Digital PC

Systems Solutions

Part Number: ER-PCDSS-UA. A01

Digital Equipment Corporation

Contents

July 1996

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

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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.

This digital apparatus does not exceed the Class B limits for radio noise emissions set out in the radio interference regulations of the Canadian Department of Communications.

This equipment is in the 2nd Class category (information equipment to be used in a residential area or an adjacent area thereto) and conforms to the standards set by the Voluntary Control Council For Interference by Data Processing Equipment and Electronic Office Machines aimed at preventing radio interference in such residential area.

When used near a radio or TV receiver, it may become the cause of radio interference.

Read the instructions for correct handling.

This equipment meets or exceeds requirements for safety in the U.S. (UL 1950), Canada (CSA C22.2 No. 950), and Europe (EN 60950/IEC 950) with Nordic requirements.

This equipment meets or exceeds the ergonomic requirements of ZH1/618 and is certified to bear the GS mark by TUV Rheinland of Germany.

WARNING: There is a danger of battery explosion if a lithium battery is incorrectly replaced. To prevent damage to your computer, be sure the + side faces up when installing a new battery. Also, be sure you replace the battery with either a Digital (P/N 12-41474-05), Toshiba (P/N CR2032), or equivalent 3 V dc lithium battery.

Depending on your locality, your computer's battery might be considered hazardous waste. Make sure you follow any state or local statute to properly dispose of the old battery.

ADVARSEL: Der er fare for, at et lithiumbatteri eksploderer, hvis det udskiftes ukorrekt. Undgå, at beskadige din computer - HUSK, at + siden skal vende opad, når du installerer et nyt batteri. Du skal udskifte batteriet med enten et Digital (delnummer 12-41474-05), Toshiba (delnummer CR2032), eller tilsvarende 3 V jævnstrøms lithiumbatteri.

Afhængig af dit lokalområde, er det muligt, at din computersbatteri betragtes som farligt affald. Husk, at følge evt. miljølove og lokale bestemmelser, når du kasserer det gamle batteri**.**

VAROITUS: Litiumpatterit voivat räjähtää, jos ne asennetaan väärin. Estääksesi tietokoneesi vaurioitumisen varmista, että patteria asentaessasi sen positiivinen (+) puoli on ylöspäin. Tarkista myös, että käyttämäsi uusi patteri on joko Digital (osa no. 12-41474-05), Toshiba (osa no. CR2032) tai vastaavanlainen 3 voltin tasavirtalitiumpatteri.

Asuinpaikastasi riippuen tietokoneesi patteria voidaan pitää ongelmajätteenä. Pidä huoli, että hävität vanhan patterin voimassa olevien lakien ja asetusten mukaisesti.

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VARNING! Det kan förekomma en batteriexplosion om ett litium-jonbatteri byts ut på felaktigt sätt. Förhindra att datorn skadas genom att se till att plussidan (+) är uppåtvänd när du sätter i ett nytt batteri. Det gamla batteriet får endast bytas ut mot ett Digital-batteri (artikelnummer 12-41454-05), ett Toshiba-batteri (artikelnummer CR2032) eller ett motsvarande litiumbatteri på 3 volt likström.

Datorbatterier anses vara miljöfarligt avfall i många länder. Du måste följa alla lokala bestämmelser när du avyttrar ett gammalt batteri.

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About This Guide

Introduction

This guide provides detailed troubleshooting information to help get your computer up and running should you have problems initially setting it up or after installing application software and/or optional devices.

Organization

This guide contains the following:

Chapter 1: *About This Guide*— Describes the purpose and organization of this troubleshooting guide.

Chapter 2: *Basic Troubleshooting Tips*— Lists several basic troubleshooting tips that if followed, can quickly solve most computer, operating system, or application software problems.

Chapter 3: *Identifying and Solving Problems*— Helps identify and solve the most common problems that might occur while setting up and using your computer.

Chapter 4: *Diagnostics*— Provides information on how to access and use the supplied diagnostics program.

Chapter 5: *ClientWORKS and DMI*— Lists the benefits of using ClientWORKS and DMI to access information about your computer's hardware configuration.

Chapter 6: *Advanced Problem Solving*— Provides advanced problem solving solutions for your computer, disk drives, monitor, audio, network, and CD-ROM drive.

Chapter 7: *Error Messages*— Describes the power-on self test (POST) and run-time error messages that might appear while operating your computer, including recommended corrective actions.

Related Documentation

Quick Setup guide — Provides brief instructions on how to connect and initially power up your computer.

System Reference guide— Describes how to operate, upgrade, and configure your computer. You can find an on-line printable version of your computer's *System Reference* guide in your Factory Installed Software.

> **NOTE:** This *System Reference* guide might not be available in some languages.

A *System Software* manual is available to help identify the operating system, utilities, and device drivers that came with your computer. This manual also describes how to restore your computer's software using the supplied CD-ROM disk. Refer to the CD-INFO.TXT file on the supplied CD-ROM disk for additional installation and configuration information.

A *Warranty and Service Information* booklet is supplied with your computer. This booklet provides warranty information and a listing of phone numbers for technical support.

You have one of the following included with your computer:

*Microsoft   WindowsNT   Workstation Installation*guide — Describes how to install and use Windows NT Workstation, including information about additional networking services that you can install.

Introducing Microsoft   Windows   95 — Describes how to install and use the Windows 95 operating system.

Latest Product Information and Updates

You can access product information and download the latest BIOS, device drivers, and software updates using the Internet at:

- **http://www.pc.digital.com**
- **http://www.pc.digital.com/-ftp**

You can also access software updates through Digital's Bulletin Board Service (BBS) by calling:

Inside the United States (508) 496-8800

Conventions

Convention Example	Description
Quick Setup	Italics are typically used for titles, comments, and references to other sections of this document or other documents.
`c:\windows>`	Monospaced text indicates information that your computer or software displays. For example, a directory path or error message.
`SCU.BAT`	Monospaced text can also indicate a command that you need to enter to run an application or utility.
[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.

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Basic Troubleshooting Tips

Introduction

This chapter lists several basic troubleshooting tips that if followed, can quickly solve most computer, operating system, or application software problems.

Troubleshooting Tips

Use these troubleshooting tips should your computer ever fail to operate correctly.

- Keep it simple, only troubleshoot one problem at a time. Also, only make one change at a time. For example, if your IDE or SCSI hard disk drive fails to boot, do not try all the suggested actions at once. Instead, start with one suggestion such as checking the cables. After securing the cables, try booting your computer. If it does not work, try another suggestion.
- Look for abnormal computer, keyboard, and monitor LED indications. For example, make sure the power on LED lights when you turn on your computer and the drive access indicators light when using either the diskette drive or hard disk drive.

- If there are POST error(s), run the BIOS Setup utility and fix the problem(s) identified by the POST error(s).
- If you installed external devices, make sure all cables are correctly and securely connected to the appropriate devices.
- If you installed devices inside the computer, make sure nothing was bumped or jarred loose, and that all cable connections are securely in place.
- Make sure all device drivers are installed correctly.
- If your computer hangs, soft boot your computer (press the [Ctrl] + [Alt] + [Del] keys). If your computer fails to boot, turn it off, wait until all disk drives completely spin down, and then turn it back on.
- Pay close attention to any error message that appears on your screen.

    If the error message is computer related, refer to Chapter 7, "Error Messages," for recommended actions.

    If the error message is Windows related, refer to any on-line help and the appropriate Windows documentation supplied with your computer.

- Listen carefully for computer errors in the form of beeps. Record the number
  of beeps and their pattern then check the "Beep Code" descriptions in Chapter
  7 for recommended actions.
- After your computer completes the POST, press [F8] to check each line of the
  AUTOEXEC.BAT and CONFIG.SYS files (AUTOEXEC.NT and
  CONFIG.NT files for Windows NT Workstation). Answer Yes to allow each
  line to execute. If an error message appears, record it and then refer to Chapter
  7, "Error Messages," for recommended actions.

  NOTE: Windows 95® does not require an AUTOEXEC.BAT
  and CONFIG.SYS file. If these files are missing, it does not
  mean that the missing files are the cause of a problem.

- README files might be factory installed, on the CD-ROM disk, or as printed
  material. This README information can help you setup, configure, and
  operate your computer.

- Run the diagnostics software. Refer to Chapter 4, "Diagnostics," for information on accessing and running the supplied diagnostics program.
- If your computer will not boot into Windows, use the Emergency Repair Disk you created during setup to gain access to your computer's hard disk drive. Afterwards, troubleshoot your computer using the information in this guide and correct any problems.

> **NOTE:** If Digital support tells you to return a failed component, pack it in its original container and then return it to Digital or your Digital Authorized Distributor as instructed.

4
Identifying and Solving Problems

Introduction

Most computer failures are generally a result of an incorrect installation, improper configuration, or incompatible application software and/or hardware. This chapter can help identify and solve some of these problems while setting up and using your computer.

Problems at Initial Startup

Problems occurring at initial startup are usually caused by components being jarred loose during shipping, loose cables, cables connected to the wrong devices, or external device failure (such as a printer, modem, etc.). Review the following sections to determine what the problem might be and how to resolve it.

My Computer Does Not Boot

Review the following steps, in order, to help resolve why your computer does not boot.

1. Make sure you have properly connected power to the computer and monitor. Refer to the *Quick Setup* guide.
2. Check for loose cables inside your computer. Refer to the *System Reference* guide for instructions on removing the outside cover and cable locations.

3. Make sure no components have been jarred loose during shipping.
   Components to look for are the CPU, SIMMs, and external cache. Refer to the
   System Reference guide for instructions on removing the outside cover and for
   component locations.

   NOTE: Pentium Pro computers do not have external cache. This
   cache is contained within the Pentium Pro processor.

4. If your computer fails to boot, contact your service provider. Also, refer to your
   Warranty information for the telephone numbers for customer support.

My Printer Does Not Work

Review the following steps, in order, to help resolve why your printer does not work.

1. Make sure you properly connected your printer following the instructions that
   came with your printer and *System Reference* guide.
2. For Windows for Workgroups users, make sure you properly installed the
   correct printer device driver using the *Printers* options from the *Control Panel*
   menu.
3. For Windows 95 users, make sure you properly installed the correct printer
   device driver using the *Printer Setup* wizard.
4. For Windows NT Workstation users, make sure you properly installed the
   correct printer device driver using the *Print Manager* option from the *Program
   Manager* menu.
5. Refer to the troubleshooting instructions that came with your printer's
   documentation.
6. If your printer still does not work, contact your printer reseller or manufacturer
   for further instructions.

My Modem Does Not Work

Review the following steps, in order, to help resolve why your modem does not work.

1. Make sure you properly connected your modem following the instructions that came with your modem and *System Reference* guide.
2. For Windows for Workgroups and Windows NT Workstation users, make sure your modem software is configured for the correct COM port and IRQ.
3. For Windows 95 users, make sure you properly installed the modem using the *Install New Modem* selection from the *Control Panel* menu.
4. Refer to the troubleshooting instructions that came with your modem's documentation.
5. If your modem still does not work, contact your modem reseller or manufacturer for further instructions.

Problems Loading Application Software

Problems occurring while loading application software are usually software related. Faulty equipment is much less likely, especially if other software programs are operating correctly. Follow these instructions to solve any problems you might have while loading application software.

1. Make sure you properly installed the application software following the instructions that came with your software and your computer's *System Reference* guide.
2. Check your application documentation. Does your computer meet the memory requirement and video requirements? You can use ClientWORKS to check the memory on your computer (refer to Chapter 5 for more information on ClientWORKS).
   If not, follow the instructions in your *System Reference* guide to upgrade your computer to meet the required memory and video requirements for the application software.

3. Does your computer have the necessary hard disk space to load the application? You can identify what hard disk space you have by accessing "File Manager" (Windows for Workgroups and Windows NT Workstation) or "Windows Explorer" (Windows 95).
   If not, free up the necessary space on your hard disk drive and then load the application.
4. Make sure you installed an authorized copy of the application software.

   NOTE: In some cases, Windows NT Workstation might not be able to read an application's original installation disk(s). If you are running MS-DOS® and Windows NT Workstation on your computer, install the application while running MS-DOS. If you are running Windows NT Workstation only, create a new set of installation disks on another computer running MS-DOS, and then use the new disks to install the application.

5. Make sure all required device drivers are installed.
   If you are missing device drivers that should have been supplied, check the Digital BBS or the Internet.
   Refer to Latest Product and Information Updates.
   Follow the instructions in the supplied Windows documentation to properly install the required device drivers.
6. If your application software still does not load properly, contact your software reseller or manufacturer.

Problems After Computer and Software are Operating Correctly

Problems occurring after your computer and application software are operating correctly often indicate an equipment failure. Additional problems might include a missing or corrupted device driver file or some other associated file. Follow these instructions to solve any problems you might have.

Your computer hanging each time you attempt to run a specific software application could indicate:

- A corrupted file
- An incorrect installation
- Hard disk drive failure
- A virus

Reboot your computer and then reinstall the program following the instructions that came with the software. If the problem continues, your hard disk drive or some other component might have failed.

> *Refer to Chapter 6, "Advanced Problem Solving," for more information on solving these problems.*

Intermittent problems such as your computer hangs while running certain software programs, unable to access your hard disk drive, or your monitor blanks out could indicate:

- A corrupted file
- Too many active windows open
- Memory failure
- Hard disk drive failure
- A loose cable
- Main logic board failure
- A virus

Reboot your computer. If the problem continues, your hard disk drive or some other component might have failed.

> *Refer to Chapter 6, "Advanced Problem Solving," for more information on solving these problems.*

Problems After Installing Optional Devices

Problems occurring after installing optional devices often indicate an improper installation, incompatible hardware, or equipment failure. Follow these instructions to solve any problems you might have.

Problems that occur after installing a mass storage device (such as a hard disk drive, CD-ROM, or SCSI hard disk drive) could indicate:

- An incorrect installation
- Incorrect device drivers installed
- Incorrect jumper or terminator settings

    Refer to Chapter 6, "Advanced Problem Solving," for more information on solving these problems.

Problems that occur after installing memory options (such as SIMMs or secondary cache) could indicate:

- An incorrect installation
- An incompatible device
- A BIOS Setup problem

    Refer to Chapter 6, "Advanced Problem Solving," for more information on solving these problems.

5
Diagnostics

Introduction

If you are a Windows 95 user, the PC Care diagnostic software is included in your factory installed software. You can use this software to troubleshoot your computer.

If you are a Windows NT Workstation user, your factory installed software includes an *Administrative Tools* group in the *Program Manager* menu. This program group includes a Windows NT Diagnostics icon for launching the Diagnostic software. You can use this software to troubleshoot your computer.

You also received a set of diagnostic diskettes. These diskettes can be used to troubleshoot your computer if you are unable to access the diagnostic software from Windows 95 or Windows NT Workstation. The first diagnostic diskette called "For Emergency Use" can be used to install the diagnostic program on your hard disk drive. Also, should your hard disk drive fail, you can boot directly from this diskette. The second diskette called "Vendor Ext. Tests" contains diagnostics for your specific computer's components (such as onboard network and onboard audio.

> *Refer to the README files on the diagnostics diskettes for additional information.*

Using the Diagnostics Software

The supplied diagnostic software can be used to examine your computer's current configuration, locate faulty main logic board components, and run diagnostic tests on your keyboard, mouse, and disk drives.

To access the diagnostic software using Windows 95 or Windows NT Workstation, simply click on the Diagnostics icon (Windows 95) or the Windows NT Diagnostics icon (Windows NT Workstation). Afterwards, follow the instructions on your monitor screen to begin using either diagnostic program.

To access the diagnostic software on diskettes, insert the "For Emergency Use" diskette you received into your diskette drive. Then type:

```
A:\AMIDIAG
```

If you are unable to boot from the hard disk drive, you can instead boot directly from this diskette.

Once the program begins, follow the instructions displayed on your monitor screen.

Self Monitoring Analysis Technology (S.M.A.R.T.)

If your computer's hard disk drive is S.M.A.R.T. aware and you're running Windows 95, the taskbar lights will keep you apprised as to how your hard disk drive is operating (refer to the following table).

Light Color	Description	Action
Yellow	Hard disk drive is not S.M.A.R.T. aware	No action
Green	Hard disk drive is operating correctly	No action
Red	Hard disk drive is failing	You have one to five days to either repair or replace your hard disk drive

6
Digital ClientWORKS and DMI

Introduction

ClientWORKS is a Desktop Management Interface (DMI) based software application that has been developed by Digital Equipment Corporation.

ClientWORKS for Windows 95 and Windows NT Workstation users can be used to help you, your system manager, or system administrator to identify your computer's current hardware configuration. This feature is useful, for example, if you need to see if you have sufficient memory or a large enough hard disk drive for the applications you want to run. System managers or system administrators can access ClientWORKS data through Simple Network Management Protocol (SNMP) consoles. This feature means your company can protect its current investment in SNMP software and network monitors. Other features include:

- If there is a known computer component that needs to be replaced, under Windows 95 or Windows NT Workstation, a system manager or administrator can access ClientWORKS and get the Field Replaceable Unit (FRU) part number. This part number can then be relayed to the service provider to expedite ordering.
- Serial numbers can easily be identified to obtain warranty service.

- The amount and type of computer memory you have installed can easily be identified using ClientWORKS. This is especially useful if you need to know your computer's capabilities prior to loading software.
- A system manager or administrator can use ClientWORKS to remotely access computer configurations that are attached to a network. This feature enables a system manager or administrator to easily maintain an accurate equipment log. *Refer to the supplied ClientWORKS factory installed on-line help or the supplied CD-ROM disk for detailed information on using or installing either program.*

7

Advanced Problem Solving

Introduction

This chapter provides advanced problem solving information. The sections that follow list specific problems, probable causes, and recommended actions to take if your computer fails after you configure it or after you install optional hardware or software.

- Computer Troubleshooting
- Disk Drive Troubleshooting
- Monitor Troubleshooting
- Audio Troubleshooting
- Network Troubleshooting
- CD-ROM Troubleshooting

  Refer to Chapter 7, "Error Messages," for a list of error messages that might appear during normal operation. Refer to the documentation supplied with additional options if you are experiencing problems with specific options that you have installed.

Computer Troubleshooting

Problem	Possible Cause	Action
No response when the computer is turned on.	Computer is not plugged in.	Turn off the computer, plug it in, and then turn it back on again.
	No power at the wall outlet.	Use another wall outlet.
	Main logic board failure.	Contact your Service provider.
	Main logic board jumpers incorrectly set.	Set all appropriate jumpers (Refer to your computer's *System Reference* guide).
	CPU has failed.	Contact your Service provider.
	Power supply has failed.	Contact your Service provider.
	Voltage select switch is set incorrectly.	Make sure the setting on the back of your computer matches your country's voltage requirements. Refer to the supplied *Quick Setup* guide for more information.
Power is on, screen is on, but the computer does not respond.	Keyboard not connected, mouse not connected, or both might be in the wrong port.	Connect the keyboard and/or mouse. If already connected, confirm that each device is in the appropriate port.
Power is on, but there is no screen display.	Brightness and contrast controls are not correctly set.	Adjust the brightness and contrast controls.
	The monitor-off timer has shut the monitor off.	Press [Shift] to reactivate monitor.
	Monitor is off.	Turn on the monitor.
	Monitor cable is incorrectly installed.	Check all monitor connections.
	Incorrect video drivers installed.	Install the correct video drivers.
	Video controller has failed.	Contact your Service provider.
	Monitor has failed.	Try another monitor. If the new monitor operates correctly, replace the old monitor following the Customer Replacement Unit process described in the *Warranty and Information* booklet.

Problem	Possible Cause	Action
Computer operates incorrectly after installing an optional expansion board.	Expansion board installed incorrectly.	Remove the expansion board and reinstall.
	Did not run the ISA Configuration Utility (ICU) to configure a non-Plug and Play expansion board before installation. **Note:** Plug and Play expansion boards are automatically configured.	Run the ICU to properly configure expansion board and then reboot your computer. Refer to any supplied ICU, Windows for Workgroups, and Windows NT Workstation documentation.
	Expansion board has failed.	Remove expansion board and reboot. If computer boots without errors, replace expansion board.
Computer operates incorrectly after installing optional SIMMs.	SIMMs installed incorrectly.	Make sure both SIMM sockets in each bank are filled at a time with the correct SIMM size, speed, and type.
		Remove SIMMs and reinstall.
	SIMMs have failed.	Remove SIMMs and reinstall.
		Make sure two banks are filled at a time with the correct SIMM size, speed, and type. Refer to the supplied *System Reference* guide for more information.
		Replace SIMMs.

continued

Problem	Possible Cause	Action
Computer fails to retain setup information.	Computer battery has failed.	Replace computer battery.
	Discharge CMOS jumper set to "Discharge."	Set discharge CMOS jumper to "Normal." Refer to your computer's *System Reference* guide.
Computer displays HIMEM.SYS errors.	Unstable memory at the specified address.	Run diagnostics.
		Replace faulty SIMM(s).
Computer displays General Fault Protection (GPF) errors (Windows for Workgroups installed).	Insufficient computer resources for a given operation.	Close all unnecessary applications.
		Close and restart Windows for Workgroups.
		Reboot computer and restart Windows for Workgroups.
Computer displays an illegal action message (Windows 95).	Insufficient computer resources for a given operation.	Close all unnecessary applications.
		Close and restart Windows 95.
		Reboot computer.
Computer displays a System Error F002 message (Windows NT Workstation)	Faulty hardware.	Run the supplied diagnostic software to identify the faulty hardware. Replace the faulty hardware or contact your Service provider.

continued

Problem	Possible Cause	Action
"Couldn't Find NTLDR" (Windows NT Workstation)	NTLDR file is missing from the root directory of your hard disk drive.	Copy the NTLDR file to your hard disk drive's root directory.
		If using the supplied Windows NT Workstation CD-ROM disk, make the CD-ROM your current drive and then type:
		`copy\i386\ntldr c:\`
		at the command line prompt.
		If using the supplied Windows NT Workstation Setup disks, insert Setup Disk #2 into the diskette drive and then type:
		`expand ntldr.$ C:\ntldr`
		at the command line prompt.
"Error 0000001E" (Windows NT Workstation)	Your hard disk drive might have corrupted system files.	Run chkdsk on your hard disk drive to correct any corrupted files. Also make sure your hardware is on the supplied *Microsoft Windows NT Hardware Compatibility List.*
		If the problem still exists, contact your Service provider.

continued

Problem	Possible Cause	Action
"Error 0x00000069 or 0x00000067" (Windows NT Workstation)	Windows NT Workstation unable to communicate with your computer's hard disk drive controller.	Using the BIOS Setup utility, slow down the DMA transfer rate of the controller.
		Make sure both ends of the SCSI bus are terminated.
		Make sure there are no IRQ or memory address conflicts.
		Make sure NTDETECT.COM is in the root directory of your boot drive partition.
		Make sure there are no missing Windows NT Workstation system files.
		If the problem still exists, contact your Service provider.
"NMI Hardware Error" (Windows NT Workstation)	Faulty hardware.	Make sure all main logic board SIMMs, CPU, VRM, video memory, and expansion board connectors are clean and properly seated in their respective sockets.
		Run the supplied diagnostic software to identify the faulty hardware. Replace the faulty hardware or contact your Service provider.
Services or subsystems do not start properly (Windows NT Workstation)	Improper configuration, files missing or files not installed.	Use the *Services* or *Devices* icons in the *Control Panel* menu to check for status. Also, check the system log in the *Event Viewer* for entries relating to the problem.
		If the problem still exists, contact your Service provider.

Problem	Possible Cause	Action
Computer does not boot from an IDE hard disk drive.	IDE drive type incorrect.	Run the BIOS Setup utility to identify the correct drive type.
		See drive type label on drive or consult drive documentation.
	Loose cable connectors.	Secure all cable connections.
	Onboard IDE interface disabled.	Run the BIOS Setup utility and set the Local Bus IDE Adapter to "Enabled."
	Hard disk boot sector is missing.	Repartition and reformat your hard disk drive.
		Caution: This procedure erases what is currently on your hard disk drive.
		You might want to try repairing the hard disk drive using a disk drive repair utility. Disk drive repair utilities can be purchased from your local software supplier.
		If you do repartition and reformat your hard disk drive, proceed as follows for DOS-based operating systems such as Windows for Workgroups, Windows 95, and Windows NT Workstation.
		Boot from a DOS diskette then enter the following commands:
| | | ```
c:
cd\dos
fdisk
``` |
| | | Follow the instructions on your monitor screen to create a new hard disk boot sector. |
| | There might be a boot sector virus. | Run anti-virus software. |

continued

Problem	Possible Cause	Action
Computer does not boot from an IDE hard disk drive.	IDE hard disk is connected to the wrong IDE connector.	Connect the boot disk to the primary IDE connector on the backplane.
	Operating system software is not installed on the IDE hard disk drive.	Install the appropriate operating system.
	IDE hard disk drive is not correctly formatted or the requested partition does not exist.	Format the IDE hard disk drive or partition the IDE hard disk drive using the supplied operating system software.
	There is no software on the requested partition.	Install software on the requested partition.
	IDE hard disk drive jumpers incorrectly set.	Refer to the supplied IDE hard disk drive kit installation instructions.
	IDE hard disk drive has failed.	Contact your Service provider.
	IDE hard disk drive ribbon cable has failed.	Contact your Service provider.
	IDE controller has failed.	Contact your Service provider.

Problem	Possible Cause	Action
Computer does not recognize an internal or external SCSI hard disk drive or device.	SCSI device jumpers incorrectly set.	Refer to the supplied SCSI device kit installation instructions.
	SCSI ID conflicts.	Refer to the supplied SCSI device kit installation instructions on setting SCSI IDs.
	Terminating resistors not removed from the SCSI device.	Remove terminating resistors. Refer to the supplied kit installation instructions.
	SCSI option not enabled in BIOS Setup utility.	Run the BIOS Setup utility and enable SCSI option.
	SCSI cable not terminated.	Terminate each end of the SCSI cable.
	SCSI device not plugged in.	Check power and SCSI cables.
	Loose cable connectors.	Secure all cable connections.

continued

Problem	Possible Cause	Action
Computer does not recognize an internal or external SCSI hard disk drive or device.	Hard disk boot sector is missing.	Repartition and reformat your hard disk drive.
		Caution: This procedure erases what is currently on your hard disk drive.
		You might want to try repairing the hard disk drive using a disk drive repair utility. Disk drive repair utilities can be purchased from your local software supplier.
		If you do repartition and reformat your hard disk drive, proceed as follows for DOS-based operating systems such as Windows for Workgroups, Windows 95, and Windows NT Workstation.
		Boot from a DOS diskette then enter the following commands:
		```c: cd\dos fdisk```
		Follow the instructions on your monitor screen to create a new hard disk boot sector.
	There might be a boot sector virus.	Run anti-virus software.
	Loose cable connectors.	Secure all cable connections.
	SCSI adapter has failed.	Contact your Service provider.
	SCSI ribbon cable has failed.	Contact your Service provider.
	SCSI device has failed.	Contact your Service provider.

Problem	Possible Cause	Action
Computer does not boot from an internal SCSI hard disk drive.	Computer not configured for SCSI hard disk drive operation.	Run the BIOS Setup utility and set the IDE controller option to "Disabled." This disables the onboard IDE interface.
		Note: If you have both IDE and SCSI hard disk drives installed, your computer uses the IDE hard disk drive as the boot device.
	Operating system software is not installed on the SCSI hard disk drive.	Install the appropriate operating system.
	Requested partition does not exist.	Partition the SCSI hard disk drive and then reload the operating software.
	SCSI adapter has failed.	Contact your Service provider.
	SCSI ribbon cable has failed.	Contact your Service provider.
	SCSI hard disk drive has failed.	Contact your Service provider.

Problem	Possible Cause	Action
Computer does not boot from a target diskette drive.	Onboard diskette controller disabled.	Run the BIOS Setup utility and set the diskette controller option to "Enabled."
	Diskette drive not enabled.	Run the BIOS Setup utility to enable the diskette drive
	BIOS Setup diskette write option enabled.	Enter your user password. If a supervisor password is required, see your system supervisor or system manager.
	Incorrect diskette drive type.	Run the BIOS Setup utility and select the correct drive type.
	Diskette boot option disabled.	Run the BIOS Setup utility and set the proper boot sequence.
	Diskette might not be bootable.	Use a bootable diskette.
	Diskette does not contain start-up files.	Insert a diskette with the correct start-up files.
	Diskette drive is empty.	Insert a diskette that contains an operating system.
	Diskette is worn or damaged.	Try another diskette.
	Loose cable connectors.	Secure all cable connections.
	Diskette access requires a supervisor password.	See your supervisor or system manager.
	Diskette access requires a user password.	Enter your user password.

continued

Problem	Possible Cause	Action
No response to keyboard commands.	Keyboard is password protected.	Enter the keyboard password.
	Keyboard is not connected.	Power down the computer and connect the keyboard.
	Keyboard is connected to the mouse port.	Power down the computer and connect the keyboard to the keyboard port.
	Computer operation halted.	Reboot computer.
	Keyboard has failed.	If available, try another keyboard. If the new keyboard operates correctly, replace the old keyboard following the Customer Replacement Unit process described in the *Warranty and Information* booklet.
	Keyboard controller has failed.	Contact your Service provider.

continued

Problem	Possible Cause	Action
Keyboard keys type incorrectly.	Incorrect language selected.	Select the correct language.
	Keyboard has failed.	If available, try another keyboard. If the new keyboard operates correctly, replace the old keyboard following the Customer Replacement Unit process described in the *Warranty and Information* booklet.
No response to mouse activity.	Mouse is not connected.	Power down the computer and connect the mouse.
	Mouse is connected to the keyboard port.	Power down the computer and connect the mouse to the mouse port.
	Computer operation halted.	Reboot computer.
	Mouse driver not installed.	Install the appropriate mouse driver. Refer to your supplied application software documentation.
	Onboard mouse controller disabled.	Run the BIOS Setup utility and set the mouse port option to "Enable."
	Mouse has failed.	If available, try another mouse. If the new mouse operates correctly, replace the old mouse following the Customer Replacement Unit process described in the *Warranty and Information* booklet.
	Keyboard controller has failed.	Contact your Service provider.
Mouse sticks.	Dirty mouse ball.	Remove mouse ball and clean it.

Disk Drive Troubleshooting

Problem	Possible Cause	Action
IDE/SCSI hard disk drive cannot read or write information.	Incorrect disk drive jumper settings.	Refer to the supplied kit installation instructions.
	Loose or incorrectly installed cables.	Make sure all cables are correctly installed.
	IDE/SCSI hard disk drive is not correctly formatted or partitioned.	Format and partition as required using the supplied operating system.
	IDE drive type incorrect.	Run the BIOS Setup utility to identify the correct drive type.
	Onboard IDE interface disabled.	Run the BIOS Setup utility and set the Local Bus IDE Adapter to "Both."
	IDE/SCSI hard disk drive has failed.	Contact your Service provider.
	IDE/SCSI controller has failed.	Contact your Service provider.
	IDE/SCSI ribbon cable has failed.	Contact your Service provider.

continued

Problem	Possible Cause	Action
Target diskette drive cannot read or write information.	Diskette is not formatted.	Format the diskette.
	Diskette is worn or damaged.	Try another diskette.
	Diskette is write-protected.	Slide the write-protect switch so the hole is not visible (3½-inch diskette) or uncover the write-protect notch (5¼-inch diskette).
	Diskette drive is empty.	Insert a diskette.
	Onboard diskette controller disabled.	Run the BIOS Setup utility and set the diskette controller option to "Enabled".
	Diskette write protection is enabled.	Run the BIOS Setup utility and set the diskette write protection to "Disabled."
	Loose cable connectors.	Secure all cable connections.
	Diskette drive has failed.	Contact your Service provider.
	Diskette drive controller has failed.	Contact your Service provider.
	Diskette drive ribbon cable has failed.	Contact your Service provider.
	Diskette access requires supervisor password.	Reboot computer and enter supervisor password. Afterwards, run BIOS Setup utility and set "Diskette Access" option to "User."
Target diskette drive does not format diskettes.	Diskette write protection is enabled.	Run the BIOS Setup utility and set the diskette write protection to "Disabled."
	Diskette drive has failed.	Contact your Service provider.

Monitor Troubleshooting

Problem	Possible Cause	Action
Monitor power indicator is not on.	Monitor is turned off.	Turn on the monitor.
	Power cord is not connected.	Connect the power cord to the computer.
	No power at wall outlet.	Use another outlet.
	The monitor-off timer shut off the monitor.	Press [Shift] to reactivate monitor.
	Monitor has failed.	If available, try another monitor. If the new monitor operates correctly, replace the old monitor following the Customer Replacement Unit process described in the Warranty and Information booklet.
	Video controller has failed.	Contact your Service provider.
	Power indicator is defective.	Contact your Service provider.
No screen display.	Configuration error.	Run the BIOS Setup utility to configure the computer for correct video operation.
	Monitor brightness and contrast controls are incorrectly set.	Adjust the monitor brightness and contrast controls.
	The monitor-off timer shut off the monitor.	Press [Shift] to reactivate monitor.
No monitor display while loading Windows video drivers.	Monitor type incorrectly set.	Set the correct monitor type using the appropriate utility.
	Wrong Windows driver loaded.	Load the correct video driver.

Problem	Possible Cause	Action
Distorted, rolling, or flickering screen display, or wrong/ uneven color.	Monitor incorrectly adjusted.	Adjust accordingly.
	Monitor signal cable incorrectly installed.	Straighten any bent connector pins and then reconnect.
Color monitor displaying monochrome.	Computer was turned on before the monitor was turned on.	Turn off the computer, turn on the monitor, then turn the computer back on.
Monitor fails to switch to high-resolution mode.	Appropriate high-resolution video drivers are not installed or incorrectly installed.	Correctly install all appropriate high-resolution video drivers. Refer to the documentation supplied with your monitor.
Monitor display not centered while loading Windows video drivers.	Monitor type incorrectly set.	Set the correct monitor type.
Monitor display disappears.	Screen display sized incorrectly.	Correctly size screen display.

Audio Troubleshooting

Problem	Possible Cause	Action
Audio does not work.	Sound, MIDI, mixer drivers not installed.	Check the error messages for the necessary drivers. In Windows Control Panel, select "Drivers", then "Add" and install the necessary driver(s).
	Address contention. Two or more devices might be trying to access the same address.	Check IRQ, I/O address, and DMA settings in Windows 95, Windows NT Workstation, or BIOS Setup. Change settings as required.
	Cables loose or not properly connected.	Make sure speaker and microphone plugs are in correct jacks. Reconnect cables. Refer to the *System Reference* guide for jack locations.
	Onboard audio controller disabled.	Run the BIOS Setup utility and set the Integrated Audio to "Enabled."
	Bad audio chip or sound card.	Call your Service provider or sound card provider.
	Main logic board has failed.	Contact your Service provider.

continued

Problem	Possible Cause	Action
External speakers do not work.	Speakers not connected or improperly connected.	Properly connect the speakers. Refer to your *System Reference* guide for more information.
	Check speaker batteries or ac adapter have failed.	Replace speaker batteries or ac adapter. Refer to the documentation that came with your speakers.
	Speakers have failed.	If available, try another set of speakers. If the new speakers operate correctly, replace the old speakers following the Customer Replacement Unit process described in the *Warranty and Information* booklet.
Microphone does not work.	Microphone not connected or improperly connected.	Properly connect the microphone. Refer to your *System Reference* guide for more information.
	Microphone has failed.	If available, try another microphone. If the new microphone operates correctly, replace the old microphone following the Customer Replacement Unit process described in the *Warranty and Information* booklet.
Headphones do not work.	Headphones not connected or improperly connected.	Properly connect the headphones. Refer to your *System Reference* guide for more information.
	Headphones have failed.	If available, try another set of headphones. If the new headphones operate correctly, replace the old headphones following the Customer Replacement Unit process described in the *Warranty and Information* booklet.

Network Interface Troubleshooting

Problem	Possible Cause	Action
Power is on, LAN address is installed on computer; system hangs.	Incorrect software installed or software installed incorrectly.	Contact system administrator or network coordinator.
Network doesn't start.	Network cable not connected or is loose.	Connect cable. Also, make sure no more than one ethernet cable is connected at one time.
	Conflict exists with another device adapter; incorrect IRQ setting.	Check BIOS setup, Windows 95, or Windows NT Workstation settings.
	Network cable has failed.	Contact your system administrator or network coordinator.
	Onboard network controller disabled.	Run the BIOS Setup utility and set Integrated Ethernet to "Enabled."
	Onboard network controller has failed.	Contact your Service provider.

CD-ROM Troubleshooting

Problem	Possible Cause	Action
Cannot access the CD-ROM drive. Error message reading drive x.	Device drivers not installed.	Install correct device drivers.
	No disk in the CD-ROM drive.	Insert a disk.
	CD-ROM drive tray is open.	Close the tray.
	Onboard IDE interface disabled (if IDE CD-ROM)	Run the BIOS Setup utility and set the Local Bus IDE Adapter to "Enabled."
	CD-ROM has failed.	Contact your Service provider.
	Cables have failed.	Contact your Service provider.
Power is on but CD-ROM drive indicator shows no activity.	No CD-ROM disk or CD-ROM drive tray is open.	Insert a disk and close the tray.
	Check cable connections.	Make sure cables are correctly connected.
	CD-ROM has failed.	Contact your Service provider.
	Cables have failed.	Contact your Service provider.
CD-ROM disk is spinning but CD-ROM drive is idle.	Application software not running.	Run application software.

8
Error Messages

Introduction

This chapter lists computer messages you might see or hear when you turn on power. The computer messages are grouped as follows:

- POST and boot computer messages
- POST execution messages
- Beep codes

POST Messages

The POST displays messages to alert you to errors in hardware, software, and firmware or to provide operating information about your computer.

Each time the POST displays a message on your screen, the computer's speaker beeps twice. If an error occurs before the monitor is initialized, specific beep codes sound to alert you to a problem. The following table lists a general grouping of system messages. In addition, each message is accompanied by text describing the message and in most cases, a recommended solution to the problem.

> **NOTE:** Italics indicate variable parts of a message such as memory addresses, hexadecimal values, and so on. These messages can differ at each occurrence.

POST and Boot Messages

Message	Description/Solution
Asynchronous Synchronous Burst Synchronous Pipeline Burst Passed	Where *nnnn* is the amount of computer cache (in kilobytes) that tested successfully.
Diskette drive A error Diskette drive B error	Run the BIOS Setup utility. Check all connections. If the problem persists, contact your Service provider.
Entering SETUP	BIOS Setup utility runs.
Extended RAM Failed at offset: *nnnn*	Extended memory failed or configured incorrectly. Make sure SIMMs are installed correctly (Refer to your *System Reference* guide). If the problem persists, contact your Service provider. Run the BIOS Setup utility and restore all settings to original values.
Extended RAM Passed	Where *nnnn* is the amount of extended memory (in kilobytes) that tested successfully.
Failing Bits: *nnnn*	*nnnn* is a map of the bits at the RAM address which failed the memory test. Run the BIOS Setup utility and restore all to original values. If the problem persists, contact your Service provider.
Fixed Disk 0 Failure Fixed Disk 1 Failure	Run the BIOS Setup utility. Check all connections. If the problem persists, contact your Service provider. Fixed disk controller failure
Incorrect Drive A type - run SETUP	Diskette drive A and/or B not correctly identified in the BIOS Setup utility.
Incorrect Drive B type - run SETUP	Run the BIOS Setup utility and properly identify diskette drive A and/or B.

continued

Message	Description/Solution
Invalid NVRAM media type	NVRAM access failed.
	Run the BIOS Setup utility and restore all settings to original values.
	If the problem persists, contact your Service provider.
Keyboard controller error Keyboard error Keyboard locked - Unlock key switch	Check the keyboard connection. If the connection is secure, the keyboard or keyboard controller might have failed. If the problem persists, contact your Service provider.
Monitor type does not match CMOS - Run SETUP	Run the BIOS Setup utility and set the correct monitor type.
Operating system not found	The operating system cannot be found on drive A or drive C.
	Run the BIOS Setup utility and correctly identify drive A or drive C.
	Correctly install the operating system. Refer to the supplied operating system documentation.
Press <F1> to resume, <F2> to Setup	This message appears after any recoverable error message.
	Press [F1] to reboot or [F2] to enter the BIOS Setup utility to make any necessary changes.
Real time clock error	Computer battery failed BIOS test.
	Replace computer battery and then run the BIOS Setup utility to restore previous configuration information.
Shadow RAM Failed at offset: *nnnn*	Shadow RAM failed.
	Run the BIOS Setup utility and disable failed shadow memory region.
Nnnn Shadow RAM passed	Where *nnnn* is the amount of shadow RAM (in kilobytes) that tested successfully.

Message	Description/Solution
`RTC is dead - Replace and run SETUP`	Replace the computer battery and then run the BIOS Setup utility to restore previous configuration information.
`System BIOS shadowed`	This indicates that your computer's BIOS was successfully copied to shadow RAM.
`System cache error - Cache disabled`	RAM cache failed. Run the BIOS Setup utility and restore all settings to original values. If the problem persists, contact your Service provider.
`System CMOS checksum bad - run SETUP`	Correct the address conflict using the BIOS Setup utility. If the problem persists, contact your Service provider.
`System RAM failed at offset: nnnn`	System RAM failed. Run the BIOS Setup utility and restore all settings to original values. If the problem persists, contact your Service provider.
`nnnn System RAM passed`	Where *nnnn* is the amount of system RAM (in kilobytes) that tested successfully.
`System timer error`	Your computer's timer test failed. Run the BIOS Setup utility and restore all settings to original values. If the problem persists, contact your Service provider.
`UMB upper limit segment address: nnnn`	Displays the address of the upper limit of UMB. This indicates the released segments of the BIOS that can be reclaimed by a virtual memory manager.
`Video BIOS shadowed`	This indicates that your computer's video BIOS was successfully copied to shadow RAM.

POST Execution Messages

The following messages appear at the bottom of the screen during POST execution.

Message	Description
230	Unexpected interrupts test
220	Shadow ROMs
210	Test RAM between 512K and 640K
200	Extended memory test
190	Set cache registers
180	Cache configuration
170	Real-time clock test
160	Keyboard test
150	Initial hardware interrupt
140	Co-processor test
130	Serial ports test
120	Parallel ports test
110	Initiate onboard SIO
100	Mouse test
95	CD-ROM initialize
90	Testing diskette drives
80	Testing hard disk drives
30	Setup power management
20	Enable IRQs
10	Setting time of day

Beep Codes

When POST finds an error and cannot display a message, the computer's speaker emits a series of beeps to indicate the error and places a value in I/O port 80h. During POST, if the video configuration fails or if an external ROM module fails a checksum test, then your computer beeps three times (one long beep, and two short beeps).
The following table lists other fatal errors and their associated beep codes. Each code represents the number of short beeps that are grouped together. Fatal errors (errors that lock up your computer) are generally the result of a failed main logic board or some other add-on component (SIMM, BIOS, computer battery, etc.). If you cannot resolve problems using the troubleshooting procedures in Chapter 6, contact your Service provider.

Beep Code	Error
1	One short beep before boot
1-2	Search for option ROMs
1-2-2-3	BIOS ROM checksum
1-3-1-1	Test DRAM refresh
1-3-1-3	Test keyboard controller
1-3-4-1	Test 512K base address lines
1-3-4-3	Test 512K base memory
1-4-1-1	Test memory bus
2-1-2-3	Check ROM copyright notice
2-2-3-1	Test for unexpected interrupts