

August 2000  
1296A

Prepared by Software Product  
Marketing

Compaq Computer Corporation

## Contents

<b>Introduction</b> .....	3
<b>Upgrading from Windows 3.1 or Installing Windows 98 as a New Operating System</b> .....	3
Preparing for Installation.....	3
Modifying a Microsoft DOS Boot Diskette.....	4
Installing Microsoft Windows 98.....	5
Installation of the Compaq Drivers and Support Software.....	5
<b>Docking for the First Time</b> .....	6
<b>Appendix A</b> .....	7
Software Component Configuration.....	7
<b>Appendix B</b> .....	9
Compaq Drivers and Enhancements.....	9
<b>Appendix C</b> .....	13
Determining the ROM Version and Upgrade Version.....	13
<b>Appendix D</b> .....	15
Advanced Configuration and Power Interface.....	15
<b>Appendix E</b> .....	16
SoftPaq Descriptions.....	16

# Installing Microsoft Windows 98 on Compaq Armada E, M, and V Series of Personal Computers

**Abstract:** This document provides steps for installing Microsoft Windows 98 (OSR2.1) on Compaq *Armada*™ E, M, and V Series Personal Computers. By following these steps, and using one of three recommended software configurations, a variety of computing environments can be built to match any desired customer requirements. These configurations range from basic and enhanced setup, to full hardware and software support for the enterprise customer.

For details on Compaq operating system support, features, and the installation of additional Service Packs, refer to the *Operating System Support for Compaq Portable Products* white paper.

## Notice

©2000 Compaq Computer Corporation.

Compaq, Armada, and the Compaq logo Registered in U.S. Patent and Trademark Office. Microsoft, Windows, and Windows NT are registered trademarks of Microsoft Corporation in the United States and/or other countries. All other product names mentioned herein may be trademarks and/or registered trademarks of their respective companies.

The information in this publication is subject to change without notice and is provided "AS IS" WITHOUT WARRANTY OF ANY KIND. THE ENTIRE RISK ARISING OUT OF THE USE OF THIS INFORMATION REMAINS WITH RECIPIENT. IN NO EVENT SHALL COMPAQ BE LIABLE FOR ANY DIRECT, CONSEQUENTIAL, INCIDENTAL, SPECIAL, PUNITIVE, OR OTHER DAMAGES WHATSOEVER (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, OR LOSS OF BUSINESS INFORMATION), EVEN IF COMPAQ HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

The limited warranties for Compaq products are exclusively set forth in the documentation accompanying such products. Nothing herein should be construed as constituting a further or additional warranty.

Installing Microsoft Windows 98 on Compaq Armada E, M, and V Series of Personal Computers  
White Paper prepared by CPCG Software Product Management

First Edition (March 1999)

Second Edition (May 2000)

Third Edition (August 2000)

Document Number 1296A

## Introduction

This white paper provides instructions for installing Microsoft Windows 98 as a new operating system on Compaq Armada E, M, and V Series Personal Computer. Use the setup configurations in this paper to simplify the installation process and determine which computing environment works best. Complete all the steps outlined for the specific platform and configuration to successfully install Microsoft Windows 98 and all Compaq software. Once installed, along with the operating system, Compaq software can provide improved functionality and enhances the overall user experience.

The installation scripts in this document apply to Microsoft Windows 98 with Advanced Power Management (APM) support. See Appendix D to enable Advanced Configuration and Power Management (ACPI) on those Armada notebooks that support ACPI.

---

**Note:** Back up all data and applications before beginning any Microsoft Windows 98 installation procedures.

---

## Upgrading from Windows 3.1 or Installing Windows 98 as a New Operating System

This section provides instructions for the following:

- Preparing for installation
- Modifying a Microsoft DOS boot diskette
- Preparing the hard drive
- Installing Microsoft Windows 98

### Preparing for Installation

Obtain the following before beginning the installation:

- The Retail Microsoft Windows 98 CD-ROM and documentation.
- The Microsoft Windows 98 Drivers and Enhancements from Compaq.
- One formatted 1.44-MB, 3.5-inch diskette.
- Access to the Internet.

## Modifying a Microsoft DOS Boot Diskette

---

**IMPORTANT:** Back up all data and applications before creating the DOS boot diskette.

---

Create a Microsoft DOS boot diskette to perform a clean installation of Windows 98 or upgrade from Windows 3.1 to Windows 98. Complete the following steps to obtain the CPQLTECD.SYS and MSCDEX.EXE files and modify the DOS boot diskette:

1. Insert the DOS boot diskette into the appropriate drive.
2. Obtain the CPQLTECD.SYS and MSCDEX.EXE DOS files by downloading the IDE CD-ROM drivers from the Compaq website:
  - a. Point the browser to [http://www.compaq.com/support/files/Compaq\\_Armada\\_Laptops.html](http://www.compaq.com/support/files/Compaq_Armada_Laptops.html).
  - b. Select the appropriate product series in the Select Product Series drop-down box.

---

**Note:** Armada E500 users must select the Armada E700 product series from the drop-down box.

---

- c. Select All Models from dropdown box 2.
  - d. Select Windows 3.1 from the Select Operating System drop down box.
  - e. Click on Go to browse to the Support Software page for a list of drivers, files, and utilities.
  - f. Select Storage from the software by category section.
  - g. Select the current version of the IDE CD-ROM Drivers to browse to the download page.
  - h. Print the download page. This page contains instructions on downloading and installing the IDE CD-ROM Drivers.
  - i. Follow the IDE CD-ROM Drivers installation steps to download and install the IDE CD-ROM drivers.
3. Enter DOS mode after installing the IDE CD-ROM drivers.
4. Copy the CPQLTECD.SYS and MSCDEX.EXE files to the DOS boot diskette.
5. Complete the following steps to create CONFIG.SYS and AUTOEXEC.BAT files on the DOS boot diskette:
  - j. Type A:EDIT to open MS-DOS EDIT.
  - k. Type DEVICE=CPQLTECD.SYS /D:CPQCD001.
  - l. Select File from the menu bar by pressing **Alt+F**. Press **A** or use the down or up arrow keys to select Save As. The Save As prompt will appear.
  - m. Type CONFIG.SYS in the File Name field and press **Enter** to save the CONFIG.SYS file to the DOS boot diskette and return to the EDIT prompt. A:\CONFIG.SYS should appear, centered under the menu bar.
  - n. Select File from the menu bar by pressing **Alt+F**. Press **N** or use the down or up arrow keys to select New. An untitled EDIT file will open.
  - o. Type MSCDEX /D:CPQCD001.

- p. Select File from the menu bar by pressing **Alt+F**. Press **A** or use the down or up arrow keys to select Save As. The Save As prompt will appear.
- q. Type AUTOEXEC.BAT in the File Name field and press **Enter** to save the AUTOEXEC.BAT file to the DOS boot diskette and return to the EDIT prompt. A:\AUTOEXEC.BAT should appear, centered under the menu bar.
- r. Select File from the menu bar by pressing **Alt+F**. Press **X** or use the down or up arrow keys to select Exit.  
The DOS boot diskette is now ready.
- s. Insert the Microsoft Windows 98 CD into the CD-ROM drive and reboot the computer before proceeding to the next section.

## Installing Microsoft Windows 98

---

**Note:** Format the hard drive before beginning the installation of Microsoft Windows 98.

---

Complete the following steps to install Windows 98 on the system:

1. Turn the computer on.
2. Type D: at the system prompt and press **Enter**.
3. Type CD WIN98 and press **Enter**.
4. Type SETUP and press **Enter**. A screen appears, stating that Setup will perform a routine system check.
5. Press **Enter** to continue. The Windows 98 Setup screen appears.  
Refer to the Windows 98 documentation to complete the installation.
6. Proceed to “Installation of the Drivers and Support Software,” after the Microsoft Windows 98 installation is complete.

## Installation of the Compaq Drivers and Support Software

---

**Note:** Install all the drivers to allow the system complete functionality.

---

The necessary drivers and enhancements available for the Compaq Armada E, M, and V Series of computers are summarized in Appendix B. The list is current at the date of this publication. Refer to the Compaq website for an up-to-date list of available drivers and enhancements and their associated SoftPaq numbers.

### Important Notes

- Ensure that the computer is undocked and that no PC Cards are in the PC Card slots while installing drivers.
- Any item with an asterisk is considered optional and may not be needed by all users.
- Any first step, which begins with “Double-click SETUP,” assumes that My Computer or Explorer is used to navigate to the directory where the files are located after their extraction from the SoftPaq.
- These SoftPaqs are the minimum required for Microsoft Windows 98. They may be superseded, as noted on the Compaq website.

## Docking for the First Time

Before docking, ensure that all of the specific drivers and support software for the computer is installed. See “Installing Compaq Drivers and Enhancements” for the list of software and instructions on how to install them.

Docking while the computer is off (cold) is recommended for the user’s first docking under Microsoft Windows 98. Shut down Microsoft Windows 98 by clicking Start→Shut Down and clicking on Yes. Place the computer in the docking station or convenience base and restart the unit.

Press **Enter** when prompted with questions. Continue doing this until the computer reboots and Microsoft Windows 98 loads, as usual.

---

**Note:** If you did not upgrade over Microsoft Windows 98 along with the Compaq System Enhancements Disk, you will have one or more unknown devices shown in the Device Manager. These are cosmetic in nature and do not degrade performance in any way.

---

After docking for the first time, reinstall the video drivers.

# Appendix A

## Software Component Configuration

**Table 1. Software Component Configurations**

Software Component	450 - 600MHz Platform	650 - 700MHz Platform	Configuration
3COM 10/100 LAN Cardbus PC Card	1.00 A	1.00 A	Enhanced
3COM Etherlink 3C905C 10/100 PCI NIC	5.11 A	5.11 A	Enhanced <sup>1</sup>
Armada Netflex-3 Ethernet Drivers	2.00 A	2.00 A	Enhanced <sup>1</sup>
Compaq DVD Solution	4.00 B	4.00 B	Enhanced
Compaq E700 Floppy Alert Application	1.00 B	1.00 B	Enhanced <sup>2</sup>
Compaq Mini-PCI Communications Software	2.15 A	2.15 A	Basic
Desktop/Portable Web Agents (Win32)	4.20 G	4.20 G	Full
Diagnostics for Windows (Win 95/98)	2.18 B	2.18 B –2.21 A (700 MHz)	Full
DOS Real Mode Support (Win 95/98)	2.00 D	2.00 D	Full

*continued*

<sup>1</sup> Supports optional hardware for docking station

<sup>1</sup> Supports optional hardware for docking station

<sup>2</sup> For Armada E700 support only

**Table 1. Software Component Configurations** *(continued)*

EasyPoint IV	1.00 B	1.00 B	Enhanced
Hotkey Support Software (Win32)	1.00 D	1.00 D	Basic
Infrared Drivers (Win98)	1.20 A	1.20 A	Enhanced
Insight Management Agents (Win32)	4.20 F	4.20 F	Full
Intel SpeedStep Application	NA	1.00 A	Enhanced
IR Transfer	1.00 B	1.00 B	Enhanced
M2E Audio Driver (Win 95/98)	4.04 F	4.04 G	Basic
Microsoft Direct X	6.10 A	6.10 A	Enhanced
MultiBay (Win98)	1.30 C	1.30 C	Basic
Online Modem Commands Guide	1.00 A	1.00 A	Enhanced
PowerCon (Win95/98)	3.30 B	3.30 B	Basic
PowerCon Enhancements	1.00 A	1.00 A	Enhanced
Rage LT Pro Video Driver (Win95/98)	6.01 A	6.01 A	Basic
Remote Management (Win98)	1.01 A	1.01 A	Full
Safety and Comfort Guide	5.01 A	5.01 A	Enhanced
Security 32 (Win32)	1.10 H	1.10 H	Enhanced
Armada M700 Quick Reference Guide	1.00 A	1.00 A	Enhanced
System Enhancement Disk (Win 98)	3.00 B	3.00 F	Basic
Touchpad Driver – Synaptics (Win 95/98)	5.45 A	5.45 A	Enhanced
True File Flash System (Win98)	1.00 A	1.00 A	Enhanced
USB Support	2.00 A	2.00 A	Enhanced
WorldPort Application	1.02A	1.02A	Enhanced

## Appendix B

### Compaq Drivers and Enhancements

**Table 2. Compaq Drivers and Enhancements SoftPaqs for Microsoft Windows 98**

Family	Driver/Enhancement	SoftPaq #
M300	ATI Rage LT Pro Video Drivers	SP13549
	Audio Driver (M2E)	SP12396
	Compaq Docking Enhancements	SP13875
	Diagnostics	SP13366
	Insight Management Agents <sup>1</sup>	SP12948
	Insight Management Web Agents <sup>2</sup>	SP11921
	Hot Key Support	SP11922
	MultiBay	SP11711
	Power Management	SP12668
	Power Management Enhancements	SP11335
	Real Mode Support	SP9090
	Synaptics TouchPad Drivers	SP11986
	System Enhancements	SP12015
	Remote Management	SP11213
	3COM Global Mini PCI 56K (V.90) Internal Modem Drivers	SP11390
	Mini PCI Support Software and Drivers	SP19242
	3COM Etherlink 10/100 PCI NIC	SP11920
	Security 32 Support	SP11945

*continued*

<sup>1</sup> Must be installed before Insight Management Web Agents

<sup>2</sup> Must be installed after Insight Management Agents

**Table 2. Compaq Drivers and Enhancements SoftPaqs for Microsoft Windows 98** (continued)

M700	ATI Rage LT Pro Video Driver	SP12698
	Audio Driver (M2E)	SP12396
	Diagnostics	SP14020
	Insight Management Agents <sup>1</sup>	SP11608
	Insight Management Web Agents <sup>2</sup>	SP11921
	Easy Point IV	SP11934
	Hot Key Support	SP11922
	Power Management	SP12668
	Power Management Enhancements	SP11335
	Synaptics TouchPad Drivers	SP11986
	System Enhancements	SP13640
	Remote Management	SP11213
	3Com Global MiniPCI 56K (V.90) Modem	SP11390
	CPQ Communications Support CD	SP12942
	Worldport Application	SP11391
	3Com 10/100 LAN CardBus PC Card	SP11389
	3Com Etherlink 10/100 PCI NIC	SP11920
	Netflex-3 Ethernet Drivers	SP6599
	Real Mode Support	SP9090
	Security 32 Support	SP11215
E500	ATI Rage LT Pro Video Driver	SP12698
	Audio Driver (M2E)	SP12396
	Diagnostics	SP14020
	Insight Management Agents <sup>1</sup>	SP13262
	Insight Management Web Agents <sup>2</sup>	SP11921
	Easy Point IV	SP11934
	Hot Key Support	SP11922
	Multibay	SP11710
Power Management	SP12668	

*continued*<sup>1</sup> Must be installed before Insight Management Web Agents<sup>2</sup> Must be installed after Insight Management Agents

**Table 2. Compaq Drivers and Enhancements SoftPaqs for Microsoft Windows 98** (continued)

	Power Management Enhancements	SP11335
	System Enhancements	SP13849
	Remote Management	SP11213
	CPQ Communications Support CD	SP12942
	Worldport Application	SP11391
	Real Mode Support	SP9090
	Security 32 Support	SP11945 Sp12129 (Arabic/Hebw)
E700	ATI Rage LT Pro Video Driver	SP12698
	Audio Driver (M2E)	SP12396
	Compaq Floppy Alert	SP13875
	Diagnostics	SP14020
	Insight Management Agents <sup>1</sup>	SP11608
	Insight Management Web Agents <sup>2</sup>	SP11921
	Compaq Floppy Alert	SP11392
	Easy Point IV	SP11934
	Hot Key Support	SP11922
	Power Management	SP12668
	Power Management Enhancements	SP11335
	Fix for Power Management	SP11749
	System Enhancements	SP12015
	Remote Management	SP11213
	3Com Global MiniPCI 56K (V.90) Modem	SP11390
	3Com MiniPCI 10/100 LAN 56K (V.90) Modem	SP11837
	Mini PCI Communications Support Software and Drivers	SP12942
	Worldport Application	SP11391
	Intel PCI NIC	SP10949
	Netflex-3 Ethernet Drivers	SP6599
	Real Mode Support	SP9090
	Security 32 Support	SP11215

*continued*<sup>1</sup> Must be installed before Insight Management Web Agents<sup>2</sup> Must be installed after Insight Management Agents

**Table 2. Compaq Drivers and Enhancements SoftPaqs for Microsoft Windows 98** (continued)

V300	ATI Rage LT Pro Video Driver	SP12698
	Audio Driver (M2E)	SP12396
	Compaq Docking Enhancements	SP13875
	Diagnostics	SP13366
	Insight Management Agents <sup>1</sup>	SP12948
	Insight Management Web Agents <sup>2</sup>	SP11921
	Easy Point IV	SP11934
	Hot Key Support	SP11922
	Power Management	SP12668
	Power Management Enhancements	SP11335
	System Enhancements	SP12015
	Remote Management	SP11213
	3COM Etherlink 10/100 PCI/NIC	SP11920
	Mini PCI Communications Support and Software Drivers	SP12942
	Security 32 Support	SP11945 Sp12129 (Arabic/Hebw)

---

<sup>1</sup> Must be installed before Insight Management Web Agents

<sup>2</sup> Must be installed after Insight Management Agents

## Appendix C

### Determining the ROM Version and Upgrade Version

Use the Compaq Setup utility or Compaq Diagnostics for Windows to determine the ROM version. Refer to Table 3 for the current ROM version, as of the date of this publication.

**Table 3. Armada Family and Current ROM Version**

Portable Family	Current ROM Version
Armada M300	12/04/99
Armada M700	11/29/99
Armada E700	11/29/99
Armada E500	6/01/00
Armada V300	6/01/00

#### Determining the ROM Version Using Setup

A block cursor is displayed in the upper right corner of the screen during startup if the Diagnostics and Setup are properly installed on the hard drive.

1. Press **F10** when the block cursor displays.
2. Scroll down using the down arrow key to highlight View System Information and press **Enter**. The System Information prompt appears.
3. Make note of the ROM date and compare it to the date in Table 3.
4. Press **Esc** to exit the ROM information screen.
5. Scroll down using the down arrow key until Save Changes and Exit is highlighted. Press **Enter**.
6. Press **F10** to confirm exiting the Compaq Utilities.

If the ROM requires upgrading and you do not have a ROMPaq diskette for your computer, see “Creating a ROMPaq Diskette” in this appendix; otherwise, proceed to “Upgrading Your ROM.”

## Determining the ROM Version Using Compaq Diagnostics for Windows

1. Click Start→Settings→Control Panel.
2. Double-click the Compaq Diagnostics icon.
3. Press **F8** after Diagnostics loads.
4. Click the system icon.
5. Scroll through this list until the System ROM information appears. Make note of the date and compare it to the date in Table 3.
6. Close Diagnostics for Windows by clicking on the X in the upper right corner of the Diagnostics window.

If the ROM requires upgrading and you do not have a ROMPaq diskette for the computer, see Creating a ROMPaq Diskette in this appendix; otherwise proceed to Upgrading Your ROM.

## Creating a ROMPaq Diskette

Download the ROMPaq SoftPaq from <http://www.compaq.com/support/files/portables/us/index.html>. After downloading the appropriate SoftPaq from the Compaq website, follow the instructions on the download page to extract the image onto a diskette.

## Upgrading the ROM

1. With the computer off, connect the computer to AC power.
2. Place your ROMPaq diskette into your diskette drive and restart the computer.
3. Press **Enter** on the Welcome to ROMPaq screen.
4. Press **Enter** to select the COMPAQ System ROM.
5. Press **Enter** to select the most current firmware image.
6. Press **Enter** to continue.
7. Press **Enter** to start the ROMPaq upgrade.
8. Turn off the computer after the system ROM has been successfully loaded.

## Appendix D

### Advanced Configuration and Power Interface

ACPI represents a significant innovation in power and configuration management that allows operating systems and applications to manage power, based on activity and use. Compaq worked closely with Microsoft and Intel on the implementation of ACPI and provided Microsoft with one of the first notebook test platforms with ACPI hardware, the Armada 4200.

Compaq remains committed to ACPI and firmly believes ACPI will become the preferred model for power and configuration management in the long term. As with the introduction of any new technological innovation, time is required for it to be adopted. To gain the full benefit of ACPI, the operating system, applications, and hardware must be ACPI-aware. Microsoft Windows 98 is the first ACPI-aware operating system. At this time, no ACPI-aware applications have been developed. It is important to note that once ACPI is enabled, it is not possible to switch back to APM without reinstalling the operating system.

For these reasons, Compaq anticipates that, in the near term, many customers will not want to switch from the current power management standard, APM.

Compaq continues to work closely with Microsoft to test ACPI extensively to ensure Compaq customers get comparable battery life with ACPI, as they did with APM. We will release ACPI support for each Compaq platform only after completion of the testing phase, and we feel confident with the battery performance under ACPI.

Compaq's ACPI strategy for Armada notebooks is designed to allow customers to continue using APM until our ACPI testing is complete, then encourage them to choose the power management model best suited to their particular requirements. To accomplish this, all ACPI-aware notebooks will be set up to use APM as the default power management model. Then, anytime after the initial setup, customers will be able to convert their factory-installed version of Microsoft Windows 98 to ACPI by means of an easy-to-use tool to be provided by Compaq. This tool will be available as a SoftPaq on Compaq's website and Support Software CD.

## Appendix E: SoftPaq Descriptions

Name	Description
3Com Etherlink 10/100 PCI NIC	Supports PCI NIC that is used in select Armada docking station models
3Com Global MiniPCI 56K (V.90) Modem	Enables internal Modem device on select E700 & M700 models
Compaq Check Dock Utility	Identifies supported docking stations for E500 and V300 models
Compaq Floppy Alert (E700 only)	Verifies the 3.5-inch diskette is installed in the correct internal MultiBay
Diagnostics	Provides tools to test hardware components
Easy Point IV	Provides added functionality for the stick pointing device
Hot Key Support	Allows users to quickly access BIOS and Operating System features
Insight Management Agents	Provides asset management, security features and alerting capabilities
Insight Management Web Agents	Provides Web based asset management, security features and alerting capabilities
M2E Audio Driver	Enables the integrated Audio hardware
Mini PCI Communications Support and Drivers	Enables internal Modem and Modem/NIC Combo devices and supports Intel PCI NIC that is used in select Armada docking station models
MultiBay Plug and Play Manager	Provides support for swapping MultiBay devices
Netflex-3 Ethernet Drivers	Enables the integrated network adapter on ArmadaStation I and II
Power Management	Allows users to customize power requirements of the PC to maximize battery life and set up hibernation functionality
Power Management Enhancements	Increases battery life by managing SMART drive data collection
Rage Video Drivers	Enables the integrated Video hardware
Remote Management	Enables system administrator to update client ROM and setup over the network
Security 32	Allows users to access Compaq security options
Synaptics TouchPad Driver	Provides added functionality for the touchpad pointing device
System Enhancements	Provides users with an easy to install compilation of hardware-enabling operating system enhancements and fixes
System ROMPaq	System Firmware
Worldport Application	Allows homologation of 3Com modems