

M321R8GA0EB2-CCP

64GB DDR5-6400 ECC Registered DIMM (RDIMM)

Technical Datasheet

1. Product Overview

The M321R8GA0EB2-CCP is identified in distributor and technical-reference listings as a Samsung 64GB DDR5-6400 ECC Registered DIMM (RDIMM). The module is intended for compatible server and enterprise computing platforms requiring high memory capacity, high bandwidth, registered signaling, and ECC support.

2. Key Features

- 64GB memory capacity (1 × 64GB module)
- DDR5 SDRAM technology
- DDR5-6400 / 6400 MT/s data rate
- ECC Registered DIMM (RDIMM)
- 2Rx4 dual-rank organization
- 288-pin DIMM form factor
- 1.1V nominal operating voltage
- CL52 timing is reported by multiple current product references
- PC5-51200R bandwidth class is reported by current technical references

3. Electrical & Module Specifications

Parameter	Specification
Manufacturer	Samsung
Part Number	M321R8GA0EB2-CCP
Memory Type	DDR5 SDRAM
Module Capacity	64GB
Module Configuration	1 × 64GB
Module Type	ECC Registered DIMM (RDIMM)
Form Factor	288-pin DIMM
Data Rate	6400 MT/s
Memory Standard	DDR5-6400
Bandwidth Class	PC5-51200R
Rank / Organization	2Rx4
Data Width	80-bit total (72-bit data + ECC), as reported in technical references
ECC	Yes
Registered / Buffered	Registered
Nominal Voltage	1.1V
CAS Latency	CL52 (reference value)

4. Functional Description

As an ECC RDIMM, the module uses registered signaling to support memory configurations used in server-class systems. ECC provides additional error-detection/correction capability for data integrity. Actual operating speed and supported population depend on the host server, CPU memory controller, BIOS/firmware, DIMM population, and platform validation.

5. Typical Applications

- Data-center and enterprise servers
- Virtualization and cloud-computing infrastructure
- Database and memory-intensive workloads

- AI / machine-learning server infrastructure
- High-performance computing (HPC)
- Enterprise storage and network infrastructure

6. System Compatibility Notes

This module is intended for platforms that explicitly support DDR5 ECC RDIMM memory. A 288-pin DDR5 RDIMM should not be treated as interchangeable with DDR5 UDIMM, SO-DIMM, or DDR4 modules. Before installation, verify the server platform's Qualified Vendor List (QVL), supported capacity per slot/channel, maximum supported data rate, rank/organization limits, DIMM population rules, and BIOS/firmware requirements.

7. Installation Guidance

1. Power down the server and disconnect AC power according to the platform manufacturer's service procedure.
2. Observe ESD precautions and handle the DIMM only by its edges.
3. Confirm that the motherboard/server platform supports DDR5 ECC RDIMM.
4. Install the module in the slot/channel recommended by the server manufacturer.
5. If multiple DIMMs are installed, follow the platform's population and matching rules.
6. After installation, enter the system firmware/BIOS and confirm that the expected capacity is detected.
7. Run the platform's recommended memory diagnostics before placing the system into production.

8. Performance & Timing Notes

The 6400 MT/s rating represents the module's rated data-transfer rate under supported platform conditions. It does not guarantee that every server configuration will operate at 6400 MT/s. Platform-specific memory-controller limits, DIMM population, firmware settings, and other system constraints may result in a lower operating rate.

9. Mechanical / Packaging Information

Parameter	Specification
Module Form Factor	288-pin DDR5 DIMM / RDIMM
Package Type	DIMM module; exact shipping package is lot/supplier dependent
Module Height	Standard-height specification should be verified against the manufacturer's module drawing
Pin Assignment	Use the applicable JEDEC DDR5 RDIMM specification and manufacturer documentation

10. Ordering Information

Parameter	Specification
Ordering Part Number	M321R8GA0EB2-CCP
Brand	Samsung
Capacity	64GB
Speed	DDR5-6400 / 6400 MT/s
Type	ECC RDIMM
Organization	2Rx4

11. Important Specification Disclaimer

IMPORTANT: This document is a technical reference prepared from publicly available third-party product listings and distributor references. It is NOT an official Samsung datasheet and must not be presented as a manufacturer-issued document. Some detailed items (including exact DRAM component marking, SPD contents, timing tables, operating-temperature limits, mechanical dimensions, PMIC/RCD details, and pin-by-pin assignments) require confirmation from Samsung's official module specification or the specific production lot.

12. Reference Basis

Public references reviewed for this reference version include current listings identifying M321R8GA0EB2-CCP as a Samsung 64GB DDR5-6400 ECC RDIMM with 2Rx4 organization and 1.1V operation. Because publicly indexed sources contain inconsistent specifications for this part number, only parameters supported by multiple references or clearly identified as reference values are included above.

Prepared as a technical reference • Part number: M321R8GA0EB2-CCP