



# Contents

<b>Chapter 1</b>	<b>Introduction . . . . .</b>	<b>1-1</b>
<b>Chapter 2</b>	<b>Checking the Basics . . . . .</b>	<b>2-1</b>
	Backing Up Files . . . . .	2-1
	Basic Checks . . . . .	2-1
	Checking Connections and Switches . . . . .	2-2
	Look and Listen . . . . .	2-6
	The System Setup Program . . . . .	2-7
	The Resource Configuration Utility . . . . .	2-8
<b>Chapter 3</b>	<b>Messages and Codes . . . . .</b>	<b>3-1</b>
	System Messages . . . . .	3-1
	System Beep Codes . . . . .	3-10
	Warning Messages . . . . .	3-12
	Diagnostics Messages . . . . .	3-12
	Alert Log Messages From the Dell OpenManage Server Agent Application . . . .	3-13
<b>Chapter 4</b>	<b>Finding Software Solutions . . . . .</b>	<b>4-1</b>
	Installing and Configuring Software . . . . .	4-1
	Using Software . . . . .	4-2
	Error Messages . . . . .	4-2
	Input Errors . . . . .	4-2
	Program Conflicts . . . . .	4-2
	Avoiding Interrupt Assignment Conflicts . . . . .	4-3

<b>Chapter 5</b>	<b>Running the Dell Diagnostics . . . . .</b>	<b>5-1</b>
	Features of the Dell Diagnostics . . . . .	5-1
	When to Use the Dell Diagnostics . . . . .	5-1
	Starting the Dell Diagnostics . . . . .	5-2
	How to Use the Dell Diagnostics . . . . .	5-3
	How to Use the Device Groups Menu . . . . .	5-3
	Device Groups Menu Options. . . . .	5-3
	Run Tests. . . . .	5-4
	Devices . . . . .	5-4
	Select. . . . .	5-5
	Config. . . . .	5-5
	Error Messages. . . . .	5-5
<b>Chapter 6</b>	<b>Checking the Equipment . . . . .</b>	<b>6-1</b>
	Troubleshooting the Monitor. . . . .	6-1
	Troubleshooting the Keyboard . . . . .	6-3
	Troubleshooting I/O Ports . . . . .	6-4
	Troubleshooting the Basic I/O Functions . . . . .	6-4
	Troubleshooting a Parallel Printer . . . . .	6-5
	Troubleshooting a Serial I/O Device . . . . .	6-6
<b>Chapter 7</b>	<b>Checking Inside the Computer . . . . .</b>	<b>7-1</b>
	Before You Begin . . . . .	7-1
	Safety First—For You and Your Computer. . . . .	7-1
	Unpacking Your Hardware Option . . . . .	7-2
	Removing the Computer Cover . . . . .	7-2
	Replacing the Computer Cover. . . . .	7-4
	Inside Your Computer. . . . .	7-6
	Rotating the Power Supply Away From the System Board . . . . .	7-8
	Removing and Replacing the Front Bezel . . . . .	7-9
	Removing and Replacing Front-Panel Inserts . . . . .	7-10
	Responding to a Dell OpenManage Server Agent Alert Message . . . . .	7-11
	Troubleshooting a Wet Computer. . . . .	7-12
	Troubleshooting a Damaged Computer . . . . .	7-12
	Troubleshooting the Battery . . . . .	7-13
	Troubleshooting the Power Supply. . . . .	7-14
	Troubleshooting Power Cable Connections. . . . .	7-14
	Troubleshooting the Cooling Fan . . . . .	7-15
	Troubleshooting Expansion Cards. . . . .	7-15
	Troubleshooting System Memory. . . . .	7-18

Troubleshooting the Video Subsystem . . . . .	7-20
Troubleshooting the System Board. . . . .	7-21
Troubleshooting the Diskette Drive Subsystem . . . . .	7-23

**Chapter 8                    *Installing System Board Options* . . . . . 8-1**

Expansion Cards . . . . .	8-2
Expansion Slots . . . . .	8-3
Installing an Expansion Card. . . . .	8-4
Removing an Expansion Card. . . . .	8-7
Adding Memory. . . . .	8-7
DIMM Installation Guidelines. . . . .	8-8
Installing a DIMM. . . . .	8-10
Removing a DIMM. . . . .	8-11
Removing and Replacing the Cooling Shroud . . . . .	8-12
Removing the Cooling Shroud . . . . .	8-12
Replacing the Cooling Shroud . . . . .	8-13
Microprocessor Upgrades . . . . .	8-13
Adding or Replacing a Microprocessor. . . . .	8-13
Replacing the System Battery . . . . .	8-17

**Chapter 9                    *Installing Drives* . . . . . 9-1**

Connecting Drives . . . . .	9-3
Installing a Drive in a 5.25-Inch Drive Bay . . . . .	9-4
Installing an EIDE Hard-Disk Drive. . . . .	9-10
EIDE Drive Addressing. . . . .	9-10
Installing an EIDE Hard-Disk Drive in the Internal Hard-Disk Drive Cage . . . . .	9-10
Partitioning and Logically Formatting Your EIDE Hard-Disk Drive . . . . .	9-15

**Chapter 10                  *Getting Help* . . . . . 10-1**

Technical Assistance . . . . .	10-1
Help Tools . . . . .	10-1
World Wide Web . . . . .	10-2
AutoTech Service . . . . .	10-2
TechFax Service . . . . .	10-3
Automated Order-Status System . . . . .	10-3
Technical Support Service . . . . .	10-3
Problems With Your Order . . . . .	10-3
Product Information. . . . .	10-4
Returning Items for Warranty Repair or Credit . . . . .	10-4
Before You Call . . . . .	10-4
Dell Contact Numbers . . . . .	10-7

<b>Appendix A</b>	<b>Diagnostic Video Tests . . . . .</b>	<b>A-1</b>
	Video Memory Test. . . . .	A-2
	Video Hardware Test. . . . .	A-2
	Text Mode Character Test . . . . .	A-2
	Character Attributes Subtest (80 x 25). . . . .	A-2
	Character Set Subtest (80 x 25). . . . .	A-2
	Character Attributes Subtest (40 x 25). . . . .	A-2
	Character Set Subtest (40 x 25). . . . .	A-3
	Text Mode Color Test . . . . .	A-3
	Color Attributes Subtest (80 x 25) . . . . .	A-3
	Color Attributes Subtest (40 x 25) . . . . .	A-4
	Color Bars Subtest. . . . .	A-4
	Text Mode Pages Test . . . . .	A-4
	Graphics Mode Test . . . . .	A-4
	320 x 200 Graphics Mode Screens . . . . .	A-4
	640 x 200 Black/White Graphics Mode Screen . . . . .	A-5
	640 x 480 Monochrome Graphics Mode Screen. . . . .	A-5
	320 x 200 16-Color Graphics Mode Screen . . . . .	A-5
	640 x 200 16-Color Graphics Mode Screen . . . . .	A-5
	640 x 350 16-Color Graphics Mode Screen . . . . .	A-5
	640 x 480 2-Color Graphics Mode Screen . . . . .	A-5
	640 x 480 16-Color Graphics Mode Screen . . . . .	A-5
	320 x 200 256-Color Graphics Mode Screen . . . . .	A-5
	640 x 480 256-Color Graphics Mode Screen . . . . .	A-6
	800 x 600 16-Color Graphics Mode Screen . . . . .	A-6
	800 x 600 256-Color Graphics Mode Screen . . . . .	A-6
	1024 x 768 16-Color Graphics Mode Screen . . . . .	A-6
	1024 x 768 256-Color Graphics Mode Screen . . . . .	A-6
	Color Palettes Test . . . . .	A-6
	Solid Colors Test . . . . .	A-7

<b>Appendix B</b>	<b>Jumpers, Switches, and Connectors . . . . .</b>	<b>B-1</b>
	Jumpers. . . . .	B-1
	Switches . . . . .	B-2
	System Board Jumpers. . . . .	B-2
	Disabling a Forgotten Password . . . . .	B-4
	System Board Labels . . . . .	B-5

# Abbreviations and Acronyms

## Index

### Figures

Figure 2-1.	Back-Panel Features . . . . .	2-3
Figure 2-2.	Front-Panel Features . . . . .	2-4
Figure 7-1.	Padlock Installed . . . . .	7-3
Figure 7-2.	Removing the Computer Cover . . . . .	7-4
Figure 7-3.	Replacing the Computer Cover . . . . .	7-5
Figure 7-4.	Computer Orientation View . . . . .	7-6
Figure 7-5.	Inside the Chassis . . . . .	7-7
Figure 7-6.	Rotating the Power Supply . . . . .	7-8
Figure 7-7.	Removing the Front Bezel . . . . .	7-9
Figure 7-8.	Removing a Front-Panel Insert . . . . .	7-11
Figure 8-1.	System Board Features . . . . .	8-2
Figure 8-2.	Expansion Cards . . . . .	8-3
Figure 8-3.	Removing the Filler Bracket . . . . .	8-5
Figure 8-4.	Installing an Expansion Card . . . . .	8-6
Figure 8-5.	DIMMs and DIMM Sockets . . . . .	8-8
Figure 8-6.	Installing a DIMM . . . . .	8-11
Figure 8-7.	Removing a DIMM . . . . .	8-11
Figure 8-8.	Removing the Cooling Shroud . . . . .	8-12
Figure 8-9.	Removing the Terminator Card . . . . .	8-14
Figure 8-10.	Removing the SEC Cartridge/Heat Sink Assembly . . . . .	8-15
Figure 8-11.	Installing the SEC Cartridge/Heat Sink Assembly . . . . .	8-16
Figure 8-12.	System Battery and Battery Socket . . . . .	8-19
Figure 9-1.	Drive Locations . . . . .	9-2
Figure 9-2.	DC Power Cable Connector . . . . .	9-3
Figure 9-3.	Drive Interface Connectors . . . . .	9-3
Figure 9-4.	Removing a Drive . . . . .	9-5
Figure 9-5.	Attaching the Drive Bracket to the New Drive . . . . .	9-6
Figure 9-6.	Inserting the New Drive Into the Drive Bay . . . . .	9-7
Figure 9-7.	Attaching EIDE CD-ROM Drive Cables . . . . .	9-8
Figure 9-8.	Removing the Hard-Disk Drive Bracket . . . . .	9-11
Figure 9-9.	Inserting a 1-Inch Hard-Disk Drive Into the Bracket . . . . .	9-12
Figure 9-10.	Inserting the Hard-Disk Drive Bracket Into the Chassis . . . . .	9-13
Figure 9-11.	Attaching Hard-Disk Drive Cables . . . . .	9-14
Figure 10-1.	Diagnostics Checklist . . . . .	10-6
Figure B-1.	System Board Jumpers . . . . .	B-3

## **Tables**

Table 2-1.	Boot Routine Indications . . . . .	2-6
Table 3-1.	System Messages . . . . .	3-2
Table 3-2.	System Beep Codes . . . . .	3-11
Table 4-1.	IRQ Line Assignment Defaults . . . . .	4-3
Table 5-1.	Devices Options . . . . .	5-4
Table 5-2.	Parameters Options . . . . .	5-4
Table 8-1.	Sample Unbuffered SDRAM DIMM Configuration Options . . . . .	8-8
Table 8-2.	Sample Registered SDRAM DIMM Configuration Options . . . . .	8-9
Table 10-1.	International Dialing Codes . . . . .	10-8
Table 10-2.	Dell Contact Numbers . . . . .	10-10
Table A-1.	Color Attributes . . . . .	A-3
Table B-1.	System-Board Jumper Settings . . . . .	B-4
Table B-2.	System Board Connectors and Sockets . . . . .	B-6