

# swissbit®

## Product Fact Sheet

### Industrial M.2 SATA SSD

### X-78m2 2280 Series

SATA Gen3 – 6.0 Gbit/s, 3D pSLC

Industrial Temperature Grade

Date: June 14, 2022  
Revision: 1.00



## Product Summary

- **Capacities:** 80 GBytes, 160 GBytes, 320 GBytes
- **Form Factor<sup>1</sup>:** PCI Express™ M.2 (2280) (80 mm x 22 mm x 3.58 mm)
- **Compliance:** SATA Gen3 – 6 Gbit/s (Gen2 – 3 Gbit/s and Gen1 – 1.5 Gbit/s backward compatible)
- **Command Sets:** Supports ATA/ATAPI-8 and ACS-2
- **Performance:**
  - Read Performance: Sequential Read up to 560 MBytes/s, Random Read 4K up to 72,900 IOPS
  - Write Performance: Sequential Write up to 485 MBytes/s, Random Write 4K up to 85,900 IOPS
- **Operating Temperature Range<sup>2</sup>:**
  - Industrial: -40 °C to 85 °C
- **Storage Temperature Range:** -40 °C to 85 °C
- **Operating Voltage:** 3.3 V ± 5%
- **Power (Max):** Read (Active): 2.0 W; Write (Active): 2.3 W; Idle: 380 mW; Partial: 115 mW
- **Data Retention:** Seq / Client WL: 10 Years at Start, 1 Year at EOL; Enterprise WL: 10 Years at Start, 1 Year at 75% of TBW limit, 3 months at EOL
- **Endurance in TeraBytes Written (TBW) @ Max Capacity<sup>3</sup>:** Sequential WL ≥ 28,060; Client WL ≥ 21,200; Enterprise WL ≥ 5,515
- **Shock/Vibration:** 1,500 g / 50 g
- **LDPC ECC** with up to 165 bit correction per 1 KByte page
- **NAND Flash Technology:** Triple-Level Cell (TLC) 3D NAND Flash in pSLC Mode
- **Mean Time Between Failure:** > 2,000,000 hours
- **Data Reliability:** < 1 non-recoverable error per 10<sup>16</sup> bits read

## Product Features

- Dynamic and Static Wear Leveling
- Active and Passive Data Care Management
- Lifetime Enhancements
  - Dynamic Bad Block Remapping
  - Write Amplification Reduction
- On-Board Power Fail Protection
- TRIM and NCQ Support
- ATA Security Feature Set Support
- In-Field Firmware Update
- Enterprise-Grade Self-Monitoring, Analysis, and Reporting Technology (S.M.A.R.T.)
- 30 µinch Gold-Plated Connector (IPC-6012B Class 2 Compliant)
- End-to-End (E2E) Data Protection
- AES256 Encryption (on request)
- TCG OPAL 2.0 Compliant (on request)
- 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 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.

<sup>1</sup> The verification of the host system and storage device compatibility is the customer's responsibility. Swissbit can provide guidance and support upon request.

<sup>2</sup> Adequate airflow is required to ensure the temperature, as reported in the S.M.A.R.T. data, does not exceed 110°C (industrial temperature drive) and 95°C (commercial temperature drive) respectively.

<sup>3</sup> According to JEDEC (JESD471), the time to write the full TBW is a minimum of 18 months. Higher average daily data volume reduces the specified TBW. The values listed are estimates and are subject to change without notice.