SanDisk SDLLOCDR-038T-5CA1

SanDisk Optimus Max Solid State Drive User Manual

Model: SDLLOCDR-038T-5CA1

1. Introduction

The SanDisk Optimus Max SAS SSD is engineered for enterprise, cloud, and virtualized data centers, offering high performance and reliability. This solid-state drive is optimized for read-intensive application workloads, including data warehousing, media streaming, web servers, and video on demand. It features SanDisk's Guardian technology platform, which includes Flash Guard, Data Guard, and Ever Guard technologies, ensuring enhanced endurance and data integrity. This manual provides essential information for the installation, operation, maintenance, and troubleshooting of your SanDisk Optimus Max SSD.

2. Product Overview



Figure 2.1: Front view of the SanDisk Optimus Max Solid State Drive. The label displays "Enterprise Grade 2.5" SAS" and "Optimus Max with Guardian Technology", along with the SanDisk logo. The drive features a standard 2.5-inch form factor with a SAS interface connector.

The Optimus Max SSD is a 2.5-inch form factor drive designed for server environments. It utilizes a Serial Attached SCSI (SAS) interface, providing robust connectivity and performance for enterprise applications. Key features include:

- **Guardian Technology Platform:** A comprehensive suite of enterprise features for enhanced endurance and data protection.
- **High Performance:** Data transfer rates up to 500/500MB/s sequential read/write and up to 65K/10K IOPS random read/write.
- **Reliability:** Designed for 2.5 million hours Mean Time Between Failures (MTBF).

- **Compatibility:** Compatible with any server that accepts 2.5" x 15mm (SFF Hard Drive) SAS drives.

3. Setup and Installation

Before beginning installation, ensure your server system is powered off and disconnected from the power source. Always handle the SSD by its edges to avoid damaging the connectors or components.

3.1 System Requirements

- Server system with available 2.5-inch x 15mm (SFF Hard Drive) SAS drive bay.
- Compatible SAS controller.
- Operating system with appropriate drivers for SAS storage devices.

3.2 Installation Steps

1. **Prepare the System:** Power down the server and unplug all power cables. Open the server chassis to access the drive bays.
2. **Locate Drive Bay:** Identify an available 2.5-inch SAS drive bay. Some servers may require a drive caddy or tray.
3. **Mount the SSD:** If using a caddy, secure the SanDisk Optimus Max SSD to the caddy using the provided screws. Slide the caddy with the SSD into the drive bay until it clicks into place or is securely fastened.
4. **Connect Cables:** Connect the SAS data and power cables from the server's backplane or power supply to the corresponding ports on the SSD. Ensure connections are firm.
5. **Close Chassis:** Close the server chassis and reconnect all power cables.
6. **Power On and Configure:** Power on the server. Access the server's BIOS/UEFI or RAID controller configuration utility to detect and configure the new SSD. Initialize and format the drive as required by your operating system or application.

4. Operating the SSD

Once installed and configured, the SanDisk Optimus Max SSD operates like any other storage device within your server environment. Its primary function is to provide high-speed, reliable data storage for demanding enterprise applications.

4.1 Data Management

- **File System:** Ensure the SSD is formatted with a suitable file system (e.g., NTFS, ext4, XFS) for your operating system.
- **Data Transfer:** Utilize standard operating system tools or server management software for data transfer and storage operations.
- **RAID Configurations:** For optimal performance and data redundancy in server environments, the SSD is often used in RAID arrays (e.g., RAID 0, RAID 1, RAID 5, RAID 10) managed by a hardware RAID controller.

4.2 Performance Optimization

- **TRIM Support:** Ensure your operating system and RAID controller support and enable TRIM commands to maintain SSD performance over time.
- **Firmware Updates:** Periodically check the SanDisk support website for firmware updates for your SSD model. Firmware updates can improve performance, stability, and compatibility.
- **Workload Matching:** This SSD is optimized for read-intensive workloads. While it performs well in mixed-use scenarios, its strengths are best realized in applications with a high read-to-write ratio.

5. Maintenance

Solid State Drives generally require less maintenance than traditional hard disk drives. However, some practices can help ensure optimal performance and longevity.

- **Regular Backups:** Always maintain regular backups of critical data stored on the SSD. While highly reliable, no storage device is immune to failure.
- **Monitor Health:** Utilize S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) tools to monitor the health and status of the SSD. Many server operating systems and RAID controllers provide utilities for this purpose.
- **Avoid Defragmentation:** Do not defragment an SSD. Defragmentation is unnecessary for SSDs and can reduce their lifespan by increasing write cycles.
- **Maintain Proper Cooling:** Ensure adequate airflow within the server chassis to prevent the SSD from overheating, although SSDs generate less heat than HDDs.

6. Troubleshooting

This section addresses common issues you might encounter with your SanDisk Optimus Max SSD.

6.1 Drive Not Detected

- **Check Connections:** Ensure all SAS data and power cables are securely connected to both the SSD and the server's backplane/controller.
- **Verify SAS Controller:** Confirm that your server's SAS controller is properly installed and its drivers are up to date.
- **BIOS/UEFI Settings:** Check the server's BIOS/UEFI or RAID controller settings to ensure the SAS ports are enabled and the drive is recognized.
- **Drive Caddy:** If using a drive caddy, ensure the SSD is correctly seated and secured within the caddy.

6.2 Performance Issues

- **TRIM Status:** Verify that TRIM is enabled and functioning correctly in your operating system.
- **Firmware:** Ensure the SSD has the latest firmware installed.
- **Workload:** Confirm that the workload is appropriate for a read-intensive SSD. Excessive sustained writes may temporarily impact performance.
- **Controller Bottleneck:** Ensure your SAS controller is not a bottleneck. An older or lower-spec controller may limit the SSD's potential.

6.3 Data Corruption or Errors

- **Check Cables:** Loose or faulty cables can cause data errors. Re-seat or replace cables if necessary.
- **S.M.A.R.T. Data:** Check the SSD's S.M.A.R.T. data for any reported errors or warnings.
- **Operating System Issues:** Ensure your operating system is stable and free from viruses or malware.
- **Power Supply:** An unstable power supply can lead to data corruption. Ensure your server's power supply is adequate and stable.

7. Specifications

Feature	Specification
Model Number	SDLLOCDR-038T-5CA1
Capacity	4 TB

Feature	Specification
Interface	Serial Attached SCSI (SAS)
Form Factor	2.5-inch (SFF Hard Drive)
Dimensions (LxWxH)	8 x 0.75 x 5 inches
Item Weight	10.4 ounces
Sequential Read/Write	Up to 500 MB/s Read / 500 MB/s Write
Random Read/Write (IOPS)	Up to 65K Read / 10K Write
MTBF (Mean Time Between Failures)	2.5 million hours
DWPD (Drive Writes Per Day)	Up to 1 full DWPD
Compatible Devices	Any server accepting 2.5" x 15mm SAS drives

8. Warranty and Support

SanDisk products are manufactured to the highest standards and undergo rigorous testing. For detailed warranty information, please refer to the warranty statement included with your product or visit the official SanDisk website.

8.1 Technical Support

If you encounter issues that cannot be resolved using the troubleshooting guide, please contact SanDisk technical support. Have your product model number (SDLLOCDR-038T-5CA1) and serial number ready when contacting support.

- **Online Support:** Visit the official SanDisk support website for FAQs, knowledge base articles, and driver/firmware downloads.
- **Contact Information:** Refer to the SanDisk website for regional contact numbers and support hours.

8.2 Data Recovery Services

While the Optimus Max SSD incorporates advanced data protection technologies, data loss can occur due to various factors. Consider professional data recovery services or data recovery plans for critical data. SanDisk may offer or recommend data recovery solutions.

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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