

# IBM Power Systems enhances I/O with mainstream 2.5-inch SAS SSDs

## Table of contents

<b>1</b>	<b>Overview</b>	<b>9</b>	<b>Publications</b>
<b>2</b>	<b>Planned availability date</b>	<b>10</b>	<b>Technical information</b>
<b>2</b>	<b>Description</b>	<b>11</b>	<b>Terms and conditions</b>
<b>4</b>	<b>Product number</b>	<b>11</b>	<b>Prices</b>
		<b>22</b>	<b>Corrections</b>

## At a glance

IBM<sup>(R)</sup> Power Systems<sup>TM</sup> I/O enhancements include:

- Enhanced mainstream 2.5-inch solid-state drives (SSD) offer new capacity points for workloads with modest write requirements for IBM POWER9<sup>TM</sup> and IBM POWER8<sup>(R)</sup> technology-based servers. Mainstream SSDs were previously called *read-intensive SSDs*.
- IBM Power<sup>(R)</sup> AC922 server support for rack integration on the Enterprise Slim Rack (7965-S42).
- Two new attachment indicators for Hardware Management Console (HMC) (7063-CR1) to identify POWER8 and POWER9 servers.
- Power Cable - Drawer to IBM PDU (250V/10A) (#ELC5) feature is available for switches (8828-E36 and 8828-E37).
- The existing PCIe 2-Line WAN with Modem Adapter (#2893) is supported only for POWER9 scale-out 4U servers.

## Overview

### Mainstream SSDs

New 931 GB, 1.86 TB, 3.72 TB, and 7.45 TB mainstream 2.5-inch SAS SSDs are introduced for POWER9 and POWER8 technology-based servers using SAS bays. These drives are supported in POWER9 and POWER8 system units (SFF-3) and in expansion drawers such as the EXP24SX attached to POWER9 and POWER8 servers (SFF-2). With their large capacity and lower cost per gigabyte, the drives can provide a very cost-effective and footprint-effective solution for many mainstream configurations. Note these drives are designed for workloads with modest write requirements, including as boot drives where SSD performance is desired. These drives are rated at 1 DWPD, meaning you can write 931 GB, 1.86 TB, 3.72 TB, or 7.45 TB to the SSD every day for five years, nearly 1.7 PB for the 931 GB SSD.

### Power AC922 support for rack integration on the IBM Enterprise Slim Rack (7965-S42)

Power AC922 servers MTMs 8335-GTG, 8335-GTH, and 8335-GTX are now supported to be installed and shipped in an IBM supplied 19-inch rack. Rack integration is only supported on Enterprise Slim Rack (7965-S42). Rack integration is not supported on the IBM 42U Slim Rack (7965-94Y). For rack integration hardware requirements details, see [IBM Knowledge Center](#).

## Two new attachment indicators for Hardware Management Console (HMC) (7063-CR1) to identify POWER8 and POWER9 servers

If attaching an HMC MTM 7063-CR1 to a new server, the HMC firmware level may need to be updated. To determine the HMC firmware level required on a POWER8 or POWER9 server, two feature codes are available in order to identify the correct HMC firmware level for the selected system. Feature EU38 is the attachment to POWER8 server indicator and feature EU39 is the attachment to POWER9 server indicator.

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### Planned availability date

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- August 17, 2018, for all features except for features ELC5, EHDT, EHDU, EHDV, EHDW, EHDX, and ECL0
- August 24, 2018, for features ELC5, EHDT, EHDU, EHDV, EHDW, and EHDX
- August 31, 2018, for feature ECL0

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### Description

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The mainstream 931 GB, 1.86 TB, 3.72 TB, and 7.45 TB capacity SSDs are designed to provide a lower cost per terabyte of SSD storage in a space-efficient footprint. A 2.5-inch SAS SSD is mounted on an SFF-3 carrier/tray for a POWER9 or POWER8 system unit or mounted on an SFF-2 for placement in an expansion drawer such as the EXP24SX drawer when attached to a POWER9 or POWER8 server. The drive is formatted to use 4224-byte (4k) sectors and does not support the 4k JBOD 4096-byte sector. It also does not use the 512-byte or 528-byte (5xx) sector formatting.

When placed in POWER9 or POWER8 system units with SAS SFF-3 bays, the drive is run by the integrated SAS controller such as found in IBM Power L922, S914, S922, S924, H922, H924, S812L, S822L, S824L, S814, S812, S822, S824, E850, and E850C servers. When placed in the EXP24SX (SFF-2) storage enclosure, the drive is run by a PCIe3 SAS RAID adapter, such as the feature EJ0L, EJ14, EJ0J, EJ0M, EL3B, or EL59. These PCIe3 controllers support 4k drives on POWER9 or POWER8 servers. Earlier-generation SAS controllers don't support 4k drives.

When placed in an SSD array of one of these PCIe3 controllers, the array must be all mainstream SSDs or all non-mainstream SSDs. A SAS controller can currently run both 4k and 5xx drives, but they must be in separate arrays. Drives in an array should be the same or similar capacity. HDDs and SSDs can only be mixed in the same array when part of an Easy Tier<sup>®</sup> array (RAID 5TS, RAID 6T2, or RAID 10T2) provided by SAS RAID controllers such as the feature EJ0L or EJ14 or POWER9 or POWER8 integrated backplane controllers.

Like all SSDs, the performance of the 931 GB, 1.86 TB, 3.72 TB, and 7.45 TB mainstream SSDs are excellent compared to a disk drive (HDD). Read performance is on par with higher write endurance SSDs such as the enterprise SSDs. Write performance when compared to enterprise SSDs is somewhat slower but still more than 25 times that of a standard 15K HDD. As with any drive, either HDD or SSD, the number of drives is still a factor in achieving satisfactory performance, especially for IBM i.

These are mainstream drives and are not suitable for write-intensive workloads. Write-intensive workloads are those that write more to the drive each day than its rated capacity. Assuming a typical heavily random workload at about 3394 TB of writes to the drive, it will be at its maximum projected write capability. Writes past the drive's maximum write capacity will continue to work for some period of time, but much more slowly. A Predictive Failure Analysis message will indicate that it is time to replace the drive. If the predictive failure is ignored and writes continue to be sent to the drive, eventually the drive will be unable to accept write commands and will accept only read commands for a period of time. A failed write will result in a more serious error message indicating that the drive must be replaced.

The nature of the workload has a great impact on the maximum write capacity. For example, if a high percentage of more sequentially oriented writes is used instead of random writes, the maximum write capacity can be significantly larger. The user should occasionally check to see what percentage of the drive's write life remains and adjust the workload or drive assignment as it makes sense to do so. Checking is done by inspecting the SSD Mainstream Fuel Gauge. This capability is available through IBM AIX<sup>(R)</sup>, IBM i, and Linux<sup>(R)</sup>. The query or command to view the information varies by operating system. Check the remaining life of the mainstream drives individually, even if all are in the same array.

DWPD (Drive Write Per Day) rating is 1 calculated over a 5-year period. See the following table for the approximate lifetime Total Bytes Written (TBW) supported by each drive capacity:

Drive capacity	Total Bytes Written (TBW) in (TB)
931 GB	1700
1.86 TB	3399
3.72 TB	6799
7.45 TB	13601

To read the warranty and maintenance applicable to mainstream devices on POWER8 and POWER9 servers, see the [Terms and Conditions](#) section or [IBM Knowledge Center](#) for additional detail.

Multiple feature codes are used to identify the proper mainstream SSD characteristics. Key characteristics are:

- Multi-OS server or Linux-only server.
- If Multi-OS, then it is planned for AIX/Linux or for IBM i.
- SFF-3 or SFF-2 carrier/trays.

#### Multi-OS server feature numbers

Mainstream SSD	For SFF-3 4k	For SFF-2 4k
931 GB	ESHS and ESHT <sup>1</sup>	ESHJ and ESHK <sup>1</sup>
1.86 TB	ESHU and ESHV <sup>1</sup>	ESHL and ESHM <sup>1</sup>
3.72 TB	ESMQ and ESMR <sup>1</sup>	ESM8 and ESM9 <sup>1</sup>
7.45 TB	ESHW	ESHN

<sup>1</sup> IBM i supported.

#### Linux-only server feature numbers

Mainstream SSD	For SFF-3 4k	For SFF-2 4k
931 GB	ELHS	ELHJ
1.86 TB	ELHU	ELHL
3.72 TB	ELMQ	ELM8
7.45 TB	ELHW	ELHN

Other feature codes order a quantity of 150 of the SFF-2 drives (#ELRJ, #ELRL, #ELRN, #ELR8, #ERHJ, #ERHK, #ERHL, #ERHM, #ERHN, #ERM8, and #ERM9) and no-charge load source specify features (#ELZK, #ELZM, #ELZT, #ELZV, #ELZ9, and #ELZR).

Software requirements (assuming the server supports this software level):

- AIX supported
- Linux supported
- IBM i supported

See the feature description section of the Sales Manual for specific software requirements.

## Product number

The following are newly announced features on the specific models of the IBM Power Systems 5148, 7063, 7965, 8247, 8284, 8286, 8335, 8408, 8828, 8831, 8867, 9006, 9008, 9009, 9080, 9119, and 9223 machine type:

### New features available August 17, 2018

Description	Machine type	Model	Feature number
Rack Indicator, Rack #1	8335	GTG	4651
	8335	GTH	
	8335	GTX	
Rack Indicator, Rack #2	8335	GTG	4652
	8335	GTH	
	8335	GTX	
Rack Indicator, Rack #3	8335	GTG	4653
	8335	GTH	
	8335	GTX	
Rack Indicator, Rack #4	8335	GTG	4654
	8335	GTH	
	8335	GTX	
Rack Indicator, Rack #5	8335	GTG	4655
	8335	GTH	
	8335	GTX	
Rack Indicator, Rack #6	8335	GTG	4656
	8335	GTH	
	8335	GTX	
Rack Indicator, Rack #7	8335	GTG	4657
	8335	GTH	
	8335	GTX	
Rack Indicator, Rack #8	8335	GTG	4658
	8335	GTH	
	8335	GTX	
Rack Indicator, Rack #9	8335	GTG	4659
	8335	GTH	
	8335	GTX	
Rack Indicator, Rack #10	8335	GTG	4660
	8335	GTH	
	8335	GTX	
Rack Indicator, Rack #11	8335	GTG	4661
	8335	GTH	
	8335	GTX	
Rack Indicator, Rack #12	8335	GTG	4662
	8335	GTH	
	8335	GTX	
Rack Indicator, Rack #13	8335	GTG	4663
	8335	GTH	
	8335	GTX	
Rack Indicator, Rack #14	8335	GTG	4664
	8335	GTH	
	8335	GTX	
Rack Indicator, Rack #15	8335	GTG	4665
	8335	GTH	
	8335	GTX	
Rack Indicator, Rack #16	8335	GTG	4666
	8335	GTH	
	8335	GTX	
931 GB Mainstream SAS 4k SFF-2 SSD for Linux	8247	21L	ELHJ
	8247	22L	
	8247	42L	
1.86 TB Mainstream SAS 4k SFF-2 SSD for Linux	9008	22L	ELHL
	8247	21L	
	8247	22L	
7.45 TB Mainstream SAS 4k SFF-2 SSD for Linux	8247	42L	ELHN
	9008	22L	
	8247	21L	
931 GB Mainstream SAS 4k SFF-3 SSD for Linux	8247	21L	ELHS

	8247	22L	
	8247	42L	
	9008	22L	
1.86 TB Mainstream SAS 4k SFF-3 SSD for Linux	8247	21L	ELHU
	8247	22L	
	8247	42L	
	9008	22L	
7.45 TB Mainstream SAS 4k SFF-3 SSD for Linux	9008	22L	ELHW
3.72 TB Mainstream SAS 4k SFF-2 SSD for Linux	8247	21L	ELM8
	8247	22L	
	8247	42L	
	9008	22L	
3.72 TB Mainstream SAS 4k SFF-3 SSD for Linux	8247	21L	ELMQ
	8247	22L	
	8247	42L	
	9008	22L	
Quantity 150 of #ELM8 3.72 TB SSD 4k SFF-2	8247	21L	ELR8
	8247	22L	
	8247	42L	
	9008	22L	
Quantity 150 of #ELHJ 931 GB SSD 4k SFF-2	8247	21L	ELRJ
	8247	22L	
	8247	42L	
	9008	22L	
Quantity 150 of #ELHL 1.86 TB SSD 4k SFF-2	8247	21L	ELRL
	8247	22L	
	8247	42L	
	9008	22L	
Quantity 150 of #ELHN 7.45 TB SSD 4k SFF-2	9008	22L	ELRN
#ESM9 Load Source Specify (3.72 TB SSD 4k SFF-2)	8286	41A	ELZ9
	8286	42A	
	9009	41A	
	9009	42A	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	
	9223	42H	
#ESHK Load Source Specify (931 GB SSD 4k SFF-2)	8286	41A	ELZK
	8286	42A	
	9009	41A	
	9009	42A	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	
	9223	42H	
#ESHM Load Source Specify (1.86 TB SSD 4k SFF-2)	8286	41A	ELZM
	8286	42A	
	9009	41A	
	9009	42A	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	
	9223	42H	
#ESMR Load Source Specify (3.72 TB SSD 4k SFF-3)	8286	41A	ELZR
	8286	42A	
	9009	41A	
	9009	42A	
	9223	42H	
#ESHT Load Source Specify (931 GB SSD 4k SFF-3)	8284	21A	ELZT
	8286	41A	
	8286	42A	
	9009	41A	
	9009	42A	
	9223	42H	
#ESHV Load Source Specify (1.86 TB SSD 4k SFF-3)	8286	41A	ELZV
	8286	42A	
	9009	41A	
	9009	42A	
	9223	42H	
Rack Content Specify for 8335-GTG 2EIA	7965	S42	ERC5
Rack Content Specify for 8335-GTH 2EIA	7965	S42	ERC6

Rack Content Specify for 8335-GTX 2EIA	7965	S42	ERC8
Quantity 150 of #ESHJ 931 GB SSD 4k SFF-2	8284	22A	ERHJ
	8286	41A	
	8286	42A	
	8408	44E	
	8408	E8E	
	9009	22A	
	9009	41A	
	9009	42A	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	
	9223	22H	
	9223	42H	
Quantity 150 of #ESHK 931 GB SSD 4k SFF-2	8286	41A	ERHK
	8286	42A	
	9009	41A	
	9009	42A	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	
	9223	42H	
Quantity 150 of #ESHL 1.86 TB SSD 4k SFF-2	8284	22A	ERHL
	8286	41A	
	8286	42A	
	8408	44E	
	8408	E8E	
	9009	22A	
	9009	41A	
	9009	42A	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	
	9223	22H	
	9223	42H	
Quantity 150 of #ESHM 1.86 TB SSD 4k SFF-2	8286	41A	ERHM
	8286	42A	
	9009	41A	
	9009	42A	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	
	9223	42H	
Quantity 150 of #ESHN 7.45 TB SSD 4k SFF-2	9009	22A	ERHN
	9009	41A	
	9009	42A	
	9223	22H	
	9223	42H	
Quantity 150 of #ESM8 3.72 TB SSD 4k SFF-2	8284	22A	ERM8
	8286	41A	
	8286	42A	
	8408	44E	
	8408	E8E	
	9009	22A	
	9009	41A	
	9009	42A	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	
	9223	22H	
	9223	42H	
Quantity 150 of #ESM9 3.72 TB SSD 4k SFF-2	8286	41A	ERM9
	8286	42A	
	9009	41A	
	9009	42A	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	

931 GB Mainstream SAS 4k SFF-2 SSD for AIX/Linux	9223	42H	ESHJ		
	8284	21A			
	8284	22A			
	8286	41A			
	8286	42A			
	8408	44E			
	8408	E8E			
	9009	22A			
	9009	41A			
	9009	42A			
	9080	MHE			
	9080	MME			
	9119	MHE			
	9119	MME			
	9223	22H			
931 GB Mainstream SAS 4k SFF-2 SSD for IBM i	9223	42H	ESHK		
	8286	41A			
	8286	42A			
	9009	41A			
	9009	42A			
	9080	MHE			
	9080	MME			
	9119	MHE			
	9119	MME			
	9223	42H			
	1.86 TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux	8284		21A	ESHL
		8284		22A	
		8286		41A	
		8286		42A	
		8408		44E	
8408		E8E			
9009		22A			
9009		41A			
9009		42A			
9080		MHE			
9080		MME			
9119		MHE			
9119		MME			
9223		22H			
1.86 TB Mainstream SAS 4k SFF-2 SSD for IBM i		9223	42H	ESHM	
	8286	41A			
	8286	42A			
	9009	41A			
	9009	42A			
	9080	MHE			
	9080	MME			
	9119	MHE			
	9119	MME			
	9223	42H			
	7.45 TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux	9009	22A		ESHN
		9009	41A		
		9009	42A		
		9223	22H		
		9223	42H		
9223		42H			
931 GB Mainstream SAS 4k SFF-3 SSD for AIX/Linux	8284	21A	ESHS		
	8284	22A			
	8286	41A			
	8286	42A			
	8408	44E			
	8408	E8E			
	9009	22A			
	9009	41A			
	9009	42A			
	9223	22H			
	9223	42H			
	931 GB Mainstream SAS 4k SFF-3 SSD for IBM i	8284		21A	ESHT
		8286		41A	
		8286		42A	
		9009		41A	
9009		42A			
9223		42H			
9223		42H			
1.86 TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux	8284	21A	ESHU		
	8284	22A			
	8286	41A			

	8286	42A	
	8408	44E	
	8408	E8E	
	9009	22A	
	9009	41A	
	9009	42A	
	9223	22H	
	9223	42H	
1.86 TB Mainstream SAS 4k SFF-3 SSD for IBM i	8286	41A	ESHV
	8286	42A	
	9009	41A	
	9009	42A	
	9223	42H	
7.45 TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux	9009	22A	ESHW
	9009	41A	
	9009	42A	
	9223	22H	
	9223	42H	
3.72 TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux	8284	21A	ESM8
	8284	22A	
	8286	41A	
	8286	42A	
	8408	44E	
	8408	E8E	
	9009	22A	
	9009	41A	
	9009	42A	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	
	9223	22H	
	9223	42H	
3.72 TB Mainstream SAS 4k SFF-2 SSD for IBM i	8286	41A	ESM9
	8286	42A	
	9009	41A	
	9009	42A	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	
	9223	42H	
3.72 TB Mainstream SAS 4k SFF-3 SSD for AIX/Linux	8284	21A	ESMQ
	8284	22A	
	8286	41A	
	8286	42A	
	8408	44E	
	8408	E8E	
	9009	22A	
	9009	41A	
	9009	42A	
	9223	22H	
	9223	42H	
3.72 TB Mainstream SAS 4k SFF-3 SSD for IBM i	8286	41A	ESMR
	8286	42A	
	9009	41A	
	9009	42A	
	9223	42H	
POWER8 Attachment Indicator	7063	CR1	EU38
POWER9 Attachment Indicator	7063	CR1	EU39

The following are newly announced features on the specific models of the IBM Power Systems 5148, 7063, 7965, 8247, 8284, 8286, 8335, 8408, 8828, 8831, 8867, 9006, 9008, 9009, 9080, 9119, and 9223 machine type:

### New features available August 24, 2018

Description	Machine		Feature number
	type	Model	
PCIe 2-Line WAN w/Modem	9009	41A	2893
	9009	42A	



	9223	42H	
HDP on Power Solution	9006	12P	EHDT
	9006	22P	
System Management Node (HDP on Power Solution)	9006	12P	EHDU
HDP Edge Node (HDP on Power Solution)	9006	12P	EHDV
HDP Master Node (HDP on Power Solution)	9006	12P	EHDW
HDP Worker Node (HDP on Power Solution)	9006	12P	EHDX
	9006	22P	
Power Cable - Drawer to IBM PDU (250V/10A)	8828	E36	ELC5
	8828	E37	

The following are newly announced features on the specific models of the IBM Power Systems 5148, 7063, 7965, 8247, 8284, 8286, 8335, 8408, 8828, 8831, 8867, 9006, 9008, 9009, 9080, 9119, and 9223 machine type:

### New features available August 31, 2018

Description	Machine		Feature number
	type	Model	
Power ACP Solution Specify	5148	21L	ECL0
	5148	22L	
	7965	S42	
	8335	GTG	
	8828	E36	
	8828	G36	
	8831	F36	
	8831	NF2	
	8831	S48	
	8831	S52	
	8867	FM2	
	9008	22L	

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## Publications

No publications are shipped with the announced products.

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

The Publications Center is a worldwide central repository for IBM product publications and marketing material with a catalogue of 70,000 items. Extensive search facilities are provided. A large number of publications are available on-line in various file formats, which can currently be downloaded.

### National language support

Not applicable.

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## Services

### IBM Systems Lab Services

IBM Systems Lab Services offers a wide array of services available for your enterprise. It brings expertise on the latest technologies from the IBM development community and can help with your most difficult technical challenges.

IBM Systems Lab Services exists to help you successfully implement emerging technologies so as to accelerate your return on investment and improve your satisfaction with your IBM systems and solutions. Services examples include initial implementation, integration, migration, and skills transfer on IBM systems solution capabilities and recommended practices. IBM Systems Lab Services is one of the service organizations of IBM's world-renowned IBM Systems Group development labs.

For details on available services, contact your IBM representative or go to the [IBM Systems Lab Services](#) website.

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## **Global Technology Services**

IBM services include business consulting, outsourcing, hosting services, applications, and other technology management.

These services help you learn about, plan, install, manage, or optimize your IT infrastructure to be an on-demand business. They can help you integrate your high-speed networks, storage systems, application servers, wireless protocols, and an array of platforms, middleware, and communications software for IBM and many non-IBM offerings. IBM is your one-stop shop for IT support needs.

For details on available services, contact your IBM representative or go to the [IBM Global Technology Services<sup>\(R\)</sup>](#) website.

For details on available IBM Business Continuity and Recovery Services, contact your IBM representative or go to the [Resiliency Services](#) website.

Details on education offerings related to specific products can be found on the [IBM authorized training](#) website.

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## **Technical information**

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### **Planning information**

#### ***Cable orders***

No cables required.

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### **Security, auditability, and control**

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

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### **IBM Systems Lab Services**

For details on available services, contact your IBM representative or go to the [IBM Systems Lab Services](#) website.

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## **IBM Electronic Services**

IBM has transformed its delivery of hardware and software support services to help you achieve higher system availability. Electronic Services is a web-enabled solution that offers an exclusive, no-additional-charge enhancement to the service and support available for IBM servers. These services are designed to provide the opportunity for greater system availability with faster problem resolution and preemptive monitoring. Electronic Services comprises two separate, but complementary, elements: Electronic Services news page and Electronic Services Agent.

The Electronic Services news page is a single internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. The news page enables you to gain easier access to IBM resources for assistance in resolving technical problems.

The Electronic Service Agent<sup>TM</sup> is no-additional-charge software that resides on your server. It monitors events and transmits system inventory information to IBM on a periodic, client-defined timetable. The Electronic Service Agent automatically

reports hardware problems to IBM. Early knowledge about potential problems enables IBM to deliver proactive service that may result in higher system availability and performance. In addition, information collected through the Service Agent is made available to IBM service support representatives when they help answer your questions or diagnose problems. Installation and use of IBM Electronic Service Agent for problem reporting enables IBM to provide better support and service for your IBM server.

To learn how Electronic Services can work for you, go to the [IBM Electronic Service Agent](#) website.

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## Terms and conditions

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### Field-installable feature

Yes

### Warranty period

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.

### Warranty and maintenance for mainstream SSDs for POWER8 servers

Any IBM mainstream devices (previously called *read intensive devices*) for POWER8 servers identified in this document have a maximum number of write cycles. If a mainstream drive reaches its maximum write operation capability during the warranty period, IBM replaces the drive at no cost. After the warranty period, the replacement of the drive is not covered under IBM maintenance if the maximum number of write operations exceed the threshold value. You must order a new, chargeable SSD as a replacement. Other aspects of SSD maintenance are consistent with SSDs that are not mainstream drives.

### Warranty and maintenance for mainstream SSDs for POWER9 servers

Any IBM mainstream devices (previously called *read intensive devices*) for POWER9 servers identified in this document have a maximum number of write cycles. IBM mainstream device failures will be replaced during the standard warranty and maintenance period for devices that have not reached the maximum number of write cycles. Devices that reach this limit may fail to operate according to specifications and must be replaced at the client's expense. Individual service life may vary and can be monitored using an operating system command.

### Customer setup

Yes

### Machine code

Same license terms and conditions as base machine.

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## Prices

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Prices are subject to change without notice.

GST, QST, and sales taxes, where applicable, are extra.

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

The following are newly announced features on the specific models of the IBM Power Systems 5148, 7063, 7965, 8247, 8284, 8286, 8335, 8408, 8828, 8831, 8867, 9006, 9008, 9009, 9080, 9119, and 9223 machine type:

Description Machine type 5148	Model number	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Both/ Support	RP CSU MES
Power ACP Solution Specify	21L	ECL0			Initial	N/A No
	22L				Initial	N/A No

Description Machine type 7063	Model number	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Both/ Support	RP CSU MES
POWER8 Attachment Indicator	CR1	EU38			Initial	N/A No
POWER9 Attachment Indicator	CR1	EU39			Initial	N/A No

Description Machine type 7965	Model number	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Both/ Support	RP CSU MES
Power ACP Solution Specify	S42	ECL0			Initial	N/A No
Rack Cont Spcf 8335-GTG 2EIA	S42	ERC5			Initial	N/A No
Rack Cont Spcf 8335-GTH 2EIA	S42	ERC6			Initial	N/A No
Rack Cont Spcf 8335-GTX 2EIA	S42	ERC8			Initial	N/A No

Description Machine type 8247	Model number	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Both/ Support	RP CSU MES
931GB Mainstream SAS 4k SSD	21L	ELHJ			Both	Yes No
	22L				Both	Yes No
	42L				Both	Yes No
1.86TB Mainstream SAS 4k SSD	21L	ELHL			Both	Yes No
	22L				Both	Yes No
	42L				Both	Yes No
931GB Mainstream SAS 4k SSD	21L	ELHS			Both	Yes No
	22L				Both	Yes No
	42L				Both	Yes No
1.86TB Mainstream SAS 4k SSD	21L	ELHU			Both	Yes No
	22L				Both	Yes No
	42L				Both	Yes No
3.72TB Mainstream SAS 4k SSD	21L	ELM8			Both	Yes No
	22L				Both	Yes No
	42L				Both	Yes No
3.72TB Mainstream SAS 4k SSD	21L	ELMQ			Both	Yes No

	22L		Both	Yes	No
	42L		Both	Yes	No
Quantity 150 of ELM8	21L	ELR8	Both	Yes	No
	22L		Both	Yes	No
	42L		Both	Yes	No
Quantity 150 of ELHJ	21L	ELRJ	Both	Yes	No
	22L		Both	Yes	No
	42L		Both	Yes	No
Quantity 150 of ELHL	21L	ELRL	Both	Yes	No
	22L		Both	Yes	No
	42L		Both	Yes	No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type 8284	number	number	price	Monthly	MES/	CSU
				Maint.	Both/	MES
				Charge	Support	
ESHT Load Source Specify						
Quantity 150 of ESHJ	21A	ELZT			Both	Yes No
Quantity 150 of ESHL	22A	ERHJ			Both	Yes No
Quantity 150 of ESM8	22A	ERHL			Both	Yes No
931GB Mainstream SAS 4k SSD	22A	ERM8			Both	Yes No
	21A	ESHJ			Both	Yes No
	22A				Both	Yes No
1.86TB Mainstream SAS 4k SSD	21A	ESHL			Both	Yes No
	22A				Both	Yes No
931GB Mainstream SAS 4k SSD	21A	ESHS			Both	Yes No
	22A				Both	Yes No
931GB Mainstream SAS 4k SSD	21A	ESHT			Both	Yes No
1.86TB Mainstream SAS 4k SSD	21A	ESHU			Both	Yes No
	22A				Both	Yes No
3.72TB Mainstream SAS 4k SSD	21A	ESM8			Both	Yes No
	22A				Both	Yes No
3.72TB Mainstream SAS 4k SSD	21A	ESMQ			Both	Yes No
	22A				Both	Yes No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type 8286	number	number	price	Monthly	MES/	CSU
				Maint.	Both/	MES
				Charge	Support	
ESM9 Load Source Specify						
	41A	ELZ9			Both	Yes No
	42A				Both	Yes No
ESHK Load Source Specify						
	41A	ELZK			Both	Yes No
	42A				Both	Yes No
ESHM Load Source Specify						
	41A	ELZM			Both	Yes No
	42A				Both	Yes No
ESMR Load Source Specify						
	41A	ELZR			Both	Yes No
	42A				Both	Yes No
ESHT Load Source Specify						
	41A	ELZT			Both	Yes No
	42A				Both	Yes No
ESHV Load Source Specify						

	41A	ELZV		Both	Yes	No
	42A			Both	Yes	No
Quantity 150 of ESHJ	41A	ERHJ		Both	Yes	No
	42A			Both	Yes	No
Quantity 150 of ESHK	41A	ERHK		Both	Yes	No
	42A			Both	Yes	No
Quantity 150 of ESHL	41A	ERHL		Both	Yes	No
	42A			Both	Yes	No
Quantity 150 of ESHM	41A	ERHM		Both	Yes	No
	42A			Both	Yes	No
Quantity 150 of ESM8	41A	ERM8		Both	Yes	No
	42A			Both	Yes	No
Quantity 150 of ESM9	41A	ERM9		Both	Yes	No
	42A			Both	Yes	No
931GB Mainstream SAS 4k SSD	41A	ESHJ		Both	Yes	No
	42A			Both	Yes	No
931GB Mainstream SAS 4k SSD	41A	ESHK		Both	Yes	No
	42A			Both	Yes	No
1.86TB Mainstream SAS 4k SSD	41A	ESHL		Both	Yes	No
	42A			Both	Yes	No
1.86TB Mainstream SAS 4k SSD	41A	ESHM		Both	Yes	No
	42A			Both	Yes	No
931GB Mainstream SAS 4k SSD	41A	ESHS		Both	Yes	No
	42A			Both	Yes	No
931GB Mainstream SAS 4k SSD	41A	ESHT		Both	Yes	No
	42A			Both	Yes	No
1.86TB Mainstream SAS 4k SSD	41A	ESHU		Both	Yes	No
	42A			Both	Yes	No
1.86TB Mainstream SAS 4k SSD	41A	ESHV		Both	Yes	No
	42A			Both	Yes	No
3.72TB Mainstream SAS 4k SSD	41A	ESM8		Both	Yes	No
	42A			Both	Yes	No
3.72TB Mainstream SAS 4k SSD	41A	ESM9		Both	Yes	No
	42A			Both	Yes	No
3.72TB Mainstream SAS 4k SSD	41A	ESMQ		Both	Yes	No
	42A			Both	Yes	No
3.72TB Mainstream SAS 4k SSD	41A	ESMR		Both	Yes	No
	42A			Both	Yes	No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type	8335	number	price	Monthly	MES/	CSU
		number		Charge	Support	MES
Power ACP Solution Specify	GTG	ECL0			Initial	N/A
						No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type	8408	number	price	Monthly	MES/	CSU
		number		Charge	Support	MES

Quantity 150 of ESHJ

	44E	ERHJ		Both	Yes	No
	E8E			MES	Yes	No
Quantity 150 of ESHL						
	44E	ERHL		Both	Yes	No
	E8E			MES	Yes	No
Quantity 150 of ESM8						
	44E	ERM8		Both	Yes	No
	E8E			MES	Yes	No
931GB Mainstream SAS 4k SSD						
	44E	ESHJ		Both	Yes	No
	E8E			MES	Yes	No
1.86TB Mainstream SAS 4k SSD						
	44E	ESHL		Both	Yes	No
	E8E			MES	Yes	No
931GB Mainstream SAS 4k SSD						
	44E	ESHS		Both	Yes	No
	E8E			MES	Yes	No
1.86TB Mainstream SAS 4k SSD						
	44E	ESHU		Both	Yes	No
	E8E			MES	Yes	No
3.72TB Mainstream SAS 4k SSD						
	44E	ESM8		Both	Yes	No
	E8E			MES	Yes	No
3.72TB Mainstream SAS 4k SSD						
	44E	ESMQ		Both	Yes	No
	E8E			MES	Yes	No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type	number	number	price	Monthly	MES/	CSU
				Charge	Support	MES
Power ACP Solution Specify						
	E36	ECL0			Initial	N/A No
	G36				Initial	N/A No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type	number	number	price	Monthly	MES/	CSU
				Charge	Support	MES
Power ACP Solution Specify						
	F36	ECL0			Initial	N/A No
	NF2				Initial	N/A No
	S48				Initial	N/A No
	S52				Initial	N/A No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type	number	number	price	Monthly	MES/	CSU
				Charge	Support	MES
Power ACP Solution Specify						
	FM2	ECL0			Initial	N/A No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type	number	number	price	Monthly	MES/	CSU
				Charge	Support	MES
HDP on Power Solution						
	12P	EHDT			Initial	N/A No
	22P				Initial	N/A No
System Management Node (HDP)						
	12P	EHDU			Initial	N/A No
HDP Edge Node (HDP on Power)						
	12P	EHDV			Initial	N/A No

HDP Master Node (HDP Power)	12P	EHDW	Initial	N/A	No
HDP Worker Node (HDP Power)	12P	EHDX	Initial	N/A	No
	22P		Initial	N/A	No

Description	Model number	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/MES/Both/Support	RP CSU MES
Power ACP Solution Specify	22L	ECL0			Initial	N/A No
931GB Mainstream SAS 4k SSD	22L	ELHJ			Both	Yes No
1.86TB Mainstream SAS 4k SSD	22L	ELHL			Both	Yes No
7.45TB Mainstream SAS 4k SSD	22L	ELHN			Both	Yes No
931GB Mainstream SAS 4k SSD	22L	ELHS			Both	Yes No
1.86TB Mainstream SAS 4k SSD	22L	ELHU			Both	Yes No
7.45TB Mainstream SAS 4k SSD	22L	ELHW			Both	Yes No
3.72TB Mainstream SAS 4k SSD	22L	ELM8			Both	Yes No
3.72TB Mainstream SAS 4k SSD	22L	ELMQ			Both	Yes No
Quantity 150 of ELM8	22L	ELR8			Both	Yes No
Quantity 150 of ELHJ	22L	ELRJ			Both	Yes No
Quantity 150 of ELHL	22L	ELRL			Both	Yes No
Quantity 150 of ELHN	22L	ELRN			Both	Yes No

Description	Model number	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/MES/Both/Support	RP CSU MES
PCIe 2 Line WAN w/Modem	41A	2893			Support	Yes No
	42A				Support	Yes No
ESM9 Load Source Specify	41A	ELZ9			Both	Yes No
	42A				Both	Yes No
ESHK Load Source Specify	41A	ELZK			Both	Yes No
	42A				Both	Yes No
ESHM Load Source Specify	41A	ELZM			Both	Yes No
	42A				Both	Yes No
ESMR Load Source Specify	41A	ELZR			Both	Yes No
	42A				Both	Yes No
ESHT Load Source Specify	41A	ELZT			Both	Yes No
	42A				Both	Yes No
ESHV Load Source Specify	41A	ELZV			Both	Yes No
	42A				Both	Yes No
Quantity 150 of ESHJ	22A	ERHJ			Both	Yes No
	41A				Both	Yes No
	42A				Both	Yes No
Quantity 150 of ESHK	41A	ERHK			Both	Yes No



	42A		Both	Yes	No
Quantity 150 of ESHL	22A	ERHL	Both	Yes	No
	41A		Both	Yes	No
	42A		Both	Yes	No
Quantity 150 of ESHM	41A	ERHM	Both	Yes	No
	42A		Both	Yes	No
Quantity 150 of ESHN	22A	ERHN	Both	Yes	No
	41A		Both	Yes	No
	42A		Both	Yes	No
Quantity 150 of ESM8	22A	ERM8	Both	Yes	No
	41A		Both	Yes	No
	42A		Both	Yes	No
Quantity 150 of ESM9	41A	ERM9	Both	Yes	No
	42A		Both	Yes	No
931GB Mainstream SAS 4k SSD	22A	ESHJ	Both	Yes	No
	41A		Both	Yes	No
	42A		Both	Yes	No
931GB Mainstream SAS 4k SSD	41A	ESHK	Both	Yes	No
	42A		Both	Yes	No
1.86TB Mainstream SAS 4k SSD	22A	ESHL	Both	Yes	No
	41A		Both	Yes	No
	42A		Both	Yes	No
1.86TB Mainstream SAS 4k SSD	41A	ESHM	Both	Yes	No
	42A		Both	Yes	No
7.45TB Mainstream SAS 4k SSD	22A	ESHN	Both	Yes	No
	41A		Both	Yes	No
	42A		Both	Yes	No
931GB Mainstream SAS 4k SSD	22A	ESHS	Both	Yes	No
	41A		Both	Yes	No
	42A		Both	Yes	No
931GB Mainstream SAS 4k SSD	41A	ESHT	Both	Yes	No
	42A		Both	Yes	No
1.86TB Mainstream SAS 4k SSD	22A	ESHU	Both	Yes	No
	41A		Both	Yes	No
	42A		Both	Yes	No
1.86TB Mainstream SAS 4k SSD	41A	ESHV	Both	Yes	No
	42A		Both	Yes	No
7.45TB Mainstream SAS 4k SSD	22A	ESHW	Both	Yes	No
	41A		Both	Yes	No
	42A		Both	Yes	No
3.72TB Mainstream SAS 4k SSD	22A	ESM8	Both	Yes	No
	41A		Both	Yes	No
	42A		Both	Yes	No
3.72TB Mainstream SAS 4k SSD	41A	ESM9	Both	Yes	No
	42A		Both	Yes	No
3.72TB Mainstream SAS 4k SSD	22A	ESMQ	Both	Yes	No
	41A		Both	Yes	No
	42A		Both	Yes	No
3.72TB Mainstream SAS 4k SSD	41A	ESMR	Both	Yes	No
	42A		Both	Yes	No

Description	Model	Feature	Purchase	Minimum Initial/	
				Monthly	RP
				MES/	
				Both/	

Machine type 9080	number	number	price	Charge	Support	CSU	MES
ESM9 Load Source Specify							
	MHE	ELZ9			Both	Yes	No
	MME				Both	Yes	No
ESHK Load Source Specify							
	MHE	ELZK			Both	Yes	No
	MME				Both	Yes	No
ESHM Load Source Specify							
	MHE	ELZM			Both	Yes	No
	MME				Both	Yes	No
Quantity 150 of ESHJ							
	MHE	ERHJ			Both	Yes	No
	MME				Both	Yes	No
Quantity 150 of ESHK							
	MHE	ERHK			Both	Yes	No
	MME				Both	Yes	No
Quantity 150 of ESHL							
	MHE	ERHL			Both	Yes	No
	MME				Both	Yes	No
Quantity 150 of ESHM							
	MHE	ERHM			Both	Yes	No
	MME				Both	Yes	No
Quantity 150 of ESM8							
	MHE	ERM8			Both	Yes	No
	MME				Both	Yes	No
Quantity 150 of ESM9							
	MHE	ERM9			Both	Yes	No
	MME				Both	Yes	No
931GB Mainstream SAS 4k SSD							
	MHE	ESHJ			Both	Yes	No
	MME				Both	Yes	No
931GB Mainstream SAS 4k SSD							
	MHE	ESHK			Both	Yes	No
	MME				Both	Yes	No
1.86TB Mainstream SAS 4k SSD							
	MHE	ESHL			Both	Yes	No
	MME				Both	Yes	No
1.86TB Mainstream SAS 4k SSD							
	MHE	ESHM			Both	Yes	No
	MME				Both	Yes	No
3.72TB Mainstream SAS 4k SSD							
	MHE	ESM8			Both	Yes	No
	MME				Both	Yes	No
3.72TB Mainstream SAS 4k SSD							
	MHE	ESM9			Both	Yes	No
	MME				Both	Yes	No

Description	Model	Feature	Purchase	Minimum	Initial/		RP
Machine type 9119	number	number	price	Monthly	MES/	Both/	CSU MES
				Charge	Support		
ESM9 Load Source Specify							
	MHE	ELZ9			MES	Yes	No
	MME				MES	Yes	No
ESHK Load Source Specify							
	MHE	ELZK			MES	Yes	No
	MME				MES	Yes	No
ESHM Load Source Specify							
	MHE	ELZM			MES	Yes	No
	MME				MES	Yes	No
Quantity 150 of ESHJ							
	MHE	ERHJ			MES	Yes	No
	MME				MES	Yes	No
Quantity 150 of ESHK							
	MHE	ERHK			MES	Yes	No
	MME				MES	Yes	No
Quantity 150 of ESHL							
	MHE	ERHL			MES	Yes	No
	MME				MES	Yes	No

Quantity 150 of ESHM	MHE	ERHM	MES	Yes	No
	MME		MES	Yes	No
Quantity 150 of ESM8	MHE	ERM8	MES	Yes	No
	MME		MES	Yes	No
Quantity 150 of ESM9	MHE	ERM9	MES	Yes	No
	MME		MES	Yes	No
931GB Mainstream SAS 4k SSD	MHE	ESHJ	MES	Yes	No
	MME		MES	Yes	No
931GB Mainstream SAS 4k SSD	MHE	ESHK	MES	Yes	No
	MME		MES	Yes	No
1.86TB Mainstream SAS 4k SSD	MHE	ESHL	MES	Yes	No
	MME		MES	Yes	No
1.86TB Mainstream SAS 4k SSD	MHE	ESHM	MES	Yes	No
	MME		MES	Yes	No
3.72TB Mainstream SAS 4k SSD	MHE	ESM8	MES	Yes	No
	MME		MES	Yes	No
3.72TB Mainstream SAS 4k SSD	MHE	ESM9	MES	Yes	No
	MME		MES	Yes	No

Description	Model	Feature	Purchase	Minimum Initial/ Monthly	MES/ Both/ Support	RP CSU	MES
Machine type 9223	number	number	price	Maint. Charge			
PCIe 2 Line WAN w/Modem	42H	2893			Support	Yes	No
ESM9 Load Source Specify	42H	ELZ9			Both	Yes	No
ESHK Load Source Specify	42H	ELZK			Both	Yes	No
ESHM Load Source Specify	42H	ELZM			Both	Yes	No
ESMR Load Source Specify	42H	ELZR			Both	Yes	No
ESHT Load Source Specify	42H	ELZT			Both	Yes	No
ESHV Load Source Specify	42H	ELZV			Both	Yes	No
Quantity 150 of ESHJ	22H	ERHJ			Both	Yes	No
	42H				Both	Yes	No
Quantity 150 of ESHK	42H	ERHK			Both	Yes	No
Quantity 150 of ESHL	22H	ERHL			Both	Yes	No
	42H				Both	Yes	No
Quantity 150 of ESHM	42H	ERHM			Both	Yes	No
Quantity 150 of ESHN	22H	ERHN			Both	Yes	No
	42H				Both	Yes	No
Quantity 150 of ESM8	22H	ERM8			Both	Yes	No
	42H				Both	Yes	No
Quantity 150 of ESM9	42H	ERM9			Both	Yes	No
931GB Mainstream SAS 4k SSD	22H	ESHJ			Both	Yes	No
	42H				Both	Yes	No
931GB Mainstream SAS 4k SSD	42H	ESHK			Both	Yes	No
1.86TB Mainstream SAS 4k SSD	22H	ESHL			Both	Yes	No

	42H		Both	Yes	No
1.86TB Mainstream SAS 4k SSD	42H	ESHM	Both	Yes	No
7.45TB Mainstream SAS 4k SSD	22H	ESHN	Both	Yes	No
	42H		Both	Yes	No
931GB Mainstream SAS 4k SSD	22H	ESHS	Both	Yes	No
	42H		Both	Yes	No
931GB Mainstream SAS 4k SSD	42H	ESHT	Both	Yes	No
1.86TB Mainstream SAS 4k SSD	22H	ESHU	Both	Yes	No
	42H		Both	Yes	No
1.86TB Mainstream SAS 4k SSD	42H	ESHV	Both	Yes	No
7.45TB Mainstream SAS 4k SSD	22H	ESHW	Both	Yes	No
	42H		Both	Yes	No
3.72TB Mainstream SAS 4k SSD	22H	ESM8	Both	Yes	No
	42H		Both	Yes	No
3.72TB Mainstream SAS 4k SSD	42H	ESM9	Both	Yes	No
3.72TB Mainstream SAS 4k SSD	22H	ESMQ	Both	Yes	No
	42H		Both	Yes	No
3.72TB Mainstream SAS 4k SSD	42H	ESMR	Both	Yes	No

The following are features already announced for the IBM Power Systems 8335 and 8828 machine type:

Description Machine type 8335	Model number	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Both/ Support	RP CSU MES
Rack Indicator, Rack 1						
	GTG	4651			Initial	N/A No
	GTH				Initial	N/A No
	GTX				Initial	N/A No
Rack Indicator, Rack 2						
	GTG	4652			Initial	N/A No
	GTH				Initial	N/A No
	GTX				Initial	N/A No
Rack Indicator, Rack 3						
	GTG	4653			Initial	N/A No
	GTH				Initial	N/A No
	GTX				Initial	N/A No
Rack Indicator, Rack 4						
	GTG	4654			Initial	N/A No
	GTH				Initial	N/A No
	GTX				Initial	N/A No
Rack Indicator, Rack 5						
	GTG	4655			Initial	N/A No
	GTH				Initial	N/A No
	GTX				Initial	N/A No
Rack Indicator, Rack 6						
	GTG	4656			Initial	N/A No
	GTH				Initial	N/A No
	GTX				Initial	N/A No
Rack Indicator, Rack 7						
	GTG	4657			Initial	N/A No
	GTH				Initial	N/A No
	GTX				Initial	N/A No
Rack Indicator, Rack 8						
	GTG	4658			Initial	N/A No
	GTH				Initial	N/A No
	GTX				Initial	N/A No
Rack Indicator, Rack 9						

	GTG	4659		Initial	N/A	No
	GTH			Initial	N/A	No
	GTX			Initial	N/A	No
Rack Indicator, Rack 10						
	GTG	4660		Initial	N/A	No
	GTH			Initial	N/A	No
	GTX			Initial	N/A	No
Rack Indicator, Rack 11						
	GTG	4661		Initial	N/A	No
	GTH			Initial	N/A	No
	GTX			Initial	N/A	No
Rack Indicator, Rack 12						
	GTG	4662		Initial	N/A	No
	GTH			Initial	N/A	No
	GTX			Initial	N/A	No
Rack Indicator, Rack 13						
	GTG	4663		Initial	N/A	No
	GTH			Initial	N/A	No
	GTX			Initial	N/A	No
Rack Indicator, Rack 14						
	GTG	4664		Initial	N/A	No
	GTH			Initial	N/A	No
	GTX			Initial	N/A	No
Rack Indicator, Rack 15						
	GTG	4665		Initial	N/A	No
	GTH			Initial	N/A	No
	GTX			Initial	N/A	No
Rack Indicator, Rack 16						
	GTG	4666		Initial	N/A	No
	GTH			Initial	N/A	No
	GTX			Initial	N/A	No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine type	8828	number	price	Monthly	MES/	CSU
		number		Charge	Support	MES
Power Cord - Drawer to PDU						
	E36	ELC5			Both	Yes No
	E37				Both	Yes No

CSU = Customer setup

RP MES = Return parts, miscellaneous equipment specifications

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## Corrections

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**(Corrected on August 20, 2018)**

Revised the description for feature ECL0 in the Product number and Prices sections.