



**486**

**OPTi495SLC 3 VL-BUS**

# CONTENTS

CHAPTER 1 INTRODUCTION .....	Page 1
SPECIFICATION .....	Page 2
SYSTEM FEATURES .....	Page 3
OPTI-495SLC 486WB CACHE M/B LAYOUT...	Page 4
CHAPTER 2 INSTALLATION .....	Page 5
ON BOARD SIMM INSTALLATION .....	Page 6
SIM RAM ON BOARD POSITION .....	Page 7
VESA CARD INSTALL OPERATION .....	Page 8
CPU ASSEMBLE OPERTION .....	Page 9
CACHE SRAM INSTALL SELECTION .....	Page 9
THE ALL JUMPER SETTING LIST .....	Page 10
CHAPTER 3 BIOS SETUP .....	Page 13
AWARD BIOS SETUP .....	Page 13
AMI BIOS SETUP .....	Page 24
SHADOW RAM .....	Page 37

## CHAPTER 1 INTRODUCTION

This manual is designed to provide the basic information necessary for users to understand and properly use the OPTi-495SLC VESA Local Bus mainboard.

The OPTi-495SLC 486WB Cache motherboard is a Low-Cost two-chip solution for 486-base AT systems. The OPTi-495SLC 486WB Cache M/B is designed for 25, 33, 40 and 50MHz it supports 486SX, 486DX 486DX2 and three 32-bit Local Bus.

The OPTi-495SLC 486WB Cache motherboard also has an option to accommodate either 64K, 128K, 256K of external cache.

Because of its unique memory subsystem design, the OPTi-495SLC 486WB Cache M/B allows for 1 Megabyte to 64 Megabytes of 32-bit high speed memory by using 256K, 1M, 4M and 16M sim modules. The available memory configurations are 1MB, 2MB, 4MB, 5MB, 8MB, 16MB, 17MB, 20MB, 32MB, 64MB.

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## INTRODUCTION

### SPECIFICATION

Processor	:	486SX, 486DX, 486DX2
CPU Clock	:	25/33/40/50/DX2-66MHz for 486 M/B
CPU Clock SOURCE	:	Clock generator
Memory	:	Up to 64MB
Memory configuration	:	1MB/2MB/4MB/5MB/8MB/16MB/17MB/20MB /32MB/64MB
Memory using	:	256K/1MB/4MB/16MB Module, memory up to 64MB on board
Cache configuration	:	64KB/128KB/256KB
BIOS Subsystem Type	:	AWARD ROM BIOS
I/O Subsystem No. of slots	:	Six 16-bit & seven 8-bit ISA Slots, three 32-bit Local Bus Slots.

Dimemnsion : 8.10" × 9.13", 2/3 Baby AT size

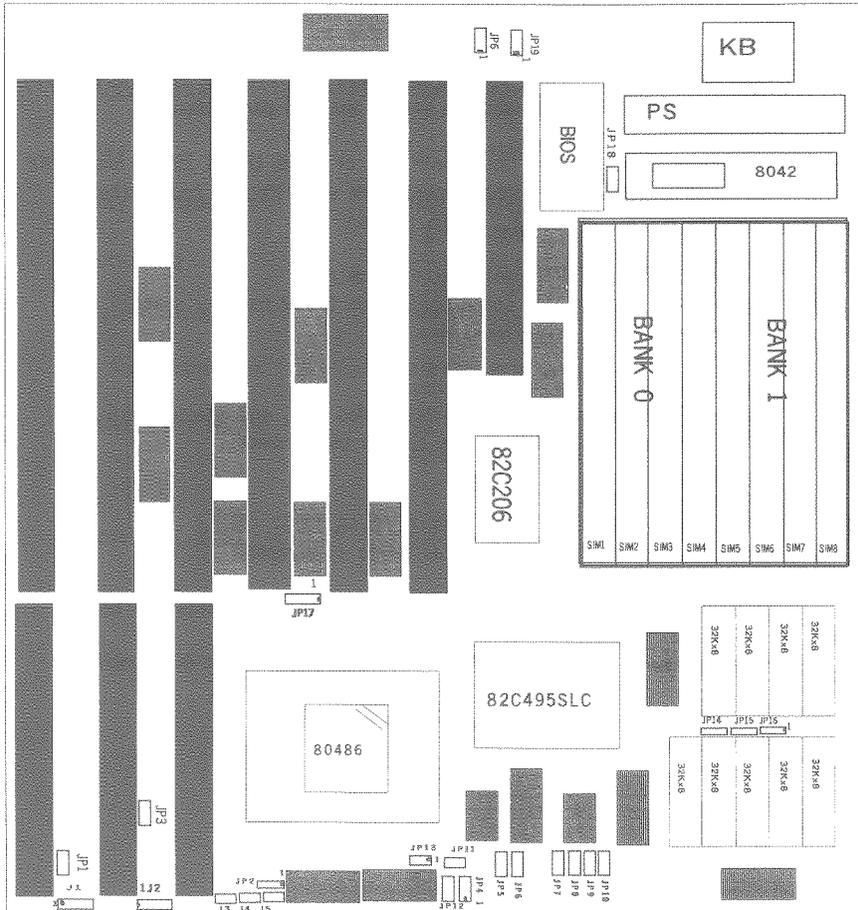
## SYSTEM FEATURES

OPTI 495SLC features include :

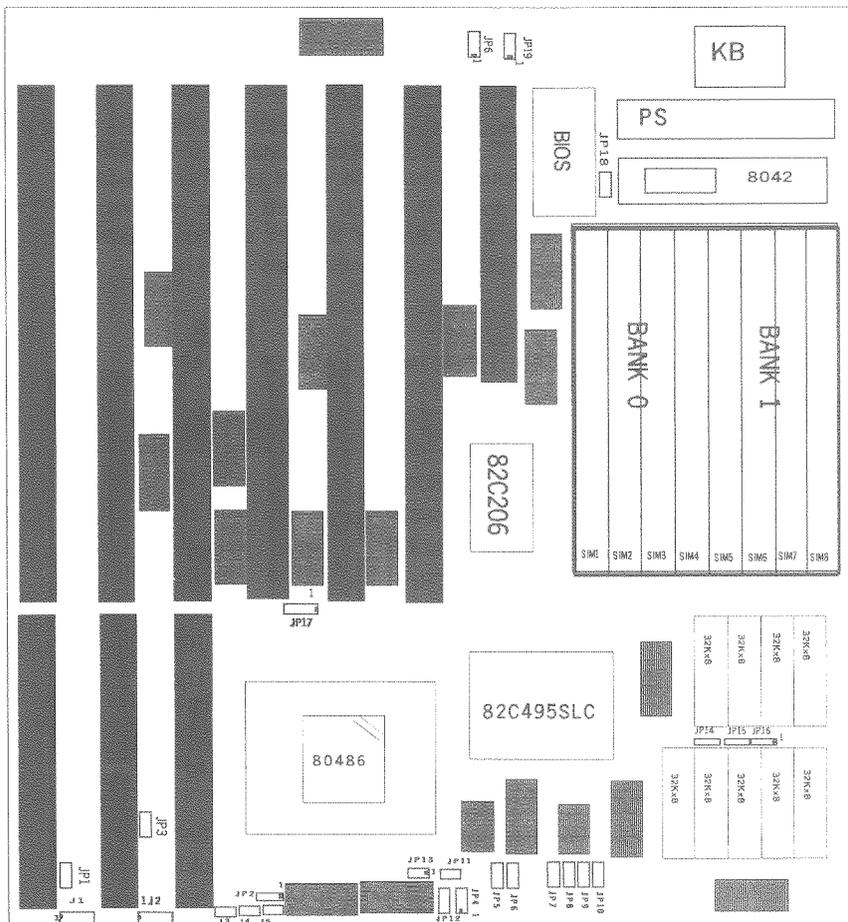
- One 160-pin CMOS Plastic Flat Package(PFP), one PLCC(or one 100-pin PFP)
- Internal buffers and termination to reduce external parts count.
  
- Copy-Back Direct-Mapped Cache with size of 64KB, 128KB, 256KB and 512KB.
- Up to 10% performance enhancement from write-through cache scheme.
- Supports 2-1-1-1 or 3-2-2-2 cache cycles.
  
- On-chip comparator determines cache hit or miss.
- Up to 64MB of local high-speed, page-mode, DRAM memory space.
- Burst-line-fill during Cache-Read-Miss.
  
- Control of two non-cacheable regions.
- Shadow RAM support for System BIOS, Video BIOS and adapter card BIOS.
- Hidden refresh support to enhance system performance.
  
- Turbo/slow speed selection.
- AT-bus clock selectable from CLK( /6, /5, /4, /3).
- CAS# before RAS# refresh reduces power consumption.
  
- Internal CD and CA bus pull-up resistors to save components and board real-estate.
- Comprehensive VESA VL and OPTi High Performance Local Bus support.

# INTRODUCTION

## OPTI-495SLC 486WB CACHE MOTHERBOARD LAYOUT



# CHAPTER 2 INSTALLATION



# INSTALLATION

## CHAPTER 2 INSTALLATION

BEFORE TURNING ON THE SYSTEM POWER, PLEASE FOLLOW THE FOLLOWING INSTRUCTIONS CAREFULLY OR YOUR SYSTEM MAY NOT OPERATE CORRECTLY. THANK YOU! :

### ON BOARD SIMM INSTALLATION

The OPTI-495SLC 486WB Cache motherboard memory can expanded memory from 1MB to 64MB Either 256K or 1M or 4M or 16M SIM DRAM can be used on the OPTI-495SLC 486WB Cache motherboard. There are spacial BANK 0 and BANK 1 SIMM of assembly available for the OPTI-495SLC 486WB Cache motherboard. They are :

■ SIM MODULE USED : ( 256K, 1M, 4M, 16Mx9 OF SIM 4PCS)

RAM SIZE SELECTION	BANK 0	BANK 1	TOTAL MEMORY
	256Kx9, 4pcs	NONE	1MB
	256Kx9, 4pcs	256Kx9, 4pcs	2MB
	1Mx9, 4pcs	NONE	4MB
	256Kx9, 4pcs	1Mx9, 4pcs	5MB
	1Mx9, 4pcs	1Mx9, 4pcs	8MB
	4Mx9, 4pcs	NONE	16MB
	256Kx9, 4pcs	1Mx9, 4pcs	17MB
	1Mx9, 4pcs	4Mx9, 4pcs	20MB
	4Mx9, 4pcs	4Mx9, 4pcs	32MB
	16Mx9, 4pcs	NONE	64MB

SIM MODULE DRAM on the motherboard consists of BANK 0-1 When you install the DRAM on the motherboard, first completely BANK 0, then fill BANK 1. The spaces of BANK 0 should be fully occupied, otherwise the motherboard will not work.

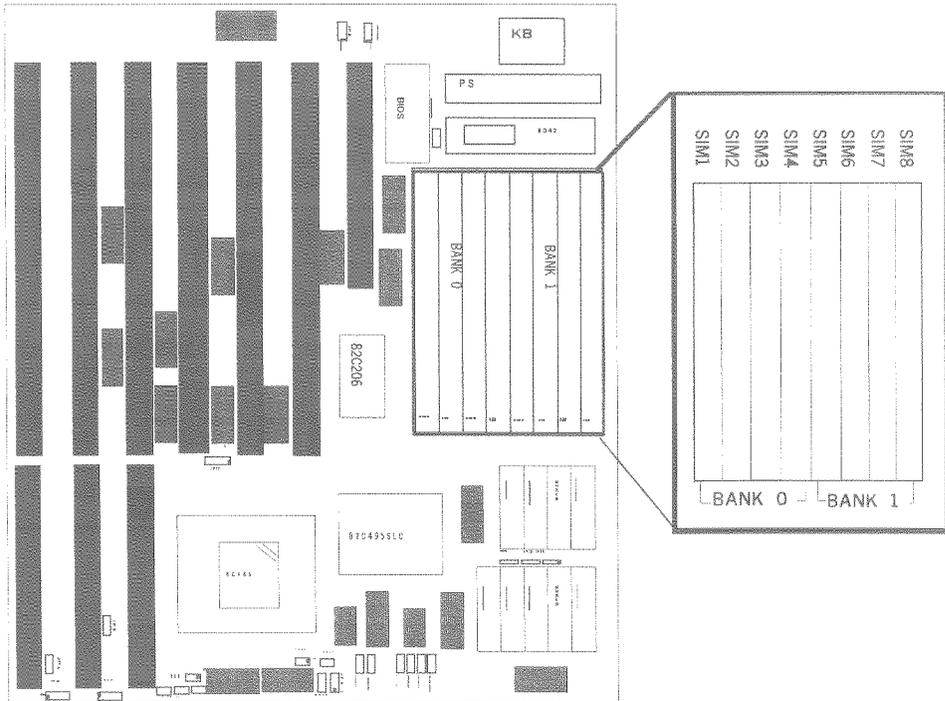
# INSTALLATION

## SIM MODULE ON BOARD POSITION

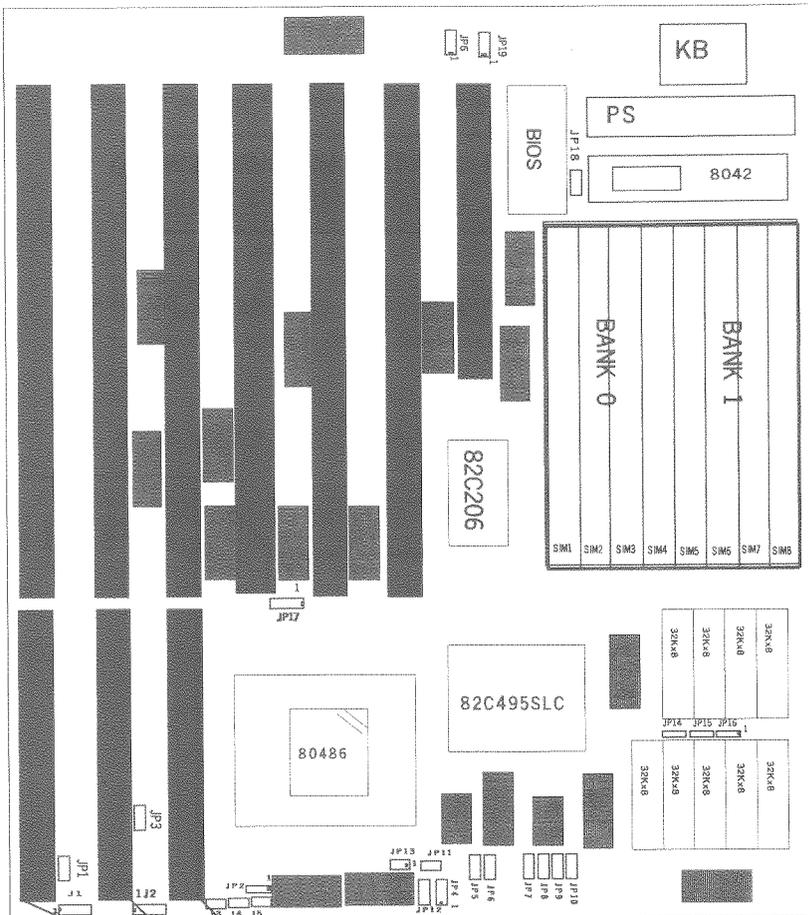
Please refer to the table for the BANK 0 and BANK 1 position.

**BANK 0 INSTALL : SIM1, SIM2, SIM3, SIM4**  
**BANK 1 INSTALL : SIM5, SIM6, SIM7, SIM8**

■ Please refer to the following figure for operating the SIM DRAM :



# INSTALLATION



VL1, VL3 ( SLAVE / MODE )

VL2 ( MASTER & SLAVE MODE )

# INSTALLATION

## CLOCK SETTING

CLOCK	JP3	JP7	JP8	JP9
25MHZ	OPEN	CLOSE	OPEN	OPEN
33MHZ	OPEN	CLOSE	CLOSE	CLOSE
40MHZ	CLOSE	CLOSE	CLOSE	OPEN
50MHZ	CLOSE	OPEN	OPEN	CLOSE

IF the M/B's clock use OSC JP10 must be shorted, and JP7, JP8, JP9 don't care, otherwise JP10 always open

## CPU TYPE SETTING

CPU	JP11	JP12	JP13	JP4
80486SX Cyrix M6	OPEN	2-3	OPEN	1-2
80486DX Cyrix M6+C6	CLOSE	1-2	2-3	1-2
80486DX2	CLOSE	1-2	2-3	2-3

## VL-BUS WAIT STATE SETTING

VL-BUS Wait State	JP1
0 Wait	OPEN
1 Wait	CLOSE

## VESA CARD INSTALL SETTING

JP6	JP2	
1-2	1-2	Use standard VESA card with all CPU or use VESA card with 80486DX-25 (Default) 80486DX-33, 80486DX-40, 80486DX2-50, 80486DX2-66 CPU
1-2	2-3	Use for special VESA card when use default setting can not run
2-3	1-2	
2-3	2-3	

## CACHE SRAM INSTALL SELECTION

CACHE SIZE	JP14	JP15	JP16	JP17	TAG RAM U8	BANK 0 U9, U10, U11, U12	BANK 1 U15, U16, U17, U18
64KB	OPEN	OPEN	2-3	2-3	8Kx8-15	8Kx8-15	8Kx8-20
128KB	OPEN	CLOSE	1-2	1-2	8Kx8-15	8Kx-15	
256KB	CLOSE	CLOSE	2-3	2-3	32Kx8-15	32Kx8-15	32Kx8-20

# INSTALLATION

## 495SLC VL-BUS M/B JUMPER SETTING DESCRIPTION

### JP18 DISPLAY ADAPTER SETUP :

JUMPER	MEANING	SETTING	USAGE
JP18	DISPLAY TYPE	PIN 1.2	
		OPEN	MONOCHROME
		CLOSE	COLOR

### KEYLOCK & POWER LED CONNECTOR : J1

CONNECTOR USAGE	PIN DESCRIPTION
KEYLOCK & POWER LED	1 LED power
	2 not used
	3 LED power
	4 keyboard inhibitor
	5 keyboard inhibitor

### SPEAKER CONNECTOR : J2

CONNECTOR USAGE	PIN DESCRIPTION
	1 date out
	2 not used
	3 GROUND
	4 +5V

### TURBO SW CONNECTOR : J5

CONNECTOR USAGE	PIN DESCRIPTION
TURBO SW	1 GROUND
	2 Select pin

When it, s close and it, s on the turbo mode.  
When it, s open and it, s the normal mode.

# INSTALLATION

## TURBO LED CONNECTOR

CONNECTOR	USAGE	PIN	DESCRIPTION
J4	TURBO LED	1	- CATHODE
		2	+ANODE

## RESET SW CONNECTOR

CONNECTOR	USAGE	PIN	DESCRIPTION
J3	RESET	1	GROUND
		2	Reset in

## J6 : EXTERNAL BATTERY CONNECTOR

PIN	DESCRIPTION
1	EXTERNAL BATTERY +3.6V
2	NC
3	GROUND
4	GROUND

## KB : KEYBOARD CONNECTOR

PIN	DESCRIPTION
1	keyboard clock
2	keyboard data
3	Space
4	GROUND
5	+5V DC

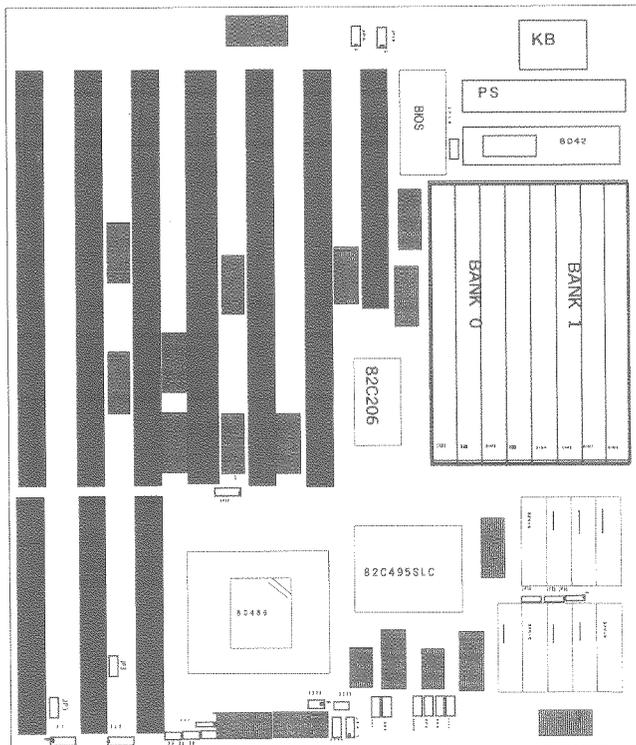
## BATTERY TYPE : JP19

2-3	Internal Battery Use
1-2	Clear cmos Date
Open	External Battery Use

# JUMPER / CONNECTOR

PS : POWER SUPPLY CONNECTOR

CONNECTOR	PIN	DESCRIPTION
PS	1	POWER GOOD
PS	2	+5V DC
PS	3	+12V DC
PS	4	-12V DC
PS	5	GROUND
PS	6	GROUND
PS	7	GROUND
PS	8	GROUND
PS	9	- 5V DC
PS	10	+ 5V DC
PS	11	+ 5V DC
PS	12	+ 5V DC



## CHAPTER 3 AWARD BIOS SETUP

### AWARD BIOS System Configuration Setup

This section will tell you how to set up the system configurations(CMOS) under the AWARD BIOS . After booting the system and testing the memory

The SETUP program is contained in the system, s Read-Only-Memory Rather than on a diskette.



## AWARD BIOS SETUP

ROM ISA BIOS (214UEA21)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

<p>Auto Configuration : Enabled                  AT Clock Selection : CLKI/4                  DRAM Read Wait State : 0WS                  DRAM Write Wait State : 0WS                  Speed Up DRAM Access : Enabled                  CAS Delay By It State : Enabled                  Hidden Refresh Option : Disabled                  Fast AT Cycle : Disabled                  Single ALE Control : Disabled                  Back To Back I/O Delay : Enabled                  Burst Wait State : 3-2-2-2                  Cache Write Wait State : 1WS                  CA32S Inactive Delay at: Middle of T2                  Video BIOS Cacheable : Enabled</p>	<p>ESC: Quit   ←↑ ↓→ : Select Item                  F1 : Help   PU/PD/+/- : Modify                  F5 : Old Values (Shift) F: Color                  F6 : Load BIOS Defaults                  F7 : Load Setup Defaults</p>
--	---

THE SETUP FOR 486DX-33 MHZ / 486DX2-66 MHZ / 486SX-33MHZ

ROM ISA BIOS (214UEA21)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

<p>Auto Configuration : Enabled                  AT Clock Selection : CLKI/5                  DRAM Read Wait State : 0WS                  DRAM Write Wait State : 0WS                  Speed Up DRAM Access : Enabled                  CAS Delay By It State : Enabled                  Hidden Refresh Option : Disabled                  Fast AT Cycle : Disabled                  Single ALE Control : Disabled                  Back To Back I/O Delay : Enabled                  Burst Wait State : 3-2-2-2                  Cache Write Wait State : 1WS                  CA32S Inactive Delay at: Middle of T2                  Video BIOS Cacheable : Enabled</p>	<p>ESC : Quit   ←↑ ↓→ : Select Item                  F1 : Help   PU/PD/+/- : Modify                  F5 : Old Values (Shift) F2: Color                  F6 : Load BIOS Defaults</p>
--	---

THE SETUP FOR 486DX-40 / M6-40

# AWARD BIOS SETUP

ROM ISA BIOS (214UEA21)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	
At Clock Selection	: CLK/6	
DRAM Read Wait State	: 2WS	
DRAM Write Wait State	: 3WS	
CAS Delay By IT State	: Enabled	
Speed Up DRAM Access	: Enabled	
Hidden Refresh Option	: Disabled	
Fast At Cycle	: Disabled	
Single ALE Control	: Disabled	
Back To Back I/O Delay	: Enabled	
Burst Wait State	: 3-2-2-2	
Cache Write Wait State	: 1WS	
CA32S Inactive Delay at	: Middle of T2	
Video BIOS Cacheable	: Enabled	
		ESC : Quit ← ↑ ↓ → : Select Item
		F1 : Help PU/PD/+/- : Modify
		F5 : Old Values (Shift) F2 : Color
		F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

THE SETUP FOR 486DX-50MHZ

## AWARD BIOS SETUP

ROM ISA BIOS (214UEA21)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP <b>BIOS FEATURES SETUP</b> CHIPSET FEATURES SETUP LOAD BIOS DEFAULTS LOAD SETUP DEFAULTS	PASSWORD SETTING IDE HDD AUTO DETECTION HDD LOW LEVEL FORMAT SAVE & EXIT SETUP EXIT WITHOUT SAVING
ESC: QUIT      ← ↑ ↓ → : SELECT ITEM F10: SAVE & EXIT SETUP      (SHIFT): CHANGE COLOR	
Virus Protection, Boot Sequence.	

ROM ISA BIOS (214UEA21)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

Virus Warning : Enabled CPU Internal cache : Enabled External cache : Enabled Quick Power On Self Test : Disabled Boot Sequence : A, C Boot Up Floppy Seek : Enabled Boot Up Numlock Status : On Boot Up System Speed : High IDE HDD Block Mode : Disabled Gate A20 Option : Fast Memory Parity Check : Enabled Typematic Rate Setting : Disabled Typematic Rate (Chars/sec) : 6 Typematic Delay (Msec) : 250 Security Option : Setup Turbo Switch Input : Enabled	System BIOS Shadow : Enabled Video BIOS Shadow : Enabled C8000-CBFFF Shadow : Disabled CC000-CFFFF Shadow : Disabled D0000-D3FFF Shadow : Disabled D4000-D7FFF Shadow : Disabled D8000-DBFFF Shadow : Disabled DC000-DFFFF Shadow : Disabled E0000-E3FFF Shadow : Disabled E4000-E7FFF Shadow : Disabled E8000-EBFFF Shadow : Disabled EC000-EFFFF Shadow : Disabled
ESC : Quit   ← ↑ ↓ → : Select Item F1 : Help      PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults	



# AWARD BIOS SETUP

ROM ISA BIOS (214UEA21)  
 CMOS SETUP UTILITY  
 AWARD SOFTWARE, INC.

DAET (mm: dd: yy) : THU, SEP 23 1993	BASE MEMORY : 640K																																																	
TIME (hh: mm: ss) : 8 : 38 : 26	EXTENDED MEMORY : OK																																																	
	CYLS. HEADS PRECOMP LANDZONE SECTORS																																																	
DRIVE C : NONE ( OMB) 0 0 0 0 0																																																		
DRIVE D : NONE ( OMB) 0 0 0 0 0																																																		
DRIVE A : 1.2M, 5.25 IN .																																																		
DRIVE B : NONE																																																		
VIDEO : EGA/VGA																																																		
HAIT ON : ALL ERRORS																																																		
	<table border="1" style="width: 100%; border-collapse: collapse;"> <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>29</td> <td>30</td> <td>31</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>11</td> </tr> <tr> <td>12</td> <td>13</td> <td>14</td> <td>15</td> <td>16</td> <td>17</td> <td>18</td> </tr> <tr> <td>19</td> <td>20</td> <td>21</td> <td>22</td> <td>23</td> <td>24</td> <td>25</td> </tr> <tr> <td>26</td> <td>27</td> <td>28</td> <td>29</td> <td>30</td> <td>1</td> <td>2</td> </tr> <tr> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> </tr> </tbody> </table>	SUN	MON	TUE	WED	THU	FRI	SAT	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	1	2	3	4	5	6	7	8	9
SUN	MON	TUE	WED	THU	FRI	SAT																																												
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	1	2																																												
3	4	5	6	7	8	9																																												
ESC : Quit	← ↑ ↓ → : Select Item	PU/PD/+/- : Modify																																																
F1 : Help	(SHIFT)F2 : Change Color	F3 : Toggle Calender																																																

When you Press F3 Key The Screen Will Show You The Calender.

# AWARD BIOS SETUP

ROM ISA BIOS (214UEA21)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP BIOS FEATURES SETUP CHIPSET FEATURES SETUP LOAD BIOS DEFAULTS LOAD SETUP DEFAULTS	PASSWORD SETTING IDE HDD AUTO DETECTION HDD LOW LEVEL FORMAT <b>SAVE &amp; EXIT SETUP</b> EXIT WITHOUT SAVING
ESC: QUIT	: Select Item
F10: SAVE & EXIT SETUP	(Shift) F2: Change Color
Save Data To CMOS & Exit Setup	

ROM ISA BIOS (214UEA21)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP BIOS FEATURES SETUP CHIPSET FEATURES SETUP LOAD BIOS	PASSWORD SETTING IDE HDD AUTO DETECTION HDD LOW LEVEL FORMAT <b>SAVE TO CMOS AND EXIT (Y/N)?</b> UP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
ESC: QUIT	: Select Item
F10: SAVE & EXIT SETUP	(Shift) F2: Change Color
Save Data To CMOS & Exit Setup	

# AWARD BIOS SETUP

ROM ISA BIOS (214UEA21)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	<b>IDE HDD AUTO DETECTION</b>
CHIPSET FEATURES SETUP	HDD LOW LEVEL FORMAT
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
ESC: QUIT : Select Item	
F10: SAVE & EXIT SETUP (Shift) F2: Change Color	
Auto Configure HDD : Sector, Cylinder, Head.....	

ROM ISA BIOS (214UEA21)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

	CYLS.	HEADS	PRECOMP	LANDZONE	SECTORS
Drive C : (116MB)	762	8	65535	761	39
<b>DO YOU ACCEPT THIS DRIVE C(Y/N)?N</b>					

# AWARD BIOS SETUP

## Password Setting

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Type the password, up to eight characters, and press<Enter>. The password typed

### ENTER PASSWORD :

now will clear any previously entered password from CMOS memory. you will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable password, just press <Enter> when you are prompted to enter password. A message will confirm the password being disabled. Once the password is disabled, the system will boot and you can center Setup freely.

### PASSWORD DISABLED :

If you select System at Security Option of BIOS Features Setup Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup. If you select Setup at Security Option of BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

ROM ISA BIOS (214UEA21)

CMOS SETUP UTILITY

AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	<b>PASSWORD SETTING</b>
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	HDD LOW LEVEL FORMAT
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
ESC: QUIT	: Select Item
F10: SAVE & EXIT SETUP	( Shift ) F2: Change Color
Change/Set/Disable	Password

# AWARD BIOS SETUP

ROM ISA BIOS (214UEA21)  
 CMOS SETUP UTILITY  
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	HDD LOW LEVEL FORMAT
LOAD BIOS	ENTER PASSWORD : ***** UP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
ESC: QUIT	: Select Item
F10: SAVE & EXIT SETUP	(Shift) F2: Change Color
Change/ Set/ Disable	Password

ROM ISA BIOS (214UEA21)  
 CMOS SETUP UTILITY  
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	HDD LOW LEVEL FORMAT
LOAD BIOS	CONFIRM PASSWORD : ***** UP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
ESC: QUIT	: Select Item
F10: SAVE & EXIT SETUP	(Shift) F2: Change Color
Change/ Set/ Disable	Password

## *CHAPTER 3 AMI BIOS SETUP*

### *AMI BIOS System Configuration Setup*

This section will tell you how to set up the system configurations (CMOS) under the AMI BIOS . After booting the system and testing the memory.

The SETUP program is contained in the system's Read-Only-Memory Rather than on a diskette.

## AMI BIOS SETUP

AMBIOS SETUP PROGRAM-AMI BIOS SETUP UTILITIES  
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STANDARD CMOS SETUP

**ADVANCED CMOS SETUP**

ADVANCED CHIPSET SETUP

AUTO CONFIGURATION WITH BIOS DEFAULTS

AUTO CONFIGURATION WITH POWER-ON DEFAULTS

CHANGE PASSWORD

AUTO DETECT HARD DISK

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

### AMBIOS SETUP PROGRAM-WARNING INFORMATION

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Improper Use of Setup may Casuse 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

# AMI BIOS SETUP

AMIBIOS SETUP PROGRAM-ADVANCED CMOS SETUP			
(C)1992 American Megatrends Inc., All Right Reserved			
Typematic Rate Programming	: Disabled	Video ROM Shadow C000, 16K	: Enabled
Typematic Rate Delay (msec)	: 500	Video ROM Shadow C400, 16K	: Enabled
Typematic Rate (Cache/Sec)	: 15	Adapter ROM Shadow C800, 16K	: Disabled
Above 1 MB Memory Test	: Disabled	Adapter ROM Shadow CC00, 16K	: Disabled
Memory Test Tick Sound	: Enabled	Adapter ROM Shadow D000, 16K	: Disabled
Memory Parity Error Check	: Enabled	Adapter ROM Shadow D400, 16K	: Disabled
Hit <DEL> Message Display	: Enabled	Adapter ROM Shadow D800, 16K	: Disabled
Hard Disk Type 47 RAM Area	: 0: 300	Adapter ROM Shadow DC00, 16K	: Disabled
Wait For <F1> If Any Error	: Enabled	Adapter ROM Shadow E000, 16K	: Disabled
System Boot Up Num Lock	: on	Adapter ROM Shadow E400, 16K	: Disabled
Numeric Processor Test	: Enabled	Adapter ROM Shadow E800, 16K	: Disabled
Floppy Drive Seek At Boot	: Enabled	Adapter ROM Shadow EC00, 16K	: Disabled
System Boot Up Sequence	: C, A:	System ROM Shadow F000, 16K	: Enabled
System Boot Up CPU Speed	: High	BootSector Virus Protection	: Disabled
External Cache Memory	: Enabled		
Internal Cache Memory	: Enabled		
Turbo Switch Function	: Enabled		
Password Checking Option	: Setup		

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

AMIBIOS SETUP PROGRAM-AMI BIOS SETUP UTILITIES	
(C)1992 American Megatrends Inc., All Right Reserved	
STANDARD CMOS SETUP ADVANCED CMOS SETUP <b>ADVANCED CHIPSET SETUP</b> 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	
<div style="border: 1px solid black; padding: 2px; display: inline-block; margin: 5px auto;">                     Advance Chipset Setup for Configure and CHIPSET Registering                 </div>	
ESC:EXIT ←↓ → ↑ : Sel   F2/F3: Color   F10: Save & Exit	

## AMI BIOS SETUP

AMBIOS SETUP PROGRAM-WARNING INFORMATION  
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Improper Use of Setup may Casuse 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

### THE SETUP FOR OPERATION 486DX-33 MHZ / 486DX2-66 MHZ CPU SYSTEM M/B

AMBIOS SETUP PROGRAM-ADVANCE CHIPSET SETUP  
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AUTO Config Function	: Enabled
Hidden Refresh	: Enabled
Single ALE Enable	: YES
Keyboard Reset Control	: Enabled
AT BUS Clock Selection	: CLK/4
Fast Decord Enable	: Disabled
Memory Read Wait State	: 0W/S
Memory Write Wait Stste	: 0W/S
Cache Read Cycle	: 3-2-2-2
Cache Write Wait State	: 0W/S
Non-Cacheable Block-1 Size	: Disabled
Non-Cacheable Block-1 Base	: OKB
Non-Cacheable Block-2 Size	: Disabled
Non-Cacheable Block-2 Base	: OKB
Cacheable RAM Address Range	: 20MB
Video BIOS Area Cacheable	: YES

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

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### ● THE SETUP FOR OPERATION 486DX-40 MHZ / M6-40 MHZ CPU SYSTEM M/B

## AMIBIOS SETUP PROGRAM-ADVANCE CHIPSET SETUP (C)1992 American Megatrends Inc. , All Right Reserved

AUTO Config Function	: Enabled
Hidden Refresh	: Enabled
Single ALE Enable	: YES
Keyboard Reset Control	: Enabled
AT BUS Clock Selection	: CLK/5
Fast Decord Enable	: Disabled
Memory Read Wait State	: 1W/S
Memory Write Wait State	: 0W/S
Cache Read Cycle	: 3-2-2-2
Cache Write Wait State	: 0W/S
Non-Cacheable Block-1 Size	: Disabled
Non-Cacheable Block-1 Base	: 0KB
Non-Cacheable Block-2 Size	: Disabled
Non-Cacheable Block-2 Base	: 0KB
Cacheable RAM Address Range	: 20MB
Video BIOS Area Cacheable	: YES

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

# AMI BIOS SETUP

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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

## ● THE SETUP FOR OPERATION 486SX-25 MHZ 1486DX2-50 MHZ CPU SYSTEM M/B

AMIBIOS SETUP PROGRAM-ADVANCE CHIPSET SETUP  
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AUTO Config Function	: Enabled
Hidden Refresh	: Enabled
Single ALE Enable	: YES
Keyboard Reset Control	: Enabled
AT BUS Clock Selection	: CLK/3
Fast Decord Enable	: Disabled
Memory Read Wait State	: 0W/S
Memory Write Wait State	: 0W/S
Cache Read Cycle	: 2-1-1-1
Cache Write Wait State	: 0W/S
Non-Cacheable Block-1 Size	: Disabled
Non-Cacheable Block-1 Base	: 0KB
Non-Cacheable Block-2 Size	: Disabled
Non-Cacheable Block-2 Base	: 0KB
Cacheable RAM Address Range	: 20MB
Video BIOS Area Cacheable	: YES

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

## AMI BIOS SETUP

To enter SETUP, press the "DEL" key. The following menu appears:

AMBIOS SETUP PROGRAM-AMI BIOS SETUP UTILITIES (C) 1992 American Megatrends Inc., All Rights Reserved
<b>STANDARD CMOS SETUP</b>
ADVANCED CMOS SETUP ADVANCED CHIPSET SETUP AUTO CONFIGURATION WITH BIOS DEFAULTS AUTO CONFIGURATION WITH POWER-ON DEFAULTS CHANGE PASSWORD AUTO DETECT HARD DISK 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

Please enter "STANDARD CMOS SETUP" to enter the next screen.

The following pages show simple charts and instructions for the CMOS setup.

# AMI BIOS SETUP

## AMIBIOS SETUP PROGRAM-WARNING INFORMATION (C)1992 American Megatrends inc., All Rights Reserved

Improper Use of Setup may Casuse 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

## AMIBIOS SETUP PROGRAM-STANDARD CMOS SETUP

(C)1992 American Megatrends Inc., All Rights Reserved

Date (mm/date/year): **Wed, Jul 01 1992**

Base memory size: 640 KB

Time (hour/min/sec) : 19:35:25

Ext. memory size: 3072 KB

Hard disk C: type : 37                      Cyln    Head    WPcom    LZone    Sect    Size  
   615      8        128      615     17     41MB

Hard disk D: type : Not Installed

Floppy drive A:    : 1.2 MB, 5 1/4"

Floppy drive B:    : Not Installed

Primary display    : Monochrome

Keyboard            : Installed

Sun	Mon	Tue	Wed	Thu	Fri	Sat
28	29	30	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

Month: Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
Date: 01/02/03/04/05/06/07/08/09/10/11/12  
Year: 1991 1992 1993 1994 1995 1996 1997 1998 1999

ESC: Exit   ← ↓ → ↑ : Select    F2/F3: Color    PU/PD: Modify

# AMI BIOS SETUP

Select this option and press "ENTER" key after CMOS setup is done to activate the changes. User is prompted "Write to CMOS and EXIT (Y/N)?" "N". Press "Y" to save the changes and System reboot. Press "N" to go back to the setup program.

AMBIOS SETUP PROGRAM-AMI BIOS SETUP UTILITIES (C)1992 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 AUTO DETECT HARD DISK HARD DISK UTILITY <b>WRITE TO CMOS AND EXIT</b> DO NOT WRITE TO CMOS AND EXIT
<b>Write the settings to the CMOS and Exit</b>
ESC : EXIT ↓→↑ : Sel F2/F3 : Color F10 : Save & Exit

AMBIOS SETUP PROGRAM-AMI BIOS SETUP UTILITIES (C)1992 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
<b>Write to CMOS and Exit(Y/N)?Y</b>
<b>Write the settings to the CMOS and Exit</b>
ESC : EXIT ↓→↑ : Sel F2/F3 : Color F10 : Save & Exit

# AMI BIOS SETUP

**NOTICE** : PLEASE REMEMBER YOUR PASSWORD OF SETTED CHARACTERS!  
IF KEY IN ERROR PASSWORD THE SYSTEM CAN'T BOOT ON ANY  
MORE !!

AMIBIOS SETUP PROGRAM-AMI BIOS SETUP UTILITIES  
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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 Store in the CMOS**

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

- (1) PLEASE KEY IN DEFAULT PASSWORD DEFAULT IS "AMI" (FIRST TIME)
- (2) IF YOU HAVE SET OWN PASSWORD ALREADY, KEY IN YOUR PASSWORD  
\*\*\*\*\*

AMIBIOS SETUP PROGRAM - CHANGE PASSWORD  
(C)1992 American Megatrends Inc., All Rights Reserved

Enter CURRENT Password: **AMI**

USE Maximum 6 ASCII Characters, ESC : Exit

## AMI BIOS SETUP

- IF YOU WANT TO CHANGE NEW PASSWORD GO TO NEXT SETUP !

AMIBIOS SETUP PROGRAM - CHANGE PASSWORD (C)1992 American Megatrends Inc., All Rights Reserved
<input type="text" value="Enter NEW Password :"/>
USE Maximum 6 ASCII Characters, ESC : Exit

AMIBIOS SETUP PROGRAM - CHANGE PASSWORD (C)1992 American Megatrends Inc., All Rights Reserved
<input type="text" value="Re-Enter NEW Password :"/>
USE Maximum 6 ASCII Characters, ESC : Exit

- NEXT SCREEN OF MEANING IS YOU HAVE FINISHED PASSWORD SETTINGS! PRESS "ENTER" TO FINAL !

AMIBIOS SETUP PROGRAM - CHANGE PASSWORD (C)1992 American Megatrends Inc., All Rights Reserved
<input type="text" value="NEW Password Installed :"/>
USE Maximum 6 ASCII Characters, ESC : Exit

# AMI BIOS SETUP

AMBIOS SETUP PROGRAM-AMI BIOS SETUP UTILITIES  
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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

AMBIOS SETUP PROGRAM - HARD DISK UTILITY  
(C)1992 American Megatrends INC., All Rights Reserved

	Cyln	Head	WPcom	LZone	Sect	Size(MB)
Hard Disk C: Type :	33	1024	5	1024	17	43
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 F10 : Save & Exit

# AMI BIOS SETUP

AMBIOS SETUP PROGRAM - HARD DISK UTILITY  
(C)1992 American Megatrends Inc, All Rights Reserved

	Cyln	Head	WPcom	LZone	Sect	Size(MB)
Hard Disk C: Type :	33	1024	5	1024	1024	17 43

Hard Disk D: Type : Not Installed

## Hard Disk Format

Disk Drive (C/D)	? C
Disk Drive Type	? 33
Interleave (1-16)	? 1
Mark Bad Tracks (Y/N)	? N
Proceed (Y/N)	? Y

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

# SHADOW RAM

## SHADOW RAM

For efficient execution of BIOS, it is prefer able to execute BIOS code through RAM rather than through slower EPROMs. The OPTI-495SLC provides the shadow RAM feature which if enabled allows the BIOS code to be executed from address liks BIOS EPROM. The software should transfed code stored in the BIOS EPROMs to the system RAM before enabling the shadow RAM feature. This feature significantly improves the performance of BIOS-call intensive applications. Performance improvements as high as 300 to 400% have beed observed in bench-mark tests on the shadow RAM. The shadow RAM feature is invoked by enabling the corresponding bits in the ROM enable register and the RAM mapping register.

When the Shadow RAM feature is being utilized, then the RAM is mapped as shown in figure 1. overlapping or shadowing the EPROM ares. In both cases, for accesses beyond the 1 Mbyte address range, the processor is switched from real to protected mode from BIOS.

■ FIGURE 1 RAM MAPPING WITH SHADOW RAM (MORE THAN 1MB OF RAM)

