



IBM Power 550 Express Edition: Exceptional reliability, availability, and serviceability for entry and medium-size enterprises

Description2
Product positioning 12



At a glance

Power 550 servers deliver these benefits:

- 4.2 GHz POWER6 technology for medium-size businesses
- Four-core server offerings to match your business needs
- High reliability
- Ease of installation and use
- Expandability to manage today's and tomorrow's business demands
- Support for IBM i, AIX, and Linux operating systems

Overview

IBM System i™ and IBM System p™ are unifying the value of their servers into a single, powerful lineup of servers based on industry-leading POWER6™ processor technology with support for the IBM i operating system (formerly known as i5/OS™), and IBM AIX® and Linux™ for Power operating systems. This new, single portfolio of Power Systems servers offers IBM clients industry-leading technology, continued IBM innovation, and the flexibility to deploy the operating system your business requires.

The Power 550 Express Edition is the mid-size member of the portfolio, supporting both IBM i 5.4 and IBM i 6.1 (formerly known as i5/OS V5R4 and i5/OS V6R1). Combining industry-leading POWER6 processor technology from IBM with its flagship operating system for larger entry-size and medium-size clients, the Power 550 servers now offer outstanding performance and value for clients who want to run IBM i applications. These new Power Systems servers offer exceptional reliability, availability, and serviceability (RAS) functions including:

- Built-in reliability through use of highly reliable components
- Recovery from intermittent errors or failover to redundant components
- Detection and reporting of failures and impending failures
- Hardware that automatically initiates actions to affect error correction, repair, or component replacement

The innovative POWER6 processor within the Power 550 servers delivers outstanding performance for running your IBM i applications. Combined with the IBM i 6.1 operating system, you can experience significant improvements in Java™ and IBM WebSphere® applications. Also designed to help you become more energy efficient, the POWER6 architecture with EnergyScale technology includes features that measure your system's energy use and directs policies toward the energy-efficient operation of the server, while the underlying hardware

automatically adjusts to deliver the operating solution that you want.

The Power 550 server offers efficiency and flexibility while supporting up to four 4.2 GHz POWER6 processor cores. It delivers outstanding performance as an application server in addition to supporting consolidation projects to simplify your IT. The Power 550 server is offered as a deskside or 4U (4 EIA units) rack-mount configuration. It supports IBM i, AIX, and Linux operating systems to broaden the application offerings available and increase ways you can manage growth, complexity, and risk.

If you are looking for scalability and expandability, the Power 550 1/4-way offers an excellent package to ensure your Power Systems server can handle your business growth. The Power 550 1/4-way server on demand capabilities allow you to quickly grow from a single active core to four active cores by simply activating additional processors. The Power 550 supports up to 128 GB memory and up to 12 I/O expansion units.

Planned availability date

May 23, 2008

Availability of programs with an encryption algorithm in France is subject to French government approval.

Description



You can order the four-core Power 550 server as a 9409-M50. It includes a minimum of one processor activation, providing a 1/4-way server offering. The second through fourth cores are optionally activated using Capacity Upgrade on Demand (CUoD) (permanent processor activations) to match the needs of your growing business. The Power 550 features a 4.2 GHz, two-core 64-bit POWER6 processor chip with 4 MB of L2 cache per core and 32 MB L3 shared cache.

Power 550 servers feature:

- Up to 18,000 CPW
- Up to 128 GB memory
- Up to full 5250 OLTP capability
- Five PCI express (PCIe)/PCI-X DDR slots
- Up to six hot-swap SAS disk drives in the system unit
- Imbedded SAS disk/tape/DVD controller in the system unit
- Optional 175 MB write cache with auxiliary write cache protection in the system unit
- Up to two I/O loops (HSL/RIO I/O and 12X) and associated I/O drawers/towers
- Up to 546 disk drives (1.7 TB)
- One integrated virtual Ethernet adapter with up to four ports
- One half-high media bay for a SAS tape drive
- One slim line media bay for a DVD-ROM or DVD-RAM drive
- Redundant, hot-swap power and cooling capability
- EnergyScale technology

The Power 550 server, combined with the IBM i 6.1 operating system, supports virtual IBM i partitions, enabling one IBM i partition to host storage for another partition. With this support, additional IBM i partitions for test, development, and production workloads can more easily be created. Smart IOA Fibre Channel Adapters deliver enhanced performance with IBM DS8000™

SANs.

IBM PowerVM delivers advanced virtualization technologies. With PowerVM Standard Edition, the Power 550 server can support up to 10 partitions per core, supporting multiple IBM i, AIX, and Linux operating environments on a single system. The Power 550 can also support multiple shared processor pools, enabling the capping of processor resources on a group of partitions. Virtual I/O Server (VIOS) offers storage and Ethernet virtualization for IBM i, AIX, and Linux partitions. In addition, with PowerVM Lx86, you can run 32-bit Linux on x86 applications in Linux environments on the Power 550. IBM PowerVM is a chargeable product.

Express editions

Express editions enable initial ease of ordering and offer a lower price than if you ordered "a la carte" or build-to-order. Unlike earlier System i editions on POWER4™ and POWER5™ systems, an edition feature is not required for the Power 550. The only way to use the no-charge features for processor activations is to take advantage of these editions. The Express editions are available only during the initial system order. They cannot be ordered after your system is shipped.

The IBM configurator offers these easy-to-order Express editions that include no-charge activations. You can modify the Express Edition configurations to match the exact requirements for your initial shipment — increasing or decreasing the configuration. If you create a configuration that falls below any of the defined minimums, the IBM configurator replaces the no-charge features with regular charge features with equivalent function.

1/4-way Power 550 Express Edition

To receive no-charge processor activation feature #4946, your initial order must include a minimum of:

- One IBM i processor license
- Eight GB memory
- Eight SAS or SCSI IBM i disk drives (any size) or at least two Fibre Channel adapters
- One 175 MB write cache (#5679), at least one 1.5 GB write cache disk controller (#5583/5782/5782), or at least two Fibre Channel adapters
- Two power supplies (#7707)
- One GX loop adapter (HSL/RIO #5614 or 12X #5616)
- PowerVM Standard Edition, or higher

#7006 1/4-way Power 550 Express Edition suggested starting configuration:

- Two 0/2-core 4.2 GHz processor cards (#4966)
- Four 4 GB memory feature (#4522)
- One 1.5 GB write cache disk controller for EXP24 (#5778)
- Eight 70 GB 15k rpm SCSI disk drives (#4327)
- One #5786 EXP24 disk drawer
- One quad-port 1 Gb integrated Ethernet adapter (#5624)
- Two power supplies, 1700 watt (#7707)
- One PCIe WAN IOA (#2893 or 2894)(country dependent)
- One DVD-ROM (#5756)
- One DASD/media backplane (#8345)
- One 4-mm 36 GB SAS tape drive (#5907)
- Two power cords (6xxx)
- One processor activation (#4946) at no charge
- One server feature #4920
- One IBM i enablement #4994
- One IBM i processor entitlement

- System i Access unlimited users (57xx-XW1)
- PowerVM Standard Edition (#7982)
- One year software maintenance

Solution editions

Solution editions help meet the needs of SAP application users. Users of SAP's mySAP, ERP, BI, CRM, PLM, and SCM can qualify to use this edition.

The Power 550 Solution editions for SAP applications require proof of a minimum purchase before the system is shipped from IBM. For details, visit the Solution Edition Web site at

<http://www.ibm.com/systems/i/editions/solutionedition.html>

For the validation form and entitlement requirements, visit

<http://www.ibm.com/systems/i/editions/validate.html>

Power 550 Solution Editions #7046 2/4-way and #7048 4/4-way offer a larger number of no-charge processor activations and IBM i user license entitlements than the regular Express editions, resulting in a lower initial list price for qualifying clients.

To receive no-charge features on your initial #7046 Solution Edition order, your order must include a minimum of:

- Two processor activations
- Two IBM i processor licenses
- Eight GB memory
- Eight SAS or SCSI IBM i disk drives (any size) or at least two Fibre Channel adapters
- One 175 MB write cache (#5679) or at least one 1.5 GB write cache
- Disk controller (#5583/5782/5782) or at least two Fibre Channel adapters
- Two power supplies (#7707)
- One GX loop adapter (HSL/RIO #5614 or 12X #5616)
- PowerVM Standard Edition, or higher

The no-charge features included are two no-charge processor activations #4946 and one no-charge IBM i processor entitlement.

To receive no-charge features on your initial #7048 Solution Edition order, your order must include a minimum of:

- Four processor activations
- Four IBM i processor licenses
- Eight GB memory
- Eight SAS or SCSI IBM i disk drives (any size) or at least two Fibre Channel adapters
- One 175 MB write cache (#5679), at least one 1.5 GB write cache disk controller (#5583/5782/5782), or at least two Fibre Channel adapters
- Two power supplies (#7707)
- One GX loop adapter (HSL/RIO #5614 or 12X #5616)
- PowerVM Standard Edition, or higher

The no-charge features included are four no-charge processor activations #4946 and two no-charge IBM i processor entitlements.

Suggested starting configurations for the #7046 and #7048 Solution editions are the same as the #7006 1/4-way Express configurations except for a different number of processor activations and IBM i processor licenses.

When you purchase a Power 550 system with an i Edition you are entitled to receive a service voucher at no additional charge. Service vouchers deliver the technical leadership and consulting resources that can help you more fully understand and use the latest features and capabilities of the IBM i operating system. The experts will join your team and help get you started on the road to success with your new operating environment. For more information about vouchers, visit

<http://www.ibm.com/systems/i/hardware/editions/vouchers.html>

Power 550 Capacity BackUp (CBU) capability

The Power 550 systems' CBU designation can help meet your requirements for a second system to use for backup, high availability, and disaster recovery. It enables you to temporarily transfer IBM i processor license entitlements and 5250 Enterprise Enablement entitlements purchased for a primary machine to a secondary CBU-designated system. Temporarily transferring these resources instead of purchasing them for your secondary system may result in significant savings. Processor activations cannot be transferred.

The CBU specify feature #0444 is available only as part of a new server purchase or during an MES upgrade from an existing CBU system to a 9409-M50. Certain system prerequisites must be met and system registration and approval are required before the CBU specify feature can be applied on a new server.

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

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

The primary system for a Power 550 server can be:

- 9117-MMA
- 9406-MMA
- 9406-570
- 9409-M50
- 9406-550

These systems have IBM i software licenses with an IBM i P20 or P30 software tier. The primary machine must be in the same enterprise as the CBU system.

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

Before you can temporarily transfer 5250 entitlements, you must have more than one 5250 Enterprise Enablement entitlement on the primary server and at least one 5250 Enterprise Enablement entitlement on the CBU system. You can then transfer the entitlements that are not required on the primary server during the time of transfer and that are above the minimum of one entitlement.

For example, if you have a four-core Power 550 as your primary system with two IBM i processor license entitlements (one above the minimum) and two 5250 Enterprise Enablement entitlements

(one above the minimum), you can temporarily transfer only one IBM i entitlement and one 5250 Enterprise Enablement entitlement. During the temporary transfer, the CBU system's internal records of its total number of IBM i processor entitlements is not updated, and you may see IBM i license noncompliance warning messages from the CBU system.

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

For CBU registration and further information, visit

<http://www.ibm.com/systems/power/hardware/cbu>

Capacity Upgrade on Demand (CUoD)

CUoD enables you to turn on capacity as your needs grow. You can permanently activate inactive processors by ordering one or more #4986 activation features for your 4.2 GHz Power 550. After IBM receives your order, an activation code unique to your server is generated. The activation code is mailed to you and also posted at

<http://www.ibm.com/systems/power/hardware/cod>

Enter the activation code into your server using the hardware management console or the advanced system manager interface, and your newly activated processors are ready to be dynamically allocated when needed.

Adequate operating system processor licenses (IBM i, AIX, or Linux) must be available for all permanently activated processors that have been assigned to a partition or pool.

Detailed information, including step-by-step directions for ordering, enabling, and using CUoD, is available in the Capacity on Demand Planning Guide found at

<http://www.ibm.com/systems/power/hardware/cod>

Upgrades

MES upgrades to the Power 550 from the POWER5 9406-550 are available. They preserve the existing machine serial number. IBM i processor, 5250 Enterprise Enablements, and processor activation investments are protected during the upgrade. Upgrade paths preserving the serial number into the Power 550 (9409-M50) are not available from the 9406-520 or 9406-525. Upgrade paths out of the Power 550 into the 9406 model 570 or 595 preserving the serial number are not available.

If you are upgrading from a 9406-550 CBU Edition, and assuming the primary system has not changed from the originally registered primary/secondary pairing, the CBU specify code is added to an MES upgrade. This avoids unnecessary registration on the CBU Web site.

Continuance of warranty service level

If you are upgrading to a 9409-M50 from a 9406-550 system that is still under warranty, you will continue to have the warranty service level of the 9406 for the remainder of the 9406 one-year warranty period. Contact your IBM representative or Business Partner for more details.

Summary of Power 550 configurations

| | |
|--|---------------------------|
| | Four-core 550 9409-M50 |
| Processor | POWER6 4.2 GHz |
| Processor cache per chip (two cores per chip) | 8 MB L2 and 32 MB L3 |
| Processor card feature | 2 x #4966 |
| n-way | 1/4-way |
| CPW | 4800/18,000 |
| Memory/Main store | 2 GB minimum |

| | |
|---|--|
| | 128 GB maximum |
| Disk storage* | 70 GB minimum 1.7 TB system unit maximum 154 TB system maximum |
| Disk arms* | 2 minimum 6 system unit maximum 546 system maximum |
| Disk controller * | Minimum 1 imbedded 60 system maximum |
| Tape drive | 0 minimum 1 maximum in system unit 18 system maximum |
| DVD drive | 1 minimum 36 system maximum |
| HSL or 12X loops | 0 minimum 2 maximum |
| HSL I/O drawers/towers | 0 minimum 12 maximum |
| 12X I/O drawers | 0 minimum 8 maximum |
| PCI slots | 5 in system unit 171 system maximum |
| Communication lines | 2 minimum ** 12 system unit maximum 162 system maximum |
| LAN ports usable by IBM i | 2 minimum 8 system unit maximum 96 system maximum |
| Maximum twinax devices | 50 |
| IOP-based cards supported (like twinax/older tape) | No in system unit Yes in HSL-attached I/O |
| Windows(R) integration | |
| - Integrated xSeries(R) Servers | Yes- 24 maximum |
| - Integrated xSeries Adapters | Yes- 12 maximum |
| - iSCSI adapters (PCI-X) | Yes- 42 maximum |
| Crypto coprocessor | 8 |
| Crypto accelerator | 4 |
| IBM i Software Tier | P20 |
| Server feature | #4925 |

* Does not include the option of Fibre Channel attached disk storage via SAN.

** One 2-line WAN adapter in most countries.

Note: Some maximums and combinations of devices may be subject to configuration restrictions.

Memory considerations

Eight DDR2 memory DIMM slots with error checking and correcting (ECC) are used in each Power 550 4.2 GHz processor card. Memory DIMMs are plugged in pairs (one memory feature equals two DIMMs). At least one pair of memory DIMMs (one memory feature) is required on each processor card. Memory features of different sizes can be used on the same system but cannot be mixed in the same processor card. For example, if one 4 GB memory feature is initially installed on a processor card, the only future memory additions supported on that card are additional 4 GB memory features, assuming the first 4 GB memory feature is not removed.

| Memory GB | Memory feature | # DIMMs | Maximum GB processor card | MHz |
|-----------|----------------|------------|---------------------------|-----|
| 1 GB | #4520 | 2 x 512 MB | 4 GB | 667 |
| 2 GB | #4521 | 2 x 1 GB | 8 GB | 667 |
| 4 GB | #4522 | 2 x 2 GB | 16 GB | 667 |
| 8 GB | #4523 | 2 x 4 GB | 32 GB | 667 |
| 16 GB | #4524 | 2 x 8 GB | 64 GB | 400 |

You can install up to 128 GB of memory in a four-core Power 550.

PCI slots/GX+ slot

The system unit contains five hot-swap PCI slots:

- Slots 1 and 2 are PCIe x8 2.5 GHz short-length slots.
- Slot 3 is a PCIe x8 2.5 GHz full-length slot.
- Slots 4 and 5 are PCI-X DDR 266 MHz full-length slots.

None of these slots supports an IOP or IOP-based IOA.

The two-core Power 550 has two GX+ slots that share space with PCIe slot 1 and slot 2. If a GX+ adapter is inserted to attach an HSL/RIO or 12X loop, the associated space of the PCIe slot card cannot hold a PCIe adapter. Therefore, if two loops are attached, three PCI slots are available in the system unit.

You can add more PCI slots to the Power 550 system using HSL/RIO-attached I/O towers/drawers or 12X-attached I/O drawers.

SAS disk and SAS disk controller

Six 3.5-inch 15k rpm SAS disk drive bays or disk slots are in the system unit, allowing up to 1.7 TB of IBM i disk storage. SAS disk drives formatted for IBM i are supported in three capacities: 69.7, 139.5, or 283.7 GB. AIX, Linux, or VIOS-formatted SAS drives are also supported in 73.4, 146.6, or 300 GB capacities.

The six disk bays are run by the imbedded SAS disk controller. Because the controller is "owned" by one partition, the owning partition needs to virtualize storage controlled by the imbedded controller to any secondary partition that needs disk storage from these disks.

Many client environments can improve disk performance of the six SAS drives by using the optional #5679 175 MB write cache. This card has a special slot in the Power 550 and does not require a PCI slot. The 175 MB write cache is protected by a 175 MB auxiliary write cache to help avoid single points of failure that would cause extended outages. The auxiliary write cache comes with #5679 and does not require a PCI slot.

With the #5679 175 MB write cache feature, RAID 5 or RAID 6 disk protection can be implemented for the six drive slots in the system unit. The Power 550 can also use the imbedded disk controller with #5679 write cache for driving up to 12 disk slots in a #5886 EXP 12S. Mirroring protection is available through the operating system. RAID 5 requires a minimum of three drives and RAID 6 requires four.

The same imbedded controller that runs the disk drives also runs the SAS tape slot and the slimline DVD drive in the system unit. The #5679 write cache is not used in tape or DVD operations.

For a supported Power 550 configuration, disk drives must be protected by either mirroring or RAID.

#5886 EXP 12S

The #5886 EXP 12S is a 2U (2 EIA) SAS disk drawer in a 19-inch rack. It is attached to a SAS port on the back of the Power 550 system unit via an external SAS cable (#3686 or #3687). It supports up to 12 hot-swap SAS disk drives (#3676/3677/3678 or #3646/3647/3648) and includes redundant power supplies. Its disk controller is the imbedded disk controller in the Power 550 system unit. The #5679 175 MB write cache is a prerequisite to attaching #5886.

Power 550 I/O loop, drawer, and tower options

The Power 550 system can optionally support two GX+ adapters, enabling you to choose any combination of HSL/RIO loops (#5614) or 12X loops (#5616).

- 12X loop can attach up to four #5796 12X I/O enclosures; 12X loop uses 12X cables.
- HSL/RIO loop can attach up to six HSL/RIO I/O enclosures; HSL/RIO loop uses HSL/RIO cables.

The 12X I/O enclosure is the #5796 12X PCI-DDR expansion drawer that contains six full-length PCI-X DDR high-speed slots in a space-efficient package. Because each #5796 takes only half the 19-inch rack width, two #5796 features require only 4U or 4 EIA of 19-inch rack space. Up to two #5796 features can be placed in a #7314 dual 5796 unit enclosure.

Each #5796 takes one of four possible positions per 12X loop. The #5796 attaches to the 12X loop using one of two #5796 12X adapters, one for shorter distances and one for longer distances. You can use the short run adapter #6446 with 12X loops on which all units are contained in the same rack. Use the long run adapter #6457 for units spread across multiple racks. Short run and long run adapters can be mixed on the same loop.

In the following table, Yes indicates that the 12X cable identified in that column can be used to connect the configuration identified to the left.

12X Cable Options

| | (1) (#1829) | (#1830) | (2) (#1840) | (#1834) (3) |
|---|----------------|---------|----------------|-------------|
| #5796 to #5796 with Short Run adapter (#6446) in both drawers | Yes | Yes | No | No |
| #5796 with Short Run adapter (#6446) to #5796 with Long Run adapter (#6457) | Yes | Yes | Yes | No |
| #5796 to #5796 with Long Run adapter (#6457) in both drawers | Yes | Yes | Yes | Yes |
| #5796 with Short Run adapter (#6446) to 12X Channel system unit adapter | No | Yes | Yes | No |
| #5796 with Long Run adapter (#6457) to 12X Channel system unit adapter | No | Yes | Yes | Yes |

Notes

1. The 0.6 m 12X cable (#1829) cannot be used to connect to a processor enclosure because of its short length. It is intended for use between two #5796 drawers mounted side-by-side in the same #7314 enclosure or to connect between two #5796 drawers located one beneath the other in a rack.
2. It is possible in some limited configurations to use the 3.0 M 12X cable (#1840) to locate #5796 drawers in adjacent racks. The cable length requires careful management of each drawer location within the rack. The best choice for connecting a #5796 drawer in an adjacent rack is the 8.0 M 12X cable (#1834).
3. The 12X cable (#1834) is intended for use when connecting between two modules that are located in adjacent racks. This cable may not be connected to the 12X Short Run adapter (#6446).

The #5796 supports only smart IOAs and does not support an IOP or a card that requires an IOP. The #5796 includes redundant concurrently maintainable power and cooling. The blind swap PCI mechanism allows for PCI card servicing without removing the I/O expansion drawer.

HSL/RIO

The Power 550 system supports HSL I/O enclosures that allow for PCI-X slots and, in some cases, disk slots. These enclosures were previously available on POWER5 systems. The PCI slots are PCI-X slots that support IOPs, not PCI-X DDR slots. These enclosures are:

- #0595/5095 (7 PCI-X slots and 12 SCSI disk slots)
- #5094/5294 (14 PCI-X slots and 15 to 45 SCSI disk slots)
- #5096/5296 (14 PCI-X slots and 0 disk slots)
- #0588/5088 (14 PCI-X slots and 0 disk slots)
- #5790 (6 PCI-X slots and 0 disk slots)

The #0588 and #5088 are withdrawn from marketing but are supported. The #5094 and #5294 are not orderable as new I/O enclosures but are supported. The #0595, #5095, #5096, #5296, and #5790 can be ordered as new HSL I/O enclosures.

All of these HSL/RIO I/O enclosures are system attached via HSL-2 physical ports and run over an HSL-2 interface. I/O units that were attached to earlier systems using the HSL-1 interface (#9877, #9886, #9887, #2886, #2887) must be upgraded before being attached to the Power 550 system. This includes the #0588/5088, which previously had supported the HSL-2 interface only with an RPQ on POWER5 and POWER5+™ systems. You can order the HSL-2 interface as #6417 (MES) or #9517 (from factory with new I/O tower/drawer).

The #5786 EXP24 disk enclosure is also supported. This I/O enclosure holds up to 24 internal 15k rpm SCSI disk drives that are run by a disk controller in a PCI slot located in the Power 550 processor, 12X, or HSL enclosure.

Disk and disk controller protection rules

The Power 550 is designed to minimize single points of failure. In order to have an IBM-supported configuration, the following minimum level of integrated disk storage is required:

- All disk drives must to be protected by RAID or mirroring.
- All disk controllers with write cache must be protected by either auxiliary write cache or by mirroring the controller. If SCSI disk controllers such as the 40 MB write cache #5703 or #0628 and the 90 MB write cache #5776, #5737, and #0648 are used, they must be mirrored, as these cards do not have an auxiliary write cache option.

Note that the optional write cache option for the system unit #5679 includes auxiliary write cache protection.

PCIe adapters

PCIe adapter slots can support higher speeds and capacities than the PCI-X generation of PCI slots. PCIe and PCI-X slots are physically different. PCIe adapters cannot plug into a PCI-X slot and vice versa. PCIe adapters do not use an IOP.

The Power 550 processor enclosure has three PCIe slots. The following PCIe adapters are available:

- #2893/9693 PCIe 2-Line WAN with Modem (IBM i, Linux)
- #2894/9694 PCIe 2-Line WAN with Modem (CIM) (IBM i, Linux)
- #5773 PCIe 4Gb Fibre Channel Adapter (IBM i 6.1, Linux, AIX)
- #5767 PCIe 1Gb Ethernet UPT 2-Port IOA (IBM i, Linux, AIX)
- #5768 PCIe 1Gb Ethernet Fiber 2-Port IOA (IBM i, Linux, AIX)

The PCIe 2-Line WAN with modem IOA supports the use of IBM i Operations Console-Direct Attach (commonly called ops console). This IBM i console option uses a special cable #0367 attached to a user-supplied Microsoft® Windows workstation.

IBM i consoles

Select one of the following IBM i consoles:

- Operations console attached via Ethernet port (LAN console) or WAN port (ops console)
- Hardware Management Console (HMC)

A twinax console is not supported unless an HMC is present on the system. A 9944-100 Thin Console is not supported.

Integrated virtual Ethernet (IVE) daughter cards

An IVE daughter card is required on the Power 550 system. This daughter card has a special slot and does not use a PCI slot. Either a #5623 dual-port 10/100/1000 Mb or #5624 quad-port 10/100/1000 Mb can be selected. The Ethernet ports can be virtualized to different partitions, offering flexible configurations.

EnergyScale technology

The Power 550 server includes EnergyScale technology that includes power trending, power saving, capping of power, and thermal measurement capabilities.

Additional components

One #7707 1700 watt ac power supply is required. An optional second #7707 power supply provides redundancy and allows either power supply to be hot-swapped. Each power supply requires a power cord.

An operations panel cable is required. For a deskside system, use #1843. For a rack-mount system, use #1877 to specify a cable.

For a deskside system, include a #7226 deskside specify with a feature #7227 door. For a rack-mount system, a #7229 rack-mount specify with a #7268 bezel feature must be configured.

Other system components include:

- Two system ports and three USB ports for AIX usage
- Two HMC ports
- Two SPCN ports
- One imbedded service processor
- One DASD/media backplane (#8345)

The minimum Power 550 system configuration (9409-M50) must include:

- Two processor cards
- One processor activation
- 2 or 4 GB memory
- One power supply
- One power cord
- Two disks (unless a Fibre Channel adapter is used for SAN disk drive attachment)
- One DASD/media backplane (#8345)

- One operations panel cable
- One IVE daughter card
- One DVD drive
- One WAN adapter
- Rack-mount/deskside features
- IBM i console specify
- Server feature
- IBM i enablement specify
- Language specify

For additional information on the Power 550, visit

<http://www.ibm.com/systems/power>

Accessibility by people with disabilities

You can request a U.S. Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance at

http://www-3.ibm.com/able/product_accessibility/index.html

Product positioning

If you require a mid-size server to run your IBM i business applications, the Power 550 offers a powerful and reliable solution. The Power 550 supports up to four POWER6 cores, up to 128 GB memory, two HSL or 12X loops, and up to 546 disk drives or 154 TB. With CUoD, you can quickly increase your processing power when your business demands it. Clients who in the past would have purchased a System i 550 or a System i 570 with modest I/O capabilities should consider the Power 550.

The Power 550 is available as a four-core server with a P20 software tier.

Power 550 compared to two-core Power 520

The four-core Power 550 (POWER6 9409-M50) offers higher performance and larger I/O capacities than the Power 520. In addition to larger n-way, L3 cache, up to 8X larger memory, and more I/O, it offers more I/O flexibility. The Power 550 has up to two I/O loops instead of the maximum of one I/O loop offered by the two-core Power 520 (9408-M25). With two loops you can attach more I/O, and you can choose to mirror the I/O at a loop level. You can also more easily transition from existing HSL/RIO I/O to 12X I/O. This mixed loop environment enables Power 550 clients to use both an HSL/RIO and a 12X loop on the same system. Having both types of I/O loops enables you to migrate existing I/O and invest in the newest I/O drawer technology at the same time. The Power 550 has a P20 software tier while the two-core Power 520 has a P10 software tier.

Power 550 compared to POWER5 model 550

The four-core (1/4-way) Power 550 (POWER6 9409-M50) is a follow-on product to the POWER5 9406-550 1/4-way. Although the systems are similar, a number of differences exist, particularly in the area of new technologies.

Similarities include:

- IBM i processor licensing and the P20 software tier
- Support for IBM i 5.4, and later
- Four-core processor with a minimum of one processor active (1/4-way)
- Either rack-mounted (4U) or deskside configuration
- 5250 OLTP capability priced per processor's worth of capacity
- Support for the attachment of up to 12 I/O tower/drawers via two HSL/RIO loops

Differences include:

- Uses 4.2 GHz POWER6 technology as opposed to 1.9 GHz POWER5+ technology.
- Uses all PCIe and PCI-X DDR slots as opposed to slower PCI-X slots in the system unit. (An IOP or IOP-based adapter card can be placed in an HSL-attached I/O drawer/tower.)
- Can use either a 12X I/O loop or HSL/RIO loop as opposed to only HSL/RIO loop.
- Includes a 175 MB protected write cache disk controller option for the integrated disk controller in the system unit as opposed to 40 MB unprotected write cache.
- Requires that all internal disk controllers with write cache be protected with either auxiliary write cache or be mirrored.
- Can use the new 2U SAS disk drawer for additional internal disk growth as opposed to just SCSI drives in expansion units.
- Supports a half-high SAS tape drive in the system unit as opposed to a SCSI tape drive.
- Up to four IVE daughter card ports as opposed to two integrated ports.
- Optional use of an edition package.
- Requires PowerVM (previously named Advanced Power Virtualization) for Micro-Partitioning™.
- Includes base warranty of one year with 9 x 5 next-business-day support and customer replaceable unit (CRU) that is upgradable to a higher level of coverage as opposed to 24 x 7 same-business-day support with optional CRU.

Power 550 compared to Power 570

The Power 570 offers more processor growth, more dynamic growth, larger memory maximums, larger I/O maximums and flexibility, and additional redundancy. Power 570 advantages include:

- Up to a 16-core configuration (as opposed to 4-core)
- Faster 4.7 GHz POWER6 processors (as opposed to 4.2 GHz) that yields more performance
- On/Off Capacity on Demand plus Utility on Demand in addition to CUoD
- Ability to hot plug a Power 570 4-core processor drawer and a GX+ loop adapter
- Up to 50% more memory (4-core to 4-core) or up to 600% more memory (16-core 570)
- Up to 100% more I/O loops (4-core to 8-core) or up to 400% more loops (16-core 570)
- Flexibility to mirror both HSL/RIO and 12X loops (8-core 570)
- Redundant service processors with failover capability with 8-core or larger 570
- Multiple processor enclosures that offer additional possibilities to re-IPL, even if one processor enclosure has a hard failure (8-core or larger 570)

The Power 570 has a P30 software tier compared to the Power 550's lower-priced P20 software tier.

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