

Starion Minitower PC

User's Guide

Part Number: ER-919A3-UA. A01

Digital Equipment Corporation

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October 1995

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The FCC wants you to know...

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

Any changes or modifications made to this equipment may void the user's authority to operate this equipment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

The user may find the following booklet prepared by the Federal Communications Commission helpful: *How to Identify and Resolve Radio-TV Interference Problems*. This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20402. Stock No. 004-00398-5.

All external cables connecting to this basic unit need to be shielded. For cables connecting to option boards, see the option manual or installation instructions.

FAX/Modem FCC I.D. #:

EUD5U9BRI4296

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STATEMENT OF FAX BRANDING

The Telephone Consumer Protection ACT of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual.

1

Contents

About This Guide

Introduction.....	vii
Audience.....	vii
Organization.....	vii
Conventions.....	ix
Abbreviations.....	x
Special Notices.....	xi
Related Documentation.....	xi

1

Introduction

Plug and Play.....	1-2
Power Management.....	1-3
PCI Local Bus.....	1-4
Onboard Video.....	1-5
Fax/Modem Card.....	1-6
Sending and Receiving a Fax.....	1-7
Sound Card.....	1-8
CD-ROM Reader.....	1-9
System Software and Utilities.....	1-9
Turning Off Your Computer.....	1-10
Restarting Your Computer.....	1-11
Computer Security.....	1-11
Supervisor and User Password.....	1-12
Diskette Write Protection.....	1-13
Reminder Messages.....	1-14
Important Information.....	1-15
Getting Help.....	1-19

2

Configuring Your Computer Using BIOS Setup

Introduction.....	2-1
-------------------	-----

What is the BIOS Setup Utility?	2-1
Helpful Hints	2-3
Maneuvering through Setup	2-4
Changing Time and Date	2-6
Setting Up Security	2-7
Setting Supervisor and User Passwords	2-7
Enabling Password On Boot	2-9
Eliminating User and Supervisor Passwords	2-10
Protecting Against Boot Sector Viruses	2-11
Other Security Options	2-13
Setting up Power Management	2-14
Putting Your Computer Quickly into Full Power Management	2-15
Configuring for New Disk Drives	2-16
Diskette Drive Configuration	2-16
Hard Disk Drive Configuration	2-17
Autotyping a Hard Disk	2-17
Manually Defining a Hard Disk	2-18
Changing the Boot Sequence	2-19
Speeding up the Boot Process	2-20
Resetting Keyboard Features	2-21
Changing the Keyboard Features	2-22

3

System Software and Utilities

Introduction	3-1
Software Applications and Backup Media	3-1
Restoring Factory Installed Software	3-2
How to Restore All Factory Installed Software	3-3
How to Restore Individual Programs	3-4
Using System Utilities	3-4
Before Using System Utilities and Video Drivers	3-4
Setting High Resolution Mode for Your Monitor Display	3-5
Using Your Remote Support Diskette	3-6

How do I Update my BIOS?	3-6
Preliminary Steps.....	3-7
Creating a Crisis Recovery Diskette.....	3-7
Using PHLASH.EXE to Upgrade your BIOS	3-9
Using the Crisis Recovery Diskette.....	3-10

4**Expanding Your Computer**

Introduction.....	4-1
Tools Needed	4-1
Static Electricity.....	4-2
Disconnect External Devices and Power.....	4-2
Removing the Cover.....	4-2
Voltage Select Switch.....	4-4
Computer Components	4-6
Main Logic Board Components.....	4-8
Main Logic Board Connectors.....	4-10
Installing a Higher Performance CPU.....	4-12
Installing Additional Computer Memory	4-14
Memory Configurations.....	4-16
Installing a SIMM.....	4-16
Replacing the Real-Time Clock (RTC)/Lithium Battery.....	4-18
Installing Expansion Boards	4-22
Installing Mass Storage Devices	4-27
Installing a 5¼-Inch Device.....	4-27
Connecting Diskette and IDE Devices.....	4-30
Replacing the Cover	4-33

5**Problem Solving and Troubleshooting**

Introduction.....	5-1
Initial Troubleshooting	5-2
Computer Troubleshooting	5-3
Disk Drive Troubleshooting.....	5-8
Monitor Troubleshooting.....	5-9
CD-ROM Troubleshooting	5-10
Audio Troubleshooting.....	5-11

A**Technical Specifications**

Introduction.....	A-1
-------------------	-----

Computer Specifications.....	A-2
Starion Minitower PC CPU Features.....	A-2
Computer Performance Specifications	A-2
Computer Dimensions	A-3
Computer Environmental Specifications.....	A-3
Power Supply and Input Power Requirements.....	A-4
Power Cord Requirements	A-4
Main Logic Board Jumpers.....	A-5
Main Logic Board Jumper Settings.....	A-7

B

Computer Messages

Introduction.....	B-1
POST Messages.....	B-1
POST and Boot Messages	B-2
Beep Codes	B-5

C

Device Mapping

Introduction.....	C-1
CPU Memory Address Map (Full Range)	C-2
I/O Address Map	C-3
Computer Interrupt Levels.....	C-5
DMA Channel Assignment.....	C-6

D

CD-ROM Specifications

CD-ROM.....	D-1
Front Panel	D-2
Rear Panel	D-3
Operating Specifications.....	D-4

E**Fax/Modem Card and Sound Card**

Fax/Modem Card Information	E-1
Connector/Jumper Locations	E-1
Sound Card Information	E-3
Connector/Jumper Locations	E-3

FIGURES

Typical <i>Starion</i> Computer	xii
1-1. Providing a Comfortable Working Environment.....	1-18
2-1. BIOS Setup Utility Flow Chart.....	2-5
4-1. Removing the Cover.....	4-3
4-2. Voltage Select Switch Location.....	4-5
4-3. Computer Components	4-7
4-4. Main Logic Board Components.....	4-9
4-5. Main Logic Board Connectors.....	4-11
4-6. Installing a Higher Performance CPU.....	4-13
4-7. SIMM Socket Locations	4-15
4-8. Installing a SIMM	4-17
4-9. Replacing the Real-Time Clock.....	4-19
4-10. Replacing the Battery	4-21
4-11. Starion Expansion Board Slots.....	4-24
4-12. Removing Metal Filler Plates	4-25
4-13. Installing an Expansion Board	4-26
4-14. Removing the Filler Panel	4-28
4-15. Installing a 5¼-Inch Device.....	4-29

DECpcã Charmonix

4-16. Diskette and IDE Devices Data Cable Connections	4-32
4-17. Replacing the Cover	4-33
A-1. Main Logic Board Jumper Locations	A-6
D-1. CD-ROM Front Panel	D-2
D-2. CD-ROM Rear Panel	D-3
E-1. Fax/Modem Card Components	E-2
E-2. Sound Card Components	E-4

About This Guide

Introduction

This guide describes how to operate, upgrade, troubleshoot, and configure the Starion Minitower PC (Model 919) computer. This guide, along with the “Getting Started” program will help to familiarize you with all aspects of the computer and provide a reference tool for questions you might have in the future.

Audience

This guide is written specifically for anyone responsible for operating, configuring, and expanding the Starion Minitower PC computer.

Organization

This guide contains the following:

- Chapter 1: *Introduction*—This chapter provides general information about your computer. For example: how to restart and turn off your computer, use the supplied utilities and video drivers, ensure computer security, provide a comfortable working environment, and learn where to obtain help.
- Chapter 2: *Configuring Your Computer Using BIOS Setup*—This chapter provides task-based information on how to configure your computer using the BIOS Setup utility.
- Chapter 3: *System Software and Utilities*—This chapter describes how to customize your computer using the factory-installed software, utilities and device drivers.
- Chapter 4: *Expanding Your Computer*—This chapter explains how to unlock and remove the cover, install or replace main logic board options, expansion boards, and mass storage devices.

- Chapter 5: *Problem Solving and Troubleshooting*—This chapter describes initial and advanced troubleshooting solutions.
- Appendix A: *Technical Specifications*—This appendix lists vital computer operating specifications and main logic board jumper information.
- Appendix B: *Computer Messages*—This appendix describes the power-on self test (POST) and run-time error messages, including recommended corrective actions.
- Appendix C: *Device Mapping*—This appendix contains tables listing the main logic board's memory map, I/O address map, interrupt map, and DMA map.
- Appendix D: *CD-ROM Specifications*—This appendix provides configuration and operating specifications for the installed CD-ROM.
- Appendix E: *Fax/Modem Card and Sound Card Specifications*—This appendix provides configuration and operating specifications for the installed fax/modem card and sound card.

Conventions

Convention Example	Description
<i>CD\UTILS</i>	An italicized word or phrase represents text or commands you must enter.
c:\windows>	Monospaced text indicates information that your computer or software displays. For example, a directory path or error message.
[<i>drive letter</i>]	Italic monospaced text indicates a filename or directory path you must enter.
[Enter]	Square brackets surrounding text represents a keyboard key.
[Ctrl]+[Alt]+[Del]	A plus sign indicates that the keys shown should be pressed at the same time.
1 234 567	Spaces are used in large numbers instead of commas.

Abbreviations

Abbreviation	Meaning
BIOS	Basic input/output system
CD-ROM	Compact-disc read only memory
CMOS	Complementary metal oxide semi-conductor
CPU	Central processing unit
DMA	Direct memory access
DRAM	Dynamic random access memory
h	An h suffix to a numerical value denotes hexadecimal numbers. For example, 0F8h equals 0F8 hexadecimal.
HDD	Hard disk drive
IDE	Integrated drive electronics
I/O	Input/output
ISA	Industry standard architecture
MS-DOS	Microsoft Disk Operating System
PCI	Peripheral components interface
POST	Power-on self test
ROM	Read only memory
RTC	Real-time clock
SIMM	Single in-line memory modules
VGA	Video graphics array
Windows 95	Microsoft Windows 95 environment
ZIF	Zero insertion force

Special Notices

Three kinds of special notices are used in this guide to emphasize specific information.



WARNING: indicates the presence of a hazard that can cause personal injury if the hazard is not avoided.



CAUTION: indicates the presence of a hazard that might cause damage to hardware or that might corrupt software.



NOTES: are used to provide additional information.

Related Documentation

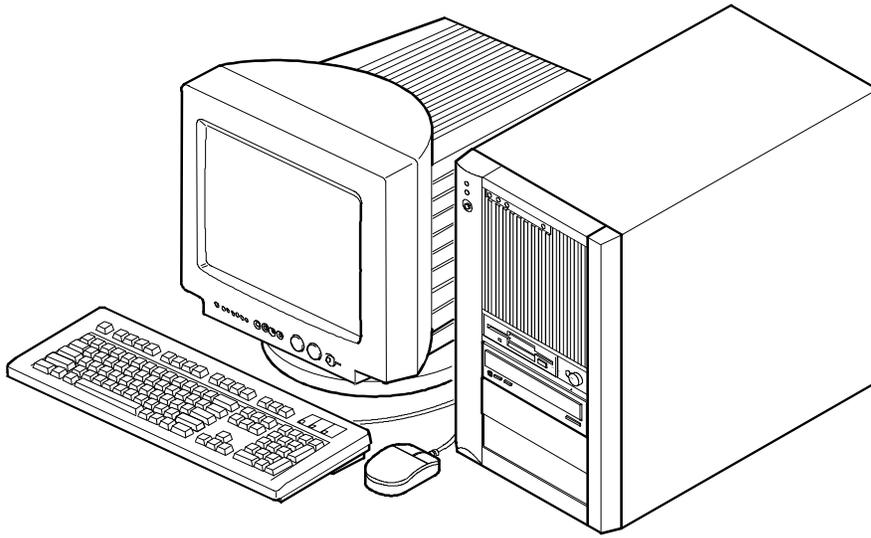
The *Quick Setup Guide* is available as a supplement to the information provided in this user's guide.

Digital's "Getting Started" program provides additional product information on software programs and utilities supplied with your computer. Review the "Getting Started" *Education* selection for more product tutorials and important information.

Information on using your modem to connect to other computers, and sending and receiving a Fax using Microsoft Exchange can be found in your Microsoft Windows 95 manual and related help files.

Additional README files might also come with your factory installed software and supplied system utilities. The information contained in these files can help you further configure and operate your computer. **Digital recommends that you search for and read this information first.**

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Typical *Starion* Computer



NOTE: Your monitor, keyboard, and mouse might look different.

2

Introduction

The Starion Minitower PC computers are high-performance personal computers featuring the latest in computing technology. Developed using the following state-of-the-art technology, these computers are the most value packed minitower computers in their class.

<i>Microprocessor</i>	Pentium 100 MHz CPU upgradable via Type 5 ZIF socket.
<i>Plug and Play</i>	Optional Plug and Play compatible expansion boards are automatically configured under Windows 95 for easy installation.
<i>Advanced Power Management</i>	Reduces your computer's energy consumption and operating costs.
<i>Onboard Video</i>	S3 Trio 32 technology to take full advantage of your computer's CPU and power management features. Video controller circuitry is incorporated into the main logic board; a separate video adapter is unnecessary.
<i>Fax/Modem Card</i>	High-speed, combination modem and fax card provides fastest data transmission rates with V.34 bis modem at speeds up to 28.8 bps; send/receive fax messages up to 14.4 bps.
<i>Sound Card</i>	16-bit audio with enhanced 3D sound and software wavetable support. SoundBlaster Basic and SoundBlaster Pro compatible.
<i>CD-ROM Reader</i>	Quad-speed CD-ROM reader with industry-standard IDE/ATAPI interface and audio capability.



NOTE: Certain options and/or devices might not be offered in all model configurations. Contact your computer reseller for additional information.

The remainder of this chapter provides additional information about your computer's state-of-the-art technology, supplied system utilities and video drivers, restarting and turning off your

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computer, and computer security. Information about providing a comfortable working environment and obtaining help is also included.

Plug and Play

Plug and Play technology eliminates the process of manually configuring optional expansion boards for operation in your computer. With Plug and Play, your computer's BIOS and the hardware logic built into Plug and Play expansion boards work together to automatically assign interrupt requests (IRQs), I/O and memory addresses, and DMA channels for optimum performance.

Refer to the Windows 95 documentation, and to any additional Plug and Play information that is supplied with optional expansion boards that you might have purchased separately.

Power Management

The Digital Power Management technology enables you to reduce your computer's power consumption during system inactivity. These options can be selected in *Setup* and include:

- System standby timeouts
- System suspend timeouts
- Suspend lock system
- Quick suspend



NOTE: Your monitor and hard disk drive must be Energy Star compatible to use any of the monitor and disk drive power saving features contained in Power Management.

For more information on accessing and selecting these options, refer to Chapter 2, "Configuring Your Computer Using BIOS Setup," the supplied Windows 95 documentation, and Windows 95 on-line help.

PCI Local Bus

Your computer's PCI architecture represents the latest in local bus technology. It delivers maximum computer performance by providing a wider data path, greater speed, and improved expandability. Simply put, PCI removes various types of peripheral controllers from the slower ISA bus and connects them directly to a faster 32-bit data path. This results in a faster 32-bit I/O bus for devices such as SCSI controllers and high-end video adapters.

Some of the PCI local bus features are:

- Highest performing bus on the market today
- Offers the best expandability for high-performance peripheral devices
- Supports multiple bus masters
- 32-bit data transfer at 132 MB per second (maximum)
- PCI-to-ISA bridge circuitry allows continued use of existing ISA expansion boards on the market that do not support the high data transfer rate of PCI

Onboard Video

Your computer offers high-performance 32-bit video memory interfacing. This video architecture allows for faster data transfers between supported CPUs and memory as well as high-speed screen refresh capabilities. Major features include:

- *Graphical User Interface (GUI) Accelerator* — A high-performance DRAM-based 32-bit GUI accelerator used to speed up graphical applications running under Windows.
- *Local Bus Video Interface* — A 32-bit PCI local bus provides a no-wait-state, read/write cycle operating up to 33 MHz to improve video performance.
- *Video Memory* — 1 MB video memory is standard.
- *RAMDAC Support* — The RAMDAC increases video speed and can display up to 24 bits per pixel (16.8 million) true colors.
- *Monitor Timing Modes* — The latest 75 Hz monitor timing modes.
- *Display Power Management Signaling (DPMS) Support* — Full Advanced Power Management support.
- *Feature Connector* — A 26-pin feature connector. This output-only connector can be used with multimedia options.



NOTE: Operation with a video card, attached to the VGA feature connector is restricted to applications that do not write the palette. For operation, you must enable the VGA feature connector at the BIOS Setup Menu.

Fax/Modem Card

Your computer includes a high-speed combination fax and data modem on one internal ISA expansion board. It provides the fastest data transmission rates with V.34 bis modem at speeds up to 28.8 bps and send/receive fax messages up to 14.4 bps.

Some features of this card are:

- Compatible with the Hayes 'AT' command set
- Auto-dial and auto-answer; tone or pulse dialing
- 28.8 bps (V.34) internal fax/modem at all speeds from
- to 28,800 bytes per second
- Communicates with any Group 3 fax machine across the world
- Complies with Class 1 and Class 2 fax commands
- Fax sends and receives up to 14,400 bytes per second



NOTE: Use of the modem and fax requires Microsoft Windows 95 Hyperterminal and Microsoft Exchange software described in your Windows 95 manual and related help files. You may also use third party software packages sold separately at your computer store. Digital recommends that the Windows 95 Control Panel must have the modem set to Boca V.34 Starion MV.34I to load the correct driver.

Sending and Receiving a Fax

In order to send a fax:

1. From the Windows 95 desktop, open MS Exchange.
2. Select *Compose* (pull-down menu) from the task bar.
3. Select *New Fax*.
4. Follow the menu instructions on your screen to select dialing properties, addressee, cover page style, or to add a file.
Refer to your Windows 95 documentation or on-line help for more information.

In order to receive faxes:

1. From the Windows 95 desktop, open MS Exchange.
2. Select the following sequence from pull-down menus.
 - a. *Tools, MS Fax Tools, Options, Modem, Properties*, and then *Answer Mode*.
 - b. Set *Answer Mode* to the desired number of rings. The modem will now answer automatically after the set number of rings. Without making this setting change, the user will have to manually answer when the line rings.



NOTE: In order to receive faxes automatically, MS Exchange (like any fax program) must be kept running in the background.

Sound Card

Your computer also has a 16-bit stereo sound card capable of reproducing CD-quality sound, transforming your computer into a digital recording and playback studio. This Windows 95 Plug & Play compatible card also offers a 16-bit PCM Wave Table Synthesis upgrade option that will enhance instrumental sound quality.

Some features of this card are:

- 16-bit stereo digital audio (CD-quality) record and playback supporting rates up to 48 kHz.
- MPC Level 2 compliant mixer
- Simultaneous operation for: Wave file playback/recording/mixing and general MIDI input/output operation
- Hardware register compatible SoundBlaster, SoundBlaster Pro, and AdLib Interfaces
- Sound Blaster ADPCM supported in hardware
- Wave Blaster upgrade for Wave Table Synthesis (daughterboard module)
 - 20 Voice FM Synthesizer
 - 72 Operator FM Sounds



NOTE: Use of the sound card to record and play sound files requires Microsoft Windows 95 Sound Recorder software described in your Windows 95 manual and related help files. You may also use other popular third party software packages.

CD-ROM Reader

Starion Minitower PC computers include a quad-speed CD-ROM reader with an industry-standard IDE/ATAPI interface and audio capability. It is fully compatible with the Philips/Sony standards for Compact Disc and CD-ROM and supports both single and multi-session Photo CD (Orange Book) disc formats.

When operated with the proper software and hardware accessories, the CD-ROM reader meets or exceeds the requirements of the Multimedia PC Level2 (MPC2) specifications.

The front panel includes the reader activity indicator and open/close button, headphone jack, and volume control.

System Software and Utilities

Your Starion Minitower PC computer comes with Windows 95 and a variety of application programs and utilities factory installed and ready for your immediate use. To access and use this software, Digital recommends using our "Getting Started" program designed to help you to quickly become familiar with the features of your new computer.

Your computer is also supplied with a "Remote Support" diskette containing software that enables a Digital service representative to remotely troubleshoot your computer over the telephone lines. Keep this diskette in a safe place and have it available if you call Digital for service.

Refer to Chapter 3, "System Software and Utilities," for additional information.

Turning Off Your Computer



CAUTION: Before you turn off your computer, make sure you save and close all open files. If you turn the computer off without saving and closing all open files, you could lose some or all of your work.

Perform the following steps before you turn off your computer:

1. Close any application data files you have open.
Most application programs prompt you to save the information before closing the application program.
2. Close any applications you have running.
To close a Windows 95 application, click on the icon located in the upper left corner of the application's window.
3. Make sure you exit any DOS session activated from Windows 95.
4. Make sure all files are closed if you are running Windows 95.
5. Click on the Start icon at the lower left of your screen.
6. Click on the Shutdown icon and then on Yes to shut down your computer.
7. After the message *You can now safely turn off your computer* appears on your screen, press the power On/Off button at the front of the computer to turn it off.
If your monitor is plugged into a wall outlet, you should turn the monitor off.



NOTE: You can also shut down your computer using Digital's "Getting Started" program.

Restarting Your Computer

Method	How to Invoke	Action Performed
Hard boot	Turn the computer off for five seconds, then back on, by pressing the power On/Off button at the front of the computer.	Runs memory tests and clears all terminate stay resident programs (TSRs) and memory registers.
Soft boot	Press [Ctrl]+[Alt]+[Del].	Does not run memory tests but clears all terminate stay resident programs (TSRs) and memory registers.

Computer Security

Computer security is important to prevent theft or accidental loss of your computer software and hardware. The Starion Minitower PC computer provides the following levels of protection:

- Password on boot
- Supervisor and user password
- Diskette access
- Diskette write protection
- Reminder messages

Refer to Chapter 2 “Configuring Your Computer Using BIOS Setup” for more information on security features.

Supervisor and User Password

Your Starion Minitower PC computer has two password levels that you can set to prevent unauthorized access to your computer files or BIOS Setup utility. If you set a supervisor or user password, you will be prompted to enter a password prior to accessing the BIOS Setup utility. If "Password On Boot" is enabled, you will be prompted to enter a password before your operating system boots.

A supervisor password is required to set a user password. If you later delete the supervisor password, the user password is also removed.

Perform the following steps to set a supervisor and user password:

1. Reboot your computer.
2. After the power on self test (POST) has successfully completed, press [F2] to access Setup.
The Setup main menu appears on the screen.
3. Highlight the Security menu and then press [Enter].
4. Highlight the Set Supervisor Password field and then press [Enter].
5. Type in a supervisor password and then press [Enter].
To confirm, type in your supervisor password a second time and then press [Enter].
6. Do you want to set a user password?
If YES, highlight the Set User Password field and then follow the method described in steps 4 and 5.
If NO, skip this field.

7. Highlight the Password On Boot field and select enabled if desired.
8. Highlight the Diskette Access field.
9. Select either the Supervisor or User option and then press [Enter].
10. Press [Esc] twice then [Enter] twice to exit the BIOS Setup utility and to reboot your computer so changes immediately take effect.
Your computer runs the POST and then prompts you for the password you set.

Diskette Write Protection

If you want to prevent information on your computer's hard disk drive from being copied to a diskette drive, you can use your computer's BIOS Setup utility to set the diskette drive to a write-protected state. In this state, your computer will read information from diskettes inserted into diskette drive(s), but no information can be copied from your computer's memory or hard disk drive onto diskettes.

Perform the following steps to enable diskette drive write protection:

1. Reboot your computer.
2. After the POST has successfully completed, press [F2] to access Setup.
The Setup main menu appears on the screen.
3. Highlight the Advanced Options menu and then press [Enter].
4. Highlight the Diskette Write Protect field and select Enabled.

5. Press [Esc] twice then [Enter] twice to exit the BIOS Setup utility and to reboot your computer so changes immediately take effect.
Your computer's installed diskette drive(s) have been set to the write-protected state.

To disable diskette drive write-protection, follow the above procedure, selecting Disabled instead of Enabled in step 4.

Reminder Messages

You can configure your computer to remind you periodically to back up your hard disk drive and/or check for the presence of computer viruses in your system.

Note that the computer does not automatically back up your software or check your computer for viruses as a result of enabling these options. You must perform these tasks yourself using appropriate software.

Refer to your Windows 95 documentation for information on the backup and virus software incorporated into Windows 95.

To configure the reminder message options:

1. Reboot your computer.
2. Before POST completes, press [F2] to access Setup.
The Setup main menu appears on the screen.
3. Highlight the Security menu and then press [Enter].
4. Highlight the System Backup Reminder field.
5. Select either the Disabled option or a reminder frequency setting (Daily, Weekly, or Monthly) and then press [Enter].
6. Highlight the Virus Check Reminder field.

7. Select either the Disabled option or a reminder frequency setting (Daily, Weekly, or Monthly) and then press [Enter].
8. Press [Esc] twice then [Enter] twice to exit the BIOS Setup utility and to reboot your computer so changes immediately take effect.
Your computer runs POST, and prompts you for a supervisor or user password if you have set one.

Important Information

Under circumstances of poor posture or poor setup up, certain recent scientific articles suggest that injuries may occur. Other articles suggest that there is no cause and effect. Because the safety of our users is a great concern, it is important to take these precautions:

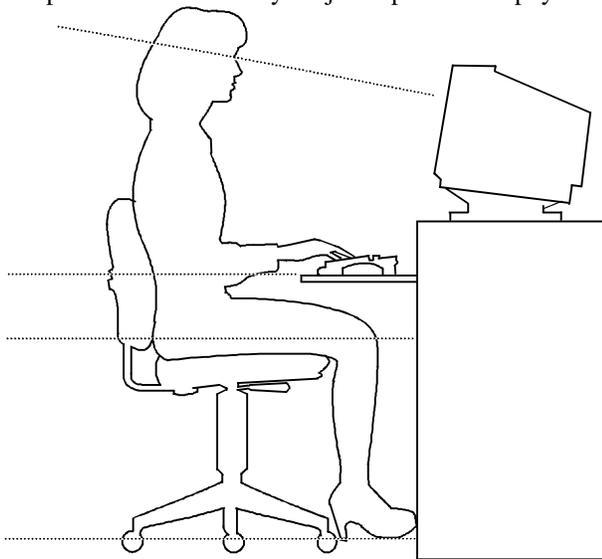
- Be comfortable in your work space.
- Change your posture frequently.
- Proceed according to the recommendations in the following table and figure.

Adjust	So . . .
Chair	<p>Feet are flat on the floor.</p> <p>Legs are vertical forming a right angle to the floor.</p> <p>Your weight is off your thighs and they are horizontal. Keep the back of your knees away from the seat so you do not compress the area behind them, which could restrict the blood flow.</p> <p>Your upper body is erect and your lower back is supported with a backrest.</p>
Keyboard or mouse	<p>Your wrists are straight and do not bend more than 15 degrees. They may be supported when resting but not on sharp edges. Type comfortably, with no more key pressure than needed to feel the contact point.</p> <p>Upper arms are straight down at your sides, elbows are close to your sides and support your arm weight. Forearms are at a 70 degree to 90 degree angle.</p> <p>If you use a mouse, rest your hand on the mouse so your wrist is not on the work surface. Operate the mouse close to your body's centerline.</p>

continued

Adjust	So . . .
Head	Avoid neck strain. Your head should incline downward, but no more than 15 to 20 degrees.
Monitor	No higher than the level of your eyes and at the correct distance for your vision. Avoid eye fatigue, which can be caused by glare, image quality, uncomfortable furniture, eye height, and uncorrected vision. If you cannot focus to read at different distances, you may need special glasses. Relax your eyes periodically by looking at distant objects.
Work breaks	Take periodic work breaks. Morning, lunch, and afternoon breaks during the 8-hour workday meet most recommendations. Take advantage of work breaks to move around and do other activities.
Lighting	Avoid direct lighting or sunlight on the screen, which causes glare and reflections. Place lighting behind or to the side of your work area, and distribute the lighting evenly on your work area. Your computer's monitor screen has an antiglare treatment to reduce glare. Adjust the brightness and contrast controls as needed.
Noise	Keep background noise at a minimum. Background noise above 65 dBA is tiring. Sound-absorbing materials (curtains, carpeting, and acoustic tile) can help reduce background noise.
Temperature	20 to 23 degrees C (68 to 74 degrees F).
Humidity	30% to 70%.
Ventilation	Provide adequate air ventilation to avoid fatigue and to operate the equipment.
Space between set ups	> 70 cm (28 in.) center to center, preferably > 152 cm (60 in.).

IMPORTANT: If you experience pain or discomfort during use of the PC, take a rest break and review the instructions for proper ergonomic setup and use. If the pain or discomfort continues after resuming use of the PC, discontinue use and report the condition to your job supervisor or physician.



DEC004t

Figure 1-1. Providing a Comfortable Working Environment

DECpcă Charmonix

Getting Help

If you need help regarding...	Refer to the
Installing your computer	<i>Quick Setup Guide</i>