Cisco UCS AMD M8 Memory Guide

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CONTENTS

Introduction 3
CHAPTER 1 MEMORY ORGANIZATION CAPABILITIES AND FEATURE 4
CHAPTER 2 MEMORY OPTIONS 5
CHAPTER 3 DRAM GUIDELINES 7
CHAPTER 4 SUPPORTED DRAM DIMM CONFIGURATIONS 9
CHAPTER 5 INSTALLING a DIMM or DIMM BLANK 12

Introduction

The AMD M8 Memory guide provides the detailed specifications of the AMD M8 memory DIMMs including:

- Memory DIMMs features
- Cisco PID's description
- Memory DIMMs guidelines, mixing rules and populations
- All AMD M8 supported DIMM configurations

The AMD M8 Memory Guide document applies to the following Cisco AMD M8 generation servers:

- C245 M8 Racks Servers
- C225 M8 Racks Servers
- X215C M8 Compute Node

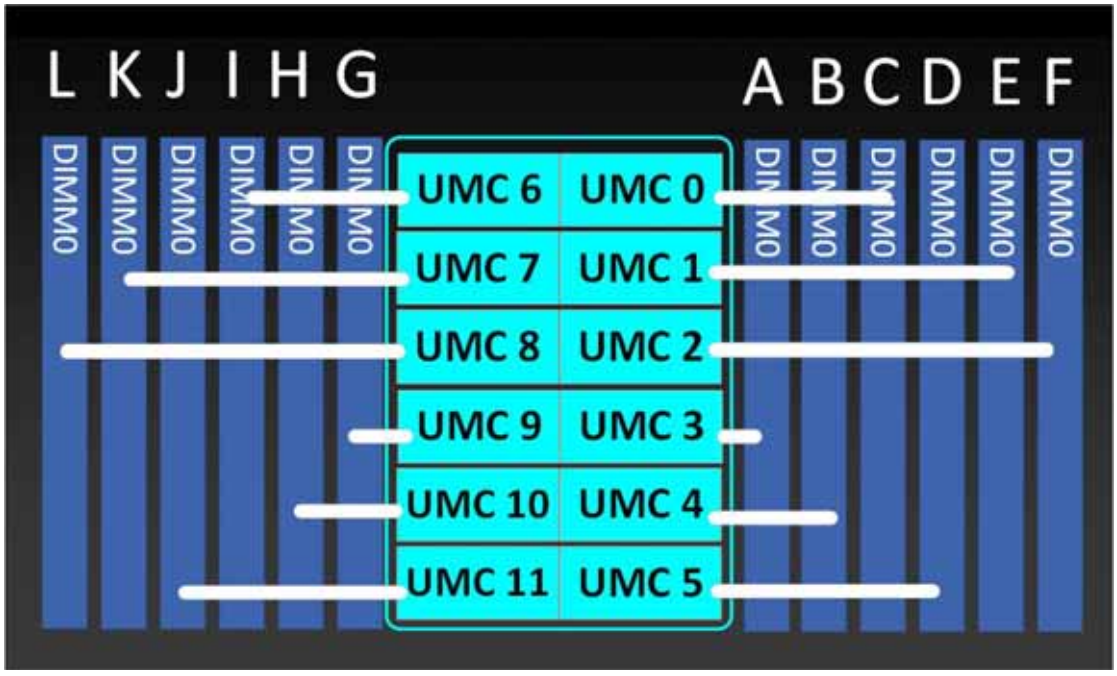
CHAPTER 1 MEMORY ORGANIZATION CAPABILITIES AND FEATURE

The ***Table 1*** below describes the main memory DIMM features supported on Cisco UCS AMD M8 servers.

Table 1 Main Memory Features

M8 Memory DIMM server technologies	C245 M8	C225 M8	X215c
CPU sockets	1S or 2S	1S	1S or 2S
DDR5 Memory clock speed	4th Gen. AMD EPYC CPUs: Up to 4800 MT/s 1DPC		
	5th Gen. AMD EPYC CPUs: Up to 6000 MT/s 1DPC		
Operational voltage	1.1 Volts		
DRAM Fab density	16Gb, 24Gb, and 32Gb		
DRAM DIMM Type	RDIMM (Registered DDR5 DIMM)		
Memory DIMM organization	Twelve memory DIMM channels per CPU; 1 DIMMs per channel only		
Maximum number of DRAM DIMM per server	Up to 24 (2-Socket)	Up to 12 (1-Socket)	Up to 24 (2-Socket)
DRAM DIMM densities and Rank	16GB 1Rx8, 32GB 1Rx4, 32GB 2Rx8, 48GB 1Rx4, 64GB 2Rx4, 96GB 2Rx4, 128GB 4Rx4, 128GB (32Gb) 2Rx4, 256GB 8Rx4		
Maximum system Capacity	6TB (24x256GB)	3TB (12x256GB)	6TB (24x256GB)

Figure 1 12-channel Memory Organization (1-CPU)



CHAPTER 2 MEMORY OPTIONS

■ The available memory devices for UCS AMD M8 are listed in ***Table 2*** and ***Table 3***The memory PID decoder for AMD M8 Memory PIDs are shown in ***Table 4***

NOTE:

- When paired with 4th Gen. AMD EPYC™ CPUs, all memory DIMMs must be Cisco DDR5-5600 or DDR5-6400 memory PIDs, although the memory will operate at the maximum speed of the 4th Gen. AMD EPYC™ CPUs memory controller, up to 4800 MT/s.
- When paired with 5th Gen. AMD EPYC™ CPUs, all memory DIMMs must be Cisco DDR5-6400 memory PIDs, although the memory will operate at the maximum speed of the 5th Gen. AMD EPYC™ CPUs memory controller, up to 6000 MT/s.
- Review the appropriate platform spec sheets for additional 256GB DIMM usage conditions.

CAUTION:

- On C225 M8, when 256GB DIMMs are configured in the C225 server, ambient temperature is limited to a maximum of 30°C.
- On C245 M8, when 256GB DIMMs are configured in the C245 server, ambient temperature is limited to a maximum 30°C. 256GB DIMMs cannot be used in systems with GPUs > 75 Watts.

Table 2 Memory Options for UCS M8 servers with 4th Gen. AMD EPYC™ CPUs

AMD M8 Memory DIMM Densities & Cisco PIDs	Memory DIMM Description	C245 M8	C225 M8	X215c M8
DDR5-5600MT/s Cisco Memory PIDs list - 4th Gen. AMD EPYC™ CPUs[1]				
16GB	16GB RDIMM 1Rx8 1.1Volts (16Gb)	UCS-MRX16G1RE3		UCSX-MRX16G1RE3
32GB	32GB RDIMM 1Rx4 1.1Volts (16Gb)	UCS-MRX32G1RE3		UCSX-MRX32G1RE3
48GB	48GB RDIMM 1Rx4 1.1Volts (24Gb)	UCS-MRX48G1RF3		UCSX-MRX48G1RF3
64GB	64GB RDIMM 2Rx4 1.1Volts (16Gb)	UCS-MRX64G2RE3		UCSX-MRX64G2RE3
96GB	96GB RDIMM 2Rx4 1.1Volts (24Gb)	UCS-MRX96G2RF3		UCSX-MRX96G2RF3
128GB TSV[2]	128GB RDIMM 4Rx4 1.1Volts (16Gb TSV)	UCS-MR128G4RE3		UCSX-MR128G4RE3
128GB 32Gb	128GB RDIMM 2Rx4 1.1Volts (32Gb)	UCS-MR128G2RG3		UCSX-MR128G2RG3
256GB[3]	256 GB RDIMM 8Rx4 1.1Volts (16Gb TSV)	UCS-MR256G8RE3		UCSX-MR256G8RE3
DDR5-6400MT/s Cisco Memory PIDs list - 4th Gen. AMD EPYC™ CPUs				
16GB	16GB RDIMM 1Rx8 1.1Volts (16Gb)	UCS-MRX16G1RE5		UCSX-MRX16G1RE5

Table 2 Memory Options for UCS M8 servers with 4th Gen. AMD EPYC™ CPUs

32GB	32GB RDIMM 1Rx4 1.1Volts (16Gb)	UCS-MRX32G1RE5	UCSX-MRX32G1RE5
64GB[4]	64GB RDIMM 2Rx4 1.1Volts (16Gb)	UCS-MRX64G2RE5	UCSX-MRX64G2RE5
96GB[4]	96GB RDIMM 2Rx4 1.1Volts (24Gb)	UCS-MRX96G2RF5	UCSX-MRX96G2RF5
128GB 32Gb	128GB RDIMM 2Rx4 1.1Volts (32Gb)	UCS-MR128G2RG5	UCSX-MR128G2RG5
256GB 32Gb[5]	256 GB RDIMM 4Rx4 1.1Volts (32Gb TSV)	UCS-MR256G4RG5	UCSX-MR256G4RG5

Notes:

1. Memory will operate at the maximum speed of the AMD 4th Gen. CPU memory controller, up to 4800 MT/s Check ***Table 7*** for details on 1DPC and 2 DPC maximum speed with 4th Gen. CPUs.
2. 128GB 4Rx4 (16Gb) have reached End-of-Sale or End-of-Life status. Please refer to the ***DISCONTINUED EOL MEMORY PIDs*** for further details.
3. DDR5-5600 256GB have reached End-of-Sale or End-of-Life status no longer orderable on CCW. UCS/UCSX-MR256G8RE3 PID will be replaced by DDR5-6400 256GB DIMM (UCS/UCSX-MR256G4RG5 PID), starting in Q3CY26.
4. DDR5-6400 64GB and 96GB DDR5-6400 DIMMs orderable in Q4CY26.
5. DDR5-6400 256GB DIMM orderable in Q3CY26.

Table 3 Memory Options for UCS M8 servers with 5th Gen. AMD EPYC™ CPUs

AMD M8 Memory DIMM Densities & Cisco PIDs	Memory DIMM Description	C245 M8	C225 M8	X215c M8
DDR5-6400MT/s Cisco Memory PIDs list - 5th Gen. AMD EPYC™ CPUs[1]				
16GB	16GB RDIMM 1Rx8 1.1Volts (16Gb)	UCS-MRX16G1RE5		UCSX-MRX16G1RE5
32GB	32GB RDIMM 1Rx4 1.1Volts (16Gb)	UCS-MRX32G1RE5		UCSX-MRX32G1RE5
32GB[2]	32GB RDIMM 2Rx8 1.1Volts (16Gb)	UCS-MRX32G2RE5		UCSX-MRX32G2RE5
48GB[3]	48GB RDIMM 1Rx4 1.1Volts(24Gb)	UCS-MRx48G1RF5		UCSX-MRx48G1RF5
64GB	64GB RDIMM 2Rx4 1.1Volts (16Gb)	UCS-MRX64G2RE5		UCSX-MRX64G2RE5
96GB	96GB RDIMM 2Rx4 1.1Volts (24Gb)	UCS-MRX96G2RF5		UCSX-MRX96G2RF5
128GB	128GB RDIMM 2Rx4 1.1Volts (32Gb)	UCS-MR128G2RG5		UCSX-MR128G2RG5
256GB	256GB RDIMM 4Rx4 1.1Volts (32Gb TSV)	UCS-MR256G4RG5		UCSX-MR256G4RE5

Notes:

1. Memory will operate at the maximum speed of the AMD 5th Gen. CPU memory controller, up to 6000 MT/s Check ***Table 8*** for details on 1DPC and 2 DPC maximum speed with 5th Gen. CPUs.
2. DDR5-6400 32GB 2Rx8 DIMMs orderable in Q4CY26
3. The 48GB RDIMM have reached End-of-Sale or End-of-Life status. Please refer to ***DISCONTINUED EOL MEMORY PIDs*** for further details

Table 4 Memory PID Decoder

Identifier#1	Identifier#2	Identifier#3	Identifier#4	Identifier#5	Identifier#6	Identifier#7
Cisco Product Family	**Memory DIMM Type**	**DIMM Capacity (GB)**	**DIMM Org. (Rank)**	**DDR Generation & DRAM Density**	**DIMM Speed (Mega Transfers per second)**	**Option/Spare DIMM**
UCS UCSX	**MR:** RDIMM	X16G X32G X48G X64G X96G 128G 256G	**1R:** Single-Rank **2R:** Dual-rank **4R**: Quad-rank **8R:** Octa-rank	**E:** DDR5/16Gb **F**: DDR5/24Gb **G:** DDR5/32Gb	**3**: 5600 MT/s **5:** 6400 MT/s	**Blank:** Option =: Spare

CHAPTER 3 DRAM GUIDELINES



GOLDEN RULE: Memory on every CPU socket shall be configured identically. Therefore, the memory configuration of CPU-1 will be identical to CPU-2 for a 2-Socket system. Unbalanced populations are unsupported.

- DIMM Count Rules:

Table 5 Allowed DIMM Count for 1-CPU[1] and 2-CPU

Allowed DIMM Count rules	Minimum Count	Maximum Count	Allowed Count	Not Allowed Count
16GB, 32GB, 48GB, 64GB, 96GB, 128GB, 256GB (4th and 5th Gen. AMD EPYC™ CPUs)[2]				
DIMM count for 1 CPU	1	12	1,2,4,6,8,10,12	3,5,7,9,11
DIMM count for 2-CPU	2	24	2,4,8,12,16,20,24	6,10,14,18, 22

Notes:

1. C225, a 1-CPU server, supports up to 12 DIMMs.
2. 1DPC support only.

- DIMM Population Rules:
  - When populating memory on a server powered by one or more 4th/5th Gen. AMD EPYC™ CPUs:
    - All memory DIMMs must be RDIMM (16GB, 32GB, 48GB, 64GB, 96GB, 128GB 32Gb) or RDIMM 3DS (128GB 16GB TSV, and 256GB) module types.
    - When paired with 4th Gen. AMD EPYC™ CPUs, all memory DIMMs must be Cisco DDR5-5600 or DDR5-6400 memory PIDs, although the memory will operate at the maximum speed of the 4th Gen. AMD EPYC™ CPUs memory controller, up to 4800 MT/s.
    - Mixing DDR5-5600 and DDR5-6400 memory DIMMs within a single server powered by 4th Gen. AMD EPYC™ CPUs is not supported.
    - When configuring an M8 server with 4th Gen. AMD EPYC™ CPUs, ensure all installed memory DIMMs are of the same speed grade, DDR5-5600 or DDR5-6400.
    - When paired with 5th Gen. AMD EPYC™ CPUs, all memory DIMMs must be Cisco DDR5-6400 memory PIDs, although the memory will operate at the maximum speed of the 5th Gen. AMD EPYC™ CPUs memory controller, up to 6000 MT/s.
    - Balanced memory configurations maximize memory bandwidth by optimizing memory interleaving. To obtain a balanced memory configuration:
      - Populate each socket with 1, 2, 4, 6, 8, 10, or 12 memory channels.
      - Use the same memory configuration in all populated memory channels. No DIMM density mixing across channel is allowed.
      - Mixing 16Gb DRAM based and 32Gb DRAM based DIMMs is not allowed. Therefore, 128GB 16Gb TSV (4Rx4) cannot be mixed with 128GB 32Gb (2Rx4)
      - Use the same DIMM configuration for each processor socket, on a 2-socket configuration.
      - No DIMM mixing within a channel is possible as AMD M8 server supports only 1DPC.

Table 6 M8 DIMM population order for 16GB, 32GB, 48GB, 64GB, 96GB, 128GB, 256GB

#DIMMs per CPU	DIMM Population - 16GB, 32GB, 48GB, 64GB, 128GB, 256GB
	Slot 1 (Blue)[1]
1	A1
2	A1, G1
4	A1, C1, G1, I1
6	A1, B1, C1, G1, H1, I1
8	A1, B1, C1, E1, G1, H1, I1, K1
10	A1, B1, C1, D1, E1, G1, H1, I1, J1, K1
12	A1, B1, C1, D1, E1, F1, G1, H1, I1,J1, K1, L1

Notes:

1. 1DPC support only for all densities.

- Memory Limitations:
  - Memory on every CPU socket shall be configured identically.
  - Refer to ***Table 6*** for DIMM population and DIMM mixing rules.
  - Cisco Memory DIMM PIDs used on M8 server models powered by 4th Gen. AMD EPYC™ CPUs are DDR5-5600 or DDR5-6400 memory PIDs, PIDs, although the memory will operate at the maximum speed of the 4th Gen. AMD EPYC™ CPUs memory controller, up to 4800 MT/s. Check ***Table 7*** for CPU SKUs definition and maximum memory speed.
  - Cisco Memory DIMM PIDs used on M8 server models powered by 5th Gen. AMD EPYC™ CPUs are DDR5-6400 PIDs, although the memory will operate at the maximum speed of the 5th Gen. AMD EPYC™ CPUs memory controller, up to 6000 MT/s. Check ***Table 8*** for CPU SKUs definition and maximum memory speed.
  - Mixing x4 and x8 DIMMs is not allowed. Therefore, 32GB 1Rx4 cannot be mixed with 32GB 2Rx8
- For best performance, observe the following:

Table 7 Maximum Memory Operating Frequency - 4th Gen. AMD EPYC™ CPUs - 1 DIMM Per Channel only

4th Gen. CPU Memory Speed	DIMM Rank	DIMM Max operating Speed
RDIMM	One Rank, two Rank, four Rank, eight Rank	4800 MT/s

Table 8 Memory Maximum Operating Frequency - 5th Gen. AMD EPYC™ CPUs - 1 DIMM Per Channel only

5th Gen. CPU Memory Speed	DIMM Rank	DIMM Max operating Speed
RDIMM	One Rank, two Rank, four Rank	6000 MT/s

CHAPTER 4 SUPPORTED DRAM DIMM CONFIGURATIONS

Table 10 and *Table 9* below shows the supported DIMM configurations with 1, 2, 4, 6, 8 and 12 DIMMs per CPU. The rows highlighted in yellow indicate configurations with optimum performance.

Table 9 Supported Memory Configurations for 4th Gen. AMD EPYC™ CPUs

DIMM Total System Capacity		Capacity Per CPU	Total DIMMs Per CPU
1-CPU	2-CPU	Blue Slots A1 to H1	
16GB RDIMMs			
16 GB	32 GB	1x16GB	1
32 GB	64 GB	2x16GB	2
64 GB	128 GB	4x16GB	4
96 GB	192 GB	6x16GB	6
128 GB	256 GB	8x16GB	8
160 GB	320 GB	10x16GB	10
192 GB	384 GB	12x16GB	12
32GB 1Rx4 RDIMMs			
32 GB	64 GB	1x32GB	1
64 GB	128 GB	2x32GB	2
128 GB	256 GB	4x32GB	4
192 GB	384 GB	6x32GB	6
256 GB	512 GB	8x32GB	8
320 GB	640 GB	10x32GB	10
384 GB	768 GB	12x32GB	12
48GB RDIMMs			
48 GB	96 GB	1x48GB	1
96 GB	192 GB	2x48GB	2
192 GB	384 GB	4x48GB	4
288 GB	576 GB	6x48GB	6
384 GB	768 GB	8x48GB	8
480 GB	960 GB	10x48GB	10
576 GB	1152 GB	12x48GB	12
64GB RDIMMs			
64 GB	128 GB	1x64GB	1
128 GB	256 GB	2x64GB	2
256 GB	512 GB	4x64GB	4
384 GB	768 GB	6x64GB	6
512 GB	1024 GB	8x64GB	8

Table 9 Supported Memory Configurations for 4th Gen. AMD EPYC™ CPUs

DIMM Total System Capacity		Capacity Per CPU	Total DIMMs Per CPU
1-CPU	**2-CPU**	**Blue Slots A1 to H1**	
640 GB	1280 GB	10x64GB	10
768 GB	1536 GB	12x64GB	12
96GB RDIMMs			
96 GB	192 GB	1x96GB	1
192 GB	384 GB	2x96GB	2
384 GB	768 GB	4x96GB	4
576 GB	1152 GB	6x96GB	6
768 GB	1536 GB	8x96GB	8
960 GB	1920 GB	10x96GB	10
1152 GB	2304 GB	12x96GB	12
128GB RDIMMs			
128 GB	256 GB	1x128GB	1
256 GB	512 GB	2x128GB	2
512 GB	1024 GB	4x128GB	4
768 GB	1536 GB	6x128GB	6
1024 GB	2048 GB	8x128GB	8
1280 GB	2560 GB	10x128GB	10
1536 GB	3072 GB	12x128GB	12
256GB RDIMMs			
256 GB	512 GB	1x256GB	1
512 GB	1024 GB	2x256GB	2
1024 GB	2048 GB	4x256GB	4
1536 GB	3072 GB	6x256GB	6
2048 GB	4096 GB	8x256GB	8
2560 GB	5120 GB	10x256GB	10
3072 GB	6144 GB	12x256GB	12

Table 10 Supported Memory Configurations for 5th Gen. AMD EPYC™ CPUs

DIMM Total System Capacity		Capacity Per CPU	Total DIMMs Per CPU
1-CPU	2-CPU	Blue Slots A1 to H1	
16GB RDIMMs			
16 GB	32 GB	1x16GB	1
32 GB	64 GB	2x16GB	2
64 GB	128 GB	4x16GB	4
96 GB	192 GB	6x16GB	6
128 GB	256 GB	8x16GB	8
160 GB	320 GB	10x16GB	10
192 GB	384 GB	12x16GB	12
32GB 1Rx4 RDIMMs			
32 GB	64 GB	1x32GB	1
64 GB	128 GB	2x32GB	2
128 GB	256 GB	4x32GB	4
192 GB	384 GB	6x32GB	6
256 GB	512 GB	8x32GB	8
320 GB	640 GB	10x32GB	10
384 GB	768 GB	12x32GB	12
32GB 2Rx8 RDIMMs			
32 GB	64 GB	1x32GB	1
64 GB	128 GB	2x32GB	2
128 GB	256 GB	4x32GB	4
192 GB	384 GB	6x32GB	6
256 GB	512 GB	8x32GB	8
320 GB	640 GB	10x32GB	10
384 GB	768 GB	12x32GB	12
48GB RDIMMs			
48 GB	96 GB	1x48GB	1
96 GB	192 GB	2x48GB	2
192 GB	384 GB	4x48GB	4
288 GB	576 GB	6x48GB	6
384 GB	768 GB	8x48GB	8
480 GB	960 GB	10x48GB	10
576 GB	1152 GB	12x48GB	12
64GB RDIMMs			
64 GB	128 GB	1x64GB	1

Table 10 Supported Memory Configurations for 5th Gen. AMD EPYC™ CPUs

DIMM Total System Capacity		Capacity Per CPU	Total DIMMs Per CPU
1-CPU	**2-CPU**	**Blue Slots A1 to H1**	
128 GB	256 GB	2x64GB	2
256 GB	512 GB	4x64GB	4
384 GB	768 GB	6x64GB	6
512 GB	1024 GB	8x64GB	8
640 GB	1280 GB	10x64GB	10
768 GB	1536 GB	12x64GB	12
96GB RDIMMs			
96 GB	192 GB	1x96GB	1
192 GB	384 GB	2x96GB	2
384 GB	768 GB	4x96GB	4
576 GB	1152 GB	6x96GB	6
768 GB	1536 GB	8x96GB	8
960 GB	1920 GB	10x96GB	10
1152 GB	2304 GB	12x96GB	12
128GB RDIMMs			
128 GB	256 GB	1x128GB	1
256 GB	512 GB	2x128GB	2
512 GB	1024 GB	4x128GB	4
768 GB	1536 GB	6x128GB	6
1024 GB	2048 GB	8x128GB	8
1280 GB	2560 GB	10x128GB	10
1536 GB	3072 GB	12x128GB	12
256GB RDIMMs			
256 GB	512 GB	1x256GB	1
512 GB	1024 GB	2x256GB	2
1024 GB	2048 GB	4x256GB	4
1536 GB	3072 GB	6x256GB	6
2048 GB	4096 GB	8x256GB	8
2560 GB	5120 GB	10x256GB	10
3072 GB	6144 GB	12x256GB	12



NOTE: The rows highlighted in yellow indicate configurations with optimum performance

CHAPTER 5 INSTALLING a DIMM or DIMM BLANK

To install a DIMM or a DIMM blank into a slot on the blade server, follow these steps.

Procedure

Step 1 Open both DIMM connector latches.

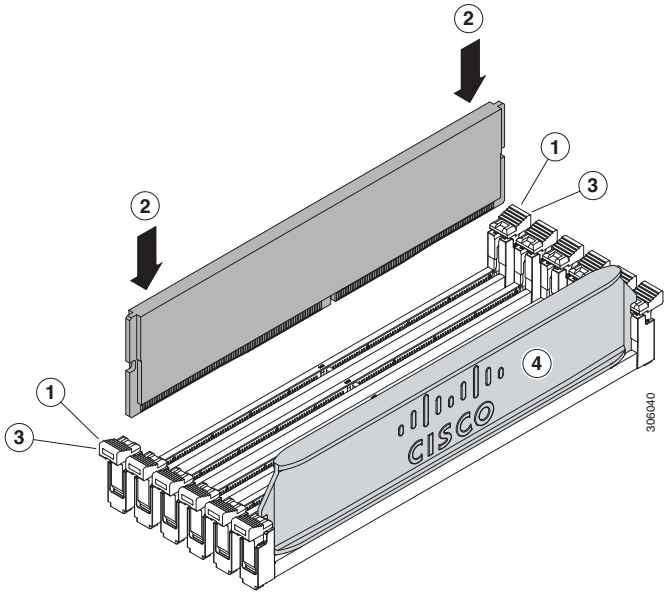
Step 2 Press evenly on both ends of the DIMM until it clicks into place in its slot

Note: Ensure that the notch in the DIMM aligns with the slot. If the notch is misaligned, it is possible to damage the DIMM, the slot, or both.

Step 3 Press the DIMM connector latches inward slightly to seat them fully.

Step 4 Populate all slots with a DIMM or DIMM blank. A slot cannot be empty.

Figure 2 Installing Memory



DISCONTINUED EOL MEMORY PIDs

Below is the list of parts were previously available for this product and are no longer sold. Please refer to the EOL Bulletin Links via table below to determine if still supported.

Table 11 EOS

Product ID	Description	EOL/EOS link
UCS-MRX48G1RF5	48GB RDIMM 1Rx4 1.1Volts(24Gb)	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-ucsx-hci-accessories-eol15910.html
UCS-MR256G8RE3	256GB DDR5-5600 RDIMM 8Rx4 (16Gb)	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/ucs-accessories_eol.html
UCS-MR128G4RE3	128GB DDR5-5600 RDIMM 4Rx4 (16Gb)	https://www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-c-series-rack-servers/select-ucs-accessories-eol15570.html

Change log

Please find the below table for the recent changes happened in the document

Table 12 Change log

Publication Date	Revision
06/02/2026	UCS-MRX48G1RF5 announced EOL and moved to discontinued product list
08/18/2026	Adding DDR5-6400 memory support for 4th Gen. AMD EPYC™ CPUs
09/07/2026	Enabled DDR5-6400 memory support for 5th Gen. AMD EPYC™ CPUs



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