



PowerEdge MX vSAN Ready Node Certified Configurations

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SUMMARY

PowerEdge MX has a very unique position with the portfolio of servers on offer from Dell EMC. It's kinetic infrastructure and ability to accelerate customers use case deployments of software defined architectures means that it is uniquely positioned in the market to be a vSAN Ready Node building block.

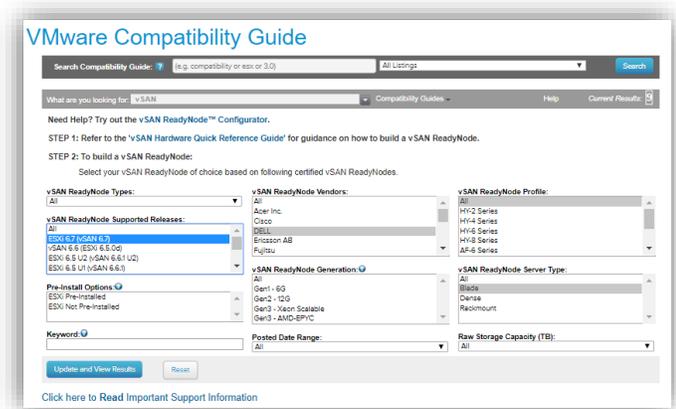
With a dynamic ability to scale well beyond the 6x onboard storage drives with one or multiple SAS storage sleds means that customers have the ability to deploy both traditional applications and / or vSAN in the same infrastructure

Within this technical white paper we discuss the multiple vSAN Ready Node options available on the PowerEdge MX and select BIOS configurations for optimal performance

Purpose Built for Software Defined Architectures

Dell EMC vSAN Ready Nodes are pre-configured and validated building blocks that reduce deployment risks, improve storage efficiency, and let you quickly and easily scale storage as needed. Dell EMC vSAN Ready Nodes are built on Dell EMC PowerEdge servers that have been pre-configured, tested and certified to run VMware vSAN. Each Ready Node includes just the right amount of CPU, memory, network I/O controllers, HDDs and SSDs that are best suited for VMware vSAN.

Dell EMC vSAN Ready Nodes are jointly validated solutions in tested and certified server configurations for accelerating vSAN deployment. Dell EMC and VMware have collaborated on vSAN for more than four years, putting the technology through thousands of hours of testing and have over 90 current certified configurations on VMware vSAN Compatibility Guide found [here](#)



Improve storage efficiency

Dell EMC vSAN Ready Nodes improve storage efficiency while reducing capital expense (CapEx) with server-side economics, affordable flash and grow-as-you-go scaling. Reducing the time and effort it takes to deploy and manage compute and storage infrastructure reduces operational expense (OpEx).

Scale Quickly

Dell EMC vSAN Ready Nodes enable easy deployment with factory-installed, pre-configured and pre-tested configurations for a range of needs in a modular platform. Faster configuration, fewer update steps, and reduced time for maintenance, troubleshooting and resolution all add up to a solution that scales quickly.

Certified Partnership

Dell EMC and VMware have partnered together for over a decade to build and deliver end-to-end virtualized infrastructure, desktop and mobile management solutions which help customers achieve simplified, efficient, and impactful solutions.

vSAN Certified Ready Node Options

Not all workloads have the same requirements, so Dell EMC provides a variety of ready-to-order options and select factory-installed configurations based on various levels of workload requirements for performance and capacity – most recently we have introduced our PowerEdge MX vSAN Ready node configurations. Not only are there modular options with PowerEdge MX but Dell EMC have a vSAN Ready Node configuration to suite your need, requirements, and budget.

PowerEdge MX vSAN Ready Nodes



Powered by the latest Intel technology

Server	PowerEdge MX740c Onboard Storage Performance Bundle		PowerEdge MX740c Onboard Storage Cost Effective Bundle	PowerEdge MX740c + PowerEdge MX5016s Max Capacity Bundle	
	ALL NVMe 4 (AF4)	NVMe/SAS (AF4)	All-flash (AF4)	All-flash	Hybrid
CPU	Intel® Xeon® Gold 6146	Intel® Xeon® Gold 5118	Intel® Xeon® Gold 5118	Intel Xeon Gold 6146	Intel Xeon Gold 6146
Memory	192GB to 384GB				
Per Node CachingTier	2 x 800GB NVMe	2 x 800GB NVMe	2 x 800GB SAS	Max 4 x Local NVMe or SAS	Max 4 x SAS
Per Node CapacityTier	4 x local NVMe for 6.4TB to 25.6TB Max	4 x local SAS for 7.68TB to 15.36TB Max	4 x local SAS for 7.68TB to 15.36TB Max	16 x SAS SSD 30.72TB to 61.44TB Max	16 x SAS HDD 19.2TB to 38.4TB Max
BootDevice	BOSS controller card + with 2 M.2 Sticks 240G (RAID 1)		BOSS controller card + with 2 M.2 Sticks 240G (RAID 1)	BOSS controller card + with 2 M.2 Sticks 240G (RAID 1)	
Network	2 x On-board 25GbE dual port mezz card		2 x On-board 25GbE dual port mezz card	2 x On-board 25GbE dual port mezz card	
Supported Releases	ESXi 6.7 (vSAN 6.7), ESXi 6.5 U2 (vSAN 6.6.1 U2), ESXi 6.5 U1 (vSAN 6.6.1)				

Simplified networking

Top-of-rack (ToR) switches are integrated into the MX7000 chassis. This integration simplifies deployment and reduces complexity while offering connectivity to additional infrastructure in the rack. So that is one less thing to worry about. And, even better, you get your ToR switches delivered with significantly less cabling.

SDDC ready in a box

With vSAN Ready Nodes on Dell EMC PowerEdge MX, you've got a software-defined ready infrastructure in one flexible chassis. You can put up to eight vSAN Ready Nodes in an MX7000 chassis to create a foundation for a self-sustained VMware Cloud Foundation cluster with right-sized compute, storage and ToR switches. And it's all in one high-density package. You can put up to six drives in each MX740c compute sled for maximum density. Competing infrastructure offerings from HPE and Cisco have only two drives per compute sled and have been shown by 3rd party testing to have less orders per minute for a similar configuration.

Agile management integrated into VMware vCenter

When you leverage vSAN Ready Nodes in the PowerEdge MX architecture, you can take advantage of OpenManage integration for VMware vCenter. This virtual appliance can reduce the tools and tasks associated with management and deployment of Dell EMC PowerEdge servers in your virtual environment. This plug-in reduces complexity by natively integrating key management capabilities into the vCenter console, and minimizes risk with streamlined firmware updates, deep visibility into inventory, health and warranty details

BIOS Optimized Custom Configurations

Because of the custom nature of most vSAN Ready Node and the application use cases involved. We have conducted extensive testing and validation and have found that when utilizing specific component pieces with ESX 6.7 and NVMe onboard drives it is best to configure the BIOS settings in these relevant custom configurations to ensure peak performance for most applications. Performance may vary depending on configuration and application use case

BIOS Attribute	vSAN Custom Configuration
Node Interleaving	Disabled
Virtualization Technology	Enabled
Sub NUMA Cluster	Enabled
Hardware Prefetcher	Enabled
DCU Streamer Prefetcher	Enabled
DCU IP Prefetcher	Enabled
CPU Power Management	Maximum Performance
Memory Frequency	Maximum Performance
C1E	Disabled
C States	Disabled
Memory Patrol Scrub	Disabled
Adjacent Cache Line Prefetch	Enabled
Memory Refresh Rate	1x
Uncore Frequency	Maximum
Energy Efficient Policy	Performance
x2APIC Mode	Enabled
Intel NIC DMA Channels (IOAT) / IOAT DMA Engine	Enabled
SR-IOV	Enabled

Summary

Dell EMC vSAN Ready Nodes are pre-configured building blocks, specifically designed to simplify deployment and speed scaling. The introduction of PowerEdge MX as a kinetic infrastructure which ensures adaptable implementation options with a broad choice of rack-optimized or blade systems. To scale up, simply add flash devices to existing hosts for increased performance, or add hard drives or flash devices to increase capacity. To scale out, just add more hosts with hybrid or all-flash devices.