IBM Power Systems feature new enterprise and HMC enhancements

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At a glance

Power Systems™ include the following enhancements:

- You can freely move processor and memory activations from one system to another system in the same pool, without the need for IBM® involvement.
- You can purchase processor activations that are designated strictly for use with Linux™ operating systems.
- No-charge SSD DASD drives are added to models 9179-MHD and 9117-MMD.
- HMC enhancements support new enterprise functions.

Overview

Several new options from Power Systems demonstrate how IBM is transforming the landscape for system selection regarding new workloads. Available on enterprise class systems, IBM now offers the ability to freely move processor and memory activations from one system to another system in the same pool, without the need for IBM involvement. This new feature, called Power® Enterprise Pools, gives you the flexibility for workload balancing and system maintenance. New HMC software levels are being made available in support of this capability. In addition, this new software delivers the foundation for IBM PowerVC Virtualization Center, which is designed to enhance your management of today's virtualized environment.

Also available for enterprise class systems is the option to purchase processor and memory activations along with PowerVM® licenses that are designated strictly for use with Linux operating systems. This option, Power Integrated Facility for Linux (IFL), offers streamlined purchasing for Linux workloads at new low prices, while maintaining the value of consolidation, performance, security, availability, and simplicity of operations.

Reinforcing another trend in technology, Power 770 and 780 systems with POWER7+™ come standard with a base set of SSD drives. Recognized for their high performance and reliability, these drives are ideally matched to the enterprise-class reputation for handling the most rigid demands of commercial workloads.

IBM continues to expand the availability of features and eligible systems for the Managed Service Provider (MSP) offering called the MSP Utility Pricing Offer, informally known as Pay As You Grow. The program enables MSPs to pay for a portion of their new cloud configuration purchase as Pay For Use payments over time.
Key prerequisites

Prerequisites for Power Enterprise Pools:

- All systems in a pool must be attached to the same HMC (or redundant set of HMCs)
- Systems must be one of the following models: 9117-MMD, 9179-MHD or 9119-FHB.

For more information refer to the Hardware requirements section.

Prerequisites for Power Integrated Facility for Linux (Power IFL):

- Systems must be one of the following models: 9117-MMB, 9117-MMC, 9117-MMD, 9179-MHB, 9179-MHC, 9179-MHD, or 9119-FHB.
- For MES orders, the client must have the available inactive processor cores and memory resident on the system to accommodate the Power IFL processor cores and memory activations.
- The client must have PowerVM Enterprise Edition (5765-PVE) installed on their system. If the client is running PowerVM Standard Edition (5765-PVS) on their existing system and intends to order Power IFLs for the system, all existing cores that are licensed for PowerVM Standard Edition will be converted to PowerVM Enterprise at the client's expense as part of the Power IFL order process.
- The IBM Agreement for Power IFL Core Features (Z126-6230) must be signed by the client with the initial, first-in-enterprise, ordering of the Power IFLs.

Planned availability dates

- October 25, 2013: SSD drives included with Power 770 and Power 780 (9117-MMD and 9179-MHD)
- November 5, 2013: Power Integrated Facility for Linux
- November 22, 2013: MSP offering
- December 6, 2013: Power Enterprise Pools on 9119-FHB and HMC V7R7.8.0 level
- April 25, 2014: Power Enterprise Pools on 9179-MHD and 9117-MMD

Description

**Power 770 and 780 enhancements**

Power Systems has long been recognized as a performance leader in the industry. Now that performance gets another boost with the inclusion of SSD drives in every system. Starting fourth quarter 2013, all new Power 770 and 780 systems with POWER7+ processors will include SSD drives in their system at no additional charge. Power 770 users will receive two high-speed drives, each supporting 387 GB of capacity. Power 780 users will receive three of these drives. This new offer is being made so that users can see for themselves with their own workloads, in their own environment, what a boost in performance these drives can deliver. Recognized for their high performance and reliability, these drives are ideally matched to the enterprise class reputation for handling the most rigid demands of commercial workloads.

Options are available for AIX/Linux or IBM i as well as the ability to designate placement in either the system enclosure or an EXP24S I/O drawer. When you order a new POWER7+ 770/780 or when you upgrade an earlier generation Power System into a POWER7+ 770/780 keeping the same serial number, then IBM configurator tools will add either two or three of these no-charge features to the server order. On an individual order, all the no-charge features must be the same. You can choose to add other chargeable SSD features, including a 4-pack feature, to the order to further expand potential performance gains or to implement specific SSD protection...
schemes. Three SSDs are required at a minimum for RAID 5. An even number of SSDs is required for RAID 10 or system mirroring. For more information, refer to Hardware Announcement ZG13-0293, dated October 7, 2013.

**Power Enterprise Pools**

Power Enterprise Pools establish a new level of flexibility and value for systems that operate together as a pool of resources. New mobile activations are available for use on the Power 770, 780, and 795 systems. They can be assigned to any system in a predefined pool by the user with simple HMC commands. IBM does not need to be notified when these resources are reassigned within a pool. The simplicity of operations offers new flexibility when managing large workloads in a pool of systems. This new feature is especially appealing to aid in providing continuous application availability during maintenance windows. Not only can workloads easily move to alternate systems, but now the activations can move as well.

Two types of pools are available. One enables Power 770 class systems and the other enables Power 780 and Power 795 class systems. Systems with different clock speeds are supported co-existing within the same pool and in the high-end case, even different machine type models. POWER7+ configurations are required for both the 770 and 780 systems. Specific models supported are the 9117-MMD, 9179-MHD, and 9119-FHB. Memory activations are also supported in addition to processor activations. All systems in the pool must be attached to the same HMC.

Power System users now have the satisfaction of knowing that as their requirements change, so can their systems. A simple movement of activations from one system to another helps users rebalance resources and respond to business needs. Maintenance windows now open up more easily as both workloads and activations move transparently across systems. Even disaster recovery planning becomes more manageable with the ability to move activations where and when they are needed. Power Enterprise Pools are just one more reason why enterprise class servers from Power Systems deliver value for your ever-changing business.

**Mobile and Static Activations**

A new, more flexible activation type is introduced for Power Enterprise Pools. Previously announced activation features are "static" and do not move from one server to another. These static activations remain available on the Power 770, 780, and 795 and a certain number are required per server. Only new mobile activation features can be moved in the Power Enterprise Pool. Because existing static activation features can be converted to mobile activations at a charge.

A base number of static cores must be activated on each system in the pool, consistent with previous minimum configurations. The Power 770 and Power 780 must have at least four cores activated in static capability. The Power 795 must have at least 24 cores or 25% of the installed cores, whichever is higher, activated in static capability. All remaining processor core activations on these systems can optionally be mobile activations, be static activations or a mixture. Static and mobile core activations can co-reside in the same system and in the same partition.

A maximum of 75% of all physically installed memory can have mobile activations. A minimum of 25% of all memory activations on a server must have static activations. Static and mobile memory activations can co-reside in the same system and in the same partition. Mobile activation feature codes are 100 GB.

The new mobile activation features are:

- For Power 770, 780, 795 100 GB Mobile Memory Activation (#EMA4)
- For Power 770 1-Core Mobile Activation (#EP22)
- For Power 780, 795 1-Core Mobile Activation (#EP23)

**Power Enterprise Pools and the HMC**

Each Power Enterprise Pool is managed by a single master hardware management console (HMC). The HMC that was used to create a Power Enterprise Pool is set as the master HMC of that pool. After a Power Enterprise Pool is created, a redundant HMC can be configured as a backup. All Power Enterprise Pool resource assignments
must be performed by the master HMC. When powering on or restarting a server, ensure that the server is connected to the master HMC. This ensures that the required Mobile CoD resources are assigned to the server.

The maximum number of systems in a Power Enterprise Pool is 32 high-end or 48 mid-range systems. An HMC can manage multiple Power enterprise pools but is limited to 1000 total partitions. The HMC can also manage systems that are not part of the Power Enterprise Pool. Powering down an HMC does not limit the assigned resources of participating systems in a pool but does limit the ability to perform pool change operations.

After a Power Enterprise Pool is created, the HMC can be used to perform the following functions:

- Mobile CoD processor and memory resources can be assigned to systems with inactive resources. Mobile CoD resources remain on the system to which they are assigned until they are removed from the system.
- New systems can be added to the pool and existing systems can be removed from the pool.
- New resources can be added to the pool or existing resources can be removed from the pool.
- Pool information can be viewed, including pool resource assignments, compliance, and history logs.

**Power Enterprise Pools Qualifying Machines**

To qualify for use of the Power Enterprise Pool offering, a participating system must be one of the following:

- IBM Power 795 with POWER7® processors, designated as 9119-FHB
- IBM Power 780 with POWER7+ processors, designated as 9179-MHD
- IBM Power 770 with POWER7+ processors, designated as 9117-MMD

Each system must have installed Machine Code release level 7.8.0, or later, and be configured with at least the minimum amount of permanently active processor cores (listed below). Processor and memory activations that are enabled for movement within the pool will be in addition to these base minimum configurations.

Two types of pools are available. One enables Power 770 class systems and is restricted to valid configurations of 9117-MMD systems. This is designated as a 770 pool and can support systems with different clock speeds. One enables Power 780 (9179-MHD) and Power 795 (9119-FHB) class systems and is designated as a high-end pool. This pool can support different clock speeds and different machine types. Memory activations within a Power Enterprise Pool are independent of physical memory DIMM sizes and are supported in blocks of 100 GB.

**Ordering Power Enterprise Pools**

Ordering and enabling mobile activations for enterprise class systems is accomplished by following these steps.

1. Complete and submit the Power Enterprise Pools contract and addendum (Z126-6228 and Z126-6229) specifying all system serial numbers to be included in the pool. To generate a pool ID number, send a copy to the Power Systems CoD Project Office at pcod@us.ibm.com. This IBM License Supplement for Power Enterprise Pools (Z126-6228) is required prior to ordering mobile resources but is only required once per client. The IBM License Supplement for Power Enterprise Pools Addendum (Z126-6229) is used to assign or remove systems to/from a pool.
2. Order mobile enablement, processor, and memory activation features for participating systems. Every system in the pool must have feature #EB35 as an identifier.
3. Ensure all participating systems and controlling HMCs have the proper level of supporting software (eFW 7.8, or later, for systems; V7.8, or later, for HMCs).
4. When the order is fulfilled, a configuration file will be generated that contains a Power Enterprise Pool membership activation code for each of the systems in the pool along with the mobile processor and memory activations. This file will be made available on the IBM COD website at http://www-912.ibm.com/pod/pod

Download the client-specific configuration file with mobile activations to the controlling HMC for the pool. The file will work only for the specified system serial numbers. A new file will be generated when systems or mobile resources are added or removed from the pool.

**Adding or removing systems from Power Enterprise Pools**

Adding or removing a system from an established Power Enterprise Pool requires notification to IBM. An updated addendum must be submitted to the Power Systems CoD Project Office (pcod@us.ibm.com) to make this change. When the update is processed, a new pool configuration file will be posted on the CoD website and must be downloaded to the controlling HMC.

Before removal from a pool, all assets (including mobile resources) that were originally purchased with the system must be returned to that same system serial number. Mobile assets belonging to a system may qualify for transfer to another system serial number depending on normal qualifying guidelines and, if possible, require additional administrative action.

Systems removed from a pool can join another pool and contribute mobile activation resources to the new pool or use another system's mobile activation resources. Mobile activations require a pool ID to be recognized.

**Power Integrated Facility for Linux (IFL)**

Running Linux workloads on Power Systems has never been easier. The new Power IFL enables users to easily acquire processor and memory activations on their enterprise class Power Systems for use with their Linux operating systems and do so at pricing that is comparable to x86 systems. Users can reduce the complexity of operations associated with server sprawl by consolidating disparate, redundant, or under utilized Linux servers while taking advantage of enterprise level resources, processes, and skills that are already in place. This new offering, Power Integrated Facility for Linux (Power IFL), is designed to enable clients to better exploit the performance, reliability and scale of enterprise-class Power servers to improve quality of service and reduce the cost of managing their Linux ecosystem.

Power IFLs represent a virtual stack engine using CoD for enterprise class systems. Enablement is packaged in units of four processor core activations, 32 GB of memory activations, and four PowerVM for Linux licenses. Support is offered for Power 770, 780, and 795 systems. Specific models for the Power 770 include 9117-MMB, -MMC, and -MMD. Power 780 models include 9179-MHB, -MHC, and -MHD.

A consolidated environment for Linux workloads offers the following benefits to the enterprise environment:

- Improves scaling performance
- Delivers virtual network connections
- Improves security
- Offers seamless added capacity without interruption
- Reduces overhead
- Improves disaster recovery processes

**Ordering Power Integrated Facility for Linux**

Ordering of Power Integrated Facility for Linux (Power IFL) for Power enterprise class systems is accomplished by the following:
Complete and submit the IBM Agreement for Power IFL Core Features (Z126-6230) to the CSO/BPSO prior to ordering the Power IFL for any Power Enterprise system that the Power IFLs will be installed on. The IBM Agreement for Power IFL Core features (Z126-6230) is required to be signed by the client prior to the initial shipment of the Power IFL. One signature required per customer enterprise in a given country for the first in enterprise. Subsequent orders for the Power IFL core feature do not require another IBM Agreement for Power IFL Core features (Z126-6230) to be signed.

Alternative configuration options for the Power IFLs are available on a special bid basis from your IBM representative or Business Partner.

**HMC feature updates**

The HMC is updated to include the following new function with the release HMC V7.8.

- Support for Power Enterprise Pool management
- Enablement for IBM PowerVC Virtualization Center for Power Systems
- User-defined thresholds to enable monitoring and alerting for workloads that could benefit from the Dynamic Workload Optimizer (DWO) as well as optional automation to automatically invoke DPO when the threshold is exceeded. This function includes DPO scoring of LPARs, which indicates whether a VM will benefit from DPO usage.
- Additional tracking of DLPAR activity within the current profile, which enables reactivation of a LPAR with all configuration changes intact since the last shutdown.
- Improved group-based access control for LDAP users, which enables limiting users to a subset of HMCs.

Version 7.8 of the HMC and will be available on December 6, 2013.

This release requires at least two gigabytes of physical memory on the HMC to be able to exploit either Power Enterprise Pool management or enablement for PowerVC. For HMCs with less than 2 GB memory, the new GUI function will automatically be disabled.

**MSP Utility Pricing Offer**

In support of the MSP Utility Pricing Offer, more machine type models are now are eligible for use in this offering.

Here is a summary of how the MSP pays for usage. Each quarter, a script that runs on the MSP’s machine reports the CPU core usage rate for that quarter. The MSP then must order the correct quantity of HW and SW Billing Features (according to the HW/SW split of their purchased configuration) to pay IBM and the channel the amount of usage that the MSP owes for that quarter. The HW Billing Features are available in two denominations, a unit of one (#EUC6) and unit of 10 (#EUC7). This quarterly payback process continues until the full Pay for Usage amount is paid back and then payments cease.

IBM is adding more MTMs to the MSP Utility Program, which means that the Hardware Billing Features are now available for more Power Systems.

**Machine Type/Models added to the MSP Utility Billing program:**

**Blades/Flex:**

- 8406-70Y (IBM BladeCenter® PS700)
- 7895-23X (P7+ Flex system p260 compute node)
- 7895-42X (P7 Flex system p460 compute node)
- 7895-43X (P7+ Flex system p460 compute node)
- 7954-24X (P7+ Flex System p270 Compute Node)
IBM Europe, Middle East, and Africa Hardware

Announcement ZG13-0302

IBM is a registered trademark of International Business Machines Corporation

- **7895-23A (P7+ Flex system p260 Entry compute node)**

**Servers:**

- 9109-RMD (Power 760 Server)
- 8231-E1D (Power 710 Server - 3 year warranty)
- 8231-E1D (Power 710 Server - 1 year warranty)
- 8231-E2D (Power 730 Server)
- 8233-E8B (Power 750 Server)
- 8408-E8D (Power 750 Server)
- 9179-MHC (Power 780 Server)
- 9179-MHD (Power 780 Server)
- 9119-FHB (Power 795 Server)

**Statement of general direction**

IBM intends to deliver the capability for the next generation of Power Systems technology to participate in the same Power Enterprise Pool with Power 795 systems and Power 770/780 systems with POWER7+ technology. Power 770 and 780 systems with POWER7+ technology are planned to support upgrades to the next generation of Power Systems technology when it becomes available. This upgrade will maintain the existing serial number of the POWER7+ system.

IBM's statements regarding its plans, directions, and intent are subject to change or withdrawal without notice at IBM's sole discretion. Information regarding potential future products is intended to outline our general product direction and it 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 our products remains at our sole discretion.

**Product number**

The following are newly announced features on the specific models of the IBM Power Systems 9117, 9119, and 9179 machine types:

**Planned availability date: November 5, 2013**

**New features**

<table>
<thead>
<tr>
<th>Description</th>
<th>MT</th>
<th>Model Feature</th>
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<tr>
<td>Power Integrated Facility for Linux Package</td>
<td>9117 MMB</td>
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<td>Power IFL Memory Activation</td>
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IBM Europe, Middle East, and Africa Hardware
Announcement ZG13-0302

IBM is a registered trademark of International Business Machines Corporation
The following are newly announced features on the specific models of the IBM Power Systems 7895, 7954, 8231, 8233, 8268, 8406, 8408, 9109, 9119, and 9179 machine types:

**Planned availability date: November 22, 2013**

**New features**

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The following are newly announced features on the specific model of the IBM Power Systems 9119 machine type:

**Planned availability date: December 6, 2013**

**New features**

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<td>Mobile Enablement</td>
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<td>100 GB Mobile Memory Activation</td>
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The following are newly announced features on the specific models of the IBM Power Systems 9117 and 9179 machine types:
Planned availability date: April 25, 2014

New features

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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 customers:

Feature conversions for 9117-MMB virtualization engine features

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<th>To FC:</th>
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<td>7995 - PowerVM - Enterprise</td>
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Feature conversions for 9117-MMC virtualization engine features

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<td>7995 - PowerVM - Enterprise</td>
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Feature conversions for 9117-MMD memory features

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Feature conversions for 9117-MMD processor features

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<td>for Processor Feature EPM0</td>
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<td>for Processor Feature EPM1</td>
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### Feature conversions for 9117-MMD virtualization engine features

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<th>From FC:</th>
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<td>8018 - Advanced POWER Virtualization Carry Over Indicator</td>
<td>7995 - PowerVM - Enterprise Edition</td>
<td>No</td>
</tr>
</tbody>
</table>

### Feature conversions for 9119-FHB memory features

<table>
<thead>
<tr>
<th>From FC:</th>
<th>To FC:</th>
<th>Return parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>8213 - Activation of 100 GB DDR3 POWER7 Memory</td>
<td>EMA4 - 100 GB Mobile Memory Activation</td>
<td>Yes</td>
</tr>
<tr>
<td>EMA3 - Activation of 100 GB DDR3 POWER7+ Memory</td>
<td>EMA4 - 100 GB Mobile Memory Activation</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Feature conversions for 9119-FHB processor features

<table>
<thead>
<tr>
<th>From FC:</th>
<th>To FC:</th>
<th>Return parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>4713 - Single core activation for POWER7 CoD Processor Book #4700</td>
<td>EP23 - 1-Core Mobile Activation</td>
<td>Yes</td>
</tr>
<tr>
<td>4714 - Single core activation for POWER7 CoD Processor Book #4702</td>
<td>EP23 - 1-Core Mobile Activation</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Feature conversions for 9119-FHB virtualization engine features

<table>
<thead>
<tr>
<th>From FC:</th>
<th>To FC:</th>
<th>Return parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>8019 - Advanced POWER Virtualization Carry Over Indicator</td>
<td>8002 - PowerVM (Enterprise Edition)</td>
<td>No</td>
</tr>
<tr>
<td>8597 - PowerVM - Standard Edition, Qty 100 of #7943</td>
<td>8598 - PowerVM (Enterprise Edition), Qty 100 of #8002</td>
<td>No</td>
</tr>
</tbody>
</table>

### Feature conversions for 9179-MHB virtualization engine features

<table>
<thead>
<tr>
<th>From FC:</th>
<th>To FC:</th>
<th>Return parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>8018 - Advanced POWER Virtualization Carry Over Indicator</td>
<td>7995 - PowerVM - Enterprise Edition</td>
<td>No</td>
</tr>
</tbody>
</table>

### Feature conversions for 9179-MHC virtualization engine features

<table>
<thead>
<tr>
<th>From FC:</th>
<th>To FC:</th>
<th>Return parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>8018 - Advanced POWER Virtualization Carry Over Indicator</td>
<td>7995 - PowerVM - Enterprise Edition</td>
<td>No</td>
</tr>
</tbody>
</table>
**Feature conversions for 9179-MHD memory features**

<table>
<thead>
<tr>
<th>From FC:</th>
<th>To FC:</th>
<th>parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMA3 - Activation</td>
<td>EMA4 - 100 GB Mobile Memory</td>
<td>Yes</td>
</tr>
<tr>
<td>DDR3 POWER7+ Memory Activation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Feature conversions for 9179-MHD processor features**

<table>
<thead>
<tr>
<th>From FC:</th>
<th>To FC:</th>
<th>parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPHA - 1-Core Activation for Processor Feature EPHO</td>
<td>EP23 - 1-Core Mobile Activation</td>
<td>Yes</td>
</tr>
<tr>
<td>EPHC - 1-Core Activation for Processor Feature EPHZ</td>
<td>EP23 - 1-Core Mobile Activation</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Feature conversions for 9179-MHD virtualization engine features**

<table>
<thead>
<tr>
<th>From FC:</th>
<th>To FC:</th>
<th>parts</th>
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</thead>
<tbody>
<tr>
<td>8018 - Advanced POWER Virtualization Carry Over Indicator</td>
<td>7995 - PowerVM - Enterprise Edition</td>
<td>No</td>
</tr>
</tbody>
</table>

**Publications**

No publications are shipped with these features.

**Services**

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

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

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For details on education offerings related to specific products, visit


Select your country, and then select the product as the category.
Technical information

Specified operating environment

Physical specifications
For physical specifications, refer to the Sales Manual.

Hardware requirements
Prerequisites for Power Enterprise Pools:

- All systems in a pool must be attached to the same HMC (or redundant set of HMCs)
- Systems must be one of the following models: 9117-MMD, 9179-MHD or 9119-FHB.
- All systems in the pool must be at eFW 7.8, or later.
- Supporting HMCs must be at V7R7.8, or later and have at least 2 GB of memory.
- Users must sign a contract (Z126-6228) that specifies their agreement to the terms of usage. Contracts must be signed prior to ordering the new mobile feature codes.
- Users must request a pool ID specifying the system serial numbers that will be assigned to the pool.
- Users are required to notify IBM when adding systems to or removing systems from a pool.
- Mobile processor and memory activations are the only activations that can be assigned to other systems in the pool.
- Existing static processor and memory activations can be converted to mobile processor or mobile memory features for use in a Power Enterprise Pool.
- Existing static and new mobile activations can be co-resident in the same system and in the same partition.
- Mobile activations are assigned to the pool and must be assigned to a system for use by the user via the HMC.
- A base number of static cores must be activated on each system in the pool, consistent with previous minimum configurations. (The Power 770 and the Power 780 must have at least 4 cores activated in static capability. The Power 795 must have at least 24 cores or 25% of the installed cores, whichever is higher, activated in static capability). All remaining processor activations on these systems can be mobile activations.
- Up to 75% of all physically installed memory can be mobile activated.
- All systems in the pool must be on eFW 7.8, or later.
- The supporting HMC(s) must be at V7.8, or later, and have at least 2 GB of memory.
- Each eligible program that is licensed on one of the systems in the pool must be licensed for at least one core on each of the additional systems in the pool.
- All systems in the pool must either be on IBM maintenance or not be on IBM maintenance.
- All systems in the pool must be in the client's possession and located in the same country.

Limitations and prerequisites for Power Integrated Facility for Linux (IFL)

- Users agree to run all Power IFL enabled workloads in separate partitions (either dedicated or shared) and use the activations only for Linux workloads.
- Activations are available in units of four cores and 32 GB of memory with PowerVM for Linux.

Limitations and prerequisites for HMC
• Power Enterprise Pools and DPO enhancements for HMC require the HMC at firmware level 7.8, or later.
• Requires the HMC to have at least 2 gigabytes of physical memory to be able to use manage Enterprise Pools or to use the PowerVC enablement features.

HMC models that cannot be upgraded to support this functionality:

• 7042-CR4
• 7310-CR4
• 7310-C05
• 7310-C06
• 7042-C06
• 7042-C07
• 7315-CR3
• 7310-CR3
• 7310-CR3

For HMC models with less than 2 GB of memory, new GUI functionality will automatically be disabled. HMC operation will then continue in legacy mode. Also note: HMC V7.8 will be the last HMC code level upgrade for HMC models 7310-C05, 7310-C06, 7042-C06, 7042-C07, 7315-CR3, 7310-CR3, 7310-CR4, 7042-CR4.

**Limitations**

Limitations for Power Enterprise Pools:

• All systems in a pool must be attached to the same HMC (or redundant set of HMCs)
• Activations cannot be transferred, moved, or otherwise reassigned across country boundaries
• Power 770 systems must be together in their own pool and cannot be combined with Power 780 or Power 795 systems. (Power 780 and 795 systems can be combined together in the same pool).
• Existing permanent activations must be converted to mobile activations in order to be assigned to other systems within a pool.
• Power IFL activations are not supported as mobile activations within Power Enterprise Pools but can reside separately on systems within a pool. (AIX®, IBM i, and Linux operating systems and their workloads are all supported with Power Enterprise Pools).
• The number of permanent and mobile activations ordered for any system cannot exceed the total physical capacity of the system.
• Systems that leave the pool must depart with the same resources as were ordered against the system serial number.
• Systems can belong to only one pool at a time.
• Controlling HMC devices are limited to 32 high-end systems, 48 mid-range systems, or 1000 total partitions.
• Users agree not to exceed the maximum number of software licenses within the pool for any specific software agreement.

**Planning information**

**Cable orders**

No cables required

**Security, auditability, and control**

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

Contact your IBM representative for the list of selected services available in your country, either as standard or customized offerings, for the efficient installation, implementation, and/or integration of this product.

IBM Electronic Services

Electronic Service Agent™ and the IBM Electronic Support web portal are dedicated to providing fast, exceptional support to IBM Systems customers. The IBM Electronic Service Agent tool is a no-additional-charge tool that proactively monitors and reports hardware events, such as system errors, performance issues, and inventory. The Electronic Service Agent tool can help you stay focused on your company’s strategic business initiatives, save time, and spend less effort managing day-to-day IT maintenance issues. Servers enabled with this tool can be monitored remotely around the clock by IBM Support all at no additional cost to you.

Now integrated into the base operating system of AIX 5.3, AIX 6.1, and AIX 7.1, Electronic Service Agent is designed to automatically and electronically report system failures and utilization issues to IBM, which can result in faster problem resolution and increased availability. System configuration and inventory information collected by the Electronic Service Agent tool also can be viewed on the secure Electronic Support web portal, and used to improve problem determination and resolution by you and the IBM support team. To access the tool main menu, simply type "smitty esa_main", and select "Configure Electronic Service Agent." In addition, ESA now includes a powerful Web user interface, giving the administrator easy access to status, tool settings, problem information, and filters. For more information and documentation on how to configure and use Electronic Service Agent, refer to http://www.ibm.com/support/electronic

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

Benefits

**Increased uptime:** The Electronic Service Agent tool is designed to enhance the Warranty or Maintenance Agreement by providing faster hardware error reporting and uploading system information to IBM Support. This can translate to less wasted time monitoring the "symptoms," diagnosing the error, and manually calling IBM Support to open a problem record. Its 24 x 7 monitoring and reporting mean no more dependence on human intervention or off-hours customer personnel when errors are encountered in the middle of the night.

**Security:** The Electronic Service Agent tool is designed to be secure in monitoring, reporting, and storing the data at IBM. The Electronic Service Agent tool securely transmits either via the Internet (HTTPS or VPN) or modem, and can be configured to communicate securely through gateways to provide customers a single point of exit from their site. Communication is one way. Activating Electronic Service Agent does not enable IBM to call into a customer’s system. System inventory information is stored in a secure database, which is protected behind IBM firewalls. It is viewable only by the customer and IBM. The customer’s business applications or business data is never transmitted to IBM.

**More accurate reporting:** Since system information and error logs are automatically uploaded to the IBM Support center in conjunction with the service request, customers 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:** Using the IBM ID entered during activation, customers can view system and support information in the "My Systems" and "Premium Search" sections of the Electronic Support Web site at

http://www.ibm.com/support/electronic

My Systems provides valuable reports of installed hardware and software using information collected from the systems by Electronic Service Agent. Reports are available for any system associated with the customer's IBM ID. 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 Electronic Service Agent information that has been collected from your system, customers 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, contact your IBM Systems Services Representative, or visit

http://www.ibm.com/support/electronic

Terms and conditions

**Power Enterprise Pools**

**Eligible Program Authorizations**

As a result of authorized participation in Power Enterprise Pools offering, the customer is authorized to temporarily transfer entitlements for authorized use of each Eligible Program from a Power Systems server that is participating in the pool to another Power Systems server that is also participating in the pool. Eligible programs are defined in the IBM License Supplement for Power Enterprise Pools (Z126-6228). Users agree not to exceed the maximum number of software licenses within the pool for any specific software agreement.

**Required Maintenance Service and Support**

Within each Power Enterprise Pool, all participating systems must either be serviced by IBM under warranty or an IBM maintenance service agreement, or not be serviced by IBM. In addition, each eligible program that is entitled for IBM software maintenance (SWMA) on one or more systems participating in the pool must also have a valid SWMA agreement on every participating system in the pool on which such eligible program will execute.

**Field installable feature**

Yes

**Warranty period**

These features assume the same warranty or maintenance terms as the machine in which they are installed for the full warranty or maintenance period announced for such machine.

**Customer setup**

Yes

Same license terms and conditions as base machine
Prices

For all local charges, contact your IBM representative.

Announcement countries

All European, Middle Eastern, and African countries except Iran, Sudan, and Syria.

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