

IBM Power Systems offers hardware enhancements for select IBM POWER9 technology-based servers

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At a glance

Hardware enhancements are available for select systems in the IBM^(R) POWER9TM scale-out and scale-up family of servers, including:

- 800 GB mainstream Non-Volatile Memory Express (NVMe) U.2 SSD 4K provides an entry-level device specific to the AIX^(R)/Linux^(R) operating system for Power^(R) S924, S914, S922, H924, H922, E950, and E980 servers.
- Peripheral Component Interconnect^(R) Express (PCIe) generation 3 Crypto Coprocessor Gen3 4769 adapter for Power S924, S914, S922, H924, H922, E950, and E980 servers.
- QSFP+ 40 GbE Base-SR4 Transceiver for Power S812L, S822L, S824L, S812, S822, S824, S814, S822LC, S812LC, E850, E850C, E870, E870C, E880, E880C, AC922, S924, S914, S922, L922, H924, H922, E950, and E980 servers.
- QSFP28 to SFP28 Connector for Power S924, S914, S922, L922, H924, H922, E950, and E980 servers.
- Front door high-end appearance for 7965-S42 racks.
- Additional power cord options expand flexibility in configuring IBM solutions for Power AC922, S924, S914, S922, L922, H924, H922, E950, and E980 servers and S42 rack in select countries.

Overview

The POWER9 server family delivers several key hardware enhancements for select systems, including additional NVMe U.2 SSD and transceiver options.

800 GB Mainstream NVMe U.2 SSD 4K for AIX/Linux

Mainstream 800 GB NVMe SFF U.2 SSD is a PCIe generation 4 (Gen4) drive. This SSD can be used in any U.2 NVMe PCIe Gen4 x 4 interface in the system. NVMe is a high-performance architecture and command protocol that can read/write flash memory. Compared to a SAS or SATA SSD, the NVMe SSD provides more read/write input/output operations per second (IOPS) and larger throughput (GBps).

PCIe3 Crypto Coprocessor Gen3 4769

The 4769 PCIe Cryptographic Coprocessor has a PCIe local-bus-compatible interface. The coprocessor holds a security-enabled subsystem module and batteries for backup power. The hardened encapsulated subsystem contains two sets of two 32-bit PowerPC^(R) 476FP reduced instruction set computer (RISC) processors running in lockstep with cross-checking to detect soft errors in the hardware. It also contains a separate service processor used to manage self-test and firmware updates, RAM,

flash memory and battery-powered memory, secure time-of-day, cryptographic quality random number generator, AES, DES, Triple DES, HMAC, CMAC, MD5, multiple SHA hashing methods, modular-exponentiation hardware, such as RSA and ECC, and full-duplex direct memory access (DMA) communications.

QSFP+ 40 GbE Base-SR4 Optical Transceiver

IBM QSFP+ optical base-SR4 optical transceiver required for 40 Gbps ports which are not using a copper QSFP+ transceiver. This 40 Gigabit Ethernet transceiver module provides excellent performance and is supported on the following adapters:

- PCIe3 2-Port 40 GbE NIC RoCE QSFP+ Adapter (Features #EC3A/#EC3B)
- PCIe3 2-port 100 GbE (NIC& RoCE) QSFP28 Adapter x16 (Features #EC3L/#EC3M)
- PCIe4 2-port 100 GbE ROCE adapter (Features #EC66/#EC67)

QSFP28 to SFP28 Connector

QSFP28 to SFP28 Connector is a Mellanox adapter which enables connections between a single lane transceiver/cable and a quad-lane port. The QSA28 provides the option to connect an SFP28 transceiver or cable to a QSFP28 port 100 Gbps switch or network card.

Rack front door high-end appearance

This feature provides a front door with a high-end appearance with an IBM logo for IBM Enterprise Slim Rack (MTM 7965-S42) rack.

Limitation: This feature is not supported in the rack version ordered through feature code ECR0.

Additional power cord options

4.3 m (14 ft) PDU to Wall 3PH/40 A 200 - 240 V Power Cord (Feature #ECJ6)

This power cord goes from the chassis to a wall-type outlet. The line cord has a 200 - 240 V, CS8365 50 A Plug (de-rated to 40 A) and Amphenol inlet compatible with PDU FCs ECJL and ECJQ. Feature number ECJ6 power cord to power the system is only available for use in the United States and Canada.

4.3 m (14 ft) PDU to Wall 24 A 200 - 240 V Power Cord (Feature #ELC1)

This power cord goes from the chassis to a wall-type outlet. The line cord has a 200 - 240 V, IEC309 30 A P+N+G Plug (de-rated to 24 A) and Souriau inlet compatible with PDU FCs ECJJ and ECJN. Feature number ELC1 power cord to power the system is only available for use in the United States, Canada, and Mexico.

4.3 m (14 ft) PDU to Wall 3PH/24 A 415 V Power Cord (Feature #ELC2)

This power cord goes from the chassis to a wall-type outlet. The line cord has a 3-phase wye-wired 415/240 V, IEC309 30A 3P+N+G Plug (de-rated to 24 A per phase) and Souriau inlet compatible with PDU FCs ECJJ and ECJN. Feature number ELC2 power cord to power the system is only available for use in the United States, Canada, and Mexico.

Key requirements

Not applicable.

Planned availability date

September 17, 2021

Description

800 GB Mainstream NVMe U.2 SSD 4K for AIX/Linux (#EC7T/#EC7Q)

Mainstream 800 GB NVMe SFF U.2 SSD is a PCIe Gen4 drive. NVMe is a high-performance architecture and command protocol that can read and write flash memory. Compared to a SAS or SATA SSD, NVMe SSDs provide more read/write IOPS and larger throughput (GBps).

Feature #EC7T has the CCIN number of 59B7 and indicates usage by AIX, Linux, or VIOS in which the SSD is formatted in 4096 byte sectors. The SSD can be used in any U.2 15mm NVMe PCIe Gen4 x 4 interface in the system found in Power S924, S914, S922, H922, and H924 servers.

Feature #EC7Q has the CCIN number of 59B4 and indicates usage by AIX, Linux, or VIOS in which the SSD is formatted in 4096 byte sectors. The SSD can be used in any U.2 7mm NVMe PCIe Gen4 x 4 interface in the system found in Power E950 and E980 servers.

Mainstream 800 GB SSD formatted in 4096 byte sectors (4K) is rated at 2.4 drive writes per day (DWPD) calculated over a 5-year period for 100% (4K bytes or larger) random write workloads. Use for workloads within this rating are fully supported and will maintain high reliability and mean time between failures (MTBF).

The nature of the workload has a great impact on the maximum write capacity. If a high percentage of more sequentially oriented writes is used instead of random writes, the maximum write capacity will be larger. Writes past the maximum write capacity of the SSD will continue to work for some period of time, but perform much more slowly. Whether the application uses sequential or random reads from the device does not affect the life of the device. A Predictive Failure Analysis message will indicate that it is time to replace the SSD if enabled by the operating system and system administrator. Clients are recommended to monitor SMART log critical information via the appropriate OS utility to observe drive life remaining information. IBM NVMe SSD failures will be replaced during the standard warranty and maintenance period for SSDs that have not reached the maximum number of write cycles. SSDs that reach this limit may fail to operate according to specifications and must be replaced at the client's expense. Boot function is supported. Data redundancy on a failed SSD may be provided by OS mirroring or software RAID wherever applicable.

PCIe3 Crypto Coprocessor Gen3 4769 (#EJ35/#EJ37)

The 4769 PCIe Cryptographic Coprocessor has a PCIe local-bus-compatible interface. The coprocessor holds a security-enabled subsystem module and batteries for backup power. The hardened encapsulated subsystem contains two sets of two 32-bit PowerPC 476FP reduced instruction set computer (RISC) processors running in lockstep with cross-checking to detect soft errors in the hardware. It also contains a separate service processor used to manage self-test and firmware updates; RAM; flash memory and battery-powered memory; secure time-of-day; cryptographic quality random number generator; Data Encryption Standard (DES); Triple Data Encryption Standard (Triple DES); and Advanced Encryption Standard (AES); Hash-Based Message Authentication Code (HMAC); Cipher-based Message Authentication Code (CMAC); MD5; multiple SHA hashing methods; modular-exponentiation hardware, such as Rivest-Shamir-Adleman (RSA) and Elliptic-curve cryptography (ECC); and full-duplex direct memory access (DMA) communications.

A security-enabled code-loading arrangement allows control program and application program loading, and refreshes after coprocessor installation in your server. IBM offers an embedded subsystem control program and a cryptographic application programming interface (API) that implements the IBM Common Cryptographic Architecture (CCA).

The IBM CCA Support Program can be accessed from the internet at no charge to the user. See the *IBM CCA Basic Services Reference and Guide*, which can be found

at the [IBM Cryptocards Library](#) for a full explanation of the CCA API [CEX7S / 4769 - CCA](#).

For details about future updates to the versions of operating systems that are supported by the 4769 PCIe Cryptographic Coprocessor, see the [IBM Cryptocards website](#).

Feature codes EJ35 and EJ37 are both features representing the same physical card with the same CCIN of C0AF. Different feature codes are used to indicate if a blind swap cassette is used and its type. Feature EJ35 indicates no blind swap cassette and can be ordered for S914, S924, S922, H924, H922, and E950 servers. Feature EJ37 indicates a Gen 3 blind swap cassette and can be ordered for S914, S924, S922, H924, H922, E950, and E980 servers.

The 4769 PCIe Cryptographic Coprocessor is designed to deliver the following functions:

- X.509 certificate services support
- ANSI X9 TR34-2019 key exchange services that exploit the public key infrastructure (PKI)
- ECDSA secp256k1
- CRYSTALS-Dilithium, a quantum-safe algorithm for digital signature generation and verification
- RSA algorithm for digital signature generation and verification with keys up to 4096 bits in length
- High-throughput Secure Hash Algorithm (SHA), MD5 message digest algorithm, HMAC, CMAC, DES, Triple DES, and AES-based encryption for data integrity assurance and confidentiality, including AES Key Wrap (AESKW) that conforms to ANSI X9.102
- ECC for digital signature and key agreement
- Support for smart card applications and personal identification number (PIN[®]) processing
- Secure time-of-day
- Visa Data Secure Platform (DSP) point-to-point encryption (P2PE) with standard Visa format-preserving encryption (FPE) and format-preserving, Feistel-based Format Preserving Encryption (FF1, FF2, FF2.1)
- Format Preserving Counter Mode (FPCM) as defined in x9.24 Part 2

QSFP+ 40 GbE Base-SR4 Transceiver (#EB57)

IBM QSFP+ optical base-SR4 transceiver required for 40 Gbps ports that are not using copper QSFP+ transceiver.

The QSFP+ 40 GbE Base-SR4 Transceiver is designed to deliver the following functions:

- Hot-swappable input/output device that plugs into a 40 Gigabit Ethernet QSFP port
- Interoperable with other IEEE-compliant 40GBASE interfaces where applicable
- High-speed electrical interface compliant to the IEEE 802.3ba standard
- QSFP Form factor, 2-wire I2C communication interface and other low-speed electrical interface compliant to SFF 8436 and QSFP Multisource Agreement (MSA)

QSFP28 to SFP28 Connector (#EB49)

This feature provides a QSFP28 to SFP28 connector which enables connections between a single-lane transceiver/cable and a quad-lane port. The QSA28 provides the option to connect an SFP28 transceiver or cable to a QSFP28 port 100 Gbps switch or network card.

The adapter has a QSFP28 form factor with a receptacle for an SFP28 transceiver/AOC/DAC connector. The QSA28 interoperates with all major optical modules and direct attached copper cable. Its design assures minimum loss on the conversion path between the QSFP28 cage and the SFP28 receptacle.

The QSFP28 to SFP28 connector is qualified for 10 GbE SFP+ and 1 GbE SFP transceivers meeting the SFP Transceiver MSA.

Product number

The following are newly announced features on the specific models of the IBM Power Systems 7965, 8247, 8284, 8286, 8335, 8348, 8408, 9008, 9009, 9040, 9080, 9119, 9223 machine type:

Description	MT	Model	Feature
PCIe3 Crypto Coprocessor no BSC 4769	9009	41A	EJ35
	9009	41G	
	9009	42A	
	9009	42G	
	9040	MR9	
	9223	42H	
PCIe3 Crypto Coprocessor BSC-Gen3 4769	9223	42S	EJ37
	9009	22A	
	9009	22G	
	9009	41A	
	9009	41G	
	9009	42A	
	9009	42G	
	9040	MR9	
	9080	M9S	
	9223	22H	
	9223	22S	
	QSFP28 to SFP28 Connector	9223	
9223		42S	
9008		22L	
9009		22A	
9009		22G	
9009		41A	
9009		41G	
9009		42A	
9009		42G	
9040		MR9	
9080		M9S	
QSFP+ 40GbE Base-SR4 Transceiver		9223	22H
	9223	22S	
	9223	42H	
	9223	42S	
	8247	21L	
	8247	22L	
	8247	42L	
	8284	22A	
	8286	41A	
	8286	42A	
	8335	GCA	
	8335	GTA	
	8335	GTB	
	8335	GTG	
	8335	GTH	
	8335	GTX	
	8348	21C	
	8408	44E	
8408	E8E		
9008	22L		
9009	22A		
9009	22G		
9009	41A		
9009	41G		

	9009	42A	
	9009	42G	
	9040	MR9	
	9080	M9S	
	9080	MHE	
	9080	MME	
	9119	MHE	
	9119	MME	
	9223	22H	
	9223	22S	
	9223	42H	
	9223	42S	
800GB Mainstream NVMe U.2 SSD 4k for AIX/Linux	9040	MR9	EC7Q
	9080	M9S	
800GB Mainstream NVMe U.2 SSD 4k for AIX/Linux	9009	22G	EC7T
	9009	41G	
	9009	42G	
	9223	22S	
	9223	42S	
4.3m (14-Ft) PDU to wall 3PH/40A 200-240V Power Cord	7965	S42	ECJ6
	8335	GTC	
	8335	GTG	
	8335	GTH	
	9008	22L	
	9009	22A	
	9009	22G	
	9009	41A	
	9009	41G	
	9009	42A	
	9009	42G	
	9040	MR9	
	9080	M9S	
	9223	22H	
	9223	22S	
	9223	42H	
	9223	42S	
Rack Front Door High-End for 7965-S42	7965	S42	ECRT
4.3m (14-Ft) PDU to wall 24A 200-240V Power Cord North America	7965	S42	ELC1
	8335	GTC	
	8335	GTG	
	8335	GTH	
	9008	22L	
	9009	22A	
	9009	22G	
	9009	41A	
	9009	41G	
	9009	42A	
	9009	42G	
	9040	MR9	
	9080	M9S	
	9223	22H	
	9223	22S	
	9223	42H	
	9223	42S	
4.3m (14-Ft) PDU to wall 3PH/24A 415V Power Cord North America	7965	S42	ELC2
	8335	GTC	
	8335	GTG	
	8335	GTH	
	9008	22L	
	9009	22A	
	9009	22G	
	9009	41A	
	9009	41G	
	9009	42A	
	9009	42G	
	9040	MR9	
	9080	M9S	
	9223	22H	
	9223	22S	
	9223	42H	
	9223	42S	

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 9009-41A adapters

From FC:	To FC:	RETURN PARTS
EJ35 - PCIe3 Crypto Coprocessor no BSC 4769	EJ37 - PCIe3 Crypto Coprocessor BSC-Gen3 4769	No

Feature conversions for 9009-41G adapters

From FC:	To FC:	RETURN PARTS
EJ35 - PCIe3 Crypto Coprocessor no BSC 4769	EJ37 - PCIe3 Crypto Coprocessor BSC-Gen3 4769	No

Feature conversions for 9009-42A adapters

From FC:	To FC:	RETURN PARTS
EJ35 - PCIe3 Crypto Coprocessor no BSC 4769	EJ37 - PCIe3 Crypto Coprocessor BSC-Gen3 4769	No

Feature conversions for 9009-42G adapters

From FC:	To FC:	RETURN PARTS
EJ35 - PCIe3 Crypto Coprocessor no BSC 4769	EJ37 - PCIe3 Crypto Coprocessor BSC-Gen3 4769	No

Feature conversions for 9040-MR9 adapters

From FC:	To FC:	RETURN PARTS
EJ35 - PCIe3 Crypto Coprocessor no BSC 4769	EJ37 - PCIe3 Crypto Coprocessor BSC-Gen3 4769	No

Feature conversions for 9223-42H adapters

From FC:	To FC:	RETURN PARTS
EJ35 - PCIe3 Crypto Coprocessor no BSC 4769	EJ37 - PCIe3 Crypto Coprocessor BSC-Gen3 4769	No

Feature conversions for 9223-42S adapters

From FC:	To FC:	RETURN PARTS
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Business Partner information

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 ID and password are required (use IBMid).

[BP Attachment for Announcement Letter 121-053](#)

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 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.

Services

IBM Lab Services

IBM 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 Lab Services can 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 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 [Lab Services](#) website.

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 [Services and Consulting](#) website.

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

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

Technical information

Planning information

Cable orders

No cables required.

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.

IBM Lab Services

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

Terms and conditions

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.

IBM Solid State Drive (SSD) and Non-Volatile Memory Express (NVMe) devices identified in this document may have a maximum number of write cycles. IBM SSD and NVMe device failures will be replaced during 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.

Client setup

Yes

Machine code

Same license terms and conditions as base machine

Prices

For all local charges, contact your local IBM representative or IBM Business Partner.

The following are newly announced features on the specific models of the IBM Power Systems 7965, 8247, 8284, 8286, 8335, 8348, 8408, 9008, 9009, 9040, 9080, 9119, 9223 machine type:

Minimum Initial/
Monthly MES/

Description Machine Type	Model 7965	Feature Numbers	Purchase Price	Maint. Charge	Both/ Support	RP CSU MES
4.3m (14-Ft) PDU to Wall Pwr	S42	ECJ6			Both	Yes No
Rack Front Door High-End	S42	ECRT			Both	Yes No
PwrCrd 4.3m 14ft PDU to Wall	S42	ELC1			Both	Yes No
PwrCrd 4.3m 14ft PDU to Wall	S42	ELC2			Both	Yes No

Description Machine Type	Model 8247	Feature Numbers	Purchase Price	Maint. Charge	Both/ Support	RP CSU MES
QSFP+ 40GbE Transceiver	21L	EB57			MES	Yes No
	22L				MES	Yes No
	42L				MES	Yes No

Description Machine Type	Model 8284	Feature Numbers	Purchase Price	Maint. Charge	Both/ Support	RP CSU MES
QSFP+ 40GbE Transceiver	22A	EB57			MES	Yes No

Description Machine Type	Model 8286	Feature Numbers	Purchase Price	Maint. Charge	Both/ Support	RP CSU MES
QSFP+ 40GbE Transceiver	41A	EB57			MES	Yes No
	42A				MES	Yes No

Description Machine Type	Model 8335	Feature Numbers	Purchase Price	Maint. Charge	Both/ Support	RP CSU MES
QSFP+ 40GbE Transceiver	GCA	EB57			MES	Yes No
	GTA				MES	Yes No
	GTB				MES	Yes No
	GTG				Both	Yes No
	GTH				Both	Yes No
	GTX				Both	Yes No
4.3m (14-Ft) PDU to Wall Pwr	GTC	ECJ6			MES	Yes No
	GTG				MES	Yes No
	GTH				Both	Yes No
PwrCrd 4.3m 14ft PDU to Wall	GTC	ELC1			MES	Yes No
	GTG				MES	Yes No
	GTH				Both	Yes No
PwrCrd 4.3m 14ft PDU to Wall	GTC	ELC2			MES	Yes No
	GTG				MES	Yes No
	GTH				Both	Yes No

Description Machine Type	Model 8348	Feature Numbers	Purchase Price	Maint. Charge	Both/ Support	RP CSU MES
QSFP+ 40GbE Transceiver	21C	EB57			MES	Yes No

Minimum Initial/
Monthly MES/

Description Machine Type	Model 8408	Feature Numbers	Purchase Price	Maint. Charge	Both/ Support	RP CSU MES
QSF+ 40GbE Transceiver						
	44E	EB57			MES	Yes No
	E8E				MES	Yes No
				Minimum Monthly	Initial/ MES/	
Description Machine Type	Model 9008	Feature Numbers	Purchase Price	Maint. Charge	Both/ Support	RP CSU MES
QSF28 to SFP28 Connector						
	22L	EB49			Both	Yes No
QSF+ 40GbE Transceiver						
	22L	EB57			Both	Yes No
4.3m (14-Ft) PDU to Wall Pwr						
	22L	ECJ6			Both	Yes No
PwrCrd 4.3m 14ft PDU to Wall						
	22L	ELC1			Both	Yes No
PwrCrd 4.3m 14ft PDU to Wall						
	22L	ELC2			Both	Yes No
				Minimum Monthly	Initial/ MES/	
Description Machine Type	Model 9009	Feature Numbers	Purchase Price	Maint. Charge	Both/ Support	RP CSU MES
PCIe3 Crypto Coproc 4769						
	41A	EJ35			Both	Yes No
	41G				Both	Yes No
	42A				Both	Yes No
	42G				Both	Yes No
PCIe3 Crypto Coproc BSC4769						
	22A	EJ37			Both	Yes No
	22G				Both	Yes No
	41A				Both	Yes No
	41G				Both	Yes No
	42A				Both	Yes No
	42G				Both	Yes No
QSF28 to SFP28 Connector						
	22A	EB49			Both	Yes No
	22G				Both	Yes No
	41A				Both	Yes No
	41G				Both	Yes No
	42A				Both	Yes No
	42G				Both	Yes No
QSF+ 40GbE Transceiver						
	22A	EB57			Both	Yes No
	22G				Both	Yes No
	41A				Both	Yes No
	41G				Both	Yes No
	42A				Both	Yes No
	42G				Both	Yes No
800GB Mainstream NVMe U.2						
	22G	EC7T			Both	Yes No
	41G				Both	Yes No
	42G				Both	Yes No
4.3m (14-Ft) PDU to Wall Pwr						
	22A	ECJ6			Both	Yes No
	22G				Both	Yes No
	41A				Both	Yes No
	41G				Both	Yes No
	42A				Both	Yes No
	42G				Both	Yes No
PwrCrd 4.3m 14ft PDU to Wall						
	22A	ELC1			Both	Yes No
	22G				Both	Yes No
	41A				Both	Yes No
	41G				Both	Yes No
	42A				Both	Yes No
	42G				Both	Yes No
PwrCrd 4.3m 14ft PDU to Wall						
	22A	ELC2			Both	Yes No

22G	Both	Yes	No
41A	Both	Yes	No
41G	Both	Yes	No
42A	Both	Yes	No
42G	Both	Yes	No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine Type	Number	Numbers	Price	Monthly	MES/	CSU
				Maint.	Both/	MES
				Charge	Support	
PCIe3 Crypto Coproc	4769					
	MR9	EJ35			Both	Yes No
PCIe3 Crypto Coproc	BSC4769					
	MR9	EJ37			Both	Yes No
QSFP28 to SFP28 Connector						
	MR9	EB49			Both	Yes No
QSFP+ 40GbE Transceiver						
	MR9	EB57			Both	Yes No
800GB Mainstream NVMe U.2						
	MR9	EC7Q			Both	Yes No
4.3m (14-Ft) PDU to Wall Pwr						
	MR9	ECJ6			Both	Yes No
PwrCrd 4.3m 14ft PDU to Wall						
	MR9	ELC1			Both	Yes No
PwrCrd 4.3m 14ft PDU to Wall						
	MR9	ELC2			Both	Yes No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine Type	Number	Numbers	Price	Monthly	MES/	CSU
				Maint.	Both/	MES
				Charge	Support	
PCIe3 Crypto Coproc	BSC4769					
	M9S	EJ37			Both	Yes No
QSFP28 to SFP28 Connector						
	M9S	EB49			Both	Yes No
QSFP+ 40GbE Transceiver						
	M9S	EB57			Both	Yes No
	MHE				MES	Yes No
	MME				MES	Yes No
800GB Mainstream NVMe U.2						
	M9S	EC7Q			Both	Yes No
4.3m (14-Ft) PDU to Wall Pwr						
	M9S	ECJ6			Both	Yes No
PwrCrd 4.3m 14ft PDU to Wall						
	M9S	ELC1			Both	Yes No
PwrCrd 4.3m 14ft PDU to Wall						
	M9S	ELC2			Both	Yes No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine Type	Number	Numbers	Price	Monthly	MES/	CSU
				Maint.	Both/	MES
				Charge	Support	
QSFP+ 40GbE Transceiver						
	MHE	EB57			MES	Yes No
	MME				MES	Yes No

Description	Model	Feature	Purchase	Minimum	Initial/	RP
Machine Type	Number	Numbers	Price	Monthly	MES/	CSU
				Maint.	Both/	MES
				Charge	Support	
PCIe3 Crypto Coproc	4769					
	42H	EJ35			Both	Yes No
	42S				Both	Yes No
PCIe3 Crypto Coproc	BSC4769					
	22H	EJ37			Both	Yes No
	22S				Both	Yes No
	42H				Both	Yes No
	42S				Both	Yes No
QSFP28 to SFP28 Connector						
	22H	EB49			Both	Yes No

	22S		Both	Yes	No
	42H		Both	Yes	No
	42S		Both	Yes	No
QSFP+ 40GbE Transceiver					
	22H	EB57	Both	Yes	No
	22S		Both	Yes	No
	42H		Both	Yes	No
	42S		Both	Yes	No
800GB Mainstream NVMe U.2					
	22S	EC7T	Both	Yes	No
	42S		Both	Yes	No
4.3m (14-Ft) PDU to wall Pwr					
	22H	ECJ6	Both	Yes	No
	22S		Both	Yes	No
	42H		Both	Yes	No
	42S		Both	Yes	No
PwrCrd 4.3m 14ft PDU to wall					
	22H	ELC1	Both	Yes	No
	22S		Both	Yes	No
	42H		Both	Yes	No
	42S		Both	Yes	No
PwrCrd 4.3m 14ft PDU to wall					
	22H	ELC2	Both	Yes	No
	22S		Both	Yes	No
	42H		Both	Yes	No
	42S		Both	Yes	No

CSU = Customer setup

RP MES = Returnable parts MES

Feature conversion purchase price

Feature conversions for 9009-41A adapters features:

From FC:	To FC:	Parts Returned	Purchase Price
EJ35 - PCIe3 Crypto Coprocessor no BSC 4769	EJ37 - PCIe3 Crypto Coprocessor BSC-Gen3 4769	No	

Feature conversions for 9009-41G adapters features:

From FC:	To FC:	Parts Returned	Purchase Price
EJ35 - PCIe3 Crypto Coprocessor no BSC 4769	EJ37 - PCIe3 Crypto Coprocessor BSC-Gen3 4769	No	

Feature conversions for 9009-42A adapters features:

From FC:	To FC:	Parts Returned	Purchase Price
EJ35 - PCIe3 Crypto Coprocessor no BSC 4769	EJ37 - PCIe3 Crypto Coprocessor BSC-Gen3 4769	No	

Feature conversions for 9009-42G adapters features:

From FC:	To FC:	Parts Returned	Purchase Price
EJ35 - PCIe3 Crypto Coprocessor no BSC 4769	EJ37 - PCIe3 Crypto Coprocessor BSC-Gen3 4769	No	

Feature conversions for 9040-MR9 adapters features:

From FC:	To FC:	Parts Returned	Purchase Price
EJ35 - PCIe3 Crypto Coprocessor no BSC 4769	EJ37 - PCIe3 Crypto Coprocessor BSC-Gen3 4769	No	

Feature conversions for 9223-42H adapters features:

From FC:	To FC:	Parts Returned	Purchase Price
EJ35 - PCIe3 Crypto Coprocessor no BSC 4769	EJ37 - PCIe3 Crypto Coprocessor BSC-Gen3 4769	No	

Feature conversions for 9223-42S adapters features:

From FC:	To FC:	Parts Returned	Purchase Price
EJ35 - PCIe3 Crypto Coprocessor no BSC 4769	EJ37 - PCIe3 Crypto Coprocessor BSC-Gen3 4769	No	

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