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NV-CMM-E3S Memory Module

SMART's NV-CMM-E3S non-volatile memory module with built-in backup power source utilizes the Compute Express Link (CXL)® 2.0 standard in an E3.S 2T form factor. It uses a CXL x8 CXL controller as well as a SMART NV-CXL Controller and 2Rx4 Buffered DDR4 DRAM, which allows the host to access the DRAM via the CXL x8 interface during runtime. In the event of a catastrophic failure, the module will back up the DRAM data into the NAND devices using power from its onboard Energy Source Module (ESM). When power is restored, the NV-CMM-E3S will then copy data from the NAND devices to the DRAM in order to enable continuous operation.

Key Features

- Form Factor: E3.S 2T (112.75mm x 15mm x 76mm)

- Density: 32GB with 16Gb DRAM

- Performance: ~200ns Round Trip Latency with Throughput of 32GB/s

- Host CXL Interface using Microchip Controller
  - CXL Type 3 memory
  - Supports CXL 1.1/2.0
  - Configured for CXL x8 Gen 5
  - Out-of-Band (OOB) Interfaces: SMBus (I2C), SPI, and UART
    • Enterprise Class RAS features
    • End-to-end data path integrity with overlapping parity/ECC
    • SECDED ECC support to DDR
    • Reed-Solomon ECC support to DDR
    • Secure boot and Secure firmware update
    • CXL IDE

- Persistent Memory Features
  - ASIC and FPGA based Controllers
  - Non-Volatile storage via Backup to NAND
  - Onboard Energy Source Module (ESM) for backup power
  - AES-256 data encryption for data at rest

- Power Consumption
  - Active: TBD
  - Backup: ~11 watts (estimate)

- Ambient Operating Temperature: 40°C max

Key Features

- System acceleration – check pointing, caching, etc.

- Large in-memory databases

- Quick data recovery following power loss or system hang/crash

Benefits

- Non-Volatile CXL Memory Expansion

- Low latency, high bandwidth persistent storage

- Embedded energy source so complete solution if fully self-contained

- Takes advantage of CXL "Global Persistent Flush" (GPF) feature to implement persistence

Pinout

This module is compliant with EDSFF Electrical specification for E3.S x4 interfaces as defined in SFF-TA-1009 (Rev-3.0).

Ordering Information

NV-CMM		
SMART Part Number	Density	Description
STXBB32GNM44S18MF	32GB	CXL 2.0, E3.S 2T, DDR4-3200

Contact: Arthur Sainio at Arthur.Sainio@smartm.com for any sales and sampling queries.

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For more information, please visit: **www.smartm.com**

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