

KIOXIA BG5 Series (M.2)

Client NVMe™ SSD

KIOXIA BG5 Series is a line-up of compact form factor NVMe™ SSDs with capacities up to 1,024 GB, and leverages a PCIe® 4.0, NVMe™ 1.4 specification compliant interface and KIOXIA 112-layer BiCS FLASH™ 3D TLC (3-bit-per-cell) flash memory. With higher bandwidth, improved flash management and Host Memory Buffer (HMB) technology, the BG5 Series SSDs deliver best-in-class read performance for compact form factor SSDs of up to 3,500 MB/s (sequential read) and up to 500K IOPS (random read), with active power consumption of up to 4.3 W (Typ.)*.

The BG5 Series SSDs are available in capacities of 256 GB, 512 GB and 1,024 GB in M.2 Type 2230 and Type 2280 module form factors, making them suitable for thin and light system designs, such as ultra-thin PCs. The BG5 Series offers a Self-Encrypting Drive (SED) model option, supporting TCG Opal Version 2.01.

* As of November 2021, KIOXIA survey.



M.2 2230



M.2 2280

Product image may represent a design model.

Key Features

- KIOXIA 112-Layer BiCS FLASH™ 3D TLC flash memory
- PCIe® 4.0, NVMe™ 1.4 specification compliant
- Capacities up to 1,024 GB
- M.2 Type 2230 and Type 2280 single-sided form factors
- TCG Opal 2.01 SED option

Key Applications

- Ultra-mobile PCs
- 2-in-1 notebook PCs

Specifications

Base Model Number	KBG50ZNS1T02	KBG50ZNS512G	KBG50ZNS256G	KBG50ZNV1T02	KBG50ZNV512G	KBG50ZNV256G
SED Model Number	KBG5AZNS1T02	KBG5AZNS512G	KBG5AZNS256G	KBG5AZNV1T02	KBG5AZNV512G	KBG5AZNV256G
Capacity	1,024 GB	512 GB	256 GB	1,024 GB	512 GB	256 GB
Basic Specifications						
Form Factor	M.2 2230-S2 Single-sided			M.2 2280-S2 Single-sided		
Interface	PCIe® 4.0, NVMe™ 1.4					
Maximum Interface Speed	64 GT/s (PCIe® Gen4 x4)					
Flash Memory Type	BiCS FLASH™ TLC					

Specifications (Continued)

Capacity	1,024 GB	512 GB	256 GB	1,024 GB	512 GB	256 GB
Performance (Up to)						
Sequential Read	3,500 MB/s		3,400 MB/s	3,500 MB/s		3,400 MB/s
Sequential Write	2,900 MB/s	2,700 MB/s	1,900 MB/s	2,900 MB/s	2,700 MB/s	1,900 MB/s
Random Read	500K IOPS	400K IOPS	350K IOPS	500K IOPS	400K IOPS	350K IOPS
Random Write	450K IOPS	430K IOPS	360K IOPS	450K IOPS	430K IOPS	360K IOPS
Power Requirements						
Supply Voltage	3.3 V ± 5 %					
Power Consumption (Active)	4.3 W typ.	4.1 W typ.	4.0 W typ.	4.3 W typ.	4.1 W typ.	4.0 W typ.
Power Consumption (L1.2 mode)	3.0 mW typ.					
Reliability						
MTTF	1,500,000 hours					
TBW	600	300	150	600	300	150
Dimensions						
Thickness	2.23 mm Max					
Width	22 mm ± 0.15 mm					
Length	30 mm ± 0.15 mm			80 mm ± 0.15 mm		
Weight	3.0 g Max	2.9 g Max	2.8 g Max	6.0 g Max	5.9 g Max	5.8 g Max
Environmental						
Temperature (Operating)	0 °C to 95 °C (Controller Temperature)					
Temperature (Operating)	0 °C to 85 °C (Other Components Temperature)					
Temperature (Non-operating)	-40 °C to 85 °C					
Humidity (Operating)	0 % to 90 % R.H.					
Vibration (Operating)	196 m/s ² { 20 Grms } (20 Hz to 2,000 Hz)					
Shock (Operating)	14.7 km/s ² { 1,500 G } (0.5 ms)					

Availability of the SED model line-up may vary by region.

Definition of capacity: KIOXIA Corporation defines a megabyte (MB) as 1,000,000 bytes, a gigabyte (GB) as 1,000,000,000 bytes and a terabyte (TB) as 1,000,000,000,000 bytes. A computer operating system, however, reports storage capacity using powers of 2 for the definition of 1 GB = 2³⁰ = 1,073,741,824 bytes and therefore shows less storage capacity. Available storage capacity (including examples of various media files) will vary based on file size, formatting, settings, software and operating system, and/or pre-installed software applications, or media content. Actual formatted capacity may vary.

1 MB (megabyte) = 1,000,000 bytes.

IOPS: Input Output Per Second (or the number of I/O operations per second).

Read and write speed, tested on the state of "Host Memory Buffer (HMB) = On", may vary depending on the host device, read and write conditions, and file size.

Read and write speed may vary depending on various factors such as host devices, software (drivers, OS etc.), and read/write conditions.

MTTF (Mean Time to Failure) is not a guarantee or estimate of product life; it is a statistical value related to mean failure rates for a large number of products which may not accurately reflect actual operation. Actual operating life of the product may be different from the MTTF.

TBW: Terabytes Written. The number of terabytes that may be written to the SSD for the specified lifetime.

PCIe is a registered trademark of PCI-SIG.

NVMe is a registered or unregistered mark of NVM Express, Inc. in the United States and other countries.

Other company names, product names, and service names may be trademarks of third-party companies.

All information provided here is subject to change without prior notice.