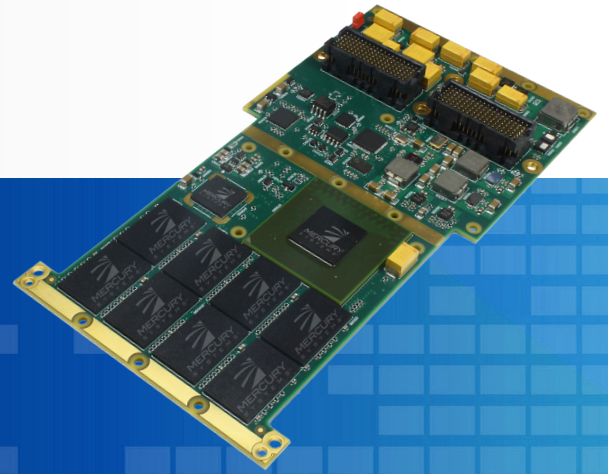


# XMC Secure Solid State Drive (SSD) with Self-Encrypting Drive (SED) Technology

Models *MXMCM256* and *MXMCM512*



The MXMCM256 and MXMCM512 expands the secure self-encrypting SSD family in to an XMC format. This platform is a VITA 42.3 compliant board, offering a x2 PCIe and configurable SATA 2.6 interface that supports ATA-7 and ATA-8. It is offered in an air-cooled or conduction-cooled XMC mezzanine storage solution designed for applications where data protection, endurance, and security is extremely important. This solution incorporates the Mercury Armor® II proprietary flash processor and utilizes high performance and reliable SLC NAND solid state flash technology. The security features include NIST certified AES-256 XTS encryption, where the loaded encryption key can be purged within 30ms. Several military sanitization protocols, such as Fast Clear, are available. Keys can be loaded externally via secure SATA API or are internally generated.

The XMC card supports up to 9 petabytes of write endurance in 256 GB & 512 GB configurations. Wear leveling and bad block management further prolongs the life and reliability of the flash memory. The MXMCM provides best-in-class performance with up to 200 MB/s sustained sequential write cycles.

Applications demanding secure data storage and Information Assurance (IA) are appropriate for this XMC card. This platform is suited to operate in rugged operating environments. It was designed to perform to MIL-STD-810F requirements.

## Description

- XMC form factor
- 256 GB and 512 GB available capacities (1GB = 1,000,000,000 bytes)
- XMC Interfaces
- x2 PCIe interface conforms to VITA 42.3
- SATA Interface up to 3 Gb/s
- SLC NAND flash technology
- Multiple key management options
- Power: 5V or 12V ± 10%
- Storage temperature  
Up to -55° C to +105° C ambient

## Performance

- Sustained sequential reads/writes: 175/200 MB/s
- Reset-to-ready time: < 2 seconds
- Power: (5V, 25°C)  
R/W: 4.5W typical  
Idle: 1.5W typical

*Mercury Systems is a leading commercial provider of secure processing subsystems designed and made in the USA. Optimized for customer and mission success, Mercury's solutions power a wide variety of critical defense and intelligence programs.*



## Data Management and Protection

- Superior ECC (Error Correction)
- UBER, 1 sector per 10-18 bits read
- BIST, Built In Self Test
- MTBF: >2,000,000 hours @ 25°C
- Write endurance up to 9 PB (MXMCM512)
- Read and write wear leveling
- Power loss protection
- No data loss during power interruptions
- No super caps or batteries used

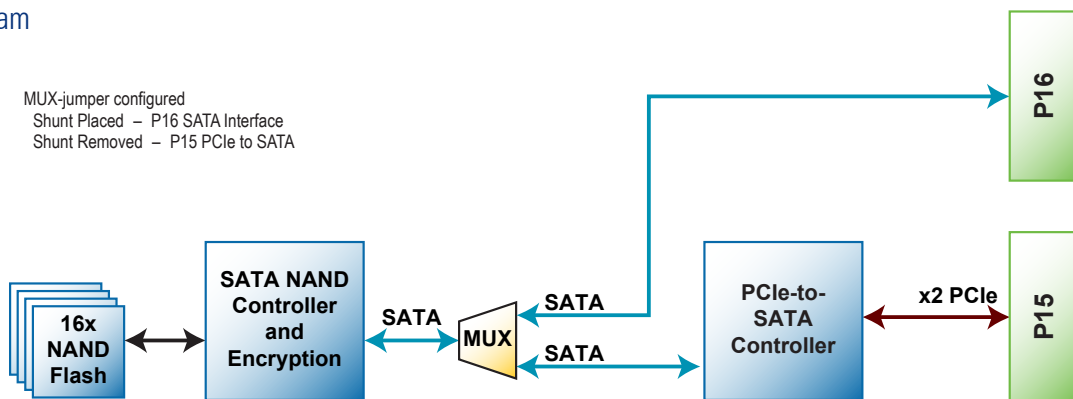
## Security

- Certified AES-256 XTS encryption (FIPS 197)
- Self Encrypting Drive (SED)
- TRRUST-Purge® key erased in less than 30ms
- Hardware based erase in less than 10 seconds (Fast Clear)
- Supports numerous military sanitization protocols
- No firmware stored on the NAND flash
- Write protection

## Environmental and Mechanical:

- Humidity: 0% to 95% non-condensing
- Vibration: 0.1g2/Hz (max.), 5 to 2000 Hz
- Shock: 40g, 11ms saw tooth
- Ruggedization options available (see ordering guide)
- Order options: underfill, conformal coat, firmware control

## Working diagram



## XMC Interface:

- P15 XMC Interface: x2 PCIe port
- P16 XMC Interface: External SATA interface (configurable via jumper)

## Physical Configuration:

- XMC conduction form factor (w/heat sink)
- Dimensions: 143.75 mm x 74 mm

## Ruggedization Level:

- Option 1 – Air-cooled 600LFM (-40°C to 70°C)
- Option 2 – Conduction-Cooled (-40°C to 85°C with heat sink)

## Part Numbering

MXMCM XXX A2 L - 0 X X I

Capacity:

256: 256GB  
512: 512GB

Leaded BGAs:

Customization:

0 – Standard Product  
1 – Under Fill, Staking, Conformal Coating

Rugged Level:

1 – Air-Cooled  
2 – Conduction Cooling

Example part Number: MXMCM512A2L-002I

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