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Timetec Pinnacle Gen3 1TB

Timetec 1TB Pinnacle NVMe PCIe Gen3x4 M.2 2280 SSD Instruction Manual

Model: Pinnacle Gen3 1TB | Brand: Timetec

1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, maintenance, and troubleshooting of your Timetec 1TB Pinnacle NVMe PCIe Gen3x4 M.2 2280 Solid State Drive. Please read this manual carefully before using the product to ensure optimal performance and longevity.



Figure 1: Timetec 1TB Pinnacle NVMe PCIe Gen3x4 M.2 2280 SSD. This image displays the compact M.2 2280 form factor of the solid-state drive.

2. KEY FEATURES

- **High-Speed Performance:** NVMe PCIe Gen3x4 interface with sequential read speeds up to 2,000MB/s and write speeds up to 1,600MB/s.
- **Advanced Technology:** Utilizes 3D NAND QLC and SLC Cache Technology for enhanced performance and extended lifespan.
- **Durability:** An industry-leading 1,500,000 hours Mean Time Before Failure (MTBF) and up to 1000TB Written (TBW) for robust reliability.
- **Data Integrity:** Supports S.M.A.R.T. technology, TRIM command functions, Garbage Collection technology, Wear-Leveling technology, Bad Block Management, and End-to-End Data Protection.
- **Wide Compatibility:** Compatible with desktops and laptops that accept M.2 2280 NVMe PCIe Gen4x4 SSDs,

with backward compatibility for PCIe Gen3, Gen2, and Gen1.

- **Latest Protocol Support:** Supports the latest NVMe 1.4 protocol and next-generation Intel and AMD platforms.



Figure 2: The Timetec Pinnacle PCIe 3 SSD highlighting its blazing-fast data transfer capabilities.

3. COMPATIBILITY

The Timetec Pinnacle NVMe SSD is designed for broad compatibility with various systems:

- **Operating Systems:** Windows 11 / Windows 10 / Windows 8.1 / Windows 8 / Windows 7, Linux 2.6.33 or later.
- **Device Types:** Compatible with desktops and laptops that feature an M.2 2280 slot.
- **PCIe Generations:** Fully compatible with PCIe Gen 4, and backward compatible with PCIe Gen3, Gen 2, and Gen 1 interfaces.
- **Platform Support:** Supports the latest NVMe 1.4 protocol and is designed for next-generation Intel and AMD platforms.



Figure 3: Illustrates the compatibility of Timetec SSDs with various small form factor devices, including handheld gaming consoles and tablets.

4. INSTALLATION GUIDE

Installing your Timetec NVMe SSD is a straightforward process. Always ensure your system is powered off and unplugged before beginning any hardware installation.

4.1. Before You Begin

- Ensure your motherboard or laptop has an available M.2 slot (typically labeled M.2 PCIe or NVMe).

- Gather necessary tools: a small Phillips-head screwdriver.
- Ground yourself to prevent electrostatic discharge (ESD) by touching a grounded metal object.

4.2. Desktop PC Installation

1. **Open PC Case:** Power off your computer, unplug all cables, and open the side panel of your PC case.
2. **Locate M.2 Slot:** Find the M.2 slot on your motherboard. It's usually a horizontal slot with a small screw stand-off at the end.
3. **Insert SSD:** Gently slide the Timetec NVMe SSD into the M.2 slot at a 30-degree angle. The gold contacts should disappear into the slot.
4. **Secure SSD:** Push the SSD down until it's parallel with the motherboard. Secure it with the small screw provided with your motherboard or PC case.
5. **Close PC Case:** Reattach the side panel and reconnect all cables.

4.3. Laptop Installation

1. **Open Laptop:** Power off your laptop, unplug all cables, and remove the back panel. Refer to your laptop's manual for specific instructions on accessing the M.2 slot.
2. **Locate M.2 Slot:** Identify the M.2 slot. It may be covered by a thermal pad or a small bracket.
3. **Insert SSD:** Gently slide the Timetec NVMe SSD into the M.2 slot at a 30-degree angle.
4. **Secure SSD:** Push the SSD down and secure it with the screw.
5. **Close Laptop:** Reattach the back panel.



Reliable and Efficient

Not only does it offer lightning-fast speed, but it's also built to last. The advanced technology behind PCIe 3.0 SSDs minimizes data errors and maximizes durability, safeguarding your precious data while delivering top-notch performance.

Figure 4: A Timetec SSD securely installed in an M.2 slot on a motherboard, ready for use.

4.4. Visual Installation Aid

Your browser does not support the video tag.

Video 1: This video demonstrates the physical installation of an NVMe SSD into a desktop computer's motherboard. It shows the process of inserting the drive into the M.2 slot and securing it.

5. OPERATING YOUR SSD

5.1. Initial Setup (Windows)

After physical installation, your operating system needs to recognize and prepare the new drive:

1. **Boot System:** Power on your computer.
2. **Access Disk Management:** Right-click the Start button and select 'Disk Management'.
3. **Initialize Disk:** You should see your new SSD listed as 'Unallocated Space'. Right-click on the disk number (e.g., Disk 1) and select 'Initialize Disk'. Choose GPT (GUID Partition Table) for modern systems.

4. **Create New Simple Volume:** Right-click the 'Unallocated Space' on your new SSD and select 'New Simple Volume'. Follow the wizard to assign a drive letter and format the drive (NTFS is recommended for Windows).
5. **Ready for Use:** Your SSD is now ready for data storage.

5.2. General Usage Tips

- For optimal performance, install your operating system and frequently used applications on the SSD.
- Avoid filling the SSD to its maximum capacity; leaving some free space (10-15%) helps maintain performance.

6. MAINTENANCE & OPTIMIZATION

Your Timetec SSD incorporates several technologies to ensure long-term performance and data integrity:

- **S.M.A.R.T. Technology:** Self-Monitoring, Analysis, and Reporting Technology monitors the drive's health and predicts potential failures. Regularly check SMART status using disk utility software.
- **TRIM Command:** This command allows the operating system to inform the SSD which data blocks are no longer in use and can be wiped. This helps maintain write performance over time. Ensure TRIM is enabled in your OS (usually by default).
- **Garbage Collection:** An internal process that reclaims unused data blocks to prepare them for new data, optimizing performance.
- **Wear-Leveling:** Distributes write and erase cycles evenly across all memory blocks to extend the lifespan of the NAND flash memory.
- **Bad Block Management:** Identifies and isolates defective memory blocks to prevent data loss and ensure reliability.
- **End-to-End Data Protection:** Ensures data integrity throughout the entire data path within the SSD.

7. TROUBLESHOOTING

If you encounter issues with your Timetec NVMe SSD, consider the following common solutions:

- **SSD Not Detected:**
 - Check physical connection: Ensure the SSD is properly seated in the M.2 slot.
 - BIOS/UEFI Settings: Verify that the M.2 slot is enabled in your system's BIOS/UEFI settings. Some motherboards may require specific configurations.
 - Driver Installation: Ensure your operating system has the latest NVMe drivers installed.
 - Disk Management: For new drives, ensure it has been initialized and formatted as described in the [Operating Your SSD](#) section.
- **Slow Performance:**
 - Check PCIe Lane Configuration: Ensure your M.2 slot is operating at its full PCIe Gen3x4 speed. Refer to your motherboard manual.
 - TRIM Status: Verify that TRIM is enabled in your operating system.
 - Firmware Update: Check the Timetec website for any available firmware updates for your SSD model.
 - Overheating: Prolonged heavy workloads can cause SSDs to throttle performance to prevent overheating. Ensure adequate airflow in your system.
- **System Instability/Crashes:**
 - Driver Conflicts: Uninstall and reinstall NVMe drivers.

- System Updates: Ensure your operating system is fully updated.
- Power Supply: Verify your power supply is sufficient for all components.

7.1. Performance and Temperature Considerations

While the Timetec Pinnacle SSD is designed for high performance, sustained heavy writes can generate heat. Modern SSDs are designed to manage temperature by throttling performance if they reach critical temperatures. This is a protective measure to ensure drive longevity.

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Video 2: This video provides a detailed comparison and performance analysis of NVMe SSDs, including the Timetec drive. It covers aspects like boot times, file transfer speeds for large and small files, and temperature under stress, offering insights into real-world performance and potential thermal behavior.

8. TECHNICAL SPECIFICATIONS

| Feature | Specification |
|---------------------------------|---------------------------|
| Brand | Timetec |
| Series | Timetec 1TB NVMe M.2 2280 |
| Model Number | Timetec 1TB NVMe M.2 2280 |
| Digital Storage Capacity | 1000 GB (1TB) |
| Hard Disk Interface | PCIe x 4 |
| Connectivity Technology | PCIe |
| Hard Disk Form Factor | 2280 Inches (M.2 2280) |
| Flash Memory Size | 1 TB |
| Sequential Read Speed | Up to 2,000MB/s |
| Sequential Write Speed | Up to 1,600MB/s |
| NAND Type | 3D NAND QLC |
| MTBF (Mean Time Before Failure) | 1,500,000 hours |
| TBW (Terabytes Written) | Up to 1000TB |
| Item Weight | 0.352 ounces |
| Package Dimensions | 3.07 x 1.69 x 0.87 inches |

9. WARRANTY AND SUPPORT

9.1. Limited Warranty

Timetec M.2 PCIe SSDs purchased on or after August 1, 2020, come with a **5-Year extended limited warranty**.

This warranty covers defects in materials and workmanship under normal use. For specific terms and conditions, please refer to the official Timetec warranty policy.

9.2. Technical Support

For technical assistance, troubleshooting, or warranty claims, please contact Timetec customer support through their official website or the retailer where the product was purchased. Free technical support service is provided with your purchase.

Included Contents: M.2 2280 NVMe PCIe4x4 SSD (All Other Cables, Screws, Brackets Not Included).

