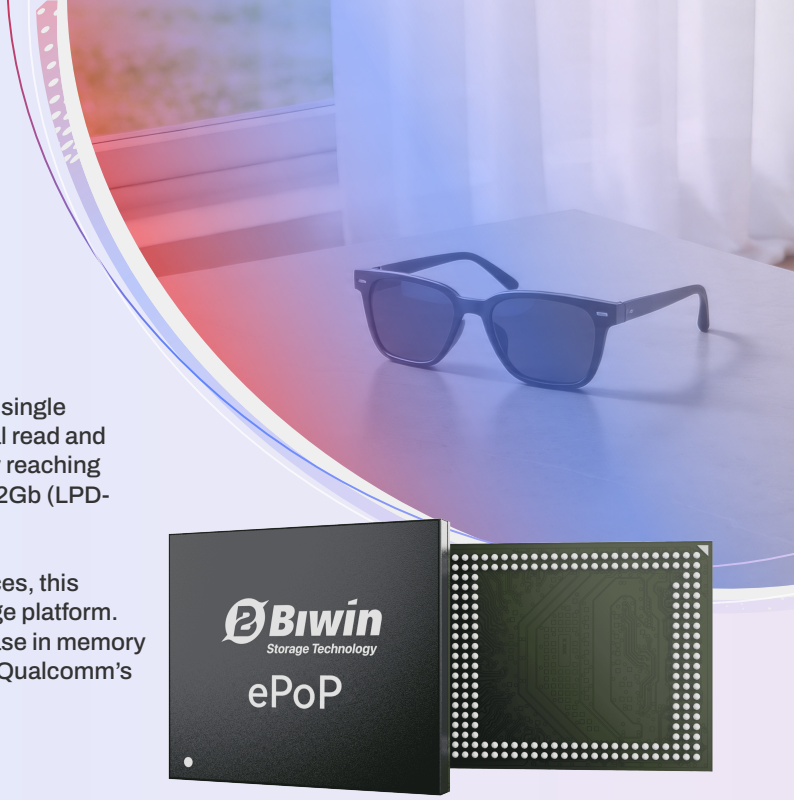
Biwin
Storage Technology

BIWIN ePoP5X



BIWIN 201-ball ePoP5X integrates eMMC 5.1 and LPDDR5X into a single package with a compact footprint of just 8.00 × 9.50 mm, sequential read and write speeds up to 300 MB/s and 150 MB/s, and memory frequency reaching 8533 Mbps. Capacity configurations scale up to 64GB (eMMC) + 32Gb (LPDDR5X).

Designed for high-end smart watches, wearables, and mobile devices, this solution represents BIWIN's next-generation flagship mobile storage platform. Compared with the previous generation, it delivers a 128.6% increase in memory frequency while reducing package size by 32%. It has also passed Qualcomm's 6100 platform official certification.

Key Features

Ultra-Slim, Compact Form Factor

Embedded Package-on-Package (ePoP) LPDDR5X with a 201-ball configuration is a premier, highly integrated memory solution especially for flagship smartphones, AI wearables, and ultra-thin laptops. It combines LPDDR5X DRAM (speeds up to 8533 Mbps) with high-speed eMMC 5.1 (at 300 MB/s read speed) into a single, stacked component.
BIWIN ePoP5X uses advanced packaging technologies such as multi-layer die stacking, ultra-thin dies, and heterogeneous multi-chip integration to create a package thickness of only 0.54 mm. Its ultra-thin and compact design significantly reduces required PCB space, making it an ideal storage solution for the slim and lightweight design for wearables and other mobile devices.

Highly Integrated, Flagship Performance

The 201-ball package is specifically used for LPDDR5X-based ePoP to support the increased signal, power, and ground requirements of faster data rates in an extremely compact, thin, vertical space. It allows for efficient multi-layer die stacking of both LPDDR5X DRAM and storage, optimizing performance for AI-driven mobile devices.
The 201-ball configuration fits into the 8x9.5 mm footprint used for advanced ePoP, which stacks the memory directly on top of the SoC to save PCB space.

Superb Reliability, More Stable Operation

This ePoP5X configuration is designed for the 16n prefetch architecture and enhanced data streaming, essential for AI and 5G applications.
LPDDR5X requires more pins for high-speed signaling compared to LPDDR4X which often used 144 balls. With a higher pin count for signal integrity to ensure data integrity at faster speeds, the 201-ball design also accommodates improved power and ground mapping needed for the lower voltage (0.5V-0.6V) operation of LPDDR5X, reducing noise and improving stability.
BIWIN ePoP5X also features global wear-leveling management and LDPC error correction algorithms, and supports FFU upgrades. These capabilities ensure stable operation during long-term and intensive usage, providing more reliable and more sustained high performance.

Customization Services

BIWIN provides professional hardware customization and packaging and testing services. Powered by our in-house developed firmware, it supports features such as faster boot, ultra-low power consumption, and SoC controller optimization. Customized versions can also be provided according to specific customer requirements, delivering more precise storage solutions for specific needs.

Technologies

Write Protection	Quick Erase	Wear Leveling	Garbage Collection	RIM

Applications

Smart watch	AI glasses	VR/AR	Mobile module

Specifications

Model Name	ePoP5X
Interface	eMMC 5.1 + LPDDR5X
Capacity	64 GB + 16 Gb, 64 GB + 24 Gb, 64 GB + 32 Gb
Performance	**eMMC 5.1:** Sequential Read: 300 MB/s Sequential Write: 150 MB/s **LPDDR4X:** Up to 8533 Mbps
Operating Voltage	**eMMC 5.1:** V_{CC} = 3.3 V V_{CCQ} = 1.8 V **LPDDR4X:** V_{DD1} = 1.8 V V_{DD2} = 1.1 V V_{DDQ} = 0.6 V
Dimensions	8.00 x 9.50 mm
Packaging	ePoP 201 Ball
Operating Temperature	-25°C to + 85°C
Storage Temperature	-40°C to + 85°C
Supported Platforms	Qualcomm 6100
Warranty	3-Year Limited

Order Information

Capacity	Part Number	Package	Dimensions
64GB+16Gb	BWCSAEYA02-64G	FBGA201	8.00 x 9.50 mm
64GB+24Gb	BWCSAFEJ02-64G	FBGA201	8.00 x 9.50 mm
64GB+32Gb	BWCSAKYA02-64G	FBGA201	8.00 x 9.50 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 life cycle. 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.**

Global Headquarters:
BIWIN STORAGE TECHNOLOGY CO., LTD.
Building #4, South Zone #2, Zhongguan Honghualing Industrial Zone,
Nanshan District, Shenzhen, Guangdong, China
+86 (755) 2671-5701
sales@biwintech.com

Biwin
Storage Technology

www.biwintechnology.com