

Compatibility Matrix

OpenFlex™ Data24

FW Version 5.2.0

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The Western Digital System Integration Lab tested the OpenFlex Data24 for the following hardware components and operating systems to demonstrate functional compatibility. Other combinations of hardware and software are expected to function with this product family, but have not been evaluated.

To use this document, click on the provided link to be taken to a detailed listing of the compatibility information for that specific device type. Or scroll down to view details for all tested devices.

NICs

- Mellanox® Connect®X-4 EN MCX416A-CCAT
- Mellanox ConnectX-5 EN MCX516A-CCAT
- Mellanox ConnectX-6 EN MCX613106A-VDAT Ethernet Adapter Card
- Broadcom® NetXtreme-E Series P2100G

Drives

- Western Digital® Ultrastar DC SN655 SSD w/ Carrier 3.84 TB
- Western Digital® Ultrastar DC SN840 SSD w/ Carrier 1.6 TB
- Kioxia PCIe® Gen 4-enabled SSD 1.92 TB
- Samsung PCIe Gen 4-enabled PM1733 SSD 1.92 TB

Switches

- Mellanox MSN2700-CS2F Open Ethernet Switch
- Mellanox MSN2410-CB2F Open Ethernet Switch
- Mellanox MSN2100-CB2F Open Ethernet Switch
- Arista DCS-7050CX3

Cables

- Amphenol NDAFF-0001
- Mellanox MCP1600-C003E30L
- Mellanox MCP1600-C005E26L

1.1 NIC Compatibility Details

Table 1: NIC Compatibility

Manufacturer	Model	Device Driver Version	Device Firmware Version
Mellanox	ConnectX-4 EN MCX416A-CCAT Ethernet Adapter Card	MOFED: 5.8-11.2.1	12.28.2006 (MT_2140110033)
	ConnectX-5 EN MCX516A-CCAT Ethernet Adapter Card	MOFED: 5.8-11.2.1	16.35.2000 (MT_0000000012)
	ConnectX-6 EN MCX613106A-VDAT Ethernet Adapter Card	MOFED: 5.8-11.2.1	20.35.2000 (MT_0000000236)
Broadcom	NetXtreme-E Series P2100G PCIe Ethernet NIC	Ethernet bnxt_en: 1.10.2-224.0.157.0	224.0.159.0/ pkg 224.1.102.0

1.2 Switch Compatibility Details

Table 2: Compatible Switches

Manufacturer	Model	ASIC Firmware Version	Software Version
Mellanox	MSN2700-CS2F Open Ethernet Switch	13.2008.1910 Cumulus® Linux® 4.4	X86_64 3.9.1604
	MSN2410-CB2F Open Ethernet Switch	13.2000.2162 Cumulus Linux 4.4	X86_64 3.8.2004
	MSN2100-CB2F Open Ethernet Switch	13.2008.1310 Cumulus Linux 4.4	X86_64 3.9.1020
Arista	DCS-7050CX3	Hardware version: 11.00 SW Version: 4.25.4M	4.25.4M

1.3 Drive Compatibility Matrix

Table 3: Western Digital Device List

Device	Volume ¹	Max Bandwidth ²	Drive Writes	Encryption	Drive Firmware	Part Number
Western Digital Ultrastar DC SN655 SSD w/ Carrier	3.84TB	3.3GB/s	RI-1DW/D	SE	R2210801	1EX3062
Western Digital Ultrastar DC SN655 SSD w/ Carrier	3.84TB	3.3GB/s	RI-1DW/D	ISE	R2210801	1EX3065
Western Digital Ultrastar DC SN655 SSD w/ Carrier	3.84TB	3.3GB/s	RI-1DW/D	TCG-FIPS	R2210801	1EX3068
Western Digital Ultrastar DC SN655 SSD w/ Carrier	7.68TB	3.3GB/s	RI-1DW/D	SE	R2210801	1EX3063
Western Digital Ultrastar DC SN655 SSD w/ Carrier	7.68TB	3.3GB/s	RI-1DW/D	ISE	R2210801	1EX3066
Western Digital Ultrastar DC SN655 SSD w/ Carrier	7.68TB	3.3GB/s	RI-1DW/D	TCG-FIPS	R2210801	1EX3069
Western Digital Ultrastar DC SN655 SSD w/ Carrier	15.36TB	3.3GB/s	RI-1DW/D	SE	R2210801	1EX3064
Western Digital Ultrastar DC SN655 SSD w/ Carrier	15.36TB	3.3GB/s	RI-1DW/D	ISE	R2210801	1EX3067
Western Digital Ultrastar DC SN655 SSD w/ Carrier	15.36TB	3.3GB/s	RI-1DW/D	TCG-FIPS	R2210801	1EX3070
Western® Digital Ultrastar DC SN840 SSD w/ Carrier	1.6 TB	3.3GB/s	RI-3DW/D	SE	R2210801	1EX2708
Western Digital Ultrastar DC SN840 SSD w/ Carrier	1.92 TB	3.3GB/s	RI-1DW/D	SE	R2210801	1EX2753

1. One terabyte (TB) is equal to one trillion bytes. Actual user capacity may be less due to operating environment.
2. Sequential read bandwidth, 64KiB block size. Based on internal testing. Performance will vary by capacity point, or with changes in useable capacity. All measurements are in full sustained mode and are peak values. Subject to change.

Device	Volume ¹	Max Bandwidth ²	Drive Writes	Encryption	Drive Firmware	Part Number
Western Digital Ultrastar DC SN840 SSD w/ Carrier	3.2 TB	3.3GB/s	RI-3DW/D	SE	R2210801	1EX2754
Western Digital Ultrastar DC SN840 SSD w/ Carrier	3.2 TB	3.3GB/s	RI-3DW/D	ISE	R2210801	1EX2924
Western Digital Ultrastar DC SN840 SSD w/ Carrier	3.2 TB	3.3GB/s	RI-3DW/D	TCG	R2210400	1EX2832
Western Digital Ultrastar DC SN840 SSD w/ Carrier	3.84 TB	3.3GB/s	RI-1DW/D	SE	R2210801	1EX2706
Western Digital Ultrastar DC SN840 SSD w/ Carrier	3.84 TB	3.3GB/s	RI-1DW/D	ISE	R2210801	1EX2925
Western Digital Ultrastar DC SN840 SSD w/ Carrier	3.84 TB	3.3GB/s	RI-1DW/D	TCG	R2210400	1EX2829
Western Digital Ultrastar DC SN840 SSD w/ Carrier	3.84 TB	3.3GB/s	RI-1DW/D	TCG-FIPS	R2210400	1EX2968
Western Digital Ultrastar DC SN840 SSD w/ Carrier	6.4 TB	3.3GB/s	RI-3DW/D	SE	R2210801	1EX2794
Western Digital Ultrastar DC SN840 SSD w/ Carrier	6.4 TB	3.3GB/s	RI-3DW/D	ISE	R2210801	1EX2926
Western Digital Ultrastar DC SN840 SSD w/ Carrier	6.4 TB	3.3GB/s	RI-3DW/D	TCG	R2210400	1EX2833
Western Digital Ultrastar DC SN840 SSD w/ Carrier	7.68 TB	3.3 GB/s	RI-1DW/D	SE	R2210801	1EX2707
Western Digital Ultrastar DC SN840 SSD w/ Carrier	7.68 TB	3.3 GB/s	RI-1DW/D	ISE	R2210801	1EX2927
Western Digital Ultrastar DC SN840 SSD w/ Carrier	7.68 TB	3.3 GB/s	RI-1DW/D	TCG	R2210400	1EX2830

1. One terabyte (TB) is equal to one trillion bytes. Actual user capacity may be less due to operating environment.
2. Sequential read bandwidth, 64KiB block size. Based on internal testing. Performance will vary by capacity point, or with changes in useable capacity. All measurements are in full sustained mode and are peak values. Subject to change.

Device	Volume ¹	Max Bandwidth ²	Drive Writes	Encryption	Drive Firmware	Part Number
Western Digital Ultrastar DC SN840 SSD w/ Carrier	7.68 TB	3.3 GB/s	RI-1DW/D	TCG-FIPS	R2210400	1EX2923
Western Digital Ultrastar DC SN840 SSD w/ Carrier	15.36 TB	3.3 GB/s	RI-1DW/D	SE	R2210801	1EX2709
Western Digital Ultrastar DC SN840 SSD w/ Carrier	15.36 TB	3.3 GB/s	RI-1DW/D	ISE	R2210801	1EX2928
Western Digital Ultrastar DC SN840 SSD w/ Carrier	15.36 TB	3.3 GB/s	RI-1DW/D	TCG	R2210400	1EX2831
Western Digital Ultrastar DC SN840 SSD w/ Carrier	15.36 TB	3.3 GB/s	RI-1DW/D	TCG-FIPS	R2210400	1EX2852

Table 4: Third-Party Device List

Device	Volume	Encryption	Drive Firmware	Manufacturer Part Number
Kioxia PCIe® Gen 4-enabled SSD	1.92 TB	SE	0106	KCM6DRUL1T92
Samsung PCIe Gen 4-enabled PM1733 SSD	1.92 TB	SE	EPK9AB5Q	MZWLJ1T9HBJR-00007



Note: OpenFlex Data24 supports third-party device features that are within NVMe® specification as mandatory. Any third-party drive features that are vendor specific are not guaranteed to function.

1. One terabyte (TB) is equal to one trillion bytes. Actual user capacity may be less due to operating environment.
2. Sequential read bandwidth, 64KiB block size. Based on internal testing. Performance will vary by capacity point, or with changes in useable capacity. All measurements are in full sustained mode and are peak values. Subject to change.

1.4 Cable Compatibility Matrix

Table 5: Qualified Direct Attached Cables

Vendor	Active/ Passive	Vendor Model Number
Mellanox QSFP28 to QSFP28 Cable, 1m 30AWG	Passive	MCP1600-C001E30N
Mellanox QSFP28 to QSFP28 Cable, 2m 30AWG	Passive	MCP1600-C002E30N
Mellanox QSFP28 to QSFP28 Cable, 3m 30AWG	Passive	MCP1600-C003E30L
Mellanox QSFP28 to QSFP28 Cable, 5m 26AWG	Passive	MCP1600-C005E26L
Mellanox QSFP28 to QSFP28 Cable, 5m 26AWG	Active	MFA1A00-C005
Mellanox QSFP28 to QSFP28 Cable, 10m, AOC	Active	MFA1A00-C010-AO
Amphenol 100G/200G, QSFP28Gb 30AWG, 1m	Passive	NDAAFF-0001
Amphenol 100G/200G, QSFP28Gb 30AWG, 1.5m	Passive	NDAAFF-0006
Amphenol 100G/200G, QSFP28Gb 30AWG, 2m	Passive	NDAAFF-0002
Amphenol 100G/200G, QSFP28Gb 30AWG, 3m	Passive	NDAAFF-0003
Amphenol QSFP28Gb 26AWG, 5m	Passive	NDAAFJ-0004

1.5 Supported Operating Systems

The following table lists the operating systems tested on the OpenFlex Data24.

Table 6: Supported Operating Systems

Operating System	Kernel
CentOS / RHEL 8.3	4.18.0-240.el8.x86_64
CentOS 8.5	4.18.0-348.7.1.el8_5.x86_64
RHEL 8.5	4.18.0-348.7.1.el8_5.x86_64
Ubuntu 20.04.1	5.15.0-52-generic
Ubuntu 22.04	5.15.0-76-generic

1.6 Supported SKUs

The following table lists the versions of this Western Digital product that are supported by this document.

Table 7: List of Supported SKUs

Component	Capacity	SKU
OpenFlex Data24-0 0TB 2x100GbE TAA (Titanium PSU)	N/A	1ES2573
OpenFlex Data24-0 0TB 6x100GbE TAA (Titanium PSU)	N/A	1ES2572
OpenFlex Data24-0 SN840 2x100GbE nTAA	N/A	1ES2142
OpenFlex Data24-0 SN840 4x100GbE nTAA	N/A	1ES1918
OpenFlex Data24-0 SN840 6x100GbE nTAA	N/A	1ES1917
OpenFlex Data24-12 SN840 6x100GbE nTAA PCIe RI-1DW/D SE	23.04 TB	1ES2027
OpenFlex Data24-12 SN655 6x100GbE TAA PCIe RI-1DW/D SE	46.08TB	1ES2398
OpenFlex Data24-12 SN840 6x100GbE nTAA PCIe RI-1DW/D SE	46.08TB	1ES2025
OpenFlex Data24-24 SN655 2x100GbE TAA PCIe RI-3DW/D ISE	76.8TB	1ES2567
OpenFlex Data24-24 SN655 2x100GbE TAA PCIe RI-3DW/D ISE	76.8TB	1ES2567
OpenFlex Data24-24 SN840 2x100GbE nTAA PCIe RI-3DW/D SE	76.8TB	1ES2055
OpenFlex Data24-24 SN840 6x100GbE nTAA PCIe RI-3DW/D SE	76.8TB	1ES1986
OpenFlex Data24-24 SN840 6x100GbE nTAA PCIe RI-3DW/D ISE	76.8TB	1ES2129
OpenFlex Data24-24 SN655 2x100GbE TAA PCIe RI-1DW/D SE	92.16TB	1ES2400
OpenFlex Data24-24 SN655 2x100GbE TAA PCIe RI-1DW/D TCG	92.16TB	1ES2402
OpenFlex Data24-24 SN655 4x100GbE TAA PCIe RI-1DW/D SE	92.16TB	1ES2408
OpenFlex Data24-24 SN655 4x100GbE TAA PCIe RI-1DW/D SE	92.16TB	1ES2410
OpenFlex Data24-12 SN655 6x100GbE TAA PCIe RI-1DW/D SE	92.16TB	1ES2399
OpenFlex Data24-24 SN655 6x100GbE TAA PCIe RI-1DW/D SE	92.16TB	1ES2395
OpenFlex Data24-24 SN840 2x100GbE nTAA PCIe RI-1DW/D SE	92.16TB	1ES2052
OpenFlex Data24-24 SN840 2x100GbE nTAA PCIe RI-1DW/D TCG	92.16TB	1ES2079
OpenFlex Data24-12 SN840 6x100GbE nTAA PCIe RI-1DW/D SE	92.16TB	1ES2026
OpenFlex Data24-24 SN840 6x100GbE nTAA PCIe RI-1DW/D SE	92.16TB	1ES1913
OpenFlex Data24-24 SN840 6x100GbE nTAA PCIe RI-1DW/D ISE	92.16TB	1ES2131
OpenFlex Data24-24 SN840 6x100GbE TAA PCIe RI-1DW/D TCG	92.16TB	1ES2116
OpenFlex Data24-24 SN840 6x100GbE TAA PCIe RI-1DW/D TCG-FIPS	92.16TB	1ES2119
OpenFlex Data24-24 SN840 2x100GbE nTAA PCIe RI-3DW/D SE	153.6TB	1ES2056
OpenFlex Data24-24 SN655 2x100GbE TAA PCIe RI-3DW/D ISE	153.6TB	1ES2568
OpenFlex Data24-24 SN840 6x100GbE nTAA PCIe RI-3DW/D SE	153.6TB	1ES2040
OpenFlex Data24-24 SN840 6x100GbE nTAA PCIe RI-3DW/D ISE	153.6TB	1ES2130

Component	Capacity	SKU
OpenFlex Data24-24 SN655 2x100GbE TAA PCIe RI-1DW/D TCG	184.32TB	1ES2404
OpenFlex Data24-24 SN655 4x100GbE TAA PCIe RI-1DW/D TCG	184.32TB	1ES2406
OpenFlex Data24-24 SN655 6x100GbE TAA PCIe RI-1DW/D TCG	184.32TB	1ES2403
OpenFlex Data24-24 SN655 6x100GbE TAA PCIe RI-1DW/D SE	184.32TB	1ES2397
OpenFlex Data24-24 SN840 2x100GbE nTAA PCIe RI-1DW/D SE	184.32TB	1ES2053
OpenFlex Data24-12 SN840 6x100GbE nTAA PCIe RI-1DW/D SE	184.32TB	1ES2033
OpenFlex Data24-24 SN840 6x100GbE nTAA PCIe RI-1DW/D SE	184.32TB	1ES1915
OpenFlex Data24-24 SN840 6x100GbE nTAA PCIe RI-1DW/D ISE	184.32TB	1ES2132
OpenFlex Data24-12 SN840 6x100GbE nTAA PCIe RI-1DW/D ISE	184.32TB	1ES2134
OpenFlex Data24-24 SN840 6x100GbE TAA PCIe RI-1DW/D TCG	184.32TB	1ES2117
OpenFlex Data24-12 SN840 2x100GbE nTAA PCIe RI-1DW/D TCG-FIPS	184.32TB	1ES2162
OpenFlex Data24-24 SN655 2x100GbE TAA PCIe RI-1DW/D SE	368.64TB	1ES2401
OpenFlex Data24-24 SN655 2x100GbE TAA PCIe RI-1DW/D ISE	368.64TB	1ES2405
OpenFlex Data24-24 SN655 4x100GbE TAA PCIe RI-1DW/D SE	368.64TB	1ES2407
OpenFlex Data24-24 SN655 4x100GbE TAA PCIe RI-1DW/D SE	368.64TB	1ES2409
OpenFlex Data24-24 SN655 6x100GbE TAA PCIe RI-1DW/D SE	368.64TB	1ES2396
OpenFlex Data24-24 SN840 2x100GbE nTAA PCIe RI-1DW/D SE	368.64TB	1ES2054
OpenFlex Data24-24 SN840 6x100GbE nTAA PCIe RI-1DW/D SE	368.64TB	1ES1914
OpenFlex Data24-24 SN840 6x100GbE nTAA PCIe RI-1DW/D ISE	368.64TB	1ES2133
OpenFlex Data24-24 SN840 6x100GbE TAA PCIe RI-1DW/D TCG	368.64TB	1ES2118
OpenFlex Data24-24 SN840 2x100GbE nTAA RI-1DW/D TCG-FIPS	368.64TB	1ES2113
OpenFlex Data24-24 SN840 2x100GbE nTAA RI-1DW/D TCG-FIPS	368.64TB	1ES2163
OpenFlex Data24-24 SN840 6x100GbE nTAA RI-1DW/D TCG-FIPS	368.64TB	1ES2121

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