

CH-491E

MOTHERBOARD

USER'S MANUAL

100% POST-CONSUMER
RECYCLED PAPER 

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100% POST-CONSUMER
RECYCLED PAPER 

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Table of Contents

Fixed Disk Configuration

Type	Cyls	Heads	WPcom	CtrlByte	LZone	Secs	Size
1	306	4	128	0	305	17	10 MB
2	615	4	300	0	615	17	20 MB
3	615	6	300	0	615	17	31 MB
4	940	8	512	0	940	17	62 MB
5	940	6	512	0	940	17	47 MB
6	615	4	65535	0	615	17	20 MB
7	462	8	256	0	511	17	31 MB
8	733	5	65535	0	733	17	30 MB
9	900	15	65535	8	901	17	112 MB
10	820	3	65535	0	820	17	20 MB
11	855	5	65535	0	855	17	35 MB
12	855	7	65535	0	855	17	50 MB
13	306	8	128	0	319	17	20 MB
14	733	7	65535	0	733	17	43 MB
15	0	0	0	0	0	0	0 MB
16	612	4	0	0	663	17	20 MB
17	977	5	300	0	977	17	41 MB
18	977	7	65535	0	977	17	57 MB
19	1024	7	512	0	1023	17	60 MB
20	733	5	300	0	732	17	30 MB
21	733	7	300	0	732	17	43 MB
22	733	5	300	0	733	17	30 MB
23	306	4	0	0	336	17	10 MB
24	925	7	0	0	925	17	54 MB
25	925	9	65535	8	925	17	69 MB
26	754	7	754	0	754	17	44 MB
27	754	11	65535	8	754	17	69 MB
28	699	7	256	0	699	17	41 MB
29	823	10	65535	8	823	17	68 MB
30	918	7	918	0	918	17	53 MB
31	1024	11	65535	8	1024	17	94 MB
32	1024	15	65535	8	1024	17	128 MB
33	1024	5	1024	0	1024	17	43 MB
34	612	2	128	0	612	17	10 MB
35	1024	9	65535	8	1024	17	77 MB
36	1024	8	512	0	1024	17	68 MB
37	615	8	128	0	615	17	41 MB
38	987	3	987	0	987	17	25 MB
39	987	7	987	0	987	17	57 MB
40	820	6	820	0	820	17	41 MB
41	977	5	977	0	977	17	41 MB
42	981	5	981	0	981	17	41 MB
43	830	7	512	0	830	17	48 MB
44	830	10	65535	8	830	17	69 MB
45	917	15	65535	8	918	17	114 MB
46	1224	15	65535	8	1223	17	152 MB

Introduction

Mainboard Specification	1-1
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Hardware Description

Connector and Jumper Settings	2-1
Connectors	2-2
Jumpers	2-3
DRAM Bank Configuration	2-7
SRAM Configuration.....	2-8

BIOS Setup

BIOS Overview.....	3-1
Standard CMOS Setup	3-4
Advanced CMOS Setup.....	3-6
Advanced Chipset Setup.....	3-11
Auto Configuration with BIOS Defaults.....	3-17
Auto Configuration with Power-On Defaults.....	3-18
Change Password.....	3-19
Auto Detect Hard Disk.....	3-20
Hard Disk Utility.....	3-21
Hard Disk Format.....	3-22
Auto Interleave	3-23
Media Analysis.....	3-24
Write to CMOS and Exit	3-25
Do Not Write to CMOS and Exit	3-25

Appendix

VESA Bus Slot Pinout.....	A-1
Fixed Disk Configuration	A-2
Hot key Definition	A-3

1.

Introduction

The Mainboard is an ASIC solution of 486-based PC/AT system. Support CPU 80486DX running up to 50 MHz and CPU 80486DX2 running up to 66 MHz. Optimized for OS/2, Windows/386, Windows 3.1, XENIX, UNIX software operation in high-performance.

Mainboard Specification

- CPU support :
80486DX/DX2 PGA package
80486SX PGA/PQFP package
P24T PGA package
Cyril CX486S/S2 (M6) PGA package
Cyril Cx486DX/DX2 (M7)PGA package
- Operation frequency support system running 20/25/33/40/50 MHz
- Write back direct mapped cache with size of 32/64/1 8/256 KB selection.
- System memory size support up to 64 MB (4 pieces 16 MB SIMM) of local high-speed page mode DRAM memory space.
- DRAM type support 256 KB/1 MB/4 MB/16 MB SIMM module.
- Support seven 16 bit ISA expansion slot with three VESA bus slot
- Support both hardware and software switch for turbo/normal speed.
- Mainboard dimension : 220 mm (W) x 250 mm (L)

Media Analysis

Use this option to locate all bad tracks on the hard disk and list them in the Bad Track List Box. In the main menu select "Media Analysis" and press <Enter>, the screen will show as follows :

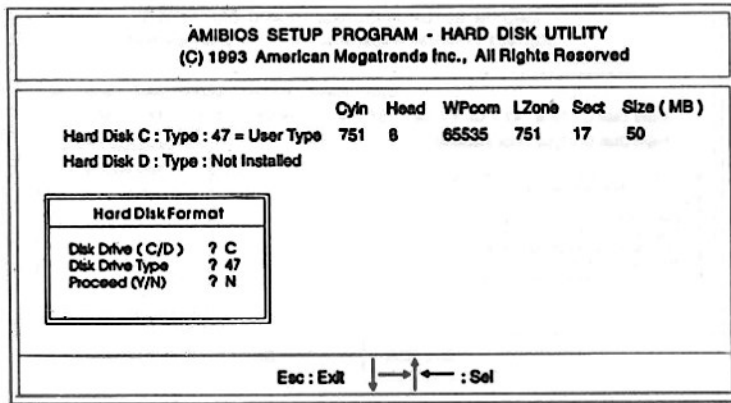


Figure 3-13 : Media Analysis

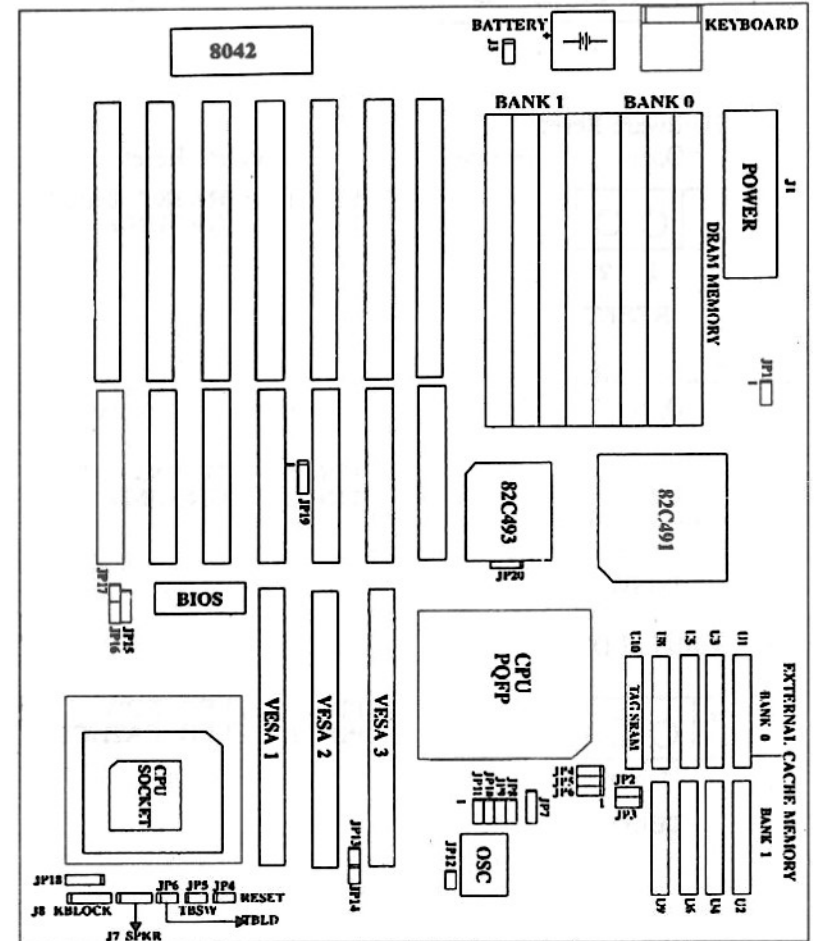
Change the proceed prompt to <Y> and press <Enter>. A warning screen with a continue prompt will appear. Once you have changed this prompt to <Y> and pressed <Enter>, all data on the hard disk drive will be lost.

2

Hardware Description

Connector and Jumper Settings

This chapter describes the main board's jumpers and connectors. The system layout is shown as follows :



Hard Disk Format

Performs a "low level" format of the hard disk. In the main menu, select "Hard Disk Format" and press <Enter>, the screen will show as follows :

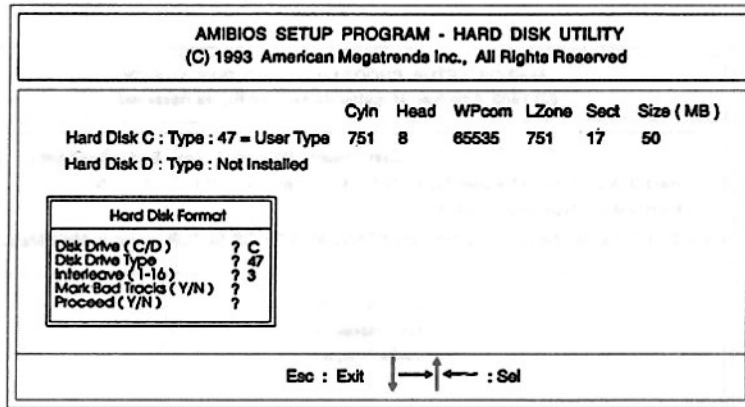
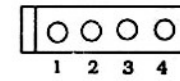


Figure 3-11 : Hard Disk Format

*Answer the questions of Interleave and Mark Bad Tracks before you begin performing the format.
 A warning screen with a continue prompt will appear, once you have change this prompt to <Y> and pressed <Enter>, all data on the hard disk drive will be lost.*

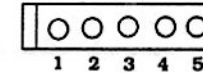
J7: Speaker Connector



PIN 1 : DATA OUT
 PIN 2 : N. C.
 PIN 3 : GROUND
 PIN 4 : +5V VDC

SPKR

J8: Keylock and Power LED Connector



PIN 1 : LED POWER
 PIN 2 : N. C.
 PIN 4 : KEYBOARD INHIBIT
 PIN 3,5 : GROUND

KBLOCK

Jumpers

A. CPU Clock Selection

JP8, 9, 10, 11 : Pin Header 1 x 2

Frequency	JP11	JP10	JP9	JP8	CPU Type
20 MHz	SHORT	SHORT	SHORT	SHORT	486DX/SX-20,
25 MHz	SHORT	SHORT	OPEN	OPEN	486DX/SX-25, 487SX-25, 486DX2-50
33 MHz	OPEN	SHORT	OPEN	OPEN	486DX/SX-33, 487SX-33, 486DX2-66
40 MHz	SHORT	OPEN	OPEN	OPEN	486DX/SX-40,
50 MHz	OPEN	OPEN	OPEN	OPEN	486DX-50

NOTE:

1. If oscillator is used as CPU clock source, the jumper setting is ignored.
2. Jumper setting configuration is different from the above is not guaranteed

Auto Detect Hard Disk

This Function can be used to auto detect hard disk parameters when the user don't know the hard disk type. After choosing this function, the screen will show as follows :

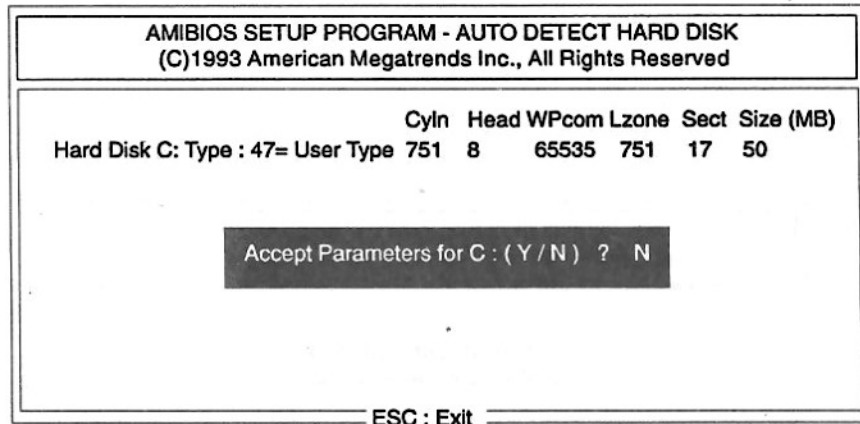


Figure 3-9 : Auto Detect Hard Disk

Press "Y" to save the data to CMOS, or "N" to ignore the date.

NOTE:

- 1 This function can not be use when IDE cache card is installed.
- 2 The fixed disk configuration parameters support by AMI BIOS is shown in Appendix B.

ID of VESA add-on-card	JP13
High Speed 1-wait	Short
High Speed 0-wait	Open

NOTE:

If JP13 is opened for high speed 0-wait, but will not work with your VESA add-on-card. Please change the JP13 jumper to "short".

According to VESA standard, parts of VESA add-on-card were implemented by this VESA ID for high speed (over 40 MHz bus frequency) environment. CH-491E is implemented by this VESA ID jumper (JP13) to insure that it work properly with VESA add-on-card.

E. CMOS Clear

- JP1 : Pin Header 1x2
- Open - Normal
 - Short - Clear CMOS Data

Caution :

Before shorting JP1, first power off the mainboard. JP1 should be kept open in normal operation.

F. Others

- JP7 : Pin Header 1 x 3
- 1-2 : Normal
 - 2-3 : Address strobe delay

NOTE:

This jumper provide any other VL-Bus Add-On Card compatibility testing. For example : when using ATI VGA card, we recommend to set it at 2-3 position. At the same time we recommend that frequency below 50 MHz, be set at 1-2 position, thus maintaining good performance.

Auto Configuration with Power-On Defaults.

When you enter Auto Configuration with Power-On Defaults, the screen will be as follows:

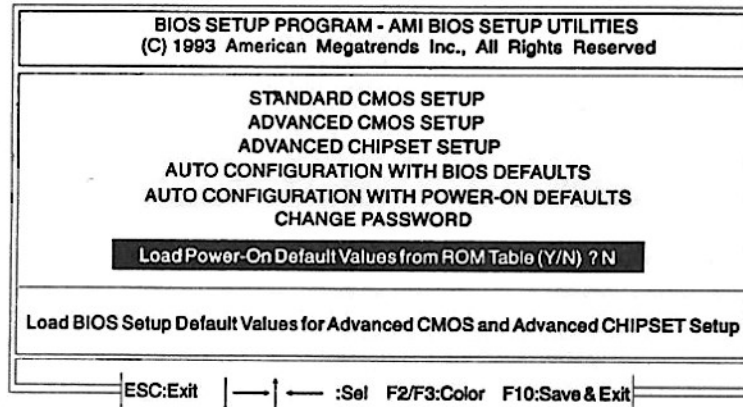


Figure 3-7 : Auto Configuration with BIOS Default

Press "Y" or "N" to change Advanced CMOS Setup and Advanced Chipset Setup with Power-on default values.

NOTE:
The Power-On default values setup chipset register for mainboard running optimized performance.

DRAM Bank Configuration

Bank 0	Bank 1	Total
256 KB		1 MB
	256 KB	
256 KB	256 KB	2 MB
1 MB		4 MB
	1 MB	
1 MB	256 KB	5 MB
256 KB	1 MB	
1 MB	1 MB	8 MB
4 MB		16 MB
	4 MB	
4 MB	256 KB	17 MB
256 KB	4 MB	
4 MB	1 MB	20 MB
1 MB	4 MB	
4 MB	4 MB	32 MB
16 MB		64 MB

Configuration Table

NOTE:

- 256 KB/1 MB/4 MB/16 MB SIMM module 80 ns fast page mode is required.
- Bank 0 : SIM 5-8, Bank 1 : SIM1-4
- The DRAM Bank is auto-banking, that is bank 0, bank 1 is auto-detected, so the user have the option to choose either bank getting the same total.

Refresh Divider

The refresh period is 15.1 MS * divider, there are 1,2,4,8,16,32 and 64 divider option. For compatible with general DRAM, set divider to 1 is being suggested.

Data Location of Local Bus

This item means that when a local bus device in DMA/Master cycle, the data is put on ISA or VL-Bus. Normally is set in ISA Bus.

LOWA20#, RC Emulation

This option support users to select either by keyboard BIOS or by chipset to generate LOWA20# and RC signals.

Stretch OWS# Signal Option

This option let user to set OWS# signal to be delay 1/2 ISA bus clock (ATCLK) or not.

Hardware Parity Check

This option support user to set disable whenever it uses no parity-bit DRAM module. Normally is set to enable state.

WARNING :

1. *The above items is set to provide for engineering use, please do not change the setting to avoid problem*
2. *Upon changing the setting resulted in some technical problem, we will not give any guarantee*
3. *If after the changed resulted in system halt, please refer to page 3-1 and select the "Auto Configuration" to set it back to its original setting.*

3.

BIOS Setup

BIOS Overview

The SETUP program is used to configure the system. These system options are stored in the CMOS. If the CMOS is correct, the system is configured with the values stored in the CMOS. If the CMOS is incorrect, the system is configured with the default values stored in the ROM table.

There are two sets of BIOS values stored in the ROM table :

- The BIOS Setup default values
- The Power-On default values

The BIOS Setup default values are the default values which are supposed to give optimum performance for the system. They are the best case default values.

The Power-On default values are the default values for the system. They are the worst case default values.

There are two ways to enter the BIOS setup program

1. Whenever BIOS detects any equipment error or the CMOS contents are not consistent with the equipment.
2. After the power on memory test, the screen will show:

Hit < DEL > If you want to run setup

Press the Del key to get the following screen :

- **AT Clock Select**
AT Clock (system clock) control the speed of the ISA bus operation. To get good compatibility, the AT clock set to near 8 MHz is suggested.
- **IO Recovery Time**
This option support to adjust the local I/O and ISA I/O port's recovery time to get good compatibility for some add-on cards.

For example : " 5/3 BCLK " means 5 AT clock cycle for local I/O ports and 3 AT clock cycle for ISA I/O ports.

- **Hold PD Bus**
There are two options for PD (Processor Data) bus hold time : 1~2T or 2~3T. This item support to adjust data hold time for some VL-bus add-on cards.

The User is given a warning message before he is allowed to change any of the setup parameters. The warning message is show as follows :

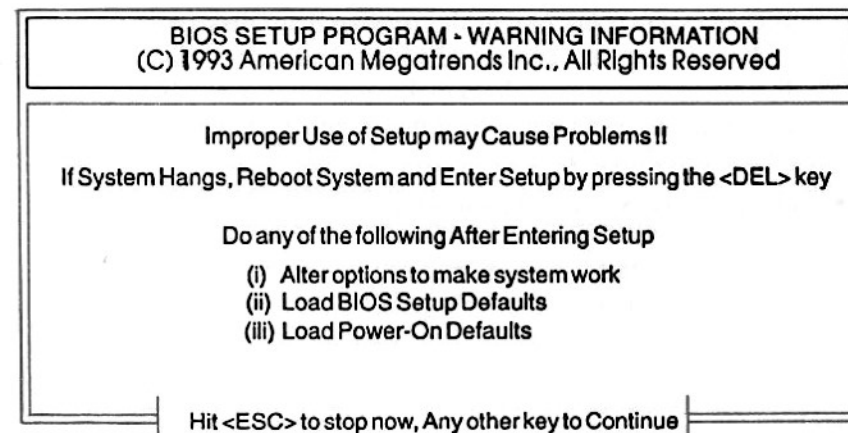


Figure 3-2 : BIOS Setup warning message

Explanation of Keys :

- Esc : Exit to previous screen
- Any keys : Continue choose setup program

Auto Configuration

Enable this item and the BIOS detects CPU type and speed automatically and ignores the settings of the items that follow it. Disable this option and the items that follow must be set according to CPU type and speed. The following table is the auto-configuration default setting for the different operation frequency of the mainboard.

Item	VL-Bus Frequency (CPU input Frequency)				
	20 MHz	25 MHz	33 MHz	40 MHz	50 MHz
Cache Read Option	2-1-1-1	3-1-1-1	3-2-2-2	3-2-2-2	3-2-2-2
Cache Write Option	0 W.S.	1 W.S.	1 W.S.	2 W.S.	2 W.S.
DRAM Type	Fast Page	Fast Page	Fast Page	Page Mode	Page Mode
DRAM Wait States	0 W.S.	1 W.S.	1 W.S.	2 W.S.	2 W.S.
Keyboard Clock Select	CPU CLK/2	CPU CLK/3	CPU CLK/4	CPU CLK/5	CPU CLK/6
AT Clock Select	CPU CLK/2	CPU CLK/3	CPU CLK/4	CPU CLK/5	CPU CLK/6
IO Recovery Time	2/2 BCLK	3/3 BCLK	5/3 BCLK	7/3 BCLK	9/3 BCLK
Hold PD Bus	2 ~ 3T	2 ~ 3T	2 ~ 3T	2 ~ 3T	2 ~ 3T

NOTE:

1. INTEL 80486DX2-50 or Cyrix Cx486S2/DX2-50 CPU must be set to 25 MHz parameters
2. INTEL 80486DX2-66, CPU must be set to 33 MHz parameters.
3. If the Green-PC function is enable (that is anyone of the device is enabled in Power Management Setup), the keyboard clock should be set to 7.2MHz

The following is the screen of Standard CMOS Setup :

BIOS SETUP PROGRAM - STANDARD CMOS SETUP (C) 1993 American Megatrends Inc., All Rights Reserved																																																							
Date (m/date/year)	: Sun	Oct	10, 1993	Base memory size	: 640 KB																																																		
Time (hour/min/sec)	: 15:35:50			Ext. memory size	: 7168 KB																																																		
Hard disk C: type	: Not installed			Cyln Head	WPcom LZone Sect	Size																																																	
Hard disk D: type	: Not installed																																																						
Floppy drive A:	: 1.2MB, 5 1/4"																																																						
Floppy drive B:	: Not installed																																																						
Primary display	: VGA/PGA/EGA																																																						
Keyboard	: Installed																																																						
Month : Jan, Feb, Dec Date : 01, 02, 03, 31 Year : 1901, 1902, 2099				<table border="1"> <thead> <tr> <th>Sun</th> <th>Mon</th> <th>Tue</th> <th>Wed</th> <th>Thu</th> <th>Fri</th> <th>Sat</th> </tr> </thead> <tbody> <tr> <td>26</td> <td>27</td> <td>28</td> <td>29</td> <td>30</td> <td>31</td> <td>1</td> </tr> <tr> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>9</td> <td>10</td> <td>11</td> <td>12</td> <td>13</td> <td>14</td> <td>15</td> </tr> <tr> <td>16</td> <td>17</td> <td>18</td> <td>19</td> <td>20</td> <td>21</td> <td>22</td> </tr> <tr> <td>23</td> <td>24</td> <td>25</td> <td>26</td> <td>27</td> <td>28</td> <td>29</td> </tr> <tr> <td>30</td> <td>31</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> </tbody> </table>			Sun	Mon	Tue	Wed	Thu	Fri	Sat	26	27	28	29	30	31	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
Sun	Mon	Tue	Wed	Thu	Fri	Sat																																																	
26	27	28	29	30	31	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																																																	
ESC:Exit ↓ → ← :Select F2/F3:Color PU/PD:Modify																																																							

Figure 3-3 : Standard CMOS Setup

IDE Block Mode Transfer

IDE block mode transfer which allows data to be transferred to and from the IDE drive in multiple sector at a time. There is an additional setup option to disable or enable this function.

IDE Standby Mode

This feature support to enable or disable IDE standby mode. When this function is enabled, the IDE is programmed to perform standby function for about 10 minutes without accessing. Almost new model of the IDE with the standby function.

Typematic Rate Programming

This option enable the Typematic Rate Delay and Typematic Rate functions.

Typematic Rate Delay (msec)

Choose the delay between holding down a key and when the character begins repeating

Typematic Rate (chars/sec)

Choose the rate a character that keeps repeating

Above 1 MB memory Test

If disable, above 1 MB memory test will be ignore.

Memory Test Tick Sound

If enabled, user will hear a tick sound from the speaker when the system memory is testing.

Memory Parity Error Check

If enabled, the system will auto-detect the memory when it is bad.

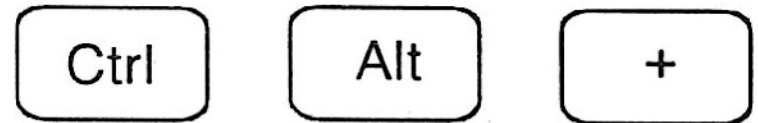
Hit Message Display

When the system power is *ON*, the screen will show the message of *hit *. If you want to run setup, when disabled, the message will disappear.

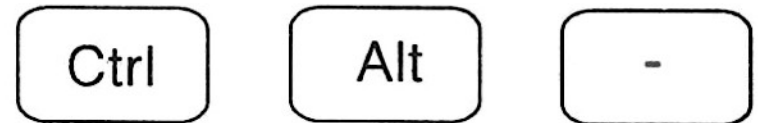
Hot Key Definition

Turbo/Normal Speed Switch

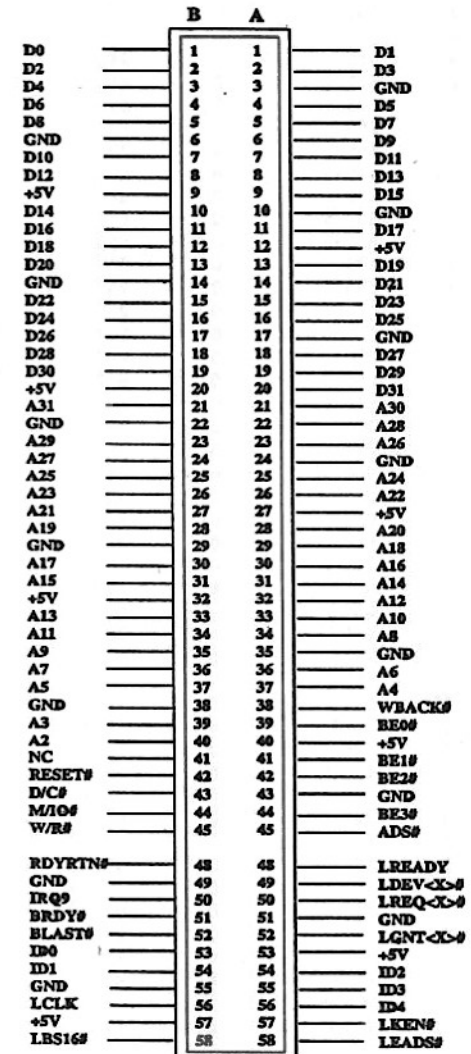
The default keystroke combination to enable high speed is:



and to enable low speed is



VESA Bus Slot Pinout



Introduction

The BIOS Setup program is used to configure the system hardware and software. It is located in the BIOS chip on the motherboard. The BIOS Setup program is used to configure the system hardware and software. It is located in the BIOS chip on the motherboard.

How to Use the BIOS Setup Program

The BIOS Setup program is used to configure the system hardware and software. It is located in the BIOS chip on the motherboard. The BIOS Setup program is used to configure the system hardware and software. It is located in the BIOS chip on the motherboard.

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The BIOS Setup program is used to configure the system hardware and software. It is located in the BIOS chip on the motherboard. The BIOS Setup program is used to configure the system hardware and software. It is located in the BIOS chip on the motherboard.

Write to CMOS and Exit

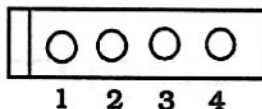
The options set in the Standard Setup, Advanced Setup, Advanced Chip-set Setup and New Password (if it has been changed) are stored in the CMOS. The CMOS checksum is calculated and written into the CMOS. After that, system will auto-reset.

Do Not Write to CMOS and Exit

The options set in the Standard Setup, Advanced Setup, Advanced Chipset Setup and New Password (if it has been changed) are not stored in the CMOS. After that, system will auto-reset.

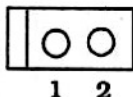
Connectors

- J1: Power Supply Connector
 J2: Keyboard Connector
 J3: Internal Battery Selection/External Battery Connector
 2-3 : Short to enable internal on-board battery
 1-4 : Used for external battery connector.



PIN 1 : VDC
 PIN 4 : GROUND

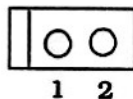
- J4: Hardware Reset
 Open : Normal



RESET

Short :Reset
 PIN 1 : RESET INPUT
 PIN 2 : GROUND

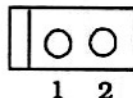
- J5: Turbo Switch
 Open : Turbo



TBSW

Short :Normal
 PIN 1 : TURBO ACTIVE
 PIN 2 : GROUND

- J6: Turbo LED



TBLD

PIN 1 : LED POWER
 PIN 2 : LED CATHODE

Auto Interleave

Use this option to calculate the optimum interleave factor. In the main menu, select "Hard Disk Utility" and press <Enter>, the screen will show as follows :

AMIBIOS SETUP PROGRAM - HARD DISK UTILITY						
(C) 1993 American Megatrends Inc. All Rights Reserved						
	Cyln	Head	WPcom	LZone	Sect	Size (MB)
Hard Disk C : Type : 47 = User Type	751	8	65535	751	17	50
Hard Disk D : Type : Not Installed						
Auto Interleave			Bad Track # 0			
Disk Drive (C/D)	? C					
Disk Drive Type	? 47					
Mark Bad Tracks (Y/N)	? N					
Proceed (Y/N)	?					
Esc : Exit ← Sel						

Figure 3-12 : Auto Interleave

Answer the questions of Mark Bad Tracks and change the Proceed prompt to <Y> and press <Enter>. A warning screen message with a continue prompt will appear, once you have change this prompt to <Y> and pressed <Enter>, all data on the hard disk drive will be lost.

B. CPU Type Selection

JP17 : Pin Header 1 x 2
 JP16 : Pin Header 1 x 3
 JP15 : Pin Header 1 x 4

CPU Type	JP16	JP15	JP17
INTEL/AMD/486DX/DX2 INTEL P24T Cyrix Cx486DX	1-2	1-2, 3-4	Open
Cyrix Cx486DX2	1-2	1-2, 3-4	Short
INTEL 486SX, Cyrix Cx486S	Open	2-3	Open
INTEL 487SX	2-3	1-2, 3-4	Open

NOTE:
 Cyrix Cx486S plus Cx487S module should be set as Cx486DX.

C. Cache SRAM Size Selection

JP2, JP3 : Pin Header 1 x 3
 JP4, JP5, JP6 : Pin Header 1 x 2

Cache Size	JP2	JP3	JP4	JP5	JP6
32 KB	2-3	2-3	Open	Open	Open
64 KB	1-2	1-2	Open	Open	Short
128 KB	2-3	2-3	Open	Short	Short
256 KB	1-2	1-2	Short	Short	Short

D. VESA Local Bus ID Selection

JP13, JP14 : Pin Header 1x2

Frequency	CPU Type	JP14
>33 MHz	486SX/DX-40, CX486S-40, 486DX-50	Short
<=33 MHz	486SX-20/25/33, CX486DX2-40/50, CX486S-33, 486DX-25/33, 486DX2-50/66	Open

Hard Disk Utility

This utility gives you three options for analyzing and formatting a hard disk.

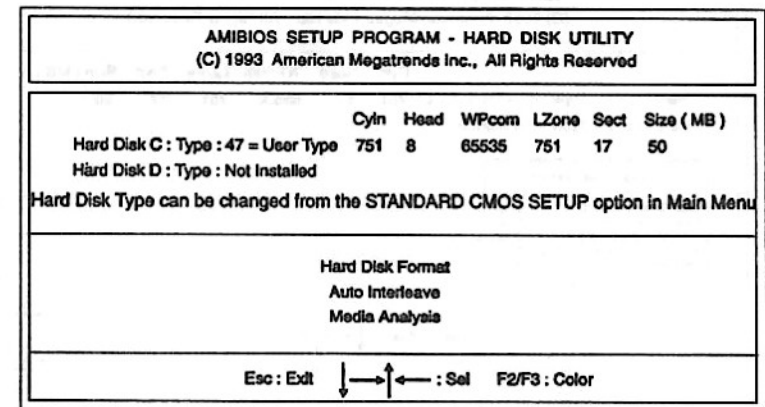


Figure 3-10 : Hard Disk Utility

- JP12 : Pin Header 1 x 2 (Use only when PQFP CPU is installed)
Open : Normal
Short : Disable on board PQFP CPU
- JP19 : Pin Header 1 x 3 (For compatibility only)
1-2 : Normal
2-3 : Weitek Power 9000 VGA card is installed.
- JP18 : On board Cyrix Cx487S selection
Pin header 1 x 3
1-2 : Enable
2-3 : Disable
- JP20 : Cyrix Cx487S function selection
Pin header 1 x 3
1-2 : Cyrix Cx487S installed
2-3 : Cyrix Cx487S absent

Change Password

This option can be used to change the password (of the user). The password can be named as long as six characters. The password is stored in the CMOS. If the CMOS is bad, there is a default password (AMI) which is stored in the ROM.

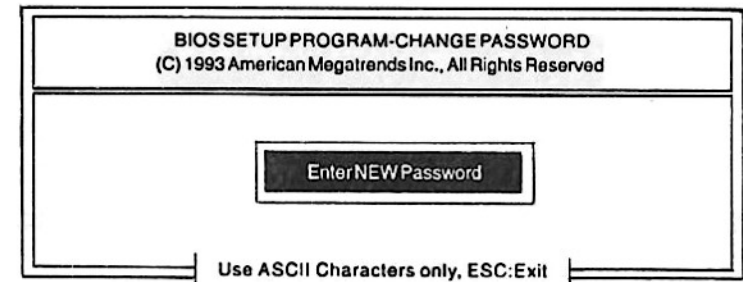


Figure 3-8 : Change Password

SRAM Configuration

Bank 0	Bank 1	TAG SRAM Type	Total
8K x 8		8K x 8	32 KB
8K x 8	8K x 8	8K x 8	64 KB
32K x 8		8K x 8	128 KB
32K x 8	32K x 8	32K x 8/16K x 8	256 KB

Note :

1. SRAM Specification : SRAM 8 Kx8/32 Kx8/16 Kx8

SRAM Speed

Frequency	TAG/DATA SRAM
20 MHz	25 ns
25 MHz	25 ns
33 MHz	25 ns
40 MHz	20 ns
50 MHz	20 ns

2. Locations :

TAG SRAM : U10
 DATA SRAM : Bank 0 - U1, 3, 5, 8
 Bank 1 - U2, 4, 6, 9

Auto Configuration with BIOS Defaults

When you enter Auto Configuration with BIOS Defaults, the screen will be as follows:

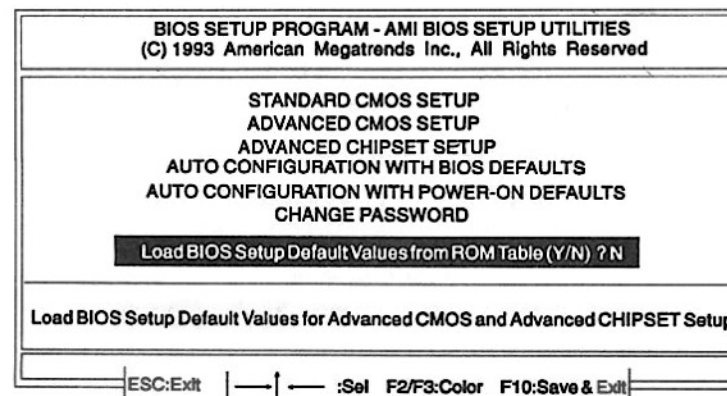


Figure 3-6 : Auto Configuration with BIOS Default

Press "Y" or "N" to change Advanced CMOS Setup and Advanced Chipset Setup with BIOS default values

NOTE :
 The BIOS default values setup chipset register for mainboard running optimized performance.

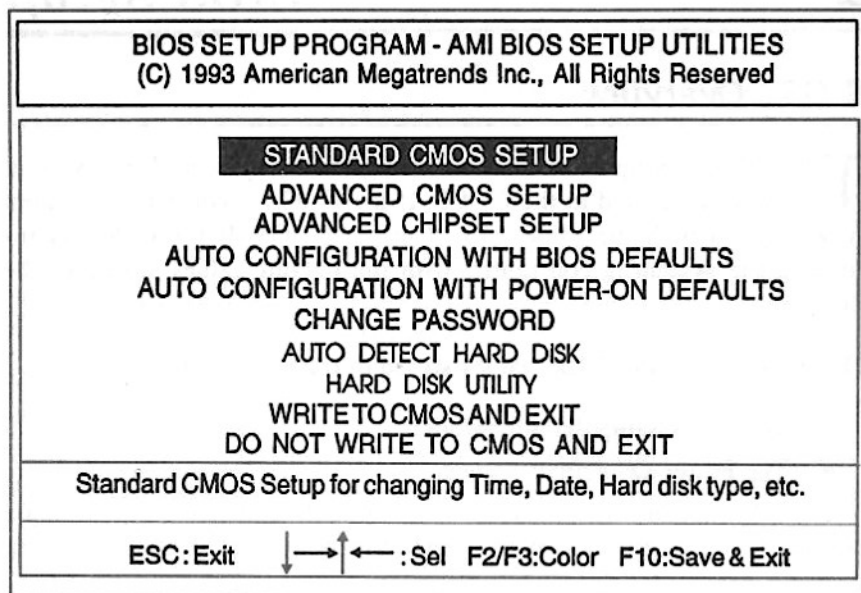


Figure 3-1 : Standard CMOS Setup

Explanation of Keys :

- ESC : Exit to setup program
- Arrow keys : Cursor movement
- F2/F3 : Change Color
- F10 : Save Setup values & Exit to setup program

Refresh Cycle

There are two option for DRAM refresh cycle : "SLOW" is both refresh DRAM and ISA Bus which need more time. and "FAST" is only a refresh DRAM.

Check ELBA# Signal

Check if ELBA signal is set to T2 .

ELBA# signal should be set at T2 in all condition.

Non-Cacheable Block Size

There are two non-cacheable block that can be set. The size of Block 1 can be set from 16 KB to 4 MB, another Block can be set from 64 KB to 16 MB.

Non-Cacheable Block Base

The size of the Non-Cacheable block can be as small as 0 K byte or as large as 64 M byte.

Memory Remapping

Enable or Disable either one can be selected.

BIOS Shadow

There are 10 segments that can be selected, and they have four type of shadow to be performed :

- Disable : no shadow.
- Enable : Shadow, non-cacheable, write protect.
- Cached : Shadow, external cacheable, write protect.
- Into-486 : Shadow, internal and external cacheable, no write protect.

The F Segment is used for System BIOS, and the C000-C7FF is used for VGA display card BIOS.

Standard CMOS Setup

This option is used to configure the following options:

- Date : Month, Date and Year
- Time : Hour, Minute and Second
- Hard Disk C and Hard Disk D :
The user can choose any of the standard hard disk types from 1 to 46 or he can choose type 47 which is the user definable type. The user must enter the hard disk parameters if he wants to choose the user-definable hard disk type i.e., type 47 may be different for drive C: and for drive D:.
- Floppy drive A and Floppy drive B :

360 KB	5.25",
1.2 MB	5.25",
720 KB	3.5",
1.44 MB	3.5",
2.88 MB	3.5",
Not Installed	
- Primary Display :
Monochrome,
Color 40 x 25,
VGA/PGA/EGA,
Color 80x25,
Not Installed
- Keyboard :
Installed or
Not Installed

The following are the description for auto-configuration function options :

- Cache Read Option
To set to 3-2-2-2 for 50/40 /33 MHz, 3-1-1-1 for 25 MHz and 2-1-1-1 for 20 MHz operations is suggested.
- Cache Write Option
The BIOS default setting is according to the specification of the cache SRAM (see Chapter 2 SRAM Configuration)
Set to 0 W.S. will get higher performance, but the system will be unstable with no guarantee.
- DRAM Type
This option support the DRAM with fast page mode or not.
- DRAM Wait State
The above default setting is recommended for 80 ns DRAM. User can set to lower wait state when using higher speed DRAM.
- Keyboard Clock Select
The recommended setting of the keyboard clock is about 6 ~ 12 MHz

Advanced CMOS Setup

The Advanced CMOS Setup option is used to set the various system options for the user. The user can get various options :

BIOS SETUP PROGRAM - ADVANCED CMOS SETUP (C) 1993 American Megatrends Inc., All Rights Reserved			
Typematic Rate Programming	: Disabled	IDE Block Mode Transfer	: Disabled
Typematic Rate Delay (msec)	: 500	IDE Standby Mode	: Disabled
Typematic Rate (Chars/Sec)	: 15		
Above 1 MB Memory Test	: Disabled		
Memory Test Tick Sound	: Enabled		
Memory Parity Error Check	: Enabled		
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		
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	: Enabled		
Fast Gate A20 Option	: Enabled		
Password Checking Option	: Setup		
Boot Sector Virus Protection	: Enabled		

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 : Advanced CMOS Setup

Advanced Chipset Setup

The Advanced Chipset Setup option is used to change the register values for the chipset registers. The chipset registers control most of the system options in the computer.

BIOS SETUP PROGRAM - ADVANCED CHIPSET SETUP (C)1993 American Megatrends Inc., All Rights Reserved			
Auto Configuration	: Enabled	F Segment Shadow RAM	: Enabled
Cache Read Option	: 3-2-2-2	E Segment Shadow RAM	: Disabled
Cache Write Option	: 2 W. S.	C000-C3FF Shadow RAM	: Enabled
DRAM Type	: PageMode	C400-C7FF Shadow RAM	: Enabled
DRAM Wait State(s)	: 2 W. S.	C800-CBFF Shadow RAM	: Disabled
Keyboard Clock Select	: CPUCLK/5	CC00-CFFF Shadow RAM	: Disabled
AT Clock Select	: CPUCLK/5	D000-D3FF Shadow RAM	: Disabled
IO Recovery Time	: 9/3 BCLK	D400-D7FF Shadow RAM	: Disabled
Hold PD Bus	: 2 - 3 T	D800-DBFF Shadow RAM	: Disabled
Refresh Cycle	: Slow	DC00-DFFF Shadow RAM	: Disabled
Check ELBA# Signal	: In T2	Refresh Divider	: 1
Non-Cacheable Block-1 Enable	: Disabled	Data Location of Local Bus	: ISA Bus
Non-Cacheable Block-1 Size	: 4MB	LOWA20#, RC Emulation	: None
Non-Cacheable Block-1 Base	: 0KB	Stretch OWS#, Signal Option	: Do Not
Non-Cacheable Block-2 Enable	: Disabled	Hardware Parity Check	: Disabled
Non-Cacheable Block-2 Size	: 16MB		
Non-Cacheable Block-2 Base	: 0KB		
Memory Remapping	: Enabled		

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

Figure 3-5 : Advanced Chipset Setup

NOTE:

If you want to change the parameter in Auto Configuration of Advanced Chipset Setup, you have to first disable the Auto Configuration.

WARNING:

The system may hanged because of improper BIOS setup.

Hard Disk Type 47 Data Area

If user's Hard Disk type is type 47, and the Hard Disk will be used for novell file server, we recommend user set Hard Disk type 47 Data Area in DOS 1K.

Wait for <F1> If Any Error

When CMOS data is error, the Power-On screen will show the message of " Press <F1> to RESUME", and wait for the user to press <F1> key to boot the system. If set disabled, system will not wait for the user to press <F1> key.

System Boot Up Num Lock

Select Num Lock key ON or OFF when system is boot up

Floppy Drive Seek At Boot

If enabled, floppy drive will be reset when the system is boot up.

System Boot Up Sequence

Set "A :, C : " for floppy drive A : booting first, or "C :, A : " for hard disk drive C : booting first.

System Boot Up CPU Speed.

This option can set the CPU run at high or low speed.

External Cache Memory

Enabled or Disabled external cache memory. The external cache memory is the cache memory added for the system.

Internal Cache Memory

Enable or disable internal cache memory. The Internal cache memory is the cache that is built-in in the CPU.

Fast Gate A20 Option

If enabled, it can improve the performance from real mode to protect mode access.

Password checking option

The AMI BIOS has a password feature in it. The user is asked for the password either in every boot or for entering into the SETUP program or never. If the CMOS is good, the user is asked for the password stored in the CMOS, else he is asked for the ROM password.

Boot sector Virus Protection

Enable or disable Virus protection function.

The system will display warning message whenever the boot sector of the hard disk is written.

for example :

Doing the hard disk formatting, or the virus to modify the boot sector.

The warning message is shown as follows :

Boot Sector Write !!!
Possible VIRUS : Continue (Y/N) ?