

Miniaturized highly reliable PCIe M.2 BGA SSD for ultra-small industrial applications

Swissbit EN-20 - a high performance, high endurance, low power single component SSD with 4x PCIe interface

WESTFORD, MASSACHUSETTS, USA, August 10, 2020 /EINPresswire.com/ -- Swissbit launches EN-20, a new single chip solution which offers high speed PCIe SSD performance in a 3.2cm² BGA package. The device acts as a true industrial grade SSD with up to 480GB capacity and 4 lane PCIe 3.1 / NVMe 1.3 specification. It enables high performance and high reliability for small size embedded systems, factory automation, routers and switches, Internet of Things (IoT), cloud computing, and medical systems.



Small but powerful, Swissbit PCIe BGA EN-20

The EN-20 product series features industrial grade 3D NAND supporting an ambient temperature range from -40°C to 85°C. The managed device combines high grade NAND Flash chips, a sophisticated PCIe controller and firmware that supports demanding applications. The PCIe 4 lane interface with backwards compatibility to single or dual lane system designs operates according to the latest PCIe 3.1 specification and offers high bandwidth up to 1600 MB/s for sequential read and 770 MB/s for sequential write. Random performance surpasses 145,000 / 130,000 IOPS for read and write and nearly doubles the bandwidth of SATA SSDs.

The single chip has a dimension of 16 x 20mm and a 0.8mm pitch compatible with standard PCB routing guidelines. For low power consumption without sacrificing performance, EN-20 substitutes a local DRAM cache by using the HMB (host memory buffer) feature, which uses system DRAM memory to maintain the flash translation table. Intelligent thermal management protects the long-term stability of the controller and maintains a continuous bandwidth even at highest specified temperatures. Other reliability and security features are End-to-End Data Path Protection (ETEP), AES 256 encryption, LDPC error correction with full page fail recovery and a protection against sudden power loss. Data care management adds extra protection of the stored data at high operating temperatures.

The NVMe protocol has been designed to efficiently use the bandwidth with a native nonvolatile memory command set resulting in ultra-low latency.

EN-20 offers a high performance, high reliability, cost efficient, true industrial SSD in a single BGA chip with up to 1 DWPD endurance. For even higher endurance requirements, EN-26 in full pSLC mode provides a 10-fold endurance.

EN-20 has already been successfully qualified by key industrial customers and is currently available with densities from 15 GB to 240 GB in the TLC version and with 5 GB to 80GB for EN-26. An extension to 480 / 160 GB will follow later this year.

The small size and integrated metal heat spreader allows the use of EN-20 not just as a single BGA device but also on a variety of m.2 module form factors from a tiny 2230 length to the standard 2280 variant. EN-20 also powers the soon to be introduced Swissbit G-20 CFexpress™ cards with the same extensive feature set.

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