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› Hewlett Packard Smart Array P411 with 1G Flash Backed Cache Controller User Manual

Hewlett Packard 572531-B21

Hewlett Packard Smart Array P411 with 1G Flash Backed Cache Controller User Manual

Model: 572531-B21

1. INTRODUCTION

This manual provides essential information for the installation, operation, and maintenance of the Hewlett Packard Smart Array P411 RAID Controller with 1GB Flash Backed Cache. The Smart Array P411 is a PCI Express 2.0 x8 controller designed to provide high-performance RAID capabilities for HP ProLiant servers, enhancing data protection and storage performance.

2. PRODUCT OVERVIEW

The HP Smart Array P411 is a two-port serial attached SCSI (SAS) RAID controller that supports both SAS and SATA hard drives. It features 1GB of Flash Backed Write Cache (FBWC) for improved write performance and data protection during power outages. This controller is suitable for environments requiring robust data storage solutions.



Image 1: Front view of the Hewlett Packard Smart Array P411 RAID Controller. This image displays the full-height PCI Express card with its various components, including the heatsink, SAS ports, and the PCI Express connector. The card is designed for installation into a server's expansion slot.

3. SETUP AND INSTALLATION

Follow these steps to properly install the Smart Array P411 controller into your server system:

1. **Preparation:** Power down the server and disconnect all power cables. Open the server chassis according to the manufacturer's instructions.
2. **PCIe Slot Installation:** Locate an available PCI Express x8 or x16 slot. Carefully align the controller with the slot and press down firmly until it is securely seated. Secure the controller with the retention bracket or screw.
3. **Connect Data Cables:** Connect the appropriate SAS/SATA data cables from your hard drives or backplane to the SAS ports on the P411 controller. Ensure secure connections.
4. **Connect FBWC Module (if separate):** If the Flash Backed Write Cache module is not integrated, connect it to the controller as per the specific instructions for your server model.
5. **Close Chassis and Power On:** Close the server chassis, reconnect power cables, and power on the server.

The system should detect the new controller.

6. **Driver Installation:** Install the necessary drivers for the Smart Array P411 controller within your operating system. Drivers are typically available on the Hewlett Packard support website.

4. OPERATING THE SMART ARRAY P411

After successful installation and driver setup, the Smart Array P411 controller can be configured and managed using the following methods:

- **BIOS Configuration:** Access the controller's Option ROM Configuration for Array Controllers (ORCA) utility during server boot-up to create, delete, or modify logical drives (RAID arrays).
- **HP Smart Storage Administrator (SSA):** For advanced management and monitoring within the operating system, use the HP Smart Storage Administrator utility. This tool provides a graphical interface for managing arrays, drives, and controller settings.
- **Supported RAID Levels:** The P411 supports various RAID levels, including RAID 0, 1, 5, 6, 10, 50, and 60, depending on the firmware and installed licenses.

5. MAINTENANCE

Regular maintenance ensures optimal performance and longevity of your Smart Array P411 controller:

- **Firmware Updates:** Periodically check the Hewlett Packard support website for updated firmware for the P411 controller. Firmware updates can provide performance enhancements, bug fixes, and support for new features or drives.
- **FBWC Module Monitoring:** Monitor the health of the Flash Backed Write Cache module. If the battery or capacitor unit associated with the FBWC module shows signs of degradation, replace it promptly to maintain data integrity during power loss.
- **Drive Health:** Regularly check the health status of the connected hard drives through the HP Smart Storage Administrator or server management tools. Replace failing drives proactively.

6. TROUBLESHOOTING

If you encounter issues with your Smart Array P411 controller, consider the following troubleshooting steps:

- **LED Indicators:** Observe the LED indicators on the controller and connected drives. Consult your server's documentation for the meaning of specific LED patterns, which can indicate drive failures, controller status, or cache issues.
- **Driver Issues:** Ensure that the correct and latest drivers are installed for your operating system. Incorrect or outdated drivers can cause detection or performance problems.
- **Cable Connections:** Verify that all SAS/SATA data cables and power connections are secure and properly seated. Loose connections can lead to drive detection failures.
- **BIOS/UEFI Settings:** Check the server's BIOS/UEFI settings to ensure the PCI Express slot is enabled and configured correctly.
- **Controller Reseat:** If the controller is not detected, try reseating it in the PCI Express slot.
- **Consult Documentation:** Refer to the server's service manual and the Smart Array P411 documentation on the Hewlett Packard support website for specific error codes and advanced troubleshooting procedures.

7. SPECIFICATIONS

Feature	Specification
Model Number	572531-B21
Brand	Hewlett Packard
Hardware Interface	PCI Express x8
Cache Memory	1GB Flash Backed Write Cache (FBWC)
Supported Drives	SAS, SATA
RAID Levels	0, 1, 5, 6, 10, 50, 60 (with appropriate firmware/licenses)
Product Dimensions	7.5 x 9.5 x 2.25 inches
Item Weight	13.4 ounces (0.38 kg)
UPC	884962119549
Date First Available	February 18, 2010

8. WARRANTY AND SUPPORT

This Hewlett Packard product is covered by a standard limited warranty. For specific warranty terms, duration, and conditions, please refer to the documentation included with your purchase or visit the official HP website. For technical assistance, driver downloads, firmware updates, and additional support resources, please visit the official Hewlett Packard support portal:

[HP Official Support Website](#)



Image 2: The official Hewlett Packard (HP) logo, representing the brand's commitment to technology and support.