Flashtec™ NVMe2032 and NVMe2016 Controllers

32- and 16-Channel PCIe Flash Controller Products

Summary

The Flashtec™ 2nd generation NVMe Controller family enables the world's leading enterprises and data centers to realize the highest performance SSDs utilizing next-generation NAND technologies. Combining world class capacity and flexibility, the Flashtec controller family is the reliable choice. The Flashtec NVMe2032 and NVMe2016 controllers support the standard NVM Express (NVMe) host interface and are optimized for high-performance 4 KB random read/write operations, performing all Flash management operations on-chip and consuming negligible host processing and memory resources.

Error Correction

Flashtec's advanced ECC engine provides superior endurance and increases the overall reliability of today's SSD technologies and NAND geometries. Memory life is extended by implementing advanced LDPC correction utilizing both hard and soft decode techniques, significantly improving Total Cost of Ownership (TCO) and enabling differentiated solutions for both the Enterprise and Data Center Storage market segments.

Flexibility

The flexible and programmable platform gives developers total control in SDD solution optimization. End users deploy these PCIe-SSD-based systems in their data centers for Cloud computing and business-critical applications, such as online transaction processing, financial data processing, database mining and any other applications that are sensitive to latency and performance.

TCO and Reliability

The Flashtec controller family provides the data integrity and reliability features expected in enterprise-class solutions. Flash reliability is ensured through a combination of exceptionally strong ECC and flash channel RAID.

Microchip's Flashtec family has been optimized for power savings, utilizing a combination of architectural and semiconductor design techniques. Emphasis has been given not only to absolute power consumption, but also to advanced power management features, including automatic idling of processor cores and autonomous power reduction capabilities. The Flashtec family leverages the Enterprise NVM Express dynamic power management interface, enabling solutions to meet power and performance objectives through firmware to meet overall total cost of ownership goals.

Features

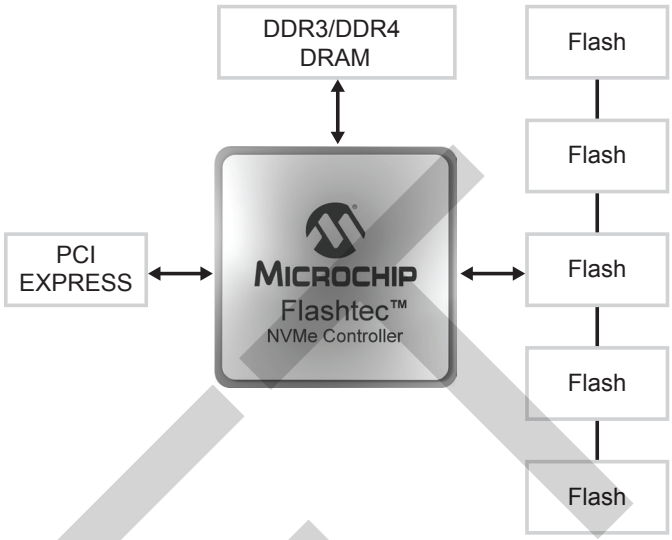
- Flashtec NVMe2032 Controller can achieve up to 1 million random read IOPS on 4 KB operations
- Up to 20 TB Flash capacity using 256 Gb Flash
- SLC, MLC, Enterprise MLC, and TLC Flash with toggle and ONFI interface
- PCIe Gen3 x8 or dual independent PCIe Gen3 x4 (active, active/standby) host interface
- 16 and 32 independent Flash channels, each supporting up to 8 CE
- DDR3-2133 and DDR4-2400
- Standard Enterprise NVMe host control interface
- Optional ROM allows PCIe Flash controller to be used as a boot device
- Encryption (XTS-AES-256)
- Power fault and abrupt shutdown without data loss or corruption
- Data integrity and reliability:
  - Strong LDPC Flash ECC
  - Flash channel RAID
  - End-to-end host to Flash data protection

Benefits

- High performance PCIe Flash controllers optimized for enterprise and data center workloads
- Advanced ECC enables current and future architectures with next-generation NAND technologies
- Programmable architecture enables SSD developers to optimize product differentiation through firmware customization
- Supports industry's highest capacity SSD solutions

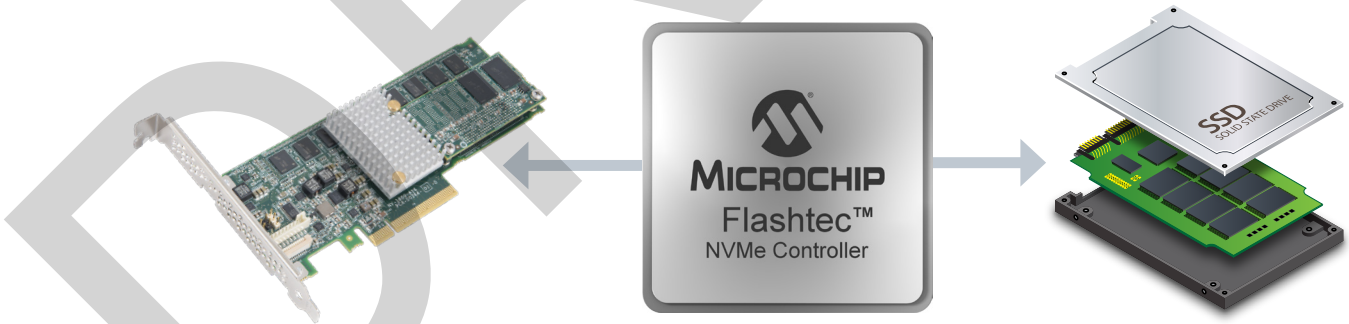
	NVMe2032	NVMe2016
Flash Channels	32	16
Package	40 mm x 40 mm 1517-ball Laminate FCBGA	27 mm x 27 mm 1085-ball Laminate FCBGA
Ordering Information	PM8609B1-F3EI	PM8607B1-F3EI

Flashtec Architecture Diagram



Microchip provides NVMe hardware and software solutions to enterprise and data center customers, enabling world-leading performance, capacity and flexibility.

Solid-state drives promise to greatly enhance enterprise and data center storage performance with faster random access to data and faster transfer rates. PCI Express-based SSDs, together with the NVM Express host control, alleviate the interface bottleneck. Microchip's family of NVMe-compliant PCIe enterprise Flash controllers dramatically boost the number of random I/O operations per second that a system can process, while concurrently reducing latency and power.



For More Information

www.microsemi.com

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