Note to Users

This User's Guide & Technical Reference are for assisting system manufacturers and end users in setting up and installing the motherboard. Every effort has been made to ensure that the information in this manual is accurate. **Weal Union** Development Limited is not responsible for printing or clerical errors. Information in this document is subject to change without notice and does not represent a commitment on the part of Weal Union. For previous or updated manuals, BIOS, drivers, or product release information, please contact **Weal Union** Development Limited at http://www.tigatech.com or through any of the means indicated on the following pages.

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WebSite:	http://www.tigatech.com
Email:	tsc@wealunion.com
Product Name:	TI-815+
Version:	1.00
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Chapter 1
Introduction

1.1 Product Features

The TI-815+ highest performance motherboard is based on the all new Intel 815 chipset with Baby AT form factor to support the latest Socket 370 including Intel Pentium III FCPGA, Celeron FCPGA / PPGA as well as Cyrix III processors. This chipset incorporates with AGP 3D Graphics Support and an optional AC97 Audio. This motherboard is also fully software configurable via AMI BIOS setup and supports high-speed UDMA/66 IDE devices. The motherboard supports either an AT or ATX Power Supply.

1.2 Full Software Configurable

TIGA motherboards are full software configurable. There is no jumper or DIP switch on board and all the necessary hardware settings are made through CMOS setup. This motherboard auto-detects the CPU brand and core voltage, where as the CPU speed is selected in CMOS setup menu by the instruction of users.

In addition, **TIGA** motherboard employs AMI BIOS which provides two start-up hot keys "J" and "F" to give a way out of stability problems due to improper CMOS settings. That is, to press "J" key at the same time to switch on the system, which re-detects CPU brand and allows user to select again in the CMOS setup. To press "F" key at the same time to switch on the system clearing all CMOS settings (except BIOS passwords).

1.3 Features Summary

This Motherboard comes with following features:

★ Support Intel Pentium III, Celeron or Cyrix III Processor on Socket 370

★ Support 66/100/133MHz Processor Front-side Bus

★ Intel 815 Chipset on model TI-815+

★ Intel 815P Chipset on model TI-815+P

★ Full Software Configurable: CPU Plug-and-Play and Full Jumperless

★ Two DIMM slots Supporting up to 512MB Memory Capacity

★ Support 133MHz PC133 SDRAM

★ 1 x AMR slot, 3 x PCI slots, 1 x AGP slot

★ 2 x USB ports, 1 x PS/2 mouse port, 1 x IrDA port

★ 1 x FDD port, 1 x LPT port, 2 x COM ports

★ Dual IDE Channels Supporting Four Ultra-DMA33/66 IDE Devices

★ Modem Ring Wakeup with External Modem

★ Interface Header to Support Wake-On-LAN Enabled Ethernet Card

★ AGP Graphics Controller Integrated inside Intel 815 Chipset (excluded with +P option)

  ★ Dynamic Graphics Memory Allocation on System Memory up to 11MB

  ★ Hardware Motion Compensation for Accelerated DVD Video Playback

  ★ High Graphics Resolution up to 1600x1200 with 8-bit Colour

  ★ Full Support for Microsoft Direct 3D and Direct Draw

★ Integrated AC97 Audio Onboard (Model *+S* option)

  ★ AC97 2.1 Compliant Codec with 3D Stereo Enhancement

  ★ Complete Driver Support for Win95/98/2000/NT (Missing Windows Me support)

  ★ 1 x Line-out, 1 x Line-in, 1 x Mic-in

  ★ 1 x CD-in, 1 x AUX-in, 1 x Telephony Port, 1 x Game Port

★ AMI BIOS, PC99/ACPI/DMI Compliant

★ Dual AT/ATX Power Supply Interface

★ Baby AT format, 220mm x 170mm PCB

Chapter 2
Installation

2.1 Installation Instructions

This section covers External Connectors and Memory Configuration. Please refer to the motherboard layout chart for external connectors, slots and I/O ports. Furthermore, this section lists all necessary connector pin assignments for your reference. The locations of the connectors and ports are illustrated in the following figures. Before inserting these connectors, please pay attention to the orientations.

NOTICE !!!
1. Make sure to unplug your power supply while adding or removing system components
2. Always work on an antistatic surface to avoid possible damage to the motherboard or other components from static discharge.

2.2 Motherboard Layout
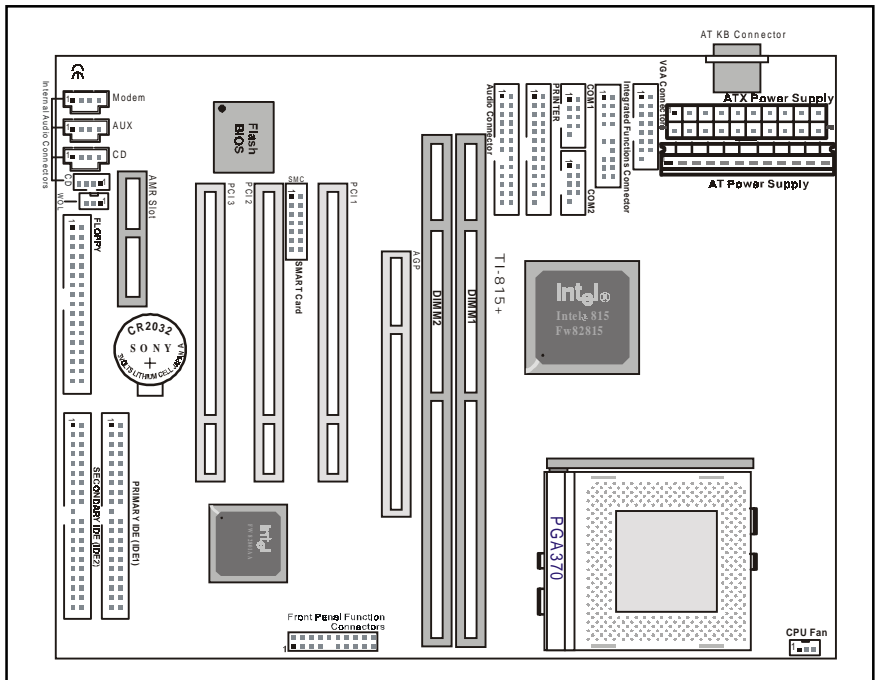
2.3 Function & Installation Instructions

2.3.1 AT Power Supply Connector (12-Pin)

This connector connects to a standard 5V power supply. To connect the leads from the power supply, ensure first that the power supply is not power on. Most power supplies provide two plugs, and each plug contains six wires. Two of six wires are black and please orient the plugs to the connector so that 4 black wires are together.
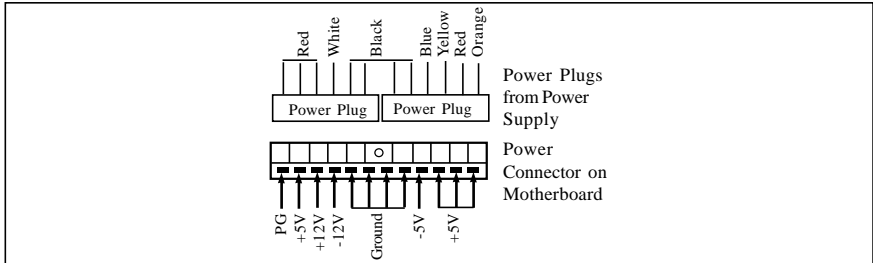
AT Power Connector

At a slight angle, align the plastic guide pins on the lead to their receptacles on the connector. Once aligned, press the lead onto the connector until the lead locks into place.

2.3.2 ATX Power Supply Connector (20-Pin)

This connector connects to an ATX power supply. The plug from ATX power supply will only insert in one orientation because of the different hole sizes. Find the proper orientation and push down firmly making sure that the pins are aligned. The system power can be turned off through software control, like the shut down in Windows 2000 / ME / 98 / 95 start menu. Power management must be enabled in the system BIOS in order to activate this soft-off feature. Once the system BIOS receives the power management command from the OS, it will switch the system power off.
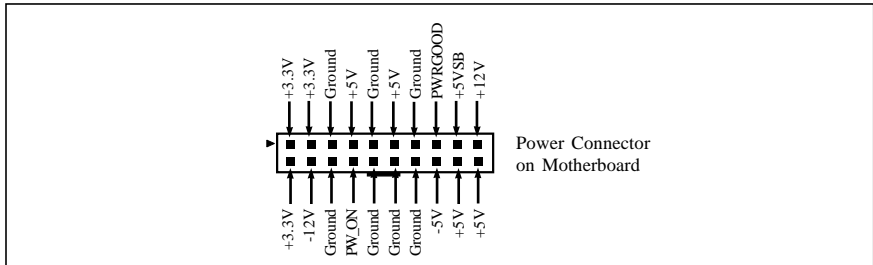
ATX Power Connector

2.3.3 AT Keyboard Connector

This connector supports a standard IBM-compatible keyboard, such as 101/102 enhanced keyboard (Use a PS/2 keyboard adapter in order to connect a PS/2 KB to this AT connector.).

2.3.4 Serial (COM1/COM2) Port Connector

This motherboard provides two compatible serial ports, it can be used when add additional serial devices.

2.3.5 Parallel Port Connector (26-pin)

This connector supports the included parallel port ribbon cable with mounting bracket.

2.3.6 Integrated Functions Connector (20-Pin)

If you want to use PS/2 mouse, USB, or IrDA devices, you need to purchase an optional USB/MIR connector set. You may use the bundled PS/2 mouse/parallel port connector set if you just want to use a PS/2 mouse. Either connector set connects to the 20-pin block and mounts to an open slot on your system's chassis. The system will direct IRQ12 to the PS/2 mouse if one is detected. If not detected, expansion cards can use IRQ12.

The connector pin out signal definitions are described as below:

USB0	1	USB +5V		2	USB +5V		USB1
	3	USB Port 0-		4	USB Port 1-		
	5	USB Port 0+		6	USB Port 1+		
	7	Ground		8	Ground		
	9	No Connect		10	No Connect		
PS/2 Mouse	11	+5V		12	+5V		IR
	13	No Connect		14	No Connect		
	15	PS/2 Data		16	Infrared Receive		
	17	Ground		18	Ground		
	19	PS/2 Clock		20	Infrared Transmit		
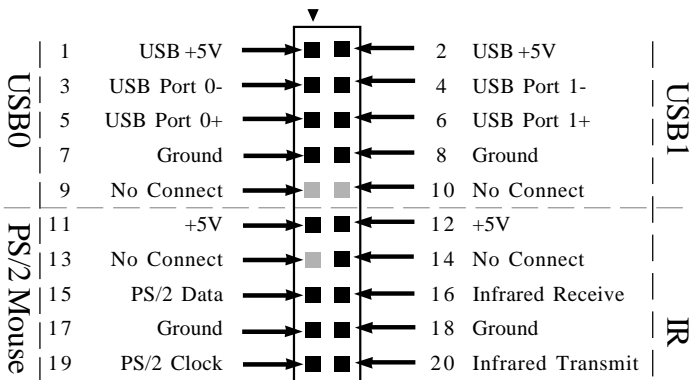
EXPANSION CARDS INSTALLATION

Before adding or removing any expansion cards or system components, confirm that you already unplugged your power supply. Otherwise, it may severely damage to your motherboard and expansion cards. Please follow the installation procedures as below:

1. Check carefully if those hardware or software settings for your expansion cards are in the proper position as shown in their User's Manual.
2. Remove your computer case's cover and unscrew the bracket plate for those slots needed to insert.
3. Those expansion cards must be aligned on the slots firmly with good connection.
4. Put on the computer case cover.
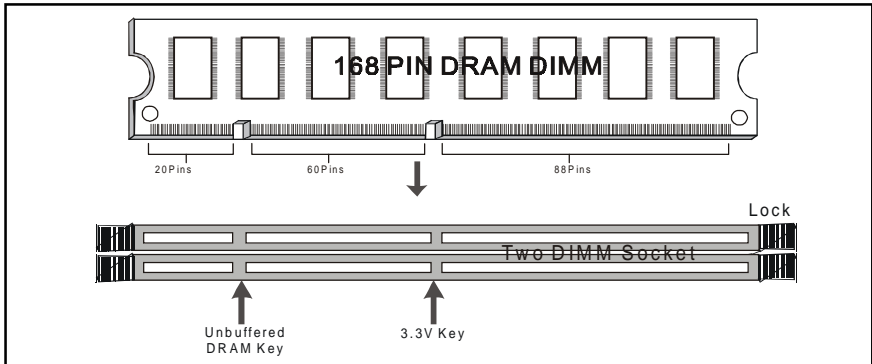5. If needed, set up the BIOS configuration and install the required drivers for your expansion cards.

2.3.7 SDRAM Sockets

There are two SDRAM sockets on-board to provide more flexibility for your system memory upgrade. Because the number of pins are different on either side of the breaks, the DIMM module will only fit the 3.3V 168-pin unbuffered for this motherboard.

168-Pin SDRAM Module Installation Diagram

2.3.8 Floppy Drive Connector (34-Pin)

This connector supports the provided floppy drive ribbon cable. After connecting the single end to the on-board "FLOPPY" connector, connect the remaining plugs on the other end to the floppy drives correspondingly.

2.3.9 IDE Connectors (40-Pin)

The IDE connectors support the provided IDE HDD ribbon cable. After connecting the single end to the board, connect the two plugs at the other end to your HDDs. If you install two IDE devices on the same cable, you must configure the second device to slave mode by setting its jumper accordingly. (Refer to your IDE device

document for the jumper settings. Pin 20 is removed to prevent inserting in the wrong orientation when using ribbon cables with pin 20 plugged.)

Primary IDE (IDE1)

Secondary IDE (IDE2)

Pin1

Pin20 be removed
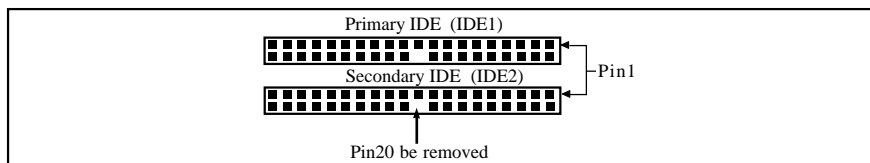
IDE Connectors

2.3.10 BIOS

The motherboard flash BIOS provides users with more flexibility in upgrading their motherboards. The flash BIOS can be easily reprogrammed via software.

2.3.11 PCI Slots

This motherboard provides three full-length 32-bit PCI slots with up to 133MB/sec burst data transfer rate.

2.3.12 AMR Slot

This connector supports a specially designed audio and/or modem card called an AMR.

2.3.13 AGP (Accelerated Graphics Port) Slot

This motherboard provides an AGP Slot to support AGP graphics cards

2.3.14 Front Panel Function Connector

The front panel integrates: 2-pin Power On, 2-pin IDE LED, 5-pin Keylock, 2-pin Reset Switch, 2-pin Sleep, 2-pin ExtSMI, 4-pin Speaker.

The connector pin out are described as the figure below:

SPEAKER	20 VCC +5V	19 Ground	
	18 Ground	17 Key Lock	
	16 Ground	15 Ground	KEYLOCK
	14 Speaker	13 Ground	
EXTSMI	12 Ground	11 PWR LED	
	10 ExtSMI		
SLEEP	8 Ground	7 IDE LED	IDELED
	6 SLEEP	5 VCC	
RESET	4 Ground	3 Ground	PWR ON
	2 Reset Con	1 ATXPWRON	
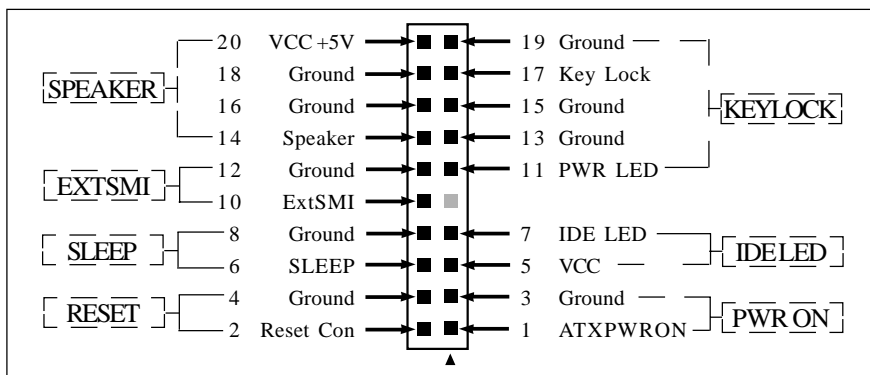
2.3.15 Wake-On-LAN Interface

This connector connects to a LAN card with a Wake-On-LAN output. The connector powers up the system when a wakeup signal is received from the network.

2.3.16 PGA370 CPU Socket

The motherboard provides a ZIF Socket 370. The CPU that comes with the motherboard should have a fan attached to it to prevent overheating. If it is not so, purchase a fan before you turn on your system.

Notice!!! Be sure that there is a sufficient air circulation across the processor's heatsink by regularly checking that your CPU fan is working. Without sufficient circulation, the processor could be overheated and it may damage both the processor and the motherboard. You may install an auxiliary fan, if necessary.

Installation step:

1. Turn off the power of your system and remove its cover;
2. Locate the ZIF socket and open it by first pulling the lever sideways away from the socket then upwards to a 90-degree angle;
3. Insert the CPU with correct orientation
   (The CPU has a corner pin for two of the four corners, that the CPU only fit in the orientation.)
4. Once completely inserted, pull down the socket's lever to horizontal and make sure the CPU is firmly locked in the socket.

2.3.17 CPU Fan Connector

CPU Fan cable plug in the 3-pin CPU Fan connector onboard.

Pin1	Sense
Pin2	+12V
Pin3	GND

2.3.18 Audio Connector (Available for +S model only)

This connector supports the optional connector set for audio input/output and game/MIDI port. The connector set connects to the 26-pin block and mounts to an open slot on your computer's chassis.

Note: This connector is available only on motherboard with optional onboard audio support. The AT motherboard provides Audio header for Audio Cable and Audio connectors:

Line Input

Microphone Input

Line Output

Game/MIDI Port (15Pins)

Audio Connector (onboard)
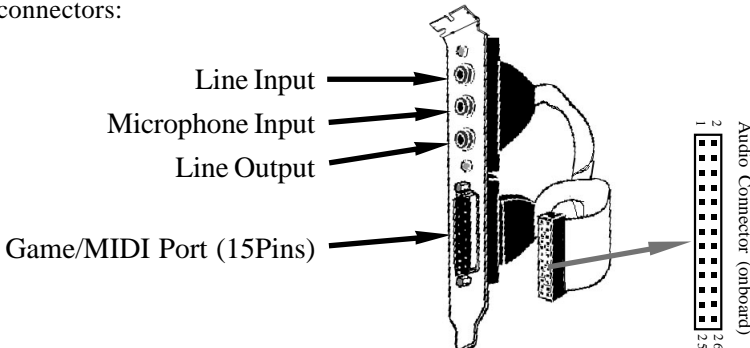
2.3.19 Internal Audio Connectors(CD, AUX, 4-pin Modem)

These connectors allow you to receive stereo audio input from such sound sources as a CD-ROM, MPEG card. The Modem connector allows the onboard audio to interface with an voice modem card with a similar connector. It also allows the sharing of mono_in (such as a phone) and mono_out(such as a speaker) between the onboard audio and the voice modem card.

Modem 1 ■ ■ ■ ■ (1: Mono_in; 2,3: Ground; 4: Mono_out)

Auxiliary Input 1 ■ ■ ■ ■ (1: Left Audio Channel£»2, 3: Ground; 4: Right Audio Channel)

CD Input 1 ■ ■ ■ ■ (1,3: Ground; 2: Right Audio Channel; 4: Left Audio Channel)

CD Input ■ ■ ■ ■ 1 (1: Left Audio Channel£»2, 3: Ground; 4: Right Audio Channel)

2.3.20 VGA Connector (excluded with +Poption)

The VGA connector allows you to connect a standard monitor through the provided VGA cable with mounting bracket. Connect the cable to this header and mount the bracket to the case on a free expansion slot.

Chapter 3
Software Installation

Note:
Before installation, you must already have Windows 95/98/2000/ME or Windows NT4.0 install on your computer.

The installation procedure is as below:

1. Make sure that Auto-insert detection is enabled for your CDROM drive. It should be enabled by default.

2. Insert this CD disk into your CDROM drive.

3. The Explorer screen will then appear, that gives you instructions for installation.

4. There may require restarts of Windows during some software setup. In these cases, you can just eject then close the CD-tray in order to get back to the Explorer screen. You can then proceed with the next step.

You can get more information with open file: *readme.txt* in the CD disk.

Chapter 4
AMIBIOS Setup

This TI-815+ motherboard comes with the AMI BIOS from AMI Software Inc. Enter the AMI BIOS program Main Menu by:

1. Turn on or reboot the system. After a series of diagnostic checks, the following message will appear:

   Press <DEL> to enter setup, ESC to skip memory test

2. Press the <DEL> key and the main program screen will appear as follows.

```
        AMIBIOS HIFLEX SETUP UTILITY - VERSION 1.21
        (C)1998 American Megatrends, Inc. All Rights Reserved

                        Standard CMOS Setup
                        Advanced CMOS Setup
                        Advanced Chipset Setup
                        Power Management Setup
                        PCI / Plug and Play Setup
                        Peripheral Setup
                        CPU Configuration Setup
                        Auto-Detect Hard Disks
                        Change User Password
                        Change Supervisor Password
                    Auto Configuration with Optimal Settings
                        Save Settings and Exit
                        Exit Without Saving


     Standard CMOS setup for changing time, date, hard disk type, etc.
        ESC:Exit    ↑↓:Sel   F2/F3:Color   F10:Save & Exit
```

3. Using the arrows ↑↓ on your keyboard, select an option, and press <Enter>. Modify the system parameters to reflect the options installed in your system. Otherwise you may return to the Main Menu anytime by pressing <ESC> .

Types of Setup	Description
Standard CMOS Setup	Sets time, date, hard disk type, types of floppy drives, monitor type, and if keyboard is installed.
Advanced CMOS Setup	Sets Typematic Rate and Delay, Above 1MB Memory Test, Memory Test Tick Sound, Hit <Del> Message Display, System Boot Up Sequence, and others.
Advanced Chipset Setup	Sets chipset-specific options and features.
Power Management Setup	Controls power conservation options.
PCI/PnP Setup	Sets options related to the PCI bus and Plug and Play options.
Peripheral Setup	Controls I/O Controller-related options.
CPU Configuration Setup	This option selects the type of CPU install in the motherboard. The settings are *Auto* (AMIBIOS automatically determines the CPU type).

4. In the Main Menu, "Save Settings and Exit" saves your changes and reboots the system, and "Exit Without Saving" ignores your changes and exits the CMOS Setup.

```
                AMIBIOS SETUP - STANDARD CMOS SETUP
          (C)1998 American Megatrends, Inc. All Rights Reserved

Date (mm/dd/yyyy) : Mon Feb 19, 2001          Base Memory: 640 KB
Time (hh/mm/ss)   : 13:06:12                  Extd Memory:  127 MB

Floppy Drive A:      1.44 MB 3½
Floppy Drive B:      Not Installed
                                              LBA    Blk    PIO   32Bit
           Type        Size   Cyln   Head  WPcom Sec Mode Mode Mode Mode
Pri Master : Auto                                                    On
Pri Slave  : Auto                                                    On
Sec Master : Auto                                                    On
Sec Slave  : Auto                                                    On

Boot Sector Virus Protection    Disabled

Available Options:                            ESC:Exit  ↑↓:Sel
 ▶ Disabled                                   PgUp/PgDn:Modify
   Enabled                                    F1:Help  F2/F3:Color
```

4.1 Standard CMOS Setup

Select the AMIBIOS Setup options by choosing Standard Setup from the AMIBIOS Setup main menu. Standard Setup options are described below.

Floppy Drive A: and B:

Move the cursor to these fields via ↑ and ↓ and select the floppy type. The settings are *360 KB 5¼ inch*, *1.2 MB 5¼ inch*, *720 KB 3½ inch*, *1.44 MB 3½ inch*, or *2.88 MB 3½ inch.*

Primary Master
Primary Slave
Secondary Master
Secondary Slave

Select these options to configure the drive named in the option. Select *Auto Detect IDE* to let AMIBIOS automatically configure the drive. A screen with a list of drive parameters appears. Click on *OK* to configure the drive.

Type	How to Configure
SCSI	Select *Type*. Select *Not Installed* the drive parameter screen. The SCSI drivers provided by the SCSI manufacturer should allow you to config- ure the SCSI drive.
IDE	Select *Type.* Select **Auto** to let AMIBIOS determine the parameters. Click on OK when AMIBIOS displays the drive parameters. Select *LBA/Large Mode*. Select *On* if the drive has a capacity greater than 540 MB. Select **Block** *Mode*. Select *On* to allow block mode data transfers. Select **32-Bit** *Transfer*. Select *On* to allow 32-bit data transfers. Select the **PIO** *Mode*. It is best to select *Auto* to allow AMIBIOS to determine the PIO mode. If you select a PIO mode that is not supported by the IDE drive, the drive will not work properly. If you are absolutely cer- tain that you know the drive's PIO mode, select PIO mode 0-5, as appropriate.
CD-ROM	Select *Type*. Select *CDROM*. Click on *OK* when AMIBIOS displays the drive parameters.
Standard MFM	Select *Type.* You must know the drive parameters. Select the drive type that exactly matches your drive's parameters.
Non-Standard MFM	Select *Type*. If the drive parameters do not match the drive parameters listed for drive types 1-46, select *User* and enter the correct hard disk drive parameters.

Entering Drive Parameters

You can also enter the hard disk drive parameters. The drive parameters are

Parameter	Description
Type	The number for a drive with certain identification parameters.
Cylinders	The number of cylinders in the disk drive.
Heads	The number of heads.
Write Precompensation	The actual physical size of a sector gets progressively smaller as the track diameter diminishes. Yet each sector must still hold 512 bytes. Write precompensation circuitry on the hard disk compensates for the physical difference in sector size by boosting the write current for sectors on inner tracks. This parameter is the track number on the disk surface where write precompensation begins.
Landing Zone	This number is the cylinder location where the heads normally park when the system is shut down.
Sectors	The number of sectors per track. MFM drives have 17 sectors per track. RLL drives have 26 sectors per track. ESDI drives have 34 sectors per track. SCSI and IDE drives have even more sectors per track.
Capacity	The formatted capacity of the drive is the number of heads times the number of cylinders times the number of sectors per track times 512 (bytes per sector).

4.2 Advanced CMOS Setup

The AMIBIOS Setup options described in this section are selected by choosing Advanced CMOS Setup from the AMIBIOS Setup main menu.

4.3 Advanced Chipset Setup

Choose Chipset Setup on the AMIBIOS Setup main menu. All Chipset Setup options are then displayed. AMIBIOS Setup can be customized.

4.4 Power Management Setup

The AMIBIOS Setup options described in this section are selected by choosing Power Management Setup from the AMIBIOS Setup main menu.

4.5 PCI/PnP Setup

Choose PCI/Plug and Play Setup from the AMIBIOS Setup screen to display the PCI and Plug and Play Setup options.

4.6 CPU Configuration Setup

This system BIOS is capable to detect the CPU type, say Pentium III, Pentium II or Celeron. The user is only required to select the CPU speed. In addition, overclocking option is provided for advanced users who prefer to run the CPU over the specified clock frequency.

4.7 Save Settings and Exit

Choose Save Setting and Exit from the AMIBIOS Setup main menu. Type "Y" to exit the BIOS Setup program and saving the values. Type "N" to return to the Setup program.

4.8 Exit Without Saving

Choose Exit Without Saving from the AMIBIOS Setup main menu. Type "Y" to exit the BIOS Setup program without saving the values. Type "N" to return to the Setup program.

The End