goodram enterprise

ENTERPRISE DataCore

PCIe Gen4 Data Center High-Speed SSD

Sequential read

up to 6 800 MB/s

Sequential write

up to 2 000 MB/s

Random read

up to 900 000 IOPS

Random write

up to 70 000 IOPS

Interface

PCIe 4.0 x4

Capacity

up to 3,84 TB

Form factor

M.2 2280, M.2 22110, E1.S

DWPD

1

Product features

- NVMe 1.4
- AES-XTS 256-bit Encryption
- TCG Opal 2.0 Support
- End-to-End Data Path Protection
- NVMe-MI (Management Interface)
- SMBus
- 64 Namespaces
- SECDED
- Power Loss Protection (PLP)
- Sanitize

Solutions - DC10M

Form factor M.2 2280			
Capacity[1]	480 GB	960 GB	1.92 TB
Interface	PCIe 4.0 x4	PCIe 4.0 x4	PCIe 4.0 x4
NVMe	1.4	1.4	1.4
NAND Flash	3D TLC	3D TLC	3D TLC
Performance[2,3,4,5]			
Sequential read to (MB/s)	6 000	6 000	6 000
Sequential write to (MB/s)	700	1 400	1 800
4K random read to (IOPS)	450 000	750 000	800 000
4K random write to (IOPS)	25 000	50 000	60 000
Read latency (Typ.,µs)	75	75	75
Write latency (Typ.,µs)	40	35	35
Power consumption[6]			
Active (W)	7.9	9.5	9.8
Idle (W)	3.5	3.5	3.5
Endurance/Reliability			
DWPD[7]	1	1	1
TBW[8]	850 TB	1.8 PB	3.7 PB
UBER[9]	< 1 sector per 10^{17} bits read	< 1 sector per 10^{17} bits read	< 1 sector per 10^{17} bits read
MTBF (hours)[10]	2 000 000	2 000 000	2 000 000
Limited warranty (years)[11]	5	5	5
Temperature			
Operating temp. (°C)	0 – 70	0 – 70	0 – 70
Non-operating temp. (°C)	-40 – 85	-40 – 85	-40 – 85
Physical dimension			
Length (mm)	80.00	80.00	80.00
Width (mm)	22.00	22.00	22.00
Height (mm)	4.08	4.08	4.08
Weight (g)	11.00	11.00	11.00

* A detailed explanation of symbols and markings is provided on the final page.

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Solutions - DC10M

Form factor M.2 22110				
Capacity[1]	480 GB	960 GB	1.92 TB	3.84 TB
Interface	PCIe 4.0 x4	PCIe 4.0 x4	PCIe 4.0 x4	PCIe 4.0 x4
NVMe	1.4	1.4	1.4	1.4
NAND Flash	3D TLC	3D TLC	3D TLC	3D TLC
Performance[2,3,4,5]				
Sequential read to (MB/s)	6 000	6 000	6 000	3 700
Sequential write to (MB/s)	700	1 400	1 800	1 700
4K random read to (IOPS)	450 000	750 000	800 000	400 000
4K random write to (IOPS)	25 000	50 000	60 000	40 000
Read latency (Typ.,µs)	75	75	75	80
Write latency (Typ.,µs)	40	35	35	25
Power consumption[6]				
Active (W)	7.9	9.5	9.8	10.8
Idle (W)	3.5	3.5	3.5	3.5
Endurance/Reliability				
DWPD[7]	1	1	1	1
TBW[8]	850 TB	1.8 PB	3.7 PB	7.5 PB
UBER[9]	< 1 sector per 10^{17} bits read	< 1 sector per 10^{17} bits read	< 1 sector per 10^{17} bits read	< 1 sector per 10^{17} bits read
MTBF (hours)[10]	2 000 000	2 000 000	2 000 000	2 000 000
Limited warranty (years)[11]	5	5	5	5
Temperature				
Operating temp. (°C)	0 – 70	0 – 70	0 – 70	0 – 70
Non-operating temp. (°C)	-40 – 85	-40 – 85	-40 – 85	-40 – 85
Physical dimension				
Length (mm)	110.00	110.00	110.00	110.00
Width (mm)	22.00	22.00	22.00	22.00
Height (mm)	4.08	4.08	4.08	4.08
Weight (g)	13.00	13.00	13.00	15.00

* A detailed explanation of symbols and markings is provided on the final page.

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Solutions - DC10M

Form factor E1.S				
Capacity[1]	480 GB	960 GB	1.92 TB	3.84 TB
Interface	PCIe 4.0 x4	PCIe 4.0 x4	PCIe 4.0 x4	PCIe 4.0 x4
NVMe	1.4	1.4	1.4	1.4
NAND Flash	3D TLC	3D TLC	3D TLC	3D TLC
Performance[2,3,4,5]				
Sequential read to (MB/s)	6 500	6 800	6 800	6 800
Sequential write to (MB/s)	700	1 400	2 000	1 700
4K random read to (IOPS)	450 000	800 000	900 000	650 000
4K random write to (IOPS)	25 000	50 000	60 000	70 000
Read latency (Typ.,µs)	75	75	75	80
Write latency (Typ.,µs)	40	30	25	25
Power consumption[6]				
Active (W)	9.5	10.5	13.5	12.5
Idle (W)	4	4	4.2	4.2
Endurance/Reliability				
DWPD[7]	1	1	1	1
TBW[8]	850 TB	1.8 PB	3.7 PB	7.5 PB
UBER[9]	< 1 sector per 10^{17} bits read	< 1 sector per 10^{17} bits read	< 1 sector per 10^{17} bits read	< 1 sector per 10^{17} bits read
MTBF (hours)[10]	2 000 000	2 000 000	2 000 000	2 000 000
Limited warranty (years)[11]	5	5	5	5
Temperature				
Operating temp. (°C)	0 – 70	0 – 70	0 – 70	0 – 70
Non-operating temp. (°C)	-40 – 85	-40 – 85	-40 – 85	-40 – 85
Physical dimension				
Length (mm)	118.75	118.75	118.75	118.75
Width (mm)	33.75	33.75	33.75	33.75
Height (mm)	9.50	9.50	9.50	9.50
Weight (g)	63.00	63.00	63.00	63.00

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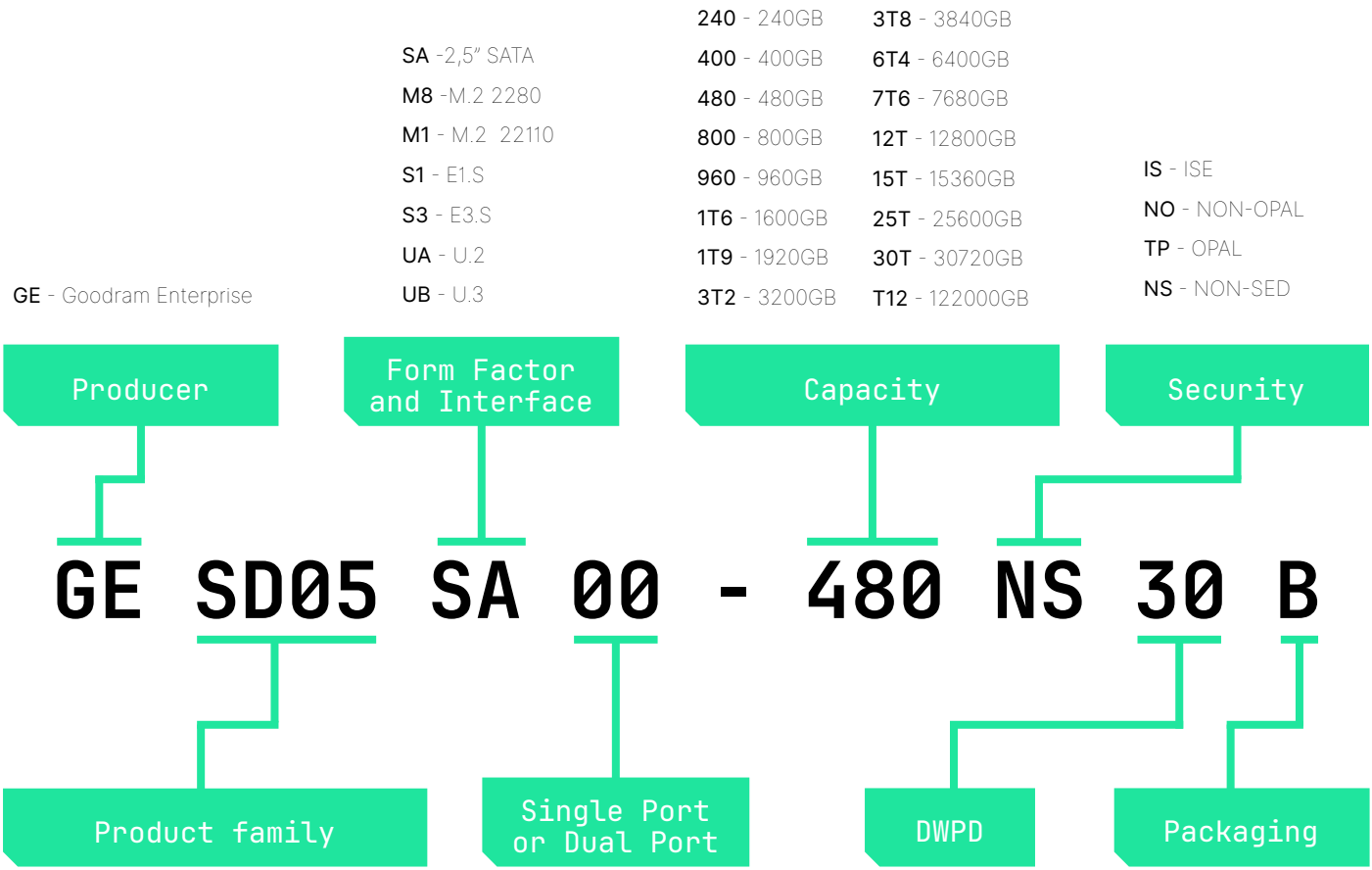
Decoder P/N



US10 - UltraSpeed Series PCIe Gen4×4
US20 - UltraSpeed Series PCIe Gen5×4
DC10 - DataCore Series PCIe Gen4×4
DC20 - DataCore Series PCIe Gen5×4
DC25 - DataCore Series PCIe Gen5×4
BS10 - BootSystem Series PCIe Gen4×4
BS05 - BootSystem Series SATA III
SD05 - SATADrive Series SATA III

SP - Single Port
DP - Dual Port
00 - None

03 - 0,3
04 - 0,4
05 - 0,5
10 - 1
30 - 3

B - GOODRAM BULK

Legend

(1) 1 TB = 10^{12} bytes.

(2) Sequential Performance is based on FIO on Linux, 128 K, with QD=32, 1 worker.

(3) Random Performance is based on FIO on Linux, 4 K data size, QD=32, 8 workers.

(4) Latency is measured with random workloads based on FIO on Linux, 4 KB data size, QD=1, 1 worker.

(5) Sequential performance is based on FIO (Flexible I/O Tester - an open source tool used to measure the performance of input/output (I/O) operations for disk drives and storage systems under various test scenarios) on Linux, 128 K, with QD=32, 1 worker.

(6) Power consumption (Maximum RMS) is measured during the sequential read/write and random read/write operations performed by iometer with the conditions described in (2)(3).

(7) The results of DWPD are obtained in compliance with JESD219A Standards.

(8) 1 PB = 1000 TB, 1 TB = 10^{12} bytes.

(9) UBER (Uncorrectable Bit Error Rate) – a measure of data storage reliability, indicating the number of uncorrectable bit errors per amount of data read. This value shows how often errors may occur that cannot be corrected using internal ECC (Error Correction Code) mechanisms.

(10) Please note that a lower MTBF should be expected for higher capacity drives, and we apply the lowest MTBF for all capacities.

(11) We warrant that each Product manufactured and delivered by Wilk Elektronik SA will comply with the specifications for five (5) years from the date of delivery or until the total number of stored terabytes specified in the S.M.A.R.T. attribute is exceeded, whichever occurs first.

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