IBM Power System IC922 (9183-22X) server delivers powerful computing, scaling efficiency, and storage capacity in a cost-optimized design to meet the evolving data challenges of the AI era

At a glance

The IBM(R) Power(R) System IC922 (9183-22X) server is a powerful new two-socket server designed for high-performance data analytics and computing workloads to help meet your accelerated computing needs.

The Power System IC922 server offers:

- Two IBM POWER9™ processor single-chip module (SCM) devices that provide high performance with 24, 32, or 40 fully activated cores and 2 TB maximum memory TPM2.0 for secure and trusted boot
- Up to 24 2.5-inch SAS3/SATA drives via 3 optional drive backplanes (each supporting 8 drives) and several optional SAS3/SATA adapters
- Up to six NVIDIA T4 GPU accelerators
- Two integrated USB 3.0 ports in rear and one USB 3.0 in front
- Two hot-swap and redundant power supplies: 2000 W 220 V AC with C20 receptacle
- Six hot-swap and redundant fans
- 19-inch rack-mount hardware with full rails and cable management arm included

Overview

The Power System IC922 server is engineered to put your AI models to work and unlock business insights. It uses optimized hardware and software to deliver the necessary components for AI inference. The Power System IC922 server fits into your AI workflow and integrates with the IBM Power System AC922 training platform. Thanks to its modular design, the Power System IC922 server can scale with business needs.

The Power System IC922 server supports two processor sockets, offering 12-core (2.8 GHz base frequency), 16-core (3.35 GHz base frequency), and 20-core (2.9 GHz base frequency) POWER9 technology-based system configurations in a 19-inch rack-mount with a 2U (EIA units) drawer configuration.

The Power System IC922 server provides two hot-swap and redundant power supplies and 32 DIMM memory slots. Sixteen GB (#EM62), thirty-two GB (#EM63), and sixty-four GB (#EM64) supported memory features allow for a maximum

system memory of 2 TB. Memory bandwidth is maximized with 16 DIMM memory slots populated.

The Power System IC922 server also provides:

- High throughput and performance for high-value Linux[R] workloads, such as inferencing data, storage-rich workloads, and cloud
- Potentially low acquisition cost through system optimization, such as utilizing industry standard memory and warranty
- Up to six NVIDIA T4 GPU accelerators
- Multiple I/O options in the system, including:
  - Two PCIe x16 3.0 FHFL slots (supports double-wide accelerator)
  - Two PCIe x16 4.0 LP slot
  - Two PCIe x8 3.0 FHFL slots (physically x16)
  - Two PCIe x8 3.0 FHFL slots
  - Two PCIe x16 3.0 LP slots
- Up to 24 2.5-inch SAS3/SATA drives via 3 optional drive backplanes (each supporting 8 drives) and several optional SAS3/SATA adapters
- Optional Mellanox InfiniBand or high-performance Ethernet
- Two rear USB 3.0 ports in rear and one USB 3.0 port in front
- Red Hat[R] Enterprise Linux (RHEL) 7.6-ALT for IBM Power LE (POWER9), or later, operating system

Feature exchange

Not applicable

Key requirements

Red Hat Enterprise Linux (RHEL) 7.6-ALT for IBM Power LE (POWER9), or later

Planned availability date

February 7, 2020

Description

Standard features for the Power System IC922 server

- Power Systems server built with POWER9 processor modules
  - 12-core 2.8 to 3.8 GHz (max)
  - 16-core 3.35 to 4.0 GHz (max)
  - 20-core 2.9 to 3.8 GHz (max)
- High-performance DDR4 memory
  - 512 GB (#EM62 x32), 1 TB (#EM63 x32), or 2 TB (#EM64 x32) memory features
- Storage bays
  - Up to 24 2.5-inch SAS3/SATA drives via 3 optional drive backplanes (each supporting 8 drives) and several optional SAS3/SATA adapters
  - 600 GB 2.5-inch SAS3 HHD 4KN/512e SED (#EK1A)
  - 1.2 TB 2.5-inch SAS3 HDD 4KN/512e SED (#EK1B)

- 2.4 TB 2.5-inch SAS3 HDD 4KN/512e NONSED (#EK1C)
- 240 GB 2.5-inch SATA SSD 1.4-DWPD NONSED (#EK20)
- 960 GB 2.5-inch SATA SSD 2.5-DWPD NONSED (#EK21)
- 1.9 TB 2.5-inch SATA SSD 2.5-DWPD NONSED (#EK22)
- 3.8 TB 2.5-inch SATA SSD 2.5-DWPD NONSED (#EK23)
- 3.8 TB 2.5-inch SAS3 1-DWPD NONSED (#EK27)
- 10 PCIe slots
- Compute-intensive accelerator
  - NVIDIA T4 GPU with PCIe3.0 x16 LP (16 GB) (#EK4L)
  - NVIDIA T4 GPU with PCIe3.0 x16 (16 GB) (#EK4M)
- Two rear USB 3.0 ports and one front USB 3.0 port
- Two 2000 W 220 V AC power supplies with C20 receptacle
- 19-inch rack-mount hardware with 2U enclosure

Power System IC922 server configuration

The minimum Power System IC922 initial order must include two processor modules, 64 GB of memory, two power supplies, two line cords, rack-mounting hardware, a system software indicator, a specified rack integrator, and a specified language group.

Linux is the operating system. The minimum defined initial order configuration is as follows:

Feature number	Description
EK00 x 2	12-core 2.8 to 3.8 GHz (max) POWER9 Processor Module
or	
EK01 x 2	16-core 3.35 to 4.0 GHz (max) POWER9 Processor Module
or	
EK02 x 2	20-core 2.9 to 3.8 GHz (max) POWER9 Processor Module
EM62 x 4	16 GB DIMMs, 2666 MHz, 4 Gb DDR4 DRAM
EC16 x 1	Open Power Abstraction Layer (OPAL)
EK30 x 1	PCI Risers Standard
4650 x 1	Rack Indicator -- Not Factory Integrated
EKMP x 2	AC Power Supply, 2000 Watt (220 V)
2 power cords	Select two power cords from supported list. Feature 4558 is defaulted. (#4558 Power Cord To PDU/UPS, (100-240V/16A))
2147 x 1	Primary OS Linux
ESC0 x 1	S&H - No Charge
or	
ESC5 x 1	S&H-a
93xx x 1	Language Group Specify (select one from announced features)

Note: If you want a rack, it must be ordered as an MTM rack on initial system orders. It will be shipped at the same time in the same shipment, but in separate packing material. IBM does not offer IBM Manufacturing rack integration of the server into the rack before shipping at this time.

Processor modules

A minimum of two identical processor modules are required, with 12 processor cores (#EK00), 16 processor cores (#EK01), or 20 processor cores (#EK02) allowed. All processor cores are activated.

There are no processor activation features used or orderable on the Power System IC922 server. All processor cores are always fully activated.

Note: Mixing of different processor features on the same system is not allowed.

System memory

There are 32 memory slots in the server. Each memory slot can hold one DDR4 memory feature. A minimum of four memory features is required, filling all the memory slots. With 16 GB DIMMs, 64 GB of memory is required. With 32 GB DIMMs, 128 GB of memory is required. With 64 GB DIMMs, 256 GB is required.

Note: Mixing of memory features on the same system is not allowed.

DIMM memory features

Feature name	Feature number	Maximum quantity
16 GB DDR4 2666 MHz	EM62	32
32 GB DDR4 2666 MHz	EM63	32
64 GB DDR4 2666 MHz	EM64	32

I/O adapters

The system contains the following adapter slots:

- Two PCIe x16 3.0 FHFL slots (supports double-wide accelerator)
- Two PCIe x16 4.0 LP slot
- Two PCIe x8 3.0 FHFL slots (physically x16)
- Two PCIe x8 3.0 FHFL slots
- Two PCIe x16 3.0 LP slots

Only LP adapters can be placed in LP slots. An x8 adapter can be placed in an x16 slot, but an x16 adapter cannot be placed in an x8 slot.

Power supply

There are two 2000 W 220 V AC power supplies (2 x #EKMP).

Power cords

Two power cords are required. Two feature 4558 power cords are provided by default. See the feature listing for other options.

Section 508 of the US Rehabilitation Act

The Power System IC922 (9183-22X) server is capable as of February 7, 2020, when used in accordance with associated IBM documentation, of satisfying the applicable standards, including the Worldwide Consortium Web Content Accessibility Guidelines, European Standard EN 301 349, and US Section 508, provided that any assistive technology used with the product properly interoperates with it. An Accessibility Conformance Statement can be requested on the Product accessibility information website.

Statement of general direction

IBM currently intends to enable inference and training accelerator capabilities such as GPU, FPGAs, and ASICs with the new IBM Power System IC922 server. This flexible server design is currently intended to accommodate up to 8 accelerated devices, such as NVIDIA T4s or Xilinx U50. IBM's aim with the new Power System IC922 server is to help address the growing industry need for AI and enhance IBM's end-to-end, integrated AI platform, which includes IBM Watson[R] Machine Learning and select IBM POWER9 hardware.

IBM currently intends to deliver the IBM Power System IC922 with significant IO capabilities to meet the world's demanding data movement requirements. These IO capabilities are currently intended to enable up to 24 NVMe drives and to deliver OpenCAPI™ technology, such as the Bittware 250-SoC card.

IBM currently intends to deliver elastic, distributed inferencing capabilities as a new product within the Watson™ Machine Learning Accelerator product family. This product is intended to leverage the accelerator and IO capabilities of the IBM Power System IC922 server to support dynamic scaling for real-time AI inferencing across a cluster of optimized servers.

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Information concerning the Bittware 250-SoC adapter was obtained from Bittware. Questions concerning the Bittware 250-SoC adapter should be directed to Bittware, as the Bittware 250-SoC adapter is not an IBM product. Bittware 250-SoC adapter is sold or licensed, as the case may be, to users under Bittware's terms and conditions. Availability and support is the responsibility of Bittware. IBM IS NOT LIABLE AND MAKES NO WARRANTIES, EXPRESS OR IMPLED, REGARDING Bittware 250-SoC adapter, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OR CONDITION OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Product number

The following are newly announced features on the specific models of the IBM Power Systems 9183 machine type:

Planned Availability Date February 7, 2020

New Features

Description	Machine type	Model number	Feature number
IBMPower System IC922	9183	22X	
One CSC Billing Unit	9183	22X	0010

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Ten CSC Billing Units                                  9183    22X     0011



US TAA Compliance Indicator                            9183    22X     0983
Product assembled in USA manufacturing plant           9183    22X     0984



Custom Service Specify, Rochester Minn, USA            9183    22X     1140
Primary OS - Linux                                     9183    22X     2147
Extender Cable - USB Keyboards, 1.8M                   9183    22X     4256
Power Cord To PDU/UPS, (100-240V/16A)                  9183    22X     4558
Rack Indicator- Not Factory Integrated                 9183    22X     4650
Rack Indicator, Rack #1                                9183    22X     4651
Rack Indicator, Rack #2                                9183    22X     4652
Rack Indicator, Rack #3                                9183    22X     4653
Rack Indicator, Rack #4                                9183    22X     4654
Rack Indicator, Rack #5                                9183    22X     4655
Rack Indicator, Rack #6                                9183    22X     4656
Rack Indicator, Rack #7                                9183    22X     4657
Rack Indicator, Rack #8                                9183    22X     4658
Rack Indicator, Rack #9                                9183    22X     4659
Rack Indicator, Rack #10                               9183    22X     4660
Rack Indicator, Rack #11                               9183    22X     4661
Rack Indicator, Rack #12                               9183    22X     4662
Rack Indicator, Rack #13                               9183    22X     4663
Rack Indicator, Rack #14                               9183    22X     4664
Rack Indicator, Rack #15                               9183    22X     4665
Rack Indicator, Rack #16                               9183    22X     4666
Software Preload Required                              9183    22X     5000

Linux Software Preinstall                              9183    22X     8143
Language Group Specify - US English                    9183    22X     9300
New Red Hat License Core Counter                       9183    22X     9442
Other Linux License Core Counter                       9183    22X     9445
3rd Party Linux License Core Counter                   9183    22X     9446
Other License Core Counter                             9183    22X     9449
Month Indicator                                        9183    22X     9461
Day Indicator                                          9183    22X     9462
Hour Indicator                                         9183    22X     9463
Minute Indicator                                       9183    22X     9464
Qty Indicator                                          9183    22X     9465
Countable Member Indicator                             9183    22X     9466
Language Group Specify - Dutch                         9183    22X     9700
Language Group Specify - French                        9183    22X     9703
Language Group Specify - German                        9183    22X     9704
Language Group Specify - Polish                        9183    22X     9705
Language Group Specify - Norwegian                     9183    22X     9706
Language Group Specify - Portuguese                    9183    22X     9707
Language Group Specify - Spanish                       9183    22X     9708
Language Group Specify - Italian                       9183    22X     9711
Language Group Specify - Canadian French               9183    22X     9712
Language Group Specify - Japanese                      9183    22X     9714
Language Group Specify - Traditional Chinese
(Taiwan)                                               9183    22X     9715
Language Group Specify - Korean                        9183    22X     9716
Language Group Specify - Turkish                       9183    22X     9718
Language Group Specify - Hungarian                     9183    22X     9719
Language Group Specify - Slovakian                     9183    22X     9720
Language Group Specify - Russian                       9183    22X     9721
Language Group Specify - Simplified Chinese (PRC) 9183  22X     9722
Language Group Specify - Czech                         9183    22X     9724
Language Group Specify - Romanian                      9183    22X     9725
Language Group Specify - Croatian                      9183    22X     9726
Language Group Specify - Slovenian                     9183    22X     9727
Language Group Specify - Brazilian Portuguese          9183    22X     9728
Language Group Specify - Thai                          9183    22X     9729
SP WSU 3Y 24x7 SD                                      9183    22X     B0UQ



QSFP+ 40GbE Base-SR Transceiver                        9183    22X     EB27
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Description	Type	Model	Feature
1m (3.3-ft), IBM Passive QSFP+ to QSFP+ Cable (DAC)	9183	22X	EB2B
3m (9.8-ft), IBM Passive QSFP+ to QSFP+ Cable (DAC)	9183	22X	EB2H
10m (30.3-ft), IBM Passive QSFP+ MTP Optical Cable	9183	22X	EB2J
30m (90.3-ft), IBM Passive QSFP+ MTP Optical Cable	9183	22X	EB2K
10GbE Optical Transceiver SFP+ SR	9183	22X	EB46
25GbE Optical Transceiver SFP28	9183	22X	EB47
0.5m SFP28/25GbE copper Cable	9183	22X	EB4J
1.0m SFP28/25GbE copper Cable	9183	22X	EB4K
1.5m SFP28/25GbE copper Cable	9183	22X	EB4L
2.0m SFP28/25GbE copper Cable	9183	22X	EB4M
2.0m QSFP28/100GbE copper split Cable to SFP28 4x25GbE	9183	22X	EB4P
1.0m EDR IB Copper Cable QSFP28	9183	22X	EB51
2.0M EDR IB Copper Cable QSFP28	9183	22X	EB52
1.5M EDR IB Copper Cable QSFP28	9183	22X	EB54
100GbE Optical Transceiver QSFP28	9183	22X	EB59
3M EDR IB Optical Cable QSFP28	9183	22X	EB5A
5M EDR IB Optical Cable QSFP28	9183	22X	EB5B
10M EDR IB Optical Cable QSFP28	9183	22X	EB5C
15M EDR IB Optical Cable QSFP28	9183	22X	EB5D
20M EDR IB Optical Cable QSFP28	9183	22X	EB5E
30M EDR IB Optical Cable QSFP28	9183	22X	EB5F
50M EDR IB Optical Cable QSFP28	9183	22X	EB5G
100M EDR IB Optical Cable QSFP28	9183	22X	EB5H
0.5M 100GbE Copper Cable QSFP28	9183	22X	EB5J
1.0M 100GbE Copper Cable QSFP28	9183	22X	EB5K
1.5M 100GbE Copper Cable QSFP28	9183	22X	EB5L
2.0M 100GbE Copper Cable QSFP28	9183	22X	EB5M
25M EDR IB Optical Cable QSFP28	9183	22X	EB5N
3M 100GbE Optical Cable QSFP28 (AOC)	9183	22X	EB5R
5M 100GbE Optical Cable QSFP28 (AOC)	9183	22X	EB5S
10M 100GbE Optical Cable QSFP28 (AOC)	9183	22X	EB5T
15M 100GbE Optical Cable QSFP28 (AOC)	9183	22X	EB5U
20M 100GbE Optical Cable QSFP28 (AOC)	9183	22X	EB5V
30M 100GbE Optical Cable QSFP28 (AOC)	9183	22X	EB5W
50M 100GbE Optical Cable QSFP28 (AOC)	9183	22X	EB5X
100M 100GbE Optical Cable QSFP28 (AOC)	9183	22X	EB5Y
Open Power non-virtualized configuration	9183	22X	EC16
PCIe3 LP 2-Port 10Gb NIC&ROCE SR/Cu Adapter	9183	22X	EC2R
PCIe3 2-Port 10Gb NIC&ROCE SR/Cu Adapter	9183	22X	EC2S
PCIe3 LP 2-Port 25/10Gb NIC&ROCE SR/Cu Adapter	9183	22X	EC2T
PCIe3 2-Port 25/10Gb NIC&ROCE SR/Cu Adapter	9183	22X	EC2U
Rack Cable Management for MT 9183	9183	22X	EC3Z
PCIe4 LP 1-port 100Gb EDR IB CAPI adapter	9183	22X	EC62
PCIe4 LP 2-port 100Gb EDR IB CAPI adapter	9183	22X	EC64
PCIe4 LP 2-port 100Gb ROCE EN LP adapter	9183	22X	EC67
Custom Service Specify, Montpellier, France	9183	22X	ECSF
Custom Service Specify, Mexico	9183	22X	ECSM
Custom Service Specify, Poughkeepsie, USA	9183	22X	ECSP
Optical Wrap Plug	9183	22X	ECW0
IBMPower Systems for SAS Viya (Linux)	9183	22X	EHLU
Inference Nodes Config	9183	22X	EHP7
12-core 2.8 to 3.8 GHz (max) POWER9 Processor	9183	22X	EK00
16-core 3.35 to 4.0 GHz (max) POWER9 Processor	9183	22X	EK01
20-core 2.9 to 3.8 GHz (max) POWER9 Processor	9183	22X	EK02
600 GB 2.5-inch SAS3 HHD 4KN/512e SED	9183	22X	EK1A
1.2 TB 2.5-inch SAS3 HDD 4KN/512e SED	9183	22X	EK1B
2.4 TB 2.5-inch SAS3 HDD 4KN/512e NONSED	9183	22X	EK1C
240 GB 2.5-inch SATA SSD 1.4-DWPD NONSED	9183	22X	EK20
960 GB 2.5-inch SATA SSD 2.5-DWPD NONSED	9183	22X	EK21
1.9 TB 2.5-inch SATA SSD 2.5-DWPD NONSED	9183	22X	EK22
3.8 TB 2.5-inch SATA SSD 2.5-DWPD NONSED	9183	22X	EK23
3.8 TB 2.5-inch SAS3 1-DWPD NONSED	9183	22X	EK27
PCI Risers Standard	9183	22X	EK30
Drive backplane 2.5-inch SAS/SATA, 8x bays, 8x carriers, 12V Power cable	9183	22X	EK36
Broadcom 9300-8i SAS/SATA HBA PCIe3 x8	9183	22X	EK41
Broadcom 9305-16i SAS/SATA HBA PCIe3 x8 LP	9183	22X	EK43
Broadcom (LSI) MegaRAID 9361-8i SAS3 Controller with 8 internal ports (2 GB Cache) PCIe 3.0 x8			

with cables	9183	22X	EK47
Broadcom (LSI) MegaRAID 9361-8i SAS3			
NVIDIA T4 GPU with PCIe3.0 x16 LP (16 GB)	9183	22X	EK4L
NVIDIA T4 GPU with PCIe3.0 x16 (16 GB)	9183	22X	EK4M
AC Power Supply - 2000 WATT (220V)	9183	22X	EKMP
Self-Encrypting Unlock Kit	9183	22X	EKWD
PCIe2 LP 2-port 10/1GbE BaseT RJ45 Adapter	9183	22X	EL3Z
PCIe3 LP 2-port 16Gb Fibre Channel Adapter	9183	22X	EL43
PCIe2 4-port 1GbE Adapter	9183	22X	EL4L
PCIe2 LP 4-port 1GbE Adapter	9183	22X	EL4M
PCIe2 2-port 10/1GbE BaseT RJ45 Adapter	9183	22X	EL55
PCIe3 16Gb 2-port Fibre Channel Adapter	9183	22X	EL5B
PCIe3 32Gb 2-port Fibre Channel Adapter	9183	22X	EL5U
PCIe3 LP 2-port 32Gb Fibre Channel Adapter	9183	22X	EL5V
16 GB DDR4 Memory	9183	22X	EM62
32 GB DDR4 Memory	9183	22X	EM63
64 GB DDR4 Memory	9183	22X	EM64
1m (3.3-ft), 10Gb E'Net Cable SFP+ Act Twinax Copper	9183	22X	EN01
3m (9.8-ft), 10Gb E'Net Cable SFP+ Act Twinax Copper	9183	22X	EN02
5m (16.4-ft), 10Gb E'Net Cable SFP+ Act Twinax Copper	9183	22X	EN03
PCIe2 4-Port (10Gb+1GbE) SR+RJ45 Adapter	9183	22X	EN0S
PCIe2 LP 4-Port (10Gb+1GbE) SR+RJ45 Adapter	9183	22X	EN0T
PCIe2 4-port (10Gb+1GbE) Copper SFP+RJ45 Adapter	9183	22X	EN0U
PCIe2 LP 4-port (10Gb+1GbE) Copper SFP+RJ45 Adapter	9183	22X	EN0V
Bulk Packaging Request ID	9183	22X	ERB0
Bulk Packaging ID #1	9183	22X	ERB1
Bulk Packaging ID #2	9183	22X	ERB2
Bulk Packaging ID #3	9183	22X	ERB3
Bulk Packaging ID #4	9183	22X	ERB4
Bulk Packaging ID #5	9183	22X	ERB5
Bulk Packaging ID #6	9183	22X	ERB6
Bulk Packaging ID #7	9183	22X	ERB7
Bulk Packaging ID #8	9183	22X	ERB8
Bulk Packaging ID #9	9183	22X	ERB9
Bulk Packaging ID #10	9183	22X	ERBA
Bulk Packaging ID #11	9183	22X	ERBB
Bulk Packaging ID #12	9183	22X	ERBC
Bulk Packaging ID #13	9183	22X	ERBD
Bulk Packaging ID #14	9183	22X	ERBE
Bulk Packaging ID #15	9183	22X	ERBF
Bulk Packaging ID #16	9183	22X	ERBG
Bulk Packaging ID #17	9183	22X	ERBH
Bulk Packaging ID #18	9183	22X	ERBJ
Bulk Packaging ID #19	9183	22X	ERBK
Bulk Packaging ID #20	9183	22X	ERBL
No Bulk Packaging Specify	9183	22X	ERBZ
RFID Tags for Servers, Compute Nodes, Chassis, Racks, and HMCs	9183	22X	ERF1
S&H - No Charge	9183	22X	ESC0
S&H-a	9183	22X	ESC5
Standalone USB DVD drive w/cable	9183	22X	EUA5

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[R] ID and password are required (use IBMid).

BP Attachment for Announcement Letter 120-017

Publications

No publications are shipped with the announced product.

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 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.

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 website.

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

Details on education offerings related to specific products can be found on the IBM authorized training website.

Technical information

Specified operating environment

Physical specifications
- Width: 436 mm (17.2 in.)
- Depth: 820 mm (32.3 in.)
- Height: 86 mm (3.4 in.)
- Weight: 30.9 kg (68 lbs.)

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

Operating environment

For some standards and guidelines for operating environment, see the ASHRAE-A2 website.

Software requirements

Red Hat Enterprise Linux 7.6 for LE (POWER9)

Planning information

Cable orders

No additional cable required.

Security, auditability, and control

This product uses the security and auditability features of host hardware, host software, and application software.

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

IBM Systems Lab Services

For details on available services, contact your IBM representative or go to the IBM Systems Lab Services website.

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 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.

Terms and conditions

Volume orders

Contact your IBM representative.

IBM Global Financing

Yes

Products - terms and conditions

Warranty period

Warranty and additional coverage options:	Coverage summary[1]:
Warranty period:	3 years
Service level:	Customer Replaceable Unit (CRU) including Parts-Only Next-Business-Day (NBD), 9 x 5
Service Upgrade Options :	
Warranty Service Upgrade	IBM On-Site Repair, 9x5 Same Day[2] and 24x7 Same-Day options
Maintenance Services (Post-Warranty):	IBM On-Site Repair, Next-Business-Day and Same-Day options
IBM Hardware Maintenance Services - committed maintenance[3]:	Y

[1] See the complete coverage details below.

[2] Offered in US and EMEA only.

[3] Not offered in the US.

Three years.

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.

Solid-state disk drives, NVMe, and flash adapters have a 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.

NVMe adapters have a maximum number of write cycles. NVMe device failures will be replaced during the standard warranty period for the attached server at IBM's expense, regardless of usage levels. IBM Maintenance Agreements after the warranty period are limited to 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.

Warranty service

If required, IBM provides repair or exchange service depending on the types of warranty service specified for the machine. IBM will attempt to resolve your problem

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

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

CRU Service

IBM provides replacement CRUs to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM upon your request. CRUs are designated as being either a Tier 1 (mandatory) or a Tier 2 (optional) CRU.

Tier 1 (mandatory) CRU

Installation of Tier 1 CRUs, as specified in this announcement, is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.

The following parts have been designated as Tier 1 CRUs:

- Hard disk drive
- Optical drive
- Fan
- Fan Cage
- I/O adapters
- Operator panel
- Operator panel cable
- PCI adapters
- Power cord
- Power supply
- Processor power regulator
- Service processor
- RAID card cable
- Memory DIMMs
- Native USB Serial Card
- Keyboard
- Mouse
- External cables
- Display
- Sheet metal trays and dividers
- Planar
- Air duct
- Heat sinks
- Rails

Tier 2 (optional) CRU

You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge.

Based upon availability, CRUs will be shipped for next-business-day (NBD) delivery. IBM specifies, in the materials shipped with a replacement CRU, whether a defective CRU must be returned to IBM. When return is required, return instructions and a container are shipped with the replacement CRU. You may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

Advanced Part Exchange warranty service

With Advanced Part Exchange warranty service, you can order and track replacement parts directly under Customer Replaceable Unit or Parts Only Service following procedures that are provided by IBM. Replacement parts are shipped to your location for you to install. IBM will use commercially reasonable delivery methods to ship the replacement part for NBD delivery. Advanced Part Exchange warranty service is not available in all countries. You must be approved and registered to use this service. Contact your IBM representative or your reseller for further information.

CRU and On-Site Service

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

Service level is:

- 9 hours per day, Monday through Friday, excluding holidays, next-business-day response. Calls must be received by 17:00 local time in order to qualify for next-business-day response.

Warranty service

IBM is now shipping machines with selected non-IBM parts that contain an IBM field replaceable unit (FRU) part number label. These parts are to be serviced during the IBM machine warranty period. IBM is covering the service on these selected non-IBM parts as an accommodation to their customers, and normal warranty service procedures for the IBM machine apply.

International Warranty Service

International Warranty Service allows you to relocate any machine that is eligible for International Warranty Service and receive continued warranty service in any country where the IBM machine is serviced. If you move your machine to a different country, you are required to report the machine information to your Business Partner or IBM representative.

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

The following types of information can be found on the International Warranty Service website

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

Warranty service upgrades

During the warranty period, warranty service upgrades provide an enhanced level of On-site Service for an additional charge. Service levels are response-time objectives and are not guaranteed. See the Warranty services section for additional details.

IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM website. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines on-site service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts.

- On-Site Repair, Monday through Friday (excluding holidays), 8 AM to 5 PM, 4-hour on-site response objective. Response times are objectives and are not guaranteed.
- On-Site Repair, 7 days a week, 24 hrs/day.
- On-Site Repair, 7 days a week, 24hrs/day, 2-hour response objective. Response times are objectives and are not guaranteed.

Maintenance service options

CRU and On-site Service

At IBM's discretion you will receive CRU service or IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well-lit, and suitable for the purpose. The following on-site response-time objectives are available as warranty service upgrades for your machine. Available offerings are:

- On-Site Repair, Monday through Friday, excluding holidays, 4-hour average, same-business-day response. Calls must be received from 8:00 to 17:00 local time, response time are objectives and are not guaranteed.
- On-Site Repair, 24 hours per day, 7 days a week.
- On-Site Repair, 24 hour per day, 7 days a week, 2-hour average response time are objective and are not guaranteed.

Customer Replaceable Units (CRUs) may be provided as part of the machine's standard warranty CRU Service except that you may install a CRU yourself or request IBM installation, at no additional charge, under the CRU and On-site Service level specified above. For additional information on the CRU Service, see the warranty information.

Maintenance services

If required, IBM provides repair or exchange service depending on the types of maintenance service specified for the machine. IBM will attempt to resolve your problem over the telephone or electronically, through an IBM website. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines on-site service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts. Service levels are response-time objectives and are not guaranteed. The specified level of maintenance service may not be available in all worldwide locations. Additional charges may apply outside IBM's normal service area. Contact your local IBM representative or your reseller for country-specific and location-specific information. The following service selections are available as maintenance options for your machine type.

- On-Site Repair, Monday through Friday (excluding holidays), 8 AM to 5 PM, next business day.
- On-Site Repair, Monday through Friday (excluding holidays), 8 AM to 5 PM, 4-hour response objective. Response times are objectives and are not guaranteed.
- On-Site Repair, 7 days a week, 24 hrs/day.

- On-Site Repair, 7 days a week, 24 hrs/day, 2-hour response objective. Response times are objectives and are not guaranteed.

Customer-Replaceable Unit (CRU) Service

If your problem can be resolved with a CRU (for example, keyboard, mouse, speaker, memory, or hard disk drive), and depending upon the maintenance service offerings in your geography, IBM will ship the replacement CRU to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM upon your request.

Based upon availability, CRUs will be shipped for next business day delivery. IBM specifies, in the materials shipped with a replacement CRU, whether a defective CRU must be returned to IBM. When return is required, 1) return instructions and a container are shipped with the replacement CRU, and 2) you may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

CRUs are designated as being either a Tier 1 (mandatory) or a Tier 2 (optional) CRU.

Tier 1 (mandatory) CRUs: Installation of Tier 1 CRUs, as specified in this announcement, is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.

For machines with On-site Same-day Response Service, IBM will replace a Tier 1 CRU part at your request, at no additional charge.

Tier 2 (optional) CRUs: You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge.

The following parts and features have been designated as Tier 1 CRUs:

- Hard disk drive
- Optical drive
- Fan
- Fan Cage
- I/O adapters
- Operator panel
- Operator panel cable
- PCI adapters
- Power cord
- Power supply
- Processor power regulator
- Service processor
- RAID card cable
- Memory DIMMs
- Native USB Serial Card
- Keyboard
- Mouse
- External cables
- Display
- Sheet metal trays and dividers
- Planar
- Air duct
- Heat sinks
- Rails

To service a Linux system end to end, Linux service and productivity tools must be installed from the Customer care web page.

The tools are automatically loaded if IBM Manufacturing installs the Linux image or IBM Installation Toolkit.

The Linux call home feature is also supported in a stand-alone system configuration to report serviceable events.

Feature numbers or models for which there is a maintenance charge:

Machine type-model	Feature number
9183-22X	-
9183-22X	EK00
9183-22X	EK01
9183-22X	EK02
9183-22X	EK4L
9183-22X	EK4M

Usage plan machine

No

IBM hourly service rate classification

Two

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

General terms and conditions

Field-installable features

Yes

Model conversions

No

Machine installation

Client setup. Clients are responsible for installation according to the instructions IBM provides with the machine.

Graduated program license charges apply

Yes

The applicable processor group is small.

Licensed Machine Code

IBM Machine Code is licensed for use by a client on the IBM machine for which it was provided by IBM under the terms and conditions of the IBM License Agreement for Machine Code, to enable the machine to function in accordance with its specifications, and only for the capacity authorized by IBM and acquired by the client. You can obtain the agreement by contacting your IBM representative. It can also be found on the License Agreement for Machine Code and Licensed Internal Code

Access to Machine Code updates is conditioned on entitlement and license validation in accordance with IBM policy and practice. IBM may verify entitlement through

client number, serial number, electronic restrictions, or any other means or methods employed by IBM in its discretion.

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

Machine Code License Acceptance Requirement

A.) Acceptance-By-Use Machine: Yes, acceptance of the Machine Code license terms is conveyed through the user's initial use of the Machine.

Educational allowance

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

The educational allowance is 8% for the products in this announcement.

Prices

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

Product charges

The following are newly announced features on the specific models of the IBM Power Systems 9183 machine type:

Description Machine type 9183	Model number	Feature number	Purchase price	Minimum Monthly Maint. charge	Initial/ MES/ Both/ support	CSU	RP MES
IBMPower System IC922	22X					Yes	
One CSC Billing Unit	22X	0010			Both	Yes	No
Ten CSC Billing Units	22X	0011			Both	Yes	No
US TAA Compliance Indicator	22X	0983			Both	Yes	No
Asm in USA manufacturing plant	22X	0984			Both	Yes	No
Custom Serv. Specify, Roch	22X	1140			Both	Yes	No
Primary OS Linux	22X	2147			Both	Yes	No
Extender Cable USB Keybo 1.8M	22X	4256			Both	Yes	No
Power Cord To PDU/UPS	22X	4558			Both	Yes	No

One and only one rack indicator feature is required on all orders (#4650 to #4666).

No Factory Integration Ind.	22X	4650			Initial	N/A	No
Rack Indicator, Rack 1	22X	4651			Initial	N/A	No
Rack Indicator, Rack 2							

	22X	4652	Initial	N/A	No
Rack Indicator, Rack 3					
	22X	4653	Initial	N/A	No
Rack Indicator, Rack 4					
	22X	4654	Initial	N/A	No
Rack Indicator, Rack 5					
	22X	4655	Initial	N/A	No
Rack Indicator, Rack 6					
	22X	4656	Initial	N/A	No
Rack Indicator, Rack 7					
	22X	4657	Initial	N/A	No
Rack Indicator, Rack 8					
	22X	4658	Initial	N/A	No
Rack Indicator, Rack 9					
	22X	4659	Initial	N/A	No
Rack Indicator, Rack 10					
	22X	4660	Initial	N/A	No
Rack Indicator, Rack 11					
	22X	4661	Initial	N/A	No
Rack Indicator, Rack 12					
	22X	4662	Initial	N/A	No
Rack Indicator, Rack 13					
	22X	4663	Initial	N/A	No
Rack Indicator, Rack 14					
	22X	4664	Initial	N/A	No
Rack Indicator, Rack 15					
	22X	4665	Initial	N/A	No
Rack Indicator, Rack 16					
	22X	4666	Initial	N/A	No
Software Preload Required					
	22X	5000	Initial	N/A	No
Linux Software Preinstall					
	22X	8143	Initial	N/A	No
Language Group Spcf-US Eng					
	22X	9300	Initial	N/A	No
New Red Hat Lic Core Counter					
	22X	9442	Initial	N/A	No
Other Linux Lic Core Counter					
	22X	9445	Initial	N/A	No
3rd Party Linux Lic Core Cnt					
	22X	9446	Initial	N/A	No
Other License Core Counter					
	22X	9449	Initial	N/A	No
Month Indicator					
	22X	9461	Initial	N/A	No
Day Indicator					
	22X	9462	Initial	N/A	No
Hour Indicator					
	22X	9463	Initial	N/A	No
Minute Indicator					
	22X	9464	Initial	N/A	No
Qty Indicator					
	22X	9465	Initial	N/A	No
Countable Member Indicator					
	22X	9466	Initial	N/A	No
Language Group Spcf-Dutch					
	22X	9700	Initial	N/A	No
Language Group Spcf-French					
	22X	9703	Initial	N/A	No
Language Group Spcf-German					
	22X	9704	Initial	N/A	No
Language Group Spcf-Polish					
	22X	9705	Initial	N/A	No
Lang Group Specify - Norwegian					
	22X	9706	Initial	N/A	No
Lang.Group Spcf-Portuguese					
	22X	9707	Initial	N/A	No
Language Group Spcf-Spanish					
	22X	9708	Initial	N/A	No
Language Group Spcf-Italian					
	22X	9711	Initial	N/A	No
Langua Gr Speci Canadian Frenc					
	22X	9712	Initial	N/A	No
Language Group Spcf-Japanese					

```
                          22X     9714                     Initial  N/A No
Language Group Specify Tr Chin
                          22X     9715                     Initial  N/A No
Language Group Spcf-Korean
                          22X     9716                     Initial  N/A No
Language Group Spcf-Turkish
                          22X     9718                     Initial  N/A No
Language Group Spcf-Hungarian
                          22X     9719                     Initial  N/A No
Language Group Spcf-Slovakian
                          22X     9720                     Initial  N/A No
Language Group Spcf-Russian
                          22X     9721                     Initial  N/A No
Lang Group Spcf Simpl Chinese
                          22X     9722                     Initial  N/A No
Language Group Spcf-Czech
                          22X     9724                     Initial  N/A No
Language Group Spcf-Romanian
                          22X     9725                     Initial  N/A No
Lang Group Specify - Croatian
                          22X     9726                     Initial  N/A No
Language Group Spcf-Slovenian
                          22X     9727                     Initial  N/A No
Lang Group Specify - Braz Port
                          22X     9728                     Initial  N/A No
Lang Group Specify - Thai
                          22X     9729                     Initial  N/A No
SP WSU 3Y 24x7 SD
                          22X     B0UQ                      Both     Yes No


QSFP+ 40GbE Transceiver
                          22X     EB27                      Both     Yes No
1m Passive QSFP+ to QSFP+ Cbl
                          22X     EB2B                      Both     Yes No
3m Passive QSFP+ to QSFP+ Cbl
                          22X     EB2H                      Both     Yes No
10m QSFP+ MTP Optical Cable
                          22X     EB2J                      Both     Yes No
30m QSFP+ MTP Optical Cable
                          22X     EB2K                      Both     Yes No
10GbE Optical Transc SFP+ SR
                          22X     EB46                      Both     Yes No
25GbE Opt Transceiver SFP28
                          22X     EB47                      Both     Yes No
0.5 SFP/25GbE CU Cable
                          22X     EB4J                      Both     Yes No
1.0 SFP/25GbE CU Cable
                          22X     EB4K                      Both     Yes No
1.5 SFP/25GbE CU Cable
                          22X     EB4L                      Both     Yes No
2.0 SFP/25GbE CU Cable
                          22X     EB4M                      Both     Yes No
2.5 QSFP28/100GbE CU Cable
                          22X     EB4P                      Both     Yes No
1.0m EDR IB Copper Cable
                          22X     EB51                      Both     Yes No
2.0M EDR IB Copper Cable
                          22X     EB52                      Both     Yes No
1.5M EDR IB Copper Cable
                          22X     EB54                      Both     Yes No
100GbE Optic Transc QSFP28
                          22X     EB59                      Both     Yes No
3M EDR IB Optical Cable
                          22X     EB5A                      Both     Yes No
5M EDR IB Optical Cable
                          22X     EB5B                      Both     Yes No
10M EDR IB Optical Cable
                          22X     EB5C                      Both     Yes No
15M EDR IB Optical Cable
                          22X     EB5D                      Both     Yes No
20M EDR IB Optical Cable
                          22X     EB5E                      Both     Yes No
```

30M EDR IB Optical Cable				
	22X	EB5F	Both	Yes No
50M EDR IB Optical Cable				
	22X	EB5G	Both	Yes No
100M EDR IB Optical Cable				
	22X	EB5H	Both	Yes No
0.5M 100GbE Cu Cable QSFP28				
	22X	EB5J	Both	Yes No
1.0M 100GbE Cu Cable QSFP28				
	22X	EB5K	Both	Yes No
1.5M 100GbE Cu Cable QSFP28				
	22X	EB5L	Both	Yes No
2.0M 100GbE Cu Cable QSFP28				
	22X	EB5M	Both	Yes No
25M EDR IB Optical Cable				
	22X	EB5N	Both	Yes No
3M 100GbE Optic Cable QSFP28				
	22X	EB5R	Both	Yes No
5M 100GbE Optic Cable QSFP28				
	22X	EB5S	Both	Yes No
10M 100GbE Optic Cable QSFP28				
	22X	EB5T	Both	Yes No
15M 100GbE Optic Cable QSFP28				
	22X	EB5U	Both	Yes No
20M 100GbE Optic Cable QSFP28				
	22X	EB5V	Both	Yes No
30M 100GbE Optic Cable QSFP28				
	22X	EB5W	Both	Yes No
50M 100GbE Optic Cable QSFP28				
	22X	EB5X	Both	Yes No
100M 100GbE Optic Cable QSFP28				
	22X	EB5Y	Both	Yes No
Open Power non-virtual confi				
	22X	EC16	Initial	N/A No
PCIe3 LP 2-port 10GbE NIC Ro				
	22X	EC2R	Both	Yes No
PCIe3 2-Port 10Gb NIC&ROCE				
	22X	EC2S	Both	Yes No
PCIe3 LP 2-port 25/10GbE NIC				
	22X	EC2T	Both	Yes No
PCIe3 2-Port 25/10Gb NIC&Ro				
	22X	EC2U	Both	Yes No
PCIe3 LP 2-port 100GbE Adptx16				
	22X	EC3L	Both	Yes No
PCIe3 2-port 100GbE Adapterx16				
	22X	EC3M	Both	Yes No
Rack Cbl Management for 9183				
	22X	EC3Z	Both	Yes No
PCIe4 LP 1-port 100Gb EDR				
	22X	EC62	Both	Yes No
PCIe4 LP 2-port 100Gb EDR				
	22X	EC64	Both	Yes No
PCIe4 LP 2-port 100Gb ROCE				
	22X	EC67	Both	Yes No
Custom Serv. Specify, France				
	22X	ECSF	Both	Yes No
Custom Serv. Specify, Mexico				
	22X	ECSM	Both	Yes No
Custom Serv. Spec Poughkeepsie				
	22X	ECSP	Both	Yes No
Optical Wrap Plug				
	22X	ECW0	Both	Yes No
Power for SAS Viya (Linux)				
	22X	EHLU	Initial	N/A No
12-core 2.8 - 3.8 GHz POWER9				
	22X	EK00	Both	Yes No
16-core 3.3 - 4.0 GHz POWER9				
	22X	EK01	Both	Yes No
20-core 2.9 - 3.8 GHz POWER9				
	22X	EK02	Both	Yes No
600GB 2.5" SAS3 HHD SED				
	22X	EK1A	Both	Yes No
1.2TB 2.5" SAS3 HHD SED				
	22X	EK1B	Both	Yes No

```
2.4TB 2.5" SAS3 HHD NONSED
                 22X      EK1C                      Both    Yes No
240GB 2.5" SATA SSD 1.4-DWPD
                 22X      EK20                      Both    Yes No
960GB 2.5" SATA SSD 2.5-DWPD
                 22X      EK21                      Both    Yes No
1.9TB 2.5" SATA SSD 2.5-DWPD
                 22X      EK22                      Both    Yes No
3.8TB 2.5" SATA SSD 2.5DWPD
                 22X      EK23                      Both    Yes No
3.8TB 2.5" SAS3 SSD 1DWPD
                 22X      EK27                      Both    Yes No
PCI Risers Standard
                 22X      EK30                      Both    Yes No
Drive backplane 2.5"SAS/SATA
                 22X      EK36                      Both    Yes No
Broadcom HBA9300-8I
                 22X      EK41                      Both    Yes No
Broadcom HBA9305-16i
                 22X      EK43                      Both    Yes No
Broadcom HBA9363-8I 2G
                 22X      EK47                      Both    Yes No
NVIDIA T4 GPU 16 GB LP
                 22X      EK4L                      Both    Yes No
NVIDIA T4 GPU 16 GB
                 22X      EK4M                      Both    Yes No
AC Power Supply - 2000W
                 22X      EKMP                      Initial N/A No
LSI MegaRAID 9361-8i SAS3
                 22X      EKWD                      Both    Yes No
PCIe2 LP2-pt10/1GbE BaseT RJ45
                 22X      EL3Z                      Both    Yes No
PCIe3 LP 16Gb 2-port Fibre Cha
                 22X      EL43                      Both    Yes No
PCIe2 4-port 1GbE Adapter
                 22X      EL4L                      Both    Yes No
PCIe2 LP 4-port 1GbE Adapter
                 22X      EL4M                      Both    Yes No
PCIe2 2-pt 10/1GbE BaseT RJ45
                 22X      EL55                      Both    Yes No
PCIe3 16Gb 2-port Fibre Channe
                 22X      EL5B                      Both    Yes No
PCIe3 32Gb 2-port FC Adapter
                 22X      EL5U                      Both    Yes No
PCIe3 LP 32Gb 2-port FC Adap
                 22X      EL5V                      Both    Yes No
16 GB DDR4 Memory
                 22X      EM62                      Both    Yes No
32 GB DDR4 Memory
                 22X      EM63                      Both    Yes No
64 GB DDR4 Memory
                 22X      EM64                      Both    Yes No
1m 10GbE Cable SFP+ Act Twinax
                 22X      EN01                      Both    Yes No
3m 10GbE Cable SFP+ Act Twinax
                 22X      EN02                      Both    Yes No
5m 10GbE Cable SFP+ Act Twinax
                 22X      EN03                      Both    Yes No
PCIe2 4-pt(10+1 GbE)SR+RJ45
                 22X      EN0S                      Both    Yes No
PCIe2 LP4-pt(10+1 GbE)SR+RJ45
                 22X      EN0T                      Both    Yes No
PCIe2 4-pt(10+1GbE)CRSR+RJ45
                 22X      EN0U                      Both    Yes No
PCIe2 LP4-pt(10+1GbE)CRSR+RJ45
                 22X      EN0V                      Both    Yes No



Bulk Pack Request Indicator
                 22X      ERB0                      Initial N/A No
Bulk Packaging Identifier #1
                 22X      ERB1                      Initial N/A No
Bulk Packaging Identifier #2
```

Description	Machine	Feature	Initial/Both	RP MES	CSU
	22X	ERB2	Initial	N/A	No
Bulk Packaging Identifier #3	22X	ERB3	Initial	N/A	No
Bulk Packaging Identifier #4	22X	ERB4	Initial	N/A	No
Bulk Packaging Identifier #5	22X	ERB5	Initial	N/A	No
Bulk Packaging Identifier #6	22X	ERB6	Initial	N/A	No
Bulk Packaging Identifier #7	22X	ERB7	Initial	N/A	No
Bulk Packaging Identifier #8	22X	ERB8	Initial	N/A	No
Bulk Packaging Identifier #9	22X	ERB9	Initial	N/A	No
Bulk Packaging Identifier #10	22X	ERBA	Initial	N/A	No
Bulk Packaging Identifier #11	22X	ERBB	Initial	N/A	No
Bulk Packaging Identifier #12	22X	ERBC	Initial	N/A	No
Bulk Packaging Identifier #13	22X	ERBD	Initial	N/A	No
Bulk Packaging Identifier #14	22X	ERBE	Initial	N/A	No
Bulk Packaging Identifier #15	22X	ERBF	Initial	N/A	No
Bulk Packaging Identifier #16	22X	ERBG	Initial	N/A	No
Bulk Packaging Identifier #17	22X	ERBH	Initial	N/A	No
Bulk Packaging Identifier #18	22X	ERBJ	Initial	N/A	No
Bulk Packaging Identifier #19	22X	ERBK	Initial	N/A	No
Bulk Packaging Identifier #20	22X	ERBL	Initial	N/A	No
Single Pack Request Indicator	22X	ERBZ	Initial	N/A	No
RFID Tags for Compute Nodes	22X	ERF1	Initial	N/A	No
S&H - No Charge	22X	ESC0	Both	Yes	No
S&H-a	22X	ESC5	Initial	N/A	No
Standalone USB DVD drive w/c	22X	EUA5	Both	Yes	No

RP MES = Return parts, miscellaneous equipment specifications
CSU = Customer setup

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Annual minimum maintenance charges

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Corrections

(Corrected on May 5, 2020)

Changes to Description section.

(Corrected on February 26, 2020)

Changes to Description section.