



# IBM Parallel Environment Runtime Edition for AIX , V1.1 enables parallel application development and execution on select IBM Power Systems clusters

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## At a glance

IBM® Parallel Environment (PE) Runtime Edition for AIX®, V1 is designed to offer a user-friendly, runtime environment for the execution of parallel applications. The components of IBM PE Runtime Edition for AIX are:

- Parallel Operating Environment
- IBM Message Passing Interface (IBM MPI)
- IBM Parallel Active Messaging Interface (PAMI)
- Low-level application programming interface (LAPI)
- Command line parallel debugger (pdb)

For ordering, contact your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at 800-IBM-CALL (Reference: RE001).

## Overview

IBM PE Runtime Edition for AIX, V1.1 provides a parallel runtime environment for a distributed cluster of select IBM Power Systems™ servers, including the Power® 775 Supercomputer for high performance computing workloads. It also provides the core components to enable a user to develop, debug, and execute parallel applications such as applications using the industry-standard MPI.

IBM PE Runtime Edition for AIX can be used on a single IBM Power Systems server to develop and test parallel applications through shared memory and TCP/IP User Datagram Protocol (UDP) and through simple runtime options deployed to a networked cluster of IBM Power 775 servers.

IBM PE Runtime Edition supports a unique capability for the user to create a workflow via "subjob" support managed by the Parallel Operating Environment. Subjobs allow users the ability to run multiple parallel jobs within the initial static allocation of compute resources.

IBM's communication implementation exploits an enhanced API, IBM PAMI, designed to increase parallel application performance on clusters made up of Power Systems servers running the AIX operating system.

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## Key prerequisites

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- IBM AIX 7.1 with Service Pack 3, or later
- IBM Power 775 Supercomputer (9125-F2C) or select stand-alone POWER7® clusters or POWER7 clusters connected with a LAN

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## Planned availability date

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August 26, 2011

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## Description

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IBM PE Runtime Edition for AIX, V1 is a capability-rich development and execution environment for parallel applications. IBM PE Runtime Edition for AIX offers parallel application programming interfaces, such as MPI and PAMI, an execution environment for parallel applications.

The components of IBM PE Runtime Edition are:

- Multiple level support: IBM PE Runtime Edition allows multiple releases or updates, especially in the case of fixes, to be separately installed entities so that multiple releases of IBM PE Runtime Edition can be installed on the same cluster. When multiple releases are installed, IBM PE Runtime Edition allows for customers to switch from one release to another.
- Industry-standard MPI interface: IBM PE Runtime Edition for AIX delivers straightforward message-passing facilities by application developers familiar with distributed memory machines. This can also protect your software investment by allowing portability of applications. The goal of this interface is to deliver a standard for writing message-passing programs for practicality, portability, efficiency, and flexibility.
- IBM MPI: The IBM MPI is a complete MPI 2.2 implementation, designed to comply with the requirements of the MPI standard. IBM MPI supports the MPI-2.1's process creation and management scheme. The IBM design is enabled using static resources allocated at job launch time.

The IBM MPI provides a number of nonblocking collective communications subroutines that are available for parallel programming. These subroutines are extensions of the MPI standard. Collective communications routines for 64-bit programs have been enhanced to use shared memory for better performance. The IBM MPI collective communication is designed to use an optimized communication algorithm according to job and data size.

The IBM MPI provides a high scalability and low memory usage implementation. The IBM MPI library minimizes its own memory usage so that an application program can use as much system resources as possible. It is architected to support parallel job size of up to one million tasks.

IBM MPI runs over PAMI. This is achieved through exploiting the PAMI APIs.

- Parallel Operating Environment: Parallel Operating Environment is used to set up the environment for the user's parallel program and to control and monitor job execution.

Parallel Operating Environment provides:

- OS Jitter mitigation through co-scheduling capability: Parallel Operating Environment provides services for periodically adjusting the dispatch priority of a user's task between set boundaries, giving the tasks improved execution priority. As an alternative to the priority adjustment coscheduler, Parallel Operating Environment provides a run queue-based coscheduler for reducing operating system jitter (OS jitter). *OS jitter* is operating system interference that is caused by the scheduling of daemon processes and the handling of

asynchronous events such as interrupts. This interference can have adverse effects on parallel applications running on large-scale systems.

- Affinity support of processes to CPU and memory: IBM PE Runtime Edition provides the capability to control the placement of the tasks of a parallel job, using affinity to processor memory or CPU placement, during its execution. As a result, applications may see improved performance if the processor, the memory it uses, and the I/O adapter it connects to are in close proximity, based on the affinity of the tasks to memory or CPUs it uses.
- User-controlled workflow/subjob support: IBM PE Runtime Edition for AIX provides support for launching and managing multiple parallel dynamic jobs (subjobs) using a single scheduler or resource management allocation of cluster resources.
- Lightweight core file support: Lightweight core file is designed to save CPU time, network bandwidth, and disk space that would be required to generate standard core files. The lightweight format also provides the capability to easily examine the state of all threads in a parallel program at the time the event that caused the core file occurred.
- Serial and parallel job launch: Allows the Parallel Operating Environment to be used not only for launching traditional MPI or other message-passing programs, but also as a distributed shell to quickly obtain information about all nodes in the cluster, such as disk space, currently running jobs, and so on.
- Support running SPMD and MPMD programs: Single Process, Multiple Data (SPMD) and Multiple Process, Multiple Data (MPMD) gives users the flexibility to run the same program on all nodes (SPMD, most common) or different programs on each node (MPMD). The MPMD function is useful for master/worker programs where the master program will coordinate and synchronize the execution of all the worker tasks, where neither program could run without the other.
- Resource management: Parallel Operating Environment supports running without a separate scheduler or resource manager. If a scheduler or resource manager is not used or not available, Parallel Operating Environment can manage the node and adapter resources itself. The network resource tables will also be loaded by Parallel Operating Environment to establish the communication mechanism needed for message-passing programs.

You can use the resource manager of your choice for submitting and managing batch or interactive parallel jobs. IBM PE Runtime Edition includes a set of resource management interfaces and data areas, for configuring your resource manager to interact with the Parallel Operating Environment.

Integration with IBM Tivoli® Workload Scheduler LoadLeveler® for AIX: IBM PE Runtime Edition allows users to run Parallel Operating Environment jobs in interactive or batch mode with LoadLeveler managing the node, network, CPU, memory, and other key resources for optimum throughput and resource utilization.

- IBM PAMI: PAMI is a new and converged messaging API that covers both point-to-point and collective communications. PAMI exploits the low-level user space interface to the Host Fabric Interface (HFI) as well as TPC/IP using UDP sockets. PAMI has a rich set of collective operations designed to support MPI and pGAS semantics, multiple algorithm selection, and nonblocking operation. It supports nonblocking and ad hoc geometry (group/communicator) creation, and nonblocking collective allreduce, reduce, broadcast, gather(v), scatter(v), alltoall(v), reduce scatter, and (ex)scan operations. The geometry may support multiple algorithms, including hardware-accelerated (via HFI Collective Acceleration Unit, or Barrier Service Register) versions of broadcast, barrier, allreduce, and reduce.
- Command line parallel debugger: IBM PE Runtime Edition for AIX offers a simple but powerful command line parallel debugger called *pdb*. The *pdb* debugger streamlines debugging of parallel applications, presenting the user with a single command-line interface that supports most dbx/gdb execution control commands and provides the ability to examine running tasks. In order to simplify management of large numbers of tasks, dbx/gdb allows tasks to be grouped so that the user may examine any subset of the debugged tasks.

The pdb debugger also allows users to invoke a Parallel Operating Environment job or attach to a running Parallel Operating Environment job and place it under debug control. It does this by starting a remote dbx/gdb session for each task of the Parallel Operating Environment job put under debugger control. The pdb debugger also provides a unique capability of filtering the output to minimize the amount of data the user needs to see. It provides the capability for peer (more than one user) debugging through the multiple console sharing feature.

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### **Accessibility by people with disabilities**

A US Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at

[http://www.ibm.com/able/product\\_accessibility/index.html](http://www.ibm.com/able/product_accessibility/index.html)

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### **Section 508 of the US Rehabilitation Act**

IBM PE Runtime Edition for AIX is capable as of August 26, 2011, 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 Voluntary Product Accessibility Template (VPAT) can be requested at

[http://www.ibm.com/able/product\\_accessibility/index.html](http://www.ibm.com/able/product_accessibility/index.html)

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## **Product positioning**

IBM PE Runtime Edition V1.1 is a must for high performance computing cluster customers who demand effective tools for developing, tuning, and running parallel applications that use the industry-standard MPI. IBM PE MPI is MPI 2.2 compliant. It is designed to scale to over one million cores and optimized to maximize application performance on IBM Power Systems (POWER7) clusters.

IBM PE Runtime Edition also offers a way to improve resource utilization and reduce time to solution in a cluster environment. IBM PE Runtime Edition can offer high performance and fast turnaround time for numerically intensive and demanding scientific, technical, and strategic business applications.

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## **Program number**

Program number	VRM	Program name
5765-PER	1.1.0	IBM PE Runtime Edition for AIX

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## **Product identification number**

Program PID number	Maintenance 1-year PID number	Maintenance 3-year PID number
5765-PER	5660-PER 5661-PER	5663-PER 5664-PER 5662-PER

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## **Electronic Software Update Orders**

Entitled Software Update (ESU) is a way for customers to self order their Power software release upgrades via the Entitled Software Support (ESS) website without

the need to go to their seller to place the upgrade order. Entitled Software Update (ESU) orders for Electronic Software Delivery (ESD) is now available in all countries.

ESU orders for software will be placed on the Entitled Software Support (ESS) website

<http://www.ibm.com/servers/eserver/ess>

Customers should generally select electronic delivery when ordering via ESU, but do have the ability to select physical delivery. Programs ordered for ESD will have the same download images provided as on the CD media shipped for physical orders. Countries requiring physical delivery of License Information documentation will have these documents shipped separately. This physical shipment will not delay the immediate availability of the ESD images for customer download.

ESD customers placing ESD software orders will receive an email with the software order information. The ESU customer will be able to immediately proceed to the Downloads website for program access, instead of waiting for delivery of a physical package shipped from IBM.

Customers choosing physical delivery will also have the electronic images available for ESD download.

- ESD help (instructions on how to use)  
[http://www.ibm.com/systems/support/software/delivery/en\\_US/downloadinfo.html](http://www.ibm.com/systems/support/software/delivery/en_US/downloadinfo.html)
- ESD sign-in (must have Customer number and Product software entitlements to get in)  
<https://www.ibm.com/servers/eserver/ess/OpenServlet.wss>
- List of Power software products that are available for electronic download  
[http://www.ibm.com/systems/support/software/delivery/en\\_US/supportedproducts.html](http://www.ibm.com/systems/support/software/delivery/en_US/supportedproducts.html)

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## Offering Information

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Product information is available via the Offering Information website

<http://www.ibm.com/common/ssi>

### Business Partner information

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

<https://www.ibm.com/partnerworld/mem/sla.jsp?num=211-237>

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## Publications

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No publications are shipped with this program. The following publications are available from the web:

- Parallel Environment Runtime Edition for AIX V1.1:
  - Installation, SC23-6780
  - LAPI Programming Guide, SA23-2272
  - Messages, SC23-6782
  - MPI Programming Guide, SC23-6783
  - MPI Subroutine Reference, SC23-6784
  - NRT API Programming Guide, SC23-6785

- Operation and Use, SC23-6781
- PAMI Programming Guide, SA23-2273

To access the above documentation, refer to the IBM Cluster Information Center website. For the most recent documentation in PDF and HTML formats visit

<http://publib.boulder.ibm.com/infocenter/clresctr/vrx/index.jsp>

The IBM Publications Center

<http://www.ibm.com/shop/publications/order>

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. Payment options for orders are via credit card (in the US) or customer number for 50 countries. A large number of publications are available online in various file formats, and they can all be downloaded by all countries, free of charge.

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## Technical information

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### Specified operating environment

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#### **Hardware requirements**

One of the following:

- IBM Power 775 clusters using the Host Fabric Interface (HFI)
- Power 730 or Power 740 clusters running stand-alone or connected with a LAN supporting IP

#### **Software requirements**

Operating environment: AIX 7.1 with Service Pack 3, or later

For compiling, one of these:

- IBM XL Fortran Enterprise Edition V13.1 for AIX
- IBM XL C/C++ Enterprise Edition V11.1 for AIX

For running, one of these:

- IBM XL Fortran Run-Time Environment V13.1 for AIX provided with the IBM XL Fortran Enterprise Edition for AIX
- IBM XL C/C++ Run-time Environment V11.1 for AIX provided with the IBM XL C/C++ Enterprise Edition V11.1 for AIX

To run Parallel Operating Environment jobs, any job scheduler or TWS LoadLeveler for AIX, V5.1 is required.

**Note:** The common resource manager interfaces used by Parallel Operating Environment allow the use of schedulers other than LoadLeveler if those schedulers utilize the LoadLeveler resource manager interfaces.

The program's specifications and specified operating environment information may be found in documentation accompanying the program, if available, such as a readme file, or other information published by IBM, such as an announcement letter. Documentation and other program content may be supplied only in the English language.

#### **Companion products**

The following products could be purchased with this product:

IBM Parallel ESSL for AIX, V4.1 (5765-ESX)

IBM Tivoli Workload Scheduler LoadLeveler for AIX, V5.1 (5765-L50)  
IBM General Parallel File System for AIX, V3.4 (5765-G66)

The benefits to the customer are:

- Parallel Engineering and Scientific Subroutine Library (Parallel ESSL) is a scalable mathematical subroutine library that provides outstanding performance through simple subroutine calls for engineering and scientific MPI applications on clusters of Power Systems servers using the IBM MPI library for communication.
- IBM Tivoli Workload Scheduler LoadLeveler can be used to manage parallel workload, maximize resource utilization, and minimize job completion time. LoadLeveler schedules jobs, and provides functions for building, submitting, and processing jobs quickly and efficiently in a dynamic environment.
- General Parallel File System (GPFS™) is beneficial because MPI-IO depends on the underlying file system's ability to maintain file consistency when multiple tasks modify a file. An MPI job distributes tasks across many nodes, and these tasks commonly do large amounts of concurrent and even coordinated file I/O. GPFS APAR #IV00760 is required in support of the Power 775 cluster solution.

### ***Compatibility***

Due to AIX binary compatibility support, applications compiled under previous versions of the AIX operating system and IBM Parallel Environment for AIX are supported and compatible with IBM PE Runtime for AIX.

### **Planning information**

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#### ***Installability***

If you have the IBM Parallel Environment for AIX, V5 product installed in your environment, you need to uninstall it prior to installing IBM PE Runtime for AIX, V1.

#### ***Direct customer support***

For technical support or assistance, contact your IBM representative or visit

<http://www.ibm.com/support>

#### ***Packaging***

IBM PE Runtime Edition for AIX is distributed as a single package available via DVD media with the following:

- IBM International Program License Agreement in multilanguage booklet (LC23-5108-00) and its License Information (L-RHAN-8D9QKT) in multiple languages (ppe.loc.license)
- Proof of Entitlement (POE)
- Product readme file that describes the program's specified operating environment and program specifications
- Program filesets:
  - IBM PE Runtime Edition filesets (ppe.rte, ppe.man, ppe.samples, ppe.loc.license)
  - Resource manager filesets (LoadL.resmgr.full)

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

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IBM PE Runtime Edition for AIX uses the security and auditability features of the AIX 7 operating system.

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

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## Software Services

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IBM Software Services has the breadth, depth, and reach to manage your services needs. You can leverage the deep technical skills of our lab-based, software services team and the business consulting, project management, and infrastructure expertise of our IBM Global Services team. Also, we extend our IBM Software Services reach through IBM Business Partners to provide an extensive portfolio of capabilities. Together, we provide the global reach, intellectual capital, industry insight, and technology leadership to support a wide range of critical business needs.

To learn more about IBM Software Services or to contact a Software Services sales specialist, visit

<http://www.ibm.com/software/sw-services/>

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## Ordering information

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### Charge metric

Program name	Part number or PID number	Charge metric
IBM PE Runtime Edition for AIX	5765-PER	Per install - small, medium, or large server including one year SWMA
1-year SWMA: Registration and Renewal	5660-PER	Per install - small, medium, or large server
1-year SWMA: After-license	5661-PER	Per install - small, medium, or large server
3-year SWMA: Registration	5662-PER	Per install - small, medium, or large server
3-year SWMA: Renewal	5663-PER	Per install - small, medium, or large server
3-year SWMA: After-license	5664-PER	Per install - small, medium, or large server

### Install

Install is a unit of measure by which the program can be licensed. An *install* is an installed copy of the program on a physical or virtual disk made available to be executed on a computer. Licensee must obtain an entitlement for each install of the program.

5765-PER - IBM PE Runtime Edition for AIX, V1.1

Basic license one-time charge

Feature description	Feature number
Small - per install	0007
Medium - per install	0008
Large - per install	0009

This software license includes Software Maintenance, previously referred to as Software Subscription and Technical Support.

Extending coverage for a total of three years from the date of acquisition may be elected. Order the program number, feature number, and quantity to extend coverage for your software licenses. If maintenance has expired, specify the after license feature number.

Software license includes 1-year Software Maintenance  
5765-PER - IBM PE Runtime Edition for AIX

Program number	Program name	Feature number
5660-PER	Maintenance no-charge 1-year registration	
	Small per install	1709
	Medium per install	1723
	Large per install	1725
5660-PER	Maintenance 1-year 24 x 7 support	
	Small per install	1710
	Medium per install	1724
	Large per install	1726
5662-PER	Maintenance 3-year registration	
	Small per install	0917
	Medium per install	0927
	Large per install	0929
5662-PER	Maintenance 3-year 24 x 7 support	
	Small per install	0918
	Medium per install	0928
	Large per install	0930
5661-PER	1-year Software Maintenance after-license	
	Small per install	0633
	Medium per install	0643
	Large per install	0645
5661-PER	After-license 1-year 24 x 7 support	
	Small per install	0634
	Medium per install	0644
	Large per install	0646
5664-PER	3-year Software Maintenance after-license	
	Small per install	0001
	Medium per install	0003
	Large per install	0005
5664-PER	After-license 3-year 24 x 7 support	
	Small per install	0002
	Medium per install	0004
	Large per install	0006

**System Program Order (SPO):** An order for SPO 5692-A6P is mandatory for shipments of program distribution. The individual licensed program orders are for registration and billing purposes only. No shipment occurs under these orders.

To receive shipment of machine-readable materials, the order needs to include SPO 5692-A6P for IBM PE Runtime Edition for AIX. The individual licensed program order (for example, 5765-PER) must still be ordered but will be for registration and billing purposes only and will not result in shipment of materials.

Program number	Program/Function name	Feature number
5692-A6P	IBM PE Runtime Edition for AIX, V1.1	2287

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## Terms and conditions

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The information provided in this announcement letter is for reference and convenience purposes only. The terms and conditions that govern any transaction with IBM are contained in the applicable contract documents such as the IBM International Program License Agreement, IBM International Passport Advantage® Agreement, and the IBM Agreement for Acquisition of Software Maintenance.

### ***Licensing***

IBM International Program License Agreement including the License Information document and Proof of Entitlement (PoE) govern your use of the program. PoEs are required for all authorized use.

This software license includes Software Subscription and Support (also referred to as Software Maintenance).

### ***Agreement for Acquisition of Software Maintenance***

The IBM Agreement for Acquisition of Software Maintenance (Z125-6011) agreement applies for Subscription and Support (also referred to as Software Maintenance) and does not require customer signatures.

This program is licensed under the IBM Program License Agreement (IPLA) and the associated Agreement for Acquisition of Software Maintenance, which provide for support with ongoing access to releases and versions of the program. IBM includes one year of Software Subscription and Support with the initial license acquisition of each program acquired. The initial period of Software Subscription and Support can be extended by the purchase of a renewal option, if available. These programs have a one-time license charge for use of the program and an annual renewable charge for the enhanced support that includes telephone assistance (voice support for defects during normal business hours), as well as access to updates, releases, and versions of the program as long as support is in effect.

### ***License Information form number***

L-RHAN-8D9QKT

The program's License Information will be available for review on the IBM Software License Agreement website

<http://www.ibm.com/software/sla/sladb.nsf>

### ***Limited warranty applies***

Yes

### ***Limited warranty***

IBM warrants that when the program is used in the specified operating environment, it will conform to its specifications. The warranty applies only to the unmodified portion of the program. IBM does not warrant uninterrupted or error-free operation of the program or that IBM will correct all program defects. You are responsible for the results obtained from the use of the program.

IBM provides you with access to IBM databases containing information on known program defects, defect corrections, restrictions, and bypasses at no additional

charge. For further information, consult the IBM Software Support Handbook found at

<http://www.ibm.com/support/handbook>

IBM will maintain this information for at least one year after the original licensee acquires the program (warranty period).

### ***Program technical support***

Technical support of a program product version or release will be available for a minimum of three years from the general availability date, as long as your Software Subscription and Support (also referred to as Software Maintenance) is in effect. This technical support allows you to obtain assistance (via telephone or electronic means) from IBM for product-specific, task-oriented questions regarding the installation and operation of the program product. Software Subscription and Support also provides you with access to updates (modifications or fixes), releases, and versions of the program. You will be notified, via announcement letter, of discontinuance of support with 12 months' notice. If you require additional technical support from IBM, including an extension of support beyond the discontinuance date, contact your IBM representative or IBM Business Partner. This extension may be available for a fee.

### ***Money-back guarantee***

If for any reason you are dissatisfied with the program and you are the original licensee, you may obtain a refund of the amount you paid for it, if within 30 days of your invoice date you return the program and its PoE to the party from whom you obtained it. If you downloaded the program, you may contact the party from whom you acquired it for instructions on how to obtain the refund.

For clarification, note that for programs acquired under any of IBM's On/Off Capacity on Demand (On/Off CoD) software offerings, this term does not apply since these offerings apply to programs already acquired and in use by you.

### ***Volume orders (IVO)***

Yes. Contact your IBM representative.

### ***Passport Advantage applies***

No

### ***Software Subscription and Support applies***

Yes. All distributed software licenses include Software Subscription and Support for a period of 12 months from the date of acquisition, providing a streamlined way to acquire IBM software and assure technical support coverage for all licenses. Extending coverage for a total of three years from date of acquisition may be elected.

While your Software Subscription and Support is in effect, IBM provides you assistance for your routine, short duration installation and usage (how-to) questions, and code-related questions. IBM provides assistance via telephone and, if available, electronic access, only to your information systems (IS) technical support personnel during the normal business hours (published prime shift hours) of your IBM support center. (This assistance is not available to your end users.) IBM provides Severity 1 assistance 24 hours a day, every day of the year.

For additional details, consult your IBM Software Support Handbook at

<http://www.ibm.com/support/handbook>

Software Subscription and Support does not include assistance for the design and development of applications, your use of programs in other than their specified

operating environment, or failures caused by products for which IBM is not responsible under this agreement.

***IBM Operational Support Services -- SoftwareXcel***

No

***Other support***

Power Systems SWMA

***System i Software Maintenance applies***

No

***Variable charges apply***

No

***Educational allowance available***

Yes. A 15% education allowance applies to qualified education institution customers.

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## **IBM Electronic Services**

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IBM has transformed its delivery of hardware and software support services to help you achieve higher system availability. Electronic Services is a web-enabled solution that offers an exclusive, no-additional-charge enhancement to the service and support available for IBM servers. These services are designed to provide the opportunity for greater system availability with faster problem resolution and preemptive monitoring. Electronic Services comprises two separate, but complementary, elements: Electronic Services news page and Electronic Services Agent.

The Electronic Services news page is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. The news page enables you to gain easier access to IBM resources for assistance in resolving technical problems.

The Electronic Service Agent™ is no-additional-charge software that resides on your server. It monitors events and transmits system inventory information to IBM on a periodic, client-defined timetable. The Electronic Service Agent automatically reports hardware problems to IBM. Early knowledge about potential problems enables IBM to deliver proactive service that may result in higher system availability and performance. In addition, information collected through the Service Agent is made available to IBM service support representatives when they help answer your questions or diagnose problems. Installation and use of IBM Electronic Service Agent for problem reporting enables IBM to provide better support and service for your IBM server.

To learn how Electronic Services can work for you, visit

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

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## **Prices**

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

Information on charges is available at

<http://www.ibm.com/support>

Choose the option entitled Purchase/upgrade tools.

Program name: IBM PE Runtime Edition for AIX, V1

Program number	Program name	Feature number
5765-PER	IBM PE Runtime Edition for AIX	
	Small - per install	0007
	Medium - per install	0008
	Large - per install	0009

Program number	Program name	Feature number
5660-PER	Maintenance no-charge 1-year registration	
	Small per install	1709
	Medium per install	1723
	Large per install	1725

5660-PER	Maintenance 1-year 24 x 7 support	
	Small per install	1710
	Medium per install	1724
	Large per install	1726

5662-PER	Maintenance 3-year registration	
	Small per install	0917
	Medium per install	0927
	Large per install	0929

5662-PER	Maintenance 3-year 24 x 7 support	
	Small per install	0918
	Medium per install	0928
	Large per install	0930

5661-PER	1-year Software Maintenance after-license	
	Small per install	0633
	Medium per install	0643
	Large per install	0645

5661-PER	After-license 1-year 24 x 7 support	
	Small per install	0634
	Medium per install	0644
	Large per install	0646

5664-PER	3-year Software Maintenance after-license	
	Small per install	0001
	Medium per install	0003
	Large per install	0005

5664-PER	After-license 3-year 24 x 7 support	
	Small per managed server	0002
	Medium per managed server	0004
	Large per managed server	0006

### **Pricing terms**

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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-211-237-List\\_prices\\_2011\\_07\\_12.PDF](#)

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## Order now

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To order, contact the Americas Call Centers or your local IBM representative, or your IBM Business Partner.

To identify your local IBM representative or IBM Business Partner, call 800-IBM-4YOU (426-4968).

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Fax: 800-2IBM-FAX (242-6329)  
For IBM representative: [callserv@ca.ibm.com](mailto:callserv@ca.ibm.com)  
For IBM Business Partner: [pwswna@us.ibm.com](mailto:pwswna@us.ibm.com)  
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3500 Steeles Ave. East, Tower 3/4  
Markham, Ontario  
Canada  
L3R 2Z1

Reference: RE001

The Americas Call Centers, our national direct marketing organization, can add your name to the mailing list for catalogs of IBM products.

**Note:** Shipments will begin after the planned availability date.

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