

VMmark[®] 4.0.2 Disclosure

Server Vendor & Model: Supermicro AS -2126HS-TN
Storage Vendor & Model: PureStorage FlashArray FA-X90R2
Hypervisor: VMware ESXi 8.0 Update 3, Build 24022510
Server Management Software: VMware vCenter Server 8.0 Update 3, Build 24022515

VMmark 4.0.2 Score =
 3.40 @ 4 Tiles

Number of Hosts: 2	Uniform Hosts: yes	Total sockets/cores/threads in test: 4/256/512
Tested By: Supermicro	Test Date: 04-02-2025	SUT Availability Date: 01-10-2025
Performance Section Performance	Configuration Section Configuration	Notes Section Notes for Workload
Virtual Machines Section Virtual Machines		

Performance

TILE_0_Scores	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	
p0	14133.30	9239.93	3033.18	2255.07	1702.15	54237.07	54200.00	54236.35	67.84	1.00	
p1	14129.25	9246.50	3035.10	2271.47	1622.05	51959.80	51959.29	51959.31	67.47	1.00	
p2	14127.72	9213.17	3038.00	2247.07	1702.28	49329.29	49328.90	49328.97	66.57	1.00	
TILE_0_Ratios	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	Geo.Mean
p0	1.01	1.00	1.05	1.05	1.11	0.96	0.96	0.96	0.94	1.00	1.00
p1	1.01	1.01	1.05	1.06	1.06	0.92	0.92	0.92	0.94	1.00	0.98
p2	1.01	1.00	1.05	1.05	1.11	0.87	0.87	0.87	0.92	1.00	0.97
TILE_0_QoS	WVAuctionVM%	WVAuctionK8S%	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC			
p0	0.22 0.00	0.36 0.00	339.13	361.30	386.28	0.64	0.64	0.64			
p1	0.26 0.00	0.36 0.00	344.96	349.02	395.53	0.69	0.68	0.68			
p2	0.30 0.03	0.36 0.00	336.05	366.44	389.94	0.69	0.69	0.69			
TILE_1_Scores	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	
p0	14128.00	9222.92	3045.38	2255.10	1701.17	56571.54	56398.99	56571.26	71.79	1.00	
p1	14105.36	9237.39	3027.62	2245.72	1605.28	53561.00	53561.21	53560.97	71.58	1.00	
p2	14119.75	9227.09	3032.03	2239.95	1678.72	50598.59	50598.98	50598.83	71.17	1.00	
TILE_1_Ratios	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	Geo.Mean
p0	1.01	1.00	1.05	1.05	1.11	1.00	1.00	1.00	1.00	1.00	1.02
p1	1.01	1.00	1.04	1.04	1.05	0.95	0.95	0.95	0.99	1.00	1.00
p2	1.01	1.00	1.05	1.04	1.10	0.90	0.90	0.90	0.99	1.00	0.98
TILE_1_QoS	WVAuctionVM%	WVAuctionK8S%	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC			
p0	0.22 0.01	0.34 0.00	335.66	358.23	389.46	0.63	0.63	0.63			
p1	0.26 0.01	0.36 0.00	347.08	364.89	410.05	0.66	0.66	0.66			
p2	0.32 0.07	0.35 0.00	340.50	371.64	412.07	0.68	0.69	0.68			

TILE_2_Scores	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	
p0	14148.80	9235.73	3042.10	2262.70	1709.50	52525.04	52525.98	52524.42	71.41	1.00	
p1	14112.73	9242.84	3025.57	2262.20	1609.60	50390.65	50390.89	50390.31	71.37	1.00	
p2	14099.46	9289.58	3042.05	2257.53	1699.62	47946.01	47946.45	47945.43	71.03	1.00	
TILE_2_Ratios	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	Geo.Mean
p0	1.01	1.00	1.05	1.05	1.12	0.93	0.93	0.93	0.99	1.00	1.00
p1	1.01	1.00	1.04	1.05	1.05	0.89	0.89	0.89	0.99	1.00	0.98
p2	1.01	1.01	1.05	1.05	1.11	0.85	0.85	0.85	0.99	1.00	0.97
TILE_2_QoS	WVAuctionVM%	WVAuctionK8S%	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC			
p0	0.24 0.01	0.39 0.01	336.67	352.90	379.24	0.66	0.66	0.66			
p1	0.29 0.03	0.38 0.00	346.74	356.16	403.61	0.70	0.70	0.70			
p2	0.31 0.04	0.40 0.00	341.31	358.64	382.90	0.74	0.74	0.74			
TILE_3_Scores	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	
p0	14121.17	9238.33	3085.97	2287.03	1653.88	55154.97	55094.45	55153.56	69.35	1.00	
p1	14119.15	9213.41	3041.03	2263.32	1693.72	52586.10	52586.23	52586.51	68.77	1.00	
p2	14121.01	9219.90	3066.65	2172.57	1636.53	49749.22	49748.65	49748.30	67.77	1.00	
TILE_3_Ratios	WVAuctionVM	WVAuctionK8S	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC	SocialNetwork	Standby	Geo.Mean
p0	1.01	1.00	1.06	1.06	1.08	0.98	0.98	0.98	0.96	1.00	1.01
p1	1.01	1.00	1.05	1.05	1.11	0.93	0.93	0.93	0.96	1.00	0.99
p2	1.01	1.00	1.06	1.01	1.07	0.88	0.88	0.88	0.94	1.00	0.97
TILE_3_QoS	WVAuctionVM%	WVAuctionK8S%	DVDStoreA	DVDStoreB	DVDStoreC	NoSQLBenchA	NoSQLBenchB	NoSQLBenchC			
p0	0.24 0.01	0.35 0.00	312.80	334.43	354.80	0.63	0.63	0.63			
p1	0.24 0.00	0.38 0.00	334.33	355.47	398.79	0.67	0.67	0.67			
p2	0.29 0.02	0.37 0.00	323.33	363.02	376.58	0.69	0.69	0.69			
p0_score:	4.04										
p1_score:	3.95										
p2_score:	3.89										
Infrastructure_Operations_Scores:						vMotion	SVMotion	XVMotion	Deploy		
Completed_Ops_PerHour						29.00	17.00	17.00	17.50		
Avg_Seconds_To_Complete						1.09	2.44	3.24	169.63		
Failures						0.00	0.00	0.00	0.00		
Ratio						0.98	1.31	1.31	1.21		
Number_Of_Threads						1	1	1	1		
Summary						Run_Is_Compliant		Median_Phase(p1)			
Unreviewed_VMmark4_Applications_Score						3.95					
Unreviewed_VMmark4_Infrastructure_Score						1.19					
Unreviewed_VMmark4_Score						3.40 @ 4 Tiles					

Configuration

Virtualization Software																																																																																											
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 8.0 Update 3, Build 24022510 / 06-25-2024																																																																																										
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																																																																																										
Servers																																																																																											
Number of Servers in System Under Test (all subsequent fields in this section are per Server)	2																																																																																										
Server Manufacturer and Model	Supermicro AS -2126HS-TN																																																																																										
Processor Vendor and Model	AMD EPYC 9555																																																																																										
Processor Speed (GHz) / Turbo Boost Speed (GHz)	3.2 GHz / 4.4 GHz																																																																																										
Total Sockets/Total Cores/Total Threads	2 Sockets / 128 Cores / 256 Threads																																																																																										
NUMA Nodes	2																																																																																										
BIOS Version	1.2																																																																																										
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	<table border="1"> <thead> <tr> <th>Location</th> <th>Size</th> <th>Speed</th> <th>Max Speed</th> <th>Rank</th> <th>Type</th> <th>Detail</th> </tr> </thead> <tbody> <tr> <td>P1-DIMMA1</td> <td>64 GB</td> <td>6400 MT/s</td> <td>6400 MT/s</td> <td>2</td> <td>DDR5</td> <td>Synchronous, Registered</td> </tr> <tr> <td>P1-DIMMB1</td> <td>64 GB</td> <td>6400 MT/s</td> <td>6400 MT/s</td> <td>2</td> <td>DDR5</td> <td>Synchronous, Registered</td> </tr> <tr> <td>P1-DIMMC1</td> <td>64 GB</td> <td>6400 MT/s</td> <td>6400 MT/s</td> <td>2</td> <td>DDR5</td> <td>Synchronous, Registered</td> </tr> <tr> <td>P1-DIMMD1</td> <td>64 GB</td> <td>6400 MT/s</td> <td>6400 MT/s</td> <td>2</td> <td>DDR5</td> <td>Synchronous, Registered</td> </tr> <tr> <td>P1-DIMME1</td> <td>64 GB</td> <td>6400 MT/s</td> <td>6400 MT/s</td> <td>2</td> <td>DDR5</td> <td>Synchronous, Registered</td> </tr> <tr> <td>P1-DIMMF1</td> <td>64 GB</td> <td>6400 MT/s</td> <td>6400 MT/s</td> <td>2</td> <td>DDR5</td> <td>Synchronous, Registered</td> </tr> <tr> <td>P1-DIMMG1</td> <td>64 GB</td> <td>6400 MT/s</td> <td>6400 MT/s</td> <td>2</td> <td>DDR5</td> <td>Synchronous, Registered</td> </tr> <tr> <td>P1-DIMMH1</td> <td>64 GB</td> <td>6400 MT/s</td> <td>6400 MT/s</td> <td>2</td> <td>DDR5</td> <td>Synchronous, Registered</td> </tr> <tr> <td>P1-DIMMI1</td> <td>64 GB</td> <td>6400 MT/s</td> <td>6400 MT/s</td> <td>2</td> <td>DDR5</td> <td>Synchronous, Registered</td> </tr> <tr> <td>P1-DIMMJ1</td> <td>64 GB</td> <td>6400 MT/s</td> <td>6400 MT/s</td> <td>2</td> <td>DDR5</td> <td>Synchronous, Registered</td> </tr> <tr> <td>P1-DIMMK1</td> <td>64 GB</td> <td>6400 MT/s</td> <td>6400 MT/s</td> <td>2</td> <td>DDR5</td> <td>Synchronous, Registered</td> </tr> </tbody> </table>							Location	Size	Speed	Max Speed	Rank	Type	Detail	P1-DIMMA1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered	P1-DIMMB1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered	P1-DIMMC1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered	P1-DIMMD1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered	P1-DIMME1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered	P1-DIMMF1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered	P1-DIMMG1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered	P1-DIMMH1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered	P1-DIMMI1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered	P1-DIMMJ1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered	P1-DIMMK1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
Location	Size	Speed	Max Speed	Rank	Type	Detail																																																																																					
P1-DIMMA1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered																																																																																					
P1-DIMMB1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered																																																																																					
P1-DIMMC1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered																																																																																					
P1-DIMMD1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered																																																																																					
P1-DIMME1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered																																																																																					
P1-DIMMF1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered																																																																																					
P1-DIMMG1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered																																																																																					
P1-DIMMH1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered																																																																																					
P1-DIMMI1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered																																																																																					
P1-DIMMJ1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered																																																																																					
P1-DIMMK1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered																																																																																					

P1-DIMML1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
P2-DIMMA1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
P2-DIMMB1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
P2-DIMMC1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
P2-DIMMD1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
P2-DIMME1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
P2-DIMMF1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
P2-DIMMG1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
P2-DIMMH1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
P2-DIMMI1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
P2-DIMMJ1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
P2-DIMMK1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered
P2-DIMML1	64 GB	6400 MT/s	6400 MT/s	2	DDR5	Synchronous, Registered

Number of SAS Devices

0

SAS Device Vendors and Models

None

Number of Virtual Host Bus Adapters

4

Virtual Host Bus Adapter Vendors and Models

HBA	Model	Speed	Driver	Firmware
vmhba0	Emulex LPe35002-M2 2-Port 32Gb Fibre Channel Adapter	16 Gbps	lpfc	14.0.505.12
vmhba1	Emulex LPe35002-M2 2-Port 32Gb Fibre Channel Adapter	16 Gbps	lpfc	14.0.505.12
vmhba64	Emulex LPe35002-M2 2-Port 32Gb Fibre Channel Adapter	16 Gbps	lpfc	14.0.505.12
vmhba65	Emulex LPe35002-M2 2-Port 32Gb Fibre Channel Adapter	16 Gbps	lpfc	14.0.505.12

Power Supply Quantity, Name/Part Number, Wattage, Firmware, and Type (Voltage, AC/DC)

2, PWS-2K07A-1R, 2000W, Rev 1.0, 240V AC Power supplies for each SUT.

Cooling Type (Air Cooling, Closed Loop Cooling, Direct Liquid Cooling, or Other)

Air Cooling

Other Hardware

None

Other Software

None

BIOS Availability Date (MM-DD-YYYY)

01-21-2025

Hardware Availability Date (MM-DD-YYYY)

01-10-2025

Software Availability Date (MM-DD-YYYY)

06-25-2024

Network

Number of Virtual Network Controllers	2
---------------------------------------	---

Virtual Network Controllers, Speeds, MTUs, Firmware, Drivers, Vendors, and Models	Device	Speed	Duplex	MTU	Firmware	Driver	Description
	vmnic2	25 Gbps	Full	9000	8.0.0.1015 rx0 tx0	sfvmk	Solarflare XtremeScale X2522 25G Network Adapter
	vmnic3	25 Gbps	Full	9000	8.0.0.1015 rx0 tx0	sfvmk	Solarflare XtremeScale X2522 25G Network Adapter

Number of Virtual Switches	2
----------------------------	---

Virtual Switches, Ports, Port Groups, MTUs, and Uplinks	Switch	Ports	Configured Ports	MTU	Uplinks
	vSwitch0	9216	128	9000	vmnic2
	vSwitch1	9216	128	9000	vmnic3
	Switch	Port Group	VLAN ID	Uplinks	
	vSwitch0	Management Network	0	vmnic2	
	vSwitch1	VM Network	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	vMotion, Management

Physical Switch Vendors, Models, and Speeds	Mellanox MSN2700 32-port Switch
---	---------------------------------

Primary Storage

Storage Category	FC SAN
------------------	--------

Datastores	Datastores	Type	Size	Storage Device
	CSI	VMFS-6	35.2 TB	PURE Fibre Channel Disk
	Deploy	VMFS-6	35.2 TB	PURE Fibre Channel Disk
	OSDATA-66da2bff-e845cc5d-b881-905a08103d36	VMFSOS	25.5 GB	PURE Fibre Channel Disk
	db0	VMFS-6	2.2 TB	PURE Fibre Channel Disk
	db1	VMFS-6	2.2 TB	PURE Fibre Channel Disk
	db2	VMFS-6	2.2 TB	PURE Fibre Channel Disk
	db3	VMFS-6	2.2 TB	PURE Fibre Channel Disk
	db4	VMFS-6	2.2 TB	PURE Fibre Channel Disk
	db5	VMFS-6	2.2 TB	PURE Fibre Channel Disk
	db6	VMFS-6	2.2 TB	PURE Fibre Channel Disk
	db7	VMFS-6	2.2 TB	PURE Fibre Channel Disk
	infra_source	VMFS-6	8.8 TB	PURE Fibre Channel Disk
	infra_target	VMFS-6	8.8 TB	PURE Fibre Channel Disk
	tile0	VMFS-6	2.2 TB	PURE Fibre Channel Disk
	tile1	VMFS-6	2.2 TB	PURE Fibre Channel Disk
tile2	VMFS-6	2.2 TB	PURE Fibre Channel Disk	
tile3	VMFS-6	2.2 TB	PURE Fibre Channel Disk	

PURE Fibre Channel Disk	2.2 TB	Direct-Access	PURE	FlashArray	8888	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
Local NVMe Disk	3.8 TB	Direct-Access	NVMe	SAMSUNG MZWLO3T8HCLS-00A07	OPPA6B5Q	FIXED	preferred=none	1
PURE Fibre Channel Disk	8.8 TB	Direct-Access	PURE	FlashArray	8888	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
PURE Fibre Channel Disk	8.8 TB	Direct-Access	PURE	FlashArray	8888	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
PURE Fibre Channel Disk	35.2 TB	Direct-Access	PURE	FlashArray	8888	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2
PURE Fibre Channel Disk	35.2 TB	Direct-Access	PURE	FlashArray	8888	VMW_PSP_RR	policy=iops,iops=1,bytes=10485760,useANO=0	2

How Datastores Map to Storage Devices	All LUNs are backed by the same NVMe disks present on the PureStorage FlashArray FA-X90R2
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)	5
Number of Client Hosts (all subsequent fields in this section are per Client Host)	4
System Model(s)	<ul style="list-style-type: none"> • Client Host 1: Supermicro AS -1124US-TNRP • Client Host 2: Supermicro AS -1124US-TNRP • Client Host 3: Supermicro AS -1124US-TNRP • Client Host 4: Supermicro AS -1124US-TNRP
Processor Vendor(s) and Model(s)	<ul style="list-style-type: none"> • Client Host 1: AMD EPYC 7763 • Client Host 2: AMD EPYC 7763 • Client Host 3: AMD EPYC 7763 • Client Host 4: AMD EPYC 7763
Processor Speed(s) (GHz)	<ul style="list-style-type: none"> • Client Host 1: 2.45 GHz • Client Host 2: 2.45 GHz • Client Host 3: 2.45 GHz • Client Host 4: 2.45 GHz

Total Sockets/Total Cores/Total Threads	Client Host	Sockets	Cores	Threads
	Client Host 1	2	128	256
	Client Host 2	2	128	256
	Client Host 3	2	128	256
	Client Host 4	2	128	256
	Total	8	512	1024

NUMA Nodes	<ul style="list-style-type: none"> • Client Host 1: 2 • Client Host 2: 2 • Client Host 3: 2 • Client Host 4: 2
------------	--

Memory Size (in GB) per Client Host	Client Host	BIOS	ESXi
	Client Host 1	1920 GB	1920 GB
	Client Host 2	2048 GB	2036 GB
	Client Host 3	2048 GB	2036 GB
	Client Host 4	1920 GB	1920 GB

Virtual Network Controllers, Speeds, MTUs, Firmware, Drivers, Vendors, and Models	Client Host	Device	Speed	Duplex	MTU	Firmware	Driver	Description
	Client Host 1	vmnic0	100 Gbps	Full	9000	20.28.4000	nmlx5_core	Mellanox Technologies MT28908 Family [ConnectX-6]
		vmnic1	100 Gbps	Full	9000	20.28.4000	nmlx5_core	Mellanox Technologies MT28908 Family [ConnectX-6]
	Client Host 2	vmnic0	100 Gbps	Full	9000	20.27.1016	nmlx5_core	Mellanox Technologies MT28908 Family [ConnectX-6]
		vmnic1	100 Gbps	Full	9000	20.27.1016	nmlx5_core	Mellanox Technologies MT28908 Family [ConnectX-6]
	Client Host 3	vmnic0	100 Gbps	Full	9000	20.28.4000	nmlx5_core	Mellanox Technologies MT28908 Family [ConnectX-6]
		vmnic1	100 Gbps	Full	9000	20.28.4000	nmlx5_core	Mellanox Technologies MT28908 Family [ConnectX-6]
	Client Host 4	vmnic0	100 Gbps	Full	9000	20.27.1016	nmlx5_core	Mellanox Technologies MT28908 Family [ConnectX-6]
		vmnic1	100 Gbps	Full	9000	20.27.1016	nmlx5_core	Mellanox Technologies MT28908 Family [ConnectX-6]

Virtual Switches, Ports, Port Groups, MTUs, and Uplinks	Client Host	Switch	Ports	Configured Ports	MTU	Uplinks
	Client Host 1	vSwitch0	9216	128	9000	vmnic0
		vSwitch1	9216	128	9000	vmnic1
	Client Host 2	vSwitch0	9216	128	9000	vmnic0
		vSwitch1	9216	128	9000	vmnic1
	Client Host 3	vSwitch0	9216	128	9000	vmnic0
		vSwitch1	9216	128	9000	vmnic1
	Client Host 4	vSwitch0	9216	128	9000	vmnic0
		vSwitch1	9216	128	9000	vmnic1

Client Host	Switch	Port Group	VLAN ID	Uplinks
Client Host 1	vSwitch0	Management Network	0	vmnic0

		vSwitch0	VM Network	0	vmnic0	
		vSwitch1	vmotion	0	vmnic1	
Client Host 2		vSwitch0	Management Network	0	vmnic0	
		vSwitch0	VM Network	0	vmnic0	
		vSwitch1	vmotion	0	vmnic1	
Client Host 3		vSwitch0	Management Network	0	vmnic0	
		vSwitch0	VM Network	0	vmnic0	
		vSwitch1	vmotion	0	vmnic1	
Client Host 4		vSwitch0	Management Network	0	vmnic0	
		vSwitch0	VM Network	0	vmnic0	
		vSwitch1	vmotion	0	vmnic1	
VMkernel Network Adapters, Port Groups, MTUs, TCP/IP Stacks, and Services	Client Host	Device	Port Group/DVPort	MTU	TCP/IP Stack	Services
	Client Host 1	vmk0	Management Network	1500	Default	Management
		vmk1	vmotion	9000	Default	vMotion
	Client Host 2	vmk0	Management Network	1500	Default	Management
		vmk1	vmotion	9000	Default	vMotion
	Client Host 3	vmk0	Management Network	1500	Default	Management
		vmk1	vmotion	9000	Default	vMotion
	Client Host 4	vmk0	Management Network	1500	Default	Management
vmk1		vmotion	9000	Default	vMotion	
Client Storage Notes	See Client Notes Section					
Other Hardware	Power Supply Quantity, Name/Part Number, Wattage, Firmware, Type (Voltage, AC/DC): 2, PWS-1K22A-1R, 1200W, Rev 1.0, 240V AC powersupply for each client. Servers were air-cooled.					
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
- All Standby VMs had CPU shares set to low (default normal)
- All DS35DB, NoSQLBench, and AuctionK VMs had CPU shares set to High (default normal)
- All DS35DB VM memory shares set to High (default normal)
- Added sched.mem.lpage.enable1GPage to True for all DS35DB VMs (default normal)
- All memory reserved for DS35DB VMs (default non-reserved)
- Memory was pinned for all DS35DB VMs.

- CD/DVD device was removed from all VMs except PrimeClient. (default present)
- Logical CPU layout changed for all multi-CPU VMs to 1 socket with multiple cores except template, Client and PrimeClient VMs. (default single core per socket)
- Logging was disabled for all VMs.(default enabled)
- vHW was upgraded to 21 for all VMs. (default vHW 17)

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.HostClientCEIPOptIn	2	2	0
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

- NUMA per Socket = 1 (Default Auto)
- Memory Frequency = 6400 (Default Auto)
- CST Latency = 18 (Default 100)
- APBDis = 1 (Default Auto)
- xGMI Link Width Control = Force (Default Unforce)
- xGMI Force Link Width = 2 (Default 1)
- xGMI Link Max Speed = 22 Gbps (Default Auto)

Networking Notes

- vSwitch0 configured for Management Network and vmotion
 - Connected to vmnic2
 - vSwitch0, vmk0, and vmnic2 set to MTU 9000 (default 1500)
- vSwitch1 configured for VM Network
 - Connected to vmnic3
 - vSwitch1 and vmnic3 set to MTU 9000 (default 1500)
 - All VMs connected to default portgroup VM Network

Storage Notes

- All client server OS installed on 64GB LUN PureStorage FA-X90R2 Array
- All SUT hosts OS installed on 32GB LUN PureStorage FA-X90R2 Array
- All FC ports regardless of model are running at 16Gbps
- FC LUN Folder configuration:
 - All LUNs are backed by the same NVMe disks present on the PureStorage FA-X90R2 Array
 - All DS35DB and AuctionWebEDB VMs were stored on a 2TB LUN associated with a corresponding tile number.
 - All NoSQLBench and AuctionWebDNosql VMs were stored on a 32TB LUN named Deploy
 - The template VM was stored on an 8TB LUN named infra_source.
 - All DS35WebA VMs were stored on an 8TB LUN named infra_source.
 - All AuctionWebF VMs were stored on an 8TB LUN named infra_source.
 - All other VMs were stored on a 2TB LUN associated with a corresponding tile number.
 - All VM infrastructure operations were on an 8TB LUN called infra_target for its destination.
- All FC LUNs were configured with:
 - Round Robin Path Policy (Default: Most Recently Used)
 - IO Operations Limit 1 (Default: 1000)

Server Management Notes

VMware vCenter Server Appliance 8.0 Update 3, Build 24022515 was hosted on the Client Cluster and automatically load balanced along with the other Client VMs through DRS.

Operating System Notes

SUT Host ESXi Image Profile: ESXi-8.0U3-24022510-standard

Software Notes

None

Client Notes

- vSphere DRS Enabled
- vSphere DRS Automation Level set to Fully Automated
- vSphere DRS Migration Threshold set to 1

Client Host ESXi Advanced Settings:

Advanced Setting	Host 1	Host 2	Host 3	Host 4	Default
UserVars.SuppressShellWarning	1	1	1	1	0

Client Host ESXi Module Options:

Module	Host 1	Host 2	Host 3	Host 4	Default
tcpip4	ipv6=1	ipv6=1	ipv6=1	ipv6=1	ipv6=1

Client Host ESXi Image Profile: (Updated) ESXi-8.0U3-24022510-standard

Other Notes

None

VMmark4.properties Settings

- TileDelay = 5 (default 60)
- ReporterSkipNonCompliant = 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	21	12325
AuctionAppA1	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	tile1	VM Network	21	12325
AuctionAppA2	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	tile2	VM Network	21	12325
AuctionAppA3	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	tile3	VM Network	21	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
AuctionAppB0	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	tile0	VM Network	21	12325
AuctionAppB1	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	tile1	VM Network	21	12325
AuctionAppB2	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	tile2	VM Network	21	12325
AuctionAppB3	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	tile3	VM Network	21	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
AuctionAppC0	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	tile0	VM Network	21	12325
AuctionAppC1	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	tile1	VM Network	21	12325
AuctionAppC2	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	tile2	VM Network	21	12325
AuctionAppC3	4	4	8192	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	tile3	VM Network	21	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
AuctionKA0	8	8	32768	TRUE	FALSE	Removed	0	Unlimited	high	0	Unlimited	normal	FALSE	FALSE	normal	tile0	VM Network	21	12325
AuctionKA1	8	8	32768	TRUE	FALSE	Removed	0	Unlimited	high	0	Unlimited	normal	FALSE	FALSE	normal	tile1	VM Network	21	12325
AuctionKA2	8	8	32768	TRUE	FALSE	Removed	0	Unlimited	high	0	Unlimited	normal	FALSE	FALSE	normal	tile2	VM Network	21	12325
AuctionKA3	8	8	32768	TRUE	FALSE	Removed	0	Unlimited	high	0	Unlimited	normal	FALSE	FALSE	normal	tile3	VM Network	21	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
AuctionKB0	8	8	32768	TRUE	FALSE	Removed	0	Unlimited	high	0	Unlimited	normal	FALSE	FALSE	normal	tile0	VM Network	21	12325
AuctionKB1	8	8	32768	TRUE	FALSE	Removed	0	Unlimited	high	0	Unlimited	normal	FALSE	FALSE	normal	tile1	VM Network	21	12325
AuctionKB2	8	8	32768	TRUE	FALSE	Removed	0	Unlimited	high	0	Unlimited	normal	FALSE	FALSE	normal	tile2	VM Network	21	12325
AuctionKB3	8	8	32768	TRUE	FALSE	Removed	0	Unlimited	high	0	Unlimited	normal	FALSE	FALSE	normal	tile3	VM Network	21	12325

Standby3	1	1	2048	TRUE	FALSE	Removed	0	Unlimited	low	0	Unlimited	normal	FALSE	FALSE	normal	tile3	VM Network	21	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
VMmark-4.0.2-209	4	4	32768	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Deploy	VM Network	21	12325

Client 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
Client0	64	64	98304	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Client	VM Network	21	12325
Client1	64	64	98304	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Client	VM Network	21	12325
Client2	64	64	98304	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Client	VM Network	21	12325
Client3	64	64	98304	TRUE	FALSE	Removed	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Client	VM Network	21	12325
PrimeClient	4	4	32768	TRUE	FALSE	Present	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Client	VM Network, VM Network	21	12325
VCSA8.0U3-IA	8	1	30720	FALSE	TRUE	Present	0	Unlimited	normal	0	Unlimited	normal	FALSE	FALSE	normal	Client	VM Network	10	12389

This is a full disclosure report for a VMmark® benchmark result. All published VMmark results must be from fully-compliant tests for which a full disclosure report is publicly available.

For information about VMmark and the rules regarding its usage visit www.vmware.com/products/vmmark.

Copyright (c)2024-2025 Broadcom. All rights reserved. The term "Broadcom" refers to Broadcom Inc. and/or its subsidiaries.

VMware and VMmark are trademarks or registered trademarks of VMware LLC. VMmark is a product of [VMware LLC](http://www.vmware.com).