Target

M.2 NVMe PCIe SSD specification

(SM961)
IF THERE IS ANY OTHER OPERATION TO IMPLEMENT IN ADDITION TO SPECIFICATION IN THE DATASHEET OR JEDEC STANDARD, PLEASE CONTACT EACH BRANCH OFFICE OR HEADQUARTERS OF SAMSUNG ELECTRONICS.

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**Revision History**

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<th>Revision No.</th>
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<td>0.1</td>
<td>1. Initial issue</td>
<td>Apr 15, 2016</td>
<td>Target</td>
<td>Brian Chae</td>
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Target Rev. 0.1 SSD
SM961 Series

### FEATURES (TBD)
- PCIe Gen3 8Gb/s Interface, up to 4 Lanes
- Compliant with PCI Express Base Specification Rev. 3.0
- Compliant with PCI Express CEM Specification Rev. 3.0
- Partially Compliant with NVMe Express specification Rev. 1.2
- Power Saving Modes:
  - Supporting APST
  - Supporting L1.2 Mode
- Support Admin & NVM Command Set
- RoHS Compliant

### Environmental Specifications (TBD)
- Temperature
  - Operating: 0°C to 70°C
  - Non-operating: -40°C to 85°C
- Humidity (non-condensing)
  - 5 ~ 95%
- Linear Shock (0.5ms duration with 1/2 sine wave)
  - Non-operating: 1,500 G
- Vibration
  - Non-operating: (10 ~ 2,000 Hz, Sinusoidal)
  - 20 G

### Drive Configuration (TBD)
- Capacity
  - 128GB
  - 256GB
  - 512GB
  - 1TB
- From Factor: M.2
- Interface: PCI Express Gen3 x4
- Bytes per Sector: 512 Bytes

### Performance Specifications (TBD)
- Data Transfer Rate (128KB)
  - Sequential Read
    - (1TB/512GB) Up to 3200 MB/s
    - (256/128GB) Up to 3100 MB/s
  - Sequential Write
    - (1TB) Up to 1800 MB/s
    - (512GB) Up to 1700 MB/s
    - (256GB) Up to 1400 MB/s
    - (128GB) Up to 700 MB/s
- Data I/O Speed (4KB)
  - Random Read
    - (1TB) Up to 450K IOPS
    - (512/256/128GB) Up to 330K IOPS
  - Random Write
    - (1TB) Up to 320K IOPS
    - (512GB) Up to 300K IOPS
    - (256GB) Up to 280K IOPS
    - (128GB) Up to 170K IOPS

### PHYSICAL DIMENSION (TBD)
- Width: 22.00 ± 0.15 mm
- Length: 80.00 ± 0.15 mm
- Height: Max. 2.38 mm
- Weight: Up to 8 g

### POWER REQUIREMENTS (TBD)
- Supply Voltage / Tolerance: +3.3V ± 5%
- Voltage Ripple/Noise (max.): 100mV p-p
- Active5 (Typ., RMS)
  - - Read: 5.9 W
  - - Write: 5.7 W
- Idle6 (Typ.)
  - L1.27 (Typ): 2.5 mW

### Reliability Specifications (TBD)
- UBER: < 1 sector per 10^{15} bits read
- MTBF: 1.5 Million Hours

Specifications are subject to change without notice.

1) 1MB = 1,000,000 Bytes, 1GB = 1,000,000,000 Bytes, Unformatted Capacity. User accessible capacity may vary depending on operating environment and formatting.
2) 1 Sector = 512Bytes, Max. LBA represents the total user addressable sectors in LBA mode and calculated by IDEMA rule.
3) Actual performance may vary depending on use conditions and environment.
4) Measured by SMART Temperature. Proper airflow recommended.
5) Active power is measured on sequential write and read.
6) Idle Power is measured on idle status with L1.