

Technical Specifications

	D2D2502i	D2D2504i	D2D4106i /fc	D2D4112	D2D4312	D2D4324
Form Factor	1U Rack	1U Rack	2U scalable rack	2U scalable rack	4U scalable rack	4U scalable rack
Total Capacity (Raw)	2 TB	4 TB	Up to 12 TB**	Up to 24 TB**	Up to 48 TB**	Up to 96 TB**
Total Capacity (Useable)	1.5 TB	3 TB	Up to 9 TB**	Up to 18 TB**	Up to 36 TB**	Up to 72 TB**
Data Deduplication Usable capacity using data deduplication at 20:1*	30 TB	60 TB	180 TB	360 TB	720 TB	1.4 PB
Replication	<p>Supports data replication between D2D appliances. Replication is automatic and appliances may function as both replication targets and sources simultaneously with a license only being required for any appliance acting as a target. Replication Manager provides an easier way to manage a large number of devices being replicated across numerous sites and is included with the license. HP's OST plug-in integrates deduplicated replication with Symantec backup applications and is also included with the replication license.</p> <p>Replication Manager software is available with the following replication licenses (EH991A, EH994A, EH984A, EH999A, EH985A). In order to benefit from Replication manger, D2D backup systems require the latest firmware, which can be obtained via a free firmware upgrade by following the "Support & Drivers" link on www.hp.com/go/d2d or by following the "HP Support & Drivers" link from: www.hp.com</p>					
OST Basic v 1.1	<p>ISV Support: NetBackup 6.5.x for Windows and Linux and NetBackup7.0 for Windows only</p> <p>Media Server OS Support: Windows: Windows 2003 32 bit, Windows 2003 64 bit, and Windows 2008 64 bit Linux: Red Hat Enterprise Linux 4.x & 5.x, Novell SUSE Linux Enterprise Server 9.x, 10.x & 11.x</p>					
Targets for backup applications	<p>Virtual tape library and NAS</p> <p>NOTE: For legacy D2D backup systems (EJ001A, EJ002A, EH938A, EH939A, EH941A, EH942A, EH999A), the addition of NAS as a target for backup is limited to the CIFS protocol, suitable for use in Windows-only environments. However EJ001B, EJ002B, EH999B, EH996A, EH998A, EH985A and EH983A support CIFS and NFS protocols.</p>					
Maximum number of source appliances per target appliance (fan in)	4	8	24	24	50	50
Disk Drive Capacity, Type	500 GB, SATA 7200rpm, 3.5 inch	1 TB, SATA 7200rpm, 3.5-inch	500 GB, SATA 7200rpm, 3.5-inch	1 TB, SATA 7200rpm, 3.5-inch	1 TB, SATA 7200rpm, 3.5-inch	2 TB, SAS 7200rpm, 3.5-inch
Number of Disk Drives	4	4	12 (min), 12 x 2 (max)	12 (min) , 12x2 (max)	12 (min) , 12x 4 (max)	12 (min) , 12x 4 (max)
RAID Support	Hardware RAID 5	Hardware RAID 5	Hardware RAID 6 1 RAID hot spare drive per shelf	Hardware RAID 6 1 RAID hot spare drive per shelf	Hardware RAID 6 1 RAID hot spare drive per shelf	Hardware RAID 6 1 RAID hot spare drive per shelf
Performance (maximum aggregated data transfer rate)	325GB/hr (90 MB/s)	450GB/hr (125 MB/s)	800 GB/hr*** (222 MB/s)	1.3TB/hr*** (360 MB/s)	2.75TB/hr*** (800 MB/s)	4TB/hr*** (1100 MB/s)
Device Interface	2 x 1 Gb iSCSI (Ethernet) (also supports 100 base-T)	2 x 1 Gb iSCSI (Ethernet) (also supports 100 base-T)	2 x 1 Gb iSCSI (Ethernet) OR 2 x 4 Gb Fibre Channel and 2 x 1 Gb iSCSI (Ethernet) (also supports 100 base-T)	2 x 4 Gb Fibre Channel and 2 x 1 Gb iSCSI (Ethernet) (also supports 100 base-T)	2 x 8 Gb Fibre Channel and 2 x 10 Gb iSCSI (Ethernet) (also supports 100 base-T)	2 x 8 Gb Fibre Channel and 2 x 10 Gb iSCSI (Ethernet) (also supports 100 base-T)
Tape Devices Emulated	<p>HP LTO- 2 Ultrium Tape Drive /LTO-3 Ultrium Tape Drive/LTO-4 Ultrium Tape Drive/LTO-5 Ultrium Tape Drive in HP 1/8 G2 Tape Autoloader, MSL2024 Tape Library, MSL4048 Tape Library, MSL8096 Tape Library, HP D2D Backup System Generic Library with HP Ultrium D2D Generic tape drive</p>					
Number of Virtual Tape Libraries and NAS backup targets (combined)	4	8	16	24	50	50

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Maximum Number of Cartridges Emulated	192	384	1536	3456	51200	51200
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(Assumes up to 24 generic 4 drive libraries with 96 slots)

Direct attach Tape Drives Supported (Legacy systems purchased before June 2010 VTL only, not supported with NAS targets, - requires pSCSI or SAS HBA D2D4312 requires Fibre Channel HBA supplied)

HP LTO-5 (Ultrium 3000 and Ultrium 3280) tape drives HP LTO-4 (Ultrium 1840 and Ultrium 1760) tape drives, HP LTO-3 (Ultrium 920 and Ultrium 960) tape drives and HP LTO-2 (Ultrium 448 and Ultrium 460) tape drives as standalone or configured in HP 1/8 G2 Autoloader, MSL2024, MSL4048 or MSL8096 Tape Libraries Tape Libraries.

NOTE: Direct tape offload is only available on legacy systems* and is not supported with NAS targets. The recommended method of tape offload for virtual tape is to use the backup application to control and manage the copy of virtual to physical media.

* Legacy D2D backup systems include (EH993A, EH938A, EH939A, EH941A, EH942A, EJ001A, EJ002A)

*Actual results of data deduplication will vary with data type, change rates over time and backup methodologies used. Assuming standard business data mix and extended on-disk retention, typically a 20:1 data deduplication ratio could be assumed with a weekly full and daily incremental backup model.

** Assumes use of capacity upgrade kit to achieve maximum capacity

*** Assumes use of capacity upgrade kit to achieve maximum performance

Dimensions (HxWxD)	Shipping (D2D2502i, , 2504i)	8.88 x 23.31 x 38.56 in (22.5 x 59.2 x 97.9 cm)
	Out of box (D2D2502i, , 2504i)	1.70 x 17.64 x 26.85 in (4.32 x 44.80 x 68.20 cm)
	Shipping (D2D4112, D2D4106)	11.3 x 23.0 x 38.9 in (28.7 x 58.4 x 98.8 cm)
	Out of box (D2D4112, D2D4106)	3.5 x 18 x 28.2 in (8.9 x 45.7 x 71.6 cm)
	Shipping (D2D4312, D2D4324)	15.0 x 23.9 x 36.2 (37.4 x 60.6 x 91.7 cm)
	Out of box (D2D4312, D2D4324)	6.9 x 19.1 x 28.7 (17.5 x 48.5 x 73.0 cm)
	Shipping (D2D4324,D2D4112/4312, D2D4106) capacity upgrade)	11.6 x 23.5x35 in (29.5 x 59.7 x 88.5cm)
	Out of box (D2D4324, D2D 4112/4312 , D2D4106) capacity upgrade)	3.44 x 17.64 x 23.25 in (8.75 x 44.80 x 59 cm)
Weight (Approx)	Shipping (D2D2502i, 2504i)	51.00 lb (23 kg)
	Shipping (D2D4112 D2D4106)	71.5 lbs
	Shipping (D2D4324, D2D4312)	112.1 lbs (49.5 Kg)
	Shipping (D2D4324, D2D4112/4312 capacity upgrade)	84 lbs (38kg)
	Out of box (D2D2502i, , 2504i)	37.00 lb (16.78 kg)
	Out of box (D2D4106)	57 lbs (25.8kg)
	Out of box (D2D4324, D2D4312)	82.7 lbs (37.5 Kg)
	Out of Box (D2D4324,D2D4106, D2D4112/ D2D4312 capacity upgrade)	55 lbs (25kg)
Power Requirements (per power supply)	Range Input Voltage	100 - 240 VAC
	Rated Input Frequency (D2D4112 and capacity upgrade)	50 to 60 Hz
	Rated Input Frequency (D2D2502, 2504)	47 to 63 Hz
	Rated Input Current (D2D4112, D2D4106)	9.10 A (at 100 VAC), 4.5 A (at 200 VAC)



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	Rated Input Current (D2D4324, D2D4312)	6.90 A (at 100 VAC), 2.90 A (at 240 VAC)
	Rated Input Current (D2D4324, D2D4112/4312 capacity upgrade)	3.9 A (at 100 VAC), 6A Maximum
	Rated Input Current (D2D2502 , 2504)	10.0 A (at 115 VAC) 5.5A (at 230 VAC)
	BTU Rating (D2D4112 D2D4106)	Maximum 1681 BTU/hr (at 100 VAC) 1646 BTU/hr (at 240 VAC)
	BTU Rating (D2D4106)	Maximum 1815 BTU/hr (at 100 VAC) 1776 BTU/hr (at 240 VAC)
	BTU Rating (D2D4312 D2D4324)	Maximum 2325 BTU/hr (at 100 VAC) 2270 BTU/hr (at 240 VAC)
	BTU Rating (D2D2502,2504)	Maximum 940 BTU/hr (at 100 VAC) 907 BTU/hr (at 240 VAC)
	Rated Steady-state Power (D2D4312, D2D4324)	552 W (at 100 VAC), 536 W (at 240 VAC)
	Rated Steady-state Power (D2D4112, D2D4106)	360 W (at 100 VAC), 386 W (at 240 VAC)
	Rated Steady-state Power (D2D2502,2504)	215W (at 100 VAC), 211W (at 240 VAC)
	Rated Steady-State Power (D2D4106)	410 W (at 100 VAC), 430 W (at 240 VAC)
	Maximum Peak Power (D2D4312, D2D4324)	682 W (at 100 VAC), 666 W (at 240 VAC)
	Maximum Peak Power (D2D4112, D2D4106)	500W (at 100 VAC), 515 W (at 240 VAC)
	Maximum Peak Power (D2D4004, D2D4009, D2D4106)	540 W (at 100 VAC), 550 W (at 240 VAC)
	Maximum Peak Power (D2D2502 and D2D2504)	280W (at 100 VAC), 280 W (at 240 VAC)
	Maximum Peak Power	385 W (at 100 VAC), 390 W (at 240 VAC)
Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 82.4° F (28° C) maximum wet bulb temperature, non-condensing
	Non Operating	5 to 95% relative humidity (Rh), 101.7° F (38.7° C) maximum wet bulb temperature, non-condensing
Temperature Range D2D 2502i, 2504i, D2D4112, D2D4106, D2D4312 D2D4324	Operating	50° to 95°F (10° to 35°C) at sea level with an altitude derating of 1.8°F per every 1000 ft (1.0°C per every 305 m) above sea level to a maximum of 10,000 ft (3050 m), no direct sustained sunlight. Maximum rate of change is 18°F/hr (10°C/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 86°F (30°C)
	Non Operating (D2D2502i, 2504i, D2D4112, D2D4106, D2D4312, D2D4324)	22° to 140° F (-30° to 60° C). Maximum rate of change is 36° F/hr (20° C/hr)
	Non Operating (D2D4324, D2D4112/4312 capacity upgrade)	-40° to 150° F (-40° to 66° C)
	Heat Dissipation (maximum) D2D4324, D2D4112/4312 capacity upgrade	1175 Btu/hr* * Input Power and Heat Dissipation specifications are maximum values and apply to worst-case conditions at full rated power supply load. The power/heat dissipation for your installation will vary depending on the equipment configuration.
Acoustic Noise D2D4112/ D2D4106/ D2D4312/ D2D4324	Idle (disks spinning)	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment LWad 6.7 B LpAm 51 dBA LWad 4.9 B LpAm 31 dBA (D2D4312 only)
	Operating (random seeks to disks)	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment

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Acoustic Noise D2D2502i, 2504i)	Idle (disks spinning)	LWAd 6.7 B LpAm 51 dBA LWAd 5.0 B LpAm 32 dBA (D2D4312 only) Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).
	Operating (random seeks to disks)	LWAd 6.82 B LpAm 51.93 dBA Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).
		LWAd 6.84 B LpAm 51.93 dBA

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For hard drives, 1 GB = 1 billion bytes. Actual formatted capacity is less.