BIWIN NV7400

BIWIN Black Opal NV7400 PCIe Gen4 SSD User Manual

Model: NV7400 Series

1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your BIWIN Black Opal NV7400 PCIe Gen4 NVMe M.2 2280 Solid State Drive. Please read this guide thoroughly before using the product to ensure proper functionality and to maximize its lifespan. The NV7400 SSD is designed for high-performance computing, offering exceptional speed and reliability for desktops, laptops, and compatible gaming consoles like the PlayStation 5.

2. SAFETY INFORMATION

- **Electrostatic Discharge (ESD) Precautions:** Always handle the SSD by its edges. Wear an anti-static wrist strap or frequently touch a grounded metal object before and during installation to prevent ESD damage.

- **Power Off:** Ensure your computer or console is completely powered off and disconnected from the power source before installation.

- **Handle with Care:** Avoid dropping the SSD or subjecting it to physical shock. Do not bend or apply excessive force to the drive.

- **Environmental Conditions:** Store and operate the SSD within recommended temperature and humidity ranges. Avoid extreme temperatures or moisture.

- **Professional Installation:** If you are unsure about any installation steps, consult a qualified technician.

3. PACKAGE CONTENTS

Verify that your package contains the following items:

- BIWIN Black Opal NV7400 NVMe M.2 SSD (1TB, 2TB, or 4TB capacity as purchased)

- Quick Start Guide (this document serves as a comprehensive guide)

Note: Additional accessories such as mounting screws or heatsinks may be included depending on the retailer or specific product bundle.

4. PRODUCT OVERVIEW

4.1 Key Features

- **Exceptional Speed:** Achieves maximum sequential read speeds of up to 7450MB/s and write speeds of up to 6500MB/s, with random read/write speeds up to 1000K IOPS.

- **PCIe Gen4x4 Interface:** Utilizes the latest PCIe Gen 4x4 technology and 3D TLC NAND for superior performance and efficiency.

- **Advanced Thermal Management:** Equipped with a 0.5mm graphene aluminum heat sink to prevent overheating and maintain stable performance.

- **PMIC Power Management:** Incorporates a composite power supply IC (PMIC) for improved power efficiency and extended durability.

- **Enhanced System Stability:** Features Host Memory Buffer (HMB) technology, Smart Cache, and Zip data compression for reliable operation under heavy workloads and optimized data retrieval.

- **Biwin Intelligence Software:** Free multifunctional management software for performance testing, data migration, and firmware updates.

4.2 Specifications

Feature	Specification
Model Number	NV7400
Interface	PCIe Gen4x4, NVMe 1.4
Form Factor	M.2 2280
NAND Flash	3D TLC NAND
Capacities Available	1TB, 2TB, 4TB
Sequential Read Speed (Max)	Up to 7450 MB/s
Sequential Write Speed (Max)	Up to 6500 MB/s
Random Read/Write IOPS (Max)	Up to 1000K IOPS
Dimensions (LxWxH)	3.15 x 0.87 x 0.1 inches (80 x 22 x 2.3 mm)
Weight	Approximately 1.13 ounces (32g)
Operating Temperature	0°C to 70°C
Storage Temperature	-40°C to 85°C
Special Features	TRIM Support, ECC, LDPC error-correction, HMB, Smart Cache, Zip data compression

Image: BIWIN Black Opal NV7400 NVMe M.2 SSD. This image shows the top view of the SSD module with its branding and specifications.
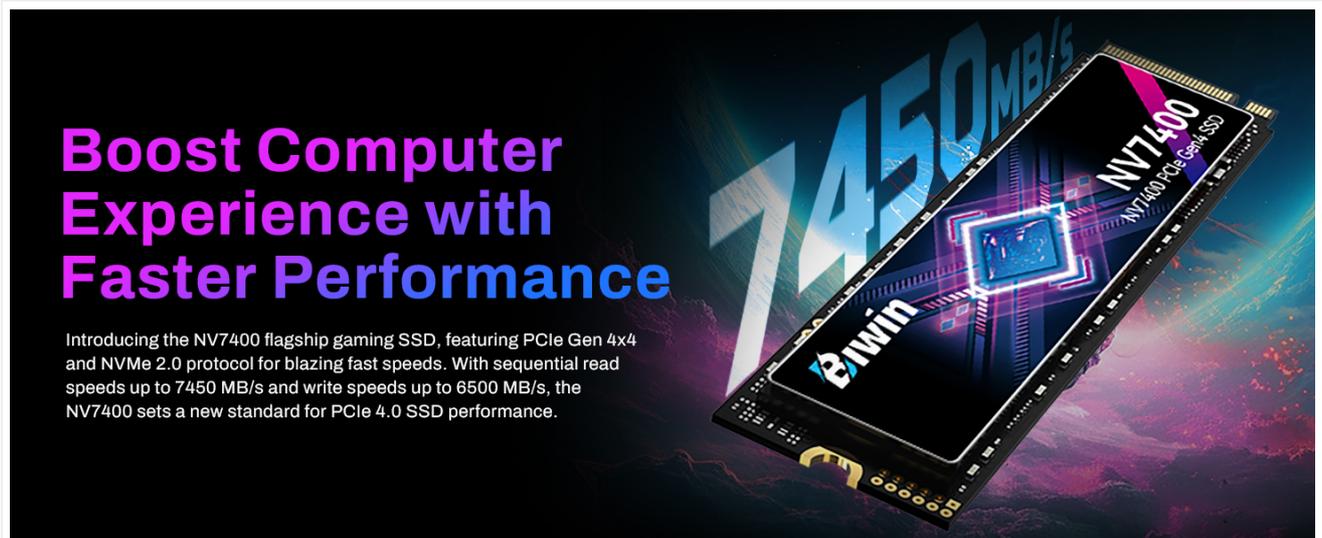

Image: Graphic illustrating the high read and write speeds of the BIWIN NV7400 SSD, highlighting 7450 MB/s read and 6500 MB/s write.

5. INSTALLATION GUIDE (SETUP)

5.1 General Precautions

- Always power off your device and disconnect it from the power outlet before opening the chassis.
- Ground yourself to prevent electrostatic discharge.
- Refer to your motherboard or console's user manual for specific M.2 slot locations and installation procedures.

5.2 PC/Laptop Installation

1. **Open Chassis:** Carefully open your computer's case or laptop's bottom panel.
2. **Locate M.2 Slot:** Identify an available M.2 slot on your motherboard. It typically has a small screw stand-off.
3. **Insert SSD:** Gently insert the NV7400 SSD into the M.2 slot at a 30-degree angle. The gold contacts should align with the slot.
4. **Secure SSD:** Push the SSD down until it is parallel with the motherboard, then secure it with the M.2 screw provided with your motherboard or laptop.
5. **Close Chassis:** Reassemble your computer or laptop.

Image: Graphic showing the BIWIN NV7400 SSD compatible with various devices including desktops, laptops, and gaming consoles like the PS5.

5.3 PlayStation 5 (PS5) Installation

The BIWIN NV7400 SSD is compatible with PlayStation 5 consoles. For PS5 installation, it is crucial to ensure adequate cooling. While the NV7400 includes a graphene thermal pad, Sony recommends an additional heatsink for optimal performance and longevity in the PS5 environment. Please refer to Sony's official PS5 expansion slot installation guide for detailed steps.

1. **Power Off PS5:** Turn off your PS5 completely and unplug all cables.

2. **Remove Cover:** Carefully remove the PS5 console cover.

3. **Locate Expansion Slot:** Find the expansion slot cover and remove its screw.

4. **Install Heatsink (if needed):** If your NV7400 does not have a pre-attached heatsink that meets PS5 specifications, attach a compatible M.2 heatsink to the SSD.

5. **Insert SSD:** Insert the NV7400 SSD into the expansion slot.

6. **Secure SSD:** Secure the SSD with the screw and spacer from the PS5 expansion slot.

7. **Replace Covers:** Reattach the expansion slot cover and the PS5 console cover.

8. **Power On:** Connect all cables and power on your PS5. The console will prompt you to format the new M.2 SSD.

6. INITIALIZING AND FORMATTING (OPERATING)

After physical installation, the SSD needs to be initialized and formatted before it can be used by your operating system.

6.1 For Windows

1. **Open Disk Management:** Right-click on the Start button and select 'Disk Management'.

2. **Initialize Disk:** A pop-up window will appear prompting you to initialize the new disk. Select 'GPT' (GUID Partition Table) for drives larger than 2TB or for modern systems, then click 'OK'.

3. **Create New Simple Volume:** Right-click on the 'Unallocated' space of your new SSD and select 'New Simple Volume'.

4. **Follow Wizard:** Follow the on-screen wizard to assign a drive letter, choose a file system (NTFS is recommended for Windows), and perform a quick format.

6.2 For PlayStation 5

Upon powering on your PS5 after installing the NV7400 SSD, the console will automatically detect the new drive and prompt you to format it. Follow the on-screen instructions to complete the formatting process. This will prepare the SSD for use as extended storage for PS5 games and applications.

7. BIWIN INTELLIGENCE SOFTWARE

BIWIN Intelligence is a dedicated software suite designed to help you manage and optimize your BIWIN storage products. It offers several useful features:

- **Performance Test:** Benchmark your SSD's read and write speeds.

- **Data Migration:** Easily transfer your operating system and data from an old drive to your new NV7400 SSD.

- **Firmware Update:** Keep your SSD's firmware up-to-date for optimal performance and compatibility.

- **Drive Information:** View detailed information about your SSD, including health status, temperature, and usage statistics.

You can download the BIWIN Intelligence software from the official BIWIN website.www.biwintech.com/biwin-intelligence/
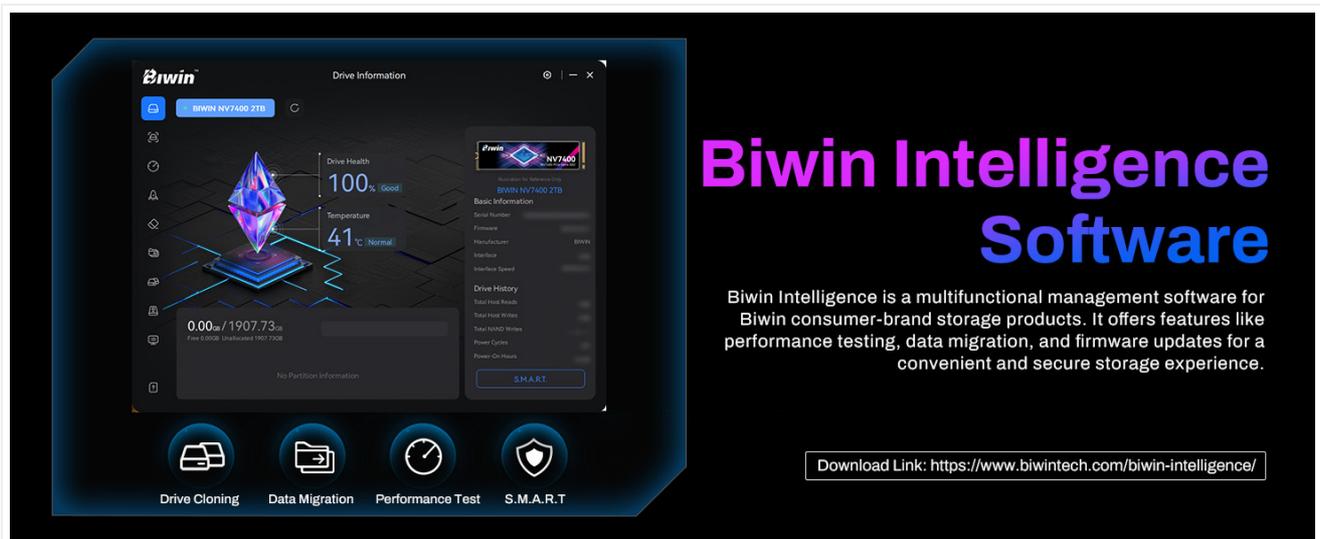

Image: Screenshot of the BIWIN Intelligence software interface, showing various management features like performance test, data migration, and firmware update.

8. MAINTENANCE AND BEST PRACTICES

- **Enable TRIM:** Ensure TRIM is enabled in your operating system. TRIM helps maintain the performance and longevity of SSDs by allowing the OS to inform the SSD which data blocks are no longer in use and can be wiped.

- **Firmware Updates:** Regularly check for and install firmware updates using the BIWIN Intelligence software. Firmware updates can improve performance, stability, and compatibility.

- **Avoid Full Capacity:** While SSDs perform well even when nearly full, leaving some free space (e.g., 10-15%) can help maintain optimal performance and extend lifespan.

- **Monitor Health:** Use the BIWIN Intelligence software or other S.M.A.R.T. monitoring tools to keep an eye on your SSD's health and temperature.

- **Proper Shutdown:** Always shut down your computer or console properly to prevent data corruption.

9. TROUBLESHOOTING

9.1 SSD Not Detected

- **Check Connections:** Ensure the SSD is properly seated in the M.2 slot and secured.

- **BIOS/UEFI Settings:** Enter your system's BIOS/UEFI settings. Verify that the M.2 slot is enabled and configured correctly (e.g., NVMe mode).

- **Driver Installation:** For Windows, ensure you have the latest chipset drivers for your motherboard.

- **Initialization/Formatting:** If detected in Disk Management (Windows) or PS5, ensure it has been initialized and formatted as described in Section 6.

9.2 Slow Performance

- **PCIe Gen4 Compatibility:** Ensure your motherboard and CPU support PCIe Gen4. If installed in a Gen3 slot, performance will be limited to Gen3 speeds.

- **TRIM Enabled:** Verify that TRIM is enabled in your operating system.

- **Firmware:** Update your SSD firmware to the latest version using BIWIN Intelligence software.

- **Overheating:** Monitor the SSD temperature. Excessive heat can cause thermal throttling, reducing performance. Ensure proper airflow and consider an additional heatsink if temperatures are consistently high.

- **System Resources:** Ensure your system has sufficient RAM and CPU resources, as these can impact storage performance.

Image: Diagram showing the layers of the BIWIN NV7400 SSD, highlighting the graphene thermal pad for effective heat dissipation.

10. WARRANTY AND SUPPORT

BIWIN products are manufactured to high standards and are backed by a warranty. The specific warranty period may vary by region and retailer. Please retain your proof of purchase for warranty claims.
For technical support, warranty inquiries, or further assistance, please visit the official BIWIN website or contact their customer service department:

- **Official Website:** www.biwintech.com

- Refer to the 'Support' or 'Contact Us' section on the website for regional contact information.