swissbit®

powersafe™

Product Fact Sheet

High Endurance M.2 PCIe SSD

A1200 Series

PCIe 4.0, 3D TLC

Commercial Temperature Grade

Date: April 08, 2025
Revision: 1.03

Made in Germany

Product Summary

- **Capacities:** 480 GBytes, 960 GBytes, 1.92 TBytes
- **Form Factor:** PCI Express M.2 2280
  - Without heatsink (80 mm x 22 mm x 3.8 mm)
  - With heatsink (80.4 mm x 24.12mm x 10.7 mm)
- **Compliance:**
  - PCI Express (PCIe) Specification Revision 4.0
  - NVM Express Specification Revision 1.4
  - NVM Express Management Interface Revision 1.1
- **Interface:** Gen4 x 4 Lanes
  - Drive operates in x1 mode in x1 M.2 PCIe slots
  - Drive operates in x2 mode in x2 M.2 PCIe slots
  - Drive operates in x4 mode in x4 M.2 PCIe slots
- **Command Sets:** Supports NVMe 1.4
- **Performance:**
  - Sequential Read up to 6,810 MB/s, Random Read up to 1,220,000 IOPS
  - Sequential Write up to 1,890 MB/s, Random Write up to 425,000 IOPS
- **Operating Temperature Range:**
  - Commercial 0 °C to 70 °C
- **Storage Temperature Range:**
  - -40 °C to 85 °C
- **Power:**
  - Thermal Throttling supported
- **Data Retention[1]:**
  - 3 months @ 40 °C (Life End)
- **Shock/Vibration: 1,500 g / 50 g**
  - 1,500 g / 50 g
- **High-Performance Processor with Integrated, Parallel Flash Interface Engines:**
  - Triple-Level Cell (TLC) 3D NAND Flash
- **High Reliability:**
  - Mean Time Between Failure (MTBF): > 2,500,000 hours
  - Data Reliability UBER: <1 Sector per 10^{17} Read
- **Endurance DWPD (5years EP WL):** 1

[1] NAND Flash suppliers refer to JEDEC JESD47 and JESD22 for Data Retention testing. Based on the information provided by the NAND Flash suppliers, Data Retention is targeted as shown

Product Features

- End-to-End (E2E) Data Protection
- Adaptive thermal control
- DRAM-Buffer
- Management Interface
  - NVMe-MI Basic Management Command Appendix A over SMBus
  - NVMe-MI In Band
  - NVMe-MI Out of Band over SMBus (MCTP)
- 30 µinch (0.8 µm) Gold-Plated Connector (IPC-6012C Class 2 Compliant)
- Multi-Namespace Support up to 64
- powersafe™ Functionality (Power Loss Protection Level 3)
- In-Field Firmware Update[2]
- Self-Monitoring, Analysis, and Reporting Technology (S.M.A.R.T.)
- Swissbit Device Manager Tool (SBDM)
- Drive Self-Test
- Diagnostic Features
- Data Care Management
  - Active: Adaptive Read Refresh
  - Passive: Background Media Scan
- Sanitize Block and Crypto Erase
- Life End Read Only Mode
- RAID Engine
- Controlled "Locked" BOM
- RoHS / REACH Compliant

Security features

- AES256 encryption
- TCG OPAL 2.0
- Crypto erase
- Secure Boot
  - RSA3072 FW Image authentication support
  - SHA2-512 hash algorithm support
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Why Swissbit?

Swissbit is focused on the design, development, manufacture, and support of leading edge memory and storage solutions for the worldwide OEM/ODM marketplace. As a global supplier, Swissbit recognizes and addresses the higher level of application requirements of today's industrial, Netcom, and automotive customers by providing best-in-class products and services, with uncompromised attention to driving overall value and quality.

[2] The support of In-Field FW update capabilities on host systems is recommended.