

SP5400

User's Guide

Part Number: 5615 6898 0002 R02
(Aug. 1996)

Trademarks

All brand and product names are trademarks or registered trademarks of their respective companies.

Note

The information in this guide is subject to change without notice.

READ ME FIRST

FOR U. S. A. USERS

CAUTION:

Before operating this equipment, check the FCC compliance label on the rear or bottom of the equipment to know which class level or radio frequency interference - i.e. Class A or Class B - the equipment complies with. (Samples of FCC compliance labels are shown at the bottom of this page.)

For the proper operations of this equipment, depending on the class level of the equipment, go to one of the succeeding pages for Class A or Class B Regulations and read the U.S.A. FCC statement.

FOR CANADIAN USERS

CAUTION:

Before operating this equipment, check the FCC compliance label on the rear or bottom of the equipment to know which class level or radio frequency interference - i.e. Class A or Class B - the equipment complies with. (Samples of FCC compliance labels are shown at the bottom of this page.)

For the proper operations of this equipment, depending on the class level of the equipment, go to one of the succeeding pages for Class A or Class B Regulations and read the Canadian FCC statement.

COMPLIANCE LABELS

Class A:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Class B:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC ID: xxxxxxxx

Note the FCC ID number xxxxxxxx is a combination of letters and numbers.

Class A Regulations

U. S. A.

Federal Communications Commission Radio Frequency Interference Statement

NOTE:

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Please note:

1. The use of a non-shielded interface cable with this equipment is prohibited.
2. A shielded AC power cord must be used with this equipment.

Canada

Canadian Department Of Communications Radio Interference Regulations Class A Compliance Notice

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Class B Regulations

U. S. A.

Federal Communications Commission Radio Frequency Interference Statement

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Please note:

1. The use of a non-shielded interface cable with this equipment is prohibited.
2. A shielded AC power cord must be used with this equipment.

Canada

Canadian Department Of Communications Radio Interference Regulations Class B Compliance Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Preface

This manual is a comprehensive guide to your computer's hardware. It contains the following chapters and appendixes:

- Chapter 1, **System Overview**, gives an overview of your system, introducing its features and components. It also describes the options you can add to the system.
- Chapter 2, **Getting Started**, gives operating basics on the keyboard, mouse, floppy disk drive, and CD-ROM drive. It also tells you how to start up and turn off the system.
- Chapter 3, **The SETUP Program**, gives information on the SETUP program that configures your system for use and activates its special features.
- Chapter 4, **Installing Options**, gives notes and instructions on installing external and internal options.
- Chapter 5, **Troubleshooting**, describes the common problems you may encounter with the system and the actions to take.
- Appendix A, **Inside the System Unit**, briefly describes the components inside the system unit.
- Appendix B, **Connectors and Jumpers**, gives connector and jumper information of the system board.

Chapter 1

System Overview

Features

NOTE: The descriptions and figures throughout this manual are based on a fully-equipped model. Depending on the model purchased, you may not find all of these: CD-ROM drive, sound board, and fax/modem board.

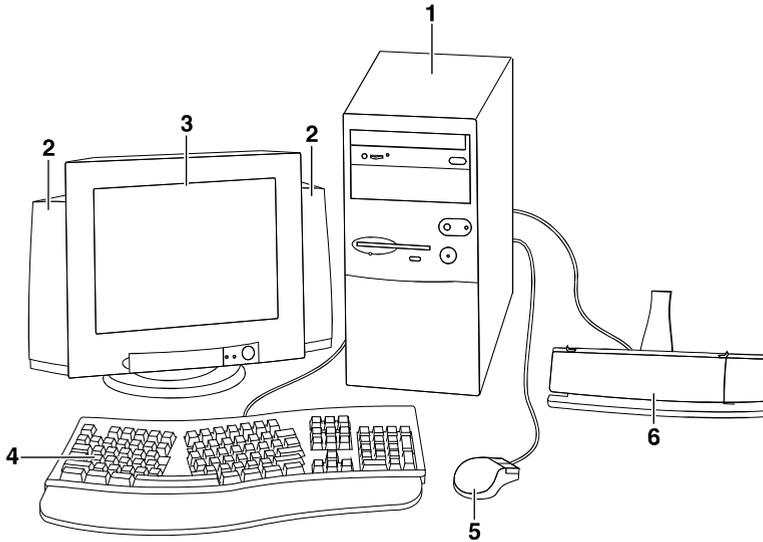
Congratulations on purchasing this versatile PC (Personal Computer) system. The system provides high performance by combining several hardware and software features.

The basic features are:

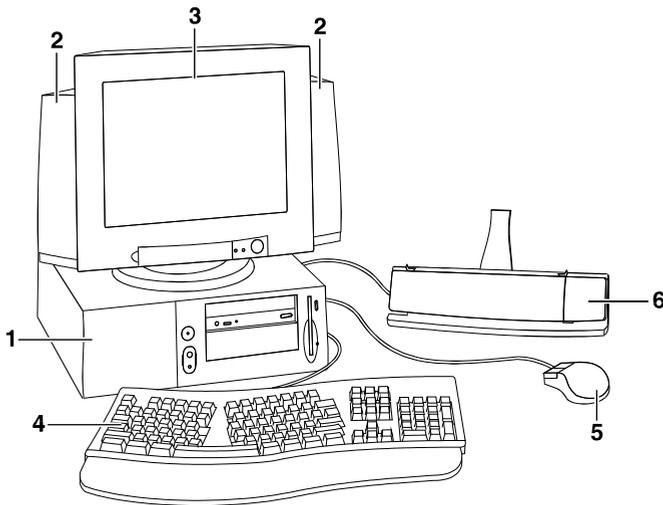
- Intel Pentium or compatible CPU
- Host/bridge PCI-bus architecture
- 3.5-inch 1.44MB (Megabytes) floppy disk drive
- IDE hard disk drive
- CD-ROM drive
- Video subsystem implemented by a VGA board
- Audio subsystem implemented by a sound board (select models only)
- Stereo speaker set attached to the monitor (select models only)
- Communications subsystem implemented by a fax/modem board (select models only)
- 8/16MB system RAM (Random Access Memory) standard, expandable up to 256MB
- 256KB/512KB cache memory
- I/O connectors for expansion
- Expansion slots: three ISA slots and four PCI slots
- Power Management features: Doze mode, Standby mode, and Suspend mode
- Preinstalled software and CD packs (select models only)

Taking a Look

Figure 1-1 shows the fully-equipped model for your reference. Descriptions of the components follow.



Tower Series



Desktop Series

Figure 1-1. System View

1. System Unit

The system unit contains the "brains" of the system. (To know what are inside the system unit, see Appendix A.)

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2. **Speaker Set** (select models only)
The speaker set is the output device for the sound coming from your system.
3. **Monitor** (The monitor shown is an example.)
The monitor is a VGA monitor. (For information, see the monitor's manual.)
4. **Keyboard**
The keyboard is the input device for entering characters and computer commands. (For more information, see "Using the Keyboard" in Chapter 2.)
5. **Mouse**
The mouse allows speedier cursor movement and command selection on mouse-supported software. (For more information, see "Using the Mouse" in Chapter 2.)
6. **Scanner** (select models only)
The scanner is a graphic input device that transforms printed matter into digital data for your system. (For information, see the scanner's manual.)

NOTE: To set up the system, see the separate documentation titled *Quick Setup Guide* to make the necessary connections.

Front Panel

Figure 1-2 shows the front panel components of the system unit. Descriptions of the components follow.

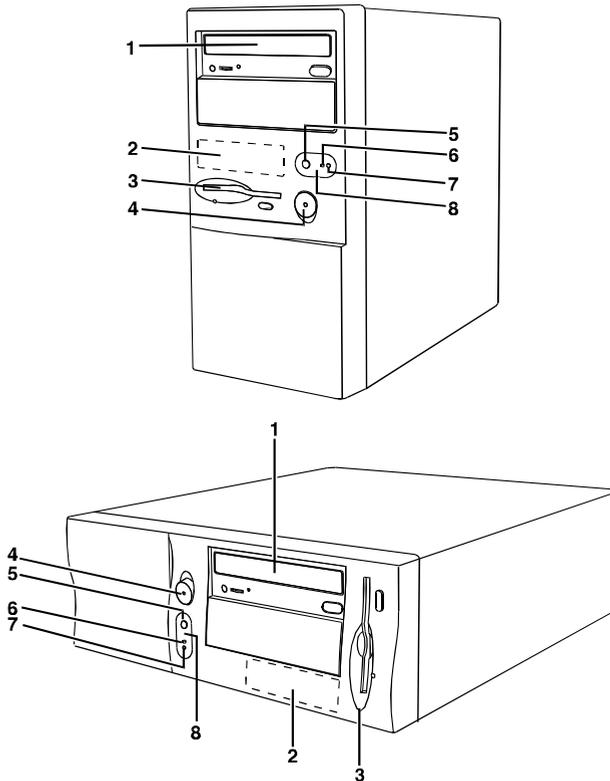


Figure 1-2. System Unit Front Panel

- 1. CD-ROM Drive**
This is the CD-ROM drive of your system, often configured as drive D. The indicator glows when the system is accessing the CD-ROM drive.
- 2. Hard Disk Drive**
Inside is the 3.5-inch hard disk drive of your system, referred to as drive C.
- 3. Floppy Disk Drive**
This is the 3.5-inch floppy disk drive of your system, referred to as drive A. The indicator glows when the system is accessing the floppy disk drive.
- 4. Power Button (⏻)**
Pressing in this button turns the system power ON. Pressing it again turns the power OFF. The indicator on the button glows when system power is turned on.
- 5. Sleep Button (ZZZ)**
Pressing this button puts the system into Sleep (Suspend) mode. Any keyboard or mouse activity will bring the system out of Sleep mode.

1-4Fout! Gebruik het tabblad Start om heading 1 toe te passen op de tekst die u hier wilt weergeven.

6. **Hard Disk Drive In-use Indicator** ()

This glows when the system is accessing the hard disk.

7. **Reset Button**

Pressing this button reboots (restarts) the system without turning off the system.

CAUTION: Since resetting will cause any unsaved data to be lost, do this only as the last resort when the system hangs up. (See "Resetting the System" in Chapter 5.)

8. **IR Port**

Inside this transparent cover is the infrared port. The port complies with IrDA standard and allows you to connect your system to an IrDA-compliant device without any cable. (See "External Connections" in Chapter 4 for more information.)

Rear Panel

Figure 1-3 shows the rear panel components of your system unit. (Depending on your model, connector locations might be slightly different from those shown here.) Descriptions of the components follow.

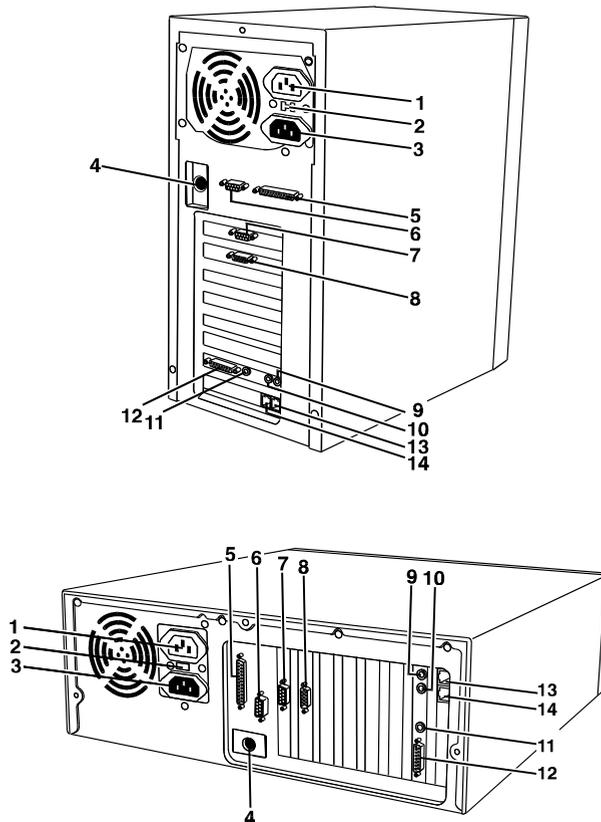


Figure 1-3. System Unit Rear Panel

1. **Peripheral Power Socket**
Any peripheral's (usually the monitor's) power cord is plugged into this socket.
2. **Voltage Selection Switch**
This switch can be set to 115V or 230V, depending on your area's outlet voltage.
3. **System Power Socket**
The AC power cord is plugged into this socket.
4. **Keyboard Connector** ()
This port is for connecting an AT-compatible keyboard.
5. **Parallel Port** ()
This 25-pin port is for connecting a parallel device such as a parallel printer.
6. **Serial Port** ( #2)
This 9-pin port (COM2) is for connecting a serial device such as a serial mouse, modem, or printer.
7. **Serial Port** ( #1)
This 9-pin port (COM1) is for connecting a serial device such as a serial mouse, modem, or printer.
8. **Video Port** ()
This 15-pin analog port is for connecting a monitor.
9. **Line In Connector** (select models only)
This is for connecting to the line-out connector of any Hi-Fi set, radio set, CD player, synthesizer, walkman, etc.
10. **MIC In Connector** (select models only)
This is for connecting a microphone.
11. **Speaker Connector** (select models only)
This is for connecting a speaker.
12. **MIDI/Game Port** (select models only)
This is for connecting a joystick.
13. **Incoming Phone Line Connector** (select models only)
This is for connecting the telephone cord from the telephone.
14. **Outgoing Phone Line Connector** (select models only)
This is for connecting the telephone cord to the telephone wall jack.

Options

Options can be added to enhance functions and flexibility of your system. (For installation instructions, see Chapter 4.)

- **Floppy Disk Drive**
You can install up to two floppy disk drives for flexibility.
- **Hard Disk** (for tower models only)
You can install up to two 3.5-inch hard disks for larger capacity.
- **SIMM (Single In-line Memory Module)**
SIMMs expand the system memory to increase system and software performance.
- **Cache Memory**
256/512KB external cache (secondary cache) enhances system performance because the most frequently-used data is accessed from and written to the high-speed cache memory.
- **CPU**
The CPU of your system can be upgraded. (See Appendix B for CPUs supported.)

Chapter 2

Getting Started

Starting Up

NOTE: If you have not already set up the system, see the separate documentation titled *Quick Setup Guide* to make the necessary connections.

A computer starts up with an operating system existing on the hard disk (drive C) or a system diskette inserted into the floppy disk drive (drive A). The computer will automatically load the operating system after you turn it on. This process is called booting.

Your system comes to you ready for use. This means the hard disk is pre-formatted and contains the files necessary for booting.

Follow these steps to start (boot) up the system:

1. Turn on the power of the peripherals, such as the monitor.
2. Turn on the system by pressing the Power Button (Figure 1-2 #4).
3. If necessary, adjust the brightness and contrast of the monitor to attain display clarity.
4. Each time the system is turned on, it performs a Power-On Self Test (POST). This checks the status of major computer devices including the system board, memory, video, keyboard, and disk drive. Some status messages from POST will appear on the screen.

If the POST detects a mismatch between the actual hardware configuration and the configuration information stored in CMOS RAM, you will see error message(s) telling you to run the SETUP program.

The SETUP program allows you to enter the configuration information and store it in CMOS RAM. The configuration information is needed by the system to identify the installed devices. Under SETUP, you can also activate certain features such as Power Management. (See Chapter 3 for instructions on running SETUP.)

5. When POST successfully completes its check, the system first tries to boot from drive A. Since there is no diskette in drive A, the system boots from drive C. (Always boot from drive C. Do not insert a diskette in drive A when you turn on the system.)

If Windows 95 has been preinstalled into your hard disk, it will be automatically loaded after the system boots up. To learn about Windows 95, see the Windows 95 manual.

Using the Keyboard

Your keyboard is a Windows 95 keyboard by default. The keys can be divided into five major groups as described in the following subsections.

Typewriter Keys

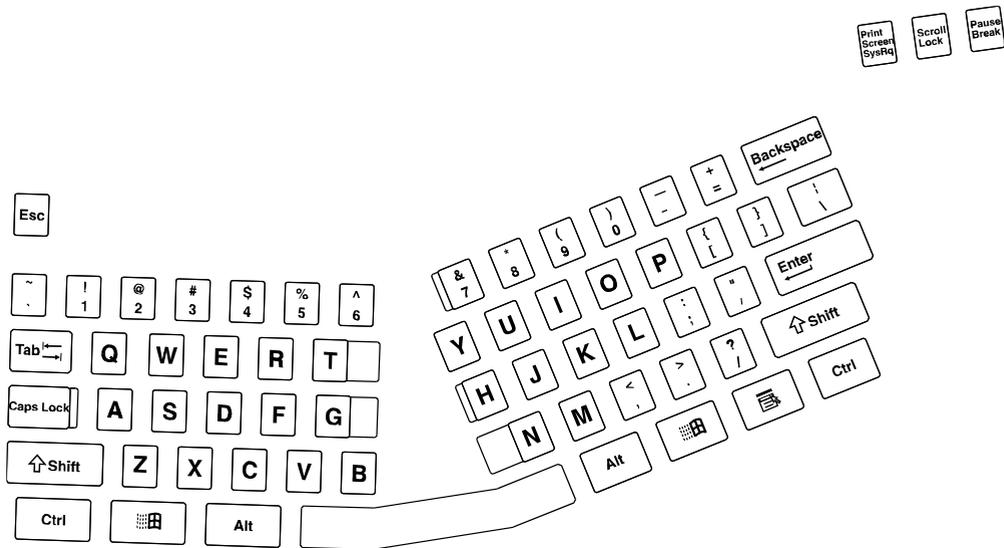


Figure 2-1. Typewriter Keys

Typewriter keys are similar to the keys on a typewriter. Several keys are added such as the [Ctrl], [Alt], [Esc], and lock keys for special purposes. When the lock keys ([Num Lock], [Scroll Lock], and [Caps Lock]) are pressed, their corresponding indicators, located at the upper right corner of the keyboard, light up.

Table 2-1 describes the functions of some special keys:

Key	Function
Ctrl	Used with other keys to perform functions defined by individual programs.
Alt	Used with other keys to perform functions defined by individual programs.
Esc	Frequently used for the purpose of canceling a command, moving back to the previous screen, or exiting a program.
Enter	Also referred to as the [Return] key. Frequently used to signify that information entry or command selection has been completed.
Num Lock	Toggles the Num Lock on and off. When on, the Num Lock activates the numeric keys.
Caps Lock	Toggles the Caps Lock on and off. When on, the Caps Lock keeps the letter keys in uppercase.
Scroll Lock	Toggles Scroll Lock on and off. The Scroll Lock is defined by individual programs.

Table 2-1. Special Key Functions

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Function Keys

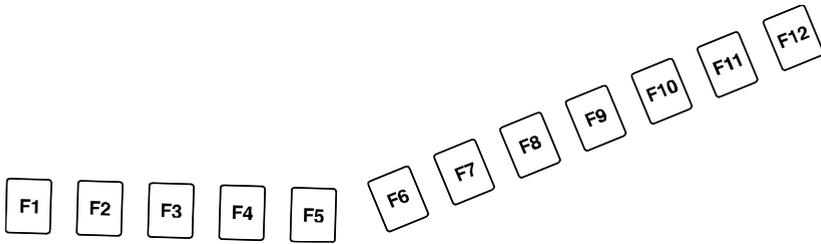


Figure 2-2. Function Keys

On the top row of the keys are the function keys: [F1] to [F12]. These are multi-purpose keys which perform functions defined by individual programs.

Cursor-Control Keys

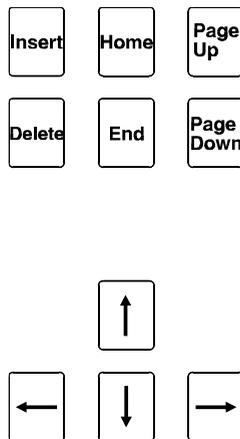


Figure 2-3. Cursor-Control Keys

These keys control cursor movement. The word "cursor" refers to the indicator on the screen that lets you know exactly where on your screen anything you type will appear. It can take the form of a vertical or horizontal line, a block, or one of many other shapes.

Table 2-2 describes the functions of the cursor-control keys:

Key	Function
↑, ↓, ←, →	Also called arrow keys. Up and down arrow keys move the cursor one line up and down; left and right arrow keys move it left and right.
Home	Usually moves the cursor to the beginning of the line, the top of the screen, or the top of the text.
End	Usually moves the cursor to the end of the line, the bottom of the screen, or the end of the text.
Page Up	Usually scrolls to the previous screen of text.
Page Down	Usually scrolls to the next screen of text.
Insert	Toggles between Insert and Replace mode. In Insert mode, a character typed will insert at the cursor position and pushes the existing text one space to the right. In Replace mode, a character typed will writes over the existing character at the cursor position.
Delete	Usually deletes the character at the cursor position and moves the remaining text on the line one space to the left or deletes object(s) selected on the screen.

Table 2-2. Cursor-Control Key Functions

Numeric Keypad



Figure 2-4. Numeric Keypad

When Num Lock is on, these keys function as the numeric keys for entering numbers and calculations. When Num Lock is off, they become cursor-control keys.

Windows 95 Keys

Windows 95 keys refer to the Left Windows Logo key (), Right Windows Logo key (), and Application Logo key (). The three new keys are used with other keys to perform software-specific functions. (See your Windows 95 manual.)

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Using the Mouse

The mouse is an important tool for communicating with the computer. It lets you control the location of the pointer on your screen and make selections with the mouse button.

To use the mouse, move it on a clean, flat surface (such as your desktop) and the pointer on the screen moves accordingly.

Here are some common mouse terms that you should know:

Term	Definition
Point	Move the mouse so that the pointer points to the selection on the screen.
Click	Press and release the mouse button (usually left button).
Double-click	Press and release the mouse button (usually left button) twice in quick succession.
Drag and drop	Press and hold the mouse button (usually left button), then move the mouse. When you finish dragging your selection to its new location, release the button.

Table 2-3. Mouse Term Definitions

NOTE: Some surfaces (such as very smooth ones) are unsuitable for use with a mouse. If you experience problems moving the pointer around the screen, you may wish to purchase a mouse mat. A mouse mat has a surface texture specially designed for use with a mouse.

Using the Floppy Disk Drive

Your system comes with a 3.5-inch floppy disk drive as drive A. A floppy disk drive allows you to load new programs into your computer, or to store information on a removable diskette so you can transfer information from one computer to another. Compared to a hard disk drive, a diskette has a very small capacity for information, usually only 1.44MB.

Depending on your model, the floppy disk drive is mounted either vertically or horizontally. If the drive is mounted horizontally, insert a diskette by sliding it all the way into the slot with the label side up and metal-shutter end first. If the drive is mounted vertically, insert a diskette by sliding it all the way into the slot with the label side facing left and metal-shutter end first. The eject button will pop out when the diskette drops into place. To remove the diskette, simply press the eject button.

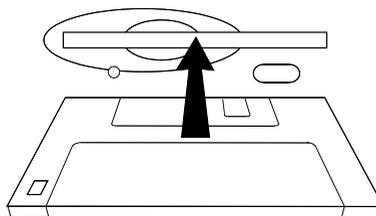


Figure 2-5. Inserting Diskettes

Using the Hard Disk Drive

Your system comes with a hard disk drive as drive C. A hard disk drive, also called a fixed disk, is a storage device with non-removable, rotating, magnetic storage platters. It stores your programs and data. The capacity of your hard disk depends on the model purchased.

Using the CD-ROM Drive

Your system may come with a CD-ROM drive as drive D. A CD-ROM drive uses removable 5.25-inch silver CD-ROM disks which look like standard music CDs. It is an ideal medium to use for distributing multimedia software because of the huge amount of data that a CD-ROM disk can store.

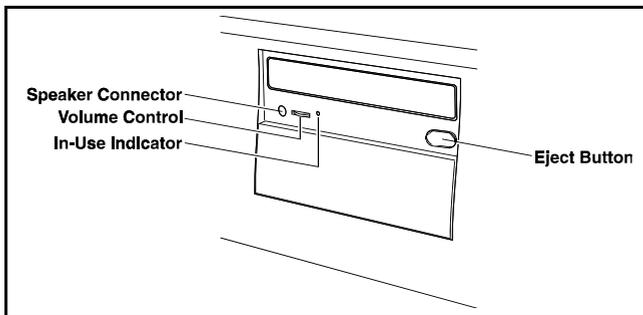


Figure 2-6. CD-ROM Drive

NOTE: On the CD-ROM drive's control panel, you can find a volume control and a speaker connector. These are for music CDs only.

Follow this procedure to insert or remove a CD.

1. Turn on the system.
2. Push the eject button (see Figure 2-6) and the CD tray will slide out.
3. To insert a CD, put down the CD in its compartment with its label facing up.

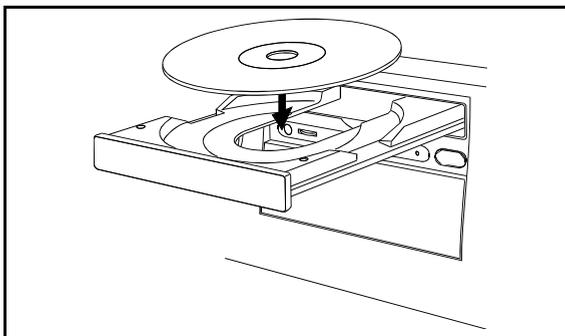


Figure 2-7. Releasing the CD Tray

- To remove a CD, hold the CD by its outer edge and lift it up from the tray.
4. Push the eject button again and the CD tray will slide back into the drive bay.

Leaving Your System Turned On

If your system has a fax/modem board and you want to receive fax, data, or voice calls automatically, you may leave the system turned on after you have finished using the system. You can press the Sleep Button (Figure 1-2 #5) to initiate Suspend mode for reducing power consumption when the system is idle.

Turning Off the System

To turn off the power, follow these steps:

CAUTION: Do not remove the diskette/CD-ROM or turn off the system when the Disk Drive In-use Indicator is on. You may lose your data by doing so.

1. If you are using a program, save your data and exit the program.
If you are using Windows 95, you need to shut down Windows before turning off. That way you can be sure that your work is saved. To do so, click the Start button and then click Shut Down. Click Yes. A screen message will appear when you can safely turn off your system.
2. Remove the diskette or CD-ROM, if any, from the drive.
3. Turn off the system by pressing the Power Button.
4. Turn off the power of any connected external devices.

CAUTION: If you have to turn the system on again immediately after turning it off, wait for at least five seconds. Turning the system off and on rapidly can damage it.

The SETUP Program

Introduction

The SETUP program allows you to enter the system configuration information. This information is needed by the system to identify the type of devices installed and to set up special features. Typical configuration information includes the date and time, the type of disk drives, and the amount of memory.

The configuration information is stored in a special kind of memory called CMOS (Complementary Metal Oxide Semiconductor) RAM. CMOS RAM data are backed up by a RTC backup battery.

The configuration information has been set up in the factory for optimal performance. You only need to run SETUP when:

- you see an error message on the screen requesting you to run SETUP
- you make certain changes for special features
- you update the configuration information after adding or removing hardware
- you correct the system date and time

Running SETUP and Moving Around

NOTE: The SETUP program may have been updated after this manual was published. Your actual SETUP screens may vary slightly from those shown in this chapter.

To access the SETUP program, turn on the system and press [Delete] immediately when you see the message that briefly appears at the bottom of the screen telling you how to enter SETUP.

Figure 3-1 shows the first SETUP menu (main menu). The main menu provides nine setup functions and two exit choices.

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 CONFIGURATION SETUP	
LOAD BIOS DEFAULTS	
LOAD SETUP DEFAULTS	
Esc : Quit	
F10 : Save & Exit Setup	
↑↓→← : Select Item	
(Shift)F2 : Change Color	
Time, Date, Hard Disk Type...	

Figure 3-1. SETUP Main Menu

In this main menu, use arrow keys to move among the items and press [Enter] to accept or enter the sub-menu. In a sub-menu, use arrow keys to move among the items and press [+]/[-]/[PgUp]/[PgDn] to select a value.

A brief description of keyboard usage is listed below:

Keys	Functions
Esc	1. Quit without saving. 2. Exit to the main menu.
↑, ↓, →, ←	Moves the cursor to a desired item.
+, -, PgUp, PgDn	Cycle through the pre-defined values for the selected item. Pressing the plus key or [PgUp] brings up the next value; pressing the minus key or [PgDn] does the contrary.
F1	Displays the help screen for the selected item.
F2, Shift+F2	Changes the colors on the screen.
F5	Restore the previous values from CMOS for the option setup menus*.
F6	Loads the BIOS default values for the option setup menus*.
F7	Loads the SETUP default values for the option setup menus*.

Table Note: * Option setup menus refer to BIOS Features Setup, Chipset Features Setup, Power Management Setup, and PCI Configuration Setup menus.

Table 3-1. Keyboard Usage in the SETUP Program

User Version and Technical Version

The SETUP program contains two versions: **Simple** version for the average users and **Technical** version for the advanced users. The Simple version is adapted from the Technical version to keep only the setup items necessary for the average users. You are advised to use the Simple version for reliable setup.

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Whenever you run the SETUP program, the default version is the **Simple** one. You can press [Ctrl]+[Shift]+[F10] to switch between the two versions.

This chapter explains only the Simple version.

Standard CMOS Setup

When you select *Standard CMOS Setup* from the main menu, the submenu as shown below appears that contains all the items in a standard BIOS (Basic Input/Output System).

Date (mm:dd:yy) : Wed, May 29 1996									
Time (hh:mm:ss) : 10 : 36 : 12									
HARD DISKS : TYPE SIZE CYLS HEAD PRECOMP LANDZ SECTOR MODE									
Primary Master : Auto 0 0 0 0 0 0 AUTO									
Primary Slave : Auto 0 0 0 0 0 0 AUTO									
Secondary Master : Auto 0 0 0 0 0 0 AUTO									
Secondary Slave : Auto 0 0 0 0 0 0 AUTO									
Drive A : 1.44 MB, 3.5 in.					Base Memory: 640K				
Drive B : None									
Video : EGA/VGA					Extended Memory: 7168K				
Halt On : All Errors					Other Memory: 384K				
					Total Memory: 8192K				
ESC: Quit			↑↓→←: Select Item				PU/PD/+/-: Modify		
F1 : Help			(Shift)F2: Change Color						

Figure 3-2. Standard CMOS Setup Menu

The followings describe all the items in this menu.

Date/Time

The date and time might be incorrect when you start up your system for the first time. Enter the correct value for each field. Note that the time is based on a 24-hour format.

Primary/Secondary Master/Slave

This item sets the hard disk type.

CAUTION: The hard disk will not work properly if you enter incorrect information. For a hard disk type not matched or listed, you can select *User* to manually define your own type.

The available options are:

<u>Options</u>	<u>Descriptions</u>
<i>None</i>	Select this option if no hard disk is installed.
<i>1 to 45</i>	Select one of the 45 pre-defined types which matches your hard disk.
<i>User</i>	Select this option to manually enter the parameters such as number

Fout! Gebruik het tabblad Start om heading 1 toe te passen op de tekst die u hier wilt weergeven.

of cylinders, number of heads, landing zone, write precompensation, number of sectors/track, and access mode.

Auto Select this option if your hard disk supports the "auto-detect" function. If you select *Auto*, you must also use the *IDE HDD Auto Detect* function. (See "IDE HDD Auto Detect" in this chapter.)

NOTE: If you change the controller of the hard disk interface, note that for an ESDI interface, select type *1*; for a SCSI or CD-ROM interface, select *None*.

Drive A/ B

This item sets the floppy disk drive type.

The available options are *None*, *360K 5.25 in*, *1.2M 5.25 in*, *720K 3.5 in*, *1.44M 3.5 in*, and *2.88M 3.5 in*.

Video

This item sets the type of video in your system.

The available options are *EGA/VGA*, *CGA 40*, *CGA 80*, and *MONO*.

Halt On

This item sets if the system will stop when an error is detected during power up.

The available options are:

<u>Options</u>	<u>Descriptions</u>
<i>All Errors</i>	The system will stop and you will be prompted whenever the POST detects a non-fatal error.
<i>No Errors</i>	The system will not stop for any error that may be detected.
<i>All, But Keyboard</i>	The system will not stop for a keyboard error; it will stop for all other errors.
<i>All, But Diskette</i>	The system will not stop for a floppy disk drive error; it will stop for all other errors.
<i>All, But Disk/key</i>	The system will not stop for a keyboard or floppy disk drive error; it will stop for all other errors.

BIOS Features Setup

When you select *BIOS Features Setup* from the main menu, the submenu as shown below appears that contains items for special enhanced features.

Virus Warning	: Disabled	
CPU Internal Cache	: Enabled	
External Cache	: Enabled	
Quick Power On Self Test	: Disabled	
Boot Sequence	: A,C	
Swap Floppy Drive	: Disabled	
Boot Up Floppy Seek	: Enabled	
Boot Up NumLock Status	: On	
Boot Up System Speed	: High	
Memory Parity Check	: Disabled	
Typematic Rate Setting	: Disabled	
Typematic Rate (Chars/Sec)	: 6	
Typematic Delay (Msec)	: 250	
Security Option	: Setup	
		ESC: Quit ↑↓→← : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

Figure 3-3. BIOS Features Setup Menu

The followings describe all the items in the Simple version.

Virus Warning

If this item is set to *Enabled*, during and after the system boots up, any attempt to write to the hard disk's boot sector or partition table 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 available options are *Enabled* and *Disabled*.

NOTE: This function is available only for DOS or other operating systems that do not trap INT13.

CPU Internal Cache

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

External Cache

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

Fout! Gebruik het tabblad Start om heading 1 toe te passen op de tekst die u hier wilt weergeven.

Quick Power On Self Test

When set to *Enabled*, this item speeds up Power On Self Test (POST) by shortening or skipping some check items.

The available options are *Enabled* and *Disabled*.

Boot Sequence

This item sets the sequence of booting.

The available options are:

<u>Options</u>	<u>Descriptions</u>
C,A	The system will try to boot from drive C (hard disk) whenever turned on. If the hard disk is not bootable, the system will then try to boot from drive A.
A,C	The system will try to boot from drive A whenever turned on. If a diskette with operating system does not exist, the system will then try to boot from drive C (hard disk).
C,CDROM,A	The system will try to boot from the drive C whenever turned on; If a drive C with operating system does not exist, the system will then try to boot from the CD-ROM. If CD-ROM is not bootable, the system will then try to boot from drive A.
CDROM,C,A	The system will try to boot from the CD-ROM whenever turned on; If a CD-ROM with operating system does not exist, the system will then try to boot from drive C. If drive C is not bootable, the system will then try to boot from drive A.

<p>NOTE: This function is available only for IDE type disks. For SCSI type disks, the sequence is always A,C.</p>
--

Swap Floppy Drive

This feature allows you to exchange the drive names of the two floppy disk drives, if installed. Make sure that *Drive A* and *Drive B* item in the *Standard CMOS Setup* menu are updated accordingly.

The available options are *Enabled* and *Disabled*.

Boot Up Floppy Seek

This item sets if the system will verify the floppy disk drive type during POST.

The available options are *Enabled* and *Disabled*. Select *Disabled* to bypass the floppy disk drive check and thus speed up POST.

Boot Up NumLock Status

This item sets if the Num Lock key will be automatically activated after system startup.

3-6Fout! Gebruik het tabblad *Start* om heading 1 toe te passen op de tekst die u hier wilt weergeven.

The available options are *On* and *Off*.

Boot Up System Speed

This item sets the default system speed - the speed that system will run at immediately after power up.

The available options are *High* and *Low*.

Memory Parity Check

This item enables or disables the memory parity checking. Recommended setting for this item is *Disabled*.

Typematic Rate Setting

This item is the master control of the following two items: *Typematic Rate* and *Typematic Delay*.

The available options are *Enabled* and *Disabled*. When set to *Disabled*, the values of the following two items will be determined by the keyboard.

Typematic Rate (Chars/Sec)

This item controls the rate at which a character is repeated (in characters/second) whenever a key is held down.

The available options are 6, 8, 10, 12, 15, 20, 24, and 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, 500, 750, and 1000.

Security Option

This feature allows the password to prevent unauthorized use of the system and the SETUP program.

The available options are:

Options	Descriptions
<i>System</i>	The system will not boot and access to SETUP will be denied if the correct password is not entered at the prompt.
<i>Setup</i>	The system will boot, but access to SETUP will be denied if the correct password is not entered at the prompt.

NOTE: This item is effective only when a password is set. (See "Password Setting" in this chapter.)

Chipset Features Setup

When you select *Chipset Features Setup* from the main menu, the submenu as shown below appears that contains items for the on-board I/O devices.

On-Chip Primary PCI IDE : Enabled On-Chip Secondary PCI IDE: Enabled Onboard FDC Controller : Enabled Onboard Serial Port 1 : 3F8/IRQ4 Onboard Serial Port 2 : 2F8/IRQ3 Serial Port 2 Mode : Standard Onboard Parallel Port : 378/IRQ7 Parallel Port Mode : Normal IDE HDD Block Mode : Enabled IDE Primary Master PIO : Auto IDE Primary Slave PIO : Auto IDE Secondary Master PIO : Auto IDE Secondary Slave PIO : Auto Floppy 3 Mode Support : Disabled	ESC: Quit ↑↓→← : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults
---	--

Figure 3-4. Chipset Features Setup Menu

The followings describe the items for configuring the onboard devices.

On-Chip Primary/Secondary PCI IDE

These items enable or disable the onboard PCI IDE devices.

Onboard FDC Controller

This item allows you to enable or disable the on-board floppy disk drive controller.

The available options are *Enabled* and *Disabled*. If you want to use a separate floppy disk drive controller board, select *Disabled*.

Onboard Serial Port 1/2

This item defines the on-board serial port and sets its address.

The available options are *3F8/IRQ4*, *2F8/IRQ3*, *3E8/IRQ4*, *2E8/IRQ3*, and *Disabled*.

Serial Port 2 Mode

This item sets the IR port (serial port 2) standard depending on the device connected.

The available options are *Standard*, *HPSIR*, and *ASKIR*.

3-8Fout! Gebruik het tabblad Start om heading 1 toe te passen op de tekst die u hier wilt weergeven.

IR Duplex Mode

This item sets the IR transfer mode.

The available options are *Half* (receiving or sending only) and *Full* (simultaneous receiving and sending.)

Onboard Parallel Port

This item sets the address and interrupt channel for the on-board parallel port.

The available options are *3BC/IRQ7*, *378/IRQ7*, *278/IRQ5*, and *Disabled*.

Parallel Port Mode

This item sets the on-board parallel port mode. Your system supports EPP (Enhanced Parallel Port) and ECP (Extended Capabilities Port) standards which turn the standard parallel port into a high speed bi-directional peripheral port. You can select the mode if the device connected to your parallel port supports it.

The available options are *Normal*, *EPP*, *ECP*, and *ECP+EPP*.

IDE HDD Block Mode

This item allows you to enable or disable the block mode access of IDE. If set to enabled, the system will detect the block size of IDE and send the block command automatically.

IDE Primary/Secondary Master/Slave PIO

These items set the IDE channel access mode.

The available options are *AUTO*, *Mode 0*, *Mode 1*, *Mode 2*, *Mode 3*, and *Mode 4*.

Floppy 3 Mode Support

This item sets the "3 Mode" floppy disk drive.

The available options are *Disabled*, *Drive A*, *Drive B*, and *Both*.

Power Management Setup

When you select *Power Management Setup* from the main menu, the submenu as shown below appears that contains items for Power Management features.

Power Management	: Min Saving	
PM Control By APM	: Yes	
Video Off Method	: DPMS	
MODEM Use IRQ	: 3	
Doze Mode	: 1 Hour	
Standby Mode	: 1 Hour	
Suspend Mode	: 1 Hour	
HDD Power Down	: 15 Min	
		ESC: Quit ↑↓→← : Select Item
		F1 : Help PU/PD/+/- : Modify
		F5 : Old Values (Shift)F2 : Color
		F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

Figure 3-5. Power Management Setup Menu

The Power Management feature helps conserve power by putting the system into low power modes when the system is inactive for a period of time, called "time-out." The system will wake up whenever an activity is detected (e.g. pressing a key).

Power Management works in a 3-stage manner following this order:

1. **Doze** mode
2. **Standby** mode
3. **Suspend** mode

The time-out period set for these three modes are sequential in effect. That is after the Doze mode time-out is reached, the Power Management starts the time-out for Standby mode, and after Standby mode the time-out for Suspend mode.

Power Management

This item is the master control of the Power Management features.

The available options are:

<u>Options</u>	<u>Descriptions</u>
<i>Disable</i>	The Power Management feature does not take effect.
<i>User Define</i>	All the settings can be defined for the Power Management to work in the way as specified by the user.
<i>Min Saving</i>	Some items are pre-defined for the Power Management to assumedly save minimum power. The pre-defined settings are: Doze mode: 1 Hour Standby mode: 1 Hour Suspend mode: 1 Hour HDD Power Down: 15 Min
<i>Max Saving</i>	Some items are pre-defined for the Power Management to

3-10 *Fout! Gebruik het tabblad Start om heading 1 toe te passen op de tekst die u hier wilt weergeven.*

assumedly save maximum power. The pre-defined settings are:

Doze mode: 1 Min

Standby mode: 1 Min

Suspend mode: 1 Min

HDD Power Down: 1 Min

PM Control by APM

If the APM (Advanced Power Management) driver is installed, this item allows you to enable or disable control from APM.

The available options are:

<u>Options</u>	<u>Descriptions</u>
No	The system BIOS will ignore APM.
Yes	The system BIOS will wait for APM's prompt before it enters any power saving mode.

Video Off Method

This item defines the screen-off status.

The available options are:

<u>Options</u>	<u>Descriptions</u>
<i>Blank Screen</i>	The screen will be blank.
<i>V/H SYNC + Blank</i>	The screen will be blank and the V-SYNC and H-SYNC signals will be turned off.
<i>DPMS</i>	This function is enabled for video systems supporting DPM.

MODEM Use IRQ

This item defines the modem IRQ channel. The available options are 3, 4, 5, 7, 9, 10, 11, and NA.

Doze Mode

Setting this item allows your system to enter Doze mode when no major activities have occurred during the set time-out period. Any activity will bring the system out of Doze mode.

The available options are *Disabled, 1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 20 Min, 30 Min, 40 Min* and *1 Hour*.

Standby Mode

Setting this item allows your system to enter Standby mode when no major activities have occurred during the set time-out period. Any activity will bring the system out of Standby mode.

The available options are *Disabled, 1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 20 Min, 30 Min, 40 Min and 1 Hour.*

Suspend Mode

Setting this item allows your system to enter Suspend mode when no major activities have occurred during the set time-out period. Any activity will bring the system out of Suspend mode.

The available options are *Disabled, 1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 20 Min, 30 Min, 40 Min and 1 Hour.*

HDD Power Down

Setting this item causes the hard disk to enter power saving mode (motor off) if it is not in use during the set time-out period.

The available options are *Disabled, and 1 Min to 15 Min.*

PCI Configuration Setup

When you select *PCI Configuration Setup* from the main menu, the submenu as shown below appears that contains items for configuring the PCI devices.

<pre>PnP BIOS Auto-Config : Disabled 1st Available IRQ : 10 2nd Available IRQ : 11 3rd Available IRQ : 9 4th Available IRQ : 5 PCI IRQ Actived By : Level PCI IDE 2nd Channel : Enabled PCI IDE IRQ Map To : PCI-AUTO Primary IDE INT# : A Secondary IDE INT# : B</pre>	<pre>ESC: Quit ↑↓→← : Select Item F1 : Help PU/PD/+- : Modify F5 : Old Values (Shift) F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults</pre>
--	--

Figure 3-6. PCI Configuration Setup Menu

The PCI Setup provides the "Plug and Play" function, which automatically sets the IRQ channel, the memory address and the I/O address for your system.

NOTE: *PCI Setup* is for technicians or advanced users only. You are not advised to change the default settings.

Load BIOS Defaults

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

If you select *Load BIOS Defaults* from the main menu, BIOS default values will be loaded to the *BIOS Features Setup*, *Chipset Features Setup*, *Power Management Setup*, and *PCI Configuration Setup* menus.

Load Setup Defaults

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

If you select *Load Setup Defaults* from the main menu, Setup default values will be loaded to the *BIOS Features Setup*, *Chipset Features Setup*, *Power Management Setup*, and *PCI Configuration Setup* menus. Your system has been set to Setup default values at the factory.

Password Setting

The *Password Setting* option works in conjunction with *Security Option* in the *BIOS Feature Setup* menu to prevent unauthorized access to the system and SETUP program (See "Security Option" in this chapter.)

To enter or change the password, select the option from the main menu and follow the on-screen prompts. To disable the password, simply press [Enter] without typing any characters.

IDE HDD Auto Detect

If your IDE hard disk supports the *auto-detect* function, the *IDE HDD Auto Detect* feature can automatically detect the parameters of the hard disk, including size, cylinders, number of heads, sectors per track, write precompensation, and the access mode.

<p>NOTE: By selecting the Primary/Secondary Master/Slave items from the STANDARD CMOS SETUP option, you can set the hard disk type manually.</p>

The SETUP program will display all possible modes supported by the hard disk including Normal, LBA (Logical Block Addressing), and Large modes. See below for explanations.

1. Normal mode

This is the generic access mode in which neither the BIOS nor the IDE controller will make any transformations during accessing.

The maximum number of cylinders, heads, and sectors for Normal mode are 1024, 16, and 63. If Normal mode is selected, the maximum accessible hard disk size will be 528MB even though its physical size may be greater. See the formula below:

$$\begin{array}{r}
 \text{no. of cylinders} \quad (1024) \\
 \times \text{ no. of head} \quad (16) \\
 \times \text{ no. of sectors} \quad (63) \\
 \times \text{ bytes per sector} \quad (512) \\
 \hline
 528\text{MB}
 \end{array}$$

2. LBA mode

This is a new access mode for overcoming the 528MB bottleneck. The number of cylinders, heads, and sectors shown may not be the number physically contained in the hard disk.

During accessing, the IDE controller will transform the logical address described by sector, head, and cylinder number into its own physical address inside the hard disk.

The maximum size supported by LBA mode is 8.4GB (Gigabytes). See the formula below:

$$\begin{array}{r}
 \text{no. of cylinders} \quad (1024) \\
 \times \text{ no. of head} \quad (255) \\
 \times \text{ no. of sectors} \quad (63) \\
 \times \text{ bytes per sector} \quad (512) \\
 \hline
 8.4\text{GB}
 \end{array}$$

3. Large mode

This is an extended access mode supported by the SETUP program for some IDE hard disks that contain more than 1024 cylinder without LBA support. Also for users who do not want LBA, the Large mode provides an alternative.

Example of Large mode:

Cylinders	Heads	Sector	Mode
1120	16	59	Normal
560	32	59	Large

BIOS tricks the operating system that the number of cylinders is less than 1024 by dividing it by 2. At the same time, the number of heads is multiplied by 2. A reverse transformation process will be made inside INT 13h in order to access the right hard disk address.

The maximum size supported by Large mode is 1GB. See the formula below:

$$\begin{array}{rcl} \text{no. of cylinders} & & (1024) \\ \times \text{ no. of head} & & (32) \\ \times \text{ no. of sectors} & & (63) \\ \times \text{ bytes per sector} & & (512) \\ \hline & & 1GB \end{array}$$

NOTE: To support LBA or Large mode of hard disks, the hard disk service routine uses INT 13h . If you are running under an operating system which replaces INT 13h, the system may fail to access a hard disk with LBA/Large mode selected.

Exiting Setup

To exit the SETUP program, you can choose *Save & Exit Setup* or *Exit Without Saving* from the main menu.

Option Installation

Important Notes Before You Begin

It is advised that you ask an authorized dealer to install an option for you. If you want to install an option by yourself, be sure to read the notes in this section and follow the instructions in the relevant section as well as the instructions provided by the option manufacturer.

CAUTION: Static electricity can destroy electronic devices. Whenever you handle an 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 before unplugging the power cord.

CAUTION: Before you install any option, turn all power switches off. Unplug all power cords from the system unit and all peripherals. Leaving the power on can cause serious damage to your system.

WARNING: To avoid possible injury caused by hot surfaces, allow the internal components to cool before touching.

External Connections

The IR port (Figure 1-2 #8) on the front panel of your system allows you to connect an IrDA-compliant device.

In addition to following the instructions supplied with the device, take note of the following:

- The IR port of the device to be connected must face the IR port of the system within the effective range, i.e. within ± 15 -degrees angle and 1-meter distance.
- The typical communications setting is COM2.
- According to the device connected, set the "Serial Port 2 Mode" and "IR Duplex Mode" in the SETUP program if necessary. (See Chapter 3 for information on running SETUP.)
- When using Windows 95, you can run Direct Cable to effect the connection.

Internal Installation

Removing the System Unit Cover (Desktop Series)

1. Disconnect all power cords and cables from the system unit.
2. Remove the three screws from the rear panel.

Lift the system unit cover backward to unlatch, then lift it up away from the chassis.

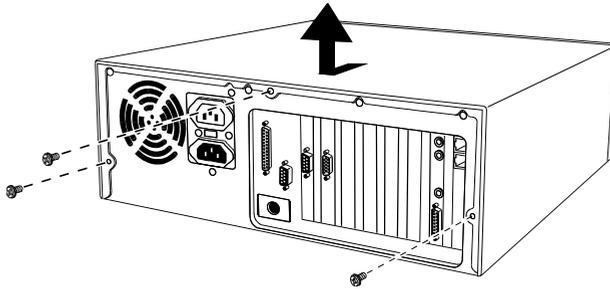


Figure 4-1. Removing the System Unit Cover (Desktop Series)

Removing the System Unit Cover (Tower Series)

1. Disconnect all power cords and cables from the system unit.
2. Remove the front panel of the system unit by inserting a screw driver to the bottom notch and force out the front panel.

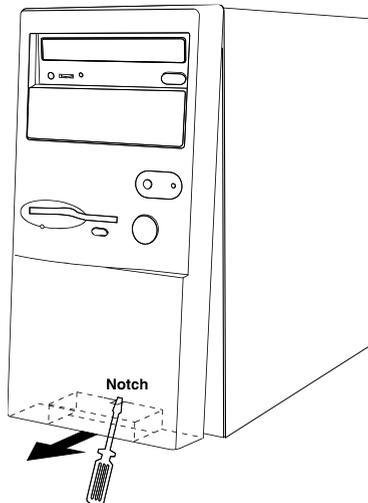


Figure 4-2. Removing the Front Panel (Tower Series)

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3. Turn the top screw on the rear panel counterclockwise to loosen it. (Do not detach it from the cover.) Remove the two lower screws.

Lift the system unit cover up and backward to unlatch, then lift it up away from the chassis.

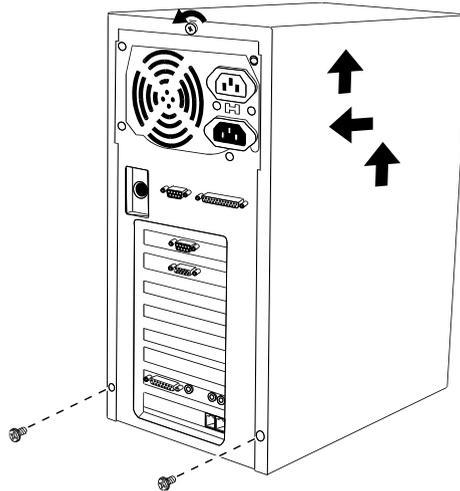


Figure 4-3. Removing the System Unit Cover (Tower Series)

5.25-inch Drive (Desktop Series)

Your system provides a 5.25-inch bay for installing a 5.25-inch device such as a floppy disk drive, MO (Magnetic Optical) drive, or tape drive.

1. Remove the system unit cover. (See "Removing the System Unit Cover" in this chapter.)
2. Remove the front panel by lifting up the locking tabs and detaching the front panel from the chassis.

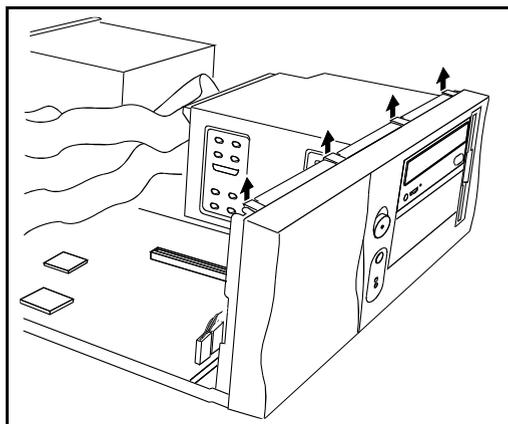


Figure 4-4. Removing the Front Panel (Desktop Series)

3. Remove the 5.25-inch metal plate by forcibly pushing it inward. Note that this will permanently detach the metal plate from your chassis.

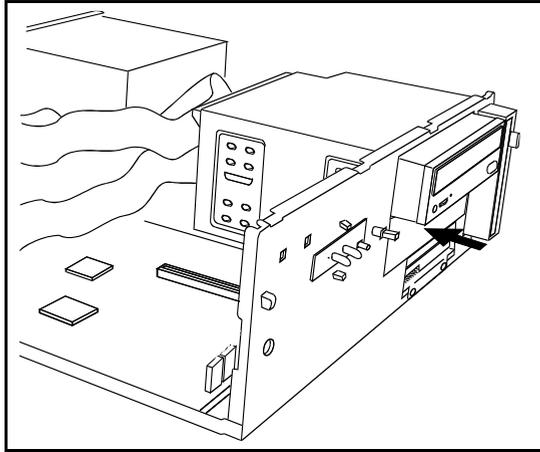


Figure 4-5. Removing the 5.25-inch Metal Plate (Desktop Series)

4. Secure the two specifically-designed screws to the drive. (The screws as shown below can be found in your tool pack.)

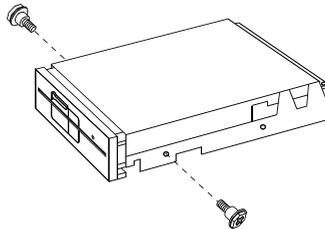


Figure 4-6. Securing Two Screws to the 5.25-inch Disk Drive (Desktop Series)

5. Slide the 5.25-inch drive into the 5.25-inch drive bay and secure with one screw on the left side.

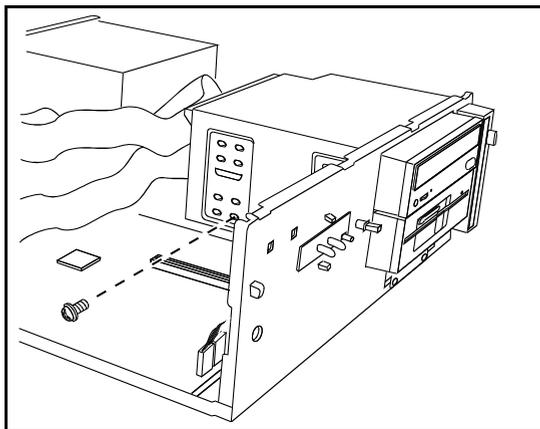


Figure 4-7. Securing the 5.25-inch Disk Drive in Place (Desktop Series)

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6. If you are installing a floppy disk drive, locate the signal cable connected to the existing floppy disk drive. Connect the large connector on this cable to the rear of the disk drive. Note the orientation of the cable connection, i.e. pin 1 of the connectors must match. The colored (usually red) line along the cable edge indicates where pin 1 is.

For other devices, see the manual that came with the device for connection instructions.

7. Connect a power cord coming from the power supply to the rear of the drive.
8. From the front panel, remove the blank 5.25-inch coverplate by pushing it out from the inside.

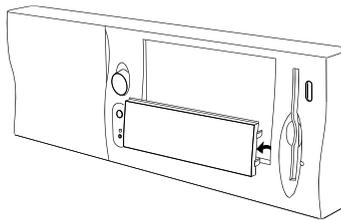


Figure 4-8. Removing the 5.25-inch Coverplate (Desktop Series)

9. Replace the system unit cover. (See "Replacing the System Unit Cover" in this chapter.)
10. Run the SETUP program if necessary. (See Chapter 3.)

5.25-inch Drive (Tower Series)

Your system provides a 5.25-inch bay for installing a 5.25-inch device such as a floppy disk drive, MO (Magnetic Optical) drive, or tape drive.

1. Remove the system unit cover. (See "Removing the System Unit Cover" in this chapter.)
2. Remove the 5.25-inch metal plate by forcibly pushing it outward. Note that this will permanently detach the metal plate from your chassis.

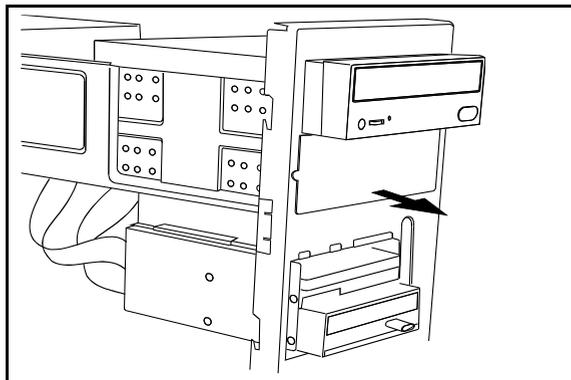


Figure 4-9. Removing the 5.25-inch Metal Plate (Tower Series)

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- Slide the 5.25-inch drive into the 5.25-inch drive bay and secure with two screws on each side.

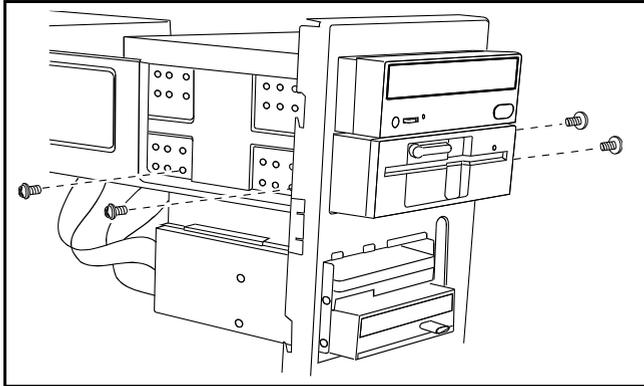


Figure 4-10. Securing the 5.25-inch Disk Drive in Place (Tower Series)

- If you are installing a floppy disk drive, locate the signal cable connected to the existing floppy disk drive. Connect the large connector on this cable to the rear of the disk drive. Note the orientation of the cable connection, i.e. pin 1 of the connectors must match. The colored (usually red) line along the cable edge indicates where pin 1 is.

For other devices, see the manual that came with the device for connection instructions.

- Connect a power cord coming from the power supply to the rear of the drive.
- From the front panel, remove the blank 5.25-inch coverplate by pushing it out from the inside.

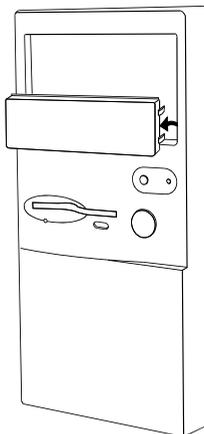


Figure 4-11. Removing the 5.25-inch Coverplate (Tower Series)

- Replace the system unit cover. (See "Replacing the System Unit Cover" in this chapter.)
- Run the SETUP program if necessary. (See Chapter 3.)

4-6Fout! Gebruik het tabblad Start om heading 1 toe te passen op de tekst die u hier wilt weergeven.

3.5-inch Hard Disk Drive (Tower Series)

1. Remove the system unit cover. (See "Removing the System Unit Cover" in this chapter.)
2. Press the latch spring and pull out the hard disk drive bracket.

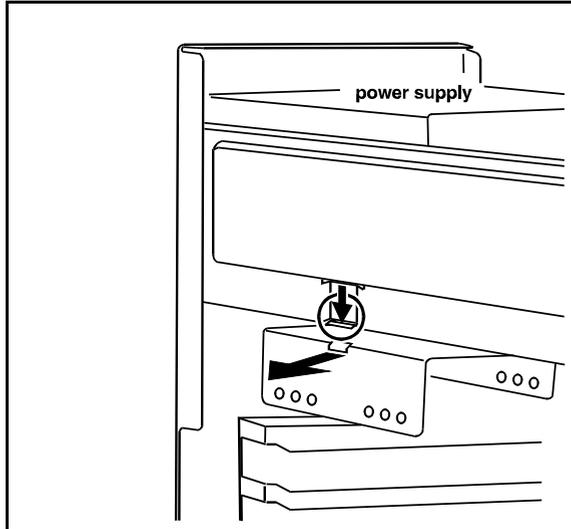


Figure 4-12. Removing the 3.5-inch Hard Disk Drive Bracket (Tower Series)

3. Fit the hard disk drive to the bracket and secure with two screws on each side.

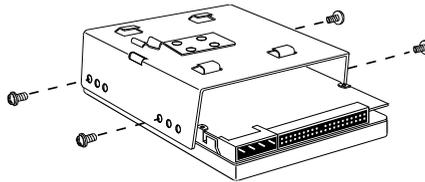


Figure 4-13. Securing the 3.5-inch Hard Disk Drive to the Bracket (Tower Series)

4. Slide the 3.5-inch bracket with the hard disk back into place and make sure the spring latch locks.
5. Locate the signal cable connected to the existing hard disk drive. Connect the remaining connector of this signal cable to the rear of the disk drive. Note the orientation of the cable connection, i.e. pin 1 of the connectors must match. The colored (usually red) line along the cable edge indicates where pin 1 is.
6. Connect a power cord coming from the power supply to the rear of the drive.
7. Replace the system unit cover. (See "Replacing the System Unit Cover" in this chapter.)
8. Run the SETUP program to set the disk drive type. (See Chapter 3.)

Expansion Board

Your system contains seven expansion slots: three ISA slots and four PCI slots.

1. Remove the system unit cover. (See "Removing the System Unit Cover" in this chapter.)
2. Check if there are jumper and switches on the board that need setting. (See the manual that came with the board.)
3. Select an expansion slot according to the type of your expansion board.

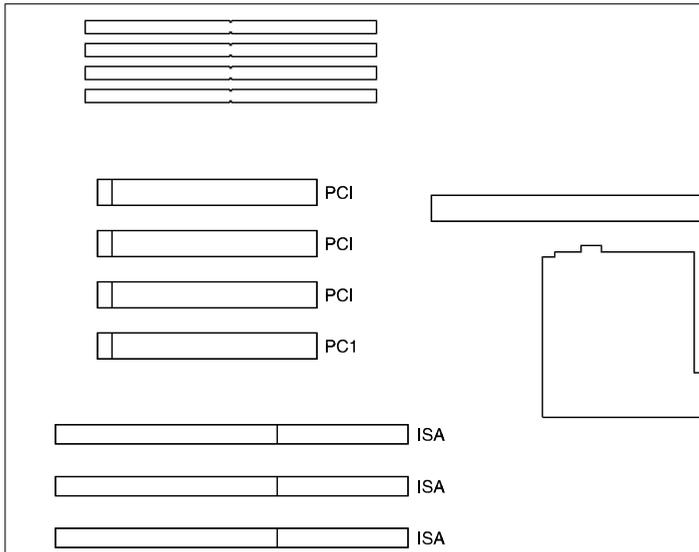


Figure 4-14. Locating the Expansion Slots

4. Remove the metal slot cover by unfastening one screw. Keep the cover for future use when you remove the board.

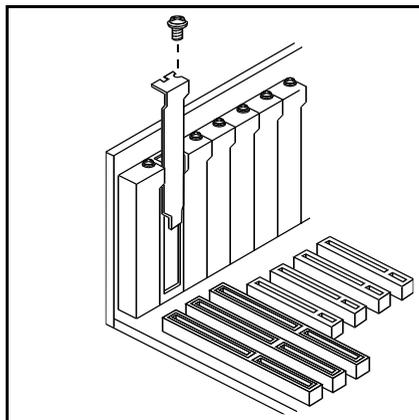


Figure 4-15. Removing the Expansion Slot Cover

- Firmly press the expansion board's edge connector into the expansion slot. When installing a long board, align its front edge with the corresponding board guide. Secure the board with the previously removed screw.

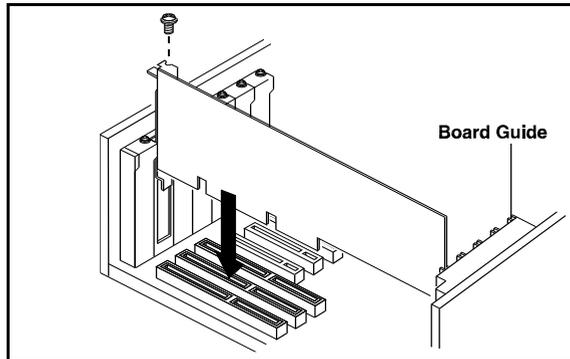


Figure 4-16. Installing an Expansion Board

- Replace the system unit cover. (See "Replacing the System Unit Cover" in this chapter.)
- Run the SETUP program if necessary. (See Chapter 3.)

System Memory

You can expand the system memory to a maximum of 256MB with industry-standard 2/4/8/16/32/64MB SIMMs. The table below lists possible SIMM configurations.

SI1, SI2		SI3, SI4		Total Memory Size
2MB	2MB	–	–	4MB
–	–	2MB	2MB	4MB
2MB	2MB	2MB	2MB	8MB
4MB	4MB	–	–	8MB
–	–	4MB	4MB	8MB
4MB	4MB	4MB	4MB	16MB
8MB	8MB	–	–	16MB
–	–	8MB	8MB	16MB
8MB	8MB	8MB	8MB	32MB
16MB	16MB	–	–	32MB
–	–	16MB	16MB	32MB
16MB	16MB	16MB	16MB	64MB
32MB	32MB	–	–	64MB
–	–	32MB	32MB	64MB
32MB	32MB	32MB	32MB	128MB
64MB	64MB	–	–	128MB
–	–	64MB	64MB	128MB
64MB	64MB	64MB	64MB	256MB

Table 4-1. System Memory Configuration

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NOTE:

1. Use SIMMs of the same speed ($\leq 70\text{ns}$) and, if possible, from the same manufacturer throughout the system to avoid memory problems.
2. You can use the FP DRAM or EDO DRAM.

1. Remove the system unit cover. (See "Removing the System Unit Cover" in this chapter.)
2. Locate the memory sockets on the system board.

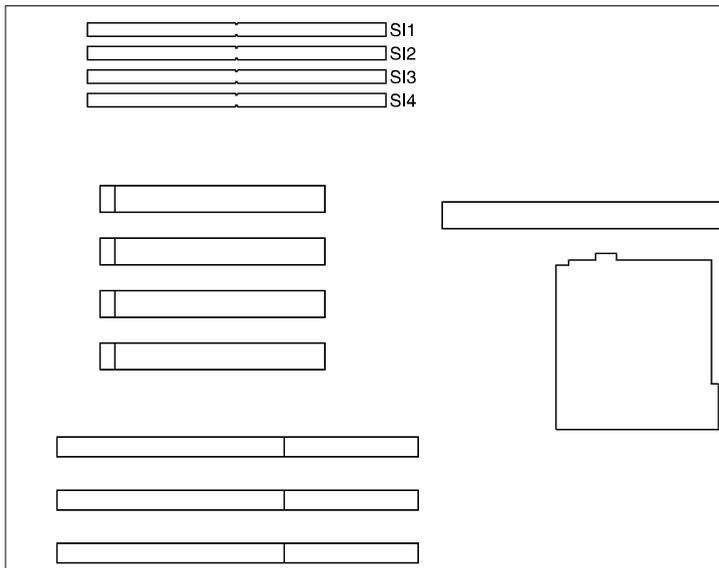


Figure 4-17. Locating the Memory Banks

3. Align the SIMM's notched end with the socket's 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.

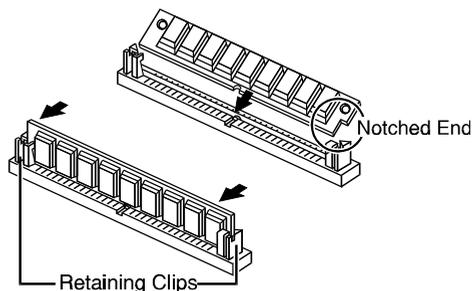


Figure 4-18. Installing SIMM

4. Replace the system unit cover. (See "Replacing the System Unit Cover" in this chapter.)

Cache Memory

1. Install 256KB/512KB module to the PB SRAM socket on the system board.

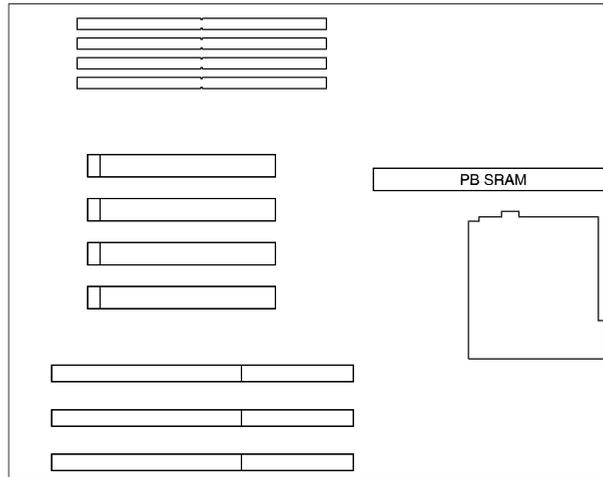


Figure 4-19. Locating the SRAM Socket

2. Set JP100 and JP101 according to the cache size. (See Appendix B.)

CPU

You can upgrade your CPU to a higher frequency one.

1. Remove the system unit cover. (See "Removing the System Unit Cover" in this chapter.)
2. Locate the CPU on the system board. The CPU can be hot if you just finish using the system. Allow the CPU to cool before touching.

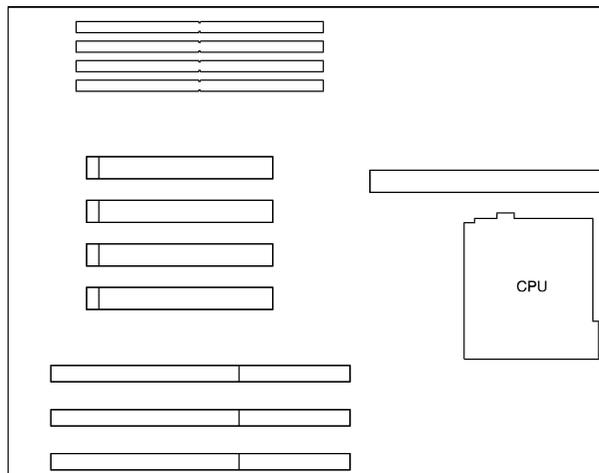


Figure 4-20. Locating the CPU

3. Remove the heatsink as described below.

Remove the clip by first unhooking the back end and then the front end.

Lift the heatsink.

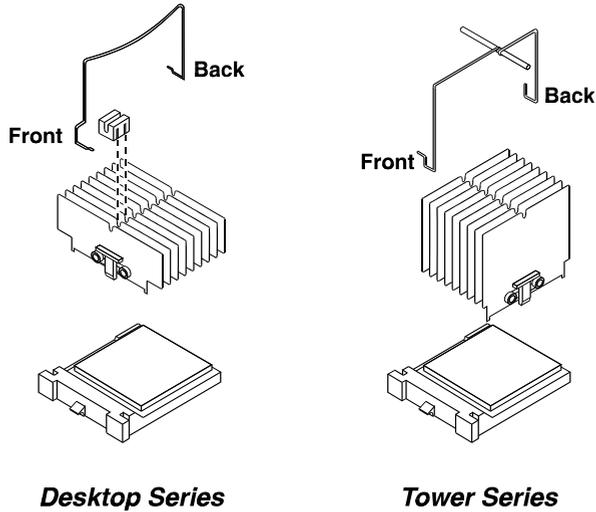


Figure 4-21. Removing the Heatsink

4. To remove the existing CPU, lift the ZIF (Zero Insertion Force) socket arm up to the vertical position and lift the CPU away from the socket.
5. Align the new 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.

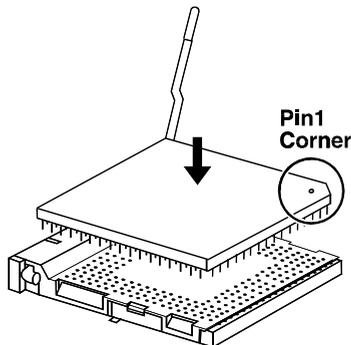


Figure 4-22. Aligning the CPU with its Socket

6. 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.

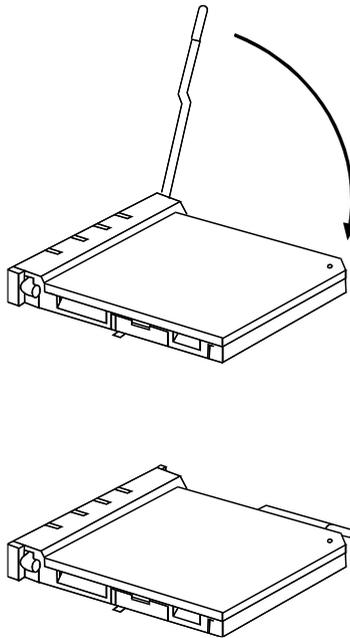


Figure 4-23. Securing the CPU into Place

7. Replace the heatsink as described below.
Align and attach the heatsink to the CPU.
Replace the clip by first hooking the front end and then the back end.
8. Set the jumpers (JP4~JP7, JP10, and JP102) according to the CPU type and speed. (See Appendix B.)
9. Replace the system unit cover. (See "Replacing the System Unit Cover" in this chapter.)

Replacing the System Unit Cover (Desktop Series)

1. Fit the cover back onto the system unit.
2. Replace the three previously removed screws.
3. Reconnect all cables and power cords.

Replacing the System Unit Cover (Tower Series)

1. Fit the back cover onto the system unit.
2. Replace the two previously removed screws and tighten the top screw.
3. To replace the front panel, hold the front panel in a tilted position, first align the panel's top clips with the openings on the system unit, and push fit the clips into position. Then push fit the bottom clips into place.

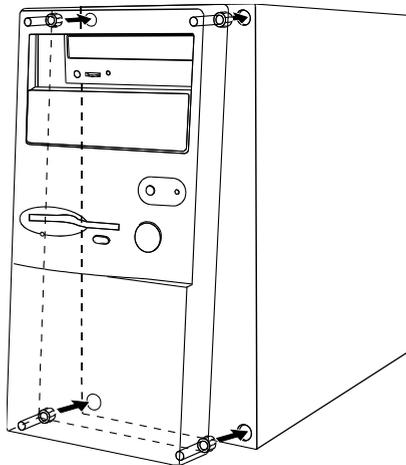


Figure 4-24. Replacing the Front Panel (Tower Series)

4. Reconnect all cables and power cords.

Troubleshooting

Troubleshooting Approach

When your system has a problem, the solution may be simple. Try to isolate which part of the system is causing the problem. Note the following suggestions:

- If error messages appear on the screen, first try to ascertain which part of the system actually issued the error message. Most software programs give reasonably clear error messages. If you are not sure what action to take, consult the relevant program's documentation.
- If an external device has a problem, check if the connectors are correctly and securely connected.
- For problems, the causes of which cannot easily be ascertained, first try rebooting the system. Recreate the situation if possible and write down your observations. Detailed descriptions may be useful to the service technician or your dealer when you consult one for assistance.

Power Problems

When you turn on the system, it does not respond and the Power-On Indicator does not light.

- First turn off the power.
- Check if the voltage switch on the system unit is correctly set.
- Check if the system power cord is properly connected.
- Check if the electrical outlet works.

A message saying "Missing operating system" appears on the screen after you turn on the system.

- Check if a diskette is in the floppy disk drive. If there is, remove it and reset the system. (See "Resetting the System" in this chapter.)

The message "Non-system disk" or "disk error" appears on the screen after you turn on the system.

- A non-bootable diskette is in the floppy disk drive. Remove the diskette or, if you are deliberately trying to boot from a diskette, replace it with a bootable one and press any key to continue booting.

Monitor Problems

The monitor does not respond after you turn on the system.

- Check if the monitor is turned on.
- Turn off the power and check the monitor's power cord and data cable for proper connection.

The characters on the screen are dim.

- Adjust the brightness control on the monitor.

The picture displayed on the screen is an odd shape.

- Refer to the monitor's manual to see how to use its picture adjustment controls to rectify the problem.

The screen is blank.

- During operation, the monitor screen may automatically turn off as a result of Power Management. Press any key to see if the screen comes back.
- Adjust the brightness control on the monitor.

Floppy Disk Drive/Diskette Problems

The Floppy Disk Drive In-use Indicator stays on.

- Check if the diskette is physically damaged.
- Check if the diskette is inserted correctly.
- Check if the software program is damaged.

The disk drive cannot write to a diskette.

- Check if the diskette is formatted.
- Check if the diskette is write-protected.
- Check if you are writing to the correct drive.
- Check if there is enough space left on the diskette.

The disk drive cannot read a diskette.

- Check if the diskette is formatted.
- Check if the diskette is physically damaged.

CD-ROM Drive Problems

The disk drive cannot read a CD.

- Check if the CD is correctly seated.

You cannot eject a CD.

- The CD is not properly seated in the drive. Turn off the system and manually release the CD. (The ways of manually releasing a CD are different for different CD-ROM drive models. Ask your dealer for instructions.)

Hard Disk Drive Problems

The system cannot find the hard disk drive after turned on.

- Check if the hard disk type is configured correctly in the SETUP program.

The hard disk drive error message appears on the screen.

- The hard disk drive has defects. Ask your dealer for help.

The hard disk drive operations seem slow.

- The data files stored on the hard disk drive may be fragmented. Defragment the files if necessary.

The hard disk drive in-use indicator glows without blinking.

- The data files stored on the hard disk drive may be fragmented. Defragment the files if necessary.

Sound Problems

No sound is produced.

- Make sure the speaker set is correctly connected.
- Ensure that the volume control on the sound board is not set too low.
- Check if software-dependent volume control is set too low.
- Ensure that the application being used is properly configured for use with the sound board, and is compatible with it.

Distorted sound is produced.

- Make sure the volume control is not set too high or too low. In most cases, high settings can cause the audio electronics to distort the sound.

Hardware Installation Problems

The system does not recognize the new device.

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- The device may not be correctly configured in the SETUP program. Run the SETUP program to identify the new type.
- Check if a device driver needs to be installed. (See the documentation that came with the device.)
- Check if the device needs any jumper or switch settings. (See the documentation that came with the device.)
- Check the cables or power cords for correct connections.
- For an external device that has its own power switch, check if the power is turned on.

Software Problems

If you are using a multitasking environment, e.g., Windows, try to evaluate which application is causing the problem by closing one application at one time. Make sure the software is properly installed.

If the system operation seems to hang up, first wait. It is possible that the system is processing data. Periodically check the Hard Disk Drive In-use Indicator, if it flashes irregularly, the program may be accessing data and preventing you from using the keyboard. If you are sure your system has stopped, reset the system. (See "Resetting the System" in this chapter.)

Resetting the System

You may have to reset your system on some occasions when an error occurs and the program you are using hangs up.

<p>CAUTION: Since resetting will cause any unsaved data to be lost, do this only as the last resort.</p>

There are three ways to reset. Use them in this order:

1. Press [Ctrl]+[Alt]+[Del]. If this does not work, go to step 2.
2. Press the Reset Button on the front panel of the system. If this does not work, go to step 3.
3. Turn off the system. Wait for at least five seconds and then turn it on again.

Appendix A

Inside the System Unit

NOTE: Specifications are subject to change without notice.

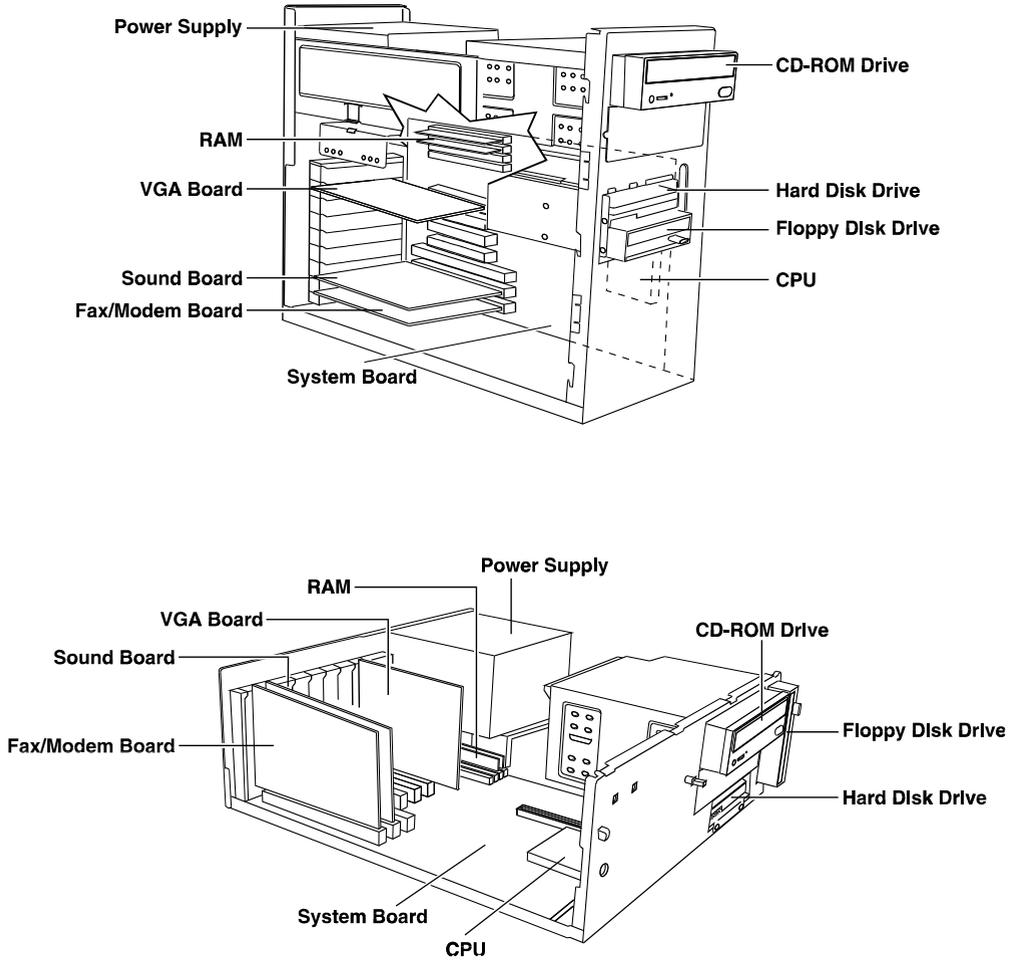


Figure A-1. Inside the System Unit

System Board

The system board is a printed circuit board which incorporates the following chips and circuitry:

CPU, Memory, and Main Components

- **CPU**
Intel Pentium 100/133/166 or compatible CPU, with separate 8KB code and 8KB data caches, 64-bit data bus, and 32-bit address bus, and enhanced floating point capabilities
- **RAM**
8/16MB EDO on board, expandable up to 256MB in four 72-pin SIMM sockets, with 64-bit data bus, supports EDO (Extended Data Output) and FP (Fast Page) DRAM
- **Cache Memory**
256KB/512KB write-back/write-through cache memory
- **ROM BIOS**
256KB supporting video, setup, and power management

Interfaces and Controllers

- **I/O Interfaces**
 - One standard/ECP/EPP parallel communication interface with a DB-25 female connector (PIO)
 - Two RS-232C serial communication interfaces with a 9-pin D-type shell (COM1 and COM2)
 - One IrDA port (COM2)
 - Two PCI-IDE connectors for four IDE devices
 - One floppy disk drive connector
- **Expansion Slots**
Three ISA slots and four PCI slots

Mass Storage Devices

The basic configuration of your system includes one 3.5-inch 1.44MB floppy disk drive, one 3.5-inch IDE hard disk drive, and one CD-ROM drive (select models only).

VGA Board

The DSV3325P VGA board provides the following features:

- PCI 2.1 bus 64-bit 2D/3D Graphics Acceleration and software MPEG video playback VGA
- Design based on S3-ViRGE 64-bit 2D/3D graphics and video accelerator chipset
- Supports 2MB video memory upgradable to 4MB video memory
- Provides high quality/performance 3D texture mapping, flat and gouraud shading for 3D display
- Hardware Display Power Management (DPMS) support for Power Saving feature monitors
- Supports Windows Video Overlay and Scaling for MPEG playback
- Graphics Resolution
 - 2MB Resolutions:
 - 640 x 480 x 16.8 million color 75Hz non-interlaced
 - 800 x 600 x 16.7M colors 75Hz non-interlaced
 - 1280 x 1024 x 256 colors 75Hz non-interlaced
 - 1600 x 1200 x 256 colors 60Hz
 - 4MB Resolutions:
 - 1024 x 768 x 16.7M colors 75Hz non-interlaced
 - 1280 x 768 x 32K colors

Sound Board (Select Models Only)

The sound board, occupying one ISA slot, is a 3D 16-bit stereo audio sound board. It utilizes ESS 1868 AudioDrive chip and is compatible with MS Windows 3.1, NT, Windows Sound Systems, Windows 95, Sound Blaster, Sound Blaster Pro, IBM OS/2, and Adlib.

Fax/Modem Board (Select Models Only)

The fax/modem board, occupying one ISA slot, provides fax, modem, and speaker-phone functions.

Power Supply

The power supply converts the 115 or 230V AC (Alternate Current) line voltage into what is required by the computer components. Computer components require +5, +12, -5, and -12V DC (Direct Current).

The rated output power is 150W max.

WARNING: Do not disassemble the power supply for any reason. There are no user-serviceable parts inside and the high voltages can cause severe shock.

Connectors and Jumpers

Connector Definition

Connectors on the system board provide interfaces to peripheral devices. See Figure B-1 for connector locations and Table B-1 for connector definitions.

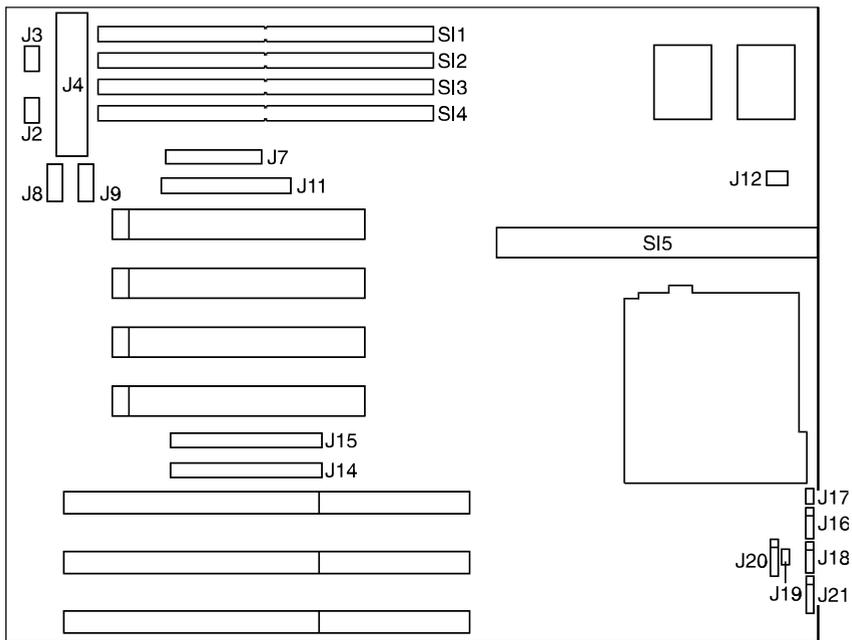


Figure B-1. Connector Positions

Connector	Function
J1	AT keyboard (reserved)
J2	PS/2 mouse
J3	PS/2 keyboard
J4	Power
J7	PIO (printer)
J8	COM2
J9	COM1
J11	Floppy disk drive
J12	CPU fan
J14	Primary IDE
J15	Secondary IDE
J16	Speaker
J17	Reset
J18	IDE hard disk drive LED
J19	Suspend switch
J20	IrDA
J21	Keylock & power LED
SI1 ~ SI4	DRAM
SI5	PB SRAM coast socket

Table B-1. Connector Definitions

Jumper Definition

Jumpers are set to select options supported by the system board. According to your specific hardware configuration, all jumpers have been set at the factory for correct operation and best performance. This section provides jumper information in case you need to change the settings, e.g. when you upgrade the CPU.

A jumper contains two or more pins. To set a jumper to "close" means covering the jumper pins with the jumper cap, and "open" means not to cover the pins. Jumpers with more than two pins have numbers on the system board identifying the pins. To set a jumper to "1-2", for example, means covering pin 1 and pin 2 with the jumper cap.

See Figure B-2 for jumper locations and Tables B-2~B-3 for jumpers definitions.

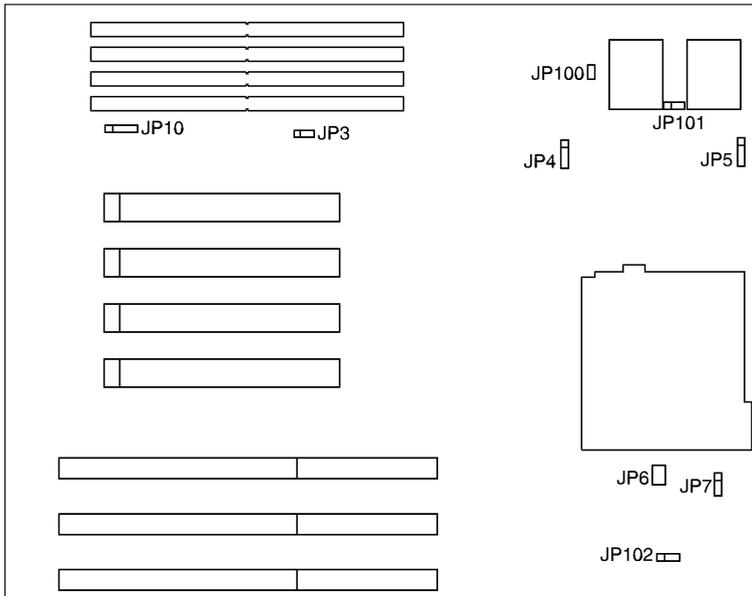


Figure B-2. Jumper Positions

CPU Jumper Settings

Jumper	Definition		
JP4	CPU Clock		
	50MHz	60MHz	66MHz
	1-2, 3-4	3-4	1-2
JP5	CPU Bus Clock Rate		
	Intel core/bus	AMD core/bus	Cyrix core/bus
	1-2	2/1	2/1
	3-4	3/1	--
	1-2, 3-4	5/2	--
open	3/2	3/1	
JP6	CPU Voltage		
	STD/3.3V	VRE/3.5V	P55C/AMD K5* (2.5V~2.9V)
	close	close	open
	JP7	2-3	1-2
JP102	1-2	1-2	2-3

Table Note: * If you install P55C or AMD K5 CPU, set JP10 to
 1-3 : 2.5V 4-6 : 2.7V
 3-5 : 2.8V 2-4 : 2.9V

Table B-2. CPU Jumper Settings

Miscellaneous Jumper Settings

Jumper	Definition	
JP3	RTC	
	discharged	normal
	1-2	2-3
JP100	Cache size	
	256KB	512KB
	open	close
JP101	On-board cache	
	enabled	disabled*
	1-2	2-3

Table Note: * Disable the on-board cache if you install 512KB cache to SI5 when you already have 256KB on-board cache.

Table B-3. Miscellaneous Jumper Settings