



LEADING INDUSTRIAL
NAND STORAGE
SOLUTIONS PROVIDER

www.flexxon.com

ABOUT Flexxon

Founded in 2007 and headquartered in Singapore, Flexxon is a global company that specialises in next generation hardware cybersecurity solutions and industrial NAND storage devices. Rooted in its strong pedigree as a leading industrial NAND flash storage solutions provider, Flexxon introduced the X-PHY brand in 2021 to address the rising tide of cybersecurity concerns. Through the X-PHY suite of solutions, Flexxon is committed to protecting the basic rights of all citizens of the digital economy through constant innovation to address the evolving cybersecurity needs of today. With twenty seven patents and counting, Flexxon's market-leading products and solutions aim to deliver the utmost security and confidentiality standards to users.

Flexxon's flagship cybersecurity solution, the X-PHY® Cybersecure SSD, is the world's first AI-embedded firmware-based cybersecurity solution. It detects anomalies in behavioural data access patterns and effectively shuts down potential incursions in real-time, with round-the-clock monitoring to prevent critical data loss and exposure. Building on the X-PHY's market-changing technology, Flexxon is developing an entire suite of products that will address gaps in cybersecurity for individuals, SMEs and major enterprises.



Full Product Qualification Testing conducted from Component level to Production level.



Full Reliability Tests include Mechanical, Environmental, Packaging, and Printing Tests.



WHY FLEXXON



Long Product Life



Fixed BOM



Industrial Grade



Supports HMLV
(High-Mixed Low
Volume)



Special Capacity
and Customized
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

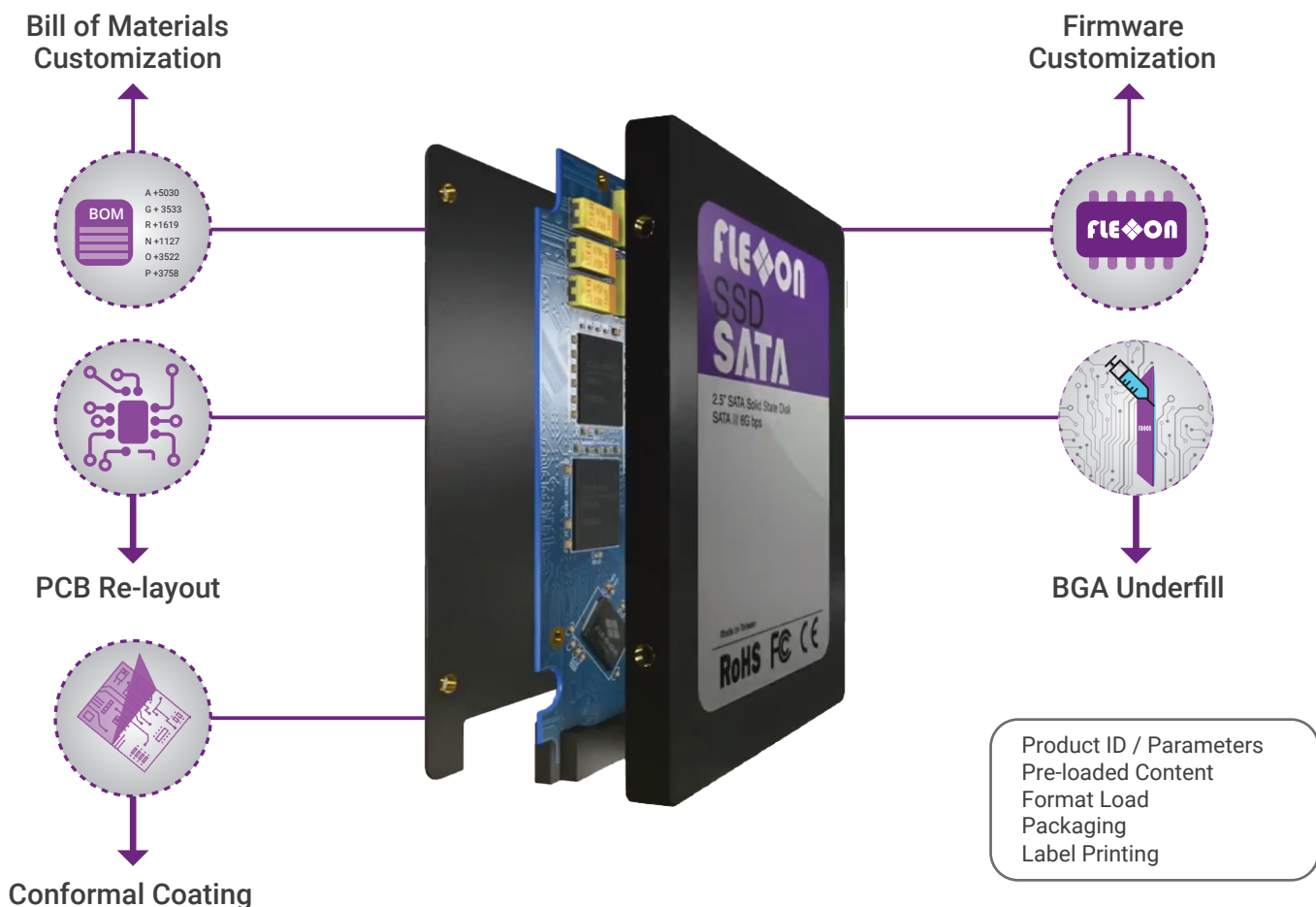
FLEXXON PRODUCT FEATURES

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	ACHIEVER	XTREME	XCEL	GALAXY
Features	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	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, 3D QLC	SLC, MLC
Capacity	3D TLC: 64GB ~ 2TB 3D pSLC: 16GB~256GB	SLC: 4GB ~ 128GB MLC: 8GB ~ 1TBGB pSLC: 4GB~256GB	SLC: 8GB ~ 128GB MLC: 4GB ~ 512GB pSLC: 2GB ~ 256GB 3D TLC: 16GB ~ 1TB 3D pSLC: 32GB ~ 128GB	3D TLC: 128GB ~ 8TB 3D QLC: 16TB	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

USB SERIES OVERVIEW



	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: 4GB ~ 32GB MLC: 4GB ~ 128GB	3D TLC: 64GB ~ 256GB	MLC: 16GB - 256GB 3D TLC: 64GB ~ 512GB
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

PCIe SSD SERIES OVERVIEW



	GEX	DEX	DEX PRO	HIX	REX	VEX
Features	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 Super High Performance	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 1.3	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	M.2 2280
Flash Type	3D NAND	3D NAND	3D NAND	3D NAND	3D NAND	3D NAND
Capacity	256GB ~ 2TB	128GB ~ 1TB	128GB ~ 1TB	128GB ~ 8TB	500GB ~ 2TB	500GB ~ 2TB
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: 5000 MB/s Write: 4400 MB/s	Read: 7000 MB/s Write: 6850 MB/s
Grade	Industrial	Industrial	Industrial	Industrial / Commercial	Commercial	Commercial

PCIe ENTERPRISE SSD SERIES OVERVIEW



	EMP-I	EMP-I PRO
Features	Suitable for Read & Write balance applications Good Endurance and Performance	Suitable for Write focus applications High Endurance and Better Performance
Interface	PCIe Gen 4x4, NVMe 1.4	PCIe Gen 4x4, NVMe 1.4
Form Factor	U.2, AIC	U.2
Flash Type	3D NAND	3D NAND
Capacity	3840GB ~ 15.36TB	3200GB ~ 12.80TB
Max. Performance	Read: 7500 MB/s Write: 6000 MB/s	Read: 7500 MB/s Write: 6000 MB/s
DWP (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

MEMORY CARD SERIES OVERVIEW



	FxAdv II	FxMav	FxPro I HighIOPS	FxPro I	FxPrem II	FxPro III	SD Express	eSD
Features	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~28GB pSLC: 2GB~64GB	SLC: 4GB~32GB MLC: 8GB0~256GB pSLC: 4GB~128GB	3D TLC: 64GB ~256GB 3D pSLC: 32GB ~256GB	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	<u>Industrial Grade:</u> Supports Smart Tool (SD Life Monitor Tool) Supports Auto-Read Refreshment Supports Power Loss Management							

PATA SERIES OVERVIEW



	CLASSIC	CLASSIC II		LEGACY II	LEGACY III
Features	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 and 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, pSLC		SLC	SLC, MLC, pSLC
Capacity	128MB ~ 4GB	SLC: 4GB ~ 128GB MLC: 4GB ~ 1TB	SLC: 1GB ~ 32GB MLC: 8GB ~ 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

EMMC CARD SERIES OVERVIEW



eMMC Series	ECON II	XTRA VII	XTRA VIII	XTRA III	AXO
Pin Count	153-ball	153-ball	153-ball	153-ball/ 100-ball	153-ball/ 100-ball
Interface	eMMC 5.1	eMMC 5.1	eMMC 5.1	eMMC 5.0	eMMC 5.1
Flash Type	MLC, 3D TLC	MLC, pSLC, 3D TLC, 3D pSLC	3D TLC, 3D pSLC	MLC	3D TLC
Capacity	MLC: 4GB ~ 16GB 3D TLC: 32GB ~ 128GB	MLC: 8GB, pSLC: 4GB 3D TLC: 16GB~128GB 3D pSLC: 8GB~32GB	3D TLC: 32GB~128GB 3D pSLC: 8GB~32GB	MLC: 4GB~16GB pSLC: 4GB~8GB	3D TLC: 64GB~512GB
Max. Performance	Read: 270 MB/s Write: 120 MB/s	Read: 320 MB/s Write: 255 MB/s	Read: 320 MB/s Write: 260 MB/s	Read: 250 MB/s Write: 25 MB/s	Read: 300 MB/s Write: 200 MB/s
Operating Temp.	Commercial	Industrial Gold & Diamond	Automotive Grade 2 & 3	Industrial Diamond	Industrial & Automotive

X-PHY[®] SSD

Dynamic Cybersecurity

X-PHY[®] AI Embedded Cyber Secure SSD



This **WORLD'S FIRST** SSD embedded AI security at firmware level, co-functions with hardware sensors for real-time protection against cyber threats. It could detect anomaly change in data access patterns or any signs of compromise. **And it can stop known and unknown threats autonomously without human intervention.**



World's First

Memory Storage with **embedded AI** for real-time protection against cyber-attack



Stop Unknown Threats

X-PHY can **STOP unknown cyber threats** without having to update



Intellectual Property (IP)

50 patents filed world-wide. 30 granted around the **4 primary patents**



[Passed] International & Independent Lab Testing



SOFTWARE BASED PROTECTION vs. X-PHY[®]

		X-PHY [®]	Software - Signature Based	Software - Behavioral Based
Detection approach	Method	Data Access Pattern (Read/Write)	Signature Library	Behavioral Patterns
	Perimeter	Internet Protocol	External Environment	
Human Intervention		None	High	Medium
Zero-Day Protection Coverage		Tested with 100% Accuracy	Low (Known threats only)	Medium (Defined variable and threshold)
False Positive		Yes	High	Medium
Physical Protection		✓	✗	✗

Security Solutions

SECURITY SOLUTIONS



	X-MASK Card	WORM Card	ROM Card	AES Card
Features	Invisible Data	Write Once Read Many	Support Write Protect	Support AES-256
Interface	SD 3.0	SD 6.1	SD 3.0	SD 3.0
Form Factor	SD / microSD	SD / microSD	SD / microSD	microSD
Flash Type	MLC, pSLC	MLC	MLC, pSLC	SLC, MLC
Capacity	MLC: 4GB ~ 256GB pSLC: 4GB ~ 128GB	MLC: 4GB ~ 256GB	MLC: 4GB ~ 256GB pSLC: 4GB ~ 128GB	SLC: 512MB MLC: 8GB ~ 32GB
Max. Performance	Read: 95MB/s Write: 80MB/s	Read: 80MB/s Write: 70MB/s	Read: 95MB/s Write: 80MB/s	Read: 50MB/s Write: 30MB/s
Grade	Industrial	Industrial	Industrial	Commercial

USB SECURITY OVERVIEW



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

ROM SSD OVERVIEW



	ROM SSD	ROM SSD
Features	Support Write Protect	Capacity 3D TLC: 64GB ~ 1TB
Interface	SATA III	Max. Performance Read: 550MB/s, Write: 500MB/s
Form Factor	2.5", M.2 2280, mSATA, Half Slim	Grade Industrial / Commercial
Flash Type	3D TLC	


CONTACT US


For Further Inquiries

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