

# TGP203 Industrial PCIe SSD

For industrial-grade applications, the BIWIN TGP203 SSD delivers high reliability and performance in sectors including industrial control, rail transportation, and data communications. It is ideal for key systems such as automation equipment, subway gate systems, and communication base stations.

Built with an M.2 2280 form factor, PCIe Gen3x4 interface, and NVMe 1.4 protocol, the TGP203 offers sequential read speeds up to 3400 MB/s and write speeds up to 2800 MB/s for more efficient data processing. Available in capacities from 64 GB to 2 TB, it operates across a wide temperature range of -40°C to 85°C, guaranteeing stability even in extreme environments.

The TGP203 adheres to BIWIN's rigorous industrial standards, ensuring exceptional reliability. It also includes power-loss protection, safeguarding data during unexpected power outages. Additionally, the TGP203 offers customizable features such as conformal coating, underfill/sidefill, and anti-sulfurization protection, providing a choice of comprehensive solutions for industrial applications requiring high security, durability, and long-term performance.



## Key Features

### High-Speed Data Transfer with PCIe Gen3x4

The TGP203 uses a high-performance PCIe Gen3x4 interface, compliant with NVMe 1.4. It delivers sequential read speeds up to 3400 MB/s and write speeds up to 2800 MB/s, with random read/write performance reaching 360K/230K IOPS.

### Stable Operation Even Across Wide Temperature Ranges

With BIWIN's advanced manufacturing process, the TGP203 ensures that the flash memory, controller, and components perform stably within a wide temperature range of -40°C to +85°C. Paired with proprietary firmware-based thermal optimization, it guarantees stable performance even in extreme industrial conditions.

### Dual Power-Loss Protection for Enhanced Stability

BIWIN TGP203 features both firmware-based and hardware-based power loss protection for more stable power management. In the event of unexpected power interruptions, the TGP203 allows additional time to store volatile data, protecting data integrity and minimizing any risk of data loss.

### Extended Lifespan with Advanced Technologies

Supporting features such as dynamic/static wear leveling, bad block management, TRIM, and garbage collection, the TGP203 offers optimal use of NAND flash and significantly enhances product durability.

### Rigorous Testing for Premium Reliability

The BIWIN TGP203 undergoes stringent testing, including "Double 85" (85°C high temperature and 85% high humidity test), rapid temperature cycling (10°C/min), high/low-temperature stress testing, and anti-sulfuration G3 standards. With an MTBF of more than 3 million hours, it brings exceptional reliability to any operation.

### Customizable Solutions for Specialized Needs

The TGP203 offers custom services such as conformal coating, sidefill/underfill, anti-sulfurization protection, and metal/graphene heatsinks, significantly enhancing reliability and durability under specific application requirements.

## Technologies

Power Loss Protection

S.M.A.R.T.

Online Firmware Update

End-to-End Data Protection

Data Erasure

Garbage Collection

Dynamic/Static Wear Leveling

TRIM Command

Bad Block Management

Intelligent Thermal Throttling

## Applications



Network Communications



Industrial Automation



Security Surveillance



Intelligent Transportation



Smart Energy

## Specifications

<b>Model Name</b>	TGP203
<b>Interface</b>	PCIe Gen3x4, NVMe 1.4
<b>Form Factor</b>	M.2 2280
<b>Flash Type</b>	Industrial 3D TLC
<b>Firmware</b>	TLC Direct Write
<b>DRAM Cache</b>	DRAM-less
<b>Capacity</b>	64 GB / 128 GB / 256 GB / 512 GB / 1 TB / 2 TB
<b>Sequential Read (Up to)</b>	3400 MB/s
<b>Sequential Write (Up to)</b>	2800 MB/s
<b>Random Read 4K (Up to)</b>	360K IOPS
<b>Random Write 4K (Up to)</b>	230K IOPS
<b>Read Power Consumption (Max.)</b>	1.54 W
<b>Write Power Consumption (Max.)</b>	3.1 W
<b>Idle Power Consumption (Max.)</b>	51 mW
<b>Dimensions</b>	22.00 x 80.00 x 3.60 mm
<b>Operating Temperature</b>	-40°C to +85°C
<b>Storage Temperature</b>	-55°C to +95°C
<b>Endurance</b>	3000 P/E cycles
<b>MTBF</b>	>3,000,000 hours
<b>Certifications</b>	CE, FCC, RoHS, HF, REACH
<b>TBW (Up to)</b>	2000 TBW
<b>Warranty</b>	3-Year Limited

## Order Information

Capacity	Part Number	Power-Loss Protection Option
<b>64 GB</b>	TG80G06430Y0TP0	Hardware + Firmware-Based
<b>128 GB</b>	TG80G12830Y0TP0	Hardware + Firmware-Based
<b>256 GB</b>	TG80G25630Y0TP0	Hardware + Firmware-Based
<b>512 GB</b>	TG80G51230Y0TP0	Hardware + Firmware-Based
<b>1 TB</b>	TG80G1T230Y0TP0	Hardware + Firmware-Based
<b>2 TB</b>	TG80G2T230Y0TP0	Hardware + Firmware-Based
<b>64 GB</b>	TG80G06430Y0T	Firmware-Based
<b>128 GB</b>	TG80G12830Y0T	Firmware-Based
<b>256 GB</b>	TG80G25630Y0T	Firmware-Based
<b>512 GB</b>	TG80G51230Y0T	Firmware-Based
<b>1 TB</b>	TG80G1T230Y0T	Firmware-Based
<b>2 TB</b>	TG80G2T230Y0T	Firmware-Based

1. Tested by BIWIN labs. Actual performance may vary due to systems, devices, or environment.
2. Maintenance and future updates are required throughout the product life cycle. Specifications are subject to change without notice.
3. The pictures are for illustration only. Actual products may vary due to product enhancements or changes.
4. Not all products are sold in all regions of the world.
5. As used for storage capacity, one megabyte (MB) = one million bytes, one gigabyte (GB) = one billion bytes, and one terabyte (TB) = one trillion bytes. Total accessible capacity varies depending on the operating environment. As used for buffer or cache, one megabyte (MB) = 1,048,576 bytes. As used for transfer rate or interface, megabyte per second (MB/s) = one million bytes per second, and gigabyte per second (GB/s) = one billion bytes per second.
6. MTBF = Mean Time Between Failures based on internal testing using the Telcordia stress testing standard.
7. Please visit [www.biwintech.com](http://www.biwintech.com) for warranty details in your region.
8. For more information, please contact [sales@biwintech.com](mailto:sales@biwintech.com).

### Global Headquarters:

#### BIWIN STORAGE TECHNOLOGY CO., LTD.

Building #4, South Zone #2, Zhongguan Honghualing Industrial Zone,

Nanshan District, Shenzhen, Guangdong, China

+86 (755) 2671-5701

[sales@biwintech.com](mailto:sales@biwintech.com)

