3200MT/s DIMM Support for PowerEdge Servers

Tech Note by

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Summary

For many years 2666MT/s and 2933MT/s were the standard speeds of memory modules used within servers. Now that 3200MT/s SKUs are ready for public consumption, data center customers have been eager to understand what this transition will look like.

This DfD will outline how 3200MT/s DIMMs were validated, what to expect when transitioning them into a new or existing data center, and DIMM/platform support tables.

Validation Process

The Dell Technologies engineering team validated 3200MT/s DIMMs to ensure they performed properly on current-gen platforms, while also integrating seamlessly and without impact to legacy platforms. This 3-step validation process can be seen below:
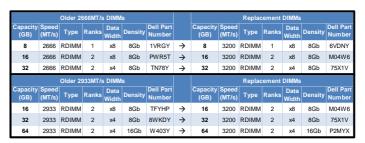
1. **Margin Testing** - Validation that the transactions routing across the CPU, DRAM, motherboard and BIOS have sufficient margins to ensure a robust signal integrity for reads and writes.
2. **Mixed Testing** - Functional testing is performed to ensure various qualified DIMM vendors, capacities and speeds are operable and compatible with one another within a system.
3. **Full Functional Testing -** Memory stress tests are performed using various industry standard applications, as well as Dell proprietary tests, to ensure DIMM quality is intact for typical user configurations.

What to Expect Upon Transitioning

1. 3200MT/s DIMMs are backwards compatible and will automatically downshift to any memory speed to match the capability of the CPU
2. 3200MT/s DIMMs can be mixed with slower DIMMs and will automatically downshift and match the speed of the slower DIMM
3. 3200MT/s DIMMs are exact replacements in that they have the same capacity, the same number of ranks, the same data width, and the same density as the DIMMs they are replacing
4. All BIOS/iDRAC releases for the supported platforms will support the 3200MT/s DIMMs. *Note firmware is not associated with DIMMs*
5. Dell Technologies support services replaces parts with like or better and they may replace the older 2933MT/S and 2666MT/s parts with the newer 3200MT/s parts since they are backwards compatible

Support for 3200MT/s DIMMS are provided in the tables below:

Compatibility Tables

Older 2666MT/s DIMMs								Replacement DIMMs						
Capacity (GB)	Speed (MT/s)	Type	Ranks	Data Width	Density	Dell Part Number		Capacity (GB)	Speed (MT/s)	Type	Ranks	Data Width	Density	Dell Part Number
8	2666	RDIMM	1	x8	8Gb	1VRGY	→	8	3200	RDIMM	1	x8	8Gb	6VDNY
16	2666	RDIMM	2	x8	8Gb	PWR5T	→	16	3200	RDIMM	2	x8	8Gb	M04W6
32	2666	RDIMM	2	x4	8Gb	TN78Y	→	32	3200	RDIMM	2	x4	8Gb	75X1V

Older 2933MT/s DIMMs								Replacement DIMMs						
Capacity (GB)	Speed (MT/s)	Type	Ranks	Data Width	Density	Dell Part Number		Capacity (GB)	Speed (MT/s)	Type	Ranks	Data Width	Density	Dell Part Number
16	2933	RDIMM	2	x8	8Gb	TFYHP	→	16	3200	RDIMM	2	x8	8Gb	M04W6
32	2933	RDIMM	2	x4	8Gb	8WKDY	→	32	3200	RDIMM	2	x4	8Gb	75X1V
64	2933	RDIMM	2	x4	16Gb	W403Y	→	64	3200	RDIMM	2	x4	16Gb	P2MYX

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Supported Memory in PowerEdge Platforms

DIMM Platform Support for 1st Generation Intel® Xeon® Scalable Processors

Capacity (GB)	Speed (MT/s)	Type	Dell Part Number	R940	R940xa	R840	R740	R740XD	R740XD2	R640	R540	R440	C6420	C4140	MX840c	MX740c	M640	FC640	T640	T440
8	2666	RDIMM	1VRGY	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
16	2666	RDIMM	PWR5T	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
32	2666	RDIMM	TN78Y	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
64	2666	LRDIMM	4JMGM	•	•	•	•	•		•			•	•	•	•	•	•	•	•
128	2666	LRDIMM	917VK	•	•	•	•	•		•					•	•	•	•	•	
16	2933	RDIMM	TFYHP	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
32	2933	RDIMM	8WKDY	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
64	2933	RDIMM	W403Y	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8	3200	RDIMM	6VDNY	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
16	3200	RDIMM	M04W6	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
32	3200	RDIMM	75X1V	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
64	3200	RDIMM	P2MYX	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

DIMM Platform Support for 2nd Generation AMD® EPYC® Scalable Processors

Capacity (GB)	Speed (MT/s)	Type	Dell Part Number	R7525	R7515	R6525	R6515	C6525
8	2666	RDIMM	1VRGY					
16	2666	RDIMM	PWR5T					
32	2666	RDIMM	TN78Y					
64	2666	LRDIMM	4JMGM					
128	2666	LRDIMM	917VK	•	•	•	•	•
16	2933	RDIMM	TFYHP	•				
32	2933	RDIMM	8WKDY	•				
64	2933	RDIMM	W403Y	•				
8	3200	RDIMM	6VDNY		•	•	•	•
16	3200	RDIMM	M04W6	•	•	•	•	•
32	3200	RDIMM	75X1V	•	•	•	•	•
64	3200	RDIMM	P2MYX	•	•	•	•	•

DIMM Platform Support for 2nd Generation Intel® Xeon® Scalable Processors

Capacity (GB)	Speed (MT/s)	Type	Dell Part Number	R940	R940xa	R840	R740	R740XD	R740XD2	R640	R540	R440	C6420	C4140	MX840c	MX740c	M640	FC640	T640	T440
8	2666	RDIMM	1VRGY	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
16	2666	RDIMM	PWR5T	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
32	2666	RDIMM	TN78Y	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
64	2666	LRDIMM	4JMGM	•	•	•	•	•		•			•	•	•	•	•	•	•	•
128	2666	LRDIMM	917VK	•	•	•	•	•		•					•	•	•	•	•	
16	2933	RDIMM	TFYHP	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
32	2933	RDIMM	8WKDY	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
64	2933	RDIMM	W403Y	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
8	3200	RDIMM	6VDNY	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
16	3200	RDIMM	M04W6	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
32	3200	RDIMM	75X1V	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
64	3200	RDIMM	P2MYX	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

KEY:

•	Server and DIMM Combination **is supported**	
BLANK	Server and DIMM Combination **is not supported**	
X	Server and DIMM Combination **will not function** and **it is not supported**	

Supported DIMM Mixing

Capacity (GB)	Speed (MT/s)	DIMM Type	DIMM PN	8 / 2666 / RDIMM / 1VRGY	16 / 2666 / RDIMM / PWR5T	32 / 2666 / RDIMM / TN78Y	64 / 2666 / LRDIMM / 4JMGM	128 / 2666 / LRDIMM / 917VK	16 / 2933 / RDIMM / TFYHP	32 / 2933 / RDIMM / 8WKDY	64 / 2933 / RDIMM / W403Y	8 / 3200 / RDIMM / 6VDNY	16 / 3200 / RDIMM / M04W6	32 / 3200 / RDIMM / 75X1V	32 / 3200 / RDIMM / HTPJ7	64 / 3200 / RDIMM / P2MYX
8	2666	RDIMM	1VRGY													
16	2666	RDIMM	PWR5T	•												
32	2666	RDIMM	TN78Y	•	•											
64	2666	LRDIMM	4JMGM													
128	2666	LRDIMM	917VK													
16	2933	RDIMM	TFYHP	•	•	•										
32	2933	RDIMM	8WKDY	•	•	•			•							
64	2933	RDIMM	W403Y	•	•	•			•	•						
8	3200	RDIMM	6VDNY	•	•	•			•	•	•					
16	3200	RDIMM	M04W6	•	•	•			•	•	•	•				
32	3200	RDIMM	75X1V	•	•	•			•	•	•	•	•			
32	3200	RDIMM	HTPJ7	•	•	•			•	•	•	•	•	•		
64	3200	RDIMM	P2MYX	•	•	•			•	•	•	•	•	•	•	

Key:

•   Supported

BLANK   Not Supported

▇   This combination is already shown in a different cell in the table

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