

IBM DS8900F one-year warranty all-flash systems with IBM Storage Expert Care

Table of contents

1 Overview	19 Publications
2 Key requirements	21 Technical information
2 Planned availability date	27 Terms and conditions
2 Description	31 Prices
4 Product number	57 Regional availability

At a glance

IBM^(R) DS8900F all-flash family offers:

- Machine type 5341 with a one-year warranty for models 993, 994, 996, 998, and E96
- IBM Storage Expert Care Service
- FlashCopy^(R) onto Safeguarded source
- Client controlled code load
- GUI advanced volume creation
- Global Copy bandwidth accelerator
- Multiple Global Mirror sessions per logical storage subsystem (LSS)
- License machine code 9.3 is available for machine types 5331, 5332, 5333, and 5334, models 993, 994, 996, and 998, as an upgrade option.

Overview

DS8900F (machine type 5341) offers three classes of models:

- Flexibility-class DS8910F is available in two models. Model 993 is a client rack mounted system and Model 994 comes with its own IBM rack. Both offer 8-core-processors and up to 512 GB cache, and are compatible for small environments.
- Agility-class DS8950F Model 996 is scalable with up to 20-core-processors and up to 3.4 TB cache that can consolidate all your mission-critical workloads from IBM Z^(R), IBM LinuxONE, IBM Power^(R), and distributed environments.
- Analytics-class DS8980F Model 998 builds on DS8950F Model 996 with an increase to 44 cores and 4.3 TB cache. It is designed to expand your workload possibilities to AI, business intelligence, and machine learning.

The following features and benefits are delivered in release 9.3:

- IBM Storage Expert Care Service: Starting with this release, the DS8000^(R) series introduces IBM Storage Expert Care service. Expert Care for DS8000 is designed to enable you to precisely select your preferred level of service with ease, either Advanced or Premium tier service. For details about Expert Care offerings, see Service Announcement [622-007](#), dated May 24, 2022.
- FlashCopy onto Safeguarded source: This function enables the user to create FlashCopy relationships where the FlashCopy target is a Safeguarded Copy source. The primary use case for this is the use of dataset FlashCopy within an environment protected by Safeguarded Copy and where the Safeguarded Copy is on the production volumes or Metro Mirror target volumes.

- Client-controlled code load: Code updates for DS8000 can be completely controlled by the client. The client controls the operation in two simple steps; download and activate. IBM personnel are no longer required to do the update.
- GUI advanced volume creation: This function allows a storage administrator to create Extent Space Efficient (ESE) volumes and also provides improvement to the user experience for volume creation.
- Global Copy bandwidth accelerator: This release provides up to 100% more port throughput for Global Mirror and Global Copy at longer distances compared to prior releases. This enables a user with a long distance between primary and secondary targets to use a smaller number of ports and host adapters to achieve the maximum throughput. A request price quotation is required to enable this functionality. Contact your IBM Account team or IBM support for further assistance.
- Multiple Global Mirror sessions per LSS: This release offers more flexibility when configuring Global Mirror sessions by enabling up to 32 sessions to be configured within a single LSS. This enables users to share LSS between different applications that require their own Global Mirror sessions and avoids the requirement to move data to different volumes if the requirements change.
- License machine code 9.3 is available for machine types 5331, 5332, 5333, and 5334 models 993, 994, 996, and 998 as an upgrade option.

Key requirements

All announced features and functions that are supported on the IBM DS8000 series require DS8000 LMC 8.9.30.xx.xx (bundle version 89.30.xx.xx), or later.

Planned availability date

May 31, 2022.

Availability within a country is subject to local legal requirements.

Description

IBM DS8000 series introduces an one-year warranty all-flash system, DS8900F machine type 5341, that includes IBM Storage Expert Care service. This product line is built with POWER9™ technology to deliver comprehensive next-level cybersecurity, data stability, and system resiliency for mission-critical workloads across hybrid multicloud deployments.

As with the previous DS8900F systems, this machine type offers three classes:

- The flexibility-class DS8910F delivers significant performance improvements as compared to the previous IBM DS8880F generation (business-class)
- The agility-class DS8950F is efficiently designed to consolidate all your mission-critical workloads for IBM Z, IBM LinuxONE, IBM Power Systems, and distributed environments under a single all-flash storage solution
- The analytics-class DS8980F comes with the highest number of cores and is designed to expand mission-critical workload possibilities to AI, business intelligence, and machine learning

IBM DS8910F Model 993 is a rackless flexibility-class solution delivering the following features:

- Two 4-core processors (8 cores) per central processor complex (CEC) for a total of 16 cores per system
- A maximum of 48 flash cards (one high-performance flash enclosure (HPFE) Gen 2) when integrated in a compatible IBM Z or LinuxONE rack, and a maximum of 96 flash cards (two HPFE Gen 2) when integrated in a client-provided compatible rack with at least 20U of contiguous space

- 192 GB or 512 GB processor memory per system
- Up to 8 host adapters or 32 ports
- Single-phase and three-phase support

IBM DS8910F Model 994 is a racked flexibility-class solution delivering the following features:

- Two 4-core processors (8 cores) per CEC for a total of 16 cores per system
- A maximum of 192 flash cards (four HPFE Gen 2)
- 192 GB or 512 GB processor memory per system
- Up to 16 host adapters or 64 ports
- Single-phase and three-phase support

IBM DS8950F Model 996 is a racked agility-class solution delivering the following features:

- One 10-core processor per CEC for a total of 20 cores per system with the capacity to add one more 10-core processor per CEC for a total of 40 cores per system
- A maximum of 192 flash cards (four HPFE Gen 2)
- 512 GB processor memory per system in a 20-core system and 1024 GB, 2048 GB or 3.4 TB processor memory per system in a 40-core system
- Up to 16 host adapters or 64 ports
- Single-phase and three-phase support
- Expansion Model E96 compatibility

IBM DS8980F Model 998 is a racked analytics-class solution delivering the following features:

- Two 11-core processors (22 cores) per central processor complex for a total of 44 cores per system
- A maximum of 192 flash cards
- 4.3 TB processor memory per system
- 128 GB non-volatile dual in-line memory module (NVDIMM) for write retention
- Up to 16 host adapters or 64 ports
- Single-phase and three-phase support
- Expansion Model E96 compatibility

IBM DS8900F Model E96 is an expansion for IBM DS8950F Model 996 and IBM DS8980F Model 998 that can be attached to enable:

- Up to 192 additional flash cards (four HPFE Gen 2) for a total of 384 flash drives (eight HPFE Gen 2) per system
- Up to 16 additional host adapters or 64 ports for a total of 32 host adapters or 128 ports per system
- Single-phase and three-phase support

License machine code 9.3 is available for machine types 5331, 5332, 5333, and 5334, models 993, 994, 996, and 998, as an upgrade option.

Section 508 of the US Rehabilitation Act

IBM DS8900F (Machine type 5341) is capable as of May 31, 2022, when used in accordance with associated IBM documentation, of satisfying the applicable requirements of Section 508 of the Rehabilitation Act, provided that any assistive technology used with the product properly interoperates with it. A US Section 508 Accessibility Conformance Statement can be requested on the [Product accessibility information](#) website.

Reference information

For information about available Function Authorizations, see Hardware Announcement [122-038](#), dated May 24, 2022.

For information about IBM Storage Expert Care Service and Support offerings, see Services Announcement [622-007](#), dated May 24, 2022.

Product number

Description	Machine type	Model	Feature number
DS8910F	5341	993	
DS8910F	5341	994	
DS8950F	5341	996	
DS8980F	5341	998	
DS8900F Expansion Unit	5341	E96	
E96 factory merge	5341	996, 998, E96	0005
E96 field merge	5341	E96	0006
PPA Software Order Indicator	5341	993, 994, 996, 998, E96	0017
DoD Indicator	5341	993, 994, 996, 998, E96	0020
JEMT indicator	5341	993, 994, 996, 998, E96	0021
E96 - position 1	5341	996, 998, E96	0245
800GB 2.5" flash encl ind	5341	993, 994, 996, 998, E96	0261
1.6TB 2.5" flash encl ind	5341	993, 994, 996, 998, E96	0262
3.2TB 2.5" flash encl ind	5341	993, 994, 996, 998, E96	0263
1.92 TB 2.5" flash encl ind	5341	993, 994, 996, 998, E96	0264
3.8 TB 2.5" flash encl ind	5341	993, 994, 996, 998, E96	0265
7.68 TB 2.5" flash encl ind	5341	993, 994, 996, 998, E96	0266
15.36 TB 2.5 flash encl ind	5341	993, 994, 996, 998, E96	0267
Encryption not capable	5341	993, 994, 996, 998, E96	0403
TDCPP free indicator	5341	993, 994, 996, 998, E96	0404
Local Key Manager Enabled	5341	993, 994, 996, 998, E96	0405
Flash card sets custom placement indicator	5341	993, 994, 996, 998, E96	0606
z14 (Model ZR1) field integration	5341	993	0610
z15™ (Model T02) field integration	5341	993	0611
LinuxONE (Model LR1) field integration	5341	993	0620
LinuxONE III (Model LT2) field integration	5341	993	0621

Description	Machine type	Model	Feature number
Safe Guarded Copy Indicator	5341	993, 994, 996, 998, E96	0785
5.1 TB to 10 TB capacity	5341	993, 994, 996, 998, E96	0796
10.1 TB to 25 TB capacity	5341	993, 994, 996, 998, E96	0797
25.1 TB to 50 TB capacity	5341	993, 994, 996, 998, E96	0798
50.1 TB to 75 TB capacity	5341	993, 994, 996, 998, E96	0799
75.1 TB to 100.0 TB capacity	5341	993, 994, 996, 998, E96	0801
100.1 TB to 250 TB capacity	5341	993, 994, 996, 998, E96	0803
250.1 TB to 500 TB capacity	5341	993, 994, 996, 998, E96	0804
500.1 TB to 1250 TB capacity	5341	993, 994, 996, 998, E96	0806
1250.1 TB to 3000 TB capacity	5341	993, 994, 996, 998, E96	0807
3000.1 TB to 6000 TB capacity	5341	993, 994, 996, 998, E96	0808
6000.1TB TO 12000TB CAPACITY	5341	993, 994, 996, 998, E96	0809
IBM/Openwave Alliance	5341	993, 994, 996, 998, E96	0930
IBM System i Indicator	5341	993, 994, 996, 998, E96	0931
IBM System p Indicator	5341	993, 994, 996, 998, E96	0932
IBM System x Indicator	5341	993, 994, 996, 998, E96	0933
IBM System z ^(R) Indicator	5341	993, 994, 996, 998, E96	0934
IBM System z B/C indicator	5341	993, 994, 996, 998, E96	0935
IBM System zEnterprise ^(R) Cloud indicator	5341	993, 994, 996, 998, E96	0936
zFlex Frame Field Merge	5341	993	0937
LinuxONE Field merge	5341	993	0938
Customer Rack Field Merge	5341	993	0939
Linux ^(R) Indicator	5341	993, 994, 996, 998, E96	0940
Storage Appliance indicator	5341	993, 994, 996, 998, E96	0952
IBM ProtecTIER ^(R) indicator	5341	993, 994, 996, 998, E96	0960
IBM Storwize ^(R) V7000 indicator	5341	993, 994, 996, 998, E96	0961
IBM N series indicator	5341	993, 994, 996, 998, E96	0962
IBM SAN Volume Controller indicator	5341	993, 994, 996, 998, E96	0963
IBM/EPIC attachment indicator	5341	993, 994, 996, 998, E96	0964

Description	Machine type	Model	Feature number
VMware [®] VAAI indicator	5341	993, 994, 996, 998, E96	0965
OpenStack indicator	5341	993, 994, 996, 998, E96	0966
US TAA compliance indicator	5341	993, 994, 996, 998, E96	0983
Front & rear door lock kit	5341	994, 996, 998, E96	1014
Single Phase Power- 208V 30A NEMA L6-30P	5341	993, 994, 996, 998, E96	1038
Single Phase Power- 250V 30A/32A IEC 60309	5341	993, 994, 996, 998, E96	1039
3 Phase Wye Power- 380/220 - 415/240 V (LL/LN) 30A/32A, IEC 60309 (5 pin 3+N+PE)	5341	993, 994, 996, 998, E96	1041
Single Phase Power- 250V 32A, Australia/New Zealand	5341	993, 994, 996, 998, E96	1042
Single Phase Power- 250V 30A, Korea	5341	993, 994, 996, 998, E96	1043
Single Phase Power- 230V 30A/32A, halogen free IEC 60309	5341	993, 994, 996, 998, E96	1044
3 phase Delta Power- 200-240V (LL) 60A/63A IEC 60309 (4 pin 3+PE)	5341	993, 994, 996, 998, E96	1045
Overhead ladder - 5ft	5341	993, 994, 996, 998, E96	1101
Ladder - Top Expansion - 3ft	5341	993, 994, 996, 998, E96	1102
Kick Step	5341	993, 994, 996, 998, E96	1103
DS8900F rack doors	5341	994, 996, 998, E96	1105
SpaceSaver front/rear doors	5341	994, 996, 998, E96	1106
Rack side cover pair	5341	994, 996, 998, E96	1107
I/O enclosure pair PCIe 3	5341	993, 994, 996, 998, E96	1303
Rack management switch pair	5341	996, 998	1310
Adjacent 996_E96 PCIE3 Cableset	5341	E96	1340
20 meter 996_E96 PCIE3 Cableset	5341	E96	1341
Top exit bracket for fibre cable R9	5341	994, 996, 998, E96	1401
40 meter, 50um Fibre cable (LC/LC)	5341	993, 994, 996, 998, E96	1410

Description	Machine type	Model	Feature number
31 meter, 50um Fibre cable (LC/SC)	5341	993, 994, 996, 998, E96	1411
2 meter, 50um Fibre cable (LC/SC)	5341	993, 994, 996, 998, E96	1412
3 meter, 50um Fibre cable (LC/LC)	5341	993, 994, 996, 998, E96	1413
31 meter, 9um Fibre cable (LC/LC)	5341	993, 994, 996, 998, E96	1420
31 meter, 9um Fibre cable (LC/SC)	5341	993, 994, 996, 998, E96	1421
2 meter, 9um Fibre cable (LC/SC)	5341	993, 994, 996, 998, E96	1422
3 meter, 9um Fibre cable (LC/LC)	5341	993, 994, 996, 998, E96	1423
40m zHyperlink cable	5341	993, 994, 996, 998, E96	1450
150m zHyperlink cable	5341	993, 994, 996, 998, E96	1451
3m zHyperlink cable	5341	993	1452
HPFE Gen 2 adapter card	5341	993, 994, 996, 998, E96	1604
HPFE Gen 2 enclosure pair R9	5341	993, 994, 996, 998, E96	1605
800 GB 2.5-inch flash card set	5341	993, 994, 996, 998, E96	1611
1600 GB 2.5-inch flash card set	5341	993, 994, 996, 998, E96	1612
3200 GB 2.5-inch flash card set	5341	993, 994, 996, 998, E96	1613
1.92 TB 2.5-inch high capacity flash	5341	993, 994, 996, 998, E96	1622
3.8 TB 2.5-inch high capacity flash	5341	993, 994, 996, 998, E96	1623
7.68 TB 2.5-inch high capacity flash	5341	993, 994, 996, 998, E96	1624
15.36 TB 2.5-inch high capacity flash	5341	993, 994, 996, 998, E96	1625
Flash enclosure filler set	5341	993, 994, 996, 998, E96	1699
1U Keyboard/Display	5341	993, 994, 996, 998, E96	1765
DS8000 LMC R9.3	5341	993, 994, 996, 998	1893
Earthquake Kit DS8900F AC156	5341	994, 996, 998, E96	1907
DS8000 LMC R9.3 indicator	5341	E96	1993
Hardware installation MES	5341	993, 994, 996, 998, E96	1999
16 Gb 4 port SW FCP/FICON ^(R) adapter PCIE	5341	993, 994, 996, 998, E96	3353
32 Gb 4 port SW FCP/FICON adapter PCIE	5341	993, 994, 996, 998, E96	3355

Description	Machine type	Model	Feature number
16 Gb 4 port LW FCP/FICON adapter PCIE	5341	993, 994, 996, 998, E96	3453
32 Gb 4 port LW FCP/FICON adapter PCIE	5341	993, 994, 996, 998, E96	3455
zHyperlink adapter	5341	993, 994, 996, 998, E96	3500
Transparent cloud tiering 10Gb/1Gb ethernet pair V2 for 2U controllers	5341	993, 994	3602
Transparent cloud tiering 10Gb/1Gb ethernet pair V2 for 4U controllers	5341	996, 998	3603
8 core processor pair indicator	5341	993, 994	4341
10 cores processor pair indicator	5341	996	4342
2nd 10 core processor pair indicator	5341	996	4343
22 core processor pair indicator	5341	998	4344
192GB System Cache (8 core)	5341	993, 994	4450
512GB System Cache (8 core)	5341	993, 994	4451
512GB System Cache (10 core)	5341	996	4452
1024GB System Cache (20 core)	5341	996	4453
4.3 TB System Cache (44 core)	5341	998	4456
2048 GB v2 System Cache (20 core)	5341	996	4457
3.4 TB v2 System Cache (20 core)	5341	996	4458
BF 10TB increments from 0 to 100 TB	5341	993, 994, 996, 998	8151
BF 15TB increments from 100.1 TB to 250 TB	5341	993, 994, 996, 998	8152
BF 25TB increments from 250.1 TB to 500 TB	5341	993, 994, 996, 998	8153
BF 75TB increments from 500.1 TB to 1250 TB	5341	993, 994, 996, 998	8154
BF 175TB increments from 1250.1 TB to 3000 TB	5341	993, 994, 996, 998	8155
BF 300TB increments from 3000.1 TB to 6000 TB	5341	993, 994, 996, 998	8156
BF 600TB increments from	5341	993, 994, 996, 998	8160

Description	Machine type	Model	Feature number
6000.1 TB to 12000 TB			
CS - Inactive	5341	993, 994, 996, 998	8250
CS 10TB increments from 0 to 100 TB	5341	993, 994, 996, 998	8251
CS 15TB increments from 100.1 TB to 250 TB	5341	993, 994, 996, 998	8252
CS 25TB increments from 250.1 TB to 500 TB	5341	993, 994, 996, 998	8253
CS 75TB increments from 500.1 TB to 1250 TB	5341	993, 994, 996, 998	8254
CS 175TB increments from 1250.1 TB to 3000 TB	5341	993, 994, 996, 998	8255
CS 300TB increments from 3000.1 TB to 6000 TB	5341	993, 994, 996, 998	8256
CS 600TB increments from 6000.1 TB to 12000 TB	5341	993, 994, 996, 998	8260
zsS - Active	5341	993, 994, 996, 998	8300
zsS - Inactive	5341	993, 994, 996, 998	8350
zsS 10TB increments from 0 to 100 TB	5341	993, 994, 996, 998	8351
zsS 15TB increments from 100.1 TB to 250 TB	5341	993, 994, 996, 998	8352
zsS 25TB increments from 250.1 TB to 500 TB	5341	993, 994, 996, 998	8353
zsS 75TB increments from 500.1 TB to 1250 TB	5341	993, 994, 996, 998	8354
zsS 175TB increments from 1250.1 TB to 3000 TB	5341	993, 994, 996, 998	8355
zsS 300TB increments from 3000.1 TB to 6000 TB	5341	993, 994, 996, 998	8356
zsS 600TB increments from 6000.1 TB to 12000 TB	5341	993, 994, 996, 998	8360
CSM on HMC - Active	5341	993, 994, 996, 998, E96	8451
IGF transaction indicator	5341	993, 994, 996, 998, E96	8999

Description	Machine type	Model	Feature number
Shipping and Handling NC	5341	993, 994, 996, 998, E96	AG00
Shipping and handling 993	5341	993	AGAP
Shipping and handling 994	5341	994	AGAQ
Shipping and handling 996	5341	996	AGAR
Shipping and handling 998	5341	998	AGAS
Shipping and handling E96	5341	E96	AGAT
On-site code load for Premium tier	5341	993, 994, 996, 998	AHY2
On-site code load for Advanced tier	5341	993, 994, 996, 998	AHY3
4 year, IBM Storage Expert Care Advanced, 1hr Committed Contact	5341	993, 994, 996, 998, E96	ALC7
4 year, IBM Storage Expert Care Advanced, 4hr Committed On-Site	5341	993, 994, 996, 998, E96	ALC8
4 year, IBM Storage Expert Care Advanced, 4hr Committed Fix	5341	993, 994, 996, 998, E96	ALC9
4 year, IBM Storage Expert Care Advanced, 6hr Committed Fix	5341	993, 994, 996, 998, E96	ALCA
4 year, IBM Storage Expert Care Advanced, 8hr Committed Fix	5341	993, 994, 996, 998, E96	ALCB
4 year, IBM Storage Expert Care Advanced, 12hr Committed Fix	5341	993, 994, 996, 998, E96	ALCC
4 year, IBM Storage Expert Care Advanced, 24hr Committed Fix	5341	993, 994, 996, 998, E96	ALCD
4 year, IBM Storage Expert Care Advanced, 48hr Committed Fix	5341	993, 994, 996, 998, E96	ALCE
4 year, IBM Storage Expert Care Advanced, 72hr Committed Fix	5341	993, 994, 996, 998, E96	ALCF
5 year, IBM Storage Expert Care Advanced, 1hr Committed Contact	5341	993, 994, 996, 998, E96	ALCG
5 year, IBM Storage Expert Care Advanced,	5341	993, 994, 996, 998, E96	ALCH

Description	Machine type	Model	Feature number
4hr Committed On-Site			
5 year, IBM Storage Expert Care Advanced, 4hr Committed Fix	5341	993, 994, 996, 998, E96	ALCJ
5 year, IBM Storage Expert Care Advanced, 6hr Committed Fix	5341	993, 994, 996, 998, E96	ALCK
5 year, IBM Storage Expert Care Advanced, 8hr Committed Fix	5341	993, 994, 996, 998, E96	ALCL
5 year, IBM Storage Expert Care Advanced, 12hr Committed Fix	5341	993, 994, 996, 998, E96	ALCM
5 year, IBM Storage Expert Care Advanced, 24hr Committed Fix	5341	993, 994, 996, 998, E96	ALCN
5 year, IBM Storage Expert Care Advanced, 48hr Committed Fix	5341	993, 994, 996, 998, E96	ALCP
5 year, IBM Storage Expert Care Advanced, 72hr Committed Fix	5341	993, 994, 996, 998, E96	ALCQ
4 year, IBM Storage Expert Care Premium, 1hr Committed Contact	5341	993, 994, 996, 998, E96	ALD7
4 year, IBM Storage Expert Care Premium, 4hr Committed On-Site	5341	993, 994, 996, 998, E96	ALD8
4 year, IBM Storage Expert Care Premium, 4hr Committed Fix	5341	993, 994, 996, 998, E96	ALD9
4 year, IBM Storage Expert Care Premium, 6hr Committed Fix	5341	993, 994, 996, 998, E96	ALDA
4 year, IBM Storage Expert Care Premium, 8hr Committed Fix	5341	993, 994, 996, 998, E96	ALDB
4 year, IBM Storage Expert Care Premium, 12hr Committed Fix	5341	993, 994, 996, 998, E96	ALDC
4 year, IBM Storage Expert Care Premium, 24hr Committed Fix	5341	993, 994, 996, 998, E96	ALDD

Description	Machine type	Model	Feature number
4 year, IBM Storage Expert Care Premium, 48hr Committed Fix	5341	993, 994, 996, 998, E96	ALDE
4 year, IBM Storage Expert Care Premium, 72hr Committed Fix	5341	993, 994, 996, 998, E96	ALDF
5 year, IBM Storage Expert Care Premium, 1hr Committed Contact	5341	993, 994, 996, 998, E96	ALDG
5 year, IBM Storage Expert Care Premium, 4hr Committed On-Site	5341	993, 994, 996, 998, E96	ALDH
5 year, IBM Storage Expert Care Premium, 4hr Committed Fix	5341	993, 994, 996, 998, E96	ALDJ
5 year, IBM Storage Expert Care Premium, 6hr Committed Fix	5341	993, 994, 996, 998, E96	ALDK
5 year, IBM Storage Expert Care Premium, 8hr Committed Fix	5341	993, 994, 996, 998, E96	ALDL
5 year, IBM Storage Expert Care Premium, 12hr Committed Fix	5341	993, 994, 996, 998, E96	ALDM
5 year, IBM Storage Expert Care Premium, 24hr Committed Fix	5341	993, 994, 996, 998, E96	ALDN
5 year, IBM Storage Expert Care Premium, 48hr Committed Fix	5341	993, 994, 996, 998, E96	ALDP
5 year, IBM Storage Expert Care Premium, 72hr Committed Fix	5341	993, 994, 996, 998, E96	ALDQ
Expert Care Indicator	5341	993, 994, 996, 998, E96	ALH0
1yr Expert Care Advanced Indicator	5341	993, 994, 996, 998, E96	ALK1
2yr Expert Care Advanced Indicator	5341	993, 994, 996, 998, E96	ALK2
3yr Expert Care Advanced Indicator	5341	993, 994, 996, 998, E96	ALK3
4yr Expert Care Advanced Indicator	5341	993, 994, 996, 998, E96	ALK4

Description	Machine type	Model	Feature number
5yr Expert Care Advanced Indicator	5341	993, 994, 996, 998, E96	ALK5
1 year, IBM Storage Expert Care Advanced, 1hr Committed Contact	5341	993, 994, 996, 998, E96	ALK7
1 year, IBM Storage Expert Care Advanced, 4hr Committed On-Site	5341	993, 994, 996, 998, E96	ALK8
1 year, IBM Storage Expert Care Advanced, 4hr Committed Fix	5341	993, 994, 996, 998, E96	ALK9
1 year, IBM Storage Expert Care Advanced, 6hr Committed Fix	5341	993, 994, 996, 998, E96	ALKA
1 year, IBM Storage Expert Care Advanced, 8hr Committed Fix	5341	993, 994, 996, 998, E96	ALKB
1 year, IBM Storage Expert Care Advanced, 12hr Committed Fix	5341	993, 994, 996, 998, E96	ALKC
1 year, IBM Storage Expert Care Advanced, 24hr Committed Fix	5341	993, 994, 996, 998, E96	ALKD
1 year, IBM Storage Expert Care Advanced, 48hr Committed Fix	5341	993, 994, 996, 998, E96	ALKE
1 year, IBM Storage Expert Care Advanced, 72hr Committed Fix	5341	993, 994, 996, 998, E96	ALKF
2 year, IBM Storage Expert Care Advanced, 1hr Committed Contact	5341	993, 994, 996, 998, E96	ALKG
2 year, IBM Storage Expert Care Advanced, 4hr Committed On-Site	5341	993, 994, 996, 998, E96	ALKH
2 year, IBM Storage Expert Care Advanced, 4hr Committed Fix	5341	993, 994, 996, 998, E96	ALKJ
2 year, IBM Storage Expert Care Advanced, 6hr Committed Fix	5341	993, 994, 996, 998, E96	ALKK
2 year, IBM Storage Expert Care Advanced, 8hr Committed Fix	5341	993, 994, 996, 998, E96	ALKL

Description	Machine type	Model	Feature number
2 year, IBM Storage Expert Care Advanced, 12hr Committed Fix	5341	993, 994, 996, 998, E96	ALKM
2 year, IBM Storage Expert Care Advanced, 24hr Committed Fix	5341	993, 994, 996, 998, E96	ALKN
2 year, IBM Storage Expert Care Advanced, 48hr Committed Fix	5341	993, 994, 996, 998, E96	ALKP
2 year, IBM Storage Expert Care Advanced, 72hr Committed Fix	5341	993, 994, 996, 998, E96	ALKQ
3 year, IBM Storage Expert Care Advanced, 1hr Committed Contact	5341	993, 994, 996, 998, E96	ALKR
3 year, IBM Storage Expert Care Advanced, 4hr Committed On-Site	5341	993, 994, 996, 998, E96	ALKS
3 year, IBM Storage Expert Care Advanced, 4hr Committed Fix	5341	993, 994, 996, 998, E96	ALKT
3 year, IBM Storage Expert Care Advanced, 6hr Committed Fix	5341	993, 994, 996, 998, E96	ALKU
3 year, IBM Storage Expert Care Advanced, 8hr Committed Fix	5341	993, 994, 996, 998, E96	ALKV
3 year, IBM Storage Expert Care Advanced, 12hr Committed Fix	5341	993, 994, 996, 998, E96	ALKW
3 year, IBM Storage Expert Care Advanced, 24hr Committed Fix	5341	993, 994, 996, 998, E96	ALKX
3 year, IBM Storage Expert Care Advanced, 48hr Committed Fix	5341	993, 994, 996, 998, E96	ALKY
3 year, IBM Storage Expert Care Advanced, 72hr Committed Fix	5341	993, 994, 996, 998, E96	ALKZ
1yr Expert Care Premium Indicator	5341	993, 994, 996, 998, E96	ALL1
2yr Expert Care Premium Indicator	5341	993, 994, 996, 998, E96	ALL2

Description	Machine type	Model	Feature number
3yr Expert Care Premium Indicator	5341	993, 994, 996, 998, E96	ALL3
4Yr Expert Care Premium Indicator	5341	993, 994, 996, 998, E96	ALL4
5Yr Expert Care Premium Indicator	5341	993, 994, 996, 998, E96	ALL5
1 year, IBM Storage Expert Care Premium, 1hr Committed Contact	5341	993, 994, 996, 998, E96	ALL7
1 year, IBM Storage Expert Care Premium, 4hr Committed On-Site	5341	993, 994, 996, 998, E96	ALL8
1 year, IBM Storage Expert Care Premium, 4hr Committed Fix	5341	993, 994, 996, 998, E96	ALL9
1 year, IBM Storage Expert Care Premium, 6hr Committed Fix	5341	993, 994, 996, 998, E96	ALLA
1 year, IBM Storage Expert Care Premium, 8hr Committed Fix	5341	993, 994, 996, 998, E96	ALLB
1 year, IBM Storage Expert Care Premium, 12hr Committed Fix	5341	993, 994, 996, 998, E96	ALLC
1 year, IBM Storage Expert Care Premium, 24hr Committed Fix	5341	993, 994, 996, 998, E96	ALLD
1 year, IBM Storage Expert Care Premium, 48hr Committed Fix	5341	993, 994, 996, 998, E96	ALLE
1 year, IBM Storage Expert Care Premium, 72hr Committed Fix	5341	993, 994, 996, 998, E96	ALLF
2 year, IBM Storage Expert Care Premium, 1hr Committed Contact	5341	993, 994, 996, 998, E96	ALLG
2 year, IBM Storage Expert Care Premium, 4hr Committed On-Site	5341	993, 994, 996, 998, E96	ALLH
2 year, IBM Storage Expert Care Premium, 4hr Committed Fix	5341	993, 994, 996, 998, E96	ALLJ
2 year, IBM Storage Expert Care Premium, 6hr Committed Fix	5341	993, 994, 996, 998, E96	ALLK

Description	Machine type	Model	Feature number
2 year, IBM Storage Expert Care Premium, 8hr Committed Fix	5341	993, 994, 996, 998, E96	ALLL
2 year, IBM Storage Expert Care Premium, 12hr Committed Fix	5341	993, 994, 996, 998, E96	ALLM
2 year, IBM Storage Expert Care Premium, 24hr Committed Fix	5341	993, 994, 996, 998, E96	ALLN
2 year, IBM Storage Expert Care Premium, 48hr Committed Fix	5341	993, 994, 996, 998, E96	ALLP
2 year, IBM Storage Expert Care Premium, 72hr Committed Fix	5341	993, 994, 996, 998, E96	ALLQ
3 year, IBM Storage Expert Care Premium, 1hr Committed Contact	5341	993, 994, 996, 998, E96	ALLR
3 year, IBM Storage Expert Care Premium, 4hr Committed On-Site	5341	993, 994, 996, 998, E96	ALLS
3 year, IBM Storage Expert Care Premium, 4hr Committed Fix	5341	993, 994, 996, 998, E96	ALLT
3 year, IBM Storage Expert Care Premium, 6hr Committed Fix	5341	993, 994, 996, 998, E96	ALLU
3 year, IBM Storage Expert Care Premium, 8hr Committed Fix	5341	993, 994, 996, 998, E96	ALLV
3 year, IBM Storage Expert Care Premium, 12hr Committed Fix	5341	993, 994, 996, 998, E96	ALLW
3 year, IBM Storage Expert Care Premium, 24hr Committed Fix	5341	993, 994, 996, 998, E96	ALLX
3 year, IBM Storage Expert Care Premium, 48hr Committed Fix	5341	993, 994, 996, 998, E96	ALLY
3 year, IBM Storage Expert Care Premium, 72hr Committed Fix	5341	993, 994, 996, 998, E96	ALLZ
BP Post-Sale Services	5341	993, 994, 996, 998, E96	SVBP

Description	Machine type	Model	Feature number
IBM Systems Lab Services Post-Sale Services	5341	993, 994, 996, 998, E96	SVCS
Other IBM Post-Sale Services	5341	993, 994, 996, 998, E96	SVNN

Description	Machine type	Model	Feature number
DS8000 LMC R9.3	5331, 5332, 5333, 5334	993, 994, 996, 998	1893
DS8000 LMC R9.3 indicator	5331, 5332, 5333, 5334	E96	1993

Feature conversions

The existing components being replaced during a model or feature conversion become the property of IBM and must be returned.

Feature conversions are always implemented on a "quantity of one for quantity of one" basis. Multiple existing features may not be converted to a single new feature. Single existing features may not be converted to multiple new features.

The following conversions are available to clients:

Feature conversions for 5341-993

From feature	To feature	Returned parts*
1038 - Single Phase Power - 208V 30A NEMA L6-30P	1039 - Single Phase Power - 250V 30A/32A IEC 60309	No
1611 - 800 GB 2.5-inch flash card set	1612 - 1600 GB 2.5-inch flash card set	Yes
1611 - 800 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1612 - 1600 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1622 - 1.92 TB 2.5-inch high capacity flash	1623 - 3.8 TB 2.5-inch high capacity flash	Yes
1622 - 1.92 TB 2.5-inch high capacity flash	1624 - 7.68 TB 2.5-inch high capacity flash	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1624 - 7.68 TB 2.5-inch high capacity flash	Yes
1622 - 1.92 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
1624 - 7.68 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
4450 - 192GB System Cache (8 core)	4451 - 512GB System Cache (8 core)	No

Feature conversions for 5341-994

From feature	To feature	Returned parts*
1038 - Single Phase Power - 208V 30A NEMA L6-30P	1039 - Single Phase Power - 250V 30A/32A IEC 60309	No
1611 - 800 GB 2.5-inch flash card set	1612 - 1600 GB 2.5-inch flash card set	Yes
1611 - 800 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1612 - 1600 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1622 - 1.92 TB 2.5-inch high capacity flash	1623 - 3.8 TB 2.5-inch high capacity flash	Yes

From feature	To feature	Returned parts*
1622 - 1.92 TB 2.5-inch high capacity flash	1624 - 7.68 TB 2.5-inch high capacity flash	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1624 - 7.68 TB 2.5-inch high capacity flash	Yes
1622 - 1.92 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
1624 - 7.68 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
4450 - 192GB System Cache (8 core)	4451 - 512GB System Cache (8 core)	No

Feature conversions for 5341-996

From feature	To feature	Returned parts*
1038 - Single Phase Power - 208V 30A NEMA L6-30P	1039 - Single Phase Power - 250V 30A/32A IEC 60309	No
1611 - 800 GB 2.5-inch flash card set	1612 - 1600 GB 2.5-inch flash card set	Yes
1611 - 800 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1612 - 1600 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1624 - 7.68 TB 2.5-inch high capacity flash	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
1624 - 7.68 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
4452 - 512GB System Cache (10 core)	4453 - 1024GB System Cache (20 core)	No
4452 - 512GB System Cache (10 core)	4457 - 2048 GB v2 System Cache (20 core)	No
4453 - 1024GB System Cache (20 core)	4457 - 2048 GB v2 System Cache (20 core)	No
4452 - 512GB System Cache (10 core)	4458 - 3.4 TB v2 System Cache (20 core)	Yes
4453 - 1024GB System Cache (20 core)	4458 - 3.4 TB v2 System Cache (20 core)	Yes
4457 - 2048 GB v2 System Cache (20 core)	4458 - 3.4 TB v2 System Cache (20 core)	Yes

Feature conversions for 5341-998

From feature	To feature	Returned parts*
1611 - 800 GB 2.5-inch flash card set	1612 - 1600 GB 2.5-inch flash card set	Yes
1611 - 800 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1612 - 1600 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1622 - 1.92 TB 2.5-inch high capacity flash	1623 - 3.8 TB 2.5-inch high capacity flash	Yes
1622 - 1.92 TB 2.5-inch high capacity flash	1624 - 7.68 TB 2.5-inch high capacity flash	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1624 - 7.68 TB 2.5-inch high capacity flash	Yes
1622 - 1.92 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes

From feature	To feature	Returned parts*
1624 - 7.68 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes

Feature conversions for 5341-E96

From feature	To feature	Returned parts*
1038 - Single Phase Power - 208V 30A NEMA L6-30P	1039 - Single Phase Power - 250V 30A/32A IEC 60309	No
1611 - 800 GB 2.5-inch flash card set	1612 - 1600 GB 2.5-inch flash card set	Yes
1611 - 800 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1612 - 1600 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1624 - 7.68 TB 2.5-inch high capacity flash	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
1624 - 7.68 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes

*Parts removed as a result of a feature conversion become the property of IBM.

Business Partner information

If you are an IBM Business Partner acquiring IBM products or services directly from IBM, you may link directly to Business Partner information for this announcement.

[BP Attachment for Announcement Letter 122-037](#)

Publications

DS8000 publications are available at the [IBM Publications Center](#).

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IBM support

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Additional support

IBM Client Engineering for Systems

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Technical information

Specified operating environment

Physical specifications

Model 993

- 19-inch EIA rack mount system
 - 15U contiguous vertical rack space with one HPFE Gen 2 pair, without a 1U keyboard/display (666.75 mm, 26.25 in.)
 - 16U contiguous vertical rack space with one HPFE Gen 2 pair, with a 1U keyboard/display (711.2 mm, 28 in.)
 - 19U contiguous vertical rack space with two HPFE Gen 2 pairs, without a 1U keyboard/display (844.55 mm, 33.25 in.) (Only if installed in a compatible rack provided by the client)
 - 20U contiguous vertical rack space with two HPFE Gen 2 pairs, with a 1U keyboard/display (889 mm, 35 in.) (Only if installed in a compatible rack provided by the client)
- Distance between rack front and rear EIA rails: 700-780 mm (27.6-30.7 in.)
- Minimum distance from cabinet rear rail to rear door: 203 mm (8 in.)
- Weight: 320 kg (705 lb)

Model 994

- 40U 19-inch EIA rack

- Height: 1927 mm (75.87 in.)
- Width:
 - Space saver 600 mm (23.62 in.)
 - Decorative covers 616 mm (24.25 in.)
- Depth:
 - Space saver 1169 mm (46 in.)
 - Standard door 1270 mm (50 in.)
- Weight: 762 kg (1680 lb)

Model 996

- 40U 19-inch EIA rack
- Height: 1927 mm (75.87 in.)
- Width:
 - Space saver 600 mm (23.62 in.)
 - Decorative covers 616 mm (24.25 in.)
- Depth:
 - Space saver 1169 mm (46 in.)
 - Standard door 1270 mm (50 in.)
- Weight: 793 kg (1748 lb)

Model 998

- 40U 19-inch EIA rack
- Height: 1927 mm (75.87 in.)
- Width:
 - Space saver 600 mm (23.62 in.)
 - Decorative covers 616 mm (24.25 in.)
- Depth:
 - Space saver 1169 mm (46 in.)
 - Standard door 1270 mm (50 in.)
- Weight: 793 kg (1748 lb)

Model E96

- 40U 19-inch EIA rack
- Height: 1927 mm (75.87 in.)
- Width:
 - Space saver 600 mm (23.62 in.)
 - Decorative covers 616 mm (24.25 in.)
- Depth:
 - Space saver 1169 mm (46 in.)
 - Standard door 1270 mm (50 in.)
- Weight: 672 kg (1482 lb)

Operating environment

Model 993

- Temperature: 16°C to 32°C (60°F to 90°F)
- Relative humidity: 20% - 80%
- 11,942 BTU

- Electrical power (DS8910F Model 993): 2.4 kW
- Capacity of exhaust: 500 cubic feet/minute estimated
- Declared operating A-weighted sound power level: 8.4 bels estimated
- Leakage current: 30 mA max
- Power consumption for Model 993 with two HPFE pair: 3.5 kW
- DASD subsystems
 - Maximum physical storage capacity: 1,468,800 Gigabytes with 15.3 TB flash drive sets
 - Power consumption: 3,500 W
 - DASD Energy Consumption Efficiency: 0.000023 W/Gigabytes

Model 994

- Temperature: 16°C to 32°C (60°F to 90°F)
- Relative humidity: 20% - 80%
- 25,776 BTU
- Electrical power (DS8910F Model 994): 6.5 kW
- Capacity of exhaust: 1,500 cubic feet/minute estimated
- Declared operating A-weighted sound power level: 8.4 bels estimated
- Leakage current: 30 mA max per line cord
- Power consumption for Model 994 maximum config: 6.5 kW
- DASD subsystems
 - Maximum physical storage capacity: 2,937,600 Gigabytes with 15.3 TB flash drive sets
 - Power consumption: 6,500 W
 - DASD Energy Consumption Efficiency: 0.000022 W/Gigabytes

Model 996

- Temperature: 16°C to 32°C (60°F to 90°F)
- Relative humidity: 20% - 80%
- 29,742 BTU
- Electrical power (DS8950F Model 996): 7.5 kW
- Capacity of exhaust: 1,500 cubic feet/minute estimated
- Declared operating A-weighted sound power level: 8.4 bels estimated
- Leakage current: 30 mA max per line cord
- Power consumption for Model 996 maximum config: 7.5 kW
- DASD subsystems
 - Maximum physical storage capacity: 2,937,600 Gigabytes with 15.3 TB flash drive sets
 - Power consumption: 7,500 W
 - DASD Energy Consumption Efficiency: 0.000025 W/Gigabytes

Model 998

- Temperature: 16°C to 32°C (60°F to 90°F)
- Relative humidity: 20% - 80%
- 29,742 BTU
- Electrical power (DS8980F Model 998): 7.5 kW
- Capacity of exhaust: 1,500 cubic feet/minute estimated
- Declared operating A-weighted sound power level: 8.4 bels estimated
- Leakage current: 30 mA max per line cord

- Power consumption for Model 998 maximum config: 7.5 kW
- DASD subsystems
 - Maximum physical storage capacity: 2,937,600 Gigabytes with 15.3 TB flash drive sets
 - Power consumption: 7,500 W
 - DASD Energy Consumption Efficiency: 0.000025 W/Gigabytes

Model E96

- Temperature: 16°C to 32°C (60°F to 90°F)
- Relative humidity: 20% - 80%
- 29,742 BTU
- Electrical power (DS8950F Model 996): 7.5 kW
- Capacity of exhaust: 1,500 cubic feet/minute estimated
- Declared operating A-weighted sound power level: 8.4 bels estimated
- Leakage current: 30 mA max per line cord
- Power consumption for Model 996 maximum config: 7.5 kW
- DASD subsystems
 - Maximum physical storage capacity: 2,937,600 Gigabytes with 15.3 TB flash drive sets
 - Power consumption: 7,500 W
 - DASD Energy Consumption Efficiency: 0.000025 W/Gigabytes

Hardware requirements

Licensed Machine Code

All announced features and functions are supported on the IBM System Storage DS8000 series and require DS8000 LMC 8.9.30.xx.xx (bundle version 89.30.xx.xx), or later.

Limitations

None.

Planning information

Client responsibilities

Physical configuration planning

Physical configuration planning is a client responsibility. A marketing specialist can help plan and select the DS8000 series physical configuration and features. Introductory information, including required and optional features, can be found in the *IBM DS8900F Introduction and Planning Guide (SC27-9560)* for the DS8900F family products.

Capacity and performance planning assistance is also available. Through the use of StorM tool, a disk marketing specialist can help plan and anticipate performance characteristics for specific workloads by modeling proposed configurations.

Installation planning

Installation planning is a client responsibility. Information about planning the installation of a DS8000 series, including equipment, site, and power requirements, can be found in the *IBM DS8900F Introduction and Planning Guide (SC27-9560)* for models 993, 994, 996, 998, and E96.

Logical configuration planning and application

Logical configuration planning is a client responsibility. Logical configuration refers to the creation of RAID arrays, volumes, and LUNs, and the assignment of the configured capacity to servers.

Application of the initial logical configuration and all subsequent modifications to the logical configuration is a client responsibility. The logical configuration can be created, applied, and modified using the DS8000 Storage Manager (GUI) and DS command-line interface.

IBM Global Services will also apply or modify the logical configuration (fee-based service).

Licensed Machine Code planning and application

IBM may release changes to the DS8000 series Licensed Machine Code. IBM plans to make the most current DS8000 series Licensed Machine Code changes available for download by the DS8000 series system from the IBM System Storage technical support website. Not all Licensed Machine Code changes may be available through the support website. If the machine does not function as warranted and a problem can be resolved through the application of downloadable Licensed Machine Code, the client is responsible for downloading and installing these designated Licensed Machine Code changes as IBM specifies. IBM has responsibility for installing changes that IBM does not make available for you to download. The DS8000 series includes many enhancements to make the Licensed Machine Code change process simpler, quicker, and more automated. A request can be made for IBM to install downloadable Licensed Machine Code changes, however there may be a charge for that service.

Calculating physical and effective capacity

For capacity calculation guidelines, see the *IBM DS8900F Introduction and Planning Guide* (SC27-9560) for models 993, 994, 996, 998, and E96.

Encryption planning

Encryption planning is a client responsibility. There are three major planning components to the implementation of an encryption environment. Review all planning requirements and include them in the installation considerations.

- IBM Local Key Manager planning
- IBM Security Guardium Key Lifecycle Manager (GKLM) planning
- Encryption activation review planning

IBM Local Key Manager planning

To enable encryption at rest, an external key manager server is typically needed, increasing complexity, capital expenses, and operational costs. DS8900F has the option of an internal key manager to enable and manage encryption at rest, protecting data while keeping expenses and operation costs low.

The keys are generated and stored in DS8000. This internal key manager is only capable of handling encryption at rest, for example media encryption. An additional feature number 0405 is available for selection in e-config during ordering process.

For encryption of data in flight support or transparent cloud tiering to cloud encryption, an external key manager such as GKLM is still required. It is a client's responsibility to enable or disable internal key manager through e-config.

Dual storage appliance server planning

DS8000 supports the ability to configure two independent key labels for each encryption-enabled DS8000. This capability enables the use of two independent storage appliance server platforms when one or both storage appliance server platforms are using secure-key mode key stores. This enables the isolated storage

appliance server platform to be used in conjunction with a second appliance server platform that is operating with a secure-key mode key store.

For clients desiring NIST 800-131a compliance, GKLM, formerly known as IBM Tivoli[®] Key Lifecycle Manager 2.5, or later, is required.

GKLM planning

The DS8000 series supports GKLM 4.0 and 4.1.

Program number	VRM	Program name
5724-T60	3.0	IBM Security Key Lifecycle Manager (For PPA)
5641-GKL	3.0	IBM Security Guardium Key Lifecycle Manager -- 1 year (For AAS)
5641-GKM	3.0	IBM Security Guardium Key Lifecycle Manager -- 3 year (For AAS)

To support enterprise-wide encryption-key management, an updated set of pricing metrics is available. These pricing metrics are simpler and more comprehensive for devices, users, and server capacity.

For self-encrypting disk drives, the metric is per client device with the disk drive feature number.

For more information about the licensing requirements and pricing of the metric, see Software Announcement [213-470](#), dated October 29, 2013.

Isolated key server ordering options

Client-acquired isolated key server: See the [IBM Security Guardium Key Lifecycle Manager](#) page in IBM Documentation for hardware and operating system requirements.

Note: Regardless of the ordering method, clients will need to acquire an GKLM license for use of the GKLM software ordered separately from the stand-alone server hardware.

Note: The licensing for GKLM includes both an install license for the GKLM management software and a license for the encrypting drives.

IBM Security Guardium Key Lifecycle Manager English publications may be viewed online on the electronic availability date at the [IBM Security Guardium Key Lifecycle Manager documentation](#) website.

To access the IBM Publications Center portal, go to the [IBM Publications Center](#) website.

Encryption activation review planning

Encryption activation is a client responsibility. IBM encryption offerings must be activated prior to use. This activation is part of the installation and configuration steps required for use of the technology. This installation and activation review is performed by the IBM Systems and Technology Lab Services group.

Send email to

storsvcs@us.ibm.com

Go to the [Storage Services](#) website and click on **Contact now** to submit your inquiry or request.

You are responsible for downloading or obtaining from IBM, and installing designated Machine Code (microcode, basic input/output system code (called BIOS), utility

programs, device drivers, and diagnostics delivered with an IBM machine) and other software updates in a timely manner from an IBM internet website or from other electronic media, and following the instructions that IBM provides. You may request IBM to install Machine Code changes; however, you may be charged for that service.

Cable orders

Cables are required to connect DS8000 series 16 Gbps and 32 Gbps FCP/FICON^(R) host adapter ports to server or fabric ports. Cables can be purchased using the appropriate DS8000 series feature numbers.

Additional cable options, along with product support services such as installation, are offered by IBM Global Services' Networking Services.

Fibre Channel/FICON (shortwave)

Shortwave Fibre Channel and FICON ports on the DS8000 series require a 50-micron (multimode) fiber optic cable terminated with a LC connector. Fibre Channel cables can be purchased using feature numbers 141x for 50-micron cables.

Fibre Channel/FICON (longwave)

Longwave Fibre Channel and FICON ports on the DS8000 series require a 9-micron (single mode) fiber optic cable terminated with a LC connector. Fibre Channel cables can be purchased using feature numbers 142x for 9-micron cables.

These are single 24-fiber cables with MTP connectors. Internally, a single cable houses 12 fibers for transmit and 12 fibers for receive.

Direct client support

Direct client support for the DS8000 series is provided by IBM Operational Support Services - Support Line. This fee service can enhance your productivity by providing voice and electronic access into the IBM support organization. IBM Operational Support Services - Support Line will help answer questions pertaining to product and feature usage (how to), configuration, and product compatibility for eligible products. For a list of supported products, go to the [Support Line](#) website.

For more information on services, call 800-IBM-4YOU (426-4968).

Security, auditability, and control

This product uses the security and auditability features of the host hardware, host software, and application software to which it is attached.

The client is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communications facilities.

Terms and conditions

Volume orders

Contact your IBM representative.

IBM Global Financing

Yes

Products - terms and conditions

Warranty period

Warranty and additional coverage options	Coverage summary¹
Warranty period:	1 year ²
Service level:	IBM On-Site, 24x7 Same Day
Service upgrade options³	
Warranty Service Upgrade	Not applicable
Maintenance Services (Post-Warranty)	IBM On-Site Repair, 24x7 Same Day
IBM Hardware Maintenance Services - committed maintenance ⁴	Yes
IBM Storage Expert Care Advanced	<p>Available in 1-5 years</p> <p>IBM On-Site Repair, 24x7 Same Day</p> <p>Licensed Machine Code Subscription and Support</p> <p>IBM Storage Expert Care Services:</p> <ul style="list-style-type: none"> • Installation, usage, and configuration support line • Proactive issue resolution • Predictive alerting • Automated ticket management
IBM Storage Expert Care Premium	<p>Available in 1-5 years</p> <p>IBM On-Site Repair, 24x7 Same Day</p> <p>Enhanced response time for defect support:</p> <ul style="list-style-type: none"> • Response time is defined as the elapsed time between technical support receipt of the client problem submission and the acknowledgment of the submission • 30-minute targeted response time objectives for severity 1 and severity 2 problem reports <p>Licensed Machine Code Subscription and Support IBM Storage Expert Care Services:</p> <ul style="list-style-type: none"> • Installation, usage, and configuration support line • Proactive issue resolution • Predictive alerting <p>Automated ticket management</p> <p>IBM Storage Insights Pro with more detailed reports and planning</p> <p>Remote Code Load:</p> <ul style="list-style-type: none"> • Code upgrades are provided by IBM remote support representatives up to twice per year to keep your systems up to date • On-site code load services available through feature code #AHY2 - On-site code load when required <p>Technical Account Manager will serve as the key client interface for in-scope</p>

Warranty and additional coverage options	Coverage summary¹
	hardware and software, delivering partnership and consultancy, as well as direct engagement on high-priority support cases

¹ See complete coverage details below

² Known exception: Turkey (Warranty period is 2 years)

³ An IBM Storage Expert Care Service upgrade option is highly recommended but not mandatory

⁴ Not offered in the US

One year

To obtain copies of the IBM Statement of Limited Warranty, contact your reseller or IBM. An IBM part or feature installed during the initial installation of an IBM machine is subject to the full warranty period specified by IBM. An IBM part or feature that replaces a previously installed part or feature assumes the remainder of the warranty period for the replaced part or feature. An IBM part or feature added to a machine without replacing a previously installed part or feature is subject to a full warranty. Unless specified otherwise, the warranty period, type of warranty service, and service level of a part or feature are the same as those for the machine in which it is installed.

IBM Storage Expert Care

For complete information about the IBM Storage Expert Care Service and Support offerings, see Services Announcement [622-007](#), dated May 24, 2022.

Warranty service

If required, IBM provides repair or exchange service depending on the types of warranty service specified for the machine. IBM will attempt to resolve your problem over the telephone, or electronically through an IBM website. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines on-site service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts. If applicable to your product, parts considered Client Replaceable Units (CRUs) will be provided as part of the machine's standard warranty service.

Service levels are response-time objectives and are not guaranteed. The specified level of warranty service may not be available in all worldwide locations. Additional charges may apply outside IBM's normal service area. Contact your local IBM representative or your reseller for country-specific and location-specific information.

On-site Service

At IBM's discretion, IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well-lit, and suitable for the purpose.

Service level is:

- 24 hours per day, 7 days a week, same day response.

International Warranty Service

International Warranty Service allows you to relocate any machine that is eligible for International Warranty Service and receive continued warranty service in any country where the IBM machine is serviced. If you move your machine to a different

country, you are required to report the machine information to your Business Partner or IBM representative.

The warranty service type and the service level provided in the servicing country may be different from that provided in the country in which the machine was purchased. Warranty service will be provided with the prevailing warranty service type and service level available for the eligible machine type in the servicing country, and the warranty period observed will be that of the country in which the machine was purchased.

The following types of information can be found on the [International Warranty Service](#) website

- Machine warranty entitlement and eligibility
- Directory of contacts by country with technical support contact information
- Announcement Letters

Usage plan machine

No

IBM hourly service rate classification

Three

When a type of service involves the exchange of a machine part, the replacement may not be new, but will be in good working order.

General terms and conditions

Field-installable features

Yes

Model conversions

No

Machine installation

Installation is performed by IBM. IBM will install the machine in accordance with the IBM installation procedures for the machine. In the United States, contact IBM at 1-800-IBM-SERV (426-7378). In other countries, contact the local IBM office.

The following activities are a client responsibility:

- Installation planning
- Retrieval and installation of feature activation codes
- Encryption planning

See the [Client responsibilities](#) section for more information.

Client requests for installation of items not covered in the installation guide may be performed at IBM's hourly service rate designated for the machine.

Graduated program license charges apply

No

Licensed Machine Code

IBM Machine Code is licensed for use by a client on the IBM machine for which it was provided by IBM under the terms and conditions of the IBM License Agreement for Machine Code, to enable the machine to function in accordance with its

specifications, and only for the capacity authorized by IBM and acquired by the client. You can obtain the agreement from the [License Agreement for Machine Code and Licensed Internal Code](#) website.

Access to Machine Code updates is conditioned on entitlement and license validation in accordance with IBM policy and practice. IBM may verify entitlement through customer number, serial number, electronic restrictions, or any other means or methods employed by IBM in its discretion.

You may also obtain updated code by contacting your IBM representative.

If the machine does not function as warranted and your problem can be resolved through your application of downloadable Machine Code, you are responsible for downloading and installing these designated Machine Code changes as IBM specifies. If you would prefer, you may request IBM to install downloadable Machine Code changes; however, you may be charged for that service.

Educational allowance

A reduced charge is available to qualified education clients. The educational allowance may not be added to any other discount or allowance.

The educational allowance is 15% for the products in this announcement.

Prices

For additional information and current prices, contact your local IBM representative or IBM Business Partner.

The following are newly announced features and models on the specified models of the IBM System Storage 5341 machine type:

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
DS8910F	993		Both	No	
DS8910F	994		Both	No	
DS8950F	996		Both	No	
DS8980F	998		Both	No	
DS8900F Expansion Unit	E96		Both	No	
E96 factory merge	996, 998, E96	0005	Initial	No	No
E96 field merge	E96	0006	Initial	No	No
PPA Software Order Indicator	993, 994, 996, 998, E96	0017	Both	No	No
DoD Indicator	993, 994, 996, 998, E96	0020	Initial	No	No
JEMT indicator	993, 994, 996, 998, E96	0021	Initial	No	No
E96 - position 1	996, 998, E96	0245	Both	No	No
800GB 2.5" flash encl ind	993, 994, 996, 998, E96	0261	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
1.6TB 2.5" flash encl ind	993, 994, 996, 998, E96	0262	Both	No	No
3.2TB 2.5" flash encl ind	993, 994, 996, 998, E96	0263	Both	No	No
1.92 TB 2.5" flash encl ind	993, 994, 996, 998, E96	0264	Both	No	No
3.8 TB 2.5" flash encl ind	993, 994, 996, 998, E96	0265	Both	No	No
7.68 TB 2.5" flash encl ind	993, 994, 996, 998, E96	0266	Both	No	No
15.36 TB 2.5 flash encl ind	993, 994, 996, 998, E96	0267	Both	No	No
Encryption not capable	993, 994, 996, 998, E96	0403	Initial	No	No
TDCPP free indicator	993, 994, 996, 998, E96	0404	Initial	No	No
Local Key Manager Enabled	993, 994, 996, 998, E96	0405	Initial	No	No
Flash card sets custom placement indicator	993, 994, 996, 998, E96	0606	Both	No	No
z14 (Model ZR1) field integration	993	0610	Initial	No	No
z15™ (Model T02) field integration	993	0611	Initial	No	No
LinuxONE (Model LR1) field integration	993	0620	Initial	No	No
LinuxONE III (Model LT2) field integration	993	0621	Initial	No	No
Safe Guarded Copy Indicator	993, 994, 996, 998, E96	0785	Both	No	No
5.1 TB to 10 TB capacity	993, 994, 996, 998, E96	0796	Both	No	No
10.1 TB to 25 TB capacity	993, 994, 996, 998, E96	0797	Both	No	No
25.1 TB to 50 TB capacity	993, 994, 996, 998, E96	0798	Both	No	No
50.1 TB to 75 TB capacity	993, 994, 996, 998, E96	0799	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
75.1 TB to 100.0 TB capacity	993, 994, 996, 998, E96	0801	Both	No	No
100.1 TB to 250 TB capacity	993, 994, 996, 998, E96	0803	Both	No	No
250.1 TB to 500 TB capacity	993, 994, 996, 998, E96	0804	Both	No	No
500.1 TB to 1250 TB capacity	993, 994, 996, 998, E96	0806	Both	No	No
1250.1 TB to 3000 TB capacity	993, 994, 996, 998, E96	0807	Both	No	No
3000.1 TB to 6000 TB capacity	993, 994, 996, 998, E96	0808	Both	No	No
6000.1TB TO 12000TB CAPACITY	993, 994, 996, 998, E96	0809	Both	No	No
IBM/ Openwave Alliance	993, 994, 996, 998, E96	0930	Both	No	No
IBM System i Indicator	993, 994, 996, 998, E96	0931	Both	No	No
IBM System p Indicator	993, 994, 996, 998, E96	0932	Both	No	No
IBM System x Indicator	993, 994, 996, 998, E96	0933	Both	No	No
IBM System z ^(R) Indicator	993, 994, 996, 998, E96	0934	Both	No	No
IBM System z B/C indicator	993, 994, 996, 998, E96	0935	Both	No	No
IBM System zEnterprise ^(R) Cloud indicator	993, 994, 996, 998, E96	0936	Both	No	No
zFlex Frame Field Merge	993	0937	Initial	No	No
LinuxONE Field merge	993	0938	Initial	No	No
Customer Rack Field Merge	993	0939	Initial	No	No
Linux ^(R) Indicator	993, 994, 996, 998, E96	0940	Both	No	No
Storage Appliance indicator	993, 994, 996, 998, E96	0952	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
IBM ProtectTIER ^(R) indicator	993, 994, 996, 998, E96	0960	Both	No	No
IBM Storwize ^(R) V7000 indicator	993, 994, 996, 998, E96	0961	Both	No	No
IBM N series indicator	993, 994, 996, 998, E96	0962	Both	No	No
IBM SAN Volume Controller indicator	993, 994, 996, 998, E96	0963	Both	No	No
IBM/EPIC attachment indicator	993, 994, 996, 998, E96	0964	Both	No	No
VMware ^(R) VAAI indicator	993, 994, 996, 998, E96	0965	Both	No	No
OpenStack indicator	993, 994, 996, 998, E96	0966	Both	No	No
US TAA compliance indicator	993, 994, 996, 998, E96	0983	Initial	No	No
Front & rear door lock kit	994, 996, 998, E96	1014	Both	No	No
Single Phase Power-208V 30A NEMA L6-30P	993, 994, 996, 998, E96	1038	Both	No	No
Single Phase Power-250V 30A/32A IEC 60309	993, 994, 996, 998, E96	1039	Both	No	No
3 Phase Wye Power-380/220 - 415/240 V (LL/LN) 30A/32A, IEC 60309 (5 pin 3+N+PE)	993, 994, 996, 998, E96	1041	Both	No	No
Single Phase Power-250V 32A, Australia/ New Zealand	993, 994, 996, 998, E96	1042	Both	No	No
Single Phase Power-250V 30A, Korea	993, 994, 996, 998, E96	1043	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Single Phase Power-230V 30A/32A, halogen free IEC 60309	993, 994, 996, 998, E96	1044	Both	No	No
3 phase Delta Power-200-240V (LL) 60A/63A IEC 60309 (4 pin 3+PE)	993, 994, 996, 998, E96	1045	Both	No	No
Overhead ladder - 5ft	993, 994, 996, 998, E96	1101	Both	No	No
Ladder - Top Expansion - 3ft	993, 994, 996, 998, E96	1102	Both	No	No
Kick Step	993, 994, 996, 998, E96	1103	Both	No	No
DS8900F rack doors	994, 996, 998, E96	1105	Both	No	No
SpaceSaver front/rear doors	994, 996, 998, E96	1106	Both	No	No
Rack side cover pair	994, 996, 998, E96	1107	Both	No	No
I/O enclosure pair PCIe 3	993, 994, 996, 998, E96	1303	Both	No	No
Rack management switch pair	996, 998	1310	Both	No	No
Adjacent 996_E96 PCIE3 Cableset	E96	1340	Both	No	No
20 meter 996_E96 PCIE3 Cableset	E96	1341	Both	No	No
Top exit bracket for fibre cable R9	994, 996, 998, E96	1401	Both	No	No
40 meter, 50um Fibre cable (LC/LC)	993, 994, 996, 998, E96	1410	Both	No	No
31 meter, 50um Fibre cable (LC/SC)	993, 994, 996, 998, E96	1411	Both	No	No
2 meter, 50um Fibre cable (LC/SC)	993, 994, 996, 998, E96	1412	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
3 meter, 50um Fibre cable (LC/LC)	993, 994, 996, 998, E96	1413	Both	No	No
31 meter, 9um Fibre cable (LC/LC)	993, 994, 996, 998, E96	1420	Both	No	No
31 meter, 9um Fibre cable (LC/SC)	993, 994, 996, 998, E96	1421	Both	No	No
2 meter, 9um Fibre cable (LC/SC)	993, 994, 996, 998, E96	1422	Both	No	No
3 meter, 9um Fibre cable (LC/LC)	993, 994, 996, 998, E96	1423	Both	No	No
40m zHyperlink cable	993, 994, 996, 998, E96	1450	Both	No	No
150m zHyperlink cable	993, 994, 996, 998, E96	1451	Both	No	No
3m zHyperlink cable	993	1452	Both	No	No
HPFE Gen 2 adapter card	993, 994, 996, 998, E96	1604	Both	No	No
HPFE Gen 2 enclosure pair R9	993, 994, 996, 998, E96	1605	Both	No	No
800 GB 2.5-inch flash card set	993, 994, 996, 998, E96	1611	Both	No	No
1600 GB 2.5-inch flash card set	993, 994, 996, 998, E96	1612	Both	No	No
3200 GB 2.5-inch flash card set	993, 994, 996, 998, E96	1613	Both	No	No
1.92 TB 2.5-inch high capacity flash	993, 994, 996, 998, E96	1622	Both	No	No
3.8 TB 2.5-inch high capacity flash	993, 994, 996, 998, E96	1623	Both	No	No
7.68 TB 2.5-inch high capacity flash	993, 994, 996, 998, E96	1624	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
15.36 TB 2.5-inch high capacity flash	993, 994, 996, 998, E96	1625	Both	No	No
Flash enclosure filler set	993, 994, 996, 998, E96	1699	Both	No	No
1U Keyboard/ Display	993, 994, 996, 998, E96	1765	Both	No	No
DS8000 LMC R9.3	993, 994, 996, 998	1893	Both	No	No
Earthquake Kit DS8900F AC156	994, 996, 998, E96	1907	Both	No	No
DS8000 LMC R9.3 indicator	E96	1993	Both	No	No
Hardware installation MES	993, 994, 996, 998, E96	1999	MES	No	No
16 Gb 4 port SW FCP/FICON adapter PCIE	993, 994, 996, 998, E96	3353	Both	No	No
32 Gb 4 port SW FCP/FICON adapter PCIE	993, 994, 996, 998, E96	3355	Both	No	No
16 Gb 4 port LW FCP/FICON adapter PCIE	993, 994, 996, 998, E96	3453	Both	No	No
32 Gb 4 port LW FCP/FICON adapter PCIE	993, 994, 996, 998, E96	3455	Both	No	No
zHyperlink adapter	993, 994, 996, 998, E96	3500	Both	No	Yes
Transparent cloud tiering 10Gb/1Gb ethernet pair V2 for 2U controllers	993, 994	3602	Both	No	No
Transparent cloud tiering 10Gb/1Gb ethernet pair V2 for 4U controllers	996, 998	3603	Both	No	Yes
8 core processor	993, 994	4341	Initial	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
pair indicator					
10 cores processor pair indicator	996	4342	Initial	No	No
2nd 10 core processor pair indicator	996	4343	Both	No	No
22 core processor pair indicator	998	4344	Initial	No	No
192GB System Cache (8 core)	993, 994	4450	Initial	No	No
512GB System Cache (8 core)	993, 994	4451	Both	No	No
512GB System Cache (10 core)	996	4452	Initial	No	No
1024GB System Cache (20 core)	996	4453	Both	No	No
4.3 TB System Cache (44 core)	998	4456	Initial	No	No
2048 GB v2 System Cache (20 core)	996	4457	Both	No	No
3.4 TB v2 System Cache (20 core)	996	4458	Both	No	No
BF 10TB increments from 0 to 100 TB	993, 994, 996, 998	8151	Both	No	No
BF 15TB increments from 100.1 TB to 250 TB	993, 994, 996, 998	8152	Both	No	No
BF 25TB increments from 250.1 TB to 500 TB	993, 994, 996, 998	8153	Both	No	No
BF 75TB increments from 500.1 TB to 1250 TB	993, 994, 996, 998	8154	Both	No	No
BF 175TB increments from	993, 994, 996, 998	8155	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
1250.1 TB to 3000 TB					
BF 300TB increments from 3000.1 TB to 6000 TB	993, 994, 996, 998	8156	Both	No	No
BF 600TB increments from 6000.1 TB to 12000 TB	993, 994, 996, 998	8160	Both	No	No
CS - Inactive	993, 994, 996, 998	8250	Both	No	No
CS 10TB increments from 0 to 100 TB	993, 994, 996, 998	8251	Both	No	No
CS 15TB increments from 100.1 TB to 250 TB	993, 994, 996, 998	8252	Both	No	No
CS 25TB increments from 250.1 TB to 500 TB	993, 994, 996, 998	8253	Both	No	No
CS 75TB increments from 500.1 TB to 1250 TB	993, 994, 996, 998	8254	Both	No	No
CS 175TB increments from 1250.1 TB to 3000 TB	993, 994, 996, 998	8255	Both	No	No
CS 300TB increments from 3000.1 TB to 6000 TB	993, 994, 996, 998	8256	Both	No	No
CS 600TB increments from 6000.1 TB to 12000 TB	993, 994, 996, 998	8260	Both	No	No
zsS - Active	993, 994, 996, 998	8300	Both	No	No
zsS - Inactive	993, 994, 996, 998	8350	Both	No	No
zsS 10TB increments from 0 to 100 TB	993, 994, 996, 998	8351	Both	No	No
zsS 15TB increments from 100.1 TB to 250 TB	993, 994, 996, 998	8352	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
zsS 25TB increments from 250.1 TB to 500 TB	993, 994, 996, 998	8353	Both	No	No
zsS 75TB increments from 500.1 TB to 1250 TB	993, 994, 996, 998	8354	Both	No	No
zsS 175TB increments from 1250.1 TB to 3000 TB	993, 994, 996, 998	8355	Both	No	No
zsS 300TB increments from 3000.1 TB to 6000 TB	993, 994, 996, 998	8356	Both	No	No
zsS 600TB increments from 6000.1 TB to 12000 TB	993, 994, 996, 998	8360	Both	No	No
CSM on HMC - Active	993, 994, 996, 998, E96	8451	Both	No	No
IGF transaction indicator	993, 994, 996, 998, E96	8999	MES	No	No
Shipping and Handling NC	993, 994, 996, 998, E96	AG00	Initial	No	No
Shipping and handling 993	993	AGAP	Initial	No	No
Shipping and handling 994	994	AGAQ	Initial	No	No
Shipping and handling 996	996	AGAR	Initial	No	No
Shipping and handling 998	998	AGAS	Initial	No	No
Shipping and handling E96	E96	AGAT	Initial	No	No
On-site code load for Premium tier	993, 994, 996, 998	AHY2	Both	No	No
On-site code load for	993, 994, 996, 998	AHY3	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Advanced tier					
4 year, IBM Storage Expert Care Advanced, 1hr Committed Contact	993, 994, 996, 998, E96	ALC7	Both	No	No
4 year, IBM Storage Expert Care Advanced, 4hr Committed On-Site	993, 994, 996, 998, E96	ALC8	Both	No	No
4 year, IBM Storage Expert Care Advanced, 4hr Committed Fix	993, 994, 996, 998, E96	ALC9	Both	No	No
4 year, IBM Storage Expert Care Advanced, 6hr Committed Fix	993, 994, 996, 998, E96	ALCA	Both	No	No
4 year, IBM Storage Expert Care Advanced, 8hr Committed Fix	993, 994, 996, 998, E96	ALCB	Both	No	No
4 year, IBM Storage Expert Care Advanced, 12hr Committed Fix	993, 994, 996, 998, E96	ALCC	Both	No	No
4 year, IBM Storage Expert Care Advanced, 24hr Committed Fix	993, 994, 996, 998, E96	ALCD	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
4 year, IBM Storage Expert Care Advanced, 48hr Committed Fix	993, 994, 996, 998, E96	ALCE	Both	No	No
4 year, IBM Storage Expert Care Advanced, 72hr Committed Fix	993, 994, 996, 998, E96	ALCF	Both	No	No
5 year, IBM Storage Expert Care Advanced, 1hr Committed Contact	993, 994, 996, 998, E96	ALCG	Both	No	No
5 year, IBM Storage Expert Care Advanced, 4hr Committed On-Site	993, 994, 996, 998, E96	ALCH	Both	No	No
5 year, IBM Storage Expert Care Advanced, 4hr Committed Fix	993, 994, 996, 998, E96	ALCJ	Both	No	No
5 year, IBM Storage Expert Care Advanced, 6hr Committed Fix	993, 994, 996, 998, E96	ALCK	Both	No	No
5 year, IBM Storage Expert Care Advanced, 8hr Committed Fix	993, 994, 996, 998, E96	ALCL	Both	No	No
5 year, IBM Storage Expert	993, 994, 996, 998, E96	ALCM	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Care Advanced, 12hr Committed Fix					
5 year, IBM Storage Expert Care Advanced, 24hr Committed Fix	993, 994, 996, 998, E96	ALCN	Both	No	No
5 year, IBM Storage Expert Care Advanced, 48hr Committed Fix	993, 994, 996, 998, E96	ALCP	Both	No	No
5 year, IBM Storage Expert Care Advanced, 72hr Committed Fix	993, 994, 996, 998, E96	ALCQ	Both	No	No
4 year, IBM Storage Expert Care Premium, 1hr Committed Contact	993, 994, 996, 998, E96	ALD7	Both	No	No
4 year, IBM Storage Expert Care Premium, 4hr Committed On-Site	993, 994, 996, 998, E96	ALD8	Both	No	No
4 year, IBM Storage Expert Care Premium, 4hr Committed Fix	993, 994, 996, 998, E96	ALD9	Both	No	No
4 year, IBM Storage Expert Care Premium, 6hr	993, 994, 996, 998, E96	ALDA	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Committed Fix					
4 year, IBM Storage Expert Care Premium, 8hr Committed Fix	993, 994, 996, 998, E96	ALDB	Both	No	No
4 year, IBM Storage Expert Care Premium, 12hr Committed Fix	993, 994, 996, 998, E96	ALDC	Both	No	No
4 year, IBM Storage Expert Care Premium, 24hr Committed Fix	993, 994, 996, 998, E96	ALDD	Both	No	No
4 year, IBM Storage Expert Care Premium, 48hr Committed Fix	993, 994, 996, 998, E96	ALDE	Both	No	No
4 year, IBM Storage Expert Care Premium, 72hr Committed Fix	993, 994, 996, 998, E96	ALDF	Both	No	No
5 year, IBM Storage Expert Care Premium, 1hr Committed Contact	993, 994, 996, 998, E96	ALDG	Both	No	No
5 year, IBM Storage Expert Care Premium, 4hr Committed On-Site	993, 994, 996, 998, E96	ALDH	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
5 year, IBM Storage Expert Care Premium, 4hr Committed Fix	993, 994, 996, 998, E96	ALDJ	Both	No	No
5 year, IBM Storage Expert Care Premium, 6hr Committed Fix	993, 994, 996, 998, E96	ALDK	Both	No	No
5 year, IBM Storage Expert Care Premium, 8hr Committed Fix	993, 994, 996, 998, E96	ALDL	Both	No	No
5 year, IBM Storage Expert Care Premium, 12hr Committed Fix	993, 994, 996, 998, E96	ALDM	Both	No	No
5 year, IBM Storage Expert Care Premium, 24hr Committed Fix	993, 994, 996, 998, E96	ALDN	Both	No	No
5 year, IBM Storage Expert Care Premium, 48hr Committed Fix	993, 994, 996, 998, E96	ALDP	Both	No	No
5 year, IBM Storage Expert Care Premium, 72hr Committed Fix	993, 994, 996, 998, E96	ALDQ	Both	No	No
Expert Care Indicator	993, 994, 996, 998, E96	ALH0	Both	Yes	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
1yr Expert Care Advanced Indicator	993, 994, 996, 998, E96	ALK1	Both	No	No
2yr Expert Care Advanced Indicator	993, 994, 996, 998, E96	ALK2	Both	No	No
3yr Expert Care Advanced Indicator	993, 994, 996, 998, E96	ALK3	Both	No	No
4yr Expert Care Advanced Indicator	993, 994, 996, 998, E96	ALK4	Both	No	No
5yr Expert Care Advanced Indicator	993, 994, 996, 998, E96	ALK5	Both	No	No
1 year, IBM Storage Expert Care Advanced, 1hr Committed Contact	993, 994, 996, 998, E96	ALK7	Both	No	No
1 year, IBM Storage Expert Care Advanced, 4hr Committed On-Site	993, 994, 996, 998, E96	ALK8	Both	No	No
1 year, IBM Storage Expert Care Advanced, 4hr Committed Fix	993, 994, 996, 998, E96	ALK9	Both	No	No
1 year, IBM Storage Expert Care Advanced, 6hr Committed Fix	993, 994, 996, 998, E96	ALKA	Both	No	No
1 year, IBM Storage Expert Care Advanced, 8hr Committed Fix	993, 994, 996, 998, E96	ALKB	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
1 year, IBM Storage Expert Care Advanced, 12hr Committed Fix	993, 994, 996, 998, E96	ALKC	Both	No	No
1 year, IBM Storage Expert Care Advanced, 24hr Committed Fix	993, 994, 996, 998, E96	ALKD	Both	No	No
1 year, IBM Storage Expert Care Advanced, 48hr Committed Fix	993, 994, 996, 998, E96	ALKE	Both	No	No
1 year, IBM Storage Expert Care Advanced, 72hr Committed Fix	993, 994, 996, 998, E96	ALKF	Both	No	No
2 year, IBM Storage Expert Care Advanced, 1hr Committed Contact	993, 994, 996, 998, E96	ALKG	Both	No	No
2 year, IBM Storage Expert Care Advanced, 4hr Committed On-Site	993, 994, 996, 998, E96	ALKH	Both	No	No
2 year, IBM Storage Expert Care Advanced, 4hr Committed Fix	993, 994, 996, 998, E96	ALKJ	Both	No	No
2 year, IBM Storage Expert	993, 994, 996, 998, E96	ALKK	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Care Advanced, 6hr Committed Fix					
2 year, IBM Storage Expert Care Advanced, 8hr Committed Fix	993, 994, 996, 998, E96	ALKL	Both	No	No
2 year, IBM Storage Expert Care Advanced, 12hr Committed Fix	993, 994, 996, 998, E96	ALKM	Both	No	No
2 year, IBM Storage Expert Care Advanced, 24hr Committed Fix	993, 994, 996, 998, E96	ALKN	Both	No	No
2 year, IBM Storage Expert Care Advanced, 48hr Committed Fix	993, 994, 996, 998, E96	ALKP	Both	No	No
2 year, IBM Storage Expert Care Advanced, 72hr Committed Fix	993, 994, 996, 998, E96	ALKQ	Both	No	No
3 year, IBM Storage Expert Care Advanced, 1hr Committed Contact	993, 994, 996, 998, E96	ALKR	Both	No	No
3 year, IBM Storage Expert Care Advanced, 4hr	993, 994, 996, 998, E96	ALKS	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Committed On-Site					
3 year, IBM Storage Expert Care Advanced, 4hr Committed Fix	993, 994, 996, 998, E96	ALKT	Both	No	No
3 year, IBM Storage Expert Care Advanced, 6hr Committed Fix	993, 994, 996, 998, E96	ALKU	Both	No	No
3 year, IBM Storage Expert Care Advanced, 8hr Committed Fix	993, 994, 996, 998, E96	ALKV	Both	No	No
3 year, IBM Storage Expert Care Advanced, 12hr Committed Fix	993, 994, 996, 998, E96	ALKW	Both	No	No
3 year, IBM Storage Expert Care Advanced, 24hr Committed Fix	993, 994, 996, 998, E96	ALKX	Both	No	No
3 year, IBM Storage Expert Care Advanced, 48hr Committed Fix	993, 994, 996, 998, E96	ALKY	Both	No	No
3 year, IBM Storage Expert Care Advanced, 72hr Committed Fix	993, 994, 996, 998, E96	ALKZ	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
1yr Expert Care Premium Indicator	993, 994, 996, 998, E96	ALL1	Both	No	No
2yr Expert Care Premium Indicator	993, 994, 996, 998, E96	ALL2	Both	No	No
3yr Expert Care Premium Indicator	993, 994, 996, 998, E96	ALL3	Both	No	No
4Yr Expert Care Premium Indicator	993, 994, 996, 998, E96	ALL4	Both	No	No
5Yr Expert Care Premium Indicator	993, 994, 996, 998, E96	ALL5	Both	No	No
1 year, IBM Storage Expert Care Premium, 1hr Committed Contact	993, 994, 996, 998, E96	ALL7	Both	No	No
1 year, IBM Storage Expert Care Premium, 4hr Committed On-Site	993, 994, 996, 998, E96	ALL8	Both	No	No
1 year, IBM Storage Expert Care Premium, 4hr Committed Fix	993, 994, 996, 998, E96	ALL9	Both	No	No
1 year, IBM Storage Expert Care Premium, 6hr Committed Fix	993, 994, 996, 998, E96	ALLA	Both	No	No
1 year, IBM Storage Expert Care Premium, 8hr Committed Fix	993, 994, 996, 998, E96	ALLB	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
1 year, IBM Storage Expert Care Premium, 12hr Committed Fix	993, 994, 996, 998, E96	ALLC	Both	No	No
1 year, IBM Storage Expert Care Premium, 24hr Committed Fix	993, 994, 996, 998, E96	ALLD	Both	No	No
1 year, IBM Storage Expert Care Premium, 48hr Committed Fix	993, 994, 996, 998, E96	ALLE	Both	No	No
1 year, IBM Storage Expert Care Premium, 72hr Committed Fix	993, 994, 996, 998, E96	ALLF	Both	No	No
2 year, IBM Storage Expert Care Premium, 1hr Committed Contact	993, 994, 996, 998, E96	ALLG	Both	No	No
2 year, IBM Storage Expert Care Premium, 4hr Committed On-Site	993, 994, 996, 998, E96	ALLH	Both	No	No
2 year, IBM Storage Expert Care Premium, 4hr Committed Fix	993, 994, 996, 998, E96	ALLJ	Both	No	No
2 year, IBM Storage Expert	993, 994, 996, 998, E96	ALLK	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Care Premium, 6hr Committed Fix					
2 year, IBM Storage Expert Care Premium, 8hr Committed Fix	993, 994, 996, 998, E96	ALLL	Both	No	No
2 year, IBM Storage Expert Care Premium, 12hr Committed Fix	993, 994, 996, 998, E96	ALLM	Both	No	No
2 year, IBM Storage Expert Care Premium, 24hr Committed Fix	993, 994, 996, 998, E96	ALLN	Both	No	No
2 year, IBM Storage Expert Care Premium, 48hr Committed Fix	993, 994, 996, 998, E96	ALLP	Both	No	No
2 year, IBM Storage Expert Care Premium, 72hr Committed Fix	993, 994, 996, 998, E96	ALLQ	Both	No	No
3 year, IBM Storage Expert Care Premium, 1hr Committed Contact	993, 994, 996, 998, E96	ALLR	Both	No	No
3 year, IBM Storage Expert Care Premium, 4hr	993, 994, 996, 998, E96	ALLS	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
Committed On-Site					
3 year, IBM Storage Expert Care Premium, 4hr Committed Fix	993, 994, 996, 998, E96	ALLT	Both	No	No
3 year, IBM Storage Expert Care Premium, 6hr Committed Fix	993, 994, 996, 998, E96	ALLU	Both	No	No
3 year, IBM Storage Expert Care Premium, 8hr Committed Fix	993, 994, 996, 998, E96	ALLV	Both	No	No
3 year, IBM Storage Expert Care Premium, 12hr Committed Fix	993, 994, 996, 998, E96	ALLW	Both	No	No
3 year, IBM Storage Expert Care Premium, 24hr Committed Fix	993, 994, 996, 998, E96	ALLX	Both	No	No
3 year, IBM Storage Expert Care Premium, 48hr Committed Fix	993, 994, 996, 998, E96	ALLY	Both	No	No
3 year, IBM Storage Expert Care Premium, 72hr Committed Fix	993, 994, 996, 998, E96	ALLZ	Both	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
BP Post-Sale Services	993, 994, 996, 998, E96	SVBP	Both	No	No
IBM Systems Lab Services Post-Sale Services	993, 994, 996, 998, E96	SVCS	Both	No	No
Other IBM Post-Sale Services	993, 994, 996, 998, E96	SVNN	Both	No	No

The following are newly announced features on the specified models of the IBM System Storage 5331 machine type:

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
DS8000 LMC R9.3	993, 994, 996, 998	1893	MES	No	No
DS8000 LMC R9.3 indicator	E96	1993	MES	No	No

The following are newly announced features on the specified models of the IBM System Storage 5332 machine type:

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
DS8000 LMC R9.3	993, 994, 996, 998	1893	MES	No	No
DS8000 LMC R9.3 indicator	E96	1993	MES	No	No

The following are newly announced features on the specified models of the IBM System Storage 5333 machine type:

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
DS8000 LMC R9.3	993, 994, 996, 998	1893	MES	No	No
DS8000 LMC R9.3 indicator	E96	1993	MES	No	No

The following are newly announced features on the specified models of the IBM System Storage 5334 machine type:

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
DS8000 LMC R9.3	993, 994, 996, 998	1893	MES	No	No

Description	Model number	Feature numbers	Initial / MES / Both / Support	CSU	RP MES
DS8000 LMC R9.3 indicator	E96	1993	MES	No	No

CSU = Customer setup

RP MES = Returnable parts MES

ServiceElect (ESA) charges

For ServiceElect (ESA) maintenance service charges, contact IBM Global Services at 888-IBM-4343 (426-4343).

Feature conversion purchase price

From feature	To feature	Returned parts*
1038 - Single Phase Power - 208V 30A NEMA L6-30P	1039 - Single Phase Power - 250V 30A/32A IEC 60309	No
1611 - 800 GB 2.5-inch flash card set	1612 - 1600 GB 2.5-inch flash card set	Yes
1611 - 800 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1612 - 1600 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1622 - 1.92 TB 2.5-inch high capacity flash	1623 - 3.8 TB 2.5-inch high capacity flash	Yes
1622 - 1.92 TB 2.5-inch high capacity flash	1624 - 7.68 TB 2.5-inch high capacity flash	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1624 - 7.68 TB 2.5-inch high capacity flash	Yes
1622 - 1.92 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
1624 - 7.68 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
4450 - 192GB System Cache (8 core)	4451 - 512GB System Cache (8 core)	No
From feature	To feature	Returned parts*
1038 - Single Phase Power - 208V 30A NEMA L6-30P	1039 - Single Phase Power - 250V 30A/32A IEC 60309	No
1611 - 800 GB 2.5-inch flash card set	1612 - 1600 GB 2.5-inch flash card set	Yes
1611 - 800 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1612 - 1600 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1622 - 1.92 TB 2.5-inch high capacity flash	1623 - 3.8 TB 2.5-inch high capacity flash	Yes
1622 - 1.92 TB 2.5-inch high capacity flash	1624 - 7.68 TB 2.5-inch high capacity flash	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1624 - 7.68 TB 2.5-inch high capacity flash	Yes
1622 - 1.92 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes

From feature	To feature	Returned parts*
1624 - 7.68 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
4450 - 192GB System Cache (8 core)	4451 - 512GB System Cache (8 core)	No
From feature	To feature	Returned parts*
1038 - Single Phase Power - 208V 30A NEMA L6-30P	1039 - Single Phase Power - 250V 30A/32A IEC 60309	No
1611 - 800 GB 2.5-inch flash card set	1612 - 1600 GB 2.5-inch flash card set	Yes
1611 - 800 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1612 - 1600 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1624 - 7.68 TB 2.5-inch high capacity flash	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
1624 - 7.68 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
4452 - 512GB System Cache (10 core)	4453 - 1024GB System Cache (20 core)	No
4452 - 512GB System Cache (10 core)	4457 - 2048 GB v2 System Cache (20 core)	No
4453 - 1024GB System Cache (20 core)	4457 - 2048 GB v2 System Cache (20 core)	No
4452 - 512GB System Cache (10 core)	4458 - 3.4 TB v2 System Cache (20 core)	Yes
4453 - 1024GB System Cache (20 core)	4458 - 3.4 TB v2 System Cache (20 core)	Yes
4457 - 2048 GB v2 System Cache (20 core)	4458 - 3.4 TB v2 System Cache (20 core)	Yes
From feature	To feature	Returned parts*
1611 - 800 GB 2.5-inch flash card set	1612 - 1600 GB 2.5-inch flash card set	Yes
1611 - 800 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1612 - 1600 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1622 - 1.92 TB 2.5-inch high capacity flash	1623 - 3.8 TB 2.5-inch high capacity flash	Yes
1622 - 1.92 TB 2.5-inch high capacity flash	1624 - 7.68 TB 2.5-inch high capacity flash	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1624 - 7.68 TB 2.5-inch high capacity flash	Yes
1622 - 1.92 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
1624 - 7.68 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
From feature	To feature	Returned parts*
1038 - Single Phase Power - 208V 30A NEMA L6-30P	1039 - Single Phase Power - 250V 30A/32A IEC 60309	No
1611 - 800 GB 2.5-inch flash card set	1612 - 1600 GB 2.5-inch flash card set	Yes
1611 - 800 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes
1612 - 1600 GB 2.5-inch flash card set	1613 - 3200 GB 2.5-inch flash card set	Yes

From feature	To feature	Returned parts*
1623 - 3.8 TB 2.5-inch high capacity flash	1624 - 7.68 TB 2.5-inch high capacity flash	Yes
1623 - 3.8 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes
1624 - 7.68 TB 2.5-inch high capacity flash	1625 - 15.36 TB 2.5-inch high capacity flash	Yes

*Parts removed as a result of a feature conversion become the property of IBM.

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