swissbit®

Product Fact Sheet

Industrial M.2 PCIe SSD

N-30m2 Series

PCIe 3.1, 3D TLC

Industrial Temperature Grade

Date: February 23, 2023
Revision: 1.01

Made in Germany

Product Summary

- **Capacities:** 240 GBytes, 480 GBytes, 960 GBytes, 1920 GBytes, 3840 GBytes
- **Form Factor:** PCI Express M.2 2242/2280 (42/80 mm x 22 mm x 3.8 mm)
- **Compliance[1]:** PCI Express (PCIe) Base Specification Revision 3.1
- **Interface:** Gen3 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
- **Target Performance:**
  - Read Performance: Sequential Read up to 3,510 MBytes/s, Random Read 4K up to 475,900 IOPS
  - Write Performance: Sequential Write up to 3,110 MBytes/s, Random Write 4K up to 520,000 IOPS
- **Operating Temperature Range[2]:**
  - Industrial: -40 °C to 85 °C
- **Storage Temperature Range:** -40 °C to 85 °C
- **Power:**
  - Power States PS0, PS1, PS2, PS3 and PS4
  - Thermal Throttling supported
- **Data Retention[3]:** 10 Years @ Life Begin; 1 Year @ Life End, @40°C
- **Shock/Vibration:** 1,500 *g* / 50 *g*
- **High-Performance Processor with Integrated, Parallel Flash Interface Engines:**
  - Triple-Level Cell (TLC) 3D NAND Flash
  - DDR4 DRAM based Controller architecture
  - 240 bit LDPC correction per 2 kByte
- **High Reliability:**
  - Mean Time Between Failure (MTBF): > 3,000,000 hours
  - Data Reliability: < 1 non-recoverable error per 10^{16} bits read

[1] To check the compatibility of the customer system and the storage device is part of the customer's responsibility. Swissbit can provide guidance and support on request.
[2] Adequate airflow is required to ensure the temperature, as reported in the S.M.A.R.T. data, does not exceed 125°C (industrial temperature drive).
[3] 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

- Dynamic and Static Wear Leveling
- Subpage Mode Flash Translation Layer (FTL)
- Data Care Management
  - Active: Adaptive Read Refresh
  - Passive: Background Media Scan
- Lifetime Enhancements
  - Dynamic Bad Block Remapping
  - Write Amplification Reduction
- Data set management support (TRIM)
- Active State Power Management (ASPM) Support
- In-Field Firmware Update[4]
- Enterprise-Grade Self-Monitoring, Analysis, and Reporting Technology (S.M.A.R.T., Telemetry)
- 30 µinch (0.8 µm) Gold-Plated Connector (IPC-6012C Class 2 Compliant)
- End-to-End (E2E) Data Protection
- On-Board Power Fail Protection
- AES256 Encryption
- TCG Opal (on request)
- Crypto erase
- Life Cycle Management
- Controlled "Locked" BOM
- RoHS / REACH Compliant
- Swissbit Life Time Monitoring (SBLTM) Tool and SDK for SBLTM (on request)

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 addressees 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.

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