



## Fast, Secure, Flexible, Ruggedized SOLID STATE DRIVES

### Memkor® Flash SSD's

Flash SSD applications span from boot drives to portable computers to high performance servers to data recorders.

In the past, SSD's have been mostly deployed in applications requiring superior reliability, and resilience to extreme environments. Some more recent SSD applications benefit from the continuous performance increases of the newest generation of SSD's. Others aim to take advantage of the low power consumption of SSD's.

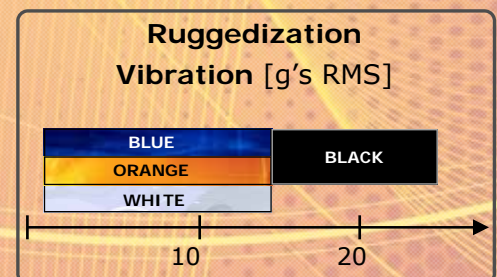
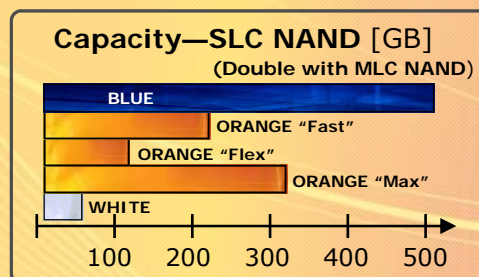
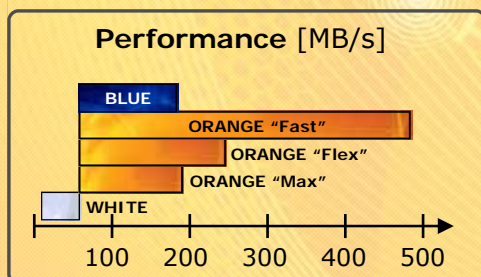
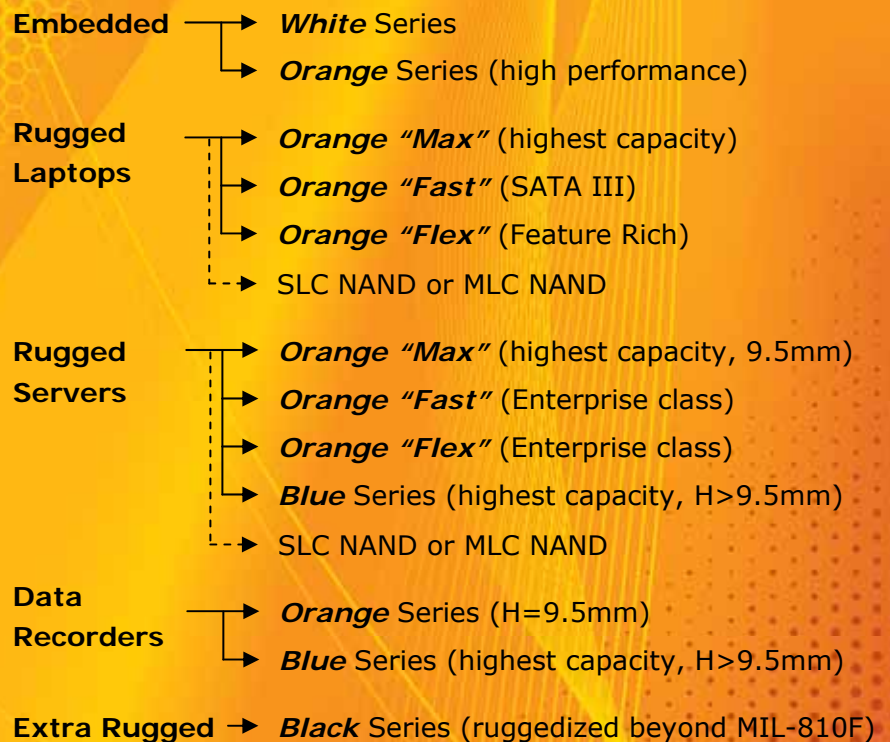
Special features enhancing user data integrity and protection, ensuring secure data elimination and data encryption are becoming of increasing value in the Defense and Security markets.

Since "one size does not fit all", Memkor has developed different families of SSDs optimized for the diverse applications.

Memkor introduces:

- general purpose industrial **WHITE** Series,
- high performance **ORANGE** Series,
- high capacity **BLUE** Series, and
- extreme ruggedization **BLACK** Series solid state drives.

### Application and Product Guide



# WHITE Series SSD



Ultra-3 SCSI (68-pin and 80-pin)

Memkor White Series SSDs address the requirements of traditional flash SSD applications, such as industrial boot drives and data logging devices. Built using industrial grade parts<sup>(1)</sup> for superior reliability, they offer data integrity that will outlast the lifespan of your equipment. White Series SSDs include features such as Write Protect, the ability to create multiple partitions, Access Control and Data Elimination<sup>(2)</sup> to ensure data security. The SMART feature can be used to monitor flash health. Memkor White Series SSDs are offered with PATA, SATA and SCSI

(1) SATA and PATA SSDs  
(2) Most models

## PATA and SATA

|                                    |  |
|------------------------------------|--|
| Standard Form Factors              | • CF, CFAST, 1.8" (PATA/ZIF), 2.5" and 3.5", DOM-Straight (PATA only)  |
| Fast boot and application response | • Up to 40/25 MB/s sustained read/write rate (90/50 MB/s for CFAST)  |
| High speed interfaces              | • Ultra DMA Mode-4; Multiword DMA Mode-2; PIO Mode-4   |
| Capacity range                     | • 1 GB to 8 GB to 32 GB depending on form factor and interface   |
| Industrial/Military Temp. Range    | • -40°C to 85°C operating is a standard feature  |
| High Data Reliability              | • SLC NAND, strong wear leveling and ECC/EDC<br>• 27+ years write endurance when overwriting disk 10 times per day |
| Unmatched Data Integrity           | • Up to 8 read-only partitions to prevent accidental/malicious data alteration <sup>(2)</sup>                      |
| Unmatched Data Security            | • Data Elimination (Fast Erase and Purge) <sup>(2)</sup> ; Password controlled access                              |
| Unique Flash Health monitoring     | • S.M.A.R.T. to report flash usage   |
| High level of ruggedization        | • Shock: 50g, 11ms, half sine; Vibration: 16.3g; Humidity (N-C): 95%   |
| Dimensions (L x W x D)             | • 3.92" x 2.75" x 0.37" (9.5 mm) for 2.5"; 5.77" x 4" x 1.02" for 3.5"   |



3.5" U320 128GB SCSI SSD  
1.8" and 2.5" PATA, PATA DOM



CFAST, Compact Flash,

## SCSI

|                             |  |
|-----------------------------|--|
| Standard Form Factor        | 3.5" (50-pin Narrow SCSI-2; 68-pin and 80-pin Ultra-3 SCSI)  |
| Performance                 | • 5/10/20 MB/s (SCSI-2); 170 MB/s Ultra -3 SCSI  |
| Capacity range              | • 1GB - 8GB (SCSI-2); 4-128GB (Ultra-3 SCSI)   |
| Temperature Range           | • 0°C to 60°C operating; -20°C to 65°C storage<br>• Ask us about other operating temperature ranges                |
| High Data Reliability       | • SLC NAND, strong wear leveling and ECC/EDC<br>• 27+ years write endurance when overwriting disk 10 times per day |
| High level of ruggedization | • Shock: 50g, 11ms, half sine; Vibration: 16.3g; Humidity (N-C): 95%   |
| Dimensions (L x W x D)      | • 5.77" x 4" x 1.02" for 3.5"  |

# BLUE Series SSD



MLC NAND based Blue Series drives with Write Protect and Secure Erase features.

Memkor Blue Series SSDs offer an exceptional capacity of up to 512GB (SLC NAND) in 2.5" form factor and 1.1" height. While not a standard product, the capacity can be easily scaled up to 768GB, or even 1024GB, if device height of 1.6"-2.0" can be accommodated. With the outstanding sustained read/write performance of up to 230/150 MB/s, combined with one of the fastest Data Elimination function (Fast Erase and choice among multiple Purge algorithms), Memkor Blue Series SSDs are geared towards high performance data recorders. The conformal coating is standard on all the Industrial/Military grade models. Memkor Blue Series SSDs support SMART for health monitoring and can optionally include Write Protect function.

## SATA

|   |  |
|---|--|
| Standard Form Factor                    | • 2.5"<br>• Ask us about 3.5"  |
| Fast boot time and application response | • 230 MB/s max sustained read rate<br>• 150 MB/s max sustained write rate  |
| High speed interfaces                   | • Ultra DMA Mode-6<br>• Multiword DMA Mode-2<br>• PIO Mode-4   |
| Capacity range                          | • Up to 512 GB and 1028 GB SLC and MLC NAND respectively<br>• Ask us if you need higher capacity   |
| Operating Temperature Range             | • 0°C to 70°C Commercial<br>• -40°C to 85°C Industrial/Military  |
| Operating voltage                       | • 5V±10%   |
| High Data Reliability                   | • Flash managed by static wear leveling and ECC/EDC<br>• 27+ years write endurance when overwriting disk 10 times per day<br>• Up to 10 years data retention |
| Data Security                           | • Data Elimination (HW triggered Fast Erase and Purge)   |
| Unique Flash Health monitoring          | • S.M.A.R.T. to report flash usage   |
| High level of ruggedization             | • Humidity (non-condensing): 95%<br>• Shock: 50g, 11ms, half sine; Vibration: 16.3g (20Hz-2000Hz); operating   |
| Dimensions (L x W x D)                  | • 3.92" x 2.75" x 0.6" (15.3 mm) for 256/512 GB SLC/MLC NAND<br>• 3.92" x 2.75" x 1.1" (27.9 mm) for 512/1024 GB SLC/MLC NAND                                |



Blue Series: 2.5" SATA  
256 GB SLC NAND



Blue Series: 2.5" SATA  
512 GB SLC NAND.  
The "Brick"



# Black Series SSD

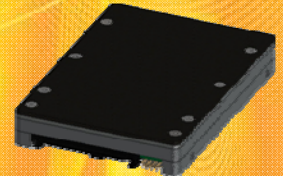
Memkor Black Series is a recent addition to our family of SSDs. Leveraging Memkor Orange and Blue Series SSD capabilities, and combining with the innovative mechanical design, Memkor Black Series SSDs provide exceptional resilience to the extreme shock and vibration levels well beyond those required by the most stringent cases of the MIL-810F standard. With a capacity ranging from 16GB to 256GB using SLC NAND, featuring Write Protect and Data Elimination, the Black Series considerably expands deployment flexibility of the Memkor family of SSDs.

## SATA

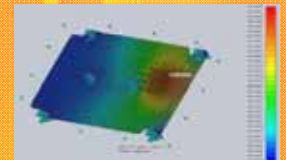
|   |  |
|---|--|
| Standard Form Factor                    | <ul style="list-style-type: none"> <li>• 2.5"</li> <li>• Ask us about 3.5"</li> </ul>  |
| Fast boot time and application response | <ul style="list-style-type: none"> <li>• 230 MB/s max sustained read rate</li> <li>• 150 MB/s max sustained write rate</li> </ul>  |
| High speed interfaces                   | <ul style="list-style-type: none"> <li>• Ultra DMA Mode-6</li> <li>• Multiword DMA Mode-2</li> <li>• PIO Mode-4</li> </ul>   |
| Capacity range                          | <ul style="list-style-type: none"> <li>• Up to 256 GB SLC NAND</li> <li>• Ask us if you need higher capacity, or about the use of Industrial MLC NAND</li> </ul>   |
| Operating Temperature Range             | <ul style="list-style-type: none"> <li>• 0°C to 70°C Commercial</li> <li>• -40°C to 85°C Industrial/Military</li> </ul>  |
| Operating voltage                       | • 5V±10%   |
| High Data Reliability                   | <ul style="list-style-type: none"> <li>• Flash managed by static wear leveling and ECC/EDC</li> <li>• 27+ years write endurance when overwriting disk 10 times per day</li> <li>• 10 years data retention</li> </ul> |
| Data Security                           | • Data Elimination (Fast Erase and Purge)  |
| Unique Flash Health monitoring          | • S.M.A.R.T. to report flash usage   |
| High level of ruggedization             | • Please contact us for more details   |
| Dimensions (L x W x D)                  | <ul style="list-style-type: none"> <li>• 3.92" x 2.75" x 0.374" (9.5 mm) for 128 GB SLC NAND</li> <li>• 3.92" x 2.75" x 0.6" (15.3 mm) for 256 GB SLC NAND</li> </ul>  |



Black Series, 2.5" SATA  
128GB, Data Elimination  
Extreme Ruggedization



Black Series, 2.5" SATA  
256GB, Data Elimination  
Extreme Ruggedization



## Data Elimination

Memkor SSDs can optionally include the Data Elimination function: FAST ERASE and PURGE. FAST ERASE eliminates the data from all physical media locations by performing a single erase. Its execution (for Orange, Blue and Black Series) takes 4-8 seconds. PURGE eliminates both the data and the data remanence effects that could otherwise be used to re-construct the storage content in the lab. PURGE requires multiple media erase and overwrite cycles, and in some cases partial or complete verification, as defined by different government standards. PURGE duration varies between 5-15minutes depending on the procedure. SW and/or HW trigger (selected models) are available. The SSDs are reusable immediately after the procedure.

## Supported Purge Procedures

|      |                                   |
|------|-----------------------------------|
| DoD  | DoD 5220.22-M NISPOM 8-306 1995   |
| DoD  | DOD 5220.22-M NISPOM Supplement 1 |
| NSA  | NSA 130-2                         |
| NSA  | NSA 9-12                          |
| Army | AR 380-19                         |
| Navy | NAVSOP-5239-26                    |
| AF   | AFSSI-5020                        |

## About Memkor

Memkor® is an American engineering company dedicated to providing flash solid state storage solutions for defense, industrial and enterprise applications. We create secure, reliable, robust and innovative solutions with rich feature sets, tailored, as required, to meet your technology investment objectives. We are dedicated to delivering on our promises. We simply believe that your satisfaction enables the continuous success of our company.

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