



# IBM Power Systems enhances I/O and server options

## Table of contents

<a href="#">1 Overview</a>	<a href="#">8 Publications</a>
<a href="#">2 Key prerequisites</a>	<a href="#">8 Technical information</a>
<a href="#">2 Planned availability date</a>	<a href="#">9 Terms and conditions</a>
<a href="#">2 Description</a>	<a href="#">10 Prices</a>
<a href="#">4 Product number</a>	

## At a glance

IBM<sup>®</sup> Power Systems<sup>™</sup> enhances its I/O and server options with the following offerings:

- IBM Power Systems adds the new I/O and memory features announced on the IBM Power<sup>®</sup> E850C server (8408-44E) to the existing IBM Power E850 server (8408-E8E), fulfilling the previous statement of direction released in October 2016.
- PCIe1 SAS Tape/DVD Dual-port 3Gb x8 Adapter is available for older external tape drives.
- PCIe3 LP 3D Graphics Adapter x16 is a new generation of graphic adapters that replaces the previous PCIe2 LP 3D Graphic Adapter for Linux<sup>™</sup> environments.
- New longer length cables for the EXP24SX and EXP12SX SAS Storage Enclosures provide more physical and flexible configurations.
- Support for 5xx byte sector hard disk drives (HDD) and solid-state disks (SSD) is announced for the EXP24SX Storage Enclosure, improving configuration flexibility beyond just the 4k byte sector drives originally announced.

## Overview

### Power E850 server

Power E850 server includes support for the following existing I/O and DDR4 memory features previously announced for Power E850C server:

- 2-Port 100 GbE (NIC and RoCE) QSFP28 Adapter x16 (#EC3M)
- 1-port and 2-port 100 Gb EDR InfiniBand (#EC3U or #EC3F)
- PCIe Cryptographic Coprocessor 4767 adapter (#EJ32 or #EJ33)
- EXP24SX (#ESLS) or EXP12SX (#ESLL) storage expansion enclosures
- 3.86 TB/4.0 TB 4k 7200 RPM (#ES62)
- 7.72 TB/8.0 TB 4k 7200 RPM (#ES64) drives
- DDR4 memory: 16 GB (#EM8P), 32 GB (#EM8Q), and 64 GB (#EM8R)

### Power Systems enhances its server I/O options

Previously, feature 5901 or 5278 was used for either disk or tape attachment. To avoid confusion, the new feature EJ1P or EJ1N is used to tell e-config when the adapter is used for tape drives and feature 5901 or 5278 is used to tell e-config when the adapter is used for disk.

A new graphics adapter (#EC51) replaces the older graphics adapter (#EC41) in new proposals for Linux environments.

New longer length active optical cables provide cabling flexibility for the EXP24SX and EXP12SX Storage Enclosures. Now in addition to the shorter copper cables announced in October 2016, longer lengths of 4.5 meter and 10 meter are announced.

5xx byte sector disk, 300 GB 15k or 600 GB 10k rpm, and SSDs, 387 GB or 775 GB eMLC4, are announced for the EXP24SX drawer. Though higher in price than the equivalent 4k byte sector drives, they can be used by the small set of AIX<sup>(R)</sup>/Linux applications that directly run only 5xx drives and don't use an OS file system.

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## Key prerequisites

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For the operating system required, see the specific I/O feature description section in the Sales Manual for the individual server.

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## Planned availability date

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- February 3, 2017, for feature EM9Z
- March 17, 2017, for all features except EM9Z

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## Description

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### Power E850 server enhancements

The Power E850 server includes support for the following existing DDR4 memory and I/O features previously announced for the Power E850C server:

- PCIe3 2-port 100 GbE (NIC and RoCE) QSFP28 Adapter x16 (#EC3M), based on the Mellanox ConnectX-4 Ethernet Network Controller, provides 100 Gbps Ethernet connectivity.
- 1-port and 2-port 100 Gb EDR InfiniBand adapters (#EC3U or #EC3F) for Linux environments.
- PCIe Cryptographic Coprocessor 4767 adapter (#EJ32 or #EJ33), the latest generation and fastest of the IBM cryptographic coprocessor family.
- EXP24SX (#ESLS) storage expansion enclosure with twenty-four 2.5-inch SFF SAS bays and EXP12SX (#ESLL) storage expansion enclosure with twelve 3.5-inch LFF SAS bays. Plus EXP12SX 3.86 TB/4.0 TB (#ES62) and 7.72 TB/8.0 TB (#ES64) 4k 7200 rpm drives are supported.
- Smaller-capacity DDR4 CDIMMs join the existing large-capacity 128 GB DDR4 CDIMM:
  - 16 GB CDIMM Memory (#EM8P)
  - 32 GB CDIMM Memory (#EM8Q)
  - 64 GB CDIMM Memory (#EM8R)

### DDR4 rules are identical to existing memory rules:

- A minimum of 50% of the memory slots must be filled (8 CDIMMs with a 2-processor module, 12 CDIMMs with a 3-processor module, and 16 CDIMMs with a 4-processor module).
- Memory activation features are the same for DDR3 or DDR4 memory.
- A minimum of 50% of the installed memory capacity or 128 GB (whichever is larger) must have permanent activations.
- Memory is ordered in pairs of the same memory feature. Both CDIMMs of a CDIMM pair must be installed in the slots supporting one processor. Different size pairs can be mixed on the same processor module's slots. For optimal

performance, all pairs would be the same size. Also for optimal performance, generally the amount of memory per processor module would be the same or about the same.

## **Power Systems enhances its server I/O options**

### **PCIe1 SAS Tape/DVD Dual-port 3Gb x8 Adapter (#EJ1P/EJ1N)**

This PCIe Gen1 short x8 form factor adapter supports the attachment of SAS tape and DVD using a pair of mini SAS 4x connectors. The PCIe1 can be used for external tape drives, which are not supported on the newer and faster 4-port 6 Gb PCIe3 adapter (see feature EJ10, EJ11, or EL60). The adapter supports external SAS tape drives such as the 36 GB/72 GB DAT72, 80 GB/160 GB DAT160, and 800 GB/1600 GB LTO™ 4 found in the IBM multimedia drawers such as the 7226-1U3 or 7214-1U2 or tape units such as the TS2240, TS2340, TS3100, TS3200, and TS3310. Other removable media devices supported include IBM SAS/SATA DVD-ROM/RAM drives.

SAS adapter-to-enclosure (AE) 3Gb cables with mini-SAS connectors are used to attach these drives. See features 3684 (3 meter) and 3685 (6 meter). The same AE cables can often alternatively be ordered under the tape enclosure or multimedia drawer.

Feature EJ1P and EJ1N are electrically and functionally identical with the same CCIN of feature 57B3. Feature EJ1P has a full-high tailstock bracket, and feature EJ1N has a low-profile tailstock bracket. Feature EJ1P or EJ1N is the same adapter as feature 5901 or 5278 but designates to IBM configurator tools that the usage will be tape/DVD and will not be used for disk.

Limitation: Do not support LTO 5, or later.

Operating system or partition requirements:

- IBM i 7.1, or later
- IBM i 7.2, or later
- IBM i 7.3, or later
- AIX Version 6.1, or later
- AIX Version 7.1, or later
- AIX Version 7.2, or later
- Red Hat Enterprise Linux (RHEL) 6.5, or later
- RHEL 7, or later
- SUSE Linux Enterprise 11.3, or later
- SUSE Linux Enterprise 12, or later
- VIOS support
  - Same VIOS supported.

### **PCIe3 LP 3D Graphics Adapter x16 (#EC51)**

The PCIe3 LP 3D Graphics Adapter is a follow-on of previous Graphics Adapter for Linux Environments.

This adapter provides the following features:

- Can be placed in a 16x PCIe slot
- Is regular height and half length
- Provides 512 MB DDR3 graphics memory
- Provides 2x DISPLAY port outputs
- Supports two 30-inch (76.2 cm) high-resolution displays
- One analog monitor connected that supports a maximum resolution of up to 1920 x 1200

- One digital monitor connected that supports a maximum resolution of up to 2560 x 1600
- Display power management: Video Electronics Standards Association (VESA), Display Power Management Signaling (DPMS)

Operating system or partition requirements:

The adapter is supported on the following versions of the operating systems, depending on the system you are using:

Linux:

- RHEL 7.3, or later, with current maintenance updates available from Red Hat
- SUSE Linux Enterprise 12 Service Pack 2, or later

### Active optical cables

Longer-length active optical cables provide cabling flexibility for the EXP24SX and EXP12SX Storage Enclosures. The new cable features are:

- 4.5 m SAS X12 Active Optical Cable (Two Adapter to Enclosure) (#ECDK)
- 4.5 m SAS YO12 Active Optical Cable (Adapter to Enclosure) (#ECDV)
- 10 m SAS YO12 Active Optical Cable (Adapter to Enclosure) (#ECDW)
- 4.5 m SAS AA12 Active Optical Cable (Adapter to Adapter) (#ECE4)
- 10 m SAS X12 Active Optical Cable (Two Adapter to Enclosure) (#ECDL)

**Note:** AOC cables require minimum level of SAS Adapter firmware. Refer to the latest [IBM prerequisites](#) website.

### Support for 5xx (512 or 528) byte sector drives

Support for 5xx (512 or 528) byte sector drives is announced to the EXP24SX I/O drawer for AIX and Linux environments. When the EXP24SX was announced in October 2016, only support for 4k byte sector drives was announced, but a statement of direction was shared that indicated 5xx drives would be announced later. 5xx drives have a slightly higher price than 4k drives, but there are a very small number of AIX/Linux applications that do not use the AIX or Linux drive facilities and run the drives directly. Such an application requires 5xx drives.

The supported 5xx drives available are already supported on the earlier EXP24S drawer, thus no new features are announced. Only a change in support rules is announced. Support will be generally available March 2017.

For Linux-only servers using EXP24SX (#ELLS), the drives which are supported are:

- 387 GB SSD (#EL78)
- 775 GB SSD (#EL7E)
- 300 GB 15k rpm HDD (#EL1P)
- 600 GB 10k rpm (#EL1Q)

For AIX/Linux servers using EXP24SX (#ESLS), the drives which are supported are:

- 387 GB SSD (#ES78)
- 775 GB SSD (#ES7E)
- 300 GB 15k rpm HDD (#1953)
- 600 GB 10k rpm (#1964)

In addition to now supporting these 5xx drive features, support for the corresponding "quantity 150" features is also announced.

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## Product number

## New features

The following is a newly announced feature on the specific model of the IBM Power Systems 8286 machine type:

### New feature available February 3, 2017

Description	Machine		Feature number
	type	Model	
32 GB DDR4 Memory	8286	42A	EM9Z

The following are newly announced features on the specific models of the IBM Power Systems 8247, 8284, 8286, 8408, 9080, and 9119 machine types:

### New features available March 17, 2017

Description	Machine		Feature number
	type	Model	
100Gb optical Transceiver QSFP28	8408	E8E	EB59
0.5M 100GbE Copper Cable QSFP28	8408	E8E	EB5J
1.0M 100GbE Copper Cable QSFP28	8408	E8E	EB5K
1.5M 100GbE Copper Cable QSFP28	8408	E8E	EB5L
2.0M 100GbE Copper Cable QSFP28	8408	E8E	EB5M
3M 100GbE Optical Cable QSFP28 (AOC)	8408	E8E	EB5R
5M 100GbE Optical Cable QSFP28 (AOC)	8408	E8E	EB5S
10M 100GbE Optical Cable QSFP28 (AOC)	8408	E8E	EB5T
15M 100GbE Optical Cable QSFP28 (AOC)	8408	E8E	EB5U
20M 100GbE Optical Cable QSFP28 (AOC)	8408	E8E	EB5V
30M 100GbE optical cable QSFP28 (AOC)	8408	E8E	EB5W
50M 100GbE optical Cable QSFP28 (AOC)	8408	E8E	EB5X
100M 100GbE Optical Cable QSFP28 (AOC)	8408	E8E	EB5Y
PCIe3 2-port 100Gb EDR IB Adapter x16	8408	E8E	EC3F
PCIe3 2-port 100GbE (NIC&RoCE) QSFP28 Adapter x16	8408	E8E	EC3M
PCIe3 1-port 100Gb EDR IB Adapter x16	8408	E8E	EC3U
PCIe3 LP 3D Graphics Adapter x16	8247	21L	EC51
	8247	22L	
	8284	22A	
3.0M SAS X12 Cable (Two Adapter to Enclosure)	8408	E8E	ECDJ
4.5M SAS X12 Active Optical Cable (Two Adapter to Enclosure)	8247	21L	ECDK
	8247	22L	
	8247	42L	
	8284	22A	
	8286	41A	
	8286	42A	
	8408	44E	
	8408	E8E	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	
10M SAS X12 Active Optical Cable (Two Adapter to Enclosure)	8247	21L	ECDL
	8247	22L	
	8247	42L	
	8284	22A	
	8286	41A	
	8286	42A	
	8408	44E	
	8408	E8E	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	
1.5M SAS Y012 Cable (Adapter to Enclosure)	8408	E8E	ECDT

3.0M SAS Y012 Cable (Adapter to Enclosure)	8408	E8E	ECDU
4.5M SAS Y012 Active Optical Cable (Adapter to Enclosure)	8247	21L	ECDV
	8247	22L	
	8247	42L	
	8284	22A	
	8286	41A	
	8286	42A	
	8408	44E	
	8408	E8E	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	
10M SAS Y012 Active Optical Cable (Adapter to Enclosure)	8247	21L	ECDW
	8247	22L	
	8247	42L	
	8284	22A	
	8286	41A	
	8286	42A	
	8408	44E	
	8408	E8E	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	
0.6M SAS AA12 Cable (Adapter to Adapter)	8408	E8E	ECE0
3.0M SAS AA12 Cable (Adapter to Adapter)	8408	E8E	ECE3
4.5M SAS AA12 Active Optical Cable (Adapter to Adapter)	8247	21L	ECE4
	8247	22L	
	8247	42L	
	8284	22A	
	8286	41A	
	8286	42A	
	8408	44E	
	8408	E8E	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	
Boot Drive / Load Source in EXP12SX Specify (in #ESLL or #ELLL)	8408	E8E	EHR1
Boot Drive / Load Source in EXP24SX Specify (in #ESLS or #ELLS)	8408	E8E	EHR2
SSD Placement Indicator - #ESLS/#ELLS	8408	E8E	EHS2
PCIe1 LP SAS Tape/DVD Dual-port 3Gb x8 Adapter	8247	21L	EJ1N
	8247	22L	
	8284	22A	
PCIe1 SAS Tape/DVD Dual-port 3Gb x8 Adapter	8247	21L	EJ1P
	8247	22L	
	8247	42L	
	8284	22A	
	8286	41A	
	8286	42A	
	8408	44E	
	8408	E8E	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	
PCIe3 Crypto Coprocessor no BSC 4767	8408	E8E	EJ32
PCIe3 Crypto Coprocessor BSC-Gen3 4767	8408	E8E	EJ33
Specify Mode-1 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)Y012 for EXP12SX #ESLL/ELLL	8408	E8E	EJV1
Specify Mode-1 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)Y012 for EXP12SX #ESLL/ELLL	8408	E8E	EJV2
Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)x12 for EXP12SX #ESLL/ELLL	8408	E8E	EJV3
Specify Mode-2 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)x12 for EXP12SX #ESLL/ELLL	8408	E8E	EJV4
Specify Mode-4 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)x12 for EXP12SX #ESLL/ELLL	8408	E8E	EJV5

Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (2)Y012 for EXP12SX #ESLL/ELLL	8408	E8E	EJV6
Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)Y012 for EXP12SX #ESLL/ELLL	8408	E8E	EJV7
Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)Y012 for EXP12SX #ESLL/ELLL	8408	E8E	EJVA
Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP12SX #ESLL/ELLL	8408	E8E	EJVB
Specify Mode-4 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP12SX #ESLL/ELLL	8408	E8E	EJVC
Specify Mode-4 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP12SX #ESLL/ELLL	8408	E8E	EJVD
Specify Mode-4 & (3)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP12SX #ESLL/ELLL	8408	E8E	EJVE
Specify Mode-1 & (2)EJ14 & (2)Y012 for EXP12SX #ESLL/ELLL	8408	E8E	EJVF
Specify Mode-1 & (2)EJ0L & (2)Y012 for EXP12SX #ESLL/ELLL	8408	E8E	EJVP
Specify Mode-1 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)Y012 for EXP24SX #ESLS/ELLS	8408	E8E	EJW1
Specify Mode-1 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)Y012 for EXP24SX #ESLS/ELLS	8408	E8E	EJW2
Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS	8408	E8E	EJW3
Specify Mode-2 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS	8408	E8E	EJW4
Specify Mode-4 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS	8408	E8E	EJW5
Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (2)Y012 for EXP24SX #ESLS/ELLS	8408	E8E	EJW6
Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)Y012 for EXP24SX #ESLS/ELLS	8408	E8E	EJW7
Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)Y012 for EXP24SX #ESLS/ELLS	8408	E8E	EJWA
Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP24SX #ESLS/ELLS	8408	E8E	EJWB
Specify Mode-4 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP24SX #ESLS/ELLS	8408	E8E	EJWC
Specify Mode-4 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP24SX #ESLS/ELLS	8408	E8E	EJWD
Specify Mode-4 & (3)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS	8408	E8E	EJWE
Specify Mode-1 & (2)EJ14 & (2)Y012 for EXP24SX #ESLS/ELLS	8408	E8E	EJWF
Specify Mode-2 & (2)EJ14 & (2)X12 for EXP24SX #ESLS/ELLS	8408	E8E	EJWG
Specify Mode-2 & (2)EJ14 & (1)X12 for EXP24SX #ESLS/ELLS	8408	E8E	EJWH
Specify Mode-2 & (4)EJ14 & (2)X12 for EXP24SX #ESLS/ELLS	8408	E8E	EJWJ
Specify Mode-1 & (2)EJ0L & (2)Y012 for EXP24SX #ESLS/ELLS	8408	E8E	EJWP
Specify Mode-2 & (4)EJ0L & (2)X12 for EXP24SX #ESLS/ELLS	8408	E8E	EJWR
Specify Mode-2 & (2)EJ0L & (2)X12 for EXP24SX #ESLS/ELLS	8408	E8E	EJWS
Specify Mode-2 & (2)EJ0L & (1)X12 for EXP24SX #ESLS/ELLS	8408	E8E	EJWT
16 GB DDR4 Memory	8408	E8E	EM8P
32 GB DDR4 Memory	8408	E8E	EM8Q
64 GB DDR4 Memory	8408	E8E	EM8R
Quantity 150 of #ES62 3.86-4.0 TB 7200 rpm 4k LFF-1 Disk	8408	E8E	EQ62
Quantity 150 of #ES64 7.72-8.0 TB 7200 rpm 4k LFF-1 Disk	8408	E8E	EQ64
3.86-4.0 TB 7200 RPM 4K SAS LFF-1 Nearline Disk Drive (AIX/Linux)	8408	E8E	ES62
7.72-8.0 TB 7200 RPM 4K SAS LFF-1 Nearline Disk Drive (AIX/Linux)	8408	E8E	ES64
Specify AC Power Supply for EXP12SX/EXP24SX Storage Enclosure	8408	E8E	ESLA
EXP12SX SAS Storage Enclosure	8408	E8E	ESLL
EXP24SX SAS Storage Enclosure	8408	E8E	ESLS

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## Business Partner information

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If you are a Direct Reseller - System Reseller acquiring products from IBM, you may link directly to Business Partner information for this announcement. A PartnerWorld<sup>(R)</sup> ID and password are required (use IBMid).

[BP Attachment for Announcement Letter 117-013](#)

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## Publications

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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 catalog of 70,000 items. Extensive search facilities are provided. A large number of publications are available online in various file formats, which can currently be downloaded.

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## Services

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### Global Technology Services

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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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### Specified operating environment

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#### *Physical specifications*

For physical specifications, refer to the Sales Manual.

To assure installability and serviceability in non-IBM industry-standard racks, review the installation planning information for any product-specific installation requirements.

#### *Homologation*

This product is not certified for direct connection by any means whatsoever to interfaces of public telecommunications networks. Certification may be required by law prior to making any such connection. Contact an IBM representative or reseller for any questions.



## Planning information

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### **Cable orders**

No cables required.

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

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The customer 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 Electronic Services

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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™ 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 Support](#) website.

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## Terms and conditions

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### **MES discount applicable**

Equal to the volume commitment discount

### **Field-installable feature**

Yes

### **Warranty period**

This feature assumes the same warranty or maintenance terms as the machine in which they are installed for the full warranty or maintenance period announced for such machine.

### **Customer setup**

Yes

### **Machine code**

Same license terms and conditions as base machine.

## Prices

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 8247, 8284, 8286, 8408, 9080, and 9119 machine types:

Description Machine type 8247	Model number	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Both/ Support	RP CSU MES
PCIe LP 3D Graphics adpt x16	21L	EC51			Both	Yes No
	22L				Both	Yes No
4.5M SAS X12 Cable	21L	ECDK			Both	Yes No
	22L				Both	Yes No
	42L				Both	Yes No
10M SAS X12 Cable	21L	ECDL			Both	Yes No
	22L				Both	Yes No
	42L				Both	Yes No
4.5M SAS Y012 Cable	21L	ECDV			Both	Yes No
	22L				Both	Yes No
	42L				Both	Yes No
10M SAS Y012 Cable	21L	ECDW			Both	Yes No
	22L				Both	Yes No
	42L				Both	Yes No
4.5M SAS AA12 Cable	21L	ECE4			Both	Yes No
	22L				Both	Yes No
	42L				Both	Yes No
PCIe1 LP SAS Tape/DVD 2P 3Gb	21L	EJ1N			Both	Yes No
	22L				Both	Yes No
PCIe1 SAS Tape/DVD 2P 3Gb x8	21L	EJ1P			Both	Yes No
	22L				Both	Yes No
	42L				Both	Yes No

Description Machine type 8284	Model number	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Both/ Support	RP CSU MES
PCIe LP 3D Graphics adpt x16	22A	EC51			Both	Yes No
	22A				Both	Yes No
4.5M SAS X12 Cable	22A	ECDK			Both	Yes No
	22A				Both	Yes No
10M SAS X12 Cable	22A	ECDL			Both	Yes No
	22A				Both	Yes No
4.5M SAS Y012 Cable	22A	ECDV			Both	Yes No
	22A				Both	Yes No
10M SAS Y012 Cable	22A	ECDW			Both	Yes No
	22A				Both	Yes No
4.5M SAS AA12 Cable	22A	ECE4			Both	Yes No
	22A				Both	Yes No
PCIe1 LP SAS Tape/DVD 2P 3Gb	22A	EJ1N			Both	Yes No
	22A				Both	Yes No
PCIe1 SAS Tape/DVD 2P 3Gb x8	22A	EJ1P			Both	Yes No
	22A				Both	Yes No

Description Machine type 8286	Model number	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Both/ Support	RP CSU MES
4.5M SAS X12 Cable	41A	ECDK			Both	Yes No
	42A				Both	Yes No
10M SAS X12 Cable	41A	ECDL			Both	Yes No
	42A				Both	Yes No
4.5M SAS Y012 Cable	41A	ECDV			Both	Yes No
	42A				Both	Yes No
10M SAS Y012 Cable	41A	ECDW			Both	Yes No
	42A				Both	Yes No
4.5M SAS AA12 Cable	41A	ECE4			Both	Yes No
	42A				Both	Yes No
PCIe1 SAS Tape/DVD 2P 3Gb x8	41A	EJ1P			Both	Yes No
	42A				Both	Yes No
32 GB DDR4 Memory	42A	EM9Z			Initial	N/A No

Description Machine type 8408	Model number	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Both/ Support	RP CSU MES
4.5M SAS X12 Cable	44E	ECDK			Both	Yes No
	E8E				Both	Yes No
10M SAS X12 Cable	44E	ECDL			Both	Yes No
	E8E				Both	Yes No
4.5M SAS Y012 Cable	44E	ECDV			Both	Yes No
	E8E				Both	Yes No
10M SAS Y012 Cable	44E	ECDW			Both	Yes No
	E8E				Both	Yes No
4.5M SAS AA12 Cable	44E	ECE4			Both	Yes No
	E8E				Both	Yes No
PCIe1 SAS Tape/DVD 2P 3Gb x8	44E	EJ1P			Both	Yes No
	E8E				Both	Yes No

Description Machine type 9080	Model number	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/ MES/ Both/ Support	RP CSU MES
4.5M SAS X12 Cable	MHE	ECDK			Both	Yes No
	MME				Both	Yes No
10M SAS X12 Cable	MHE	ECDL			Both	Yes No
	MME				Both	Yes No
4.5M SAS Y012 Cable	MHE	ECDV			Both	Yes No
	MME				Both	Yes No
10M SAS Y012 Cable	MHE	ECDW			Both	Yes No
	MME				Both	Yes No
4.5M SAS AA12 Cable						

Description	Model number	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/MES/Both/Support	RP CSU MES
PCIe1 SAS Tape/DVD 2P 3Gb x8	MHE	ECE4			Both	Yes No
	MME				Both	Yes No
	MHE	EJ1P			Both	Yes No
	MME				Both	Yes No
4.5M SAS X12 Cable	MHE	ECDK			Both	Yes No
	MME				Both	Yes No
10M SAS X12 Cable	MHE	ECDL			Both	Yes No
	MME				Both	Yes No
4.5M SAS Y012 Cable	MHE	ECDV			Both	Yes No
	MME				Both	Yes No
10M SAS Y012 Cable	MHE	ECDW			Both	Yes No
	MME				Both	Yes No
4.5M SAS AA12 Cable	MHE	ECE4			Both	Yes No
	MME				Both	Yes No
PCIe1 SAS Tape/DVD 2P 3Gb x8	MHE	EJ1P			Both	Yes No
	MME				Both	Yes No
	MHE	EJ1P			Both	Yes No
	MME				Both	Yes No

The following are features already announced for the IBM Power Systems 8408 machine type:

Description	Model number	Feature number	Purchase price	Minimum Monthly Maint. Charge	Initial/MES/Both/Support	RP CSU MES
100Gb Optic Transceiver QSFP28	E8E	EB59			Both	Yes No
0.5M 100GbE Cu Cable QSFP28	E8E	EB5J			Both	Yes No
1.0M 100GbE Cu Cable QSFP28	E8E	EB5K			Both	Yes No
1.5M 100GbE Cu Cable QSFP28	E8E	EB5L			Both	Yes No
2.0M 100GbE Cu Cable QSFP28	E8E	EB5M			Both	Yes No
3M 100GbE optic Cable QSFP28	E8E	EB5R			Both	Yes No
5M 100GbE optic Cable QSFP28	E8E	EB5S			Both	Yes No
10M 100GbE optic Cable QSFP28	E8E	EB5T			Both	Yes No
15M 100GbE optic Cable QSFP28	E8E	EB5U			Both	Yes No
20M 100GbE optic Cable QSFP28	E8E	EB5V			Both	Yes No
30M 100GbE optic Cable QSFP28	E8E	EB5W			Both	Yes No
50M 100GbE optic Cable QSFP28	E8E	EB5X			Both	Yes No
100M 100GbE optic Cable QSFP28	E8E	EB5Y			Both	Yes No
PCIe3 2port 100Gb EDR IB Ad	E8E	EC3F			Both	Yes No
PCIe3 2-port 100GbE Adapterx16	E8E	EC3M			Both	Yes No
PCIe3 1port 100Gb EDR IB Ad						

	E8E	EC3U	Both	Yes	No
3.0M SAS X12 Cable	E8E	ECDJ	Both	Yes	No
1.5M SAS Y012 Cable	E8E	ECDT	Both	Yes	No
3.0M SAS Y012 Cable	E8E	ECDU	Both	Yes	No
0.6M SAS AA12 Cable	E8E	ECE0	Both	Yes	No
3.0M SAS AA12 Cable	E8E	ECE3	Both	Yes	No
Boot Drive in EXP12SX Specify	E8E	EHR1	Both	Yes	No
Boot / Load in EXP24SX Specify	E8E	EHR2	Both	Yes	No
SSD Placement Ind- #ESLS/#ELLS	E8E	EHS2	Both	Yes	No
PCIe3 Crypto Coproc noBSC 4767	E8E	EJ32	Both	Yes	No
PCIe3 Crypto Coproc BSC-3 4767	E8E	EJ33	Both	Yes	No
Specify Mode-1 for EXP12SX 1&1	E8E	EJV1	Both	Yes	No
Specify Mode-1 for EXP12SX 2&2	E8E	EJV2	Both	Yes	No
Specify Mode-2 for EXP12SX 2&2	E8E	EJV3	Both	Yes	No
Specify Mode-2 for EXP12SX 4&2	E8E	EJV4	Both	Yes	No
Specify Mode-4 for EXP12SX 4&2	E8E	EJV5	Both	Yes	No
Specify Mode-2 for EXP12SX 1&2	E8E	EJV6	Both	Yes	No
Specify Mode-2 for EXP12SX 2&2	E8E	EJV7	Both	Yes	No
Specify Mode-2 for EXP12SX 1&1	E8E	EJVA	Both	Yes	No
Specify Mode-2 for EXP12SX 2&1	E8E	EJVB	Both	Yes	No
Specify Mode-4 for EXP12SX 1&1	E8E	EJVC	Both	Yes	No
Specify Mode-4 for EXP12SX 2&1	E8E	EJVD	Both	Yes	No
Specify Mode-4 for EXP12SX 3&2	E8E	EJVE	Both	Yes	No
Specify Mode-1 for EXP12SX 2&2	E8E	EJVF	Both	Yes	No
Specify Mode-1 for EXP12SX 2&2	E8E	EJVP	Both	Yes	No
Specify Mode-1 for EXP24SX 1&1	E8E	EJW1	Both	Yes	No
Specify Mode-1 for EXP24SX 2&2	E8E	EJW2	Both	Yes	No
Specify Mode-2 for EXP24SX 2&2	E8E	EJW3	Both	Yes	No
Specify Mode-2 for EXP24SX 4&2	E8E	EJW4	Both	Yes	No
Specify Mode-4 for EXP24SX 4&2	E8E	EJW5	Both	Yes	No
Specify Mode-2 for EXP24SX 1&2	E8E	EJW6	Both	Yes	No
Specify Mode-2 for EXP24SX 2&2	E8E	EJW7	Both	Yes	No
Specify Mode-2 for EXP24SX 1&1	E8E	EJWA	Both	Yes	No
Specify Mode-2 for EXP24SX 2&1	E8E	EJWB	Both	Yes	No
Specify Mode-4 for EXP24SX 1&1	E8E	EJWC	Both	Yes	No
Specify Mode-4 for EXP24SX 2&1	E8E	EJWD	Both	Yes	No
Specify Mode-4 for EXP24SX 3&2	E8E	EJWE	Both	Yes	No
Specify Mode-1 for EXP24SX 2&2	E8E	EJWE	Both	Yes	No

Specify Mode-2 for EXP24SX 2&2	E8E	EJWF	Both	Yes	No
Specify Mode-2 for EXP24SX 2&1	E8E	EJWG	Both	Yes	No
Specify Mode-2 for EXP24SX 4&2	E8E	EJWH	Both	Yes	No
Specify Mode-1 for EXP24SX 2&2	E8E	EJWJ	Both	Yes	No
Specify Mode-2 for EXP24SX 4&2	E8E	EJWP	Both	Yes	No
Specify Mode-2 for EXP24SX 2&2	E8E	EJWR	Both	Yes	No
Specify Mode-2 for EXP24SX 2&1	E8E	EJWS	Both	Yes	No
16 GB DDR4 Memory	E8E	EJWT	Both	Yes	No
32 GB DDR4 Memory	E8E	EM8P	Both	Yes	No
64 GB DDR4 Memory	E8E	EM8Q	Both	Yes	No
Qty 150 #ES62 3.86TB LFF Dsk	E8E	EM8R	Both	Yes	No
Qty 150 #ES64 7.72TB LFF Dsk	E8E	EQ62	Both	Yes	No
3.86TB 7200 RPM SAS LFF Disk	E8E	EQ64	Both	Yes	No
7.72TB 7200 RPM SAS LFF Disk	E8E	ES62	Both	Yes	No
Specify AC Power Supply	E8E	ES64	Both	Yes	No
EXP12SX SAS Storage Enclosure	E8E	ESLA	Both	Yes	No
EXP24SX SAS Storage Enclosure	E8E	ESLL	Both	Yes	No
	E8E	ESLS	Both	Yes	No

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