



LEADING INDUSTRIAL
NAND STORAGE
SOLUTIONS PROVIDER

www.flexxon.com

ABOUT US

FLEXXON, the world's leader in designs, manufactures, and markets Industrial NAND Flash Storage Solution products with 100% focus on niche markets. We apply our profound knowledge to serve and support tailored specifically for Cybersecurity, Industrial, Medical and Automotive (CIMA) applications and customers globally who desire the highest level of reliability, endurance and wide operating temperature ranges.

At **FLEXXON**, our mission is to be your preferred & reliable partner for Flash Storage and Memory Solution provider. We guarantee the highest standard of quality and product reliability.



Full Product Qualification Test from Component, System to Production



Full Reliability Test includes Mechanical Test, Environmental Test, Packaging and Printing Test.



CYBERSECURITY



INDUSTRIAL

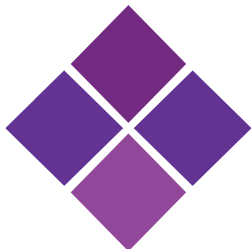


MEDICAL



AUTOMOTIVE

WHY FLEXXON



Long Product Life



Fixed BOM



Industrial Grade



Support HMLV (High-Mixed Low Volume)



Special Capacity and Customize Memory Solution

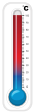
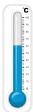


Strong Technical Support

INDUSTRIAL APPLICATIONS



Industrial Grade

Industrial Grade	Temperature	
	Automotive AEC - Q100 Grade 2	-40° C ~ +105° C
	Automotive AEC - Q100 Grade 3	-40° C ~ +85° C
	Diamond	-40° C ~ +85° C
	Gold	-25° C ~ +85° C
	Silver	0° C ~ 70° C
	Commercial	0° C ~ 70° C

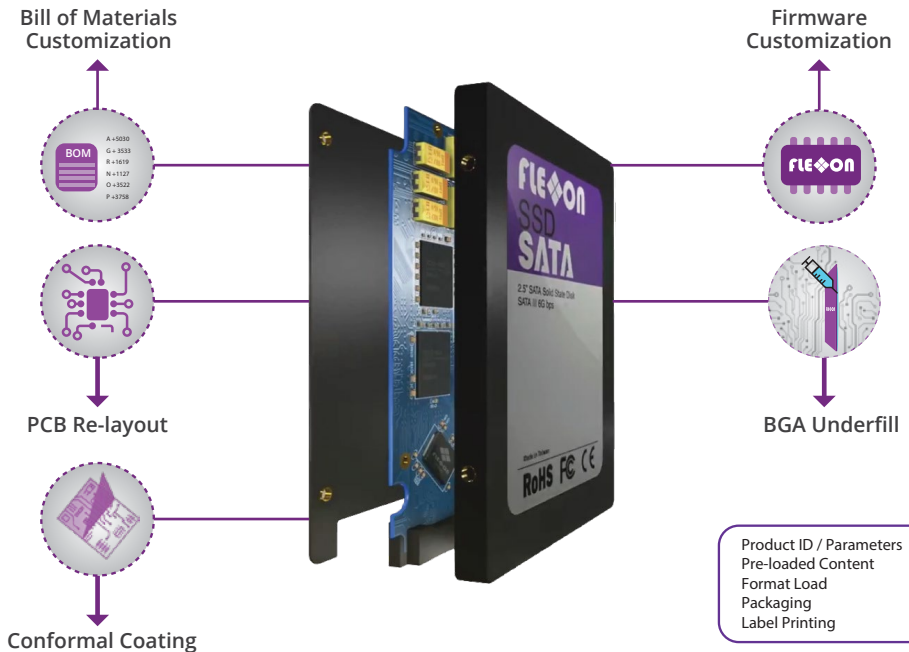
FLEXXON PRODUCT FEATURE

Interface	SATA	PATA	PCIe	USB	eMMC	Memory card
Industrial Wide Temperature	❖	❖	❖	❖	❖	❖
Vibration & Shock Resistance	❖	❖	❖	❖	❖	❖
EMI & ESD Safe	❖	❖	❖	❖	❖	❖
S.M.A.R.T	❖	❖	❖	❖	❖	❖
AES Security	❖	✗	❖	❖	✗	✗
Power Loss Protection	❖	○	❖	○	○	○
Pseudo SLC	❖	❖	❖	❖	❖	❖

Standard
 Not Available
 Firmware Algorithm (Optional)

Customization Services

We are open to all other customization services which are not listed in here.



SATA SSD

SERIES OVERVIEW

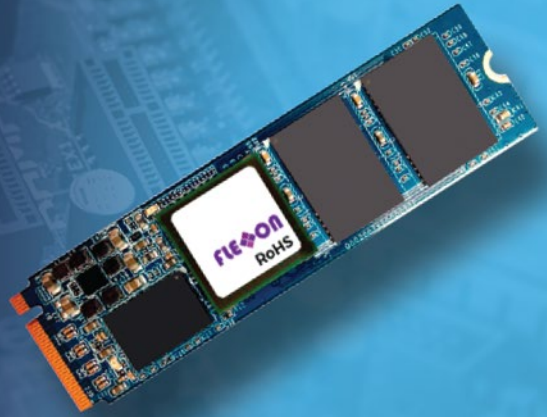


	INSPIRE / INSPIRE II	ACHIEVER / ACHIEVER PRO	XTREME / XTREME II	XCEL	GALAXY
Feature	High Endurance & Wide Compatibility with 3D NAND Suitable for Multi-Tasking Applications Supports Hardware PLP	High Performance & High Density Suitable for Main Storage Applications	High Performance & DRAM-less design Perfect for Embedded Applications	Ultra High Density & Ultimate Performance	Enhanced Reliability & Security Design for Military Application
Interface	SATA III	SATA III	SATA III	SATA III	SATA III
Form Factor	2.5", M.2 2242/2260/2280, mSATA	1.8", 2.5" Half Slim, mSATA, M.2 2242/2260/2280, CFast, SATA DOM	2.5", Half Slim, mSATA, mSATA mini, M.2 2242/2260/2280, CFast, uSSD, SATA DOM	2.5", M.2 2280	2.5"
Flash Type	3D TLC, 3D pSLC	SLC, MLC, pSLC	SLC, MLC, pSLC, 3D TLC, 3D pSLC	3D TLC	SLC, MLC
Capacity	3D TLC: 64GB ~ 2TB 3D pSLC: 16GB~256GB	SLC: 4GB ~ 128GB MLC: 8GB ~ 512GB pSLC: 4GB~256GB	SLC: 8GB ~ 128GB MLC: 4GB ~ 512GB pSLC: 2GB ~ 256GB 3D TLC: 16GB ~ 1TB 3D pSLC: 32GB ~ 128GB	3D TLC: 128GB ~ 8TB	SLC: 32GB ~ 512GB MLC: 64GB ~ 1TB
Max. Performance	Read: 550 MB/s Write: 520 MB/s	Read: 510 MB/s Write: 450 MB/s	Read: 550 MB/s Write: 500 MB/s	Read: 550 MB/s Write: 530 MB/s	Read: 520 MB/s Write: 440 MB/s
Grade	Industrial	Industrial	Industrial / Commercial	Industrial / Commercial	Military



PCIe SSD

SERIES OVERVIEW



	GEX	DEX	DEX PRO	HIX	VEX
Feature	Ultra-High Performance & Reliability Suitable For Client Applications	DRAM-Less design with High Speed & Compatibility Suitable for Main Storage & Client Applications	DRAM design with high Speed & Compatibility Suitable for Industrial & Client Applications	Ultimate Performance & Density Perfect for Enterprise Applications	PCIe Gen 4 solution with Extreme Performance
Interface	PCIe Gen 3x4, NVMe 1.3	PCIe Gen 3x4, NVMe 1.3	PCIe Gen 3x4, NVMe 1.3	PCIe Gen 3x4, NVMe 1.3	PCIe Gen 4x4, NVMe 1.4
Form Factor	M.2 2280	M.2 2280	M.2 2280	U.2, M.2 2280, M.2 22110	M.2 2280
Flash Type	3D NAND	3D NAND	3D NAND	3D NAND	3D NAND
Capacity	256GB ~ 2TB	128GB ~ 1TB	128GB ~ 1TB	128GB ~ 8TB	500GB ~ 8TB
Max. Performance	Read: 3370 MB/s Write: 2850 MB/s	Read: 1860 MB/s Write: 1374 MB/s	Read: 1378 MB/s Write: 1850 MB/s	Read: 3200 MB/s Write: 3000 MB/s	Read: 7000 MB/s Write: 6850 MB/s
Grade	Industrial	Industrial	Industrial	Industrial / Commercial	Industrial / Commercial



PCIe Enterprise SSD SERIES OVERVIEW



FLEXON Enterprise SSD is built with the latest 96L/112L 3D TLC NAND and professional enterprise controller. It delivers superior performance with sequential Read/Write performance up to 7500MB/s, 6000MB/s and random R/W speeds up to 1800K/480K IOPS respectively.

Moreover, **FLEXON** Enterprise NVMe SSD provides significantly high capacity up to 15.36TB which is an ideal solution for data center and enterprise applications



	EMP-I		EMP-I PRO	
Feature	Suitable for Read & Write balance application Good Endurance and Performance		Suitable for Write focus application High Endurance Better Performance	
Interface	PCIe Gen 3x4, NVMe 1.3	PCIe Gen 4x4, NVMe 1.4	PCIe Gen 3x4, NVMe 1.3	PCIe Gen 4x4, NVMe 1.4
Form Factor	E1.5	U.2, U.3, AIC	E1.5	U.2
Flash Type	3D NAND		3D NAND	
Capacity	1.92TB ~ 3.84TB	960GB ~ 30.72TB	1.60TB ~ 3.20TB	3.20TB ~ 12.80TB
Max. Performance	Read: 3500 MB/s Write: 2500 MB/s	Read: 7500 MB/s Write: 6000 MB/s	Read: 3500 MB/s Write: 2500 MB/s	Read: 7500 MB/s Write: 6000 MB/s
DWPD (5 years)	1		3	
Grade	Enterprise 0~70C		Enterprise 0~70C	



xFlush



RAM SEC



Power Loss Protection



SmartRefresh



RAID ECC + LDPC



End-to-end Data Protection

PATA SERIES OVERVIEW



FLEXXON's Parallel ATA (PATA) is suitable for embedded systems or legacy platforms available in various form factors such as 2.5" SSD, PATA DOM (40pin & 44pin) and Compact Flash (CF) card, supports latest CF 6.0 version and Ultra DMA mode up to 7, wide compatibility and high reliability. Designed to satisfy specific application requirements for rigorous industrial environments it extends high performance, power loss management and AES encryption.



	CLASSIC	CLASSIC II		LEGACY II	LEGACY III
Feature	Suitable for Embedded Applications	High IOPS Performance, High Capacity & High Reliability Supports AES Encryption		Best for Rigorous Applications Cost-effective SLC solution Supports small capacity	High Compatibility & High Performance Supports Power Loss Protection
Compliance	Ultra DMA Mode 4	Ultra DMA Mode 6	CF Spec Ver. 6.1 Ultra DMA Mode 6	CF Spec Ver. 4.1 Ultra DMA Mode 6	CF Spec Ver. 6.x Ultra DMA Mode 7
Form Factor	PATA DOM	2.5" PATA SSD	CF Card	CF Card	CF Card
Flash Type	SLC	SLC, MLC		SLC	SLC, MLC, pSLC
Capacity	128MB ~ 4GB	SLC: 1GB ~ 128GB MLC: 4GB ~ 1TB	SLC: 1GB ~ 32GB MLC: 4GB ~ 128GB	SLC: 128MB ~ 8GB	SLC: 4GB ~ 32GB MLC: 8GB ~ 128GB pSLC: 4GB ~ 64GB
Max. Performance	Read: 43MB/s Write: 28MB/s	Read: 86 MB/s Write: 75 MB/s	Read: 86 MB/s Write: 75 MB/s	Read: 51MB/s Write: 40MB/s	Read: 106MB/s Write: 80MB/s
Grade	Industrial	Industrial	Industrial	Industrial	Industrial

PATA DOM



CF Card



MEMORY CARD

SERIES OVERVIEW



	FxAdv II	FxMav	FxPro I HighIOPS	FxPro I	FxPrem II	FxPro III	SD Express	eSD
Feature	Advanced High IOPS Solution with 3D NAND	Advanced High IOPS and High Capacity 3D NAND	High IOPS Solution with 2D NAND	High Performance with 2D NAND	High Capacity 2D NAND Solution	Extreme Performance UHS-II Solution	SD Express Card	Embedded SD JEDEC 100Ball BGA
Interface	SD 6.1	SD 6.1	SD 6.1	SD 3.0/6.1	SD 3.0	SD 6.1	SD 7.1	SD 2.0/ SD 3.0
Speed Class	Up to Class 10, U3, V30, A2	Up to Class 10, U3, V30, A2	Up to Class 10, U3, V30, A1	Up to Class 10, U3, V30	Up to Class 10, U3, V30	Up to Class 10, U3, V90, A1	Up to U3, V30, A1	up to Class 10, U1, V10
UHS mode	UHS-I	UHS-I	UHS-I	UHS-I	UHS-I	UHS-II	UHS-I, PCIe Gen 3x1	UHS-I
Flash Type	3D TLC, 3D pSLC	3D QLC	SLC, MLC, pSLC	SLC, MLC, pSLC	SLC, MLC, pSLC	3D TLC, 3D pSLC	3D QLC	SLC, MLC, pSLC
Capacity	3D TLC: 64GB-512GB 3D pSLC: 16GB ~ 128GB	3D QLC: 128GB ~ 1TB	SLC: 512MB ~ 16GB MLC: 4GB ~ 32GB pSLC: 2GB ~ 16GB	SLC: 128MB ~ 16GB MLC: 1GB ~ 128GB pSLC: 2GB ~ 64GB	SLC: 4GB ~ 32GB MLC: 8GB ~ 256GB pSLC: 4GB ~ 128GB	3D TLC: 64GB ~ 1TB 3D pSLC: 32GB ~ 512GB	3D QLC: 256GB ~ 512GB	SLC: 512MB ~ 16GB MLC: 8GB ~ 64GB pSLC: 4GB ~ 32GB
Max. Performance	Read: 95 MB/s Write: 90 MB/s	Read: 100 MB/s Write: 90 MB/s	Read: 95 MB/s Write: 90 MB/s	Read: 95 MB/s Write: 90 MB/s	Read: 95 MB/s Write: 80 MB/s	Read: 290 MB/s Write: 260 MB/s	Read: 900 MB/s Write: 770 MB/s	Read: 95 MB/s Write: 80 MB/s
Grade	Industrial/Commercial	Commercial	Industrial/Commercial	Industrial/Commercial	Industrial	Commercial	Commercial	Industrial
Function	Industrial Grade							
	Support Smart Tool (SD Life Monitor Tool) Supports Auto-Read Refreshment Support Power Loss Management							



USB SERIES OVERVIEW



FLEXION Industrial USB flash drives offer USB 3.2 Gen 1 and USB 2.0 and are designed with high-quality 2D and 3D NAND technology. It is implemented with flash block management, superior wear-leveling, and a powerful ECC engine to increase data reliability and endurance, fulfill commercial and industrial applications. The industrial-grade USB flash drives provide high performance both in sequential and random read/write, cater to specific requirements. Besides, FLEXION provides security solutions to achieve different level data protection to prevent data breach into these SLC flash drives & MLC USB Flash. It is equipped with a hardware encryption engine and security software embedded to safeguard the data in the USB drive.



	FxU2 III	FxAce II	FxAce		FxAIp	FxReg	
Feature	Standard Performance Supports 3D NAND	High Reliability Solution with 3D NAND High IOPS Solution	High Reliability Solution with 3D NAND High IOPS Solution		High Compatibility & Reliability Supports High IOPS & AES	Wide Compatibility Solution with 3D NAND	
Interface	USB 2.0	USB 3.2 GEN 1	USB 3.1 GEN 1	USB 2.0	USB 2.0 & USB 3.1 Gen 1	USB 3.1 GEN 1	USB 2.0 & USB 3.1 Gen 1
Form Factor	Pen Drive	Pen Drive	Pen Drive	USB DOM (10-pin)	USB DOM (10-pin & 20-pin)	Pen Drive	USB DOM (10-pin & 20-pin)
Flash Type	3D TLC	3D TLC	3D TLC, 3D pSLC		SLC, MLC	3D TLC	MLC, 3D TLC
Capacity	3D TLC: 16GB ~ 64GB	3D TLC: 128GB ~ 256GB	3D TLC: 32GB ~ 512 GB 3D pSLC: 8GB ~ 128GB	3D TLC: 32GB ~ 256GB 3D pSLC: 8GB ~ 64GB	SLC: 1GB ~ 32GB MLC: 4GB ~ 128GB	3D TLC: 64GB ~ 256GB	MLC: 16GB ~ 256GB 3D TLC: 64GB ~ 256GB
Max. Performance	Read: 30 MB/s Read: 20 MB/s	Read: 120 MB/s Read: 60 MB/s	Read: 220 MB/s Read: 100 MB/s	Read: 30 MB/s Read: 24 MB/s	Read: 200 MB/s Read: 150 MB/s	Read: 102 MB/s Read: 86 MB/s	Read: 102 MB/s Read: 86 MB/s
Grade	Commercial	Commercial	Industrial	Industrial	Industrial	Industrial	Industrial



eMMC

INTELLIGENT TECHNOLOGY



Pre-loaded data integrity in reflow process:

Data integrity refers to the reliability and accuracy of data. The eMMC pre-loaded data might get corrupted during soldering. Flexxon eMMC uses pSLC blocks only during soldering process to ensure no data loss during reflow.



Auto Read Refresh:

Auto Read Refresh could monitor the bit errors in every read operation. This is important for read-intensive applications. In order to prevent data damage, refresh operation will be triggered when the bit errors are approaching the threshold.



Static and Dynamic Wear Leveling:

Flexxon eMMC supports static and dynamic wear leveling. The static wear levelling is able to shift cold data (system data that seldom updated) to the block of the maximum erase count in the data area. The dynamic wear leveling shifts hot data (updated user data) to the block of the minimum erase count in the data area. This could reduce the risk of read disturb and sustains data integrity.



Power Loss Protection:

Flexxon eMMC supports pSLC Area Backup Technology. Partial NAND is enabled as pSLC to backup data. The pSLC area is non-volatile storage which can provide higher read/write performance, endurance and data reliability.

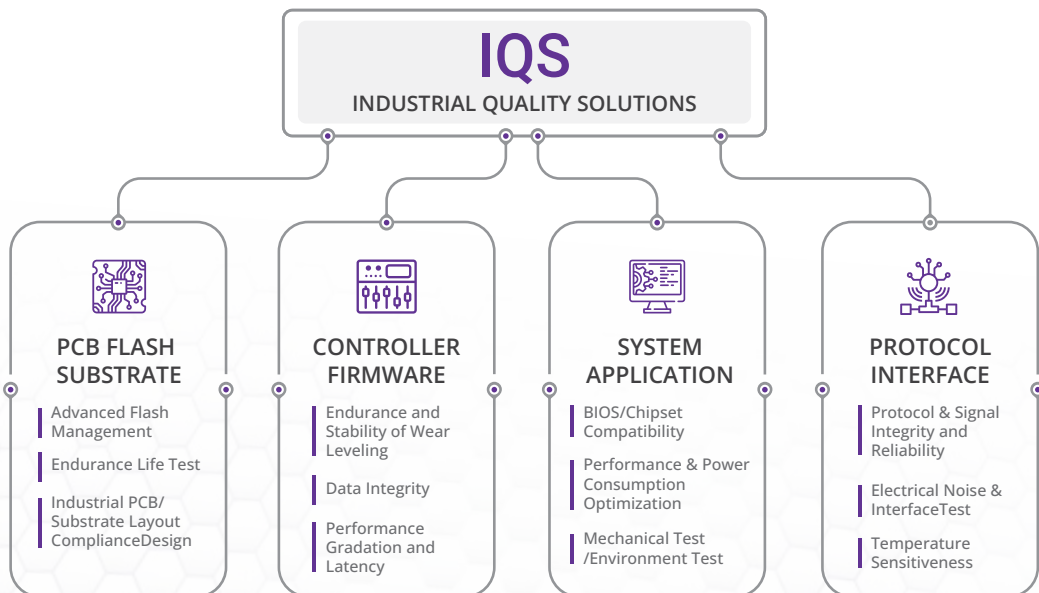
Flexxon eMMC supports UECC handling. If sudden power loss happened, uncorrectable ECC could be found in a programmed page. Flexxon eMMC will scan the whole system blocks. Once ECC Uncorrectable or higher ECC error bit is found, those pages will be discarded and move other valid data to a health block.

Flexxon eMMC also supports power off notification to provide sufficient time for the device to backup all the cache data.



	ECON II	XTRA V	XTRA III	XTRA IV	XTRA VII	XTRA VIII	AXO
Interface	eMMC 5.1	eMMC 5.1	eMMC 5.1	eMMC 5.0	eMMC 5.1	eMMC 5.1	eMMC 5.1
Flash Type	MLC, 3D TLC	3D TLC, 3D pSLC	MLC, pSLC,	MLC, pSLC	MLC, pSLC, 3D TLC, 3D pSLC	3D TLC, 3D pSLC	3D TLC
Pin Count	153-ball	153-ball	100-ball / 153-ball	100-ball / 153-ball	153-ball	153-ball	100-ball/153-ball
Capacity	MLC: 4GB ~ 16GB 3D TLC: 32GB ~ 128GB	D TLC: 16GB~256GB 3D pSLC: 8GB~64GB	MLC: 8GB~16GB pSLC: 4GB~8GB	MLC: 8GB~16GB pSLC: 4GB~8GB	MLC: 8GB pSLC: 4GB 3D TLC: 16GB~128GB 3D pSLC: 8GB~32GB	3D TLC: 32GB~128GB 3D pSLC: 8GB~32GB	3D TLC: 64GB~512GB
Max. Performance	Read: 280 MB/s Write: 200 MB/s	Read: 315 MB/s Write: 240 MB/s	Read: 225 MB/s Write: 140 MB/s	Read: 255 MB/s Write: 140 MB/s	Read: 320 MB/s Write: 255 MB/s	Read: 320 MB/s Write: 260 MB/s	Read: 300 MB/s Write: 200 MB/s
Grade	Commercial	Industrial Gold	Industrial Gold & Diamond	Automotive Grade 3 & Automotive Grade 2	Industrial Gold & Diamond	Automotive Grade 3 & Automotive Grade 2	Industrial & Automotive

INDUSTRIAL QUALITY SOLUTIONS



FLEXXON SSD DATA SECURITY TECHNOLOGY



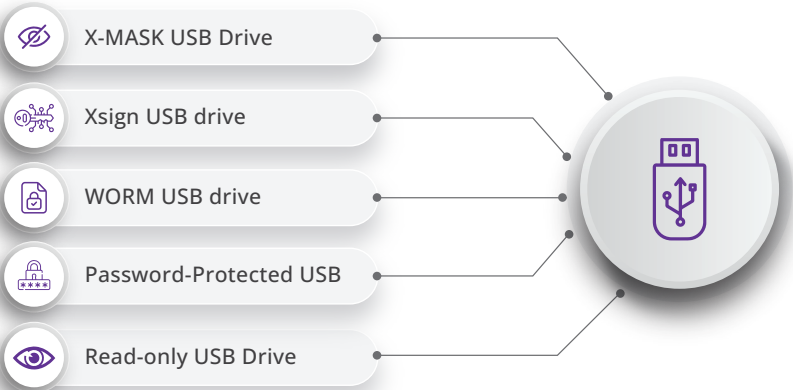
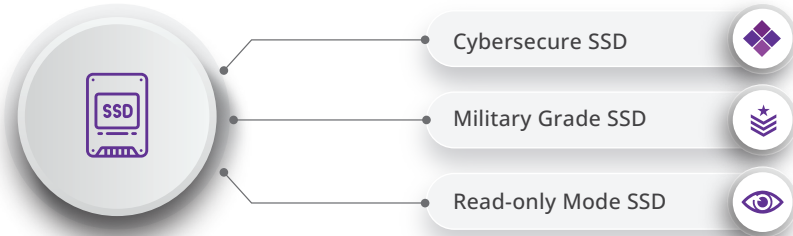
SSD DATA PROTECTION TECHNOLOGY

- 01 xFlush**
Avoid data loss at SPOR
- 02 INTELLIGENTFlush**
Avoid pair-page effect of flash
- 03 Power Loss Protection**
With super cap/tantalum cap
- 04 RAID ECC + LDPC**
Advanced error correction to fight against errors caused by NAND.
- 05 SRAM SEC**
Single bit error correct in SRAM.
- 06 End to End Data Protection**
Data is defensive in the path of data transfer.
- 07 SmartRefresh**
ECC scan to against read disturb.

SD/microSD DATA RELIABILITY TECHNOLOGY

- Power Loss Management**
UECC may occur during power interrupted writes, due to pair page issue of MLC. FW moves the valid data before UECC page to new block, minimizing data loss.
- Advanced Wear Leveling**
For special or customized OS, it could optimize wear leveling, and extend the life span.
- Auto-Read Refresh Management**
Reduce the chances of uncorrectable errors, resulting from repeated reads.

SECURITY PRODUCT PORTFOLIO



FLEXXON Security SSD Overview



	Cybersecure SSD	ROM SSD
Feature	Ultra Cyber Secure Solution	Supports Write Protect
Interface	PCIe Gen 3x4, NVMe 1.3	SATA III
Form Factor	M.2 2280	2.5", M.2 2280, mSATA, Half Slim
Flash Type	3D NAND	3D TLC
Capacity	Up to 1TB	3D TLC: 64GB ~ 1TB
Max. Performance	Read: 2600 MB/s Write: 2400 MB/s	Read: 550 MB/s Write: 500 MB/s
Grade	Commercial	Industrial / Commercial

FLEXXON Security Memory Card Overview



	X-Mask Card	Xsign Card	WORM Card	ROM Card
Feature	Invisible Data	Digital Signature	Write Once Read Many	Supports Write Protect
Interface	SD 3.0/ SD 6.1	SD 3.0/ SD 6.1	SD 6.1	SD 3.0/ SD 6.1
Form Factor	SD/ microSD	SD/ microSD	SD/ microSD	SD/ microSD
Flash Type	MLC, pSLC, 3D TLC, 3D pSLC	MLC, pSLC, 3D TLC, 3D pSLC	MLC	MLC, pSLC, 3D TLC, 3D pSLC
Capacity	MLC: 4GB ~ 256GB pSLC : 4GB ~ 128GB 3D TLC: 32GB~512GB 3D pSLC: 16GB~128GB	MLC: 4GB ~ 256GB pSLC : 4GB ~ 128GB 3D TLC: 32GB~512GB 3D pSLC: 16GB~128GB	MLC: 4GB ~ 256GB	MLC: 4GB ~ 256GB pSLC : 4GB ~ 128GB 3D TLC: 32GB~512GB 3D pSLC : 16GB~128GB
Max. Performance	Read: 95 MB/s Write: 80 MB/s	Read: 95 MB/s Write: 80 MB/s	Read: 80 MB/s Write: 70 MB/s	Read: 95 MB/s Write: 80 MB/s
Grade	Industrial	Industrial	Industrial	Industrial

FLEXXON Security USB Overview



	X-MASK USB	XSIGN USB	WORM USB	SEC I USB	ROM USB
Feature	Invisible Data	Digital Signature	Write Once Read Many	Read Only Mode	Supports Write Protect
Interface	USB 2.0	USB 2.0	USB 2.0	USB 3.1 GEN 1	USB 2.0
Form Factor	Pen drive	Pen drive	Pen drive	Pen drive	Pen drive
Flash Type	MLC	MLC	MLC	3D TLC, 3D pSLC	MLC
Capacity	MLC: 8GB~32GB	MLC: 8GB~32GB	MLC: 8GB ~ 32GB	3D TLC: 128GB ~ 512GB 3D pSLC: 4GB ~ 64GB	MLC: 8GB~32GB
Max. Performance	Read: 27MB/s Write: 20 MB/s	Read: 27MB/s Write: 20 MB/s	Read: 33 MB/s Write: 12 MB/s	Read: 220 MB/s Write: 100 MB/s	Read: 27 MB/s Write: 20 MB/s
Grade	Industrial	Industrial	Industrial	Industrial	Industrial


CONTACT US



Singapore

FLEXXON Pte Ltd.



28 Genting Lane, #09-03/04/05
Platinum 28, Singapore -349585

-  +65-6493 5035
-  +65-6493 5037
-  flexxon@flexxon.com

United States

FLEXXON USA

Eberle Building, Suite 300, 1075 B St,
San Mateo, CA 94401, United States

-  +1 669 240 5384 (US)
-  flexxon@flexxon.com



Flexxon Pte Ltd.
(ISO9001:2015)