

Compatibility Matrix

Ultrastar® Data102 3000 Series

Regulatory Model H4102-J

Firmware 2000-098 (SEP), 3.0.51 (OOBM)

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Revision 05



The Western Digital System Integration Lab has tested the Data102 3000 Series with 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.

Newly qualified device models are listed by category on the right. Click 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.

Cables

- [Passive \(Copper\), 12G \(2m, 3m, 6m\)](#)
- [Passive \(Copper\), 24G \(2m, 3m\)](#)
- [Active \(Optical\), 12G \(2m, 3m, 6m\)](#)
- [Active \(Optical\), 24G \(2m, 3m, 4m, 5m, 6m\)](#)

HDDs

- [Ultrastar DC HC550 16TB](#)
- [Ultrastar DC HC550 18TB](#)
- [Ultrastar DC HC570 22TB](#)
- [Ultrastar DC HC580 22TB](#)
- [Ultrastar DC HC580 24TB](#)
- [Ultrastar DC HC670 26TB](#)

SSDs

- [Kioxia PM7-M/V/R](#)
- [Samsung PM1653](#)

Host Bus Adapters

- [Broadcom® 9600-16e](#)
- [Broadcom 9600W-16e](#)
- [Broadcom 9500-8e/16e](#)
- [Broadcom 9580-8i8e \(RAID\)](#)
- [Adaptec® 1200-16e](#)
- [Adaptec Ultra 3254-16e /e](#)
- [Adaptec 1100-8e](#)

Scale-Up Modules

- [SAS 12-Pack: 312TB, 264TB, 216TB, 192TB](#)
- [SAS 14-Pack: 364TB, 308TB, 252TB, 224TB](#)
- [SATA 12-Pack: 312TB, 288TB, 264TB, 216TB, 192TB](#)
- [SATA 14-Pack: 364TB, 336TB, 308TB, 252TB, 224TB](#)

1.1 Compatible Operating Systems

This section provides information about operating systems compatible with the Data102 3000 Series platform.

Table 1: Data102 3000 Series Compatible Operating Systems

Operating System	Version
Debian®	12.5
Microsoft® Windows Server®	2022 R1 x64
	2019 R1 x64
RedHat® Enterprise Linux® (RHEL)	9.3 (kernel 5.14)
	9.2 (kernel 5.14)
	8.8 (kernel 4.18)
SUSE Linux Enterprise Server (SLES)	SLE15 SP5 (kernel 5.14)
Ubuntu® Server	22.04 (kernel 5.15)
	20.04 (kernel 5.4)

1.2 Compatible Cables

This section provides information about data and power cables compatible with the Data102 3000 Series platform.

Passive (Copper) SAS Cables

Passive cables can be used for both direct (host-to-enclosure) and daisy-chain (enclosure-to-enclosure) connections.

Table 2: Compatible Passive (Copper) HD Mini-SAS to HD Mini-SAS Cables

Data Rate	Length	CRU Part Number	Manufacturer	Mfr. Part Number
12G	2m	1EX3176	Amphenol	601760006
			Ampenol ICC (FCI)	10112041-2020LF
			Ampenol ICC (FCI)	10117949-2020LF
			CS Electronics	12G-HD-4444-2M
			Data Storage Cables	C5555-2M
			Molex®	1110751002
	3m	1EX3177	Amphenol	601760008
			Ampenol ICC (FCI)	10117949-3030LF
			Molex	1110751003
24G	6m	1EX3178	Amphenol	601770004
	2m	1EX3179	Amphenol	NMCCEG-0002
			Molex	2040402202
	3m	1EX3180	Amphenol	NMCCEG-0003
			Molex	2040402302

Active (Optical) SAS Cables

Active cables can be used for both direct (host-to-enclosure) and daisy-chain (enclosure-to-enclosure) connections.¹

Table 3: Compatible Active Optical HD Mini-SAS to HD Mini-SAS Cables

Data Rate	Length	CRU Part Number	Manufacturer	Mfr. Part Number
12G	2m	1EX3181	Ampenol ICC (FCI)	FOHHB23P00002
	3m	1EX3182	Ampenol ICC (FCI)	FOHHB23P00003
			JPC (Jess-Link Products Co., Ltd.)	P5388FC3003M-1
			Molex	106415-2103
	6m	1EX3183	Ampenol ICC (FCI)	FOHHB23P00006
24G	2m	1EX3184	Ampenol ICC (FCI)	FOHHB33P00002
	3m	1EX3185	Ampenol ICC (FCI)	FOHHB33P00003
	4m	1EX3186	Ampenol ICC (FCI)	FOHHB33P00004
	5m	1EX3187	Ampenol ICC (FCI)	FOHHB33P00005
	6m	1EX3188	Ampenol ICC (FCI)	FOHHB33P00006

Power Cables

Table 4: Compatible Power Cables

Length	American Wire Gauge (AWG)	Plug/Connector	Part Number
3m	14	C13-C20	1EX1158
	18	C13-C14	1EX1530

1. Active optical cable support is limited. Please contact the Platforms Technical Support to obtain information about support criteria.

1.3 Compatible HBAs

This section provides information about host bus adapters (HBAs) compatible with the Data102 3000 Series platform.

Broadcom 9600-16e

CRU Part Number: 1EX3150

Table 5: Broadcom 9600-16e Interoperability Notes

	Linux	Windows
HBA Driver	8.9.1.0.0-1	8.09.06.00
HBA Firmware	8.9.1.0-00000-00002	
Operating System Support		
Debian	12.5	Supported
Microsoft Windows Server	2022 R1 x64	Supported
	2019 R1 x64	Supported
RedHat Enterprise Linux	9.3 (kernel 5.14)	Supported
	9.2 (kernel 5.14)	Supported
	8.8 (kernel 4.18)	Supported
SUSE Linux Enterprise Server	SLE15 SP5 (kernel 5.14)	Supported
Ubuntu Server	22.04 (kernel 5.15)	Supported
	20.04 (kernel 5.4)	Supported



Note: This HBA was configured for PerfiT (SAS Only) personality during testing. Visit https://support-en.westerndigital.com/app/answers/detail/a_id/52035 for instructions on changing the HBA personality from FeatureIT (default) to PerfiT SAS Only mode.

Broadcom 9600W-16e**CRU Part Number:** 1EX3149*Table 6: Broadcom 9600W-16e Interoperability Notes*

	Linux	Windows
HBA Driver	8.9.1.0.0-1	8.09.06.00
HBA Firmware	8.9.1.0-00000-00002	
Operating System Support		
Debian	12.5	Supported
Microsoft Windows Server	2022 R1 x64	Supported
	2019 R1 x64	Supported
RedHat Enterprise Linux	9.3 (kernel 5.14)	Supported
	9.2 (kernel 5.14)	Supported
	8.8 (kernel 4.18)	Supported
SUSE Linux Enterprise Server	SLE15 SP5 (kernel 5.14)	Supported
Ubuntu Server	22.04 (kernel 5.15)	Supported
	20.04 (kernel 5.4)	Supported



Note: This HBA was configured for PerfiT (SAS Only) personality during testing. Visit https://support-en.westerndigital.com/app/answers/detail/a_id/52035 for instructions on changing the HBA personality from FeatureIT (default) to PerfiT SAS Only mode.

Broadcom 9500-8e/16e**CRU Part Number(s):** 1EX2917 (8e), 1EX2918 (16e)*Table 7: Broadcom 9500-8e/16e Interoperability Notes*

	Linux	Windows
HBA Driver	49.00.00.00	2.61.68.00
HBA Firmware	30.00.00.00	
Operating System Support		
Debian	12.5	Not Tested
Microsoft Windows Server	2022 R1 x64	Not Tested
	2019 R1 x64	Not Tested
RedHat Enterprise Linux	9.3 (kernel 5.14)	Supported
	9.2 (kernel 5.14)	Supported
	8.8 (kernel 4.18)	Supported
SUSE Linux Enterprise Server	SLE15 SP5 (kernel 5.14)	Supported
Ubuntu Server	22.04 (kernel 5.15)	Supported
	20.04 (kernel 5.4)	Supported

Broadcom 9580-8i8e RAID Controller

CRU Part Number: 1EX2915

Table 8: Broadcom 9580-8i8e Interoperability Notes

	Linux	Windows
HBA Driver	07.728.04.00	7.728.02.00
HBA Firmware	5.280.00-3972	
Operating System Support		
Debian	12.5	Supported
Microsoft Windows Server	2022 R1 x64	Supported
	2019 R1 x64	Supported
RedHat Enterprise Linux	9.3 (kernel 5.14)	Supported
	9.2 (kernel 5.14)	Supported
	8.8 (kernel 4.18)	Supported
SUSE Linux Enterprise Server	SLE15 SP5 (kernel 5.14)	Supported
Ubuntu Server	22.04 (kernel 5.15)	Supported
	20.04 (kernel 5.4)	Supported



Note: In some cases, when issuing the `wddcs diag reset-iom-a` command, this HBA crashes with fault code `0x10000`.

Adaptec 1200-16e**CRU Part Number:** 1EX3152*Table 9: Adaptec 1200-16e Interoperability Notes*

	Linux	Windows
HBA Driver	2.1.28-025	1010.96.0.1007
HBA Firmware	3.01.28.082	
Operating System Support		
Debian	12.5	Supported
Microsoft Windows Server	2022 R1 x64	Supported
	2019 R1 x64	Supported
RedHat Enterprise Linux	9.3 (kernel 5.14)	Supported
	9.2 (kernel 5.14)	Supported
	8.8 (kernel 4.18)	Supported
SUSE Linux Enterprise Server	SLE15 SP5 (kernel 5.14)	Supported
Ubuntu Server	22.04 (kernel 5.15)	Supported
	20.04 (kernel 5.4)	Supported

Adaptec SmartRAID Ultra 3254-16e /e**CRU Part Number:** 1EX3235*Table 10: Adaptec Ultra 3254-16e /e Interoperability Notes*

	Linux	Windows
HBA Driver	2.1.28-025	1010.96.0.1007
HBA Firmware	3.01.28.082	
Operating System Support		
Debian	12.5	Supported
Microsoft Windows Server	2022 R1 x64	Supported
	2019 R1 x64	Supported
RedHat Enterprise Linux	9.3 (kernel 5.14)	Supported
	9.2 (kernel 5.14)	Supported
	8.8 (kernel 4.18)	Supported
SUSE Linux Enterprise Server	SLE15 SP5 (kernel 5.14)	Supported
Ubuntu Server	22.04 (kernel 5.15)	Supported
	20.04 (kernel 5.4)	Supported

Adaptec 1100-8e*Table 11: Adaptec 1100-8e Interoperability Notes*

	Linux	Windows
HBA Driver	2.1.28-025	1010.96.0.1007
HBA Firmware	6.81	
Operating System Support		
Debian	12.5	Supported
Microsoft Windows Server	2022 R1 x64	Not Tested
	2019 R1 x64	Not Tested
RedHat Enterprise Linux	9.3 (kernel 5.14)	Supported
	9.2 (kernel 5.14)	Supported
	8.8 (kernel 4.18)	Supported
SUSE Linux Enterprise Server	SLE15 SP5 (kernel 5.14)	Supported
Ubuntu Server	22.04 (kernel 5.15)	Supported
	20.04 (kernel 5.4)	Supported

1.4 Compatible Drives

This section provides information about drive assemblies compatible with the Data102 3000 Series platform.

Ultrastar DC HC550, 16TB CMR HDD with 3.5" Drive Carrier

Table 12: DC HC550 16TB CMR Part / Model Numbers

Sector Size	SATA	SAS		
	SE	SE	TCG	TCG-FIPS
512e	1EX2476 / WUH721816ALE604	1EX2473 / WUH721816AL5204	1EX2474 / WUH721816AL5201	1EX2475 / WUH721816AL5205

Ultrastar DC HC550, 18TB CMR HDD with 3.5" Drive Carrier

Table 13: DC HC550 18TB CMR Part / Model Numbers

Sector Size	SATA	SAS		
	SE	SE	TCG	TCG-FIPS
512e	1EX2481 / WUH721818ALE604	1EX2478 / WUH721818AL5204	1EX2479 / WUH721818AL5201	1EX2480 / WUH721818AL5205

Ultrastar DC HC570, 22TB CMR HDD with 3.5" Drive Carrier

Table 14: DC HC570 22TB CMR Part / Model Numbers

Sector Size	SATA	SAS	
	SE	SE	TCG
512e	1EX2966 / WUH722222ALE604	1EX2963 / WUH722222AL5204	1EX2964 / WUH722222AL5201

Ultrastar DC HC580, 22TB CMR HDD with 3.5" Drive Carrier

Table 15: DC HC580 22TB CMR Part / Model Numbers

Sector Size	SATA
	SE
512e	1EX3169 / WUH722422ALE604

Ultrastar DC HC580, 24TB CMR HDD with 3.5" Drive Carrier*Table 16: DC HC580 24TB CMR Part / Model Numbers*

Sector Size	SATA
	SE
512e	1EX3171 / WUH722424ALE604

Ultrastar DC HC670, 26TB SMR HDD with 3.5" Drive Carrier*Table 17: DC HC670 26TB SMR Part / Model Numbers*

Sector Size	SATA	SAS	
	SE	SE	TCG
4Kn	1EX3013 / WSH722626ALN604	1EX3010 / WSH722626AL4204	1EX3011 / WSH722626AL4201

1.5 Compatible Third-Party Drives

This section provides information about third-party drives compatible with the Data102 3000 Series platform.

Table 18: Compatible Third-Party Drives

Device	Volume	Encryption	Drive Firmware	Manufacturer Part Number
Kioxia PM7-M/V/R Series SAS SSD	Up to 3.84TB	SE	0101	KPM7XRUG3T84
Samsung PM1653 SAS SSD	Up to 3.84TB	SE	GXG3	MZILG3T8HCLS-00A07



Note: Data102 3000 Series supports third-party device features that are mandatory to SAS specifications. Any third-party drive features that are vendor-specific are not guaranteed to function.

1.6 Compatible Scale-Up Modules

This section provides information about scale-up modules compatible with the Data102 3000 Series platform.

Table 19: SAS 12-Pack Scale-Up Module Part Numbers

Capacity	Drive Type	Sector Size	SE	TCG	TCG-FIPS
312TB	HC670	4Kn	1EX3005	1EX3006	
264TB	HC570	512e	1EX2958	1EX2959	
216TB	HC550	512e	1EX2488	1EX2489	1EX2490
192TB	HC550	512e	1EX2483	1EX2484	1EX2485

Table 20: SAS 14-Pack Scale-Up Module Part Numbers

Capacity	Drive Type	Sector Size	SE	TCG	TCG-FIPS
364TB	HC670	4Kn	1EX3000	1EX3001	
308TB	HC570	512e	1EX2953	1EX2954	
252TB	HC550	512e	1EX2468	1EX2469	1EX2470
224TB	HC550	512e	1EX2463	1EX2464	1EX2465

Table 21: SATA 12-Pack Scale-Up Module Part Numbers

Capacity	Drive Type	Sector Size	SE
312TB	HC670	4Kn	1EX3008
288TB	HC580	512e	1EX3164
264TB	HC580	512e	1EX3162
	HC570	512e	1EX2961
216TB	HC550	512e	1EX2491
192TB	HC550	512e	1EX2486

Table 22: SATA 14-Pack Scale-Up Module Part Numbers

Capacity	Drive Type	Sector Size	SE
364TB	HC670	4Kn	1EX3003
336TB	HC580	512e	1EX3157
308TB	HC580	512e	1EX3155
	HC570	512e	1EX2956
252TB	HC550	512e	1EX2471
224TB	HC550	512e	1EX2466

1.7 Non-TAA SKUs for Fully Populated Configurations

Table 23: Data102 3000 Series nTAA Fully Populated Configurations

Capacity	Drive Type	Sector Size	PSU 80 Plus Rating	SAS	SATA
				SE	SE
2652TB	HC670	4Kn	Titanium		1ES2438
				1ES2433	
			Platinum	1ES2435	
2448TB	HC580	512e	Titanium		1ES2590
2244TB	HC580	512e	Titanium		1ES2580
	HC570	512e			1ES2428
			Titanium	1ES2375	
			Platinum	1ES2425	
1836TB	HC550	512e	Titanium		1ES2449
				1ES2443	
			Platinum	1ES2445	
1632TB	HC550	512e			1ES2459
			Titanium	1ES2454	
			Platinum	1ES2456	



Note: The Data102 3000 Series includes two C13-C14 power cables. It does not include SAS data cables or Ethernet management cables.

1.8 TAA SKUs for Fully Populated Configurations

Table 24: Data102 3000 Series TAA Fully Populated Configurations

Capacity	Drive Type	Sector Size	PSU 80 Plus Rating	SAS	SATA
				SE	SE
2652TB	HC670	4Kn	Titanium		1ES2441
2448TB	HC580	512e	Titanium		1ES2593
2244TB	HC580	512e	Titanium		1ES2583
	HC570	512e	Titanium		1ES2431
1836TB	HC550	512e	Titanium		1ES2452
1632TB	HC550	512e	Titanium		1ES2462



Note: The Data102 3000 Series includes two C13-C14 power cables. It does not include SAS data cables or Ethernet management cables.

1.9 Non-TAA SKUs for Partially Populated Configurations

Table 25: Data102 3000 Series nTAA Partially Populated Configurations

Capacity	Drive Type	# of Drives	Sector Size	PSU 80 Plus Rating	SAS	SATA
					SE Encryption	SE Encryption
1560TB	HC670	60	4Kn	Titanium		1ES2439
					1ES2434	
1440TB	HC580	60	512e	Titanium		1ES2591
1320TB	HC580	60	512e	Titanium		1ES2581
	HC570	60	512e	Titanium		1ES2429
					1ES2424	
1080TB	HC550	60	512e	Titanium		1ES2450
					1ES2444	
960TB	HC550	60	512e	Titanium		1ES2460
					1ES2455	



Note: The Data102 3000 Series includes two C13-C14 power cables. It does not include SAS data cables or Ethernet management cables.

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