

# VMmark® 3.1.1 Results

**Server Vendor & Model: Dell EMC PowerEdge C6525**  
**Storage Vendor & Model: VMware vSAN - All Flash**  
**Hypervisor: VMware ESXi 6.7.0 P04 Build 17167734**  
**Datacenter Management Software: VMware vCenter Server 6.7.0 U3b Build 15132721**

**VMmark 3.1.1 Score =**  
**13.74 @ 16 Tiles**

Number of Hosts: 4	Uniform Hosts [yes/no]: yes	Total sockets/cores/threads in test: 4/256/512
Tested By: Dell Inc.		Test Date: 01-23-2021
Performance Section <a href="#">Performance</a>	Configuration Section <a href="#">Configuration</a>	Notes Section <a href="#">Notes for Workload</a>

## Performance

	weathervane			weathervaneE			dvdstoreA			dvdstoreB			dvdstoreC			
TILE_0	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3565.40	0.99	0.82   0.00	566.85	0.99	0.53   0.25	816.12	1.11	1213.95	553.12	1.11	1449.63	379.40	1.09	1605.41	1.06
p1	3553.51	0.99	0.78   0.00	565.58	0.99	0.53   0.18	792.27	1.08	1303.84	561.10	1.12	1506.28	405.10	1.17	1692.81	1.07
p2	3541.59	0.98	0.74   0.00	564.10	0.99	0.58   0.23	808.50	1.10	1239.05	547.45	1.09	1485.53	369.82	1.07	1694.82	1.05
TILE_1	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3578.63	0.99	0.63   0.00	570.18	1.00	0.96   0.53	824.95	1.12	1201.66	557.58	1.11	1436.82	377.95	1.09	1633.81	1.06
p1	3569.05	0.99	0.72   0.00	569.12	0.99	0.91   0.47	813.38	1.11	1219.26	575.42	1.15	1436.13	413.30	1.19	1621.27	1.08
p2	3554.04	0.99	0.83   0.00	562.42	0.98	0.61   0.36	804.67	1.10	1284.22	540.23	1.08	1554.17	346.98	1.00	1783.61	1.03
TILE_2	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3580.48	1.00	0.73   0.00	566.52	0.99	0.55   0.23	788.10	1.07	1369.26	524.45	1.05	1644.22	353.90	1.02	1873.30	1.02
p1	3565.02	0.99	0.78   0.00	567.04	0.99	0.75   0.36	777.42	1.06	1396.73	538.30	1.08	1652.63	369.60	1.07	1866.13	1.04
p2	3543.11	0.98	1.10   0.02	562.97	0.98	0.70   0.35	778.77	1.06	1400.44	522.00	1.04	1678.32	343.10	0.99	1967.52	1.01
TILE_3	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3580.26	1.00	0.72   0.00	569.87	1.00	0.73   0.31	805.12	1.10	1289.15	541.73	1.08	1541.93	364.65	1.05	1769.36	1.04
p1	3558.32	0.99	0.75   0.00	565.67	0.99	0.54   0.19	794.12	1.08	1322.86	555.70	1.11	1530.81	383.90	1.11	1742.13	1.05
p2	3549.26	0.99	0.81   0.00	563.72	0.99	0.64   0.23	802.00	1.09	1293.49	518.60	1.04	1559.01	361.93	1.04	1781.12	1.03
TILE_4	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3578.67	0.99	0.63   0.05	571.38	1.00	0.97   0.60	791.85	1.08	1338.40	534.60	1.07	1571.47	357.88	1.03	1810.45	1.03
p1	3562.46	0.99	0.64   0.00	567.28	0.99	0.90   0.56	787.42	1.07	1365.05	544.02	1.09	1625.46	372.77	1.07	1825.89	1.04
p2	3547.03	0.99	0.61   0.00	561.70	0.98	0.64   0.27	784.40	1.07	1373.28	510.10	1.02	1612.82	353.62	1.02	1843.62	1.01
TILE_5	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3576.64	0.99	0.63   0.00	572.27	1.00	0.91   0.43	802.20	1.09	1306.13	539.38	1.08	1549.60	379.62	1.09	1763.14	1.05

<b>p1</b>	3557.09	0.99	0.85   0.00	572.41	1.00	0.94   0.47	800.77	1.09	1287.58	541.48	1.08	1528.35	384.45	1.11	1721.67	1.05
<b>p2</b>	3546.10	0.99	0.71   0.00	569.54	1.00	0.84   0.61	797.10	1.09	1318.35	532.00	1.06	1586.08	360.18	1.04	1788.06	1.03
<b>TILE_6</b>	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3577.59	0.99	0.76   0.00	573.63	1.00	1.00   0.58	792.95	1.08	1348.61	556.77	1.11	1576.31	372.35	1.07	1829.36	1.05
<b>p1</b>	3562.94	0.99	0.79   0.00	571.42	1.00	0.92   0.59	807.20	1.10	1289.98	553.50	1.11	1468.82	382.60	1.10	1740.97	1.06
<b>p2</b>	3550.33	0.99	0.79   0.00	569.29	0.99	1.05   0.82	794.55	1.08	1360.43	525.27	1.05	1630.56	352.62	1.02	1855.92	1.03
<b>TILE_7</b>	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3575.20	0.99	0.71   0.00	568.08	0.99	0.76   0.49	798.73	1.09	1315.11	556.85	1.11	1552.71	374.15	1.08	1812.39	1.05
<b>p1</b>	3558.27	0.99	0.71   0.00	560.49	0.98	0.61   0.29	812.40	1.11	1277.02	545.40	1.09	1520.92	381.27	1.10	1752.51	1.05
<b>p2</b>	3546.55	0.99	0.64   0.00	557.45	0.97	0.61   0.22	812.52	1.11	1255.66	545.02	1.09	1513.39	364.43	1.05	1732.52	1.04
<b>TILE_8</b>	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3588.66	1.00	0.73   0.00	567.27	0.99	0.94   0.69	785.80	1.07	1372.89	548.45	1.10	1596.32	368.70	1.06	1864.61	1.04
<b>p1</b>	3568.65	0.99	0.68   0.00	568.13	0.99	0.97   0.68	784.75	1.07	1371.89	520.98	1.04	1641.91	364.05	1.05	1891.15	1.03
<b>p2</b>	3563.19	0.99	0.76   0.00	562.86	0.98	0.88   0.47	785.80	1.07	1389.55	521.67	1.04	1663.87	348.15	1.00	1898.70	1.02
<b>TILE_9</b>	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3584.32	1.00	0.64   0.00	569.89	1.00	0.72   0.36	810.88	1.10	1263.48	566.77	1.13	1495.47	382.40	1.10	1718.38	1.06
<b>p1</b>	3570.44	0.99	0.66   0.00	564.62	0.99	0.61   0.32	807.50	1.10	1276.62	538.85	1.08	1534.36	362.70	1.05	1767.53	1.04
<b>p2</b>	3546.69	0.99	0.67   0.00	561.08	0.98	0.44   0.14	806.90	1.10	1286.17	539.77	1.08	1554.66	378.57	1.09	1784.81	1.05
<b>TILE_10</b>	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3561.45	0.99	0.73   0.01	572.46	1.00	0.86   0.54	788.62	1.07	1365.01	554.48	1.11	1594.87	369.82	1.07	1854.10	1.05
<b>p1</b>	3554.63	0.99	0.70   0.00	568.96	0.99	0.70   0.26	787.65	1.07	1348.68	527.23	1.05	1619.97	352.52	1.02	1867.72	1.02
<b>p2</b>	3531.55	0.98	0.94   0.01	563.00	0.98	0.62   0.33	786.08	1.07	1359.25	533.33	1.07	1594.08	372.55	1.07	1828.25	1.03
<b>TILE_11</b>	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3578.05	0.99	0.69   0.00	567.10	0.99	0.55   0.22	805.77	1.10	1283.81	568.42	1.14	1488.33	402.40	1.16	1703.14	1.07
<b>p1</b>	3568.04	0.99	0.62   0.00	566.04	0.99	0.59   0.34	829.58	1.13	1204.66	536.02	1.07	1464.98	371.40	1.07	1668.40	1.05
<b>p2</b>	3555.58	0.99	0.75   0.00	563.75	0.99	0.48   0.21	813.25	1.11	1247.45	571.38	1.14	1454.66	391.40	1.13	1670.80	1.07
<b>TILE_12</b>	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3575.41	0.99	0.70   0.00	566.67	0.99	0.48   0.19	784.27	1.07	1371.72	571.08	1.14	1591.28	388.77	1.12	1835.47	1.06
<b>p1</b>	3555.86	0.99	0.75   0.00	567.07	0.99	0.58   0.22	797.52	1.09	1317.86	510.90	1.02	1598.02	354.85	1.02	1833.72	1.02
<b>p2</b>	3546.80	0.99	0.77   0.00	564.36	0.99	0.61   0.27	784.80	1.07	1390.41	546.55	1.09	1625.03	370.60	1.07	1863.20	1.04
<b>TILE_13</b>	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3580.20	1.00	0.66   0.00	568.44	0.99	0.28   0.00	801.33	1.09	1292.06	566.27	1.13	1503.48	400.85	1.16	1733.38	1.07
<b>p1</b>	3560.77	0.99	0.69   0.01	565.23	0.99	0.30   0.00	809.98	1.10	1252.58	548.33	1.10	1490.31	368.57	1.06	1716.36	1.05
<b>p2</b>	3555.81	0.99	0.92   0.00	563.65	0.99	0.30   0.00	792.12	1.08	1299.44	560.52	1.12	1523.31	380.82	1.10	1741.74	1.05
<b>TILE_14</b>	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(nRTI MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3571.10	0.99	0.71   0.00	568.24	0.99	0.67   0.38	774.38	1.05	1430.89	540.85	1.08	1666.72	377.77	1.09	1950.65	1.04

<b>p1</b>	3566.14	0.99	0.76   0.00	562.41	0.98	0.78   0.51	787.83	1.07	1366.47	528.45	1.06	1611.84	348.00	1.00	1897.40	1.02
<b>p2</b>	3543.59	0.98	0.81   0.02	561.81	0.98	0.71   0.31	774.95	1.06	1400.38	539.38	1.08	1657.97	365.40	1.05	1899.80	1.03
<b>TILE_15</b>	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(nRT MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
<b>p0</b>	3576.19	0.99	0.77   0.00	564.63	0.99	0.29   0.00	776.62	1.06	1397.08	544.35	1.09	1642.40	388.00	1.12	1844.06	1.05
<b>p1</b>	3557.84	0.99	0.79   0.00	563.21	0.98	0.30   0.00	792.52	1.08	1352.98	530.77	1.06	1626.78	349.02	1.01	1904.70	1.02
<b>p2</b>	3538.00	0.98	0.78   0.00	557.77	0.97	0.31   0.00	777.05	1.06	1409.90	541.25	1.08	1655.40	367.07	1.06	1896.38	1.03
<b>p0_score:</b>	16.82															
<b>p1_score:</b>	16.70															
<b>p2_score:</b>	16.54															

<b>Infrastructure_Operations_Scores:</b>	vMotion	SVMotion	XVMotion	Deploy
<b>Completed_Ops_PerHour</b>	53.00	42.00	34.00	12.00
<b>Avg_Seconds_To_Complete</b>	11.32	144.51	188.09	596.68
<b>Failures</b>	0.00	0.00	0.00	0.00
<b>Ratio</b>	2.04	2.33	1.89	1.50
<b>Number_Of_Threads</b>	2	2	2	2

<b>Summary</b>	Run_Is_Compliant	Turbo_Setting:0
	Number_Of_Compliance_Issues(0)*	Median_Phase(p1)
<b>Unreviewed_VMmark3_Applications_Score</b>	16.70	
<b>Unreviewed_VMmark3_Infrastructure_Score</b>	1.92	
<b>Unreviewed_VMmark3_Score</b>	13.74	

## Configuration

<b>Virtualization Software</b>	
Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware ESXi 6.7.0 P04, Build 17167734 / 11-19-2020
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 6.7.0 U3b, Build 15132721 / 12-05-2019
Supplemental Software	None
<b>Servers</b>	
Number of Servers in System Under Test	4

(all subsequent fields in this section are per server)	
Server Manufacturer and Model	Dell EMC PowerEdge C6525
Processor Vendor and Model	AMD EPYC 7702P
Processor Speed (GHz) / Turbo Boost Speed (GHz)	2.0 / 3.35
Total Sockets/Total Cores/Total Threads	1 Sockets / 64 Cores / 128 Threads
Primary CPU Cache	32 KB I + 32 KB D on chip per core
Secondary CPU Cache	512 KB I+D on chip per core
Other CPU Cache	256 MB I+D on chip per chip, 16 MB shared / 4 cores
BIOS Version	1.7.3
Memory Size (in GB, Number of DIMMs)	512, 8
Memory Type and Speed	64 GB 2Rx4 PC4-3200
Disk Subsystem Type	VMware vSAN, iSCSI SAN
Number of Disk Controllers	0
Disk Controller Vendors and Models	N/A
Total Number of Physical Disks for Hypervisor	1
Disk Vendors, Models, Capacities, and Speeds	Dell, SSDSCKKB480G8R, 480GB SSD
Number of Host Bus Adapters	0
Host Bus Adapter Vendors and Models	N/A
Number of Network Controllers	3
Network Controller Vendors and Models	Broadcom Gigabit Ethernet BCM5720 Broadcom 25Gb Ethernet 57414 Mellanox ConnectX-5 100GbE
Other Hardware	None
Other Software	None
Hardware Availability Date (MM-DD-YYYY)	10-15-2019
BIOS Availability Date (MM-DD-YYYY)	12-08-2020
Software Availability Date (MM-DD-YYYY)	04-02-2020

**Network**

Network Switch Vendors and Models	Dell EMC Z9100-ON 10/25/40/50/100 GbE Switch
Network Speed	1 x 1 Gbps for Management traffic 1 x 10 Gbps for iSCSI traffic 1 x 100 Gbps for vSAN and vMotion traffic 1 x 100 Gbps for VM traffic
<b>Primary Storage</b>	
Storage Category	VMware vSAN
Storage Vendors, Models, and Firmware Versions	4 x Dell EMC PowerEdge C6525 with VMware vSAN 6.7.0 P04
Storage Configuration Summary	VMware vSAN <ul style="list-style-type: none"> <li>• 2 x Disk Groups per host</li> <li>• 2 x 3.84TB NVMe AGN U.2 for vSAN Cache</li> <li>• 4 x 3.84TB SSD SATA for vSAN Capacity</li> </ul>
<b>Datacenter Management Server</b>	
System Model	Dell EMC PowerEdge R7525
Processor Vendor and Model	AMD EPYC 7402
Processor Speed (GHz)	2.8
Total Sockets/Total Cores/Total Threads	2 Sockets / 48 Cores / 96 Threads
Memory Size (in GB, Number of DIMMs)	256, 16
Network Controller(s) Vendors and Models	Mellanox ConnectX-6 100 GbE Dual-port
Operating System, Version, Bitness, and Service Pack	VMware ESXi 7.0 Build 15843807
Virtual Center VM Number of vCPUs	8
Virtual Center VM Virtual Memory (in GB)	24
Virtual Center VM Operating System, Version, Bitness, and Service Pack	VMware vCenter Server 6.7.0 U3b Build 15132721
Other Hardware	None
Other Software	None
<b>Clients</b>	
Total Number of Virtual Clients / Virtual Client Hosts	17 / 2
System Model(s)	Dell EMC PowerEdge R7525

Processor Vendor(s) and Model(s)	AMD EPYC 7H12
Processor Speed(s) (GHz)	2.6
Total Sockets/Total Cores/Total Threads	2 Sockets / 128 Cores / 256 Threads
Memory per Virtual Client Host	1024 GB
Network Controller(s) Vendors and Models	Broadcom Gigabit Ethernet BCM5720 Mellanox ConnectX-5 100GbE Dual-port
Virtual Client Networking Notes	vSwitch0 for Management (1 Gbps) vSwitch1 for VMs (100 Gbps)
Virtual Client Storage Notes	All Clients VMs on secondary storage LUN
Other Hardware	1 x Dell BOSS-S1
Other Software	VMware ESXi 6.7.0 P01, Build 15160138

#### Security Mitigations

Vulnerability	CVE	Exploit Name	Public Vulnerability Name	Mitigated		
				Server Firmware	ESXi	Guest OS
Spectre	2017-5753	Variant 1	Bounds Check Bypass	N/A	Not Vulnerable	Not Vulnerable
Spectre	2017-5715	Variant 2	Branch Target Injection	Not Vulnerable	Not Vulnerable	Not Vulnerable
Meltdown	2017-5754	Variant 3	Rogue Data Cache Load	N/A	Not Vulnerable	Not Vulnerable
Spectre-NG	2018-3640	Variant 3a	Rogue System Register Read	Not Vulnerable	N/A	N/A
Spectre-NG	2018-3639	Variant 4	Speculative Store Bypass	N/A	Not Vulnerable	Not Vulnerable
Foreshadow	2018-3615	Variant 5	L1 Terminal Fault - SGX	N/A	N/A	N/A
Foreshadow-NG	2018-3620	Variant 5	L1 Terminal Fault - OS	N/A	N/A	Not Vulnerable
Foreshadow-NG	2018-3646	Variant 5	L1 Terminal Fault - VMM	N/A	Not Vulnerable	N/A

## Notes for Workload

Template deployed with disk type: Thick Eager

### Virtualization Software Notes

- vSphere DRS Migration Threshold level set to 2
- Logical CPU configuration changed for DS3DB and PrimeClient VMs to 1 socket with multiple cores (Default: Single core per socket)
- Logging disabled for all VMs (Default: Enabled)
- CDROM removed for all VMs (Default: Enabled)
- CPU and Memory shares set to high for all DS3DB VMs (Default: Normal)
- All Memory Reserved for DS3DB VMs (Default: Not reserved)
- sched.mem.pin set to TRUE for all DS3DB VMs (Default: FALSE)

- CPU shares set to Low for all Standby VMs (Default: Normal)
- Third virtual disk removed from DS3DB0 before cloning

#### Advanced Settings

- /adv/Virsto/DedupSpaceReclaim = "2" (default 0)

### Server Notes

#### Server BIOS Settings

- NUMA Nodes Per Socket set to 4

### Networking Notes

#### vSwitch Configuration

- vSwitch0 used for Management traffic
- vSwitch1 used for iSCSI traffic
- vSwitch2 used for vSAN and vMotion traffic
  - MTU 9000 configured on vSwitch2 and vmk2
- vSwitch3 used for VM traffic

### Storage Notes

Host OS installed on 1 x Dell 480GB SSD

#### VMware vSAN (Primary Storage)

- VMware vSAN 6.7 P04
- Cache: 30.7 TB
- Capacity: 61.4 TB
- Hardware Configuration:
  - Each host had two disk groups. Each disk group used:
    - Caching drive: 1 x 3.84TB NVMe AGN U.2
    - Capacity drive: 2 x 3.84TB SSD SATA
- Software Configuration:
  - Custom vSAN Storage Policy applied
    - Disable object checksum: ON (Default: OFF)
- The SUT vSAN datastore was used for all SUT VMs and template VMs

#### Dell EMC PowerVault ME4024 (Secondary Storage)

- Physical Configuration
  - 2 x Storage Controllers
  - 2 x iSCSI ports
  - 2 x FC ports (unused)
  - 10 x Dell 3.8TB SAS SSD
  - Each volume configured with RAID5 striped across all SSDs
- Virtual Configuration
  - 2 x 1 TB LUNs for SvMotion, XvMotion and Deploy operations

- 1 x 3 TB LUN for Clients VMs

## **Datacenter Management Server Notes**

None

## **Operating System Notes**

None

## **Software Notes**

None

## **Client Notes**

Advanced Settings

- /adv/UserVars/SuppressShellWarning = 1 (Default: 0)
- /adv/UserVars/HostClientCEIPOptIn = 2 (Default: 0)

Client Host Storage

- OS installed on 2 x Dell SSDSCKKB480G8R 480GB SSDs configured in RAID1 on the Dell BOSS-S1 storage controller

The Client VMs were distributed across the client hosts as follows:

- Client Host 1: Even numbered Clients and PrimeClient
- Client Host 2: Odd numbered Clients

## **Other Notes**

Changes to VMmark3.properties file:

- TileDelay = 10 (Default: 60)
- ScrubConfigFile = true (Default: false)
- ErrorImmediate = true (Default: false)

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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.

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