486/33-25
User's Manual

486/33-25

SYSTEM BOARD

USER'S MANUAL

TABLE OF CONTENTS

SECTION 1
1. INTRODUCTION

The 486 Main board which you received has passed strict quality control procedures to ensure trouble-free operation. It is fully compatible with IBM AT computers. We are alos confident that you will be completely satisfied with it's high speed performances, capabilities and operation.

The 486 motherboard contains an Intel 80486 CPU, ha.. an on-chip 8K byte cache RAM and internal floating-point, an external cache controller with 64K or 256K byte cache RAM.

A 32-bit slot on the 486 motherboard accepts a High Speed Memory card which allows expansion of up to a total 64 Megabytes of memory.

The operation manual has simple instructions for the installation and operation of the main board.

2.SPECIFICATION

* Intel 80486-33/25 Microprocessor

* 64KB or 256KB Cache Memory Size

* Optional WEITEK 4167 Coprocessor Socket

* Main Memory Capacity:
  32 MB Module RAM on board, using 80ns or 100ns SIMM Module DRAM.

* System can bestarted by 256KB/1MB/4MB SIMM.

* Shadow RAM supported system BIOS and Video BIOS.

* 384KB added to extention memory for REMAP DRAM.

* Expansion Slots:
  Six 16 bit and Two 8 bit slots AT expansion bus.
  One 32MB high speed memoy board slot.

* Programmable bus speed.

* Seven DMA channels.

* Real time clock with on board rechargeable battery or external battery.

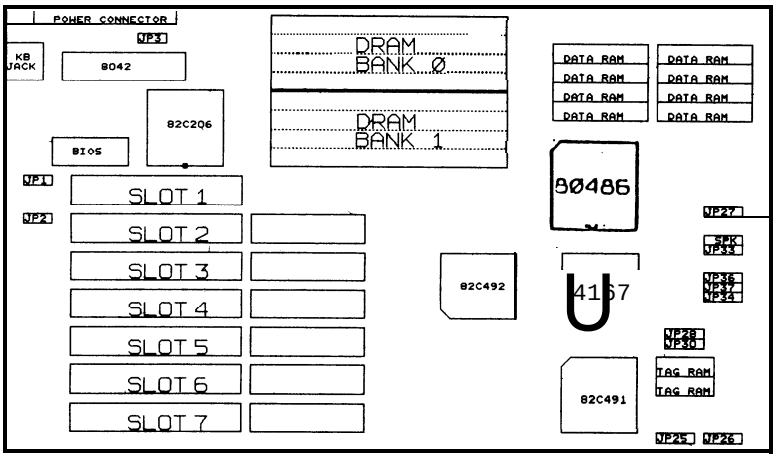
* Hardware reset circuit.

* On board power good signal built in.

* Speed switching with hardware selection
  (Alos used with software).

Section 2

1. Main Board Layout and Description



JP1 EXTERNAL BATTERY CONNECTOR

There is an on-board battery on the system board. You can also use an external battery to connect the **JP1** instead of using an on-board battery.

Pin assignments states are as follows:

PIN	DESCRIPTION
1	battery(+)
2	not used
3	GROUND
4	GROUND

JP2 BATTERY DISCHARGE CONNECTOR

If you used the wrong procedure to set up the internal register of the chip set, then it porbably will not work. To solve this problem we suggest that you turn off the Power Supply first, then short **PIN1** and PIN2 of JP2 for discharging the CMOS data. After a few seconds open PIN1 and PIN2, short PIN2 and PIN3. You can turn on the power and restart the set-up procedure.

JP3 DISPLAY ADAPTER SET UP

The jumper JP3 is used to set the display function only. The pin3 and pin2 are closed when the monochrome display card is installed. The pin2 and pin1 are closed when the color display card is installed.

Please refer to the table below for setting up the Jumper

JUMPER	MEANING	SETTING	USAGE
JP3	DISPLAY TYPE	PIN3.2 SHORTT	MONOCHROME DISPLAY
		PIN1.2 SHORT	COLOR DISPLAY

JP25, JP26, JP27, JP28, JP30 CACHE SIZE SELECT

Jumper JP25,JP26,JP27,JP28and JP30 are used to select the desired Cache Memory (SRAM) size, 64KB or 256KB optional.

256KB Cache Memory setting:

JP25	PIN 1.2 SHORT
JP26	PIN 1,2 SHORT
JP27	SHORT
JP28	SHORT
JP30	SHORT

64KB Cache Memory setting:

JP25	PIN 2,3 SHORT
JP26	PIN 2,3 SHORT
JP27	OPEN
JP28	OPEN
JP30	OPEN

JP33 **KEYLOCK &** POWER LED CONNECTOR

This **keylock** connector is used to enable or disable the keyboard and to engage the power-LED on the case.

If you connect the **keylock** and power-LED cable to 333, the **case's** power-LED will lit up and display the power-on state. You can also use the keyboard-lock on the case to enable or disable the keyboard.

Pin assignments are as follows:

USAGE	PIN	DESCRIPTION
keylock	1	LED power
	2	not used
	3	GROUND
	4	KEYBOARD Inhibited
	5	GROUND

JP34 RESET SWITCH CONNECTOR

The RESET switch connector is used to restart the system. You can connect theRESET switch cable on the case with JP34 When you press the RESET button on the case, the system will re-start the computer from the RAM test stage. This is a hardware RESET step similar to the power-on function.

JP35 SPEAKER CONNECTOR

This connector is to be connected with a speaker which upon installation, should be attached on back of the front panel. It will sound while the system is booting or when an error is made while running an application program.

JP36 TURBO LED CONNECTOR

This is a turbo LED connector used to connect the case turbo LED cable. If system board select is in turbo mode then the turbo LED will lit up.

Pin assignment states are as follows:

CONNECTOR	USAGE	PIN	DESCRIPTION	
JP22	turbo LED	2	+	anode
		1	-	cathode

JP37 TURBO SWITCH

This jumper decides whether the system runs at turbo or normal speed . If close (shorted) in turbo mode, if open, it is normal mode. This switch can be connected to the case's front panel, so after installation, you can just press the "Turbo" button on case to choose turbo or normal.

POWER CONNECTOR

The power supply is required to be connected in this two six-pin male Power Connector. On board, there is already equipped with "power good" signal,

1	Pin 1 : Power Good
2	Pin 2 : +5V DC
3	Pin3: +12V DC
4	Pin 4 : - 12V DC
5	Pin 5: Ground
6	Pin 6 : Ground
7	Pin 7 : Ground
8	Pin 8 : Ground
9	Pin 9 : -5V DC
10	Pin10:+5V DC
11	Pin11:+5V DC
12	Pin12:+5V DC

Note: Other JUMPERS are for factory setting only.

4. MICROPROCESSOR

The i486™ CPU offers the highest performance for DOS, OS/2, Windows and UNIX System V/386 applications. It is 100% binarycompatiblewith the 386™ CPU.Overone million transistors integrate cache memory, members of the X86 architectural family. Frequently used instructions execute in one cycle resulting in RISC performance levels. An 8 Kbyte unified code and data cache combined with a 106 Mbyte/Sec burst bus at 33.3 MHz ensure high system throughput even with inexpensive DRAMs.

SLOTS (8 bit, 16 bit)

The expansion bus area includes two 8 bit (the shorter one) and six 16 bit (the longer one). These will accept all the common expansion cards that conform to the standard slots, such as Video display cards, Floppy and Hard disk control cards, Serial and Parallel cards, network cards,...etc. Cards that use these slots must be plugged fully and firmly.

SLOTS (32 bit)

The 486 Main board has one specialized slot for a memory card that uses a 32 - bit data path. This slost allows the use of memory that uses a 32 - bit pathway to the microprocessor rather than the 16 -bit path by standard memory cards.

5. MEMORY CONFIGURATION

The memory area includes two sections, one is 32MB RAM on board, and the other is 32MB RAM on expansion RAM card.

The Main Board Section :

* Organized in 2 banks, BANK0 & BANK1.
* Accepts either 256KB, 1MB or 4MB SIMM RAM.
* 1 to 32MB of memory on board.

The 32MB Expansion Memory Card :

* Organized in 2 banks, BANK2 & BANK3
* Accepts either 256KB, 1MB or 4MB SIMM RAM.
* 1 to 32BM of memory on card.

DRAM Control Logic

The DRAM Control Logic is designed and optimized for the 486 CPU. Unlike most systems with an external Cache Controller, the 82C491 DRAM Controller is tightly coupled with the on-chip Cache Controller. When CPU Address becomes available, both controllers operate in parallel. At the time when the Cache Controller discovers it is a read miss or write cycle, the DRAM Controller is ready to generatc RAS(Page Miss)or CAS(Page Hit) right away!

To optimize memory performance, the DRAM Controller has built-in support for Page and Page-Interleave Mode. If Banks (0,1) or (2,3) have the same type of DRAM, they can operate in 2 way Page-Interleave Mode. If Banks (0,1,2,&3) are of the same Mode. In all other cases, each bank will operate in Page Mode only.

The DRAM Controller supports up to 4 banks of DRAM with sizes up to 64MByte and three types of DRAM are supported: 256K,1M and 4M

DRAM Bank Configuration

The local DRAM System can be configured into 1 to 4 banks of DRAM. There is limitaion on the configuration of DRAM as long as no previous banks are empty. The DRAM Banks have to be filled in the following order: Bank0 -> Bank1 -> Bank2 -> Bank3. (See Table A below).

DRAM Speed and Wait State

In order to work with different types of DRAM speed, 82C491 supports wait state for memory read cycle as well as memory write cycle. For read cycle, a configuration of 0 to 4 wait state is availble: ROWT, R1WT, R2WT, R3WT, and R4WT. For write cycle, the 82C491 supports: WOWT, W1WT and W2WT. (See Table B below .)

TABLE A

Bank0	Bank1	Bank2	Bank3	Total Memory Size	Interleave
256K	NONE	NONE	NONE	1M	NONE
256K	256K	NONE	NONE	2M	2WAY
256K	256K	256K	NONE	3M	2WAY
256K	256K	256K	256K	4M	4WAY
1M	256K	NONE	NONE	5M	NONE
256K	256K	1M	NONE	6M	2WAY
256K	256K	256K	1M	7M	2WAY
1M	1M	NONE	NONE	8M	2WAY
1M	1M	256K	NONE	9M	2WAY
256K	256K	1M	1M	10M	2WAY+2WAY
1M	1M	1M	NONE	12M	2WAY
1M	1M	1M	256K	13M	2WAY
1M	1M	1M	1M	16M	4WAY
1M	4M	NONE	NONE	20M	NONE
1M	1M	4M	NONE	24M	2WAY
1M	1M	1M	4M	28M	2WAY
4M	4M	NONE	NONE	32M	2WAY
1M	4M	4M	NONE	36M	2WAY
256K	1M	4M	4M	37M	2WAY
1M	1M	4M	4M	40M	2WAY+2WAY
4M	4M	4M	NONE	48M	2WAY
256K	4M	4M	4M	49M	2WAY
1M	4M	4M	4M	52M	2WAY
4M	4M	4M	4M	64M	4WAY

Table : Partial Possible DRAM Configurations

TABLE B

CPU SPEED	DRAM SPEED	DRAM WAIT STATE
486-25MHz	100NS(NMOS)	(WIWT,R3WT)
	80NS (NMOS)	(WIWT,R2WT)
	100NS(CMOS)	(WIWT,R2WT)
486-33MHz	100NS(NMOS)	(W2WT,R4WT)
	80NS (NMOS)	(W2WT,R3WT)
	lOONS(CMOS)	(W1WT,R3WT)
	80NS (CMOS)	(W1WT,R2WT)

Table B: Wait States/DRAM Speeds

CACHE MEMORY SYSTEM

Cache Control Logic

Introduction

The 82C491 has a Burst Mode Direct Mapped Cache Controller inside to support a "0" wait 80486 Microprocessor. It stores a copy of frequently accessed data/code from main memory in a "0' wait local Cache RAM. With this Cache Controller almost all critical paths arc relocated to relatively small Cache RAMs (SRAM)and DRAM timing is no longer a major issue. Total cost is alos decreased as expensive high speed DRAMs are not required.

External TAG RAM/DATA RAM Speed

The speeds of the external TAG RAM and Data RAM are listed below:

CPU	TAG RAM	CACHE DATA RAM
486-25MHz	25ns	35ns
486-33MHz	15ns	25ns
486-40MHz	12ns	20ns

The 82C491 supports 128-bit linesizeonly. A 64KB/256KB data cache can be achieved by using 8Kx8/32Kx8 SRAM in two banks.

6. CHIP SET

82C491 CPU/AT AND DRAM CONTROLLER

The 82C491 contains the Memory Controller, AT Bus Controller, CPU Controller, and clock generation circuitry. The Cache and DRAM Controllers are the main factors affecting the performance/cost ratio of the system. The 80486 has an on-chip 8Kcache but a supplemental secondary cache can be easily built by using the 82C491 internal Burst Mode Direct Mapped Controller to reduce read cycle access time if the requested data is not currently stored in the on-chip cache. A Page-Interleave DRAM Controller further increases the performance by compensating for the time spent during the read miss cycle.

The 82C491 interfaces directly with the 80486 and implements the state machines required for controlling all bus accesses. The AT Bus Clock is synchronous with the processor clock and generated through a clock divider to insure that the system is 100% IBM compatible.

82C492 Data Buffer

The ET/486H Chip Set, 82C492, provide an efficient cost/performance ratio as well as a high rate of integration in a i486 based, IBM PC/AT compatible system. It is implemented using lu CMOS Technology and can run at 25MHz, 33MHz or 40MHz of CPU sys tern clock.

The 82C492 Data Buffer performs all of the data buffering functions required for a i486 based PC/AT compatible personal computer system. The chip routes the data to and from the CPU Data Bus (CD Bus), the Memory Data Bus (MD Bus), the XD Bus and the ISA Bus (SD Bus) under CPU control.

82C206 is controller that contains the CMOS RAM which is stored as a configuration information created by the setup program.

7. BIOS

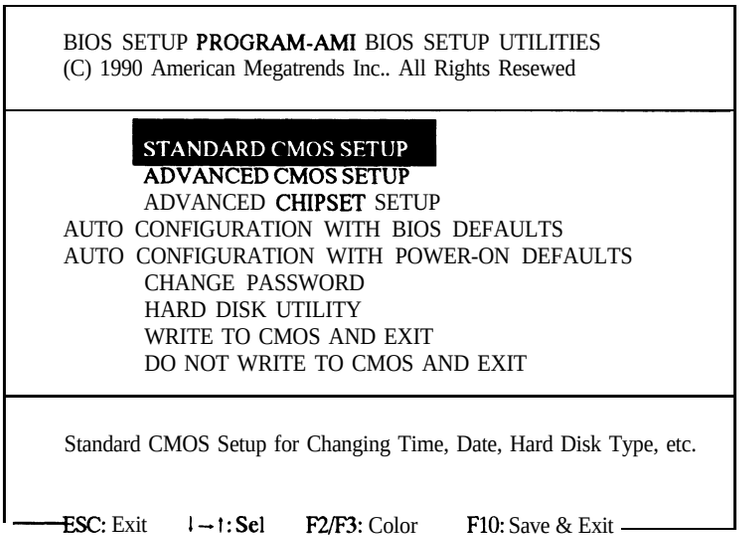
On this main board, we use legal AM1 BIOS, which is also our recommend BIOS. As for the BIOS setup, please refer to section 3.

SECTION 3
BIOS Setup

The AM1 BIOS Setup program is used to record the system hardware configuration. Follow the instruction as shown in the next pages to complete the whole setup procedure.

After power- on and memory test, please press"DEL" key, the program will go on to next screen.

Press <DEL> if you want to run SETUP/EXTD- SET.


BIOS SETUP PROGRAM-AMI BIOS SETUP UTILITIES
(C) 1990 American Megatrends Inc.. All Rights Resewed
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
ADVANCED CHIPSET SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT
Standard CMOS Setup for Changing Time, Date, Hard Disk Type, etc.
ESC: Exit
↓→↑: Sel
F2/F3: Color
F10: Save & Exit

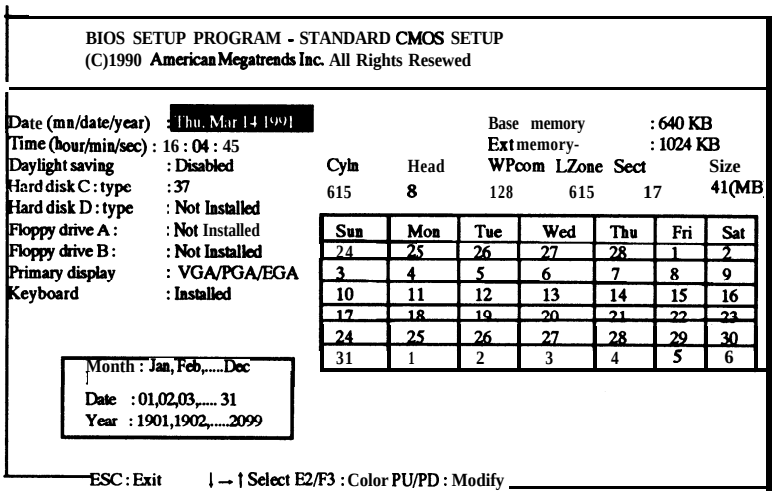
BIOS SETUP PROGRAM-WARNING INFORMATION

Improper Use of **Setup** may Cause Problems !!

If System **Hangs,Reboot** System and Enter Setup by Pressing **the<DEL>key**

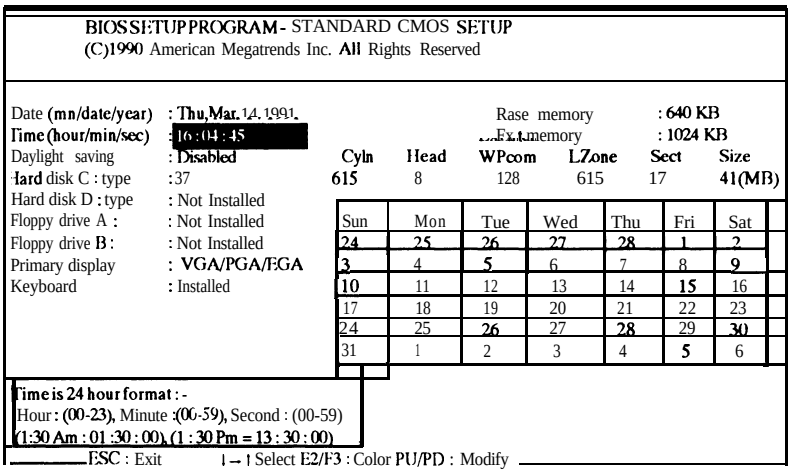
Do any of the following After Entering Setup
(i)Alter Options to make System Work
(ii)Load BIOS Setup Defaults
(iii)Load Power-On Defaults

Hit **<ESC>** to Stop now, Any other Key to Continue



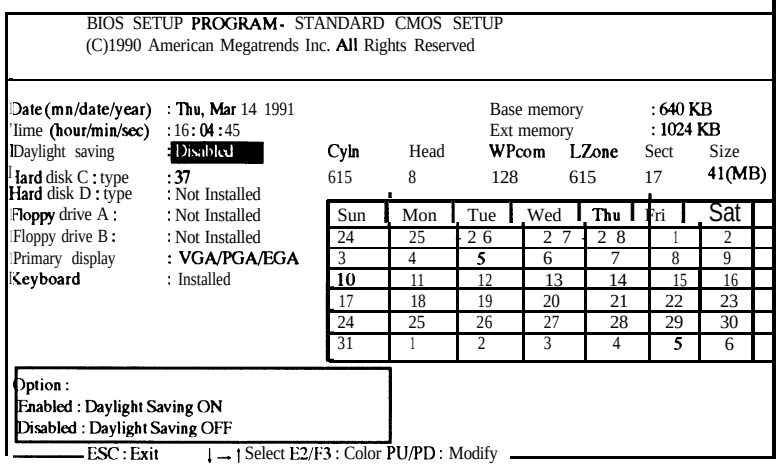
NOTE :

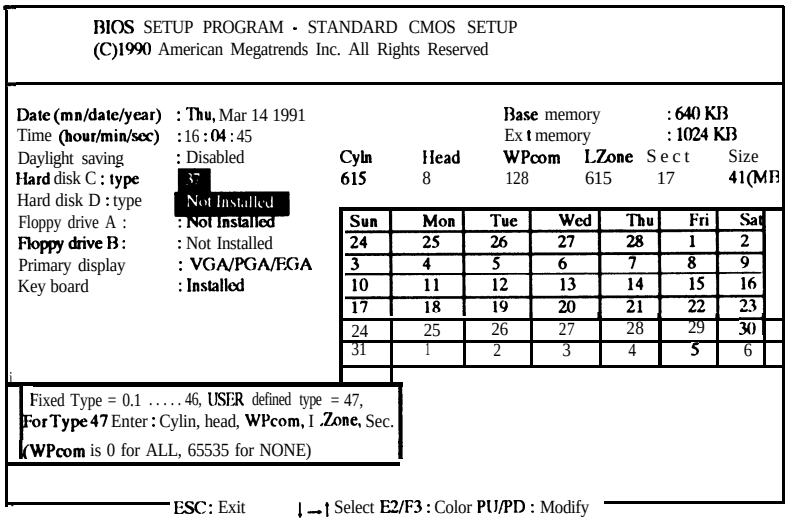
In the right buttom part of the screen, the calender will alter the current year/month/ date. You can use to select the item you want, and usePgUp & PgDn to change the value.



NOTE:

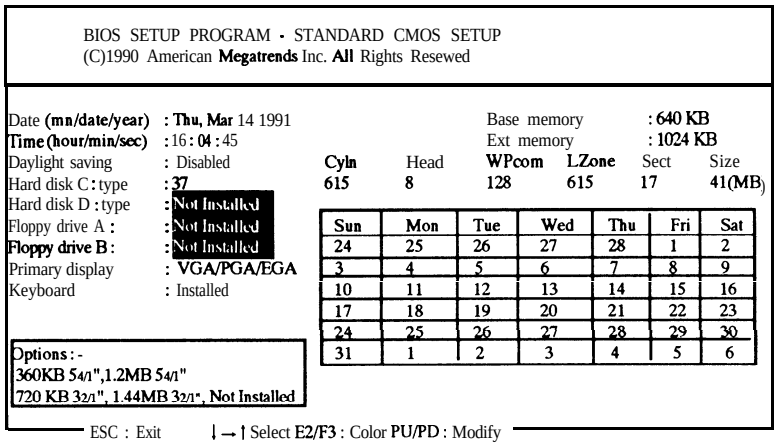
If necessary, you can change the time according to the rule explain in the left button part of the screen.


BIOS SETUP PROGRAM- STANDARD CMOS SETUP
(C)1990 American Megatrends Inc. All Rights Reserved
Date (mn/date/year) : Thu, Mar 14 1991
Time (hour/min/sec) : 16: 04 : 45
Daylight saving : Disabled
Hard disk C : type : 37
Hard disk D : type : Not Installed
Floppy drive A : : Not Installed
Floppy drive B : : Not Installed
Primary display : VGA/PGA/EGA
Keyboard : Installed
Base memory : 640 KB
Ext memory : 1024 KB
Cyln Head WPcom LZone Sect Size
615 8 128 615 17 41(MB)
Sun Mon Tue Wed Thu Fri Sat
24 25 26 27 28 1 2
3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
31 1 2 3 4 5 6
Option :
Enabled : Daylight Saving ON
Disabled : Daylight Saving OFF
ESC : Exit ↓ → ↑ Select F2/F3 : Color PU/PD : Modify



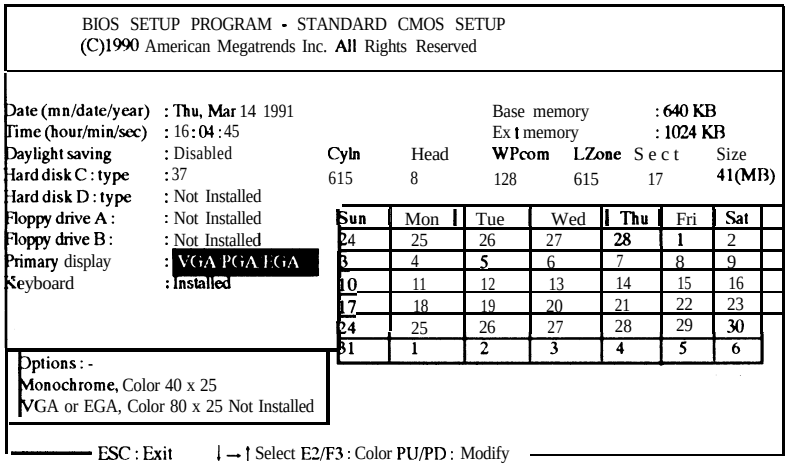
NOTE :

According to your actual equipment, select hard disk C & D whose options are l-47 types.



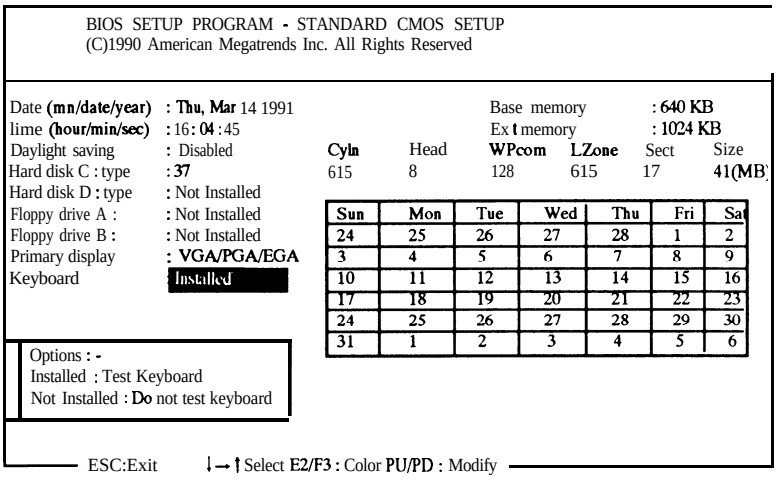
NOTE :

According to your actual equipment, set floppy drive A & B whose five options are 360KB 5.25", 1.2MB 5.25", 720KB 3.5", 1.44MB 3.5 " and Not Installed



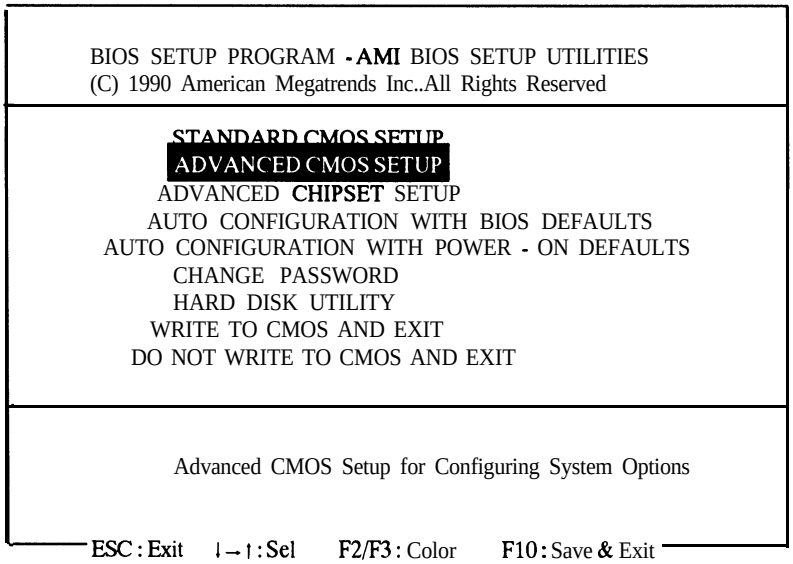
NOTE :

According to your display card, set primary display types whose options are Monochrome, Color 40 x 25, Color 80 x 25, VGA or EGA and Not installed.



NOTE :

When keyboard is installed, ROM tests keyboard; otherwise, it dose not.


BIOS SETUP PROGRAM - AMI BIOS SETUP UTILITIES
(C) 1990 American Megatrends Inc..All Rights Reserved
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
ADVANCED CHIPSET SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER - ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT
Advanced CMOS Setup for Configuring System Options
ESC : Exit ↓→↑ : Sel F2/F3 : Color F10 : Save & Exit

BIOS SETUP PROGRAM - WARNING INFORMATION
(C) 1990 American Megatrends Inc.. All Reserved

Improper Use Setup may Cause Problems !!
If System Hangs. Reboot System and Enter Setup by Pressing the <DEL> key
Do any of the following After Entering Setup
(i) Alter Options to make System Work
(ii) Losd BIOS Setup Defaults
(iii) Load Power - On Defaults

Hit **<ESC>** to Stop now. Any other Key to Continue

BIOS SETUP PROGRAM - ADVANCED CMOS SETUP
(C) 1990 American Megatrends Inc.. All Rights Reserved

Hit<DEL> Message Display : Enabled	System ROM Shadow F000,64K : Enabled
Wait For<F1> If Any Error : Enabled	
Weitek Processor : Absent	
External Cache Memory : Enabled	
Internal Cache Memory : Enabled	
Password Checking Option : Disabled	
Video ROM Shadow C000,16K : Enabled	
Video ROMS hadow C400,16K : Enabled	
Adaptor ROM Shadow C800,16K : Disabled	
Adaptor ROM Shadow CC00,16K: Disabled	
Adaptor ROM Shadow D000,16K: Disabled	
Adaptor ROM Shadow D400,16K: Disabled	
Adaptor ROM Shadow D800,16K: Disabled	
Adaptor ROM Shadow DCOO, 16K: Disabled	
Adaptor ROM Shadow E000, 16K : Disabled	
Adaptor ROM Shadow E400,16K : Disabled	
Adaptor ROM Shadow E800,16K : Disabled	
Adaptor ROM Shadow EC00,16K: Disabled	

ESC : Exit ↓→↑Sel (Ctrl) Pu/Pd : Modify F1 : Help F2/F3 : Color

F5 : Old Values F6 : BIOS Setup Defaults F7 : Power -On Defaults

BIOS SETUP PROGRAM - AMI BIOS SETUP UTILITES
(C) 1990 American Megatrends Inc.. All Rights Reserved

STANDARD CMOS SETUP
ADVANCED CMOS SETUP
ADVANCED CHIPSET SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER - ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT

Advanced CHIPSET Setup for Configuring the CHIPSET Registers

ESC : Exit ↓→↑ : Sel F2/F3 : Color F10 : Save & Exit

BIOS SETUP PROGRAM - WARNING INFORMATION

Improper Use of Setup may Cause Problems !!

If System Hangs.Reboot System and Enter Setup by Presssing the<DEL> key

Do any of the following After Entering Setup
(i) Alter Options to make System Work
(ii) Load BIOS Setup Defaults
(iii) Load Power - On Defaults

Hit <ESC> to Stop now, Any other Key to Continue

BIOS SETUP PROGRAM - ADVANCED CHIPSET SETUP
(C) 1990 American Megatrends Inc.. All Rights Reserved

Relocated 256 KB Cacheable	: No
256KB Memory Relocation	: Enable
Non-Cacheable Block-O Base	: 768 KB
Non Cacheable Block-O Size	: 32 KB
Non-Cacheable Block-l Base	:%OKB
Non -Cacheable Block-l Size	: 64 KB
Non-Cacheable Block-2 Base	: 16384 KB
Non-Cacheable Block-2 Size	: 64MB
Non -Cacheable Block-3 Base	:oK.B
Non -Cacheable Block-3 Size	: Disabled

ESC : Exit ↓→↑ Sel(Ctrl) Pu/Pd : Modify F1 : Help F2/F3 : Color

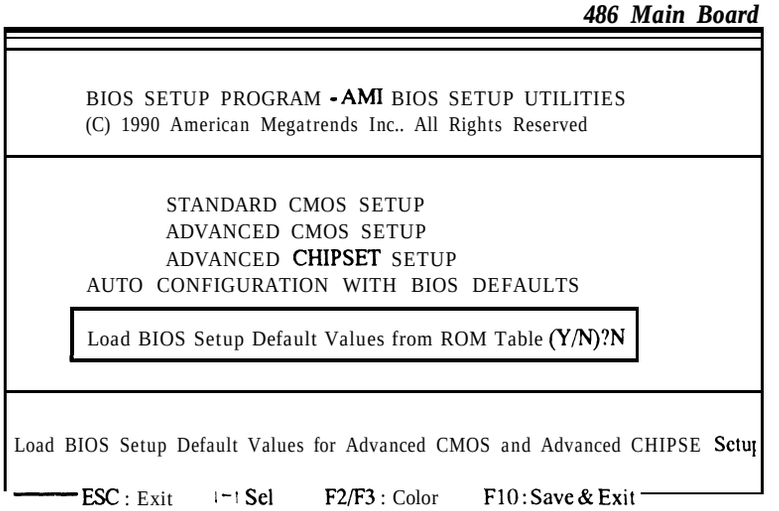
F5 : Old Values F6 : BIOS Setup Defaults F7 : Power-On Defaults

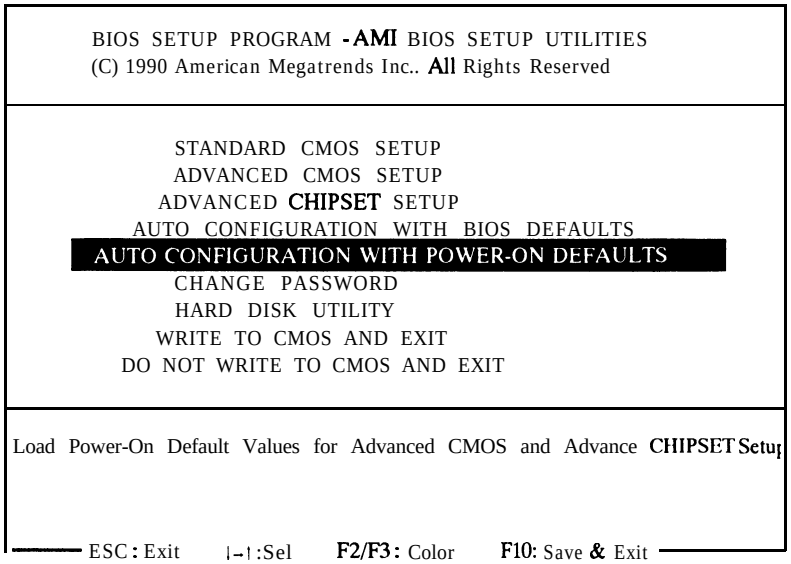
BIOS SETUP PROGRAM - AM1 BIOS SETUP UTILITES
(C) 1990 Americsan Meratrends Inc.. All Rights Reserved

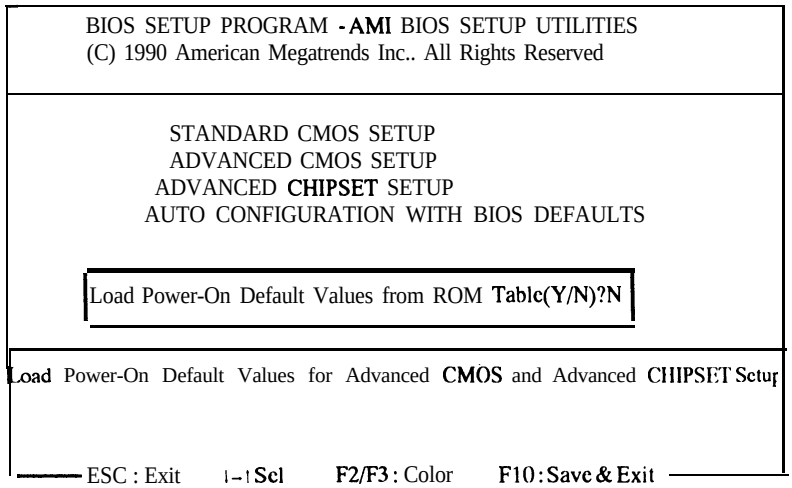
STANDRD CMOS SETUP
ADVANCED CMOS SETUP
ADVANCED CHIPSET SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT

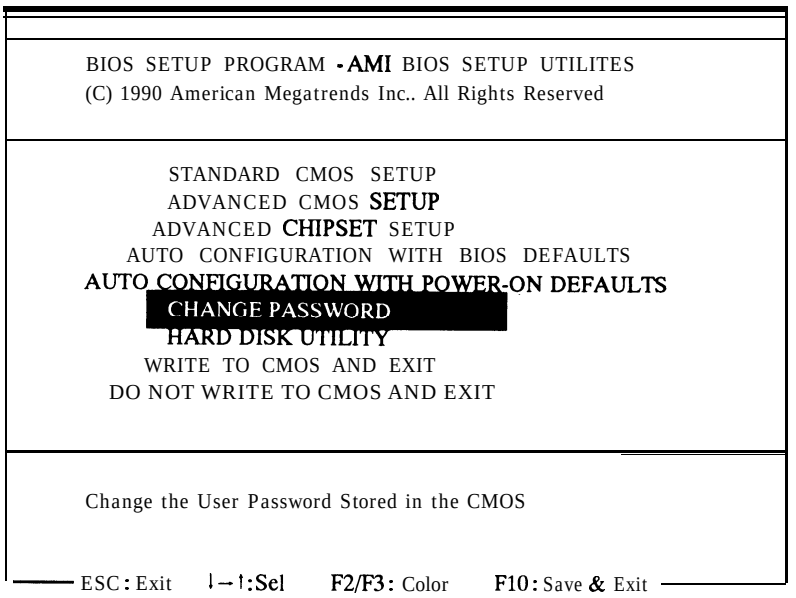
Load BIOS Setup Default Values for Advanced CMOS and Advanced CHIPSE Setup

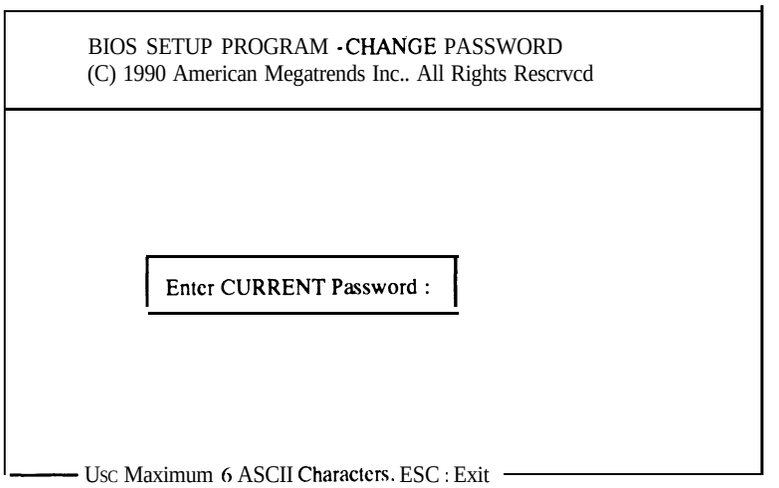
ESC : Exit ↓→↑: Sel F2/F3 : Color F10 : Save & Exit

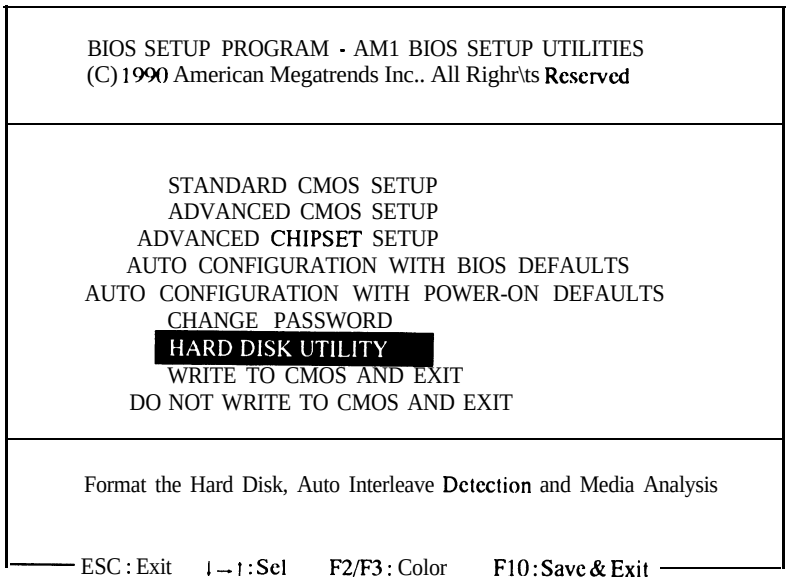

BIOS SETUP PROGRAM - AMI BIOS SETUP UTILITIES
(C) 1990 American Megatrends Inc.. All Rights Reserved
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
ADVANCED CHIPSET SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
Load BIOS Setup Default Values from ROM Table (Y/N)?N
Load BIOS Setup Default Values for Advanced CMOS and Advanced CHIPSE Setu
ESC : Exit
Sel
F2/F3 : Color
F10 : Save & Exit


BIOS SETUP PROGRAM - AMI BIOS SETUP UTILITIES
(C) 1990 American Megatrends Inc.. All Rights Reserved
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
ADVANCED CHIPSET SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT
Load Power-On Default Values for Advanced CMOS and Advance CHIPSET Setup
ESC : Exit
↓→↑:Sel
F2/F3 : Color
F10: Save & Exit


BIOS SETUP PROGRAM - AMI BIOS SETUP UTILITIES
(C) 1990 American Megatrends Inc.. All Rights Reserved
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
ADVANCED CHIPSET SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
Load Power-On Default Values from ROM Table(Y/N)?N
Load Power-On Default Values for Advanced CMOS and Advanced CHIPSET Setup
ESC : Exit
↑↓ Sel
F2/F3 : Color
F10 : Save & Exit


BIOS SETUP PROGRAM - AMI BIOS SETUP UTILITES
(C) 1990 American Megatrends Inc.. All Rights Reserved
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
ADVANCED CHIPSET SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT
Change the User Password Stored in the CMOS
ESC : Exit
↓→↑:Sel
F2/F3 : Color
F10 : Save & Exit


BIOS SETUP PROGRAM - CHANGE PASSWORD
(C) 1990 American Megatrends Inc.. All Rights Rescrvcd
Enter CURRENT Password :
Usc Maximum 6 ASCII Characters. ESC : Exit


BIOS SETUP PROGRAM - AM1 BIOS SETUP UTILITIES
(C) 1990 American Megatrends Inc.. All Righr\ts Reserved
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
ADVANCED CHIPSET SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT
Format the Hard Disk, Auto Interleave Detection and Media Analysis
ESC : Exit ↓→↑ : Sel F2/F3 : Color F10 : Save & Exit

BIOS SETUP PROGRAM - HARD DISK UTILITY
(C) 1990 American Megatrends Inc.. All Rights Reserved

	Cyln	Head	WPcom	LZone	Sect	Size (MB)
Hard Disk C : Type : 37	615	8	128	615	17	41

Hard Disk D : Type :Not Installed

Hard Disk Type can be changed from the STANDARD CMOS SETUP option in Main Menu

Hard Disk Fomat
Auto Interleave
Media Analysis

ESC : Exit ↓→↑ : Sel F2/F3 : Color

BIOS SETUP PROGRAM - HARD DISK UTILITY
(C) 1990 American Mcgatrends Inc.. All Rights Reserved

	Cyln	Head	WPcom	LZone	Sect	Size (MB)
Hard Disk C : Type : 37	615	8	128	615	17	41

Hard Sisk D : Type : Not Installed

Hard Disk Format	
Disk Drive (C/D)	? C
Disk Drive Type	? 37
Interleave (l-16)	? 3
Mark Bad Tracks (Y/N)	?
Proceed (y/n)	?

ESC : Exit ↓→↑ : Sel

BIOS SETUP PROGRAM - HARD DISK UTILITY
(C) 1990 American Megatrends Inc.. All Rights Reserved

	Cyln	Head	WPcom	LZone	Sect	Size (MB)
Hard Disk C : Type : 37	615	8	128	615	17	41

Hard Disk D : Type : Not Installed

Hard Disk Type can be changed from the STANDARD CMOS SETUP option in Main Menu

Hard Disk Format
Auto Interleave
Media Analysis

ESC : Exit ↓↑ : Sel F2/F3 : Color

BIOS SETUP PROGRAM - HARD DISK UTILITY
(C) 1990 American Megatrends Inc.. All Rights Reserved

	Cyln	Head	WPcom	LZone	Sect	Size (MB)
Hard Disk C : Type : 37	615	8	128	615	17	41

Hard Disk D : Type : Not Installed

Auto Interleave	
Disk Drive (C/D)	? C
Disk Dive Type	? 37
Mark Bad Tracks (Y/N)	? N
Proceed (Y/N)	?

ESC : Exit ↓←↑ : Sel

BIOS SETUP PROGRAM - HARD DISK UTILITY
(C) 1990 American Megatrends Inc.. All Rights Reserved

	Cyln	Head	WPcom	LZone	Sect	Size (MB)
Hard Disk C : Type : 37	615	8	128	615	17	41

Hard Disk D : Type : Not Installed

Hard Disk Type can be changed form the STANDARD CMOS SETUP option in Main Menu

Hard Disk Formal
Auto Interleave
Media Analysis

ESC : Exit ↓ → ↑ : Sel F2/F3 : Color

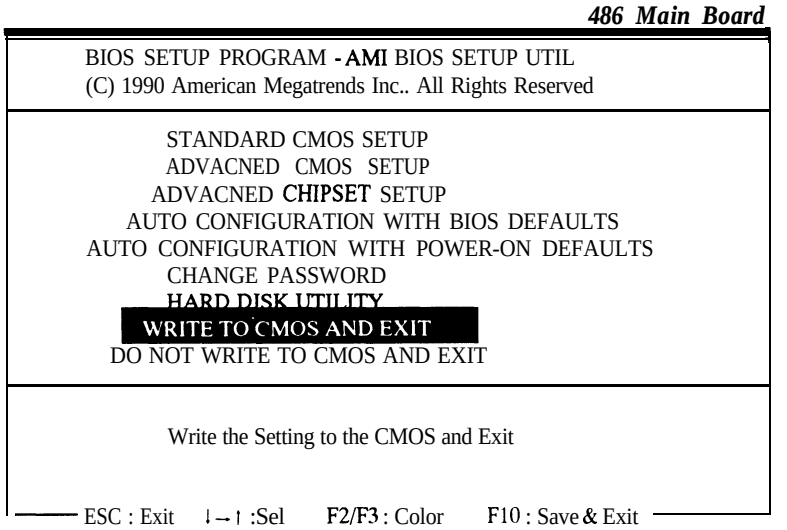
BIOS SETUP PROGRAM - HARD DISK UTILITY
(C) 1990 American Megatrends Inc.. All Rights Resewed

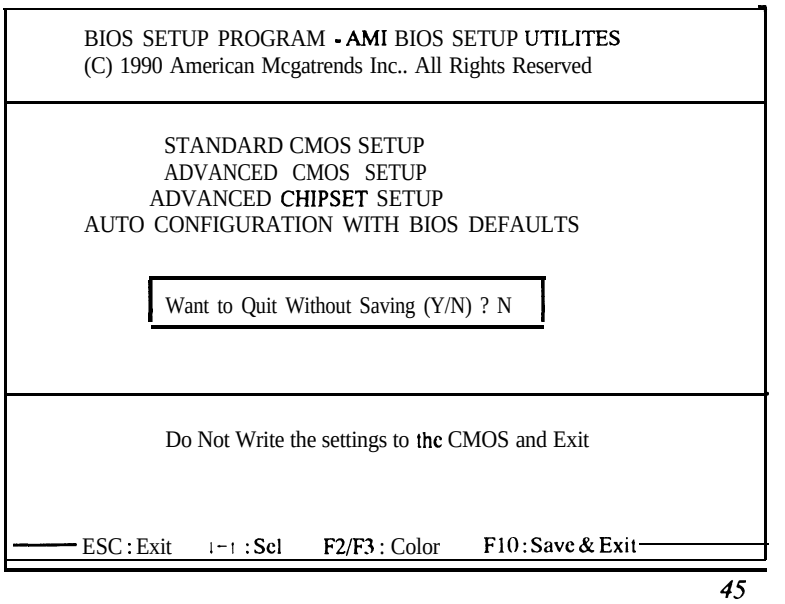
	Cyln	Head	WPcom	LZone	Sect	Size (MB)
Hard Disk C : Type : 37	615	8	128	61.S	17	41

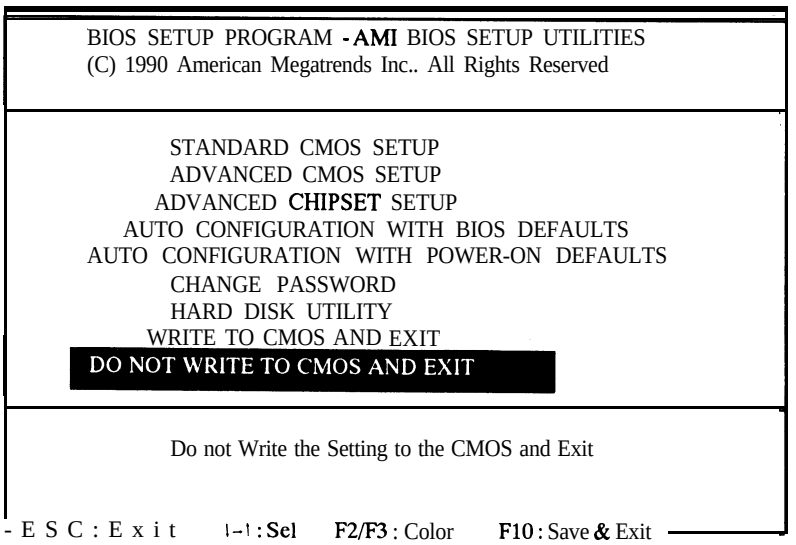
Hard Disk D : Type : Not Installed

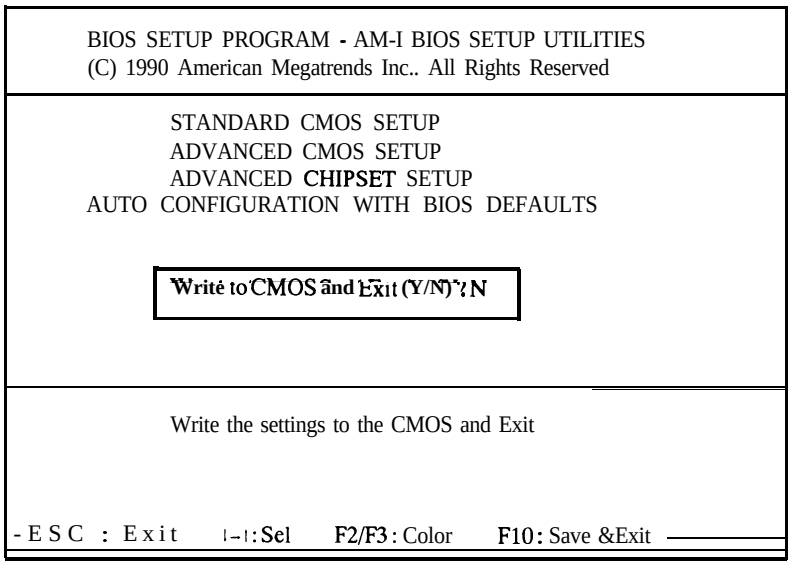
Media Analysis	
Disk Drive (C/D)	? C
Disk Drive Type	?37
Proceed (Y/N)	? N

ESC : Exit ↓←↑ : Sel


BIOS SETUP PROGRAM - AMI BIOS SETUP UTIL
(C) 1990 American Megatrends Inc.. All Rights Reserved
STANDARD CMOS SETUP
ADVACNED CMOS SETUP
ADVACNED CHIPSET SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT
Write the Setting to the CMOS and Exit
ESC : Exit ↓→↑ :Sel F2/F3 : Color F10 : Save & Exit


BIOS SETUP PROGRAM - AMI BIOS SETUP UTILITES
(C) 1990 American Mcgatrends Inc.. All Rights Reserved
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
ADVANCED CHIPSET SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
Want to Quit Without Saving (Y/N) ? N
Do Not Write the settings to the CMOS and Exit
ESC : Exit ↓→↑ : Sel F2/F3 : Color F10 : Save & Exit


BIOS SETUP PROGRAM - AMI BIOS SETUP UTILITIES
(C) 1990 American Megatrends Inc.. All Rights Reserved
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
ADVANCED CHIPSET SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT
Do not Write the Setting to the CMOS and Exit
- E S C : E x i t
↑↓: Sel
F2/F3: Color
F10: Save & Exit


BIOS SETUP PROGRAM - AM-I BIOS SETUP UTILITIES
(C) 1990 American Megatrends Inc.. All Rights Reserved
STANDARD CMOS SETUP
ADVANCED CMOS SETUP
ADVANCED CHIPSET SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
Write to CMOS and Exit (Y/N)? N
Write the settings to the CMOS and Exit
- E S C : E x i t
↑↓: Sel
F2/F3: Color
F10: Save &Exit

SECTION 4. DEFAULT SETUP

The following setup was set as default value after ship out from factory.

1 **Jumpers Setting :**

JP2	:PIN2,3 SHORT	(Charge Battery)
JP25	:PIN 2,3 SHORT	(64KB Cache Memory Setting)
JP26	:PIN 2,3 SHORT	(64KB Cache Memory Setting)
JP27	:OPEN	(64KB Cache Memory Setting)
JP28	:OPEN	(64KB Cache Memory Setting)
JP30	:OPEN	(64KB Cache Memory Setting)

2. BIOS Setup

After power-on press "DEL" key to run SETUP

BIOS SETUP PROGRAM - AM1 BIOS SETUP **UTILITES**
(C) 1990 American Megatrends Inc.. All Rights Reserved

STANDARD CMOS SETUP
ADVANCED CMOS SETUP
ADVANCED **CHIPSET** SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT

Advanced CMOS Setup for Configuring System Options

ESC : Exit ↓-↑ :Sel **F2/F3** : Color **F10** : Save & Exit

BIOS SETUP PROGRAM - WARNING INFORMATION
(C) 1990 American Megatrends Inc.. All Rights Reserved

Improper Use of Setup may Cause Problems !!

If System Hangs.Reboot System and Enter Setup by Presssing the<DEL> key

Do any of the following After Entering Setup
(i) Alter Options to make System Work
(ii) Load BIOS Setup Defaults
(iii) Load Power - On Defaults

Hit <ESC> to Stop now, Any other Key to Continue

BIOS SETUP PROGRAM - ADVANCED CMOS SETUP
(C) 1990 American Megatrends Inc.. All Rights Reserved

Hi t<DEL> Message Display	: Enabled	;ystem ROM Shadow F000,64K : Enabled	
Wait For<F1> If Any Error	: Enabled		
Weitek Processor	: Absent		
External Cache Memory	: Enabled		
In tern al Cache Memory	: Enabled		
Password Checking Option	: Disabled		
Video ROM Shadow C000,16K	: Enabled		
Video ROM S hadow C400,16K	: Enabled		
Adaptor ROM Shadow C800,16K	: Disabled		
Adaptor ROM Shadow CC00,16K	: Disabled		
Adaptor ROM Shadow D000,16K	: Disabled		
Adaptor ROM Shadow D400,16K	: Disabled		
Adaptor ROM Shadow D800,16K	: Disabled		
Adaptor ROM Shadow DC00,16K	: Disabled		
Adaptor ROM Shadow E000,16K	: Disabled		
Adaptor ROM Shadow E400,16K	: Disabled		
Adaptor ROM Shadow E800,16K	: Disabled		
Adaptor ROM Shadow EC00,16K	: Disabled		

ESC : Exit ↓→↑Sel (Ctrl) Pu/Pd : Modify F1 : Help F2/F3 : Color
F5 : Old Values F6 : BIOS Setup Defaults F7 : Power - On Defaults

BIOS SETUP PROGRAM - AM1 BIOS SETUP UTILITES
(C) 1990 American Megatrends Inc.. All Rights Reserved

STANDARD CMOS SETUP
ADVANCED CMOS SETUP
ADVANCED CHIPSET SETUP
AUTO CONFIGURATION WITH BIOS DEFAULTS
AUTO CONFIGURATION WITH POWER-ON DEFAULTS
CHANGE PASSWORD
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT

Advanced CMOS Setup for Configuring System Options

ESC : Exit ↓→↑ :Sel F2/F3 : Color F10 : Save & Exit

BIOS SETUP PROGRAM - **WARNING** INFORMATION
(C) 1990 American Megatrends Inc.. All Rights Reserved

Improper Use of Setup may Cause Problems !!

If System Hangs.Reboot System and Enter Setup by Presssing the<DEL> key

Do any of the following After Entering Setup
(i) Alter Options to make System Work
(ii) Load BIOS Setup Defaults
(iii) Load Power - On Defaults

Hit <ESC> to Stop now, Any other Key to Continue

BIOS SETUP PROGRAM - ADVANCED CHIPSET SETUP
(C) 1990 American Megatrends Inc.. All Rights Reserved

Relocated 256 KB Cacheable	: No
256KB Memory **Relocation**	**: Enable**
Non-Cacheable Block4 Base	: 0KB
Non-Cacheable Block4 Size	**: Disabled**
Non-Cacheable Block-l Base	: 0KB
Non-Cacheable Block-l Size	**: Disabled**
Non-Cacheable Block-2 Base	: 0KB
Non-Cacheable Block-2 Size	**: Disabled**
Non-Cacheable Block-3 Base	: 0 KB
Non-Cacheable Block-3 Size	: Disabled

ESC : Exit ↓→↑ Sel (Ctrl) Pu/Pd : Modify F1 : Help F2/F3 : Color

F5 : Old Values F6 : BIOS Setup Defaults F7 : Power-On Defaults