

ORANGE Series

M.2 2280 and 22110 SATA Express (SATA/PCIe)

Overview

Memkor's 3rd generation Orange Series PCIe and SATA SSDs aim to provide the highest throughput performance combined with the highest densities currently available. Memkor offers up to 1024/512 GB of MLC/SLC NAND in a minimized weight, small form factor M.2 package.

The latest M.2 solid state drive form factor evolves from the mSATA add-in card standard improving storage deployment flexibility by defining a family of form factors that allow an increased density, a graceful scale of capacity and support for both SATA and PCIe interfaces.

Memkor's M.2 offers Write Protect and military grade Secure Erase features, provide built-in hardware AES-256 encryption engine and built in firmware functions enabling either traditional FIPS-like or OPAL data at rest protection management scenarios.

State of the art flash management techniques combined with a strong EDC/ECC/CRC and end-to-end data protection approach ensures performance stability and consistency, along with the highest reliability and unparalleled user data integrity.

Sudden power loss safeguards integrated in software and hardware ensures data at rest protection and integrity.

Memkor Orange Series SSDs are built to meet both Commercial and Defense focused environmental requirements.

All Memkor products are available with locked BOM configurations and Supply Chain component management for long-term deployment applications.

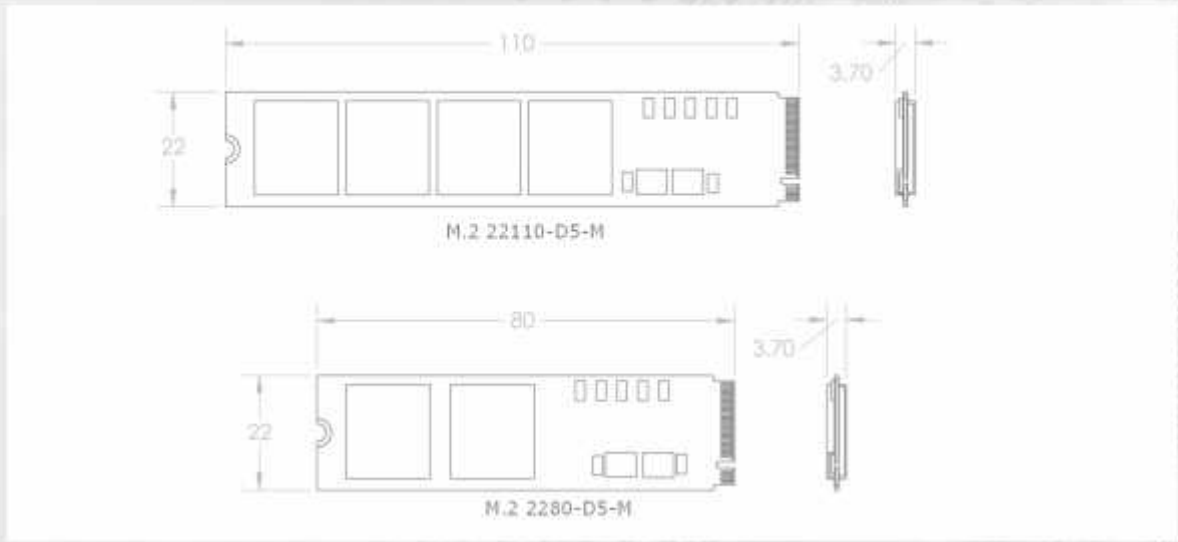
Features and Values

- M.2 FF optimized for embedded SSD applications
- Available with either PCIe or SATA interface
- More deployment flexibility than mSATA form factor
- Lowest profile among standard SSD form factor
- Capacity scalability built into the standard
- High performance storage/boot drive
- Easy integration with computer board, no cables
- End-to-end data protection
- Rugged design for Defense and Industrial applications
- Extensive SMART for health monitoring
- Military grade Data Elimination
- Hardware and/or software triggered Data Elimination
- Hardware or software enabled Write Protect
- AES-256, various SED management schemes
- MBR shadowing to allow graceful SED boot process
- Sudden Power Loss Safeguard logic and circuit
- Custom firmware and feature set are available

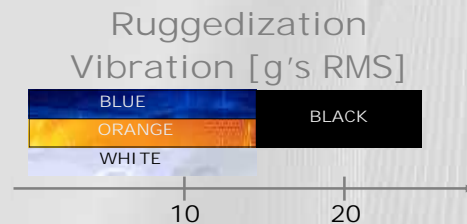
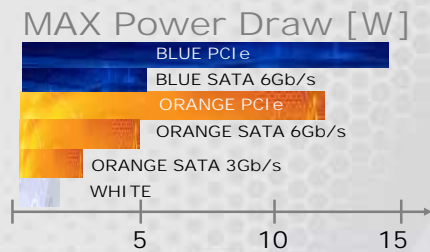
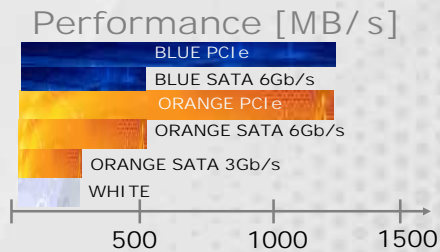
Specification

Standard Form Factor	M.2 2280 and 22110 form factors
Interface	PCIe V2.0/NVMe 1.1a or SATA 6Gb/s or SATA 3Gbps
Data throughput	<ul style="list-style-type: none"> • SATA III: up to 220-450/540 MB/s Write/Read • PCIe, 2280, MLC: 300/800 MB/s Write/Read • PCIe, 2280, SLC: 330/900 MB/s Write/Read • PCIe, 22110, MLC: 460/800 MB/s Write/Read • PCIe, 22110, SLC: 800/900 MB/s Write/Read
Maximum Capacity	<ul style="list-style-type: none"> • up to 1024/512 GB MLC NAND (SATA/PCIe) • up to 512/256 GB SLC NAND (SATA/PCIe)
Temperature Range	<ul style="list-style-type: none"> • -40°C to 85°C Industrial/Military • 0°C to 70°C Commercial
Vibration/shock	• 16.3 GRMS/50G
Data Reliability	<ul style="list-style-type: none"> • Flash managed by static and dynamic wear leveling and powerful ECC/EDC/CRC • End-to-end Data Protection • Uncorrectable bit error rate (UBER): less than 10⁻¹⁶
Data Retention	<ul style="list-style-type: none"> • 10 y beginning of SSD life • 1 y at the end of life
Endurance	<ul style="list-style-type: none"> • up to 768 TB (1024 GB MLC NAND) • up to 6144 TB (512 GB SLC NAND)
Data Security	<ul style="list-style-type: none"> • Optional TCG OPAL V2.0 Self Encrypted Drive (SED) • Enhanced ATA Security/Authentication support • Military grade Data Elimination • HW and/or SW Write Protect
Component reliability	• MTBF: 1,000,000
Health monitoring	<ul style="list-style-type: none"> • S.M.A.R.T. to report system health • Thermal performance monitoring and management

Memkor Orange M.2 2280 and 22110 — Mechanical



Memkor General Application and Product Guide



Ordering Information

Model: MKD ff ii xxx y O - O2 s n ee ww

Model: MKD ff ii xxx y O					
Memkor SSD	Form Factor ff:	Interface ii:	Capacity xxx:	Operating temp	Series
MKD	M8 - M.2 2280 MB - M.2 22110	P2 - PCIe 2.0 2-lanes P3 - PCIe 2.0 4-lanes ST - SATA	256 - 256 GB 512 - 512 GB 1T0 - 1024 GB	C - 0° to 70°C I - -40° to 85°C	O - ORANGE

- O2 s n ee ww				
Technology Code	Secure Erase: s	NAND: n	Encryption: ε	Write Protect: ww
O2	0 - no SE (D) Ask us about available option	- SLC (D) M - MLC	- No Encryption (D) Ask us about available option	- no WP (D) Ask us about available option

D - default
I - Low
H - High
E - Enabled
SE - Secure Erase
WP - Write Protect