HP Business PCs
After Market
Options

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How to
White Paper

How to Create a Bootable Drive Key
Using M-Systems' DiskOnKey or HP Drive Key

Contents

Abstract

An HP Drive Key or M-Systems DiskOnKey can be configured to boot certain Compaq and HP systems. This document describes the procedures for making the Drive Key or DiskOnKey bootable.

Introduction

A bootable Drive Key contains an operating system (in this case DOS), installed so that the Drive Key can be used to boot the computer.

Requirements

1. One of the following systems:
   - Compaq Evo D510 USDT
   - Compaq Evo D510 CMT/SFF
   - HP Compaq business desktop d530 series – USDT, SFF, and CMT
   - Compaq Evo N400c, N410c, N600c, N610c, N620c, N800c, N1000c Notebooks
   - Compaq Presario 1500 and 2800 Notebooks

   Depending on the individual BIOS, future systems may also support booting to the HP Drive Key.

2. One of the following storage modules:
   - 32MB DiskOnKey (Spare Part Number: 305283-001)
   - 32MB HP Drive Key (Part Number: 86-SU-032F47-05)
   - 64MB DiskOnKey (Spare Part Number: 319845-001)
   - 128MB DiskOnKey (Spare Part Number: 319846-001)
   - 16MB HP Drive Key (Spare Part Number: 324780-001)
   - 64MB HP Drive Key (Spare Part Number: 331465-001)
   - 128MB HP Drive Key (Spare Part Number: 331466-001)

3. A bootable DOS diskette with the FDISK and SYS programs. If SYS is not available, FORMAT may be used, but all existing files on the Drive Key will be lost.

Procedure

In the following instructions "Drive Key" can be either a DiskOnKey or an HP Drive Key.

> ✎ **NOTE**: The supported devices listed above have a preinstalled image to simplify the process of making them bootable. If the Drive Key being used does not have this image, use the Low Level Procedure in the next section.

1. Power off the computer.
2. Insert the Drive Key into one of the computer's USB ports and remove all other USB storage devices except USB diskette drives.
3. Insert a bootable DOS diskette with FDISK.COM and either SYS.COM or FORMAT.COM into a diskette drive and turn on the computer to boot to the DOS diskette.
4. Run FDISK from the A:\ prompt by typing FDISK and pressing **Enter**. If prompted, click Yes (Y) to enable large disk support.
5. Enter Choice [5] to display the drives in the system. **The Drive Key will be the drive that closely matches the size of one of the drives listed.** It will usually be the last drive in the list. Note the letter of the drive.

> **Caution:** If a drive does not match the Drive Key, do not proceed. Data loss can occur. Check all USB ports for additional storage devices. If any are found, remove them, reboot the computer, and proceed from step 4. If none are found, either the system does not support the Drive Key or the Drive Key is defective. **DO NOT** proceed in attempting to make the Drive Key bootable.

6. Exit FDISK by pressing the **Esc** key to return to the A:\ prompt.

7. If your bootable DOS diskette contains SYS.COM, go to step 8. Otherwise, go to step 9.

8. At the A:\ prompt, enter SYS x: where x represents the drive letter noted above. Go to step 13.

> **Caution:** Be sure that you have entered the correct drive letter for the Drive Key.

After the system files have been transferred, SYS will return to the A:\ prompt.

9. Copy any files you want to keep from your Drive Key to a temporary directory on another drive (for example, the system's internal hard drive).

10. At the A:\ prompt, enter FORMAT /S X: where X represents the drive letter noted above.

> **Caution:** Be sure that you have entered the correct drive letter for the Drive Key.
>
> FORMAT will display one or more warnings and ask you each time whether you want to proceed. Enter **y** each time. FORMAT will format the Drive Key, add the system files, and ask for a Volume Label.

11. Press **Enter** for no label or enter one if desired.

12. Copy any files you saved in step 9 back to your Drive Key.

13. Remove the diskette and reboot the computer. The computer will boot to the Drive Key as drive C.

> **Note:** If you have used a DOS version from Windows® 9x, you may see a brief Windows® logo screen. If you do not want this screen, add a zero-length file named LOGO.SYS to the root directory of the Drive Key.

Please see the sections on Boot Order and Boot Compatibility later in this document.

Low-level Procedure

The supported devices listed above have a preinstalled image to simplify the process of making them bootable. If this image is deleted, although more difficult, the Drive Key can still be made bootable. In addition, many other USB mass storage devices can be made bootable with the following method.

1. If there are any PCI cards in the system that have SCSI, ATA RAID or SATA drives attached, power down the computer and unplug the power cord.

> **Caution:** The power cord **MUST** be unplugged.

2. Open the computer and remove the aforementioned PCI cards.

3. Insert the Drive Key into one of the computer's USB ports and remove all other USB storage devices except USB diskette drives.

4. Plug in the power cord and turn on the computer. After several seconds, an F10 prompt will appear at the bottom of the screen. Press **F10** to go into the computer setup utility.

5. Go to Advanced/PCI devices to disable both the IDE and SATA controllers. When disabling the SATA controller, note the IRQ to which the controller is assigned. You will need to reassign the IRQ later. Exit setup, confirming the changes.

6. Insert a bootable DOS diskette with FDISK.COM and either SYS.COM or FORMAT.COM into a diskette drive and turn on the computer to boot to the DOS diskette.

7. Run FDISK and delete any existing partitions on the Drive Key. Create a new partition and mark it active. Exit FDISK by pressing the **Esc** key.

8. If the system did not automatically restart when exiting FDISK, press **Ctrl**+**Alt**+**Del** to reboot to the DOS diskette.

9. At the A:\ prompt, type FORMAT C: /S and press **Enter**. Format will format the Drive Key, add the system files, and ask for a Volume Label.

10. Press **Enter** for no label or enter one if desired.

11. Power off the computer and unplug the power cord. Re-install any PCI cards that were previously removed.

12. Reinstall the power cord, remove the diskette and turn on the computer.

13. Press **F10** to go into the computer setup utility.

14. Go to Advanced/PCI Devices and re-enable the IDE and SATA controllers that were disabled in step 5. Put the SATA controller on its original IRQ.

15. Save the changes and exit. The computer will boot to the Drive Key as drive C.

> ✎ **Note:** If you have used a DOS version from Windows® 9x, you may see a brief Windows® logo screen. If you do not want this screen, add a zero-length file named LOGO.SYS to the root directory of the Drive Key.

Boot Order

The default boot order varies from system to system, and can be changed in the F10 Computer Setup Utility.

Boot Compatibility

Although the Drive Key is now bootable on many systems, it may not be bootable on all systems that support booting to this type of device. One reason is that no official USB specification currently exists on USB mass storage device bootability. A different BIOS may use different geometry (number of heads, cylinders, and sectors per cylinder) for the same device.

> ⚠ **Caution:** Using a Drive Key in DOS with a system that expects different geometry than the way the Drive Key was set up may result in file system corruption. For example, do not use a Drive Key that was set-up on a D510 USDT or CMT/SFF with a D510 e-pc.

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