

ADVANCE THE MISSION



OVERVIEW

MEMKOR delivers cutting-edge data storage solutions tailored for Defense and Aerospace applications with our SECURE, HIGH ENDURANCE, and RUGGED Military-grade SSDs. Our Commercial-Off-The-Shelf (COTS) solid-state solutions are designed and built with the highest reliability components, standard or specialized firmware and controller, and adhere to certified security standards, ensuring unparalleled reliability.

Leveraging MEMKOR's extensive experience and engineering expertise, we offer solutions in a wide range of form factors (standard and custom) and interfaces (SATA, PCIe, and PATA) to meet all your program's storage requirements.

We offer a commitment to customer service throughout your program lifecycle, including Locked BOM guaranteeing consistency, stability, and obsolescence management.

As the market leader in Military-grade data storage, MEMKOR has been a trusted supplier for major Defense projects for over 17 years. Our mission is to fulfill your programs' storage needs and ensure your success.

CURRENT DEPLOYMENTS

MEMKOR Military-grade SSDs are trusted by the U.S. Air Force, Army, Marines, Navy, and NATO Defense programs worldwide. Our devices have been deployed successfully in the harshest operating environments across the globe, providing data security with FIPS140-2 validated (NIST certificate #3750), CSfC, and Two-Factor Authentication solutions. FIPS140-3 solutions are on the horizon.

MEMKOR SSDs are deployed in:

- ◆ Advanced, rugged airborne targeting systems
- ◆ State-of-the-art rugged situational awareness multi-domain data router for the airborne platforms
- ◆ Weapon control systems, and other high-security requirement applications that require FIPS140-2
- ◆ Numerous programs for U.S Navy submarines and surface ships
- ◆ Multiple programs with several different applications on UAVs, Tanks, and Combat Vehicles
- ◆ Wearable applications for US Army and Marines
- ◆ Navigation, data collection, high security requirements



SECURE — RUGGED — RELIABLE

OPTIMIZED FOR YOUR APPLICATION

MEMKOR Solid State Storage families are optimized to target a wide range of Defense and Aerospace applications.

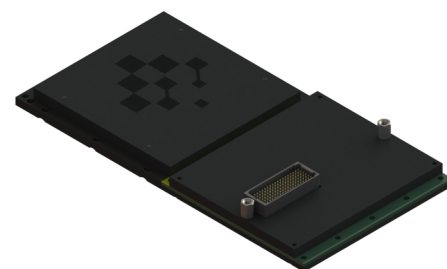
TANGERINE Series delivers high performance (up to 7GBps with PCIe Gen4), high capacity (up to 16TB in 2.5" and 8TB in M.2 2280), and high write-endurance (up to 50K PEC NAND), all while maintaining strict security standards.

Designed for military-enterprise applications, the TANGERINE series offers standard form factors, standard hardware AES256 encryption with TCG OPAL 2.0, and optional HW triggered data elimination and write protection. Experience lightning-fast data transfer speeds and exceptional SSD lifespan.



GUNMETAL 3U VPX — Removable storage with deployment flexibility, ideal for managing multiple self-encrypting drives in a single system. MEMKOR rugged VPX modules are SOSA aligned, offer the fastest write speeds, and up to 32TB of capacity (contact Sales for more). Available in convection or conduction cooled models.

GUNMETAL XMC — Rugged PCIe SSD designed to the VITA 42.0 XMC form factor, available in custom configurations for various SBCs and VPX modules. Optimized for performance, built rugged, scalable for future growth, XMC modules allow customers to repurpose a VPX slot when high capacity is not required.



ORANGE Series offers standard form factors, feature set, and ruggedness levels suitable for harsh environments. ORANGE outperforms in:

- ◆ -40°C to 85°C operating temperatures
- ◆ Up to 16.3 GRMS vibration load and 50G 11ms shock

Built with high-quality industrial grade MLC or the most reliable SLC NAND. Available in SATA, PCIe, and PATA interfaces. With carefully selected BOM and mature firmware, ORANGE is backed by 5 year/TBW warranty. FIPS 140-2 validated solutions available.



BLACK Series — For EXTREME OPERATING environments, available in standard and non-standard form factors.

M⁺ Rugged BLACK series solutions perform in:

- ◆ -55°C to 95°C Operating temperatures
- ◆ Up to 30 GRMS vibration load
- ◆ Up to 100G 11ms shock

With a virtually unlimited number of insertions, a meticulously chosen BOM, **BLACK Series** SSDs are built using the most reliable SLC or industrial-grade MLC NAND, and are available with rugged SATA or 38999 connectors. BLACK Series backed by 5-7 year/TBW warranty. FIPS 140-2 Level-2 validated solutions available.



Form Factor	Series	Capacity Range [GB]	I/F	Read ⁽¹⁾ [MB/s]	Write ⁽¹⁾ [MB/s]	Security (Validated)
mSATA	TANGERINE	128 - 512	SATA	550	510	AES256 TCG OPAL
M.2 2230	TANGERINE	256 - 512	PCIe Gen4	4,900	3,200	AES256 TCG OPAL
M.2 2242	TANGERINE	256 - 2,048	PCIe Gen4	4,900	3,700	AES256 TCG OPAL
M.2 2280	TANGERINE	240 - 7,680	PCIe Gen3/4	7,200	6,500	AES256 TCG OPAL
M.2 2280	TANGERINE	240 - 7,680	SATA	550	510	AES256 TCG OPAL
1.8"	TANGERINE	128 - 2,048	SATA	550	500	AES256 TCG OPAL
E1.s	TANGERINE	480 - 7,680	PCIe Gen4/5	7,200	6,700	AES256 TCG OPAL
2.5"/U.2	TANGERINE	480 - 15,350	PCIe Gen3/4/5	7,200	6,500	AES256 TCG OPAL
2.5"	TANGERINE	240 - 15,360	SATA	550	510	AES256 TCG OPAL
mSATA	ORANGE	128 - 512	SATA	500	350	FIPS 197
M.2 2280	ORANGE	128 - 512	PCIe Gen2	1000	600	FIPS 197
M.2 2280	ORANGE	128 - 1,024	SATA	500	350	FIPS 197 FIPS 140-2
M.2 22110	ORANGE	1,024 - 2,048	PCIe Gen2	1200	1000	FIPS 197
M.2 22110	ORANGE	1,024 - 2,048	SATA	550	520	FIPS 197
1.8"	ORANGE	128 - 2,048	SATA	550	500	FIPS 197
2.5"/U.2	ORANGE	512 - 4,096	PCIe Gen2	1200	1200	FIPS 197 FIPS 140-2
2.5"	ORANGE	128 - 4,096	SATA	550	520	FIPS 197 FIPS 140-2
2.5"	BLACK	128 - 2,048	SATA	550	500	FIPS 197 FIPS 140-2
FRED	BLACK	480 - 3,840	PCIe Gen 3/4	7,200	6,500	AES256 TCG OPAL
FRED	BLACK	480 - 7,680	SATA	550	550	AES256 TCG OPAL FIPS140
3U VPX	GUNMETAL	480 - 30,720	PCIe Gen 3/4	7,200	6,500	AES256 TCG OPAL FIPS140
3U VPX	GUNMETAL	480 - 30,720	SATA	550	550	AES256 TCG OPAL FIPS140
XMC	GUNMETAL	240 - 7,680	PCIe Gen 3/4	7,200	6,500	AES256 TCG OPAL

(1) Max performance dependent on drive capacity and computer system.

PLEASE CONTACT SALES FOR MORE INFORMATION ON PRODUCTS, OR IF YOU HAVE OTHER REQUIRMENTS THAN LISTED ABOVE.

SELECTED SPECIALTY PRODUCTS

Rugged SATA Connectors

Standard SATA connectors are rated for 6g RMS vibration and 100-300 insertions. Addressing these limitations traditionally demands additional hardware, space, and cost. MEMKOR offers drop-in replacement with Amphenol HiVibe and Smiths' Connector Nebula, rated for more than 30G RMS vibration, and up to 100,000 insertion/removal cycles.



FRED® - Flexible Rugged External Drive

FRED is an up to 8TB storage module that offers high performance, extreme durability, and easy deployment. It can be connected via cable or directly to ATR or ATR-like enclosures with 38999 connectors, supporting SATA, PCIe, or USB interfaces. FRED is an excellent replacement for storage cards, freeing up valuable slots for other functions, and extending the life of existing systems. FRED supports MEMKOR standard data-at-rest (DAR) security features and is available in a FIPS140-2 validated model.



ONE TEAM. ONE FIGHT.



SECURE | HIGH ENDURANCE | RUGGED MILITARY-GRADE DATA STORAGE

LIFE CYCLE SUPPORT

MEMKOR specializes in designing and building data storage solutions for Defense and Aerospace applications, with a focus on ensuring long-lasting deployments. Products are crafted using high-reliability components and firmware customization to deliver exceptional performance. We are dedicated to delivering outstanding support to our customers throughout the entire product life cycle.

FIELD PERFORMANCE AND DFR

MEMKOR rigorously monitors reliability performance through Field MTBF Key Performance Indicators (KPI). This involves tracking the reliability of each series, form factor, and major firmware branch to compute field MTBF for each part number or firmware version. Regular MTBF reviews drive continuous product improvement. Additionally, MEMKOR integrates field reliability data into our Design for Reliability (DfR) process, leveraging a proprietary database of field-proven components, including ROHS non-compliant parts and processes when required. Finite Element Analysis (FEA) is conducted to mitigate technical risks associated with heat generation or structural integrity on all critical SSD designs.

PRODUCTION TESTING

MEMKOR SSDs feature rugged design and a specialized Bill-of-Materials (BOM). Each unit undergoes rigorous functional and Acceptance Testing to eliminate risks like infant mortality and machine/human errors. This approach guarantees the highest level of reliability and durability.

DESIGN SUPPORT

Designing new computer and storage solutions for Defense applications frequently requires pushing the systems' operational envelope beyond industry standards, posing challenges during the detailed design phase. At MEMKOR, we leverage firsthand experience to offer our expertise and support throughout your design process.

LOCKED BOM MANAGEMENT

MEMKOR Locked Bill-of-Materials (L-BOM) management ensures reliable Obsolescence Management by regularly scrubbing L-BOM components to identify early warning signs of obsolescence and/or recalls. Upon detection of any risk or issue, MEMKOR notifies L-BOM owners through a Product Notification Change (PCN) and offers a Last Time Buy process. Furthermore, MEMKOR collaborates with customers to recommend an updated drop-in replacement and/or alternative solution.



Custom Solutions/Rugged connectors available



MEMKOR® is a leading American engineering firm dedicated to delivering cutting-edge solid-state storage solutions for Defense and Aerospace applications. Our mission is to deliver secure, reliable, and innovative products that precisely align with operational requirements. We are steadfast in our commitment to meeting your technology objectives and take pride in our ability to deliver on our commitments. Your satisfaction is paramount to our mission success.



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AS9100
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