swissbit®

Product Fact Sheet

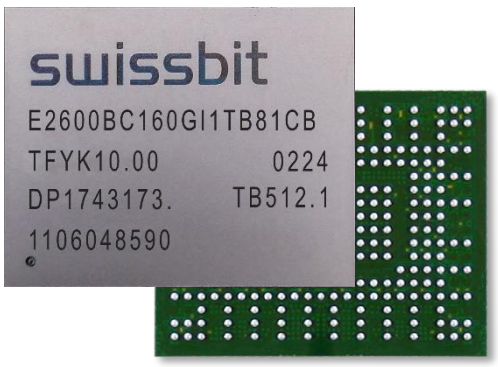
Industrial PCIe BGA SSD (M.2 1620 BGA)

E2600 Series

PCIe Gen 3.1, 16x20mm BGA, SLC mode

Industrial Temperature Grade

Date: January 4, 2024
Revision: 1.01



Made in Germany

Product Summary

- **Capacities:** 20 GBytes, 40 GBytes, 80 GBytes, 160 GBytes
- **Form Factor:** PCI Express® M.2 BGA (1620) (16mm x 20mm x 1.8mm)
- **Compliance[1]:** PCI Express (PCIe) Specification Revision 3.1
- **Interface:** Gen3 x 4 Lanes
- **Command Sets:** Supports NVMe 1.3
- **Performance:**
  - Read Performance: Sequential Read up to 1,780 MBytes/s, Random Read 4K up to 89,000 IOPS
  - Write Performance: Sequential Write up to 867 MBytes/s, Random Write 4K up to 136,000 IOPS
- **Operating Temperature Range[2]**
  - Industrial: -40°C to 85°C (up to 95°C $_{TCase}$)[3]
- **Storage Temperature Range:** -40°C to 85°C
- **Operating Voltage:** 3.3, 1.8 and 0.9V supply voltages
- **Low Power Consumption**
- **Power:**
  - Power States PS0, PS1, PS2, PS3 and PS4
  - Thermal Throttling supported
- **Data Retention[4]:** 10 Years @ Life Begin; 1 Year @ Life End
- **High-Performance Processor with Integrated, Parallel Flash Interface Engines:**
  - 3D NAND Flash
  - LDPC Code ECC (up to 120bit corrections per 1KByte page)
  - End-to-end data path protection
  - Increased Overprovisioning for improved performance and endurance
  - Page RAID feature
- **High Reliability**

[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 -40°C – 85°C (industrial temperature drive).
[3] TCase is the case surface temperature at the center of the top side of the device.
[4] 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 in the table for reference.

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
- Power Fail Data Loss Protection
- In-Field Firmware Update
- Self-Monitoring, Analysis, and Reporting Technology (S.M.A.R.T.)[5]
- Swissbit Life Time Monitoring (SBLTM) Tool and SDK for SBLTM
- AES256 Encryption enabled
- TCG Opal 2.0 (on request)
- Life Cycle Management
- Controlled "Locked" BOM
- RoHS / REACH Compliant

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.

[5] Refer to the JEDEC JESD218A and JESD291A standard for SSD device life and endurance measurement techniques.