

Dell PERC H700

Dell PERC H700 RAID Controller User Manual

Model: PERC H700 (Part Numbers: 0H2R6M, H2R6M, XXFVX)

1. INTRODUCTION

This manual provides comprehensive instructions for the installation, configuration, operation, and maintenance of the Dell PERC H700 RAID Controller. The PERC H700 is designed to enhance storage performance and data protection in compatible Dell PowerEdge servers by managing multiple hard drives in various RAID configurations.

2. SAFETY INFORMATION

Always observe the following safety precautions when handling and installing the RAID controller:

- Ensure the server is powered off and disconnected from all power sources before installation.
- Wear an anti-static wrist strap to prevent electrostatic discharge (ESD) damage to components.
- Handle the controller by its edges, avoiding contact with components and connectors.
- Refer to your server's documentation for specific safety guidelines and installation procedures.

3. SPECIFICATIONS

Brand	Dell
Hardware Interface	SAS
Model Number	XXFVX (Also known by P/N 0H2R6M, H2R6M)
Compatible Devices	Dell PowerEdge R310, R610, T610, R710, R810, R410, R510
Operating System Support	Windows, Linux

Note: The PERC H700 is a 6Gb/s controller, an upgrade from older 3Gb/s controllers like the PERC 6/i. It typically includes 512MB of cache.

4. SETUP AND INSTALLATION

4.1 Pre-installation Checklist

- Verify server compatibility with the PERC H700.
- Ensure you have the correct SAS cables for connecting the controller to your server's backplane. These are often different from cables used with older controllers (e.g., PERC 6/i).
- Obtain a compatible RAID backup battery unit (BBU) if not included, as the H700 requires one for optimal performance and data integrity with write-back caching.
- Back up all critical data from existing drives before proceeding with installation, especially if upgrading from a different RAID controller.

4.2 Physical Installation

1. Power down the server and disconnect all power cables.
2. Open the server chassis according to your server's service manual.
3. Locate an available PCIe slot. If replacing an existing controller, carefully remove the old card.
4. Insert the PERC H700 controller firmly into the PCIe slot until it is seated correctly. Secure it with the retaining clip or screw.
5. Connect the SAS cables from the server's backplane to the appropriate ports on the PERC H700.
6. Connect the RAID backup battery unit (BBU) to the controller.
7. Close the server chassis and reconnect power cables.

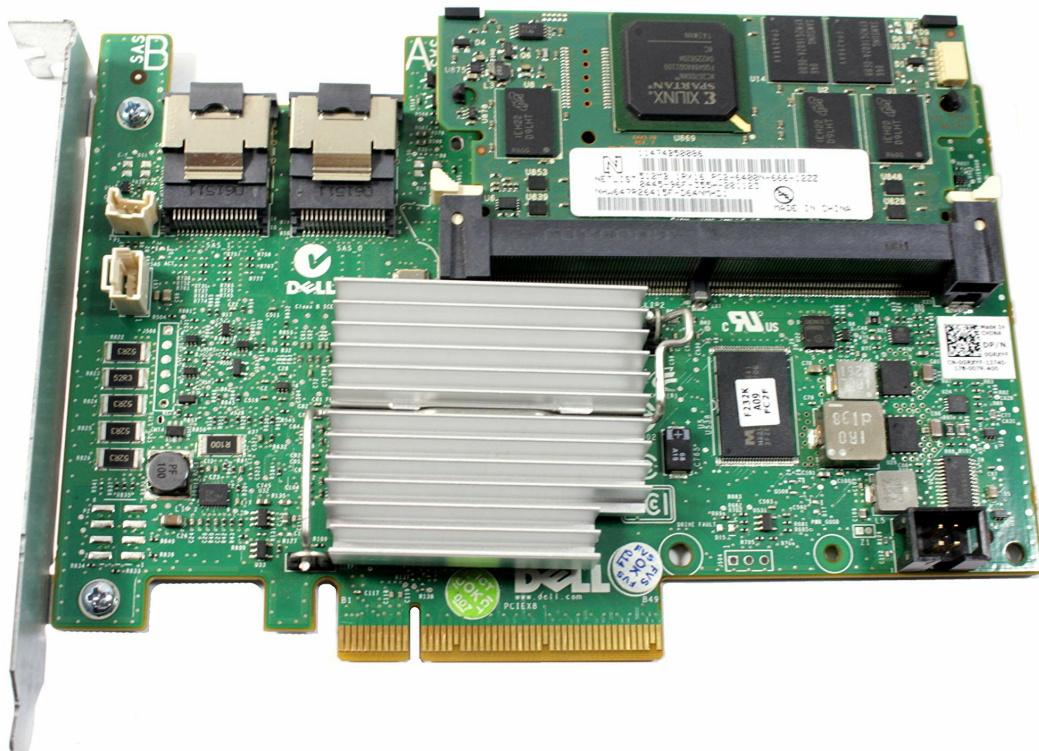


Figure 1: Dell PERC H700 RAID Controller card. This image shows the overall layout of the controller board with its various components and connectors.

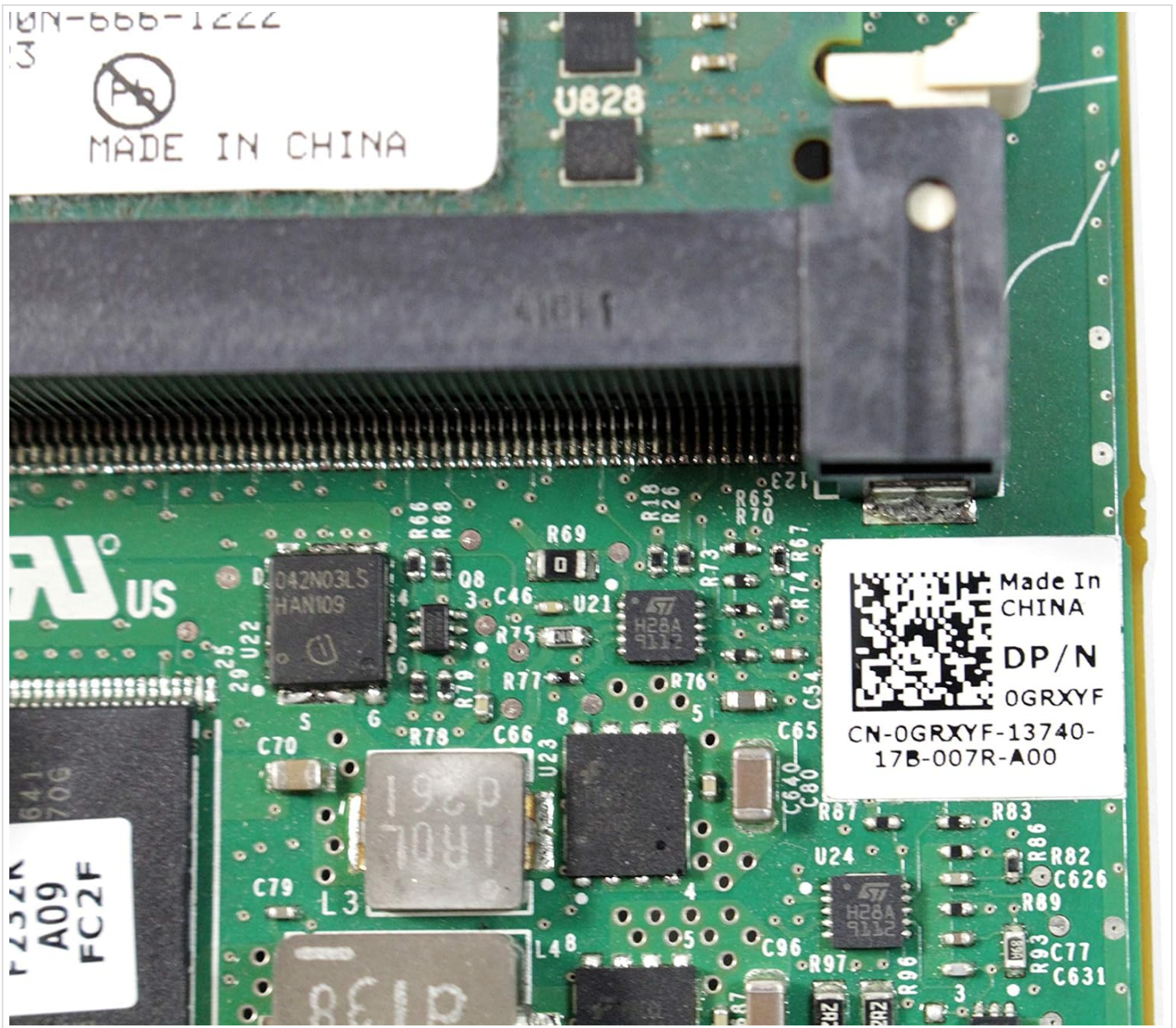


Figure 2: Close-up view of the Dell PERC H700 RAID Controller, highlighting specific chips and connectors, including the SAS ports.

4.3 Initial Power-On and Configuration

1. Power on the server. During boot, observe the POST messages for the PERC H700 BIOS.
2. Access the PERC H700 BIOS configuration utility (usually by pressing **Ctrl+R** when prompted).
3. **Import Foreign Configuration:** If you are upgrading from an older controller and your existing drives contain a RAID configuration, the H700 may detect a "Foreign Configuration." You will be prompted to import it. Exercise caution and ensure data backup before importing. In some cases, users have reported needing to delete and re-create virtual disks for stability, especially if issues arise after import.
4. **Create New Virtual Disk:** If installing new drives or after clearing a foreign configuration, create new virtual disks. Select the desired RAID level (e.g., RAID 0, 1, 5, 6, 10) and assign physical drives.
5. **Performance Settings:** Configure optimal performance settings. It is recommended to set "Write Back" to *On* and "Adaptive Read Ahead" to *Enabled* for improved I/O performance, provided a functional BBU is installed.
6. Save changes and exit the configuration utility. The server will reboot.

5. OPERATING INSTRUCTIONS

5.1 Driver Installation

After physical installation and initial configuration, install the necessary drivers for your operating system (Windows or Linux). In

many cases, modern operating systems may natively recognize the H700, but installing the latest Dell-provided drivers is recommended for full functionality and performance.

- Visit the official Dell support website for your server model and the PERC H700 to download the latest drivers.
- Follow the provided instructions for driver installation specific to your operating system.

5.2 RAID Management Software

Dell provides management utilities, such as Dell OpenManage Server Administrator (OMSA), which allow for in-band management of the PERC H700 from within the operating system. This software enables monitoring of RAID status, drive health, and advanced configuration options without requiring a server reboot.

- Download and install Dell OpenManage Server Administrator from the Dell support website.
- Refer to the OMSA documentation for detailed instructions on managing your RAID array.

6. MAINTENANCE

6.1 Firmware Updates

Keeping the PERC H700 firmware up to date is crucial for stability, performance, and compatibility with new drives. Dell regularly releases firmware updates that address bugs and improve functionality.

- Periodically check the Dell support website for the latest PERC H700 firmware.
- Follow Dell's instructions for updating the firmware. This often involves downloading a bootable image or an executable file for your operating system.
- *Note: Firmware updates may require a server reboot and can temporarily interrupt service. Plan updates during maintenance windows.*

6.2 Environmental Considerations

RAID controllers can generate significant heat. Ensure adequate airflow within your server chassis to prevent overheating, which can lead to performance degradation or component failure.

- Verify that all server fans are functioning correctly.
- Avoid obstructing airflow paths inside the server.

7. TROUBLESHOOTING

7.1 Common Issues and Solutions

- **Issue:** Virtual disk not recognized or operating system fails to load after controller installation/upgrade.
Solution:
 - Check SAS cable connections.
 - Access the PERC H700 BIOS (Ctrl+R) and verify that virtual disks are present and healthy.
 - If upgrading from an older controller, ensure the "Foreign Configuration" was handled correctly. If issues persist, consider backing up data, deleting the virtual disk, and re-creating it.
 - Ensure the PERC H700 firmware is up to date.
- **Issue:** Controller not detected by the server or operating system.
Solution:
 - Reseat the PERC H700 card in its PCIe slot.
 - Try a different PCIe slot if available.
 - Verify that the server's BIOS/UEFI settings are configured to detect PCIe devices.

- **Issue:** Poor I/O performance.

Solution:

- Ensure the RAID backup battery unit (BBU) is installed and functioning. Without a BBU, write-back caching may be disabled, significantly impacting performance.
- Verify that "Write Back" caching and "Adaptive Read Ahead" are enabled in the PERC H700 BIOS.
- Update the controller firmware and drivers to the latest versions.
- Check for adequate server cooling to prevent thermal throttling.

- **Issue:** iDRAC reports firmware outdated.

Solution:

- Download the latest firmware from the Dell support website.
- Follow Dell's instructions for updating the firmware, often using a Linux .bin file or a bootable utility.

8. WARRANTY AND SUPPORT

The Dell PERC H700 RAID Controller typically comes with a standard warranty. For specific warranty terms and conditions, please refer to the documentation provided with your purchase or visit the official Dell support website.

For technical support, driver downloads, firmware updates, and additional documentation, please visit the [Dell Support Website](#).

When contacting support, have your product model (PERC H700) and any relevant part numbers (e.g., 0H2R6M, H2R6M, XXFVX) ready.

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ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question

