BG4 Series

Client SSD

The BG4 series is a line-up of compact single package NVMe™ SSDs with capacities up to 1,024 GB, and leverages a PCIe® Gen3x4 interface and KIOXIA's 96-layer TLC BiCS FLASH™. With higher bandwidth and improved flash management and Host Memory Buffer (HMB) technology, BG4 SSDs deliver best-in-class read performance in single package SSDs, of up to 2,300 MB/s (sequential read) and up to 390K IOPS (random read), with active power consumption of up to 3.7 W (Typ.).

The BG4 series is available in four capacities of 128 GB, 256 GB, 512 GB and 1,024 GB in surface-mount M.2 1620 single package or removable M.2 2230 module form factor options, making them suitable for thin and light system designs for ultra-thin PCs, as well as embedded devices and server boot in data centers.

The BG4 series is with the option of a Self-Encrypting Drive (SED) model* supporting TCG Opal Version 2.01.

*Availability of the SED model line-up may vary by region. The specification of BG4 self-encrypting drive (SED) will be released Q3 calendar year of 2019.

Product image may differ from the actual product.

Key Features

- KIOXIA 96-Layer BiCS FLASH™
- PCIe® Gen3 x4 NVMe™
- Capacities up to 1,024 GB
- M.2 1620 single package and M.2 2230 single-sided form factor
- TCG OPAL 2.01 Optional for SED

Key Applications

- Ultra-mobile PCs
- 2-in-1 notebook PCs
- IoT/embedded devices
- Server and storage array boot drives

Specifications

Model Number (Non-SED)	KBG40ZPZ 1T02	KBG40ZPZ 512G	KBG40ZPZ 256G	KBG40ZPZ 128G	KBG40ZNS 1T02	KBG40ZNS 512G	KBG40ZNS 256G	KBG40ZNS 128G
Physical								
Capacity[1]	1,024 GB	512 GB	256 GB	128 GB	1,024 GB	512 GB	256 GB	128 GB
Form Factor	Single Package				Single-Sided			
	M.2 1620-S3	M.2 1620-S2			M.2 2230-S3	M.2 2230-S2		
Interface	PCIe® Base Specification Revision 3.1a (PCIe®)							
Interface Speed	32 GT/s (PCIe® Gen3x4)							
Command	NVMe™ Revision 1.3b (NVMe™)							
Memory Type	BiCS FLASH™ TLC							
Connector Type	-				M.2 M			

Specifications (Continued)

Model Number (Non-SED)	KBG40ZPZ 1T02	KBG40ZPZ 512G	KBG40ZPZ 256G	KBG40ZPZ 128G	KBG40ZNS 1T02	KBG40ZNS 512G	KBG40ZNS 256G	KBG40ZNS 128G
Capacity[1]	1,024 GB	512 GB	256 GB	128 GB	1,024 GB	512 GB	256 GB	128 GB
Form Factor	Single Package				Single-Sided			
	M.2 1620-S3	M.2 1620-S2			M.2 2230-S3	M.2 2230-S2		
Performance[2] (Up to)								
Sequential Read	2,300 MB/s	2,200 MB/s		2,000 MB/s	2,300 MB/s	2,200 MB/s		2,000 MB/s
Sequential Write	1,800 MB/s	1,400 MB/s		800 MB/s	1,800 MB/s	1,400 MB/s		800 MB/s
Random Read	390K IOPS	330K IOPS		200K IOPS	390K IOPS	330K IOPS		200K IOPS
Random Write	200K IOPS	190K IOPS		150K IOPS	200K IOPS	190K IOPS		150K IOPS
Power Requirements								
Supply Voltage	3.3 V ± 5 %	1.8 V ± 5 %	1.2 V ± 5 %			3.3 V ± 5 %			
Power Consumption (Typ.) — Active	3.4 W	3.1 W	3.2 W	3.0 W	3.7 W	3.5 W	3.6 W	3.4 W
Power Consumption (Typ.) — L1.2 mode	5 mW				5 mW			
Reliability[3]								
MTTF	1,500,000 hours							
Mechanical								
Dimension (LxWxH)	20.0 x 16.0 x 1.50 mm	20.0 x 16.0 x 1.30 mm			30.0 x 22.0 x 2.38 mm	30.0 x 22.0 x 2.23 mm		
Weight (Typ.)	1.0 g	0.85 g			2.6 g	2.5 g		
Environmental								
Temperature	Operating[4]: 0 °C to 85 °C (T_{SMART})				Operating[4]: 0 °C to 85 °C (T_{SMART})			
	Non-Operating: -40 °C to 85 °C							
Humidity (Operating)	8 % to 90 % R.H.							
Vibration (Operating)	-				196 m/s² { 20 G } (Peak, 10 ~ 2,000 Hz)			
Shock (Operating)	-				14.7 km/s² { 1,500 G } (0.5 ms)			
Additional Features	• Host Memory Buffer feature is supported • SLC cache is supported • Sanitize command is supported							

[1] Definition of capacity: KIOXIA Corporation definesa 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 1GB = 2^30= 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, such as Microsoft Operating System and/or pre-installed software applications, or media content.Actual formatted capacity may vary.

[2] 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.
1 MB (megabyte) = 1,000,000 bytes.
IOPS: Input Output Per Second (or the number of I/O operations per second)

[3] 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.

[4] T_{SMART}: Composite Temperature in SMART/Health Information.

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