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INLAND TD510

INLAND TD510 1TB PCIe 5.0 M.2 SSD User Manual

Model: TD510

INTRODUCTION

This manual provides detailed instructions for the installation, operation, maintenance, and troubleshooting of your INLAND TD510 1TB PCIe 5.0 M.2 SSD. Please read this manual thoroughly before using the product to ensure optimal performance and longevity.



Figure 1: INLAND TD510 1TB PCIe 5.0 M.2 SSD with integrated heatsink and fan.

SETUP AND INSTALLATION

Proper installation is crucial for the performance of your INLAND TD510 SSD. Ensure your system meets the necessary requirements before proceeding.

System Requirements:

- PCIe 5.0 compatible M.2 slot (M-key, 2280 form factor)
- Compatible operating system (Windows 10/11, Linux, macOS)
- Available SATA power connector for the heatsink fan (if applicable)

Physical Installation:

1. **Prepare your system:** Power off your computer and disconnect all cables. Open the computer case.
2. **Locate the M.2 slot:** Identify an available PCIe 5.0 M.2 slot on your motherboard. Refer to your motherboard's manual for exact location.

3. **Insert the SSD:** Gently insert the INLAND TD510 SSD into the M.2 slot at a 30-degree angle. Push down until it clicks into place.
4. **Secure the SSD:** Use the provided screw (or motherboard's M.2 screw) to secure the SSD to the motherboard standoff.
5. **Connect the heatsink fan:** If your SSD model includes an active cooling fan, connect its power cable to an available SATA power connector from your power supply.

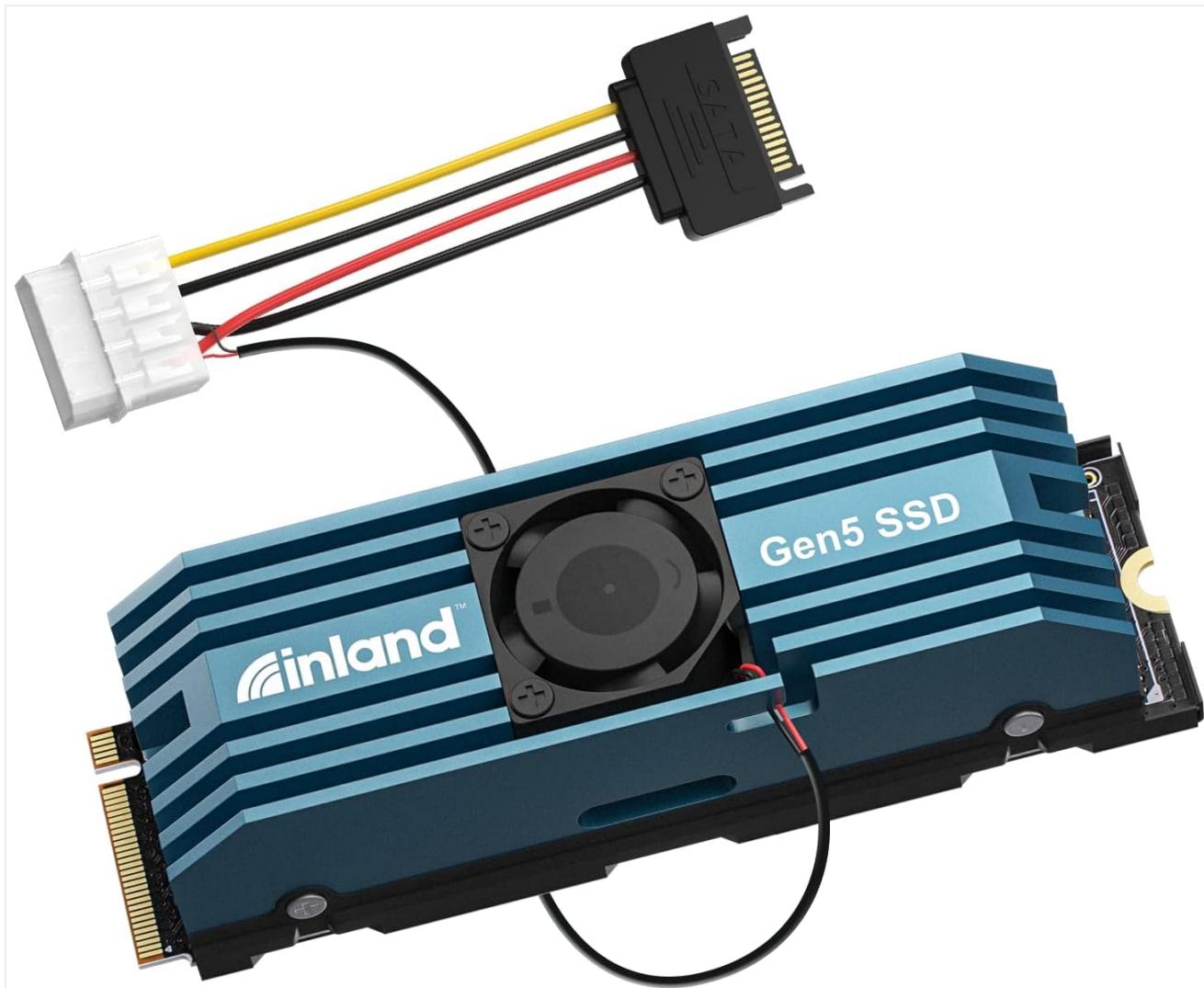


Figure 2: INLAND TD510 SSD showing the heatsink and the fan's power cable connection.

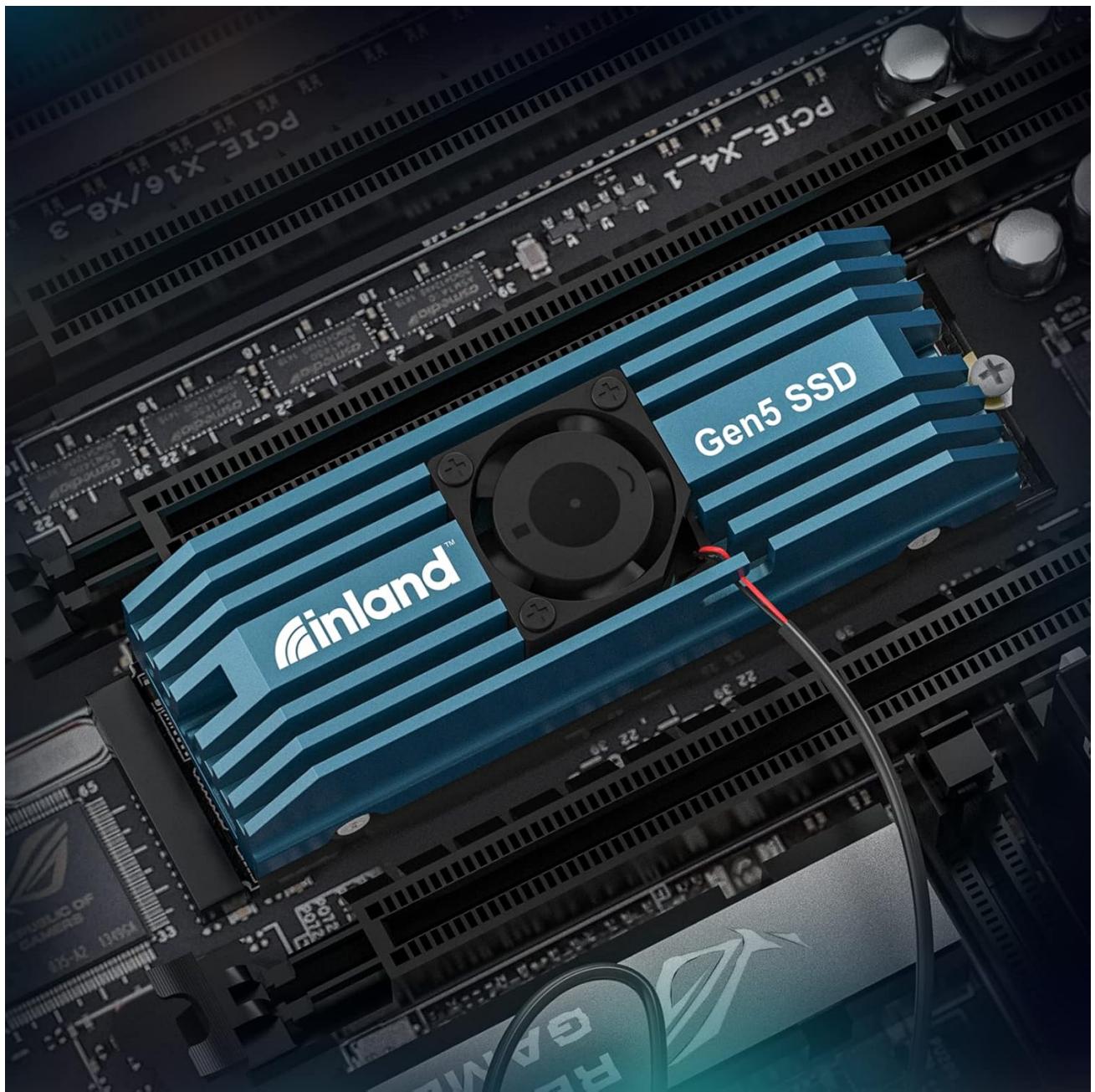


Figure 3: The INLAND TD510 SSD correctly installed in an M.2 slot on a motherboard.

Initial System Setup:

- BIOS/UEFI Configuration:** After physical installation, power on your computer and enter the BIOS/UEFI settings. Ensure the M.2 slot is enabled and configured for NVMe operation. Save changes and exit.
- Drive Initialization and Formatting:**

- **Windows:** Open Disk Management (right-click Start, select Disk Management). Locate the new SSD, initialize it (GPT partition style recommended), and then create a new simple volume, assigning a drive letter and formatting it (NTFS file system recommended).
- **Linux:** Use tools like fdisk or gparted to partition and format the drive (e.g., ext4 file system).
- **macOS:** Use Disk Utility to erase and format the drive (APFS file system recommended).

OPERATING THE SSD

The INLAND TD510 SSD is designed for high-speed data access and storage. Once installed and formatted, it functions like any other storage drive in your system.

General Usage:

- **Operating System Drive:** For optimal system responsiveness, install your operating system on the TD510 SSD.
- **Application and Game Storage:** Install frequently used applications and games on the SSD to benefit from faster load times.
- **Data Storage:** Store large files, media, and projects that require quick access.

Performance Considerations:

To achieve the advertised speeds of up to 9,500 MB/s sequential read and 8,500 MB/s sequential write, ensure your motherboard's M.2 slot supports PCIe Gen5 x4. Performance may vary based on system hardware, software, and usage patterns.



Figure 4: Illustrates the sequential read and write speeds of the INLAND TD510 SSD.

MAINTENANCE

Regular maintenance helps ensure the longevity and consistent performance of your SSD.

Firmware Updates:

Check the INLAND official website periodically for firmware updates. Firmware updates can improve performance, stability, and compatibility. Follow the provided instructions carefully when updating firmware.

TRIM Command:

The INLAND TD510 supports the TRIM command, which helps maintain write performance over time by allowing the operating system to inform the SSD which data blocks are no longer in use and can be erased. Ensure TRIM is enabled in your operating system (it is usually enabled by default for SSDs).

Monitoring Drive Health (SMART):

The SSD supports SMART (Self-Monitoring, Analysis, and Reporting Technology) commands. Use compatible software utilities to monitor the drive's health status, temperature, and other parameters. This can help predict potential issues before they lead to data loss.

Heatsink and Fan Maintenance:

The integrated aluminum heatsink with an active fan is designed to disperse heat and maintain stable performance. Periodically inspect the heatsink for dust buildup and clean it gently with compressed air to ensure optimal airflow. Ensure the fan is spinning freely.

OPTIMIZED COOLING DESIGN

20mm thickness ssd with aluminum heatsink and small active fan
for stable performance without overheating.



Figure 5: Optimized cooling design of the INLAND TD510 SSD, showing heat dissipation.

TROUBLESHOOTING

If you encounter issues with your INLAND TD510 SSD, refer to the following common problems and solutions.

Drive Not Detected:

- **Check physical connection:** Ensure the SSD is correctly seated in the M.2 slot and secured. Verify the heatsink fan power cable is connected if applicable.
- **BIOS/UEFI settings:** Confirm the M.2 slot is enabled and configured for NVMe in your system's BIOS/UEFI.
- **Driver installation:** Ensure your operating system has the necessary NVMe drivers installed. Windows 10/11 typically includes these by default.
- **Motherboard compatibility:** Verify your motherboard supports PCIe 5.0 NVMe SSDs.

Slow Performance:

- **PCIe slot:** Ensure the SSD is installed in a PCIe 5.0 x4 M.2 slot. Using a lower generation slot (e.g., PCIe 4.0

or 3.0) will limit performance.

- **TRIM enabled:** Verify that the TRIM command is enabled in your operating system.
- **Temperature:** Monitor the SSD's temperature using SMART tools. Excessive heat can cause thermal throttling, reducing performance. Ensure proper airflow around the heatsink.
- **System resources:** Other system components (CPU, RAM) or background processes can affect overall storage performance.

Overheating:

- **Airflow:** Ensure adequate airflow within your computer case.
- **Heatsink fan:** Verify the heatsink fan is functioning correctly and free of obstructions.
- **Workload:** Sustained heavy workloads can generate significant heat. Ensure your system's cooling is sufficient for your usage.

Data Loss Prevention:

While SSDs are generally reliable, it is always recommended to regularly back up important data to another storage device or cloud service to prevent data loss from unforeseen circumstances.

SPECIFICATIONS

The following table outlines the key technical specifications for the INLAND TD510 1TB PCIe 5.0 M.2 SSD.

Feature	Specification
Brand	INLAND
Model Series	TD510
Digital Storage Capacity	1 TB (1024 GB)
Hard Disk Interface	NVMe (PCIe Gen5 x 4)
Form Factor	M.2 2280
NAND Type	232-Layer 3D TLC NAND
Sequential Read Speed	Up to 9,500 MB/s
Sequential Write Speed	Up to 8,500 MB/s
Random Read IOPS	1,300K IOPS
Random Write IOPS	1,400K IOPS
Total Bytes Written (TBW)	700 TBW
Mean Time Between Failures (MTBF)	1,600,000 hours
Heatsink	Integrated aluminum heatsink with active fan
DRAM	Yes
Power Management Support	APST / ASPM / L1.2

Feature	Specification
Advanced Features	SMART, TRIM, Advanced Wear Leveling, Bad Block Management, Over-Provision
Compatible Devices	Desktop, Gaming Console, Laptop, Tablet
Hardware Platform	Linux, Mac, PC

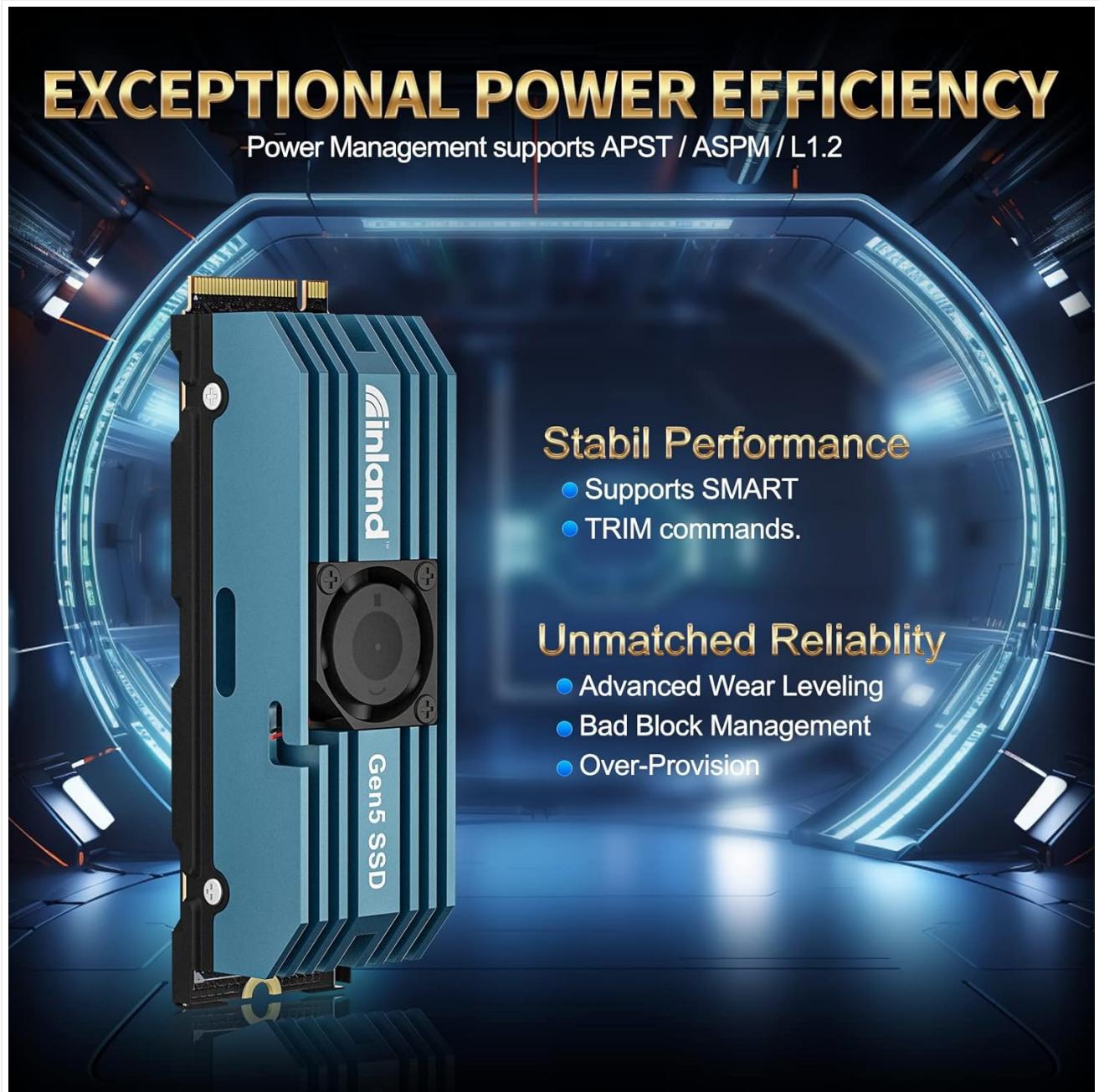


Figure 6: Key features including power management, stability, and reliability of the TD510 SSD.

WARRANTY AND SUPPORT

Warranty Information:

The INLAND TD510 SSD comes with a **6-Year Limited Warranty**. This warranty covers defects in materials and workmanship under normal use. Please retain your proof of purchase for warranty claims.

ENDURANCE UP TO 700 TBW

6-Year Limited Warranty



NO MOVING
PARTS INSIDE



SHOCK
RESISTANT



VIBRATION
RESISTANT



HIGH QUALITY
COMPONENTS

Figure 7: The INLAND TD510 SSD offers a 6-year limited warranty and is built with shock-resistant, vibration-resistant, high-quality components.

Technical Support:

For technical assistance, warranty claims, or further inquiries, please visit the official INLAND website or contact their customer support. Contact details can typically be found on the product packaging or the manufacturer's website.