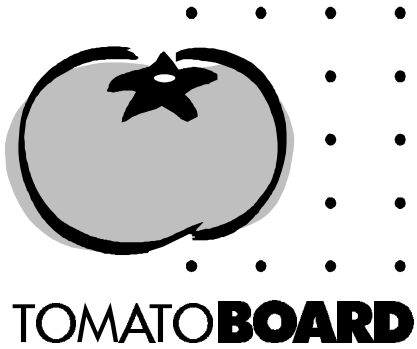
I/O Built-in 486 4DPS PCI LOCAL BUS SYSTEM BOARD

Your User-friendly Guide !



System Board Specification

Supports Intel 486SX/DX/DX2/DX4, P24D,P24T,

CYRIX DX2/DX4/5X86, AMD486DX/DX2/DX4

and Enhanced AMD 486DX4 CPU.

Build in two channel IDE controller ATA mode 4 compatible

Enhanced multi-I/O on board-Floppy interface, 2 x 16550 COM port,

Enhanced parallel port and Standard game port.

3 x PCI master slots and PCI specification version 2.0 compliance.

3 x ISA 16-bit bus slots.

Board size 220mm x 170mm.

Document Revision: 3.1
3008964DPS31

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CHAPTER 1

SYSTEM BOARD OVERVIEW

Preface

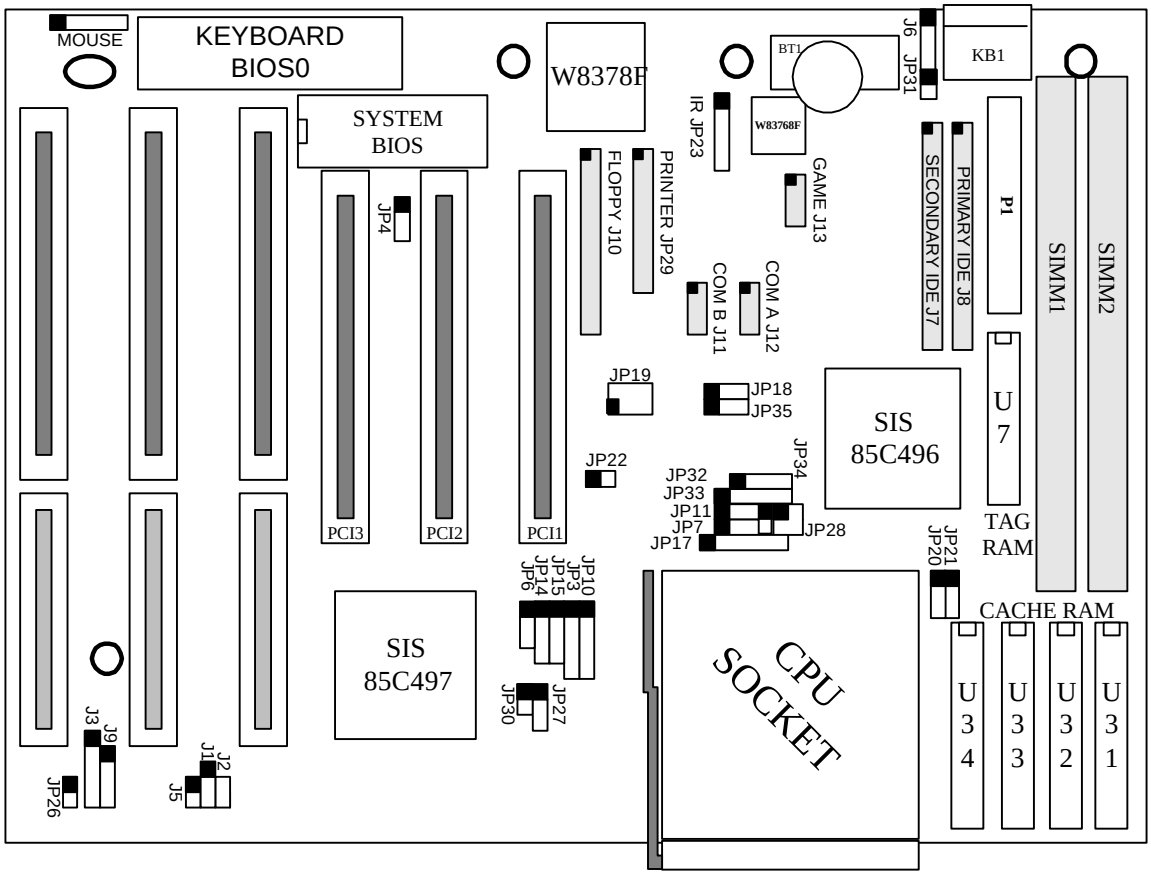
This User's Manual provides information on how to install and expand your personal computer based on the high performance 486 Chipset system board with on-board power management. This system board design for high performance 486 CPU with Peripheral Component Interconnect (PCI) 5-V interface slots. The system board build in Enhanced IDE interface and it can be connected to a maximum of four Harddisks. It also integrated with high performance multi-I/O on the mainboard. By reading the instructions in this manual you will be able to set up and operate the system board.

System Board Specifications:

- IBM PC/AT Compatible.
- Supports Intel 486SX/DX/DX2/DX4, P24D,P24T,CYRIX DX2/DX4/5X86, AMD486DX/DX2/DX4 and Enhanced AMD 486DX4,5X86 CPU.
- Supports L1 Cache Write Back CPU system.
- Direct Mapped L2 Cache controller.
- Up to 64 MB Memory on board using 72pin SIMM, totally 2 banks.
- Build in two channel IDE controller ATA mode 4 compatible
- Enhanced multi-I/O on board-Floppy interface, 2 x 16550 COM port, Enhanced parallel port and Standard game port.
- 3 x PCI master slots and PCI specification version 2.0 compliance.
- 3 x ISA 16-bit bus slots.
- Board size 220mm x 170mm.
- Infra-Red port for serial infrared communication.
- PS2 mouse interface.

  * NOT all models support the Infra-Red and PS2 mouse interfaces.

Layout Of System Board



Drawing no. : LO-4DPS-0031A

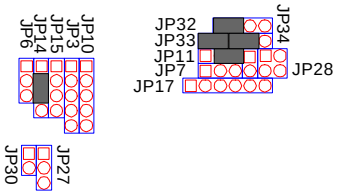
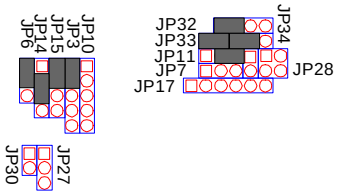
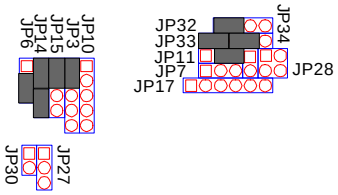
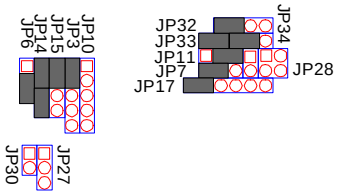
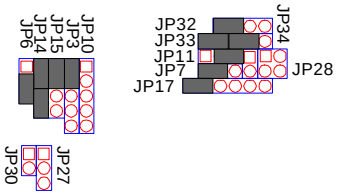
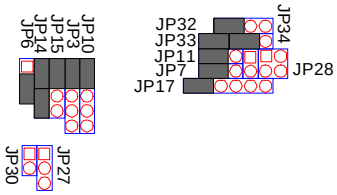
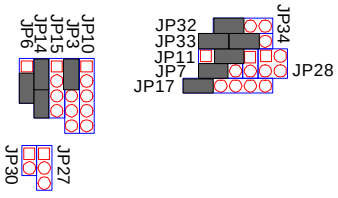
The system board size is 220 x 170 mm.

Jumper Settings

CPU SELECT

(* Default jumper setting for Enhanced AMD 486DX4-100)

JP6 JP14 JP15 JP3 JP10
JP9 JP11 JP7 JP17

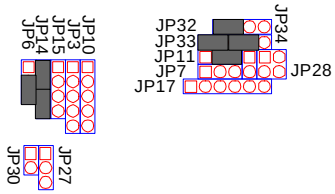
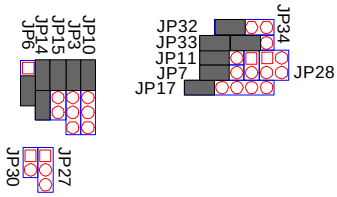
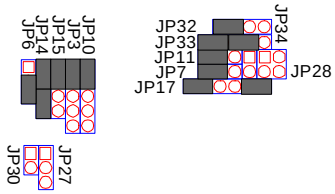
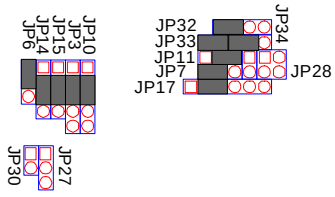
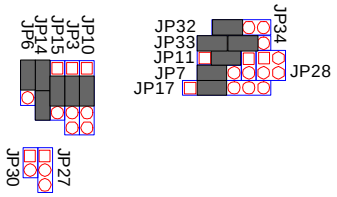
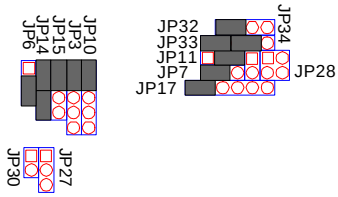
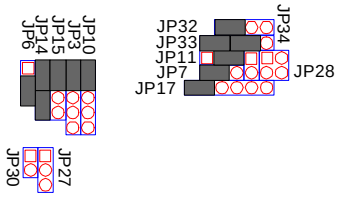
INTEL CPU	
Intel SX 	**Intel SL-Enhanced SX/SX2** 
Intel DX/DX2-66 	**Intel SL-Enhanced DX/DX2** 
Intel DX4 (write though) 	**Intel P24D/DX4 (write back)** 
Intel Pentium Overdrive (P24T) 	

Jumper Settings

CPU SELECT

(* Default jumper setting for Enhanced AMD 486DX4-100)

JP6 JP14 JP15 JP3 JP10
JP9 JP11 JP7 JP17

AMD CPU	
AMD DX/DX2/DX4	**Enhanced AMD DX4-100/DX4-120 ***
	
Enhanced AMD 5X86 (K5)	
	
Cyrix CPU	
Cyrix 486S	**Cyrix 486DX2/DX4 (M7 pin out)**
	
Cyrix 5X86	**Cyrix 486 DX4 (like INTEL pin out)**
	

CPU Voltage Select

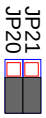
JP30 JP27 JP28

3.3/3.45 V *	3.6 V	5 V
		

Jumper Settings

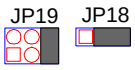
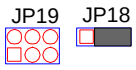
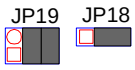
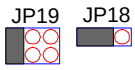
Cache RAM Size Select :

JP20 JP21

SIZE	128K	256K	512K
CACHE	32K8x4	64K8x4	128K8x4
TAG U7	32K8 or 16K8	32K8 or 16K8	64K8
U31-U34	32K8	64K8	128K8
Setting			

CPU Frequency Select :

JP19 JP18

CPU Type	SX-25, DX-25, SX2-50, DX4-75	SX-33, DX-33, DX2-66, DX4-100	DX-40, DX2-80, DX4-120	DX-50
Frequency	25Mhz	33Mhz *	40Mhz	50Mhz
Setting	 25MHz	 33MHz	 40MHz	 50MHz

CMOS Setting Clear :

J6

CMOS	NORMAL *	CLEAR CMOS
J6	1-2	3-4

BIOS Select.:

JP4

BIOS	EPROM	FLASH ROM
JP4	2-3	1-2

Default Jumper :

JP22 : OPEN

Connector Settings

Connector Descriptions

Description	Connectors
Serial Port 1 / 2	COM A (J12) / COM B (J11)
Parallel Port	JP29
Game Port	GAME (J13)
Floppy Disk Connector	J10
PCI Primary IDE Hard Disk Connector	IDE1 (J8)
PCI Secondary IDE Hard Disk Connector	IDE2 (J7)
PCI IDE LED	IDE LED (JP26)
Power Supply Connector	P1
Power LED & Keylock	J3
Reset Switch	RST J5
Speaker	J9
Turbo LED	TB LED (J2)
Turbo Switch	J1
Infra-Red Connector (Optional)	IR (JP23)
PS2 Mouse (Optional)	MOUSE

- **PCI IDE LED (JP26)**

PIN	SIGNAL
1	LED SIGNAL
2	+5V

- **POWER (P1)**

PIN	SIGNAL
1	POWER GOOD
2	+5V
3	+12V
4	-12V
5	GROUND
6	GROUND
7	GROUND
8	GROUND
9	-5V
10	+5V
11	+5V
12	+5V

Connector Settings

- **Power LED & Keylock Connector (J3)**

PIN	SIGNAL
1	LED POWER
2	NO CONNECTION
3	GROUND
4	KEYBOARD INHIBIT
5	GROUND

- **Reset Switch Connector (J5)**

J5	FUNCTION
OPEN	NORMAL OPERATION
CLOSE	SYSTEM RESET

- **Speaker Connector (J9)**

PIN	SIGNAL
1	SPEAKER
2	GROUND
3	GROUND
4	+5V

- **Turbo LED Connector (J2)**

PIN	SIGNAL
1	LED SIGNAL
2	+5V

- **Turbo Switch Connector (J1)**

J1	FUNCTION
2-3	TURBO
OPEN	NORMAL

- **Infra-Red Connector (IR : JP23)**

PIN	SIGNAL
1	SIGNAL IN
2	GROUND
3	+5V
4	SIGNAL OUT

- **PS2 Mouse (MOUSE)**

PIN	SIGNAL
1	SIGNAL IN
2	SIGNAL OUT
3	GROUND
4	NC
5	+5V

*** NOT** all models support the Infra-Red and PS2 Mouse interface.

SIMM RAM Support

The system board supports flexible SIMM configuration:

- Flexible memory bank location and size.
- Accept 2 pieces of 72-pin SIMM sockets, SIMM 1/ 2, total 2 banks.
- Support SIMM type: 1Mx36, 2Mx36, 4Mx36.

The following DRAM table is for your reference:

.

	SIMM1			
SIMM 2	**NONE**	**1Mx36**	**2Mx36**	**4Mx36**
NONE	**XXXXX**	4MB	8MB	16MB
1Mx36	4MB	8MB	12MB	20MB
2Mx36	8MB	12MB	16MB	24MB
4Mx36	16MB	20MB	24MB	32MB

CHAPTER 2
AWARD BIOS SETUP

Award's BIOS has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed RAM so that it retains the setup information when the power is turned off. This chapter explains the setup utility for the Award BIOS.

Entering Setup

To enter setup menu, power on the computer and press <Del> immediately will allow you to enter Setup. The other way to enter Setup is to power on the computer, when the below message appears briefly at the bottom of the screen during the POST (Power On Self Test), press <Del> key or simultaneously press <Ctrl>, <Alt>, and <Esc> keys.

TO ENTER SETUP BEFORE BOOT UP PRESS CTRL-ALT-DEL KEY

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to,

PRESS F1 TO CONTINUE, CTRL-ALT-DEL TO ENTER SETUP

Control Keys

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item in the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift)F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Calendar, only for Status Page Setup Menu
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the setup default, only for Option Page Setup Menu
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu/Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

The Main Menu

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from ten setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

Figure 1. Main Setup Menu

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³                            CMOS SETUP UTILITY                              ³
³                          AWARD SOFTWARE, INC.                              ³
ÃÄÄÄÄ-ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÂÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ´
³  STANDARD CMOS SETUP                 ³     PASSWORD                        ³
³  BIOS FEATURES SETUP                 ³     IDE HDD AUTO DETECTION          ³
³  CHIPSET FEATURES SETUP              ³     SAVE & EXIT SETUP               ³
³  POWER MANAGEMENT SETUP              ³     EXIT WITHOUT SAVING             ³
³  PCI CONFIGURATION SETUP             ³                                     ³
³  LOAD BIOS DEFAULTS                  ³                                     ³
³  LOAD SETUP DEFAULTS                 ³                                     ³
ÃÄÄÄÄÄ-ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÁÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ´
³  ESC : Quit                                ↑↓→←    : Select Item          ³
³  F10 : Save & Exit Setup                    (Shift)F2 : Change Color       ³
ÀÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÙ
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Standard CMOS setup

This setup page includes all the items in a standard compatible BIOS.

BIOS features setup

This setup page includes all the items of Award special enhanced features.

Chipset features setup

This setup page includes all the items of chipset special features.

Power management setup

This setup page includes all the items of green features.

The Main Menu

PCI configuration setup

This setup page includes all the items of PCI INT, IRQ, IDE configs.

Load BIOS defaults

BIOS defaults indicates the most appropriate value of the system parameter which the system would be in minimum performance.

Load setup defaults

Chipset defaults indicates the values required by the system for the maximum performance.

Password setting

Change, set, or disable password. It allows you to limit access to the system and Setup.

IDE HDD auto detection

Automatically configure hard disk parameters.

Save & exit setup

Save CMOS value changes to CMOS and exit setup.

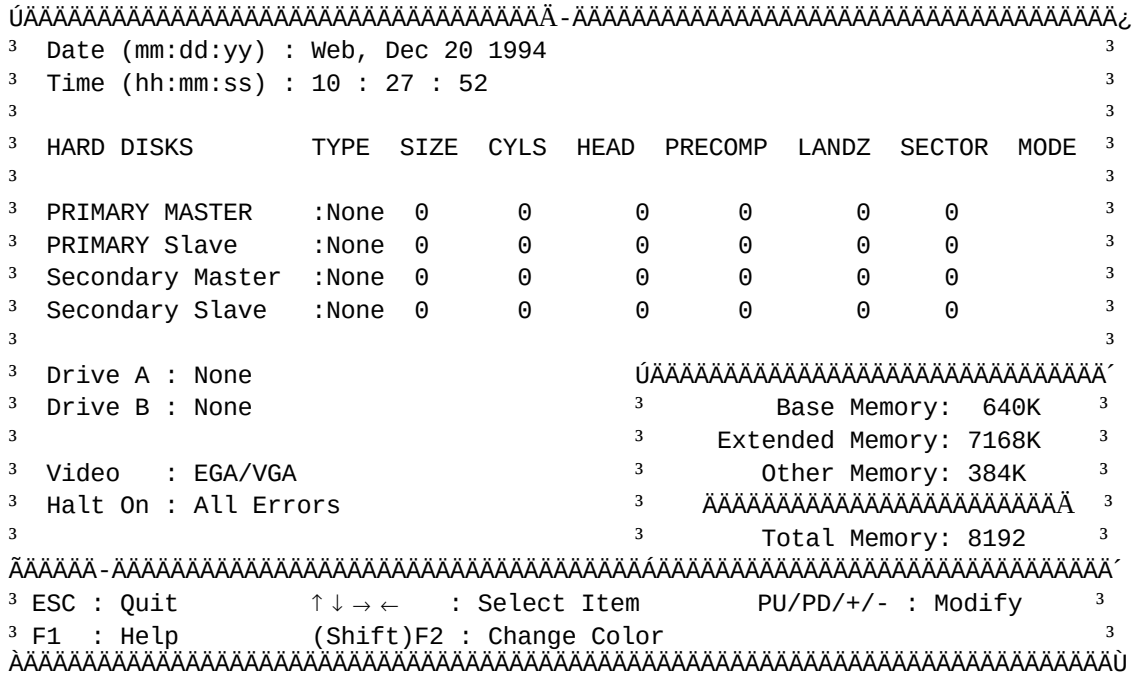
Exit without save

Abandon all CMOS value changes and exit setup.

Standard CMOS Setup Menu

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Figure 2 Standard CMOS Setup Menu



Date & Time

Enter current Date & Time to set system clock. The date format is <day>, <date> <month> <year> and the time format is <hour> <minute> <second>. The time is calculated based on the 24-hour military-time clock. Press <F3> to show the calendar.

Standard CMOS Setup Menu

Drive C type/Drive D type

The categories identify the types of hard disk drive C or drive D that have been installed in the computer. There are 46 predefined types and a user definable type. Type 1 to Type 46 are predefined. Type User is user-definable.

Press PgUp or PgDn to select a numbered hard disk type or type the number and press <Enter>. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.

If you select Type "User", related information is asked to be entered to the following items. Enter the information directly from the keyboard and press <Enter>. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

There are the option of Type "AUTO" and Mode "AUTO" to auto detect the hard disk type and the hard disk mode (Normal, LBA and Large).

If a hard disk has not been installed select NONE and press <Enter>.

Note: Mode Setting For Hard Disk Larger than 528MB

The Mode settings are for IDE hard disks only. You can ignore this item for MFM and ESDI drivers. There are three entries you can select from in the mode field, "Normal", "Large" and "LBA".

Set Mode to the Normal settings for IDE hard disk drives smaller than 528MB. Use the LBA setting for drives over 528MB that use Logical Block Addressing mode to allow larger IDE hard disks. The Large setting is for drives over 528MB that do not use the LBA mode. This type of drive can only be used with MS-DOS and is uncommon. The majority of IDE drives over 528MB use the LBA mode.

Drive A type/Drive B type

The category identifies the types of floppy disk drive A or drive B that have been installed in the computer.

Video

The category selects the type of adapter used for the primary system monitor that must match your video display card and monitor. Although secondary monitors are supported, you do not have to select the type in Setup.

Standard CMOS Setup Menu

Error halt

The category determines whether the computer will stop if an error is detected during power up.

Memory

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.

Extended Memory

The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1MB in the CPU's memory address map.

Expanded Memory

Expanded Memory is memory defined by the Lotus/Intel/Microsoft (LIM) standard as EMS. Many standard DOS applications cannot utilize memory above 640K, the Expanded Memory Specification (EMS) swaps memory which is not utilized by DOS with a section, or frame, so these applications can access all of the system memory. Memory can be swapped by EMS is usually 64K within 1MB or memory above 1MB, depending on the chipset design.

Other Memory

This refers to the memory located in the 640K to 1024K address space. This is memory that can be used for different applications. DOS uses this area to load device drivers to keep as much base memory free for application programs. Most use for this area is Shadow RAM.

BIOS Features Setup Menu

The items BIOS Features Setup Menu are divided into 17 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Figure 3. BIOS Features Setup Menu

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ÚÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ-
ÄÄÂÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ¿
³  Virus warning             : Disabled ³  Video BIOS Shadow    : Enabled
³
³  CPU Internal Cache        : Enabled  ³  C8000-CBFFF Shadow   : Disabled
³
³  External Cache            : Enabled  ³  CC000-CFFFF Shadow   : Disabled
³
³  Quick Power On Self Test  : Enabled  ³  D0000-D3FFF Shadow   : Disabled
³
³  Boot Sequence             : A , C    ³  D4000-D7FFF Shadow   : Disabled
³
³  Swap Floppy Driver        : Disabled ³  D8000-DBFFF Shadow   : Disabled
³
³  Boot Up Floppy seek       : Enabled  ³  DC000-DFFFF Shadow   : Disabled
³
³  Boot Up NumLock Status    : On       ³
³
³  Boot Up System Speed      : High     ³
³
³  Gate A20 Option           : Fast     ³
³
³  Typematic Rate Setting    : Disabled
ÃÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ-Ä´
³  Typematic Rate (Char/Sec) : 6        ³ ESC : Quit        ↑↓→← : Select
Item³
³  Typematic Delay (Msec)    : 250      ³ F1  : Help        PU/PD/+/- :
Modify³
³  Security Option           : Setup    ³ F5  : Old Values  (Shift)F2 :
Color ³
³  PCI/VGA Pallette Snoop    : Disabled ³ F6  : Load BIOS Defaults
³
³                                       ³ F7  : Load Setup Defaults
³
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```

Virus Warning

You can enable or disable this feature. When enable, it will activate automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table. The default value is disabled.

CPU Internal Cache/External Cache

This category enables or disables the internal or external cache to speed up memory access. The default value is Enabled.

Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power on the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST. The default value is disabled.

Boot Sequence

This category determines which drive computer searches first for the disk operating system (i.e., DOS). Default value is A,C.

Swap Floppy Drive

This feature allows you to enable the system swap floppy function. When this function enables, the system will assign the Drive A as Drive B, and vice versa.

Boot Up Floppy Seek

If enabled, the BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. If disabled BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360K.

BIOS Features Setup Menu

Boot Up NumLock Status

It selects the option to turn on/off Num Lock when the system is powered on so the end user can use the arrow keys on both the numeric keypad and the keyboard. The default value is On.

Boot Up System Speed

It selects the boot up system speed. The default setting is Fast.

Gate A20 Option

The default setting of the Gate A20 is Fast.

Typematic Rate Setting

Typematic Rate sets the rate at which characters on the screen at which characters on the screen repeat. The default setting is Disabled.

Typematic Rate (Chars/Sec)

Typematic rate sets the rate at which characters on the screen repeat when a key is pressed and held down. You can select 6-30 characters per second. The default setting is 6.

Typematic Delay (Msec)

When holding down a key, the time between the first and second character display. you specified numbers of times of character repeat on the screen. The default setting is 250.

Security Option

This category allows you to limit access to the system and Setup, or just to Setup. When you select system, the system will not boot and access to Setup will be denied if the correct password is not entered at the prompt. If you select Setup, the system will boot but access to Setup will be denied if the correct password is not entered at the prompt. The default setting is Setup.

PCI/VGA Palette Snoop

This option controls the system to access the PCI VGA card plalette register. In general, this option is disabled. However, you may need to enable this option for some VGA card which have incorrect color displayed problem on some software application..

VIDEO BIOS Shadow

The system BIOS is automatically shadowed .
The default setting for the "Video BIOS Shadow" is "Enabled". It determines whether video BIOS will be copied to RAM, however, it is optional from chipset design. Video Shadow will increase the video speed.

C8000 - CFFFF Shadow/E8000 - EFFFF Shadow

These categories determine whether optional ROM will be copied to RAM by 16K byte. You can enable the optional shadow or you can disable it. The default setting is disabled.

Chipset Features Setup Menu

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache.

Figure 4. Chipset Features Setup Menu

```
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Ä¿
³  Auto Configuration       : Enabled   ³  Onboard 496B IDE Port  : Both      ³
³                                       ³  IDE 0 Master Mode      : Auto      ³
³  ISA Bus Clock            : 7.159MHz  ³  IDE 0 Slave Mode       : Auto      ³
³  LBD# Sample Point        : End of T3 ³  IDE 1 Master Mode      : Auto      ³
³  Cache Write Cycle        : 2 CCLK    ³  IDE 1 Slave Mode       : Auto      ³
³  Cache Burst Read Cycle   : 2 CCLK    ³  IDE HDD Block Mode     : Disable   ³
³  L2 Cache /Dram Cycle WS  : 2 CCLK    ³  Onboard FDD Controller : Enable    ³
³  DRAM RAS to CAS Delay    : 3 CCLK    ³  Onboard Serial Port 1  : COM1      ³
³  DRAM Write Cycle         : 1 WS      ³  Onboard Serial Port 2  : COM2      ³
³  DRAM Write CAS Paline    : 2 CCLK    ³  Onboard Parallel Port  : 378H      ³
³  DRAM CAS Precharge Time  : 1 CCLK    ³  Onboard Parallel Mode  : EPP/SPP   ³
³  DRAM RAS to MA Delay     : 1 CCLK    ³  Onboard Game Port      : Enable    ³
³  DRAM Speed               : Faster    ³  Serial Port 1 MIDI     : Disable   ³
³  DRAM Slow Reflesh        : Disable   ³  Serial Port 2 MIDI     : Disable   ³
³                                       ÃÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ-
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³  L2 Cache Policy          : Write Back³ ESC : Quit       ↑↓→← : Select Item³
³  L2 Cache Tag Bits        : 7 bits    ³ F1  : Help       PU/PD/+/- : Modify³
³  CPU->PCI Mem Post Write Buf: Enabled ³ F5  : Old Values  (Shift)F2 : Color ³
³  CPU->PCI Memory Burst Write: Enabled ³ F6  : Load BIOS Defaults            ³
³  PCI Master Burst Read/Write: Enabled ³ F7  : Load Setup Defaults           ³
ÀÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ-ÁÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ--
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```

Auto Configuration

The "Auto Configuration" default is "Enabled". This automatically setting up your system at optimum performance. You cannot change the setting with the Auto Configuration enabled and you should not change the setting unless you know what are the functions of the item.
The on-board multi-I/O configed on this setup menu. There are different options for the I/O interface. You can enable or disable the on-board I/O device individually or you can change the default configuration from this menu.

L2 Cache Policy

You can select the external cache to write back or write trough mode at this item.

L2 Cache Tag Bits

Set the Tag Bits to "7 bits" , if you select the external cache to write back mode.
Set the Tag Bits to "8 bits" , if you select the external cache to write through mode.

CPU->PCI Mem Post Write Buf ,CPU->PCI Memory Burst Write

CPU to PCI memory post write & burst write control. The default is enabled.

PCI Master Burst Read/Write

PCI master burst read/write control. The default is enabled.

Chipset Features Setup Menu

On board 496B IDE port

The primary and secondary IDE port can be enabled or disabled by this option.

IDE 0(1) master(slave) mode

You can select the Normal, LBA, Large mode for the IDE port. Default is Auto means that the IDE mode is automatically detected. (0 : Primary 1 : Secondary)

IDE HDD block mode

You can enable the block mode transfer to transfer data between the hard disk and IDE interface.

Onboard FDD Controller

The on-board floppy disk controller can be enabled or disabled. You can select enabled or disabled in this option.

Onboard serial port 1(2)

You can config the on-board serial port as COM1-COM4 or select "none" to disable the serial port.

Onboard parallel port

The on-board parallel port configed as LPT1 (378), LPT2 (278) or select "none" to disable the parallel port.

Onboard parallel port mode

You can select ESP (Standard mode), EPP(Enhanced mode) and ECP(Extended mode) for parallel port mode in this menu.

Onboard game port

The on-board game port can be enabled or disabled by this option.

Serial port 1(2) MIDI

You can enable or disable the serial MIDI (Musical Instrument Digital Interface) support by this option.

Power Management Setup

Power Management setup controls the system board’s “green” features. This feature enhance 486 microprocessor family with the energy-efficient technology. The setup screen is shown in figure 5.

Figure 5. Power Management Setup Menu

```
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¿
 ³ Power Management     : Disabled      ³
³
 ³ PM Control by APM    : Yes           ³
³
 ³ Video off Method     : V/H SYNC+Blank³
³
 ³                                      ³
³
 ³       ** PM Timers **                ³
³
 ³ HDD Off After        : Disable
ÃÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ´
 ³ Green Mode           : Disable       ³ ESC : Quit        ↑↓→←  Select Item  ³
 ³                                      ³ F1  : Help        PU/PD/+/- : Modify
³
 ³                                      ³ F5  : Old Values  (Shift)F2 : Color
³
 ³                                      ³ F6  : Load BIOS Defaults
³
 ³                                      ³ F7  : Load Setup Defaults
³

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Power Management

“Power Management” is the master control for the power saving features, including HDD power down, Doze, Standby and suspend Modes and the I/O Device Timer, that together form the hard-ware power conservation scheme. There are three options:

User Defined - Allows you to configure the power conservation features yourself.
Disable - Turn off all the power conservation features.

PM Control by APM

This feature is automatically set to “ON”, the system BIOS will wait for APM prompt before it enters the GREEN mode.

NOTE : If APM is installed, & if there is a task running, event the timer is time out, the APM will not prompt the BIOS to put the system into any power saving mode!

VGA Off Method

There are two options you can choose for which mode to turn off the VGA display.

Blank Screen	-	The system will blank the screen only.
V/H SYNC + Blank	-	Choose this mode if your system using the monitor with power management feature. In addition of the blank screen, the system will turn off the horizontal and vertical sync signal. Most monitor will turn off itself if these signal is inactive.

HDD Off Timer

"HDD Off Timer" specifies the period to cause an IDE hard disk to "spin down" if it is not accessed. The disk returns to full speed the next time it is accessed. Settings range from "10 Min" to "15 Min", and "Disabled".

Green ModeTimer

"Green Mode Timer" specifies the period to cause the system enter power management mode. The available Settings range is from "20 Min" to "40 Min", and "Disabled".

PCI Configuration

The System BIOS on a PCI platform plays the role of a System Resources Manager. Its main job is to dynamically allocate system resources such as I/O, Memory & IRQs to all PCI devices without any conflicts!

Figure 6. PCI Configuration Setup

```
ÚÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÂÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ¿
³ Slot 1 Using INT#    : AUTO       ³                                          ³
³ Slot 2 Using INT#    : AUTO       ³                                          ³
³ Slot 3 Using INT#    : AUTO       ³                                          ³
³                                   ³                                          ³
³ 1st Available IRQ    : 9          ³                                          ³
³ 2nd Available IRQ    : 10         ³                                          ³
³ 3rd Available IRQ    : 11         ³                                          ³
³                                   ³                                          ³
³ PCI IRQ Actied By    : Level      ³                                          ³
³ PCI IDE 2nd Channel  : Enable     ³                                          ³
³ PCI IDE IRQ Map To   : PCI-AUTO   ÃÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ´
³  Primary   IDE INT#  : A          ³ ESC : Quit        ↑↓→←  Select Item  ³
³  Secondary IDE INT#  : B          ³ F1  : Help        PU/PD/+/- : Modify ³
³                                   ³ F5  : Old Values  (Shift)F2 : Color  ³
³                                   ³ F6  : Load BIOS Defaults             ³
³                                   ³ F7  : Load Setup Defaults            ³
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```

Slot 1-3 Using INT#

There are two options in this category

AUTO : BIOS will
- ask the PCI device which INT(A-D) does it want to use for interrupt
- check which IRQ is available from the above
- tell the device which IRQ has been assigned to it.

A,B,C,D : These options are reserved for "Dirty" cards from which the system BIOS cannot tell which INT does it use.

Note : Choose "AUTO" for all devices unless you know exactly which card a dirty device & which INTs does that card use!
Choose ONLY "AUTO" for Multi-Function PCI devices because options A, B, C, D will force the BIOS to assign IRQs for function 0 only!

1st-3rd Available IRQ

The System BIOS will assign these 3 available IRQs to the found PCI devices. You can change the IRQ assignment manually.

PCI IDE 2nd Channel

Enable this option to select the secondary on board IDE controller as your IDE hard disk controller interface.

PCI IDE IRQ Map to

The system will map the PCI IDE IRQ automatically by PCI-AUTO. You can map to PCI-slot 1-3, ISA, and the INT# A,B,C,D by yourself.

Load BIOS Defaults

This features stays in the default system values before the user has changed any CMOS values. If CMOS setting lost. the BIOS defaults will automatically be loaded.

Load Setup Defaults

This features uses to load the default setting for normal use.

Password Setting

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

```
ENTER PASSWORD:
```

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

IDE HDD Auto Detection

You can use this utility to detect the IDE hard disk parameters and enter it automatically. It can automatically detect up to four hard disk which connected to the system.

Save And Exit Setup

Select this option when you finished setup the CMOS and it will reboot the system after you press "YES".

Exit Without Saving

If you decided not to save any change you had made. You can select this option to exit the CMOS setup and all the change you made will lose. When you select this option and press "yes", the system will reboot and the CMOS data will not change.