

## Ibm 7042 Hardware Management Consoles With Web Based

This is the first textbook dedicated to explaining how artificial intelligence (AI) techniques can be used in and for games. After introductory chapters that explain the background and key techniques in AI and games, the authors explain how to use AI to play games, to generate content for games and to model players. The book will be suitable for undergraduate and graduate courses in games, artificial intelligence, design, human-computer interaction, and computational intelligence, and also for self-study by industrial game developers and practitioners. The authors have developed a website (<http://www.gameaibook.org>) that complements the material covered in the book with up-to-date exercises, lecture slides and reading.

Every time you wheel a shopping cart through one of Walmart's more than 10,000 stores worldwide, or swipe your credit card or purchase something online, you enter a mind-boggling logistical regime. Even if you've never shopped at Walmart, its logistics have probably affected your life. *The Rule of Logistics* makes sense of its spatial and architectural ramifications by analyzing the stores, distribution centers, databases, and inventory practices of the world's largest corporation. *The Rule of Logistics* tells the story of Walmart's buildings in the context of the corporation's entire operation, itself characterized by an obsession with logistics. Beginning with the company's founding in 1962, Jesse LeCavalier reveals how logistics—as a branch of knowledge, an area of work, and a collection of processes—takes shape and changes our built environment. Weaving together archival material with original drawings, LeCavalier shows how a diverse array of ideas, people, and things—military theory and chewing gum, Howard Dean and satellite networks, Hudson River School painters and real estate software, to name a few—are all connected through Walmart's logistical operations and in turn are transforming how its buildings are conceptualized, located, built, and inhabited. A major new contribution to architectural history and theory, *The Rule of Logistics* helps us understand how retailing today is changing our bodies, brains, buildings, and cities and predicts what future forms architecture might take when shaped by systems that exceed its current capacities.

This IBM® Redbooks® publication is a comprehensive guide that covers cloud security considerations for IBM Power Systems™. The first objectives of this book are to examine how Power Systems can fit into the current and developing cloud computing landscape and to outline the proven Cloud Computing Reference Architecture (CCRA) that IBM employs in building private and hybrid cloud environments. The book then looks more closely at the underlying technology and hones in on the security aspects for the following subsystems: IBM Hardware Management Console IBM PowerVM IBM PowerKVM IBM PowerVC IBM Cloud Manager with OpenStack IBM Bluemix This publication is for professionals who are involved in security design with regard to planning and deploying cloud infrastructures using IBM Power Systems.

This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power 770 (9117-MMC) and Power 780 (9179-MHC) servers supporting IBM AIX®, IBM i, and Linux operating systems. The goal of this paper is to introduce the major innovative Power 770 and 780 offerings and their prominent functions, including: The IBM POWER7™ processor available at frequencies of 3.3 GHz, 3.44 GHz, 3.72 GHz, and 3.92 GHz, and 4.14 GHz The specialized IBM POWER7™ Level 3 cache that provides greater bandwidth, capacity, and reliability The 1 Gb or 10 Gb Integrated Multifunction Card provides two USB ports, one serial port, and four Ethernet connectors for a processor enclosure and does not require a PCI slot The new Active Memory™ Mirroring (AMM) for Hypervisor feature that mirrors the main memory used by the firmware IBM PowerVMTM virtualization including PowerVM Live Partition Mobility and PowerVM Active Memory™ Sharing Active Memory Expansion that provides more usable memory than what is physically installed on the system IBM EnergyScale™ technology that provides features such as power trending, power-saving, capping of power, and thermal measurement Enterprise-ready reliability, serviceability, and availability Professionals who want to acquire a better understanding of IBM Power Systems™ products should read this paper. This paper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the 770 and 780 systems. This paper does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power 750 and Power 760 servers supporting IBM AIX®, IBM i, and Linux operating systems. The goal of this paper is to introduce the major innovative Power 750 and Power 760 offerings and their prominent functions: The IBM POWER7+™ processor is available at frequencies of 3.1 GHz, 3.4 GHz, 3.5 GHz, and 4.0 GHz. The larger IBM POWER7+ Level 3 cache provides greater bandwidth, capacity, and reliability. The newly introduced POWER7+ dual chip module (DCM). New 10GBase-T options for the Integrated Multifunction Card that provides two USB ports, one serial port, and four Ethernet connectors for a processor enclosure and does not require a PCI slot. New IBM PowerVM® V2.2.2 features, such as 20 LPARs per core. The improved IBM Active Memory™ Expansion technology provides more usable memory than is physically installed in the system. Professionals who want to acquire a better understanding of IBM Power Systems™ products should read this paper. This Redpaper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the 750 and 760 systems. This paper does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, together with existing sources, may be used to enhance your knowledge of IBM server solutions. For additional reading: A Technote is available that explains the performance architecture of this server. It is of interest to those migrating workloads from existing Power 750 servers. It can be found at: [Architecture of the IBM POWER7+ Technology-Based IBM Power 750 and IBM Power 760 Technote](#)

This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power System S814 (8286-41A) and IBM Power System S824 (8286-42A) servers that support IBM AIX®, IBM i, and Linux operating systems. The objective of this paper is to introduce the major innovative Power S814 and Power S824 offerings and their relevant functions: The new IBM POWER8™ processor, available at frequencies of 3.02 GHz, 3.52 GHz, 3.72 GHz, 3.89 GHz, and 4.15 GHz Significantly strengthened cores and larger caches Two integrated memory controllers with improved latency and bandwidth Integrated I/O subsystem and hot-pluggable PCIe Gen3 I/O slots Improved reliability, serviceability, and availability (RAS) functions IBM EnergyScale™ technology that provides features such as power trending, power-saving, capping of power, and thermal measurement This publication is for professionals who want to acquire a better understanding of IBM Power Systems™ products. This paper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power S814 and Power S824 systems. This paper does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power 710 (8231-E1C) and Power 730 (8231-E2C) servers supporting IBM AIX®, IBM i, and Linux operating systems. The goal of this paper is to introduce the innovative Power 710 and Power 730 offerings and their major functions, including these: The POWER7™ processor available at frequencies of 3.0 GHz, 3.55 GHz, and 3.7 GHz. The specialized POWER7 Level 3 cache that provides greater bandwidth, capacity, and reliability. The 2-port 10/100/1000 Base-TX Ethernet PCI Express adapter included in the base configuration and installed in a PCIe Gen2 x4 slot. The integrated SAS/SATA controller for HDD, SSD, tape, and DVD. This controller supports built-in hardware RAID 0, 1, and 10. PowerVMTM virtualization including PowerVM Live Partition Mobility and PowerVM Active Memory™ Sharing. Active Memory Expansion that provides more usable memory than what is physically installed on the system. EnergyScale™ technology that provides features such as power trending, power-saving, capping of power, and thermal measurement. Professionals who want to acquire a better understanding of IBM Power Systems

products can benefit from reading this paper. This paper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power 710 and Power 730 systems. This paper does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

This IBM® Redpaper™ publication is a comprehensive guide that covers the IBM Power System™ E850C (8408-44E) server that supports IBM AIX®, and Linux operating systems. The objective of this paper is to introduce the major innovative Power E850C offerings and their relevant functions. The Power E850C server (8408-44E) is the latest enhancement to the Power Systems portfolio. It offers an improved 4-socket 4U system that delivers faster IBM POWER8® processors up to 4.22 GHz, with up to 4 TB of DDR4 memory, built-in IBM PowerVM® virtualization, and capacity on demand. It also integrates cloud management to help clients deploy scalable, mission-critical business applications in virtualized, private cloud infrastructures. Like its predecessor Power E850 server, which was launched in 2015, the new Power E850C server uses 8-core, 10-core, or 12-core POWER8 processor modules. However, the Power E850C cores are 13%-20% faster and deliver a system with up to 32 cores at 4.22 GHz, up to 40 cores at 3.95 GHz, or up to 48 cores at 3.65 GHz, and use DDR4 memory. A minimum of two processor modules must be installed in each system, with a minimum quantity of one processor module's cores activated. Cloud computing, in its many forms (public, private, or hybrid), is quickly becoming both the delivery and consumption models for IT. However, finding the correct mix between traditional IT, private cloud, and public cloud can be a challenge. The new Power E850C server and IBM Cloud PowerVC manager can enable clients to accelerate the transformation of their IT infrastructure for cloud while providing tremendous flexibility during the transition. IBM Cloud PowerVC Manager provides OpenStack-based cloud management to accelerate and simplify cloud deployment by providing fast and automated VM deployments, prebuilt image templates, and self-service capabilities all with an intuitive interface. PowerVC management upwardly integrates into various third-party hybrid cloud orchestration products, including IBM Cloud Orchestrator, VMware vRealize, and others. Clients can simply manage both their private cloud VMs and their public cloud VMs from a single, integrated management tool. IBM Power Systems is designed to provide the highest levels of reliability, availability, flexibility, and performance to bring you a world-class enterprise private and hybrid cloud infrastructure. Through enterprise-class security, efficient built-in virtualization that drives industry-leading workload density, and dynamic resource allocation and management, the server consistently delivers the highest levels of service across hundreds of virtual workloads on a single system. The Power E850C server includes the cloud management software and services to assist with clients' move to the cloud, both private and hybrid. Those additional capabilities include the following items: Private cloud management with IBM Cloud PowerVC Manager, Cloud-based HMC Apps as a service, and Open source cloud automation and configuration tooling for AIX Hybrid cloud support Hybrid infrastructure management tools Securely connect system of record workloads and data to cloud native applications IBM Cloud Starter Pack Flexible capacity on demand Power to Cloud Services This publication is for professionals who want to acquire a better understanding of IBM Power Systems™ products. The intended audience includes the following roles: Clients Sales and marketing professionals Technical support professionals IBM Business Partners Independent software vendors This paper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power E850C system.

This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power System L922 (9008-22L) server, which was designed for data-intensive workloads such as databases and analytics in the Linux operating system. The objective of this paper is to introduce the major innovative Power L922 offering and its relevant functions: The new IBM POWER9™ processor, available at frequencies of 2.7 - 3.8 GHz, 2.9 - 3.8 GHz, and 3.4 - 3.9 GHz. Significantly strengthened cores and larger caches. Two integrated memory controllers that allow double the memory footprint of IBM POWER8® processor-based servers. An integrated I/O subsystem and hot-pluggable Peripheral Component Interconnect Express (PCIe) Gen4 and Gen3 I/O slots. I/O drawer expansion options offer greater flexibility. Support for Coherent Accelerator Processor Interface (CAPI) 2.0. New feature IBM EnergyScale™ technology provides new variable processor frequency modes that provide a significant performance boost beyond the static nominal frequency. This publication is for professionals who want to acquire a better understanding of IBM Power Systems™ products. The intended audience includes the following roles: Clients Sales and marketing professionals Technical support professionals IBM Business Partners Independent software vendors (ISVs) This paper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power L922 system. This paper does not replace the current marketing materials and configuration tools. It is intended as an extra source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

This IBM® Redpaper™ publication gives a broad understanding of a new architecture of the IBM Power System E950 (9040-MR9) server that supports IBM AIX®, and Linux operating systems. The objective of this paper is to introduce the major innovative Power E950 offerings and relevant functions: The IBM POWER9™ processor, which is available at frequencies of 2.8 - 3.4 GHz. Significantly strengthened cores and larger caches. Supports up to 16 TB of memory, which is four times more than the IBM POWER8® processor-based IBM Power System E850 server. Integrated I/O subsystem and hot-pluggable Peripheral Component Interconnect Express (PCIe) Gen4 slots, which have double the bandwidth of Gen3 I/O slots. Supports EXP12SX and ESP24SX external disk drawers, which have 12 Gb Serial Attached SCSI (SAS) interfaces and support Active Optical Cables (AOCs) for greater distances and less cable bulk. New IBM EnergyScale™ technology offers new variable processor frequency modes that provide a significant performance boost beyond the static nominal frequency. This publication is for professionals who want to acquire a better understanding of IBM Power Systems™ products. The intended audience includes the following roles: Clients Sales and marketing professionals Technical support professionals IBM Business Partners Independent software vendors (ISVs) This paper expands the current set of Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power E950 server. This paper does not replace the current marketing materials and configuration tools. It is intended as an extra source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

This book is open access under a CC BY 4.0 license. It relates to the III Annual Conference hosted by The Ministry of Education and Science of the Russian Federation in December 2016. This event has summarized, analyzed and discussed the interim results, academic outputs and scientific achievements of the Russian Federal Targeted Programme “Research and Development in Priority Areas of Development of the Russian Scientific and Technological Complex for 2014–2020.” It contains 75 selected papers from 6 areas considered priority by the Federal Targeted Programme: computer science, ecology & environment sciences; energy and energy efficiency; lifesciences; nanoscience & nanotechnology and transport & communications. The chapters report the results of the 3-years research projects supported by the Programme and finalized in 2016.

This IBM® Redbooks® publication provides an introduction to PowerVM™ virtualization technologies on Power System servers. PowerVM is a combination of hardware, firmware, and software that provides CPU, network, and disk virtualization. These are the main virtualization technologies: POWER7, POWER6, and POWER5 hardware POWER Hypervisor Virtual I/O Server Though the PowerVM brand includes partitioning, management software, and other offerings, this publication focuses on the virtualization technologies that are part of the PowerVM Standard and Enterprise Editions. This publication is also designed to be an introduction guide for system administrators, providing instructions for these tasks: Configuration and creation of partitions and resources on the HMC Installation and configuration of the Virtual I/O Server Creation and installation of virtualized partitions Examples using AIX, IBM i, and Linux This edition has been updated with the latest updates available and an improved content

organization.

This IBM® Redpaper™ publication provides a broad understanding of a new architecture of the IBM Power System E980 (9080-M9S) server that supports IBM AIX®, IBM i, and Linux operating systems (OSes). The objective of this paper is to introduce the major innovative Power E980 offerings and relevant functions: The IBM POWER9™ processor, which is available at frequencies of 3.55 - 4.0 GHz. Significantly strengthened cores and larger caches. Supports up to 64 TB memory. Integrated I/O subsystem and hot-pluggable Peripheral Component Interconnect Express (PCIe) Gen4 slots, double the bandwidth of Gen3 I/O slots. Supports EXP12SX and ESP24SX external disk drawers, which have 12 Gb SAS interfaces and double the existing EXP24S drawer bandwidth. New IBM EnergyScale™ technology offers new variable processor frequency modes that provide a significant performance boost beyond the static nominal frequency. This publication is for professionals who want to acquire a better understanding of IBM Power Systems™ products. The intended audience includes the following roles: Clients Sales and marketing professionals Technical support professionals IBM Business Partners Independent software vendors (ISVs) This paper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power E980 server. This paper does not replace the current marketing materials and configuration tools. It is intended as an extra source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

This IBM Redbooks publication discusses z/VM and Linux operations from the perspective of the z/OS programmer or system programmer. Although other books have been written about many of these topics, this book gives enough information about each topic to describe z/VM and Linux on IBM System z operations to somebody who is new to both environments. This book is intended for z/OS programmers and system programmers who are transitioning to the z/VM and Linux on System z environments and who want a translation guide for assistance. We base this book on our experiences using System z10 Enterprise Edition, z/VM version 5.3 RSU 0701, and Novell SUSE Linux Enterprise Server (SLES) 10 on System z.

This IBM® Redbooks® publication describes the IBM Storage Area Network and IBM SAN Volume Controller Stretched Cluster solution when combined with PowerVM® and PowerHA®. We describe guidelines, settings, and the implementation steps that are necessary to achieve a successful implementation. This book is for administrators who are familiar with the SAN, IBM SAN Volume Controller, and IBM PowerVM and PowerHA Systems.

This IBM® Redpaper™ publication introduces and provides a technical overview of the IBM PurePower System that helps support management of big data, social media, mobile, analytics, and the flow of critical information. A PurePower System can be configured in an affordable entry-level configuration in a single rack, and it is agile enough to be expanded for scalable cloud deployments. It has built-in redundancy for highly reliable and resilient operation to support demanding applications and cloud services, as required by many enterprises. A PurePower System also provides the scalability, flexibility, and versatility that you demand for business-critical workloads. The following enhancements were announced in October 2015: IBM i operating system on top of a Virtual I/O Server (VIOS) now supported on the IBM Power System S822 server Improvements to PurePower Integrated Manager Integration of HMC code (virtual HMC) into the PurePower Integrated Manager Ability to order translated PurePower documentation that is geography-specific Configuration support for IBM Power System S822 and S822L server in a single rack PowerVC 1.2.3 Standard Edition Power compute node firmware SV840

This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power System S822 (8284-22A) server that supports the IBM AIX® and Linux operating systems (OSes) running on bare metal, and the IBM i OS running under the VIOS. The objective of this paper is to introduce the major innovative Power S822 offerings and their relevant functions: The new IBM POWER8™ processor, which is available at frequencies of 3.42 GHz, and 3.89 GHz Significantly strengthened cores and larger caches Two integrated memory controllers with improved latency and bandwidth Integrated I/O subsystem and hot-pluggable PCIe Gen3 I/O slots Improved reliability, serviceability, and availability (RAS) functions IBM EnergyScale™ technology that provides features such as power trending, power-saving, capping of power, and thermal measurement This publication is for professionals who want to acquire a better understanding of IBM Power Systems™ products. This paper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power S822 system. This paper does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

This IBM® Redpaper™ is a comprehensive guide covering the Power 550 server. The goal of this paper is to introduce the innovative Power 550. It introduces major hardware offerings and discusses their prominent functions, including:

- o The POWER6 processor available at frequencies of 3.5 GHz, 4.2 GHz, and 5.0 GHz.
- o The specialized POWER6 DDR2 memory that provides greater bandwidth, capacity, and reliability.
- o The 1 Gb or 10 Gb Integrated Virtual Ethernet adapter that brings native hardware virtualization to this server
- o EnergyScale technology that provides features such as power trending, power-saving, capping of power, and thermal measurement
- o PowerVM Live Partition Mobility
- o Mainframe continuous availability brought to the UNIX environment

This Redpaper expands the current set of IBM System p documentation by providing a desktop reference that offers a detailed technical description of the 550 system. This Redpaper does not replace the latest marketing materials and tools. It is intended as an additional source of information that, together with existing sources, may be used to enhance your knowledge of IBM server solutions.

This IBM Redpaper publication is a comprehensive guide covering the IBM Power 520 server, machine type model 8203-E4A. The goal of this paper is to introduce this innovative server that includes IBM System i and IBM System p and new hardware technologies. The major hardware offerings include:

- The POWER6 processor, available at frequencies of 4.2 GHz and 4.7 GHz.
- Specialized POWER6 DDR2 memory that provides greater bandwidth, capacity, and reliability.
- The 1 Gb or 10 Gb Integrated Virtual Ethernet adapter that brings native hardware virtualization to this server.
- EnergyScale technology that provides features such as power trending, power-saving, capping of power, and thermal measurement.
- PowerVM virtualization technology.
- Mainframe continuous availability brought to the entry server environment.

This Redpaper expands the current set of IBM Power System documentation by providing a desktop reference that offers a detailed technical description of the Power 520 system. This Redpaper does not replace the latest marketing materials and tools. It is intended as an additional source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

The IBM® Hardware Management Console (HMC) provides to systems administrators a tool for planning, deploying, and managing IBM Power Systems™ servers. This IBM Redbooks® publication is an extension of IBM Power Systems HMC Implementation and Usage Guide, SG24-7491 and also merges updated information from IBM Power Systems Hardware Management Console: Version 8 Release 8.1.0 Enhancements, SG24-8232. It explains the new features of IBM Power Systems Hardware Management Console Version V8.8.1.0 through V8.8.4.0. The

major functions that the HMC provides are Power Systems server hardware management and virtualization (partition) management. Further information about virtualization management is in the following publications: IBM PowerVM Virtualization Managing and Monitoring, SG24-7590 IBM PowerVM Virtualization Introduction and Configuration, SG24-7940 IBM PowerVM Enhancements What is New in 2013, SG24-8198 IBM Power Systems SR-IOV: Technical Overview and Introduction, REDP-5065 The following features of HMC V8.8.1.0 through HMC V8.8.4.0 are described in this book: HMC V8.8.1.0 enhancements HMC V8.8.4.0 enhancements System and Partition Templates HMC and IBM PowerVM® Simplification Enhancement Manage Partition Enhancement Performance and Capacity Monitoring HMC V8.8.4.0 upgrade changes

This IBM® Redpaper™ publication is a comprehensive guide that covers the IBM Power 795 server that supports IBM AIX®, IBM i, and Linux operating systems. The goal of this paper is to introduce the innovative Power 795 offering and its major functions: IBM POWER7® processor, available at frequencies of 3.7 GHz and 4.0 GHz with TurboCore options of 4.25 GHz and 4.31 GHz Specialized POWER7 Level 3 cache that provides greater bandwidth, capacity, and reliability IBM PowerVM® virtualization, including PowerVM Live Partition Mobility and PowerVM IBM Active Memory™ Sharing TurboCore mode that delivers the highest performance per core Enhanced reliability, accessibility, and serviceability (RAS) features that are designed for maximum availability Active Memory Expansion that provides more usable memory than what is physically installed on the system IBM EnergyScale™ technology that provides features such as power trending, power-saving, capping of power, and thermal measurement Professionals who want to acquire a better understanding of IBM Power Systems™ products can benefit from reading this paper. This paper complements the available set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power 795 system. This paper does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

The IBM® Hardware Management Console (HMC) provides systems administrators a tool for planning, deploying, and managing IBM Power Systems™ servers. This IBM Redbooks® publication is an extension of IBM Power Systems HMC Implementation and Usage Guide, SG24-7491. It explains the new features of IBM Power Systems Hardware Management Console Version V8.8.1.0. The major function that the HMC provides are Power Systems server hardware management and virtualization (partition) management. You can find information about virtualization management in the following documents: IBM PowerVM Virtualization Managing and Monitoring, SG24-7590 IBM PowerVM Virtualization Introduction and Configuration, SG24-7940 IBM PowerVM Enhancements What is New in 2013, SG24-8198 IBM Power Systems SR-IOV: Technical Overview and Introduction, REDP-5065 The following new features of HMC V8.8.1.0 are described: HMC V8.8.1.0 enhancements System and Partition Templates HMC and IBM PowerVM® Simplification Enhancements Manage Partition Enhancement Performance and Capacity Monitoring HMC V8.8.1.0 upgrade changes

This IBM® Redbooks® publication positions the IBM Systems Director Management Console (SDMC) against the IBM Hardware Management Console (HMC). The IBM Systems Director Management Console provides system administrators the ability to manage IBM Power System® servers as well as IBM Power Blade servers. It is based on IBM Systems Director. This publication is designed for system administrators to use as a deskside reference when managing Virtual Servers (formerly partitions) using the SDMC. The major functions that the SDMC provides are server hardware management and virtualization management.

This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power 710 (8231-E1D) and Power 730 (8231-E2D) servers that support IBM AIX®, IBM i, and Linux operating systems. This paper also describes the IBM PowerLinux™ 7R1 (8246-L1D and 8246-L1T) and the PowerLinux 7R2 (8246-L2D and 8246-L2T) servers that support the Linux operating system. The goal of this paper is to introduce the innovative Power 710, Power 730, PowerLinux 7R1, and PowerLinux offerings and their major functions: IBM POWER7+™ processor is available at frequencies of 3.6 GHz, 4.2 GHz, and 4.3 GHz. Larger IBM POWER7+ Level 3 cache provides greater bandwidth, capacity, and reliability. Integrated SAS/SATA controller for HDD, SSD, tape, and DVD supports built-in hardware RAID 0, 1, and 10. New IBM PowerVM® V2.2.2 features, such as 20 LPARs per core. Improved IBM Active Memory™ Expansion technology provides more usable memory than is physically installed in the system. Professionals who want to acquire a better understanding of IBM Power Systems™ products can benefit from reading this paper. This paper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power 710 and Power 730 systems. This paper does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

This IBM® Redbooks® publication introduces the IBM Reference Architecture for Genomics, IBM Power Systems™ edition on IBM POWER8®. It addresses topics such as why you would implement Life Sciences workloads on IBM POWER8, and shows how to use such solution to run Life Sciences workloads using IBM Platform™ Computing software to help set up the workloads. It also provides technical content to introduce the IBM POWER8 clustered solution for Life Sciences workloads. This book customizes and tests Life Sciences workloads with a combination of an IBM Platform Computing software solution stack, Open Stack, and third party applications. All of these applications use IBM POWER8, and IBM Spectrum Scale™ for a high performance file system. This book helps strengthen IBM Life Sciences solutions on IBM POWER8 with a well-defined and documented deployment model within an IBM Platform Computing and an IBM POWER8 clustered environment. This system provides clients in need of a modular, cost-effective, and robust solution with a planned foundation for future growth. This book highlights IBM POWER8 as a flexible infrastructure for clients looking to deploy life sciences workloads, and at the same time reduce capital expenditures, operational expenditures, and optimization of resources. This book helps answer clients' workload challenges in particular with Life Sciences applications, and provides expert-level documentation and how-to-skills to worldwide teams that provide Life Sciences solutions and support to give a broad understanding of a new architecture.

This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power 770 (9117-MMD) and Power 780 (9179-MHD) servers that support IBM AIX®, IBM i, and Linux operating systems. The goal of this paper is to introduce the major innovative Power 770 and 780 offerings and their prominent functions: The IBM POWER7+™ processor, available at frequencies of 3.8 GHz and 4.2 GHz for the Power 770 and 3.7 GHz and 4.4 GHz for the Power 780 The specialized IBM POWER7+ Level 3 cache that provides greater bandwidth, capacity,

and reliability The 1 Gb or 10 Gb Integrated Multifunction Card that provides two USB ports, one serial port, and four Ethernet connectors for a processor enclosure and does not require a PCI slot The Active Memory™ Mirroring (AMM) for Hypervisor feature that mirrors the main memory used by the firmware IBM PowerVM® virtualization, including PowerVM Live Partition Mobility and PowerVM Active Memory Sharing Active Memory Expansion that provides more usable memory than what is physically installed on the system IBM EnergyScale™ technology that provides features such as power trending, power-saving, capping of power, and thermal measurement Enterprise-ready reliability, serviceability, and availability Dynamic Platform Optimizer High-performance SSD drawer Professionals who want to acquire a better understanding of IBM Power Systems™ products can benefit from reading this paper.

This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power 750 and Power 755 servers supporting AIX®, IBM i, and Linux® operating systems. The goal of this paper is to introduce the major innovative Power 750 and 755 offerings and their prominent functions, including: The POWER7™ processor available at frequencies of 3.0 GHz, 3.3 GHz, and 3.55 GHz The specialized POWER7 Level 3 cache that provides greater bandwidth, capacity, and reliability The 1 Gb or 10 Gb Integrated Virtual Ethernet adapter, included with each server configuration, and providing native hardware virtualization PowerVMTM virtualization including PowerVM Live Partition Mobility and PowerVM Active Memory™ Sharing. Active Memory Expansion that provides more usable memory than what is physically installed on the system EnergyScale™ technology that provides features such as power trending, power-saving, capping of power, and thermal measurement. Professionals who want to acquire a better understanding of IBM Power Systems™ products should read this Redpaper. This Redpaper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the 750 and 755 systems. This paper does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, together with existing sources, may be used to enhance your knowledge of IBM server solutions.

This IBM® Redbooks® publication illustrates implementation, testing, and helpful scenarios with IBM Power® Systems 780 and 795 using the comprehensive set of the Power virtualization features. We focus on the Power Systems functional improvements, in particular, highlighting the reliability, availability, and serviceability (RAS) features of the enterprise servers. This document highlights IBM Power Systems Enterprise Server features, such as system scalability, virtualization features, and logical partitioning among others. This book provides a documented deployment model for Power 780 and Power 795 within a virtualized environment, which allows clients to plan a foundation for exploiting and using the latest features of the IBM Power Systems Enterprise Servers. The target audience for this book includes technical professionals (IT consultants, technical support staff, IT Architects, and IT Specialists) responsible for providing IBM Power Systems solutions and support.

This IBM® Redbooks® publication provides advice and technical information about optimizing and tuning application code to run on systems that are based on the IBM POWER7® and POWER7+™ processors. This advice is drawn from application optimization efforts across many different types of code that runs under the IBM AIX® and Linux operating systems, focusing on the more pervasive performance opportunities that are identified, and how to capitalize on them. The technical information was developed by a set of domain experts at IBM. The focus of this book is to gather the right technical information, and lay out simple guidance for optimizing code performance on the IBM POWER7 and POWER7+ systems that run the AIX or Linux operating systems. This book contains a large amount of straightforward performance optimization that can be performed with minimal effort and without previous experience or in-depth knowledge. This optimization work can: Improve the performance of the application that is being optimized for the POWER7 system Carry over improvements to systems that are based on related processor chips Improve performance on other platforms The audience of this book is those personnel who are responsible for performing migration and implementation activities on IBM POWER7-based servers, which includes system administrators, system architects, network administrators, information architects, and database administrators (DBAs).

IBM® PowerVM® virtualization technology is a combination of hardware and software that supports and manages the virtual environments on POWER5-, POWER5+, IBM POWER6®, and IBM POWER7®-based systems. PowerVM is available on IBM Power Systems™, and IBM BladeCenter® servers as optional Editions, and is supported by the IBM AIX®, IBM i, and Linux operating systems. You can use this set of comprehensive systems technologies and services to aggregate and manage resources by using a consolidated, logical view. Deploying PowerVM virtualization and IBM Power Systems offers you the following benefits: Lower energy costs through server consolidation Reduced cost of your existing infrastructure Better management of the growth, complexity, and risk of your infrastructure This IBM Redbooks® publication is an extension of IBM PowerVM Virtualization Introduction and Configuration, SG24-7940. It provides an organized view of best practices for managing and monitoring your PowerVM environment concerning virtualized resources managed by the Virtual I/O Server.

IBM Power Systems HMC Implementation and Usage Guide IBM Redbooks

This IBM® Redbooks® publication is a guide to IBM Power Systems Private Cloud with Shared Utility Capacity featuring Power Enterprise Pools (PEP) 2.0. This technology enables multiple servers in an to share base processor and memory resources and draw on pre-paid credits when the base is exceeded. Previously, the Shared Utility Capacity feature supported IBM Power E950 (9040-MR9) and IBM Power E980 (9080-M9S). The feature was extended in August 2020 to include the scale-out IBM Power servers that were announced on 14 July 2020, and it received dedicated processor support later in the year. The IBM Power S922 (9009-22G), and IBM Power S924 (9009-42G) servers, which use the latest IBM POWER9™ processor-based technology and support the IBM AIX®, IBM i, and Linux operating systems (OSs), are now supported. The previous scale-out models of Power S922 (9009-22A), and Power S924 (9009-42A) servers cannot be added to an enterprise pool. With the availability of the IBM Power E1080 (9080-HEX) in September 2021, support for this system as part of a Shared Utility Pool has become available. The goal of this book is to provide an overview of the solution's environment and guidance for planning a deployment of it. The book also covers how to configure IBM Power Systems Private Cloud with Shared Utility Capacity. There are also chapters about migrating from PEP 1.0 to PEP 2.0 and various use cases. This publication is for professionals who want to acquire a better understanding of IBM Power Systems Private Cloud, and Shared Utility Capacity. The intended audience includes: Clients Sales and marketing professionals Technical support professionals IBM Business Partners This book expands the set of IBM Power documentation by providing a desktop reference that offers a detailed technical description of IBM Power Systems Private Cloud with Shared Utility Capacity.

This IBM® Redpaper publication is a comprehensive guide that covers the IBM Power System S914 (9009-41G), IBM Power System S922 (9009-22G), and IBM Power System S924 (9009-42G) servers that use the latest IBM POWER9™ processor-based technology and support the IBM AIX®, IBM i, and Linux operating systems (OSs). The goal of this paper is to provide a hardware architecture analysis and highlight the changes, new technologies, and major features that are being introduced in these systems, such as: The latest IBM POWER9 processor, which is available in various configurations for the number of cores per socket More performance by using industry-leading Peripheral Component Interconnect Express (PCIe) Gen 4 slots Enhanced internal disk scalability and performance with up to 11 NVMe adapters Introduction of a competitive Power S922 server with a 1-socket configuration that is targeted at IBM i customers This publication is for professionals who want to acquire a better understanding of IBM Power Systems™ products. The intended audience includes the following roles: Clients Sales and marketing professionals Technical support professionals IBM Business Partners Independent software vendors (ISVs) This paper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power S914, Power S922, and Power S924 systems. This paper does not replace the current marketing materials and configuration tools. It is intended as an extra source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power 720 and Power 740 servers supporting AIX®, IBM i, and Linux® operating systems. The goal of this paper is to introduce the major innovative Power 720 and 740 offerings and their prominent functions, including these: The POWER7™ processor available at frequencies of 3.0 GHz, 3.55 GHz, and 3.7 GHz The specialized POWER7 Level 3 cache that provides greater bandwidth, capacity, and reliability The 1 Gb or 10 Gb Integrated Virtual Ethernet adapter, included with each server configuration, and providing native hardware virtualization The latest PowerVMTM virtualization including PowerVM Live Partition Mobility and PowerVM Active Memory™ Sharing. Active Memory Expansion that provides more usable memory than what is physically installed on the system EnergyScale™ technology that provides features such as power trending, power-saving, capping of power, and thermal measurement. Professionals who want to acquire a better understanding of IBM Power Systems products can benefit from reading this paper. This paper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power 720 and Power 740 systems. This paper does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power System E850 (8408-E8E) server that supports IBM AIX®, and Linux operating systems. The objective of this paper is to introduce the major innovative Power E850 offerings and their relevant functions: The new IBM POWER8™ processor, available at frequencies of 3.02 GHz, 3.35 GHz, and 3.72 GHz Significantly strengthened cores and larger caches Two integrated memory controllers with improved latency and bandwidth Integrated I/O subsystem and hot-pluggable PCIe Gen3 I/O slots I/O drawer expansion options offer greater flexibility Improved reliability, serviceability, and availability (RAS) functions IBM EnergyScale™ technology that provides features such as power trending, power-saving, capping of power, and thermal measurement This publication is for professionals who want to acquire a better understanding of IBM Power Systems™ products. The intended audience includes the following roles: Clients Sales and marketing professionals Technical support professionals IBM Business Partners Independent software vendors This paper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power E850 system. This paper does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

This IBM® Redpaper™ publication describes the adapter-based virtualization capabilities that are being deployed in high-end IBM POWER7+™ processor-based servers. Peripheral Component Interconnect Express (PCIe) single root I/O virtualization (SR-IOV) is a virtualization technology on IBM Power Systems servers. SR-IOV allows multiple logical partitions (LPARs) to share a PCIe adapter with little or no run time involvement of a hypervisor or other virtualization intermediary. SR-IOV does not replace the existing virtualization capabilities that are offered as part of the IBM PowerVM® offerings. Rather, SR-IOV compliments them with additional capabilities. This paper describes many aspects of the SR-IOV technology, including: A comparison of SR-IOV with standard virtualization technology Overall benefits of SR-IOV Architectural overview of SR-IOV Planning requirements SR-IOV deployment models that use standard I/O virtualization Configuring the adapter for dedicated or shared modes Tips for maintaining and troubleshooting your system Scenarios for configuring your system This paper is directed to clients, IBM Business Partners, and system administrators who are involved with planning, deploying, configuring, and maintaining key virtualization technologies.

This IBM® Redpaper™ publication is a comprehensive guide covering the IBM Power 720 and Power 740 servers that support IBM AIX®, IBM i, and Linux operating systems. The goal of this paper is to introduce the innovative Power 720 and Power 740 offerings and their major functions: The IBM POWER7+™ processor is available at frequencies of 3.6 GHz, and 4.2 GHz. The larger IBM POWER7+ Level 3 cache provides greater bandwidth, capacity, and reliability. The 4-port 10/100/1000 Base-TX Ethernet PCI Express adapter is included in base configuration and installed in a PCIe Gen2 x4 slot. The integrated SAS/SATA controller for HDD, SSD, tape, and DVD supports built-in hardware RAID 0, 1, and 10. New IBM PowerVM® V2.2.2 features, such as 20 LPARs per core. The improved IBM Active Memory™ Expansion technology provides more usable memory than is physically installed in the system. High-performance SSD drawer. Professionals who want to acquire a better understanding of IBM Power Systems™ products can benefit from reading this paper. This paper expands the current set of IBM Power Systems documentation by providing a desktop reference that offers a detailed technical description of the Power 720 and Power 740 systems. This paper does not replace the latest marketing materials and configuration tools. It is intended as an additional source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

This IBM® Redbooks® publication discusses the concepts and implementation of PowerVMTM and the WebSphere® CloudBurst™ appliance. This book is aimed at administrators and developers who have little knowledge of PowerVM, but in-depth knowledge of WebSphere software. Cloud computing is the pooling of computing resources to provide a single source of

computing power to multiple users. A cloud manager provides a self-service portal that maintains permissions and information about cloud objects such as virtual images, patterns, and resources. The WebSphere CloudBurst Appliance represents a cloud manager. It is a secure hardware appliance that optimizes the configuration, deployment, and management of WebSphere Application Server environments in a cloud. It can also be used by service providers providing hosted public clouds and software-as-a-service environments to simplify and standardize repeated deployments of their software. This book includes an introduction to cloud computing and how the WebSphere CloudBurst appliance fits into business today. It presents the features and benefits of using the WebSphere CloudBurst Appliance and the advantages of using PowerVM. It provides the steps required to implement WebSphere CloudBurst appliance with PowerVM.

This IBM® Redpaper™ publication is a comprehensive guide that covers the IBM Power® System E870C (9080-MME) and IBM Power System E880C (9080-MHE) servers that support IBM AIX®, IBM i, and Linux operating systems. The objective of this paper is to introduce the major innovative Power E870C and Power E880C offerings and their relevant functions. The new Power E870C and Power E880C servers with OpenStack-based cloud management and open source automation enables clients to accelerate the transformation of their IT infrastructure for cloud while providing tremendous flexibility during the transition. In addition, the Power E870C and Power E880C models provide clients increased security, high availability, rapid scalability, simplified maintenance, and management, all while enabling business growth and dramatically reducing costs. The systems management capability of the Power E870C and Power E880C servers speeds up and simplifies cloud deployment by providing fast and automated VM deployments, prebuilt image templates, and self-service capabilities, all with an intuitive interface. Enterprise servers provide the highest levels of reliability, availability, flexibility, and performance to bring you a world-class enterprise private and hybrid cloud infrastructure. Through enterprise-class security, efficient built-in virtualization that drives industry-leading workload density, and dynamic resource allocation and management, the server consistently delivers the highest levels of service across hundreds of virtual workloads on a single system. The Power E870C and Power E880C server includes the cloud management software and services to assist with clients' move to the cloud, both private and hybrid. The following capabilities are included: Private cloud management with IBM Cloud PowerVC Manager, Cloud-based HMC Apps as a service, and open source cloud automation and configuration tooling for AIX Hybrid cloud support Hybrid infrastructure management tools Securely connect system of record workloads and data to cloud native applications IBM Cloud Starter Pack Flexible capacity on demand Power to Cloud Services This paper expands the current set of IBM Power Systems™ documentation by providing a desktop reference that offers a detailed technical description of the Power E870C and Power E880C systems. This paper does not replace the latest marketing materials and configuration tools. It is intended as another source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

The IBM® Hardware Management Console (HMC) provides systems administrators a tool for planning, deploying, and managing IBM Power Systems™ servers. This IBM Redbooks® publication is designed for system administrators to use as a desk-side reference when managing partition-capable IBM Power Systems servers by using the HMC. The major functions that the HMC provides are Power Systems server hardware management and virtualization (partition) management. You can find information about virtualization management in the following documents: - A Practical Guide for Resource Monitoring and Control (RMC), SG24-6615 - IBM PowerVM Virtualization Introduction and Configuration, SG24-7940 - Implementing IBM Systems Director 6.1, SG24-7694 - Hardware Management Console V7 Handbook, SG24-7491 - IBM PowerVM Live Partition Mobility, SG24-7460 - IBM PowerVM Virtualization Managing and Monitoring, SG24-7590 - Converting Hardware Management Console (HMC) 7042-CR6 or 7042-CR7 Models to RAID1, REDP-4909 The following topics are described: - Plan to implement the HMC - Configure the HMC - Operate the HMC - Manage software levels on the HMC - Use service functions on the HMC - Update firmware of managed systems - Use IBM System Planning Tool deployments In addition, there is an explanation on how to use the new HMC graphical user interface and the new HMC commands that are available with HMC Version 7, Release 7, modification 60.

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