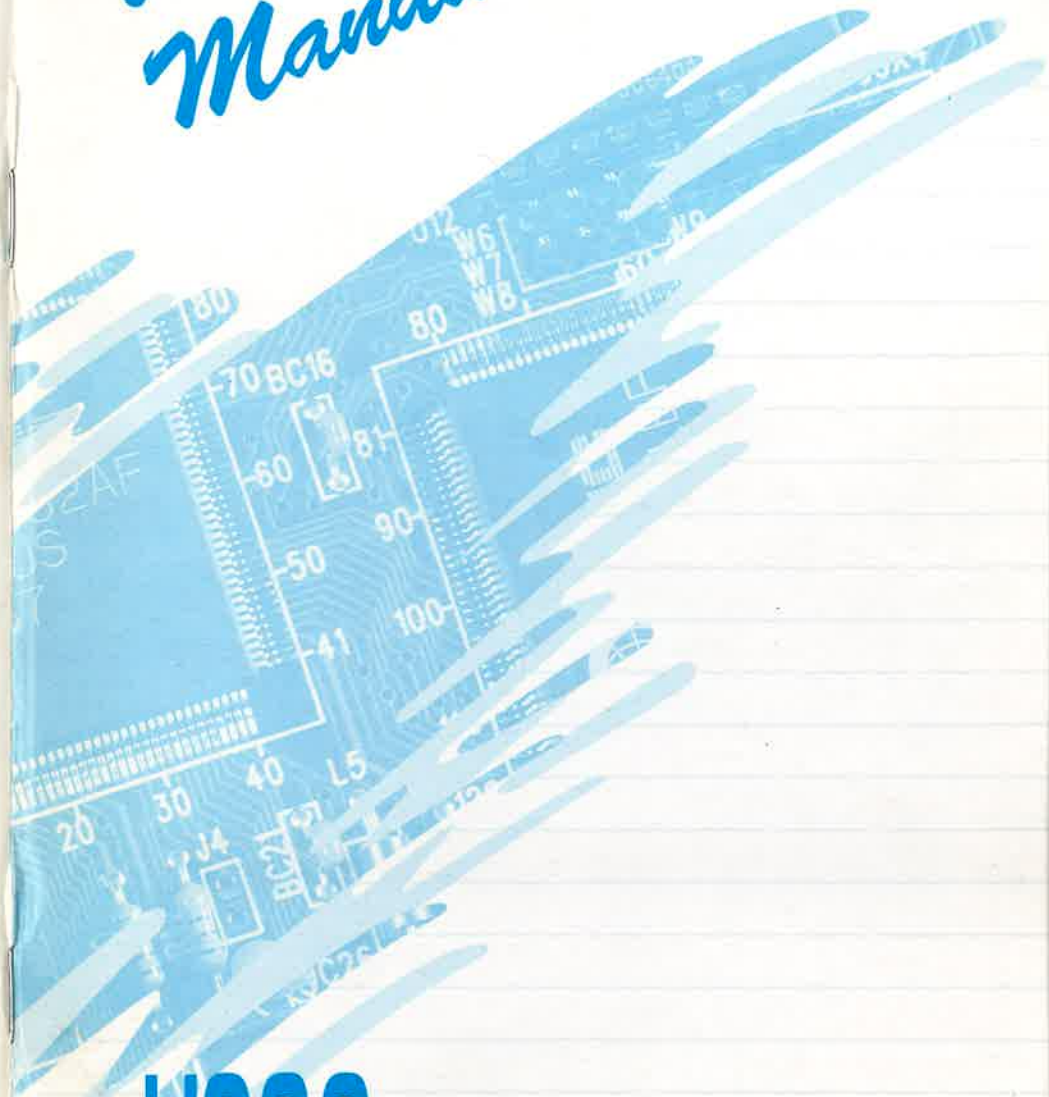


# User's Manual



ML - U386DX40/33POH/V2

# U386

**HALF-SIZE BOARD SERIES**

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# Quick Setup Guide

Here is a quick and an easy way to setup your U386DX-33/40 WB motherboard. Please check the default jumper settings on your board as follows:

JUMPER	FUNCTION	STATUS
W1	CMOS Battery (Close) / CMOS Reset (Open)	Close
W2	Mono (Open) / Color (Close) Display Selection	Close
W4	Enable (Close) / Disable (Open) 80387	Open
J3	Turbo (Close) / Non-Turbo (Open)	Close

With respect to the memory configuration, there should be at least 1MB DRAM on your board. The maximum on board memory size is 32MB. The following shows the memory configuration:

	(SM1-SM4) BANK0 DRAM TYPE	(SM5-SM8) BANK1 DRAM TYPE	TOTAL MEMORY
1	256KB	---	1MB
2	256KB	256KB	2MB
3	1MB	---	4MB
4	256KB	1MB	5MB
5	1MB	1MB	8MB
6	4MB	---	16MB
7	1MB	4MB	20MB
8	4MB	4MB	32MB

**NOTE:** DRAM speed requirement : 80ns or faster

# 1. Introduction

In order to let you get acquainted to the motherboard for configuring your PC/AT system. We have enclosed more detailed information about this motherboard, particularly on the system BIOS setup. We strongly recommend the user to go through the following sections before operating your system.

## 1.1. General description

The core components of this motherboard is UMC480 Chipset. It consist of 3 Chips : UM82C481, UM82C482, UM82C206.

The UM82C481, Integrated Memory Controller (IMC), contains sophisticated direct-mapped cache controller with write-back operation, and fast page mode DRAM Controller. The UM82C482, Integrated System Controller(ISC), contains AT Bus control logic, data bus conversion logic, CPU reset logic, clock generation for CPU, keyboard and timer, DMA/refresh logic and peripheral interface logic. The UM82C206, Integrated Peripheral Devices control Logic : RTC, DMA, Interrupt Controller, system timer.

## 1.2. Features of the U386DX-33/40 WB main board

- Use double phase clock input (2x CLKIN).
- Synchronous AT bus clock with programmable CPU clock (divided by 2, 3, 4, 5, 6, 8).
- Support hardware Turbo.
- Support software Turbo. (Using cache Off / On function)
  - Press <Ctrl>-<Alt>-<Shift>-<-/+>
- Programmable DRAM wait states.
- Supports fast/standard page mode DRAM.
- Supports 32MB on board memory.
- Supports 32KB/64KB/128KB/256KB on board cache size.
- 256Kx9/1Mx9/4Mx9 DRAM Module.

## 2. Jumper Settings and Connectors Pin Assignment

Position of jumpers and connectors : See "4.2. Board layout". The settings of the various jumpers are shown as follows:

### 2.1. CMOS reset (W1)

W1	OPERATION
Open	Clear CMOS
Close *	On board battery

### 2.2. Mono/Color display selection (W2)

Jumper W2 informs the system which type of display is currently in use.

W2	DISPLAY ADAPTER TYPE
Open	Mono display
Close *	Color display

“\*” Default setting, same as below.

### 2.3. Coprocessor selection (W4)

W4	OPERATION
Open *	Disable 80387
Close	Enable 80387

### 2.4. Cache size configuration (W8-W15)

JUMPER	CACHE SIZE				
	32K	64K	128K	256K	
W8	1-2	2-3	2-3	2-3	
W9	1-2	1-2	2-3	2-3	
W10	1-2	1-2	2-3	2-3	
W11	1-2	2-3	2-3	2-3	
W12	2-3	1-2	2-3	1-2	
W13	1-2	1-2	1-2	2-3	
W14	1-2	1-2	1-2	2-3	
W15	Open	Open	1-2	2-3	
40MHz CPU	TAG RAM	8Kx8-15	8Kx8-15	8Kx8-15	32Kx8-15
	CACHE RAM	8Kx8-20	8Kx8-20	32Kx8-20	32Kx8-20
33MHz CPU	TAG RAM	8Kx8-20	8Kx8-20	8Kx8-20	32Kx8-20
	CACHE RAM	8Kx8-25	8Kx8-25	32Kx8-25	32Kx8-25
CACHEABLE MEMORY	8MB	16MB	32MB	64MB	

### 2.5. Parity check selection (W16)

PIN NUMBER	FUNCTION
1-2	Disable Parity Check
2-3 *	Enable Parity Check

### 2.6. External battery connector (J1)

PIN NUMBER	FUNCTION
1	Anode
2	Key
3	GND
4	GND

### 2.7. Turbo LED connector (J2)

PIN NUMBER	FUNCTION
1	LED Anode
2	LED Cathode

### 2.8. Turbo switch connector (J3)

There are two choices available for the CPU speed:

TURBO SW (J3)	SPEED	TURBO LED
Open	Low	Off
Close *	High	On



### 2.9. Reset switch connector (J4)

SW1	FUNCTION
Closed once	Reset the system
Open	Normal

### 2.10. Speaker connector (J5)

PIN NUMBER	FUNCTION
1	Speaker +
2	Key
3	Spare
4	Speaker -

### 2.11. Keylock and Power LED connector (J6)

PIN NUMBER	FUNCTION
1	+5V
2	Key
3	GND
4	Keyboard inhibit
5	GND

### 2.12. Keyboard connector (KB1)

PIN NUMBER	FUNCTION
1	Clock
2	Data
3	NC
4	GND
5	+5V♦

“♦” The +5V is connected to the keyboard via a 2.5A PICO fuse for protection.

### 2.13. Power connector (CN1, CN2)

PIN NUMBER	FUNCTION
1	Power good
2	+5V
3	+12V
4	-12V
5	GND
6	GND
7	GND
8	GND
9	-5V
10	+5V

Table continue,

PIN NUMBER	FUNCTION
11	+5V
12	+5V

## 2.14. Expansion slots

### 2.14.1. 62 pin card-edge socket pin assignment (SLOT 1-7)

I/O Pin	Signal Name	I/O	I/O Pin	Signal Name	I/O
A1	-I/O CHCK	I	B1	GND	Ground
A2	SD7	I/O	B2	RESET	O
A3	SD6	I/O	B3	+5Vdc	Power
A4	SD5	I/O	B4	IRQ9	I
A5	SD4	I/O	B5	-5Vdc	Power
A6	SD3	I/O	B6	DRQ2	I
A7	SD2	I/O	B7	-12Vdc	Power
A8	SD1	I/O	B8	0WS	I
A9	SD0	I/O	B9	+12Vdc	Power
A10	-I/O CHRDY	I	B10	GND	Ground
A11	AEN	O	B11	-SMEMW	O
A12	SA19	I/O	B12	-SMEMR	O
A13	SA18	I/O	B13	-IOW	I/O
A14	SA17	I/O	B14	-IOR	I/O

Table continue,

I/O Pin	Signal Name	I/O	I/O Pin	Signal Name	I/O
A15	SA16	I/O	B15	-DACK3	O
A16	SA15	I/O	B16	DRQ3	I
A17	SA14	I/O	B17	-DACK1	O
A18	SA13	I/O	B18	DRQ1	I
A19	SA12	I/O	B19	-REFRESH	I/O
A20	SA11	I/O	B20	CLK(8MHz)	O
A21	SA10	I/O	B21	IRQ7	I
A22	SA9	I/O	B22	IRQ6	I
A23	SA8	I/O	B23	IRQ5	I
A24	SA7	I/O	B24	IRQ4	I
A25	SA6	I/O	B25	IRQ3	I
A26	SA5	I/O	B26	-DACK2	O
A27	SA4	I/O	B27	TC	O
A28	SA3	I/O	B28	BALE	O
A29	SA2	I/O	B29	+5Vdc	Power
A30	SA1	I/O	B30	OSC(14.3MHz)	O
A31	SA0	I/O	B31	GND	Ground

### 2.14.2. 36 pin card-edge socket pin assignment (SLOT 8-12)

I/O Pin	Signal Name	I/O	I/O Pin	Signal Name	I/O
C1	SBHE	I/O	D1	-MEMCS16	I
C2	LA23	I/O	D2	-I/OCS16	I
C3	LA22	I/O	D3	IRQ10	I
C4	LA21	I/O	D4	IRQ11	I
C5	LA20	I/O	D5	IRQ12	I
C6	LA19	I/O	D6	IRQ15	I
C7	LA18	I/O	D7	IRQ14	I
C8	LA17	I/O	D8	-DACK0	O
C9	-MEMR	I/O	D9	DRQ0	I
C10	-MEMW	I/O	D10	-DACK5	O
C11	SD8	I/O	D11	DRQ5	I
C12	SD9	I/O	D12	-DACK6	O
C13	SD10	I/O	D13	DRQ6	I
C14	SD11	I/O	D14	-DACK7	O
C15	SD12	I/O	D15	DRQ7	I
C16	SD13	I/O	D16	+5Vdc	Power
C17	SD14	I/O	D17	-MASTER	I
C18	SD15	I/O	D18	GND	Ground

## 3. Reconfiguring Your System

A battery-backed CMOS memory is already installed on the U386DX-33/40 WB main board to support your existing system. If options are chosen to be modified, or the configuration parameters of the existing system have been lost due to transportation or battery failure, you have to reconfigure your system unit by using the BIOS SETUP program as described below.

**NOTE :** The base memory and extended memory will be detected automatically.

### 3.1. Entering configuration program

The BIOS on U386DX-33/40 WB system board supports ROM BASED CMOS setup function. It is used to modify certain basic characteristics of the system configuration. During memory test, you will get the following prompt on the screen "Hit <Del>, if you want to run setup". Pressing the <Del> key will bring the following menu to the screen as shown in Figure 3-1 :

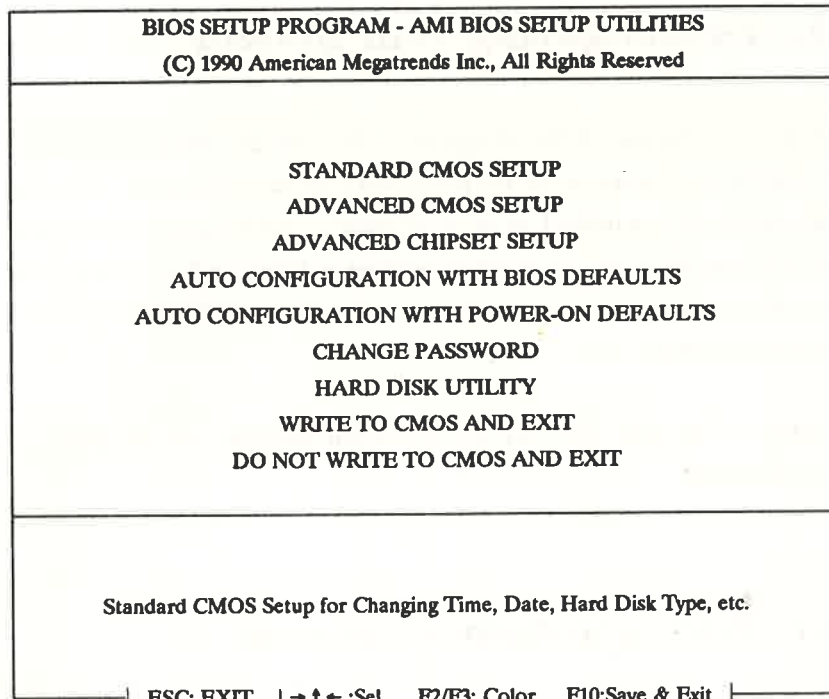


Figure 3-1 The screen of BIOS SETUP PROGRAM

**NOTE :** Use the < ↓ > and < ↑ > key to select the desired option. When the option is highlighted, press the < Enter > key twice to enter the option's manual. Press the < Esc > key to exit the menu.

### 3.2. The parameters for STANDARD CMOS SETUP

If STANDARD CMOS SETUP is chosen, press < Enter > key twice. The display of STANDARD CMOS SETUP is shown in Figure 3-2 :

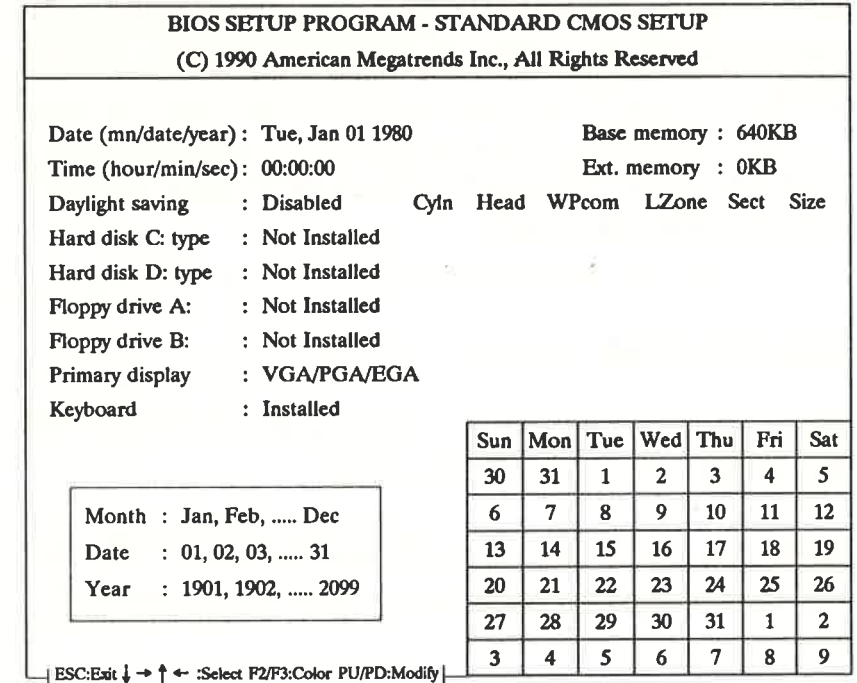


Figure 3-2 The screen of STANDARD CMOS SETUP

The STANDARD CMOS SETUP will allow you to modify the system and hardware options/devices. It is a user selectable menu and each individual category must be configured according to your own system.

**NOTE :** Use the arrow keys to select the item that you want to modify. When the item is highlighted, press the < PgUp > key to select the previous value or < PgDn > key to select the next value. Press the < Esc > key to exit the program.

### 3.2.1. Date setup

The month field is highlighted automatically every time when you enter the "STANDARD CMOS SETUP". To select the appropriate value for the field, you can simply press the <PgUp> or <PgDn> key. Then, press the <-> key to go to the next field or the <←> key to go back to the previous field. The date and year data fields' setup procedures are same as above.

**NOTE :** The calendar automatically updates its display as you modify each of the items in the date category.

### 3.2.2. Time setup

The procedure for setting the time is similar to that of setting the date. The time here is International (24) hour format.

**NOTE :** The time and date will be maintained and updated by the Real Time Clock in the system, even if the power of the system is turned off.

### 3.2.3. Daylight saving setup

Currently, AMI BIOS cannot support this function.

### 3.2.4. Hard disk C type setup

The hard disk C selection identifies the type of hard drive that has been installed in the system. 46 drive types have been defined by AMI (*See 4.1 Drive table for details*). If there is no hard disk, select "Not Installed". If your particular drive is not one of the 46 pre-defined types, simply scroll down to type 47 and enter the following disk specifications: Cylinders, Heads, Wpcom, LZone, Sectors and Size. Please consult the documentation accompanied with the hard disk for specific values that will give optimum performance.

Use <PgUp> or <PgDn> key to select one of the disk types.

**WARNING :** Incorrect hard disk information will cause improper operation of the disk.

### 3.2.5. Hard disk D type setup

The setup procedure is exactly the same as described in 3.2.4.

### 3.2.6. Floppy drive A setup

There are five floppy drive type options :

- 360KB 5.25"
- 1.2MB 5.25"
- 720KB 3.5"
- 1.44MB 3.5"
- Not Installed

Use <PgUp> or <PgDn> key to select one of the five options.

### 3.2.7. Floppy drive B setup

The procedure is exactly the same as described in 3.2.6.

### 3.2.8. Primary display setup

The following options are the primary display selection :

- Monochrome
- Color 40x25
- Color 80x25
- VGA/PGA/EGA
- Not Installed

Use <PgUp> or <PgDn> key to select one of the options that corresponding to the display card installed in the system.

**NOTE :** If "Not Installed" is selected but the system still has a display monitor, it will operate properly.

### 3.2.9. Keyboard setup

This option allow you to enable/disable BIOS testing of the keyboard during system boot-up.

Available options:

- Installed
- Not Installed

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.3. The parameters for ADVANCED CMOS SETUP

If ADVANCED CMOS SETUP is chosen, press <Enter> key twice. The display of ADVANCED CMOS SETUP is shown in Figure 3-3 :

BIOS SETUP PROGRAM - ADVANCED CMOS SETUP	
(C) 1990 American Megatrends Inc, All Rights Reserved	
Typematic Rate Programming : Disabled	Video ROM Shadow C000, 16K : Enabled
Typematic Rate Delay (msec) : 500	Video ROM Shadow C400, 16K : Enabled
Typematic Rate (Chars/Sec) : 15	Adaptor ROM Shadow C800, 16K : Disabled
Above 1 MB Memory Test : Disabled	Adaptor ROM Shadow CC00, 16K:Disabled
Memory Test Tick Sound : Enabled	Adaptor ROM Shadow D000, 16K:Disabled
Memory Parity Error Check : Disabled	Adaptor ROM Shadow D400, 16K:Disabled
Hit < Del > Message Display : Enabled	Adaptor ROM Shadow D800, 16K:Disabled
Hard Disk Type 47 Data Area : 0:300	Adaptor ROM Shadow DC00,16K:Disabled
Wait for < F1 > If Any Error : Enabled	Adaptor ROM Shadow E000, 64K:Disabled
System Boot Up Num Lock : On	System ROM Shadow F000, 64K : Enabled
Numeric Processor Test : Disabled	
Weitek Processor : Absent	
Floppy Drive Seek At Boot : Disabled	
System Boot Up Sequence : C:, A:	
System Boot Up CPU Speed : High	
External Cache Memory : Enabled	
Gate A20 Emulation : Both	
Password Checking Option : Disabled	

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

Figure 3-3 The screen of ADVANCED CMOS SETUP

When the item is highlighted, press <PgUp> key to select the previous value or <PgDn> key to select the next value. Press the <Esc> key for returning back to BIOS SETUP program as shown in Figure 3-1, then you can choose to save or not to save the parameters.

For detailed information, please highlight this item and press key <F1>.

#### 3.3.1. Typematic rate programming

By enabling this option, the user can adjust the rate at which a keystroke is repeated.

Available options:

- Enabled
- Disabled \*#

Use <PgUp> or <PgDn> key to select one of the two options.

#### 3.3.2. Typematic rate delay

The typematic rate delay is the amount of time which will elapse after a key is depressed before the key starts to repeat. The smaller the time is selected, the sooner the key will start to repeat.

Available options:

- 250ms
- 500ms \*#
- 750ms
- 1000ms

Use <PgUp> or <PgDn> key to select one of the four options.

\*# Power-On default : BIOS value that would ensure the system to pass the POST (Power-On Self Test), this BIOS value is not alterable by user.

“\*” BIOS default : BIOS value is used by the system after the POST, user can modify this value in the BIOS SETUP PROGRAM ( ADVANCED CMOS SETUP & ADVANCED CHIPSET SETUP ) in respect to the memory devices, I/O devices and CPU used in the system.

### 3.3.3. Typematic rate

This option defines the rate at which the keyboard repeats while a key is depressed. The number you select is the number of keys per second that the keyboard will generate.

Available options:

- 6
- 8
- 10
- 12
- 15 \*#
- 20
- 24
- 30

Use <PgUp> or <PgDn> key to select one of the eight options.

### 3.3.4. Above 1MB memory test

This feature, when enabled, will invoke the POST memory test routines on the RAM above 1MB ( if present on the system ). If disabled, the BIOS will check the first 1 MB of RAM only.

Available options:

- Enabled
- Disabled \*#

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.3.5. Memory test tick sound

This option will enable ( turn on ) or disable ( turn off ) the “ticking” sound during the memory test.

Available options:

- Enabled \*#
- Disabled

Use <PgUp> or <PgDn> key to select one of the two options.



### 3.3.6. Memory parity error check

If the system board does not have parity RAM, the user may disable the memory parity error checking routines in the BIOS.

Available options:

- Enabled
- Disabled \*\*

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.3.7. Hit <Del> message display

Disabling this option will prevent the message : " Hit <Del> if you want to run setup " from appearing on the screen when the system boot-up.

Available options:

- Enabled \*\*
- Disabled

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.3.8. Hard disk type 47 RAM area

The AMI BIOS SETUP features two user-definable hard disk types. Normally, the data for these disk types are stored at 0:300 in low system RAM. If a problem occurs with other software, you can select the option with DOS 1KB, then these data can be located at the upper limit of the DOS system RAM (640 KB). The DOS system RAM is shortened to 639 KB, and the top 1KB is used for the hard disk data storage.

Available options:

- 0:300 \*\*
- DOS 1KB

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.3.9. Wait for <F1 > if any error

Before the system boot-up, the BIOS will execute the POST (Power-On Self Test) routines, a series of system diagnostic tests. If any of these tests fail, but it is a non-fatal error and the system can still function properly, the BIOS will respond with an appropriate error message followed by the following statement :

" Press < F1 > to continue"

If this option is disabled, the BIOS will just display the appropriate error message without halting the system. This will eliminate the need for any user response to a non-fatal error condition.

Available options:

- Enabled \*\*
- Disabled

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.3.10. System boot up Num Lock

The default option is "On". But user may turn off the "Num Lock" option on the enhanced keyboard when the system is powered on. This will allow the user to use the arrow keys on the numeric keypad instead of using the numeric keys on the enhanced keyboard.

Available options:

- On \*\*
- Off

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.3.11. Numeric processor test

If enabled, this option allows testing for the presence of numeric processor during system boot-up.

The numeric processor test has two settings:

- Enabled
- Disabled \*\*

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.3.12. Weitek processor

This option allows the user to mark the Weitek numeric processor as present or absent.

Available options:

- Absent \*\*
- Present

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.3.13. Floppy drive seek at boot

The "Disabled" option will allow a fast boot and decrease the possibility of damage to the heads.

Available options:

- Enabled #
- Disabled \*

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.3.14. System boot up sequence

The AMI BIOS will attempt to boot from hard disk C: ( if present ), and if unsuccessful, it will attempt to boot from the floppy drive A: . This sequence can be switched using this option.

Available options:

- C:, A: \*
- A:, C: #

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.3.15. System boot up CPU speed

This option allows user to specify the CPU speed during system boot up.

Available options:

- High \*\*
- Low

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.3.16. External cache memory

This item allows you to choose disabled or enabled Cache Memory on board.

Available options:

- Enabled \*\*
- Disabled

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.3.17. Gate A20 Emulation

For detailed information, please highlight this item and press key <F1>.

### 3.3.18. Password checking option

Controlled by the system manufacturer's preferences, the password feature can be used to prevent unauthorized system boot-up or unauthorized use of BIOS SETUP.

Available options:

- Disabled \*#
- Setup
- Always

If "Setup" is selected, the prompt for password will appear only if the user attempts to enter the SETUP program. If "Always" is selected, the prompt for password will appear everytime the system is turned on.

Use <PgUp> or <PgDn> key to select one of the three options.

### 3.3.19. Video ROM shadow

U386DX-33/40 WB hardware supports BIOS download mechanism which loads the video BIOS (C0000, 16K; C4000, 16K) to the RAM. This will result the BIOS to operate faster and to speed up application programs with intensive BIOS calls.

Available options:

- Enabled \*
- Disabled #

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.3.20. Adapter ROM shadow

This selection allows you to enable or disable 16K blocks of RAM for use as shadow RAM.

There are 7 available options:

1. Adaptor ROM shadow C800, 16K
2. Adaptor ROM shadow CC00, 16K
3. Adaptor ROM shadow D000, 16K
4. Adaptor ROM shadow D400, 16K
5. Adaptor ROM shadow D800, 16K
6. Adaptor ROM shadow DC00, 16K
7. Adaptor ROM shadow E000, 64K

Both BIOS defaults and Power-On defaults of these seven options are "Disabled".

Use <PgUp> or <PgDn> key to select "Enabled" or "Disabled".

### 3.3.21. System ROM shadow F000, 64K

U386DX-33/40 WB hardware supports BIOS download mechanism which loads the SYSTEM BIOS (F0000, 64K) to the RAM sub-system. This will result the BIOS to operate faster and to speed up application programs with intensive BIOS calls.

Available options:

- Enabled \*
- Disabled #

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.4. The parameters for ADVANCED CHIPSET SETUP

If ADVANCED CHIPSET SETUP is chosen, press <Enter> key twice. The display of ADVANCED CHIPSET SETUP is shown in Figure 3-4 :

BIOS SETUP PROGRAM - ADVANCED CHIPSET SETUP	
(C) 1990 American Megatrends Inc, All Rights Reserved	
AT BUS Clock	: CPUCLK/5
Fast Cache Read Hit	: Disabled
Fast Cache Write Hit	: Disabled
Fast Page Mode DRAM	: Disabled
DRAM Wait States	: 2
Memory above 16MB Cacheable	: Yes
Non-Cacheable Block1 Enable	: Disabled
Non-Cacheable Block-1 Size	: 1MB
Non-Cacheable Block-1 Base	: 0KB
Non-Cacheable Block2 Enable	: Disabled
Non-Cacheable Block-2 Size	: 16MB
Non-Cacheable Block-2 Base	: 0KB
Co-processor Ready# Delay	: Disabled
DMA Clock Select	: SCLK/2

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

Figure 3-4 The screen of ADVANCED CHIPSET SETUP

When the item is highlighted, press <PgUp> key to select the previous value or <PgDn> key to select the next value. Press the <Esc> key for returning back to BIOS SETUP program as shown in Figure 3-1, then you can choose to save or not to save the parameters.

For detail information, please highlight this item and press key <F1>.

### 3.4.1. AT BUS clock

Available options:

- CPUCLK/2
- CPUCLK/3
- CPUCLK/4
- CPUCLK/5 \*#
- CPUCLK/6
- CPUCLK/8

Use <PgUp> or <PgDn> key to select one of the six options.

### 3.4.2. Fast cache read hit

Available options:

- Enabled
- Disabled \*#

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.4.3. Fast cache write hit

Available options:

- Enabled
- Disabled \*#

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.4.4. Fast page mode DRAM

Available options:

- Enabled
- Disabled \*#

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.4.5. DRAM wait states

Available options:

- 0
- 1
- 2 \*#

Use <PgUp> or <PgDn> key to select one of the three options.

### 3.4.6. Memory above 16MB cacheable

Available options:

- Yes \*\*
- No

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.4.7. Non-Cacheable block1 enable

Available options:

- Enabled
- Disabled \*\*

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.4.8. Non-Cacheable block-1 size

For detailed information, please highlight this item and press key <F1>.

### 3.4.9. Non-Cacheable block-1 base

For detailed information, please highlight this item and press key <F1>.

### 3.4.10. Non-Cacheable block2 enable

Available options:

- Enabled
- Disabled \*\*

Use <PgUp> or <PgDn> key to select one of the two options.

### 3.4.11. Non-Cacheable block-2 size

For detailed information, please highlight this item and press key <F1>.

### 3.4.12. Non-Cacheable block-2 base

For detailed information, please highlight this item and press key <F1>.

### 3.4.13. Co-processor ready# delay

Available options:

- Enabled
- Disabled \*\*

Use <PgUp> or <PgDn> key to select one of the two options.

For detailed information, please highlight this item and press key <F1>.

### 3.4.14. DMA clock select

Available options:

- SCLK/2 \*\*
- SCLK

Use <PgUp> or <PgDn> key to select one of the two options.

## 3.5. Auto configuration with BIOS defaults

When entering the Setup screen again, you can press arrow key to highlight:

### AUTO CONFIGURATION WITH BIOS DEFAULTS

Press <Enter> key, the screen is shown in Figure 3-5:

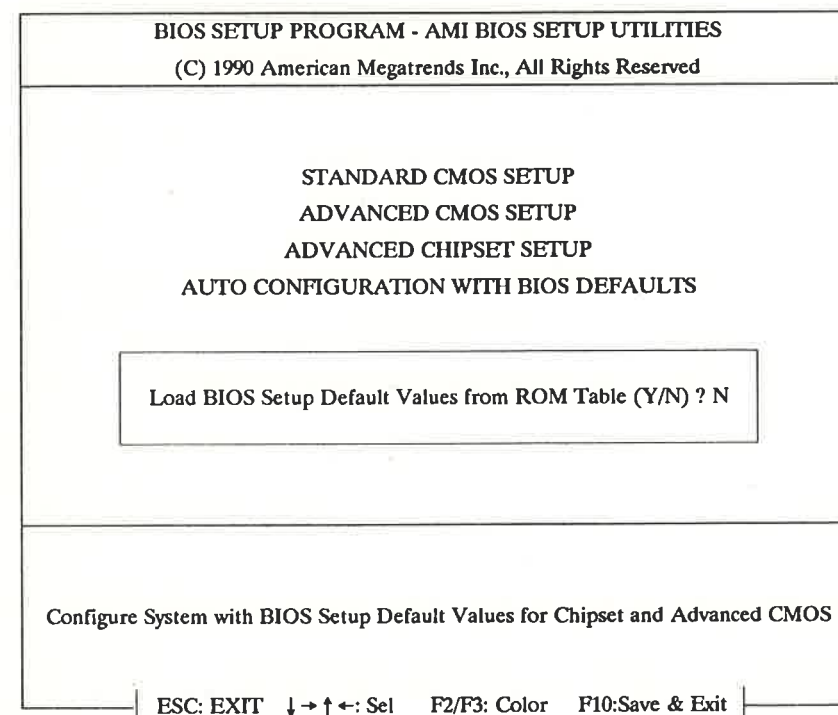


Figure 3-5 The screen of AUTO CONFIGURATION WITH BIOS DEFAULTS

The configuration of advanced CMOS and Chipset will be loaded from BIOS if the answer is "Y". If the answer is "N", it will return to the main menu.



### 3.6. Auto configuration with power-on defaults

When entering the Setup screen again, you can press < ↓ > or < ↑ > key to highlight:

#### AUTO CONFIGURATION WITH POWER-ON DEFAULTS

Press < Enter > key, the screen is shown in Figure 3-6:

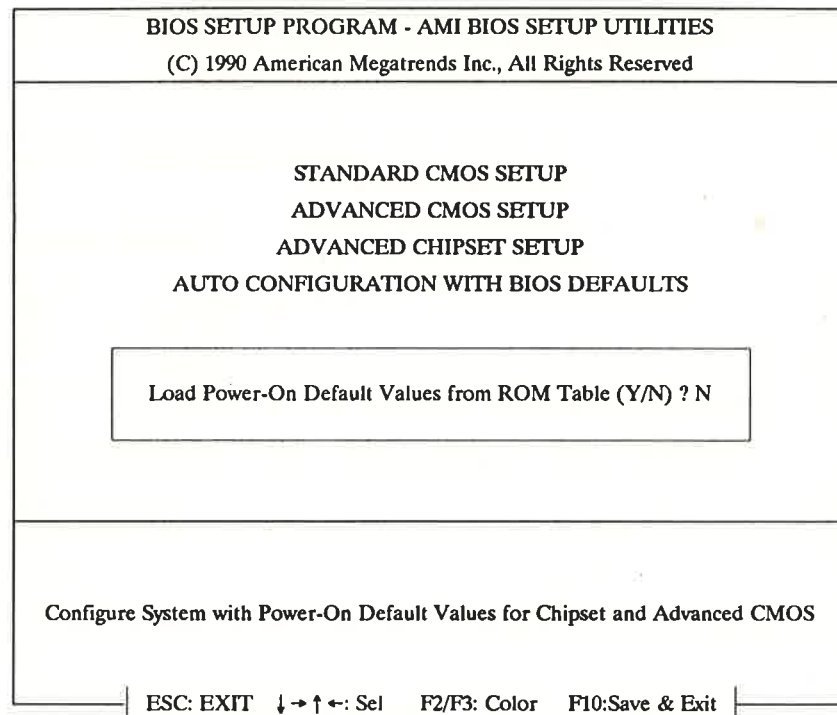


Figure 3-6 The screen of AUTO CONFIGURATION WITH POWER-ON DEFAULTS

The configuration of advanced CMOS and Chipset will be loaded as power-on default value if the answer is “Y”. If the answer is “N”, it will return to the BIOS SETUP menu.

### 3.7. Change password

When entering the Setup screen again, you can press < ↓ > or < ↑ > key to highlight:

#### CHANGE PASSWORD

Press < Enter > key, the screen is shown in Figure 3-7:

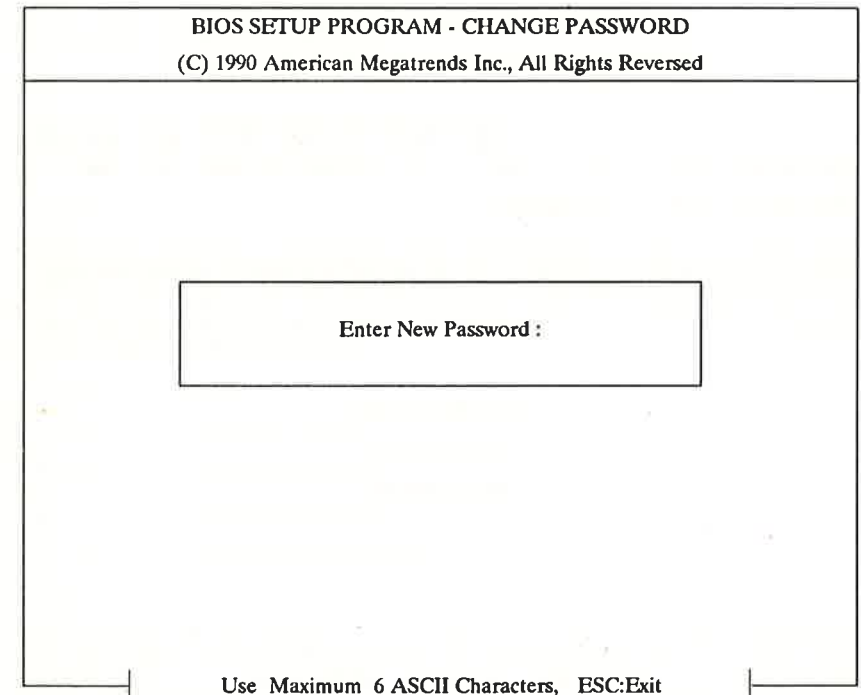


Figure 3-7 The screen of CHANGE PASSWORD

There are maximum six characters of password to be entered.

When you have entered password, everytime the prompt for password will appear if you attempt to enter the BIOS SETUP PROGRAM.

### 3.8. Hard disk utility

When entering the Setup screen again, you can press < ↓ > or < ↑ > key to highlight:

#### HARD DISK UTILITY

Press < Enter > key, the screen is shown in Figure 3-8:

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	: 2	615	4	300	615	17	20
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							

Figure 3-8 The screen of HARD DISK UTILITY

Use the arrow keys to highlight one of the three items and use the < Enter > key to select it.

### 3.8.1. Hard disk format

Hard disk format (Also known as low level format, preformat or hardformat) is the first step you have to carryout when you try to integrate a new hard disk into your system. Sometimes it becomes necessary to format a used harddisk also. This format function allows you to format the entire disk or a part of the disk. It takes the following inputs:

Disk Drive (C/D)	? C
Disk Drive type	? 2
Interleave (1-16)	? 3
Mark Bad Tracks(Y/N)	?
Proceed (Y/N)	?

“Mark Bad track” list is optional. The utility program will ask you if you want to enter bad track list. If you respond with “Y”, then you have to answer the following questions:

- Add an Entry
- Revise an Entry
- Delete an Entry
- Clear Bad Trk List

You can select appropriate options for necessity action. For “Add an Entry”, you have to enter the cylinder number and head number of the bad tracks. If bad tracks are entered, then the utility program will not perform an analysis of the surface to determine bad tracks. Thus specifying bad tracks (if any) will speed up the preformat operation.

The following warning message is displayed before the actual preformat operation begins:-

**WARNING INFORMATION**

All Data on specified  
Harddisk will be LOST

Want to continue(Y/N)?

Type "Y" to go ahead with the preformatting , or type "N" to abort the preformat operation.

**3.8.2. Auto interleave**

With this feature you need not speculate about the value of the interleave factor while entering the parameters for format. This function determines the optimum interleave factor for the best disk performance. This function requires the following parameters:-

Disk Drive (C/D)	? C
Disk Drive Type	? 2
Mark Bad Tracks(Y/N)	?
Proceed (Y/N)	?

"Mark Bad track" list is optional. When it is selected, the following questions need to be answered.

Add an Entry  
Revise an Entry  
Delete an Entry  
Clear Bad Trk List

For "Add an Entry", all bad track information is added to the list. Before the operation starts, the following warning message will be displayed:-

**WARNING INFORMATION**

All Data on specified  
Harddisk will be LOST

Want to continue(Y/N)?

Type "Y" to go ahead with the auto interleave detection , or type "N" to abort the operation.

**3.8.3. Media analysis**

This function does a comprehensive analysis of the harddisk surface to find out bad patches on your harddisk. It uses 3 different bit patterns for testing. This leaves the surface of the harddisk formatted with bad tracks marked bad. The bad track list is also displayed. This function requires the following inputs:-

Disk Drive (C/D)	? C
Disk Drive Type	? 2
Proceed (Y/N)	?

The following warning message is displayed before you go ahead with the actual media analysis operation:-

**WARNING INFORMATION**

All Data on specified  
Harddisk will be LOST

Want to continue(Y/N)?

Type "Y" to go ahead with the media analysis or type "N" to abort the operation.

**NOTE:** Some IDE hard disks have been preformatted during manufacturing, low-level format of these hard disks may cause poor performance. For further details, Please refer to the related hard disk manufacturer.

### 3.9. Write to CMOS and exit

When entering the Setup screen again, you can press arrow key to highlight or press <F10> :

#### WRITE TO CMOS AND EXIT

Press <Enter> key, the screen is shown in Figure 3-9:

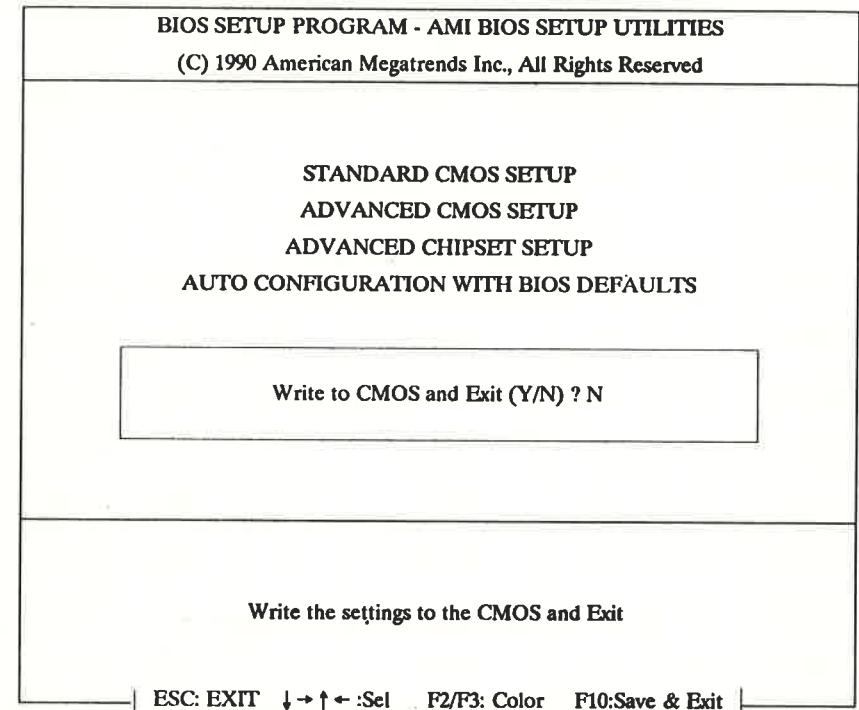


Figure 3-9 The screen of WRITE TO CMOS AND EXIT

The data of STANDARD CMOS, ADVANCED CMOS and CHIPSET will be saved to CMOS memory and exit if the answer is "Y". If the answer is "N", it will return to the main menu.

### 3.10. Do not write to CMOS and exit

When entering the Setup screen again, you can press arrow key to highlight:

#### DO NOT WRITE TO CMOS AND EXIT

Press <Enter> key, the screen is shown in Figure 3-10:

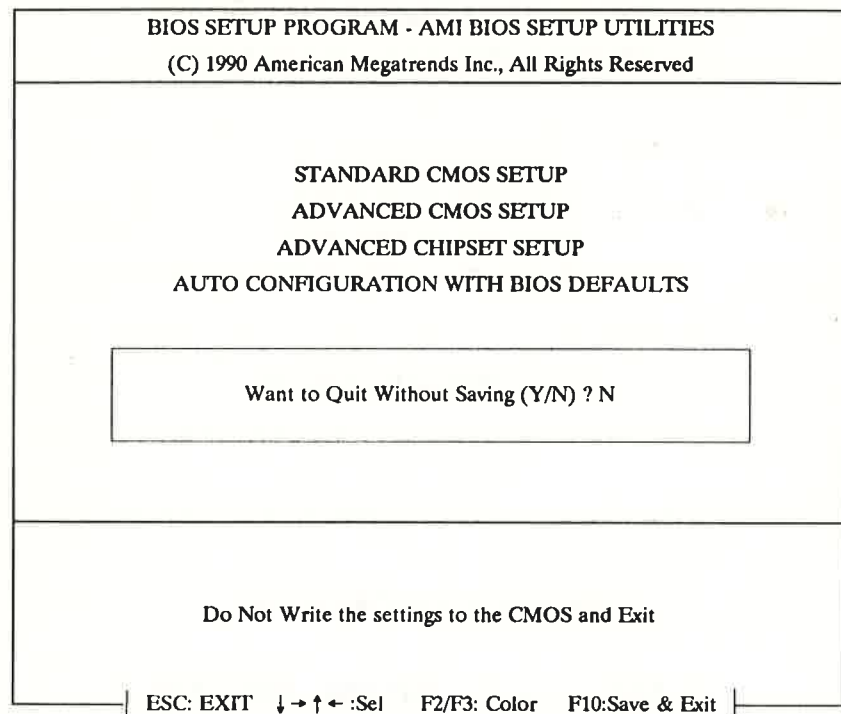


Figure 3-10 The screen of DO NOT WRITE TO CMOS AND EXIT

The data of STANDARD CMOS, ADVANCED CMOS and CHIPSET will not be saved to CMOS memory and exit if the answer is “Y”. If the answer is “N”, it will return to the BIOS SETUP menu.

## 4. Appendix

### 4.1. Drive table

Type	Cylinders	Heads	Write Precomp	LZ	Sector	Size
1	306	4	128	305	17	10MB
2	615	4	300	615	17	20MB
3	615	6	300	615	17	31MB
4	940	8	512	940	17	62MB
5	940	6	512	940	17	47MB
6	615	4	65535	615	17	20MB
7	462	8	256	511	17	31MB
8	733	5	65535	733	17	30MB
9	900	15	65535	901	17	112MB
10	820	3	65535	820	17	20MB
11	855	5	65535	855	17	35MB
12	855	7	65535	855	17	50MB
13	306	8	128	319	17	20MB
14	733	7	65535	733	17	43MB
15	---	---	---	---	--	---
16	612	4	0	663	17	20MB
17	977	5	300	977	17	41MB
18	977	7	65535	977	17	57MB
19	1024	7	512	1023	17	60MB

Table continue,

Type	Cylinders	Heads	Write Precomp	LZ	Sector	Size
20	733	5	300	732	17	30MB
21	733	7	300	732	17	43MB
22	733	5	300	733	17	30MB
23	306	4	0	336	17	10MB
24	925	7	0	925	17	54MB
25	925	9	65535	925	17	69MB
26	754	7	754	754	17	44MB
27	754	11	65535	754	17	69MB
28	699	7	256	699	17	41MB
29	823	10	65535	823	17	68MB
30	918	7	918	918	17	53MB
31	1024	11	65535	1024	17	94MB
32	1024	15	65535	1024	17	128MB
33	1024	5	1024	1024	17	43MB
34	612	2	128	612	17	10MB
35	1024	9	65535	1024	17	77MB
36	1024	8	512	1024	17	68MB
37	615	8	128	615	17	41MB
38	987	3	987	987	17	25MB
39	987	7	987	987	17	57MB
40	820	6	820	820	17	41MB
41	977	5	977	977	17	41MB

Appendix 4-2

Table continue,

Type	Cylinders	Heads	Write Precomp	LZ	Sector	Size
42	981	5	981	981	17	41MB
43	830	7	512	830	17	48MB
44	830	10	65535	830	17	69MB
45	917	15	65535	918	17	114MB
46	1224	15	65535	1223	17	152MB
47	---	---	---	---	---	---

Appendix 4-3

## 4.2. Board layout

