Biwin
Storage Technology

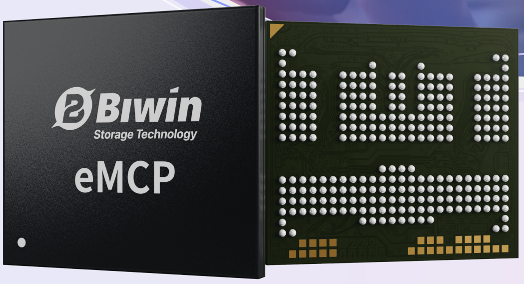
eMMC 5.1

BIWIN eMMC is an embedded storage solution combining high-quality flash memory and a flash memory controller to save motherboard space and assist device miniaturization.

The eMMC complies with the JEDEC standards, simplifying terminal device design and qualification certification processes, accelerating time-to-market, and reducing overall cost.

BIWIN eMMC offers capacities up to 512 GB, with low power consumption, supporting extended device battery life.

eMMC is a popular solution for many electronic devices, including smartphones, tablets, automotive electronics, IoT, wearable devices, set-top boxes, and more.



Key Features

High-Speed Read/Write with HS400 Support

BIWIN eMMC 5.1 adopts the advanced eMMC 5.1 standard, supporting the High-Speed 400 (HS400) DDR Mode, with read and write speeds of up to 300 MB/s and 250 MB/s, respectively. It offers excellent compatibility and reliability, and is backward compatible with previous modes, such as HS200.

High Integration for Space Efficiency

Featuring a standardized BGA package with dimensions of 11.5 × 13.0 mm, the design integrates both the flash memory die and the controller, significantly reducing the footprint and saving valuable space in terminal devices. This integration supports the miniaturization and slimming of devices, facilitating more efficient designs.

Wide Compatibility

BIWIN eMMC 5.1 offers wide compatibility and flexible hardware adaptability. It can be used across different devices and systems, supporting multiple NAND flash types, including MLC, TLC, and QLC, providing a versatile solution for a wide range of applications.

Proprietary Firmware Algorithms

The BIWIN eMMC 5.1 incorporates proprietary firmware algorithms that provide deep control and intelligent scheduling of the storage architecture. These algorithms can be customized based on specific application scenarios, delivering enhanced performance, extended lifespan, stability, and reliability for an optimized storage experience.

Customizable Solutions

BIWIN provides customizable services that optimize cost-effectiveness by adjusting both capacity and performance to meet specific needs. Through advanced firmware customization, BIWIN enhances security, reliability, and boot speed, offering device manufacturers the flexibility to fine-tune their products to precise specifications.

Technologies

- Write Protection
- Quick Erase
- Wear Leveling
- Garbage Collection
- TRIM Command

Applications

- Mobile Phone
- Tablet
- Laptop
- Digital Set-Top Box
- Security Surveillance
- Smart Wearable
- Educational Electronics
- Gaming and Entertainment
- Industrial Automation
- Network Communications
- Smart Speaker
- Automotive Electronics

Specifications

Model Name	eMMC
Interface	eMMC 5.1
NAND Type	3D TLC
Firmware	SLC Cache
Capacity	4 GB / 8 GB /16 GB / 32 GB / 64 GB / 128 GB / 256 GB / 512 GB
Sequential Read (Up to)	300 MB/s
Sequential Write (Up to)	250 MB/s
Operating Voltage	V_{CC} = 2.7 V - 3.6 V V_{CCQ} = 1.7 V - 1.95 V / 2.7 V - 3.6 V
Dimensions	8.00 × 7.50 mm, 11.50 × 13.00 mm, 7.50 × 8.00 mm, 9.00 × 11.00 mm
Packaging	FBGA 153 Ball
Operating Temperature	-25°C to + 85°C
Storage Temperature	-40°C to + 85°C
Supported Platforms	Allwinner, Amlogic, ASR, BES, Eeasytech, Gokemicro, Hisilicon, Ingenic, JQL, Mediatek, Qualcomm, Rockchip, Sifli, Unisoc, Horizon. etc
Warranty	3-Year Limited

Order Information

Capacity	Part Number	Packaging	Dimensions
4 GB	BWCMAB811G04G	FBGA153	11.50 × 13.00 mm
8 GB	BWCMMQ511G08G	FBGA153	9.00 × 11.00 mm
16 GB	BWCTAK611G16G	FBGA153	11.50 × 13.00 mm
32 GB	BWCTARJ11X32G	FBGA153	11.50 × 13.00 mm
64 GB	BWCTAKC11X64G	FBGA153	11.50 × 13.00 mm
128 GB	BWCTAKL11X128G	FBGA153	11.50 × 13.00 mm
256 GB	BWCTAKL21X256G	FBGA153	11.50 × 13.00 mm
512 GB	BWCTAKL41X512G	FBGA153	11.50 × 13.00 mm

1. Tested by BIWIN labs. Actual performance may vary due to systems, devices, or environment.
2. Maintenance and future updates are required throughout the product lifecycle. Specifications are subject to change without notice.
3. The pictures are for illustration only. Actual products may vary due to product enhancements or changes.
4. Not all products are sold in all regions of the world.
5. Please visit www.biwintechnology.com for warranty details in your region.
6. For more information, please contact sales@biwintech.com.

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