China Chips Star Semiconductor Co.,Ltd

High-end embedded storage

eMMC Presention

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Corporate Strength & Product Snapshot

Automotive Storage Pioneer

Company Introduction

China Chips Star Semiconductor Co., Ltd. was founded in 2022, with its headquarters in Shenzhen and branches in Hong Kong, Nanjing and Singapore. It is a national high-tech and SRDI enterprises integrating R&D, packaging, testing, sales and services. It was one of the three semiconductor enterprises in Shenzhen recognized by the Ministry of Industry and Information Technology in 2023, and also the only enterprise in China that has received strategic investment from one of the world's top four wafer manufacturers. China Chips Star Semiconductor Co., Ltd. provides a full range of storage

solutions, focusing on high-end industrial grade, enterprise grade and automotive grade memory chips, and builds the professional memory chips brand- PG (Perfect Grade) .

eMMC 5.1 at a Glance: Capacity, Speed, Power, Reliability

01

Core Product

eMMC 5.1 Embedded Storage Chip offers a capacity range of 8GB–512GB, with read speeds up to 330MB/s and write speeds up to 240MB/s.

02

Low Power Consumption

Features a 30% reduction in background power consumption, making it highly efficient for various applications.

03

High Reliability

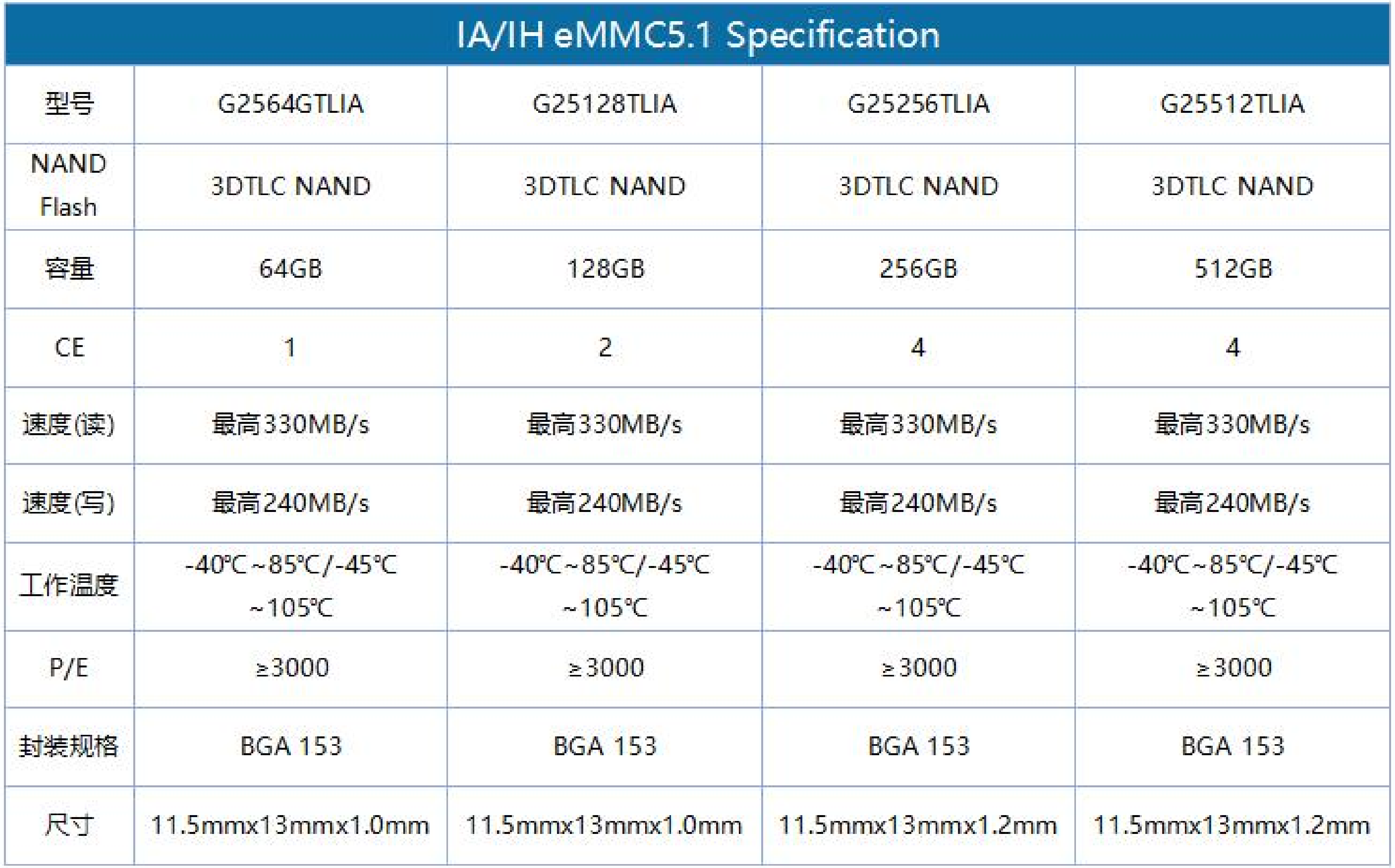
JEDEC eMMC 5.1 compliant, ensuring high reliability and compatibility with modern embedded systems.

Commercial Grade eMMC Specification

CA eMMC5.1 Specification

型号	G2564GTLCA	G25128TLCA	G25256TLCA	G25512TLCA
NAND Flash	3DTLC NAND	3DTLC NAND	3DTLC NAND	3DTLC NAND
容量	64GB	128GB	256GB	512GB
CE	1	2	4	4
速度(读)	最高330MB/s	最高330MB/s	最高330MB/s	最高330MB/s
速度(写)	最高240MB/s	最高240MB/s	最高240MB/s	最高240MB/s
工作温度	-25℃~85℃	-25℃~85℃	-25℃~85℃	-25℃~85℃
P/E	≥3000	≥3000	≥3000	≥3000
封装规格	BGA 153	BGA 153	BGA 153	BGA 153
尺寸	11.5mmx13mmx1.0mm	11.5mmx13mmx1.0mm	11.5mmx13mmx1.2mm	11.5mmx13mmx1.2mm

Industrial Grade eMMC Specification



IA/IH eMMC5.1 Specification

型号	G2564GTLIA	G25128TLIA	G25256TLIA	G25512TLIA
NAND Flash	3DTLC NAND	3DTLC NAND	3DTLC NAND	3DTLC NAND
容量	64GB	128GB	256GB	512GB
CE	1	2	4	4
速度(读)	最高330MB/s	最高330MB/s	最高330MB/s	最高330MB/s
速度(写)	最高240MB/s	最高240MB/s	最高240MB/s	最高240MB/s
工作温度	-40℃~85℃/-45℃~105℃	-40℃~85℃/-45℃~105℃	-40℃~85℃/-45℃~105℃	-40℃~85℃/-45℃~105℃
P/E	≥3000	≥3000	≥3000	≥3000
封装规格	BGA 153	BGA 153	BGA 153	BGA 153
尺寸	11.5mmx13mmx1.0mm	11.5mmx13mmx1.0mm	11.5mmx13mmx1.2mm	11.5mmx13mmx1.2mm

Automotive Grade eMMC Specification

AEC eMMC5.1 Specification				
型号	G2564GTLAEC	G25128TLAEC	G25256TLAEC	G25512TLAEC
NAND Flash	3DTLC NAND	3DTLC NAND	3DTLC NAND	3DTLC NAND
容量	64GB	128GB	256GB	512GB
CE	1	2	4	4
速度(读)	最高330MB/s	最高330MB/s	最高330MB/s	最高330MB/s
速度(写)	最高240MB/s	最高240MB/s	最高240MB/s	最高240MB/s
工作温度	-45℃~105℃	-45℃~105℃	-45℃~105℃	-45℃~105℃
P/E	≥5000	≥5000	≥5000	≥5000
封装规格	BGA 153	BGA 153	BGA 153	BGA 153
尺寸	11.5mmx13mmx1.0mm	11.5mmx13mmx1.0mm	11.5mmx13mmx1.2mm	11.5mmx13mmx1.2mm

02

Core Technology Deep Dive

KIOXIA 9T25 3D TLC: Density, Endurance, Wide-Temp

01

Advanced 3D Architecture

KIOXIA BiCS FLASH™ 3D TLC NAND features an advanced 112-layer vertical stacking technology, significantly increasing storage density.

02

Enhanced Endurance

Delivers up to 10,000 P/E cycles in TLC mode, providing a theoretical service life of 8 years in industrial scenarios.

03

Extreme Environment Adaptability

Data retention of 10 years within an industrial temperature range of -40°C to 85°C, maintaining 98% performance at -40°C.

SMI Controller: LDPC & Power-Fail 2.0

LDPC Error Correction

To address the inherent reliability challenges of advanced NAND flash memory (like TLC and QLC), SMI employs a powerful 4K LDPC (Low-Density Parity-Check) engine. This technology offers significantly stronger error correction capabilities compared to older 1K or 2K LDPC schemes, which is crucial for maintaining data integrity

Intelligent Power Failure Protection 2.0

SMI has optimized its LDPC design to balance performance and efficiency. Despite the increased complexity of the 4K LDPC, their implementation keeps the increase in power consumption and silicon area to around 20%. This efficient design is important for embedded storage solutions where power and space are often constrained.

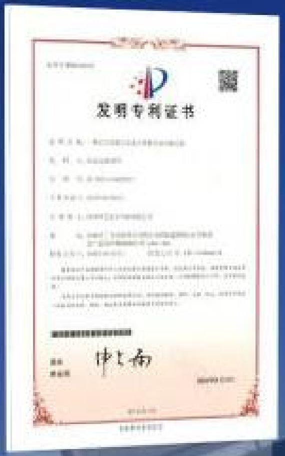
03

Patent Qualification


Authentication Certifica
Quality Management Sy
China Chips Star Semiconducto
GB/T 19001-2016/ISO 9001

质量管理体系认证证书
深圳华芯星半导体有限公司
GB/T 19001-2016/ISO 9001:2015

- ISO9001


发明专利证书

- 30 invention patents 10 patents in application


中华人民共
计算机软件
实用新型专利证书

- 25 software copyrights/ utility model patents
More than 100 intellectual property rights


BCT
Test Verification of C
CE

BCTC
Test Verification of Conformity
RoHS

- More than 10 products have passed CE/RoHS certification


TÜV
IATF 16949:2016
CERTIFICATE

- TUV I ATF 16949


Verified
Gold Plus Supplier Assessment Certificate
China Chips Star Semiconductor Co., Ltd.
深圳华芯星半导体有限公司

- Alibaba International Station Gold Medal Supplier


高

创新型中小企业
深圳华芯星半
深圳市中小
有效期：2024年07

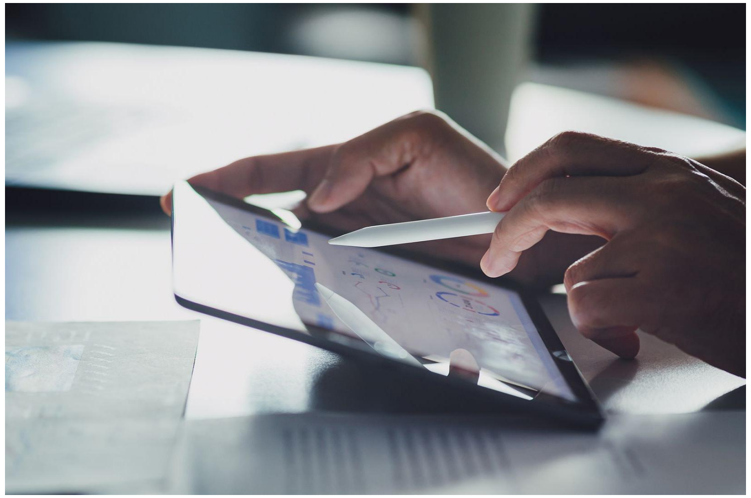
专精特新中小企业
深圳华芯星半导体有限公司
深圳市中小企业服务局
有效期：2024年12月31日-2027年12月30日

- **Specialized, Refined, Characteristic and Innovative SMEs**
- **High-Tech**
- **Enterprises Innovative SMEs**
- **Technology SMEs**

Scenario Matrix: -45 °C ADAS to 85 °C PLC

Automotive Electronics

Ideal for automotive applications such as IVI systems, ADAS, and automotive electronics, supporting temperatures down to -45°C.

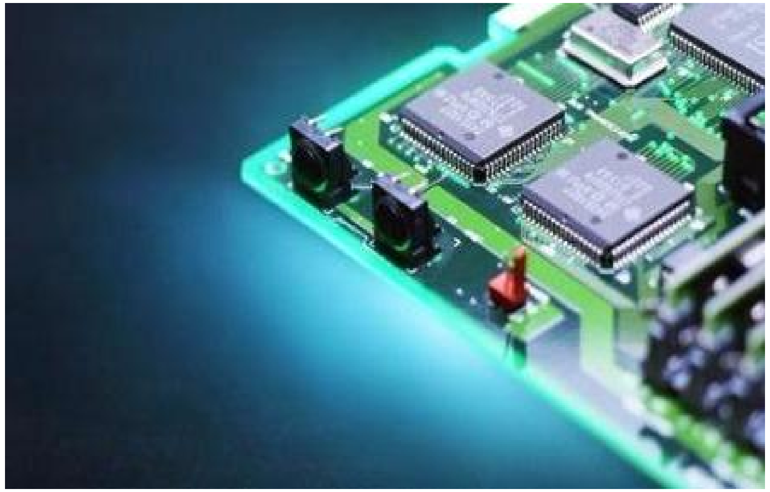


Industrial Automation

Suitable for industrial controllers and automated equipment, withstanding temperatures up to 85°C.

Consumer Electronics & AIoT

Provides high-performance, low-power storage solutions for smartphones, tablets, smart TVs, and AIoT devices.



04

Market Edge & Supply Security

Hexagon Warrior: Industrial, Automotive, Consumer

Industrial

Offers 10,000 P/E cycles and a wide temperature range of -40℃ to 105℃, making it highly reliable for industrial applications.

Automotive

Compliant with TUV IATF16949 and ISO9001, ensuring safety and reliability in automotive electronics.

Consumer

Delivers 290MB/s read speed, 130μA standby power consumption, and a 1-year warranty, ideal for consumer electronics.

Supply-Security & Cost-Optimization Engine

Technology Integration

Combines KIOXIA wafers with SMI controllers to deliver high-performance and reliable storage solutions.

Cost Advantage

Achieves an 18% reduction in BOM costs in automotive projects, providing significant cost savings.

Independent R&D

Features complete supply chain control through independent R&D, ensuring supply security and cost optimization.

Competitive Advantages

Stable support from the upstream, midstream, and downstream industrial chain

R&D, packaging, testing

Competitive Advantages

High quality customers

Communication terminal

HONOR 荣耀

TRANSSION 传音控股

ZTE中兴

alhua TECHNOLOGY 大华股份

Mobile platform

紫光展锐™ UNISOC

MEDIATEK 聯發科技

Qualcomm 高通

Multimedia and IoT platforms

Rockchip 瑞芯微电子

ALLWINNER 全志科技

Amlogic 晶晨半导体

Laptop and server platform

HUAWEI

兆芯

HYGON 中科海光

intel

AMD

05

Value Recap & Roadmap

Millisecond Response, Decade Lifespan: Store Here

Value Summary

Chia Chips Star eMMC 5.1 delivers nanometer-level precision, millisecond-level response, and decade-level data longevity, making it the ideal choice for modern embedded storage.

Industry 4.0

Perfectly suited for Industry 4.0 applications, providing reliable and high-performance storage solutions.

Smart Cars & 5G IoT

Empowers smart cars and 5G IoT devices with its advanced technology and long-lasting data retention capabilities.

PG SMI-eMMC~UFS Roadmap（2024~2026)

Roadmap / Model	2025 Year				2026 Year				备注
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
eMMC5.1	SMI2732+BiCS5 (64GB~128GB~256GB)		SMI2732+BiCS5（工规） (64GB~128GB~256GB)		SMI2732+BiCS5（车规） (64GB~128GB~256GB)				
			SMI2732+BiCS8 (128GB~256GB~512GB)		SMI2732+BiCS4 (32GB)				
UFS			UFS3.1 BiCS8TLC (256GB~512G~1TB)		UFS3.1 BiCS8 QLC (256GB~512G~1TB)		UFS4.1 BiCS8 TLC (256GB~512G~1TB)		

规格型号说明:

SMI：慧荣科技股份有限公司　英文名称：Silicon Motion

BiCS 4/5/8：KIOXIA Group

PG SA-eMMC5.1 Roadmap（2024~2026)

Roadmap / Model	2024 Year	2025 Year				2026 Year				备注
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
eMMC5.1	SA3635+BiCS5 (64GB~128GB~256GB)	SA3636+BiCS5 (64GB~128GB~256GB)								
					SA3636+BiCS8 (128GB~256GB)					

规格型号说明:

SA:深圳衡宇芯片科技有限公司　英文名称：StorArt

BiCS 5/8：KIOXIA Group

THANK YOU FOR WATCHING

Presenter:Lily

Time:2025/11/06