

**33/40 MHz Zero-Wait 80386
Turbo Main Board**

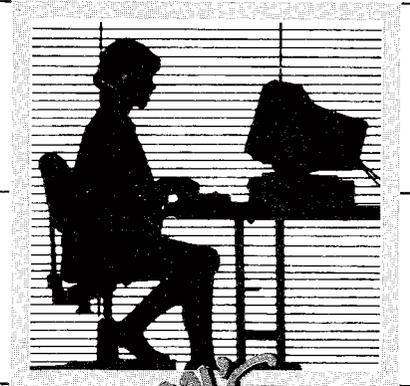
MB

-1333UCG

-1340UCG

-1333UCQ

-1340UCQ



*Users
Manual*

Platte Typ 47

Ge. 589 / Hd 12 / Sec 32

**Thanks for your
smart choice of our product
From now on you will enjoy the
highest quality
&
the best after sale service**

Date: 10/9/1993

A1.1

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Chapter 1. Introduction

1.1 System Overview

The mainboard is a two-chip mainboard providing optimal performance for 386-based PC/AT system. The mainboard is designed for systems running at frequencies of 33/40MHz. It is ideal for multi-tasking and fully supports MS/DOS, Novell, UNIX/ZENIX and OS/2, etc. The ideal choice for your computing needs.

1.2 Features

- ❑ Support 386DX CPU speed up to 33/40MHz
- ❑ Support Cyrix CX486DLC CPU (for MB-1333/40UCG)
- ❑ Intel 80387 and Cyrix CX87DLC supported
- ❑ Provide MB-1333/40UCG a 132-lead Ceramic Pin Grid Array (PGA) package
- ❑ Provide MB-1333/40UCQ a small footprint 132-pin Plastic Quad Flat Pack (PQFP) package
- ❑ Use 82C3491(208 pins) chip plus 82C3493(100 pins)
- ❑ AMI legal BIOS
- ❑ Support Hardware and Software turbo control
- ❑ A memory controller that provides shadow RAM and supports 8-bit BIOS ROM
- ❑ Bus I/O clock 8MHz for maximum compatibility with add on cards
- ❑ 8042 Emulation for Fast CPU Reset and Gate A20 generation

- ☐ Support 256K/1M/4M SIMM Module
- ☐ Support DRAM memory up to 32MB on board
- ☐ DRAM Type: page mode, 80ns required
- ☐ Flexible cache RAM size 32KB/128KB
- ☐ Provide one 8-bit slot, five 16-bit slots
- ☐ Dimension: 6.7" x 8.6" (W x L)
- ☐ Offers the highest performance for MS/DOS, OS/2 Windows, Novell, UNIX/ZENIX system, etc.

1.3 System Performance

CPU Type/ Test Under Software	Landmark Ver 0.99	Landmark Ver 1.14	Power Meter MIPS Ver 1.7
386DX-33MHz	58.7	56.1	8.0
386DX-40MHz	73.4	67.5	9.6
Cyrix CX486DLC-33	97.9	92.8	11.3
Cyrix CX486DLC-40	117.4	111.3	13.6

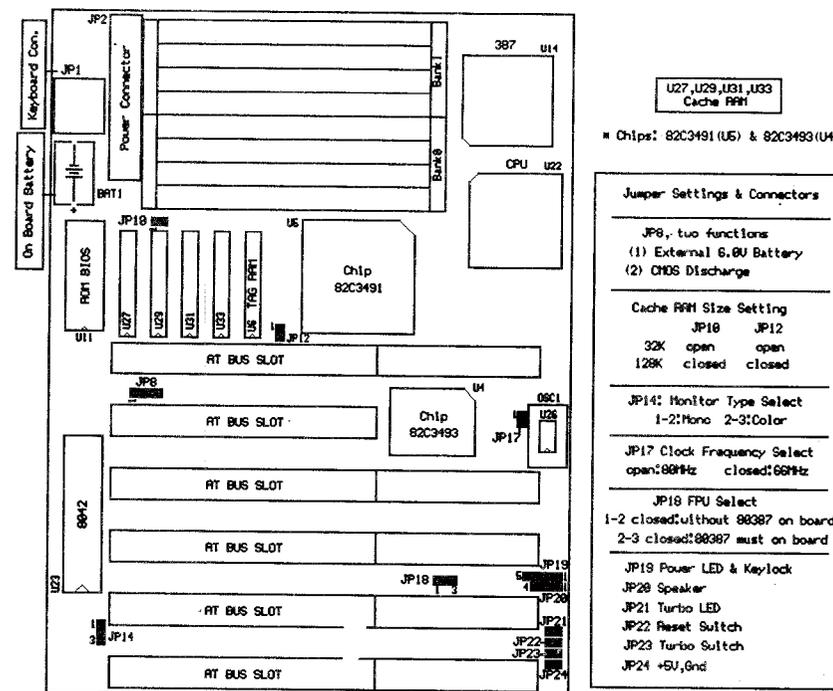
CPU Versus Oscillator:

386DX-33MHz: OSC1 66MHz

386DX-40MHz: OSC1 80MHz

Chapter 2. Mainboard Installation

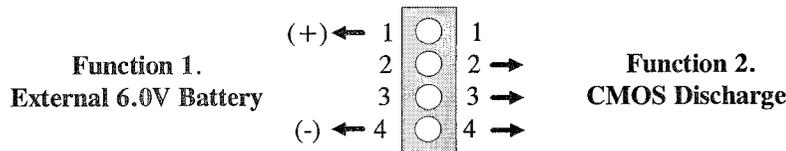
2.1 Layout of Mainboard



2.2 Jumper Settings

A jumper is several pins which may, or may not be covered by a plastic connector plug. A jumper is used to select different system options.

(A) **JP8** This jumper has two functions, the details as the following:



Function 1. -- External 6.0V Battery

How to install an external battery on board:

- Step 1: Turn the power off.
- Step 2: Take off the cap of JP8 on board.
- Step 3: Insert the connector of external battery to JP8.

Function 2. -- CMOS Discharge

- 1 4 2-3 closed: To maintain set up and extended setup data in CMOS for normal functioning. **(default)**
- 1 4 3-4 closed: To clear CMOS setup memory, if there has been any inappropriate operation incurring the system is failure.

!! NOTE !! After clear CMOS setup memory, please adjust pin 2-3 of JP8 to be closed again. Otherwise the system won't be booted up.

(B) **JP10,JP12** Cache RAM Size Setting

SRAM size/ Jumper No.	JP10	JP12
32K	 open	 open
128K	 closed	 closed

(C) **JP14** Monitor Type Select

- 1 3 1-2 closed: Mono
- 1 3 2-3 closed: Color

(D) **JP17** Clock Frequency Select

- Open: 80MHz
- Closed: 66MHz

(D) **JP18** FPU Select

- 1 3 1-2 closed: Without 80387 on board
- 1 3 2-3 closed: 80387 must on board

Note: You must place the jumper cap of JP18 in correct position, otherwise the system will hang up.

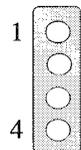
2.3 Connectors

(A) JP19 Power LED & Keylock



- 1: Power LED(+)
- 2: No Connection
- 3: Ground
- 4: Keylock
- 5: Ground

(B) JP20 Speaker



- 1: Speaker
- 2: No Connection
- 3: Ground
- 4: +5V

(C) JP21 Turbo LED



- 1: Turbo LED(-)
- 2: Turbo LED(+)

(D) JP22 Reset



- 1: Reset Control
- 2: Ground

(E) JP23 Turbo Switch



- 1: +5V
- 2: Turbo Control

(F) JP24 +5V, Ground



- 1: +5V
- 2: Ground

2.4 DRAM Installation

DRAM Access Time: 80ns, page mode

DRAM Type: 256KB/1MB/4MB SIMM Module

Memory Size	Bank 0	Bank 1
1M	256K module x 4pcs	-----
2M	256K module x 4pcs	256K module x 4pcs
4M	1M module x 4pcs	-----
5M	1M module x 4pcs	256K module x 4pcs
8M	1M module x 4pcs	1M module x 4pcs
16M	4M module x 4pcs	-----
17M	4M module x 4pcs	256K module x 4pcs
20M	4M module x 4pcs	1M module x 4pcs
32M	4M module x 4pcs	4M module x 4pcs

2.5 Cache RAM Combination

SRAM Size /Locate	Cache RAM	Tag RAM	Cacheable Main Memory (MB)
	U27,U29 U31,U33	U6	
32K	8K x 8 x 4pcs	8K x 8 x 1pcs	8
128K	32K x 8 x 4pcs	8K x 8 x 1pcs	32

Chapter 3. BIOS

Running AMI BIOS:

When the system is powered on, the BIOS will enter the Power-On-Self-Test (POST) routine.

The AMI BIOS performs the various diagnostic checks at the time the system is powered on; if an error is encountered, the error will be reported in one of two different ways. If the error occurs before the display device is initialized, a series of beeps will be transmitted.

If the error occurs after the display device is initialized, the screen will display the error message. In the case of a non-fatal error, a prompt to press the <F1> key may also appear on the screen.

Errors occurring due to any alteration in the system are normally registered as non-fatal errors.

!!! WARNING !!! Please boot up the system periodically, in order to keep CMOS SETUP data correct. Otherwise rechargeable battery power is not enough, and CMOS SETUP may lose data.

In the case of a fatal error, certain reference numbers will follow the error message. Copy these down before consulting your manufacturer as this will facilitate the repair of any fault. In the case of a non-fatal error, press <F1> to continue the boot procedure.

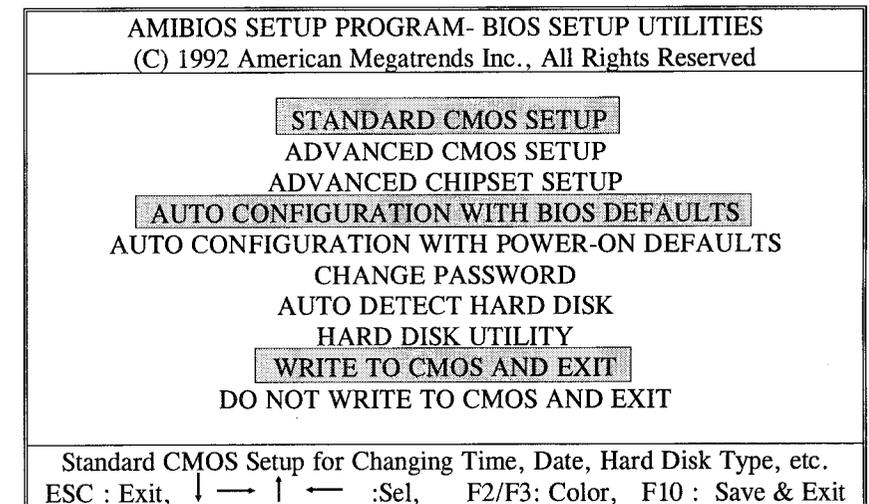
After the POST routines are completed, the following message appears:

"Hit if you want to run SETUP"

To access the AMI BIOS SETUP program, press the <F1> key. The screen in Figure 3.01 will appear.

These are the generic menu options of the BIOS SETUP Program.

■ Figure 3.01 BIOS Setup Menu



The Standard CMOS Setup utility is used to configure the following features:

- ❑ **Date: Month, Date, and Year.** Ranges for each value are listed below in prompt box in the lower left corner of the CMOS SETUP Screen (Figure 3.02).
- ❑ **Time: Hour, Minute, and Second.** Uses 24 hour clock format, i.e., for PM numbers, add 12 to the hour. You would enter 4:30 P.M. as 16:30:00.
- ❑ **Hard Disk C and Hard Disk D:** Hard disk types from 1 to 46 are standard ones; type 47 is user definable. The user must enter the hard disk parameters for each drive.

!! NOTE !! *The user definition entry allows you to perform a test on a disk drive not defined in ROM. The user definition entry is valid only during the period that the test is performed.*

The drive types are identified by the following characteristics:

- ❑ **Type** This is the numerical designation for a drive with certain identification parameters.
- ❑ **Cyl.** This is the number of cylinders found in the specified drive type .
- ❑ **Heads** This is the number of heads found in the specified drive type.
- ❑ **WPcom** WPcom is the read delay circuitry which takes into account the timing differences between the inner and outer edges of the surface of the disk platter. The number designates the starting cylinder of the signal.

- ❑ **L-zone** L-zone is the landing zone of the heads. This number determines the cylinder location where the heads will normally park when the system is shut down.
- ❑ **Capacity** This is the formatted capacity of the drive based on the following formula:

$$(\text{\#of heads}) \times (\text{\#of cylinders}) \times (17 \text{ secs/cyl.}) \times (512 \text{ bytes/sec})$$

- ❑ **Not installed** is available for use as an option. This option can be used for diskless workstations and SCSI hard disks.
- ❑ **Type 47** may be used for both hard disks C and D. The parameters for type 47 under Hard Disk C and Hard Disk D may be different, which effectively allows 2 different user definable hard disk types.
- ❑ **Floppy Drive A and Floppy Drive B:** The options are 360 KB 5 1/4", 1.2 MB 5 1/4", 720 KB 3 1/2", 1.44MB 3 1/2", 2.88MB 3 1/2" and "Not installed". Not installed can be used as an option for diskless work-stations.
- ❑ **Primary Display:** Options are "Monochrome", "Color 40x25", "VGA/PGA/EGA", "Color 80x25", and "Not installed". The "Not Installed" option can be used for network file servers.
- ❑ **Keyboard:** Options are "Installed" or "Not installed".

3.2 Advanced CMOS Setup

!!! WARNING !!! The values listed below are standard values for the system. Any alteration to these values might cause system failure. All enquiries should be directed to your retailer.

!! NOTE !! The information about BIOS defaults on manual is just for reference, for update information, please refer to the BIOS installed on board.

■ Figure 3.03 Advanced CMOS Setup Screen

AMIBIOS SETUP PROGRAM - ADVANCED CMOS SETUP	
(C) 1992 American Megatrends Inc., All Rights Reserved	
Typematic Rate Programming	: Disabled
Typematic Rate Delay (msec)	: 500
Typematic Rate (Chars/Sec)	: 15
Above 1 MB Memory Test	: Enabled
Memory Test Tick Sound	: Enabled
Memory Parity Error Check	: Disabled
Hit Message Display	: Enabled
Hard Disk Type 47 RAM Area	: 0:300
Wait For <F1> If Any Error	: Enabled
System Boot Up Num Lock	: On
Numeric Processor Test	: Enabled
Floppy Drive Seek At Boot	: Enabled
System Boot Up Sequence	: A: , C:
System Boot Up CPU Speed	: High
External Cache Memory	: Enabled
Internal Cache Memory	: Disabled
Password Checking Option	: Setup
BootSector Virus Protection	: Disabled

ESC: Exit | ← | → | :Sel, (Ctrl)Pu/Pd: Modify, F1: Help, F2/F3: Color
F5: Old Values, F6: BIOS Setup Defaults, F7: Power-on Defaults

3.3 Advanced Chipset Setup

!!! WARNING !!! The values listed below are standard values for the system. Any alteration to these values might cause system failure. All enquiries should be directed to your retailer.

■ Figure 3.04 Advanced Chipset Setup Screen

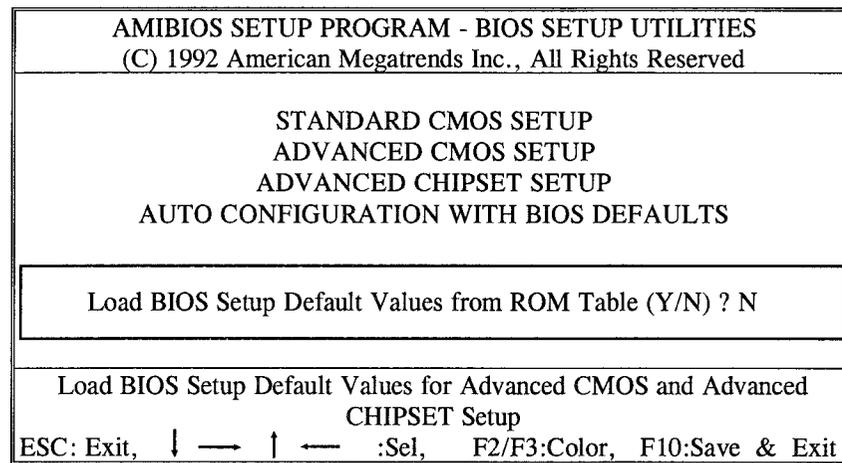
AMIBIOS SETUP PROGRAM - ADVANCED CHIPSET SETUP			
(C) 1992 American Megatrends Inc., All Rights Reserved			
AUTO Config Function	: Enabled	LOWA20#,RC Emulation	: GA20
Cache Read Option	: 3-2-2-2	Hardware Parity Check	: Disabled
Cache Write Option	: 2 W.S.		
DRAM Type	: PageMode		
DRAM Wait States(s)	: 2 W.S.		
Non-Cacheable Block1 Enable	: Disabled		
Non-Cacheable Block-1 Size	: 4MB		
Non-Cacheable Block-1 Base	: OKB		
Memory Remapping	: Enabled		
F Segment Shadow RAM	: Enabled		
C000-C3FF Shadow RAM	: Enabled		
C400-C7FF Shadow RAM	: Enabled		
C800-CBFF Shadow RAM	: Disabled		
CC00-CFFF Shadow RAM	: Disabled		
D000-D3FF Shadow RAM	: Disabled		
D400-D7FF Shadow RAM	: Disabled		
D800-DBFF Shadow RAM	: Disabled		
DC00-DFFF Shadow RAM	: Disabled		

ESC: Exit | ← | → | :Sel, (Ctrl)Pu/Pd: Modify, F1: Help, F2/F3: Color
F5: Old Values, F6: BIOS Setup Defaults, F7: Power-on Defaults

3.4 Auto Configuration with BIOS Defaults

The BIOS Default Auto Configuration feature uses the default system values before the user has changed any CMOS values. If the CMOS is corrupted, the BIOS defaults will automatically be loaded.

■ **Figure 3.05 BIOS Default Auto Configuration Screen**



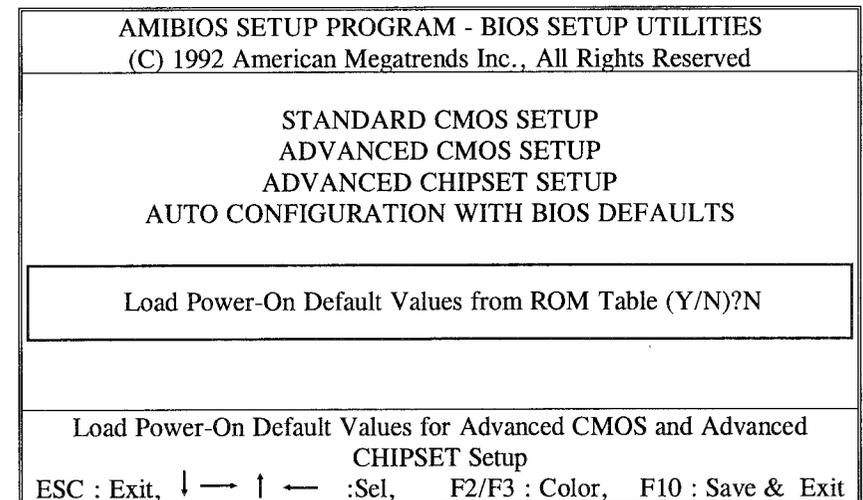
If you wish to use the BIOS defaults, change the prompt to <Y> and press <ENTER>. The following message will appear on the screen:

"Default values loaded. Press any key to continue."

3.5 Auto Configuration with Power-On Defaults

This feature uses the default Power-On values. You may wish to use this option as a diagnostic aid if your system is behaving erratically.

■ **Figure 3.06 Power-On Default Auto Configuration Screen**



If you wish to use the Power On defaults, change the prompt to <Y> and press <ENTER>. The following message will appear on the screen:

"Default values loaded. Press any key to continue."

3.6 Change Password

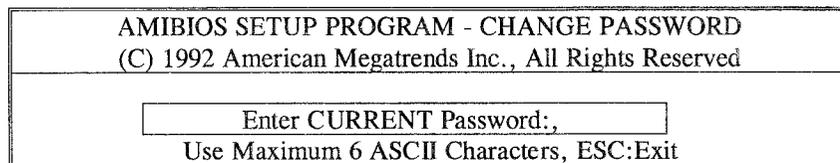
The BIOS SETUP program has a new optional password feature. Depending on the particular hardware manufacturer or system integrator, the system may be configured so that the user is required to enter a password every time the system boots, or whenever an attempt is made to enter the SETUP programs. The password function may also be disabled, which means that the prompt will not appear under any circumstances.

This section of the manual deals with changing the user password. The password check function is enabled in "Advanced CMOS Setup". The password check function is enabled by choosing either "Always" or "Setup".

The password, which will be stored in the CMOS, cannot exceed 6 characters in length. A default password, to be used if the CMOS is corrupted, is stored in the ROM. The default password is AMI. Check your system documentation in the event the default password has been changed by the manufacturer.

To change the user password, select the Change Password option from the main setup screen, by using the arrow keys to move the cursor to this selection and pressing <ENTER>. The screen in Figure 3.07 will appear.

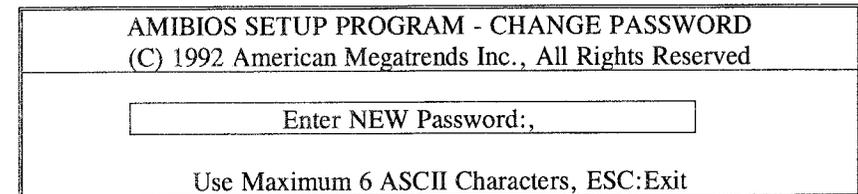
■ Figure 3.07 Password Opening Screen



The first time you select this option, enter the default password AMI, or the default password specified in your system documentation, then press <ENTER> to complete your selection.

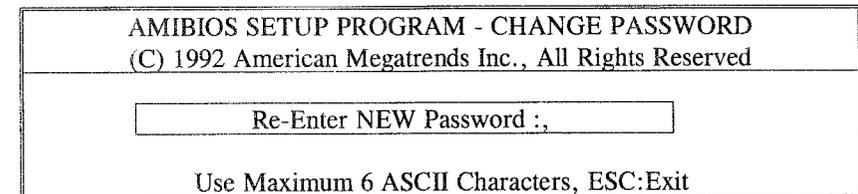
The screen will not display the characters entered. After the current password has been correctly entered, the screen in Figure 3.08 will appear, prompting you for the new password. If you want "Change Password" function is disabled, press <ENTER> then the screen of "Password Now Disabled" will appear.

■ Figure 3.08 New Password Screen



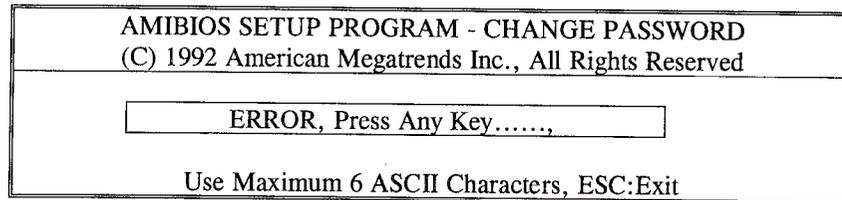
If the new password is entered, the prompt in Figure 3.09 will appear. Rekey the new password and press <ENTER>.

■ Figure 3.09 Password Confirmation Screen

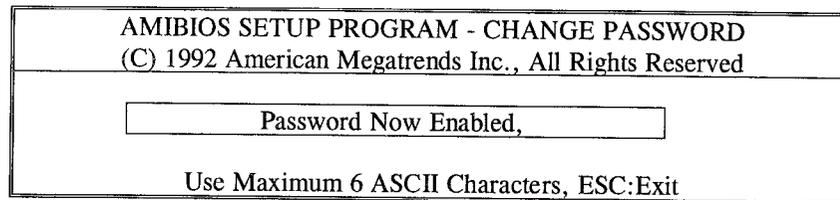


If the password confirmation is miskeyed, the error screen in Figure 3.10 will appear. If the new password confirmation is entered without error, the screen in Figure 3.11 will appear. Press <ESC > to return to the main Setup menu.

■ **Figure 3.10 Password Error Screen**



■ **Figure 3.11 Password Installation Confirmation Screen**



Once Setup is completed and the changed values have been stored in the CMOS, when the system next boots, the user will be prompted for the password if the password function is present and has been enabled.

When and if the prompt appears is dependent upon the options chosen in Advanced CMOS Setup.

If the "Always" option was chosen in "Advanced CMOS Setup", the prompt will appear each time the system is powered on.

If the "Setup" option was chosen in "Advanced CMOS Setup", the prompt will not appear when the system is powered on, but will appear each time an attempt is made to enter the SETUP program.

If the "Disabled" option was chosen in "Change Password", the password prompt will never appear.

When the password prompt appears, the new password, which is now stored in the CMOS, should be entered and the <ENTER >key pressed. If the CMOS is corrupted, e.g., the batteries fall out or are loosened, the default ROM password mentioned above should be used instead.

!! NOTE !! *When the password is changed, however, it is important that a record of the change be kept in a safe place. In the event the password check has been enabled in Setup and the user forgets or loses the new password, the default password stored in the ROM cannot be used unless the CMOS is disabled. A relatively safe way to do this would be to disconnect the CMOS batteries, though for absolute assurance please first contact your retailer.*

3.7 Auto Detect Hard Disk

Auto Detection of Hard Disk Type

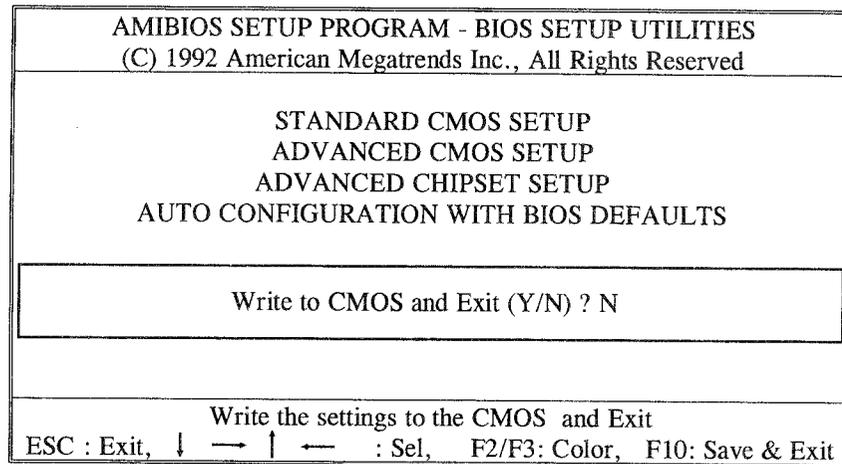
3.8 Hard Disk Utility

Format the Hard Disk, Auto Interleave Detection and Media Analysis.

3.9 Write to CMOS and Exit

The features selected and configured in the Standard Setup, Advanced CMOS Setup, Advanced Chipset Setup, and the New Password Setup will be stored in the CMOS when this option is taken. The CMOS checksum is calculated and written to the CMOS. Control is then passed back to BIOS.

■ Figure 3.12 Write to CMOS Exit Screen



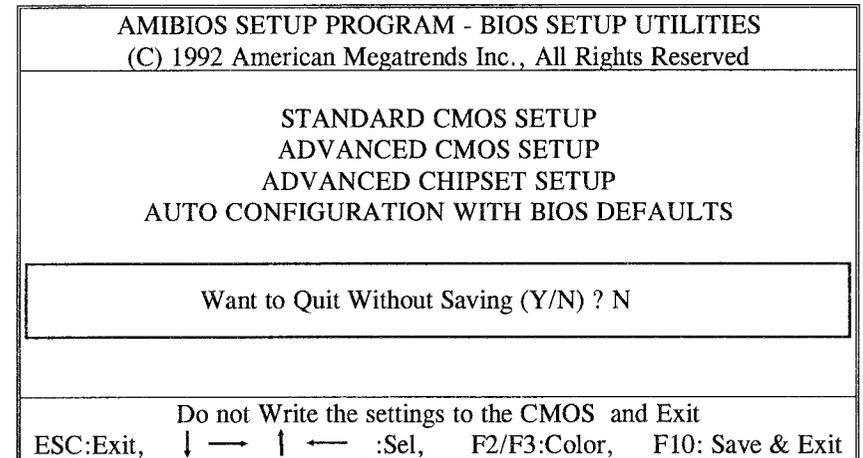
Pressing <N> (No) and <ENTER> will return you to the Main Menu.

Pressing <Y> (Yes) and <ENTER> will save the system parameters and continue with the booting process.

3.10 Do not Write to CMOS and Exit

This option passes control back to BIOS without writing any changes to the CMOS.

■ Figure 3.13 CMOS Exit Screen



Pressing <N> (No) and <ENTER> will return the user to the main menu.

Pressing <Y> (Yes) and <ENTER> will continue with the booting process without saving any system parameters.