Setting
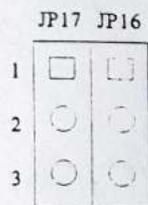
JP17 JP16

JP17	JP16	CPU Type Select
1-2	1-2	Intel/AMD/Cyrix M9 CPU
1-2	2-3	Cyrix CPU
2-3	1-2	UMC CPU
2-3	2-3	Reserved

JP31 4 3 2 1   3 2 1 JP30   3 2 1 JP5
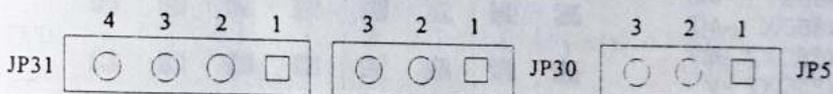
JP31	JP30	JP5	CPU Type Select	
1-2, 3-4	1-2	1-2	Intel	P24D/486DX4/486DX2/486DX
			AMD	Am486DX4/DX2/DX/Enhanced Am486
		2-3	Cyrix	Cx486DX2/DX/DX2-V/M9 (M1-SC)
1-2, 3-4	2-3	1-2	Intel	P24T/487SX
2-3	Open	1-2	Intel	486SX2/486SX
			UMC	U5-S
		2-3	Cyrix	Cx486S

NOTE:
The above jumper setting is for Intel Non-SMM CPU and AMD Am486 Non-SMM CPU. The setting of JP37, JP38 and JP39 is for SMM CPU which is shown on the following page.

CPU SMI/SMM and Cache Setting

- JP39 (Pin header 8x2) : For most of Intel/AMD 5 volt or 3 volt CPU.
- JP37 (Pin header 8x2) : For most of Cyrix 5 volt or 3 volt CPU.
- JP38 (Pin header 4x2) : For most of UMC 5 volt CPU.

CPU Type	Jumper Setting (O: Open / ■ : Short)

Intel 80486SX-SL
80486SX2-SL
80486DX-SL
80486DX2-SL
80486DX4
P24T

```
     15   13   11    9    7    5    3    1
    ( O ) ( O ) ( O ) ( O ) [■] [■] [■] [■]
                            |   |   |   |     JP39
    ( O ) ( O ) ( O ) ( O ) [■] [■] [■] [■]
     16   14   12   10    8    6    4    2
```

Intel 80486DX2-P24D
AMD Enhanced Am486
Cyrix M9

```
     15   13   11    9    7    5    3    1
    [■]  [■]  [■]  [■]  [■]  [■]  [■]  [■]
     |    |    |    |    |    |    |    |      JP39
    [■]  [■]  [■]  [■]  [■]  [■]  [■]  [■]
     16   14   12   10    8    6    4    2
```

---

* JP37, JP38 Left open all.

Cyrix Cx486S -M6
Cx486DX -M7
Cx486DX2 -M7
Cx486DX2 -V

```
     15   13   11    9    7    5    3    1
    [■]  [■]  [■]  [■]  [■]  [■]  [■]  [■]
     |    |    |    |    |    |    |    |      JP37
    [■]  [■]  [■]  [■]  [■]  [■]  [■]  [■]
     16   14   12   10    8    6    4    2
```

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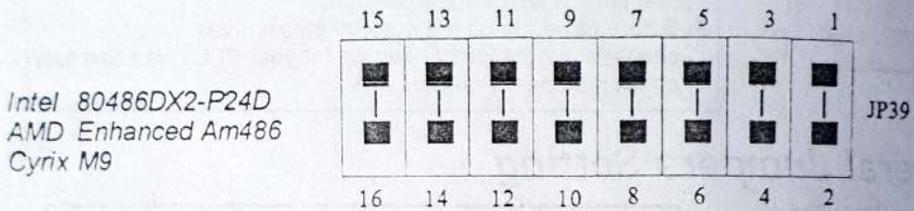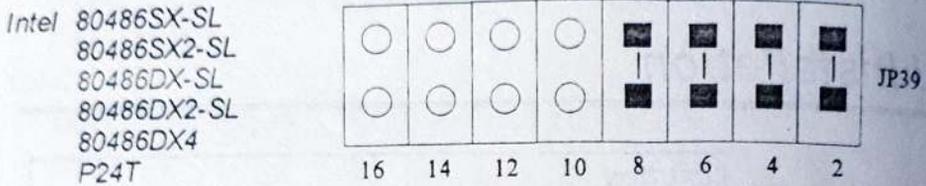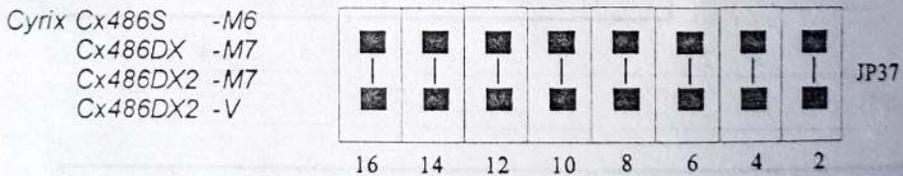
* JP38, JP39 Left open all.

UMC 80486SX -U5S

```
      7    5    3    1
    ( O ) [■]  [■]  [■]
           |    |    |     JP38
    ( O ) [■]  [■]  [■]
      8    6    4    2
```
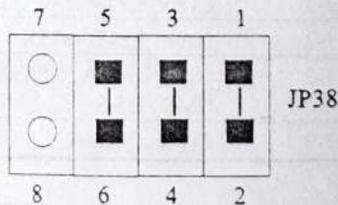
> **NOTE:**
> Pin 7,8 of JP38 short for AMD Am486DX2-80 as its clock multiplier pin.

---

* JP37, JP39 Left open all.

CPU Clock Setting
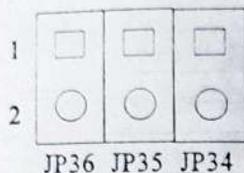
JP36 JP35 JP34

JP36	JP35	JP34	CPU Clock
Short	Open	Open	50 Mhz
Open	Short	Short	40 MHz
Short	Short	Short	33 MHz
Open	Open	Short	25 Mhz

CPU Clock setting vs. CPU type:

CPU Clock	CPU Type	
50 MHz	Intel	80486DX-50
	Intel	80486DX4-100 (Clock Multiplier = 2)
	Cyrix	Cx486DX-50
40 MHz	AMD	Am80486DX-40 / Am80486DX2-80
	AMD	Enhanced Am486DX2-80
	Cyrix	Cx486S-40 / Cx486DX-40
	UMC	U5S-40
33 MHz	Intel	80486SX-33/80486DX-33/80486DX2-66
	Intel	80486DX4-100 (Clock Multiplier = 3)
	AMD	Am80486DX-33/Am80486DX2-66/Am80486DX4-100
	AMD	Enhanced Am486DX2-66/Am486DX4-100
	Cyrix	Cx486S-33/Cx486DX-33/Cx486DX2-66/M9-100
	UMC	U5S-33
25 MHz	Intel	80486SX-25/80486DX-25/80486DX2-50
	Intel	80486DX4-75 (Clock Multiplier = 3)
	AMD	Am80486DX-25/Am80486DX2-50
	Cyrix	Cx486S-25/Cx486DX-25/Cx486DX2-50/M9-75
	UMC	U5S-25

> **NOTE:**
> For new CPU that are not listed above, please see the data sheet of the CPU or confirm from your vendor.

JP18: Intel 80486DX4 CPU Clock Multiplier → Pin Header 3 x 1

JP18 Position	Clock Multiplier	External Clock	Internal Clock	CPU Type
Open	3	25 MHz	75 MHz	80486DX4-75
Open	3	33 MHz	100 MHz	80486DX4-100
1-2	2.5	33 MHz	83 MHz	80486DX4-83
2-3	2	50 MHz	100 MHz	80486DX4-100

CPU Voltage Setting

For 5 Volt CPU

```
  3  2  1
 ■—■ □   P1
 ■—■ □   P2
 ■—■    P3
```

For 3 Volt CPU

```
  3  2  1
 ■—■    P1
 ■—■    P2
 ■—■    P3
```
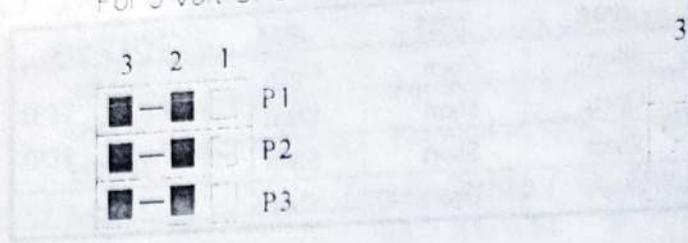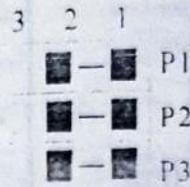
3 Volt CPU Voltage Adjustment: P4-Pin header 5x2

```
 1 ■—■ 2    1 □  ○ 2    1 □  ○ 2    1 □  ○ 2    1 □  ○ 2
 3 ○  ○ 4    3 ■—■ 4    3 ○  ○ 4    3 ○  ○ 4    3 ○  ○ 4
 5 ○  ○ 6    5 ○  ○ 6    5 ■—■ 6    5 ○  ○ 6    5 ○  ○ 6
 7 ○  ○ 8    7 ○  ○ 8    7 ○  ○ 8    7 ■—■ 8    7 ○  ○ 8
 9 ○  ○ 10   9 ○  ○ 10   9 ○  ○ 10   9 ○  ○ 10   9 ■—■ 10

  3.15 Volt     3.3 Volt     3.45 Volt     3.6 Volt      4.0 Volt
```
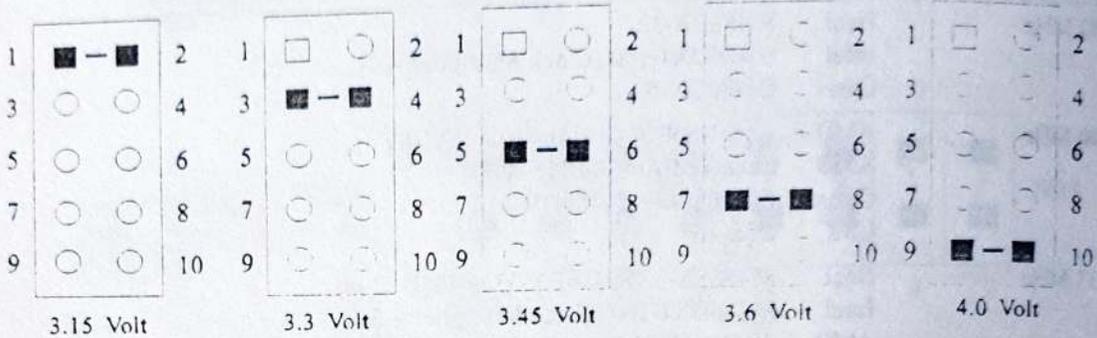
NOTE:
Jumper Setting   O: Open / ■ : Short

CPU Voltage Setting vs. CPU type:

CPU Voltage	CPU Type
3.15 Volt	Reserved
3.3 Volt	Cyrix Cx486DX2-V50
3.45 Volt	Intel 80486DX4 AMD Am486 AMD Enhanced Am486 Cyrix M9
3.6 Volt	Cyrix Cx486DX2-V66
4.0 Volt	Cyrix Cx486DX2-V80

CAUTION:
1. Only one position can be shorted at one time.
2. Check your CPU vendor with the detail CPU's voltage rating specification.

Cache Installation

Cache Specification

This mainboard incorporates a direct mapped level-2 cache controller with on-chip tag comparator. Both "write back" and "write through" cache updates are supported. This cache controller also provides a tag field length option in 7 or 8 bits. When 8-bit tag and write back are selected in BIOS setup, the alter bit is assumed to be always active.

The following is the table of cache size vs. cacheable size:

Cache Size	Data SRAM		TAG SRAM Size	Cacheable DRAM Size	
	Size	Quantity		7 bit Tag	8 bit Tag
128 KB	32 K x 8	4	8 K x 8	16 MB	32 MB
256 KB	32 K x 8	8	16K x 8	32 MB	64 MB
512 KB	128 K x 8	4	32K x 8	64 MB	128 MB
1 MB	128 K x 8	8	64K x 8	128 MB	256 MB

The suggested speed ratings of default BIOS setup is 20 ns.

```
Tag        SRAM      :  U10
Data  SRAM Bank 0 :  U1, U3, U5, U7
Data  SRAM Bank 1 :  U2, U4, U6, U8
```

Cache Jumper Setting

Cache Size	JP6	JP7	JP8	JP9	JP10	JP11	JP12	JP13	TAG SRAM	Data SRAM Type * Qty
128 KB	1-2	2-3	1-2	1-2	2-3	1-2	1-2	2-3	16K x 8 32K x 8	32 K x 8 * 4
256 KB	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	16K x 8	32 K x 8 * 8
	1-2	1-2	1-2	1-2	1-2	1-2	1-2	2-3	32K x 8 64K x 8	64 K x 8 * 4
512 KB	1-2	1-2	1-2	2-3	1-2	1-2	2-3	1-2	32K x 8	64 K x 8 * 8
	1-2	1-2	1-2	2-3	1-2	1-2	2-3	2-3	64K x 8	128 K x 8 * 4
1 MB	2-3	1-2	1-2	2-3	1-2	2-3	2-3	1-2	64K x 8	128 K x 8 * 8

DRAM Installation

DRAM Specification

This mainboard provides a sophisticated page mode DRAM controller. It support the burst mode operations for CPU and PCI master. There are a total of 8 banks for the system main memory that is combined in four 72 pin SIMM module sockets. And auto-configuration is supported in this main board that make it easier for the user to install.

The BIOS setup reserved many options for the DRAM speed selection. Though the users can select different speed of read and write options, it is suggested to choose the same speed for DRAM read and write.

If 70ns of DRAM is used, the OWS timing is designed for 25 MHz, 1 WS for 33 MHz and 2 WS for 40 MHz and 50 MHz.

DRAM Configuration

This board support DRAM auto-sizing for DRAM easy installation. The DRAM module can be 256Kx36, 512Kx36, 1Mx36, 2Mx36, 4Mx36, 8Mx36, 16Mx36, 32Mx36 or 64Mx36 with or without parity.

SIMM4	SIMM3	SIMM2	SIMM1
Group B		Group A	
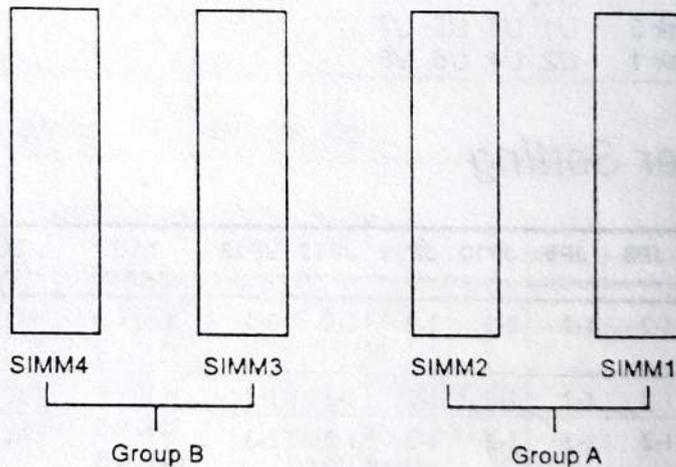
Constraints:
1. SIMM1 and SIMM2 (Group A) must be the same type.
2. SIMM3 and SIMM4 (Group B) must be the same type.
3. The size of group A must larger than, or equal to the size of group B with the exception of group A and B can be interchange.
4. The size of group A and B must not less than 2MB.

DRAM Configuration Table

The DRAM banks configuration table is as follows

SIMM 1	SIMM 2	SIMM 3	SIMM 4	Total
256 K x 36	256 K x 36	—	—	2 MB
512 K x 36	—	—	—	2 MB
—	512 K x 36	—	—	2 MB
—	—	512 K x 36	—	2 MB
—	—	—	512 K x 36	2 MB
256 K x 36	256 K x 36	256 K x 36	256 K x 36	4 MB
256 K x 36	256 K x 36	512 K x 36	—	4 MB
512 K x 36	512 K x 36	—	—	4 MB
512 K x 36	—	512 K x 36	—	4 MB
—	—	512 K x 36	512 K x 36	4 MB
—	512 K x 36	—	512 K x 36	4 MB
1 M x 36	—	—	—	4 MB
—	1 M x 36	—	—	4 MB
—	—	1 M x 36	—	4 MB
—	—	—	1 M x 36	4 MB
256 K x 36	256 K x 36	512 K x 36	512 K x 36	6 MB
256 K x 36	256 K x 36	512 K x 36	512 K x 36	6 MB
—	512 K x 36	512 K x 36	512 K x 36	6 MB
512 K x 36	—	512 K x 36	512 K x 36	6 MB
512 K x 36	512 K x 36	—	512 K x 36	6 MB
512 K x 36	512 K x 36	512 K x 36	—	6 MB
512 K x 36	512 K x 36	512 K x 36	512 K x 36	8 MB
512 K x 36	512 K x 36	1 M x 36	—	8 MB
1 M x 36	1 M x 36	—	—	8 MB
—	—	1 M x 36	1 M x 36	8 MB
1 M x 36	—	1 M x 36	—	8 MB
—	1 M x 36	—	1 M x 36	8 MB
2 M x 36	—	—	—	8 MB
—	2 M x 36	—	—	8 MB
—	—	2 M x 36	—	8 MB
—	—	—	2 M x 36	8 MB
1 M x 36	1 M x 36	256 K x 36	256 K x 36	10 MB
1 M x 36	1 M x 36	512 K x 36	—	10 MB
2 M x 36	—	256 K x 36	256 K x 36	10 MB
512 K x 36	512 K x 36	1 M x 36	1 M x 36	12 MB
1 M x 36	1 M x 36	512 K x 36	512 K x 36	12 MB
2 M x 36	—	1 M x 36	—	12 MB

SIMM 1	SIMM 2	SIMM 3	SIMM 4	Total
1 M x 36	1 M x 36	1 M x 36	1 M x 36	16 MB
2 M x 36	—	1 M x 36	1 M x 36	16 MB
2 M x 36	2 M x 36	—	—	16 MB
—	—	2 M x 36	2 M x 36	16 MB
2 M x 36	—	2 M x 36	—	16 MB
4 M x 36	—	—	—	16 MB
—	4 M x 36	—	—	16 MB
—	—	4 MB x 36	—	16 MB
—	—	—	4 M x 36	16 MB
2 M x 36	—	2 M x 36	2 M x 36	24 MB
2 M x 36	2 M x 36	—	2 M x 36	24 MB
2 M x 36	2 M x 36	2 M x 36	—	24 MB
—	2 M x 36	2 M x 36	2 M x 36	24 MB
2 M x 36	2 M x 36	2 M x 36	2 M x 36	32 MB
4 M x 36	4 M x 36	—	—	32 MB
—	—	4 M x 36	4 M x 36	32 MB
8 M x 36	—	—	—	32 MB
—	8 M x 36	—	—	32 MB
—	—	8 M x 36	—	32 MB
—	—	—	8 M x 36	32 MB
4 M x 36	4 M x 36	256 K x 36	256 K x 36	34 MB
4 M x 36	4 M x 36	1 M x 36	—	36 MB
1 M x 36	—	4 M x 36	4 M x 36	36 MB
4 M x 36	4 M x 36	1M x 36	1 M x 36	40 MB
1 M x 36	1 M x 36	4 M x 36	4 M x 36	40 MB
4 M x 36	4 M x 36	4 M x 36	4 M x 36	64 MB
8 M x 36	8 M x 36	—	—	64 MB
—	—	8 M x 36	8 M x 36	64 MB
16 M x 36	—	—	—	64 MB
—	16 M x 36	—	—	64 MB
—	—	16 M x 36	—	64 MB
—	—	—	16 M x 36	64 MB
8 M x 36	8 M x 36	8 M x 36	8 M x 36	128 MB
16 M x 36	16 M x 36	—	—	128 MB
—	—	16 M x 36	16 M x 36	128 MB
16 M x 36	16 M x 36	16 M x 36	16 M x 36	256 MB

NOTE:
1. " — " signifies not installed.
2. if the DRAM module without parity installed, the parity check should be Disabled" in the BIOS setup.

I/O Installation

Parallel Port LPT1 (CN1) Installation

Jumper Setting

JP2: Pin Header 3 x 1 → LPT1 IRQ Selection

1-2 Short = IRQ5

2-3 Short = IRQ7
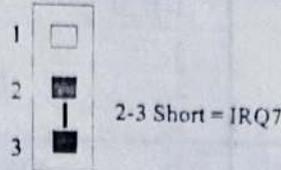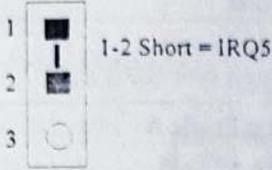
JP32, JP33: Pin Header 3 x 1 → ECP DMA Selection

1-2 Short
ECP DMA Use
DMA Channel 3
(DACK3#, DREQ3)

JP33 JP32

2-3 Short
ECP DMA Use
DMA Channel 1
(DACK1#, DREQ1)

JP33 JP32
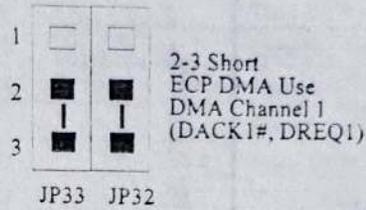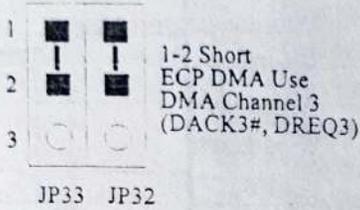
Parallel Port (CN1) Pin Assignment

CN1
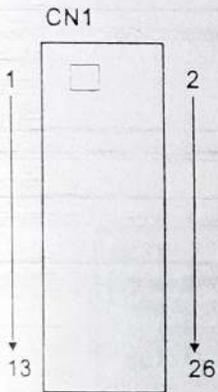
Pin No.	Signal Name Standard/SPP	Signal Name EPP	Signal Name ECP
1	Strobe	Write	Strobe
2-9	Data [0-7]	Data [0-7]	Data [0-7]
10	Acknowledge	Interrupt	Acknowledge
11	Busy	Wait	Busy
12	Paper end	NU	PError
13	Selected status	NU	Select
14	Auto-feed	Data strobe	Auto-feed
15	Error	NU	Fault
16	Initial	NU	Initial
17	Printer select	Address strobe	Printer select
18-25	Ground	Ground	Ground
26	No connection	No connection	No connection

Floppy Disk Port (CN7) Installation

The floppy disk port support up to two floppy disk drive for 360KB, 720KB, 1.44MB or 2.88MB

Floppy Disk Port (CN7) Pin Assignment

CN7
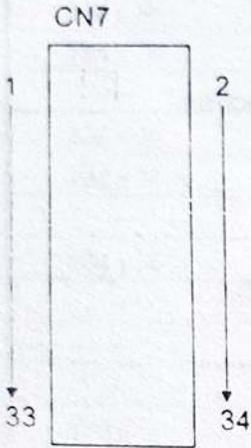
Pin	Signal Name
1-27,31	Ground
2	Density Select
8	Index
10	Motor Enable A
12	Drive Select B
14	Drive Select A
16	Motor Enable B
18	Direction (Stepper Motor)
20	Step Pulse
22	Write Data
24	Write Enable
26	Track 0
28	Write Protect
30	Read Data
32	Select Head 1
34	Disk Change
4,6,29,33	No Connection

Hard Disk Port (CN2/CN3) Installation

The on board hard disk port is built in with PCI Bus Interface with the system and two connectors that support dual channel for up to four drive. The enhanced function support these ports not only for IDE hard disk drive but also for other devices such as CD-ROM drive.

The CN2 is used as primary channel and the CN3 is used as secondary channel. The interrupt to the system is used is used as IRQ14 for primary channel and IRQ15 is used for secondary channel.

Hard Disk Port (CN2/CN3) Pin Assignment

CN2/CN3

1   2

39   40
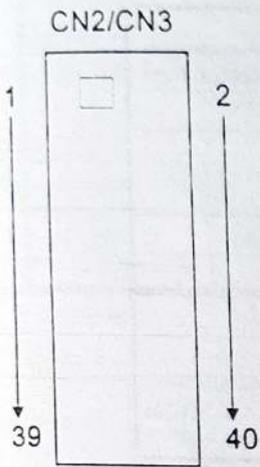
Pin	Signal Name	Pin	Signal Name
1	Reset	2	Ground
3	Data Bit 7	4	Data Bit 8
5	Data Bit 6	6	Data Bit 9
7	Data Bit 5	8	Data Bit 10
9	Data Bit 4	10	Data Bit 11
11	Data Bit 3	12	Data Bit 12
13	Data Bit 2	14	Data Bit 13
15	Data Bit 1	16	Data Bit 14
17	Data Bit 0	17	Data Bit 15
19	Ground	20	No Connection
21	No Connection	22	Ground
23	I/O Write	24	Ground
25	I/O Read	26	Ground
27	I/O Channel Ready	28	No Connection
29	No Connection	30	No Connection
31	Interrupt Request *	32	No Connection
33	Address Bit 1	34	No Connection
35	Address Bit 0	36	Address Bit 2
37	HDD Select 0 *	38	HDD Select 1 *
39	HDD Active	40	Ground

NOTE:
Signal difference between CN2 and CN3 is as follows:
* Interrupt Request   - CN2: IRQ14 /CN3: IRQ15
* HDD Select 0   - CN2: 1F0 (hex)/CN3: 170 (hex)
* HDD Select 1   - CN2: 3F0 (hex)/CN3: 370 (hex)

Serial Port COM1/COM2 (CN5/CN6) Installation

Jumper Setting

JP29: Pin Header 2 x 2 → COM1/COM2 IRQ Selection

JP29
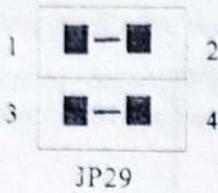
1-2 → COM1 = IRQ3
3-4 → COM2 = IRQ4

JP29
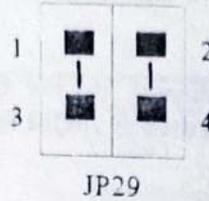
1-3 → COM1 = IRQ4
2-3 → COM2 = IRQ3

COM1/COM2 (CN5/CN6) Pin Assignment
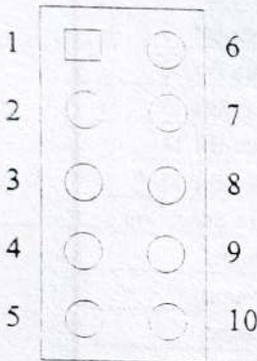
Pin	Signal Name
1	Received line signal detector
2	Received data
3	Transmitted data
4	Data terminal ready
5	Ground
6	Data set ready
7	Request to send
8	Clear to send
9	Ring indicator
10	No connection

Keyboard Connectors

The keyboard connector has two option for the keyboard interface:

Option 1: For standard PC/AT keyboard connector W2, W3, W4 should be set in 1-2 position.

J3: Standard PC/AT Din 5 pin keyboard connector.

Option 2: For PS/2 style keyboard connector W2, W3, W4 should be set in 2-3 position.

J1: PS/2 Mini-Din 6 pin keyboard connector

J4: PS/2 Mini-Din 6 pin mouse connector

System Panel Installation

The system main board provide several connectors to the case panel:

Connector	Function	Pin Assignment	Activity
JP15 SPKR	Speaker	1 Data Output 2 No Connection 3 Ground 4 +5 Volt DC	8 Ω / 0.25 W speaker
JP16 PDSW (Note 1)	Power Down Switch	1 +5 Volt DC 2 Active Input	Open: Normal Short: Suspend
JP17 RESET	Reset	1 Reset Input 2 Ground	Open: Normal Short: Reset
JP18 TBSW	Turbo Switch	1 Turbo Input 2 Ground	Open: Turbo Short: De-Turbo
J19 TBLD (Note 2)	Turbo LED	1 LED Anode 2 LED Cathode	On: Turbo Off: De-Turbo
J20 KBLOCK	Key Lock Switch and Power LED	1 LED Power 2 Ground 3 Ground 4 Keyboard Inhibit 5 Ground	
J21 HDLD	HDD LED	1 LED Power 2 HDD Active	On: Accessing Off: No Accessing

NOTE:
1. The power down suspend switch uses a suggested break-off type.
2. The turbo LED indicate the green mode status.
   Under doze and standby mode, the LED will blink.
   Under suspend mode, the LED will turn off.

CMOS/ROM BIOS Installation

CMOS Clear

JP1: Pin Header 3 x 1

1-2:   Clear CMOS
2-3:   Normal Operation

> **CAUTION:**
> It is best recommended to power off the mainboard before clearning the CMOS.

Flash ROM BIOS Setup

JP14: Pin Header 3 x 1   →   Flash ROM Voltages Type Selection
JP15: Pin Header 3 x 1   →   Set in 2-3 position always.

1
2   1-2 Short = 5 Volt
3

1
2
3   2-3 Short = 12 Volt
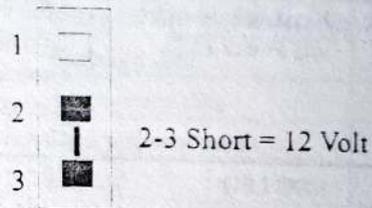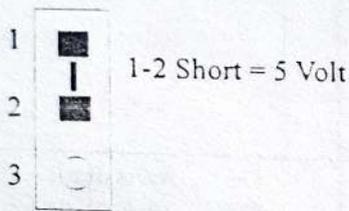
Chapter 3

BIOS Setup

BIOS Overview

Award's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed RAM (CMOS RAM) so that it retains the setup information when the power is turned off.

Entering Setup

Power on the computer and press **Del** immediately will allow you to enter Setup. The other way to enter Setup is to power on the computer, press **Del** key or simultaneously press **Ctrl**, **Alt**, and **Esc** keys when the message below appears briefly at the bottom of the screen.

To Enter SETUP Before Boot Press CTRL-ALT-ESC or DEL Key

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it **OFF** then **ON** or pressing the "**RESET**" button on the system case. You may also restart by simultaneously pressing the **Ctrl**, **Alt**, and **Del** keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will be asked again.

Press F1 to Continue, CTRL-ALT-ESC or DEL to Enter SETUP

Control keys

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item in the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu - Quit and not save changes in CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Change color from total 16 colors
F3 key	Calendar, only for Status Page Setup Menu
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the default CMOS value from BIOS Setup table for safe setting.
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen

Status Page Setup Menu/Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to be use and the possible selections for the highlighted item. To exit the Help Window press **Esc**.

The Main Menu

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (Figure 3-1) will appear on the screen. The Main Menu allows you to select from ten setup functions and two exit choices. Use arrow keys to select among the items and press **Enter** to accept or enter the sub-menu.

```
                    ROM PCI/ISA BIOS (XXXXXXXX)
                        CMOS SETUP UTILITY
                      AWARD SOFTWARE, INC.,

  ┌──────────────────────────────┬──────────────────────────────┐
  │  STANDARD CMOS SETUP          │    SUPERVISOR PASSWORD        │
  │  BIOS FEATURES SETUP          │    USER PASSWORD              │
  │  CHIPSET FEATURES SETUP       │    IDE HDD AUTO DETECTION     │
  │  POWER MANAGEMENT SETUP       │    SAVE & EXIT SETUP          │
  │  PCI/GREEN FUNCTION SETUP     │    EXIT WITHOUT SAVING        │
  │  LOAD BIOS DEFAULTS           │                              │
  │  LOAD SETUP DEFAULTS          │                              │
  │                              │                              │
  ├──────────────────────────────┼──────────────────────────────┤
  │  Esc : Quit                   │  ↑↓→← : Select Item          │
  │  F10 : Save & Exit Setup      │  (Shift) F2: Change Color    │
  ├──────────────────────────────┴──────────────────────────────┤
  │  Time, Date, Hard Disk Type ...                             │
  └──────────────────────────────────────────────────────────────┘
```

Figure 3-1: Main Menu

Standard CMOS Setup

This setup page includes all the items in a standard compatible BIOS

BIOS Features Setup

This setup page includes all the items of Award special enhanced features

Chipset Features Setup

This setup page includes all the items of chipset special features

Power Management Setup

This page setup includes all the items of power saving features.

PCI/Green Function Setup

This page setup includes all the items of the PCI function and Green wakeup event setting.

Load BIOS Defaults

BIOS defaults indicates the most appropriate value of the system parameter on which the system could be in maximum performance.

Load Setup Defaults

Chipset defaults indicates the values required by the system for the minimum performance.

Supervisor Password

This change, set or disable password by limiting your access to Setup.

User Password

Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.

IDE HDD Auto Detection

Automatically configure hard disk parameters.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit without Save

Abandon all CMOS value changes and exit setup.

Standard CMOS Setup Menu

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes one or more setup items. Use the arrow keys to highlight the item and then use the PgUp or PgDn keys to select the value you want in each item.

```
                    ROM PCI/ISA BIOS (XXXXXXXX)
                       STANDARD CMOS SETUP
                      AWARD SOFTWARE, INC.
```

HARD DISKS	TYPE	SIZE	CYLS.	HEADS	PRECOMP	LANDZ	SECTORS	MODE
Primary Master	: User	252	895	10	65535	894	55	Normal
Primary Slave	: None	0	0	0	0	0	0	--------
Secondary Master	: None	0	0	0	0	0	0	--------
Secondary Slave	: None	0	0	0	0	0	0	--------

Date (mm:dd:yy) : Thu, May 2, 1995
Time (hh:mm:ss) : 11 : 22 : 30

Drive A : 1.2 MB, 5 1/4 in.
Drive B : 1.44 MB, 3 1/2 in.

Vide : EGA/VGA
Halt On : All Errors

Base Memory: 640K
Extended Memory: 1024K
Other Memory: 384K

Total Memory: 2048K

Esc : Quit
F1 : Help

↑↓→← : Select Item
(Shift) F2 : Change Color

PU/PD/+/- : Modify

Date

The date format is day, date, month, year. Press F3 to show the calendar.

day	The day, from Sun to Sat, determined by the BIOS and is display-only
date	The date, from 1 to 31 (or the maximum allowed in the month)
month	The month, Jan. through Dec.
year	The year, from 1990 through 2099

Time

The time format is hour, minute, second. The time is calculated base on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

Hard Disk Drive Type

The category identify the types of hard disk drive Primary's Master & Slave and Secondary's Master & Slave that has been installed in the computer. There are 46 predefined types and a user definable type. Type 1 to type 46 are predefined. Type User is user-definable. Press PgUp or PgDn to select a numbered hard disk type or type the number and press Enter. *NOTE*: The specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.

If you select type User, related information is asked to be entered to the following items. enter the information directly from the keyboard and press Enter. Those information should be provided in the documentation from your hard disk vendor or the system manufacturer.

CYLS.	number of cylinders
HEADS	number of heads
PRECOMP	write precom
LANDZONE	landing zone
SECTORS	number of sectors
MODE	Normal/LBA/Large option

If a hard disk has not been installed select NONE and press Enter.

Drive A type/Drive B type

The category identify the types of floppy disk drive A or drive B that has been installed in the computer.

None	No floppy drive installed
360 K 5.25 in	5-1/4 inch PC-type standard drive; 360 kilobyte capacity
1.2 M 5.25 in	5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
720 K 3.5 in	3-1/2 inch double-sided drive; 720 kilobyte capacity
1.44 M 3.5 in	3-1/2 inch double-sided drive; 1.44 megabyte capacity
2.88 M 3.5 in	3-1/2 inch double-sided drive; 2.88 megabyte capacity

Video

The category selects the type of adapter used for the primary system monitor that must match your video display card and monitor. Although secondary monitors are supported, you do not have to select the type in Setup.

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, or PGA monitor adapters
CGA 40	Color Graphics Adapter. power up in 40 column mode
CGA 80	Color Graphics Adapter. power up in 80 column mode
MONO	Monochrome adapter. includes high resolution monochrome adapters

Error Halt

The category determines whether the computer will stop if an error is detected during power up.

No errors	Whenever the BIOS detects a non-fatal error the system will be stopped and you will be prompted.
All errors	The system boot will not be stopped for any error that may be detected
All, But keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error, it will stop for all other errors.
All, But Disk/key	The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

Memory

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memory installed on the mother board, or 640K for systems with 640K or more memory installed on the mother board.

Extended Memory

The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1 MB in the CPU's memory address map.

Other Memory

This refers to the memory located in the 640K to 1024K address space. This memory is used for different applications. DOS uses this area to load device drivers to keep as much base memory free for application programs. Most widely use for this area is Shadow RAM.

BIOS Features Setup Menu

```
Virus Warning                  : Disabled      Video BIOS Shadow          : Enabled
CPU Internal Cache             : Enabled        C8000-CBFFF Shadow         : Disabled
External Cache                 : Enabled        CC000-CFFFF Shadow         : Disabled
Quick Power On Self Test       : Enabled        D0000-D3FFF Shadow         : Disabled
Boot Sequence                  : A, C           D4000-D7FFF Shadow         : Disabled
Swap Floppy Drive              : Disabled       D8000-DBFFF Shadow         : Disabled
Boot Up Floppy Seek            : Enabled        DC000-DFFFF Shadow         : Disabled
Boot Up NumLock Status         : On
Boot Up System Speed           : High
IDE HDD Block Mode             : Disabled
Gate A20 Option                : Fast
Memory Parity Check            : Disabled
Typematic Rate Setting         : Disabled
Typematic Rate (Chars/Sec)     : 6
Typematic Delay (Msec)         : 250
Security Option                : Setup          ESC : Quit          ↑↓→← : Select Item
IDE Second Channel Control     : Enabled        F1  : Help           PU/PD/+/- : Modify
                                                F5  : Old Values     (Shift) F2 : Color
                                                F6  : Load BIOS Defaults
                                                F7  : Load Setup Defaults
```

Figure 3-2: BIOS Features Setup Menu

Virus Warning

This category flashes on the screen. During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and the following error message will appear, in the mean time, run anti-virus program to locate the problem.

```
                              !WARNING!
                  Disk boot sector is to be modified
        Type "Y" to accept write or "N" to abort write
                        Award Software, Inc.
```

Enabled	Activate automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Disabled	No warning message to appear when anything attempts to access the boot sector or hard disk partition table.

CPU Internal Cache/External Cache

These two categories speed up memory access. However, it depends on CPU/Chipset design. The default value is disable.

Enabled	Enable cache
Disabled	Disable cache

Quick Power On Self Test

This category speeds up **Power On Self Test (POST)** after you power on the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

Enabled	Enable quick POST
Disabled	Normal POST

Boot Sequence

This category determines which drive the computer searches first for the disk operating system (i.e., DOS). Default value is A, C.

C, A	System will first search for hard disk drive then floppy disk drive.
A, C	System will first search for floppy disk drive then hard disk drive.

Swap Floppy Drive

This category determines which drive is A or B.

Boot Up Floppy Seek

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while **720K, 1.2M** and **1.44M** are all 80 tracks.

Enabled	BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. **NOTE:** The BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.
Disabled	BIOS will not search for the type of floppy disk drive by track number. **NOTE:** That there will not be any warning message if the drive installed is 360K.

Boot Up NumLock Status

The default value is On.

On	keypad is number keys
Off	keypad is arrow keys

Boot Up System Speed

It selects the default system speed - the speed that the system will run at immediately after power up.

High	Set the speed to high
Low	Set the speed to low

IDE HDD Block Mode

Enabled	Enable IDE HDD Block Mode
Disabled	Disable IDE HDD Block Mode

Gate A20 Option

Normal	keyboard
Fast	chipset

Memory Parity Check

Enabled	Normal memory parity check
.Disabled	Ignore memory parity check

Typematic Rate Setting

This determines the typematic rate.

Enabled	Enable typematic rate
Disabled	Disable typematic rate

Typematic Rate (Chars/Sec)

6	6 characters per second
8	8 characters per second
10	10 characters per second
12	12 characters per second
15	15 characters per second
20	20 characters per second
24	24 characters per second
30	30 characters per second

Typematic Delay (Msec)

When a key is hold, the time between the first and second character will be display.

250	250 msec
500	500 msec
750	750 msec
1000	1000 msec

Security Option

This category allows you to limit access to the system and Setup, or just to Setup.

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

> **NOTE:**
> To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press Enter, it will disable the security. Once the security password is disable, the system will boot and you can enter the Setup.

IDE Second Channel Control

Enabled	Check IDE Second Channel
Disabled	Ignore IDE Second Channel

Video BIOS Shadow

It determines whether video BIOS will be copied to RAM, however, it is optional from chipset design. Video Shadow will increase the video speed.

Enabled	Video shadow is enabled
Disabled	Video shadow is disabled

C8000-CBFFF Shadow/DC000-DFFFF Shadow

These categories determine whether optional ROM will be copied to RAM by 16K byte.

Enabled	Optional shadow is enabled
Disabled	Optional shadow is disabled

Chipset Features Setup Menu

The following pages tells you the options of each item and describe the meaning of each options

```
              ROM PCI/ISA BIOS (XXXXXXXX)
                CHIPSET  FEATURES  SETUP
                AWARD SOFTWARE, INC.
┌─────────────────────────────────────────────────────────────────────────┐
│ Auto Configuration       : Enabled   HOST Clock / PCI Clock  : 1  :  1    │
│                                      Preempt PCI Master Option : Disabled  │
│ DRAM Read Wait States    : 1 WS      IBC DEVEL# Decoding     : Slow        │
│ DRAM Write Wait States   : 1 WS      Alt Bit in Tag SRAM     : 7+1 Bits    │
│ L1 Cache Update Scheme   : Wr-Back   Onboard FDC             : Enabled     │
│ L2 Cache Update Scheme   : Wr-Back   Onboard Serial Port 1   : COM1        │
│ L2 Cache Wait States     : 2-2-2-2   Onboard Serial Port 2   : COM2        │
│ System BIOS Cacheable    : Disabled  COM3 & COM4 Address     : 3E8H, 2E8H  │
│ Video  BIOS Cacheable    : Disabled  Onboard LPT Port        : 278H        │
│ Keyboard Controller Clock: 7.16MHz   Parallel Port Mode      : ECP + EPP   │
│ ISA Bus Clock Option     : PCICLKl/4 Parallel Port EPP Type  : EPP1.9      │
│ Keyboard Emulation       : Enabled                                        │
│ Memory Hole Below 16MB   : NONE                                           │
│ Slow Refresh (1/4 Freq)  : Disabled ┌──────────────────────────────────┐  │
│ I/O Recovery Time        : 2 BCLK   │                ↑↓→← : Select Item │  │
│ HOST-to-PCI Post Write   : 1 WS     │ ESC : Quit                        │  │
│ HOST-to-PCI Burst Write  : Enabled  │ F1  : Help     PU/PD/+/- : Modify │  │
│ PCI Bus Part Option      : Enabled  │ F5  : Old Values (Shift) F2 : Color│  │
│ PCI Posted Memory Write  : Enabled  │ F6  : Load BIOS Defaults          │  │
│ Burst Copy-Back Option   : Enabled  │ F7  : Load Setup Defaults         │  │
└─────────────────────────────────────────────────────────────────────────┘
```

Figure 3-3: Chipset Features Setup

Item	Options	Descriptions
1. Auto Configuration	Enabled	Pre-define value for DRAM cache, timings accord to CPU type & system clock
	Disabled	Users can configure their own timing
	NOTE: When this item is enabled, the pre-defined items will become SHOW-ONLY.	
2. DRAM Read Write States	0,1,2,3 WS	Define the wait states for DRAM read cycle.
3. DRAM Write Wait States	0,1,2,3 WS	Define the wait states for DRAM write cycle.
4. L1 Cache Update Scheme	Wr-Back Wr-Through	Define the CPU Cache Working Scheme
5. L2 Cache Update Scheme	Wr-Back Wr-Through	Define the on-board Cache working scheme.
6. L2 Cache Wait States	2-1-1-1 2-2-2-2 3-1-1-1 3-2-2-2	Define the cache read/write cycle wait states.
7. System BIOS Cacheable	Disabled Enabled	Define whether the system BIOS area is cacheable or not.
8. Video BIOS Cacheable	Disabled Enabled	Define whether the video BIOS area is cacheable or not.
9. Keyboard Controller Clock	7.16 MHz PCICLKI/4 PCICLKI/3 PCICLKI/2	Define the Selection of keyboard clock frequency.
10. ISA Bus Clock Option	PCICLKI/2 PCICLKI/3 PCICLKI/4	Define the selection of ISA clock frequency.
11. Keyboard Emulation	Disabled Enabled	Enabled: The fast gate A20 and fast CPU reset can be emulated by chipset. Disabled: The fast gate A20 and fast CPU reset generated by keyboard controller.
12. Memory Hole Below 16 MB	None, 64K, 128K, 256K 512K, 1M, 2M, 4M, 8M	Define non-local memory region below 16MB.
13. Slow Refresh (1/4 Freq)	Disabled Enabled	Define on-board memory refresh rate.
14. I/O Recovery Time	2,4,8,12 BCLK	Define the delay time from this I/O cycle to next I/O cycle.
15. Host-to-PCI Post Write	0, 1 WS	Define the Host-to-PCI Post Write Buffer's waits.
16. Host-to-PCI Burst Write	Disabled Enabled	Define to enabled/disabled burst write transaction on PCI Bus.

17. PCI Bus Park Option	Disabled Enabled	Enabled If no other request bus, the bus grant is given to Host-bridge. (CPU grant is active even w/o CPU request). Disabled Bus grant is taken depending on master request.
18. PCI Posted Memory Write	Disabled Enabled	Define to enable the post memory write between CPU/PCI
19. Host Clock/PCI Clock	1 : 1 1 : 1/2	Define the selection of PCI clock frequency.
20. Preempt PCI Master Option	Disabled Enabled	Define to enable the PCI device running at master mode.
21. Alt Bit in Tag SRAM	7+1 Bits 8+0 Bits	Define the tag bit length when the L2 cache is in the write back mode, the tag bit length is 7+1 bit. When the L2 cache is in the write-through mode, the tag bit length is always 8+0 bits.

On board I/O peripheral setting description are as follows:

Item	Options	Description
On board FDC	Enable Disable	To enable or disable on-board FDC's function.
On board serial port 1 On board serial port 2	Disable COM1 COM2 COM3 COM4	To set the on board serial port 1 and serial port 2 address for COm1 is 3F8H, for COm2 is 2F8H. As for COM3 and COM4, the setting can be base on the next item options reference.
COM3 & COM4 address	220H, 228H 338H, 238H 3E8H, 2E8H 2E8H, 2E0H	Serial port 1 and 2 can be set as COM3 and COM4 base on the four physical address options.
On board LPT port	Disable 3BCH 378H 278H	Setting for the on board parallel port address.
Parallel Port Mode	Normal	Standard parallel printer port mode
	EPP	Enhanced parallel port mode
	ECP	Extended capabilities port mode
	ECP + EPP	
Parallel Port EPP Type	EPP1.9	For EPP 1.9 protocal
	EPP1.7	For EPP 1.7 protocal

Power Management Setup Menu

The Power Management Setup will appear on your screen as shown below:

```
              ROM PCI/ISA BIOS (XXXXXXXX)
              POWER MANAGEMENT SETUP
              AWARD SOFTWARE, INC.

Power Management      : User Define       * Monitor Event In Full On Mode:
                                          PCI Master2 Check      : Enabled
PM Control by APM     : Enabled           PCI Master1 Check      : Enabled
Video Off Method      : DPMS Support      PCI Master0 Check      : Enabled
HDD Standby Timer     : 2 Min.            LPT Access Check       : Enabled
Doze Timer Select     : 0.25 Min.         COM Access Check       : Enabled
Standby Timer Select  : 2 Min             ISA Master & DMA Check : Enabled
Inactive Timer Select : 2 Min             IDE Access Check       : Enabled
                                          Floppy Access Check    : Enabled
Mode Control : CPU Speed Display          VGA Access Check       : Enabled
Doze Mode    : 1/2 HCLK   Turn On
Standby Mode : 1/4 HCLK   Turn Off
Inactive Mode : Stop CLK

                              ESC : Quit         ↑↓→← : Select Item
                              F1  : Help         PU/PD/+/- : Modify
                              F5  : Old Values   (Shift) F2 : Color
                              F6  : Load BIOS Defaults
                              F7  : Load Setup Defaults
```

Figure 3-4: Power Management Setup Menu

The following pages tells you the options of each item & describes the meaning of each options.

Item	Options	Descriptions
1. Power Management	Disable	Global Power Management will be disabled
	User Define	Users can configure their own power management
	Min. Saving	Pre-defined timer values are used such that all timers are in their MAX value
	Max. Saving	Pre-defined timer values are used such that all timers are in their MIN value
	Optimize	Pre-defined timer valuesare optimized in their setting.
2. PM control by APM	Disabled	System BIOS will ignore APM
	Enabled	System BIOS will wait for APM's prompt before it enter any PM mode. e.g. DOZE. STANDBY or INACTIVE. *NOTE*: If APM is installed, & if there is a task running, even the timer is time out, the APM will not prompt the BIOS to put the system into any power saving mode! If APM is not installed, this option has no effect.
3. Video Off Method	Blank Screen	The system BIOS will only blank off the screen when disabling the video.
	V/H SYNC+Blank	BIOS will also turn off the V-SYNC & H-SYNC signals from VGA cards to monitor when it blank off the screen.
	DPMS Support	Support DPMS function for monitor VGA cards.
4. HDD Power Down	Disable	HDD's motor will not be turn off.
	1 Min. ~ 15 Min.	Sets the time interval after inactivity when the hard disk enters STANDBY mode.
5. Doze Timer Select	0.25 ~ 512 Min.	Sets the time interval after system inactivity when the system enters DOZE mode.
6. Standby Timer Select	2 ~ 256 Min.	Sets the time interval after system inactivity when the system enters STANDBY mode.
7. Inactive Timer Select	2 ~ 256 Min.	Sets the time interval after system inactivity when the system enters INACTIVE mode.
8. Doze Mode	1/2, 1/4 HCLK	Define the CPU working frequency in DOZE mode and display status.
9. Standby Mode	1/4, 1/8 HCLK	Define the CPU working frequency in STANDBY mode and display status.

10. Inactive Mode	1/8 HCLK. Stop clock	Define the CPU working frequency in INACTIVE mode
		NOTE: Display will always enter the standby mode when the system is in inactive mode.
11 PCI Master2Check PCI Master1Check PCI Master0Check LPT Access Check COM Access Check ISA Master & DMA Check IDE Access Check Floppy Access Check VGA Access Check	Disable Enable	The specified event's activity caused the PM timers to be reloaded and the system will not enter the Doze, Standby, Inactive mode.

The following table describes the BIOS default for Dark Green Power Down Sequence:

For *INTEL SL enhanced Cyrix CPU*

Mode	CPUCLK Clock Status	Peripheral Device Status
Normal	CPUCLK = CPUCLK	Normal mode
Doze	CPUCLK = CPUCLK/2	Normal mode
Standby	CPUCLK = CPUCLK/4	HDD Standby CRT Standby
Suspend	CPUCLK = 0 MHz	HDD Standby CRT Standby

For *INTEL Non-SMM, AMD, UMC CPU*

Mode	CPUCLK Clock Status	Peripheral Device Status
Normal	CPUCLK = CPUCLK	Normal mode
Doze	CPUCLK = 8 MHz	Normal mode
Standby	CPUCLK = 8 MHz	HDD Standby CRT Standby
Suspend	CPUCLK = 8 MHz	HDD Standby CRT Standby

PCI/Green Function Setup Menu

The PCI/Green Function Setup Menu will appear on your screen as shown below:

```
                    ROM PCI/ISA BIOS (XXXXXXXX)
                    PCI & GREEN FUNCTION SETUP
                      AWARD SOFTWARE, INC.
─────────────────────────────────────────────────────────────────
 Slot 1 Using INT#        : AUTO    • WakeUp Event In Inactive Mode:
 Slot 2 Using INT#        : AUTO
 Slot 3 Using INT#        : AUTO    Monitor IRQ3  Wake Up   : Enabled
                                    Monitor IRQ4  Wake Up   : Enabled
 1st  Available IRQ       : 10      Monitor IRQ5  Wake Up   : Disabled
 2nd  Available IRQ       : 11      Monitor IRQ6  Wake Up   : Disabled
 3rd  Available IRQ       : 12      Monitor IRQ7  Wake Up   : Disabled
 4th  Available IRQ       : 9       Monitor IRQ9  Wake Up   : Disabled
                                    Monitor IRQ10 Wake Up   : Disabled
 PCI IRQ Actived By       : Edge    Monitor IRQ11 Wake Up   : Disabled
 PCI IDE IRQ Map To       : PCI-Auto Monitor IRQ12 Wake Up  : Disabled
 Primary IDE INT#         : A       Monitor IRQ14 Wake Up   : Enabled
 Secondary IDE INT#       : D       Monitor IRQ15 Wake Up   : Disabled
                                   ─────────────────────────────────
                                    ESC : Quit        ↑↓→← : Select Item
                                    F1  : Help        PU/PD/+/- : Modify
                                    F5  : Old Values  (Shift) F2 : Color
                                    F6  : Load BIOS Defaults
                                    F7  : Load Setup Defaults
─────────────────────────────────────────────────────────────────
```

Figure 3-5: PCI/Green Function Setup Menu

The following tells you the options of each item and describes the meaning of each options

Item	Options	Description
1. Slot 1 Using INT# 2. Slot 2 Using INT# 3. Slot 3 Using INT#	Auto A, B, C, D	These options support the PCI card to set their proper INT# signal to PCI slot. If Auto is selected, the BIOS will scan and set automatically.
4. 1st Available IRQ 5. 2nd Available IRQ 6. 3rd Available IRQ 7. 4th Available IRQ	N/A, 5, 7, 9, 10, 11, 12, 14, 15.	These options are used to define the re-route IRQ signal for PCI INT# signal.
8. PCI IRQ Actived By	Edge Level	These options are used to define the IDE IRQ which is level or edge trigger.
9. PCI IDE Controller	Enabled Disabled	This option is used to enable or disable on board PCI IDE controller.
10. PCI IDE IRQ Map To	ISA PCI - Auto PCI - Slot 1 PCI - Slot 2 PCI - Slot 3	These options set the OFF-BOARD PCI IDE controller resident on PCI slot 1, 2, 3 or ISA slot.
11. Primary IDE INT#	A, B, C, D	Define the primary IDE interrupt.
12. Secondary IDE INT#	A, B, C, D	Define the secondary IDE interrupt.
13. Monitor IRQ3 Wake Up Monitor IRQ4 Wake Up Monitor IRQ5 Wake Up Monitor IRQ6 Wake Up Monitor IRQ7 Wake Up Monitor IRQ9 Wake Up Monitor IRQ10 Wake Up Monitor IRQ11 Wake Up Monitor IRQ12 Wake Up Monitor IRQ14 Wake Up Monitor IRQ15 Wake Up	Enabled Disabled	The specified event's activity caused the system in Doze, Standby, Inactive mode back to full on mode.

Password Setting

The system BIOS support dual password function: the password security can support either the user password, supervisor password, both or none of the above. The user password can not enter BIOS Setup for modification.

When you select these function, the following message will appear at the center of the screen to assist you in creating a password.

> Enter Password:

Type the password, up to eight characters, and press Enter. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press **Enter**. You may also press **Esc** to abort the selection and not enter a password.

To disable password, just press **Enter** when you are prompted to enter password. A message will confirm the password being disabled.

> Password Disabled

The user can change or remove his password while the supervisor can do both.

Once the password is disabled, the system will boot and you can enter the Setup once again. If you select System at Security Option of BIOS Features Setup Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup. If you select Setup at Security Option of BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

Power-On Boot

After you have made all the changes to CMOS values and the system can not boot with the CMOS values selected in Setup, restart the system by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart the system by simultaneously pressing **Ctrl**, **Alt**, and **Delete** keys. Upon re-starting the system, immediately press **Insert** to load BIOS default CMOS value for boot up.

Appendix A

Cable Specification

Serial Port Ribbon Cable I
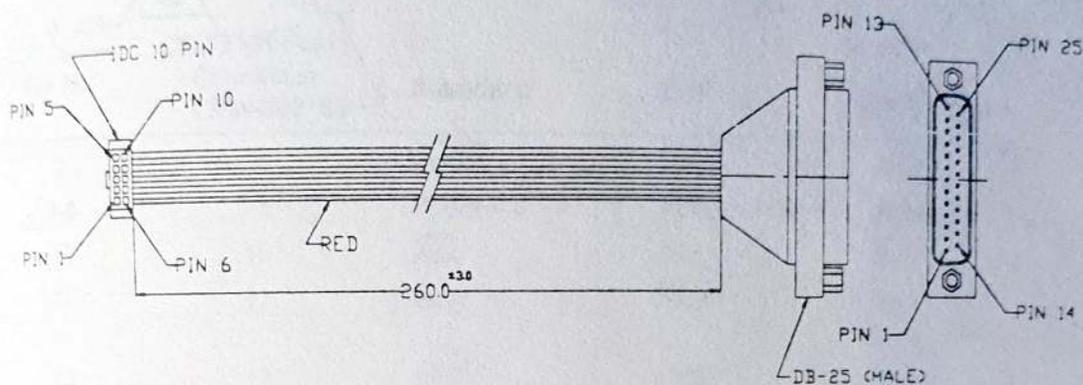
IDC 10 Pin Pin No.		DB-25 (Male) Pin No.	Description
1	↔	8	Received Line Signal Detector
2	↔	3	Received Data
3	↔	2	Transmitted Data
4	↔	20	Data Terminal Ready
5	↔	7	Signal Ground
6	↔	6	Data Set Ready
7	↔	4	Request to Send
8	↔	5	Clear to Send
9	↔	22	Ring Indicator
10	↔	N.C.	

NOTE:
N.C. signifies no connection

Serial Port Ribbon Cable II

PIN 5

260.0 ±3.0

PIN 10

PIN 6

RED

PIN 1

IDC 10 PIN

PIN 9

PIN 5

PIN 1

PIN 6
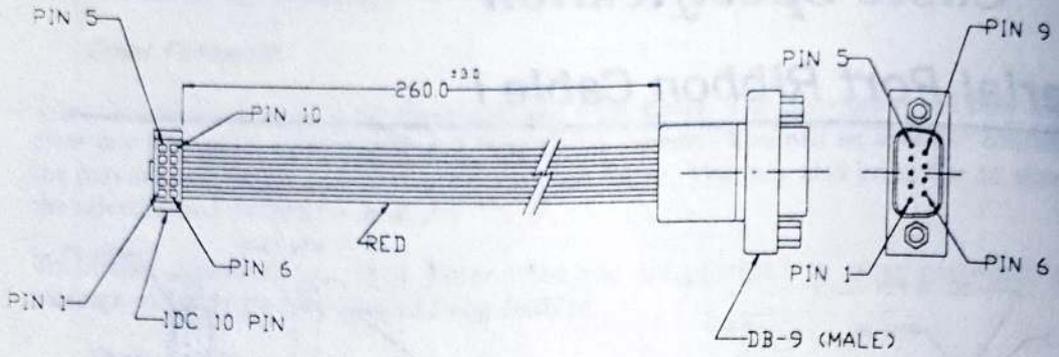
DB-9 (MALE)

IDC 10 Pin Pin No.		DB-9 (Male) Pin No.	Description
1	↔	1	Received Line Signal Detector
2	↔	2	Received Data
3	↔	3	Transmitted Data
4	↔	4	Data Terminal Ready
5	↔	5	Signal Ground
6	↔	6	Data Set Ready
7	↔	7	Request to Send
8	↔	8	Clear to Send
9	↔	9	Ring Indicator
10	↔	N.C.	

NOTE:
N.C. signifies no connection

Parallel Port Ribbon Cable
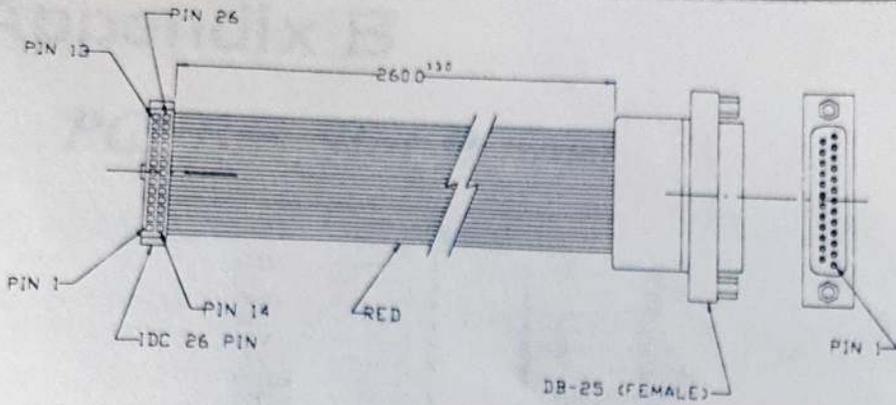
IDC 26-pin Pin No.	DB-25 (Female) Connector Pin No.	Standard	EPP	ECP
1	1	Strobe	Write	Strobe
2-9	2-9	PData < 0:7 >	PData < 0:7 >	PData < 0:7 >
10	10	Ack	Intr	Ack
11	11	Busy	Wait	Busy, PeriphAck(3)
12	12	PE	(NU)	PError, AckReverse(3)
13	13	Select	(NU)	Select
14	14	Autofd	Datastb	AutoFd, HostAck(3)
15	15	Error	(NU)	Fault(1) PeriphRequest(3)
16	16	Init	(NU)	Init(1) ReverseRqst(3)
17	17	Selecting	Addrstrb	SelectIn (1,3)

(1)= Compatible Mode

(3)= High Speed Mode

> **NOTE:**
> For the cable interconnection required for ECP support and the Slave Connector pin numbers, refer to the IEEE 1284 Extended Capabilities Port Protocol and ISA Standard, Rev. 1.09, Jan. 7, 1993. This document is available from Microsoft.

Appendix B

PCI Bus Slot Pinout

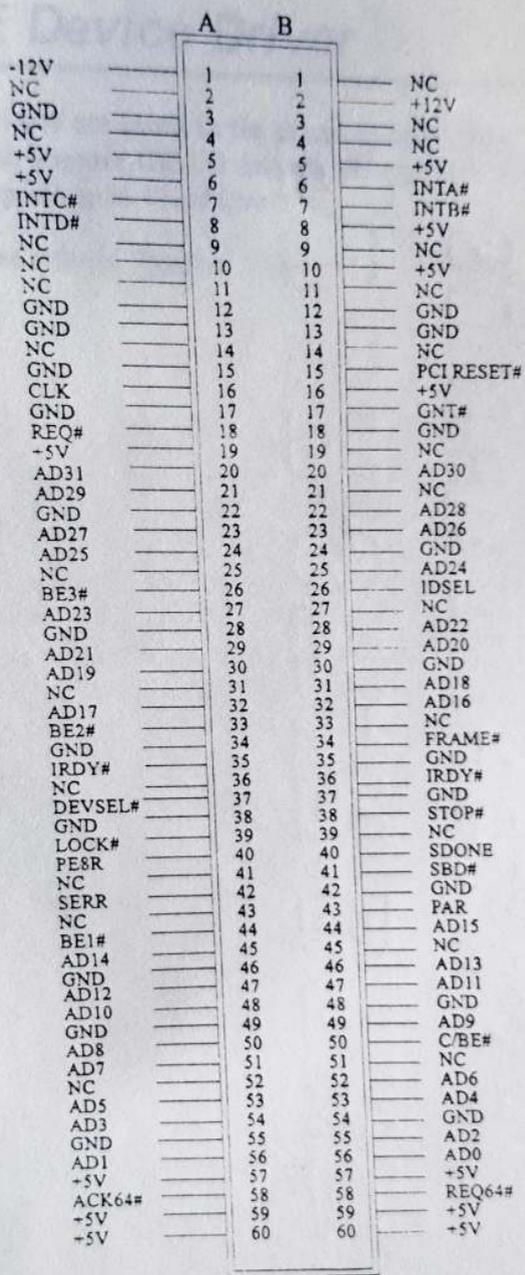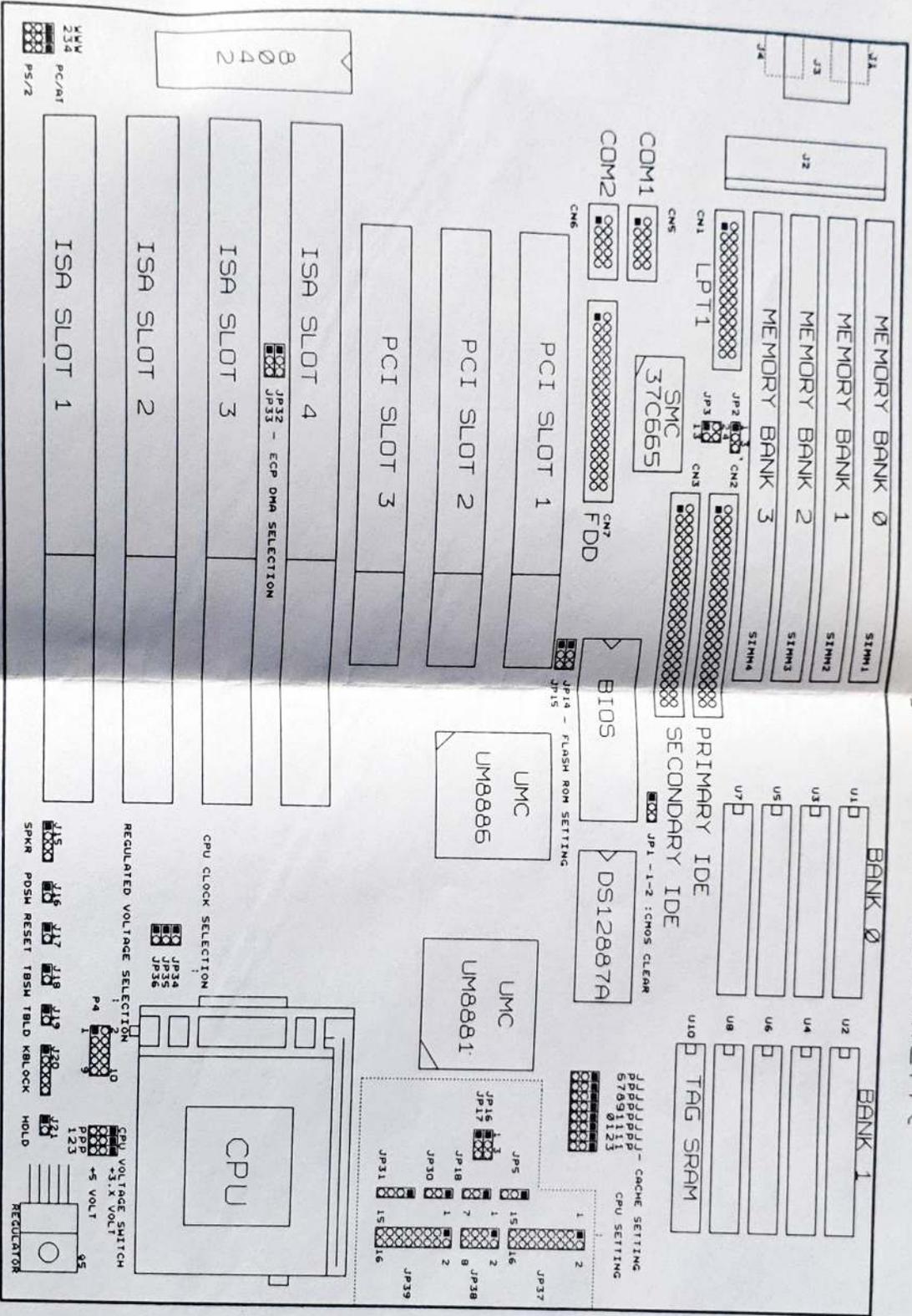| A	Pin		Pin	B
-12V	1		1	NC
NC	2		2	+12V
GND	3		3	NC
NC	4		4	NC
+5V	5		5	+5V
+5V	6		6	INTA#
INTC#	7		7	INTB#
INTD#	8		8	+5V
NC	9		9	NC
NC	10		10	+5V
NC	11		11	NC
GND	12		12	GND
GND	13		13	GND
NC	14		14	NC
GND	15		15	PCI RESET#
CLK	16		16	+5V
GND	17		17	GNT#
REQ#	18		18	GND
+5V	19		19	NC
AD31	20		20	AD30
AD29	21		21	NC
GND	22		22	AD28
AD27	23		23	AD26
AD25	24		24	GND
NC	25		25	AD24
BE3#	26		26	IDSEL
AD23	27		27	NC
GND	28		28	AD22
AD21	29		29	AD20
AD19	30		30	GND
NC	31		31	AD18
AD17	32		32	AD16
BE2#	33		33	NC
GND	34		34	FRAME#
IRDY#	35		35	GND
NC	36		36	IRDY#
DEVSEL#	37		37	GND
GND	38		38	STOP#
LOCK#	39		39	NC
PE8R	40		40	SDONE
NC	41		41	SBD#
SERR	42		42	GND
NC	43		43	PAR
BE1#	44		44	AD15
AD14	45		45	NC
GND	46		46	AD13
AD12	47		47	AD11
AD10	48		48	GND
GND	49		49	AD9
AD8	50		50	C/BE#
AD7	51		51	NC
NC	52		52	AD6
AD5	53		53	AD4
AD3	54		54	GND
GND	55		55	AD2
AD1	56		56	AD0
+5V	57		57	+5V
ACK64#	58		58	REQ64#
+5V	59		59	+5V
+5V	60		60	+5V

Appendix C

PCI IDE Driver

PCI Bus IDE Device Driver

PCI Bus IDE Device Drivers are saved in the driver diskette. These drivers are not only designed for UM8886A to improve IDE I/O data transfer rate between IDE hard disk(s) and your system, but also support up to 4 hard drives.

Before installation please refer to "Readme" file in the driver diskette.

Appendix D : PCB Layout Placement

J1
J3
J4

J2

MEMORY BANK 0	SIMM1
MEMORY BANK 1	SIMM2
MEMORY BANK 2	SIMM3
MEMORY BANK 3	SIMM4

LPT1
CN1

COM1
CN5

COM2
CN6

JP2 JP3
CN2 CN3

SMC
37C665

CN7
FDD

234
www

PC/AT

PS/2

JP32 JP33 - ECP DMA SELECTION

ISA SLOT 4

ISA SLOT 3

ISA SLOT 2

ISA SLOT 1

PCI SLOT 1

PCI SLOT 2

PCI SLOT 3

JP14 - FLASH ROM SETTING
JP15

BIOS

PRIMARY IDE

SECONDARY IDE

JP1-1-2 : CMOS CLEAR

BANK 0

U1	U2
U3	U4
U5	U6
U7	U8

BANK 1

U10 TAG SRAM

JJJJJJJJ- CACHE SETTING
PPPPPPPP
67891111
    0123
CPU SETTING

UMC
UM8886

UMC
UM8881

DS12887A

JP16 JP17
JP5
1S 1S
JP31 JP30 JP18 JP38 JP37
JP39

CPU VOLTAGE SWITCH
+3.X VOLT
+5 VOLT
PPP
123

REGULATED VOLTAGE SELECTION
P4
0
1
9

CPU CLOCK SELECTION

JP34
JP35
JP36

CPU

J15 J16 J17 J18 J19 J20 J21
SPKR PDSM RESET TBSM TBLD KBLOCK HOLD

REGULATOR
+5

2408