

> CM5-R SERIES (KCM51RUG/KCM5XRUG/KCM5DRUG/KCM5FRUG) ENTERPRISE NVMe READ INTENSIVE SSD

The CM5-R series is a read-intensive SSD that is optimized to support a broad range of enterprise applications and associated workloads that include Business Intelligence, Online Transaction Processing, and Software Defined Storage and Virtualization. This NVMe™ series of CM5 SSDs deliver excellent performance up to 770K random read IOPS, with maximum power consumption of 18W.

Featuring Toshiba Memory Corporation's 64-layer BiCS FLASH™ 3D TLC memory, the CM5-R Series of enterprise NVMe™ SSDs deliver 1 DWPD (Drive Writes Per Day) of endurance and supports storage capacities up to 15.36TB, making them ideally suited for read-intensive enterprise applications.

SSD



Product image may differ from the actual model.

> KEY FEATURES

- PCIe® Gen3 x4L Interface with single/dual port support (for high availability applications and redundancy)
- NVMe™ Rev. 1.3a compliant
- Capacities from 960GB to 15.36TB
- Up to 770K random read IOPS in single port (1x4) mode
- Low power consumption with 18W maximum
- 2.5-type small form factor, 15mm Z-Height
- 1 DWPD with 100% random write workload
- Power loss protection and end-to-end data protection, including T10 DIF
- Sanitize Instant Erase (SIE) option
- Self-encrypting drive (SED), TCG Opal option
- Self-encrypting drive (SED), FIPS certified option
- 5-year limited warranty

> APPLICATIONS

- Software Defined Storage and Virtualization
- Data warehousing
- Online transaction processing (OLTP) (transactional and relational databases)
- Business intelligence (BI) (data analytics, artificial intelligence and machine learning)

> MAIN SPECIFICATIONS

Model Number	KCM51RUG15T3	KCM51RUG7T68	KCM51RUG3T84	KCM51RUG1T92	KCM51RUG960G
SIE Model Number	KCM5XRUG15T3	KCM5XRUG7T68	KCM5XRUG3T84	KCM5XRUG1T92	KCM5XRUG960G
SED Model Number	KCM5DRUG15T3	KCM5DRUG7T68	KCM5DRUG3T84	KCM5DRUG1T92	KCM5DRUG960G
SED FIPS Model Number	KCM5FRUG15T3	KCM5FRUG7T68	KCM5FRUG3T84	KCM5FRUG1T92	KCM5FRUG960G
Interface	PCIe® Rev. 3.1a Gen3 x 4L; NVMe™ Rev. 1.3a				
Formatted Capacity	15,360 GB	7,680 GB	3,840 GB	1,920 GB	960 GB
Performance in single port (1x4) mode (Up to)	Interface Speed	32 GT/s (Gen3 x 4L)			
	Memory Type	BiCS FLASH™ TLC			
	Sustained 128KiB Sequential Read	3,350 MB/s		3,250 MB/s	
	Sustained 128KiB Sequential Write	3,040 MB/s		2,460 MB/s	1,250 MB/s
	Sustained 4KiB Random Read	590,000 IOPS	770,000 IOPS	750,000 IOPS	650,000 IOPS
Sustained 4KiB Random Write	35,000 IOPS	80,000 IOPS	70,000 IOPS	65,000 IOPS	50,000 IOPS
Supply Voltage	Allowable Voltage	12 V ± 10 % 3.3 Vaux ± 15 %			
Power Consumption (Ready)	6.0 W Typ.				

> RELIABILITY

Model Number	KCM51RUGxxxx KCM5XRUGxxxx KCM5DRUGxxxx KCM5FRUGxxxx
MTTF	2,500,000 hours
DWPD	1
Warranty	5 years

> MECHANICAL SPECIFICATIONS

Model Number	KCM51RUGxxxx KCM5XRUGxxxx KCM5DRUGxxxx KCM5FRUGxxxx
Height	15.0 mm + 0, - 0.5 mm
Width	69.85 ± 0.25 mm
Length	100.45 mm Max.
Weight	130 g Max.

> ENVIRONMENTAL LIMITS

Item	KCM51RUGxxxx KCM5XRUGxxxx KCM5DRUGxxxx KCM5FRUGxxxx
Temperature	Operating 0 °C to 60 °C
Humidity	Operating 5 % to 95 % R.H.
Vibration	Operating 21.27 m/s ² { 2.17 Grms } (5 to 800 Hz)
Shock	Operating 9,800 m/s ² { 1,000 G } (0.5 ms duration)

Product image may represent a design model.

Definition of capacity: Toshiba 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 1GB = 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, such as Microsoft Operating System and/or pre-installed software applications, or media content. Actual formatted capacity may vary.

GT/s : Giga Transfers per second.

A kibibyte (KiB) means 2¹⁰, or 1,024 bytes.

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.

DWPD: Drive Write Per Day. One full drive write per day means the drive can be written and re-written to full capacity once a day every day for five years, the stated product warranty period. Actual results may vary due to system configuration, usage and other factors.

Read and write speed may vary depending on the host device, read and write conditions, and file size.

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

* SIE: Sanitize instant erase, is a sanitize command using cryptographic erase that invalidates user data saved on an SSD by deleting the encryption key, leaving data scrambled. For NVMe drives, SIE uses the SANITIZE command using the CRYPTOGRAPHIC ERASE method as defined by the T10 committee of INCITS (the InterNational Committee for Information Technology Standards).

* SED (Self-Encrypting Drive) supports TCG Opal SSC (Restrictions may apply depending on models).

* FIPS drives are validated as FIPS 140-2 Level 2 conformant which defines security requirements for cryptographic module by NIST (National Institute of Standards and Technology). Planning to make FIPS 140-2 validation available with select models.

* SIE, SED and FIPS 140-2 compliant drives are not available in all countries due to the local regulations.

There are some models of Toshiba Memory Corporation SSD Products which deliver various security functions as optional feature. For more information of security options, please contact your Toshiba Memory Corporation sales representative.