IBM Power System E980 Enterprise server provides scalability, performance, and availability for data centers with the most demanding UNIX, IBM i, and Linux applications

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At a glance

The IBM(R) Power(R) System E980 server offers the next generation of IBM Power Systems™ servers with POWER9™ technology-based processors. It is built with innovations that can help deliver security and reliability for the data-intensive workloads of today's enterprises. POWER9 technology is designed from the ground up for data-intensive workloads like databases and analytics. The Power System E980 server:

- Includes high throughput, performance, and scalability
- Helps enable large-scale consolidation of older, underutilized servers
- Helps improve infrastructure resilience
- Enables rapid service delivery

The Power System E980 server provides the underlying POWER9 hardware components:

- The most powerful and scalable server in the IBM Power Systems portfolio:
  - Up to 192 POWER9 technology-based processor cores
  - Up to 64 TB memory
  - Up to 32 PCIe Gen4 x16 slots in system nodes
  - Up to 192 PCIe Gen3 slots with expansion drawers
  - Up to over 4,000 directly attached SAS disks or solid-state drives (SSDs)
  - Up to 1,000 VMs (LPARs) per system
- System control unit, providing redundant system master Flexible Service Processor (FSP)
- Support for IBM AIX(R), IBM i, and Linux(R) environments
- Capacity on demand (CoD) processor and memory options
- Model upgrades from IBM POWER8(R)
- Power Enterprise Pools, supporting unsurpassed enterprise flexibility for workload balancing and system maintenance

Overview

The new Power System E980 server maximize the throughput that your cloud, mobile, cognitive and advanced analytics applications demand. It also delivers scalability, performance, and availability for data centers with the most demanding UNIX(R), IBM i, and Linux applications. It gives you high throughput, performance, and scalability in a new modular high-end system with up to 192 POWER9 cores, up to 64 TB memory, and the fastest POWER9 processors in the IBM Power Systems portfolio. It can help improve infrastructure resilience with POWER9 high-end systems engineered to deliver the highest level of IBM Power Architecture(R) reliability, availability, and serviceability.

The Power System E980 server, is the ideal foundation for a private cloud infrastructure, able to power the large-scale, mission-critical applications enterprises need to transform data into a competitive advantage. Each Power E980 comes tailored to a client's unique requirements and ready to deploy with enterprise-class security and efficient, built-in IBM PowerVM(R) virtualization.

With built-in virtualization and an ecosystem of open cloud solutions, you can cloud-enable your applications without migration and build a cloud that handles the most data-intensive workloads on earth.

Enable large-scale consolidation of older, under-utilized servers onto an ultra-efficient POWER9 high-end system with high levels of utilization and resource sharing to concurrently support AIX, IBM i, and Linux applications.

Enable rapid service delivery with built-in virtualization and CoD for processors and memory to help provide seamless, nondisruptive growth and increased flexibility for multiple systems in an enterprise private cloud.

By default, its Power Management mode is set to Max Performance. This mode can dynamically optimize the processor frequency at any given time based on CPU utilization and operating environmental conditions. For a description of this feature and other power management options available for this server, see the IBM EnergyScale™ for POWER9 Processor-Based Systems website.

Each new POWER9 processor single chip module (SCM) contains two memory controllers. Four 8-core typical 3.9 - 4.0 GHz (max) or four 10-core typical 3.7 - 3.9 GHz (max) or four 11-core typical 3.58 - 3.9 GHz (max) or four 12-core typical 3.55 - 3.9 GHz (max) are used in each system node, providing 32 cores to a 128-core system (max)(#EFP1) or 40 cores to a 160-core system (max)(#EFP2) or 44-core to a 176-core system (max)(#EFP4) or 48 cores to a 192-core system (max) (#EFP3). As few as eight cores in the system can be activated or up to 100% of the cores in the system can be activated. Incrementing one core at a time is available through built-in Capacity Upgrade on Demand (CUoD) functions to the full capacity of the system.

The System Control Unit provides redundant Flexible Service Processors (FSPs), the Operator Panel, and the System Vital Product (VPD). And optional external DVD can be attached with a USB cable.

IBM custom DIMMs (CDIMMs) are high-performance, high-reliability, high-function memory cards that contain L4 cache buffer, and 1600 MHz DRAM memory.

Power System E980 CDIMMs are available as 128 GB (#EF20), 256 GB (#EF21), 512 GB (#EF22), 1024 GB (#EF23), and 2048 GB (#EF24) memory features. Each memory feature provides four CDIMMs. Each system node has 32 CDIMM slots that support a maximum of 8 memory features. Using 2048 GB CDIMM features yields a maximum of 16 TB per node. A two-node system has a maximum of 16 memory features and 32 TB. A four-node system has a maximum of 64 TB capacity. Minimum memory activations of 50% of the installed capacity are required.

The 19-inch PCIe 4U I/O Expansion Drawer (#EMX0) provides 12 slots to hold PCIe adapters that cannot be placed into a system node. Up to four PCIe I/O expansion drawers can be attached per system node. For example, a two-node system can have a maximum of eight PCIe I/O expansion drawers for a total of eighty-six PCIe slots in the I/O drawers with no PCIe slots in the system node.

Direct attached storage is supported with the EXP24SX SFF Gen2-bay Drawer (#ESLS), an expansion drawer with twenty-four 2.5-inch form-factor SAS bays.

With Power Enterprise Pools, IBM continues to enhance the ability to freely move Mobile Processor and Mobile Memory activations from one system to another system in the same pool, without the need for IBM involvement. This capability enables the movement of resources not only between Power E980 systems, but also between Power E980 servers and previous generation E870, E870C, E880, and E880C systems, resulting in unsurpassed flexibility for workload balancing and system maintenance. Power Enterprise Pools delivers the support to meet clients' business goals in the following ways:

- Providing organizations with a dynamic infrastructure with the potential for reduced cost of performance management, improved service levels, and controlled risk management
- Improving the flexibility, load balancing, and disaster recovery planning and operations of your Power Systems infrastructure
- Enhanced reliability, availability, and serviceability (RAS) to handle the requirements to accommodate a global economy

Power to Cloud Services

To assist clients with their move to the cloud, IBM is bundling 10,000 points with every Power E980 server purchase that can be redeemed for on-site cloud deployment services. For additional details, see the IBM Power to Cloud Reward Program website. For those clients looking to create their own private cloud, expert services are available for cloud provisioning and automation with IBM Cloud™ PowerVC Manager with a heavy focus on creating and supporting a DevOps cloud implementation.

For those clients looking for a hybrid cloud solution, Design for Hybrid Cloud Workshop services are available to help you produce best-of-breed applications using API Connect and IBM Cloud with IBM Power Systems.

To learn more about all the new cloud capabilities that come with the Power E980 server, see the IBM Power Enterprise Cloud Index website.

Cloud Management Console (CMC) for Power Systems

CMC is a cloud-native platform that provides apps that give powerful insights into your Power Systems infrastructure across data centers and geographies. With no additional software or infrastructure setup, get single pane of glass views of your inventory, software levels, resource capacity utilization, as well as launch-in-context of your on-prem software such as PowerVC and PowerHA®. Each new Power E980 server purchase includes 12 months of CMC service, which can be renewed. For more information, see IBM Cloud Management Console website.

Power E980 server POWER9 hardware components

- Eight, ten, eleven, or twelve core processors
- Up to 192 POWER9 processor cores in one to four systems nodes; up to 64 TB of 1600 MHz, DDR4 DRAM memory, and eight PCIe G4 x16 I/O expansion slots per system node enclosure, with a maximum of 32 per system
- Redundant Clocking in each system node
- Four NVMe drive bays per system node for boot purposes
- Integrated USB ports
- System control unit, providing redundant system master Flexible Service Processor (FSP) and support for the Op Panel, the system VPD, and external attached DVD
- 19-inch PCIe Gen3 4U I/O expansion drawer and PCIe FanOut modules, supporting a maximum of 48 PCIe slots (2 I/O expansion drawers per node in the September GA, which has maximum of 2 nodes)

- 19-inch PCIe Gen3 4U I/O expansion drawer and PCIe FanOut modules, supporting a maximum of 192 PCIe slots (4 I/O expansion drawers per node in the November GA, which has a maximum of 4 nodes)
- PCIe Gen1, Gen2, Gen3, and Gen4 adapter cards, supported in the system node and PCIe Gen1, Gen2, Gen3 and Gen4 adapter cards, supported in I/O expansion drawer
- EXP24SX SFF Drawer with twenty-four 2.5-inch form-factor SAS bays
- Dynamic LPAR support for adjusting workload placement of processor and memory resources
- Respond more rapidly and seamlessly to changing business requirements and growth with CoD for processors and memory
- Active Memory™ Expansion that is optimized onto the processor chip
- Power Enterprise Pools that support unsurpassed enterprise flexibility for workload balancing and system maintenance

IBM Proactive Support for Power Systems

Clients have found significant value in IBM's Proactive Support offerings on mission-critical systems, as this provides personalized support, proactive recommendations, and accelerated response times versus standard support. As a result, IBM is including the IBM Proactive Support in the default configuration for all Mid-Range and Enterprise IBM POWER9 Systems - for IBM AIX, IBM i, Linux, and SAP HANA workloads. Other configurations are also available.

Feature exchange

Not applicable.

Key prerequisites

The Power E980 server requires an AIX, Linux, or IBM i operating system. See the Software requirements section for detailed requirements.

Planned availability date

September 21, 2018, with the following limitations per system:

- EFN1 Initial max = 2
- EMX0 Initial/MES/Both max = 2
- EMXF Supported only
- EMXG Initial/MES/Both max = 4
- ER42, ER43

November 16, 2018, for the following features per system:

- EFN1 Initial max = 4
- EMX0 Initial/MES/Both max = 4
- EMXG Initial/MES/Both max = 8
- EJ07 Initial/MES/Both max = 32
- EFCC, EFCD
- All available machine type-model and features, conversion, and upgrades

Description

The Power System E980 server is a large-scale SMP system that delivers high performance, scalability, reliability, availability, and serviceability with great virtualization capability for larger cloud environments. The Power E980 server uses modular building blocks called *system nodes*. It can have one or two system nodes.

The Power E980 server will support three and four systems nodes by November 16, 2018.

Summary of features

The following features are available on the Power E980 server:

- One or two 5U system nodes (in November, one to four)
- One 2U system control unit
- One to four processor features per system with four single-chip modules (SCMs) per feature:
  - Typical 3.9 - 4.0 GHz, 32-core POWER9 processor (#EFP1)
  - Typical 3.7 - 3.9 GHz, 40-core POWER9 processor (#EFP2)
  - Typical 3.58 - 3.9 GHz, 44-core POWER9 processor (#EFP4)
  - Typical 3.55 - 3.9 GHz, 48-core POWER9 processor (#EFP3)
- CoD processor core activation features available on a per-core basis
- 32 CDIMM slots per system node
- DDR4 1600 MHz CDIMM memory cards:
  - 128 GB (4 x 32 GB), (#EF20)
  - 256 GB (4 x 64 GB), (#EF21)
  - 512 GB (4 x 128 GB), (#EF22)
  - 1024 GB (4 x 256 GB), (#EF23)
  - 2048 GB (4 x 512 GB), (#EF24)
- CoD memory activation features include:
  - 1 GB (static) Memory Activations (#EMAT)
  - 100 GB (static) Memory Activations (#EMAU)
  - 100 GB Mobile Memory Activations (#EMAV)
  - 100 GB Mobile Enabled Memory Activations (#EMAD)
  - 512 GB Memory Activations for Linux (#ELMD)
  - Plus activations for a few specific bundle scenarios
- Active Memory Expansion, optimized onto the processor chip (#EM89)
- Eight PCIe Gen4 x16 I/O low-profile expansion slots per system node (maximum 32 in a 4-node system)
- One USB port to support external attached DVD
- Redundant hot-swap AC power supplies in each system node drawer
- Two HMC ports in the system control unit
- Optional PCIe I/O Expansion Drawer with PCIe slots:
  - Zero to two drawers per system node drawer (#EMX0).
  - Each I/O drawer holds one or two 6-slot PCIe Fan-out Modules (#EMXG).
  - Each Fan-out Module attaches to the system node through a PCIe Optical Cable Adapter (#EJ07).

System nodes

Each 5 EIA or 5U system node of the system has four air-cooled SCMs optimized for performance and scalability. The E980 SCMs can have eight, ten, eleven, or twelve POWER9 cores running at up to 4.0 GHz and simultaneous multithreading executing up to eight threads per core. Each SCM has dual memory controllers to

support up to 128 GB off-chip eDRAM L4 cache to deliver up to 230 GBps of peak memory bandwidth or 920 GBps per node. Using PCIe Gen4 I/O controllers, which are also integrated onto each SCM to further reduce latency, up to 545 GBps peak I/O bandwidth is available per node. Thus a Power E980 system bandwidth can help provide maximum processor performance , enabling applications to run faster and be more responsive.

Each system node has 32 CDIMM slots and can support up to 16 TB of DDR4 memory. Thus, a four-node server can have up to 64 TB of memory. The system node has four internal NVMe U.2 (2.5" 7 mm form factor) SSDs. Each SSD is driven from a x4 PCIe connection. Each system node has eight PCIe slots, which are all x16, low profile. Thus, a four-node server can have up to 32 PCIe slots. PCIe expansion units can optionally expand the number of PCIe slots on the server.

A system node is ordered using a processor feature. Each processor feature will deliver a set of four identical SCMs in one system node. All processor features in the system must be identical. Cable features are required to connect system node drawers to the system control unit and to other system nodes.

Processor core activations

Each IM Power System E980 server requires a minimum of eight permanent processor core activations, using either static activations or Linux on Power activations. This minimum is per system, not per node. The rest of the cores can be permanently or temporary activated or remain inactive (dark) until needed. The activations are not specific to hardware cores or SCMs or nodes. They are known to the system as a total number of activations of different types and used or assigned by the Power hypervisor appropriately.

A variety of activations fit different usage and pricing options. Static activations are permanent and support any type of application environment on this server. Mobile activations are ordered against a specific server, but can be moved to any server within the Power Enterprise Pool and can support any type of application. Mobile-enabled activations are technically static, but can be converted to mobile at no charge when logistically or administratively eligible. Linux on Power activations can only run Linux workloads. Temporary activations are used for CoD - Elastic, Utility, and Trial options.

48-core (#EFP3)	44-core (#EFP4)	40-core (#EFP2)	32-core (#EFP1)
1-core static activation (#EFPC)	1-core static activation (#EFP9)	1-core static activation (#EFPB)	1-core static activation (#EFPA)
1-core mobile-enabled activation (#EFPG)	1-core mobile-enabled activation (#EFPN)	1-core mobile-enabled activation (#EFPF)	1-core mobile-enabled activation (#EFPE)
1-core Power Linux (#ELBM)	1-core Power Linux (#ELBQ)	1-core Power Linux (#ELBL)	1-core Power Linux (#ELBK)

System control unit

The 2U system control unit provides redundant system master Flexible Service Processor (FSP). Additionally, it contains the Operator Panel, the System VPD, and external attached DVD. One system control unit is required for each server. A unique feature number is not used to order the system control unit. One is shipped with each E980 server. Two service processors (FSPs) in the system control unit are ordered using two EFFP features. All system nodes connect to the system control unit using the cable features EFCA, EFCB, EFCC, and EFCD.

The system control unit is powered from the system nodes. UPIC cables provide redundant power to the system control unit. In a single node system, two UPIC cables are attached to system node 1. In a 2-node, 3-node, or 4-node system, one UPIC cable attaches to system node 1 and one UPIC cable attaches to system node 2. They are ordered with features EFCA. Only one UPIC cable is enough to power the system control unit, and the others are in place for redundancy.

If the optional DVD feature EUA5 is ordered, it attaches to the native USB ports in the system (one in the front of the System Control Unit or the several in the rear of nodes 1 and 2).

Memory

IBM-custom DIMMs (CDIMMs) are extremely high-performance, high-reliability, high-function memory cards that contain L4 cache, intelligence, and 1600 MHz DRAM memory. Both DDR3 and DDR4 technology is employed and both provide the same 1600 MHz performance. CDIMMs are placed in CDIMM slots in the system node.

Each system node has 32 memory CDIMM slots, and at least half of the memory slots are always physically filled. Eight CDIMM slots are local to each of the four SCMs in the server, but SCMs and their cores have access to all the other memory in the server. At least half of the eight memory slots for each SCM must physically be filled. When filling the other four memory slots in the SCM, a quantity of four CDIMMs must be used. Thus, the CDIMM slots of the SCMs are either 50% or 100% filled. The system node (four SCMs) CDIMM slots can have 16, 20, 24, 28, or 32 CDIMMs physically installed (quad plugging rules).

To assist with the quad plugging rules above, four CDIMMs are ordered using one memory feature number. Select from 128 GB feature EF20 (4 x 32 DDR4), 256 GB feature EF21 (4 x 64 DDR4), 512 GB feature EF22 (4 x 128 DDR4), 1024 GB feature EF23 (4 x 256 DDR4), or 2048 GB feature EF24 (4 x 512 DDR4).

All CDIMMs must be identical on the same SCM so if using eight CDIMMs, both memory features on an SCM must be identical. A different SCM in the same system node can use a different memory feature. For example, one system node could technically use 128 GB, 256 GB, 512 GB, 1024 GB, and 2048 GB memory features. Note that DDR3 and DDR4 memory cannot be mixed on the same system node.

To provide more flexible pricing, memory activations are ordered separately from the physical memory and can be permanent or temporary. Activation features can be used on DDR4 memory features and used on any size memory feature. Activations are not specific to a CDIMM, but are known as a total quantity to the server. The Power hypervisor determines what physical memory to use.

Memory activation features are:

- 1 GB Memory Activation (#EMAT) (static)
- 100 GB Memory Activations (#EMAU) (static)
- 100 GB Mobile Memory Activations (#EMAV)
- 100 GB Mobile Enabled Memory Activations (#EMAD) (technically static, but no charge to convert to mobile)
- 512 GB Memory Activations for Power Linux (#ELMD)
- 8 TB activations (#EMBA) ordered with 8 TB memory using feature EM8Y CDIMMs
- 4 TB activations (#EMB7) ordered with 4 TB memory using the feature EMB6 package

A minimum of 50% of the total physical memory capacity of a server must have permanent memory activations ordered for that server. For example, a server with a total of 8 TB of physical memory must have at least 4 TB of permanent memory activations ordered for that server. These activations can be static, mobile-enabled, mobile, or Linux on Power. At least 25% must be static activations or Linux on Power activations. For example, a server with a total of 8 TB physical memory must have at least 2 TB of static activations or Linux on Power activations. The 50% minimum cannot be fulfilled using mobile activations ordered on a different server.

The minimum activations ordered with MES orders of additional physical memory features will depend on the existing total installed physical memory capacity and the existing total installed memory activation features. If you already have installed more than 50% activations for your existing system, then you can order less than

50% activations for the MES ordered memory. The resulting configuration after the MES order of physical memory and any MES activations must meet the same 50% and 25% minimum rules above.

For the best possible performance, it is generally recommended that memory be installed evenly across all system node drawers and all SCMs in the system. Balancing memory across the installed system planar cards enables memory access in a consistent manner and typically results in better performance for your configuration.

Though maximum memory bandwidth is achieved by filling all the memory slots, plans for future memory additions should be taken into account when deciding which memory feature size to use at the time of initial system order.

IBM Active Memory Expansion (AME) is an option that can increase the effective memory capacity of the system. See the AME information later in this section.

System node PCIe slots

- Each system node enclosure provides excellent configuration flexibility and expandability with eight half-length, low-profile (half-high) x16 PCIe Gen4 slots. The slots are labeled C1 through C8.
- These PCIe slots can be used for either low-profile PCIe adapters or for attaching a PCIe I/O drawer.
- A blind swap cassette (BSC) is used to house the low-profile adapters that go into these slots. The server is shipped with a full set of BSCs, even if the BSCs are empty. A feature number to order additional low-profile BSCs is not required or announced.
- If additional PCIe slots beyond the system node slots are required, a system node x16 slot is used to attach a six-slot expansion module in the I/O drawer. An I/O drawer holds two expansion modules that are attached to any two x16 PCIe slots in the same system node or in different system nodes.
- PCIe Gen1, Gen2, Gen3, and Gen4 adapter cards are supported in these Gen4 slots. The set of PCIe adapters that are supported is found in the Sales Manual, identified by feature number.
- Concurrent repair and add/removal of PCIe adapter cards is done by HMC-guided menus or by operating system support utilities.
- The system nodes sense which IBM PCIe adapters are installed in their PCIe slots; and if an adapter requires higher levels of cooling, they automatically speed up the fans to increase airflow across the PCIe adapters.
- Each PCIe slot in the system node supports CAPI adapters.

PCIe I/O Expansion Drawer

The 19-inch PCIe 4U I/O Expansion Drawer (#EMX0) provides slots to hold PCIe adapters that cannot be placed into a system node. The PCIe I/O Expansion Drawer (#EMX0) and two PCIe FanOut Modules (#EMXG) provide 12 PCIe I/O full-length, full-height slots. One FanOut Module provides six PCIe slots labeled C1 through C6. The C1 and C4 are x16 slots, and C2, C3, C5, and C6 are x8 slots.

PCIe Gen1, Gen2, Gen3, and Gen4 and full-high adapter cards are supported. The set of full-high PCIe adapters that are supported is found in the Sales Manual, identified by feature number. See the PCI Adapter Placement manual for the 9080-M9S for details and rules associated with specific adapters supported and their supported placement in x8 or x16 slots.

Up to four PCIe I/O drawers per node can be attached to the Power E980 server. Using two 6-slot fan-out modules per drawer provides a maximum of 48 PCIe slots per system node. With 2 system nodes, up to 96 PCIe slots (8 I/O drawers) are supported. With a 4-node Power E980 server, up to 192 PCIe slots (16 I/O drawers) are supported.

Additional PCIe I/O drawer configuration flexibility is provided to the Power E980 servers. Zero, one, two, three, or four PCIe I/O drawers can be attached per system node. As an alternative, a "half" drawer that consists of just one PCIe fan-out

module in the I/O drawer is also supported, enabling a lower-cost configuration if fewer PCIe slots are required. Thus, a system node supports the following half drawer options: one half drawer, two half drawers, three half drawers, or four half drawers. Because there is a maximum of four feature EMX0 drawers per node, a single system node cannot have more than four half drawers. A server with more system nodes can support more half drawers up to four per node. A system can also mix half drawers and full PCIe I/O drawers. The maximum of four PCIe drawers per system node applies whether a full or half PCIe drawer.

PCIe drawers can be concurrently added to the server at a later time. The drawer being added can have either one or two fan-out modules. Note that adding a second fan-out module to a half-full drawer does require schedule downtime.

PCIe I/O Drawer attachment and cabling

- A PCIe X16 to Optical CXP converter adapter (#EJ07) and 2.0 M (#ECC6), 10.0 M (#ECC8), or 20 M (#ECC9) CXP 16X Active Optical cables (AOC) connect the system node to a PCIe FanOut module in the I/O expansion drawer. One ECC6, ECC8, or ECC9 feature ships two AOC cables from IBM.
- The two AOC cables connect to two CXP ports on the fan-out module and to two CXP ports on the feature EJ07 adapter. The top port of the fan-out module must be cabled to the top port of the feature EJ07 port. Likewise, the bottom two ports must be cabled together.
- It is recommended but not required that one I/O drawer be attached to two different system nodes in the same server (one drawer module attached to one system node and the other drawer module attached to a different system node). This can help provide cabling for higher availability configurations.
- It is generally recommended that any attached PCIe I/O Expansion Drawer be located in the same rack as the POWER9 server for ease of service, but expansion drawers can be installed in separate racks if the application or other rack content requires it. If you are attaching a large number of cables, such as SAS cables or CAT5/CAT6 Ethernet cables, to a PCIe I/O drawer, then it is generally better to place that feature EMX0 drawer in a separate rack for better cable management.

  Limitation: When this cable is ordered with a system in a rack specifying IBM Plant integration, IBM Manufacturing will ship SAS cables longer than 3 meters in a separate box and not attempt to place the cable in the rack. This is because the longer SAS cable is probably used to attach to an EXP24S drawer in a different rack.

- Concurrent repair and add/removal of PCIe adapter cards is done by HMC-guided menus or by operating system support utilities.
- A blind swap cassette is used to house the full-high adapters that go into these slots. The BSC is the same BSC as used with 12X attached I/O drawers (#5802, #5803, #5877, #5873) of the previous generation server. The drawer is shipped with a full set of BSCs, even if the BSCs are empty. A feature to order additional full-high BSCs is not required or announced.
- A maximum of 16 EXP24s Drawers is needed per PCIe Drawer (#EMX0) to enable SAS cables to be properly handled by the feature EMX0 cable management bracket.

A BSC is used to house the full-high adapters that go into the fan-out module slots. The BSC is the same BSC as used with the 12X attached I/O drawers (#5802, #5803, #5877, #5873) of the previous generation server and is often referred to as a *cassette*. The drawer is shipped with a full set of BSCs, even if the BSCs are empty. A feature number to order additional full-high BSC is not required or announced.

EXP24SX disk/SSD drawer

- Direct attached storage is supported with the EXP24SX SFF Gen2-bay Drawer (#ESLS), an expansion drawer with twenty-four 2.5-inch form-factor SAS bays.
- The Power E980 server supports up to 4,032 drives with a maximum of 168 EXP24SX drawers. The maximum of 16 EXP24SX drawers per PCIe I/O drawer due to cabling considerations remains unchanged.

- The EXP24SX SFF Gen2-bay Drawer (#ESLS) is an expansion drawer with twenty-four 2.5-inch form-factor SAS bays. Slot filler panels are included for empty bays when initially shipped. The EXP24SX supports up to 24 hot-swap SFF-2 SAS HDDs or SSDs. It uses only 2 EIA of space in a 19-inch rack. The EXP24SX includes redundant AC power supplies and uses two power cords.
- With AIX, Linux, and VIOS, you can order the EXP24SX with four sets of six bays, two sets of 12 bays, or one set of 24 bays (mode 4, 2, or 1). With IBM i, you can order the EXP24SX as one set of 24 bays (mode 1). Mode setting is done by IBM Manufacturing, and there is no option provided to change the mode after it is shipped from IBM.
- **Important:** When changing modes, a skilled, technically qualified person should follow the special documented procedures. Improperly changing modes can potentially destroy existing RAID sets, prevent access to existing data, or allow other partitions to access another partition's existing data. Hire an expert to assist if you are not familiar with this type of reconfiguration work.
- The EXP24SX SAS ports are attached to a SAS PCIe adapter or pair of adapters using SAS YO or X cables.
- To maximize configuration flexibility and space utilization, the system node does not have integrated SAS bays or integrated SAS controllers. PCIe adapters and the EXP24SX can be used to provide direct access storage.
- To further reduce possible single points of failure, EXP24SX configuration rules consistent with previous Power Systems servers are used. IBM i configurations require the drives to be protected (RAID or mirroring). Protecting the drives is highly recommended, but not required for other operating systems. All Power operating system environments that are using SAS adapters with write cache require the cache to be protected by using pairs of adapters.
- It is recommended for SAS cabling ease that the EXP24SX drawer be located in the same rack in which the PCIe adapter is located. Note, however, it is often a good availability practice to split a SAS adapter pair across two PCIe drawers/ nodes for availability and that may make the SAS cabling ease recommendation difficult or impossible to implement.
- HDDs and SSDs that were previously located in POWER8 system units or in feature 5802 or 5803 12X-attached I/O drawers (SFF-1 bays) can be "re-trayed" and placed in EXP24S drawers. See feature conversions previously announced on the POWER8 servers. Ordering a conversion ships an SFF-2 tray or carriage onto which the client can place their existing drive after removing it from the existing SFF-1 tray/carriage. The order also changes the feature number so that IBM configuration tools can better interpret what is required.
- A maximum of 16 EXP24SX Drawers is needed per PCIe Drawer (#EMX0) to enable SAS cables to be properly handled by the feature EMX0 cable management bracket.

DVD and boot devices

A device capable of reading a DVD may be attached to the system and available to perform operating system installation, maintenance, problem determination, and service actions such as maintaining system firmware and I/O microcode at their latest levels. In addition, the system must be attached to a network with software such as AIX NIM server or Linux Install Manager configured to perform these functions:

1. Disk or SSD located in an EXP24S drawer attached to a PCIe adapter
2. A network through LAN adapters
3. A SAN attached to Fibre Channel or Fibre Channel over Ethernet adapters and indicated to the server by the 0837 specify feature

- Assuming option 1 above, the minimum system configuration requires at least one SAS disk drive in the system for AIX and Linux and two for IBM i. If you are using option 3 above, a disk or SSD drive is not required.
- For IBM i, a DVD drive must be available on the server when required.
- A DVD can optionally attach to the front of the system control unit, rear of nodes 1 or 2, or one or more DVDs can be located in an external enclosure such as a 7226-1U3 Multimedia drawer.

Racks

The Power E980 server is designed to fit a standard 19-inch rack. IBM Development has tested and certified the system in the IBM Enterprise rack (7965-S42, 7014-T42, 7014-T00, #0551, #0553 or #ECR0). Clients can choose to place the server in other racks if they are confident those racks have the strength, rigidity, depth, and hole pattern characteristics that are needed. Clients should work with IBM Service to determine the appropriateness of other racks.

It is highly recommended that the Power E980 server be ordered with an IBM 42U enterprise rack (7965-S42, 7014-T42, #0553, or #ECR0). An initial system order is placed in a 7965-S42 or 7014-T42 rack. A same serial-number model upgrade MES is placed in a feature 0553 or #ECR0 rack. This is done to ease and speed client installation, provide a more complete and higher quality environment for IBM Manufacturing system assembly and testing, and provide a more complete shipping package.

The 7965-S42, 7014-T42 or feature 0553 or #ECR0 is a 2-meter enterprise rack that provides 42U or 42 EIA of space. Clients who don't want this rack can remove it from the order, and IBM Manufacturing will then remove the server from the rack after testing and ship the server in separate packages without a rack. Use the factory-deracking feature ER21 on the order to do this.

Front door options supported with Power E980 system nodes for the 42U slim enterprise rack (7695-S42 and ECR0), front acoustic door #ECRA, high-end appearance front door #ECRF, cost-effective plain front door #ECRM.

Five rack front door options are supported with Power E980 system nodes for the 42U enterprise rack (7014-T42 or #0553), the thinner acoustic front door (#EC08), the ruggedized door (#ERGD), the attractive geometrically accented door (#ERG7), and the cost-effective plain front door (#6069). The front trim kit is also supported (#6272). The Power 880 logo rack door (#6250) is not supported.

Recommendation : The 7965-S42 has optimized cable routing, therefore all 42U may be populated with equipment. If you choose to use the 7014 T42, the bottom 2U of the rack should be left open for cable management when below-floor cabling is used. Likewise, if overhead cabling is used, the top 2U should be left open for cable management. If clients are using both overhead and below-floor cabling, leaving 2U open on both the top and bottom of the rack is a good practice. Rack configurations that place equipment in these 2U locations can be more difficult to service if there are a lot of cables running by them in the rack.

The 7965-S42 rack does not need 2U on either the top or bottom for cable egress.

The system control unit is located below system node 1, with system node 1 on top of it, system node 2 on top of that, and so on.

With the 2-meter 7965-S42 or feature ECR0, a rear rack extension of 12.7 cm (5 (in.))(#ECRK) provides space to hold cables on the side of the rack and keep the center area clear for cooling and service access.

With the 2-meter 7014-T42 or feature 0553, a rear rack extension of 20.3 cm (8 (in.))(#ERG0) provides space to hold cables on the side of the rack and keep the center area clear for cooling and service access.

Recommendation : Include the above extensions when approximately more than 16 I/O cables per side are present or may be added in the future, when using the short-length thinner SAS cables or thinner I/O cables such as Ethernet. If you use longer-length thicker SAS cables fewer cables will fit within the rack.

SAS cables are most commonly found with multiple EXP24SX/EXP12SX SAS drawers (#ESLL or ESLS) driven by multiple PCIe SAS adapters. For this reason, it is good practice to keep multiple EXP24SX/EXP12SX drawers in the same rack as the PCIe I/O drawer or in a separate rack close to the PCIe I/O drawer, using shorter, thinner SAS cables. The feature ERG0 and ECRK extension can be good to use even with

smaller numbers of cables because it enhances the ease of cable management with the extra space it provides.

Multiple service personnel are required to manually remove or insert a system node drawer into a rack, given its dimensions and weight and content.

Recommendation : To avoid any delay in service, obtain an optional lift tool (#EB2Z). One feature EB2Z lift tool can be shared among many servers and I/O drawers. The EB2Z lift tool provides a hand crank to lift and position up to 159 kg (350 lb). The EB2Z lift tool is 1.12 meters x 0.62 meters (44 in. x 24.5 in.). Note that a single system node can weigh up to 86.2 kg (190 lb).

Lighter, lower cost lift tool is FC EB3Z (lift tool) and EB4Z (angled shelf kit for lift tool). The EB3Z lift tool provides a hand crank to lift and position a server up to 400 lb. Note that a single system node can weigh up to 86.2 kg (190 lb).

PCIe I/O Expansion Drawer and Racks

IBM Manufacturing can factory-integrate the PCIe I/O Expansion Drawer (#EMX0) with new server orders. Because expansion drawers complicate the access to vertical PDUs if located at the same height, IBM recommends accommodating PDUs horizontally on racks that have one or more PCIe I/O Expansion Drawers. Following this recommendation, IBM Manufacturing will always assemble the integrated rack configuration with horizontally mounted PDUs unless CRSP (#0469) is on the order. When specifying CSRP, clients must provide the locations where the PCIe I/O Expansion Drawers must be placed, avoiding locating those adjacent to vertical PDU locations EIA 6 through 16 and 21 through 31.

Additional PCIe I/O drawers (#EMX0) for an already installed server can be MES ordered with or without a rack. When clients want IBM Manufacturing to place these MES I/O drawers into a rack and ship them together (factory integration), then the racks should be ordered as features on the same order as the I/O drawers. Use feature 0553 (42U enterprise rack) for this order. Regardless of the rack-integrated system to which the PCIe I/O Expansion Drawer is attached to, if the expansion drawer is ordered as factory-integrated, the PDUs in the rack will be defaulted to be placed horizontally to enhance cable management. Vertical PDUs can be used only if CSRP (#0469) is on the order.

After the rack with expansion drawers is delivered to the client, the client may rearrange the PDUs from horizontal to vertical. However, the IBM configurator tools will continue to assume the PDUs are placed horizontally for the matter of calculating the free space still available in the rack for additional future orders.

Power distribution units (PDU)

- The Power E980 server factory that is integrated into an IBM rack uses horizontal PDUs located in the EIA drawer space of the rack instead of the typical vertical PDUs found in the side pockets of a rack. This is done to aid cable routing. Each horizontal PDU occupies 1U. Vertically mounting the PDUs to save rack space can cause cable routing challenges and interfere with optimal service access.
- When mounting the horizontal PDUs, it is a good practice to place them almost at the top or almost at the bottom of the rack, leaving 2U or more of space at the very top or very bottom open for cable management. Mounting a horizontal PDU in the middle of the rack is generally not optimal for cable management.
- Two possible PDU ratings are supported: 60A/63A (orderable in most countries) and 30A/32A.
  - The 60A/63A PDU supports four system node power supplies and one I/O expansion drawer or eight I/O expansion drawers.
  - The 30A/32A PDU supports two system node power supplies and one I/O expansion drawer or four I/O expansion drawer
- Rack-integrated system orders require at least two of either feature 7109, 7188, or 7196.
  - Intelligent PDU with Universal UTG0247 Connector (#7109) is for an intelligent AC power distribution unit (PDU+) that enables users to monitor the amount

of power being used by the devices that are plugged in to this PDU+. This AC power distribution unit provides 12 C13 power outlets. It receives power through a UTG0247 connector. It can be used for many different countries and applications by varying the PDU to Wall Power Cord, which must be ordered separately. Each PDU requires one PDU to Wall Power Cord. Supported power cords include the following features: 6489, 6491, 6492, 6653, 6654, 6655, 6656, 6657, and 6658.

- Power Distribution Unit (#7188) mounts in a 19-inch rack and provides twelve C13 power outlets. The PDU has six 16A circuit breakers, with two power outlets per circuit breaker. System units and expansion units must use a power cord with a C14 plug to connect to the feature 7188. One of the following line cords must be used to distribute power from a wall outlet to the feature 7188: feature 6489, 6491, 6492, 6653, 6654, 6655, 6656, 6657, or 6658.
- The Three-phase Power Distribution Unit (#7196) provides six C19 power outlets and is rated up to 48A. It has a 4.3 m (14 ft) fixed power cord to attach to the power source (IEC309 60A plug (3P+G)). A separate "to-the-wall" power cord is not required or orderable. Use the Power Cord 2.8 m (9.2 ft), Drawer to Wall/IBM PDU, (250V/10A) (#6665) to connect devices to this PDU. These power cords are different than the ones used on the feature 7188 and 7109 PDUs. Supported countries for the feature 7196 PDU are Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, Brazil, Canada, Cayman Islands, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Haiti, Honduras, Indonesia, Jamaica, Japan, Mexico, Netherlands Antilles, Nicaragua, Panama, Peru, Puerto Rico, Surinam, Taiwan, Trinidad and Tobago, United States, and Venezuela.

System node power

- Four AC power supplies provide 2 + 2 redundant power for enhanced system availability. A system node is designed to continue functioning with just two working power supplies. A failed power supply can be hot swapped but must remain in the system until the replacement power supply is available for exchange.
- Four AC power cords are used for each system node (one per power supply) and are ordered using the AC Power Chunnel feature (#EMXA). The chunnel carries power from the rear of the system node to the hot-swap power supplies located in the front of the system node where they are more accessible for service.

System control unit power

- The system control unit is powered from the system nodes. UPIC cables provide redundant power to the system control unit. In a single node system two UPIC cables are attached to system node 1. In a 2-node, 3-node, or 4-node system, one UPIC cable attaches to system node 1 and one UPIC cable attaches to system node 2. They are ordered with features EFCA. Only one UPIC cable is enough to power the system control unit, and the other is in place for redundancy.

Concurrent maintenance or Hot-plug options

The following options are maintenance or hot-plug capable:

- EXP24S SAS Storage enclosure drawer.
- Drives in the EXP24S Storage enclosure drawer.
- NVMe U.2 drives.
- PCI extender cards, Optical PCIe Link IO Expansion Card.
- PCIe I/O adapters.
- PCIe I/O drawers.
- PCIe to USB Conversion card.
- SMP cables (only after November GA and with Firmware 920.20).
- System node AC power supplies: Two functional power supplies must remain installed at all times while the system is operating.

- System node fans.
- System control unit fans.
- System control unit Op Panel.
- Time of Day battery.
- UPIC Interface card in SCU.
- UPIC power cables from system node to system control unit.

If the system boot device or system console is attached using an I/O adapter feature, that adapter may not be hot-plugged if a nonredundant topology has been implemented.

You can access hot-plug procedures in the product documentation at IBM Knowledge Center.

Active Memory Expansion

Active Memory Expansion is an innovative technology supporting the AIX operating system that helps enable the effective maximum memory capacity to be larger than the true physical memory maximum. Compression/decompression of memory content can enable memory expansion up to 100% or more. This can enable a partition to do significantly more work or support more users with the same physical amount of memory. Similarly, it can enable a server to run more partitions and do more work for the same physical amount of memory.

Active Memory Expansion uses CPU resource to compress/decompress the memory contents. The trade-off of memory capacity for processor cycles can be an excellent choice, but the degree of expansion varies on how compressible the memory content is. It also depends on having adequate spare CPU capacity available for this compression/decompression.

The Power E980 server includes a hardware accelerator designed to boost Active Memory Expansion efficiency and uses less POWER(R) core resource. You have a great deal of control over Active Memory Expansion usage. Each individual AIX partition can turn on or turn off Active Memory Expansion. Control parameters set the amount of expansion desired in each partition to help control the amount of CPU used by the Active Memory Expansion function. An IPL is required for the specific partition that is turning memory expansion. When turned on, monitoring capabilities are available in standard AIX performance tools such as lparstat, vmstat, topas, and svmon.

A planning tool is included with AIX, enabling you to sample actual workloads and estimate both how expandable the partition's memory is and how much CPU resource is needed. Any Power Systems model can run the planning tool. In addition, a one-time, 60-day trial of Active Memory Expansion is available to enable more exact memory expansion and CPU measurements. You can request the trial using the Capacity on Demand web page.

Active Memory Expansion is enabled by chargeable hardware feature EM89, which can be ordered with the initial order of the system or as an MES order. A software key is provided when the enablement feature is ordered, which is applied to the system node. An IPL is not required to enable the system node. The key is specific to an individual system and is permanent. It cannot be moved to a different server.

The additional CPU resource used to expand memory is part of the CPU resource assigned to the AIX partition running Active Memory Expansion. Normal licensing requirements apply.

Active Memory Mirroring

The Power E980 server offers the Active Memory Mirroring for Hypervisor feature, which is designed to prevent a system outage in the event of an uncorrectable error in memory being used by the system hypervisor.

IBM i operating system

For clients loading the IBM i operating system, the four-digit numeric QPRCFEAT value is generally the same as the four-digit numeric feature number for the processors used in the system. The Power E980 3.9 GHz processor feature and the special ordering processor features used for the CBU for Power Enterprise Systems are exceptions to this rule. For the Power E980:

Feature number	Description
EFP1/EFB1	Processor (typical 3.9 - 4.0 GHz 32-core node) - QPRCFEAT value for the system is EFP1.
EFP2/EFB2	Processor (typical 3.7 - 3.9 GHz 40-core node) - QPRCFEAT value for the system is EFP2.
EFP4/EFB4	Processor (typical 3.58 - 3.9 GHz 44-core node) - QPRCFEAT value for the system is EFP4.
EFP3/EFB3	Processor (typical 3.55 - 3.9 GHz 48-core node) - QPRCFEAT value for the system is EFP3.
EHC6	Processor (typical 3.7 - 3.9 GHZ 40-core node) - QPRCFEAT value for the system is EFP2.

If the 5250 Enterprise Enablement function is to be used on the server, order one or more feature EF2R or order the full system 5250 enablement feature EF30. Feature EF2R provides one processor core's worth of 5250 capacity, which can be spread across multiple physical processor cores or multiple partitions.

Capacity Backup for IBM i

The Capacity Backup (CBU) designation can help meet your requirements for a second system to use for backup, high availability, and disaster recovery. It enables you to temporarily transfer IBM i processor license entitlements and 5250 Enterprise Enablement entitlements purchased for a primary machine to a secondary CBU-designated system. Temporarily transferring these resources instead of purchasing them for your secondary system may result in significant savings. Processor activations cannot be transferred as part of this CBU offering, but programs such as Power Enterprise Pools are available for the function.

The CBU specify feature number 4891 is available only as part of a new server purchase or during an MES upgrade from an existing system to a 9080-M9S. Certain system prerequisites must be met, and system registration and approval are required before the CBU specify feature can be applied on a new server. A used system that has an existing CBU feature cannot be registered. The only way to attain a CBU feature that can be registered is with a plant order.

Standard IBM i terms and conditions do not enable either IBM i processor license entitlements or 5250 Enterprise Enablement entitlements to be transferred permanently or temporarily. These entitlements remain with the machine they were ordered for. When you register the association between your primary and on-order CBU system, you must agree to certain terms and conditions regarding the temporary transfer.

After a CBU system designation is approved and the system is installed, you can temporarily move your optional IBM i processor license entitlement and 5250 Enterprise Enablement entitlements from the primary system to the CBU system when the primary system is down or while the primary system processor cores are inactive. The CBU system can then better support fail-over and role swapping for a full range of test, disaster recovery, and high availability scenarios. Temporary entitlement transfer means that the entitlement is a property transferred from the primary system to the CBU system and may remain in use on the CBU system as long as the registered primary and CBU system are in deployment for the high availability or disaster recovery operation. The primary system for an E980 server can be any of the following:

- 9080-MHE

- 9080-MME
- 9119-MHE
- 9119-MME

These systems have IBM i software licenses with an IBM i P30 software tier, or higher. The primary machine must be in the same enterprise as the CBU system.

Before you can temporarily transfer IBM i processor license entitlements from the registered primary system, you must have more than one IBM i processor license on the primary machine and at least one IBM i processor license on the CBU server. An activated processor must be available on the CBU server to use the transferred entitlement. You may then transfer any IBM i processor entitlements above the minimum one, assuming the total IBM i workload on the primary system does not require the IBM i entitlement you would like to transfer during the time of the transfer. During this temporary transfer, the CBU system's internal records of its total number of IBM i processor license entitlements are not updated, and you may see IBM i license noncompliance warning messages from the CBU system. Such messages that arise in this situation do not mean you are not in compliance.

Before you can temporarily transfer 5250 entitlements, you must have more than one 5250 Enterprise Enablement entitlement on the primary server and at least one 5250 Enterprise Enablement entitlement on the CBU system. You may then transfer the entitlements that are not required on the primary server during the time of transfer and that are above the minimum of one entitlement. Note that if you are using software replication (versus PowerHA), you may well need more than a minimum of one entitlement on the CBU to support the replication workload.

For example, if you have a 64-core Power E880 as your primary system with twenty IBM i processor license entitlements (nineteen above the minimum) and two 5250 Enterprise Enablement entitlements (one above the minimum), you can temporarily transfer up to nineteen IBM i entitlements and one 5250 Enterprise Enablement entitlement. During the temporary transfer, the CBU system's internal records of its total number of IBM i processor entitlements is not updated, and you may see IBM i license noncompliance warning messages from the CBU system.

If your primary or CBU machine is sold or discontinued from use, any temporary entitlement transfers must be returned to the machine on which they were originally acquired. For CBU registration and further information, see the Capacity Backup website.

Capacity Backup for IBM Power Enterprise Systems

With Capacity Backup for Power Enterprise Systems, clients can purchase a new Power Enterprise server that is specifically to be used for high-availability or disaster-recovery purposes. It includes a number of system nodes based on a defined Power E980, Power E870, Power E870C, Power E880, or Power E880C production system that the client owns. Systems with Capacity Backup processor features can only be ordered with a maximum of eight static processor activations. All other processor activations supported on these systems are through Elastic COD processor days or Mobile Processor activations from another system within the Enterprise Pool in which they exist.

The IBM Power System E980 Capacity Backup system can only be purchased by clients who already own or purchase a qualifying Power E980 (9080-M9S), Power E880C (9080-MHE), Power E870C (9080-MME), Power E880 (9119-MHE), or Power E870 (9119-MME) production Power System server that meets the following configuration requirement:

- You must activate a minimum of 25% of the installed memory on your CBU Power E980 system.

When the requirements are completed, you are entitled to order a CBU for Power E980 system. The following configuration rules apply:

- You must purchase exactly eight Static Processor activations on the Power E980 CBU system.
- Activation of more than eight cores on the Power E980 CBU system is not supported.
- You must order feature EFB0 (CBU server specify) on every Power E980 CBU system to add CBU processor feature EFB1, EFB2, EFB3, or EFB4 to a configuration.
- The Power E980 CBU system may only order the total number of EFB1, EFB2, EFB3, or EFB4 processor features that are equivalent to the total number of processor features on the primary E8xxx or E980 production system the CBU is registered to support. For example, if Power E980 production system has two of feature EFP1, you are entitled to order two of feature EPB1.

For every Mobile Processor Activation feature on the Power E980 production system that a E980 CBU is registered to support, you may receive 11,680 Elastic CoD GB days to be used for high availability and disaster recovery purposes only. The Elastic CoD memory days must be turned on immediately with the installation of the Power E980 CBU system and must be left on until all the days are used. The Elastic CoD memory days are renewable for no charge a year after the Power E980 CBU has been installed with proof that the Power E980 requirements are meet. The Elastic CoD days continue to be renewable as long as the original client that purchased the Power E980 production system remains in production services.

The capacity backup for the Power E980 system must go through a registration process, which includes a contract signed by the client. For CBU registration and further information, see the Capacity Backup website.

All Power E980 CBU systems, no matter whether they use the 32-core POWER9 processor, 40-core POWER9 processor, 44-core POWER9 processor or the 48-core POWER9 processor, will have feature EFB0 installed on the system. This feature designates that this is a Capacity Backup system. A stop-ship will automatically be put in place until manufacturing is notified that the CBU system meets configuration requirements based on the identified Power E980 production system.

If your primary or CBU machine is sold or discontinued from use, any temporary entitlement transfers must be returned to the machine on which they were originally acquired.

Reliability, Availability, and Serviceability

Reliability

The reliability of systems starts with components, devices, and subsystems that are designed to be highly reliable. During the design and development process, subsystems go through rigorous verification and integration testing processes. During system manufacturing, systems go through a thorough testing process ensure product quality.

Power E980 system RAS

The Power E980 server comes with dual line cord redundancy along with n+1 power supply redundancy and n+1 fan rotor redundancy. Power supplies and fans are concurrently maintainable.

The system service processor is redundant with a dynamic failover capability. Each system node has dual processor clock logic with a dynamic failover capability.

Concurrent maintenance of the real-time clock battery and the operator panel is also provided.

The voltage regulators supplying the DIMM risers and certain other miscellaneous functions are pluggable and supply both a redundant and spare output.

Memory subsystem RAS

The memory has error detection and correction circuity that can mark a memory module as faulty to allow for substitution of a spare memory module. Both x4 and x8 CDIMMS provide spare memory modules.

Mutual surveillance

The service processor monitors the operation of the firmware during the boot process and also monitors the hypervisor for termination. The hypervisor monitors the service processor and reports a service reference code when it detects surveillance loss. In the IBM PowerVM environment, it will perform a reset/reload if it detects the loss of the service processor.

Environmental monitoring functions

The IBM Power Systems family does ambient and over temperature monitoring and reporting.

POWER9 processor functions

As in POWER8, the POWER9 processor has the ability to do processor instruction retry for some transient errors and provide core-contained checkstops for certain solid faults.

Cache availability

The L2 and L3 caches in the POWER9 processor in the memory buffer chip are protected with double-bit detect, single-bit correct error detection code (ECC). In addition, a threshold of correctable errors detected on cache lines can result in the data in the cache lines being purged and the cache lines removed from further operation without requiring a reboot in the PowerVM environment.

Modified data would be handled through Special Uncorrectable Error handling. L1 data and instruction caches also have a retry capability for intermittent errors and a cache set delete mechanism for handling solid failures.

Special Uncorrectable Error handling

Special Uncorrectable Error (SUE) handling prevents an uncorrectable error in memory or modified cache data from immediately causing the system to terminate. Rather, the system tags the data and determines whether it will ever be used again. If the error is irrelevant, it will not force a check stop. When and if data is used, I/O adapters controlled by an I/O hub controller would freeze if data were transferred to an I/O device, otherwise, termination may be limited to the program/kernel or if the data is not owned by the hypervisor.

PCI extended error handling

PCI extended error handling (EEH)-enabled adapters respond to a special data packet generated from the affected PCI slot hardware by calling system firmware, which will examine the affected bus, allow the device driver to reset it, and continue without a system reboot. For Linux, EEH support extends to the majority of frequently used devices, although some third-party PCI devices may not provide native EEH support.

Uncorrectable error recovery

When the auto-restart option is enabled, the system can automatically restart following an unrecoverable software error, hardware failure, or environmentally induced (AC power) failure.

Serviceability

The purpose of serviceability is to efficiently repair the system while attempting to minimize or eliminate impact to system operation. Serviceability includes system installation, MES (system upgrades/downgrades), and system maintenance/repair.

Depending upon the system and warranty contract, service may be performed by the client, an IBM representative, or an authorized warranty service provider.

The serviceability features delivered in this system help provide a highly efficient service environment by incorporating the following attributes:

- Design for SSR Setup, Install, and Service
- Error Detection and Fault Isolation (ED/FI)
- First Failure Data Capture (FFDC)
- Guiding Light service indicators
- Service labels and service diagrams available on the system and delivered through IBM Knowledge Center
- Step-by-step service procedures documented in IBM Knowledge Center or available through the HMC
- Automatic reporting of serviceable events to IBM through the Electronic Service Agent™ Call Home application

Service environment

In the PowerVM environment, the HMC is a dedicated server that provides functions for configuring and managing servers for either partitioned or full-system partition using a GUI or command-line interface (CLI) or REST API. An HMC attached to the system enables support personnel (with client authorization) to remotely, or locally to the physical HMC that is in proximity of the server being serviced, log in to review error logs and perform remote maintenance if required.

The POWER9 processor-based platforms support several service environments:

- Attachment to one or more HMCs or vHMCs is a supported option by the system with PowerVM. This is the default configuration for servers supporting logical partitions with dedicated or virtual I/O. In this case, all servers have at least one logical partition.

Service interface

Support personnel can use the service interface to communicate with the service support applications in a server using an operator console, a graphical user interface on the management console or service processor, or an operating system terminal. The service interface helps to deliver a clear, concise view of available service applications, helping the support team to manage system resources and service information in an efficient and effective way. Applications available through the service interface are carefully configured and placed to give service providers access to important service functions.

Different service interfaces are used, depending on the state of the system, hypervisor, and operating environment. The primary service interfaces are:

- LEDs
- Operator Panel
- Service Processor menu
- Operating system service menu
- Service Focal Point on the HMC or vHMC with PowerVM

In the guiding light LED implementation, the system can clearly identify components for replacement by using specific component-level LEDs . The servicer can use the identify function to blink the FRU-level LED. When this function is activated, a roll-up to the blue enclosure locate and system locate LEDs will occur. These enclosure LEDs will turn on solid and can be used to follow the light path from the system to the enclosure and down to the specific FRU in the PowerVM environment.

First Failure Data Capture and error data analysis

First Failure Data Capture (FFDC) is a technique that helps ensure that when a fault is detected in a system, the root cause of the fault will be captured without the need to re-create the problem or run any sort of extending tracing or diagnostics program. For the vast majority of faults, a good FFDC design means that the root cause can also be detected automatically without servicer intervention.

FFDC information, error data analysis, and fault isolation are necessary to implement the advanced serviceability techniques that enable efficient service of the systems and to help determine the failing items.

In the rare absence of FFDC and Error Data Analysis, diagnostics are required to re-create the failure and determine the failing items.

Diagnostics

General diagnostic objectives are to detect and identify problems so they can be resolved quickly. Elements of IBM's diagnostics strategy include:

- Provide a common error code format equivalent to a system reference code with PowerVM, system reference number, checkpoint, or firmware error code.
- Provide fault detection and problem isolation procedures. Support remote connection ability to be used by the IBM Remote Support Center or IBM Designated Service.
- Provide interactive intelligence within the diagnostics with detailed online failure information while connected to IBM's back-end system.

Automatic diagnostics

The processor and memory FFDC technology is designed to perform without the need for re-create diagnostics nor require user intervention. Solid and intermittent errors are designed to be correctly detected and isolated at the time the failure occurs. Runtime and boot-time diagnostics fall into this category.

Stand-alone diagnostics with PowerVM

As the name implies, stand-alone or user-initiated diagnostics requires user intervention. The user must perform manual steps, including:

- Booting from the diagnostics CD, DVD, USB, or network
- Interactively selecting steps from a list of choices

Concurrent maintenance

The determination of whether a firmware release can be updated concurrently is identified in the readme information file that is released with the firmware. An HMC is required for the concurrent firmware update with PowerVM. In addition, concurrent maintenance of PCIe adapters is supported with PowerVM. Concurrent maintenance of the Operator Panel is supported through ASMI. Additional concurrent maintenance includes:

- EXP24S SAS Storage enclosure drawer.
- Drives in the EXP24S Storage enclosure drawer.
- NVMe U.2 drives.
- PCI extender cards, Optical PCIe Link IO Expansion Card.
- PCIe I/O adapters.
- PCIe I/O drawers.
- PCIe to USB Conversion card.
- SMP cables (only after November GA and with Firmware 920.20).

- System node AC power supplies: Two functional power supplies must remain installed at all times while the system is operating.
- System node fans.
- System control unit fans.
- System control unit Op Panel.
- Time of Day battery.
- UPIC Interface card in SCU.
- UPIC power cables from system node to system control unit.

Service labels

Service providers use these labels to assist them in performing maintenance actions. Service labels are found in various formats and positions and are intended to transmit readily available information to the servicer during the repair process. Following are some of these service labels and their purpose:

- Location diagrams: Location diagrams are located on the system hardware, relating information regarding the placement of hardware components. Location diagrams may include location codes, drawings of physical locations, concurrent maintenance status, or other data pertinent to a repair. Location diagrams are especially useful when multiple components such as DIMMs, CPUs, processor books, fans, adapter cards, LEDs, and power supplies are installed.
- Remove/replace procedures: Service labels that contain remove/replace procedures are often found on a cover of the system or in other spots accessible to the servicer. These labels provide systematic procedures, including diagrams detailing how to remove or replace certain serviceable hardware components.
- Arrows: Numbered arrows are used to indicate the order of operation and the serviceability direction of components. Some serviceable parts such as latches, levers, and touch points need to be pulled or pushed in a certain direction and in a certain order for the mechanical mechanisms to engage or disengage. Arrows generally improve the ease of serviceability.

QR labels

QR labels are placed on the system to provide access to key service functions through a mobile device. When the QR label is scanned, it will go to a landing page specific to that server which contains many of the service functions of interest while physically located at the server. These include things such as installation and repair instructions, service diagrams, reference code look up, and so on.

Packaging for service

The following service enhancements are included in the physical packaging of the systems to facilitate service:

- Color coding (touch points): Blue-colored touch points delineate touchpoints on service components where the component can be safely handled for service actions such as removal or installation.
- Tool-less design: Selected IBM systems support tool-less or simple tool designs. These designs require no tools or simple tools such as flathead screw drivers to service the hardware components.
- Positive retention: Positive retention mechanisms help to assure proper connections between hardware components such as cables to connectors, and between two cards that attach to each other. Without positive retention, hardware components run the risk of becoming loose during shipping or installation, preventing a good electrical connection. Positive retention mechanisms like latches, levers, thumb-screws, pop Nylatches (U-clips), and cables are included to help prevent loose connections and aid in installing (seating) parts correctly. These positive retention items do not require tools.

Error handling and reporting

In the event of system hardware or environmentally induced failure, the system runtime error capture capability systematically analyzes the hardware error signature to determine the cause of failure. The analysis result will be stored in system NVRAM. When the system can be successfully restarted either manually or automatically, or if the system continues to operate, the error will be reported to the operating system. Hardware and software failures are recorded in the system log. When an HMC is attached in the PowerVM environment, an ELA routine analyzes the error, forwards the event to the Service Focal Point (SFP) application running on the HMC, and notifies the system administrator that it has isolated a likely cause of the system problem. The service processor event log also records unrecoverable checkstop conditions, forwards them to the SFP application, and notifies the system administrator.

The system has the ability to call home through the IBM i operating system to report platform-recoverable errors and errors associated with PCI adapters/devices.

In the HMC-managed environment, a call home service request will be initiated from the HMC and the pertinent failure data with service parts information and part locations will be sent to an IBM service organization. Client contact information and specific system-related data such as the machine type, model, and serial number, along with error log data related to the failure, are sent to IBM Service.

Live Partition Mobility

With PowerVM Live Partition Mobility (LPM), users can migrate an AIX, IBM i, or Linux VM running on one POWER system to another POWER system without disrupting services. The migration transfers the entire system environment, including processor state, memory, attached virtual devices, and connected users. It provides continuous operating system and application availability during planned outages for repair of hardware and firmware faults. The IBM Power System E980 and other servers using POWER9-technology processors with firmware level FW920 or above supports secure LPM, whereby the VM image is encrypted and compressed prior to transfer. Secure LPM uses on-chip encryption and compression capabilities of the POWER9 processor for optimal performance.

Service processor

Diagnostic monitoring of recoverable error from the processor chipset is performed on the system processor itself, while the fatal diagnostic monitoring of the processor chipset is performed by the service processor. It runs on its own boundary and does not require resources from a system processor to be operational to perform its tasks.

Under PowerVM, the service processor supports surveillance of the connection to the HMC and to the system firmware (hypervisor). It also provides several remote power control options, environmental monitoring, reset, restart, remote maintenance, and diagnostic functions, including console mirroring. The service processors menus (ASMI) can be accessed concurrently with system operation, allowing nondisruptive abilities to change system default parameters.

Call home

Call home refers to an automatic or manual call from a client location to the IBM support structure with error log data, server status, or other service-related information. Call home invokes the service organization in order for the appropriate service action to begin. Call home can be done through HMC if the system i OS is running, it can also be configured to report OS detected errors. Call Home on the HMC will continue to report platform errors. While configuring call home is optional, clients are encouraged to implement this feature in order to obtain service enhancements such as reduced problem determination and faster and potentially more accurate transmittal of error information. In general, using the call home feature can result in increased system availability. The Electronic Service Agent

application can be configured for automated call home. See the next section for specific details on this application.

IBM Electronic Services

Electronic Service Agent and the IBM Electronic Services web portal comprise the IBM Electronic Services solution, which is dedicated to providing fast, exceptional support to IBM clients. IBM Electronic Service Agent is a no-charge tool that proactively monitors and reports hardware events such as system errors, performance issues, and inventory. Electronic Service Agent can help focus on the client's company business initiatives, save time, and spend less effort managing day-to-day IT maintenance issues.

System configuration and inventory information collected by Electronic Service Agent also can be viewed on the secure Electronic Services web portal and used to improve problem determination and resolution between the client and the IBM support team. As part of an increased focus to provide even better service to IBM clients, Electronic Service Agent tool configuration and activation comes standard with the system. In support of this effort, a new HMC External Connectivity security whitepaper has been published, which describes data exchanges between the HMC and the IBM Service Delivery Center (SDC) and the methods and protocols for this exchange. To read the whitepaper and prepare for Electronic Service Agent installation, see the "Security" section at the IBM Electronic Service Agent website.

Select your country. Click "IBM Electronic Service Agent Connectivity Guide."

Benefits: increased uptime

Electronic Service Agent is designed to enhance the warranty and maintenance service by potentially providing faster hardware error reporting and uploading system information to IBM Support. This can optimize the time monitoring the symptoms, diagnosing the error, and manually calling IBM Support to open a problem record. And 24x7 monitoring and reporting means no more dependency on human intervention or off-hours client personnel when errors are encountered in the middle of the night.

Security: The Electronic Service Agent tool is designed to help secure the monitoring, reporting, and storing of the data at IBM. The Electronic Service Agent tool is designed to help securely transmit either through the internet (HTTPS or VPN) or modem to provide clients a single point of exit from their site. Communication is one way. Activating Electronic Service Agent does not enable IBM to call into a client's system.

For additional information, see the IBM Electronic Service Agent website.

More accurate reporting

Because system information and error logs are automatically uploaded to the IBM Support Center in conjunction with the service request, clients are not required to find and send system information, decreasing the risk of misreported or misdiagnosed errors. Once inside IBM, problem error data is run through a data knowledge management system, and knowledge articles are appended to the problem record.

Customized support

By using the IBMid entered during activation, clients can view system and support information in the "My Systems" and "Premium Search" sections of the Electronic Services website.

The Electronic Services web portal is a single internet entry point that replaces the multiple entry points traditionally used to access IBM internet services and support. This web portal enables you to gain easier access to IBM resources for assistance in resolving technical problems. The newly improved My Systems and Premium Search functions make it even easier for Electronic Service Agent-enabled clients to track system inventory and find pertinent fixes.

My Systems provides valuable reports of installed hardware and software using information collected from the systems by IBM Electronic Service Agent. Reports are available for any system associated with the client's IBMid. Premium Search combines the function of search and the value of Electronic Service Agent information, providing advanced search of the technical support knowledgebase. Using Premium Search and the Service Agent information that has been collected from the system, clients are able to see search results that apply specifically to their systems.

For more information on how to utilize the power of IBM Electronic Services, see the following website or contact an IBM Systems Services Representative.

IBM Proactive Support for Power Systems

Clients have found significant value in IBM's Proactive Support offerings on mission-critical systems, as this provides personalized support, proactive recommendations, and accelerated response times versus standard support. As a result, IBM is including the IBM Proactive Support in the default configuration for all Mid-Range and Enterprise IBM POWER9 Systems - for IBM AIX, IBM i, Linux, and SAP HANA workloads. Other configurations are also available.

Section 508 of the US Rehabilitation Act

IBM Power System E980 (9080-M9S) is capable as of September 21, 2018, when used in accordance with IBM's associated documentation, of satisfying the applicable requirements of Section 508 of the Rehabilitation Act, provided that any assistive technology used with the product properly interoperates with it. A US Section 508 Accessibility Conformance Statement can be requested on the Product accessibility information website.

Statement of general direction

IBM Power System E980 (9080-M9S) for SAP HANA production use

IBM intends to support SAP HANA on the IBM Power System E980 server (9080-M9S) in production mode, with the following Linux operating systems, following near-term certification of the environment.

- Red Hat Enterprise Linux for SAP with Red Hat Enterprise Linux 7 for Power LE version 7.5, or later
- SUSE Linux Enterprise Server for SAP with SUSE Linux Enterprise Server 11 Service Pack 4, or later
- SUSE Linux Enterprise Server for SAP with SUSE Linux Enterprise Server 12 Service Pack 3, or later

Statements by IBM regarding its plans, directions, and intent are subject to change or withdrawal without notice at the sole discretion of IBM. Information regarding potential future products is intended to outline general product direction and should not be relied on in making a purchasing decision. The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code, or functionality. Information about potential future products may not be incorporated into any contract. The development, release, and timing of any future features or functionality described for IBM products remain at the sole discretion of IBM.

Product number

The following are newly announced features on the specific models of the IBM Power Systems 9080 machine type:

Machine Description	Feature	type	Model	number
IBM Power System E980		9080	M9S	

10GbE Optical Transceiver SFP+ SR	9080	M9S	EB46
25GbE Optical Transceiver SFP28	9080	M9S	EB47
0.5m SFP28/25GbE copper Cable	9080	M9S	EB4J
1.0m SFP28/25GbE copper Cable	9080	M9S	EB4K
1.5m SFP28/25GbE copper Cable	9080	M9S	EB4L
2.0m SFP28/25GbE copper Cable	9080	M9S	EB4M
2.0m QSFP28/100GbE copper split Cable to SFP28 4x25GbE	9080	M9S	EB4P
System Node (5U) Drawer Indicator for Solution Edition for Healthcare	9080	M9S	EBA7
IBM Rack-mount Drawer Bezel and Hardware	9080	M9S	EBA8
OEM Rack-mount Drawer Bezel and Hardware	9080	M9S	EBA9
PCIe3 LP 2-Port 10Gb NIC&ROCE SR/Cu Adapter	9080	M9S	EC2R
PCIe3 2-Port 10Gb NIC&ROCE SR/Cu Adapter	9080	M9S	EC2S
PCIe3 LP 2-Port 25/10Gb NIC&ROCE SR/Cu Adapter	9080	M9S	EC2T
PCIe3 2-Port 25/10Gb NIC&ROCE SR/Cu Adapter	9080	M9S	EC2U
Mainstream 800 GB SSD NVMe U.2 module	9080	M9S	EC5J
PCIe4 LP 2-port 100Gb ROCE EN LP adapter	9080	M9S	EC67
Rack Acoustic Front Door (IBM)	9080	M9S	ECRA
128GB DDR4 Memory (4X32GB) CDIMMs	9080	M9S	EF20
256GB DDR4 Memory (4X64GB) CDIMMs	9080	M9S	EF21
512GB DDR4 Memory (4X128GB) CDIMMs	9080	M9S	EF22
1024GB DDR4 Memory (4X256GB) CDIMMs	9080	M9S	EF23
2048GB DDR4 Memory (4X512GB) CDIMMs	9080	M9S	EF24
Single 5250 Enterprise Enablement	9080	M9S	EF2R
Full 5250 Enterprise Enablement	9080	M9S	EF30
1 GB Memory Activation (Upgrade from P8)	9080	M9S	EFA1
100 GB Memory Activation (Upgrade from P8)	9080	M9S	EFA2
CBU server specify	9080	M9S	EFB0
CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	9080	M9S	EFB1
CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	9080	M9S	EFB2
CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	9080	M9S	EFB3
CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	9080	M9S	EFB4
2 x SMP cable brackets for non-IBM Rack	9080	M9S	EFBK
System Node to System Control Unit Cable Set for Drawer 1	9080	M9S	EFCA
System Node to System Control Unit Cable Set for Drawer 2	9080	M9S	EFCB
System Node to System Control Unit Cable Set for Drawer 3	9080	M9S	EFCC
System Node to System Control Unit Cable Set for Drawer 4	9080	M9S	EFCD
Captive Rack identifier	9080	M9S	EFCR
Flexible service processor	9080	M9S	EFFP
5U System node Indicator drawer	9080	M9S	EFN1
32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	9080	M9S	EFP1
40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	9080	M9S	EFP2
48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	9080	M9S	EFP3
44-core (4x11) Typical 3.58 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	9080	M9S	EFP4
1 core Processor Activation for #EFP4	9080	M9S	EFP9
1 core Processor Activation for #EFP1	9080	M9S	EFPA
1 core Processor Activation for #EFP2 and #EHC6	9080	M9S	EFPB
1 core Processor Activation for #EFP3	9080	M9S	EFPC
Mobile processor activation for M9S	9080	M9S	EFPD
1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	9080	M9S	EFPE
1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	9080	M9S	EFPF
1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	9080	M9S	EFPG
Mobile processor activation for M9S (Upgrade from P7)	9080	M9S	EFPH
1 core Mobile-enabled Processor Activation for #EFP4/#EFP8	9080	M9S	EFPN
Initial FW 920.10 indicator	9080	M9S	EFW0
Solution Edition for Healthcare typical 3.7 to			

3.9 GHZ, 40-core Processor with 5U system node drawer	9080	M9S	EHC6
Base processor activation (20) for #EHC6	9080	M9S	ELAU
Power Linux processor activation for #EFP1/#EFP5	9080	M9S	ELBK
Power Linux processor activation for #EFP2/#EFP6	9080	M9S	ELBL
Power Linux processor activation for #EFP3/#EFP7	9080	M9S	ELBM
PowerVM for Linux indicator for M9S	9080	M9S	ELBN
Power Linux processor activation for #EFP4/#EFP8	9080	M9S	ELBQ
512 GB Power Linux Memory Activations for M9S/8OH	9080	M9S	ELMD
#ESM9 Load Source Specify (3.72 TB SSD 4k SFF-2)	9080	M9S	ELZ9
#ESHK Load Source Specify (931 GB SSD 4k SFF-2)	9080	M9S	ELZK
#ESHM Load Source Specify (1.86 TB SSD 4k SFF-2)	9080	M9S	ELZM
Active Memory expansion enablement for M9S	9080	M9S	EM89
90 Days Temporary Elastic memory Enablement for M9S	9080	M9S	EM9V
100 GB Mobile Enabled Memory Activations	9080	M9S	EMAD
100 GB Mobile Memory Activation (Upgrade from P8	9080	M9S	EMAR
Base Memory activation (512) for #EHC6	9080	M9S	EMAS
1 GB Memory activation for M9S	9080	M9S	EMAT
100 GB Memory activation for M9S	9080	M9S	EMAU
100 GB Mobile Memory activation for M9S/8OH	9080	M9S	EMAV
100 GB Mobile Memory activation for M9S/8OH (Upgrade from P7)	9080	M9S	EMAY
PCIe3 32Gb 2-port Fibre Channel Adapter	9080	M9S	EN1A
PCIe3 LP 32Gb 2-port Fibre Channel Adapter	9080	M9S	EN1B
PCIe3 16Gb 4-port Fibre Channel Adapter	9080	M9S	EN1C
PCIe3 LP 16Gb 4-port Fibre Channel Adapter	9080	M9S	EN1D
Mobile Processor activation M9S/8OH (Upgrade from P8)	9080	M9S	EP2W
1 Proc-Day Elastic CoD Billing for #EFP4/EFP8. for AIX/Linux	9080	M9S	EPKU
1 Proc-Day Elastic CoD Billing for #EFP4/#EFP8, IBM i	9080	M9S	EPKV
100 Elastic CoD Proc-Days of Billing for Processor #EFP4/EFP8, AIX/Linux	9080	M9S	EPKW
100 Elastic CoD Proc-Days of Billing for Processor #EFP4/#EFP8, for IBM i	9080	M9S	EPKX
Proc CoD Utility Billing, 100 Proc-mins. for #EFP4/EFP8, AIX/Linux	9080	M9S	EPKY
Proc CoD Utility Billing, 100 Proc-mins. for #EFP4/#EFP8, for IBM i	9080	M9S	EPKZ
Quantity 150 of #ESHJ 931 GB SSD 4k SFF-2	9080	M9S	ERHJ
Quantity 150 of #ESHK 931 GB SSD 4k SFF-2	9080	M9S	ERHK
Quantity 150 of #ESHL 1.86 TB SSD 4k SFF-2	9080	M9S	ERHL
Quantity 150 of #ESHM 1.86 TB SSD 4k SFF-2	9080	M9S	ERHM
Quantity 150 of #ESHN 7.45 TB SSD 4k SFF-2	9080	M9S	ERHN
Quantity 150 of #ESM8 3.72 TB SSD 4k SFF-2	9080	M9S	ERM8
Quantity 150 of #ESM9 3.72 TB SSD 4k SFF-2	9080	M9S	ERM9
931 GB Mainstream SAS 4k SFF-2 SSD for AIX/Linux	9080	M9S	ESHJ
931 GB Mainstream SAS 4k SFF-2 SSD for IBM i	9080	M9S	ESHK
1.86 TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux	9080	M9S	ESHL
1.86 TB Mainstream SAS 4k SFF-2 SSD for IBM i	9080	M9S	ESHM
7.45 TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux	9080	M9S	ESHN
3.72 TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux	9080	M9S	ESM8
3.72 TB Mainstream SAS 4k SFF-2 SSD for IBM i	9080	M9S	ESM9
Standalone USB DVD drive w/cable	9080	M9S	EUA5
5000 Power to Cloud Reward points	9080	M9S	SVPC

The following are features already announced for the Power Systems 9080 machine type:

Machine Feature Description	type	Model	number
One CSC Billing Unit	9080	M9S	0010
Ten CSC Billing Units	9080	M9S	0011
Mirrored System Disk Level, Specify Code	9080	M9S	0040
Device Parity Protection-All, Specify Code	9080	M9S	0041
Mirrored System Bus Level, Specify Code	9080	M9S	0043
Device Parity RAID-6 All, Specify Code	9080	M9S	0047
RISC-to-RISC Data Migration	9080	M9S	0205
AIX Partition Specify	9080	M9S	0265
Linux Partition Specify	9080	M9S	0266
IBM i Operating System Partition Specify	9080	M9S	0267
Specify Custom Data Protection	9080	M9S	0296

Mirrored Level System Specify Code	9080	M9S	0308
RAID Hot Spare Specify	9080	M9S	0347
V.24/EIA232 6.1m (20-Ft) PCI Cable	9080	M9S	0348
V.35 6.1m (20-Ft) PCI Cable	9080	M9S	0353
X.21 6.1m (20-Ft) PCI Cable	9080	M9S	0359
UPS Factory Integration Specify	9080	M9S	0373
HMC Factory Integration Specify	9080	M9S	0374
Display Factory Integration Specify	9080	M9S	0375
Reserve Rack Space for UPS	9080	M9S	0376
Reserve Rack Space for HMC	9080	M9S	0377
Reserve Rack Space for Display	9080	M9S	0378
19 inch, 1.8 meter high rack	9080	M9S	0551
19 inch, 2.0 meter high rack	9080	M9S	0553
Rack Filler Panel Kit	9080	M9S	0599
EXP24S SFF Gen2 Load Source Specify (#5887 or #EL1S)	9080	M9S	0728
SAN Load Source Specify	9080	M9S	0837
#1948 Load Source Specify (283GB 15k RPM SAS SFF-2 Disk)	9080	M9S	0872
#1962 Load Source Specify (571GB 10k RPM SAS SFF-2 Disk)	9080	M9S	0875
#ESD2 Load Source Specify (1.1TB 10k SFF-2)	9080	M9S	0911
US TAA Compliance Indicator	9080	M9S	0983
Product assembled in USA manufacturing plant	9080	M9S	0984
Modem Cable - US/Canada and General Use	9080	M9S	1025
USB 500 GB Removable Disk Drive	9080	M9S	1107
Decline Electronic Service Agent Install Indicator	9080	M9S	1120
Custom Service Specify, Rochester Minn, USA	9080	M9S	1140
Quantity 150 of #1962	9080	M9S	1817
Quantity 150 of #1964	9080	M9S	1818
Quantity 150 of #1948	9080	M9S	1927
Quantity 150 of #1953	9080	M9S	1929
283GB 15k RPM SAS SFF-2 Disk Drive (IBM i)	9080	M9S	1948
300GB 15k RPM SAS SFF-2 Disk Drive (AIX/Linux)	9080	M9S	1953
571GB 10k RPM SAS SFF-2 Disk Drive (IBM i)	9080	M9S	1962
600GB 10k RPM SAS SFF-2 Disk Drive (AIX/Linux)	9080	M9S	1964
Primary OS - IBM i	9080	M9S	2145
Primary OS - AIX	9080	M9S	2146
Primary OS - Linux	9080	M9S	2147
2M LC-SC 50 Micron Fiber Converter Cable	9080	M9S	2456
2M LC-SC 62.5 Micron Fiber Converter Cable	9080	M9S	2459
3M Asynchronous Terminal/Printer Cable EIA-232	9080	M9S	2934
Asynchronous Cable EIA-232/V.24 3M	9080	M9S	2936
Serial-to-Serial Port Cable for Drawer/Drawer-3.7M	9080	M9S	3124
Serial-to-Serial Port Cable for Rack/Rack- 8M	9080	M9S	3125
1m, (3.3-ft) IB 40G Copper Cable QSFP/QSFP	9080	M9S	3287
3m, (9.8-ft.) IB 40G Copper Cable QSFP/QSFP	9080	M9S	3288
5m QDR IB/E'Net Copper Cable QSFP/QSFP	9080	M9S	3289
10 meter Quad Data Rate InfiniBand Optical Cable, QSFP/QSFP	9080	M9S	3290
30 meter Quad Data Rate InfiniBand Optical Cable, QSFP/QSFP	9080	M9S	3293
Widescreen LCD Monitor	9080	M9S	3632
0.3M Serial Port Converter Cable, 9-Pin to 25-Pin	9080	M9S	3925
Serial Port Null Modem Cable, 9-pin to 9-pin, 3.7M	9080	M9S	3927
Serial Port Null Modem Cable, 9-pin to 9-pin, 10M	9080	M9S	3928
System Serial Port Converter Cable	9080	M9S	3930
1.8 M (6-ft) Extender Cable for Displays (15-pin D-shell to 15-pin D-shell)	9080	M9S	4242
Extender Cable - USB Keyboards, 1.8M	9080	M9S	4256
VGA to DVI Connection Converter	9080	M9S	4276
One and only one rack indicator feature is required on all orders (#4650 to #4666).			
Rack Indicator- Not Factory Integrated	9080	M9S	4650
Rack Indicator, Rack #1	9080	M9S	4651
Rack Indicator, Rack #2	9080	M9S	4652
Rack Indicator, Rack #3	9080	M9S	4653
Rack Indicator, Rack #4	9080	M9S	4654
Rack Indicator, Rack #5	9080	M9S	4655
Rack Indicator, Rack #6	9080	M9S	4656

Rack Indicator, Rack #7	9080	M9S	4657
Rack Indicator, Rack #8	9080	M9S	4658
Rack Indicator, Rack #9	9080	M9S	4659
Rack Indicator, Rack #10	9080	M9S	4660
Rack Indicator, Rack #11	9080	M9S	4661
Rack Indicator, Rack #12	9080	M9S	4662
Rack Indicator, Rack #13	9080	M9S	4663
Rack Indicator, Rack #14	9080	M9S	4664
Rack Indicator, Rack #15	9080	M9S	4665
Rack Indicator, Rack #16	9080	M9S	4666
CBU SPECIFY	9080	M9S	4891
Software Preload Required	9080	M9S	5000
PowerVM Enterprise Edition	9080	M9S	5228
PCIe2 LP 4-port 1GbE Adapter	9080	M9S	5260
PCIe LP 8Gb 2-Port Fibre Channel Adapter	9080	M9S	5273
Sys Console On HMC	9080	M9S	5550
PCIe2 8Gb 4-port Fibre Channel Adapter	9080	M9S	5729
8 Gigabit PCI Express Dual Port Fibre Channel Adapter	9080	M9S	5735
4 Port Async EIA-232 PCIe Adapter	9080	M9S	5785
EXP24S SFF Gen2-bay Drawer	9080	M9S	5887
PCIe2 4-port 1GbE Adapter	9080	M9S	5899
Opt Front Door for 1.8m Rack	9080	M9S	6068
Opt Front Door for 2.0m Rack	9080	M9S	6069
HIGH-END APPEARANCE SIDE COVERS	9080	M9S	6238
1.8m Rack Trim Kit	9080	M9S	6263
2.0m Rack Trim Kit	9080	M9S	6272
Power Cord 4.3m (14-ft), Drawer to IBM PDU (250V/10A)	9080	M9S	6458
Power Cord 4.3m (14-ft), Drawer To OEM PDU (125V, 15A)	9080	M9S	6460
Power Cord 4.3m (14-ft), Drawer to Wall/OEM PDU (250V/15A) U. S.	9080	M9S	6469
Power Cord 1.8m (6-ft), Drawer to Wall (125V/15A)	9080	M9S	6470
Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU (250V/10A)	9080	M9S	6471
Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU (250V/16A)	9080	M9S	6472
Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU (250V/10A)	9080	M9S	6473
Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/13A)	9080	M9S	6474
Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/16A)	9080	M9S	6475
Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/10A)	9080	M9S	6476
Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/16A)	9080	M9S	6477
Power Cord 2.7 M(9-foot), To Wall/OEM PDU, (250V, 16A)	9080	M9S	6478
Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (125V/15A or 250V/10A)	9080	M9S	6488
4.3m (14-Ft) 3PH/24A 380-415V Power Cord	9080	M9S	6489
4.3m (14-Ft) 1PH/63A 200-240V Power Cord	9080	M9S	6491
4.3m (14-Ft) 1PH/48-60A 200-240V Power Cord	9080	M9S	6492
Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/10A)	9080	M9S	6493
Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/10A)	9080	M9S	6494
Power Cord 2.7M (9-foot), To Wall/OEM PDU, (250V, 10A)	9080	M9S	6496
Power Cable - Drawer to IBM PDU, 200-240V/10A	9080	M9S	6577
Optional Rack Security Kit	9080	M9S	6580
Power Cord 2.7M (9-foot), To Wall/OEM PDU, (125V, 15A)	9080	M9S	6651
4.3m (14-Ft) 3PH/16A 380-415V Power Cord	9080	M9S	6653
4.3m (14-Ft) 1PH/24-30A Pwr Cord	9080	M9S	6654
4.3m (14-Ft) 1PH/24-30A WR Pwr Cord	9080	M9S	6655
4.3m (14-Ft) 1PH/24A Power Cord	9080	M9S	6656
4.3m (14-Ft) 1PH/32A Power Cord	9080	M9S	6657
4.3m (14-Ft) 1PH/24A Pwr Cd-Korea	9080	M9S	6658
Power Cord 2.7M (9-foot), To Wall/OEM PDU, (250V, 15A)	9080	M9S	6659
Power Cord 4.3m (14-ft), Drawer to Wall/OEM PDU			

(125V/15A)	9080	M9S	6660
Power Cord 2.8m (9.2-ft), Drawer to IBM PDU, (250V/10A)	9080	M9S	6665
4.3m (14-Ft) 3PH/32A 380-415V Power Cord-Australia	9080	M9S	6667
Power Cord 4.3M (14-foot), Drawer to OEM PDU, (250V, 15A)	9080	M9S	6669
Power Cord 2.7M (9-foot), Drawer to IBM PDU, 250V/10A	9080	M9S	6671
Power Cord 2M (6.5-foot), Drawer to IBM PDU, 250V/10A	9080	M9S	6672
Power Cord 2.7m (9-ft), Drawer to Wall/OEM PDU, (250V/10A)	9080	M9S	6680
Intelligent PDU+, 1 EIA Unit, Universal UTG0247 Connector	9080	M9S	7109
Environmental Monitoring Probe	9080	M9S	7118
Power Distribution Unit	9080	M9S	7188
Power Distribution Unit (US) - 1 EIA Unit, Universal, Fixed Power Cord	9080	M9S	7196
Ethernet Cable, 15m, Hardware Management Console to System Unit	9080	M9S	7802
Base Customer Spec Plcmnt	9080	M9S	8453
USB Mouse	9080	M9S	8845
Order Routing Indicator- System Plant	9080	M9S	9169
Language Group Specify - US English	9080	M9S	9300
New AIX License Core Counter	9080	M9S	9440
New IBM i License Core Counter	9080	M9S	9441
New Red Hat License Core Counter	9080	M9S	9442
New SUSE License Core Counter	9080	M9S	9443
Other AIX License Core Counter	9080	M9S	9444
Other Linux License Core Counter	9080	M9S	9445
3rd Party Linux License Core Counter	9080	M9S	9446
VIOS Core Counter	9080	M9S	9447
Other License Core Counter	9080	M9S	9449
Ubuntu Linux License Core Counter	9080	M9S	9450
Month Indicator	9080	M9S	9461
Day Indicator	9080	M9S	9462
Hour Indicator	9080	M9S	9463
Minute Indicator	9080	M9S	9464
Qty Indicator	9080	M9S	9465
Countable Member Indicator	9080	M9S	9466
Language Group Specify - Dutch	9080	M9S	9700
Language Group Specify - French	9080	M9S	9703
Language Group Specify - German	9080	M9S	9704
Language Group Specify - Polish	9080	M9S	9705
Language Group Specify - Norwegian	9080	M9S	9706
Language Group Specify - Portuguese	9080	M9S	9707
Language Group Specify - Spanish	9080	M9S	9708
Language Group Specify - Italian	9080	M9S	9711
Language Group Specify - Canadian French	9080	M9S	9712
Language Group Specify - Japanese	9080	M9S	9714
Language Group Specify - Traditional Chinese (Taiwan)	9080	M9S	9715
Language Group Specify - Korean	9080	M9S	9716
Language Group Specify - Turkish	9080	M9S	9718
Language Group Specify - Hungarian	9080	M9S	9719
Language Group Specify - Slovakian	9080	M9S	9720
Language Group Specify - Russian	9080	M9S	9721
Language Group Specify - Simplified Chinese (PRC)	9080	M9S	9722
Language Group Specify - Czech	9080	M9S	9724
Language Group Specify - Romanian	9080	M9S	9725
Language Group Specify - Croatian	9080	M9S	9726
Language Group Specify - Slovenian	9080	M9S	9727
Language Group Specify - Brazilian Portuguese	9080	M9S	9728
Language Group Specify - Thai	9080	M9S	9729
QSFP+ 40GbE Base-SR Transceiver	9080	M9S	EB27
1m (3.3-ft), IBM Passive QSFP+ to QSFP+ Cable (DAC)	9080	M9S	EB2B
3m (9.8-ft), IBM Passive QSFP+ to QSFP+ Cable (DAC)	9080	M9S	EB2H
10m (30.3-ft), IBM Passive QSFP+ MTP Optical Cable	9080	M9S	EB2J
30m (90.3-ft), IBM Passive QSFP+ MTP Optical Cable	9080	M9S	EB2K

Lift Tool	9080	M9S	EB2Z
Mobile Enablement	9080	M9S	EB35
Lift tool based on GenieLift GL-8 (standard)	9080	M9S	EB3Z
Service wedge shelf tool kit for EB3Z	9080	M9S	EB4Z
0.5m EDR IB Copper Cable QSFP28	9080	M9S	EB50
1.0m EDR IB Copper Cable QSFP28	9080	M9S	EB51
2.0M EDR IB Copper Cable QSFP28	9080	M9S	EB52
1.5M EDR IB Copper Cable QSFP28	9080	M9S	EB54
100GbE Optical Transceiver QSFP28	9080	M9S	EB59
3M EDR IB Optical Cable QSFP28	9080	M9S	EB5A
5M EDR IB Optical Cable QSFP28	9080	M9S	EB5B
10M EDR IB Optical Cable QSFP28	9080	M9S	EB5C
15M EDR IB Optical Cable QSFP28	9080	M9S	EB5D
20M EDR IB Optical Cable QSFP28	9080	M9S	EB5E
30M EDR IB Optical Cable QSFP28	9080	M9S	EB5F
50M EDR IB Optical Cable QSFP28	9080	M9S	EB5G
100M EDR IB Optical Cable QSFP28	9080	M9S	EB5H
0.5M 100GbE Copper Cable QSFP28	9080	M9S	EB5J
1.0M 100GbE Copper Cable QSFP28	9080	M9S	EB5K
1.5M 100GbE Copper Cable QSFP28	9080	M9S	EB5L
2.0M 100GbE Copper Cable QSFP28	9080	M9S	EB5M
3M 100GbE Optical Cable QSFP28 (AOC)	9080	M9S	EB5R
5M 100GbE Optical Cable QSFP28 (AOC)	9080	M9S	EB5S
10M 100GbE Optical Cable QSFP28 (AOC)	9080	M9S	EB5T
15M 100GbE Optical Cable QSFP28 (AOC)	9080	M9S	EB5U
20M 100GbE Optical Cable QSFP28 (AOC)	9080	M9S	EB5V
30M 100GbE Optical Cable QSFP28 (AOC)	9080	M9S	EB5W
50M 100GbE Optical Cable QSFP28 (AOC)	9080	M9S	EB5X
100M 100GbE Optical Cable QSFP28 (AOC)	9080	M9S	EB5Y
IBM i 7.2 Indicator	9080	M9S	EB72
IBM i 7.3 Indicator	9080	M9S	EB73
1.6M USB Cable	9080	M9S	EBK4
Rack Front Door (Black)	9080	M9S	EC01
Rack Rear Door	9080	M9S	EC02
Rack Side Cover	9080	M9S	EC03
Rack Suite Attachment Kit	9080	M9S	EC04
Slim Front Acoustic Door	9080	M9S	EC08
Rear Door Heat Exchanger for 2.0 Meter Slim Rack	9080	M9S	EC15
SAS X Cable 3m - HD Narrow 6Gb 2-Adapters to Enclosure	9080	M9S	ECBJ
SAS X Cable 6m - HD Narrow 6Gb 2-Adapters to Enclosure	9080	M9S	ECBK
SAS X Cable 10m - HD Narrow 6Gb 2-Adapters to Enclosure	9080	M9S	ECBL
SAS X Cable 15m - HD Narrow 3Gb 2-Adapters to Enclosure	9080	M9S	ECBM
SAS YO Cable 1.5m - HD Narrow 6Gb Adapter to Enclosure	9080	M9S	ECBT
SAS YO Cable 3m - HD Narrow 6Gb Adapter to Enclosure	9080	M9S	ECBU
SAS YO Cable 6m - HD Narrow 6Gb Adapter to Enclosure	9080	M9S	ECBV
SAS YO Cable 10m - HD Narrow 6Gb Adapter to Enclosure	9080	M9S	ECBW
SAS YO Cable 15m - HD Narrow 3Gb Adapter to Enclosure	9080	M9S	ECBX
SAS AE1 Cable 4m - HD Narrow 6Gb Adapter to Enclosure	9080	M9S	ECBY
SAS YE1 Cable 3m - HD Narrow 6Gb Adapter to Enclosure	9080	M9S	ECBZ
SAS AA Cable 0.6m - HD Narrow 6Gb Adapter to Adapter	9080	M9S	ECC0
SAS AA Cable 1.5m - HD Narrow 6Gb Adapter to Adapter	9080	M9S	ECC2
SAS AA Cable 3m - HD Narrow 6Gb Adapter to Adapter	9080	M9S	ECC3
SAS AA Cable 6m - HD Narrow 6Gb Adapter to Adapter	9080	M9S	ECC4
2M Optical Cable Pair for PCIe3 Expansion Drawer	9080	M9S	ECC6
10M Optical Cable Pair for PCIe3 Expansion Drawer	9080	M9S	ECC8
20M Optical Cable Pair for PCIe3 Expansoin Drawer	9080	M9S	ECC9
3.0M SAS X12 Cable (Two Adapter to Enclosure)	9080	M9S	ECDJ
4.5M SAS X12 Active Optical Cable (Two Adapter to Enclosure)	9080	M9S	ECDK

10M SAS X12 Active Optical Cable (Two Adapter to Enclosure)	9080	M9S	ECDL
1.5M SAS YO12 Cable (Adapter to Enclosure)	9080	M9S	ECDT
3.0M SAS YO12 Cable (Adapter to Enclosure)	9080	M9S	ECDU
4.5M SAS YO12 Active Optical Cable (Adapter to Enclosure)	9080	M9S	ECDV
10M SAS YO12 Active Optical Cable (Adapter to Enclosure)	9080	M9S	ECDW
0.6M SAS AA12 Cable (Adapter to Adapter)	9080	M9S	ECE0
3.0M SAS AA12 Cable	9080	M9S	ECE3
4.5M SAS AA12 Active Optical Cable (Adapter to Adapter)	9080	M9S	ECE4
Cloud Private Solution	9080	M9S	ECP0
2.0 Meter Slim Rack	9080	M9S	ECR0
Rack Front Door High-End appearance	9080	M9S	ECRF
Rack Rear Door Black	9080	M9S	ECRG
Rack Side Cover	9080	M9S	ECRJ
Rack Rear Extension 5-In	9080	M9S	ECRK
Rack Front Door for Rack (Black/Flat)	9080	M9S	ECRM
Custom Service Specify, Montpellier, France	9080	M9S	ECSF
For China only NeuCloud Indicator/Specify	9080	M9S	ECSJ
Custom Service Specify, Mexico	9080	M9S	ECSM
Custom Service Specify, Poughkeepsie, USA	9080	M9S	ECSP
Integrated Solution Packing	9080	M9S	ECSS
Optical Wrap Plug	9080	M9S	ECW0
Mobile Enablement	9080	M9S	EH35
SAP HANA TRACKING FEATURE	9080	M9S	EHKV
Boot Drive / Load Source in EXP12SX Specify (in #ESLL or #ELLL)	9080	M9S	EHR1
Boot Drive / Load Source in EXP24SX Specify (in #ESLS or #ELLS)	9080	M9S	EHR2
SSD Placement Indicator - #ESLS/#ELLS	9080	M9S	EHS2
PCIe3 Optical Cable Adapter for PCIe3 Expansion Drawer	9080	M9S	EJ07
PCIe3 RAID SAS Adapter Quad-port 6Gb x8	9080	M9S	EJ0J
PCIe3 LP RAID SAS Adapter Quad-Port 6Gb x8	9080	M9S	EJ0M
PCIe3 SAS Tape/DVD Adapter Quad-port 6Gb x8	9080	M9S	EJ10
PCIe3 LP SAS Tape/DVD Adapter Quad-port 6Gb x8	9080	M9S	EJ11
PCIe3 12GB Cache RAID PLUS SAS Adapter Quad-port 6Gb x8	9080	M9S	EJ14
PCIe3 Crypto Coprocessor BSC-Gen3 4767	9080	M9S	EJ33
Specify Mode-1 & (1)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)	9080	M9S	EJR1
Specify Mode-1 & (2)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)	9080	M9S	EJR2
Specify Mode-2 & (2)EJ0J/EJ0M/EL3B & (2) X for EXP24S (#5887/EL1S)	9080	M9S	EJR3
Specify Mode-2 & (4)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)	9080	M9S	EJR4
Specify Mode-4 & (4)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)	9080	M9S	EJR5
Specify Mode-2 & (1)EJ0J/EJ0M/EL3B & (2) YO for EXP24S (#5887/EL1S)	9080	M9S	EJR6
Specify Mode-2 & (2)EJ0J/EJ0M/EL3B & (2) YO for EXP24S (#5887/EL1S)	9080	M9S	EJR7
Specify Mode-2 & (1)EJ0J/EJ0M/EL3B & (1) YO for EXP24S (#5887/El1S)	9080	M9S	EJRA
Specify Mode-2 & (2)EJ0J/EJ0M/EL3B & (1) X for EXP24S (#5887/EL1S)	9080	M9S	EJRB
Specify Mode-4 & (1)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)	9080	M9S	EJRC
Specify Mode-4 & (2)EJ0J/EJ0M/EL3B for EXP24S (#5887/EL1S)	9080	M9S	EJRD
Specify Mode-4 & (3)EJ0J/EJ0M/EL3B for EXP24S (#5888/EL1S)	9080	M9S	EJRE
Specify Mode-1 & (2)EJ14 for EXP24S (#5887/EL1S)	9080	M9S	EJRF
Specify Mode-2 & (2)EJ14 & (2) X for EXP24S (#5887/EL1S)	9080	M9S	EJRG
Specify Mode-2 & (2)EJ14 & (1) X for EXP24S (#5887/EL1S)	9080	M9S	EJRH
Specify Mode-2 & (4)EJ14 for EXP24S (#5887/EL1S)	9080	M9S	EJRJ
Non-paired Indicator EJ14 PCIe SAS RAID+ Adapter	9080	M9S	EJRL
Non-paired Indicator EJ0L PCIe SAS RAID Adapter	9080	M9S	EJRU

Specify Mode-1 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)YO12 for EXP12SX #ESLL/ELLL	9080	M9S	EJV1
Specify Mode-1 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP12SX #ESLL/ELLL	9080	M9S	EJV2
Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP12SX #ESLL/ELLL	9080	M9S	EJV3
Specify Mode-2 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP12SX #ESLL/ELLL	9080	M9S	EJV4
Specify Mode-4 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP12SX #ESLL/ELLL	9080	M9S	EJV5
Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP12SX #ESLL/ELLL	9080	M9S	EJV6
Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP12SX #ESLL/ELLL	9080	M9S	EJV7
Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)YO12 for EXP12SX #ESLL/ELLL	9080	M9S	EJVA
Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP12SX #ESLL/ELLL	9080	M9S	EJVB
Specify Mode-4 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP12SX #ESLL/ELLL	9080	M9S	EJVC
Specify Mode-4 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP12SX #ESLL/ELLL	9080	M9S	EJVD
Specify Mode-4 & (3)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP12SX #ESLL/ELLL	9080	M9S	EJVE
Specify Mode-1 & (2)EJ14 & (2)YO12 for EXP12SX #ESLL/ELLL	9080	M9S	EJVF
Specify Mode-1 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)YO12 for EXP24SX #ESLS/ELLS	9080	M9S	EJW1
Specify Mode-1 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP24SX #ESLS/ELLS	9080	M9S	EJW2
Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS	9080	M9S	EJW3
Specify Mode-2 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS	9080	M9S	EJW4
Specify Mode-4 & (4)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS	9080	M9S	EJW5
Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP24SX #ESLS/ELLS	9080	M9S	EJW6
Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (2)YO12 for EXP24SX #ESLS/ELLS	9080	M9S	EJW7
Specify Mode-2 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)YO12 for EXP24SX #ESLS/ELLS	9080	M9S	EJWA
Specify Mode-2 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP24SX #ESLS/ELLS	9080	M9S	EJWB
Specify Mode-4 & (1)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP24SX #ESLS/ELLS	9080	M9S	EJWC
Specify Mode-4 & (2)EJ0J/EJ0M/EL3B/EL59 & (1)X12 for EXP24SX #ESLS/ELLS	9080	M9S	EJWD
Specify Mode-4 & (3)EJ0J/EJ0M/EL3B/EL59 & (2)X12 for EXP24SX #ESLS/ELLS	9080	M9S	EJWE
Specify Mode-1 & (2)EJ14 & (2)YO12 for EXP24SX #ESLS/ELLS	9080	M9S	EJWF
Specify Mode-2 & (2)EJ14 & (2)X12 for EXP24SX #ESLS/ELLS	9080	M9S	EJWG
Specify Mode-2 & (2)EJ14 & (1)X12 for EXP24SX #ESLS/ELLS	9080	M9S	EJWH
Specify Mode-2 & (4)EJ14 & (2)X12 for EXP24SX #ESLS/ELLS	9080	M9S	EJWJ
PDU Access Cord 0.38m	9080	M9S	ELC0
Power Cable - Drawer to IBM PDU (250V/10A)	9080	M9S	ELC5
#ESDN Load Source Specify (571GB 15K RPM SFF-2)	9080	M9S	ELSN
#ES0R Load Source Specify (387GB SSD SFF-2 4K)	9080	M9S	ELSR
#ES0T Load Source Specify (775GB SSD SFF-2 4K)	9080	M9S	ELST
#ES81 Load Source Specify (1.9TB SFF-2 SSD)	9080	M9S	ELT1
#ESF2 Load Source Specify (1.1TB HDD SFF-2)	9080	M9S	ELT2
#ES86 Load Source Specify (387GB SFF-2 SSD 4k for IBM i)	9080	M9S	ELT6
#ES79 Load Source Specify (387GB SFF-2 SSD 5xx for IBM i)	9080	M9S	ELT9
#ES8D Load Source Specify (775GB SFF-2 SSD 4k for IBM i)	9080	M9S	ELTD
#ES7F Load Source Specify (775GB SFF-2 SSD 5xx for IBM i)	9080	M9S	ELTF
#ES8G Load Source Specify (1.55TB SFF-2 SSD 4k			

for IBM i)	9080	M9S	ELTG
#ESFN Load Source Specify (571GB 15K RPM SAS SFF-2 4K Block - 4224)	9080	M9S	ELTN
#ESFS Load Source Specify (1.7TB HDD SFF-2)	9080	M9S	ELTS
#ESEU Load Source Specify (571GB HDD SFF-2)	9080	M9S	ELTU
#ESEY Load Source Specify (283GB 15K RPM SAS SFF-2 4K Block - 4224)	9080	M9S	ELTY
#ESNL Load Source Specify (283GB HDD SFF-2)	9080	M9S	ELUL
#ESNQ Load Source Specify (571GB HDD SFF-2)	9080	M9S	ELUQ
#ESG6 Load Source Specify (387GB SSD SFF-2)	9080	M9S	ELZ6
#ES97 Load Source Specify (1.86TB SSD SFF-2)	9080	M9S	ELZ7
#ESE8 Load Source Specify (3.72TB SSD SFF-2)	9080	M9S	ELZ8
#ESGC Load Source Specify (387GB SSD SFF-2)	9080	M9S	ELZC
#ESGG Load Source Specify (775GB SSD SFF-2)	9080	M9S	ELZG
#ESGL Load Source Specify (775GB SSD SFF-2)	9080	M9S	ELZL
#ESGQ Load Source Specify (1.55TB SSD SFF-2)	9080	M9S	ELZQ
#ES8Z Load Source Specify (931GB SSD SFF-2)	9080	M9S	ELZZ
64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	9080	M9S	EM8J
128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	9080	M9S	EM8K
256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	9080	M9S	EM8L
512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	9080	M9S	EM8M
64 GB DDR4 Memory (4x16GB CDIMMs)	9080	M9S	EM8U
128 GB DDR4 Memory (4x32GB CDIMMs)	9080	M9S	EM8V
256 GB DDR4 Memory (4x64GB CDIMMs)	9080	M9S	EM8W
512 GB DDR4 Memory (4x128GB CDIMMs)	9080	M9S	EM8X
1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	9080	M9S	EM8Y
Bundle of eight #EM8M, 512GB 1600 MHz Memory	9080	M9S	EMB6
Memory Activations for #EMB6 or #EMBA	9080	M9S	EMB7
Bundle of eight #EM8Y, 1024GB 1600 MHz DDR4 Memory	9080	M9S	EMBA
Static to Mobile Memory Auto Conversion	9080	M9S	EME0
PCIe Gen3 I/O Expansion Drawer	9080	M9S	EMX0
AC Power Supply Conduit for PCIe3 Expansion Drawer	9080	M9S	EMXA
PCIe3 6-Slot Fanout Module for PCIe3 Expansion Drawer	9080	M9S	EMXF
PCIe3 6-Slot Fanout Module for PCIe3 Expansion Drawer	9080	M9S	EMXG
1m (3.3-ft), 10Gb E'Net Cable SFP+ Act Twinax Copper	9080	M9S	EN01
3m (9.8-ft), 10Gb E'Net Cable SFP+ Act Twinax Copper	9080	M9S	EN02
5m (16.4-ft), 10Gb E'Net Cable SFP+ Act Twinax Copper	9080	M9S	EN03
PCIe3 16Gb 2-port Fibre Channel Adapter	9080	M9S	EN0A
PCIe3 LP 16Gb 2-port Fibre Channel Adapter	9080	M9S	EN0B
PCIe3 4-port (10Gb FCoE & 1GbE) SR&RJ45	9080	M9S	EN0H
PCIe3 LP 4-port (10Gb FCoE & 1GbE) SR&RJ45	9080	M9S	EN0J
PCIe3 4-port (10Gb FCoE & 1GbE) SFP+Copper&RJ45	9080	M9S	EN0K
PCIe3 LP 4-port(10Gb FCoE & 1GbE) SFP+Copper&RJ45	9080	M9S	EN0L
PCIe2 4-Port (10Gb+1GbE) SR+RJ45 Adapter	9080	M9S	EN0S
PCIe2 LP 4-Port (10Gb+1GbE) SR+RJ45 Adapter	9080	M9S	EN0T
PCIe2 4-port (10Gb+1GbE) Copper SFP+RJ45 Adapter	9080	M9S	EN0U
PCIe2 LP 4-port (10Gb+1GbE) Copper SFP+RJ45 Adapter	9080	M9S	EN0V
PCIe2 2-port 10/1GbE BaseT RJ45 Adapter	9080	M9S	EN0W
PCIe2 LP 2-port 10/1GbE BaseT RJ45 Adapter	9080	M9S	EN0X
PCIe 1-port Bisync Adapter	9080	M9S	EN13
PCIe3 4-port 10GbE SR Adapter	9080	M9S	EN15
PCIe3 LPX 4-port 10GbE SR Adapter	9080	M9S	EN16
90 Days Elastic CoD Processor Core Enablement	9080	M9S	EP9T
Power Enterprise IaaS offer indicator	9080	M9S	EPCS
Static to Mobile Processor Auto Conversion	9080	M9S	EPE0
1 Proc-Day Elastic CoD Billing for #EPBB/#EP8C and #EFP1/#EFP5, AIX/Linux	9080	M9S	EPJC
1 Proc-Day Elastic CoD Billing for #EPBB/#EP8C and #EFP1/#EFP5, IBM i	9080	M9S	EPJD
100 Elastic CoD Proc-Days of Billing for Processor #EPBB/#EP8C and #EFP1/#EFP5. AIX/Linux	9080	M9S	EPJE
100 Elastic CoD Proc-Days of Billing for Processor #EPBB/#EP8C and #EFP1/#EFP5. IBM i	9080	M9S	EPJF
Proc CoD Utility Billing, 100 Proc-mins. for #EPBB/#EP8C and #EFP1/#EFP5, AIX/Linux	9080	M9S	EPJG

Proc CoD Utility Billing, 100 Proc-mins. for #EPBB/#EP8C and #EFP1/#EFP5, IBM i	9080	M9S	EPJH
1 Proc-Day Elastic CoD Billing for #EPBD/#EP8G and #EFP3/#EFP7, AIX/Linux	9080	M9S	EPJQ
1 Proc-Day Elastic CoD Billing for #EPBD/#EP8G and #EFP3/#EFP7, IBM i	9080	M9S	EPJR
100 Elastic CoD Proc-Days of Billing for Processor #EPBD/#EP8G and #EFP3/#EFP7. AIX/Linux	9080	M9S	EPJS
100 Elastic CoD Proc-Days of Billing for Processor #EPBD/#EP8G and #EFP3/#EFP7. IBM i	9080	M9S	EPJT
Proc CoD Utility Billing, 100 Proc-mins. for #EPBD/#EP8G and #EFP3/#EFP7, AIX/Linux	9080	M9S	EPJU
Proc CoD Utility Billing, 100 Proc-mins. for #EPBD/#EP8G and #EFP3/#EFP7, IBM i	9080	M9S	EPJV
1 Proc-Day Elastic CoD Billing for #EPBS/#EP8E and #EFP2/#EFP6, AIX/Linux	9080	M9S	EPKL
1 Proc-Day Elastic CoD Billing for #EPBS/#EP8E and #EFP2/#EFP6, AIX/Linux, IBM i	9080	M9S	EPKM
100 Elastic CoD Proc-Days of Billing for Processor #EPBS/#EP8E and #EFP2/#EFP6, AIX/Linux. AIX/Linux	9080	M9S	EPKN
100 Elastic CoD Proc-Days of Billing for Processor #EPBS/#EP8E and #EFP2/#EFP6, AIX/Linux. IBM i	9080	M9S	EPKP
Proc CoD Utility Billing, 100 Proc-mins. for #EPBS/#EP8E and #EFP2/#EFP6, AIX/Linux, AIX/Linux	9080	M9S	EPKQ
Proc CoD Utility Billing, 100 Proc-mins. for #EPBS/#EP8E and #EFP2/#EFP6, AIX/Linux, IBM i	9080	M9S	EPKR
Horizontal PDU Mounting Hardware	9080	M9S	EPTH
High Function 9xC19 PDU: Switched, Monitoring	9080	M9S	EPTJ
High Function 9xC19 PDU 3-Phase: Switched, Monitoring	9080	M9S	EPTL
High Function 12xC13 PDU: Switched, Monitoring	9080	M9S	EPTN
High Function 12xC13 PDU 3-Phase: Switched, Monitoring	9080	M9S	EPTQ
Quantity 150 of #ES0Q 387GB SFF-2 4k SSD (AIX/Linux)	9080	M9S	EQ0Q
Quantity 150 of #ES0R 387GB SFF-2 4k SSD (IBM i)	9080	M9S	EQ0R
Quantity 150 of #ES0S 775GB SFF-2 4k SSD (AIX/Linux)	9080	M9S	EQ0S
Quantity 150 of #ES0T 775GB SFF-2 4k SSD (IBM i)	9080	M9S	EQ0T
Quantity 150 of #ES62 3.86-4.0 TB 7200 rpm 4k LFF-1 Disk	9080	M9S	EQ62
Quantity 150 of #ES64 7.72-8.0 TB 7200 rpm 4k LFF-1 Disk	9080	M9S	EQ64
Quantity 150 of #ES78 387GB SFF-2 SSD 5xx	9080	M9S	EQ78
Quantity 150 of #ES79 387GB SFF-2 SSD 5xx	9080	M9S	EQ79
Quantity 150 of #ES7E 775GB SFF-2 SSD 5xx	9080	M9S	EQ7E
Quantity 150 of #ES7F 775GB SFF-2 SSD 5xx	9080	M9S	EQ7F
Quantity 150 of #ES80 1.9TB SFF-2 SSD 4k	9080	M9S	EQ80
Quantity 150 of ES81 1.9TB SFF-2 SSD 4k	9080	M9S	EQ81
Quantity 150 of #ES85 387GB SFF-2 SSD 4k	9080	M9S	EQ85
Quantity 150 of #ES86 387GB SFF-2 SSD 4k	9080	M9S	EQ86
Quantity 150 of #ES8C 775GB SFF-2 SSD 4k	9080	M9S	EQ8C
Quantity 150 of #ES8D 775GB SFF-2 SSD 4k	9080	M9S	EQ8D
Quantity 150 of #ES8F 1.55TB SFF-2 SSD 4k	9080	M9S	EQ8F
Quantity 150 of #ES8G 1.55TB SFF-2 SSD 4k	9080	M9S	EQ8G
Quantity 150 of #ES8Y 931GB SFF-2 SSD 4k	9080	M9S	EQ8Y
Quantity 150 of ES8Z 931GB SFF-2 SSD 4k	9080	M9S	EQ8Z
Quantity 150 of ES96 1.86TB SFF-2 SSD 4k	9080	M9S	EQ96
Quantity 150 of ES97 1.86TB SFF-2 SSD 4k	9080	M9S	EQ97
Quantity 150 of #ESD2 (1.1TB 10k SFF-2)	9080	M9S	EQD2
Quantity 150 of #ESD3 (1.2TB 10k SFF-2)	9080	M9S	EQD3
Quantity 150 of #ESDN (571GB 15K RPM SAS SFF-2 for IBM i)	9080	M9S	EQDN
Quantity 150 of #ESDP (600GB 15K RPM SAS SFF-2 for AIX/LINUX)	9080	M9S	EQDP
Quantity 150 of #ESE7 3.72TB SFF-2 SSD 4k	9080	M9S	EQE7
Quantity 150 of ESE8 3.72TB SFF-2 SSD 4k	9080	M9S	EQE8
Quantity 150 of #ESEU (571GB 10k SFF-2)	9080	M9S	EQEU
Quantity 150 of #ESEV (600GB 10k SFF-2)	9080	M9S	EQEV
Quantity 150 of #ESEY (283 GB SFF-2)	9080	M9S	EQEY
Quantity 150 of #ESEZ (300GB SFF-2)	9080	M9S	EQEZ
Quantity 150 of #ESF2 (1.1TB 10k SFF-2)	9080	M9S	EQF2

Quantity 150 of #ESF3 (1.2TB 10k SFF-2)	9080	M9S	EQF3
Quantity 150 of #ESFN (571GB SFF-2)	9080	M9S	EQFN
Quantity 150 of #ESFP (600GB SFF-2)	9080	M9S	EQFP
Quantity 150 of #ESFS (1.7TB 10k SFF-2)	9080	M9S	EQFS
Quantity 150 of #ESFT (1.8TB 10k SFF-2)	9080	M9S	EQFT
Quantity 150 of #ESG5 (387GB SAS 5xx)	9080	M9S	EQG5
Quantity 150 of #ESG6 (387GB SAS 5xx)	9080	M9S	EQG6
Quantity 150 of #ESGB (387GB SAS 4k)	9080	M9S	EQGB
Quantity 150 of #ESGC (387GB SAS 4k)	9080	M9S	EQGC
Quantity 150 of #ESGF (775GB SAS 5xx)	9080	M9S	EQGF
Quantity 150 of #ESGG (775GB SAS 5xx)	9080	M9S	EQGG
Quantity 150 of #ESGK (775GB SAS 4k)	9080	M9S	EQGK
Quantity 150 of #ESGL (775GB SAS 4k)	9080	M9S	EQGL
Quantity 150 of #ESGP (1.55TB SAS 4k)	9080	M9S	EQGP
Quantity 150 of #ESGQ (1.55TB SAS 4k)	9080	M9S	EQGQ
42U Slim Rack	9080	M9S	ER05
Indicator, reserve 5 EIA rack space	9080	M9S	ER16
Specify Reserve 4 EIA Rack Space for PCIe3 Expansion Drawer	9080	M9S	ER1A
Field Integration of Rack and Server	9080	M9S	ER21
RFID Tags for Servers, Compute Nodes, Chassis, Racks, and HMCs	9080	M9S	ERF1
Rear rack extension	9080	M9S	ERG0
Optional Origami Front Door for 2.0m Rack	9080	M9S	ERG7
Acoustic Black Front Door	9080	M9S	ERGB
387GB SFF-2 4K SSD for AIX/Linux	9080	M9S	ES0Q
387GB SFF-2 4k SSD for IBM i	9080	M9S	ES0R
775GB SFF-2 4k SSD for AIX/Linux	9080	M9S	ES0S
775GB SFF-2 4k SSD for IBM i	9080	M9S	ES0T
3.86-4.0 TB 7200 RPM 4K SAS LFF-1 Nearline Disk Drive (AIX/Linux)	9080	M9S	ES62
7.72-8.0 TB 7200 RPM 4K SAS LFF-1 Nearline Disk Drive (AIX/Linux)	9080	M9S	ES64
387GB SFF-2 SSD 5xx eMLC4 for AIX/Linux	9080	M9S	ES78
387GB SFF-2 SSD 5xx eMLC4 for IBM i	9080	M9S	ES79
775GB SFF-2 SSD 5xx eMLC4 for AIX/Linux	9080	M9S	ES7E
775GB SFF-2 SSD 5xx eMLC4 for IBM i	9080	M9S	ES7F
1.9TB Read Intensive SAS 4k SFF-2 SSD for AIX/ Linux	9080	M9S	ES80
1.9TB Read Intensive SAS 4k SFF-2 SSD for IBM i	9080	M9S	ES81
387GB SFF-2 SSD 4k eMLC4 for AIX/Linux	9080	M9S	ES85
387GB SFF-2 SSD 4k eMLC4 for IBM i	9080	M9S	ES86
775GB SFF-2 SSD 4k eMLC4 for AIX/Linux	9080	M9S	ES8C
775GB SFF-2 SSD 4k eMLC4 for IBM i	9080	M9S	ES8D
1.55TB SFF-2 SSD 4k eMLC4 for AIX/Linux	9080	M9S	ES8F
1.55TB SFF-2 SSD 4k eMLC4 for IBM i	9080	M9S	ES8G
931GB Mainstream SAS 4k SFF-2 SSD for AIX/Linux	9080	M9S	ES8Y
931GB Mainstream SAS 4k SFF-2 SSD for IBM i	9080	M9S	ES8Z
1.86TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux	9080	M9S	ES96
1.86TB Mainstream SAS 4k SFF-2 SSD for IBM i	9080	M9S	ES97
S&H - No Charge	9080	M9S	ESC0
S&H	9080	M9S	ESC9
1.1TB 10K RPM SAS SFF-2 Disk Drive (IBMi)	9080	M9S	ESD2
1.2TB 10K RPM SAS SFF-2 Disk Drive (AIX/Linux)	9080	M9S	ESD3
571GB 15K RPM SAS SFF-2 Disk Drive - 528 Block (IBM i)	9080	M9S	ESDN
600GB 15K RPM SAS SFF-2 Disk Drive - 5xx Block (AIX/Linux)	9080	M9S	ESDP
3.72TB Mainstream SAS 4k SFF-2 SSD for AIX/Linux	9080	M9S	ESE7
3.72TB Mainstream SAS 4k SFF-2 SSD for IBM i	9080	M9S	ESE8
571GB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4224	9080	M9S	ESEU
600GB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4096	9080	M9S	ESEV
283GB 15K RPM SAS SFF-2 4K Block - 4224 Disk Drive	9080	M9S	ESEY
300GB 15K RPM SAS SFF-2 4K Block - 4096 Disk Drive	9080	M9S	ESEZ
1.1TB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4224	9080	M9S	ESF2
1.2TB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4096	9080	M9S	ESF3
571GB 15K RPM SAS SFF-2 4K Block - 4224 Disk Drive	9080	M9S	ESFN

600GB 15K RPM SAS SFF-2 4K Block - 4096 Disk Drive	9080	M9S	ESFP
1.7TB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4224	9080	M9S	ESFS
1.8TB 10K RPM SAS SFF-2 Disk Drive 4K Block - 4096	9080	M9S	ESFT
387GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux	9080	M9S	ESG5
387GB Enterprise SAS 5xx SFF-2 SSD for IBM i	9080	M9S	ESG6
387GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux	9080	M9S	ESGB
387GB Enterprise SAS 4k SFF-2 SSD for IBM i	9080	M9S	ESGC
775GB Enterprise SAS 5xx SFF-2 SSD for AIX/Linux	9080	M9S	ESGF
775GB Enterprise SAS 5xx SFF-2 SSD for IBM i	9080	M9S	ESGG
775GB Enterprise SAS 4k SFF-2 SSD for AIX/Linux	9080	M9S	ESGK
775GB Enterprise SAS 4k SFF-2 SSD for IBM i	9080	M9S	ESGL
1.55TB Enterprise SAS 4k SFF-2 SSD for AIX/Linux	9080	M9S	ESGP
1.55TB Enterprise SAS 4k SFF-2 SSD for IBM i	9080	M9S	ESGQ
Specify AC Power Supply for EXP12SX/EXP24SX Storage Enclosure	9080	M9S	ESLA
EXP12SX SAS Storage Enclosure	9080	M9S	ESLL
EXP24SX SAS Storage Enclosure	9080	M9S	ESLS
283GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (IBM i)	9080	M9S	ESNL
300GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (AIX/Linux)	9080	M9S	ESNM
571GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (IBM i)	9080	M9S	ESNQ
600GB 15K RPM SAS SFF-2 4k Block Cached Disk Drive (AIX/Linux)	9080	M9S	ESNR
1024 GB (4X256 GB) CDIMM, 1600MHz, DDR4 DRAM Tall for SAP HANA	9080	M9S	ESP9
512 GB (4X128 GB) CDIMM, 1600MHz, DDR4 DRAM Tall for SAP HANA	9080	M9S	ESPB
Quantity 150 of #ESNL (283GB 15k SFF-2)	9080	M9S	ESPL
Quantity 150 of #ESNM (300GB 15k SFF-2)	9080	M9S	ESPM
Quantity 150 of #ESNQ (571GB 15k SFF-2)	9080	M9S	ESPQ
Quantity 150 of #ESNR (600GB 15k SFF-2)	9080	M9S	ESPR
1TB Removable Disk Drive Cartridge	9080	M9S	EU01
RDX USB External Docking Station for Removable Disk Cartridge	9080	M9S	EU04
RDX 320 GB Removable Disk Drive	9080	M9S	EU08
1.5TB Removable Disk Drive Cartridge	9080	M9S	EU15
2TB Removable Disk Drive Cartridge (RDX)	9080	M9S	EU2T
RDX USB External Docking Station	9080	M9S	EUA4
Core Use HW Feature	9080	M9S	EUC6
Core Use HW Feature 10X	9080	M9S	EUC7

The following are newly announced features on the specific models of the IBM Power Systems 7014 and 7965 machine type:

New features available September 21, 2018

Machine Description	type	Model	Feature number
Rack Content Specify for 9080-M9S -7EIA	7014	T42	ER40
	7965	S42	
Rack Content Specify for 9080-M9S -12EIA	7014	T42	ER41
	7965	S42	
Rack Content Specify for 9080-M9S -17EIA	7014	T42	ER42
	7965	S42	
Rack Content Specify for 9080-M9S -22EIA	7014	T42	ER43
	7965	S42	

Feature conversions

Type/Model conversions

From Type	From Model	To Type	To Model
9080	MHE	9080	M9S
9080	MME	9080	M9S
9119	MHE	9080	M9S

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 9080-M9S memory features:

Return From FC:	To FC:	parts
EFA1 - 1 GB Memory Activation (Upgrade from P8)	EMAT - 1 GB Memory activation for M9S	No
EFA2 - 100 GB Memory Activation (Upgrade from P8)	EMAU - 100 GB Memory activation for M9S	No

Feature conversions for 9080-MHE to 9080-M9S memory features:

Return From FC:	To FC:	parts
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
ESPB - 512 GB (4X128 GB) CDIMM, 1600MHz, DDR4 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes

Tall for SAP HANA		
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
ESP9 - 1024 GB (4X256 GB) CDIMM, 1600MHz, DDR4 DRAM Tall for SAP HANA	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
ESPB - 512 GB (4X128 GB) CDIMM, 1600MHz, DDR4 DRAM Tall for SAP HANA	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
ESP9 - 1024 GB (4X256 GB) CDIMM, 1600MHz, DDR4 DRAM Tall for SAP HANA	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
ESPB - 512 GB (4X128 GB) CDIMM, 1600MHz, DDR4 DRAM Tall for SAP HANA	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EMA6 - Quantity of 100 1GB Memory Activations (#EMA5)	EFA2 - 100 GB Memory Activation (Upgrade from P8)	No
ESPC - Quantity of 100 1GB Memory activation for SAP HANA	EFA2 - 100 GB Memory Activation (Upgrade from P8)	No
EMB8 - Five Hundred and Twelve Memory Activations for IFL	ELMD - 512 GB Power Linux Memory Activations for M9S/ 80H	No
EM82 - ACTIVE MEMORY EXPANSION ENABLEMENT	EM89 - Active Memory expansion enablement for M9S	No
EMA9 - 100 GB Mobile Enabled Memory Activations	EMAD - 100 GB Mobile Enabled Memory Activations	No
EMA7 - 100 GB Mobile Memory Activations	EMAR - 100 GB Mobile Memory Activation (Upgrade from P8	No
EMAL - BASE MEMORY	EMAS - Base Memory	No

ACTIVATION (512GB) FOR #EHC2 or #EHC5	activation (512) for #EHC6	
EMAF - 100 GB Mobile Memory Activation (Upgrade from P7)	EMAY - 100 GB Mobile Memory activation for M9S/80H (Upgrade from P7)	No

Feature conversions for 9080-MHE to 9080-M9S miscellaneous features:

Return From FC:	To FC:	parts
EB3J - CBU for Power Enterprise Systems specify	EFB0 - CBU server specify	Yes

Feature conversions for 9080-MHE to 9080-M9S processor features:

Return From FC:	To FC:	parts
EB2R - Single 5250 Enterprise Enablement	EF2R - Single 5250 Enterprise Enablement	Yes
EB30 - Full 5250 Enterprise Enablement	EF30 - Full 5250 Enterprise Enablement	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz	Yes

	(max) POWER9 Processor with 5U system node drawer	
EPBS - 4.19GHz, 40-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	
ESP2 - 48-core 4.02 GHz POWER8 processor module for SAP HANA	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	
ESP3 - 40-core 4.19 GHz POWER8 processor module for SAP HANA	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	
EPBD - 4.02 GHz 48-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	
EPBS - 4.19GHz, 40-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	
ESP2 - 48-core 4.02 GHz POWER8 processor module for SAP HANA	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	
ESP3 - 40-core 4.19 GHz POWER8 processor module for SAP HANA	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	
EPBD - 4.02 GHz 48-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	
EPBS - 4.19GHz, 40-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	
ESP2 - 48-core 4.02 GHz POWER8 processor module for SAP HANA	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	
ESP3 - 40-core 4.19 GHz POWER8 processor module for SAP HANA	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	
EPBD - 4.02 GHz 48-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	
EPBS - 4.19GHz, 40-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	
ESP2 - 48-core 4.02 GHz POWER8 processor module for SAP HANA	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	
ESP3 - 40-core 4.19 GHz POWER8 processor module for SAP HANA	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz	Yes
	(max) POWER9 Processor with 5U system node drawer	

EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFP9 - 1 core Processor Activation for #EFP4	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFP9 - 1 core Processor Activation for #EFP4	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFP9 - 1 core Processor Activation for #EFP4	No
ESP4 - 1 core processor activation for ESP2	EFP9 - 1 core Processor Activation for #EFP4	No
ESP6 - 1 core processor activation for ESP3	EFP9 - 1 core Processor Activation for #EFP4	No
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFPA - 1 core Processor Activation for #EFP1	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPA - 1 core Processor Activation for #EFP1	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPA - 1 core Processor Activation for #EFP1	No
ESP4 - 1 core processor activation for ESP2	EFPA - 1 core Processor Activation for #EFP1	No
ESP6 - 1 core processor activation for ESP3	EFPA - 1 core Processor Activation for #EFP1	No
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
ESP4 - 1 core processor activation for ESP2	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
ESP6 - 1 core processor activation for ESP3	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFPC - 1 core Processor Activation for #EFP3	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPC - 1 core Processor Activation for #EFP3	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPC - 1 core Processor Activation for #EFP3	No
ESP4 - 1 core processor activation for ESP2	EFPC - 1 core Processor Activation for #EFP3	No
ESP6 - 1 core processor activation for ESP3	EFPC - 1 core Processor Activation for #EFP3	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No

EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No
EP2V - 1-Core Mobile Activation from Power 7	EFPH - Mobile processor activation for M9S (Upgrade from P7)	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/#EFP8	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/#EFP8	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/#EFP8	No
EHC5 - Solution Edition for Healthcare 4.19GHZ, 40-core Processor	EHC6 - Solution Edition for Healthcare typical 3.7 to 3.9 GHZ, 40-core Processor with 5U system node drawer	No
ELAT - BASE PROCESSOR ACTIVATION (20) FOR #EHC5	ELAU - Base processor activation (20) for #EHC6	No
EP2T - 1-Core Mobile Activation	EP2W - Mobile Processor activation M9S/80H (Upgrade from P8)	No

Feature conversions for 9080-MME to 9080-M9S memory features:

From FC:	To FC:	Return parts
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8K - 128GB (4X32GB)	EF22 - 512GB DDR4 Memory	Yes

CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	(4X128GB) CDIMMs	
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EMA5 - 1GB Memory Activation	EFA1 - 1 GB Memory Activation (Upgrade from P8)	No
EMA6 - Quantity of 100 1GB Memory Activations (#EMA5)	EFA2 - 100 GB Memory Activation (Upgrade from P8)	No
EMB8 - Five Hundred and Twelve Memory Activations for IFL	ELMD - 512 GB Power Linux Memory Activations for M9S/ 80H	No
EM82 - ACTIVE MEMORY EXPANSION ENABLEMENT	EM89 - Active Memory expansion enablement for M9S	No
EMA9 - 100 GB Mobile Enabled Memory Activations	EMAD - 100 GB Mobile Enabled Memory Activations	No
EMA7 - 100 GB Mobile Memory	EMAR - 100 GB Mobile Memory	No

Activations	Activation (Upgrade from P8	
EMAF - 100 GB Mobile Memory Activation (Upgrade from P7)	EMAY - 100 GB Mobile Memory activation for M9S/80H (Upgrade from P7)	No

Feature conversions for 9080-MME to 9080-M9S miscellaneous features:

From FC:	To FC:	Return parts
EB3K - CBU for PowerHA Specify	EFB0 - CBU server specify	Yes

Feature conversions for 9080-MME to 9080-M9S processor features:

From FC:	To FC:	Return parts
EB2R - Single 5250 Enterprise Enablement	EF2R - Single 5250 Enterprise Enablement	Yes
EB30 - Full 5250 Enterprise Enablement	EF30 - Full 5250 Enterprise Enablement	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFP9 - 1 core Processor Activation for #EFP4	No
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPA - 1 core Processor Activation for #EFP1	No
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPC - 1 core Processor Activation for #EFP3	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No

#EPBW		
EP2U - 1-Core Mobile Activation from Power 7	EFPH - Mobile processor activation for M9S (Upgrade from P7)	No
EP2S - 1-Core Mobile Activation	EP2W - Mobile Processor activation M9S/80H (Upgrade from P8)	No

Feature conversions for 9119-MHE to 9080-M9S memory features:

From FC:	To FC:	Return parts
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory	EF23 - 1024GB DDR4 Memory	Yes

(4x64GB CDIMMs)	(4X256GB) CDIMMs	
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EMA6 - Quantity of 100 1GB Memory Activations (#EMA5)	EFA2 - 100 GB Memory Activation (Upgrade from P8)	No
EMB8 - Five Hundred and Twelve Memory Activations for IFL	ELMD - 512 GB Power Linux Memory Activations for M9S/ 80H	No
EM82 - ACTIVE MEMORY EXPANSION ENABLEMENT	EM89 - Active Memory expansion enablement for M9S	No
EMA9 - 100 GB Mobile Enabled Memory Activations	EMAD - 100 GB Mobile Enabled Memory Activations	No
EMA7 - 100 GB Mobile Memory Activations	EMAR - 100 GB Mobile Memory Activation (Upgrade from P8	No
EMAF - 100 GB Mobile Memory Activation (Upgrade from P7)	EMAY - 100 GB Mobile Memory activation for M9S/80H (Upgrade from P7)	No

Feature conversions for 9119-MHE to 9080-M9S miscellaneous features:

Return From FC:	To FC:	parts
EB3J - CBU for Power Enterprise Systems specify	EFB0 - CBU server specify	Yes

Feature conversions for 9119-MHE to 9080-M9S processor features:

Return From FC:	To FC:	parts
EB2R - Single 5250 Enterprise Enablement	EF2R - Single 5250 Enterprise Enablement	Yes
EB30 - Full 5250 Enterprise Enablement	EF30 - Full 5250 Enterprise Enablement	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes

EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBS - 4.19GHz, 40-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBS - 4.19GHz, 40-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBS - 4.19GHz, 40-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz	Yes

	(max) POWER9 Processor with 5U system node drawer	
EPBS - 4.19GHz, 40-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFP9 - 1 core Processor Activation for #EFP4	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFP9 - 1 core Processor Activation for #EFP4	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFP9 - 1 core Processor Activation for #EFP4	No
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFPA - 1 core Processor Activation for #EFP1	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPA - 1 core Processor Activation for #EFP1	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPA - 1 core Processor Activation for #EFP1	No
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFPC - 1 core Processor Activation for #EFP3	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPC - 1 core Processor Activation for #EFP3	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPC - 1 core Processor Activation for #EFP3	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No

EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No
EP2V - 1-Core Mobile Activation from Power 7	EFPH - Mobile processor activation for M9S (Upgrade from P7)	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/#EFP8	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/#EFP8	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/#EFP8	No
EP2T - 1-Core Mobile Activation	EP2W - Mobile Processor activation M9S/80H (Upgrade from P8)	No

Feature conversions for 9119-MME to 9080-M9S memory features:

From FC:	To FC:	Return parts
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes

DDR3 DRAM EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EMA5 - 1GB Memory Activation	EFA1 - 1 GB Memory Activation (Upgrade from P8)	No
EMA6 - Quantity of 100 1GB Memory Activations (#EMA5)	EFA2 - 100 GB Memory Activation (Upgrade from P8)	No
EMB8 - Five Hundred and Twelve Memory Activations for IFL	ELMD - 512 GB Power Linux Memory Activations for M9S/ 80H	No
EM82 - ACTIVE MEMORY EXPANSION ENABLEMENT	EM89 - Active Memory expansion enablement for M9S	No
EMA9 - 100 GB Mobile Enabled Memory Activations	EMAD - 100 GB Mobile Enabled Memory Activations	No
EMA7 - 100 GB Mobile Memory Activations	EMAR - 100 GB Mobile Memory Activation (Upgrade from P8	No
EMAL - BASE MEMORY ACTIVATION (512GB) FOR #EHC2 or #EHC5	EMAS - Base Memory activation (512) for #EHC6	No
EMAF - 100 GB Mobile Memory Activation (Upgrade from P7)	EMAY - 100 GB Mobile Memory activation for M9S/80H (Upgrade from P7)	No

Feature conversions for 9119-MME to 9080-M9S miscellaneous features:

Return From FC:	To FC:	parts
EB3K - CBU for PowerHA Specify	EFB0 - CBU server specify	Yes

Feature conversions for 9119-MME to 9080-M9S processor features:

Return From FC:	To FC:	parts

EB2R - Single 5250 Enterprise Enablement	EF2R - Single 5250 Enterprise Enablement	Yes
EB30 - Full 5250 Enterprise Enablement	EF30 - Full 5250 Enterprise Enablement	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBX - CBU for Power Enterprise Systems 4.19 GHz, 40-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes
EPBX - CBU for Power Enterprise Systems 4.19 GHz, 40-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBX - CBU for Power Enterprise Systems 4.19 GHz, 40-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	Yes
EPBX - CBU for Power Enterprise Systems 4.19 GHz, 40-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBC - 4.19 GHz, 40-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBC - 4.19 GHz, 40-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBC - 4.19 GHz, 40-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBC - 4.19 GHz, 40-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFP9 - 1 core Processor Activation for #EFP4	No
EPBL - 1 core Processor Activation for #EPBC or #EHC2 or #EPBX	EFP9 - 1 core Processor Activation for #EFP4	No

EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPA - 1 core Processor Activation for #EFP1	No
EPBL - 1 core Processor Activation for #EPBC or #EHC2 or #EPBX	EFPA - 1 core Processor Activation for #EFP1	No
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBL - 1 core Processor Activation for #EPBC or #EHC2 or #EPBX	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPC - 1 core Processor Activation for #EFP3	No
EPBL - 1 core Processor Activation for #EPBC or #EHC2 or #EPBX	EFPC - 1 core Processor Activation for #EFP3	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBQ - 1 core Mobile Enabled Processor Activation for #EPBC or #EPBX	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No
EPBQ - 1 core Mobile Enabled Processor Activation for #EPBC or #EPBX	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No
EPBQ - 1 core Mobile Enabled Processor Activation for #EPBC or #EPBX	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No
EP2U - 1-Core Mobile Activation from Power 7	EFPH - Mobile processor activation for M9S (Upgrade from P7)	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/#EFP8	No
EPBQ - 1 core Mobile Enabled Processor Activation for #EPBC or #EPBX	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/#EFP8	No
EHC2 - Solution Edition for Healthcare 4.19GHZ, 40-core Processor	EHC6 - Solution Edition for Healthcare typical 3.7 to 3.9 GHZ, 40-core Processor with 5U system node drawer	No
ELAL - BASE PROCESSOR ACTIVATION (20) FOR #EHC2	ELAU - Base processor activation (20) for #EHC6	No
EP2S - 1-Core Mobile Activation	EP2W - Mobile Processor activation M9S/80H (Upgrade from P8)	No

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 118-059

Publications

Power Systems hardware documentation provides you with the following topical information:

- Licenses, notices, safety, and warranty information
- Planning for the system
- Installing and configuring the system
- Troubleshooting, service, and support
- Installing, configuring, and managing consoles, terminals, and interfaces
- Installing operating systems
- Creating a virtual computing environment
- Enclosures and expansion units
- Glossary

You can access the POWER9 systems information at IBM Knowledge Center.

Product documentation is also available on DVD (SK5T-7087).

The following information is shipped with the 9080-M9S:

- Power Hardware Information DVD (SK5T-7087)
- Important Notices
- Warranty Information
- License Agreement for Machine Code.

Hardware documentation such as installation instructions, user's information, and service information is available to download or view at the IBM Support Portal website.

The IBM Systems Information Center provides you with a single information center where you can access product documentation for IBM systems hardware, operating systems, and server software. Through a consistent framework, you can efficiently find information and personalize your access. Go to the IBM Systems Information Center, at IBM Knowledge Center.

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.

Power to Cloud Reward Program

The IBM Power to Cloud Reward Program is designed to accelerate the transformation of your IT infrastructure to private and hybrid cloud, by helping you design, build and deliver a cloud platform on IBM Power Systems servers with help from IBM Systems Lab Services. You can earn reward points on purchases of select IBM Power Systems servers. Reward points can be used for a range of services focused on helping the transition from traditional IT platforms to private and hybrid cloud platforms by leveraging the proven expertise of IBM Systems Lab Services consultants.

The Power to Cloud Reward option is included with new Power E980 systems and MES upgrades into a Power E980. The Lab Services Power to Cloud team will contact the account team/customer after the shipment to help with the selection of a Power to Cloud service offer. Optionally, the account team or the client may contact the Worldwide Power to Cloud team at pwrcloud@us.ibm.com. The customer has up to 90 days from the installation date of the Power E980 to select a Power to Cloud offering. Delivery of the selected service must be completed within 12 months of the installation date of the Power E980 system.

For more details on available Power to Cloud options, see the IBM Power to Cloud Reward Program 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(R) 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.

Technical information

Specified operating environment

Physical specifications

IBM Power System E980 model M9S

System node

- Width: 445.5 mm (17.54 in.)
- Depth: 867 mm (34.13 in.)
- Height: 218 mm (8.58 in.) 5 EIA units

- Weight: 86.2 kg (190 lb)

System control unit

- Width: 445.6 mm (17.54 in.)
- Depth: 779.7 mm (30.7 in.)
- Height: 86 mm (3.39 in.) 2 EIA units
- Weight: 22.7 kg (50 lb)

PCIe Gen3 I/O Expansion Drawer

- Width: 447.3 mm (17.61 in.)
- Depth: 737 mm (29.0 in.)
- Height: 173 mm (6.8 in.) 4 EIA units
- Weight: 54.4 kg (120 lb)

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

Standards

This product was designed, tested, manufactured, and certified for safe operation. It complies with IEC 60950-1 or IEC 62368-1 and, where required, to relevant national differences/deviations (NDs) to these IEC base standards. This includes, but is not limited to: EN (European Norms including all Amendments under the Low Voltage Directive), UL/CSA (North America bi-national harmonized and marked per accredited NRTL agency listings), and other such derivative certifications according to corporate determinations and latest regional publication compliance standardized requirements.

Regulatory Model ID (RMID) may match the marketed number type. Relevant Machine Type - Models (MT-Ms) may also be used to supplement identification (ID) for worldwide (WW) co-compliance filings or registrations with regulatory bodies.

Operating environment

- Temperature:
  - 5Â°C - 45Â°C (45Â°F - 113Â°F) nonoperating
  - 18Â°C - 27Â°C (64Â°F - 80Â°F) recommended operating
  - 5Â°C - 40Â°C (41Â°F - 104Â° F) allowable operating
  - Derate maximum allowable dry-bulb temperature 1Â°C (1.8Â°F) per 175 m (574 ft) above 950 m (3,117 ft) up to a maximum allowable elevation of 3050 m (10,000 ft).
- Relative humidity (noncondensing):
  - 8% - 80% nonoperating
  - 20% - 80% operating
- Maximum dew point:
  - 28Â°C (82Â°F) nonoperating
  - 29Â°C (84Â°F) operating
- Operating voltage: 200 - 208 V AC / 200 - 240 V AC
  - Operating frequency: 50 - 60 Hz +/- 3 Hz
  - Power consumption: 4,130 watts maximum (per system drawer)
  - Power source loading: 4.2 kVA maximum (per system drawer)
  - Thermal output: 14,095 Btu/hr maximum (per system drawer)
  - Maximum altitude: 3,050 m (10,000 ft)

- **Note:** To calculate the amperage, multiply the kVA by 1000 and divide that number by the operating voltage.

- Noise level: (Acoustics A-weighted Upper-Limit Sound Power Levels)
  - One maximally configured :
    -- 8.5 bels LwAm (operating/idle, 25 C, 500 m)
    -- 9.0 bels LwAm (heavy workload, 27 C, 500 m)

  Note that this is LwAm (mean) vs LwAu (upper statistical). Nothing is changing with respect to how loud things can be, but due to changes in ISO standards, IBM is changing how it is reported.

  The Power E980 server must be installed in a rack with a rear door and side panels for EMC compliance. The native HMC Ethernet ports must use shielded Ethernet cables.

  Note: Government regulations, such as those prescribed by OSHA or European Community Directives, may govern noise level exposure in the workplace and may apply to you and your server installation. This IBM system is available with an optional acoustical door feature that can help reduce the noise emitted from this system. The actual sound pressure levels in your installation depend upon a variety of factors, including the number of racks in the installation; the size, materials, and configuration of the room where you designate the racks to be installed; the noise levels from other equipment; the room ambient temperature, and employees' location in relation to the equipment. Further, compliance with such government regulations also depends upon a variety of additional factors, including the duration of employees' exposure and whether employees wear hearing protection. IBM recommends that you consult with qualified experts in this field to determine whether you are in compliance with the applicable regulations.

  EMC conformance classification

  This equipment is subject to Electromagnetic Compatibility (EMC) regulations and shall comply with the appropriate country EMC regulations before final delivery to the buyer or centers of distribution.

  - US: FCC CFR, Title 47, Part 15, EMI Class A
  - EEA, Turkey: EU Council Directive 2014/30/EU, EMI Class A
  - Japan: VCCI Council, EMI Class A
  - Korea: RRA, EMI Class A
  - China (PRC): CPCS, EMI Class A
  - Taiwan R.O.C.: BSMI CNS 13438, EMI Class A
  - Australia\New Zealand: ACMA, EMI Class A
  - Canada: ICES-003, EMI Class A
  - Eurasian Economic Area (EAEU), EMI Class A
  - Saudi Arabia: MoCI, EMI Class A
  - Vietnam: MIC, EMI Class A
  - Morocco: EMC Order, EMC Class A

    The IBM Power System E980 server must be installed in a rack with a rear door and side panels for EMC compliance. The native HMC Ethernet ports must use shielded Ethernet cables.

  Homologation - Telecom Type Approval

  Homologation approval for specific countries has been initiated with the IBM Homologation and Type Approval (HT&A) organization in Nice, France.

  The Power E980 server nodes or system control unit or PCIe Gen3 Expansion units are not certified for connection 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 and for information on PCIe adapters that can be used in the system and which are certified.

Product safety/Country testing/Certification

- UL 60950-1:2007 Underwriters Laboratory
- CAN/CSA22.2 No. 60950-1-07
- EN60950-1:2006 European Norm
- IEC 60950-1 2nd Edition + all National Differences

Software requirements

If installing the AIX operating system LPAR with any I/O configuration (one of these):

- AIX Version 7.2 with the 7200-03 Technology Level, or later
- AIX Version 7.1 with the 7100-05 Technology Level and Service Pack 7100-05-03-1838, or later
- AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 6100-09-12-1838, or later (AIX 6.1 service extension required)
- AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 7200-01-05-1845, or later (planned availability January 31, 2019)
- AIX Version 7.2 with the 7200-02 Technology Level and Service Pack 7200-02-03-1845, or later (planned availability January 31, 2019)
- AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 7100-04-07-1845, or later (planned availability January 31, 2019)

If installing the AIX operating system Virtual I/O only LPAR (one of these):

- AIX Version 7.2 with the 7200-02 Technology Level and Service Pack 7200-02-01-1732, or later
- AIX Version 7.1 with the 7100-05 Technology Level and Service Pack 7100-05-01-1731, or later
- AIX Version 7.2 with the 7200-01 Technology Level and Service Pack 7200-01-01-1642, or later
- AIX Version 7.2 with the 7200-00 Technology Level and Service Pack 7200-00-02-1614, or later
- AIX Version 7.1 with the 7100-04 Technology Level and Service Pack 7100-04-02-1614, or later
- AIX Version 6.1 with the 6100-09 Technology Level and Service Pack 6100-09-07-1614, or later (AIX 6.1 service extension required)

If installing the IBM i operating system (one of these):

- IBM i 7.2 TR9, or later
- IBM i 7.3 TR5, or later

See the Power Systems Prerequisites website for compatibility information for hardware features and the corresponding AIX and IBM i Technology Levels.

If installing the Linux operating system (one of these):

- Red Hat Enterprise Linux 7.5 for Power LE (p8compat), or later
- Red Hat Enterprise Linux for SAP with Red Hat Enterprise Linux 7 for Power LE version 7.5, or later
- SUSE Linux Enterprise Server 12 Service Pack 3, or later
- SUSE Linux Enterprise Server for SAP with SUSE Linux Enterprise Server 12 Service Pack 3, or later
- SUSE Linux Enterprise Server for SAP with SUSE Linux Enterprise Server 11 Service Pack 4, or later

- SUSE Linux Enterprise Server 15, or later

Note: The above list applies to the installation of the Linux operating system LPAR in nonproduction SAP HANA implementations. See the Statement of Direction for IBM Power System E980 (9080-M9S) for SAP HANA Production Use.

If installing VIOS:

- VIOS 2.2.6.31, or later

Java™ is supported on POWER9 servers. For the best use of the performance capabilities and the most recent improvements of POWER9 technology, IBM recommends upgrading Java-based applications to Java 7, Java 8, or later, whenever possible. For those clients who want to run Java in AIX environments, see the AIX Download and service information website.

For Linux (including Linux on Power), see the Linux Download information website.

For those clients who want to run Java in IBM i environments, read the following planning statements:

- Java 6 is not a supported environment for IBM i 7.3 and is no longer supported in IBM i 7.2.
- For those clients who want to run Java on IBM i, see the Java on IBM website

Limitations

- The PCIe I/O Expansion Drawer (#EMX0) will be limited to a maximum of two for the August 7, 2018, announcement.
- The IBM Power System 9040-MR9 Rack does not support earthquake-prone regions.

Planning information

Cable orders

No additional cables are 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:
Warranty period:	1 year[1]
Service Level:	IBM On-Site Repair, 24x7 Same Day
Service Upgrade Options :	
Warranty Service Upgrade	IBM On-Site Repair, Same Day, 2-hour response[2]
Maintenance Services (Post-Warranty):	IBM On-Site Repair, 24x7 Same Day
IBM Hardware Maintenance Services - committed maintenance:[3]	Y

[1] Known exception:
Turkey
Warranty period: 2 Years
Service Level : IBM On-site, 24x7 Same Business Day

[2] Offered in US only.

[3] Not offered in the US.

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

Warranty 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 and Tier 2 (optional) CRU

You may install a Tier 1 or 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.

The following parts have been designated as Tier 1 and Tier2 CRUs:

- Fan
- Power Cable Interface Card
- FSP
- OP Panel
- VPD Card
- PCI Cable
- FSP Cable
- USB Cable
- DISK Drive
- SSD Drive
- NVMe Drive
- Fiber Cable
- Optical Cable
- SAS Cable
- HACMP™ Null Modem Serial Cable
- Serial Converter Cable
- DVI to Analog Converter Plug
- Adapter
- Power Supply

- PCIe Extender Card
- PCIe to USB Conversion Card
- FSI Link Pass Through Card
- Clock and Control Card
- PCIe Cable Card
- USB DVD drive

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 area must be clean, well-lit, and suitable for the purpose.

Service level is:

- 24 hours per day, 7 days a week, same-day response. Same day service level includes the installation of Tier 1 CRUs at no additional charge

Non-IBM parts service

Under certain conditions, IBM provides services for selected non-IBM parts at no additional charge for machines that are covered under warranty service upgrades or maintenance services.

This service includes hardware problem determination (PD) on the non-IBM parts (for example, adapter cards, PCMCIA cards, disk drives, memory) installed within IBM machines and provides the labor to replace the failing parts at no additional charge.

If IBM has a Technical Service Agreement with the manufacturer of the failing part, or if the failing part is an accommodations part (a part with an IBM FRU label), IBM may also source and replace the failing part at no additional charge. For all other non-IBM parts, customers are responsible for sourcing the parts. Installation labor is provided at no additional charge, if the machine is covered under a warranty service upgrade or a maintenance service.

Warranty services

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.

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:

The following on-site response-time objectives are available as warranty service upgrades for your machine. Available offerings are:

- On-Site Repair, 7 days a week, 24 hrs/day, 2-hour response objective. Response times are objectives 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), 8:00 AM to 5:00 PM, next business day.
- On-Site Repair, Monday through Friday (excluding holidays), 8:00 AM to 5:00 PM, 4-hour response objective. Response times are objectives and are not guaranteed.

- On-Site Repair, 7 days a week, 24 hrs/day[5].
- On-Site Repair, 7 days a week, 24 hrs/day, 2-hour response objective. Response times are objectives and are not guaranteed.

[5] Recommended for this product.

IBM Hardware Maintenance Services - committed maintenance[6]

Organizations can lose as much as USD $100 million per year to downtime related to information and communications technology. IBM Hardware Maintenance Services - committed maintenance can deliver various guaranteed hardware service for IBM equipment from the moment you call for support worldwide (based on the countries in which IBM has a presence) and around the clock. Through clear response targets and standardized service-delivery metrics, IBM helps you optimize your IT infrastructure and reduce the threat of hardware-related outages.

For more information, see the IBM Hardware Maintenance Services - committed maintenance website.

[6] Currently not available in the US.

On-site Service

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.

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:

- FAN
- Power Cable Interface Card
- FSP
- OP Panel
- VPD Card
- PCI Cable
- FSP Cable
- USB Cable

- DISK Drive
- SSD Drive
- NVMe Drive
- Fiber Cable
- Optical Cable
- SAS Cable
- HACMP Null Modem Serial Cable
- Serial Converter Cable
- DVI to Analog Converter Plug
- Adapter
- Power Supply
- PCIe Extender Card
- PCIe to USB Conversion Card
- FSI Link Pass Through Card
- Clock and Control Card
- PCIe Cable Card
- USB DVD drive

CRU and Machine Exchange Service

At IBM's discretion, you will receive CRU service or IBM will initiate shipment of a replacement machine to your location. You are responsible for its installation and verification of operation. You must pack the failed machine into the shipping container that contained the replacement machine and return the failed machine to IBM. Transportation charges, both ways, are paid by IBM. You may be charged for the replacement machine if IBM does not receive the failed machine within 15 days of your receipt of the replacement.

Non-IBM parts service

Under certain conditions, IBM provides services for selected non-IBM parts at no additional charge for machines that are covered under warranty service upgrades or maintenance services.

This service includes hardware problem determination (PD) on the non-IBM parts (for example, adapter cards, PCMCIA cards, disk drives, memory) installed within IBM machines and provides the labor to replace the failing parts at no additional charge.

If IBM has a Technical Service Agreement with the manufacturer of the failing part, or if the failing part is an accommodations part (a part with an IBM FRU label), IBM may also source and replace the failing part at no additional charge. For all other non-IBM parts, customers are responsible for sourcing the parts. Installation labor is provided at no additional charge, if the machine is covered under a warranty service upgrade or a maintenance service.

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

Yes

Machine installation

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

Graduated program license charges apply

No

Licensed Machine Code

IBM Machine Code is licensed for use by a customer 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 customer. 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 customer 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.

Educational allowance

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

The educational allowance is 5% for the products in this announcement.

Prices

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

The following are newly announced features on the specific models of the Power Systems 9080 machine type:

Description	Model number	Feature number	Minimum Initial/ Purchase price	Monthly Maint. Charge	MES/ Both/ Support	CSU	RP MES
IBM Power System E980	M9S					No	
One CSC Billing Unit	M9S	0010			Both	Yes	No
Ten CSC Billing Units	M9S	0011			Both	Yes	No
Mirrored System Disk Level, Sp							

	M9S	0040	Both	Yes	No
Device Parity Protection All					
	M9S	0041	Both	Yes	No
Mirrored System Bus Level					
	M9S	0043	Both	N/A	No
Device Parity RAID 6 All					
	M9S	0047	Both	Yes	No
RISC to RISC Data Migration					
	M9S	0205	Initial	N/A	No
AIX Partition Specify					
	M9S	0265	Both	Yes	No
Linux Partition Specify					
	M9S	0266	Both	Yes	No
IBM i Partition Specify					
	M9S	0267	Both	Yes	No
Specify Custom Data Protection					
	M9S	0296	Both	Yes	No
Mirrored Level System Specify					
	M9S	0308	Both	Yes	No
RAID Hot Spare Specify					
	M9S	0347	Both	Yes	No
V.24/EIA232 6.1m (20 Ft) PCI C					
	M9S	0348	Both	Yes	No
V.35 6.1m (20 Ft) PCI Cable					
	M9S	0353	Both	Yes	No
X.21 6.1m (20 Ft) PCI Cable					
	M9S	0359	Both	Yes	No
UPS Factory Integration Spcfy					
	M9S	0373	MES	Yes	No
HMC Factory Integration Spcfy					
	M9S	0374	MES	Yes	No
Display Factory Int. Specify					
	M9S	0375	MES	Yes	No
Rack Space for UPS					
	M9S	0376	MES	Yes	No
Reserve Rack for HMC					
	M9S	0377	MES	Yes	No
Reserve Rack Space for Display					
	M9S	0378	MES	Yes	No
19 inch, 1.8 meter high rack					
	M9S	0551	MES	Yes	No
19 inch, 2.0 meter high rack					
	M9S	0553	MES	Yes	No
Rack Filler Panel Kit					
	M9S	0599	Both	Yes	No
5887/EL1S Load Source Specfy					
	M9S	0728	MES	Yes	No
SAN Load Source Specify					
	M9S	0837	Both	Yes	No
1948 Load Source Specify					
	M9S	0872	MES	Yes	No
1962 Load Source Specify					
	M9S	0875	MES	Yes	No
ESD2 Load Source Specify					
	M9S	0911	MES	Yes	No
US TAA Compliance Indicator					
	M9S	0983	Both	Yes	No
Asm in USA manufacturing plant					
	M9S	0984	Both	Yes	No
Modem Cable US/Canada and GU					
	M9S	1025	Both	Yes	No
USB 500 GB Removable Disk Dr					
	M9S	1107	Both	Yes	No
Decline ESA Indicator					
	M9S	1120	Initial	N/A	No
Custom Serv. Specify, Roch					
	M9S	1140	Both	N/A	No
Quantity 150 of 1962					
	M9S	1817	Support	Yes	No
Quantity 150 of #1964					
	M9S	1818	Both	Yes	No
Quantity 150 of 1948					
	M9S	1927	Support	Yes	No

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Quantity 150 of #1953
                        M9S     1929                    Both     Yes No
283GB 15k RPM SAS SFF-2 Disk
                        M9S     1948                    Support  Yes No
300GB 15k RPM SAS SFF-2 Disk
                        M9S     1953                    Both     Yes No
571GB 10k RPM SAS SFF-2 Disk
                        M9S     1962                    Support  Yes No
600GB 10k RPM SAS SFF-2 Disk
                        M9S     1964                    Both     Yes No
Primary OS - IBM i
                        M9S     2145                    Both     Yes No
Primary OS AIX
                        M9S     2146                    Both     Yes No
Primary OS Linux
                        M9S     2147                    Both     Yes No
LC-SC 50 Micron Fiber Conv Cab
                        M9S     2456                    Both     Yes No
LC-SC 62.5 Mic.Fib.Conv.Cable
                        M9S     2459                    Both     Yes No
Asynch.Termin/Print.Cbl EIA232
                        M9S     2934                    Both     Yes No
Asynchronous Cable EIA 232/V
                        M9S     2936                    Both     Yes No
Ser to Ser Port Cab Draw/Draw
                        M9S     3124                    Both     Yes No
Serial to Se.Port Cbl Rack 8M
                        M9S     3125                    Both     Yes No
1m, QDR IB Copper Cable
                        M9S     3287                    Both     Yes No
3m, QDR IB Copper Cable
                        M9S     3288                    Both     Yes No
5m QDR IB/E'Net Copper Cable
                        M9S     3289                    Both     Yes No
10m QDR IB Optic Cable
                        M9S     3290                    Both     Yes No
30m QDR IB Optic Cable
                        M9S     3293                    Both     Yes No
Widescreen LCD Monitor
                        M9S     3632                    Support  Yes No
0.3M Serial Prt Converter Cbl
                        M9S     3925                    Both     Yes No
Serial Port Null Mod Cab 3.7M
                        M9S     3927                    Both     Yes No
Ser.Port Null Modem Cable,10M
                        M9S     3928                    Both     Yes No
System Serial Port Converter C
                        M9S     3930                    Both     Yes No
6Foot Extend.Cbl for Displays
                        M9S     4242                    Support  Yes No
Extender Cable USB Keybo 1.8M
                        M9S     4256                    Both     Yes No
VGA to DVI Connection Converte
                        M9S     4276                    Both     Yes No
               One and only one rack indicator feature is required on  all orders (#4650 to #4666).
              No Factory Integration Ind.
                        M9S     4650                    Initial  N/A No
Rack Indicator, Rack 1
                        M9S     4651                    Initial  N/A No
Rack Indicator, Rack 2
                        M9S     4652                    Initial  N/A No
Rack Indicator, Rack 3
                        M9S     4653                    Initial  N/A No
Rack Indicator, Rack 4
                        M9S     4654                    Initial  N/A No
Rack Indicator, Rack 5
                        M9S     4655                    Initial  N/A No
Rack Indicator, Rack 6
                        M9S     4656                    Initial  N/A No
Rack Indicator, Rack 7
                        M9S     4657                    Initial  N/A No
Rack Indicator, Rack 8
                        M9S     4658                    Initial  N/A No
Rack Indicator, Rack 9
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	M9S	4659	Initial	N/A	No
Rack Indicator, Rack 10					
	M9S	4660	Initial	N/A	No
Rack Indicator, Rack 11					
	M9S	4661	Initial	N/A	No
Rack Indicator, Rack 12					
	M9S	4662	Initial	N/A	No
Rack Indicator, Rack 13					
	M9S	4663	Initial	N/A	No
Rack Indicator, Rack 14					
	M9S	4664	Initial	N/A	No
Rack Indicator, Rack 15					
	M9S	4665	Initial	N/A	No
Rack Indicator, Rack 16					
	M9S	4666	Initial	N/A	No
CBU SPECIFY					
	M9S	4891	Both	Yes	No
Software Preload Required					
	M9S	5000	Initial	N/A	No
PowerVM Enterprise Edition					
	M9S	5228	Both	Yes	No
PCIe2 LP 4-port 1GbE Adapter					
	M9S	5260	Both	Yes	No
PCIe LP 8Gb 2 Port Fibre Chann					
	M9S	5273	Both	Yes	No
Sys Console On HMC					
	M9S	5550	Both	Yes	No
PCIe2 8Gb 4-port Fibre Channel					
	M9S	5729	Both	Yes	No
8 Gigabit PCI Express Dual Por					
	M9S	5735	Both	Yes	No
4 Port Async EIA 232 PCIe Adap					
	M9S	5785	Both	Yes	No
EXP24S SFF Gen2-bay Drawer					
	M9S	5887	Support	Yes	No
PCIe2 4-port 1GbE Adapter					
	M9S	5899	Both	Yes	No
Opt Front Door for 1.8m Rack					
	M9S	6068	MES	Yes	No
Opt Front Door for 2.0m Rack					
	M9S	6069	MES	Yes	No
High-end Side Covers					
	M9S	6238	MES	Yes	No
1.8m Rack Trim Kit					
	M9S	6263	MES	Yes	No
2.0m Rack Trim Kit					
	M9S	6272	MES	Yes	No
Pwr Crd 4.3m 14ft to IBM PDU					
	M9S	6458	Both	Yes	No
Pwr Crd (14FT), Drwr - OEM PDU					
	M9S	6460	Both	Yes	No
Pwr Crd 4.3m 14ft Wall OEM PDU					
	M9S	6469	Both	Yes	No
Pwr Crd 1.8m 6ft Wall 125V/15A					
	M9S	6470	Both	Yes	No
Pwr Crd 2.7m 9ft Wall OEM PDU					
	M9S	6471	Both	Yes	No
Pwr Crd 2.7m 9ft Wall OEM PDU					
	M9S	6472	Both	Yes	No
Pwr Crd 2.7m 9ft Wall OEM PDU					
	M9S	6473	Both	Yes	No
Pwr Crd 2.7m 9ft Wall OEM PDU					
	M9S	6474	Both	Yes	No
Pwr Crd 2.7m 9ft Wall OEM PDU					
	M9S	6475	Both	Yes	No
Pwr Crd 2.7m 9ft Wall OEM PDU					
	M9S	6476	Both	Yes	No
Pwr Crd 2.7m 9ft Wall OEM PDU					
	M9S	6477	Both	Yes	No
Pwr Crd 2.7m 9ft Wall OEM PDU					
	M9S	6478	Both	Yes	No
Pwr Crd 2.7m 9ft Wall OEM PDU					
	M9S	6488	Both	Yes	No
4.3m (14 Ft) 3PH/24A Power Cor					

	M9S	6489		Both	Yes No
4.3m (14 Ft) 1PH/63A Pwr Cord					
	M9S	6491		Both	Yes No
4.3m (14 Ft) 1PH/48 60A Pwr Co					
	M9S	6492		Both	Yes No
Pwr Crd 2.7m 9ft Wall OEM PDU					
	M9S	6493		Both	Yes No
Pwr Crd 2.7m 9ft Wall OEM PDU					
	M9S	6494		Both	Yes No
Pwr Crd 2.7m 9ft Wall 250V,10A					
	M9S	6496		Both	Yes No
Power Cable Drawer to IBM PD					
	M9S	6577		Both	Yes No
Optional Rack Security Kit					
	M9S	6580		MES	Yes No
Pwr Crd 2.7m 9ft Wall 125V,15A					
	M9S	6651		Both	Yes No
4.3m 3PH/16A Power Cord					
	M9S	6653		Both	Yes No
4.3m 1PH/24-30A Pwr Cord					
	M9S	6654		Both	Yes No
4.3m 14Ft 1PH/24 30A WR Pwr					
	M9S	6655		Both	Yes No
4.3m 14Ft 1PH/24A Power Cord					
	M9S	6656		Both	Yes No
4.3m 14Ft 1PH/32A Power Cord					
	M9S	6657		Both	Yes No
4.3m 14Ft 1PH/24A Pwr Cd Kor					
	M9S	6658		Both	Yes No
Pwr.Cord(9ft),To Wall/OEM PDU					
	M9S	6659		Both	Yes No
Pwr Crd 14ft 4.3m WallOEM PDU					
	M9S	6660		Both	Yes No
Pwr Crd 2.8m 9.2ft PDU					
	M9S	6665		Both	Yes No
4.3m 14Ft 3PH/32A Pwr Cd Aus					
	M9S	6667		Both	Yes No
Pwr Crd 4.3M, Drwr - OEM PDU					
	M9S	6669		Both	Yes No
Pwr Crd 2.7m, Drwr - IBM PDU					
	M9S	6671		Both	Yes No
Pwr Crd 2M, Drwr - IBM PDU					
	M9S	6672		Both	Yes No
Pwr Crd 2.7m 9ft Wall OEM PDU					
	M9S	6680		Both	Yes No
IIntelligent PDU+ 1 EIA Unit					
	M9S	7109		Both	Yes No
Environmental Monitoring Probe					
	M9S	7118		Both	Yes No
Power Distribution Unit					
	M9S	7188		Both	Yes No
PowDistribUnit(US)Fixed PowCrd					
	M9S	7196		Both	Yes No
Eth Cbl 15M HW Management					
	M9S	7802		Both	Yes No
Base Customer Spec Plcmnt					
	M9S	8453		Initial	N/A No
USB Mouse					
	M9S	8845		Support	Yes No
Order Routing Indicator Syste					
	M9S	9169		Initial	N/A No
Language Group Spcf-US Eng					
	M9S	9300		Initial	N/A No
New AIX License Core Counter					
	M9S	9440		Initial	N/A No
New IBM i Lic Core Counter					
	M9S	9441		Initial	N/A No
New Red Hat Lic Core Counter					
	M9S	9442		Initial	N/A No
New SUSE Lic Core Counter					
	M9S	9443		Initial	N/A No
Other AIX Lic Core Counter					
	M9S	9444		Initial	N/A No
Other Linux Lic Core Counter					

	M9S	9445	Initial	N/A	No
3rd Party Linux Lic Core Cnt					
	M9S	9446	Initial	N/A	No
VIOS Core Counter					
	M9S	9447	Initial	N/A	No
Other License Core Counter					
	M9S	9449	Initial	N/A	No
Ubuntu Linux License Core Cntr					
	M9S	9450	Initial	N/A	No
Month Indicator					
	M9S	9461	Initial	N/A	No
Day Indicator					
	M9S	9462	Initial	N/A	No
Hour Indicator					
	M9S	9463	Initial	N/A	No
Minute Indicator					
	M9S	9464	Initial	N/A	No
Qty Indicator					
	M9S	9465	Initial	N/A	No
Countable Member Indicator					
	M9S	9466	Initial	N/A	No
Language Group Spcf-Dutch					
	M9S	9700	Initial	N/A	No
Language Group Spcf-French					
	M9S	9703	Initial	N/A	No
Language Group Spcf-German					
	M9S	9704	Initial	N/A	No
Language Group Spcf-Polish					
	M9S	9705	Initial	N/A	No
Lang Group Specify - Norwegian					
	M9S	9706	Initial	N/A	No
Lang.Group Spcf-Portuguese					
	M9S	9707	Initial	N/A	No
Language Group Spcf-Spanish					
	M9S	9708	Initial	N/A	No
Language Group Spcf-Italian					
	M9S	9711	Initial	N/A	No
Langua Gr Speci Canadian Frenc					
	M9S	9712	Initial	N/A	No
Language Group Spcf-Japanese					
	M9S	9714	Initial	N/A	No
Language Group Specify Tr Chin					
	M9S	9715	Initial	N/A	No
Language Group Spcf-Korean					
	M9S	9716	Initial	N/A	No
Language Group Spcf-Turkish					
	M9S	9718	Initial	N/A	No
Language Group Spcf-Hungarian					
	M9S	9719	Initial	N/A	No
Language Group Spcf-Slovakian					
	M9S	9720	Initial	N/A	No
Language Group Spcf-Russian					
	M9S	9721	Initial	N/A	No
Lang Group Spcf Simpl Chinese					
	M9S	9722	Initial	N/A	No
Language Group Spcf-Czech					
	M9S	9724	Initial	N/A	No
Language Group Spcf-Romanian					
	M9S	9725	Initial	N/A	No
Lang Group Specify - Croatian					
	M9S	9726	Initial	N/A	No
Language Group Spcf-Slovenian					
	M9S	9727	Initial	N/A	No
Lang Group Specify - Braz Port					
	M9S	9728	Initial	N/A	No
Lang Group Specify - Thai					
	M9S	9729	Initial	N/A	No
QSFP+ 40GbE Transceiver					
	M9S	EB27	Both	Yes	No
1m Passive QSFP+ to QSFP+ Cbl					
	M9S	EB2B	Both	Yes	No
3m Passive QSFP+ to QSFP+ Cbl					
	M9S	EB2H	Both	Yes	No
10m QSFP+ MTP Optical Cable					

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                        M9S     EB2J                    Both     Yes No
30m QSFP+ MTP Optical Cable
                        M9S     EB2K                    Both     Yes No
Lift Tool
                        M9S     EB2Z                    Both     Yes No
Mobile Enablement
                        M9S     EB35                    MES      Yes No
Lift tool GenieLift GL-8
                        M9S     EB3Z                    Both     Yes No
10GbE Optical Transceiver SFP+ SR
                        M9S     EB46                    Both     Yes No
25GbE Optical Transceiver SFP28
                        M9S     EB47                    Both     Yes No
0.5 SFP/25GbE CU Cable
                        M9S     EB4J                    Both     Yes No
1.0 SFP/25GbE CU Cable
                        M9S     EB4K                    Both     Yes No
1.5 SFP/25GbE CU Cable
                        M9S     EB4L                    Both     Yes No
2.0 SFP/25GbE CU Cable
                        M9S     EB4M                    Both     Yes No
2.5 QSFP28/100GbE CU Cable
                        M9S     EB4P                    Both     Yes No
Service wedge shelf for EB3Z
                        M9S     EB4Z                    Both     No  No
0.5m EDR IB Copper Cable
                        M9S     EB50                    Both     Yes No
1.0m EDR IB Copper Cable
                        M9S     EB51                    Both     Yes No
2.0M EDR IB Copper Cable
                        M9S     EB52                    Both     Yes No
1.5M EDR IB Copper Cable
                        M9S     EB54                    Both     Yes No
100GbE Optical Transceiver QSFP28
                        M9S     EB59                    Both     Yes No
3M EDR IB Optical Cable
                        M9S     EB5A                    Both     Yes No
5M EDR IB Optical Cable
                        M9S     EB5B                    Both     Yes No
10M EDR IB Optical Cable
                        M9S     EB5C                    Both     Yes No
15M EDR IB Optical Cable
                        M9S     EB5D                    Both     Yes No
20M EDR IB Optical Cable
                        M9S     EB5E                    Both     Yes No
30M EDR IB Optical Cable
                        M9S     EB5F                    Both     Yes No
50M EDR IB Optical Cable
                        M9S     EB5G                    Both     Yes No
100M EDR IB Optical Cable
                        M9S     EB5H                    Both     Yes No
0.5M 100GbE Cu Cable QSFP28
                        M9S     EB5J                    Both     Yes No
1.0M 100GbE Cu Cable QSFP28
                        M9S     EB5K                    Both     Yes No
1.5M 100GbE Cu Cable QSFP28
                        M9S     EB5L                    Both     Yes No
2.0M 100GbE Cu Cable QSFP28
                        M9S     EB5M                    Both     Yes No
3M 100GbE Optic Cable QSFP28
                        M9S     EB5R                    Both     Yes No
5M 100GbE Optic Cable QSFP28
                        M9S     EB5S                    Both     Yes No
10M 100GbE Optic Cable QSFP28
                        M9S     EB5T                    Both     Yes No
15M 100GbE Optic Cable QSFP28
                        M9S     EB5U                    Both     Yes No
20M 100GbE Optic Cable QSFP28
                        M9S     EB5V                    Both     Yes No
30M 100GbE Optic Cable QSFP28
                        M9S     EB5W                    Both     Yes No
50M 100GbE Optic Cable QSFP28
                        M9S     EB5X                    Both     Yes No
100M 100GbE Optic Cable QSFP28
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	M9S	EB5Y	Both	Yes	No
IBM i 7.2 Indicator					
	M9S	EB72	Both	Yes	No
IBM i 7.3 Indicator					
	M9S	EB73	Both	Yes	No
5U Indica node drawer Health					
	M9S	EBA7	Both	No	No
Rack mount Drawer Bezel/HW					
	M9S	EBA8	Both	No	No
OEM Rack mount Drawer Bezel					
	M9S	EBA9	Both	No	No
1.6M USB Cable					
	M9S	EBK4	Both	Yes	No
Rack Front Door (Black)					
	M9S	EC01	MES	Yes	No
Rack Rear Door					
	M9S	EC02	MES	Yes	No
Rack Side Cover					
	M9S	EC03	MES	Yes	No
Rack Suite Attachment Kit					
	M9S	EC04	MES	Yes	No
Slim Front Acoustic Door					
	M9S	EC08	MES	Yes	No
Rear Door Heat Exchanger					
	M9S	EC15	MES	Yes	No
PCIe3 LP 2-port 10GbE NIC Ro					
	M9S	EC2R	Both	Yes	No
PCIe3 2-Port 10Gb NIC&ROCE					
	M9S	EC2S	Both	Yes	No
PCIe3 LP 2-port 25/10GbE NIC					
	M9S	EC2T	Both	Yes	No
PCIe3 2-Port 25/10Gb NIC&Ro					
	M9S	EC2U	Both	Yes	No
Mainstream 800GB SSD NVMe					
	M9S	EC5J	Both	Yes	No
PCIe4 LP 2-port 100Gb ROCE					
	M9S	EC67	Both	Yes	No
SAS X Cable 3m - HD Narrow					
	M9S	ECBJ	Both	Yes	No
SAS X Cable 6m - HD Narrow					
	M9S	ECBK	Both	Yes	No
SAS X Cable 10m - HD Narrow					
	M9S	ECBL	Both	Yes	No
SAS X Cable 15m -HD Narrow 3Gb					
	M9S	ECBM	Both	Yes	No
SAS YO Cable 1.5m - HD Narrow					
	M9S	ECBT	Both	Yes	No
SAS YO Cable 3m - HD Narrow					
	M9S	ECBU	Both	Yes	No
SAS YO Cable 6m - HD Narrow					
	M9S	ECBV	Both	Yes	No
SAS YO Cable 10m - HD Narrow					
	M9S	ECBW	Both	Yes	No
SAS YO Cable 15m-HD Narrow 3Gb					
	M9S	ECBX	Both	Yes	No
SAS AE1 Cable 4m - HD Narrow					
	M9S	ECBY	Both	Yes	No
SAS YE1 Cable 3m - HD Narrow					
	M9S	ECBZ	Both	Yes	No
SAS AA Cable 0.6m - HD Narrow					
	M9S	ECC0	Support	Yes	No
SAS AA Cable 1.5m - HD Narrow					
	M9S	ECC2	Support	Yes	No
SAS AA Cable 3m - HD Narrow					
	M9S	ECC3	Support	Yes	No
SAS AA Cable 6m - HD Narrow					
	M9S	ECC4	Support	Yes	No
2M Optical Cable Pair					
	M9S	ECC6	Both	Yes	No
10M Optical Cable Pair					
	M9S	ECC8	Both	Yes	No
20M Optical Cable Pair					
	M9S	ECC9	Both	Yes	No

3.0M SAS X12 Cable	M9S	ECDJ	Both	Yes	No
4.5M SAS X12 Cable	M9S	ECDK	Both	Yes	No
10M SAS X12 Cable	M9S	ECDL	Both	Yes	No
1.5M SAS YO12 Cable	M9S	ECDT	Both	Yes	No
3.0M SAS YO12 Cable	M9S	ECDU	Both	Yes	No
4.5M SAS YO12 Cable	M9S	ECDV	Both	Yes	No
10M SAS YO12 Cable	M9S	ECDW	Both	Yes	No
0.6M SAS AA12 Cable	M9S	ECE0	Both	Yes	No
3.0M SAS AA12 Cable	M9S	ECE3	Both	Yes	No
4.5M SAS AA12 Cable	M9S	ECE4	Both	Yes	No
Cloud Private Solution	M9S	ECP0	Initial	N/A	
2.0 M Slim Rack	M9S	ECR0	MES	Yes	No
Rack Acoustic Front Door	M9S	ECRA	MES	Yes	
Rack Front Door	M9S	ECRF	MES	Yes	No
Rack Rear Door Black	M9S	ECRG	MES	Yes	No
Rack Side Cover	M9S	ECRJ	MES	Yes	No
Rack Rear Extension 5-In	M9S	ECRK	MES	Yes	No
Rack Front Door (Black/Flat)	M9S	ECRM	MES	Yes	No
Custom Serv. Specify, France	M9S	ECSF	Both	Yes	No
Custom Serv. Specify, Mexico	M9S	ECSM	Both	N/A	No
Custom Serv. Spec Poughkeepsie	M9S	ECSP	Both	N/A	No
Integrated Solution Packing	M9S	ECSS	Initial	N/A	No
Optical Wrap Plug	M9S	ECW0	Both	Yes	No
128GB (4x32GB) CDIMM Memory	M9S	EF20	Both	Yes	No
256GB (4x64GB) CDIMM Memory	M9S	EF21	Both	Yes	No
512GB (4x128GB) CDIMM Memory	M9S	EF22	Both	Yes	No
1024GB (4x256GB) CDIMM Mem	M9S	EF23	Both	Yes	No
2048GB (4x512GB) CDIMM Mem	M9S	EF24	Both	Yes	No
Single 5250 Enter. Enable	M9S	EF2R	Both	Yes	No
Full 5250 Enter. Enable.	M9S	EF30	Both	Yes	No
1GB Memory Activation	M9S	EFA1	MES	Yes	No
100GB Memory Activation	M9S	EFA2	MES	Yes	No
CBU server specify	M9S	EFB0	Both	Yes	No
CBU 3.9 GHz 32-core process	M9S	EFB1	Both	N/A	No
CBU 3.7 GHz 40-core process	M9S	EFB2	Both	N/A	No
CBU 3.55 GHz 48-core process	M9S	EFB3	Both	N/A	No
CBU 3.58 GHz 44-core process	M9S	EFB4	Both	N/A	No

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cable brackets non-IBM Rack
                        M9S     EFBK                    Both     No  No
System Cable Set DWR 1
                        M9S     EFCA                    Both     Yes No
System Cable Set DWR 2
                        M9S     EFCB                    Both     Yes No
System Cable Set DWR 3
                        M9S     EFCC                    Both     Yes No
System Cable Set DWR 4
                        M9S     EFCD                    Both     Yes No
Captive Rack identifier
                        M9S     EFCR                    Both     No  No
Flexible service processor
                        M9S     EFFP                    Both     No  No
5U Indicator node drawer
                        M9S     EFN1                    Both     Yes No
3.90 - 4.0 GHz 32-core proc
                        M9S     EFP1                    Both     No  No
3.7 - 3.9 GHz 40-core proc
                        M9S     EFP2                    Both     No  No
3.55 - 3.9 GHz 48-core proc
                        M9S     EFP3                    Both     No  No
3.58 - 3.9 GHz 44-core proc
                        M9S     EFP4                    Both     No  No
1 core activation for EFP4
                        M9S     EFP9                    Both     No  No
1 core activation for EFP1
                        M9S     EFPA                    Both     Yes No
1 core activation for EFP2
                        M9S     EFPB                    Both     Yes No
1 core act for EFP3/EHC6
                        M9S     EFPC                    Both     Yes No
Mobile proc act for M9S
                        M9S     EFPD                    MES      Yes No
1 core Mob Act EFP1/EFP5
                        M9S     EFPE                    Both     Yes No
1 core Mob Act EFP2/EFP6
                        M9S     EFPF                    Both     Yes No
1 core Mob Act EFP3/EFP7
                        M9S     EFPG                    Both     Yes No
Mobile proc act upg from P7
                        M9S     EFPH                    MES      Yes No
1 core Mob Act EFP4/EFP8
                        M9S     EFPN                    Both     Yes No
Initial FW 920.10 indicator
                        M9S     EFW0                    Initial  N/A No
Mobile Enablement
                        M9S     EH35                    MES      Yes No
SOL ED HLTHCAR 3.7 GHZ,40-CO
                        M9S     EHC6                    Both     No  No
SAP HANA TRACKING FEAT
                        M9S     EHKV                    Initial  Yes No
Boot Drive in EXP12SX Specify
                        M9S     EHR1                    Both     Yes No
Boot / Load in EXP24SX Specify
                        M9S     EHR2                    Both     Yes No
SSD Placement Ind- #ESLS/#ELLS
                        M9S     EHS2                    Both     Yes No
PCIe3 Optical Cable Adapter
                        M9S     EJ07                    Both     No  No
PCIe3 RAID SAS Adapter 4-port
                        M9S     EJ0J                    Both     Yes No
PCIe3 LP RAID SAS ADAPTER
                        M9S     EJ0M                    Both     Yes No
PCIe3 SAS Tape/DVD Adapter
                        M9S     EJ10                    Both     Yes No
PCIe3 LP SAS Tape/DVD Adapter
                        M9S     EJ11                    Both     Yes No
PCIe3 12GB Cache RAID+ SAS Ada
                        M9S     EJ14                    Both     Yes No
PCIe3 Crypto Coproc BSC-3 4767
                        M9S     EJ33                    Both     Yes No
Specify Mode1 & (1)EJ0J-EXP24S
                        M9S     EJR1                    MES      Yes No
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Specify Mode1 &1(2)EJ0J-EXP24S					
	M9S	EJR2		MES	Yes No
Specify Mode2 & (2)EJ0J-EXP24S					
	M9S	EJR3		MES	Yes No
Specify Mode2 & (4)EJ0J-EXP24S					
	M9S	EJR4		MES	Yes No
Specify Mode4 & (4)EJ0J-EXP24S					
	M9S	EJR5		MES	Yes No
Specify Mode2 & (1)EJ0J-EXP24S					
	M9S	EJR6		MES	Yes No
Specify Mode2 & (2)EJ0J-EXP24S					
	M9S	EJR7		MES	Yes No
Specify Mode2 & (1)EJ0J-EXP24S					
	M9S	EJRA		MES	Yes No
Specify Mode2 & (2)EJ0J-EXP24S					
	M9S	EJRB		MES	Yes No
Specify-Mode4 & (1)EJ0J-EXP24S					
	M9S	EJRC		MES	Yes No
Specify-Mode4 & (2)EJ0J-EXP24S					
	M9S	EJRD		MES	Yes No
Specify-Mode4 & (3)EJ0J-EXP24S					
	M9S	EJRE		MES	Yes No
Specify Mode1 & (2)EJ14-EXP24S					
	M9S	EJRF		MES	Yes No
Specify Mode2 & (2)EJ14-EXP24S					
	M9S	EJRG		MES	Yes No
Specify Mode2 & (2)EJ14-EXP24S					
	M9S	EJRH		MES	Yes No
Specify Mode2 & (4)EJ14+EXP24S					
	M9S	EJRJ		MES	Yes No
Non-paired Indicator EJ0L PCIe					
	M9S	EJRL		Both	Yes No
Non-paired Indicator EJ0L PCIe					
	M9S	EJRU		Both	Yes No
Specify Mode-1 for EXP12SX 1&1					
	M9S	EJV1		Both	Yes No
Specify Mode-1 for EXP12SX 2&2					
	M9S	EJV2		Both	Yes No
Specify Mode-2 for EXP12SX 2&2					
	M9S	EJV3		Both	Yes No
Specify Mode-2 for EXP12SX 4&2					
	M9S	EJV4		Both	Yes No
Specify Mode-4 for EXP12SX 4&2					
	M9S	EJV5		Both	Yes No
Specify Mode-2 for EXP12SX 1&2					
	M9S	EJV6		Both	Yes No
Specify Mode-2 for EXP12SX 2&2					
	M9S	EJV7		Both	Yes No
Specify Mode-2 for EXP12SX 1&1					
	M9S	EJVA		Both	Yes No
Specify Mode-2 for EXP12SX 2&1					
	M9S	EJVB		Both	Yes No
Specify Mode-4 for EXP12SX 1&1					
	M9S	EJVC		Both	Yes No
Specify Mode-4 for EXP12SX 2&1					
	M9S	EJVD		Both	Yes No
Specify Mode-4 for EXP12SX 3&2					
	M9S	EJVE		Both	Yes No
Specify Mode-1 for EXP12SX 2&2					
	M9S	EJVF		Both	Yes No
Specify Mode-1 for EXP24SX 1&1					
	M9S	EJW1		Both	Yes No
Specify Mode-1 for EXP24SX 2&2					
	M9S	EJW2		Both	Yes No
Specify Mode-2 for EXP24SX 2&2					
	M9S	EJW3		Both	Yes No
Specify Mode-2 for EXP24SX 4&2					
	M9S	EJW4		Both	Yes No
Specify Mode-4 for EXP24SX 4&2					
	M9S	EJW5		Both	Yes No
Specify Mode-2 for EXP24SX 1&2					
	M9S	EJW6		Both	Yes No
Specify Mode-2 for EXP24SX 2&2					
	M9S	EJW7		Both	Yes No

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Specify Mode-2 for EXP24SX 1&1
                        M9S     EJWA                    Both     Yes No
Specify Mode-2 for EXP24SX 2&1
                        M9S     EJWB                    Both     Yes No
Specify Mode-4 for EXP24SX 1&1
                        M9S     EJWC                    Both     Yes No
Specify Mode-4 for EXP24SX 2&1
                        M9S     EJWD                    Both     Yes No
Specify Mode-4 for EXP24SX 3&2
                        M9S     EJWE                    Both     Yes No
Specify Mode-1 for EXP24SX 2&2
                        M9S     EJWF                    Both     Yes No
Specify Mode-2 for EXP24SX 2&2
                        M9S     EJWG                    Both     Yes No
Specify Mode-2 for EXP24SX 2&1
                        M9S     EJWH                    Both     Yes No
Specify Mode-2 for EXP24SX 4&2
                        M9S     EJWJ                    Both     Yes No
Base proc act (20) for #EHC6
                        M9S     ELAU                    Both     No  No
Linux proc act for EFP1/EFP5
                        M9S     ELBK                    Both     Yes No
Linux proc act for EFP2/EFP6
                        M9S     ELBL                    Both     Yes No
Linux proc act for EFP3/EFP7
                        M9S     ELBM                    Both     Yes No
PowerVM for Linux Indicator
                        M9S     ELBN                    Both     Yes No
Linux proc act for EFP4/EFP8
                        M9S     ELBQ                    Both     Yes No
PDU Access Cord 0.38m
                        M9S     ELC0                    MES      Yes No
Power Cord - Drawer to PDU
                        M9S     ELC5                    Both     Yes No
512GB Linux Mem Act
                        M9S     ELMD                    Both     Yes No
ESDN Load Source Specify
                        M9S     ELSN                    MES      Yes No
ES0R Load Source Specify
                        M9S     ELSR                    MES      Yes No
ES0T Load Source Specify
                        M9S     ELST                    MES      Yes No
#ES81 Load Source Specify
                        M9S     ELT1                    MES      Yes No
#ESF2 Load Source Specify
                        M9S     ELT2                    Both     Yes No
#ES86 Load Source Specify
                        M9S     ELT6                    Both     Yes No
ES79 Load Source Specify
                        M9S     ELT9                    MES      Yes No
#ES8D Load Source Specify
                        M9S     ELTD                    Both     Yes No
ES7F Load Source Specify
                        M9S     ELTF                    MES      Yes No
#ES8G Load Source Specify
                        M9S     ELTG                    MES      Yes No
#ESFN Load Source Specify 571G
                        M9S     ELTN                    Both     Yes No
#ESFS Load Source Specify
                        M9S     ELTS                    Both     Yes No
#ESEU Load Source Specify
                        M9S     ELTU                    Both     Yes No
#ESEY Load Source Specify 283G
                        M9S     ELTY                    Both     Yes No
#ESNL Load Source Specify
                        M9S     ELUL                    Both     Yes No
#ESNQ Load Source Specify
                        M9S     ELUQ                    Both     Yes No
ESG6 Load Source Specify
                        M9S     ELZ6                    MES      Yes No
#ES97 Load Source Specify
                        M9S     ELZ7                    Both     Yes No
#ESE8 Load Source Specify
                        M9S     ELZ8                    Both     Yes No
```

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ESM9 Load Source Specify
                        M9S     ELZ9                    Both     Yes No
#ESGC Load Source Specify
                        M9S     ELZC                    Both     Yes No
ESGG Load Source Specify
                        M9S     ELZG                    MES      Yes No
ESHK Load Source Specify
                        M9S     ELZK                    Both     Yes No
#ESGL Load Source Specify
                        M9S     ELZL                    Both     Yes No
ESHM Load Source Specify
                        M9S     ELZM                    Both     Yes No
#ESGQ Load Source Specify
                        M9S     ELZQ                    Both     Yes No
#ES8Z Load Source Specify
                        M9S     ELZZ                    Both     Yes No
Active Mem exp enab M9S
                        M9S     EM89                    Both     Yes No
64GB (4X16GB) CDIMMs, 1600 MHz
                        M9S     EM8J                    Support  No  No
128GB (4X32GB) CDIMMs, 1600MHz
                        M9S     EM8K                    Support  No  No
256GB (4X64GB) CDIMMs, 1600MHz
                        M9S     EM8L                    Support  No  No
512GB (4X128GB) CDIMM, 1600MHz
                        M9S     EM8M                    Support  No  No
64 GB DDR4 Memory (4x16GB)
                        M9S     EM8U                    Support  No  No
128 GB DDR4 Memory (4x32GB)
                        M9S     EM8V                    Support  No  No
256 GB DDR4 Memory (4x64GB)
                        M9S     EM8W                    Support  No  No
512GB DDR4 Memory (4x128GB)
                        M9S     EM8X                    Support  No  No
1024GB (4X256GB) CDIMM,1600MHz
                        M9S     EM8Y                    Support  No  No
90 days Temp Elast Mem Enabl
                        M9S     EM9V                    MES      Yes No
100GB Mobile Enabled Mem Activ
                        M9S     EMAD                    Both     Yes No
100GB Mob Mem Act from P8
                        M9S     EMAR                    MES      Yes No
Base Mem Act (512) for EHC6
                        M9S     EMAS                    Both     No  No
1GB Memory activation M9S
                        M9S     EMAT                    Both     Yes No
100GB Memory activation M9S
                        M9S     EMAU                    Both     Yes No
100GB Mob Mem Act M9S/80H
                        M9S     EMAV                    MES      Yes No
100GB Mob Mem Act from P7
                        M9S     EMAY                    MES      Yes No
Bundle of 8 #EM8M 512GB Memory
                        M9S     EMB6                    Support  No  No
Memory Act for #EMB6/#EMBA
                        M9S     EMB7                    Support  Yes No
Bundle of 8 #EM8Y 1024 Memory
                        M9S     EMBA                    Support  No  No
Static to Mobile Memory Auto
                        M9S     EME0                    MES      Yes No
PCIe Gen3 I/O Expansion Drawer
                        M9S     EMX0                    Both     Yes No
AC Power Supply Conduit
                        M9S     EMXA                    Both     Yes No
PCIe3 6-Slot Fanout Module
                        M9S     EMXF                    Support  Yes No
PCIe3 6-Slot Fanout Module
                        M9S     EMXG                    Both     No
1m 10GbE Cable SFP+ Act Twinax
                        M9S     EN01                    Both     Yes No
3m 10GbE Cable SFP+ Act Twinax
                        M9S     EN02                    Both     Yes No
5m 10GbE Cable SFP+ Act Twinax
                        M9S     EN03                    Both     Yes No
```

PCIe3 16Gb 2-port Fibre Channe				
	M9S	EN0A	Both	Yes No
PCIe3 LP 16Gb 2-port Fibre Cha				
	M9S	EN0B	Both	Yes No
PICe3 4-port 10Gb FCoE & 1GbE				
	M9S	EN0H	Both	Yes No
PCIe3 LP 4-port 10GB FCoE & 1G				
	M9S	EN0J	Both	Yes No
PCIe3 4-port 10GB FCoE & 1GbE				
	M9S	EN0K	Both	Yes No
PCIe3 LP 4-port 10GB FCoE &1GE				
	M9S	EN0L	Both	Yes No
PCIe2 4-pt(10+1 GbE)SR+RJ45				
	M9S	EN0S	Both	Yes No
PCIe2 LP4-pt(10+1 GbE)SR+RJ45				
	M9S	EN0T	Both	Yes No
PCIe2 4-pt(10+1GbE)CRSR+RJ45				
	M9S	EN0U	Both	Yes No
PCIe2 LP4-pt(10+1GbE)CRSR+RJ45				
	M9S	EN0V	Both	Yes No
PCIe2 2-pt 10/1GbE BaseT RJ45				
	M9S	EN0W	Both	Yes No
PCIe2 LP2-pt10/1GbE BaseT RJ45				
	M9S	EN0X	Both	Yes No
PCIe 1-port Bisync Adapter				
	M9S	EN13	Support	Yes No
PCIe3 4-port 10GbE SR Adapter				
	M9S	EN15	Both	Yes No
PCIe3 LPX 4-port 10GbE SR Adap				
	M9S	EN16	Both	Yes No
PCIe3 32Gb 2-port FC Adapter				
	M9S	EN1A	Both	Yes No
PCIe3 LP 32Gb 2-port FC Adap				
	M9S	EN1B	Both	Yes No
PCIe3 16Gb 4-port FC Adapter				
	M9S	EN1C	Both	Yes No
PCIe3 LP 16Gb 4-port FC Adap				
	M9S	EN1D	Both	Yes No
Mob Proc Act upgrade from P8				
	M9S	EP2W	MES	Yes No
90 Days Elastic CoDProc Enable				
	M9S	EP9T	MES	Yes
Pwr Ent IaaS offer Indicator				
	M9S	EPCS	Both	Yes No
Static to Mobile Processor Aut				
	M9S	EPE0	MES	Yes No
1 Elastic Proc-day #EPBB, AIXL				
	M9S	EPJC	Both	Yes No
1 Elastic Proc-day #EPBB, IBMi				
	M9S	EPJD	Both	Yes No
100 Elastic Prc-day #EPBB AIXL				
	M9S	EPJE	Both	Yes No
100 Elastic Prc-day #EPBB IBMi				
	M9S	EPJF	Both	Yes No
100 CoD Utl mins, #EPBB, AIXL				
	M9S	EPJG	Both	Yes No
100 CoD Utl mins, #EPBB, IBMi				
	M9S	EPJH	Both	Yes No
1 Elastic Proc-day #EPBD, AIXL				
	M9S	EPJQ	Both	Yes No
1 Elastic Proc-day #EPBD, IBMi				
	M9S	EPJR	Both	Yes No
100 Elastic Prc-day #EPBD AIXL				
	M9S	EPJS	Both	Yes No
100 Elastic Prc-day #EPBD IBMi				
	M9S	EPJT	Both	Yes No
100 CoD Utl mins, #EPBD, AIXL				
	M9S	EPJU	Both	Yes No
100 CoD Utl mins, #EPBD, IBMi				
	M9S	EPJV	Both	Yes No
1 Elastic Proc-day #EPBS, AIXL				
	M9S	EPKL	Both	Yes No
1 Elastic Proc-day #EPBS, IBMi				
	M9S	EPKM	Both	Yes No

100 Elastic Prc-day #EPBS AIXL	M9S	EPKN	Both	Yes No
100 Elastic Prc-day #EPBS IBMi	M9S	EPKP	Both	Yes No
100 CoD Utl mins, #EPBS, AIXL	M9S	EPKQ	Both	Yes No
100 CoD Utl mins, #EPBS, IBMi	M9S	EPKR	Both	Yes No
1 Elast Proc-day EFP4/EFP8	M9S	EPKU	Both	Yes No
1 Elast Proc-day EFP4, IBMi	M9S	EPKV	Both	Yes No
100 ECoD Proc-day EFP4/EFP8	M9S	EPKW	Both	Yes No
100 ECoD Proc-day EFP4, IBMi	M9S	EPKX	Both	Yes No
100 ECoD Proc-min EFP4/EFP8	M9S	EPKY	Both	Yes No
100 ECoD Proc-min EFP4, IBMi	M9S	EPKZ	Both	Yes No
Horizontal PDU Mounting Hardwr	M9S	EPTH	Both	Yes No
High Function 9xC19 PDU	M9S	EPTJ	Both	Yes No
High Function 9xC19 PDU 3Phase	M9S	EPTL	Both	Yes No
High Function 12xC13 PDU	M9S	EPTN	Both	Yes No
High Function 12xC13 PDU 3-Phs	M9S	EPTQ	Both	Yes No
Qty 150 of ES0Q 387GB 4k SSD	M9S	EQ0Q	Support	Yes No
Qty 150 of ES0R 387GB 4k SSD	M9S	EQ0R	Support	Yes No
QTY 150 of ES0S 775GB 4k SSD	M9S	EQ0S	Support	Yes No
Qty 150 of ES0T 775GB 4k SSD	M9S	EQ0T	Support	Yes No
Qty 150 #ES62 3.86TB LFF Dsk	M9S	EQ62	Both	Yes No
Qty 150 #ES64 7.72TB LFF Dsk	M9S	EQ64	Both	Yes No
Qty 150 #ES78 SSD 387GB 5xx	M9S	EQ78	Support	Yes No
Qty 150 ES79 SSD 387GB 5xx	M9S	EQ79	Support	Yes No
Qty 150 #ES7E SSD 775GB 5xx	M9S	EQ7E	Support	Yes No
Qty 150 ES7F SSD 775GB 5xx	M9S	EQ7F	Support	Yes No
Quantity 150 of ES80 1.9TB SSD	M9S	EQ80	Support	Yes No
Quantity 150 of ES81 1.9TB SSD	M9S	EQ81	Support	Yes No
Qty 150 #ES85 SSD 387GB 4k	M9S	EQ85	Support	Yes No
Qty 150 #ES86 SSD 387GB 4k	M9S	EQ86	Support	Yes No
Qty 150 #ES8C SSD 775GB 4k	M9S	EQ8C	Support	Yes No
Qty 150 #ES8D SSD 775GB 4k	M9S	EQ8D	Support	Yes No
Qty 150 #ES8F SSD 1.55TB 4k	M9S	EQ8F	Support	Yes No
Qty 150 #ES8G SSD 1.55TB 4k	M9S	EQ8G	Support	Yes No
Quantity 150 of ES8Y 931GB	M9S	EQ8Y	Both	Yes No
Quantity 150 of ES8Z 931GB	M9S	EQ8Z	Both	Yes No
Quantity 150 of ES96 1.86TB	M9S	EQ96	Both	Yes No
Quantity 150 of ES97 1.86TB	M9S	EQ97	Both	Yes No

Quantity 150 ESD2 1.1TB Disk	M9S	EQD2	Support	Yes	No
Quantity 150 ESD3 1.2TB Disk	M9S	EQD3	Support	Yes	No
Qty150 of ESDN 571GB 15k HDD	M9S	EQDN	Support	Yes	No
Qty150 of ESDP 600GB 15k HDD	M9S	EQDP	Support	Yes	No
Quantity 150 of #ESE7 3.72TB	M9S	EQE7	Both	Yes	No
Quantity 150 of ESE8 3.72TB	M9S	EQE8	Both	Yes	No
Quantity 150 of #ESEU 571GB	M9S	EQEU	MES	Yes	No
Quantity 150 of #ESEV 600GB	M9S	EQEV	Both	Yes	No
Quantity 150 of #ESEY 283 GB S	M9S	EQEY	MES	Yes	No
Quantity 150 of #ESEZ 300GB	M9S	EQEZ	Both	Yes	No
Quantity 150 of #ESF2 1.2TB	M9S	EQF2	MES	Yes	No
Quantity 150 of #ESF3 1.2TB	M9S	EQF3	Both	Yes	No
Quantity 150 of #ESFN 571GB	M9S	EQFN	MES	Yes	No
Quantity 150 of #ESFP 600GB	M9S	EQFP	Both	Yes	No
Quantity 150 of #ESFS 1.7TB	M9S	EQFS	MES	Yes	No
Quantity 150 of #ESFT 1.8TB	M9S	EQFT	Both	Yes	No
Quantity 150 of #ESG5	M9S	EQG5	Both	Yes	No
Quantity 150 of ESG6	M9S	EQG6	Support	Yes	No
Quantity 150 of #ESGB	M9S	EQGB	Both	Yes	No
Quantity 150 of #ESGC	M9S	EQGC	Both	Yes	No
Quantity 150 of #ESGF	M9S	EQGF	Both	Yes	No
Quantity 150 of ESGG	M9S	EQGG	Support	Yes	No
Quantity 150 of #ESGK	M9S	EQGK	Both	Yes	No
Quantity 150 of #ESGL	M9S	EQGL	Both	Yes	No
Quantity 150 of #ESGP	M9S	EQGP	Both	Yes	No
Quantity 150 of #ESGQ	M9S	EQGQ	Both	Yes	No
42U Slim Rack	M9S	ER05	MES	Yes	No
Indicator, reserve 5 EIA	M9S	ER16	Both	Yes	No
Specify Reserve 4 EIA Space	M9S	ER1A	Initial	N/A	No
Field Integration: Rack-Server	M9S	ER21	Both	Yes	No
RFID Tags for Compute Nodes	M9S	ERF1	Initial	N/A	No
Rear rack extension	M9S	ERG0	MES	Yes	No
Origami Front Door 2m Rack	M9S	ERG7	MES	Yes	No
Acoustic Black Front Door	M9S	ERGB	MES	Yes	No
Quantity 150 of ESHJ	M9S	ERHJ	Both	Yes	No
Quantity 150 of ESHK	M9S	ERHK	Both	Yes	No
Quantity 150 of ESHL	M9S	ERHL	Both	Yes	No

Quantity 150 of ESHM	M9S	ERHM	Both	Yes No
Quantity 150 of ESHN	M9S	ERHN	Both	Yes No
Quantity 150 of ESM8	M9S	ERM8	Both	Yes No
Quantity 150 of ESM9	M9S	ERM9	Both	Yes No
387GB SFF-2 4k SSD AIX/Linux	M9S	ES0Q	Support	Yes No
387GB SFF-2 4k SSD for IBM i	M9S	ES0R	Support	Yes No
775GB SFF-2 4k SSD AIX/Linux	M9S	ES0S	Support	Yes No
775GB SFF-2 4k SSD for IBM i	M9S	ES0T	Support	Yes No
3.86TB 7200 RPM SAS LFF Disk	M9S	ES62	Both	Yes No
7.72TB 7200 RPM SAS LFF Disk	M9S	ES64	Both	Yes No
387GB SFF-2 SSD 5xx for AIX/L	M9S	ES78	Support	Yes No
387GB SFF-2 SSD 5xx for IBM i	M9S	ES79	Support	Yes No
775GB SFF-2 SSD 5xx for AIX/L	M9S	ES7E	Support	Yes No
775GB SFF-2 SSD 5xx for IBM i	M9S	ES7F	Support	Yes No
1.9TB RI SAS 4k SFF-2 SSD AIX	M9S	ES80	Support	Yes No
1.9TB RI SAS 4k SFF-2 SSD IBM	M9S	ES81	Support	Yes No
387GB SFF-2 SSD 4k for AIX/Li	M9S	ES85	Support	Yes No
387GB SFF-2 SSD 4k for IBM i	M9S	ES86	Support	Yes No
775GB SFF-2 SSD 4k for AIX/Li	M9S	ES8C	Support	Yes No
775GB SFF-2 SSD 4k for IBM i	M9S	ES8D	Support	Yes No
1.55TB SFF-2 SSD 4k for AIX/L	M9S	ES8F	Support	Yes No
1.55TB SFF-2 SSD 4k for IBM i	M9S	ES8G	Support	Yes No
931GB Mainstream SAS 4k SSD	M9S	ES8Y	Both	Yes No
931GB Mainstream SAS 4k SSD	M9S	ES8Z	Both	Yes No
1.86TB Mainstream SAS 4k SSD	M9S	ES96	Both	Yes No
1.86TB Mainstream SAS 4k SSD	M9S	ES97	Both	Yes No
S&H - No Charge	M9S	ESC0	Both	N/A No
S&H	M9S	ESC9	Both	Yes No
1.1TB 10K RPM SAS SFF-2 Disk	M9S	ESD2	Support	Yes No
1.2TB 10K RPM SAS SFF-2 (AIX/	M9S	ESD3	Support	Yes No
571GB 15k SAS SFF-2 Disk Drive	M9S	ESDN	Support	Yes No
600GB 15k SAS SFF-2 Disk Drive	M9S	ESDP	Support	Yes No
3.72TB Mainstream SAS 4k SSD	M9S	ESE7	Both	Yes No
3.72TB Mainstream SAS 4k SSD	M9S	ESE8	Both	Yes No
571GB 10K RPM SFF-2 Disk 4K	M9S	ESEU	Both	Yes No
600GB 10K RPM SFF-2 Disk 4K	M9S	ESEV	Both	Yes No
283GB 15K SAS SFF-2 4K BLK HDD	M9S	ESEY	Both	Yes No

300GB 15K SAS SFF-2 4K BLK HDD					
	M9S	ESEZ	Both	Yes	No
1.1TB 10K RPM SFF-2 Disk 4K					
	M9S	ESF2	Both	Yes	No
1.2TB 10K RPM SFF-2 Disk 4K					
	M9S	ESF3	Both	Yes	No
571GB 15K SAS SFF-2 4K BLK HDD					
	M9S	ESFN	Both	Yes	No
600GB 15K SAS SFF-2 4K BLK HDD					
	M9S	ESFP	Both	Yes	No
1.7TB 10K RPM SFF-2 Disk 4K					
	M9S	ESFS	Both	Yes	No
1.8TB 10K RPM SFF-2 Disk 4K					
	M9S	ESFT	Both	Yes	No
387GB Enterprise SAS 5xx SSD					
	M9S	ESG5	Both	Yes	No
387GB Enterprise SAS 5xx SSD					
	M9S	ESG6	Support	Yes	No
387GB Enterprise SAS 4k SSD					
	M9S	ESGB	Both	Yes	No
387GB Enterprise SAS 4k SSD					
	M9S	ESGC	Both	Yes	No
775GB Enterprise SAS 5xx SSD					
	M9S	ESGF	Both	Yes	No
775GB Enterprise SAS 5xx SSD					
	M9S	ESGG	Support	Yes	No
775GB Enterprise SAS 4k SSD					
	M9S	ESGK	Both	Yes	No
775GB Enterprise SAS 4k SSD					
	M9S	ESGL	Both	Yes	No
1.55TB Enterprise SAS 4k SSD					
	M9S	ESGP	Both	Yes	No
1.55TB Enterprise SAS 4k SSD					
	M9S	ESGQ	Both	Yes	No
931GB Mainstream SAS 4k SSD					
	M9S	ESHJ	Both	Yes	No
931GB Mainstream SAS 4k SSD					
	M9S	ESHK	Both	Yes	No
1.86TB Mainstream SAS 4k SSD					
	M9S	ESHL	Both	Yes	No
1.86TB Mainstream SAS 4k SSD					
	M9S	ESHM	Both	Yes	No
7.45TB Mainstream SAS 4k SSD					
	M9S	ESHN	Both	Yes	No
Specify AC Power Supply					
	M9S	ESLA	Both	Yes	No
EXP12SX SAS Storage Enclosure					
	M9S	ESLL	Both	Yes	No
EXP24SX SAS Storage Enclosure					
	M9S	ESLS	Both	Yes	No
3.72TB Mainstream SAS 4k SSD					
	M9S	ESM8	Both	Yes	No
3.72TB Mainstream SAS 4k SSD					
	M9S	ESM9	Both	Yes	No
283GB 15K SAS SFF-2 4K HDD					
	M9S	ESNL	Both	Yes	No
300GB 15K SAS SFF-2 4k HDD					
	M9S	ESNM	Both	Yes	No
571GB 15K SAS SFF-2 4K HDD					
	M9S	ESNQ	Both	Yes	No
600GB 15K SAS SFF-2 4k HDD					
	M9S	ESNR	Both	Yes	No
1024 GB DDR4 Mem T SAP HANA					
	M9S	ESP9	Support	No	No
512 GB DDR4 Mem T SAP HANA					
	M9S	ESPB	Support	No	No
Quantity 150 of #ESNL 283GB					
	M9S	ESPL	Both	Yes	No
Quantity 150 of #ESNM 300GB					
	M9S	ESPM	Both	Yes	No
Quantity 150 of #ESNQ 571GB					
	M9S	ESPQ	Both	Yes	No
Quantity 150 of #ESNR 600GB					
	M9S	ESPR	Both	Yes	No

```
1TB Removable Disk Cartridge
                        M9S     EU01                    Both     Yes No
RDX USB External Docking
                        M9S     EU04                    Both     Yes No
RDX 320 GB Removable Disk Driv
                        M9S     EU08                    Support  Yes No
1.5TB Removable Disk Cartridge
                        M9S     EU15                    Support  Yes No
2TB Removable Disk Cartrdg-RDX
                        M9S     EU2T                    Both     Yes No
RDX USB External Docking Sta
                        M9S     EUA4                    Both     Yes No
Standalone USB DVD drive w/c
                        M9S     EUA5                    Both     Yes No
Core Use HW Feature
                        M9S     EUC6                    MES      Yes No
Core Use HW Feature 10
                        M9S     EUC7                    MES      Yes No
5000 Cloud Reward Points
                        M9S     SVPC                    Both     Yes No
```

CSU = Customer setup

RP MES = Return parts, miscellaneous equipment specifications

Type/Model conversions

```
From          To          Parts    Purchase
Type   Model  Type   Model  returned price

9080    MHE   9080    M9S
9080    MME   9080    M9S
9119    MHE   9080    M9S
9119    MME   9080    M9S
```

The following are newly announced features on the specific models of the Power Systems 7014 and 7965 machine type:

```
Minimum Initial/
                                                Monthly MES/
Description          Model  Feature Purchase Maint.  Both/        RP
Machine type 7014    number number  price    Charge  Support  CSU MES
Rack Specify 9080 -7EIA
                        T42     ER40                    Initial  N/A
Rack Specify 9080 -12EIA
                        T42     ER41                    Initial  N/A
Rack Specify 9080 -17EIA
                        T42     ER42                    Initial  N/A
Rack Specify 9080 -22EIA
                        T42     ER43                    Initial  N/A
Minimum Initial/
                                                Monthly MES/
Description          Model  Feature Purchase Maint.  Both/        RP
Machine type 7965    number number  price    Charge  Support  CSU MES
Rack Specify 9080 -7EIA
                        S42     ER40                    Initial  N/A No
Rack Specify 9080 -12EIA
                        S42     ER41                    Initial  N/A No
Rack Specify 9080 -17EIA
                        S42     ER42                    Initial  N/A No
Rack Specify 9080 -22EIA
                        S42     ER43                    Initial  N/A No
```

Feature conversions

Feature conversions for 9080-M9S memory features:

```
Parts    Purchase
From FC:                To FC:                    returned price

EFA1 - 1 GB Memory      EMAT - 1 GB Memory        No
Activation (Upgrade from  activation for M9S
P8)
EFA2 - 100 GB Memory    EMAU - 100 GB Memory      No
Activation (Upgrade from  activation for M9S
P8)
```

Feature conversions for 9080-MHE to 9080-M9S memory features:

Parts From FC:	To FC:	Purchase returned price
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
ESPB - 512 GB (4X128 GB) CDIMM, 1600MHz, DDR4 DRAM Tall for SAP HANA	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes

EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
ESP9 - 1024 GB (4X256 GB) CDIMM, 1600MHz, DDR4 DRAM Tall for SAP HANA	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
ESPB - 512 GB (4X128 GB) CDIMM, 1600MHz, DDR4 DRAM Tall for SAP HANA	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
ESP9 - 1024 GB (4X256 GB) CDIMM, 1600MHz, DDR4 DRAM Tall for SAP HANA	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
ESPB - 512 GB (4X128 GB) CDIMM, 1600MHz, DDR4 DRAM Tall for SAP HANA	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EMA6 - Quantity of 100 1GB Memory Activations (#EMA5)	EFA2 - 100 GB Memory Activation (Upgrade from P8)	No
ESPC - Quantity of 100 1GB Memory activation for SAP HANA	EFA2 - 100 GB Memory Activation (Upgrade from P8)	No
EMB8 - Five Hundred and Twelve Memory Activations for IFL	ELMD - 512 GB Power Linux Memory Activations for M9S/80H	No
EM82 - ACTIVE MEMORY EXPANSION ENABLEMENT	EM89 - Active Memory expansion enablement for M9S	No
EMA9 - 100 GB Mobile Enabled Memory Activations	EMAD - 100 GB Mobile Enabled Memory Activations	No
EMA7 - 100 GB Mobile Memory Activations	EMAR - 100 GB Mobile Memory Activation (Upgrade from P8	No
EMAL - BASE MEMORY ACTIVATION (512GB) FOR #EHC2 or #EHC5	EMAS - Base Memory activation (512) for #EHC6	No
EMAF - 100 GB Mobile Memory Activation (Upgrade from P7)	EMAY - 100 GB Mobile Memory activation for M9S/80H (Upgrade from P7)	No

Feature conversions for 9080-MHE to 9080-M9S miscellaneous features:

Parts From FC:	Purchase To FC:	returned price
EB3J - CBU for Power Enterprise Systems specify	EFB0 - CBU server specify	Yes

Feature conversions for 9080-MHE to 9080-M9S processor features:

Parts	Purchase

From FC:	To FC:	returned price
EB2R - Single 5250 Enterprise Enablement	EF2R - Single 5250 Enterprise Enablement	Yes
EB30 - Full 5250 Enterprise Enablement	EF30 - Full 5250 Enterprise Enablement	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor	Yes

	with 5U system node drawer	
EPBS - 4.19GHz, 40-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
ESP2 - 48-core 4.02 GHz POWER8 processor module for SAP HANA	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
ESP3 - 40-core 4.19 GHz POWER8 processor module for SAP HANA	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBS - 4.19GHz, 40-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
ESP2 - 48-core 4.02 GHz POWER8 processor module for SAP HANA	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
ESP3 - 40-core 4.19 GHz POWER8 processor module for SAP HANA	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBS - 4.19GHz, 40-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
ESP2 - 48-core 4.02 GHz POWER8 processor module for SAP HANA	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
ESP3 - 40-core 4.19 GHz POWER8 processor module for SAP HANA	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz	Yes

	(max) POWER9 Processor with 5U system node drawer	
EPBS - 4.19GHz, 40-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
ESP2 - 48-core 4.02 GHz POWER8 processor module for SAP HANA	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
ESP3 - 40-core 4.19 GHz POWER8 processor module for SAP HANA	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFP9 - 1 core Processor Activation for #EFP4	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFP9 - 1 core Processor Activation for #EFP4	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFP9 - 1 core Processor Activation for #EFP4	No
ESP4 - 1 core processor activation for ESP2	EFP9 - 1 core Processor Activation for #EFP4	No
ESP6 - 1 core processor activation for ESP3	EFP9 - 1 core Processor Activation for #EFP4	No
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFPA - 1 core Processor Activation for #EFP1	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPA - 1 core Processor Activation for #EFP1	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPA - 1 core Processor Activation for #EFP1	No
ESP4 - 1 core processor activation for ESP2	EFPA - 1 core Processor Activation for #EFP1	No
ESP6 - 1 core processor activation for ESP3	EFPA - 1 core Processor Activation for #EFP1	No
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
ESP4 - 1 core processor activation for ESP2	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
ESP6 - 1 core processor activation for ESP3	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFPC - 1 core Processor Activation for #EFP3	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPC - 1 core Processor Activation for #EFP3	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPC - 1 core Processor Activation for #EFP3	No
ESP4 - 1 core processor activation for ESP2	EFPC - 1 core Processor Activation for #EFP3	No
ESP6 - 1 core processor activation for ESP3	EFPC - 1 core Processor Activation for #EFP3	No
EPBP - 1 core Mobile-enabled Processor	EFPE - 1 core Mobile-enabled Processor	No

Activation for #EPBB or #EPBG	Activation for #EFP1/ #EFP5	
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/ #EFP5	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/ #EFP5	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/ #EFP6	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/ #EFP6	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/ #EFP6	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/ #EFP7	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/ #EFP7	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/ #EFP7	No
EP2V - 1-Core Mobile Activation from Power 7	EFPH - Mobile processor activation for M9S (Upgrade from P7)	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/ #EFP8	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/ #EFP8	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/ #EFP8	No
EHC5 - Solution Edition for Healthcare 4.19GHZ, 40-core Processor	EHC6 - Solution Edition for Healthcare typical 3.7 to 3.9 GHZ, 40-core Processor with 5U system node drawer	No
ELAT - BASE PROCESSOR ACTIVATION (20) FOR #EHC5	ELAU - Base processor activation (20) for #EHC6	No
EP2T - 1-Core Mobile Activation	EP2W - Mobile Processor activation M9S/80H (Upgrade from P8)	No

Feature conversions for 9080-MME to 9080-M9S memory features:

Parts From FC:	Purchase To FC:	returned price
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8V - 128 GB DDR4	EF20 - 128GB DDR4 Memory	Yes

Memory (4x32GB CDIMMs)	(4X32GB) CDIMMs	
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8V - 128 GB DDR4	EF24 - 2048GB DDR4	Yes

Memory (4x32GB CDIMMs) EM8W - 256 GB DDR4	Memory (4X512GB) CDIMMs EF24 - 2048GB DDR4	Yes
Memory (4x64GB CDIMMs) EM8X - 512 GB DDR4	Memory (4X512GB) CDIMMs EF24 - 2048GB DDR4	Yes
Memory (4x128GB CDIMMs) EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	Memory (4X512GB) CDIMMs EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EMA5 - 1GB Memory Activation	EFA1 - 1 GB Memory Activation (Upgrade from P8)	No
EMA6 - Quantity of 100 1GB Memory Activations (#EMA5)	EFA2 - 100 GB Memory Activation (Upgrade from P8)	No
EMB8 - Five Hundred and Twelve Memory Activations for IFL	ELMD - 512 GB Power Linux Memory Activations for M9S/80H	No
EM82 - ACTIVE MEMORY EXPANSION ENABLEMENT	EM89 - Active Memory expansion enablement for M9S	No
EMA9 - 100 GB Mobile Enabled Memory Activations	EMAD - 100 GB Mobile Enabled Memory Activations	No
EMA7 - 100 GB Mobile Memory Activations	EMAR - 100 GB Mobile Memory Activation (Upgrade from P8	No
EMAF - 100 GB Mobile Memory Activation (Upgrade from P7)	EMAY - 100 GB Mobile Memory activation for M9S/80H (Upgrade from P7)	No

Feature conversions for 9080-MME to 9080-M9S miscellaneous features:

Parts From FC:	Purchase To FC:	returned price
EB3K - CBU for PowerHA Specify	EFB0 - CBU server specify	Yes

Feature conversions for 9080-MME to 9080-M9S processor features:

Parts From FC:	Purchase To FC:	returned price
EB2R - Single 5250 Enterprise Enablement	EF2R - Single 5250 Enterprise Enablement	Yes
EB30 - Full 5250 Enterprise Enablement	EF30 - Full 5250 Enterprise Enablement	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor	Yes

	with 5U system node drawer	
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFP9 - 1 core Processor Activation for #EFP4	No
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPA - 1 core Processor Activation for #EFP1	No
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPC - 1 core Processor Activation for #EFP3	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/ #EFP5	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/ #EFP6	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/ #EFP7	No
EP2U - 1-Core Mobile Activation from Power 7	EFPH - Mobile processor activation for M9S (Upgrade from P7)	No
EP2S - 1-Core Mobile Activation	EP2W - Mobile Processor activation M9S/80H (Upgrade from P8)	No

Feature conversions for 9119-MHE to 9080-M9S memory features:

Parts From FC:	Purchase To FC:	returned price
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8J - 64GB (4X16GB)	EF22 - 512GB DDR4 Memory	Yes

CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	(4X128GB) CDIMMs	
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EMA6 - Quantity of 100 1GB Memory Activations (#EMA5)	EFA2 - 100 GB Memory Activation (Upgrade from P8)	No
EMB8 - Five Hundred and Twelve Memory Activations for IFL	ELMD - 512 GB Power Linux Memory Activations for M9S/80H	No
EM82 - ACTIVE MEMORY EXPANSION ENABLEMENT	EM89 - Active Memory expansion enablement for M9S	No

EMA9 - 100 GB Mobile Enabled Memory Activations	EMAD - 100 GB Mobile Enabled Memory Activations	No
EMA7 - 100 GB Mobile Memory Activations	EMAR - 100 GB Mobile Memory Activation (Upgrade from P8	No
EMAF - 100 GB Mobile Memory Activation (Upgrade from P7)	EMAY - 100 GB Mobile Memory activation for M9S/80H (Upgrade from P7)	No

Feature conversions for 9119-MHE to 9080-M9S miscellaneous features:

Parts From FC:	Purchase To FC:	returned price
EB3J - CBU for Power Enterprise Systems specify	EFB0 - CBU server specify	Yes

Feature conversions for 9119-MHE to 9080-M9S processor features:

Parts From FC:	Purchase To FC:	returned price
EB2R - Single 5250 Enterprise Enablement	EF2R - Single 5250 Enterprise Enablement	Yes
EB30 - Full 5250 Enterprise Enablement	EF30 - Full 5250 Enterprise Enablement	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35	EFB4 - CBU for Power Enterprise Systems	Yes

GHz, 32-core POWER8 processor	Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBS - 4.19GHz, 40-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBS - 4.19GHz, 40-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBS - 4.19GHz, 40-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBS - 4.19GHz, 40-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBK - 1 core Processor	EFP9 - 1 core Processor	No

Activation for #EPBB or #EPBG	Activation for #EFP4	
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFP9 - 1 core Processor Activation for #EFP4	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFP9 - 1 core Processor Activation for #EFP4	No
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFPA - 1 core Processor Activation for #EFP1	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPA - 1 core Processor Activation for #EFP1	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPA - 1 core Processor Activation for #EFP1	No
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFPC - 1 core Processor Activation for #EFP3	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPC - 1 core Processor Activation for #EFP3	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPC - 1 core Processor Activation for #EFP3	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/ #EFP5	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/ #EFP5	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/ #EFP5	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/ #EFP6	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/ #EFP6	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/ #EFP6	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/ #EFP7	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/ #EFP7	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/ #EFP7	No
EP2V - 1-Core Mobile Activation from Power 7	EFPH - Mobile processor activation for M9S (Upgrade from P7)	No

EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/ #EFP8	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/ #EFP8	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/ #EFP8	No
EP2T - 1-Core Mobile Activation	EP2W - Mobile Processor activation M9S/80H (Upgrade from P8)	No

Feature conversions for 9119-MME to 9080-M9S memory features:

Parts From FC:	To FC:	Purchase returned price
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes

DDR3 DRAM		
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EMA5 - 1GB Memory Activation	EFA1 - 1 GB Memory Activation (Upgrade from P8)	No
EMA6 - Quantity of 100 1GB Memory Activations (#EMA5)	EFA2 - 100 GB Memory Activation (Upgrade from P8)	No
EMB8 - Five Hundred and Twelve Memory Activations for IFL	ELMD - 512 GB Power Linux Memory Activations for M9S/80H	No
EM82 - ACTIVE MEMORY EXPANSION ENABLEMENT	EM89 - Active Memory expansion enablement for M9S	No
EMA9 - 100 GB Mobile Enabled Memory Activations	EMAD - 100 GB Mobile Enabled Memory Activations	No
EMA7 - 100 GB Mobile Memory Activations	EMAR - 100 GB Mobile Memory Activation (Upgrade from P8	No
EMAL - BASE MEMORY ACTIVATION (512GB) FOR #EHC2 or #EHC5	EMAS - Base Memory activation (512) for #EHC6	No
EMAF - 100 GB Mobile Memory Activation (Upgrade from P7)	EMAY - 100 GB Mobile Memory activation for M9S/80H (Upgrade from P7)	No

Feature conversions for 9119-MME to 9080-M9S miscellaneous features:

Parts From FC:	Purchase To FC:	returned price
EB3K - CBU for PowerHA Specify	EFB0 - CBU server specify	Yes

Feature conversions for 9119-MME to 9080-M9S processor features:

Parts From FC:	Purchase To FC:	returned price

EB2R - Single 5250 Enterprise Enablement	EF2R - Single 5250 Enterprise Enablement	Yes
EB30 - Full 5250 Enterprise Enablement	EF30 - Full 5250 Enterprise Enablement	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBX - CBU for Power Enterprise Systems 4.19 GHz, 40-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems Typical 3.9 to 4.0 GHz (max), 32-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes
EPBX - CBU for Power Enterprise Systems 4.19 GHz, 40-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems Typical 3.7 to 3.9 GHz (max), 40-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBX - CBU for Power Enterprise Systems 4.19 GHz, 40-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems Typical 3.55 to 3.9 GHz (max), 48-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	Yes
EPBX - CBU for Power Enterprise Systems 4.19 GHz, 40-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems Typical 3.58 to 3.9 GHz (max), 44-core POWER9 processor	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBC - 4.19 GHz, 40-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBC - 4.19 GHz, 40-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBC - 4.19 GHz, 40-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.9 GHz (max) POWER9 Processor with 5U system node	Yes

	drawer	
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBC - 4.19 GHz, 40-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFP9 - 1 core Processor Activation for #EFP4	No
EPBL - 1 core Processor Activation for #EPBC or #EHC2 or #EPBX	EFP9 - 1 core Processor Activation for #EFP4	No
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPA - 1 core Processor Activation for #EFP1	No
EPBL - 1 core Processor Activation for #EPBC or #EHC2 or #EPBX	EFPA - 1 core Processor Activation for #EFP1	No
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBL - 1 core Processor Activation for #EPBC or #EHC2 or #EPBX	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPC - 1 core Processor Activation for #EFP3	No
EPBL - 1 core Processor Activation for #EPBC or #EHC2 or #EPBX	EFPC - 1 core Processor Activation for #EFP3	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/ #EFP5	No
EPBQ - 1 core Mobile Enabled Processor Activation for #EPBC or #EPBX	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/ #EFP5	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/ #EFP6	No
EPBQ - 1 core Mobile Enabled Processor Activation for #EPBC or #EPBX	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/ #EFP6	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/ #EFP7	No
EPBQ - 1 core Mobile Enabled Processor Activation for #EPBC or #EPBX	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/ #EFP7	No
EP2U - 1-Core Mobile Activation from Power 7	EFPH - Mobile processor activation for M9S (Upgrade from P7)	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/ #EFP8	No
EPBQ - 1 core Mobile Enabled Processor Activation for #EPBC or #EPBX	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/ #EFP8	No
EHC2 - Solution Edition for Healthcare 4.19GHZ, 40-core Processor	EHC6 - Solution Edition for Healthcare typical 3.7 to 3.9 GHZ, 40-core Processor with 5U system	No

```
                          node drawer
ELAL - BASE PROCESSOR     ELAU - Base processor     No
ACTIVATION (20) FOR #EHC2 activation (20) for #EHC6
EP2S - 1-Core Mobile      EP2W - Mobile Processor   No
Activation                activation M9S/80H
                          (Upgrade from P8)
```

Pricing terms

Prices in the following PDF prices link are suggested list prices on day of announcement for the U.S. only. They are provided for your information only. Dealer prices may vary, and prices may also vary by country. IBM list price does not include tax or shipping and is subject to change without notice.

ENUS-118-059-LIST_PRICES_2018_08_07.PDF

Annual minimum maintenance charges

Not applicable.

ServiceElect (ESA) charges

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

Model conversion purchase price

Machine Type-Model		Parts returned	Model conversion purchase price[7]
From	To		
9080-MME	9080-M9S	Yes	
9080-MHE	9080-M9S	Yes	

[7] Parts removed or replaced become the property of IBM and must be returned.

Feature conversion purchase price

Type/Model conversions

```
From       To
Type Model Type Model

9080  MHE  9080  M9S
9080  MME  9080  M9S
9119  MHE  9080  M9S
9119  MME  9080  M9S
```

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 9080-M9S memory features:

```
Return
From FC:                    To FC:                      parts
EFA1 - 1 GB Memory          EMAT - 1 GB Memory          No
Activation (Upgrade from P8) activation for M9S
EFA2 - 100 GB Memory        EMAU - 100 GB Memory        No
Activation (Upgrade from P8) activation for M9S
```

Feature conversions for 9080-MHE to 9080-M9S memory features:

From FC:	To FC:	Return parts
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
ESPB - 512 GB (4X128 GB) CDIMM, 1600MHz, DDR4 DRAM Tall for SAP HANA	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB)	EF23 - 1024GB DDR4 Memory	Yes

CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	(4X256GB) CDIMMs	
ESP9 - 1024 GB (4X256 GB) CDIMM, 1600MHz, DDR4 DRAM Tall for SAP HANA	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
ESPB - 512 GB (4X128 GB) CDIMM, 1600MHz, DDR4 DRAM Tall for SAP HANA	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
ESP9 - 1024 GB (4X256 GB) CDIMM, 1600MHz, DDR4 DRAM Tall for SAP HANA	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
ESPB - 512 GB (4X128 GB) CDIMM, 1600MHz, DDR4 DRAM Tall for SAP HANA	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EMA6 - Quantity of 100 1GB Memory Activations (#EMA5)	EFA2 - 100 GB Memory Activation (Upgrade from P8)	No
ESPC - Quantity of 100 1GB Memory activation for SAP HANA	EFA2 - 100 GB Memory Activation (Upgrade from P8)	No
EMB8 - Five Hundred and Twelve Memory Activations for IFL	ELMD - 512 GB Power Linux Memory Activations for M9S/ 80H	No
EM82 - ACTIVE MEMORY EXPANSION ENABLEMENT	EM89 - Active Memory expansion enablement for M9S/80H	No
EMA9 - 100 GB Mobile Enabled Memory Activations	EMAD - 100 GB Mobile Enabled Memory Activations	No
EMA7 - 100 GB Mobile Memory Activations	EMAR - 100 GB Mobile Memory Activation (Upgrade from P8	No
EMAL - BASE MEMORY ACTIVATION (512GB) FOR #EHC2 or #EHC5	EMAS - Base Memory activation (512) for #EHC6	No
EMAF - 100 GB Mobile Memory Activation (Upgrade from P7)	EMAY - 100 GB Mobile Memory activation for M9S/80H (Upgrade from P7)	No

Feature conversions for 9080-MHE to 9080-M9S miscellaneous features:

Return From FC:	To FC:	parts
EB3J - CBU for Power Enterprise Systems specify	EFB0 - CBU server spceify	Yes

Feature conversions for 9080-MHE to 9080-M9S processor features:

Return From FC:	To FC:	parts
EB2R - Single 5250 Enterprise Enablement	EF2R - Single 5250 Enterprise Enablement	Yes
EB30 - Full 5250 Enterprise Enablement	EF30 - Full 5250 Enterprise Enablement	Yes
EPBG - CBU for Power	EFB1 - CBU for Power	Yes

Enterprise Systems 4.35 GHz, 32-core POWER8 processor	Enterprise Systems 3.20 GHz, 32-core POWER9 processor	
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems 3.20 GHz, 32-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems 3.20 GHz, 32-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems 2.80 GHz, 40-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems 2.80 GHz, 40-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems 2.80 GHz, 40-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems 2.90 GHz, 48-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems 2.90 GHz, 48-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems 2.90 GHz, 48-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems 3.0 GHz, 44-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems 3.0 GHz, 44-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems 3.0 GHz, 44-core POWER9 processor	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBS - 4.19GHz, 40-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
ESP2 - 48-core 4.02 GHz POWER8 processor module for SAP HANA	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
ESP3 - 40-core 4.19 GHz POWER8 processor module for SAP HANA	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBS - 4.19GHz, 40-core	EFP2 - 40-core (4x10)	Yes

POWER8 processor	Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	
ESP2 - 48-core 4.02 GHz POWER8 processor module for SAP HANA	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
ESP3 - 40-core 4.19 GHz POWER8 processor module for SAP HANA	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBS - 4.19GHz, 40-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
ESP2 - 48-core 4.02 GHz POWER8 processor module for SAP HANA	EFP3 - 48-core (4x12) Typical 3.55 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
ESP3 - 40-core 4.19 GHz POWER8 processor module for SAP HANA	EFP3 - 48-core (4x12) Typical 3.55 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBS - 4.19GHz, 40-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
ESP2 - 48-core 4.02 GHz POWER8 processor module for SAP HANA	EFP4 - 44-core (4x11) Typical 3.58 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
ESP3 - 40-core 4.19 GHz POWER8 processor module for SAP HANA	EFP4 - 44-core (4x11) Typical 3.58 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFP9 - 1 core Processor Activation for #EFP4	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFP9 - 1 core Processor Activation for #EFP4	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFP9 - 1 core Processor Activation for #EFP4	No
ESP4 - 1 core processor activation for ESP2	EFP9 - 1 core Processor Activation for #EFP4	No
ESP6 - 1 core processor activation for ESP3	EFP9 - 1 core Processor Activation for #EFP4	No
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFPA - 1 core Processor Activation for #EFP1	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPA - 1 core Processor Activation for #EFP1	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPA - 1 core Processor Activation for #EFP1	No
ESP4 - 1 core processor	EFPA - 1 core Processor	No

activation for ESP2	Activation for #EFP1	
ESP6 - 1 core processor activation for ESP3	EFPA - 1 core Processor Activation for #EFP1	No
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
ESP4 - 1 core processor activation for ESP2	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
ESP6 - 1 core processor activation for ESP3	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFPC - 1 core Processor Activation for #EFP3	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPC - 1 core Processor Activation for #EFP3	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPC - 1 core Processor Activation for #EFP3	No
ESP4 - 1 core processor activation for ESP2	EFPC - 1 core Processor Activation for #EFP3	No
ESP6 - 1 core processor activation for ESP3	EFPC - 1 core Processor Activation for #EFP3	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No
EP2V - 1-Core Mobile Activation from Power 7	EFPH - Mobile processor activation for M9S/80H (Upgrade from P7)	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/#EFP8	No

EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/#EFP8	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/#EFP8	No
EHC5 - Solution Edition for Healthcare 4.19GHZ, 40-core Processor	EHC6 - Solution Edition for Healthcare 3.15GHZ, 40-core Processor with 5U system node drawer	No
ELAT - BASE PROCESSOR ACTIVATION (20) FOR #EHC5	ELAU - Base processor activation (20) for #EHC6	No
EP2T - 1-Core Mobile Activation	EP2W - Mobile Processor activation M9S/80H (Upgrade from P8)	No

Feature conversions for 9080-MHE to 9080-M9S rack-related features:

From FC:	To FC:	Return parts
ESP8 - 5U system node drawer	EFN1 - 5U System node Indicator drawer	Yes

Feature conversions for 9080-MME to 9080-M9S memory features:

From FC:	To FC:	Return parts
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8J - 64GB (4X16GB)	EF23 - 1024GB DDR4 Memory	Yes

CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	(4X256GB) CDIMMs	
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EMA5 - 1GB Memory Activation	EFA1 - 1 GB Memory Activation (Upgrade from P8)	No
EMA6 - Quantity of 100 1GB Memory Activations (#EMA5)	EFA2 - 100 GB Memory Activation (Upgrade from P8)	No
EMB8 - Five Hundred and Twelve Memory Activations for IFL	ELMD - 512 GB Power Linux Memory Activations for M9S/80H	No
EM82 - ACTIVE MEMORY EXPANSION ENABLEMENT	EM89 - Active Memory expansion enablement for M9S/80H	No
EMA9 - 100 GB Mobile Enabled Memory Activations	EMAD - 100 GB Mobile Enabled Memory Activations	No
EMA7 - 100 GB Mobile Memory Activations	EMAR - 100 GB Mobile Memory Activation (Upgrade from P8	No
EMAF - 100 GB Mobile Memory Activation (Upgrade from P7)	EMAY - 100 GB Mobile Memory activation for M9S/80H (Upgrade from P7)	No

Feature conversions for 9080-MME to 9080-M9S miscellaneous features:

Return From FC:	To FC:	parts
EB3K - CBU for PowerHA Specify	EFB0 - CBU server spceify	Yes

Feature conversions for 9080-MME to 9080-M9S processor features:

Return From FC:	To FC:	parts
EB2R - Single 5250	EF2R - Single 5250	Yes

Enterprise Enablement	Enterprise Enablement	
EB30 - Full 5250 Enterprise Enablement	EF30 - Full 5250 Enterprise Enablement	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems 3.20 GHz, 32-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems 2.80 GHz, 40-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems 2.90 GHz, 48-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems 3.0 GHz, 44-core POWER9 processor	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFP9 - 1 core Processor Activation for #EFP4	No
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPA - 1 core Processor Activation for #EFP1	No
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPC - 1 core Processor Activation for #EFP3	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No
EP2U - 1-Core Mobile Activation from Power 7	EFPH - Mobile processor activation for M9S/80H (Upgrade from P7)	No
EP2S - 1-Core Mobile Activation	EP2W - Mobile Processor activation M9S/80H (Upgrade from P8)	No

Feature conversions for 9119-MHE to 9080-M9S memory features:

From FC:	To FC:	Return parts
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8K - 128GB (4X32GB)	EF20 - 128GB DDR4 Memory	Yes

CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	(4X32GB) CDIMMs	
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8M - 512GB (4X128GB)	EF24 - 2048GB DDR4 Memory	Yes

CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	(4X512GB) CDIMMs	
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EMA6 - Quantity of 100 1GB Memory Activations (#EMA5)	EFA2 - 100 GB Memory Activation (Upgrade from P8)	No
EMB8 - Five Hundred and Twelve Memory Activations for IFL	ELMD - 512 GB Power Linux Memory Activations for M9S/80H	No
EM82 - ACTIVE MEMORY EXPANSION ENABLEMENT	EM89 - Active Memory expansion enablement for M9S/80H	No
EMA9 - 100 GB Mobile Enabled Memory Activations	EMAD - 100 GB Mobile Enabled Memory Activations	No
EMA7 - 100 GB Mobile Memory Activations	EMAR - 100 GB Mobile Memory Activation (Upgrade from P8	No
EMAF - 100 GB Mobile Memory Activation (Upgrade from P7)	EMAY - 100 GB Mobile Memory activation for M9S/80H (Upgrade from P7)	No

Feature conversions for 9119-MHE to 9080-M9S miscellaneous features:

Return From FC:	To FC:	parts
EB3J - CBU for Power Enterprise Systems specify	EFB0 - CBU server spceify	Yes

Feature conversions for 9119-MHE to 9080-M9S processor features:

Return From FC:	To FC:	parts
EB2R - Single 5250 Enterprise Enablement	EF2R - Single 5250 Enterprise Enablement	Yes
EB30 - Full 5250 Enterprise Enablement	EF30 - Full 5250 Enterprise Enablement	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems 3.20 GHz, 32-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems 3.20 GHz, 32-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems 3.20 GHz, 32-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems 2.80 GHz, 40-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems 2.80 GHz, 40-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems 2.80 GHz, 40-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems 2.90 GHz, 48-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems 2.90 GHz, 48-core POWER9	Yes

	processor	
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems 2.90 GHz, 48-core POWER9 processor	Yes
EPBG - CBU for Power Enterprise Systems 4.35 GHz, 32-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems 3.0 GHz, 44-core POWER9 processor	Yes
EPBH - CBU for Power Enterprise Systems 4.02 GHz 48-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems 3.0 GHz, 44-core POWER9 processor	Yes
EPBT - CBU for Power Enterprise Systems 4.19GHz, 40-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems 3.0 GHz, 44-core POWER9 processor	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBS - 4.19GHz, 40-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBS - 4.19GHz, 40-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBS - 4.19GHz, 40-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBB - 4.35 GHz, 32-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBD - 4.02 GHz 48-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBS - 4.19GHz, 40-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFP9 - 1 core Processor Activation for #EFP4	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFP9 - 1 core Processor Activation for #EFP4	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFP9 - 1 core Processor Activation for #EFP4	No
EPBK - 1 core Processor Activation for #EPBB or	EFPA - 1 core Processor Activation for #EFP1	No

#EPBG		
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPA - 1 core Processor Activation for #EFP1	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPA - 1 core Processor Activation for #EFP1	No
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBK - 1 core Processor Activation for #EPBB or #EPBG	EFPC - 1 core Processor Activation for #EFP3	No
EPBM - 1 core Processor Activation for #EPBD or #EPBH	EFPC - 1 core Processor Activation for #EFP3	No
EPBU - 1 core Processor Activation for #EPBS or #EPBT	EFPC - 1 core Processor Activation for #EFP3	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No
EPBV - 1 core Mobile Enabled Processor Activation for #EPBS or #EPBT	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No
EP2V - 1-Core Mobile Activation from Power 7	EFPH - Mobile processor activation for M9S/8OH (Upgrade from P7)	No
EPBP - 1 core Mobile-enabled Processor Activation for #EPBB or #EPBG	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/#EFP8	No
EPBR - 1 core Mobile-enabled Processor Activation for #EPBD or #EPBH	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/#EFP8	No
EPBV - 1 core Mobile Enabled Processor	EFPN - 1 core Mobile-enabled Processor	No

Activation for #EPBS or #EPBT	Activation for #EFP4/#EFP8	
EP2T - 1-Core Mobile Activation	EP2W - Mobile Processor activation M9S/8OH (Upgrade from P8)	No

Feature conversions for 9119-MME to 9080-M9S memory features:

From FC:	To FC:	Return parts
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF20 - 128GB DDR4 Memory (4X32GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF21 - 256GB DDR4 Memory (4X64GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF22 - 512GB DDR4 Memory (4X128GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory	EF23 - 1024GB DDR4 Memory	Yes

(4x128GB CDIMMs)	(4X256GB) CDIMMs	
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF23 - 1024GB DDR4 Memory (4X256GB) CDIMMs	Yes
EM8J - 64GB (4X16GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8K - 128GB (4X32GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8L - 256GB (4X64GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8M - 512GB (4X128GB) CDIMMs, 1600 MHz, 4GBIT DDR3 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8U - 64 GB DDR4 Memory (4x16GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8V - 128 GB DDR4 Memory (4x32GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8W - 256 GB DDR4 Memory (4x64GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8X - 512 GB DDR4 Memory (4x128GB CDIMMs)	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EM8Y - 1024GB (4x256GB) CDIMMs, 1600 MHz, 4GBIT, DDR4 DRAM	EF24 - 2048GB DDR4 Memory (4X512GB) CDIMMs	Yes
EMA5 - 1GB Memory Activation	EFA1 - 1 GB Memory Activation (Upgrade from P8)	No
EMA6 - Quantity of 100 1GB Memory Activations (#EMA5)	EFA2 - 100 GB Memory Activation (Upgrade from P8)	No
EMB8 - Five Hundred and Twelve Memory Activations for IFL	ELMD - 512 GB Power Linux Memory Activations for M9S/80H	No
EM82 - ACTIVE MEMORY EXPANSION ENABLEMENT	EM89 - Active Memory expansion enablement for M9S/80H	No
EMA9 - 100 GB Mobile Enabled Memory Activations	EMAD - 100 GB Mobile Enabled Memory Activations	No
EMA7 - 100 GB Mobile Memory Activations	EMAR - 100 GB Mobile Memory Activation (Upgrade from P8	No
EMAL - BASE MEMORY ACTIVATION (512GB) FOR #EHC2 or #EHC5	EMAS - Base Memory activation (512) for #EHC6	No
EMAF - 100 GB Mobile Memory Activation (Upgrade from P7)	EMAY - 100 GB Mobile Memory activation for M9S/80H (Upgrade from P7)	No

Feature conversions for 9119-MME to 9080-M9S miscellaneous features:

Return From FC:	To FC:	parts
EB3K - CBU for PowerHA Specify	EFB0 - CBU server spceify	Yes

Feature conversions for 9119-MME to 9080-M9S processor features:

Return From FC:	To FC:	parts
EB2R - Single 5250 Enterprise Enablement	EF2R - Single 5250 Enterprise Enablement	Yes
EB30 - Full 5250 Enterprise Enablement	EF30 - Full 5250 Enterprise Enablement	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems 3.20 GHz, 32-core POWER9 processor	Yes
EPBX - CBU for Power Enterprise Systems 4.19 GHz, 40-core POWER8 processor	EFB1 - CBU for Power Enterprise Systems 3.20 GHz, 32-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems 2.80 GHz, 40-core POWER9 processor	Yes

EPBX - CBU for Power Enterprise Systems 4.19 GHz, 40-core POWER8 processor	EFB2 - CBU for Power Enterprise Systems 2.80 GHz, 40-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems 2.90 GHz, 48-core POWER9 processor	Yes
EPBX - CBU for Power Enterprise Systems 4.19 GHz, 40-core POWER8 processor	EFB3 - CBU for Power Enterprise Systems 2.90 GHz, 48-core POWER9 processor	Yes
EPBW - CBU for Power Enterprise Systems 4.02 GHz, 32-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems 3.0 GHz, 44-core POWER9 processor	Yes
EPBX - CBU for Power Enterprise Systems 4.19 GHz, 40-core POWER8 processor	EFB4 - CBU for Power Enterprise Systems 3.0 GHz, 44-core POWER9 processor	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBC - 4.19 GHz, 40-core POWER8 processor	EFP1 - 32-core (4x8) Typical 3.9 to 4.0 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBC - 4.19 GHz, 40-core POWER8 processor	EFP2 - 40-core (4x10) Typical 3.7 to 3.9 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBC - 4.19 GHz, 40-core POWER8 processor	EFP3 - 48-core (4x12) Typical 3.55 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBA - 4.02 GHz, 32-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBC - 4.19 GHz, 40-core POWER8 processor	EFP4 - 44-core (4x11) Typical 3.58 to 3.8 GHz (max) POWER9 Processor with 5U system node drawer	Yes
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFP9 - 1 core Processor Activation for #EFP4	No
EPBL - 1 core Processor Activation for #EPBC or #EHC2 or #EPBX	EFP9 - 1 core Processor Activation for #EFP4	No
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPA - 1 core Processor Activation for #EFP1	No
EPBL - 1 core Processor Activation for #EPBC or #EHC2 or #EPBX	EFPA - 1 core Processor Activation for #EFP1	No
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBL - 1 core Processor Activation for #EPBC or #EHC2 or #EPBX	EFPB - 1 core Processor Activation for #EFP2 and #EHC6	No
EPBJ - 1 core Processor Activation for #EPBA or #EPBW	EFPC - 1 core Processor Activation for #EFP3	No
EPBL - 1 core Processor	EFPC - 1 core Processor	No

Activation for #EPBC or #EHC2 or #EPBX	Activation for #EFP3	
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBQ - 1 core Mobile Enabled Processor Activation for #EPBC or #EPBX	EFPE - 1 core Mobile-enabled Processor Activation for #EFP1/#EFP5	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No
EPBQ - 1 core Mobile Enabled Processor Activation for #EPBC or #EPBX	EFPF - 1 core Mobile-enabled Processor Activation for #EFP2/#EFP6	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No
EPBQ - 1 core Mobile Enabled Processor Activation for #EPBC or #EPBX	EFPG - 1 core Mobile-enabled Processor Activation for #EFP3/#EFP7	No
EP2U - 1-Core Mobile Activation from Power 7	EFPH - Mobile processor activation for M9S/80H (Upgrade from P7)	No
EPBN - 1 core Mobile Enabled Processor Activation for #EPBA or #EPBW	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/#EFP8	No
EPBQ - 1 core Mobile Enabled Processor Activation for #EPBC or #EPBX	EFPN - 1 core Mobile-enabled Processor Activation for #EFP4/#EFP8	No
EHC2 - Solution Edition for Healthcare 4.19GHZ, 40-core Processor	EHC6 - Solution Edition for Healthcare 3.15GHZ, 40-core Processor with 5U system node drawer	No
ELAL - BASE PROCESSOR ACTIVATION (20) FOR #EHC2	ELAU - Base processor activation (20) for #EHC6	No
EP2S - 1-Core Mobile Activation	EP2W - Mobile Processor activation M9S/80H (Upgrade from P8)	No

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Corrections

(Corrected on November 20, 2019)

Changed length of CMC service in Overview section.

(Corrected on August 9, 2019)

Added IBM Proactive Support for Power Systems topic to Overview and Description sections.

(Corrected on May 20, 2019)

In the Operating environment section, the operating voltage was revised. A Standards section was added.

(Corrected on October 25, 2018)

Added prices.

(Corrected on September 10, 2018)

Revised the Program number, Description, Terms and conditions, and Charges sections.

(Corrected on August 22, 2018)

Revised the Planned availability date section.