



ENTERPRISE S-SERIES

# Reliable SATA Storage Engineered for Enterprise Demands

PASCARI SA52

## Sequential Read

Up to 530 MB/s

## Sequential Write

Up to 500 MB/s

## Random Read

Up to 98K IOPS

## Random Write

Up to 75K IOPS

## Interface

SATA III

## Capacity

Up to 15.36TB

## Form Factor

2.5"

## DWPD

1,3



## Product Features

- Power Loss Protection (PLP)
- TCG Opal 2.0 Support
- AES-XTS 256-bit Encryption
- End-to-End Data Path Protection

**PHISON**

## Solutions – SA52P

| Form Factor 2.5"                 |                                           |                                           |                                           |                                           |                                           |                                           |                                           |
|----------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
| Capacity <sup>(1)</sup>          | 240GB                                     | 480GB                                     | 960GB                                     | 1.92TB                                    | 3.84TB                                    | 7.68TB                                    | 15.36TB                                   |
| Interface                        | SATA III                                  | SATA III                                  | SATA III                                  | SATA III                                  | SATA III                                  | SATA III                                  | SATA III                                  |
| NAND Flash                       | 3D TLC                                    | 3D TLC                                    | 3D TLC                                    | 3D TLC                                    | 3D TLC                                    | 3D TLC                                    | 3D TLC                                    |
| Performance <sup>(2,3,4)</sup>   |                                           |                                           |                                           |                                           |                                           |                                           |                                           |
| Sequential Read (MB/s)           | 530                                       | 530                                       | 530                                       | 530                                       | 530                                       | 530                                       | 530                                       |
| Sequential Write (MB/s)          | 400                                       | 500                                       | 500                                       | 500                                       | 500                                       | 500                                       | 500                                       |
| 4K Random Read (IOPS)            | 88K                                       | 94K                                       | 98K                                       | 98K                                       | 98K                                       | 98K                                       | 98K                                       |
| 4K Random Write (IOPS)           | 12K                                       | 24K                                       | 30K                                       | 35K                                       | 30K                                       | 19K                                       | 19K                                       |
| Read Latency (Typ., us)          | 110                                       | 110                                       | 110                                       | 110                                       | 110                                       | 120                                       | 185                                       |
| Write Latency (Typ., us)         | 75                                        | 45                                        | 45                                        | 45                                        | 45                                        | 45                                        | 65                                        |
| Power Consumption <sup>(5)</sup> |                                           |                                           |                                           |                                           |                                           |                                           |                                           |
| Active (W)                       | 2.4                                       | 2.9                                       | 3.3                                       | 3.4                                       | 3.0                                       | 3.0                                       | 3.7                                       |
| Idle (W)                         | 1.3                                       | 1.3                                       | 1.4                                       | 1.5                                       | 1.6                                       | 1.7                                       | 1.7                                       |
| Endurance/Reliability            |                                           |                                           |                                           |                                           |                                           |                                           |                                           |
| DWPD <sup>(6)</sup>              | 1                                         | 1                                         | 1                                         | 1                                         | 1                                         | 1                                         | 1                                         |
| UBER                             | < 1 sector per 10 <sup>17</sup> bits read | < 1 sector per 10 <sup>17</sup> bits read | < 1 sector per 10 <sup>17</sup> bits read | < 1 sector per 10 <sup>17</sup> bits read | < 1 sector per 10 <sup>17</sup> bits read | < 1 sector per 10 <sup>17</sup> bits read | < 1 sector per 10 <sup>17</sup> bits read |
| MTBF (million hours)             | 2.0                                       | 2.0                                       | 2.0                                       | 2.0                                       | 2.0                                       | 2.0                                       | 2.0                                       |
| Limited Warranty (years)         | 5                                         | 5                                         | 5                                         | 5                                         | 5                                         | 5                                         | 5                                         |
| Temperature                      |                                           |                                           |                                           |                                           |                                           |                                           |                                           |
| Operating Temp. (°C)             | 0 - 70                                    | 0 - 70                                    | 0 - 70                                    | 0 - 70                                    | 0 - 70                                    | 0 - 70                                    | 0 - 70                                    |
| Non-Operating Temp. (°C)         | -40 - 85                                  | -40 - 85                                  | -40 - 85                                  | -40 - 85                                  | -40 - 85                                  | -40 - 85                                  | -40 - 85                                  |
| Physical Dimension               |                                           |                                           |                                           |                                           |                                           |                                           |                                           |
| Length (mm)                      | 100.00                                    | 100.00                                    | 100.00                                    | 100.00                                    | 100.00                                    | 100.00                                    | 100.00                                    |
| Width (mm)                       | 69.85                                     | 69.85                                     | 69.85                                     | 69.85                                     | 69.85                                     | 69.85                                     | 69.85                                     |
| Height (mm)                      | 7.00                                      | 7.00                                      | 7.00                                      | 7.00                                      | 7.00                                      | 7.00                                      | 7.00                                      |
| Weight (g)                       | 56                                        | 57                                        | 59                                        | 59                                        | 61                                        | 62                                        | 67                                        |
| Part Number                      |                                           |                                           |                                           |                                           |                                           |                                           |                                           |
| Non-SED FW                       | S1201K05240<br>GP02256G00                 | S1201K05480<br>GP02512G00                 | S1201K05960<br>GP021T0200                 | S1201K051T9<br>2P022T0400                 | S1201K053T8<br>4P024T0900                 | S1201K077T6<br>8P024T0900                 | S1201K0715T<br>3P0216T300                 |
| SED FW                           | S1201K05240<br>GP22256G00                 | S1201K05480<br>GP22512G00                 | S1201K05960<br>GP221T0200                 | S1201K051T9<br>2P222T0400                 | S1201K053T8<br>4P224T0900                 | S1201K077T6<br>8P224T0900                 | S1201K0715T<br>3P2216T300                 |

(1) 1 GB = 10<sup>9</sup> bytes.

(2) Sequential Performance is based on FIO on Linux, 128KB data size, with QD=32, 1 job.

(3) Random Performance is based on FIO on Linux, 4KB data size, QD=32, 1 job.

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

(5) Power consumption (average RMS) is measured during the sequential read/write and random read/write operations performed by iometer.

(6) The results of DWPD are obtained in compliance with JESD219A standards.



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## Solutions – SA52E

| Form Factor 2.5"                 |                                           |                                           |                                           |                                           |
|----------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
| Capacity <sup>(1)</sup>          | 480GB                                     | 960GB                                     | 1.92TB                                    | 3.84TB                                    |
| Interface                        | SATA III                                  | SATA III                                  | SATA III                                  | SATA III                                  |
| NAND Flash                       | 3D TLC                                    | 3D TLC                                    | 3D TLC                                    | 3D TLC                                    |
| Performance <sup>(2,3,4)</sup>   |                                           |                                           |                                           |                                           |
| Sequential Read (MB/s)           | 530                                       | 530                                       | 530                                       | 530                                       |
| Sequential Write (MB/s)          | 500                                       | 500                                       | 500                                       | 500                                       |
| 4K Random Read (IOPS)            | 98K                                       | 98K                                       | 98K                                       | 98K                                       |
| 4K Random Write (IOPS)           | 60K                                       | 67K                                       | 75K                                       | 67K                                       |
| Read Latency (Typ., us)          | 110                                       | 110                                       | 110                                       | 110                                       |
| Write Latency (Typ., us)         | 35                                        | 35                                        | 35                                        | 35                                        |
| Power Consumption <sup>(5)</sup> |                                           |                                           |                                           |                                           |
| Active (W)                       | 2.8                                       | 2.9                                       | 3.2                                       | 3.6                                       |
| Idle (W)                         | 1.4                                       | 1.5                                       | 1.5                                       | 1.8                                       |
| Endurance/Reliability            |                                           |                                           |                                           |                                           |
| DWPD <sup>(6)</sup>              | 3                                         | 3                                         | 3                                         | 3                                         |
| UBER                             | < 1 sector per 10 <sup>17</sup> bits read | < 1 sector per 10 <sup>17</sup> bits read | < 1 sector per 10 <sup>17</sup> bits read | < 1 sector per 10 <sup>17</sup> bits read |
| MTBF (million hours)             | 2.0                                       | 2.0                                       | 2.0                                       | 2.0                                       |
| Limited Warranty (years)         | 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)                      | 100.00                                    | 100.00                                    | 100.00                                    | 100.00                                    |
| Width (mm)                       | 69.85                                     | 69.85                                     | 69.85                                     | 69.85                                     |
| Height (mm)                      | 7.00                                      | 7.00                                      | 7.00                                      | 7.00                                      |
| Weight (g)                       | 57                                        | 59                                        | 59                                        | 61                                        |
| Part Number                      |                                           |                                           |                                           |                                           |
| Non-SED FW                       | S1201K05480<br>GE02640G00                 | S1201K05960<br>GE021T2800                 | S1201K051T9<br>2E022T5600                 | S1201K053T8<br>4E025T1200                 |
| SED FW                           | S1201K05480<br>GE22640G00                 | S1201K05960<br>GE221T2800                 | S1201K051T9<br>2E222T5600                 | S1201K053T8<br>4E225T1200                 |

(1) 1 GB = 10<sup>9</sup> bytes.

(2) Sequential Performance is based on FIO on Linux, 128KB data size, with QD=32, 1 job.

(3) Random Performance is based on FIO on Linux, 4KB data size, QD=32, 1 job.

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

(5) Power consumption (average RMS) is measured during the sequential read/write and random read/write operations performed by iometer.

(6) The results of DWPD are obtained in compliance with JESD219A standards.



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