

# VMmark<sup>®</sup> 4.0.2 Disclosure

**Server Vendor & Model:** HPE ProLiant DL385 Gen11  
**Storage Vendor & Model:** iSCSI with 2 \* HPE ProLiant DL385 Gen11  
**Hypervisor:** VMware ESXi 8.0 Update 3e, Build 24674464  
**Server Management Software:** VMware vCenter Server 8.0 Update 3, Build 24022515

**VMmark 4.0.2 Score =  
2.18 @ 2.4 Tiles**

<b>Number of Hosts: 2</b>	<b>Uniform Hosts: yes</b>	<b>Total sockets/cores/threads in test: 4/192/384</b>
<b>Tested By: Hewlett Packard Enterprise</b>	<b>Test Date: 06-16-2025</b>	<b>SUT Availability Date: 12-02-2022</b>
<b>Performance Section</b> <a href="#">Performance</a>	<b>Configuration Section</b> <a href="#">Configuration</a>	<b>Notes Section</b> <a href="#">Notes for Workload</a>
<b>Virtual Machines Section</b> <a href="#">Virtual Machines</a>		

## Performance

TILE_0_Scores	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	
p0	13927.20	9196.72	2914.45	2096.90	1550.55	48935.66	48934.71	48835.65	68.28	1.00	
p1	13938.82	9169.12	2861.82	2083.05	1457.58	48111.61	48111.56	48111.59	67.41	1.00	
p2	13912.03	9125.59	2837.78	2031.20	1489.97	46886.68	46887.20	46886.89	66.38	1.00	
TILE_0_Ratios	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	Geo.Mean
p0	0.99	1.00	1.00	0.98	1.01	0.87	0.87	0.86	0.95	1.00	0.95
p1	1.00	1.00	0.99	0.97	0.95	0.85	0.85	0.85	0.94	1.00	0.93
p2	0.99	0.99	0.98	0.94	0.97	0.83	0.83	0.83	0.92	1.00	0.92
TILE_0_QoS	WVAuctionVM%	WVAuctionK8S%	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC			
p0	0.50   0.01	0.28   0.00	432.96	505.70	568.71	0.68	0.67	0.67			
p1	0.56   0.03	0.28   0.00	464.44	528.50	609.18	0.71	0.71	0.71			
p2	0.54   0.03	0.28   0.00	487.77	574.86	652.93	0.74	0.74	0.74			
TILE_1_Scores	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	
p0	13931.75	9249.01	3179.82	2266.62	1780.35	58285.53	58285.64	58285.50	72.05	1.00	
p1	13933.87	9233.15	3166.15	2423.62	1696.00	56088.78	56088.76	56088.83	72.02	1.00	
p2	13925.76	9298.57	3153.93	2258.22	1773.62	54454.36	54454.35	54454.23	72.01	1.00	
TILE_1_Ratios	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	Geo.Mean
p0	1.00	1.01	1.10	1.05	1.16	1.03	1.03	1.03	1.00	1.00	1.04
p1	1.00	1.00	1.09	1.13	1.11	0.99	0.99	0.99	1.00	1.00	1.03
p2	0.99	1.01	1.09	1.05	1.16	0.96	0.96	0.96	1.00	1.00	1.02
TILE_1_QoS	WVAuctionVM%	WVAuctionK8S%	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC			
p0	0.45   0.01	0.39   0.00	270.04	295.57	314.67	0.59	0.59	0.59			
p1	0.47   0.01	0.38   0.00	276.87	302.77	323.85	0.63	0.63	0.63			
p2	0.49   0.01	0.39   0.00	279.54	305.98	323.83	0.65	0.65	0.65			
TILE_2_Scores	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	
p0	N/A	N/A	3016.30	2083.43	1711.55	N/A	N/A	N/A	71.96	N/A	
p1	N/A	N/A	2970.18	2240.22	1785.90	N/A	N/A	N/A	71.91	N/A	

<b>p2</b>	N/A	N/A	2969.95	2073.82	1706.00	N/A	N/A	N/A	71.81	N/A	
<b>TILE_2_Ratios</b>	<b>WVAuctionVM</b>	<b>WVAuctionK8S</b>	<b>DVDStoreA</b>	<b>DVDStoreB</b>	<b>DVDStoreC</b>	<b>NoSQLBenchA</b>	<b>NoSQLBenchB</b>	<b>NoSQLBenchC</b>	<b>SocialNetwork</b>	<b>Standby</b>	<b>Geo.Mean</b>
<b>p0</b>	N/A	N/A	1.04	0.97	1.12	N/A	N/A	N/A	1.00	N/A	0.46
<b>p1</b>	N/A	N/A	1.02	1.04	1.17	N/A	N/A	N/A	1.00	N/A	0.47
<b>p2</b>	N/A	N/A	1.02	0.96	1.12	N/A	N/A	N/A	1.00	N/A	0.46
<b>TILE_2_QoS</b>	<b>WVAuctionVM%</b>	<b>WVAuctionK8S%</b>	<b>DVDStoreA</b>	<b>DVDStoreB</b>	<b>DVDStoreC</b>	<b>NoSQLBenchA</b>	<b>NoSQLBenchB</b>	<b>NoSQLBenchC</b>			
<b>p0</b>	N/A	N/A	361.50	450.38	311.05	N/A	N/A	N/A			
<b>p1</b>	N/A	N/A	376.67	439.91	316.10	N/A	N/A	N/A			
<b>p2</b>	N/A	N/A	382.72	456.60	314.61	N/A	N/A	N/A			
<b>p0_score:</b>	2.45										
<b>p1_score:</b>	2.43										
<b>p2_score:</b>	2.39										

<b>Infrastructure_Operations_Scores:</b>					<b>vMotion</b>		<b>SVMotion</b>		<b>XVMotion</b>		<b>Deploy</b>
<b>Completed_Ops_PerHour</b>					29.50		16.00		16.00		19.00
<b>Avg_Seconds_To_Complete</b>					1.05		18.81		16.78		149.92
<b>Failures</b>					0.00		0.00		0.00		0.00
<b>Ratio</b>					1.00		1.23		1.23		1.31
<b>Number_Of_Threads</b>					1		1		1		1

<b>Summary</b>					<b>Run_Is_Compliant</b>			<b>Median_Phase(p1)</b>			
<b>Unreviewed_VMmark4_Applications_Score</b>					2.43						
<b>Unreviewed_VMmark4_Infrastructure_Score</b>					1.19						
<b>Unreviewed_VMmark4_Score</b>					2.18 @ 2.4 Tiles						

## Configuration

<b>Virtualization Software</b>	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 8.0 Update 3e, Build 24674464 / 04-10-2025
Server Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 8.0 Update 3, Build 24022515 / 06-25-2024
Supplemental Software	None
<b>Servers</b>	
Number of Servers in System Under Test (all subsequent fields in this section are per Server)	2
Server Manufacturer and Model	HPE ProLiant DL385 Gen11
Processor Vendor and Model	AMD EPYC 9454

Processor Speed (GHz) / Turbo Boost Speed (GHz)	2.75 GHz / 3.8 GHz						
Total Sockets/Total Cores/Total Threads	2 Sockets / 96 Cores / 192 Threads						
NUMA Nodes	2						
BIOS Version	2.42						
Memory Size (in GB, Number of DIMMs)	Physical Memory (BIOS): 1536 GB Physical Memory (ESXi): 1536 GB Number of DIMMs: 24						
Memory Type and Speed	<b>Location</b>	<b>Size</b>	<b>Speed</b>	<b>Max Speed</b>	<b>Rank</b>	<b>Type</b>	<b>Detail</b>
	<b>PROC 1 DIMM 1</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 1 DIMM 2</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 1 DIMM 3</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 1 DIMM 4</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 1 DIMM 5</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 1 DIMM 6</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 1 DIMM 7</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 1 DIMM 8</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 1 DIMM 9</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 1 DIMM 10</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 1 DIMM 11</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 1 DIMM 12</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 2 DIMM 1</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 2 DIMM 2</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 2 DIMM 3</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 2 DIMM 4</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 2 DIMM 5</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 2 DIMM 6</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 2 DIMM 7</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 2 DIMM 8</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 2 DIMM 9</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 2 DIMM 10</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
	<b>PROC 2 DIMM 11</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered
<b>PROC 2 DIMM 12</b>	64 GB	4800 MT/s	4800 MT/s	2	DDR5	Synchronous, Registered	
Number of SAS Devices	0						
SAS Device Vendors and Models	None						
Number of Virtual Host Bus Adapters	0						
Virtual Host Bus Adapter Vendors and Models	None						

Power Supply Quantity, Name/Part Number, Wattage, Firmware, and Type (Voltage, AC/DC)	<ul style="list-style-type: none"> <li>Power supply information: <ul style="list-style-type: none"> <li>2 * HPE 1600W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit per server (P38997-B21)</li> <li>Firmware: 2.0</li> <li>Voltage Type: AC</li> <li>Input Voltage: High-line (HL): 200 - 240 VAC</li> </ul> </li> </ul>
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Cooling Type (Air Cooling, Closed Loop Cooling, Direct Liquid Cooling, or Other)	Air Cooling
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Other Hardware	None
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Other Software	None
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BIOS Availability Date (MM-DD-YYYY)	04-09-2025
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Hardware Availability Date (MM-DD-YYYY)	12-02-2022
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Software Availability Date (MM-DD-YYYY)	04-10-2025
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**Network**

Number of Virtual Network Controllers	4
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Virtual Network Controllers, Speeds, MTUs, Firmware, Drivers, Vendors, and Models	Device	Speed	Duplex	MTU	Firmware	Driver	Description
	vmnic0	25 Gbps	Full	9000	26.33.1048	nmlx5_core	Mellanox Technologies ConnectX-6 Lx EN NIC; 25GbE; dual-port SFP28; PCIe4.0 x8; (MCX631102AN-ADA)
	vmnic1	25 Gbps	Full	9000	26.33.1048	nmlx5_core	Mellanox Technologies ConnectX-6 Lx EN NIC; 25GbE; dual-port SFP28; PCIe4.0 x8; (MCX631102AN-ADA)
	vmnic2	100 Gbps	Full	9000	28.36.1700	nmlx5_core	Mellanox Technologies ConnectX-7 VPI NIC; NDR200/HDR IB /200GbE; dual-port QSFP; PCIe5.0 x16; (MCX755106AS-HEA)
	vmnic3	100 Gbps	Full	9000	28.36.1700	nmlx5_core	Mellanox Technologies ConnectX-7 VPI NIC; NDR200/HDR IB /200GbE; dual-port QSFP; PCIe5.0 x16; (MCX755106AS-HEA)

Number of Virtual Switches	3
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Virtual Switches, Ports, Port Groups, MTUs, and Uplinks	Switch	Ports	Configured Ports	MTU	Uplinks
	vSwitch0	9216	128	9000	vmnic0
	vSwitch1	9216	128	9000	vmnic1
	vSwitch2	9216	128	9000	vmnic2, vmnic3
	Switch	Port Group	VLAN ID	Uplinks	
	vSwitch0	Management Network	0	vmnic0	
	vSwitch0	VM Network	0	vmnic0	
	vSwitch1	vmotion	0	vmnic1	
	vSwitch2	iSER1	0	vmnic2	
	vSwitch2	iSER2	0	vmnic3	

VMkernel Network Adapters, Port Groups, MTUs, TCP/IP Stacks, and Services	Device	Port Group/DVPort	MTU	TCP/IP Stack	Services
	vmk0	Management Network	9000	Default	Management
	vmk1	vmotion	9000	Default	vMotion
	vmk2	iSER1	9000	Default	None
	vmk3	iSER2	9000	Default	None

**Primary Storage**

Storage Category

iSCSI Target

Datstores

Datstores	Type	Size	Storage Device
<b>OSDATA-3a523004-cb8c4fff-60a1-b83fd2c922da</b>	VMFSOS	128.6 GB	Local NVMe Disk
<b>datastore1 (1)</b>	VMFS-6	342.5 GB	Local NVMe Disk
<b>deploy</b>	VMFS-6	8.8 TB	LIO-ORG iSCSI Disk
<b>nosql0</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk
<b>nosql1</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk
<b>nosql2</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk
<b>nosql3</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk
<b>nosql4</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk
<b>nosql5</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk
<b>nosql6</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk
<b>nosql7</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk
<b>source</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk
<b>target</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk
<b>tile0</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk
<b>tile1</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk
<b>tile2</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk
<b>tile3</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk
<b>tile4</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk
<b>tile5</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk
<b>tile6</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk
<b>tile7</b>	VMFS-6	2.2 TB	LIO-ORG iSCSI Disk

Number of Storage Devices

20

Storage Device Names, Sizes, Types, Vendors, Models, and Revisions

Storage Device	Size	Type	Vendor	Model	Revision	Path Selection Policy	Path Selection Policy Config	# Working Paths
<b>Local NVMe Disk (Boot Device)</b>	480.0 GB	Direct-Access	NVMe	HPE NS204i-u Gen11 Boot Controller	12141012	FIXED	preferred=none	1
<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	nosql2	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	tile2	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	nosql7	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	nosql6	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	infra_source	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	tile0	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	tile6	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	nosql1	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	nosql3	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	infra_target	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2

<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	tile7	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	tile5	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	tile3	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	nosql0	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	nosql5	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	tile4	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	tile1	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
<b>LIO-ORG iSCSI Disk</b>	2.2 TB	Direct-Access	LIO-ORG	nosql4	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
<b>LIO-ORG iSCSI Disk</b>	8.8 TB	Direct-Access	LIO-ORG	source	4.0	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2

How Datastores Map to Storage Devices

See Storage Notes Section

VMware vSAN Configuration (if used)

None

RAID Configuration (if used)

None

**Server Management**

VMware vCenter Server Number of vCPUs

8

VMware vCenter Server Virtual Memory (in GB)

30

**Clients**

Total Client VMs (including Prime Client)

4

Number of Client Hosts (all subsequent fields in this section are per Client Host)

2

System Model(s)

- Client Host 1: HPE ProLiant DL385 Gen11
- Client Host 2: HPE ProLiant DL385 Gen11

Processor Vendor(s) and Model(s)

- Client Host 1: AMD EPYC 9754
- Client Host 2: AMD EPYC 9754

Processor Speed(s) (GHz)

- Client Host 1: 2.25 GHz
- Client Host 2: 2.25 GHz

Total Sockets/Total Cores/Total Threads

Client Host	Sockets	Cores	Threads
<b>Client Host 1</b>	2	256	512
<b>Client Host 2</b>	2	256	512
<b>Total</b>	4	512	1024

NUMA Nodes

- Client Host 1: 4
- Client Host 2: 4

Memory Size (in GB) per Client Host

Client Host	BIOS	ESXi

<b>Client Host 1</b>	1536 GB	1536 GB
<b>Client Host 2</b>	1536 GB	1536 GB

Virtual Network Controllers, Speeds, MTUs, Firmware, Drivers, Vendors, and Models

Client Host	Device	Speed	Duplex	MTU	Firmware	Driver	Description
<b>Client Host 1</b>	<b>vmnic0</b>	25 Gbps	Full	9000	26.33.1048	nmlx5_core	Mellanox Technologies ConnectX-6 Lx EN NIC; 25GbE; dual-port SFP28; PCIe4.0 x8; (MCX631102AN-ADA)
	<b>vmnic1</b>	25 Gbps	Full	9000	26.33.1048	nmlx5_core	Mellanox Technologies ConnectX-6 Lx EN NIC; 25GbE; dual-port SFP28; PCIe4.0 x8; (MCX631102AN-ADA)
<b>Client Host 2</b>	<b>vmnic0</b>	25 Gbps	Full	9000	26.33.1048	nmlx5_core	Mellanox Technologies ConnectX-6 Lx EN NIC; 25GbE; dual-port SFP28; PCIe4.0 x8; (MCX631102AN-ADA)
	<b>vmnic1</b>	25 Gbps	Full	9000	26.33.1048	nmlx5_core	Mellanox Technologies ConnectX-6 Lx EN NIC; 25GbE; dual-port SFP28; PCIe4.0 x8; (MCX631102AN-ADA)

Virtual Switches, Ports, Port Groups, MTUs, and Uplinks

Client Host	Switch	Ports	Configured Ports	MTU	Uplinks
<b>Client Host 1</b>	<b>vSwitch0</b>	9216	128	9000	vmnic0, vmnic1
<b>Client Host 2</b>	<b>vSwitch0</b>	9216	128	9000	vmnic0, vmnic1

  

Client Host	Switch	Port Group	VLAN ID	Uplinks
<b>Client Host 1</b>	<b>vSwitch0</b>	Management Network	0	vmnic0, vmnic1
	<b>vSwitch0</b>	VM Network	0	vmnic0, vmnic1
<b>Client Host 2</b>	<b>vSwitch0</b>	Management Network	0	vmnic0, vmnic1
	<b>vSwitch0</b>	VM Network	0	vmnic0, vmnic1

VMkernel Network Adapters, Port Groups, MTUs, TCP/IP Stacks, and Services

Client Host	Device	Port Group/DVPort	MTU	TCP/IP Stack	Services
<b>Client Host 1</b>	<b>vmk0</b>	Management Network	9000	Default	vSAN, Management, vMotion
<b>Client Host 2</b>	<b>vmk0</b>	Management Network	9000	Default	vSAN, Management, vMotion

Client Storage Notes

See Client Notes Section

Other Hardware

None

Other Software

VMware ESXi 8.0 Update 3, Build 24022510

## Notes for Workload

Template deployed with disk type: Thick Eager

### Virtualization Software Notes

- vSphere DRS Enabled
- vSphere DRS Automation Level set to Fully Automated
- vSphere DRS Migration Threshold set to 1
- vSphere DRS Advanced Option AggressiveCPUActive set to 1
- Logical CPU layout changed for all multi-CPU VMs to 1 socket with multiple cores except Template, PrimeClient, and Client VMs. (default single core per socket)
- Logging was disabled for all VMs (default enabled)
- All DS35DB, NoSQLBench, SocialNetwork and Auction K VMs had CPU shares set to High (default Normal)
- All Standby VMs had CPU shares set to Low (default Normal)
- All memory reserved (LockedToMax) for all DS35DB VMs
- All DS35DB VMs had memory shares set to high
- sched.mem.lpage.enable1GPage set to TRUE for all DS35DB VMs (default FALSE)
- CD/DVD device was removed from all VMs (default present)
- PrimeClient's second virtual disk configured to be 1 TB (default: 50 GB)

SUT Host ESXi Advanced Settings:

Advanced Setting	Host 1	Host 2	Default
Cpu.CreditAgePeriod	1000	1000	3000
Cpu.HTWholeCoreThreshold	0	0	800
Disk.IdleCredit	64	64	32
Disk.ReqCallThreshold	1	1	8
Mem.CtlMaxPercent	0	0	65
Mem.ShareScanGHz	0	0	4
Numa.LTermFairnessInterval	0	0	5
Numa.LocalityWeightActionAffinity	0	0	130
Numa.MigImbalanceThreshold	57	57	10
Numa.PageMigEnable	0	0	1
Numa.PreferHT	1	1	0
Numa.RebalancePeriod	60000	60000	2000
Numa.SwapLoadEnable	0	0	1
Numa.SwapLocalityEnable	0	0	1
Power.CpuPolicy	Performance	Performance	Balanced
UserVars.SuppressShellWarning	1	1	0

SUT Host ESXi Module Options:

Module	Host 1	Host 2	Default
tcpip4	ipv6=1	ipv6=1	ipv6=1

## Server Notes

Server BIOS settings

- HPE Workload Profile set to "Virtualization - Max Performance" (default: General Power Efficient Compute)
- Thermal Configuration set to Maximum Cooling (default: Optimal Cooling)
- Determinism control set to manual (default: Auto)
- Minimum Processor Idle Power Core C-state set to No-Cstates (default: C6)
- Memory Patrol Scrubbing set to Disabled (default: Enabled)
- ACPI CST C2 Latency set to 18 ms (default: 800 ms)

## Networking Notes

SUT hosts

- vSwitch0 configuration
  - Uplink: vmnic0
  - Usage: vmk0 (MTU 9000) - used for management and VM network
- vSwitch1 configuration
  - Uplink: vmnic1
  - Usage: vmk1 (MTU 9000) - used for vMotion
- vSwitch2 configuration
  - Uplink: vmnic2, vmnic3
  - Usage:
    - vmk2 (MTU 9000) - configured for iSCSI traffic, vmnic2 configured as the Failover Override Active Adapter for Portgroup iSER1
    - vmk3 (MTU 9000) - configured for iSCSI traffic, vmnic3 configured as the Failover Override Active Adapter for Portgroup iSER2

## Client hosts

- vSwitch0 configuration
  - Uplink: vmnic0, vmnic1
  - Usage: vmk0 (MTU 9000) - used for management, vMotion, and Client VM network
    - vSAN networking was enabled, but unused on vmk0

## Storage Notes

### OS Storage

- On each SUT host, VMware ESXi 8.0 Update 3e was installed on HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device which provides a RAID1 volume on 2 x 480 GB NVMe M.2 SSDs.
- On each client host, VMware ESXi 8.0 Update 3 was installed on HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device which provides a RAID1 volume on 2 x 480 GB NVMe M.2 SSDs.

### Primary and Secondary Storage: iSCSI Target via SCSI Target Server (LIO)

- Hardware details
  - 2 x HPE ProLiant DL385 Gen11
    - 2 x AMD EPYC 9374F (3.85 GHz)
    - 1.5TB (24 x 64GB 2Rx4 5600 MHz DDR5 RDIMMs)
    - 1 x 2-port Mellanox Technologies ConnectX-7 VPI NDR200/HDR IB /200GbE NIC used as iSCSI target controller(Operating at 100 Gbps speed)
    - 1 x HPE NS204i-u Gen11 NVMe Hot Plug Boot Optimized Storage Device
    - 24 x HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743
- Software Details
  - Operating System: Canonical Ubuntu Linux 24.04 LTS - 6.8.0-57-generic
  - iSCSI Target SW: LIO
  - Software RAID configuration
    - On each iSCSI Target, two RAID 10 volume groups created on 12 x HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743
- All disks within each RAID 10 volume group were exclusively connected to socket 1 or socket 2
- LUN details
  - iSCSI Target 1, socket 1, RAID 10 volume group
    - 3 x 2TB volume groups exported as LUNs named nosql0, nosql2, and source
      - nosql0 LUN stored AuctionWebDNosql, NoSQLBenchA, NoSQLBenchB, and NoSQLBenchC VMs of Tile0
      - nosql2 LUN stored AuctionWebDNosql, NoSQLBenchA, NoSQLBenchB, and NoSQLBenchC VMs of Tile2
      - source LUN stored AuctionWebF and DS35WebA VMs for all the tiles
  - iSCSI Target 1, socket 2, RAID 10 volume group
    - 2 x 2TB volume groups exported as LUNs named nosql1 and target
      - nosql1 LUN stored AuctionWebDNosql, NoSQLBenchA, NoSQLBenchB, and NoSQLBenchC VMs of Tile1
      - target LUN was used for Storage vMotion and XvMotion operations
  - iSCSI Target 2, socket 1, RAID 10 volume group
    - 2 x 2TB volume groups exported as LUNs named tile0 and tile2
      - tile0 LUN stored AuctionAppA,AuctionAppB,AuctionAppC,AuctionWebA,AuctionWebB,AuctionWebC,AuctionWebEDB,DS35WebB,DS35WebC,Standby,SocialNetwork VMs of Tile0
      - tile2 LUN stored AuctionAppA,AuctionAppB,AuctionAppC,AuctionWebA,AuctionWebB,AuctionWebC,AuctionWebEDB,DS35WebB,DS35WebC,Standby,SocialNetwork VMs of Tile2
  - iSCSI Target 2, socket 2, RAID 10 volume group
    - 1 x 2TB volume group exported as LUNs named tile1
      - tile1 LUN stored AuctionAppA, AuctionAppB, AuctionAppC, AuctionWebA, AuctionWebB, AuctionWebC, AuctionWebEDB, DS35WebB, DS35WebC, Standby, SocialNetwork VMs of Tile1

## Server Management Notes

VMware vCenter Server Appliance 8.0 Update 3, Build 24022515 was hosted on Client host2 which is part of the client cluster

## Operating System Notes

SUT Host ESXi Image Profile: HPE-Custom-AddOn\_803.0.0.12.1.0-11

## Software Notes

None

## Client Notes

- vSphere DRS Disabled

Client Host ESXi Advanced Settings:

Advanced Setting	Host 1	Host 2	Default
Power.CpuPolicy	Performance	Performance	Balanced
UserVars.HostClientCEIPOptIn	2	2	0
UserVars.SuppressShellWarning	1	1	0

Client Host ESXi Module Options:

Module	Host 1	Host 2	Default
tcpip4	ipv6=1	ipv6=1	ipv6=1

Client Host ESXi Image Profile: (Updated) HPE-Custom-AddOn\_803.0.0.11.7.0-23

Client Storage

- 2 \* HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD was used for all client VMs, including the PrimeClient, and the vCenter Server VM
  - All Client VMs stored on the first NVMe of each Client host, except the PrimeClient
  - The PrimeClient and VCSA VM were stored on the second NVMe of the second Client host

Client Host VMs:

- Client Host 1: Client0, Client2
- Client Host 2: Client1, Client3, PrimeClient, VCSA8U3

## Other Notes

None

## VMmark4.properties Settings

- TileDelay = 15 (default 60)
- LogLevel = DEBUG (default INFO)
- ReporterSkipNonCompliant = 1 (default 0)
- ErrorImmediate = 1 (default 0)

# Virtual Machines

## SUT Host Virtual Machines

VM	vCPUs	Cores Per Socket	Memory (MB)	Sync Time	Logging	CD/DVD	CPU Res	CPU Limit	CPU Shares	Mem Res	Mem Limit	Mem Shares	Mem Pin	Mem 1G Page	Disk Shares	Datastore	Port Group	vHW Version	Tools Version
AuctionAppA0	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	tile0	VM Network	17	12325
AuctionAppA1	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	tile1	VM Network	17	12325
AuctionAppA2	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	tile2	VM Network	17	12325
VM	vCPUs	Cores Per Socket	Memory (MB)	Sync Time	Logging	CD/DVD	CPU Res	CPU Limit	CPU Shares	Mem Res	Mem Limit	Mem Shares	Mem Pin	Mem 1G Page	Disk Shares	Datastore	Port Group	vHW Version	Tools Version





PrimeClient	4	1	32768	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	client2-datastore2	VM Network, VM Network	17	12325
VCSA8U3	8	1	30720	FALSE	TRUE	Present	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	client2-datastore2	VM Network	10	12389

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