

# Short Demo Test Suite

## KBG30ZMV256G TOSHIBA

Test suite with a few Test Cases that run very quickly for short demonstrations.



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**EPIC NVMe Utilities**

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## SUMMARY

Test suite with a few Test Cases that run very quickly for short demonstrations. The NVMe tested was the KBG30ZMV256G TOSHIBA with firmware ADHA0102. The device was installed in a HP system, model HP Laptop 15-da1xxx running Microsoft Windows 11 Home.

STARTED	ENDED	DURATION
Jan 17, 2023 - 07:36:20.775	Jan 17, 2023 - 07:36:22.064	0:00:01.289



TESTS	6
PASS	0 0.0%
FAIL	2 33.3%
SKIP	4 66.7%

A total of 6 tests completed 22 verifications for 13 unique requirements.



REQUIREMENTS	13
PASS	12 92.3%
FAIL	1 7.7%



VERIFICATIONS	22
PASS	20 90.9%
FAIL	2 9.1%

Manual review of test results has not been completed.

## Test Summary

TEST	RESULT
Suite start info	FAIL
RQMT: Percent throttled shall be less than 1%	FAIL
Firmware update	SKIP
Firmware activate	SKIP
Firmware download	SKIP
Firmware security	SKIP
Suite end info	FAIL
RQMT: Percent throttled shall be less than 1%	FAIL

## Requirement Verification Summary

The table below lists the results for each attempt to verify a requirement.

REQUIREMENT	PASS	FAIL
Admin commands shall pass	2	0
Critical warnings shall be 0	2	0
Data Used shall be less than 90% of TBW	2	0
Error count shall not increase	1	0
Media and integrity errors shall be 0	2	0
<b>Percent throttled shall be less than 1%</b>	<b>0</b>	<b>2</b>
Percentage Used shall be less than 90%	2	0
Power On Hour change shall be within 1 hour of host time change	1	0
Power On Hours Used shall be less than 90% of Warranty Hours	2	0
Prior self-test failures shall be 0	2	0
SMART counters, such as Data Written, shall not decrement	1	0
Static parameters, such as Model Number, shall not change	1	0
Time operating at or above the critical temperature shall be 0	2	0

## NVME INFORMATION

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VENDOR	MODEL	SIZE	VERSION
Toshiba	KBG30ZMV256G TOSHIBA	256 GB	1.2.1

PARAMETER	VALUE
Serial Number	392PC53NPZXP
Number Of Namespaces	1
Namespace 1 EUI64	00080d-040072b470
Namespace 1 NGUID	0000000000000000-000000-000000000000
Namespace 1 Size	256 GB
Namespace 1 LBA Size	512
Firmware	ADHA0102
Firmware Slots	1
Firmware Activation Without Reset	Supported
Host Memory Buffer	Enabled. Size = 9,728 pages
Autonomous Power State Transition	Supported and Disabled
Volatile Write Cache	Enabled
Host Throttle Threshold TMT1	75 C
Host Throttle Threshold TMT2	79 C
Drive Throttle Threshold WCTEMP	82 C
Drive Throttle Threshold CCTEMP	85 C

### Power States

STATE	NOP	MAX POWER	ENTRY LATENCY	EXIT LATENCY
0	False	3.3 Watts	Not Reported	Not Reported
1	False	2.7 Watts	Not Reported	Not Reported
2	False	2.3 Watts	Not Reported	Not Reported
3	True	0.05 Watts	8,000 uS (0.008 sec)	32,000 uS (0.032 sec)
4	True	0.005 Watts	8,000 uS (0.008 sec)	40,000 uS (0.040 sec)

### PCIe

PCI	VENDOR	VID	DID	WIDTH	SPEED	ADDRESS
Endpoint	Toshiba	0x1179	0x0113	x2	Gen3 8.0GT/s	Bus 3, device 0, function 0
Root		0x8086	0x9DB4			Bus 0, device 29, function 4

## SMART Attributes

PARAMETER	START	END	DELTA
Available Spare	100 %	100 %	
Available Spare Threshold	10 %	10 %	
Controller Busy Time	13,018 Min	13,018 Min	
Critical Composite Temperature Time	0 Min	0 Min	
Data Read	66,078.203 GB	66,078.203 GB	
Data Units Read	129,058,991	129,058,991	
Data Units Written	78,032,845	78,032,845	
Data Written	39,952.817 GB	39,952.817 GB	
Host Read Commands	4,955,443,193	4,955,443,200	7
Host Write Commands	2,442,358,938	2,442,358,949	11
Media and Data Integrity Errors	0	0	
Number of Error Information Log Entries	7,526	7,526	
Percentage Used	25 %	25 %	
Power Cycles	2,332	2,332	
Power On Hours	3,263	3,263	
Thermal Management Temperature 1 Count	39,044	39,044	
Thermal Management Temperature 1 Time	211,565 Sec	211,565 Sec	
Thermal Management Temperature 2 Count	34,349	34,349	
Thermal Management Temperature 2 Time	51,466 Sec	51,466 Sec	
Unsafe Shutdowns	225	225	
Warning Composite Temperature Time	0 Min	0 Min	
Seconds Throttled	263031 Sec	263031 Sec	
Percent Throttled	2.2 %	2.2 %	
Host Time Seconds	1673969781.697	1673969781.989	

## SYSTEM INFORMATION

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PARAMETER	VALUE
Supplier	HP
Model	HP Laptop 15-da1xxx
BIOS	F.24
Hostname	LAPTOP-R63T19SJ
OS	Microsoft Windows 11 Home

## TEST 1: SUITE START INFO



VERIFICATIONS	9
PASS	8 <span style="color: green;">88.9%</span>
FAIL	1 <span style="color: red;">11.1%</span>

STARTED	ENDED	DURATION
Jan 17, 2023 - 07:36:20.878	Jan 17, 2023 - 07:36:21.737	0:00:00.859

### DESCRIPTION

This test reads the NVMe drive information at the start of a test suite. If the drive is unhealthy or worn out the test suite is stopped. At the end of the suite, this start information is compared with the suite end information to verify no unexpected changes occurred during the testing.

This test defines worn out as Percentage Used, Percentage Data Written, or Percentage Warranty Used exceeding 90%. This provides a guard band so no wear percentage exceeds 100% during the test suite. The percentages are determined from the SMART attributes Percentage Used, Data Written, and Power On Hours and the drive specifications TBW and Warranty Years. If TBW and Warranty Years are not provided the Percentage Data Written and Percentage Warranty Used cannot be verified.

A drive is defined as unhealthy if 1) any prior self-test results failed or 2) has critical warnings or media and integrity errors or 3) has operated above the critical temperature or 4) has had an excessive amount of thermal throttling. The self-test results are read from Log Page 6 and the SMART attributes from Log Page 2.

The information is read using the [nvme cmd utility](#) [2]. This utility uses NVMe Admin Commands Identify Controller, Identify Namespace, Get Log Page, and Get Feature to get most of the information. A small amount of information is read from the Operating System, such as the driver version and PCIe parameters.

For additional details see [Read and compare NVMe information with nvme cmd](#) [4].

### RESULTS

The table below lists the NVMe Admin Commands completed. The nvme cmd utility only supports Namespace 1 and a subset of the log pages and features.

Admin Command	Time (ms)	Return Bytes	Return Code
Identify Controller	1.316	4096	0
Identify Namespace 1	2.079	4096	0
Get Log Page 0x01	2.291	4096	0
Get Log Page 0x02	2.045	512	0
Get Log Page 0x03	2.133	512	0
Get Log Page 0x05	0.036	4096	0
Get Log Page 0x06	1.828	564	0
Get Feature 1	1.909	0	0
Get Feature 2	0.266	0	0
Get Feature 4	0.227	0	0

Get Feature 4 (0x100000)	0.248	0	0
Get Feature 4 (0x10000)	0.258	0	0
Get Feature 4 (0x110000)	0.242	0	0
Get Feature 5	0.223	0	0
Get Feature 6	0.241	0	0
Get Feature 8	0.241	0	0
Get Feature 10	0.240	0	0
Get Feature 11	0.238	0	0
Get Feature 12	0.280	256	0
Get Feature 13	0.408	4096	0
Get Feature 16	0.430	0	0

### Drive Health: Self-Test Results

The most recent 20 self-test results, short and extended, were read from Log Page 6. The drive is considered unhealthy if any prior results are failures.

PARAMETER	VALUE	NOTE
Prior self-test results	20	Logs up to 20
Prior self-test failures	0	

### Drive Health: Errors and Warnings

The drive is considered unhealthy if the SMART attributes contain critical warnings or media and integrity errors.

PARAMETER	VALUE	NOTE
Critical Warnings	No	
Media and Integrity Errors	0	

### Drive Health: Temperature Throttling

The drive is considered unhealthy if it has operated above the critical temperature or the percentage throttled is above 1%.

Percentage Throttled is defined as  $100 * (\text{Hours Throttled} / \text{Power On Hours})$  where Hours Throttled is the cumulative time of all throttle states.

PARAMETER	VALUE	NOTE
Percentage Throttled	2.2%	
Thermal Management Temperature 1 Time	211,565 sec	58.77 Hours
Thermal Management Temperature 2 Time	51,466 sec	14.30 Hours
Warning Composite Temperature Time	0 min	0.00 Hours
Critical Composite Temperature Time	0 min	0.00 Hours

### Drive Wear

The Percentage Used SMART attribute is the primary reference for drive wear. If the drive Warranty and TBW are specified the Percentage Data Written and Percentage Warranty Used are calculated and verified.

Percentage Data Written is defined as  $100 * (\text{Data Written} / \text{TBW})$  where TBW (Terabytes Written) is the total amount of data that can be written to the drive during the warranty period. Data Written is the SMART attribute that reports the data written to the drive.

Percentage Warranty Used is defined as  $100 * (\text{Power On Hours} / \text{Warranty Hours})$  where warranty hours is the number of days in the warranty multiplied by 8 hours for client drives or 24 hours for enterprise drives.

PARAMETER	VALUE	NOTE
Percentage Used	25%	SMART attribute
Data Written	39,952.817 GB	SMART attribute
Power On Hours	3,263	SMART attribute
Terabytes Written (TBW)	150 TB	User Input
Percentage Data Written	26.6%	Calculated
Warranty Years	5 years	User input
Warranty Hours	14,600	Calculated
Percentage Warranty Used	22.3%	Calculated

## VERIFICATIONS

This section lists the test steps and requirement verifications.

### Step 1: Read info : PASS

Read NVMe information using nvmeinfo.

REQUIREMENT	VALUE	RESULT
Admin commands shall pass	Pass	PASS

### Step 2: Verify info : FAIL

Verify drive is healthy and not worn out.

REQUIREMENT	VALUE	RESULT
Critical warnings shall be 0	0	PASS
Media and integrity errors shall be 0	0	PASS
Time operating at or above the critical temperature shall be 0	0 min	PASS
Percent throttled shall be less than 1%	2.2%	FAIL
Percentage Used shall be less than 90%	25%	PASS
Data Used shall be less than 90% of TBW	26.6%	PASS
Power On Hours Used shall be less than 90% of Warranty Hours	22.3%	PASS
Prior self-test failures shall be 0	0	PASS

## TEST 2: FIRMWARE UPDATE



VERIFICATIONS	0
PASS	0 0.0%
FAIL	0 0.0%

STARTED	ENDED	DURATION
Jan 17, 2023 - 07:36:21.743	Jan 17, 2023 - 07:36:21.751	0:00:00.008

### DESCRIPTION

This test updates the NVMe drive firmware. The test downloads and activates the latest firmware version and verifies if does not effect IO traffic, no parameters change, firmware information is updated. All firmware slots are tested.

For additional details see [Update firmware with nvme cmd \[7\]](#).

### RESULTS

The test was not completed because the firmware files needed for the update were not found.

## TEST 3: FIRMWARE ACTIVATE



VERIFICATIONS	0	
PASS	0	0.0%
FAIL	0	0.0%

STARTED	ENDED	DURATION
Jan 17, 2023 - 07:36:21.754	Jan 17, 2023 - 07:36:21.764	0:00:00.010

### DESCRIPTION

This test verifies the performance and reliability of firmware activation. Different firmware versions are downloaded to multiple slots. While running a moderate IO stress workload the test continuously activates different slots (versions). The test completes one thousand activations.

Reliability is defined as no IO errors, data corruption, parameter changes, or failed firmware activations.

Performance is defined as the activation time and the maximum IO latency.

For additional details see [Update firmware with nvme cmd \[7\]](#).

### RESULTS

The test was not completed because the firmware files needed for the update were not found.

## TEST 4: FIRMWARE DOWNLOAD



VERIFICATIONS	0
PASS	0 0.0%
FAIL	0 0.0%

STARTED	ENDED	DURATION
Jan 17, 2023 - 07:36:21.768	Jan 17, 2023 - 07:36:21.772	0:00:00.004

### DESCRIPTION

This test verifies the performance and reliability of firmware download. Different firmware versions are downloaded to multiple slots. While running a moderate IO stress workload the test continuously downloads firmware to different slots (versions). The test completes 100 downloads.

Reliability is defined as no IO errors, data corruption, parameter changes, or failed firmware downloads.

Performance is defined as the download time and the maximum IO latency.

For additional details see [Update firmware with nvme cmd \[7\]](#).

### RESULTS

The test was not completed because the firmware files needed for the update were not found.

## TEST 5: FIRMWARE SECURITY



VERIFICATIONS	0
PASS	0 0.0%
FAIL	0 0.0%

STARTED	ENDED	DURATION
Jan 17, 2023 - 07:36:21.779	Jan 17, 2023 - 07:36:21.783	0:00:00.004

### DESCRIPTION

This test verifies the firmware update process is secure. It verifies invalid files cannot be downloaded and activated.

Invalid files tested are corrupted files, files for different devices, etc...

For additional details see [Update firmware with nvme cmd \[7\]](#).

### RESULTS

The test was not completed because the firmware files needed for the update were not found.

## TEST 6: SUITE END INFO



VERIFICATIONS	13
PASS	12
FAIL	1

STARTED	ENDED	DURATION
Jan 17, 2023 - 07:36:21.786	Jan 17, 2023 - 07:36:22.041	0:00:00.255

### DESCRIPTION

This test reads the NVMe drive information at the end of the test suite and verifies the drive is healthy, not worn out, and no unexpected changes occurred during the test suite.

The test verifies the following unexpected changes do not occur. Static parameters, such as Model and Serial Number, must not change. SMART counters, such as Power-On Hours, must not decrement. Error parameters, such as media and data integrity errors, must not increase. The change in Power On Hours must match the host computer time change.

For additional details see [Read and compare NVMe information with nvmeinfo \[4\]](#).

### RESULTS

The host reported a time difference of 0:00:00.323 and the change in Power On Hours was 0 .

A total of 249 static parameters were verified not to change. A total of 23 counter parameters were verified not to decrement.

### VERIFICATIONS

This section lists the test steps and requirement verifications.

#### Step 1: Read info : PASS

Read NVMe information using nvmeinfo.

REQUIREMENT	VALUE	RESULT
Admin commands shall pass	Pass	PASS

#### Step 2: Verify info : FAIL

Verify drive is healthy and not worn out.

REQUIREMENT	VALUE	RESULT
Critical warnings shall be 0	0	PASS
Media and integrity errors shall be 0	0	PASS
Time operating at or above the critical temperature shall be 0	0 min	PASS
Percent throttled shall be less than 1%	2.2%	FAIL
Percentage Used shall be less than 90%	25%	PASS

Data Used shall be less than 90% of TBW	26.6%	PASS
Power On Hours Used shall be less than 90% of Warranty Hours	22.3%	PASS
Prior self-test failures shall be 0	0	PASS

**Step 3: Verify changes : PASS**

Verify no unexpected changes from starting info.

REQUIREMENT	VALUE	RESULT
Static parameters, such as Model Number, shall not change	0	PASS
SMART counters, such as Data Written, shall not decrement	0	PASS
Power On Hour change shall be within 1 hour of host time change	0.00 hrs	PASS
Error count shall not increase	0	PASS

## NVME PARAMETERS

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TITLE	DESCRIPTION	VALUE
128-bit Host Identifier	Controller support for 128-bit Host Identifier, from CTRATT	Not Supported
Abort Command Limit (ACL)	Maximum number of concurrently executing Abort commands supported by the controller	4
Admin Vendor Specific command handling	Admin Vendor Specific Commands use standard format or vendor specific format, from AVSCC	Not Vendor Specific
Aggregation Threshold (THR)	Feature 08h: Recommended minimum number of completion queue entries to aggregate per interrupt vector before signaling an interrupt to the host	1
Aggregation Time (TIME)	Feature 08h: Recommended maximum time that a controller may delay an interrupt due to interrupt coalescing	No Delay
Arbitration Burst (AB)	Feature 01h: Number of commands that may be executed at one time from a particular Submission Queue as power of 2 ( $2^n$ )	3 ( $2^3=8$ )
Associated Function Type	Controller associated with SR-IOV virtual function or PCI function type from CMIC	PCI
Asynchronous Event Request Limit (AERL)	Maximum number of concurrently outstanding Asynchronous Event Request commands supported by the controller	4
Atomic Write Unit Normal (AWUN)	Size of write in logical blocks guaranteed to be written atomically across all namespaces with any supported namespace format during normal operation	All Commands
Atomic Write Unit Power Fail (AWUPF)	Size of write in logical blocks guaranteed to be written atomically across all namespaces with any supported namespace format during a power fail or error condition	1
Autonomous Power State Transition	Autonomous Power State Transition support, from APSTA	Supported
Autonomous Power State Transition Enable (APSTE)	Feature 0Ch: Autonomous power state transitions. Also see APSTA	Disabled
Available Space Below Threshold	Critical Warning: Available spare space has fallen below the threshold	No
Available Spare	Normalized percentage (0 to 100%) of the remaining spare capacity available	100 %
Available Spare Threshold	Available spare threshold indicated as a normalized percentage (0 to 100%)	10 %
Block Erase Sanitize	Controller support for block sanitize, from SANICAP	Not Supported
Commands Supported and Effects Log Page	Controller support for log page attribute Commands Supported and Effects Log Page, from LPA	Supported

Compare NVM Command	Controller support for the Compare NVM command, from ONCS	Supported
Compare and Write Fused Operation	Controller support for the Compare and Write fused operation, from FUSES	Not Supported
Composite Temperature	Current composite temperature of the controller and namespace(s) associated with that controller	42 C
Composite Temperature Over Threshold	Feature 04h: Composite Temperature over threshold limit	82 C
Composite Temperature Under Threshold	Feature 04h: Composite Temperature under threshold limit	-273 C
Controller Busy Time	Time the controller is busy with I/O commands	13,018 Min
Controller ID (CNTLID)	NVM subsystem unique controller identifier associated with the controller	0
Controller Vendor	Controller vendor from PCI lookup: <a href="https://pcisig.com/membership/member-companies">https://pcisig.com/membership/member-companies</a>	Toshiba
Critical Composite Temperature Threshold (CCTEMP)	Temperature that indicates a critical overheating condition (e.g. possible data loss, device shutdown, extreme throttling, or permanent damage)	85 C
Critical Composite Temperature Time	Time controller is operational and Composite Temperature is greater than the Critical Composite Temperature Threshold	0 Min
Critical Warnings	Controller has asserted one or more critical warnings	No
Crypto Erase	Crypto erase supported as part of secure erase, from FNA	Not Supported
Crypto Erase Sanitize	Controller support for crypto sanitize, from SANICAP	Not Supported
Current Number Of Errors	Current number of error entries in Log Page 1	3
Current Number Of Self-Tests	Current number of self tests reported in log page 6	20
Current Power State (PS)	Feature 02h: Current power state of the controller	0
Current Self-Test Completion	Percentage of the device self-test operation that is complete	100
Current Self-Test Operation	Status of the current device self-test operation	No Test In Progress
Data Read	Data Read in GB calculated from Data Units Read	66,078.203 GB
Data Units Read	Number of 512,000 byte data units read from the controller; does not include metadata	129,058,991
Data Units Written	Number of 512,000 byte data units written to the controller; does not include metadata	78,032,845
Data Written	Data Written in GB calculated from Data Units Written	39,952.817 GB

Dataset Management NVM Command	Controller support for the Dataset Management NVM command, from ONCS	Supported
Deallocated or Unwritten Logical Block Error Enable (DULBE)	Feature 05h: Deallocated or Unwritten Logical Block error enabled for the namespace	Disabled
Device Self-test Command	Controller support for Device Self-test Command, from OACS	Supported
Disable Normal (DN)	Feature 0Ah: Host specifies AWUN and NAWUN are not required and controller shall only honor AWUPF and NAWUPF	Not Supported
Driver	OS driver information	Microsoft, 10.0.22621.755, 6/20/2006, stornvme.inf
Enable Host Memory (EHM)	Feature 0Dh: Controller may use host memory buffer when enabled. See HMPRE	Enabled
Error 0 Bit Location	Bit in command that contained the error	0
Error 0 Byte Location	Byte in command that contained the error	40
Error 0 Command ID	Command Identifier of the command the error is associated with	40
Error 0 Command Specific Info	Command specific information	0x0000000000000000 000
Error 0 Error Count	Incrementing error count, indicating a unique identifier for this error	7,526
Error 0 LBA	First LBA that experienced the error condition, if applicable	Not Applicable
Error 0 Namespace	Namespace the error is associated with, if applicable	1
Error 0 Status Field	Status Field for the command that completed	0xC005
Error 0 Submission Queue ID	Submission Queue Identifier of the command the error information is associated with	0
Error 0 Vendor Specific Info	Additional vendor specific error information if applicable	Not Applicable
Error 1 Bit Location	Bit in command that contained the error	0
Error 1 Byte Location	Byte in command that contained the error	40
Error 1 Command ID	Command Identifier of the command the error is associated with	39
Error 1 Command Specific Info	Command specific information	0x0000000000000000 000
Error 1 Error Count	Incrementing error count, indicating a unique identifier for this error	7,525
Error 1 LBA	First LBA that experienced the error condition, if applicable	Not Applicable
Error 1 Namespace	Namespace the error is associated with, if applicable	1
Error 1 Status Field	Status Field for the command that completed	0xC005

Error 1 Submission Queue ID	Submission Queue Identifier of the command the error information is associated with	0
Error 1 Vendor Specific Info	Additional vendor specific error information if applicable	Not Applicable
Error 2 Bit Location	Bit in command that contained the error	0
Error 2 Byte Location	Byte in command that contained the error	40
Error 2 Command ID	Command Identifier of the command the error is associated with	36
Error 2 Command Specific Info	Command specific information	0x0000000000000000 000
Error 2 Error Count	Incrementing error count, indicating a unique identifier for this error	7,524
Error 2 LBA	First LBA that experienced the error condition, if applicable	Not Applicable
Error 2 Namespace	Namespace the error is associated with, if applicable	Not Applicable
Error 2 Status Field	Status Field for the command that completed	0xC213
Error 2 Submission Queue ID	Submission Queue Identifier of the command the error information is associated with	0
Error 2 Vendor Specific Info	Additional vendor specific error information if applicable	Not Applicable
Error Log Page Entries (ELPE)	Maximum number of Error Information log entries stored by the controller	64
Extended Data for Get Log Page	Controller support for log page attribute Extended Data for Get Log Page, from LPA	Not Supported
Extended Device Self-test Time (EDSTT)	Nominal time in minutes to complete extended device self-test when in power state 0	39 Min
Firmware Activation Notices	Controller support for asynchronous events Firmware Activation Notices, from OAES	Supported
Firmware Activation Notices Enable	Feature 0Bh: Asynchronous event notification sent to host for Firmware Activation Starting. Also see OAES	Enabled
Firmware Activation Without Reset	Controller support for firmware activation without a reset, from FRMW	Supported
Firmware Active Slot	Firmware slot that loaded the active firmware, from AFI	1
Firmware Commit and Image Download Commands	Controller support for Firmware Commit and Image Download Commands, from OACS	Supported
Firmware Pending Slot	Firmware slot to be activated at the next controller reset, from AFI	Not Reported
Firmware Revision (FR)	Currently active firmware revision	ADHA0102
Firmware Slot 1 Read Status	Firmware slot 1 read only or read/write, from FRMW	Read/Write

Firmware Slot 1 Revision	Revision of firmware in this slot, see Firmware Revision for Slot # (FRS#)	ADHA0102
Firmware Slots	Number of firmware slots supported by controller, from FRMW	1
Firmware Update Granularity (FWUG)	Minimum granularity and alignment of the data provided in the Firmware Image Download command	4 KiB
Format All Namespaces	Format (excluding secure erase) applies to all namespaces in an NVM subsystem, from FNA	Not Supported
Format NVM Command	Controller support for Format NVM Command, from OACS	Supported
High Priority Weight (HPW)	Feature 01h: Number of commands that may be executed from the high priority service class in each arbitration round	1
Highest Version Detected	Highest NVMe version detected based on supported features	1.3.0
Host Controlled Thermal Management (HCTMA)	Controller support for host controlled thermal management	Supported
Host Memory Buffer Minimum Size (HMMIN)	Minimum size that the host is requested to allocate for the Host Memory Buffer feature in 4KiB units	2,560 (10,240 KiB)
Host Memory Buffer Preferred Size (HMPRE)	Preferred size that the host is requested to allocate for the Host Memory Buffer feature in 4KiB units	9,728 (38,912 KiB)
Host Memory Buffer Size (HSIZE)	Feature 0Dh: Size of host memory buffer allocated in memory page size units	9,728
Host Memory Descriptor List Address (HMDLAL)	Feature 0Dh: Lower 32 bits of the physical location of the Host Memory Descriptor List for the Host Memory Buffer	0x083F2000
Host Memory Descriptor List Address (HMDLAU)	Feature 0Dh: Upper 32 bits of the physical location of the Host Memory Descriptor List for the Host Memory Buffer	0x00000001
Host Memory Descriptor List Entry Count (HMDLEC)	Feature 0Dh: Number of valid Host Memory Descriptor Entries	1
Host Power Source	Current host power source, battery or AC	AC
Host Read Commands	Number of read commands completed by the controller	4,955,443,193
Host Timestamp	Host number of milliseconds since midnight, 01-Jan-1970, UTC	1,673,969,781,697 mS
Host Timestamp Decoded	Host date and time	2023-01-17 07:36:21.697
Host Write Commands	Number of write commands completed by the controller	2,442,358,938

IEEE OUI Identifier (IEEE)	Organization Unique Identifier (OUI) for the controller vendor: <a href="http://standards-oui.ieee.org/oui/oui.txt">http://standards-oui.ieee.org/oui/oui.txt</a>	00-08-0d
Keep Alive Support (KAS)	Granularity of the Keep Alive Timer	Not Supported
Low Priority Weight (LPW)	Feature 01h: Number of commands that may be executed from the low priority service class in each arbitration round	1
Maximum Completion Queue Entry Size	Maximum Completion Queue entry size when using the NVM Command Set in bytes reported as a power of two ( $2^n$ ), from CQES	4 ( $2^4=16$ )
Maximum Data Transfer Size (MDTS)	Maximum data transfer size between host and controller in units of minimum memory page size as a power of two ( $2^n$ )	9 ( $2^9=512$ )
Maximum Outstanding Commands (MAXCMD)	Maximum number of commands that the controller processes at one time for a particular queue	Not Supported
Maximum Submission Queue Entry Size	Maximum Submission Queue entry size when using the NVM Command Set in bytes reported as a power of two ( $2^n$ ), from SQES	6 ( $2^6=64$ )
Maximum Thermal Management Temperature (MXTMT)	Maximum temperature host may request in the Thermal Management Temperature 1 and 2 fields of Set Features command	82 C
Maximum Time for Firmware Activation (MTFA)	Maximum time the controller temporarily stops processing commands to activate the firmware image	Undefined
Media and Data Integrity Errors	Number of occurrences where the controller detected an unrecovered data integrity error	0
Media in Read Only	Critical Warning: Media has been placed in read only mode	No
Medium Priority Weight (MPW)	Feature 01h: Number of commands that may be executed from the medium priority service class in each arbitration round	1
Minimum Thermal Management Temperature (MNTMT)	Minimum temperature host may request in the Thermal Management Temperature 1 and 2 fields of Set Features command	75 C
Model Number (MN)	Model number for the NVM subsystem assigned by the vendor	KBG30ZMV256G TOSHIBA
NVM Subsystem Controllers	Single or multiple controllers contained in NVM subsystem from CMIC	Single
NVM Subsystem NVMe Qualified Name (SUBNQN)	The NVM Subsystem NVMe Qualified Name	nqn.2017-03.jp.co.t oshiba:KBG30ZMV 256G TOSHIBA:39 2PC53NPZXP
NVM Subsystem PCIe Ports	Single or multiple PCIE ports contained in NVM subsystem from CMIC	Single
Namespace 1 Active LBA Format	Index of LBA format that namespace is formatted with, from FLBAS	1

Namespace 1 Atomic Boundary Offset (NABO)	The LBA on this namespace where the first atomic boundary starts	0
Namespace 1 Atomic Boundary Size Normal (NABSN)	Atomic boundary size in logical blocks for this namespace for the NAWUN value	No boundaries
Namespace 1 Atomic Boundary Size Power Fail (NABSPF)	Atomic boundary size for this namespace specific to the Namespace Atomic Write Unit Power Fail value	No boundaries
Namespace 1 Atomic Compare & Write Unit (NACWU)	Namespace specific size of the write operation in logical blocks guaranteed to be written atomically for a Compare and Write fused command	Same as ACWU
Namespace 1 Atomic Write Unit Normal (NAWUN)	Namespace specific size of the write operation in logical blocks guaranteed to be written atomically during normal operation	Same as AWUN
Namespace 1 Atomic Write Unit Power Fail (NAWUPF)	Namespace specific size of the write operation in logical blocks guaranteed to be written atomically during a power fail or error condition	Same as AWUPF
Namespace 1 Atomic Writes	If supported NAWUN, NAWUPF, and NACWU used instead of AWUN, AWUPF, and ACWU fields, from NSFEAT	Not Supported
Namespace 1 Capacity (NCAP)	The maximum number of logical blocks that may be allocated in the namespace	500,118,192
Namespace 1 Exclusive Access All Registrants Reservation	Namespace supports the Exclusive Access - All Registrants reservation type, from RESCAP	Not Supported
Namespace 1 Exclusive Access Registrants Only Reservation	Namespace supports the Exclusive Access - Registrants Only reservation type, from RESCAP	Not Supported
Namespace 1 Exclusive Access Reservation	Namespace supports the Exclusive Access reservation type, from RESCAP	Not Supported
Namespace 1 Extended Data LBA	If supported metadata is transferred at the end of the data LBA, creating an extended data LBA, from FLBAS	Not Supported
Namespace 1 Format Progress Indicator	Namespace supports the Format Progress Indicator, from FPI	Not Supported
Namespace 1 Globally Unique Identifier (NGUID)	128-bit value that is globally unique and assigned to the namespace	0000000000000000 0-000000-0000000 000
Namespace 1 IEEE Extended Unique Identifier (EUI64)	64-bit IEEE Extended Unique Identifier (EUI-64) that is globally unique and assigned to the namespace	00080d-040072b47 0

Namespace 1 LBA 0 Data Size (LBADS)	LBA data size in power of two ( $2^n$ )	12 ( $2^{12}=4096$ )
Namespace 1 LBA 0 Relative Performance (RP)	Relative performance of this LBA format relative to other LBA formats	Best Performance
Namespace 1 LBA 1 Data Size (LBADS)	LBA data size in power of two ( $2^n$ )	9 ( $2^9=512$ ) *
Namespace 1 LBA 1 Relative Performance (RP)	Relative performance of this LBA format relative to other LBA formats	Degraded Performance *
Namespace 1 Logical Block Error	Controller support for the Deallocated or Unwritten Logical Block error for this namespace, from NSFEAT	Not Supported
Namespace 1 Metadata Transfer Buffer	Metadata transferred as part of a separate buffer that is specified in the Metadata Pointer, from MC	Not Supported
Namespace 1 Metadata Transfer Extended LBA	Metadata being transferred as part of an extended data LBA, from MC	Not Supported
Namespace 1 NVM Capacity (NVMCAP)	Total size of the NVM allocated to this namespace in bytes	0
Namespace 1 Number of LBA Formats (NLBAF)	Number of supported LBA data size and metadata size combinations supported by the namespace	2
Namespace 1 Persist Through Power Loss	Namespace supports the Persist Through Power Loss capability, from RESCAP	Not Supported
Namespace 1 Protection First	Namespace supports protection information transferred as first eight bytes of metadata, from DPC	Not Supported
Namespace 1 Protection Information Enabled	Type of Protection Information enabled, if any, from DPS	Disabled
Namespace 1 Protection Information First	Protection information, if enabled, is transferred as the first eight bytes of metadata, from DPS	Last 8 Bytes
Namespace 1 Protection Last	Namespace supports protection information transferred as the last eight bytes of metadata, from DPC	Not Supported
Namespace 1 Protection Type 1	Namespace supports Protection Information Type 1, from DPC	Not Supported
Namespace 1 Protection Type 2	Namespace supports Protection Information Type 2, from DPC	Not Supported
Namespace 1 Protection Type 3	Namespace supports Protection Information Type 3, from DPC	Not Supported

Namespace 1 Shared	Namespace may be attached to two or more controllers in the NVM subsystem concurrently (i.e., may be a shared namespace), from NMIC	Not Supported
Namespace 1 Size	Total calculated size of the namespace in GB	256 GB
Namespace 1 Size in GiB	Total calculated size of the namespace in GiB (1024*1024*1024)	238.5 GiB
Namespace 1 Size in LBA (NSZE)	Total size of this namespace in logical blocks	500,118,192
Namespace 1 Thin Provisioning	If supported the Namespace Capacity reported may be less than the Namespace Size, from NSFEAT	Not Supported
Namespace 1 Utilization (NUSE)	Current number of logical blocks allocated in the namespace	500,118,192
Namespace 1 Write Exclusive All Registrants Reservation	Namespace supports the Write Exclusive - All Registrants reservation type, from RESCAP	Not Supported
Namespace 1 Write Exclusive Registrants Only Reservation	Namespace supports the Write Exclusive - Registrants Only reservation type, from RESCAP	Not Supported
Namespace 1 Write Exclusive Reservation	Namespace supports the Write Exclusive reservation type, from RESCAP	Not Supported
Namespace Attribute Notices	Controller support for asynchronous events Namespace Activation Notices, from OAES	Not Supported
Namespace Management and Attachment Commands	Controller support for Namespace Management and Attachment Commands, from OACS	Not Supported
Number Of Failed Self-Tests	Number of self tests that failed in log page 6	0
Number of Error Information Log Entries	Number of Error Information log entries over the life of the controller	7,526
Number of Namespaces (NN)	Number of valid namespaces present for the controller	1
Number of Power States Support (NPSS)	Number of NVM Express power states supported by the controller	5
OS Location	Drive location reported by the Operating System	\.\PHYSICALDRIVE0
One Self-Test	Support for one device self-test at a time per system or per controller, from DSTO	Per System
Overwrite Sanitize	Controller support for overwrite sanitize, from SANICAP	Not Supported
PCI Device ID	PCI device identifier assigned for the device	0x0113
PCI Location	PCI bus address in the system	Bus 3, device 0, function 0

PCI Rated Speed	Maximum PCI bus speed the device is rated for	Gen3 8.0GT/s
PCI Rated Width	Maximum PCI bus width the device is rated for	x2
PCI Speed	Current PCI bus speed	Gen3 8.0GT/s
PCI Subsystem Vendor ID (SSVID)	Company vendor identifier assigned by PCI SIG for the subsystem	0x1179
PCI Vendor ID (VID)	Company vendor identifier assigned by PCI SIG for the controller	0x1179
PCI Width	Current PCI bus width in lanes	x2
PCIe Management Endpoint (PCIEME)	NVME MI: NVM Subsystem contains a Management Endpoint on a PCIe port	Not Supported
Percentage Used	Vendor specific estimate of the percentage life used, can exceed 100%	25 %
Power Cycles	Number of power cycles	2,332
Power On Hours	Number of power on hours	3,263
Power State 0 Active Power (ACTP)	Largest average power over 10 seconds in this power state with workload from Active Power Workload (APW)	Not Reported
Power State 0 Active Power Workload (APW)	Workload used to calculate maximum power for the active power state	No workload
Power State 0 Entry Latency (ENLAT)	Maximum entry latency in microseconds associated with entering this power state	Not Reported
Power State 0 Exit Latency (EXLAT)	Maximum exit latency in microseconds associated with exiting this power state	Not Reported
Power State 0 Idle Power (IDLP)	Typical power consumed over 30 seconds in this power state when idle	Not Reported
Power State 0 Idle Time Prior to Transition (ITPT)	Feature 0Ch: Idle time that occurs in this power state prior to transitioning to the Idle Transition Power State in milliseconds	25 mS
Power State 0 Idle Transition Power State (ITPS)	Feature 0Ch: Power state to autonomously transition to after exceeding Idle Time Prior to Transition (ITPT)	3
Power State 0 Maximum Power (MP)	Maximum power consumed in this power state	3.3 Watts
Power State 0 Non-Operational State (NOPS)	Controller does not process I/O commands in a Non-Operational State	False
Power State 0 Relative Read Latency (RRL)	Relative read latency associated with this power state	0
Power State 0 Relative Read Throughput (RRT)	Relative read throughput associated with this power state	0

Power State 0 Relative Write Latency (RWL)	Relative write latency associated with this power state	0
Power State 0 Relative Write Throughput (RWT)	Relative write throughput associated with this power state	0
Power State 1 Active Power (ACTP)	Largest average power over 10 seconds in this power state with workload from Active Power Workload (APW)	Not Reported
Power State 1 Active Power Workload (APW)	Workload used to calculate maximum power for the active power state	No workload
Power State 1 Entry Latency (ENLAT)	Maximum entry latency in microseconds associated with entering this power state	Not Reported
Power State 1 Exit Latency (EXLAT)	Maximum exit latency in microseconds associated with exiting this power state	Not Reported
Power State 1 Idle Power (IDLP)	Typical power consumed over 30 seconds in this power state when idle	Not Reported
Power State 1 Idle Time Prior to Transition (ITPT)	Feature 0Ch: Idle time that occurs in this power state prior to transitioning to the Idle Transition Power State in milliseconds	25 mS
Power State 1 Idle Transition Power State (ITPS)	Feature 0Ch: Power state to autonomously transition to after exceeding Idle Time Prior to Transition (ITPT)	3
Power State 1 Maximum Power (MP)	Maximum power consumed in this power state	2.7 Watts
Power State 1 Non-Operational State (NOPS)	Controller does not process I/O commands in a Non-Operational State	False
Power State 1 Relative Read Latency (RRL)	Relative read latency associated with this power state	1
Power State 1 Relative Read Throughput (RRT)	Relative read throughput associated with this power state	1
Power State 1 Relative Write Latency (RWL)	Relative write latency associated with this power state	1
Power State 1 Relative Write Throughput (RWT)	Relative write throughput associated with this power state	1
Power State 2 Active Power (ACTP)	Largest average power over 10 seconds in this power state with workload from Active Power Workload (APW)	Not Reported

Power State 2 Active Power Workload (APW)	Workload used to calculate maximum power for the active power state	No workload
Power State 2 Entry Latency (ENLAT)	Maximum entry latency in microseconds associated with entering this power state	Not Reported
Power State 2 Exit Latency (EXLAT)	Maximum exit latency in microseconds associated with exiting this power state	Not Reported
Power State 2 Idle Power (IDLP)	Typical power consumed over 30 seconds in this power state when idle	Not Reported
Power State 2 Idle Time Prior to Transition (ITPT)	Feature 0Ch: Idle time that occurs in this power state prior to transitioning to the Idle Transition Power State in milliseconds	25 mS
Power State 2 Idle Transition Power State (ITPS)	Feature 0Ch: Power state to autonomously transition to after exceeding Idle Time Prior to Transition (ITPT)	3
Power State 2 Maximum Power (MP)	Maximum power consumed in this power state	2.3 Watts
Power State 2 Non-Operational State (NOPS)	Controller does not process I/O commands in a Non-Operational State	False
Power State 2 Relative Read Latency (RRL)	Relative read latency associated with this power state	2
Power State 2 Relative Read Throughput (RRT)	Relative read throughput associated with this power state	2
Power State 2 Relative Write Latency (RWL)	Relative write latency associated with this power state	2
Power State 2 Relative Write Throughput (RWT)	Relative write throughput associated with this power state	2
Power State 3 Active Power (ACTP)	Largest average power over 10 seconds in this power state with workload from Active Power Workload (APW)	Not Reported
Power State 3 Active Power Workload (APW)	Workload used to calculate maximum power for the active power state	No workload
Power State 3 Entry Latency (ENLAT)	Maximum entry latency in microseconds associated with entering this power state	8,000 uS (0.008 sec)
Power State 3 Exit Latency (EXLAT)	Maximum exit latency in microseconds associated with exiting this power state	32,000 uS (0.032 sec)
Power State 3 Idle Power (IDLP)	Typical power consumed over 30 seconds in this power state when idle	Not Reported

Power State 3 Idle Time Prior to Transition (ITPT)	Feature 0Ch: Idle time that occurs in this power state prior to transitioning to the Idle Transition Power State in milliseconds	9,975 mS
Power State 3 Idle Transition Power State (ITPS)	Feature 0Ch: Power state to autonomously transition to after exceeding Idle Time Prior to Transition (ITPT)	4
Power State 3 Maximum Power (MP)	Maximum power consumed in this power state	0.05 Watts
Power State 3 Non-Operational State (NOPS)	Controller does not process I/O commands in a Non-Operational State	True
Power State 3 Relative Read Latency (RRL)	Relative read latency associated with this power state	4
Power State 3 Relative Read Throughput (RRT)	Relative read throughput associated with this power state	4
Power State 3 Relative Write Latency (RWL)	Relative write latency associated with this power state	4
Power State 3 Relative Write Throughput (RWT)	Relative write throughput associated with this power state	4
Power State 4 Active Power (ACTP)	Largest average power over 10 seconds in this power state with workload from Active Power Workload (APW)	Not Reported
Power State 4 Active Power Workload (APW)	Workload used to calculate maximum power for the active power state	No workload
Power State 4 Entry Latency (ENLAT)	Maximum entry latency in microseconds associated with entering this power state	8,000 uS (0.008 sec)
Power State 4 Exit Latency (EXLAT)	Maximum exit latency in microseconds associated with exiting this power state	40,000 uS (0.040 sec)
Power State 4 Idle Power (IDLP)	Typical power consumed over 30 seconds in this power state when idle	Not Reported
Power State 4 Idle Time Prior to Transition (ITPT)	Feature 0Ch: Idle time that occurs in this power state prior to transitioning to the Idle Transition Power State in milliseconds	Disabled
Power State 4 Maximum Power (MP)	Maximum power consumed in this power state	0.005 Watts
Power State 4 Non-Operational State (NOPS)	Controller does not process I/O commands in a Non-Operational State	True

Power State 4 Relative Read Latency (RRL)	Relative read latency associated with this power state	4
Power State 4 Relative Read Throughput (RRT)	Relative read throughput associated with this power state	4
Power State 4 Relative Write Latency (RWL)	Relative write latency associated with this power state	4
Power State 4 Relative Write Throughput (RWT)	Relative write throughput associated with this power state	4
RTD3 Entry Latency (RTD3E)	Typical latency to enter Runtime D3 in microseconds	180,000 uS (0.180 sec)
RTD3 Resume Latency (RTD3R)	Typical latency resuming from Runtime D3 in microseconds	500,000 uS (0.500 sec)
Recommended Arbitration Burst (RAB)	Recommended number of commands that may be executed at one time from a particular Submission Queue as a power of two ( $2^n$ )	3 ( $2^3=8$ )
Reliability Degraded	Critical Warning: Reliability degraded due to significant media or internal errors	No
Replay Protected Memory Blocks (RPMBS)	Replay Protected Memory Blocks store data to a specific memory area in an authenticated and replay protected manner	Not Supported
Required Completion Queue Entry Size	Required Completion Queue entry size when using the NVM Command Set in bytes reported as a power of two ( $2^n$ ), from CQES	4 ( $2^4=16$ )
Required Submission Queue Entry Size	Required Submission Queue entry size when using the NVM Command Set in bytes reported as a power of two ( $2^n$ ), from SQES	6 ( $2^6=64$ )
Reservations	Controller support for reservations, from ONCS	Not Supported
Root PCI Device ID	PCI device identifier assigned for the root device	0x9DB4
Root PCI Location	PCI bus address for the root device	Bus 0, device 29, function 4
Root PCI Vendor ID	PCI vendor identifier assigned for the root device	0x8086
SGL support in NVM command	SGL support for the NVM Command Set	Not Supported
SMART Critical Warning Notices Enable	Feature 0Bh: Asynchronous event notifications sent to host for SMART Critical Warnings	0x1F
SMART/Health Log Page per Namespace	Controller support for log page attribute SMART/Health Log Page per Namespace, from LPA	Not Supported
SMBus Management Endpoint (SMBUSME)	NVME MI: NVM Subsystem contains a Management Endpoint on an SMBus/I2C port	Not Supported

Save/Select Fields in Features Command	Controller support for Save and Select Fields in Features Command, from ONCS	Supported
Secure Erase All Namespaces	Secure erase applies to all namespaces in an NVM subsystem, from FNA	Not Supported
Security Send and Security Receive Command	Controller support for Security Send and Security Receive Command, from OACS	Supported
Self-Test 1 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,251
Self-Test 1 Result	Result of Self-Test	Passed
Self-Test 1 Result Code	Numeric code returned by Self-Test	0
Self-Test 1 Type	Type of Self-Test (short, extended or vendor)	Extended Test
Self-Test 10 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,100
Self-Test 10 Result	Result of Self-Test	Passed
Self-Test 10 Result Code	Numeric code returned by Self-Test	0
Self-Test 10 Type	Type of Self-Test (short, extended or vendor)	Short Test
Self-Test 11 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,085
Self-Test 11 Result	Result of Self-Test	Passed
Self-Test 11 Result Code	Numeric code returned by Self-Test	0
Self-Test 11 Type	Type of Self-Test (short, extended or vendor)	Short Test
Self-Test 12 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,085
Self-Test 12 Result	Result of Self-Test	Passed
Self-Test 12 Result Code	Numeric code returned by Self-Test	0
Self-Test 12 Type	Type of Self-Test (short, extended or vendor)	Short Test
Self-Test 13 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,083
Self-Test 13 Result	Result of Self-Test	Passed
Self-Test 13 Result Code	Numeric code returned by Self-Test	0
Self-Test 13 Type	Type of Self-Test (short, extended or vendor)	Short Test
Self-Test 14 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,083
Self-Test 14 Result	Result of Self-Test	Passed
Self-Test 14 Result Code	Numeric code returned by Self-Test	0

Self-Test 14 Type	Type of Self-Test (short, extended or vendor)	Short Test
Self-Test 15 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,080
Self-Test 15 Result	Result of Self-Test	Passed
Self-Test 15 Result Code	Numeric code returned by Self-Test	0
Self-Test 15 Type	Type of Self-Test (short, extended or vendor)	Short Test
Self-Test 16 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,066
Self-Test 16 Result	Result of Self-Test	Passed
Self-Test 16 Result Code	Numeric code returned by Self-Test	0
Self-Test 16 Type	Type of Self-Test (short, extended or vendor)	Short Test
Self-Test 17 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,064
Self-Test 17 Result	Result of Self-Test	Passed
Self-Test 17 Result Code	Numeric code returned by Self-Test	0
Self-Test 17 Type	Type of Self-Test (short, extended or vendor)	Short Test
Self-Test 18 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,064
Self-Test 18 Result	Result of Self-Test	Passed
Self-Test 18 Result Code	Numeric code returned by Self-Test	0
Self-Test 18 Type	Type of Self-Test (short, extended or vendor)	Short Test
Self-Test 19 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,061
Self-Test 19 Result	Result of Self-Test	Passed
Self-Test 19 Result Code	Numeric code returned by Self-Test	0
Self-Test 19 Type	Type of Self-Test (short, extended or vendor)	Short Test
Self-Test 2 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,250
Self-Test 2 Result	Result of Self-Test	Passed
Self-Test 2 Result Code	Numeric code returned by Self-Test	0
Self-Test 2 Type	Type of Self-Test (short, extended or vendor)	Extended Test
Self-Test 20 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,061
Self-Test 20 Result	Result of Self-Test	Passed
Self-Test 20 Result Code	Numeric code returned by Self-Test	0

Self-Test 20 Type	Type of Self-Test (short, extended or vendor)	Short Test
Self-Test 3 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,249
Self-Test 3 Result	Result of Self-Test	Passed
Self-Test 3 Result Code	Numeric code returned by Self-Test	0
Self-Test 3 Type	Type of Self-Test (short, extended or vendor)	Short Test
Self-Test 4 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,249
Self-Test 4 Result	Result of Self-Test	Passed
Self-Test 4 Result Code	Numeric code returned by Self-Test	0
Self-Test 4 Type	Type of Self-Test (short, extended or vendor)	Short Test
Self-Test 5 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,210
Self-Test 5 Result	Result of Self-Test	Passed
Self-Test 5 Result Code	Numeric code returned by Self-Test	0
Self-Test 5 Type	Type of Self-Test (short, extended or vendor)	Short Test
Self-Test 6 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,210
Self-Test 6 Result	Result of Self-Test	Passed
Self-Test 6 Result Code	Numeric code returned by Self-Test	0
Self-Test 6 Type	Type of Self-Test (short, extended or vendor)	Short Test
Self-Test 7 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,169
Self-Test 7 Result	Result of Self-Test	Passed
Self-Test 7 Result Code	Numeric code returned by Self-Test	0
Self-Test 7 Type	Type of Self-Test (short, extended or vendor)	Short Test
Self-Test 8 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,169
Self-Test 8 Result	Result of Self-Test	Passed
Self-Test 8 Result Code	Numeric code returned by Self-Test	0
Self-Test 8 Type	Type of Self-Test (short, extended or vendor)	Short Test
Self-Test 9 Power On Hours	Number of power-on hours at the time the device self-test operation was completed or aborted	3,105
Self-Test 9 Result	Result of Self-Test	Passed
Self-Test 9 Result Code	Numeric code returned by Self-Test	0

Self-Test 9 Type	Type of Self-Test (short, extended or vendor)	Short Test
Serial Number (SN)	Serial number for the NVM subsystem assigned by the vendor	392PC53NPZXP
Size	Size in bytes	256000000000.0
Size in GiB	Total calculated size in GiB (1024*1024*1024)	238.5 GiB
Subsystem Vendor	Subsystem vendor from PCI lookup: <a href="https://pcisig.com/membership/member-companies">https://pcisig.com/membership/member-companies</a>	Toshiba
Temperature Over/Under Threshold	Critical Warning: A temperature is over or under a temperature threshold	No
Temperature Sensor 1	Current temperature reported by the temperature sensor	42 C
Temperature Sensor 1 Over Threshold	Feature 04h: Temperature Sensor over threshold limit	65,262 C
Temperature Sensor 1 Under Threshold	Feature 04h: Temperature Sensor under threshold limit	-273 C
Thermal Management Temperature 1 (TMT1)	Feature 10h: Temperature the controller transitions to lower active power states or other vendor specific actions while minimizing the impact on performance	75 C
Thermal Management Temperature 1 Count	Number of times the controller transitioned to lower power active power states or performed vendor specific thermal management actions while minimizing the impact on performance	39,044
Thermal Management Temperature 1 Time	Number of seconds controller had transitioned to lower power active power states or performed vendor specific thermal management actions while minimizing the impact on performance	211,565 Sec
Thermal Management Temperature 2 (TMT2)	Feature 10h: Temperature the controller transitions to lower active power states or other vendor specific actions regardless of the impact on performance	79 C
Thermal Management Temperature 2 Count	Number of times the controller transitioned to lower power active power states or performed vendor specific thermal management actions regardless of the impact on performance	34,349
Thermal Management Temperature 2 Time	Number of seconds controller had transitioned to lower power active power states or performed vendor specific thermal management actions regardless of the impact on performance	51,466 Sec
Time Limited Error Recovery (TLER)	Feature 05h: Limited retry timeout value	1,000 mS
Unsafe Shutdowns	Number of unsafe shutdowns	225
Vendor Specific Command Configuration	NVM Vendor Specific Commands use vendor specific or other format defined in NVMe specification, from NVSCC	Not Vendor Specific

Version (VER)	NVMe version: <a href="https://nvmexpress.org/developers/nvme-specification/">https://nvmexpress.org/developers/nvme-specification/</a>	1.2.1
Volatile Backup Failed	Critical Warning: Volatile memory backup device, if present, has failed	No
Volatile Write Cache (VWC)	Presence of a volatile write cache, from VWC	Supported
Volatile Write Cache Enable (WCE)	Feature 06h: Volatile write cache enable	Enabled
Warning Composite Temperature Threshold (WCTEMP)	Temperature that indicates an overheating condition where controller operation continues	82 C
Warning Composite Temperature Time	Time controller is operational and Composite Temperature is greater than or equal to Warning Composite Temperature Threshold and less than the Critical Composite Temperature Threshold	0 Min
Windows Power ASPM (AC)	Windows OS Power Setting for PCIe ASPM when host on AC power	Attempt L1
Windows Power ASPM (DC)	Windows OS Power Setting for PCIe ASPM when host on battery power	Attempt L1
Windows Power NOPPME (AC)	Windows OS power setting for NOPPME when host on AC power	Supported
Windows Power NOPPME (DC)	Windows OS power setting for NOPPME when host on battery power	Not Supported
Windows Power NVMe Latency 1 (AC)	Windows OS Power Setting. After timeout 1, change to lowest power state with entry+exit latency less than this when host on AC power	15 mS
Windows Power NVMe Latency 1 (DC)	Windows OS Power Setting. After timeout 1, change to lowest power state with entry+exit latency less than this when host on battery power	50 mS
Windows Power NVMe Latency 2 (AC)	Windows OS Power Setting. After timeout 2, change to lowest power state with entry+exit latency less than this when host on AC power	100 mS
Windows Power NVMe Latency 2 (DC)	Windows OS Power Setting. After timeout 2, change to lowest power state with entry+exit latency less than this when host on battery power	100 mS
Windows Power NVMe Timeout 1 (AC)	Windows OS Power Setting. Timeout to transition NVMe to first lower power state when host on AC power	200 mS
Windows Power NVMe Timeout 1 (DC)	Windows OS Power Setting. Timeout to transition NVMe to first lower power state when host on battery power	100 mS
Windows Power NVMe Timeout 2 (AC)	Windows OS Power Setting. Timeout to transition NVMe to second lower power state when host on AC power	2000 mS

Windows Power NVMe Timeout 2 (DC)	Windows OS Power Setting. Timeout to transition NVMe to second lower power state when host on battery power	1000 mS
Windows Power Plan	Name of active Windows OS Power Plan	HP Recommended
Workload Hint (WH)	Feature 02h: Type of workload expected for a given power state	0
Write Uncorrectable NVM Command	Controller support for the Write Uncorrectable NVM command, from ONCS	Supported
Write Zeroes NVM Command	Controller support for the Write Zeroes NVM command, from ONCS	Not Supported
Data Used	Percent of TBW used	26.63521133333333 34
TBW	Specification for Terabytes Written	150
Warranty Used	Percent of Warranty Used	22.3493150684931 5
Warranty Hours	Warranty In Hours	14600
Warranty Years	Warranty In Years	5
Size GB	Size in GB	256 GB
Model No Spaces	Model name with file friendly format	KBG30ZMV256G_ TOSHIBA
Model	Model name in friendly format	KBG30ZMV256G TOSHIBA
Seconds Throttled	Total time throttled in seconds	263031 Sec
Percent Throttled	Total time throttled in percent of power on hours	2.2 %
Namespace 1 Active LBA Size	Size in bytes of the active LBA for Namespace 1	512

## REFERENCES

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