

**PH4500AM
Motherboard Reference**



100% Recycled Paper

Mitac International Corp.
International Support Dept.

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CAUTION TEXTS CONCERNING LITHIUM BATTERIES

DANISH

ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

NORWEGIAN

ADVARSEL:

Lithiumbatteri - Eksplosionsfare. Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparatleverandøren.

SWEDISH

VARNING:

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

FINNISH

VAROITUS:

Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

ENGLISH

CAUTION:

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

DEUTSCH

VORSICHT:

Explosionsgefahr bei unsachgemäßem Austausch der Batterie. Ersatz nur durch denselben oder einen vom Hersteller empfohlenen gleich-wertigen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

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PREFACE

This manual contains basic information necessary for both the end user and service personnel. Although most of the information you need are contained in this manual, we recommend you to contact an authorized dealer for service purposes. Making personal alterations to the system can violate the effectivity of your warranty.

The manual is divided into five chapters.

- Chapter 1** lists the motherboard specifications and features.
- Chapter 2** describes the functions of the major system components.
- Chapter 3** provides the jumper and connector definitions.
- Chapter 4** contains the memory configuration information.
- Chapter 5** explains how you can configure your system by running the SETUP program.
- Appendix A** describes the installation of the PCI-IDE drivers.

Chapter 1

INTRODUCTION

■ Specifications

- 237-pin ZIF-socket for Intel 486SX, 486DX/DX2, SL-SX/SX2/DX/DX2/DX4, P24D, P24T, Cyrix M7, AMD and UMC CPU
- UM8881 / UM8886 / VT83C561 / 37C665GT chipset
- RTC DS12887 (128 bytes RAM with battery on-chip)
- Four 72-pin SIMM sockets configurable up to 256MB
- 128KB, 256KB, 512KB, or 1MB cache memory
- 128KB Award ROM BIOS
- Expansion slots:
 - four ISA slots
 - two VESA slots
 - three PCI slots

NOTE:

To switch between full and low (8MHz) CPU speed, press [Ctrl]-[Alt]-[+] or [Ctrl]-[Alt]-[-].

Introduction

- I/O support
 - one parallel port with ECP/EPP
 - two serial ports with 16550 - for high speed modem
 - PCI-IDE controller for four IDE devices
 - floppy disk controller

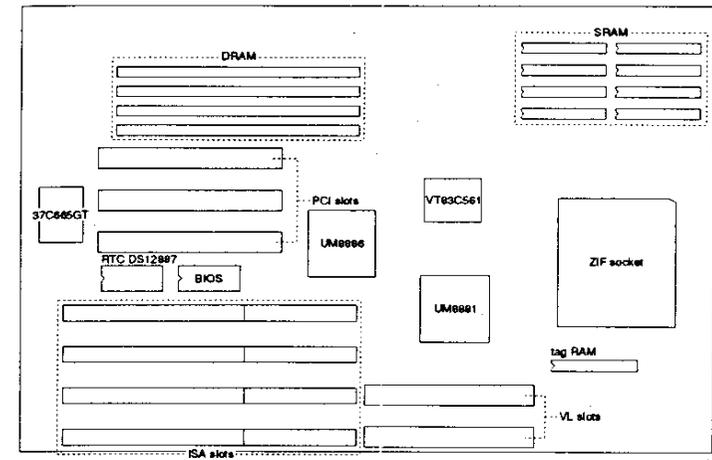
■ Features

- VL-bus and host/bridge PCI-bus architecture
- Fully compatible with IBM PC/AT
- Write-back / write-through cache technology
- Advanced power-saving modes:
 - ON mode
 - Standby mode
 - Suspend mode

Chapter 2

SYSTEM COMPONENTS

This section describes the major components of the motherboard.



Motherboard revision number: R01

■ CPU

The CPU, located at U26 (ZIF socket), is a 32-bit microprocessor chip that forms the basis of the high-performance system with 8KB internal cache memory on-chip.

NOTE:

*When you use an SL-DX4 CPU, you have to set JP30, JP31, and JP32 to 2-3 to use voltage 3.3VDC.
The maximum ambient temperature of the P24T-system is 40°C.*

CPU Installation

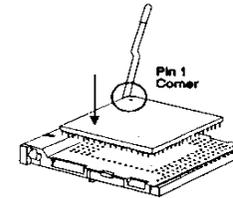
NOTE:

Static electricity can destroy electronic devices. Whenever you handle any option outside of its protective packaging, first discharge any static electricity from your body by touching a protective grounding device or unpainted metal on the rear panel of the system unit.

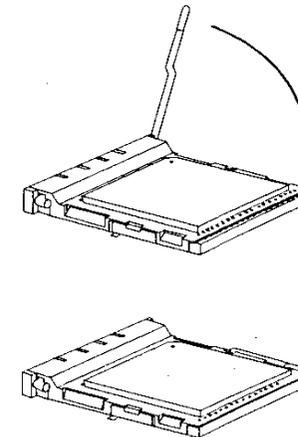
To install CPU in a ZIF socket:

1. Find the ZIF socket (U26) on the motherboard.
2. Lift the ZIF socket arm up to the vertical position.

3. Align the CPU so its Pin 1 corner (beveled corner) is at the Pin 1 corner of the ZIF socket. Then insert the CPU's pins into the corresponding holes in the socket.



4. Press the arm downwards to the horizontal position. You will feel some resistance while doing so. This is normal as the pressure starts to secure the CPU in place.



5. Set the jumpers according to the CPU type and CPU speed. (See p.3-3 and p.3-4.)

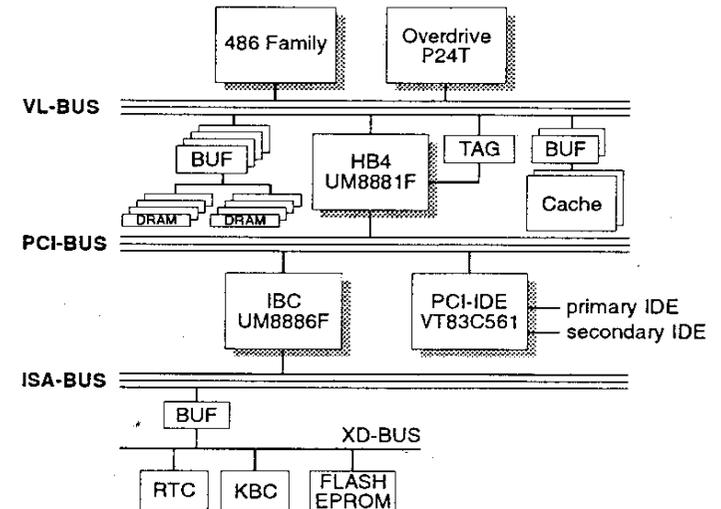
■ Chipset

The chipset is comprised of UM8881 HB4, UM8886 IBC, VT83C561, and 37C665GT.

UM8881 HB4 (Host Bridge for 486)

- Supports 25/33/50/75/100MHz 486SX, 486DX/DX2, SL-SX/SX2/DX/DX2/DX4, P24D, P24T, Cyrix M7, AMD, and UMC CPU
- Supports write-back internal cache (L1)
- Integrated with direct mapped L2 cache controller:
 - write-back / write-through operation
 - flexible burst rate: 2-1-1-1, 3-1-1-1, 2-2-2-2 and 3-2-2-2
 - 0/1 wait cache write
 - single or interleaved cache data RAM
 - 7/8-bit tag comparator
 - alter bit combined with tag RAM
- Sophisticated page mode DRAM controller
 - four SIMMs configurable up to 256MB
 - zero wait state CPU page-hit write at 33MHz
 - x-2-2-2 PCI-to-DRAM burst access
- PCI/Host bridge compliant to PCI spec. v2.0
 - translates CPU cycles to PCI bus cycles
 - concurrent CPU and PCI bus operations
 - CPU-to-PCI post write buffer

- Supports VL-bus slaves and masters
- Supports system management mode operation (Intel/Cyrix/AMD)
- Staggered CAS-before-RAS hidden DRAM refresh
- Two non-cacheable blocks support memory-hole function



UM8886 IBC (ISA Bridge Controller)

- Provides enhanced DMA functions
 - two ISA DMA (82C37) compatible functions
 - 32-bit address capability
 - 8- and 16-bit data transfer
 - compatible, type A, type B and type F timing
 - seven independently programmable channels
 - scatter and gather function
- Provides Green PC power management (UPM: UMC Power Management)
 - Supports three power management modes: On, Standby, Suspend, as shown below:

	CPU speed	HDD	Monitor
ON	normal	normal	on
Standby	1/3 or Full Speed (defined in SETUP program)	standby	on or off (defined in SETUP program)
Suspend	1/3 or STOP CLK (defined in SETUP program)	sleep	off

- Supports SMM function for Intel SL enhanced, AMD, and Cyrix CPUs
- Supports STOP CLK and Suspend functions for Intel or Cyrix CPUs
- Fully supports Microsoft APM

VT83C561 (PCI-IDE Controller)

The features of VT83C561 are:

- Dual IDE channels to control four peripheral devices
- Non-disk device support, e.g. IDE CD-ROM
- Support beyond mode-3 and mode-4 transfer rate
- PCI burst mode transfer by utilizing memory mapped I/O access
- PCI 2.0 compliant

Refer to Appendix A for proper PCI-IDE device driver installation.

37C665GT (Super I/O Controller)

- 2.88MB Super I/O floppy disk controller
- Enhanced Parallel Port (EPP) compatible - EPP 1.7 and EPP 1.9 (IEEE 1284 compliant)
- Microsoft and Hewlett Packard Extended Capabilities Port (ECP) IEEE 1284 compliant
- Two high speed NS16C550 compatible UARTs with Send/Receive 16 byte FIFOs

■ ROM BIOS

The BIOS holds the fundamental functions and acts as a communication channel between the motherboard and the rest of the system. You can configure the motherboard through the SETUP program. Details regarding the ROM BIOS are thoroughly discussed in Chapter 5.

■ System DRAM

There are four SIMM sockets. Each can support 256KB, 512KB, 1MB, 2MB, 4MB, 8MB, 16MB, and 32MB SIMM module. Refer to Chapter 4 for DRAM configuration and installation.

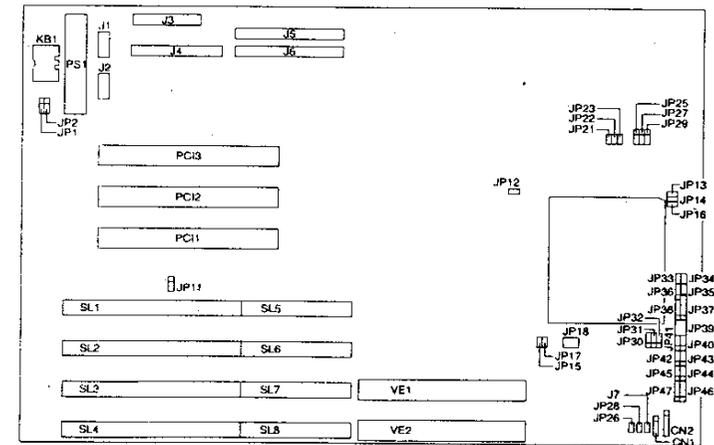
■ Cache SRAM

The effectiveness of the cache is determined predominantly by the size and organization of the cache. The motherboard design allows you to configure the external cache for 128KB, 256KB, 512KB, or 1MB. It uses the write-back / write-through cache algorithm to minimize access time to the main memory, which improves overall system performance. Refer to Chapter 4 for proper SRAM configuration and installation.

Chapter 3

CONNECTORS AND JUMPERS

This chapter defines the connectors and jumpers on the motherboard. The figure below shows the connector and jumper positions.



■ Connector Definition

Connector	Function
KB1	AT keyboard
PS1	power supply
SL1~SL8	ISA slots
VE1, VE2	VL-bus slots
PCI1~PCI3	PCI-bus slots
CN1	speaker
CN2	power LED / keylock
LE1	turbo LED
J1, J2	SIO1, SIO2
J3	PIO
J4	FDD controller
J5	secondary IDE
J6	primary IDE
J7	HDD LED
JP12	external Suspend SW (enter the power-saving Suspend mode)
JP26	reset
JP28	turbo SW

■ Jumper Definition

Jumpers are used to select options for certain features. To set a jumper to "close" means covering the jumper pins with the jumper caps, and "open" means not to cover the pins. Jumpers with more than two pins have numbers on the motherboard identifying the pins.

CPU Type

	486-SX	486-DX DX2	SL-SX	*SL-SX2 DX DX2 DX4	P24D	P24T	** Cyrix M7	AMD 486-DXLT	UMC 486-SX
JP18	1-3, 2-4	1-3, 2-4	1-3, 2-4	1-3, 2-4	1-3, 2-4	1-3, 2-4	1-3, 4-6	2-4, 3-5	2-4, 3-5
JP33	open	open	open	open	1-2	open	open	open	open
JP34	open	open	open	open	1-2	open	open	open	open
JP35	open	open	open	open	1-2	open	open	open	open
JP36	open	open	open	open	2-3	open	open	open	open
JP37	open	open	2-3, 4-5	2-3, 4-5	2-3, 4-5	2-3, 4-5	1-2, 3-4	open	open
JP38	open	3-4	open	3-4	3-4	2-3	3-4	1-2, 3-4	1-2
JP39	1-2	1-2	3-4	3-4	1-2	1-2	3-4	1-2	1-2
JP40	open	open	open	open	open	1-2	2-3	open	open
JP41	open	open	1-2	1-2	1-2	1-2	2-3	open	open
JP43	open	open	1-2	1-2	1-2	1-2	1-2	2-3	2-3
JP44	open	open	open	open	open	2-3	1-2	open	open
JP46	2-3	1-2, 3-4	2-3	1-2, 3-4	1-2, 3-4	1-2, 3-4	1-2, 3-4	1-2, 3-4	2-3
JP47	open	open	open	open	open	1-2	2-3	3-4	3-4

*If you install an SL-DX4 CPU, set JP42 to:
 1-2: 2.5 CPU clock mode
 2-3: 2 CPU clock mode
 open: 3 CPU clock mode

**If you install a Cyrix M7 CPU, set JP45 to:
 1-2: 1 CPU clock mode
 2-3: 2 CPU clock mode

CPU Speed

	25MHz	33MHz	40MHz	50MHz
JP15 (VESA 0/1 wait state)	open	open	close	close
JP17 (VESA CLK select)	open	open	close	close
JP21	close	close	close	open
JP22	open	close	close	open
JP23	open	close	open	close

Cache Size

	128KB	256KB (32 x 8)	256KB (64 x 8)	512KB (64 x 8)	512KB (128 x 4)	1MB (128 x 8)
JP13	open	close	close	close	close	close
JP14	open	open	open	close	close	close
JP16	open	open	open	open	open	close
JP25	open	open	open	open	1-2	2-3
JP27	2-3	1-2	2-3	1-2	2-3	1-2
JP29	open	open	1-2	2-3	1-2	2-3

Others

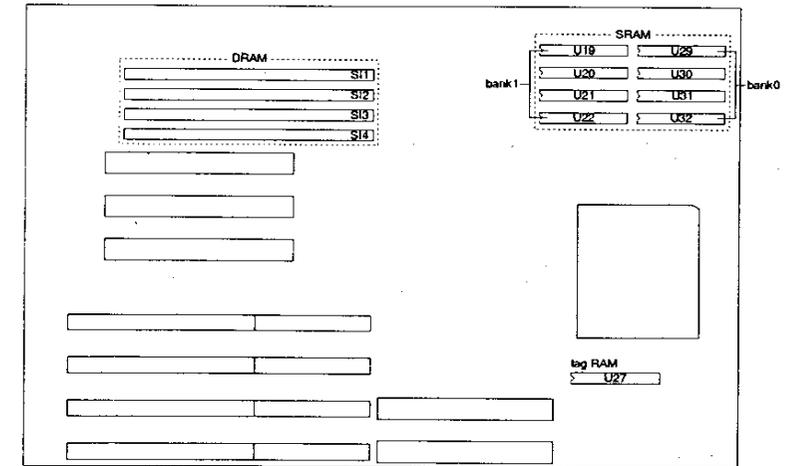
Jumper	Pin Definition
	ECP mode DMA channel select
	channel 1 channel 3
JP1	1-2 *2-3
JP2	1-2 *2-3
JP11	1-2: +12 for VPP (flash EPROM) *2-3: +5 for VPP

* default setting

Chapter 4

MEMORY CONFIGURATION

This chapter tells you how to configure the system DRAM and cache SRAM. The figure below shows the DRAM and SRAM locations:



■ System DRAM

DRAM Configuration

SIMM 1	SIMM 2	SIMM 3	SIMM 4	Total
256KB x 36	--	--	--	1MB
256KB x 36	256KB x 36	--	--	2MB
256KB x 36	--	256KB x 36	--	2MB
256KB x 36	256KB x 36	256KB x 36	--	3MB
256KB x 36	256KB x 36	256KB x 36	256KB x 36	4MB
512KB x 36*	--	--	--	2MB
512KB x 36*	512KB x 36*	--	--	4MB
512KB x 36*	--	512KB x 36*	--	4MB
512KB x 36*	512KB x 36*	512KB x 36*	--	6MB
512KB x 36*	512KB x 36*	512KB x 36*	512KB x 36*	8MB
1MB x 36	--	--	--	4MB
1MB x 36	1MB x 36	--	--	8MB
1MB x 36	--	1MB x 36	--	8MB
1MB x 36	1MB x 36	1MB x 36	--	12MB
1MB x 36	1MB x 36	1MB x 36	1MB x 36	16MB
2MB x 36*	--	--	--	8MB
2MB x 36*	2MB x 36*	--	--	16MB
2MB x 36*	--	2MB x 36*	--	16MB
2MB x 36*	2MB x 36*	2MB x 36*	--	24MB
2MB x 36*	2MB x 36*	2MB x 36*	2MB x 36*	32MB
4MB x 36	--	--	--	16MB
4MB x 36	4MB x 36	--	--	32MB
4MB x 36	--	4MB x 36	--	32MB
4MB x 36	4MB x 36	4MB x 36	--	48MB
4MB x 36	4MB x 36	4MB x 36	4MB x 36	64MB

* means dual-bank DRAM

(To be continued)

SIMM 1	SIMM 2	SIMM 3	SIMM 4	Total
8MB x 36*	--	--	--	32MB
8MB x 36*	8MB x 36*	--	--	64MB
8MB x 36*	--	8MB x 36*	--	64MB
8MB x 36*	8MB x 36*	8MB x 36*	--	96MB
8MB x 36*	8MB x 36*	8MB x 36*	8MB x 36*	128MB
16MB x 36	--	--	--	64MB
16MB x 36	16MB x 36	--	--	128MB
16MB x 36	--	16MB x 36	--	128MB
16MB x 36	16MB x 36	16MB x 36	--	192MB
16MB x 36	16MB x 36	16MB x 36	16MB x 36	256MB
32MB x 36*	--	--	--	128MB
32MB x 36*	32MB x 36*	--	--	256MB
32MB x 36*	--	32MB x 36*	--	256MB

* means dual-bank DRAM

(Continued)

NOTE:

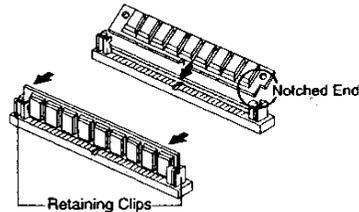
Use DRAM chips of the same speed ($\leq 70\text{ns}$) throughout the system to avoid memory problems. You can also use non-parity DRAM.

DRAM Installation

NOTE:

Static electricity can destroy electronic devices. Whenever you handle any option outside of its protective packaging, first discharge any static electricity from your body by touching a protective grounding device or unpainted metal on the rear panel of the system unit.

1. Locate the DRAM sockets on the motherboard. (See the figure on P.4-1.)
2. Align the SIMM's notched end with the sockets corresponding end and firmly insert the SIMM into the socket at an angle. Maintaining this angle, insert the SIMM all the way into the slot. Then, push the SIMM towards the plastic clips to snap it into place.



Cache SRAM

The motherboard provides options for configuring the external cache RAM to either 128KB, 256KB, 512KB, or 1MB.

Cache Configuration

Cache Size	Tag	SRAM	
	U27	bank 0 (U19~22)	bank 1 (U29~32)
128KB	32KB x 8	32KB x 8	
256KB	32KB x 8	32KB x 8	32KB x 8
256KB	64KB x 8	64KB x 8	
512KB	64KB x 8	64KB x 8	64KB x 8
512KB	128KB x 8	128KB x 8	
1MB	128KB x 8	128KB x 8	128KB x 8

NOTE:

Use chips of the same speed (15ns) throughout the system to avoid memory problems.

Cache Installation

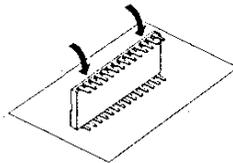
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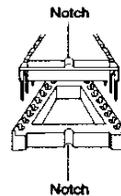
1. Locate the SRAM sockets. (See the figure on P.4-1.)

- The two rows of pins are probably splayed too far apart and must be angled closer together before installation.

Rest the side of the chip on a hard and even surface. Carefully and steadily push down the chip until the pins are at a right angle with the chip body. Repeat for the other side.

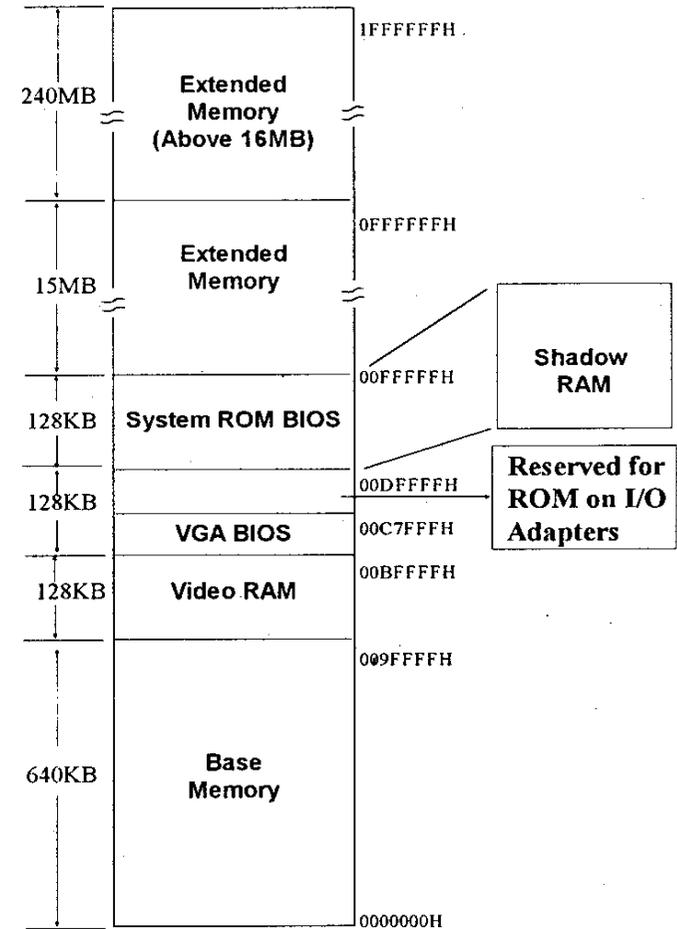


- Align the notch end of the chip with the notch end of the socket. Then insert the chip's pins into the corresponding holes in the socket.



- See the jumpers (JP13, 14, 16, 25, 27, and 29) according to the cache size. (See P.3-4.)

Memory Mapping



■ Memory Address

Hex Address	Device
00000000 - 0009FFFF	basic memory
000A0000 - 000BFFFF	video memory
000C0000 - 000C7FFF	VGA BIOS
000C8000 - 000DFFFF	reserved for ROM on I/O adapters
000E0000 - 000FFFFF	system ROM BIOS or shadow RAM
00100000 - 01FFFFFF	extended memory

■ I/O Mapping

Hex Address	Device
0000 - 001F	DMA controller 1
0020 - 003F	interrupt controller 1 and chipset programmable register
0040 - 005F	timer
0060 - 006F	keyboard controller
0070 - 007F	real time clock, NMI mask
0080 - 009F	DMA page register
00A0 - 00BF	interrupt controller 2
00C0 - 00DF	DMA controller 2
00F0	clear numeric coprocessor busy
00F1	reset numeric coprocessor
00F8 - 00FF	numeric coprocessor
0100 - 3FF	adapter I/O

Chapter 5

AWARD BIOS SETUP

The SETUP program contains a record of the computer's system parameters (such as, amount of memory, disk drives, video displays, numeric coprocessors, etc.) in the CMOS. When the computer is turned off, a back-up battery retains the system parameters in the CMOS memory.

To enter SETUP, power on the computer and press **DEL** immediately.

The following is the SETUP main menu:

STANDARD CMOS SETUP	PASSWORD SETTING
BIOS FEATURES SETUP	IDE HDD AUTO DETECTION
CHIPSET FEATURES SETUP	SAVE & EXIT SETUP
POWER MANAGEMENT SETUP	EXIT WITHOUT SAVING
PCI/GREEN FUNCTION SETUP	
LOAD BIOS DEFAULTS	
LOAD SETUP DEFAULTS	

SETUP Options

The following is the best way to set up the system. From the main menu:

1. Select the STANDARD CMOS SETUP option and choose the device types.
2. Select the LOAD SETUP DEFAULTS option, and follow the on-screen instructions.

Below are the generic keys for the BIOS SETUP program:

Key	Function
Esc	1. Quit without saving. 2. Exit to main menu.
←→↑↓	Moves the cursor to a desired item.
+ / - PgUp PgDn	Modifies the value of the highlighted item.
F1	Displays the help screen of a selected item.
F2 Shift-F2	Changes the colors.
F5	Loads all items in the BIOS FEATURES SETUP / CHIPSET FEATURES SETUP with the old values before the current SETUP was started.
F6	Loads all items in the BIOS FEATURES SETUP / CHIPSET FEATURES SETUP with the BIOS defaults.
F7	Loads all items in the BIOS FEATURES SETUP / CHIPSET FEATURES SETUP with the SETUP defaults.

■ STANDARD CMOS SETUP

STANDARD CMOS SETUP is the first option on the main SETUP menu. Move the highlight bar to this option and press ENTER to select it. The items for this option are:

Date (mm:dd:yy)	: Wed, Nov 23 1994
Time (hh:mm:ss)	: 10 : 36 : 12
Drive C	: None (0Mb)
Drive D	: None (0Mb)
Drive A	: 1.2 MB, 5.25 in.
Drive B	: None
Video	: EGA / VGA
Halt On	: All Errors

Items of STANDARD CMOS SETUP

Date / Time

The first item in the Standard CMOS SETUP screen is the current date setting. A calendar has been provided to facilitate its setting. Press PgUp or PgDn to select the appropriate value for the month, date, and year.

The procedure for setting the time is similar to that of setting the date. Note that the time has a 24-hour format.

Drive C/D

This item sets the hard disk type.

There are 45 pre-defined types of AT hard disk drives. For a non-standard AT drive with unknown type, choose *User* (user definable). *None* applies to diskless workstations and SCSI hard disks.

Drive A/ B

This item sets the floppy disk drive type. It can support the following drive types: 5-1/4" (360KB and 1.2MB) or 3-1/2" (720KB, 1.44MB, and 2.88MB).

Video

This item sets the type of video adapter installed. The available options are:

MONO
EGA / VGA (default)
CGA 40
CGA 80

Halt On

This item determines whether the computer will stop if an error is detected during power up.

The available options are:

All Errors (default)
No Errors
All, But Keyboard
All, But Diskette
All, But Disk/key

■ BIOS FEATURES SETUP

The BIOS FEATURES SETUP program is equipped with a series of help screens. Press **F1** for help screens.

Virus Warning	: Disabled
CPU Internal Cache	: Enabled
External Cache	: Enabled
Quick Power On Self Test	: Enabled
Boot Sequence	: A, C
Swap Floppy Drive	: Disabled
Boot Up Floppy Seek	: Enabled
Boot Up NumLock Status	: On
Boot Up System Speed	: High
IDE HDD Block Mode	: Disabled
Gate A20 Option	: Fast
Typematic Rate Setting	: Disabled
Typematic Rate (Chars/Sec)	: 6
Typematic Delay (msec)	: 250
Security Option	: Setup
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

Items of BIOS FEATURES SETUP

Virus Warning

If this item is set to *Enabled*, during and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and the following error message will appear, in the mean time, you can run an anti-virus program to locate the problem.

!WARNING!
Disk boot sector is to be modified
Type *Y* to accept write or *N* to abort write

The default setting is *Disabled*.

CPU Internal Cache

This item allows you to use the internal cache on the CPU. The available options are *Enabled* (default) and *Disabled*.

External Cache

This item allows you to use the external cache. The available options are *Enabled* (default) and *Disabled*.

Quick Power On Self Test

This item speeds up Power On Self Test (POST) after you power on the computer. The default for this item is *Enabled* which allows BIOS to shorten or skip some check items during POST.

Boot Sequence

The default for this item is A,C. The system first boots from floppy drive A and then from drive C. To interchange the sequence, set this item to C, A.

Swap Floppy Drive

This feature allows you to exchange the drive names of the two floppy disk drives. It works if your system has two floppy disk drives defined in this SETUP program. Make sure that Drive A/B item of STANDARD CMOS SETUP option has been updated.

The available options are:

Enabled
Disabled (default)

Boot Up Floppy Seek

The default for this item is *Enabled*. If it is set to *Disabled*, BIOS will not search for floppy disk drive to determine if it is 40 or 80 tracks.

Boot Up NumLock Status

At default, the Num Lock is *On* at system boot. Setting it to *OFF* turns the NumLock off.

Boot Up System Speed

This item selects the default system speed - the speed that system will run at immediately after power up. The available options are:

High (default)
Low

IDE HDD Block Mode

This item enables or disables the IDE HDD Block Mode. The default setting is *Disabled*.

Gate A20 Option

This item uses the fast gate A20 line to access any memory above 1MB. Setting this item to make the access faster than the normal method. The default setting is *Fast*.

Typematic Rate Setting

This item adjusts the *Typematic Delay* and *Typematic Rate* whenever a keystroke is repeated.

Typematic Rate (Chars/Sec)

This item controls the rate at which a character is repeated (in chars/sec) whenever a key is held down. The available options are:

- 6(default)
- 8
- 10
- 12
- 15
- 20
- 24
- 30

Typematic Delay (msec)

This item controls the delay time (in msec) when a key is pressed and held down. The available options are:

- 250 (default)
- 500
- 750
- 1000

Security Option

This feature allows the password to prevent unauthorized system boot-up or unauthorized use of BIOS SETUP. Options for this item are *SETUP* and *System*. At default (*SETUP*), the password prompt appears only when you want to enter the SETUP program.

If set to *System*, each time you want to boot the system or to run SETUP, the prompt for user password appears.

NOTE:

To disable security, select *PASSWORD SETTING* option from the main menu, and press **ENTER** when you are asked to enter a password.

Video or Adapter ROM Shadow

When enabled, this feature allows the BIOS code to be copied from slower ROM to faster RAM. Each option allows for a segment of 16KB to be shadowed from ROM to RAM. If one of these options is enabled, and there is BIOS present in that particular 16KB segment, the BIOS will be shadowed.

■ CHIPSET FEATURES SETUP

This section of the BIOS SETUP is used to change the values for the chipset registers. These registers control most of the system options on the motherboard.

Auto Configuration	: Enabled
DRAM Read Wait states	: 2 WS
DRAM Write Wait states	: 2 WS
L1 Cache Update Scheme	: Wr-Back
L2 Cache Update Scheme	: Wr-Back
L2 Cache Wait States	: 3-2-2-2
System BIOS cacheable	: Disabled
Video BIOS Cacheable	: Disabled
Keyboard Controller Clock	: 7.16Mhz
ISA Bus Clock Option	: PCICLK/4
Keyboard Emulation	: Disabled
Memory Hole Below 16Mb	: NONE
Slow Refresh (1/4 Freq)	: Disabled
I/O Recovery Time	: 2 BCLK
HOST-to-PCI Post Write	: 1 WS
HOST-to-PCI Burst Write	: Disabled
PCI Bus Park Option	: Enabled
PCI Posted Memory Write	: Disabled
Burst Copy-Back Option	: Disabled
HOST Clock / PCI Clock	: 1 : 1
Preempt PCI Mater Option	: Disabled
IBC DEVEL# Decoding	: Slow
Alt Bit in Tag SRAM	: 7+1 Bits
Onboard FDC Controller	: Enabled
Onboard PCI/IDE Chip	: Enabled
Onboard Serial Port 1	: COM1
Onboard Serial Port 2	: COM2
COM3 & COM4 Address	: 338H, 238H
Onboard Parallel Port	: 278H
Parallel Port Mode	: Normal

Items of CHIPSET FEATURES SETUP

NOTE:

You are suggested not to change the settings of the CHIPSET FEATURE SETUP items.

■ POWER MANAGEMENT SETUP

Power Management allows you to conserve power for your system.

Power Management	: Disabled	
PM Control By APM	: Enabled	
Video Off Method	: Blank Screen	
HDD Standby Timer	: Disabled	
Standby Timer Select	: 512 Min	
Suspend Timer Select	: 512 Min	
Mode Control	CPU Speed	Display
Standby Mode	: 1/3 Speed	Turn Off
Suspend Mode	: STOP CLK	
* Monitor Event In Full On Mode		
PCI Master3 Check	: Enabled	
PCI Master2 Check	: Enabled	
PCI Master1 Check	: Enabled	
VESA Slave Access Check	: Enabled	
LPT Access Check	: Enabled	
COM Access Check	: Enabled	
ISA Master & DMA Check	: Enabled	
IDE Access Check	: Enabled	
Floppy Access Check	: Enabled	
VGA Access Check	: Enabled	

Items of POWER MANAGEMENT SETUP

Power Management

This item is the master control for the Power Management features. The available options are:

Disabled (default)
Min Saving
Max Saving
Optimize
User Defined

Below are the descriptions of the four options:

Option	Description
Disabled	The Power Management feature does not take effect.
Min Saving	All the settings are pre-defined for the Power Management to assumedly save minimum power. The pre-defined settings are: Video Off Method: Blank Screen HDD Standby Timer: 15 Min Standby Timer Select: 512 Min Suspend Timer Select: 512 Min Standby Mode: 1/3 Speed Suspend Mode: STOP CLK
Max Saving	All the settings are pre-defined for the Power Management to assumedly save maximum power. The pre-defined settings are: Video Off Method: Blank Screen HDD Standby Timer: 1 Min Standby Timer Select: 0.5 Min Suspend Timer Select: 2 Min Standby Mode: 1/3 Speed Suspend Mode: STOP CLK
Optimize	All the settings are pre-defined for the Power Management to assumedly save power with high system performance.
User Defined	All the settings can be defined for the Power Management to work in the way as specified by the user.

PM Control By APM

The default for this item is *Enabled* which activates the APM (Advanced Power Management) driver.

Video Off Method

This item lets you define the monitor status in Suspend mode. The available options are:

Blank Screen (default)
V/H SYNC + Blank

HDD Standby Timer

Setting the HDD Standby Timer causes the hard disk to cease spinning if it is not in use during the set time-out period. The available options are:

Disabled (default)
1 Min 2 Min 3 Min 4 Min
5 Min 6 Min 7 Min 8 Min
9 Min 10 Min 11 Min 12 Min
13 Min 14 Min 15 Min

Standby Timer Select

Setting the Standby Timer Select allows your system to enter Standby mode when no major device activities have occurred during the set time-out period. (Major devices refer to the keyboard, mouse, FDD, hard disk and SIO/PIO.) The available options are:

0.25 Min 0.5 Min 1 Min
2 Min 4 Min 8 Min
16 Min 32 Min 64 Min
128 Min 256 Min 512 Min (default)

While in Standby mode,

- The CPU speeds can be Full Speed or 1/3 Speed (The speed is determined by the Standby Mode item under Mode Control.)
- The screen can be *Turn On* or *Turn Off* (default) .

The system will wake up from Standby mode if it detects any major device activities.

Suspend Timer Select

Setting the Suspend Timer Select allows your system to enter Suspend mode when no major device activities have occurred during the set time-out period. (Major devices refer to the keyboard, mouse, FDD, hard disk and PIO/SIO.) The available options are:

2 Min	4 Min	8Min
16 Min	32 Min	64 Min
128 Min	256 MIN	512 Min (default)

While in Suspend mode,

- The CPU halts (*STOP CLK*) or speeds down (*1/3 Speed*). (The speed is determined by the Suspend Mode item under Mode Control.)
- The screen blanks out.

The system will wake up from Suspend mode if it detects any major device activities.

Standby Mode

This item controls the CPU speed in Standby Mode. The available options are:

1/3 Speed (default)
Full Speed

Suspend Mode

This item controls the CPU speed in Suspend Mode. The available options are:

STOP CLK (default)
1/3 Speed

Monitor Event In Full On Mode items

You are suggested to set all these items to *Enabled* so the Power Management can monitor the major device activities to assure optimal operation.

■ PCI/GREEN FUNCTION SETUP

Slot 1 Using INT#	:	AUTO
Slot 2 Using INT#	:	AUTO
Slot 3 Using INT#	:	AUTO
1st Available IRQ	:	12
2nd Available IRQ	:	11
3rd Available IRQ	:	10
4th Available IRQ	:	9
PCI IRQ Activated By	:	Level
PCI IDE IRQ Map To	:	PCI-AUTO
Primary IDE INT#	:	A
Secondary IDE INT#	:	B
* WakeUp Event In Inactive Mode		
Monitor IRQ3 Wake Up	:	Enabled
Monitor IRQ4 Wake Up	:	Enabled
Monitor IRQ5 Wake Up	:	Enabled
Monitor IRQ6 Wake Up	:	Enabled
Monitor IRQ7 Wake Up	:	Enabled
Monitor IRQ9 Wake Up	:	Enabled
Monitor IRQ10 Wake Up	:	Enabled
Monitor IRQ11 Wake Up	:	Enabled
Monitor IRQ12 Wake Up	:	Enabled
Monitor IRQ14 Wake Up	:	Enabled
Monitor IRQ15 Wake Up	:	Enabled

Items of PCI/GREEN FUNCTION SETUP

The PCI SETUP program provides the *plug & play* function, which automatically sets the IRQ channel, the memory address and the I/O address for your system.

*Wakeup Event In Suspend Mode items

These items let you select the event which will wake up the system from the Suspend mode. You are suggested to set them to *Enabled*.

■ LOAD BIOS DEFAULTS

The BIOS default values have been set to provide the minimum performance for the system.

To use the BIOS defaults, simply type **Y** and press **ENTER**.

■ LOAD SETUP DEFAULTS

The SETUP default values have been set to provide the maximum performance for the system.

To use the SETUP defaults, simply type **Y** and press **ENTER**.

■ PASSWORD SETTING

The PASSWORD SETTING feature is used to change the user password of your system.

To change the user password, move the cursor to this option and press **ENTER**. The following prompt appears:

Enter Password:

Press **ENTER** if you do not want to set a password.

Award BIOS SETUP

After the new password is entered, you will be asked to confirm or re-enter the new password.

NOTE:

The password feature described here will depend on the configuration of the **Security Option** described in the BIOS **FEATURES SETUP**. If you select **System**, 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**, you will be prompted only when you try to enter **SETUP**.

■ IDE HDD AUTO DETECT

The IDE HDD AUTO DETECT feature automatically selects disk type for your newly installed hard disk.

■ EXITING SETUP

To exit the SETUP program, you can choose **SAVE & EXIT SETUP** or **EXIT WITHOUT SAVING** from the main SETUP menu.

Appendix A

USING PCI-IDE DRIVES

■ Installing the device drivers

The VT83C561 PCI-IDE controller improves the speed of the cycle time and active time of IDE drives.

The driver diskette supplied with your system includes a **VTSETUP.EXE** utility to help you to install the device drivers for your system. To run the VTSETUP.EXE file, type **VTSETUP** at the DOS prompt and follow the on-screen instructions.

You can choose *Full Installation* from the Installation Menu to let VTSETUP.EXE install all the drivers including the DOS, OS/2, Windows and NetWare drivers automatically. Also, you can choose *Customized Installation* to install drivers individually.

Refer to the **README** file on the diskette for detailed installation procedure.

■ **Notes**

1. Make sure the jumpers on the hard disk are set properly. Contact your hard disk dealer for help.
2. If you want to install two or more hard disks, make sure that the first two hard disks are installed to the primary channel.
3. If you want to use CD ROM after the Windows driver is installed, set `32BitDiskAccess` statement in `[386Enh]` section of the `Windows/system.ini` file to **OFF**.

