

**GMB-486SPC  
80486 PCI Green  
Mainboard  
User's Guide**

Version 1.00



---

## ABOUT THIS GUIDE

This guide contains instructions for configuring and installing the mainboard.

- ! Chapter 1, **Introduction**, acquaints user with the special features of the mainboard.
- ! Chapter 2, **Hardware Configuration**, gives information on configuring memory and setting the mainboard's jumpers. Brief sections on installing memory.
- ! Chapter 3, **Mainboard Installation**, is an overview of how to install the mainboard in a system.
- ! Chapter 4, **BIOS Setup**, provides the BIOS information for system configuration.
- ! Chapter 5, **BIOS POST Messages**, provides references for all POST error messages .
- ! Chapter 6, **BIOS Default Drive Table**, provides a Default Drive Disk table contained in Setup.

## WARNING

For the system to operate normally, please make sure JP6 of the mainboard is set as below. Refer to Fig 2 in this manual for the location JP6.



If JP6 is open, no CMOS data can be retained.

The information presented in this publication has been carefully checked for reliability; however, no responsibility is assumed for inaccuracies, whereas, specification is subjected to change without notice.

All rights reserved. No part of this Manual may be reproduced in any form without the written permission.

## UNPACKING THE MAINBOARD

The Mainboard comes packed in a sturdy cardboard shipping carton. The carton contains:

- ! The Mainboard
- ! PCI IDE Driver Diskette
- ! 40-pin Hard Disk Cable
- ! This User's Guide

*Note: Do not remove the mainboard from its original packing until ready to install.*

The mainboard is easily damaged by static electricity. Observe the following precautions while unpacking and installing the mainboard.

1. Touch an unpainted area of the system chassis before handling the mainboard or any component. Doing so, discharges the static charge the user's body may have built.
2. Remove the mainboard from its anti-static wrapping and place it on a grounded surface, component side up.
3. Inspect the mainboard for damage. Shipping may have loosened integrated circuits from their sockets. If any integrated circuit appears loose, press carefully to seat it firmly in this socket.

Do not apply power if the mainboard appears damaged. If there is damage to the board, or items are missing, contact dealer immediately.

---

## CONTENTS

<b>CHAPTER 1</b>	<b>INTRODUCTION</b>	<b>1</b>
1.1	KEY FEATURES	1
1.2	MAINBOARD COMPONENTS	3
1.3	PCI LOCAL BUS SPECIAL FEATURES	4
<b>CHAPTER 2</b>	<b>HARDWARE CONFIGURATION</b>	<b>5</b>
2.1	JUMPER AND MEMORY BANK LOCATIONS	5
2.2	JP1-JP5, JP7-JP9, JP15-JP22, JP45, JP49 - CPU TYPE CONFIGURATION	6
2.3	CPU INSTALLATION	14
2.4	CACHE CONFIGURATION	14
2.4.1	UPGRADING CACHE	15
2.4.2	CACHE SIZE AND MEMORY LOCATIONS	15
2.4.3	CACHE CHIP SOCKETS AND JUMPER LOCATIONS	16
2.4.4	JP23-JP25, JP36, JP37 - CACHE & TAG RAM JUMPER SETTING	17
2.4.5	INSTALLING CACHE CHIPS	18
2.5	JP12, JP13 - ON BOARD PCI IDE SELECTION	19
2.6	JP6 - CMOS RAM BATTERY SETTING	19
2.7	JP44 - MONITOR SETTING	20
2.8	JP34 - CPU CLOCK DELAY	20
2.9	JP30, JP31, JP32 - CPU CLOCK FREQUENCY CONFIGURATION	21
2.10	JP28 - FLASH ROM JUMPER	21
2.11	MEMORY INSTALLATION	22
2.11.1	INSTALLING SIMM	25
<b>CHAPTER 3</b>	<b>MAINBOARD INSTALLATION</b>	<b>27</b>
3.1	COMPONENTS	27
3.2	INSTALLING THE MAINBOARD	28
3.3	CONNECTION THE MAINBOARD	28
3.3.1	CONNECTION LOCATIONS	29

---

3.4	CONNECTORS	29
3.4.1	J1 - KEYBOARD CONNECTOR	29
3.4.2	J2 - POWER SUPPLY CONNECTOR	30
3.4.3	J3 - EXTERNAL BATTERY	30
3.4.4	J4 - ON BOARD PCI IDE 1 HDD CONNECTOR	31
3.4.5	J5 - ON BOARD PCI IDE 2 HDD CONNECTOR	31
3.4.6	J6 - GREEN PC BREAK SWITCH	31
3.4.7	J7 - TURBO LED CONNECTOR	31
3.4.8	J8 - RESET SWITCH CONNECTOR	32
3.4.9	J9 - TURBO SWITCH CONNECTOR	32
3.4.10	J10 - SPEAKER CONNECTOR	33
3.4.11	J11 - KEYLOCK & POWER LED CONNECTOR	33
3.4.12	JP10 - HARD DISK LED CONNECTOR	34
3.5	HARDDISK INSTALLATION	34
3.6	HARDWARE/SOFTWARE INSTALLATION	35
3.7	SYSTEM ASSEMBLY OVERVIEW	36
<b>CHAPTER 4</b>	<b>AWARD BIOS SETUP</b>	<b>37</b>
4.1	ENTERING SETUP	37
4.2	CONTROL KEYS	38
4.3	GETTING HELP	38
4.4	THE MAIN MENU	39
4.4.1	STANDARD CMOS SETUP MENU	40
4.4.2	BIOS FEATURES SETUP MENU	41
4.4.3	CHIPSET FEATURES SETUP MENU	42
4.4.4	POWER MANAGEMENT SETUP MENU	43
4.4.5	PCI CONFIGURATION SETUP MENU	45
4.4.6	LOAD BIOS DEFAULTS MENU	46
4.4.7	LOAD SETUP DEFAULTS MENU	46
4.4.8	PASSWORD SETTING MENU	46
4.4.9	IDE HDD AUTO DETECTION MENU	47
4.4.10	HDD LOW LEVEL FORMAT MENU	48
4.4.11	SAVE & EXIT SETUP MENU	50
4.4.12	EXIT WITHOUT SAVING MENU	50

---

<b>CHAPTER 5</b>	<b>BIOS POST MESSAGE</b>	<b>51</b>
5.1	POST BEEP	51
5.2	ERROR MESSAGES	51
<b>CHAPTER 6</b>	<b>BIOS DEFAULT DRIVE TABLE</b>	<b>57</b>

---

# CHAPTER 1 INTRODUCTION

The mainboard is a 2/3 body AT size high-performance mainboard that provides with basic elements on which to build an advanced computer. The mainboard running from 25MHz to 100MHz, supports Normal 486 CPUs, Intel's SL-Enhanced 486, Cyrix Cx486S/DX/DX2, UMC U5SX-486, P24D/P24T; and optionally support P24C(486DX4), Am486DX2/DX4(3.45V), Enhanced Am486DX2/DX4 (3.45V), and Cx486DX2-V66/V80 (3.6-4.0V) CPUs.

## 1.1 KEY FEATURES

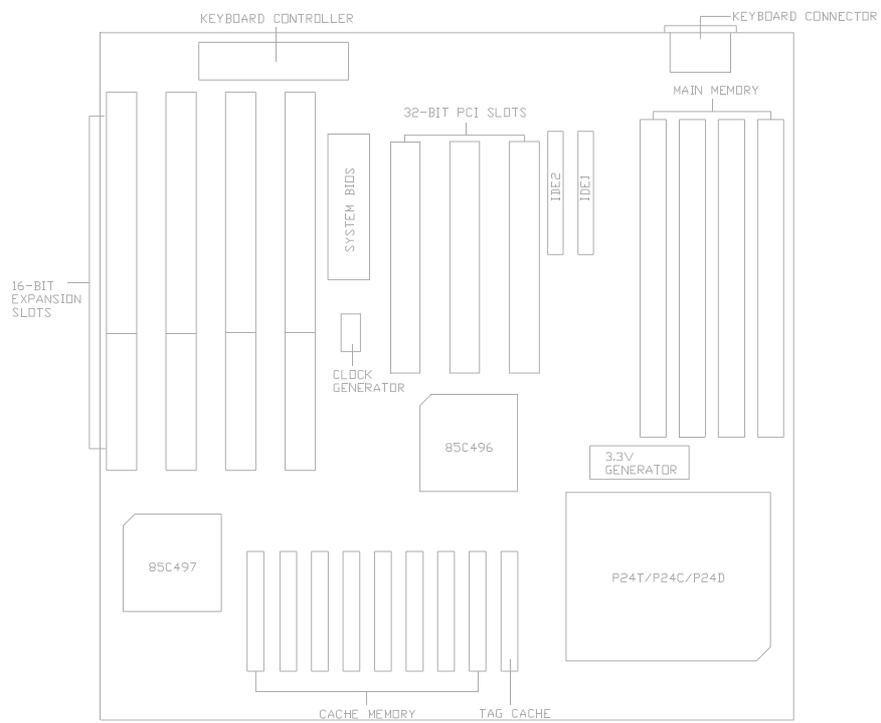
The advanced features of the mainboard include:

- ! Supports Intel's SL Enhanced 80486DX2/DX/SX, Cyrix's Cx486S/DX/DX2, UMC U5SX-486, normal 486, P24D/P24T; and optionally support P24C(486DX4), Am486DX2/DX4(3.45V), Enhanced Am486DX2/DX4 (3.45V), and Cx486DX2-V66/V80 (3.6-4.0V) CPUs.
- ! Supports Cache Write back CPU (P24T/P24D/Cx486S/DX/DX2/DX2V)/ Enhanced Am486DX2/DX4.
- ! 100% IBM PC-AT and PCI 2.0 compatible, 486 PCI solution.
- ! Provides power saving features to allow a system, through the control of BIOS, to reduce the CPU clock frequency down to 0MHz (STOP CLOCK) when the system is idle.
- ! Supports Power Management Mode
  - Supports the SMM and the SMI
  - CPU Stop Clock Function
  - Long and Short System Timers
  - Supports the APM control
  - Supports Break Switch control
  - Power Saving also on non-SMI CPU
  - More System Event Monitoring and the Power saving Control

- ! Jumper select CPU supply voltage of 3.3/3.45/3.6/4.0/5.0V
- ! Direct Mapped Cache Controller
  - Write-Back or Write-Through Schemes
  - Bank Interleave or Non-Interleave Cache
  - Flexible Cache Size: 128/256/512/1024KB
- ! Memory size from 1MB to 128MB, possible using combinations of 1M, 2M, 4M, 8M, 16M, 32M, or 64M 72-pin SIMM modules in four memory banks.
- ! Provide 2 enhanced PCI IDE channels which support up to 4 IDE devices.
- ! Easy upgrade the system, just change CPU, or and alter jumper only.
- ! System & video Bios Shadow, optional caching of shadowed system & video BIOS.
- ! Flash ROM support.
- ! Hidden DRAM refresh support.
- ! Support KB control Turbo/Deturbo mode select.
- ! Support 7 Direct Memory Access channels and 16 Interrupt levels.
- ! Four 16-bit I/O slots, and three PCI Local Bus master slots.
- ! Battery backup for CMOS configuration and real time clock/calender.
- ! 8MHz AT Bus clock & speed changeable by hardware or keyboard, CPU clock adjustable by jumper.
- ! User Defined Password to inhibit illegal access.
- ! 2/3 Baby AT board size = 220mm(W) X 230mm(L).

## **1.2 MAINBOARD COMPONENTS**

This section gives a brief description of key components on the mainboard. Refer to Fig 1 for component locations.



**Fig 1 Key Components of the Mainboard**

### **1.3 PCI LOCAL BUS SPECIAL FEATURES**

- ! PCI (Peripheral Component Interconnect) Local-Bus is the latest Local Bus Standard which adapts the high performance and supports the future standard on the PC industry.
- ! Three PCI slots are provided on the mainboard support up to three Bus Master devices.
- ! PCI BIOS supports the PCI device configuration, and fully compatible with existing drivers and application software.
- ! Synchronous Bus operates in 32-bit with up to 40MHz.

## CHAPTER 2      **HARDWARE**

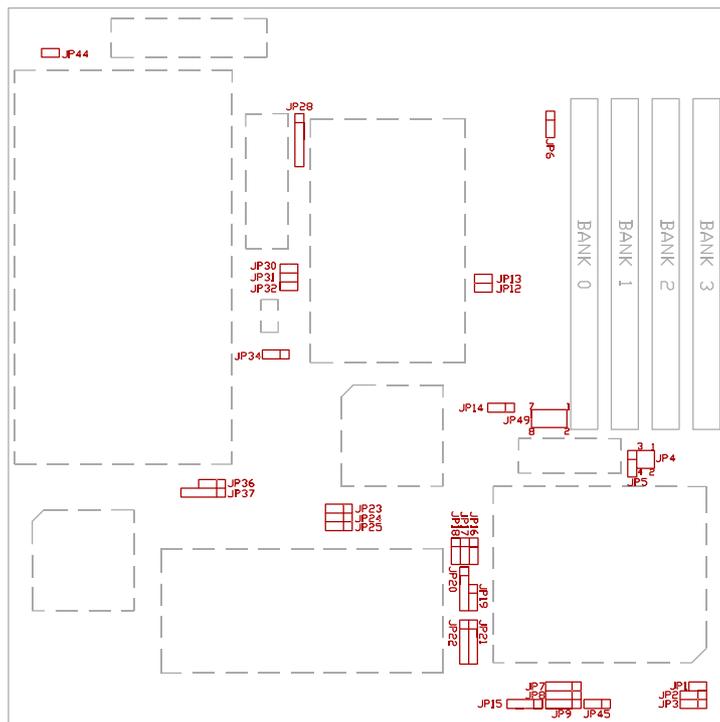
### **CONFIGURATION**

This chapter describes how to set the mainboard jumpers for cache memory and display type, and how to install memory modules.

Before beginning the configuration, user should take the following precautions:

- !      Turn off the power supply, and unplug the power cord before begin.
- !      Unplug all cables that connect the mainboard to any external devices.

#### 2.1   **JUMPER AND MEMORY BANK LOCATIONS**

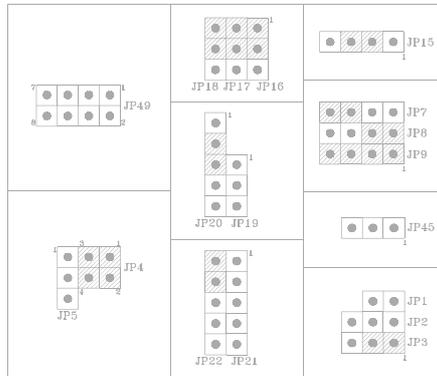


**Fig 2 Jumper and Memory Bank Locations**

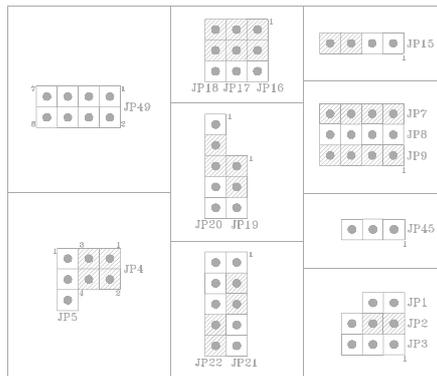
## 2.2 JP1-JP5, JP7-JP9, JP15-JP22, JP45, JP49 - CPU TYPE CONFIGURATION

The mainboard can support processor at different speed. Various jumper are required to setup for installing different CPU. Refer to Fig 2 for the jumpers location, and set the jumper according to the following table:

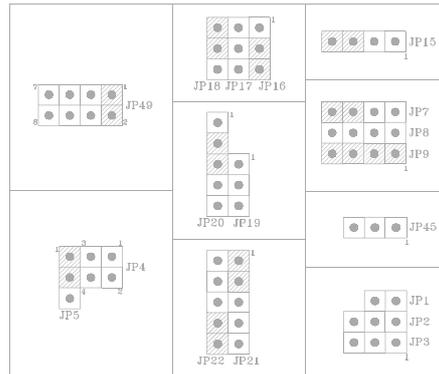
### JP1-JP5, JP7-JP9, JP15-JP22, JP45, JP49 --CPU Type Configuration



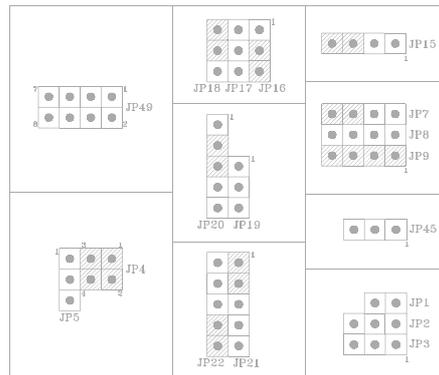
**Table 1A: CPU Type:- P24T**



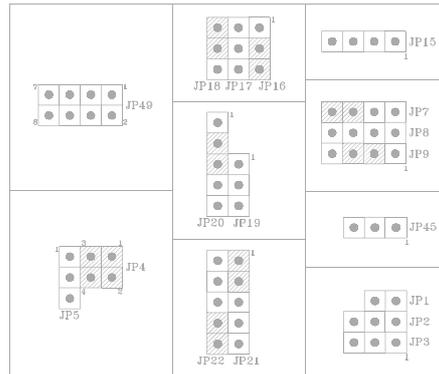
**Table 1B: CPU Type:- P24D**



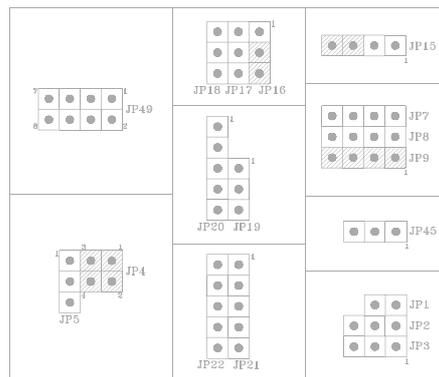
**Table 1C: CPU Type:- P24C (DX4) (3.3V) (Optional)**



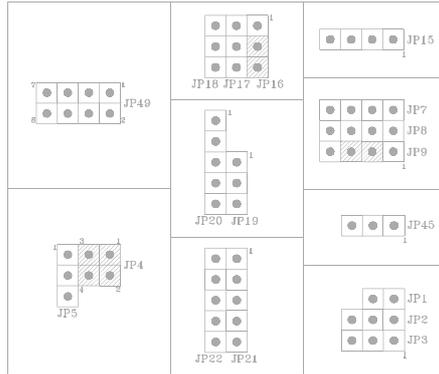
**Table 1D: CPU Type:- SLE 486DX/DX2**



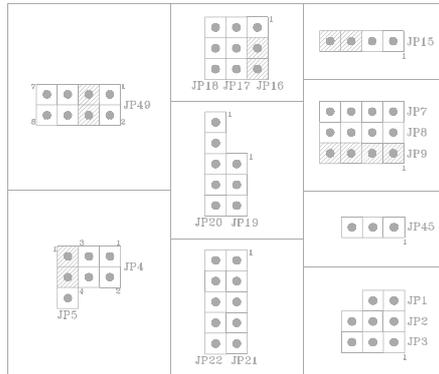
**Table 1E: CPU Type:- SLE 486SX**



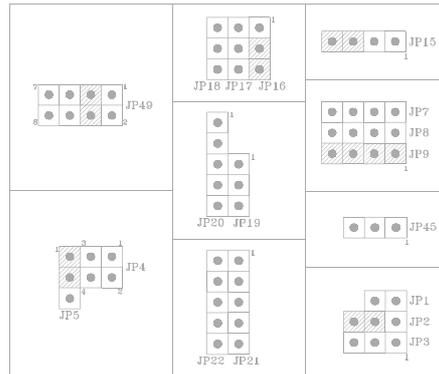
**Table 1F: CPU Type:- 486DX/DX2**



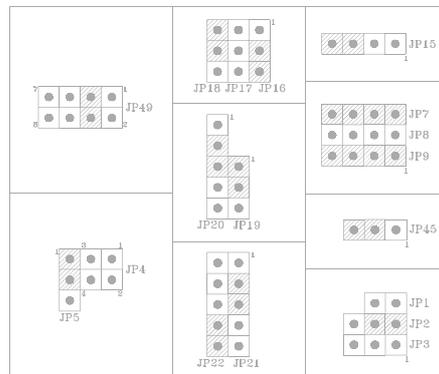
**Table 1G: CPU Type:- 486SX**



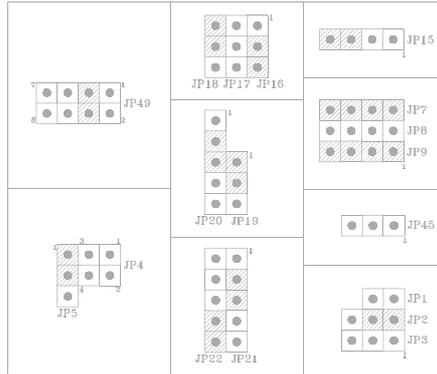
**Table 1H: CPU Type:- Am486 DX4 (3.45V) (Optional)  
(A80486DX4-100NV8T)**



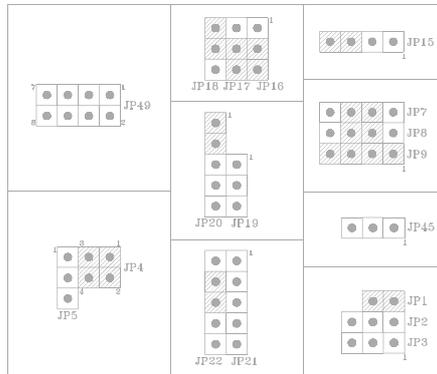
**Table 1I: CPU Type:- Am486DX2 (3.45V) (Optional)  
(A80486DX2-XXNV8T)**



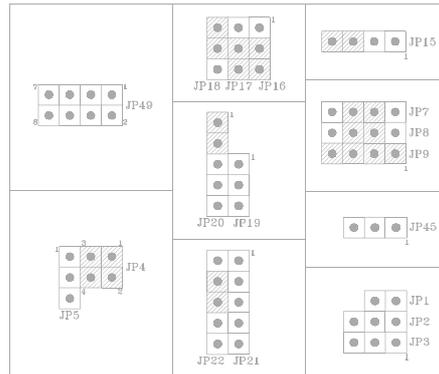
**Table 1J: CPU Type:- Enhanced Am486DX2 (3.45V) (Optional)  
(A80486DX2-XX5V8B)**



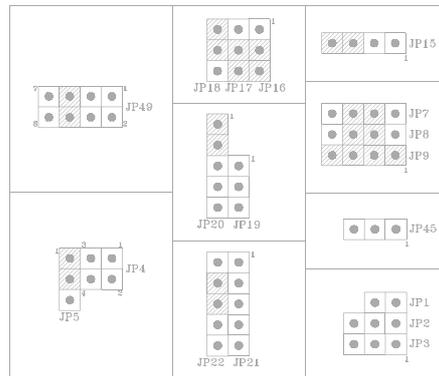
**Table 1K: CPU Type:- Enhanced Am486DX4 (3.45V) (Optional) (A80486DX4-1005V8B)**



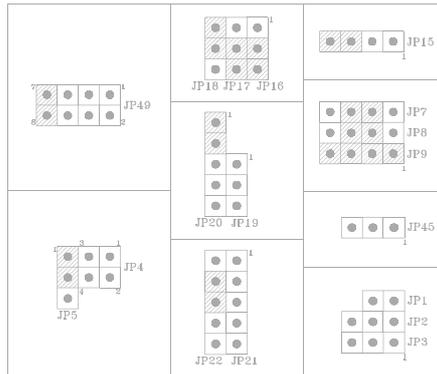
**Table 1L: CPU Type:- Cx486S2**



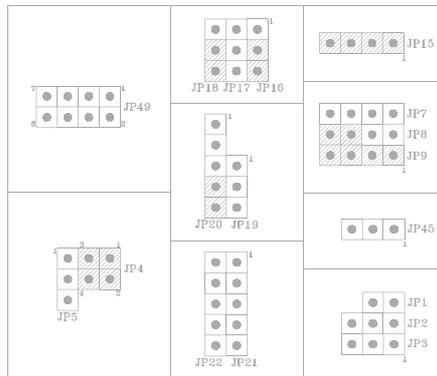
**Table 1M: CPU Type:- Cx486DX/DX2**



**Table 1N: CPU Type:- Cx486DX2-V66 (3.6V) (Optional)**



**Table 10: CPU Type:- Cx486DX2-V80 (4.0V) (Optional)**



**Table 1P: CPU Type:- UMC U5SX-486**

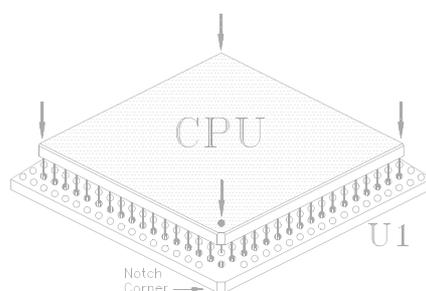
## 2.3 CPU INSTALLATION

The mainboard has a socket that can support 486 CPU. See Fig 1 in Chapter 1 for the socket's location.

Install the 486 CPU as follows:

*Caution:* Static electricity can damage the processor.

1. Plug the 486 CPU into the socket, with the notch corner aligned.



**Fig 3 Installing a CPU**

2. Change the CPU type jumper setting according to the CPU Jumper Setting table on the previous pages.

## 2.4 CACHE CONFIGURATION

The special feature of the mainboard is a built-in direct-mapped cache controller with optional write-back or write-through operation which supports 128KB, 256KB, 512KB or 1024KB cache memory.

The mainboard has a built-in cache controller. It requires external SRAM as tag and cache memory. The caching Scheme is direct mapping with selectable write-back or write-through operation. The mainboard allows 128KB, 256KB, 512KB, and 1024KB cache configurations. Memory size is selected by the hardware jumpers and the BIOS setup program.

### 2.4.1 UPGRADING CACHE

The mainboard is available with an optional 128KB, 256KB, 512KB or 1024KB cache memory on-board. User can upgrade cache memory by installing additional SRAM (Static Random Access Memory) chips in sockets U9, U11, U19, U24, U10, U14, U20, U25; U8.

The speed of the SRAM chips needed depends on the clock speed of the microprocessor:

**25MHz** clock requires **25ns (tag)** and **25ns (data)** SRAM chips.

**33MHz, 40MHz** clock CPU requires **20ns (tag)** and **20ns (data)** SRAM chips.

### 2.4.2 CACHE SIZE AND MEMORY LOCATIONS

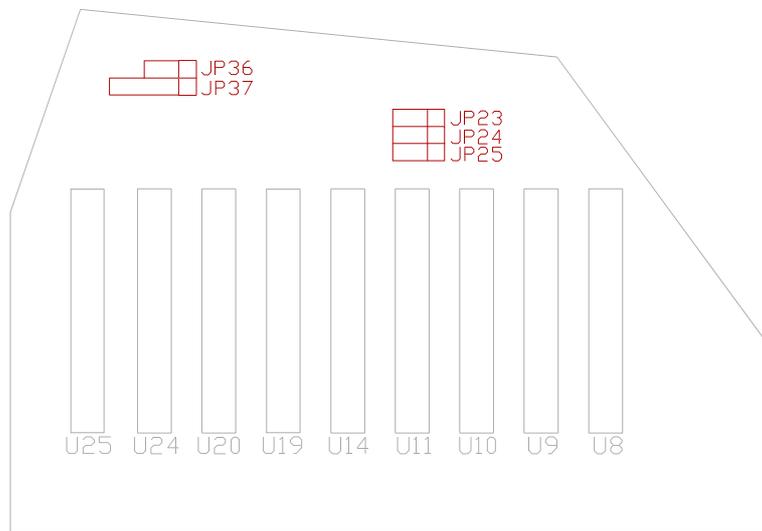
The table below describes the chip capacity and socket location required for each cache size configuration. User can use 32Kx8-bit or 128Kx8-bit SRAM chips in banks 0 and 1, and in the Tag RAM socket. Please note that, do not combine different chip capacities in banks 0 and 1.

Cache Size	BANK 0				BANK 1				TAG RAM
	U9	U11	U19	U24	U10	U14	U20	U25	U8
<b>128K</b>	32Kx8	32Kx8	32Kx8	32Kx8	NONE	NONE	NONE	NONE	8Kx8
<b>256K</b>	32Kx8	16Kx8/ 32Kx8							
<b>256K</b>	64Kx8	64Kx8	64Kx8	64Kx8	NONE	NONE	NONE	NONE	16Kx8/ 32Kx8
<b>512K</b>	128Kx8	128Kx8	128Kx8	128Kx8	NONE	NONE	NONE	NONE	32Kx8
<b>1024K</b>	128Kx8	64Kx8							

**Table 2: Cache Size Configuration**

### 2.4.3 CACHE CHIP SOCKETS AND JUMPER LOCATIONS

The diagram below describes the location of the cache chip sockets and cache jumpers.



**Fig 4 Cache Jumper and Socket Locations**

#### 2.4.4 JP23-JP25, JP36, JP37 - CACHE & TAG RAM JUMPER SETTING

Cache memory is configured using jumpers, JP25, JP36, & JP37; while Tag RAM setting is configured using jumpers JP23, JP24. The following tables summarize the possible configuration.

##### JP25, JP36, JP37 -- Cache Jumper Setting

Cache Size	JP25	JP36	JP37
128KB			
256KB (D)			
256KB (S)			
512KB (D)			
512KB (S)			
1024KB			

**Table 3A: Cache Jumper Setting**

##### JP23, JP24 -- Tag RAM Jumper Setting

Cache Size	JP23	JP24
128KB		
256KB		
512KB / 1024KB		

**Table 3B: Tag RAM Jumper Setting**

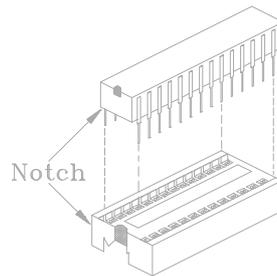
**Note:** D = Double Bank;  
S = Single Bank

### 2.4.5 INSTALLING CACHE CHIPS

Install cache chips on the mainboard as follows:

*Caution:*        *Static electricity can damage a cache chip.*

1. Review the section on static electricity precautions at the beginning of this manual, and make sure that power to the mainboard is off.
2. Align the chip so that the notched corner of the chip matches the notched corner of the socket.
3. Align the pins with the socket holes.
4. Carefully press the chip into the socket.



**Fig 5 Installing a Cache Chip**

## 2.5 JP12, JP13 - ON BOARD PCI IDE SELECTION

JP12, JP13 are used to enable or disable the Onboard PCI IDE1 and IDE2 respectively. Refer to Fig 2 for the location of JP12, JP13.

**JP12, JP13 -- On Board PCI IDE Selection**

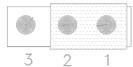
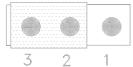
ON-BOARD PCI IDE	JP12	JP13
ENABLED (Default)	 CLOSE	 CLOSE
DISABLED	 OPEN	 OPEN

**Table 4**

## 2.6 JP6 - CMOS RAM BATTERY SETTING

Please set JP6 is for CMOS RAM battery as below. Refer to Fig 2 for its location.

**JP6 -- CMOS RAM Battery Setting**

CMOS RAM BATTERY SETTING	JP6
Normal Operation (Default)	 3 2 1
Discharge CMOS	 3 2 1

**Table 5**

## 2.7 JP44 - MONITOR SETTING

Set the jumper, JP44, to configure the mainboard for either CGA, monochrome, or VGA/EGA display. Refer to Fig 2 for the location of JP44. Set the jumper as below.

**JP44 -- Monitor Setting**

MONITOR SETTING	JP44
EGA Display	 CLOSE
Mono, VGA/EGA Display (Default)	 OPEN

**Table 6**

## 2.8 JP34 - CPU CLOCK DELAY

JP34 is for the CPU Clock Delay setting. Refer to Fig 2 for JP34 location.

**JP34 -- CPU Clock Delay**

CPU CLOCK DELAY	JP34
CLKIN and CPUCLK same phase	 3 2 1
CLKIN delay for CPUCLK (Default)	 3 2 1

**Table 7**

## 2.9 JP30, JP31, JP32 - CPU CLOCK FREQUENCY CONFIGURATION

JP30, JP31, & JP32 are for the CPU Clock Frequency Configuration. Refer to Fig 2 for their location.

### JP30 JP31, JP32-- CPU Clock Frequency Configuration

CPU CLOCK FREQUENCY	JP30	JP31	JP32
25MHz	 OPEN	 OPEN	 OPEN
33MHz	 OPEN	 CLOSE	 CLOSE
40MHz	 OPEN	 OPEN	 CLOSE

**Table 8**

## 2.10 JP28 - FLASH ROM JUMPER

JP28 is for Flash ROM selection. Refer to Fig 2 for its location.

### JP28 -- Flash ROM Jumper

FLASH ROM SELECT	JP28
NORMAL EPROM (DEFAULT)	 6 5 4 3 2 1
5V FLASH ROM	 6 5 4 3 2 1
12V FLASH ROM	 6 5 4 3 2 1

5V FLASH EPROM: SST 29EE010, ETC  
12V FLASH EPROM: MX 28F1000, ETC

**Table 9**

## 2.11 MEMORY INSTALLATION

Four 72pin SIMM sockets are provided in 4 Banks. User can install 256Kx36, 512Kx36, 1Mx36, 2Mx36, 4Mx36, 8Mx36, or 16Mx36 SIMMs. Note that all SIMM modules in a bank must be same capacity and follow combination showed below. For best performance 70ns SIMMS are required.

BANK 0	BANK 1	BANK 2	BANK 3	MEMORY SIZE
1MB	NONE	NONE	NONE	1MB
1MB	1MB	NONE	NONE	2MB
2MB	NONE	NONE	NONE	2MB
1MB	1MB	2MB	NONE	4MB
2MB	2MB	NONE	NONE	4MB
4MB	NONE	NONE	NONE	4MB
1MB	4MB	NONE	NONE	5MB
1MB	1MB	4MB	NONE	6MB
2MB	4MB	NONE	NONE	6MB
1MB	1MB	2MB	4MB	8MB
2MB	2MB	4MB	NONE	8MB
4MB	4MB	NONE	NONE	8MB
8MB	NONE	NONE	NONE	8MB
1MB	1MB	4MB	4MB	10MB
2MB	2MB	4MB	4MB	12MB
4MB	4MB	4MB	NONE	12MB
TO BE CONTINUED ...				

<b>BANK 0</b>	<b>BANK 1</b>	<b>BANK 2</b>	<b>BANK 3</b>	<b>MEMORY SIZE</b>
4MB	8MB	NONE	NONE	12MB
4MB	4MB	4MB	4MB	16MB
8MB	8MB	NONE	NONE	16MB
16MB	NONE	NONE	NONE	16MB
4MB	4MB	8MB	NONE	16MB
1MB	16MB	NONE	NONE	17MB
1MB	1MB	16MB	NONE	18MB
2MB	16MB	NONE	NONE	18MB
2MB	2MB	16MB	NONE	20MB
4MB	16MB	NONE	NONE	20MB
4MB	8MB	8MB	NONE	20MB
2MB	2MB	4MB	16MB	24MB
4MB	4MB	16MB	NONE	24MB
8MB	8MB	8MB	NONE	24MB
4MB	4MB	8MB	8MB	24MB
8MB	16MB	NONE	NONE	24MB
4MB	8MB	8MB	8MB	28MB
16MB	16MB	NONE	NONE	32MB
32MB	NONE	NONE	NONE	32MB
8MB	8MB	16MB	NONE	32MB
8MB	8MB	8MB	8MB	32MB
TO BE CONTINUED ...				

<b>BANK 0</b>	<b>BANK 1</b>	<b>BANK 2</b>	<b>BANK 3</b>	<b>MEMORY SIZE</b>
2MB	2MB	16MB	16MB	36MB
4MB	16MB	16MB	NONE	36MB
4MB	32MB	NONE	NONE	36MB
4MB	4MB	16MB	16MB	40MB
4MB	4MB	32MB	NONE	40MB
8MB	8MB	8MB	16MB	40MB
16MB	16MB	16MB	NONE	48MB
16MB	32MB	NONE	NONE	48MB
8MB	8MB	16MB	16MB	48MB
8MB	8MB	32MB	NONE	48MB
16MB	16MB	16MB	16MB	64MB
64MB	NONE	NONE	NONE	64MB
16MB	16MB	32MB	NONE	64MB
32MB	32MB	NONE	NONE	64MB
1MB	64MB	NONE	NONE	65MB
4MB	64MB	NONE	NONE	68MB
4MB	32MB	32MB	NONE	68MB
4MB	4MB	64MB	NONE	72MB
4MB	4MB	32MB	32MB	72MB
16MB	64MB	NONE	NONE	80MB
16MB	32MB	32MB	NONE	80MB
8MB	8MB	32MB	32MB	80MB
TO BE CONTINUED ...				

<b>BANK 0</b>	<b>BANK 1</b>	<b>BANK 2</b>	<b>BANK 3</b>	<b>MEMORY SIZE</b>
16MB	16MB	64MB	NONE	96MB
16MB	16MB	32MB	32MB	96MB
32MB	32MB	32MB	NONE	96MB
64MB	64MB	NONE	NONE	128MB
32MB	32MB	32MB	32MB	128MB

**Table 10: On-board Memory Configuration**

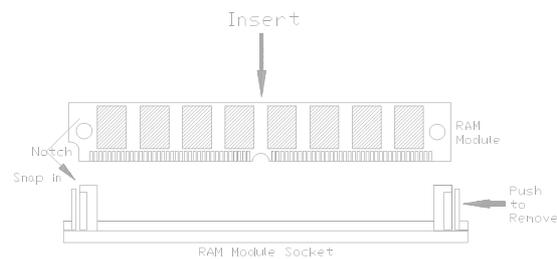
### 2.11.1 INSTALLING SIMM

Install a SIMM in a memory socket as follows:

*Caution: Static electricity can seriously damage SIMM modules.*

1. Review the section on static electricity precautions at the beginning of this manual.
2. Align the SIMM module so that the pin-1 marking on the module corresponds to the socket pin-1 marking.
3. Hold the module at a 70-degree angle to the socket, and insert the module's connectors into the socket.

4. Snap the module to a vertical position in the socket. The module is fully inserted when retaining pegs snap into holes at each end of the module.



**Fig 6 Installing a SIMM**

5. To fill a bank, repeat steps 1 through 4 until the sockets in each bank contain SIMMs.
6. After installing memory, run BIOS Setup to indicate to the system for how much memory the user has installed.



## 3.2 INSTALLING THE MAINBOARD

Before starting, check the location of the mounting holes in the case and on the mainboard.

*Caution:*        *Static electricity can damage the mainboard.*

Install the mainboard as follows:

1. Review the section on static electricity precautions at the beginning of this manual.
2. Place the case on an anti-static mat and remove the cover. Remove the nylon stand-offs and screws for mounting the mainboard.
3. Put the front of the case to the right and the rear to the left. The mainboard occupies the section of the case nearest the user; the power supply goes on the far side.
4. Align the mounting holes on the case to the mounting holes on the mainboard. Make sure to access the keyboard connector once the board is installed.
5. From the bottom of the mainboard, insert stand-offs into the proper holes on the board, and attach the mounting screws to the bottom of the case.

*Note:*    *Some cases do not use stand-offs and mounting screws; in this case user can fasten the mainboard into the case with regular screws.*

6. Place the mainboard into the case and fasten the board securely with regular screws.

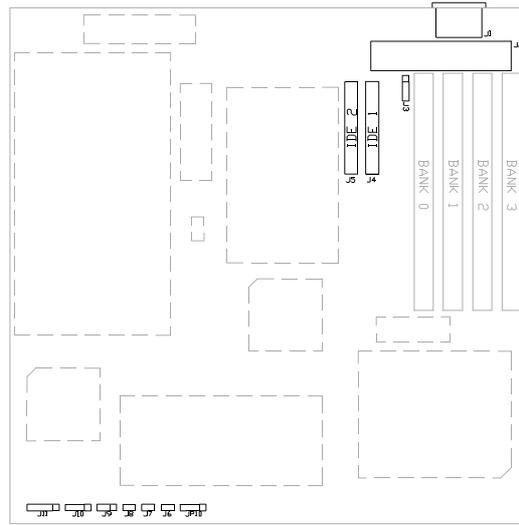
## 3.3 CONNECTION THE MAINBOARD

Once the mainboard has been fastened into the system case, the next step is to connect the internal cables. The internal cables are wire leads with plastic female connectors that attach to the connectors. The mainboard connectors have varying numbers of pins and are the points of contact between the mainboard and other parts of the computer.

A description of each connector and its connector pins follows. See Fig 7 for the location of the connectors on the mainboard.

*Note:*    *Before making connectors on the board, make sure that power to the system is turned off.*

### 3.3.1 CONNECTION LOCATIONS



**Fig 7 Connector Locations**

## 3.4 CONNECTORS

### 3.4.1 J1 - KEYBOARD CONNECTOR

A standard five-pin female DIM keyboard connector is located at the rear of the keyboard. Plug the jack on the keyboard cable into this connector.

Pin	Description
1	Keyboard Clock
2	Keyboard Data
3	Spare
4	Ground
5	+ 5V DC

**Table 11**

### 3.4.2 J2 - POWER SUPPLY CONNECTOR

The power supply connector has twelve-pin male header connectors. Plug the dual connectors from the power directly onto the board connector.

<b>J2</b>			
Pin	Description	Pin	Description
1	Power Good	7	Ground
2	+ 5V DC	8	Ground
3	+ 12V DC	9	-5V DC
4	-12V DC	10	+ 5V DC
5	Ground	11	+ 5V DC
6	Ground	12	+ 5V DC

**Table 12**

### 3.4.3 J3 - EXTERNAL BATTERY

The mainboard has a battery on-board; however, user can also attach an external battery to connector J3. Using an external battery helps to conserve the on-board battery.

Pin	Description
1	VDD (6V)
2	Not Used
3	Ground
4	Ground

**Table 13**

#### **3.4.4 J4 - ON BOARD PCI IDE 1 HDD CONNECTOR**

J4 is a 40-pin IDE Hard Disk connector. It is assigned as Channel 1 for Primary Hard Disk Controller connector.

#### **3.4.5 J5 - ON BOARD PCI IDE 2 HDD CONNECTOR**

J5 is a 40-pin IDE Hard Disk connector. It is assigned as Channel 2 for Secondary Hard Disk Controller connector.

#### **3.4.6 J6 - GREEN PC BREAK SWITCH**

J6 is for the Green feature activation Break Switch. When J6 is changed from open to close then open again, the system will go to suspend mode immediately. In suspend mode, if J6 is changed from open to close then open again, the system will resume immediately.

#### **3.4.7 J7 - TURBO LED CONNECTOR**

J7 is usually connected to a Turbo LED on front of the system case. If the system board select is in Turbo mode, the indicator will light during high-speed operation.

Pin	Description
1	+ Anode
2	- Cathode

**Table 14**

### 3.4.8 J8 - RESET SWITCH CONNECTOR

Attach the Reset switch cable to this connector. The Reset switch restarts the system.

Setting	Description
Close	Reset
Open	Normal

**Table 15**

### 3.4.9 J9 - TURBO SWITCH CONNECTOR

J9 connects to the Turbo switch, which is used to select the mainboard's clock speed.

TURBO SWITCH	J9
De-Turbo	
Turbo (Default)	

**Table 16**

### 3.4.10 J10 - SPEAKER CONNECTOR

Attached the system speaker to connector J10.

Pin	Description
1	Data Out
2	Ground
3	Not Used
4	+ 5V

**Table 17**

### 3.4.11 J11 - KEYLOCK & POWER LED CONNECTOR

J11 is a keylock connector that enables and disables the keyboard and the Power-LED on the case.

Pin	Description
1	LED Power
2	Not Used
3	Ground
4	Keyboard Inhibiter
5	Ground

**Table 18**

### 3.4.12 JP10 - HARD DISK LED CONNECTOR

JP10 connects to the HDD LED in front of the system case.

Pin	Description
1	+ Anode
2	- Cathode
3	- Cathode
4	+ Anode

**Table 19**

## 3.5 HARDDISK INSTALLATION

The mainboard on-board built-in the PCI IDE Controller which supports 2 enhanced IDE channels with Primary IDE address on 1F0-1F7, 3F6, 3F7; and Secondary IDE address on 170-177, 376, 377. Please following the steps shown below to process installation.

**(1) 2 Drives System:**

Case A: Set Drive C: to Master; and Drive D: to slave and connect both drives on IDE 1 connector. Set Drives C: and D: disk parameters in CMOS.

Case B: Set Drive C: to Master and connect it on IDE 1 connector; and Drive D: to Master and connect it on IDE 2 connector. Set Drive C: disk parameters in CMOS only.

**(2) 4 Drives System:**

Set Drive C: to Master; and Drive D: to slave, and connect both drives on IDE 1 connector. Set Drive E: to Master; and Drive F: to slave and connect both drives on IDE 2 connector. Set Drives C: and D: disk parameters in CMOS.

**3.6 HARDWARE/SOFTWARE INSTALLATION**

**(1) Set Jumper JP12, JP13 to "CLOSE" position** (refer to Fig 2 for the location), then properly connect the IDE cable to IDE drive connector, and to IDE disk drive(s). The cable should have colored band to indicate the Pin 1 position. Make sure the IDE drive cable and the on-board IDE connector are all aligned with Pin 1 position.

**(2) Perform system CMOS setup, enter correct drive geometry information.**

**(3) Install the Device Driver**

Please refer to the **README** file in Driver Diskette for detail installation procedures to be used in various kind of operating system (DOS, Windows 3.1, Windows NT, OS/2 2.XX, Novel 3.1X/4.0X).

### 3.7 SYSTEM ASSEMBLY OVERVIEW

After installing and connecting the mainboard, assemble components in the following order:

1. **Power Supply:** Place the power supply so that it fits the raised tongues on the chassis floor. Insert and fasten the two screws on the back panel of the chassis. Connect the power supply to the power supply connector.
2. **Disk Drives:** Slide disk drives into the chassis. Connect a wide 34-wire ribbon cable to each disk drive; this cable will attach to an adapter card. The power supply has four cables, each with four wires. Connect these cables to the disk drives.
3. **Adapter Cards:** Insert each adapter card -- Disk Controller cards, Video card, Serial/Parallel Interface card, etc. -- into an expansion slot. Refer to the installation and configuration instructions that comes with the card. Connect the disk drives to the Floppy Disk Controller card, and built-in IDE HDD connectors.
4. **Keyboard:** Connect the keyboard to its connector.
5. **Display:** Connect the display cable to the Video Card, and the display's power cord into a power outlet.
6. **Case:** Slide on the case cover and fasten its screws.

Connect the power cord to the power supply and plug it into a wall outlet. Put the boot disk into drive A: and turn on the power. User will then need to run the BIOS setup program.

---

## **CHAPTER 4 AWARD BIOS SETUP**

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 so that it retains the Setup information when the power is turned off.

### **4.1 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, when the below message appears briefly at the bottom of the screen during the POST (Power On Self Test), press < Del> key or simultaneously press < Ctrl> , < Alt> , and < Esc> keys.

#### **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 press < Ctrl> , < Alt> , and < Delete> 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 again be asked to,

#### **PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP**

## 4.2 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 into 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  
**F8 key:** Reserved  
**F9 key:** Reserved  
**F10 key:** Save all the CMOS changes, only for Main Menu

## 4.3 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 use and the possible selections for the highlighted item. To exit the Help window press < Esc > .



#### 4.4.1 STANDARD CMOS SETUP MENU

The items on Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one 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 ISA BIOS (2A4IB000)									
STANDARD CMOS UTILITY									
AWARD SOFTWARE, INC.									
Date (mm:dd:yy) : Fri, Jan 20 1995									
Time (hh:mm:ss) : 12 : 46 : 31									
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE	
<hr/>									
Primary Master	: Auto	0	0	0	0	0	0	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	-----	
Drive A : 1.44M , 3.5in.					Base Memory:       640K Extended Memory:   3328K Other Memory:       128K <hr style="width: 50%; margin: 0 auto;"/> Total Memory:       4096K				
Drive B : None									
Video : EGA/VGA									
Halt On : All Errors									
<hr/>									
Esc : Quit			8 9 6 7 : Select Item				PU/PD/+ /- : Modify		
F1 : Help			(Shift)F2 : Change Color						

**Fig 9**

#### 4.4.2 BIOS FEATURES SETUP MENU

ROM ISA BIOS (2A4IB000)  
BIOS FEATURES SETUP  
AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CFFFF Shadow:	Disabled
External Cache	: Enabled	D0000-D7FFF Shadow:	Disabled
Quick Power On Self Test	: Disabled	D8000-DFFFF Shadow:	Disabled
Boot Sequence	: A,C		
Swap Floppy Drive	: Disabled		
Boot Up Floppy Seek	: Enabled		
Boot Up Numlock Status	: On		
Boot Up System Speed	: High		
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec):	6		
Typematic Delay (Msec)	: 250	ESC: Quit	896 7: Select Item
Security Option	: Setup	F1: Help	PU/PD/+ /-: Modify
		F5: Old Values (Shift)	F2: Color
		F6: Load BIOS Defaults	
		F7: Load Setup Defaults	

**Fig 10**

### 4.4.3 CHIPSET FEATURES SETUP MENU

ROM ISA BIOS (2A4IB000)  
CHIPSET FEATURES SETUP  
AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	Onboard 496B IDE Port	: Enable
ISA Bus Clock	: 1/4CLK	IDE 1 Master Mode	: Auto
DRAM Slow Refresh	: Disable	IDE 1 Slave Mode	: Auto
CPU Internal Cache	: Write Thru	IDE 2 Master Mode	: Auto
L2 Cache Policy	: Write Back	IDE 2 Slave Mode	: Auto
Cache Write Cycle	: 2 CCLK	IDE HDD Block Mode	: Disable
Cache Burst Read Cycle	: 1 CCLK		
		ESC: Quit	896 7: Select Item
		F1: Help	PU/PD/+ /-: Modify
		F5: Old Values (Shift)	F2: Color
		F6: Load BIOS Defaults	
		F7: Load Setup Defaults	

**Fig 11: Default setting for Cx486DX2 V66 CPU**

**Note:** 1) The following table shows the settings for different CPU support:-

<b>System Clock Freq.</b>	25MHz	33MHz	40MHz
<b>CPU Internal Clock Freq.</b>	x1/x2/x3	x1/x2/x3	x1/x2
ISA Bus Clock	1/3CLK	1/4CLK	1/4CLK

2) The option "CPU Internal Cache" is shown only when the Cyrix Cx486S/Cx486DX/DX2/DX2V CPUs are used.

#### 4.4.4 POWER MANAGEMENT SETUP MENU

ROM ISA BIOS (2A4IB000)  
POWER MANAGEMENT SETUP  
AWARD SOFTWARE, INC.

Power Management : Max Saving	IRQ 3 (COM 2) : Enable
PM Control by APM : Yes	IRQ 4 (COM 1) : Enable
Video Off Option : Suspend -> Off	IRQ 5 (LPT 2) : Enable
Video Off Method : V/H SYNC+ Blank	IRQ 6 (Floppy Disk) : Enable
Suspend Switch : Enable	IRQ 7 (LPT 1) : Enable
PM Interrupt Use : IRQ 12	IRQ 8 (RTC Alarm) : Disable
	IRQ 9 (IRQ2 Redir) : Enable
<b>** PM Timers **</b>	IRQ 10 (Reserved) : Enable
HDD OFF After : Disable	IRQ 11 (Reserved) : Enable
Suspend Mode : 10 Sec	IRQ 12 (PS/2 Mouse) : Enable
	IRQ 13 (Coprocesor) : Enable
	IRQ 14 (Hard Disk) : Enable
	IRQ 15 (Reserved) : Enable
<b>** PM Events **</b>	
PCI Master Activity : Disable	ESC: Quit 896 7: Select Item
COM Ports Activity : Enable	F1: Help PU/PD/+ /-: Modify
LPT Ports Activity : Enable	F5: Old Values (Shift)F2: Color
HDD Ports Activity : Enable	F6: Load BIOS Defaults
DMA Ports Activity : Enable	F7: Load Setup Defaults
VGA Activity : Disable	

**Fig 12A: Normal 486 CPU**

ROM ISA BIOS (2A4IB000)  
POWER MANAGEMENT SETUP  
AWARD SOFTWARE, INC.

Power Management : Max Saving	IRQ 3 (COM 2) : Enable
PM Control by APM : Yes	IRQ 4 (COM 1) : Enable
Video Off Option : Suspend -> Off	IRQ 5 (LPT 2) : Enable
Video Off Method : V/H SYNC+ Blank	IRQ 6 (Floppy Disk) : Enable
Suspend Switch : Enable	IRQ 7 (LPT 1) : Enable
	IRQ 8 (RTC Alarm) : Disable
** PM Timers **	IRQ 9 (IRQ2 Redir) : Enable
HDD OFF After : Disable	IRQ 10 (Reserved) : Enable
Suspend Mode : 10 Sec	IRQ 11 (Reserved) : Enable
	IRQ 12 (PS/2 Mouse) : Enable
	IRQ 13 (Coprocesor) : Enable
	IRQ 14 (Hard Disk) : Enable
	IRQ 15 (Reserved) : Enable
** PM Events **	ESC: Quit 896 7: Select Item
PCI Master Activity : Disable	F1: Help PU/PD/+ /-: Modify
COM Ports Activity : Enable	F5: Old Values (Shift)F2: Color
LPT Ports Activity : Enable	F6: Load BIOS Defaults
HDD Ports Activity : Enable	F7: Load Setup Defaults
DMA Ports Activity : Enable	
VGA Activity : Disable	

**Fig 12B: SL Enhanced 486 CPU**

#### 4.4.5 PCI CONFIGURATION SETUP MENU

ROM PCI/ISA BIOS (2A41B000)  
BIOS FEATURES SETUP  
AWARD SOFTWARE, INC.

Slot 1 Using INT#	: AUTO	
Slot 2 Using INT#	: AUTO	
Slot 3 Using INT#	: AUTO	
Slot 4 Using INT#	: AUTO	
1st Available IRQ	: 10	
2nd Available IRQ	: 11	
3rd Available IRQ	: 9	
4th Available IRQ	: 12	
PCI IRQ Activated By	: Level	
PCI IDE 2nd Channel	: Enable	
PCI IDE IRQ Map To	: PCI-AUTO	
Primary IDE INT#	: A	
Secondary IDE INT#	: B	
		ESC: Quit      896 7: Select Item F1: Help      PU/PD/+ /-: Modify F5: Old Values (Shift)F2: Color F6: Load BIOS Defaults F7: Load Setup Defaults

**Fig 13**

#### **4.4.6 LOAD BIOS DEFAULTS MENU**

When you select this function, the following message will appear at the centre of the screen to assist you to load BIOS defaults (except Standard CMOS Setup).

**Load BIOS Defaults (Y/N)?**

#### **4.4.7 LOAD SETUP DEFAULTS MENU**

When you select this function, the following message will appear at the centre of the screen to assist you to load Setup defaults (except Standard CMOS Setup).

**Load SETUP Defaults (Y/N)?**

#### **4.4.8 PASSWORD SETTING MENU**

When you select this function, the following message will appear at the centre 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. Once the password is disabled, the system will boot and you can enter Setup freely.

**PASSWORD DISABLED.**

If you select System at Security Option of BIOS Features setup Menu, you will be prompted for 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.

#### 4.4.9 IDE HDD AUTO DETECTION MENU

This function will automatically detect the information of the Hard Disk, and list them for your reference.

ROM ISA BIOS (2A4IB000)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

HARD DISKS	TYPE	SIZE	CYLS.	HEADS	PRECOMP	LANDZ	SECTOR	MODE
Primary Master:								
Select Primary Master Option (N= Skip) : N								
OPTIONS	SIZE	CYLS.	HEADS	PRECOMP	LANDZONE	SECTORS	MODE	
1(Y)	81	903	4	65535	902	46	NORMAL	
ESC : Skip								

**Fig 14**

The BIOS support 3 HDD Mode, NORMAL, LBA & LARGE. **NORMAL** mode has the maximum 528MB HDD size; **LBA** (Logical Block Addressing) mode has the maximum 8.4GB HDD size; whereas **LARGE** mode has the maximum 1GB HDD size.



Hard Disk Low Level Format Utility <hr/> <div style="border: 1px solid black; padding: 5px; display: inline-block;">           SELECT DRIVE  <b>BAD TRACK LIST</b>            PREFORMAT         </div>		BAD TRACKS TABLE NO. CYLS HEAD <hr/>																																								
Auto scan bad track Add bad track Modify bad track Delete bad track Clear bad track table DRIVE : C CYLINDER : 0 HEAD : 0																																										
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>SIZE</th> <th>CYLS</th> <th>HEAD</th> <th>PRECOMP</th> <th>LANDZ</th> <th>SECTOR</th> <th>MODE</th> </tr> </thead> <tbody> <tr> <td>Primary Master :</td> <td>270</td> <td>944</td> <td>14</td> <td>65535</td> <td>943</td> <td>40</td> <td>NORMAL</td> </tr> <tr> <td>Primary Slave :</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>NORMAL</td> </tr> <tr> <td>Secondary Master :</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>NORMAL</td> </tr> <tr> <td>Secondary Slave :</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>NORMAL</td> </tr> </tbody> </table>				SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE	Primary Master :	270	944	14	65535	943	40	NORMAL	Primary Slave :	0	0	0	0	0	0	NORMAL	Secondary Master :	0	0	0	0	0	0	NORMAL	Secondary Slave :	0	0	0	0	0	0	NORMAL
	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE																																			
Primary Master :	270	944	14	65535	943	40	NORMAL																																			
Primary Slave :	0	0	0	0	0	0	NORMAL																																			
Secondary Master :	0	0	0	0	0	0	NORMAL																																			
Secondary Slave :	0	0	0	0	0	0	NORMAL																																			
Up/Down-Select item                      ENTER-Accept                      ESC-Exit/Abort Copyright (c) Award Software, Inc. 1992-94 All Rights Reserved																																										

**Fig 15B Setup Screen shown when "BAD TRACK LIST" option is selected**

Hard Disk Low Level Format Utility		BAD TRACKS TABLE NO. CYLS HEAD																																									
<div style="border: 2px solid black; padding: 5px; display: inline-block;">           SELECT DRIVE BAD TRACK LIST <b>PREFORMAT</b> </div>																																											
Interleave (1-8) : 0 (0 for auto detect) Auto scan bad track : N START : N  DRIVE : C CYLINDER : 0 HEAD : 0																																											
	<table border="1"> <thead> <tr> <th></th> <th>SIZE</th> <th>CYLS</th> <th>HEAD</th> <th>PRECOMP</th> <th>LANDZ</th> <th>SECTOR</th> <th>MODE</th> </tr> </thead> <tbody> <tr> <td>Primary Master</td> <td>: 270</td> <td>944</td> <td>14</td> <td>65535</td> <td>943</td> <td>40</td> <td>NORMAL</td> </tr> <tr> <td>Primary Slave</td> <td>: 0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>NORMAL</td> </tr> <tr> <td>Secondary Master</td> <td>: 0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>NORMAL</td> </tr> <tr> <td>Secondary Slave</td> <td>: 0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>NORMAL</td> </tr> </tbody> </table>		SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE	Primary Master	: 270	944	14	65535	943	40	NORMAL	Primary Slave	: 0	0	0	0	0	0	NORMAL	Secondary Master	: 0	0	0	0	0	0	NORMAL	Secondary Slave	: 0	0	0	0	0	0	NORMAL		
	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE																																				
Primary Master	: 270	944	14	65535	943	40	NORMAL																																				
Primary Slave	: 0	0	0	0	0	0	NORMAL																																				
Secondary Master	: 0	0	0	0	0	0	NORMAL																																				
Secondary Slave	: 0	0	0	0	0	0	NORMAL																																				
Up/Down-Select item		ENTER-Accept																																									
		ESC-Exit/Abort																																									
Copyright (c) Award Software, Inc. 1992-94 All Rights Reserved																																											

**Fig 15C Setup Screen shown when "PREFORMAT" option is selected**

#### 4.4.11 SAVE & EXIT SETUP MENU

When you select this function, the following message will appear at the centre of the screen to assist you to Save data to CMOS and Exit the Setup.

**SAVE to CMOS and EXIT (Y/N)?**

#### 4.4.12 EXIT WITHOUT SAVING MENU

When you select this function, the following message will appear at the centre of the screen to assist you to Abandon all Data and Exit Setup.

**Quit Without Saving (Y/N)?**

---

## CHAPTER 5 BIOS POST MESSAGE

When the BIOS encounters an error that requires the user to correct something, either a beep code will sound or a message will be displayed in a box in the middle of the screen and the message **PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP** will be shown in the information box at the bottom.

### 5.1 POST BEEP

Currently there is only one beep code in BIOS. This code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by two short beeps.

### 5.2 ERROR MESSAGES

One or more of the following messages may be displayed if the BIOS detects an error during the POST. This list includes message for both the ISA and the EISA BIOS.

**CMOS BATTERY HAS FAILED:**

CMOS battery is no longer functional. It should be replaced.

**CMOS CHECKSUM ERROR:**

Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

**DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER:**

No boot device was found. Insert a system disk into Drive A: and press < Enter> . If you assumed the system would boot from hard drive, make sure the controller is inserted correctly and all cables are properly attached. Also be sure the disk is formatted as a boot device. Then reboot the system.

**DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP:**

Type of diskette drive installed in the system is different from the CMOS definition. Run Setup to reconfigure the drive type correctly.

**DISPLAY SWITCH IS SET INCORRECTLY:**

Display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the VIDEO selection.

**DISPLAY TYPE HAS CHANGE SINCE LAST BOOT:**

Since last powering off the system, the display adapter has been changes. You must configure the system for the new display type.

**EISA Configuration Checksum Error****PLEASE RUN EISA CONFIGURATION UTILITY:**

The EISA non-volatile RAM checksum is incorrect or cannot correctly read the EISA slot. This can indicate either the EISA non-volatile memory has become corrupt or the slot has configured incorrectly. Also be sure the card is installed firmly in the slot.

**EISA Configuration Is Not Complete****PLEASE RUN EISA CONFIGURATION UTILITY:**

The slot configuration information stored in EISA non-volatile memory is incomplete.

*\*\*\* NOTE: When either of these errors appear, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.*

**ERROR ENCOUNTERED INITIALIZING HARD DRIVE:**

Hard drive cannot be initialized. Be sure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.

**ERROR INITIALIZING HARD DISK CONTROLLER:**

Cannot initialize controller. Make sure the cord is correctly and firmly installed in the bus. Be sure the correct hard drive type is selected in Setup. Also check to see if any jumper needs to be set correctly on the hard drive.

**FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT:**

Cannot find or initialize the floppy drive controller. Make sure the controller is installed correctly and firmly. If there is no floppy drives installed, be sure the Diskette Drive selection in Setup is set to NONE.

**Invalid EISA Configuration****PLEASE RUN EISA CONFIGURATION UTILITY:**

The non-volatile memory containing EISA configuration information was programmed incorrectly or has become corrupt. Re-run EISA configuration utility to correctly program the memory.

*\*\*\* NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.*

**KEYBOARD ERROR OR NO KEYBOARD PRESENT:**

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

**Memory Address Error at ...:**

Indicates a memory address error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

**Memory parity Error at ...**

Indicates a memory parity error at a specific location. You can use this location along with the memory map for your system to find and replace bad memory chips.

**MEMORY SIZE HAS CHANGED SINCE LAST BOOT:**

Memory has been added or removed since the last boot. In EISA mode use Configuration Utility to reconfigure the memory configuration. In ISA mode enter Setup and enter the new memory size in the memory fields.

**Memory Verify Error at ...:**

Indicates an error verifying a value already written to memory. Use the location along with your system's memory map to locate the bad chip.

**OFFENDING ADDRESS NOT FOUND:**

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.

**OFFENDING SEGMENT:**

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem has been isolated.

**PRESS A KEY TO REBOOT:**

This will be displayed at the bottom screen when an error occurs that required you to reboot. Press any key and the system will reboot.

**PRESS F1 TO DISABLE NMI, F2 TO REBOOT:**

When BIOS detects a Non-markable Interrupt condition during boot, this will allow you to disable the NMI and continue to boot, or you can reboot the system with the NMI enabled.

**RAM PARITY ERROR - CHECKING FOR SEGMENT ...:**

Indicates a parity error in Random Access Memory.

**Should Be Empty But EISA Board Found****PLEASE RUN EISA CONFIGURATION UTILITY:**

A valid board ID was found in a slot that was configured as having no board ID.

*\*\*\* NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.*

**Should Have EISA Board But Not Found****PLEASE RUN EISA CONFIGURATION UTILITY:**

The board installed is not responding to the ID request, or no board ID has been found in the indicated slot.

*\*\*\* NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.*

**Slot Not Empty:**

Indicates that a slot designated as empty by the EISA Configuration Utility actually contains a board.

*\*\*\* NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.*

**SYSTEM HALTED, (CTRL-ALT-DEL) TO REBOOT ...:**

Indicates the present boot attempt has been aborted and the system must be rebooted. Press and hold down the CTRL and ALT keys and press DEL.

**Wrong Board In Slot****PLEASE RUN EISA CONFIGURATION UTILITY:**

The board ID does not match the ID stored in the EISA non-volatile memory.

*\*\*\* NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.*

## CHAPTER 6 BIOS DEFAULT DRIVE TABLE

This is a current list of the drive type table contained in Setup.

Type	Size (MB)	Cylns	Heads	Sects	Write Pcomp	Land Zone	Example Model
1	10	306	4	17	128	305	TEAC SD510, MMI 112, 5412
2	20	615	4	17	300	615	Seagate ST225, ST4026
3	30	615	6	17	300	615	
4	62	940	8	17	512	940	
5	46	940	6	17	512	940	
6	20	615	4	17	None	615	Seagate ST125, Tandon TM262
7	30	462	8	17	256	511	
8	30	733	5	17	None	733	Tandon TM703
9	112	900	15	17	None	901	
10	20	802	3	17	None	820	
11	35	855	5	17	None	855	
12	49	855	7	17	None	855	
13	20	306	8	17	128	319	Disctron 526, MMI M125
14	42	733	7	17	None	733	
15		Reserved					
16	20	612	4	17	0	663	Microscience HH725, Syquest 3250, 3425
17	40	977	5	17	300	977	
18	56	977	7	17	None	977	
19	59	1024	7	17	512	1023	
20	30	733	5	17	300	732	
21	42	733	7	17	300	732	
22	30	306	5	17	300	733	Seagate ST4038
23	10	977	4	17	0	336	
24	40	1024	5	17	None	976	Seagate ST4051
25	76	1224	9	17	None	1023	Seagate ST4096
26	71	1224	7	17	None	1223	Maxtor 2085
27	111	1224	11	17	None	1223	Maxtor 2140, Priam S14
28	152	1024	15	17	None	1223	Maxtor 2190, Priam S19

(TO BE CONTINUE)

Type	Size (MB)	Cylns	Heads	Sects	Write Pcomp	Land Zone	Example Model
29	68	1024	8	17	None	1023	Maxtor 1085, Micropolis 1325
30	93	918	11	17	None	1023	Maxtor 1105, 1120, 4780
31	83	925	11	17	None	1023	Maxtor 1170
32	69	1024	9	17	None	926	CDC 9415
33	85	1024	10	17	None	1023	
34	102	1024	12	17	None	1023	
35	110	1024	13	17	None	1023	
36	119	1024	14	17	None	1023	
37	17	1024	2	17	None	1023	
38	136	1024	16	17	None	1023	
39	114	918	15	17	None	1023	Maxtor 1140, 4380
40	40	820	6	17	None	820	Seagate ST251
41	42	1024	5	17	None	1023	Seagate 4053 Miniscribe 3053/6053
42	65	1024	5	26	None	1023	Miniscribe3053/6053 RLL
43	40	809	6	17	None	852	Miniscribe 3650
44	61	809	6	26	None	852	Miniscribe 3675 RLL
45	100	776	8	33	None	775	Conner CP3104
Auto	0	0	0	0	None	0	
User							

**Table 20: Default Fixed Disk Table**