ENTERPRISE X-SERIES

SA50 Highly Customizable and High-Endurance SATA SSD for your Enterprise

Miphi SA50 SSD is a highly customizable SATA SSD solution line that scales to 15.36TB (SA50V) and up to 3 DWPD (SA50E) giving you ample options for your diverse application and cold storage needs.

Product Features

Reliability
The SA50 Series SSD leverages Miphi's 4th generation LDPC ECC engine which can correct up to 160 bits for each 2048 byte block through the hard decoder, and up to 400 bits for each 2048 byte block using the soft decoder. This ensures customers' data is protected throughout the life of the SSD.

Excellent Scalability
The SA50 supports up to 8 NAND flash data transmitting channels with up to 32 Chip Enable (CE) counts running on mainstream NAND flash interfaces in ONFI and Toggle and allowing capacity scaling from 240 GB up to 15.36 TB.

SATA Compatibility
The SA50 Series SSD is plug wise compatible with SATA backplanes, making it easy to install in existing backplanes as new storage, or to replace HDDs with a performance upgrade.

End-to-End Data Path Protection
From the moment data enters the SA50 Series SSD, a parity bit is generated that follows each byte from the interface to the NAND storage area ensuring user data has the maximum protection in integrity.

Solutions - SA50E

2.5”					
	Capacity [1]	**480GB**	**960GB**	**1920GB**	**3840GB**
Performance [2,3] (Est.)	Sequential Read	500 MB/s	530 MB/s	530 MB/s	530 MB/s
	Sequential Write	440 MB/s	500 MB/s	500 MB/s	500 MB/s
	4K Random Read	95K IOPS	98K IOPS	98K IOPS	98K IOPS
	4K Random Write	40K IOPS	67K IOPS	77K IOPS	68K IOPS
Power Consumption [4] (Est.)	Max	2.9 W	3.2 W	3.3 W	3.5 W
	Idle	1.3 W	1.4 W	1.4 W	1.6 W
Latency (Est.)	4K Random Read	130 us	125 us	130 us	125 us
	4K Random Write	30 us	30 us	30 us	30 us

Features	
Interface	SATA III
NAND Flash	3D TLC
DWPD [5]	3
UBER	1 in 10^{17}
Operating Temperature	0°C - 70°C
Non-Operating Temperature	-40°C - 85°C
MTBF (million hours)	2

Key Features

- LDPC
- Power Loss Data Protection
- End-to-End Data Protection

Part Number				
Non-SED	MPSA50E480G-N	MPSA50E960G-N	MPSA50E1920G-N	MPSA50E3840G-N
SED	MPSA50E480G-S	MPSA50E960G-S	MPSA50E1920G-S	MPSA50E3840G-S

(1) 1 GB = 1,000,000,000 bytes.
(2) Sequential Performance is based on FIO on Linux, 128K, with QD=32, 1 worker, and test drive set as secondary.
(3) Random Performance is based on FIO on Linux, 4K data size, QD=32, 1 worker, 4K aligned.
(4) Power consumption is measured during the sequential read/write and random read/write operations performed by iometer with the conditions described in (2)(3).
(5) The results of DWPD are obtained in compliance with JESD219A Standards.

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Solutions - SA50P

2.5”						
	Capacity[1]	480GB	960GB	1920GB	3840GB	7680GB
Performance[2],[3]	Sequential Read	530 MB/s	530 MB/s	530 MB/s	530 MB/s	530 MB/s
	Sequential Write	360 MB/s	500 MB/s	500 MB/s	500 MB/s	500 MB/s
	4K Random Read	92K IOPS	98K IOPS	98K IOPS	98K IOPS	97K IOPS
	4K Random Write	20K IOPS	33K IOPS	40K IOPS	30K IOPS	23K IOPS
Power Consumption[4]	Max	2.7 W	3.1 W	3.1 W	3.4 W	3.8 W
	Idle	1.3 W	1.3 W	1.4 W	1.5 W	1.6 W
Latency	4K Random Read	140 us	120 us	120 us	130 us	160 us
	4K Random Write	50 us	40 us	30 us	35 us	45 us

Features	
Interface	SATA III
NAND Flash	3D TLC
DWPD[5]	1
UBER Operating	1 in 10^{17}
Temperature	0°C - 70°C
Non-operating Temperature	-40°C - 85°C
MTBF (million hours)	2

Key Features

- LDPC
- Power Loss Data Protection
- End-to-End Data Protection

Part Number					
Non-SED	MPSA50P480G-N	MPSA50P960G-N	MPSA50P1920G-N	MPSA50E3840G-N	MPSA50P7680G-N
SED	MPSA50P480G-S	MPSA50P960G-S	MPSA50P1920G-S	MPSA50P3840G-S	MPSA50P7680G-S

(1) 1 GB = 1,000,000,000 bytes.
(2) Sequential Performance is based on FIO on Linux, 128K, with QD=32, 1 worker, and test drive set as secondary.
(3) Random Performance is based on FIO on Linux, 4K data size, QD=32, 1 worker, 4K aligned.
(4) Power consumption is measured during the sequential read/write and random read/write operations performed by iometer with the conditions described in (2)(3).
(5) The results of DWPD are obtained in compliance with JESD219A Standards.

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Solutions - SA50V

2.5”					
	Capacity[1]	**1920GB**	**3840GB**	**7680GB**	**15360GB**
Performance[2,3]	Sequential Read	530 MB/s	530 MB/s	530 MB/s	530 MB/s
	Sequential Write	500 MB/s	500 MB/s	500 MB/s	500 MB/s
	4K Random Read	94K IOPS	97K IOPS	97K IOPS	94K IOPS
	4K Random Write	13K IOPS	20K IOPS	14K IOPS	10K IOPS
Power Consumption[4]	Max	3.8 W	4.4 W	5.1 W	5.4 W
	Idle	1.4 W	1.5 W	1.8 W	1.9 W
Latency	4K Random Read	135 us	130 us	140 us	165 us
	4K Random Write	55 us	40 us	55 us	65 us

Features	
Interface	SATA III
NAND Flash	3D TLC
DWPD[5]	>0.4
UBER	1 in 10^{17}
Operating Temperature	0°C - 70°C
Non-Operating Temperature	-40°C - 85°C
MTBF (million hours)	2

Key Features

- LDPC
- Power Loss Data Protection
- End-to-End Data Protection

Part Number				
Non-SED	MPSA50V1920G-N	MPSA50V3840G-N	MPSA50V7680G-N	MPSA50V15360G-N
SED	MPSA50V1920G-S	MPSA50V3840G-S	MPSA50V7680G-S	MPSA50V15360G-S

(1) 1 GB = 1,000,000,000 bytes.
(2) Sequential Performance is based on FIO on Linux, 128K, with QD=32, 1 worker, and test drive set as secondary.
(3) Random Performance is based on FIO on Linux, 4K data size, QD=32, 1 worker, 4K aligned.
(4) Power consumption is measured during the sequential read/write and random read/write operations performed by iometer with the conditions described in (2)(3).
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