

SX-DX Manual

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CHAPTER 1: SYSTEM OVERVIEW SX/DX

Your 486SX/DX-Winbook notebook Personal Computer (PC) represents the leading edge of present day PC technology. Despite its amazing compactness, the 486SX/DX-Winbook incorporates all the functions and features of full sized desktop PCs. This amazing reduction in size and weight was accomplished by taking full advantage of the latest advances in VLSI (Very Large Scale Integration) technology. As a result, the 486SX/DX-Winbook is extremely light and more reliable due to the reduction in the number of on-board components. The 486SX/DX-Winbook is IBM AT and MS-DOS compatible and can run most software designed for use on IBM AT systems in an MS-DOS environment including Windows and Windows applications.

The four models in the 486SX/DX-Winbook series and their distinguishing features are listed below:

- 486SX-WinBook Mono (486Sx CPU, monochrome LCD display)
- 486SX-WinBook Color (486SX CPU, color LCD display)
- 486DX-WinBook Mono (486Dx CPU, monochrome LCD display)
- 486DX-WinBook Color (486DX CPU, color LCD display)

All instructions and specifications in this manual refer to all four models unless otherwise specified, and all models in the series are referred to collectively as the 486SX/DX-Winbook.

The Central Processing Unit SX/DX

The Central Processing Unit (CPU) is the heart of any computer system, coordinating the flow of data and controlling the hardware in a system. The key features of the various CPU's used in the 486SX/DX-WinBook series are outlined here for your reference, though note that [SX/DX 1-1] the CPU type does not affect the operating procedures which are identical for all models.

The 80486SX CPU

Both the monochrome and color versions of the 486SX-WinBook use the Intel 80486SX CPU which includes a built-in 8 Kbyte cache to increase the speed of data access. The CPU uses a 32-bit internal and external data bus (path), offering the speed of 32 bit processing while still remaining fully compatible with the 16-bit AT standard. Note that the 80486SX CPU does not include a math coprocessor and no external math coprocessor solution is provided.

The 80486DX CPU

Both the color and monochrome versions of the 486DX-Winbook use the Intel 80486DX CPU. This CPU also has a built-in 8 Kbyte cache, and also includes an integrated 80487-math coprocessor. This provides more processing power for arithmetic intensive applications such as some graphics and data base programs.

Generally speaking, with the exception of the integrated math coprocessor in the 80486DX CPU, all features and functions of the 80486SX and 80486DX CPU's are identical. Note that both CPU's are downwardly compatible with the 80386, 80286 (AT) and 8086 (XT) CPU's and support all applications designed to run on those CPU's.

CPU Processing Speed

In addition to offering 486SX and 486DX versions, all versions come with varying CPU processing speeds. A choice of 25MHz and 33MHz CPU's is available for all models. In general, the higher the processing speed of the CPU, the quicker an application will run, so a 33MHz system will execute applications quicker than a 25MHz system. The actual difference in speed between applications, however, depends on several factors in addition to the CPU speed, such as the amount of system memory and/or disk access, etc., so the extent to which systems appear quicker/slower depends on the software being run.[SX/DX 1-2]

KEY COMPONENTS SX/DX

This manual contains full instructions for using all the functions of the 486SX/DX-WinBook. Some items in the 486SX/DX-WinBook may vary, such as the hard disk drive type, but all basic functions will be the same. In this section, a brief introduction to the various components in the system are given to give you an overall understanding of the key parts and the names that will be used in this manual to describe them.

The Main System Unit

By the main system unit we refer to the bottom half of the whole system, i.e. the complete unit excluding the LCD display and the keyboard. Contained within the main system unit are the power supply, the mainboard, the storage devices including hard and floppy disk drives and an IC card unit (see below), the battery and all connectors.

Mainboard

The mainboard is contained within the main system unit and is not visible to the user. The mainboard contains the following key components:

- 25MHz or 33MHz Intel 80486DX or 80486SX CPU
- 4MB (megabytes) of main memory (RAM) expandable to 8MB, 16MB or 32MB
- PICO 82C268A core logic chipset
- SystemSoft BIOS with SETUP program and power management

Storage Devices

- One 3.5" 1.44 megabyte floppy disk drive.
- One 120MB 2.5" IDE (AT bus) non-removable hard disk drive
- One PCMCIA type 1/Type 2 IC card unit

Interface Ports

- One external serial (RS-232) port [SX/DX 1-3]
- One external parallel (printer) port
- One external keyboard port
- One external analog VGA monitor port
- One docking system expansion port

The Keyboard

- 84 (USA) or 85 (European) key IBM AT compatible keyboard.
- Integrated two-button trackball
- Integrated cursor keys and numeric keypad.
- LED indicators for Num Lock, Caps Lock and Scroll Lock

The LCD Display SX/DX

All models in the 486SX/DX-WinBook series are available with a choice of monochrome and color LCD displays. The color versions come with a built-in color VGA compatible LCD (Liquid Crystal Display) with a resolution of 640 pixels (dots) by 480 pixels.

The monochrome versions come with a built-in monochrome VGA compatible LCD also with a resolution of 640 pixels (dots) by 480 pixels.

These displays take the place of the monitor in conventional desktop computer systems. Both the monochrome and color LCD displays are fully compatible with the IBM VGA standard, which means that you will be able to run most software in VGA mode which provides the highest resolution. VGA mode also allows you to run software that was designed for VGA and monochrome displays.

UNPACKING AND COMPONENT CHECKLIST SX/DX

Your 486SX/DX-WinBook comes in a single carton. When you open this carton for the first time, check that all the items listed below are present:

1. One 486SX/DX-WinBook computer.
2. One AC adapter and charger.[SX/DX 1-4]
3. One AC power cable.
4. One battery pack.
5. 3.5" VGA Driver/Utility & PCMCIA program diskettes.
6. One dual keyboard cable adapter.
7. 486SX/DX-WinBook User's Manual

If any of the above items are not present, please contact the WinBook support center immediately.

SOFTWARE REQUIREMENTS SX/DX

Please note that the 486SX/DX-WinBook comes with the MS-DOS operating system and Microsoft Windows Ver. 3.1 pre-loaded on the hard disk drive. Other configurations may also include certain other software packages. The 486SX/DX-WinBook is compatible with the IBM PC/AT standard and can run most software designed for that standard. Note that all configurations include driver and utility diskettes that are specifically for use with the 486SX/DX-WinBook.

Operating System

A (Disk) Operating System, abbreviated as DOS or OS, is necessary to be able to use your computer. This software control the basic manipulation of data between the components of the computer and no other software can be run without it. MS-DOS, OS/2 and UNIX are examples of common operating systems and you must load one of these operating systems before you do anything else. Your system comes with S-DOS 6 pre-loaded on the hard disk drive.

Microsoft Windows is a graphical user interface (GUI) which takes over many of the functions of the operating system and is loaded on top of MS-Dos. Your system comes with Windows 3.1 pre-loaded on the hard disk drive.

Applications Software

Applications software refers to software that performs some task, such as a word processor or a spreadsheet. What applications software you should buy depends entirely on what you wish to do.[SX/DX 1-5]

Most software comes in different versions according to the operating environment that it is to be used on; for example software might come in a DOS version, an OS/2 version and a Windows version. You must use the correct version according to the operating system that you have loaded. Note that although Windows is loaded on top of DOS, only Windows versions software are optimized to run in the Windows environment.

Most software is readily available in computer stores or by mail order and you should consult with your local dealer for advice on what software to buy.[SX/DX 1-6]

CHAPTER 2: BASIC OPERATION SX/DX

SETTING UP YOUR SYSTEM

Because the 486SX/DX-WinBook comes as an integrated unit complete with MS-DOS 6 and Windows preloaded, the setup procedures are quite simple, and even if you are new to computers, by following the instructions given here, you will soon be up and running. You must run the 486SX/DX-WinBook from the AC power adapter when you use your system for the first time.

Connecting the Power Adapter

Turn the 486SX/DX-WinBook so you are looking at the rear of the system. Locate the power socket according to the diagram below.

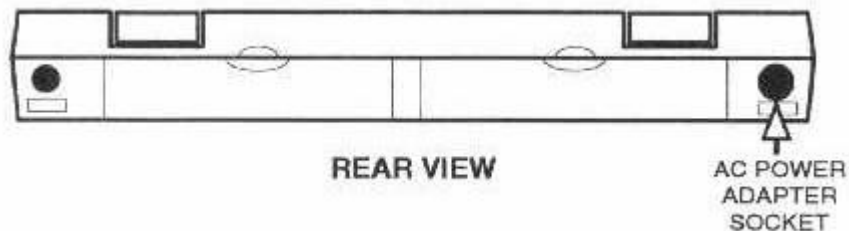


Figure 2-1 Locating the Power Adapter Socket

Plug the cable attached to the power adapter into this power socket. Plug the power cable into the socket on the power adapter, and plug the other end of the power cable into an AC power outlet of any voltage from 90V to 260V. It is not necessary to select any particular voltage as the power adapter has an auto-select feature.[SX/DX 2-1]

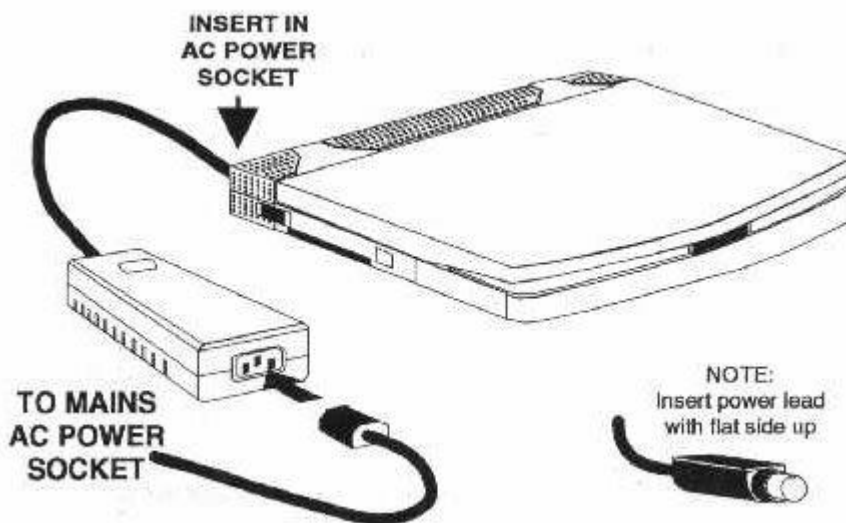


Figure 2-2 System with Power Adapter Connected

Opening the LCD Screen

Having connected the power adapter, turn the system so you are looking at the front. Slide the latch on the front of the system to the right, as illustrated below.

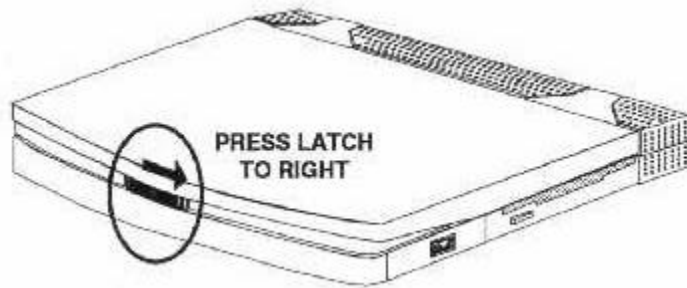


Figure 2-3 Opening the LCD Screen

Raise the LCD screen until it is in the vertical position. You may thin push the LCD screen slightly further back or forward according to your preference. The special hinge of the LCD allows you to position the [SX/DX 2-2] screen at any angle and it will stay fixed at that angle. Usually to obtain the clearest image the LCD screen should be positioned so you can look directly into it at 90 degrees, as shown in the illustration below.

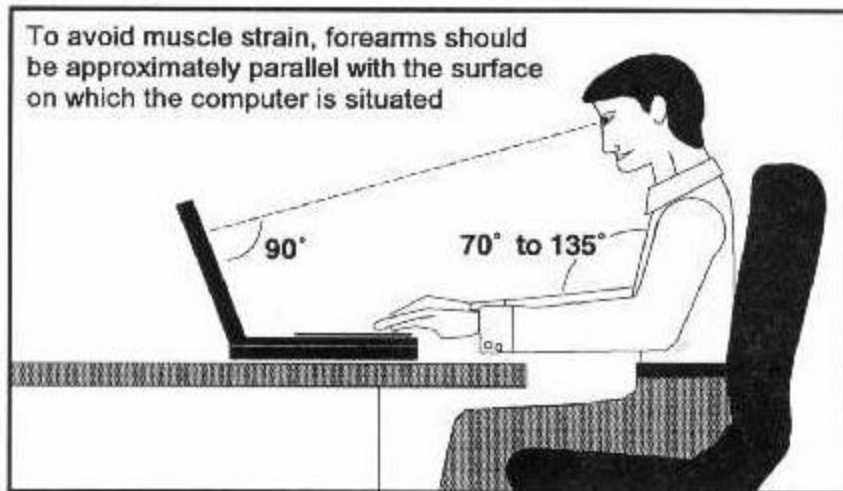


Figure 2-4 Ideal Seating Position for Max. Comfort

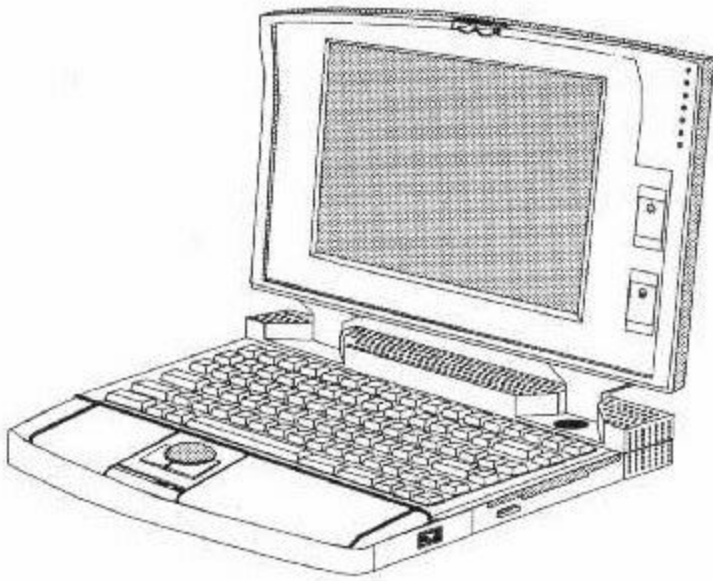


Fig. 2-5 WinBook-Color/Mono Set Up and Ready Use

[SX/DX 2-3]

Turning the Power On

Locate the Power ON/OFF switch at the rear of the left side of the 486SX/DX-WinBook, as shown in the illustration below.

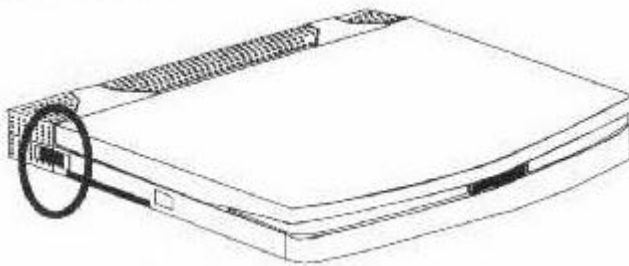


Fig. 2-6 Locating the Power ON/OFF Switch

Press the switch and the Power ON LED indicator on the top of your 486SX/DX-WinBook will illuminate. The backlight of the LCD screen will also come on and the system will then start to boot up.

And that is all it takes to get started with your 486SX/DX-WinBook!

USER CONTROLS SX/DX

In order to get the most out of your 486SX/DX-WinBook it is essential that you have a good understanding of the controls and indicators on the system. In this section, a detailed explanation of all the controls on your 486SX/DX-WinBook is given and we recommend that you read the whole section through before you start using your system. Please refer to the illustration on the following page for a key to the location of the user controls and LED indicators.

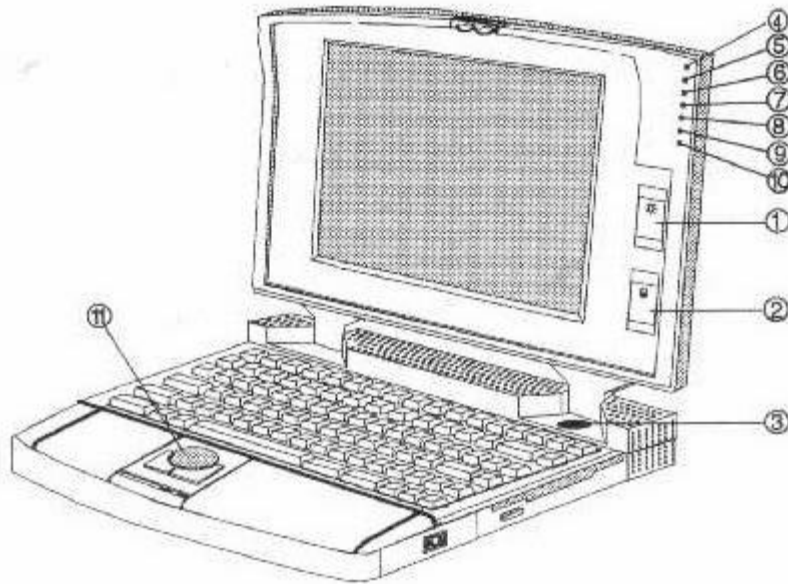


Fig. 2-7 Key to User Controls and LED Indicators

1 – LCD Brightness Control

The LCD brightness control can be used to increase/decrease the brightness of the display. Slide the control up to increase brightness, down to decrease brightness. The setting of the brightness control will depend on the current lighting conditions and is important for obtaining the clearest possible image.

If nothing appears on the LCD screen when you turn on your computer, it may be because the brightness control is set at minimum brightness and you should always check the setting of this control first.

2 – The LCD Contrast Control

The Contrast control acts in exactly the same way as the contrast switch on a conventional monitor. By adjusting the contrast control you can adjust the comparative brightness between normal text and highlighted text. You can adjust the contrast switch during use to achieve the optimum setting according to each individual software.

3 – The Suspend Switch

The suspend switch is situated on the top panel beneath the right hinge of the LCD display.

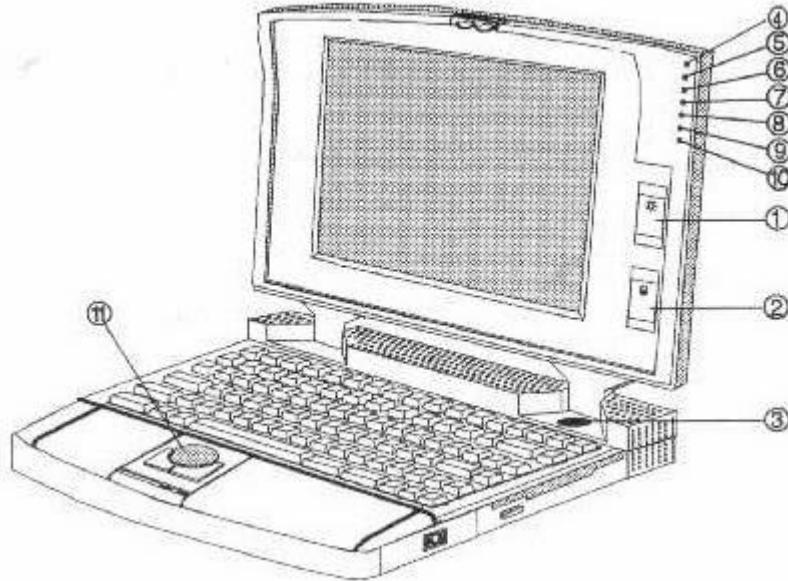
The Suspend switch is a power saving device that is useful when running your system from batteries.

When you press the Suspend switch, the display will become blank and to all intents and purposes your 486SX/DX-WinBook will appear to have been turned off. In this state your system is using a minimum of power. When in suspend mode, the Suspend LED on the LCD screen will illuminate.

To resume, simply press the Suspend switch again and the display will be returned exactly as it was before. The Suspend switch allows you to save power without having to turn your 486SX/DX-WinBook off and then on again, and is extremely useful when you wish to take a short break from what you are doing.

THE LED INDICATORS SX/DX

On the right side of the LCD screen is a row of seven LED indicators that indicate the status of certain functions. These are detailed below.



(From figure 2.7)

4 – Power LED

The power LED will be illuminated when your system is turned on, and will remain illuminated until you turn the power off. Note that the power LED is also visible on the top of the LCD panel so that when the LCD is in the closed position you can still see whether the power to the computer is turned on or not,

Note that the Power LED also functions as a battery low indicator. When the battery power is low the Power LED will flash.

5 – FDD LED

The FDD (Floppy Disk Drive) LED will illuminate whenever data is being read from or written to the floppy disk drive installed in your system. As long as the floppy disk drive is not being accessed the FDD LED will remain unlit.[SX/DX 2-6]

6 – HDD LED

The HDD (Hard Disk Drive) LED will illuminate whenever data is being read from or written to the hard disk drive installed in the system. As long as the hard disk drive is not being accessed the HDD LED will remain unlit.

7 – Suspend LED

The SUSPEND LED will illuminate when the system has entered into Suspend mode by pressing the Suspend switch on the computer. Suspend mode is a power saving mode which can be entered to save battery power during usage.

8 – Num Lock LED

The NUM LOCK LED refers to the NUM LOCK key on the 486SX/DX-WinBook's keyboard. On a conventional keyboard, this LED is usually situated on the keyboard itself. When illuminated, the NUM LOCK LED indicates that the NUM LOCK key has been pressed, in which case the numerical keypad will be in numeric mode. The NUM LED will go off when the NUM LOCK key is pressed a second time. Please refer to the keyboard chapter in this manual for details of the NUM LOCK key.

9 – Scroll Lock LED

The SCROLL LOCK LED refers to the Scroll Lock key on the 486SX/DX-WinBook's keyboard. When illuminated, this indicates that the Scroll Lock key has been pressed. The SCROLL LOCK LED will go out when the Scroll Lock key is pressed a second time. Please refer to Chapter 4 for details of the Scroll Lock key.

10 – Caps Lock LED

The Caps Lock LED refers to the Caps Lock key on the 486SX/DX-WinBook's keyboard. On a conventional keyboard, this LED is usually situated on the keyboard itself. When illuminated, the Caps Lock LED indicates that the Caps Lock key has been pressed, in which case all letter keys will be typed in upper case (capital). The Caps Lock LED will go off when the Caps Lock key is pressed a second time. Please [SX/DX 2-7] refer to the keyboard chapter in this manual for details of the Caps Lock key.

11. Built-in Trackball

The built-in trackball can be used to control cursor movement on the screen in much the same way as a mouse. The two buttons act as the left and right mouse buttons. The function of the two buttons will depend on the software being used, though in general, the left button is used to execute a command or select an item and the right button is used to cancel or quit a function.

IMPORTANT NOTE

After a period of use, dust and small particles may enter the trackball unit resulting in uneven movement. Please refer to [Chapter 9](#) for instructions on cleaning the trackball.[SX/DX 2-8]

CHAPTER 3: DATA STORAGE DEVICES SX/DX

INTRODUCTION

The data storage devices included on your 486SX./DX-WinBook consist of a 1.44 Megabyte (M) 3.5" floppy disk drive; one hard disk drive (optional); one Type 1/Type 2 IC card slot. It is via the disk drives and IC card slot that you can load different programs to run on your computer, and store the data that you create.

In this chapter we give a brief introduction to the use of floppy disk drives and diskettes, hard disks and IC cards for those of you who are new to computing. If you are an experienced computer user you will probably already be familiar with this information, and may skip this chapter. If you are a new user, then we recommend that you read this chapter to get an overall understanding of the basic use of disk drives and diskettes.

FLOPPY DISK DRIVES AND DISKETTES SX/DX

Floppy disk drives are so called because they use flexible diskettes that can be inserted and taken out as required. They can be broadly divided into two types – 5.25” and 3.5”. This measurement refers to the size of the diskette that is used with each type, though your 486SX/DX-WinBook uses only the smaller 3.5” drive. This does not impose any limitation on the software you can use, since all popular software packages are available in both 5.25” and 3.5” packages.[SX/DX 3-1]

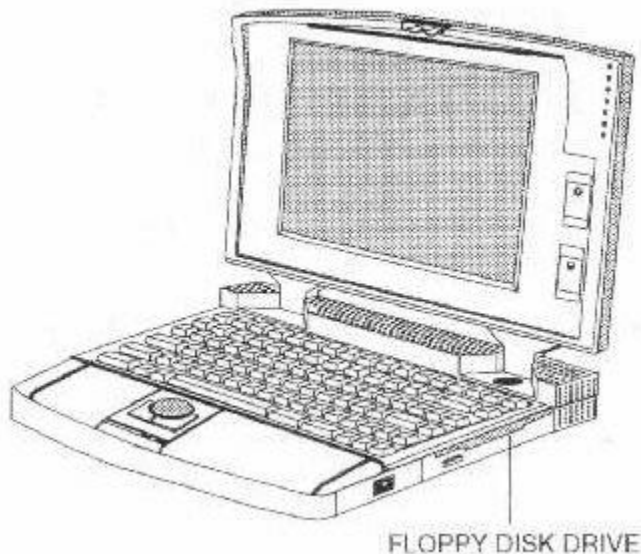


Fig. 3-1 Locating the Floppy Disk Drive

3.5" Disk Drives and Diskettes

3.5” floppy disk drives are smaller and have a larger capacity than 5.25 disk drives. 3.5” disk drives come in two capacities – 720Kbytes and 1.44M. The floppy disk drive installed in your 486SX/DX-Winbook is a 1.44M drive. In order to be able to take advantage of the full 1.44M capacity, high –density diskettes must be used. Such diskettes are marked 2HD. The WinBook may also use 720K floppy disks which are normally labeled DD.

Functionally, 3.5” drives operate in exactly the same way as 5.25” disk drives, though the diskettes used are different in many respects.

3.5” floppy diskettes come in a hard plastic case and are therefore far less susceptible to damage. The magnetic surface of the diskette is not exposed, being covered by a sliding metal cover that is automatically opened when inserted into the disk drive. Rather than having a notch which must be covered by a sticker to make them read only, they come with a tab which can be set as read only or read/write.[SX/DX 3-2]

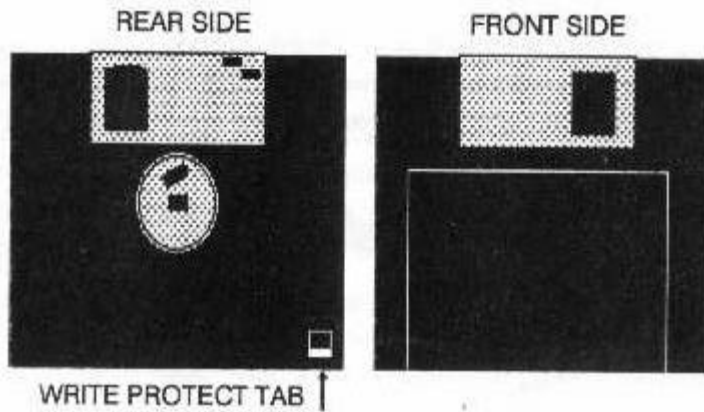


Fig. 3-2 3.5" Diskette

Formatting Diskettes SX/DX

When you purchase diskettes they are usually unformatted, and cannot be used until they have been formatted. Some companies also offer pre-formatted diskettes, though if you purchase such diskettes, you must make sure that they are IBM formatted diskettes.

An unformatted diskette can be compared to a record before the groove has been engraved on it. All diskettes must first be formatted before they can be used to store data. If you insert an unformatted diskette into a floppy disk drive you will get an error message when you try to write to the diskette.

Formatting diskettes is a simple process and is achieved with the MS-DOS **FORMAT** command. For basic instructions on how to use this command, please refer to page 5-10 in this manual or type **HELP FORMAT** at the DOS prompt or refer to the DOS user's manual.

IC CARDS SX/DX

IC cards are the latest advances in storage media, supporting storage of large amounts of data on a credit card sized unit. IC cards come as both Flash memory cards and SRAM cards, both of which can be used with your 486SX/DX-WinBook. IC cards are further divided into Type 1 and Type 2 categories and both are supported by the IC card [SX/DX 3-3] interface installed in your 486SX/DX-WinBook which is a 68-pin type fully compatible with the PCMCIA standard. Some Type 2 IC cards are actually a combination of hardware and software, a fax/modem IC card for example, which includes the fax modem hardware and the software to drive it.

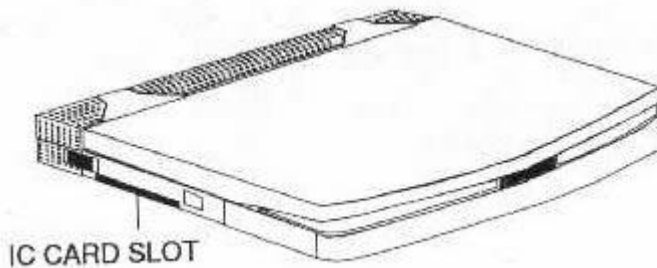


Fig. 3-3 Locating the IC Card Slot

IC cards should be inserted directly into the IC card slot that is situated next to the power switch on the left side of the 486SX/DX-WinBook. When inserted into the unit when the power is on, you will hear two beeps. Two beeps will also be heard when the card is removed.

Please note that certain software drivers need to be loaded before IC cards can be used, or they will not be recognized by the system. IC cards also need to be formatted before they can be used to store data, though the procedure for doing this differs from that used for floppy diskettes. WinBook systems are shipped with PCMCIA software enabled to provide full support for SRAM memory cards. If you wish to use Flash memory cards with your WinBook, please refer to the additional documentation included with your system for an introduction to PCMCIA. Please consult your dealer for more information on the PCMCIA options available.

HARD DISK DRIVES SX/DX

Hard disk drives are also commonly known as fixed disk drives and Winchester disk drives. In this manual we shall refer to them always as hard disk drives. The main difference between hard disk drives and floppy disk drives is that the disks in hard disk drives are not removable. Thus, hard disk drives have no need for diskettes since the disks are built into the unit.

Hard disk drives have a much greater storage capacity than floppy disk drives, and data can be accessed much faster. They are also much more convenient because it is not necessary to keep changing diskettes to load different programs.

Because of their greater storage capacity, you can copy all your commonly used programs from the various floppy diskettes onto your hard disk drive. Then, whenever you want to use a program, you simply call up that program from the hard disk. You can also make hard disk drives “bootable”, which means that you can load MS-DOS directly from the hard disk and do not need to insert your MS-DOS diskette into a floppy disk drive every time you turn on your computer. The hard disk drive options with the 486SX./DX-WinBook include a 2.5” AT bus version with capacities ranging from 120MB to 340MB. Various options for higher capacity hard disk drives are also available.

Taking Care of Hard Disk Drives

Since the disks in a hard disk drive are unmovable there is no risk of damage as with floppy diskettes. The drives themselves, however, are highly sensitive units. The hard disk drive installed in your 486SX/DX-WinBook is specially designed to be shock resistant since you will inevitably be moving your system around. The drive also features autopark capability, which means that the sensitive magnetic heads are automatically locked in position when power is turned off, greatly reducing the chance of damage. Despite this, every care should be taken to avoid subjecting your 486SX/DX-WinBook to heavy shocks or blows that may result in the hard disk drive being damaged. Hard disk drives are sealed units and are not user serviceable. If used in the normal way the hard disk drive in your 486SX/DX-WinBook should give many years of trouble free life.

Preparing Hard Disk Drives

Hard disk drives have to be formatted in the same way as diskettes before you can save data on them, though hard disk drives must under go low level formatting followed by high level formatting. The drive in your 486SX/DX-WinBook has **already been formatted** with MS-DOS 6 and has Windows 3.1 pre-loaded, so **DO NOT REFORMAT YOUR HARD DISK OR YOU WILL ERASE ALL THE PRE-LOADED DATA.**

CHAPTER 4: USING THE KEYBOARD

In order to get the most out of your computer, it is essential that you have a good understanding of your keyboard. Correct keyboard usage can save you a lot of time when typing data into your computer, and will make all your computing tasks more enjoyable.

The Keyboard on your 486SX/DX-WinBook is compatible with a conventional PC keyboard, and contains all the same functions. The layout, however, is slightly different. If you are familiar with a conventional PC keyboard, you will soon get used to the 486SX/DX-WinBook keyboard. Read through this chapter carefully to make sure you are well acquainted with the special function keys and key combinations.

The illustration below shows the layout of the 486SX/DX-WinBook keyboard.



Fig. 4-1 Keyboard Layout

[SX/DX 4-1]

THE TYPEWRITER KEYS SX/DX

The typewriter keys make up the main block of keys on your keyboard, and it is these keys that you will use the most. As is obvious from the name, these keys are basically the same as found on a standard typewriter, with a few extras especially for computer use. The layout of the alphanumeric part of the keyboard (i.e. the part with the letters and numbers on it) is the same as a standard QWERTY Typewriter keyboard, and these are light colored. There are also darker colored keys, some of which have the same functions as typewriter keys (e.g. the Tab key and the Caps Lock key), some of which are not found on a typewriter, and some of which function both as typewriter keys and computer function keys. These will be explained individually later in this section.

If you are used to using a standard typewriter you will have no difficulty getting used to your computer keyboard. However, there are some important differences between using a typewriter and a computer keyboard.

- All the keys are “**typematic**” which means that they repeat as long as you hold them down. Many modern electric typewriters are also typematic, but manual typewriters are not.
- **The space bar** appears to work the same as on a typewriter, but there is an important difference. When you press the space bar you will see a space on your screen, just as when you press a typewriter space bar there is a space on the page. But a computer recognizes a space as a character, and treats it accordingly. Thus, especially in programming or when entering commands, the presence or absence of a space can make a lot of difference.
- The lower case **L** (l) and the number on (1) are not interchangeable as they are on a typewriter.
- The upper case **O** (O) and the zero (0) are not interchangeable as they are on a typewriter.

The darker colored keys to the right and left of the alphanumeric keys are detailed individually below.[SX/DX 4-2]

The Shift Keys

The two **shift keys**, one on the left and one on the right, function exactly as typewriter shift keys. When you press either one of the shift keys and hold it down, any letters you type will be in upper case. As soon as you release the shift key, the letters will again be in lower case. Note that in MS-DOS and many other programs the Shift key can be used in combination with other keys for some special functions. Please see the section on Special Key Combinations in this chapter.

The Caps Lock Key

The **Caps Lock key** is a toggle key, which means that when pressed it stays engaged until pressed a second time. The Caps Lock LED indicator on the front panel of the LCD display will illuminate when the Caps Lock key is engaged. The Caps Lock key is somewhat different from that on a typewriter. It only affects the alpha characters (the letters from A to Z). Punctuation and symbols must be typed with the Shift key held down even when Caps Lock is engaged.

The Tab Key

The **Tab** key functions in the same way as on a typewriter, advancing the cursor to the next tab position. Pressing the Tab key in conjunction with the Shift key will tab to the left.

The Backspace Key

In MS-DOS and in most software, the **Backspace** key moves the cursor one space to the left, simultaneously deleting the character to the left of the cursor. The function of the backspace key may be different in some software.

The Delete Key

In MS-DOS and in most software, the **Delete** key is used to delete the character at the current cursor position. The function of the Delete key may vary according to the software being used.[SX/DX 4-3]

The Enter Key

When typing in data, the **Enter** key functions in the same way as the carriage return key on a typewriter. It advances the cursor one line and returns the cursor to the left hand side of the screen. In MS-DOS and most other software packages the Enter key must be pressed to execute a command.

The Control (Ctrl) Key

The **Ctrl** key is always used in combination with one or more other keys to perform some special function. Its use will vary from program to program. Please also see the section on Special Key Combinations in this chapter.

The Alternate (Alt) Key

The **Alt** key is always used in combination within or more other keys to perform some special function. Its use will vary from program to program. Please also see the section on Special Key Combinations in this chapter.

The Escape (Esc) Key

The use of the **Esc** key will vary depending on the program you are using. In MS-DOS, and in many other software packages, the Esc key is used to cancel a command or exit from a program.

THE FUNCTION KEYS

The Function Keys



Fig. 4-2 The Function Keys

The **Function keys** are labeled **F1 to F10** with F1 and F2 keys doubling as **F11 and F12**. What the function keys do will depend entirely on what software you are using. Each software package may [SX/DX 4-4] or may not allocate a certain function to some or all of the function keys. In this case you will have to consult the manual of that particular software to find out what the function of each key is.

To use the F1 key as F11, press and hold down the **Fn (Function)** key and then press the F1 (F11) key. Similarly, to access F12, press and hold the Fn key and press the F2 (F12) key.

In MS-DOS the **F1 function key** can be used to retype the last command issued one letter at a time. The **F3 function key** can be used to retype the last command issued with a single keystroke.

THE CURSOR CONTROLS KEYS

The Cursor Control Keys

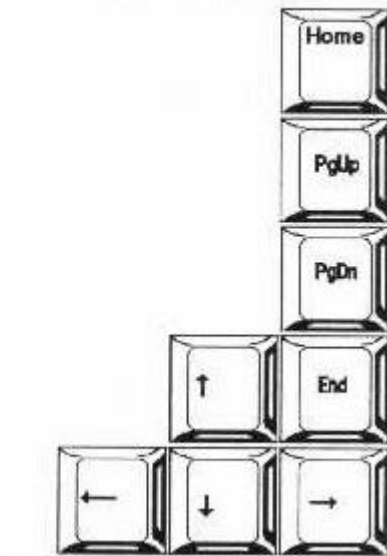


Fig. 4-3 The Cursor Control Keys

The next group of keys is mainly used to control the movement of the cursor about the screen. The **Cursor Up**, **Cursor Down**, **Cursor Left** and **Cursor Right** are used by most software packages to move the cursor one space in the relevant direction. The **PgUp** and **PgDn** keys are usually used to scroll through data up or down one page (or screen) at a time, though their use may vary with different software. The **Home** and **End** keys are usually used to go to the beginning and [SX/DX 4-5] end of a line, screen or document depending on the software. Please refer to your software applications manuals for the precise functions of these keys.

In MS-DOS the **Cursor Left key** acts the same as the Backspace key, deleting the characters to the left of the cursor. The **Cursor Right key** functions the same as the F1 key, retyping the previous command one letter at a time.

SPECIAL FUNCTION KEYS

The Insert Key

The **Insert key** is a toggle key and in MS-DOS and many other software packages, is used to alternate between Insert and Overwrite modes. In Insert mode characters are placed in front of existing text; in Overwrite mode characters type replace the original text. Many software packages assign other special functions to the Insert key, details of which will appear in the relevant manual.

The Delete Key

In MS-DOS and many other software packages the **Delete key** is used to delete the character at the present cursor position.

The Prt Sc (Print Screen)/SysRq Key

When in DOS and most programs running in text mode, the **Prt Sc key** can be pressed to obtain a hard copy printout of the present screen display. The **Sys Rq key** is rarely used but may be assigned some special function in some software. Note that the PrtScn/SysRq key has no action when in Windows.

The Scroll Lock Key

The **Scroll Lock key** is a toggle key. When engaged, the Scroll Lock LED indicator to the right of the LCD display will be illuminated. This key has no function in MS-DOS and its function, if any, will depend on the individual software package. This key has no function in Windows. [SX/DX 4-6]

The Pause/Break Key

This key can be pressed to pause execution of some programs and may have other uses in some software.

THE NUMERIC KEYPAD

The final group of keys on your keyboard is the Numeric Keypad. On a conventional keyboard, the numeric keypad is usually a separate block of keys. On the 486SX/DX-WinBook these keys have been integrated into the main typewriter keys.

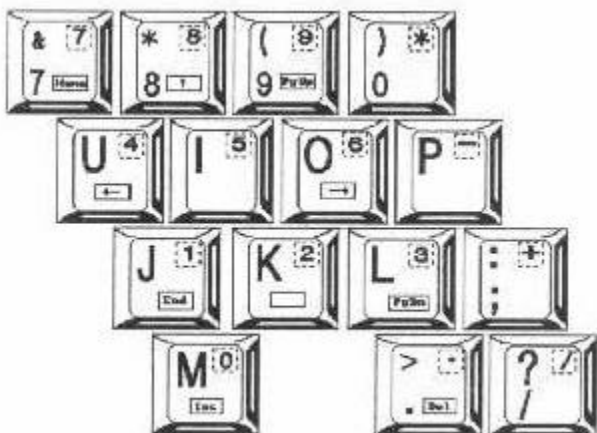


Fig. 4-4 The Integrated Numeric Keypad

NUM LOCK plus the Numeric Keypad

The keys in this group have two functions depending on whether the Num Lock Key is toggled On or OFF, and whether the Fn key has been pressed.

When Num Lock is toggled on (the Num Lock LED in the control panel will illuminate), the M, J, K, L, U, I, O, 7/&, 8/*, and 9/(keys will function as 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 respectively. Thus, with the NUM LOCK toggled ON, if you press the “k” key a 2 will appear on your screen just as if you pressed the five key in the typewriter keys. In addition, the ./> key becomes “.” (decimal point); the //? key becomes “/” [SX/DX 4-7] (division sign); the ;/: key becomes “+”; the P key becomes “-” (minus); and the 0/) key becomes “*” (multiplication sign). With Num Lock on the numeric keypad is especially convenient for users who frequently need to use the keypad as a calculator function.

Fn plus the Numeric Keypad

If you press these keys with the **Fn** key depressed then a different function is accessed. If you press and hold the **Fn** key the ./>, M, J, K, L, U, O, 7/&, 8/* and 9/(keys become Del, Ins, End, Cursor Down, PgDn, Cursor Left, Cursor Right, Home, Cursor Up and PgUp keys respectively. The functions accessible by pressing the function key are printed on the relevant keys enclosed in a box, and duplicate the functions of the cursor keys described earlier.

HOT KEYS SX/DX

Hot keys are special key combinations used to access the setup and power management programs and adjust the display characteristics. Note that these hot keys will only work under DOS and will have no effect under Windows.

<Ctrl> <Alt> S

This hot key is used to access the BIOS Setup program. Please refer to Chapter 8 for details of how to use the setup program. Note that when you exit the setup program the system will always reboot.

<Ctrl> <Alt> P

This hot key is used to access the power management program. This program is used to maximize power efficiency, which is particularly important when running from the battery. Please refer to Chapter 8 for details of the features available in the power management program. Note that the system will NOT reboot when you exit from the power management program and any changes made will be immediately implemented. [SX/DX 4-8]

<Ctrl> <Alt> F8 (Monochrome Models Only)

Toggles the display of screen images between normal contrast mode and automap contrast mode. In automap contrast mode, your computer optimizes the contrast automatically for certain applications software that runs in text mode.

<Ctrl> <Alt> F9 (Monochrome Models Only)

Toggles the display of screen text between normal video mode (black text on white background) and reverse video mode (white text on black background).

<Ctrl> <Alt> F10

If you connect an external CRT VGA monitor, press and hold down the <Ctrl> and <Alt> keys and press the f10 function key to toggle between **Auto**, **LCD**, **CRT** and **SimulSCAN** display modes. *Note that for the WinBook-Color, only two modes are available, CRT and LCD.*

For the WinBook-Mono, in Auto mode, if an external CRT is connected, the display will automatically switch to the CRT monitor; in LCD mode, the display will appear only on the LCD; in CRT mode, the display will appear only on the CRT; in SimulSCAN mode, the display will appear on both displays at the same time. *Note that color display models do not support SimulSCAN and only toggle between LCD and CRT displays.*

COMMON KEY COMBINATIONS SX/DX

As we have already mentioned, in addition to their individual functions, some keys can be used in combination with other keys to provide special functions. And, as in the case of the **Alt** and **Ctrl** keys, some keys only function when pressed in combination with other keys. Before reading about some of the more common key combinations, however, please remember one thing. As you start to use various software packages you will quickly learn that each software has its own rules for the keyboard. Although many of the keys, especially the typewriter keys and cursor movement keys, have these same functions in most different software packages, some keys, especially the function keys F1 to F12, will often have completely different functions. For [SX/DX 4-9] example, one software may use the F5 function key to delete a block of text, and another software might use the F5 function key to insert a block of text.

The special key combinations that we explain here are those that are commonly used by MS-DOS, your computer's operating system software. Since MS-DOS loads every time you turn on your computer before loading the particular applications software you wish to use, the better you know MS-DOS the easier your computing operations will be. Also, some of these key combinations will take effect even when you are using other applications software.

<Ctrl> <Alt> - The Warm Boot

To "boot up" your computer means to turn on your computer and load the operating system. When you first turn on your computer each session by turning on your computer's power switch, this is known as a cold boot. Sometimes when you are using your computer, it will "hang", which means that the display will freeze and nothing you type on the keyboard seems to have any effect. This is a fairly uncommon occurrence and is not a cause for panic. It can be due to any number of reasons such as a "bug" or defect in the software package you are using. If this happens, you can turn off your computer for a few seconds using the power switch. Then when you turn your computer on again, everything should be back to normal.

This is rather inconvenient, however, and a far quicker way is by using the "warm boot". All you have to do is press and hold the **<Ctrl>**, **<Alt>** and **** keys and your computer will reboot without you having to turn your computer on and off again.

Your computer will reboot whenever you press the **<Ctrl> <Alt> ** keys no matter what software you are using. In Windows, pressing **<Ctrl> <Alt> ** will cause a message to pop up on the screen with instructions on how to proceed. Because your system will reboot, make sure you only use it when necessary as it erases the current contents of RAM. If you are editing a document and have not saved it to floppy or hard disk, pressing **<Ctrl> <Alt> ** will erase the document from memory and you will have to start again. [SX/DX 4-10]

<Ctrl> S or <Ctrl> <Pause> - Pause Scrolling

Sometimes when you display data on your screen it will scroll off the screen faster than you can read it. To pause the scrolling of data, you need to press **<Ctrl> S** or **<Ctrl> <Pause>**. When you are ready to resume scrolling press **<Ctrl> S** or **<Ctrl> <Pause>** again.

<Ctrl> C – Interrupt a Command

This command is used to terminate a command already executed. When the command has been

terminated you will be returned to the DOS prompt.

You will frequently use the special key combinations detailed above as you get accustomed to using MS-DOS and other programs. Please note that we have only explained a few of the most commonly used key combinations here, and for further details you should refer to your MS-DOS user's manual. [SX/DX 4-11]

CHAPTER 5. BASIC MS-DOS USAGE

Introduction

If you are a newcomer to computing you may be a total loss as to how to start using your computer. This section is especially for you. Here we explain what MS-DOS is, how it interacts with your computer, and why you need it no matter what software you intend to use. We also explain how to use the basic MS-DOS commands that are essential for managing the information stored on your hard disk and diskettes.

Your MS-DOS software comes with a complete user's manual with comprehensive instructions on how to use the program and it is this manual you will have to read to really understand all about MS-DOS. If you are new to computing, we strongly recommend that you take some time to read the first few chapters of the MS-DOS manual to gain a basic knowledge of PC usage. However, the information we provide here should be enough to get you started, and once you are started, you will quickly find out that computing really is as easy as everyone says it is.

WHAT IS MS-DOS? SX/DX

MS-DOS stands for Microsoft Disk Operating System. Microsoft is the name of the company that produces the program and Disk Operating System (DOS) is a somewhat abbreviated description of what the program does. For the rest of this manual we shall refer to it simply as DOS since there are operating systems available from other companies besides Microsoft. DOS is also known as the system software or the operating system. What you call it is not important but what is important is this – You can do nothing with your computer before you have loaded DOS. No matter what software you want to use, be it [SX/DX 5-1] WordStar, Lotus 1-2-3, Dbase III, a computer game, or even something that you have written yourself, you will not be able to load that software before you have loaded DOS.

The essential part of the DOS program acts as a bridge between your hardware and your software. It communicates with the hardware and controls the flow of information to and from your keyboard, disk drive and monitor. It also provides you with the tools for manipulating the data stored on your computer, allowing you to copy and delete files, see what files you have stored, rename files etc. etc. In short, no matter whether you like it or not, you are going to have to get used to using DOS. DOS includes many commands you may never use depending on what you intend to use your computer for, but you will use some commands every time you turn on your computer.

LOADING DOS SX/DX

There are basically two ways to load DOS – the first is to load it from a floppy diskette, the second is to load it from a hard disk. Loading DOS from a hard disk is automatic whenever you power on the computer. To load DOS from a diskette you simply place the DOS system diskette in your floppy disk drive and turn on your computer. Note that

we say the DOS system diskette. Earlier versions of DOS came on a single diskette, but the latest versions such as 5 and 6 consist of several diskettes. The reason for this is that more commands and features have been added, making it impossible to store everything on a single diskette.

When you load DOS from a floppy, the system files will be read from the diskette and the following will appear on your Screen:

Current date is Mon. 5-28-90

Enter new date (mm-dd-yy)

Details of how to set the date are given in the DOS user's manual, and for the moment we will skip this procedure.

To skip this step press <Enter> and the following will appear:

Current time is 18:12:51.26

Enter new time:

[SX/DX 5-2]

Press <Enter> again and the DOS prompt will appear on your screen, as below:

A>

The DOS prompt tells you that DOS has been loaded and that your computer is now ready to accept your commands. The DOS prompt also tells you what disk drive is currently being addressed. Above we have shown the DOS prompt as A>, but it could also be B> or C>. Each letter refers to the disk drives installed in your system. The letter A always refers to the first floppy disk drive. The letter B refers to the second floppy disk drive. If you only have one floppy disk drive installed both A & B refers to this disk drive. Letters C and above refer to the hard disk drives installed. To change from the A drive to the C drive, you must type the following:

A>C:<Enter>

C>

Note that the letter of the DOS prompt will change according to which disk drive you have selected, though when you boot from the hard disk the C> prompt will always appear. The DOS prompt may be changed with the DOS command PROMPT. Full

details of this command are contained in the DOS user's manual. At this stage, the important point is to understand how the letter of the DOS prompt indicates the disk drive currently being addressed.

GENERAL DOS USAGE SX/DX

As we have explained, DOS controls the flow of information between the various components of your PC. It also provides you with the tools to organize the information on your disk drives and even check whether they are working properly. The core of DOS is a file called COMMAND.COM. This file contains the basic DOS instructions and is loaded into your system's memory every time you turn on your computer. When we talk about "booting" your computer, this means [SX/DX 5-3] to turn on your computer and load the COMMAND.COM. When the DOS prompt appears, this tells you that the COMMAND.COM file has been loaded and that you can start your computing operations.

Internal Commands

Internal commands are those that are automatically loaded into your PC's memory every time you boot your computer. Because they are loaded into memory, they are always available for use even if you have removed the DOS diskette from your floppy disk drive. These commands are the most frequently used, and include CLS, COPY, DELETE, DIR, TYPE and VER, all of which are explained later in this chapter. There are many other internal commands, details of which are given in your DOS user's manual.

External Commands

External commands are used less frequently, and must be loaded from a disk drive. These commands will only be loaded into memory when you type the command name, assuming your DOS diskette is inserted in the disk drive currently displayed in the DOS prompt. For example, if you loaded DOS from your A drive, then to load a program from the DOS diskette, you simply type the name of the command after the A> prompt. If the prompt is shown as C> (i.e. the C drive, the hard disk drive, is currently being addressed) and you type the name of a DOS command while the DOS diskette is in the A drive, you will see an error message since your PC will not be able to find DOS in the C drive. In this case you would first have to type A: to change back to the A drive. Later in this chapter the CHKDSK and FORMAT commands both external commands, are introduced. Full details of all the external commands are to be found in the DOS user's manual.[SX/DX 5-4]

Basic Rules

We list here some basic rules for DOS usage, which apply in all cases:

- Commands can be typed in either uppercase or lowercase letters, or even combinations of both.
- To execute a command the < Enter> key must be pressed after the command has been typed at the DOS prompt.
- To change the disk drive currently being addressed type in the letter of that disk drive followed by a colon (:).
- In order to execute an external DOS command, the relevant command must be present on the disk drive currently being addressed, as indicated by the DOS prompt.
- To correct typing errors when typing in command use the < Backspace> or cursor left keys to delete the incorrect characters.

Loading Other Programs from DOS

When you have booted your computer you will most likely want to load some other program, such as windows, a word processor or database program. By way of a simple example we will load Windows which is contained on the hard disk. You have booted DOS from the C drive, so the C> prompt is shown. Then simply type the name of the command to run the Windows program, as shown below:

```
C>WIN<ENTER>
```

Windows will then be loaded from the C drive and you can begin using this program.

What command you have to issue to load a certain program will, of course, depend on which program you are using, and the relevant manual will tell you what it is. The important thing is that you understand the basic principle. Once DOS is loaded you can load any other program you wish because the internal part of DOS has been stored in your computer's memory. [SX/DX 5-5]

COMMON DOS COMMANDS SX/DX

To give you more confidence before you start the daunting task of pursuing your DOS user's manual, we outline here some of the more common and most basic DOS commands. The operative word here is "outline". For full details of all the possible functions with these commands you will have to refer to your DOS user's manual or type **HELP (command name)** at the DOS prompt. The commands are divided into internal and external commands, starting with the former.

Dir – The Directory Command

The DIR command is probably the most common DOS command and you will use it almost every time you turn on your computer. The DIR command gives you a directory, that is a list, of all the files stored on a diskette or disk. For example, suppose you have a diskette and you want to know what files are stored on that diskette, then, to find out, insert the diskette in your floppy disk drive and type DIR, as below:

```
A>DIR<Enter>
```

A list of file names will appear on your screen. Alongside each file name is the size of the file (in bytes) and the date and time at which that file was last modified.

Beneath the list of files you will also be told how many files are on the diskette and how many free bytes remain on the diskette or disk. The DIR command can be used for floppy diskettes or hard disk drives.

The DIR command can also be used to find information on one particular file. Suppose you have a file called LETTER.TXT on your C: drive and you want to see the date on which the file was last modified, you could type:

```
A>DIR C:LETTER>TXT<ENTER>
```

Notice how the C: used to tell DOS to look on the C: drive is placed after the DIR command and before the file name. In response to such a command you would get a display similar to that shown: [SX/DX 5-6]

```
Volume in drive C has no label
```

```
Directory of C:\
```

```
LETTER TXT 2340 5-01-90 4.53p
```

```
1 File(s) 320000 bytes free
```

This tells you that the file LETTER.TXT consists of 2,340 bytes and was last edited at 04.53pm on the 1st of May 1990. You are also told that there are a total of 320,000 free bytes on the hard drive.

If the list of files is very long, the text will continue scrolling off the top of your screen making it impossible to see the first files in the directory. To pause the scrolling, you need to press < Ctrl> S or < Ctrl> < Pause>. To restart the scrolling press either of these key combinations again. The DIR command has various parameters to display the list of files in different formats and you should refer to the DOS

manual for details.

CLS – Clear Screen

To clear the screen so that it is blank except for the DOS prompt, type:

```
C>CLS<ENTER>
```

The screen will be cleared, with only the DOS prompt remaining in the top left hand corner.

DEL – Delete a File

The DEL command is used to delete a particular file, or a number of files from a diskette or hard disk. Suppose you have a file LETTER.TXT on the diskette and you no longer

wish to keep this file. By deleting it you will create more space on the diskette for other files. To delete the file type:

```
C>DEL LETTER.TXT<Enter>
```

```
[SX/DX 5-7]
```

```
C>
```

If you now use the DIR command to view a directory of files on the A: drive you will see that the LETTER.TXT is no longer there.

If the file had been in the A: drive, you could have executed it as follows:

```
C>DEL A:LETTER.TXT<Enter>
```

```
C>
```

Obviously care should be taken when using the DEL command to ensure that you do not accidentally delete a file you wished to keep.

COPY – Copy a File

COPY is another command you will often use. As its name suggests it is used to copy files from one disk or diskette to another. For example, suppose you have a file called ADDRESS.TXT on a diskette in drive A:, and you now want to copy this file to your hard disk. To do this you would type:

```
A>COPY A:ADDRESS.TXT C:<Enter>
```

```
1 File(s) copied
```

This tells DOS to copy the file ADDRESS.TXT on the A: drive, onto the C: drive.

It is also possible to copy a file under a different name. Supposing you wish to copy the file

ADDRESS.TXT to the C: drive and you want to change the name to OLDADDR.TXT. In this case you would type:

```
A>Copy A:ADDRESS.TXT C:OLDADDR.TXT<Enter>
```

1File(s) copied

The COPY command is one of DOS's most useful tools and you should consult your DOS user's manual for full details.

VER – DOS Version Number

As we have mentioned, DOS has gone through various changes since its first release, each upgrade having a different version number. In order to find out the version of DOS you are using, type the VER command as below:

```
A>VER<Enter>
```

MS-DOS Version 6.00

As you can see the version number of the DOS being used will be displayed. The version number displayed will obviously depend on which version you are using. It is sometimes necessary to know the version number because some programs will only run with certain versions of DOS. For instance, you may have a program which [SX/DX 5-8] requires that you have version 5.00 or above to run. If your VER command tells you the version you are using is 3.10, then that program may not run. The instance of this is very small and 99% of programs will run under any version of DOS above 3.00.

The VER command has no other use than to find out the version of DOS you are using.

TYPE – Type a File to the Screen

The TYPE command is used to view the contents of a file on your screen. It can only be used to view text files, not program files. Text files are the files that you have created with your word processor or other program. Not all text files can be viewed with the TYPE command, however. Some programs, such as WordStar, store their files in a special format and if you try to use the TYPE command to view them, you will get unintelligible garbage on your screen. For such files you will have to use the program that was used to create them to view them.

To use the TYPE command to view the contents of a file TAXFILE.TXT on your C: drive you would type:

```
A>TYPE C:TAXFILE.TXT<Enter>
```

The contents of this file will then scroll continuously onto your screen, and you may use the < Ctrl> S command to pause the scrolling. Note that text displayed with the TYPE command is not displayed in any particular format, and may appear very differently from how you saved it. This is because the TYPE command ignores all formatting commands entered in the program that was used to create the file, and simply displays the text. You cannot edit files with TYPE command that can only be used to view the file contents. [SX/DX 5-9]

External Commands

FORMAT – The Disk(ette) Formatting Command

As we noted in Chapter 3. about the Diskettes and Disk Drives, all diskettes and hard disk drives must be formatted before you can use them. We shall only introduce the formatting of diskettes here, and if you require information on the formatting of hard disk drives then you should refer to your DOS user's manual since this is a complicated process.

When you purchase diskettes, they are normally unformatted. Before you can store data on a diskette, DOS needs to divide the diskette up into sections and prepare it for receiving data. The technical details are not important. What is important is that no matter what kind of disk drive or diskette you are using, the diskette must be formatted before anything can be done with it.

To use FORMAT, type the following command:

```
C>FORMAT A:<Enter>
```

Insert new diskette for drive A:

And strike ENTER when ready

Make sure that the blank diskette is correctly inserted in drive A: and press < Enter>. The FORMAT command will count through the heads and cylinders on your screen and when the procedure is finished, the following will be displayed:

```
Format Complete
```

```
1457664 bytes total disk space
```

```
1457664 bytes available on disk
```

```
Format another (Y/N)?
```

If you wish to format another diskette remove the diskette just formatted, replace it with a new diskette and press "Y". If you do not wish to format another diskette, press "N". In the example above, a 1.44Mbyte diskette was formatted. To format a 720Kbyte diskette it will require a special format command "**FORMAT A: /F:720**" and the total disk space displayed will be 655,360. [SX/DX 5-10]

CHKDSK – The Check Disk Command

The CHKDSK command is a diagnostic command, and it can be used to check the condition of a floppy diskette or hard disk. The command will give information on the diskette or disk being checked and will also give you information on the memory of your computer. Again, the CHKDSK command is an external command, so the DOS diskette must be in the current drive.

To check a diskette in drive A:, type the following command:

C>CHKDSK A:

1457664 bytes total disk space

0 bytes in 1 hidden files

1337344 bytes in 69 user files

118272 bytes available on disk

655360 bytes total memory

566192 bytes free

The example above shows the information given by the CHKDSK command. It tells you that the disk being checked is a 1.44Mbyte diskette; that there is 1 hidden file with 0 bytes (a hidden file is one that will not show up using the DIR command); that there are 69 files on the diskette taking up a total of 1337344 bytes; and that there are 118272 bytes available on the diskette. It also tells you that your PC has a total of 655,360 bytes of memory, and that currently 566,192 of those bytes are free.

The CHKDSK command can also be used to check the contents of a hard disk drive in a similar way. The CHKDSK command does not only look for information, however, but also detects if there are any errors among the files on the disk or diskette being checked. If there are, it will tell you so, and you can use the CHKDSK command to try and save any damaged files. For details of this, please refer to your DOS user's manual or type **HELP CHKDSK** at the DOS prompt. [SX/DX 5-11]

A WORD OF ADVICE ON DOS SX/DX

In this chapter we have barely skimmed the surface of DOS and the many commands available. The commands introduced here will soon become second nature to you as you use them every day. Many of the DOS commands not covered here offer other important functions that you will come to need as you become more acquainted with your PC, and as your requirements increase.

DOS is not a very user-friendly operating system and the average user will never use many of the commands provided. Indeed, many of these commands will be fairly unintelligible to people unfamiliar with programming or computer science. The more you know about DOS, the more you will get out of your computer. We suggest you gradually learn the various DOS commands (by referring to your DOS manual) as you come across them, rather than attempting to learn everything about DOS in a short period of time.

NOTES ON RUNNING WINDOWS SX/DX

Windows is a Graphical User Interface (GUI) that runs on top of DOS. Your system comes with Windows 3.1 already loaded on the hard disk and correctly setup to allow you to commence using the program immediately. To start Windows, type the following command at the DOS prompt:

```
C>WIN
```

Windows will then be loaded. Note that the built-in trackball is the default pointing device when you first run Windows. If you wish to use a mouse connected to the external serial port (refer to page 6-4 for details of how to connect a mouse) rather than the built-in trackball, you must configure the mouse as COM1. You may also connect a PS/2 mouse directly to the external keyboard port.

Extended VGA Drivers with an External CRT Monitor SX/DX

Note that if you connect an external CRT monitor you may wish to load one of the extended resolution display drivers for a higher resolution display than the standard 640 x 480 VGA display. The [SX/DX 5-12] extended resolution display drivers have already been copied to the hard disk and you should use the Windows Setup program or the Setup icon in the Control Panel to load a different display driver. The display drivers provided are listed as **CHIPS 655XX** —, and you can scroll through the list to select the required option. Which option you can use will depend on the specification of your monitor. [SX/DX 5-13]

CHAPTER 6: CONNECTING PERIPHERALS SX/DX

Your 486SX/DX-WinBook computer includes a number of ports to allow the connection of external peripherals. Although your notebook computer is a completely self contained unit which does not require the addition of any other device to function, you may at some time or other find it convenient to connect certain devices to your notebook. The 486SX/DX-WinBook supports the connection of a wide range of commonly used devices just as is possible with a conventional desktop PC. Devices include serial and parallel printers; a mouse or scanner, or any other device that requires a serial port; an external floppy disk drive; an external keyboard; an external monitor etc. Each of the on-board ports is detailed separately on the following pages. Please refer to [Appendix A](#) for details of the pin connections of each port.

THE EXTERNAL KEYBOARD PORT - PS/2 MOUSE SX/DX

The external keyboard port is situated on the left side of the rear panel of the 486SX/DX-WinBook.

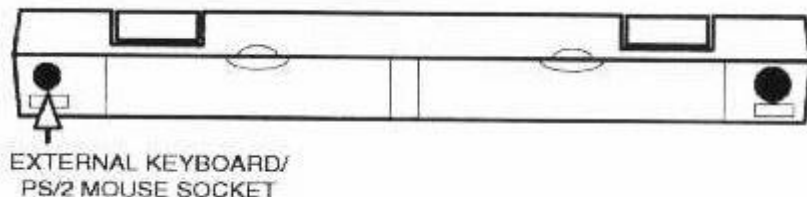


Fig. 6-1 Locating the External Keyboard Port

[SX/DX 6-1]

Please note that the external keyboard socket is smaller than the connector found on standard desktop computer keyboards. In order to be able to connect an external keyboard you will need to use the adapter provided with the unit.

To connect an external keyboard, first turn your 486SX/DX-WinBook off. Then, plug the external keyboard into the external keyboard socket. Now turn your 486SX/DX-WinBook on again. When an external keyboard is connected, you may use either the internal keyboard or external keyboard to input data as both will be activated.

The external keyboard port doubles as a PS/2 mouse port and you may connect a PS/2 mouse directly to this port. Please note that the PS/2 keyboard/mouse port can only use one device at a time, either a mouse or a keyboard, not both. Also, note that if you wish to plug a PS/2 keyboard in the external keyboard socket, you must use a special adapter and cannot connect directly to the WinBook.

THE EXTERNAL CRT MONITOR PORT SX/DX

The external CRT (Cathode Ray Tube) monitor port is located behind the right-hand cover on the rear of the 486SX/DX-WinBook as shown in the illustration below. To gain access to the external monitor connector, simply pull the cover open.

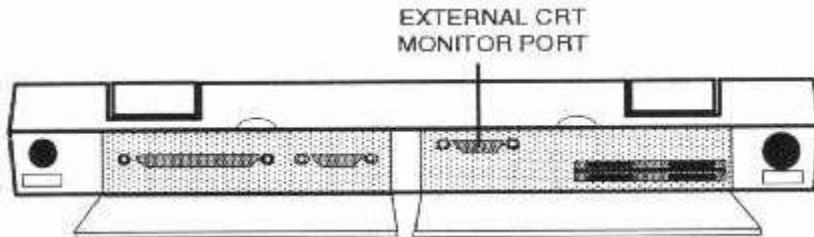


Fig. 6-2 Locating the External CRT Monitor Port

The External CRT monitor port supports the connection of any analog VGA compatible monitor. You cannot connect a digital monitor such as a conventional monochrome, CGA or EGA monitor, to this port. The IBM VGA standard is an analog signal, and only an analog monitor will work with the 486SX/DX-WinBook. If you have a multi-frequency [SX/DX 6-2] monitor this probably supports both digital and analog modes. If you wish to connect such a monitor to the 486SX/DX-WinBook you must configure the monitor in analog mode.

To connect an external monitor, first turn your 486SX/DX-WinBook off. Connect the 15-pin D-connector cable from the monitor to the external monitor port, and secure the connector in place by tightening the two screws. Now turn your system on again and turn the power to the monitor on.

With an external monitor connected, you may toggle the display between the external CRT, the LCD and both at the same time by pressing the < Ctrl> < Alt> F10 key combination.

THE SERIAL PORT SX/DX

The serial port is located behind the left-hand cover on the rear. To gain access to the serial port, open the hinged cover.

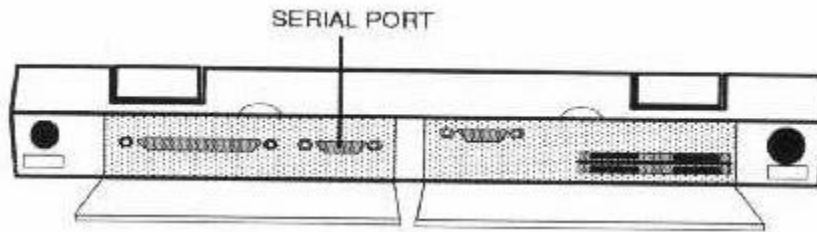


Fig. 6-3 Locating the Serial Port

Serial ports are often called RS-232(C) ports, which refers to the industry standard for this kind of interface. Because the serial interface is an industry standard there is a wide range of devices that can be connected to the serial port. Basically, any device that is listed as a serial device and requires an RS-232 interface can be connected to your 486SX/DX-WinBook. Examples of such devices include a mouse, an external modem and a serial printer. [SX/DX 6-3]

COM 1 and COM 2

The serial port on your 486SX/DX-WinBook is configured as COM1. The COM2 serial port is used by the built-in trackball. When you connect a device to your 486SX/DX-WinBook, you will have some software to configure and run the device. In your software, you must configure the device as being connected to the COM1 serial port. For example, if you connect a mouse to the serial port, you must ensure that you use your mouse software to configure the mouse as being connected to COM1.

How to Connect a Mouse

By way of an example, we describe here the simple procedure for connecting a mouse, which is probably the most commonly used serial device, to your 486SX/DX-WinBook. The procedure for connecting any kind of serial device will be similar. An increasing number of software packages supports the use of a mouse, and a mouse can make the operation of such software extremely quick and easy. The most commonly used mice are serial devices and as such can be directly connected to your 486SX/DX-WinBook. Another kind of mouse is the bus mouse that usually requires a special interface card. You cannot connect this type of mouse to the serial ports, so make sure the mouse you wish to use is a serial mouse.

NOTE

The external serial port is COM1, the optional Fax/Modem is COM3. When using a serial mouse on COM1 there will be a conflict when using the Fax/Modem on COM3. If it is desired to use both a mouse and modem together, the best solution is to use the internal trackball or a PS/2 mouse instead of a serial mouse.

[SX/DX 6-4]

The serial connector on the 486SX/DX-WinBook is a 9-pin male D-connector. A male connector is a connector containing the pins, (a female connector is a connector with pin holes into which the pins on the male connector must be inserted.) D-connector refers to the shape of the connector that has one long side and one short side.

Now look at the connector attached to your mouse. If the connector is a 9-pin female D-connector you may plug this directly onto one of the serial port connectors on your 486SX/DX-WinBook. Secure the mouse connector in place by means of the screws on either side, which should be screwed into the receptacles on the serial port connectors.

If your mouse is fitted with 25 –pin connector you must buy a 25-pin to 9-pin adapter. Such adapters are available at any good computer store. If you need to purchase such an adapter, make sure that the 9-pin connector on the adapter is female.

Having obtained an adapter, plug this onto the connector on your mouse and secure with the attached screws/fasteners, and then connect the adapter to one of the serial ports on your 486SX/DX-WinBook and similarly secure it in place. Your mouse is now connected and ready for use. Please note, however, that a mouse requires a software driver that must be installed before you will be able to use it. The mouse should include a software diskette containing such a driver, so please refer to the manual provided with your mouse for details of how to install the software driver n the 486SX/DX-WinBook.

The installation procedure for the 486SX/DX-WinBook will be the same as for any other PC.

THE PARALLEL PORT SX/DX

The parallel port is located behind the left-hand cover on the rear of your 486SX/DX-WinBook. To gain access to the parallel port, open the hinged cover.[SX/DX 6-5]

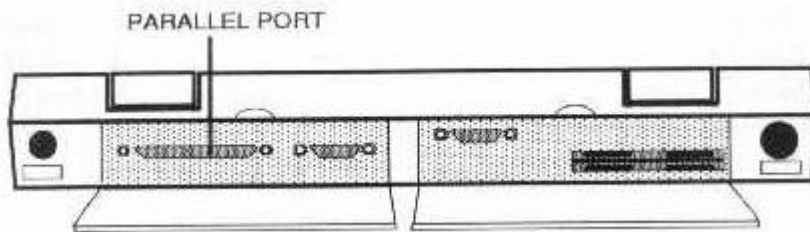


Fig. 6-4 Locating the Parallel Port

Parallel ports are often referred to as Centronics or Printer ports, since a printer is the device most commonly connected to the parallel port. Again, this is an industry standard, so any device that requires a parallel interface can be connected to the parallel port. In addition to printers, common parallel devices include plotters and digitizers.

Connecting a Printer

If you wish to connect a printer to your 486SX/DX-WinBook first make sure the printer is a parallel printer and not a serial printer. The vast majorities of PC printers are parallel devices and can therefore be connected to the parallel port on your 486SX/DX-WinBook. Provided with the printer should be a printer cable. Connect the matching connector on this cable to your printer and secure it in place with the screws or fasteners on the cable connector. Plug the other end of the cable onto the parallel connector on your 486SX/DX-WinBook and secure it in place. And that is all it takes!

Most printers do not require any software drivers and you should be able to access the printer immediately without any further setup procedure. An easy way to test whether the printer is on line is to turn on your 486SX/DX-WinBook and turn on the printer, and then, when your 486SX/DX-WinBook has booted up, press the Prt Sc (Print Screen) key. This should cause the contents of the screen display to be printed out. For details of your particular printer's operation, please refer to the printer manual.
[SX/DX 6-6]

CONNECTING THE OPTIONAL DOCKING STATION SX/DX

An external docking station is available as an option for your 486SX/DX-WinBook. The docking station includes its own power supply and has space for interface cards just as in a conventional PC. The docking station will also allow the use of additional disk drives.

The connector for the external docking station is situated behind the right-hand cover on the rear panel. The whole notebook should be "plugged in" to the docking station via this connector. For full details, please refer to the instructions included with the docking station.

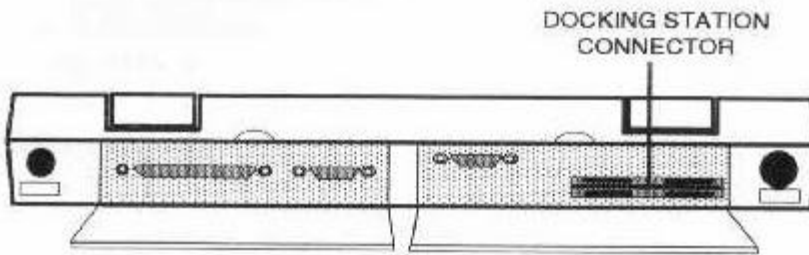


Fig. 6-5 Locating the Docking Station Connector

OTHER AVAILABLE OPTIONS SX/DX

Note that the following options are also available for the 486SX/DX-WinBook, but these options are **NOT** ones the user can install, they must be installed by an authorized dealer. For further information, please call your dealer.

Memory Options

The standard 486SX/DX-WinBook comes with 4MB of memory on a custom memory module. Memory expansion modules supporting 8MB, 16MB and 32MB are also available. Increasing the memory will greatly enhance the performance of programs that use large amounts of memory, such as Windows.
[SX/DX 6-7]

Optional Fax/Modem

An optional Fax/Modem can be installed in the unit, providing a 2400 Hayes compatible modem and G3 compatible fax with send/receive capabilities.[SX/DX 6-8]

CHAPTER 7: POWER OPTIONS SX/DX

The 486SX/DX-WinBook features the ability to run on AC power or the rechargeable internal battery for maximum convenience when at home or in the office or out and about with no access to a power supply. To maximize the efficiency of battery usage the 486SX/DX-WinBook also comes with a number of power conservation features, some of which can be tailored to your particular requirements.

USING THE AC ADAPTER/CHARGER SX/DX

When you have access to AC power you should normally use the AC adapter provided with your 486SX/DX-WinBook in order to save the battery for use when power is not available. The supplied AC adapter can be plugged into any power source from 90 volts to 240 volts since it is auto-adjustable.

When you turn on your system, as long as the AC power adapter is connected, power will be derived from this power supply and the battery will remain unused.

If the main power is accidentally cut off, or the cable is unplugged either from the 486SX/DX-WinBook or from the AC power outlet, the system will automatically switch to battery use with no break in operation. Thus, the on-board battery provides an Uninterruptible Power Supply (U.P.S.) function during AC power operations.[SX/DX 7-1]

USING THE BATTERY SX/DX

The 486SX/DX-WinBook can also be run off the battery supplied, so you can use your system even when no AC power is available. The battery is inserted into the battery cavity in the 486SX/DX-WinBook that is accessed by removing the battery cover.

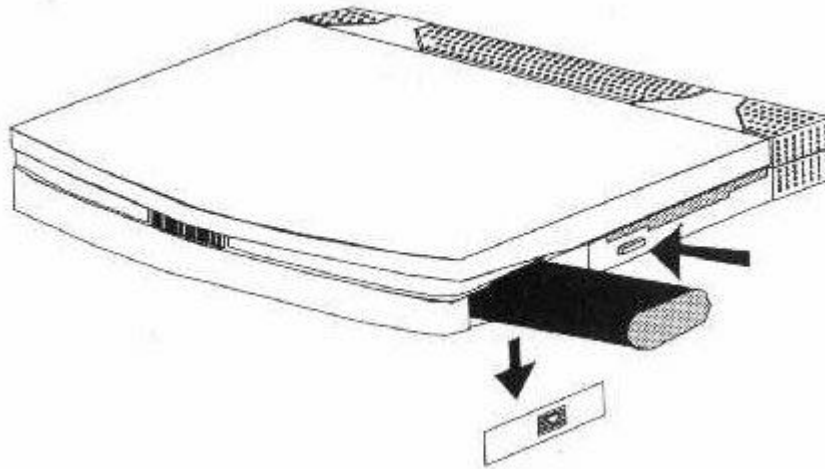


Fig. 7-1 Inserting the Battery

To remove the cover, simply press firmly on the cover with your thumb and slide it downwards. When the battery is installed the battery cover should always be replaced.

The battery will provide at least two hours of usage before it will need to be recharged. If you run the POWER>EXE program, more than two hours of usage will be possible. Please refer to page 7-4 for details.

If you turn on your 486SX/DX-WinBook when the power adapter is NOT connected, the system will automatically use the battery. As soon as you connect the power adapter, the system will automatically use the power adapter.[SX/DX 7-2]

CHARGING THE BATTERY SX/DX

The AC power adapter provided with your system is actually a combined power supply/battery charger. The battery used is a Nickel-Metal-Hydride type and you should only use the supplied charger to recharge this battery. The procedure for charging the battery is detailed below:

1. Turn off the power to the computer and insert the battery in the battery compartment. **NOTE: Make sure you insert the battery in the direction of the arrow on the battery.**
2. Plug the power adapter in the computer and turn the power on. The power LED on the power adapter will illuminate.
3. As long as the battery is inserted and the power adapter is connected, the charge LED on the power adapter will illuminate, indicating that the battery is being charged. Due to the advanced design of the charger circuit, the battery in the 486SX/DX-WinBook will fully charge in 1 to 1.5 hours no matter whether you are using the computer or not.
4. When the battery is fully charged, the Charge LED on the power adapter will flash.
5. The charger will automatically enter “trickle charge” mode to ensure the battery is kept fully charged. To obtain the best performance and prolong battery life, you should continue to charge the battery for a further 30 minutes after the full charge indicator has flashed.
6. When the battery is fully discharged the temperature of the battery will be higher than normal. Please wait approximately ten minutes before recharging the battery. [SX/DX 7-3]
7. If you do not intend to use your computer for a period of time, you should fully discharge the battery and remove the battery from the computer. **DO NOT RECHARGE THE BATTERY BEFORE REMOVING IT FROM THE COMPUTER.**
8. Note that to get maximum battery usage, you should recharge the battery before you use it.

SAFETY NOTES

- Recharge in a place 50°F (10°C) to 95°F (35°C).
- Do not short-circuit battery.
- Do not put into fire.

Saving Battery Power with POWER.EXE

Included with all MS-DOS/IBM DOS version 6 is a program called POWER.EXE, which can be loaded to maximize power usage. As shipped, the WinBook is configured to use this software automatically. We recommend you use this default configuration, especially if you frequently use your 486SX/DX-WinBook on battery power.

When at the command prompt, the user can type:

C>POWER

And the system will print the power management status. For more information on the program, see the user's manual or type **HELP POWER** at the DOS prompt. [SX/DX 7-4]

CHAPTER 8: BIOS SETUP PROGRAM SX/DX

One of the components on the mainboard inside your 486SX/DX-WinBook is the BIOS (Basic Input Output System). This consists of firmware (software burned into hardware) which handles basic routines. The BIOS also includes a SETUP program to allow you to configure the computer and set certain power management features. In this chapter we explain how to use the setup program and power management features to get the best performance from your 486SX/DX-WinBook.

ACCESSING THE BIOS SETUP PROGRAM

To access the BIOS setup program, turn on your computer and press < Ctrl> < Alt> S. The main menu of the setup program will appear on your screen as shown below.

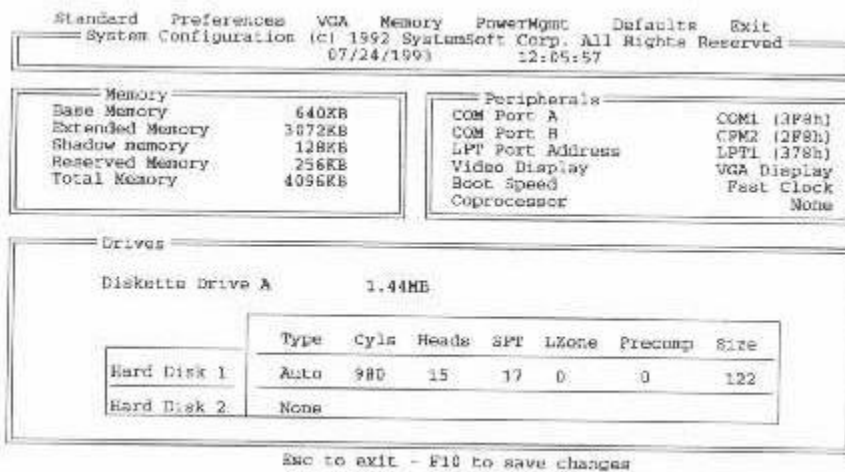


Fig. 8-1 The BIOS Setup Program Main Screen

[SX/DX 8-1]

Use the cursor left/right keys to move between the menu names at the top of the display. The available menus and their overall functions are:

Standard

Allows you to set the time and date in the system clock and make basic hardware configuration settings, including setting the disk drive types, serial and parallel port addresses etc.

Preferences

Allows you to set up some basic preferences, such as boot speed, keyboard typematic rate and delay and boot password.

VGA

Allows you to set the display mode with a choice of LCD only, external CRT only or both together.

Memory

Allows you disable/enable Shadow RAM and cache memory.

Power Management

Allows you to set up the power management features to ensure maximum power saving when running off the battery.

Defaults

Allows you to restore default settings.

Exit

Allows you to save your settings and exit the BIOS setup program. [SX/DX 8-2]

STANDARD SETTINGS SX/DX

First highlight the **Standard** menu and press < Enter>. The following menu will appear on your screen:

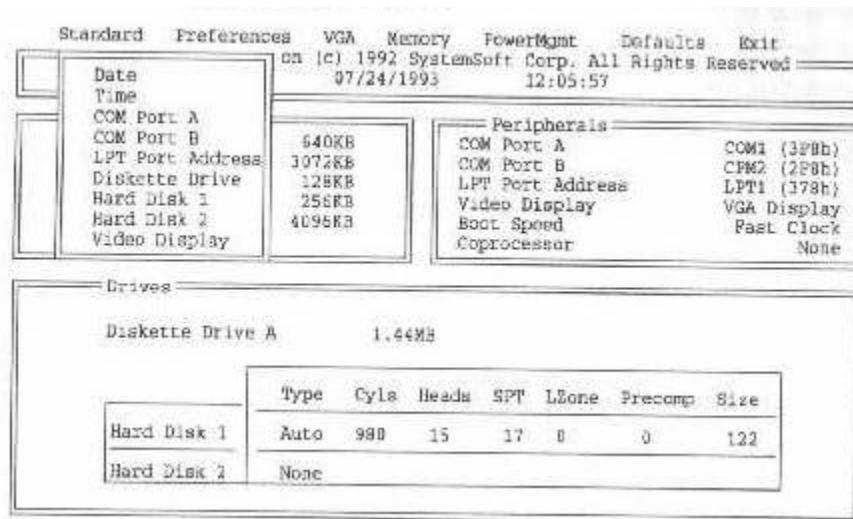


Fig. 8-2 The Standard Settings Menu

Date/Time

First highlight the Date and Time items and enter the correct date and time that will then be used by the system clock.

COM Port A/COM Port B

These items allow you to configure the COM (serial) ports on your 486SX/DX-WinBook. You may set the COM port as COM1/COM3 or COM2/COM4.

COM Port A refers to the external serial port on your 486SX/DX-WinBook. You may configure this port as COM1 or COM3 with a choice of two I/O ports for each setting. Note that settings are available for COM Port B but we recommend leaving it on COM2 as the installed software has been pre-configured using these default settings. An example screen is shown on the following page. [SX/DX 9-3]

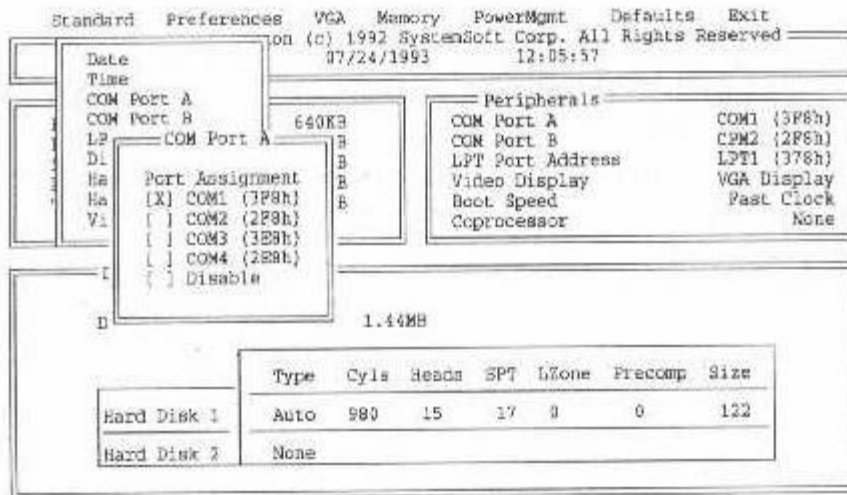


Fig. 8-3 Setting the COM A (1) Serial Port

LPT Port Address

In a similar way you can set the printer port with the **LPT Port Address** item, which allows you to configure the printer port as LPT1, LPT2, and LPT3 or disabled. The default setting will be applicable for most operations. Refer to the example screen below.

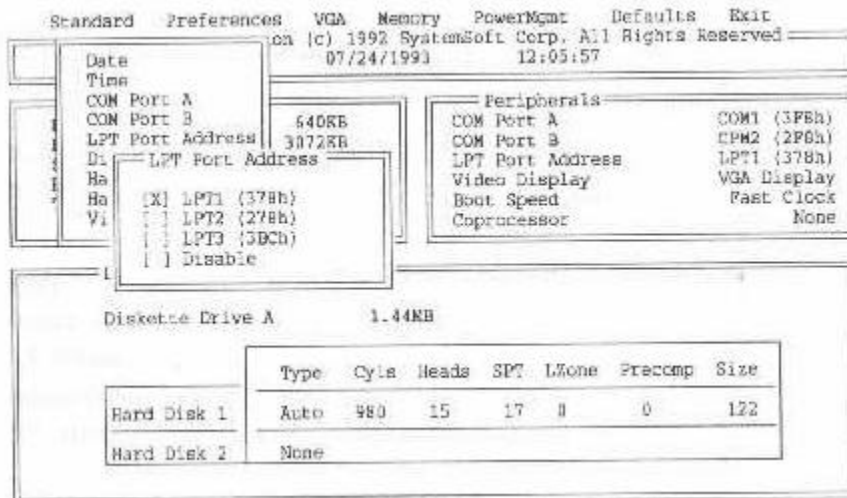


Fig. 8-4 Setting the LPT Port Address

[SX/DX 8-4]

Diskette Drive

Use the **Diskette Drive** item to define the floppy disk drive type. By default the 486SX/DX-WinBook is set for a 1.44MB A: drive and no B: drive. You will only need to adjust this setting if you add an external floppy drive via the expansion dock. You should then use this item to define the floppy B: drive type. The default settings are shown below.

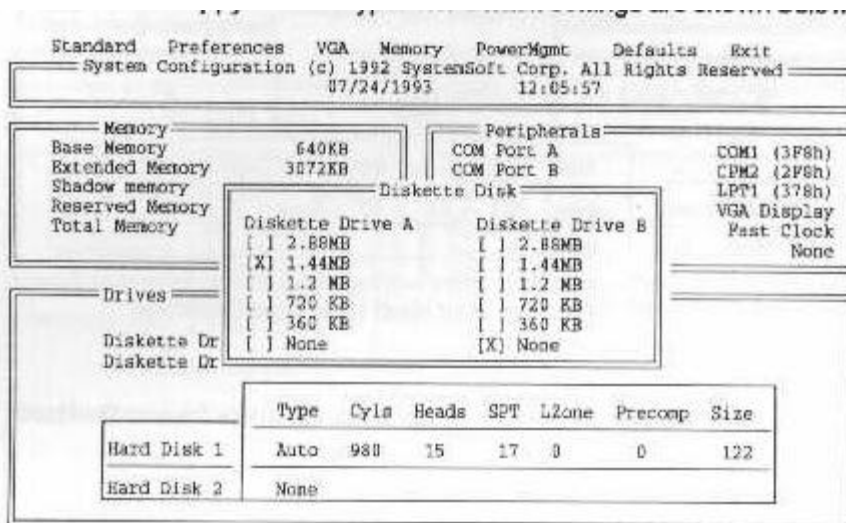


Fig. 8-5 The Default Floppy Disk Drive Settings

Hard Disk 1

The **Hard Disk 1** item will be automatically preset according to the disk drive type installed.

Normally you will select **Auto** and the BIOS will automatically detect which drive type is connected. This is the default setting and will be applicable for most drive types.

Select **Standard** for a standard fixed disk type, and enter the relevant type number. The number of cylinders, heads, etc. will be displayed according to the hard disk drive type selected.

Select **Custom** if your hard disk drive is a non-standard type. You may then manually enter the number of Cylinders, Heads, etc. as appropriate for the hard disk installed. [SX/DX 8-5]

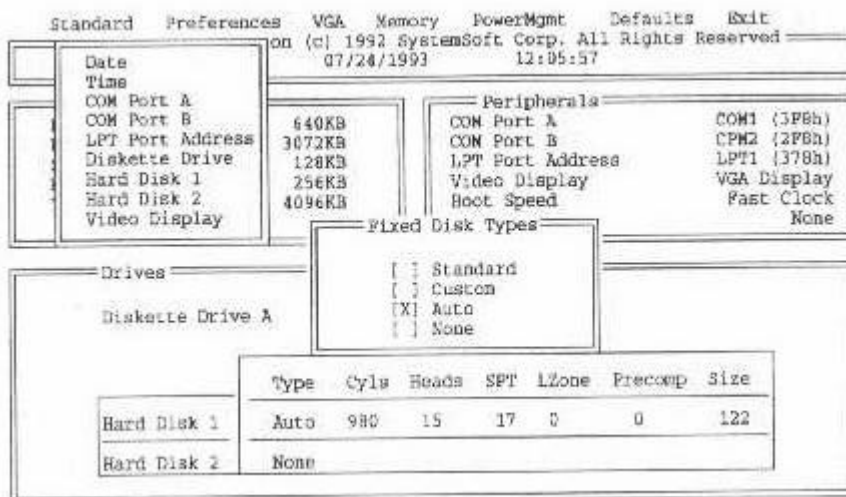


Fig. 8-6 Selecting Auto Hard Disk Type Detection

Hard Disk 2

The 486SX/DX-WinBook only supports one hard disk drive so the **Hard Disk 2** item should always be set as **None**.

Video Display

The **Video Display** item should be set as **VGA Display** to take full advantage of the 486SX/DX-WinBook's VGA compatible LCD display.

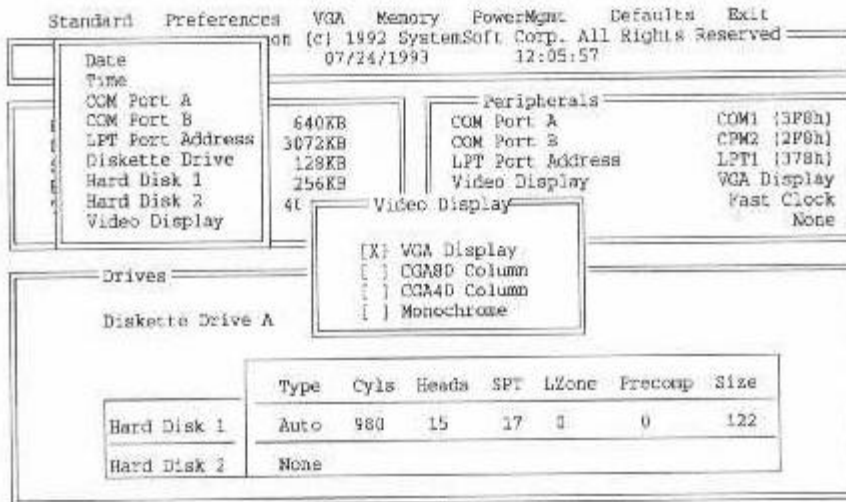


Fig. 8-7 Selecting the VGA Video Display

[SX/DX 8-6]

PREFERENCE MENU SX/DX

The items in the Preferences menu allow you to make certain basic setting according to your particular requirements. When an item is enabled, a check mark will appear alongside the item. To disable a selected item, highlight that item and press < Enter > and the check mark will disappear.

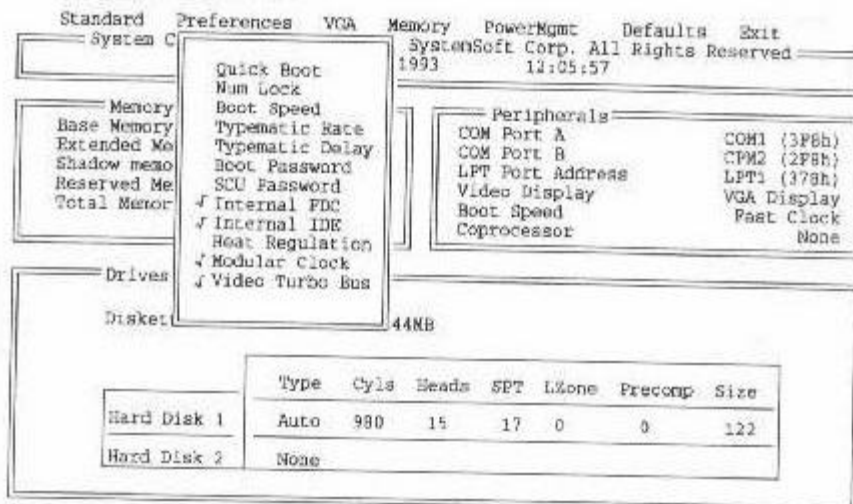


Fig. 8-8 The Preferences Menu

The functions of each item are outlined below.

Quick Boot

Enable this item to make the computer boot up quicker each time you turn the power on.

Num Lock

Enable this item to set the NUM Lock Key ON at boot up. In this way, the numeric keypad will be enabled at boot up. This is particularly useful when using an external keyboard.

Boot Speed

Use this item to set the computer in fast or normal speed at boot up. Select **Fast Clock** in the sub-menu for maximum performance. [SX/DX 8-7]

Typematic Rate

This item allows you to determine the speed at which characters will be repeated when a key is held down. This is measured in CPS (Characters Per Second). The usual setting is 10CPS.

Typematic Delay

This item allows you to determine the delay after which each character will be repeated, measured in milliseconds (ms). The options are 250ms, 500ms, 750ms and 1000ms, with 500ms being the usual

setting.

Boot Password

Select this item if you wish the computer to require you to enter a password each time you boot up. Enter any password between 4 and 8 characters.

SCU Password

Enable this item if you wish the computer to require you to enter a password to enter the setup program.

Internal FDC

This refers to the internal floppy disk drive. A check mark should appear next to this item indicating that the system does include an internal floppy disk drive.

Internal IDE

This refers to the internal hard disk drive. A check mark should appear next to this item indicating that the system does include an internal hard disk drive.

Heat Regulation

The system does not support this feature, so no check mark should appear next to this item.

Modular Clock

This refers to a hardware feature in the WinBook that automatically stops clocks to sections of the computer, which are not in use. In computer systems, stopping clocks to unused devices dramatically reduces the power consumption of these devices and prolongs battery life. A check mark should appear next to this item.[SX/DX 8-8]

Video Turbo Bus

This refers to a special design feature that increases the speed of video output. Your system does support this feature, so a check mark should appear next to this item.

VGA MENU SX/DX

The items in this menu are used to control the LCD display. The VGA menu is shown below. Each option is detailed below.

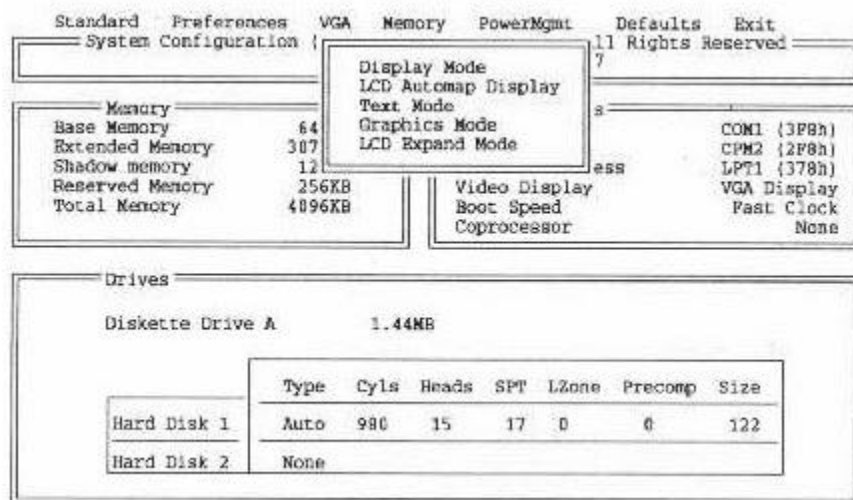


Fig. 8-9 The VGA Menu

Display Mode

Select **Both** if you wish to be able to view the LCD and an external monitor at the same time (this option is available for monochrome models only).

Select **LCD** to view the LCD only.

Select **CRT** to view an external monitor only.

LCD Automap Display (Monochrome Models Only)

This item can be Enabled/Disabled. For best results, you should normally enable this item. This item is provided to improve the display of certain programs on the LCD screen. [SX/DX 8-9]

Text Mode (Monochrome Models Only)

Select either **Normal** or **Reverse** for text mode. In **Normal** mode, programs running in text mode will be displayed with dark characters on a light background. In **Reverse** mode, the display will consist of light characters on a dark background.

Graphics Mode (Monochrome Models Only)

Select either **Normal** or **Reverse** for graphics mode. In **Normal** mode, programs running in graphics mode will be displayed with dark characters on a light background. In **Reverse** mode, the display will consist of light characters on a dark background.

LCD Expand Mode

This item should be enabled to display full screens in text mode and DOS. Some DOS programs may not work correctly in this mode and may be displayed incorrectly. For these programs, either disable this mode in setup or use < Ctrl> < Alt> F8 to temporarily change this.

MEMORY MENU SX/DX

Select the Memory menu item and the Memory menu will appear as shown below. This menu allows you to enable shadow RAM and the cache, as detailed below.

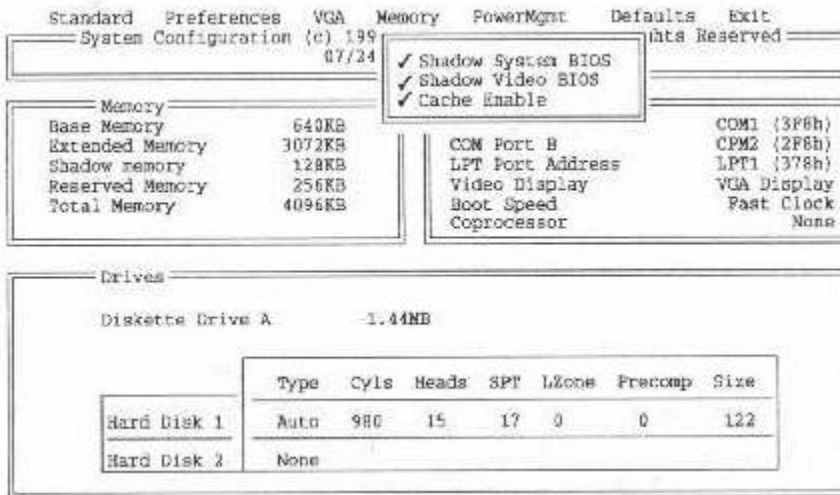


Fig. 8-10 The Memory Menu

[SX/DX 8-10]

Shadow System BIOS

Shadowing is a function whereby the contents of the BIOS are copied into memory at boot up. This upgrades performance for programs using extensive BIOS calls as the BIOS data can be accessed quicker from memory than from the ROM chips. You should enable this item as indicated by the check mark alongside the item.

Shadow Video BIOS

Use this item to shadow the video BIOS, which will enhance overall performance. We recommend that this item is enabled.

Cache Enable

Cache memory is high-speed memory inside the 486 chip which is used to store frequently used data which can then be accessed much quicker than when retrieved from the main memory each time. Enabling the cache will provide a considerable increase in speed.

POWER MANAGEMENT SX/DX

The Power Management menu allows you to take advantage of the advanced power saving features designed into your 486SX/DX-WinBook computer. Select this item and the following display will appear.

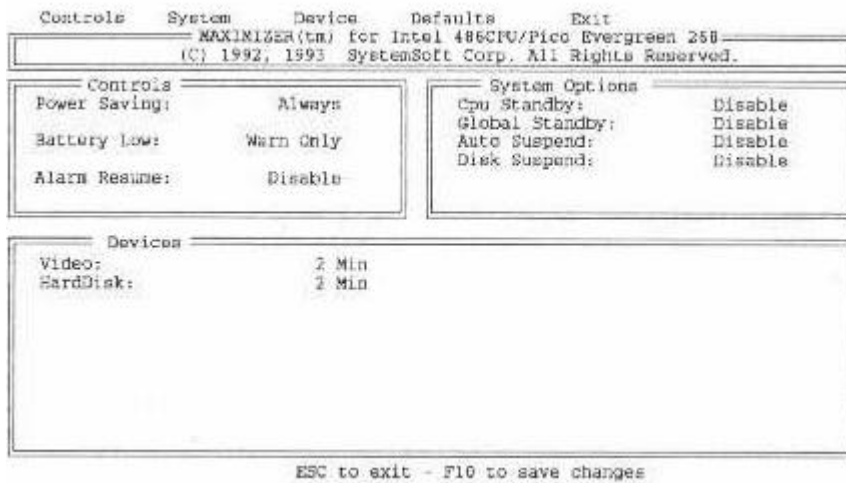


Fig. 8-11 The Power Management Screen

[SX/DX 8-11]

The screen is divided into three areas, **Controls**, **System Options**, and **Devices**. Select the controls menu to adjust the settings displayed in the Controls window as detailed below.

Control Menu

Select the Control Menu and make the necessary settings as explained below.

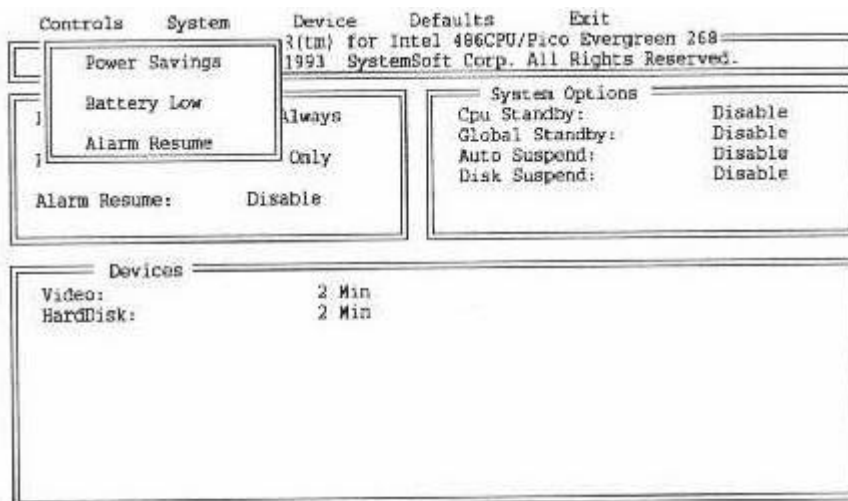


Fig. 8-12 The Power Management Control Menu

Power Savings

Select Power Savings in the Control Menu. Select **Always** to have the power saving functions enabled at all times, including when running off AC power.

Select **Battery** to enable the power saving functions only when running an alarm off the battery.

Select **Disable** to turn off the power saving options.

Battery Low

You may set this item to force the system to automatically enter Suspend mode when the battery power becomes low, or to only issue an audible warning beep when battery power is low but not automatically enter Suspend mode. [SX/DX 8-12]

Alarm Resume

This item can be used to set an alarm time that will cause the system to issue an audible alarm at the time set. If you enable the alarm, you will then be required to enter the time at which you wish the alarm to be issued. Enabling this item will cause the system to automatically resume in case the system is in Suspend mode at the alarm time set.

System Menu Settings

Select the System menu item and the following display will appear. Each item is explained in detail below.

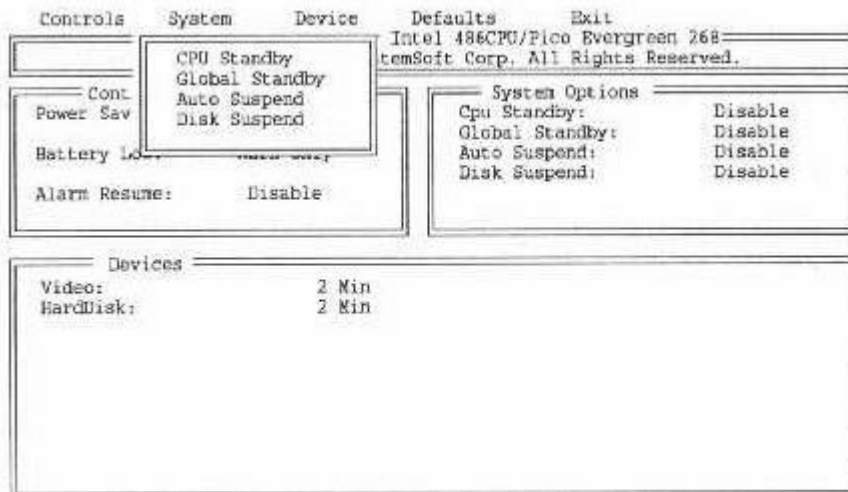


Fig. 8-13 The Power Management System Menu

CPU Standby

Use this item to set the CPU in power saving Standby mode after a specified period of inactivity. For example, if you select 4 seconds, if the CPU is idle for 4 seconds, it will automatically enter standby mode. Setting a lower time value will increase the power savings.

Global Standby

This item is similar to CPU Standby, except that it applies to all the sub-systems in the computer. Set the time of non-activity after which the computer will enter Global Standby mode. For example, if you select 2 minutes, if you do not input any data with the keyboard or mouse for two minutes, the computer will enter Global Standby mode. [SX/DX 8-13]

Auto-Suspend

Similarly you may set this item to define the period of inactivity after which the computer will automatically enter suspend mode. Note that you may manually set the computer in suspend mode at any time by pressing the Suspend button whether this item is enabled or not.

Disk Suspend

This setting allows the system to enter zero voltage suspend mode at which point the memory contents are saved to disk and the system is turned completely off. This mode is convenient for long term storage and conserves battery life. When the system is turned back on, the memory contents are restored from disk automatically and the user is back where he left off. Although this process takes longer than normal suspend/resume it optimizes battery conservation. Use this feature when the system is to be left in suspend mode overnight to achieve maximum battery conservation.

Device Menu

The Device Menu has two items, Video and Hard Disk which allow you to separately define power saving settings for the LCD display and hard disk drive.

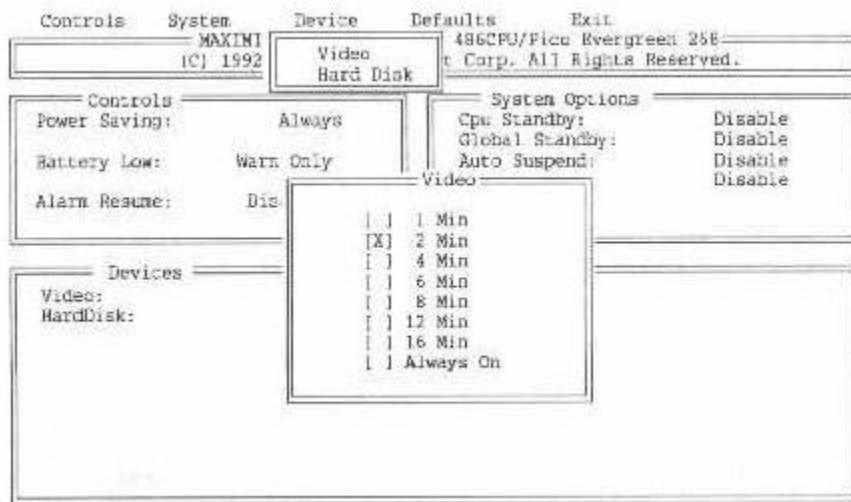


Fig. 8-14 The Power Management Device Menu

[SX/DX 8-14]

Video

Using this item you may define the period of inactivity after which the LCD display will automatically shut down. For example, select 2 minutes, if you wish the LCD to shut down if no input has been made

for two minutes.

Hard Disk

Similarly, you may define the period of inactivity after which the hard disk drive will shut down.

The (Power Management) Defaults Menu

You may use the Defaults menu to reset all power management settings to the default settings. If you use this option, you should check all settings to ensure they are correct for your system.

Exit (Power Management)

Use this item to exit from the Power Management screen and return to the main BIOS setup screen. You have the choice of saving any settings you have made, or canceling them.

When you exit from the Power Management program you will be returned to the main setup screen. Or, if you entered the power management program using the < Ctrl> < Alt> P hot key from DOS, you will be returned to DOS.

Note:

The < Ctrl> < Alt> P hot key is not available from Windows.

DEFAULTS MENU

Use this menu to recall all default BIOS settings. You should then check all settings to ensure they are correct for your system.

EXIT MENU

When you have completed making all your desired settings, select this item. You will be prompted as to whether you wish to save the settings you have just made, or to abandon these changes. Assuming you are satisfied with the settings you have made, press < Enter> [SX/DX 8-15] and the settings will be saved into the CMOS memory in your 486SX/DX-WinBook. These settings will be used each time you turn on your computer and you will not need to use the setup program again unless you make some changes in your configuration. [SX/DX 8-16]

CHAPTER 9: TROUBLESHOOTING SX/DX

Your 486SX/DX-WinBook computer was designed to be transported around and provide trouble free service for a long time. Nevertheless, certain basic precautions should be taken to ensure that the system remains in good working order. In this chapter, we make some recommendations as to how to achieve the most reliable performance for the longest possible time, and how to solve some of the problems that you may encounter.

BASIC PRECAUTIONS SX/DX

The 486SX/DX-WinBook is built and designed to be a rugged notebook computer. However, we suggest that when transporting the notebook, pack it into a briefcase or a notebook carrying case. In this way, the plastic shell will be less liable to become scratched or damaged during transportation. In addition, please note the following points:

- Do not subject the 486SX/DX-WinBook to excessive shocks or severe vibration. The hard disk drive installed in the system was designed to be shock resistant, but within reason.
 - Do not place heavy objects on top of the 486SX/DX-WinBook.
 - Do not place the 486SX/DX-WinBook near to any heat source or subject it to extreme temperature changes.
 - The recommended operating environment for the WinBook is 50° F to 95° F (10° C to 35° C).
[SX/DX 9-1]
-

CLEANING THE 486SX/DX-WINBOOK SX/DX

You may use a slightly damp cloth to clean the plastic shell of the system. Take great care that no liquid enters between any of the seams of the shell or into any of the connectors.

Glass cleaner may be used to clean the LCD screen. Do not spray cleaner onto the screen, however, but rather dampen a soft, clean cloth and gently rub the screen. Do not let any liquid run between the LCD and the surrounding frame.

WinBook Trackball Cleaning Instructions

With all trackball type devices, there is a routine maintenance involved. This maintenance involves cleaning both the outer and inner working components.

The problem lies with the trackball surface being exposed and constantly touched by fingertips. Everyone's skin contains oils that stick to the surface of the trackball making it a "dirt magnet", pulling dust and grime down into the trackball rollers.

To clean the inner components, the user will have to remove the retainment ring and the ball to gain access to the inside of the assembly. To do this, follow the instructions below:

1. Insert a paper clip, safety pin or other small pointed object into one of the two holes located on the retainment ring which surrounds the ball (NOT the rectangular holes below the trackball assembly!). Refer to the illustration 9-1.
2. Turn the retainment ring counter-clockwise. Once the holes move from the 12/6 o'clock positions to the 9/3 o'clock positions, the retainment ring should pop up allowing the user to remove the ring and ball.
3. Once the ring and ball are removed, the user should notice two tiny rollers, one at 3 o'clock and the other at 6 o'clock, within the "pit" where the trackball is held.
4. To clean the assembly, take a foam Q-tip and some rubbing alcohol to each of the rollers. [SX/DX 9-2]
5. After thoroughly cleaning the rollers, take a soft, lint-free cloth and hot water and wipe the ball and the "pit" clean.
6. Having followed the steps outlined above, the trackball assembly should be reassembled this is done by replacing the ball and the retainment ring. Turn the retainment ring clockwise to tighten.

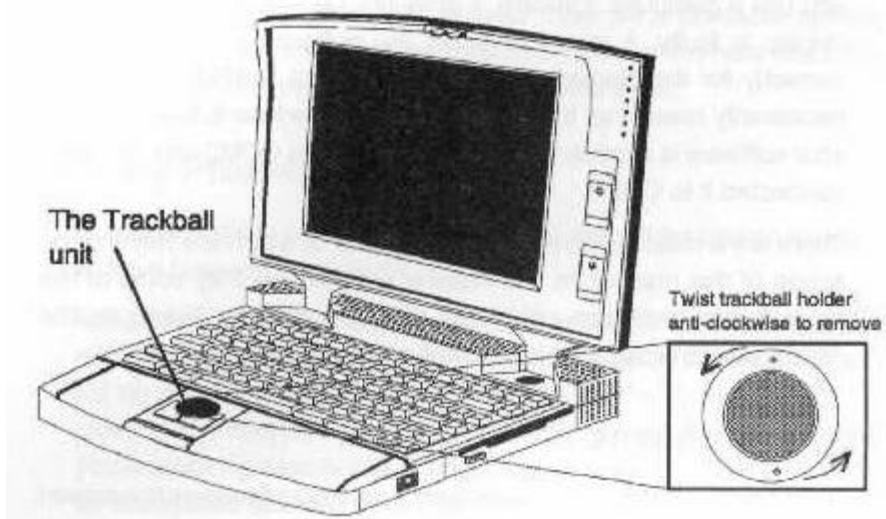


Figure 9-1 Cleaning the Trackball

PROBLEM SOLVING SX/DX

The 486SX/DX-WinBook was designed and manufactured according to very stringent quality standards. As such, with careful use, there is no reason why it should malfunction. The field of personal computing; however, includes such a diversity of software and hardware combinations that problems will inevitably arise. It is important that you understand how to differentiate between problems caused by hardware malfunction and those that arise out of an incorrect setting or software configuration.

The ability to accurately pinpoint the source of problems will only come with experience, but always adopt a methodical approach to trying to solve problems. If nothing appears on your LCD display when [SX/DX 9-3] you use a particular software, it does not necessarily mean

that the display is faulty, it may mean that the software is not configured correctly for the display. If your mouse is not working it does not necessarily mean that the mouse or serial interface is faulty. Maybe your software is expecting to find the mouse on COM2 and you have connected it to COM1.

There are a million different scenarios most of which are beyond the scope of this manual. In this chapter we mention only some of the more basic hardware problems that are directly linked to the 486SX/DX-WinBook, and how to solve these problems.

POWER PROBLEMS

I can boot up the computer but cannot run my software as the screen freezes.

This may occur infrequently when running the 486SX/DX-WinBook from the battery and when the battery is very low. Connect the AC adapter and recharge the battery. Remember that you can still use the WinBook while the battery is charging.

Nothing happens when I turn on the power switch.

If running from the power adapter, check that the adapter is correctly plugged into both the AC outlet and the 486SX/DX-WinBook, and that there is power in the power outlet. The power LED on the power adapter should be on. When running on the battery, check that the battery is correctly installed. Check also that the battery is not totally discharged. If it is, recharge it by connecting the power adapter to the system.

BOOT UP PROBLEMS

The power is reaching my 486SX/DX-WinBook but the system "hangs" before it is booted up.

Boot up problems are usually caused by an incorrect configuration or statement in the CONFIG.SYS file (see your DOS user's manual). To test whether this is the case, try booting up from a floppy diskette [SX/DX 9-4] inserted in the A: drive (this diskette must be a bootable system diskette). If this works, edit the CONFIG.SYS file on the hard disk drive and then try booting from the hard disk drive again.

DISPLAY PROBLEMS

I can see nothing on the LCD display even though my system appears to have booted up correctly.

Adjust the LCD Brightness and Contrast settings. For maximum illumination, the top most slide control on the display should be at the full up position. The bottom slide control on the display should be close to the midpoint position. Adjust the position of the screen so you are looking directly into it at right angles. Select a different location for the system shielded from bright light shining directly into the LCD display. You should also check to be sure the BIOS has been configured for LCD in the Setup utility. To quickly check whether the WinBook has been configured for the external monitor only, press < Ctrl> < Alt> F10 that will toggle from external monitor to internal display. If this was the problem then you must set the BIOS correctly by pressing < Ctrl> < Alt> S at the DOS prompt and select system defaults option.

I connected an external monitor but the display still only appears on the LCD.

Check the setting in the **VGA** menu in the BIOS setup program. The **Display Mode** option must be set as **Both** or **CRT** (support only in monochrome systems) in order to be able to view an external CRT monitor.

I connected an external monitor but nothing appears on the external monitor even though the BIOS SETUP setting is correct.

Have you plugged in the power lead from the monitor? Check that the monitor is an analog VGA compatible model. Digital monitors such as standard monochrome, CGA or EGA models will not work with the external video outlet on the 486SX/DX-WinBook.[SX/DX 9-5]

PERIPHERAL CONNECTION PROBLEMS

I have connected a mouse to the serial port but it will not work.

Have you checked the configuration in your software. Is the mouse supposed to be on COM1 or COM2? Are you using a serial mouse. Have you loaded a mouse driver?

I configured my mouse as being on COM2 and it will not work.

The built-in trackball uses COM2. The external serial port must be configured as COM1.

BIOS SETTINGS

I have made modifications in the BIOS setup program and now my system is no longer working correctly.

Reboot the system and type < Ctrl> < Alt> S when text first appears on the screen. In the setup menu, select the DEFAULT option to restore the factory-preset configuration that is guaranteed to work.

The system performance seems slower than normal. Why is this?

This can be caused by certain BIOS settings from the Power Management option. Type < Ctrl> < Alt> P at the DOS prompt and select **Defaults** to restore the factory preset configuration which has been optimized for battery life, or select the **Disable** function in the Power Management options screen which turns power management off completely, assuring maximum CPU performance.

System battery life is less than expected how can I improve this?

First, try using the BIOS setup defaults in the Power Management setup screen. To access this, type < Ctrl> < Alt> P at the DOS prompt and select options to the factory default setting. You should then save these settings and return to DOS. At the DOS prompt, type **POWER**. This program will tell you if the advanced power management functions have been turned on. The normal response will be:[SX/DX 9-6]

Power Management Status

Setting=ADV:MAX

CPU: idle 80% of time.

If this command indicates that the Power Management driver is not loaded, you should check to see if this file was loaded in the CONFIG.SYS file on the hard disk. Your WinBook is shipped with this function enabled to prolong battery life. For more information, type **HELP POWER** at the DOS prompt.

COMMUNICATION PROBLEMS

My internal fax/modem is not working correctly, how can I correct this?

Be sure your software is correctly set up using COM3 as the modem device. Most software packages come pre-configured to use COM1 or COM2. The WinBook uses COM2 for the internal trackball and COM3 for the fax/modem interface. You must set your communications software package appropriately. Note that all applications which ship with the WinBook (e.g. the Windows Terminal program) come pre-configured with the modem at COM3.

TRACKBALL PROBLEMS

Why is the trackball cursor movement no longer smooth and feels as if it is not tracking correctly?

The trackball may become dirty due to hand oils or other contaminants. It is recommended that routine cleaning be done on this. Please refer to section 9 for details of the cleaning procedure.

Note also that in Windows there is also a facility to change the mouse speed and visibility that allows you to tailor the trackball performance to your tastes. The utility is located in the Main menu folder and is titled Control Panel, double click on the Control Panel icon and then double click on the Mouse icon. You can then use the slide controls to change the sensitivity of the trackball and switches.[SX/DX 9-7]

LCD panels, due to their slower response times, sometimes present a problem locating the cursor. The Windows Control Panel for mouse utility provides a useful option that can help reduce this problem. Many notebook users also prefer to turn on the Mouse Trails option (simply click on the box labeled Trails in the Mouse setup window) since it helps keep track of the cursor particularly when moving rapidly across the screen.

USING PCMCIA CARDS

What do I need to do to get the PCMCIA slot to work?

Please refer to the additional documentation on using PCMCIA cards with your WinBook. [SX/DX 9-8]

APPENDIX A: CONNECTOR PINOUTS SX/DX

For your reference, we list here the pin signals of the external connectors on the 486SX/DX-WinBook user's manual. It is not necessary to use this information to connect peripherals, as all connectors conform to the industry standards.

EXTERNAL VGA MONITOR CONNECTOR

Pin No. Signal

1. Red Signal
2. Green Signal
3. Blue Signal
4. NC
5. Ground
6. Ground
7. Ground
8. Ground
9. NC
10. Ground
11. NC
12. NC
13. Horizontal Sync.
14. Vertical Sync.
15. NC

EXTERNAL SERIAL PORT CONNECTOR

Pin No. Signal

1. Carrier Detect
2. Receive Data
3. Transmit Data

4. Data Terminal Ready
5. Signal Ground
6. Data Set Ready
7. Request to Send
8. Clear to Send
9. Ring Indicator

EXTERNAL PARALLEL PORT CONNECTOR

Pin No. Signal

- 1 Strobe
- 2-9 Data 0-7
- 10 Ack-
- 11 Busy
- 12 PE
- 13 SLCT
- 14 Auto Feed
- 15 Error-
- 16 Init-
- 17 SLCTIN-
- 18-25 Ground

EXTERNAL KEYBOARD CONNECTOR

Pin No. Signal

1. PS/2 Data
2. Keyboard Data
3. Ground

4. +5V
5. PS/2 Clock
6. Keyboard Clock

External Docking Station Connector

Pin No.	Signal	Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
1	IOCHK-	41	SA10	81	MEMW-	121	HSYNC
2	GND	42	DACK2-	82	SD12	122	G
3	SD7	43	SA9	83	SD8	123	VSYNC
4	RESET	44	TC	84	SD13	124	B
5	SD6	45	SA8	85	SD9	125	MS2
6	IRQ9	46	BALE	86	SD14	126	MS0
7	SD5	47	SA7	87	SD10	127	INDEX-
8	DRQ2	48	OSC	88	SD15	128	MS1
9	SD4	49	SA6	89	SD11	129	TRKO-
10	OVS-	50	MEMCS16-	90	GND	130	DR1-
11	SD3	51	SA5	91	MDATA	131	WRTPRT-
12	SMEMW-	52	IOCS16-	92	MCLK	132	MTR1-
13	SD2	53	SA4	93	KDATA	133	RDATA-
14	SMEMR-	54	IRQ10	94	KCLK	134	WDATA-
15	SD1	55	SA3	95	RX0	135	DSKCHG
16	IOW-	56	IRQ11	96	RX4	136	RPM/LC
17	SD0	57	SA2	97	RX1	137	FDIR-
18	IOR-	58	IRQ12	98	TX0	138	HDSEL
19	IOCHRDY-	59	SA1	99	RX2	139	WGATE-
20	DACK3-	60	IRQ15	100	TX1	140	STEP-
21	AEN	61	SA0	101	RX3	141	NC
22	DRQ3	62	IRQ14	102	TX2	142	VCC
23	SA19	63	BHE-	103	ACK-	143	GND
24	DACK1-	64	DACK0-	104	PD0	144	GND
25	SA18	65	LA23	105	BUSY	145	GND
26	DRQ1	66	DRQ0	106	PD1	146	GND
27	SA17	67	LA22	107	PE	147	SCAN12
28	REFRESH-	68	DACK5-	108	PD2	148	AR
29	SA16	69	LA21	109	SLCT	149	AU
30	SYSCLK	70	DRQ5	110	PD3	150	WG
31	SA15	71	LA20	111	AFD-	151	ST
32	IRQ7	72	DACK6-	112	PD4	152	VD
33	SA14	73	LA19	113	ERR-	153	SW1
34	IRQ6	74	DRQ6	114	PD5	154	SW2
35	SA13	75	LA18	115	INIT-	155	HD7
36	IRQ5	76	DACK7-	116	PD6	156	PDIAG
37	SA12	77	LA17	117	SLIN-	157	IDECS1-
38	IRQ4	78	DRQ7	118	PD7	158	IDECS0-
39	SA11	79	MEMR-	119	STB-	159	ACTIVE-
40	IRQ3	80	MASTER-	120	R	160	GND