

RS/6000 43P Model 150 Server

Highlights

- Ideal entry workgroup server for departments and small businesses
- Affordable and powerful e-business server
- Outstanding expandability in one compact package
- Choice of two processor speeds to meet performance needs
- Ultra SCSI, Ultra2 SCSI and SSA storage options for improved data transfer performance and availability
- Network-ready, with 10/100 Mbps Ethernet built in
- Powered by award-winning IBM AIX®

Entry workgroup server to fit your budget

If you need to power up your small business or workgroup—and keep a watchful eye on your budget at the same time—take a close look at the RS/6000® 43P Model 150. This compact yet expandable system delivers the right combination of power, performance and price to delight IT administrators and small-business owners alike. Add the appropriate software and communications capabilities and turn the Model 150 into an e-business server ready to take your enterprise onto the Internet. However you configure this affordable performer, you can count on the Model 150 to meet your needs today, plus give you room to grow with confidence.



Stepping up power on the desktop

For those looking for more power at an entry price point, the Model 150 offers great performance at an affordable price. A choice of PowerPC 604e microprocessors (250 or 375 MHz) and memory provide the versatility and price/performance needed to run networked business applications as well as e-business workload with ease.

Memory configurations are flexible beginning at 128MB and expandable to 1GB for your demanding e-business applications. And a 1MB Level 2 (L2) cache is provided for increased processor performance.

Room to grow, in one compact package

Don't let the space-efficient footprint of the Model 150 mislead you. This system offers exceptional expansion capability, giving the ability to customize the system to meet your needs, today and in the future.

Each Model 150 comes equipped with 10/100 Mbps Ethernet and an advanced Ultra SCSI storage controller. Because these are integrated on the system board, all five expansion slots on the Model 150 are available for adding devices such as communications adapters or storage controllers.

For additional connectivity expansion capacity, the Model 150 supports the 4-port Ethernet adapter so up to 4 Ethernet connections will use only one expansion slot. With two of these adapters, it can support up to 9 10/100 Ethernet connections. This adapter is cost effective for customers needing more Ethernet ports to run their e-business or Internet/firewall applications.

You can expand the base 9.1GB of internal Ultra SCSI disk storage on the Model 150 up to 54.6GB—ample capacity to satisfy the requirements of many server applications. And that's just for starters.

A wide variety of external storage devices may be attached to the Model 150. The IBM 2104 Expandable Storage Plus (Ultra3 SCSI) and 7133 Serial Disk System (SSA) provide highly reliable, high capacity, hot swappable external storage. Over 3 terabytes of SSA disk storage may be attached. When storage performance is an issue—for example, in the case of data-intensive e-business

applications—choose Ultra2 SCSI or SSA disks and realize a significant improvement in data transfer rates over SCSI-2.

A system you can count on

The Model 150 has many of the reliability, availability and serviceability (RAS) features essential to today's business-critical computing environments. For example, Error Checking and Correcting (ECC) memory offers error correction technology, superior to parity error correction for increased system availability and reliability. An easy-to-read LED operator status panel on the front of the system keeps you informed of its status at a glance. Concurrent diagnostics enable you to troubleshoot minor problems that may occur—without requiring the system to be shut down.

The Model 150 also offers a mirrored RAID solution to prevent critical data loss due to a disk fail. Three bays may contain disk storage. One is required as a boot drive; the remaining two bays may be used to mirror up to 18.2GB of disk for an easy to implement RAID solution. And the Model 150 can be combined with IBM's High Availability Cluster Multiprocessing software (HACMP) to get you well on the way to a high availability solution.

RS/6000 entry servers

The Model 150 is the most affordably priced offering in our full range of entry workgroup servers. Next in the RS/6000 line of entry servers is the Model 170, a uniprocessor system that uses IBM's advanced 64-bit POWER3-II copper-based microprocessor technology to bring new levels of price/performance to the entry server family. The Model 170 is an excellent choice for running many small to mid-size enterprises, and its compact desk-side packaging provides the expandability required as these businesses grow. The top of our entry server product line is the Model 270, a 1- to 4-way symmetric multiprocessor (SMP) using the POWER3-II technology. This powerful server is designed for commercial and technical applications that require high performance and SMP capability.

The AIX advantage

The UNIX operating system for the Model 150 is IBM's award-winning AIX⁴, providing real value in reliability, availability and security. AIX is tuned for e-business performance, and widely recognized as start-of-the-art in systems and network management. With AIX, you have access to over 13,000 diverse applications.

Features	Benefits
Powerful e-business server	<ul style="list-style-type: none"> Provides excellent performance, expandability and reliability for departmental workgroups, small businesses and e-business applications
Higher performance	<ul style="list-style-type: none"> Delivers improved commercial processing plus greater memory capacity over the Model 140
Configuration flexibility	<ul style="list-style-type: none"> Offers choice of 250 or 375 MHz PowerPC 604e processors Starts with 128MB and can grow to 1GB of memory Provides access to Ultra2 SCSI and SSA disk storage
Ultra2 SCSI disk support	<ul style="list-style-type: none"> Provides data transfer rates up to 160MB/sec Improves multidisk performance
SSA RAID disk support	<ul style="list-style-type: none"> Provides higher disk capacity for externally attached units Provides bandwidth up to 160MB/sec Helps to improve data availability and device reliability

LED operator panel
(3-digit)

- Machine status is visible at a glance, improving troubleshooting capability

AIX operating system

- Provides a vast portfolio for multi-user applications
- UNIX® branded as well as Year 2000-, Euro- and Tivoli®-ready
- Full binary-compatible support for AIX 4.3 provides forward and backward compatibility with legacy applications

RS/6000 44P Model 170 Server

Highlights

- Powerful, affordable 64-bit workgroup or e-business server
- Increased capacity (memory, internal disk, PCI slots) over RS/6000® Model 150
- Six PCI slots and six bays for easy expandability
- Choice of two processor speeds to meet performance needs
- Compact mini tower fits virtually any office environment
- Enhanced performance with IBM's powerful POWER3-II microprocessors
- Built-in service processor for high system availability
- Powered by award-winning IBM AIX®

Eye on the future

The RS/6000 44P Model 170 server is ideal for companies that require an affordable, reliable and compact system for commercial computing and e-business. It is designed to provide the power and expandability that meet the needs of many businesses today and into the future.

Commitment to value

The Model 170 extends IBM's line of powerful, affordable entry servers with a choice of state-of-the-art, 64-bit copper POWER3-II microprocessors. The entry 333 MHz option combines 64-bit processing capability with a full 1MB of L2 cache for excellent performance at an affordable price.



With a higher clock speed and 4MB of L2 cache, the 400 MHz processor provides significantly increased commercial performance. And the design of the Model 170 protects investments by letting you start at 333 MHz, then upgrade to 400 MHz simply by plugging in a new processor card.

These are among the most powerful microprocessors IBM has ever offered. With the 400 MHz processor installed, the Model 170 provides nearly five times the floating-point performance and more than two times the transaction processing performance of the 43P Model 150.

Matched to the powerful microprocessors is a new memory controller with a 100 MHz memory bus that further enhances performance. With up to twice the memory of the Model 150 and up to 127.4GB of internal storage, the Model 170 can easily meet the needs of a small business or Web server.

The advanced technology of the Model 170 provides a number of real business advantages. It offers flexibility in building business solutions, with more than 13,000 AIX applications available in such areas as e-business, e-commerce, and entry enterprise resource planning and supply chain management. And since the Model 170 can run 32-bit and 64-bit applications concurrently, it can help you manage your transition to 64-bit computing.

There when you need it

The Model 170 offers enterprise-class reliability in an entry server with a built-in service processor that is designed to continuously monitor the system's vital signs. It can determine and take corrective action to help critical applications stay up and running.

Enabled at your option, the service processor, with IBM's Service Director™ offering installed, can automatically dial out to a service center if it detects a component failure, often before any problem is apparent to users or system administrators.

The Model 170 features error checking and correcting (ECC) memory that can detect and correct many errors. An easy-to-read LED panel keeps you informed on system status. And concurrent

diagnostics enable you to troubleshoot potential system malfunctions without shutting down the system.

For the most mission-critical applications, the Model 170 offers the option of high-availability clustering, using IBM's industry-leading HACMP disaster recovery software.

Small package, big value

e-business is about growth, so the Model 170 offers expandable power and capacity in a compact design. Integrated Ethernet, internal Ultra SCSI and external Ultra2 SCSI controllers leave six industry-standard PCI slots available for your use. Internal disk storage ranges from 9.1GB to 127.4GB, and products such as the IBM 2104 Expandable Storage Plus (Ultra2 SCSI) and the IBM 7133 Serial Disk System (SSA) provide highly reliable, hot-swappable external storage. In fact, with the 7133 more than 6 terabytes of disk storage may be attached.

This kind of expandability means the Model 170 can help you grow your business on the Internet or expand to support additional users.

The AIX advantage

The UNIX operating system for the Model 170 is IBM's award-winning AIX, providing real value in reliability, availability and security. AIX is tuned for e-business performance, and widely recognized as state-of-the-art in systems and network management.

AIX 4.3.3 runs across the entire RS/6000 product line and delivers Java™ technology, Web performance and scalability enhancements. It is an excellent choice for managing large complex installations. AIX offers Web-based remote management tools that allow you to control the system from any Java-enabled browser and includes Tivoli Management Agent, which monitors key resources such as adapter and network availability, file system status, and processor workload.

Features	Benefits
POWER3-II microprocessor	<ul style="list-style-type: none"> Provides greater processing speed and reliability through copper technology Greatly enhances performance of floating-point and commercial applications
64-bit system architecture	<ul style="list-style-type: none"> Improves physical memory use for applications requiring faster access to large amounts of data
Built-in service processor	<ul style="list-style-type: none"> Designed to monitor system operations and take preventative or corrective action for quick problem resolution and high system availability Allows diagnostics and maintenance to be performed remotely
High performance Ultra2 SCSI disk	<ul style="list-style-type: none"> Provides data transfer rates of up to 80MB/sec
SSA RAID disk	<ul style="list-style-type: none"> Provides higher disk capacity with externally attached units Provides bandwidth up to 160MB/sec Helps improve data availability and device reliability
Concurrent 32-bit and 64-bit application support	<ul style="list-style-type: none"> Allows migration to 64-bit applications at your own pace
AIX operating system	<ul style="list-style-type: none"> Supports concurrent execution of 32- and 64-bit applications on 64-bit RS/6000 systems in their full range of scalability

- Provides an AIX binary compatibility environment that helps assure continuing application availability across AIX Version 4 releases
- Maintains branded conformance to The Open Group's XPG4, UNIX® 95 and UNIX98 specifications. Year 2000, Euro and Tivoli® ready
- Offers vast portfolio of multiuser applications

Specifications

Minimum configuration

Microprocessor:	333 MHz POWER3-II
Level 1 (L1) cache:	64KB data/32KB instruction
Level 2 (L2) cache:	1MB
RAM (memory):	256MB
Memory bus width:	128-bit
Internal disk drive:	9.1GB Ultra SCSI
Disk/media bays:	Six (three available)
Expansion slots:	Six PCI
PCI bus width:	32- and 64-bit

Standard features

Integrated ports:	Keyboard, mouse, Ethernet Thick and Twisted, internal Ultra SCSI, external Ultra2 SCSI, two serial, parallel and stereo audio Vertical stand, CD-ROM drive, LED operator panel, 1.44MB 3.5-inch diskette drive
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Operating system	AIX Version 4.3.3 (unlimited user license)
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System expansion

Microprocessor:	400 MHz POWER3-II
L2 cache:	4MB
RAM:	Up to 2GB
Internal DASD:	up to 127.4GB
External storage:	IBM 2104 Expandable Storage Plus (Ultra2 SCSI), IBM 7133 Serial Disk System (SSA)

Power requirements	Universal 110/220V power supply
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System dimensions	19.25" H x 7.9" W x 20.25" D (490mm x 200mm x 515mm): 39lbs (17.7kg)
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
Warranty	On-site for one year (limited) at no additional cost
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IBM server pSeries 660 Model 6H1

Highlights

- Outstanding price/performance, scalability and packaging flexibility in a powerful SMP rack-mounted server
- World-class reliability, availability, serviceability features for critical e-business applications
- Rugged, NEBS Level 3 design ideal for telecommunications and Web farms

Expandable technology for high performance

The IBM server pSeries 660 Model 6H1 is a rugged, high-performance rack-mounted UNIX® server with superior availability and expandability for growing e-business applications. It is part of the IBM server brand—a new generation of servers featuring unmatched availability and scalability, broad support of open standards for development of portable new applications, and IBM server Advantage™ offerings for managing the unprecedented demands of e-business.



The pSeries 660 Model 6H1 can run many Web-enabled e-business enterprise applications—including Enterprise Resource Planning (ERP), Supply Chain Management (SCM) and Customer Relationship Management (CRM)—to effectively integrate suppliers, business partners and customers for improved efficiency and customer service. And the Model 6H1 offers better price/performance with at least 50 percent greater performance than earlier IBM UNIX servers.

The combination of high performance, compliance with carrier-grade standards such as NEBS (Network Equipment Building System) Level 3, and ample peripheral attachment capability make the Model 6H1 particularly suitable for the complex demands of telecommunications providers or other companies, such as Internet Service Providers (ISPs) or Application Service Providers (ASPs).

The Model 6H1 offers large memory capacity and up to six advanced 64-bit RS64 IV microprocessors running at up to 668 MHz for new levels of performance and price/performance. For applications with less demanding performance requirements, the Model 6H1 also offers one-, two- and four-way 64-bit RS64 III microprocessors running at 450 MHz. The processors utilize innovative copper and silicon-on-insulator (SOI) technology¹. The result is high performance with less power consumption and lower heat generation for higher levels of reliability and system availability.

The base 256MB of main memory can be expanded to 32GB for enhanced performance and exploitation of 64-bit addressing used in large database and enterprise applications. The entry-level, one-way system has either a 450 MHz or 600 MHz microprocessor with 2MB of Level 2 (L2) cache—a special memory subsystem in which frequently used data values are duplicated for quick access. Larger configurations with two-, four- or six-way processors at up to 668 MHz and up to 8MB of L2 cache per processor are available for even greater performance.

Designed for flexibility

The rack-drawer design of the Model 6H1 provides ease of growth in processor as well as I/O and memory capacity. It includes a standard rack-mounted processor drawer and an I/O drawer with 14 hot-plug PCI slots for configuration flexibility. Up to two I/O drawers may be installed for a total of 28 PCI slots. Integrated 10/100 Mbps Ethernet, SCSI-2 F/W and Ultra2 SCSI controllers are standard in each I/O drawer, leaving all slots available for additional use.

In its maximum configuration, the Model 6H1 features one processor drawer with six 668 MHz processors and two I/O drawers for a total of 15 EIA units (U) of rack space. Depending on the number of attached I/O drawers, up to three pSeries 660 systems can be installed in an IBM 7014 T00 (36U) or

T42 (42U) rack. As a result, customers benefit from significant power and capacity while saving valuable floor space.

The Model 6H1 is designed to meet the critical requirements of e-business for medium- and large-size organizations. With powerful processors, memory and data storage capacity and expandability, it is an excellent application server for ERP systems. Along with NEBS Level 3 standards compliance, the Model 6H1 offers other features that are of special value to telecommunications service providers, including redundant power supplies and -48v DC.

Also, the Model 6H1 fully supports accepted open industry standards that are critical for e-business. Used as either a standalone, multiuser application or database server, the Model 6H1 is designed to participate in most installed UNIX and PC networks, thus helping to leverage existing applications.

Clustering

Clustering allows the interconnection of multiple computers into a single computing resource for improved availability, scalability, manageability and performance. Up to 32 Model 6H1 servers can participate in an AIX® cluster of pSeries and RS/6000® servers under the control of specialized IBM clustering software (Parallel System Support Programs—PSSP). An AIX cluster utilizing Model 6H1 servers is an excellent choice for an environment needing horizontal growth—that is, replication of the same application across multiple servers as business needs grow. It is also ideal for server consolidation where diverse workloads are consolidated and managed from a single point-of-control. And for optimal cluster performance, the Model 6H1 may be optionally switch-attached to an RS/6000 SP™.

High availability, all day, every day

To help ensure that strategic applications remain available 24x7, the Model 6H1 features an integrated service processor—a computer within a computer—that constantly monitors the system's vital signs. In the event of a malfunction, the service processor is capable of calling home by automatically dialing out to an IBM service center, often before any problem is apparent to users or system administrators. In this fashion, the service technician may be able to correct the problem and restore system function remotely.

To maximize system availability, the Model 6H1 server has built-in fault and error correction functions. For the main memory, Chipkill™ Memory technology—developed by IBM for the S/390® enterprise server—detects multiple bit errors and corrects most of them transparently. If the error rate exceeds the critical threshold, a maintenance action is initiated automatically by the system to be resolved at the customer's convenience. IBM studies indicate that systems without Chipkill are 100 times more likely to experience an outage due to memory failure².

In addition, the Model 6H1 uses ECC (error checking and correcting) memory technology to enhance reliability and error correction of L1 data cache and L2 cache memory as well as main memory. This approach has significant advantages over the industry-standard parity memory technology. ECC technology can detect single and double errors and correct all single bit errors. Parity memory can only detect, but not correct, single bit errors. Thus, double bit errors may be missed altogether, which can lead to a complete system shutdown. The use of these advanced memory technologies, Chipkill and ECC, on the Model 6H1 protects the server from memory failures that can cause costly, unscheduled downtime.

Another IBM-unique availability feature of the Model 6H1 is Dynamic Processor Deallocation. In the unlikely event that a processor indicates an impending failure, this feature works with the AIX operating system and service processor to dynamically take the processor offline. Its workload is reassigned automatically to other processors, and replacement can be scheduled during normal service to minimize system and application downtime.

Additional reliability and availability features include redundant hot-plug cooling fans and power supplies, which may be replaced without affecting system operations. Also available is a temperature monitoring capability that increases the fan speed in response to above-normal temperatures.

For near continuous availability, two Model 6H1 servers can be clustered in a single rack with High Availability Cluster Multiprocessing (HACMP) software from IBM, the leading UNIX-based disaster recovery clustering solution³. Combined with applications that meet IBM ClusterProven™ standards, this solution provides a superior base for high availability, an essential ingredient of e-commerce.

Advanced UNIX operating system

An unlimited user license of AIX—the high-performance UNIX operating system from IBM—is included in the base price of the Model 6H1. Providing real value in reliability, availability and security, AIX is tuned for e-business application performance and is widely recognized as state of the art in systems and network management.

AIX delivers Java™ technology, Web performance and scalability enhancements for managing advanced e-business installations. Web-based remote management tools control the system and monitor key resources such as network availability, file system status and processor workload. AIX also incorporates Workload Manager, which can help ensure that critical applications remain responsive even during periods of peak system demand.

The latest release of AIX, AIX 5L Version 5.1, adds new functionality to further improve security and system availability, enhance Workload Manager and improve Java scalability and performance. In addition, support is available so that popular applications developed on LINUX® can be run on AIX with minimal change.

Application availability

As a powerful and affordable server solution, the Model 6H1 delivers industry-leading technology and performance, reliability, availability, flexible power options and ease of serviceability. Working in partnership with leading independent software vendors (ISVs), IBM offers an enriched portfolio of software solutions needed to effectively manage a company's e-business infrastructure. In fact, more than 13,000 AIX applications have been developed around the world. Additionally available are IBM @server Solution Offerings that tailor pSeries server and software solutions to suit individual customer requirements. In providing a better way to implement e-business solutions, these offerings include pre-configured, pre-tested applications.

Tools for e-business

The Model 6H1 is backed by the IBM @server Advantage, which includes a number of innovative tools for managing an end-to-end e-business infrastructure. Included are servers, storage, software and services, which provide customers with new ways to manage growth, risks and costs. Customers can also implement a greater choice of new applications with high-performance IBM technology, reliability and security.

In addition, IBM Global Services experts can help companies gain a competitive edge with business and IT consulting, business transformation and total systems management services, as well as customized e-business solutions. Backed by worldwide service and support, our commitment is to provide the highest possible customer satisfaction with every system.

Features

Benefits

Copper-based SMP processors

- Provide significant performance increases over non-copper technologies
- Offer improved reliability over processors without copper

SOI technology (600 MHz/668 MHz only)

- Results in less power dissipated for cost savings and improved reliability

High system memory

- Enables complex e-business applications to execute quickly and

capacity (32GB)

efficiently

Chipkill Memory

- Significantly lowers number of memory failures that cause system outages, thus increasing system availability
- Minimizes the potential for loss of business data

Rack-drawer configuration

- Allows for efficient utilization of floor space
- Provides ease of growth in processor, I/O and storage capacity

Up to 28 hot-plug PCI slots

- Dramatically improve availability and provide uninterrupted growth in new adapters
- Provide increased connectivity for e-business applications

Built-in service processor

- Automatically monitors system operations and takes preventive or corrective action
- Allows diagnostics and maintenance to be performed remotely

Hot-plug redundant power supplies and cooling fans

- Allow uninterrupted operation if a power supply or fan becomes disabled

Dynamic Processor Deallocation

- Automatically reassigns workload when processor failure is detected so that applications continue to run uninterrupted

AIX clustering

- Provides centralized management of multiple systems
- Provides ability to handle unexpected workload peaks by sharing resources
- Allows for more granular growth so user demands can be readily satisfied

AIX operating system

- Supports full interoperability and coexistence between 32- and 64-bit applications with processes that may run concurrently or cooperatively
- UNIX 98-compliant and first to achieve UNIX 98 Server registration
- Provides an AIX binary compatible environment that helps assure continuing application availability across AIX releases when binary compatibility rules are observed

Specifications

Processor 5U rack drawer

Microprocessor:	1-way 450 MHz RS64 III or 1-way 600 MHz RS64 IV
Level 1 (L1) cache:	128KB data (ECC)/128KB instruction
Level 2 (L2) cache:	2MB (ECC)
RAM (memory):	256MB (ECC)
Memory bandwidth:	2.4GB per second
System bus:	Two busses, each 128 bits wide

I/O 5U rack drawer

I/O slots:	14 hot-plug PCI slots
I/O bus width:	10 64-bit, 4 32-bit
I/O bus speed:	10@66 MHz(3.3v)/4@33 MHz(5v)
I/O bandwidth:	1GB per second—aggregate peak
Storage options:	Boot capability from externally attached disk drawers, or optionally, two internal boot disks that require two I/O slots

Standard features

Integrated ports:	Keyboard, mouse, four serial, one parallel
Integrated bays:	Diskette drive, CD-ROM, one additional media bay
Integrated controllers:	SCSI-2 F/W (internal), Ultra2 SCSI (external), 10/100 Mbps Etherne

System expansion

Processor:	2- or 4-way (450 MHz) RS64 III SMP; 2- or 4-way (600 MHz) or 6-way (668 MHz) RS64 IV SMP
Level 2 (L2) cache:	4MB/processor (2- or 4-way) or 8MB/processor (6-way)
RAM:	Up to 32GB (Chipkill)
I/O:	Second 5U rack drawer (600 MHz, 668 MHz systems; available as RPQ on 450 MHz systems), 14 hot-plug PCI slots and 2 media bays additional
External Storage:	IBM 2104 Expendable Storage Plus (Ultra3 SCSI), IBM 7133 Serial Disk System (SSA), IBM 2105 Enterprise Storage Server
Attachment:	SP System Attachment feature for use as SP-attached server

Operating systems

AIX 4.3.3 (unlimited user license) or AIX 5.1 (unlimited user license)

Power requirements

220v AC/-48v DC

Warranty

Onsite 24x7 for one year (limited) at no additional cost

RS/6000 Enterprise Server Model M80

Highlights

- Exceptional midrange RS/6000® enterprise server with world-class performance, expandability, availability and reliability
- Two- to eight-way 64-bit SMP rack-drawer server with copper chip technology
- Rack-mount packaging for configuration flexibility, ease of growth and reduced floor space
- Outstanding value for e-business, ERP, BI and other business-critical applications
- Powered by AIX®, a leading commercial UNIX® operating system

Midrange performance powerhouse

The IBM RS/6000 Model M80 is an advanced rack-mounted system positioned at the top of IBM's midrange RS/6000 enterprise server family. The M80 is a new design that combines the technology of the popular Model S80 with versatile 19 inch rack packaging to bring extraordinary levels of configuration flexibility, performance, reliability and value to demanding e-business environments.



The M80 is targeted to meet the critical requirements of e-business, enterprise resource planning (ERP), supply chain management (SCM), and business intelligence (BI) solutions. In ERP environments, it is an excellent application server with powerful processors and outstanding memory capacity. For e-business, the M80 excels as a highly reliable and fast business-to-business Web server. Also designed for NEBS (Network Equipment Building Standards) Level 3 compliance, the M80 offers special features (including redundant -48v DC power) for telecommunication central office operations.

Unparalleled technology in a midrange server

The Model M80 symmetric multiprocessor (SMP) server offers the same advanced technology as the award-winning¹ S80 in an affordable midrange rack-mountable package. The minimum configuration of two 64-bit 500 MHz RS64 III copper chip microprocessors can be expanded to eight processors in increments of two.

IBM's unique copper chip technology produces faster and more reliable processors, which improve speed and reduce the heat generated.

The M80 has an integrated system switch connecting the processors, memory and I/O. The switch has an outstanding total aggregate bandwidth of 18GB/sec. The M80 also comes standard with 1GB memory, which can be increased to 32GB. These features provide enough performance and memory capacity to meet the needs of many demanding e-business applications.

The M80 comes standard with 14 hot-plug PCI I/O slots (with a combined bandwidth of 1GB/sec) packaged in an I/O drawer for easy rack mounting. Up to four I/O drawers may be installed for a total of 56 slots. Optional boot bays are provided in the first I/O drawer (space for 2 I/O slots must be used, leaving 12). Integrated fast Ethernet, Ultra SCSI and Ultra2 SCSI controllers are standard in each I/O drawer, leaving all slots available for your use.

Big power, small footprint

The M80's rack packaging offers extraordinary configuration flexibility to meet unexpected growth needs. It consists of a rack-mountable processor drawer containing the processors and memory. This drawer is connected to the I/O drawers containing the PCI slots. For additional availability, the processor and I/O drawers come standard with hot-plug redundant power supplies and cooling fans.

The M80 offers flexibility in the number of processor and I/O drawers that can be mounted in the rack, providing more compute and I/O power per square foot of floor space. In its maximum configuration, an M80 system consists of one processor drawer with eight 500 MHz processors and four I/O drawers for a total of 28 EIA units (U) of rack space (8U for the processor drawer, 5U for each I/O drawer).

Depending on the number of attached I/O drawers, two or three M80 processor drawers can be installed in the 7014-T00 (36U) or T42 (42U) racks. Disk and tape storage can also be mounted in the racks. Storage products such as the IBM 7133 Serial Disk System (SSA), the IBM 2104 Expandable Storage Plus (Ultra3 SCSI), and the IBM 2105 Enterprise Storage Server provide terabytes of highly reliable, hot-swappable disk storage.

Availability when you need it

At the heart of the Model M80 is a service processor that is designed to constantly monitor the system's vital signs. It can determine and recommend actions often before a problem arises. If desired, a service call may be automatically placed.

The M80 has an IBM-unique feature, Dynamic Processor Deallocation, that monitors the processors. In the event a processor displays indications of an impending failure, this feature working with AIX 4.3.3 gracefully takes the faulty processor offline. Work from the failing processor is automatically reassigned to other processors and replacement of the failing processor can be scheduled for a convenient time.

The hot-plug PCI slots make it possible to keep e-business applications running while I/O adapters are added or replaced. Individual adapters can be enabled or disabled as needed, while operations not dependent on that adapter continue to run. There is usually no need to power-down and restart the system.

For near continuous operations, two M80's can be clustered in a single rack with IBM's industry-leading High Availability Cluster Multiprocessing (HACMP) disaster recovery solution². This cluster solution, HA-M80, when combined with applications that meet IBM's ClusterProven™ standards, provides a superior base for high availability, an essential ingredient for e-commerce.

Clustering

Clustering is the interconnection of multiple computers into a single computing resource for improved availability, scalability, manageability and performance. Up to 32 Model M80s can participate in an AIX cluster of IBM @serverSeries and IBM RS/6000 servers under the control of specialized IBM clustering software (Parallel System Support Programs - PSSP). Such a cluster is an excellent choice for an environment needing horizontal growth—that is, replication of the same application across multiple servers as business needs grow—and for server consolidation where diverse workloads are desired to be consolidated yet managed from a single point-of-control. And for the best cluster performance, the M80 may be optionally switch-attached to an RS/6000 SP™.

Easy upgrade from the H80

Moving up to a Model M80 from the next smaller system, the H80, is simple and cost effective since both systems share the same flexible packaging design. Upgrades are performed via a serial number protected model conversion by exchanging the processor drawer for a new one. The memory, I/O drawers, adapters, disk drives and rack enclosure can be reused, thus protecting investments and increasing overall scalability.

Value for e-business

The performance of the Model M80 places it above the H80 but below the S80, providing a nice bridge for midrange server requirements. The low entry price makes it possible to meet application requirements that do not warrant a full-scale S80 installation.

The AIX advantage

An unlimited user license of IBM's leadership version of UNIX, AIX 4.3.3, is included. Providing real value in reliability, availability and security, AIX is tuned for e-business performance and is widely recognized as state of the art in systems and network management.

AIX 4.3.3 delivers Java™ technology, Web performance and scalability enhancements, and is an excellent choice for managing large, complex installations. It offers Web-based remote management tools to control the system and monitor key resources such as adapter and network availability, file system status and processor workload.

Features	Benefits
Copper-based	<ul style="list-style-type: none"> • Provide significant performance increases over earlier processors
RS64 III SMP processors 64-bit system architecture	<ul style="list-style-type: none"> • Improves memory use for applications requiring faster access to large amounts of data
4MB ECC L2 cache per processor	<ul style="list-style-type: none"> • Provides increased performance and greater reliability
Up to 32GB ECC SDRAM memory	<ul style="list-style-type: none"> • Allows exploitation of 64-bit addressing for large database applications • Provides growth options for much greater throughput
Rack-drawer configuration	<ul style="list-style-type: none"> • Allows for efficient utilization of floor space • Provides flexible growth in processor and I/O capacity
56 hot-plug PCI slots	<ul style="list-style-type: none"> • Dramatically improve availability and provide uninterrupted growth for new adapters • Provide increased connectivity for e-business applications
Built-in service processor	<ul style="list-style-type: none"> • Designed to automatically monitor system operations and take preventive or corrective action • Allows diagnostics and maintenance to be performed remotely
Hot-plug redundant power supplies and cooling fans	<ul style="list-style-type: none"> • Allow uninterrupted operations if a power supply or fan becomes disabled
Dynamic Processor Deallocation	<ul style="list-style-type: none"> • Automatically deallocates resources when impending processor failures are detected so applications keep running
AIX clustering	<ul style="list-style-type: none"> • Provides centralized management of multiple systems • Provides ability to handle unexpected workload peaks by sharing resources • Allows for more granular growth so user demands can be readily satisfied
AIX operating system	<ul style="list-style-type: none"> • Supports concurrent execution of 32- and 64-bit applications on 64-bit RS/6000 systems in their full range of scalability • Maintains branded conformance to The Open Group's XPG4, UNIX95, and UNIX98 specifications • Provides an AIX binary compatible environment that helps assure continuing application availability across AIX Version 4 releases

Specifications

Minimum configuration

Processor 8U rack drawer

Microprocessor: 2-way 500 MHz RS64 III SMP

Level 1 (L1) cache: 128KB data/128KB instruction

Level 2 (L2) cache: 4MB/processor

RAM (memory): 1GB

System bus width: 128-bit

I/O 5U rack drawer

I/O slots: 14 hot-plug PCI slots

I/O bus width: 10 64-bit, 4 32-bit

I/O bus speed: 10@66 MHz(3.3v)/4@33 MHz(5v)

Storage options: Boot capability from externally attached disk drawers, or optionally, two internal boot disks which require two I/O slots

Standard features

Integrated ports: Keyboard, mouse, four serial, one parallel

Integrated bays: Diskette drive, CD-ROM, one bay available

Integrated controllers: Ultra SCSI (internal, supports SCSI-2 F/W speeds), Ultra2 SCSI (external), 10/100 Mbps Ethernet

System expansion

Processor: 4- 6- or 8-way RS64 III 500 MHz or
2-, 4-, 6- or 8-way RS64 IV 750 MHz

RAM: Up to 64GB

I/O: Up to four total 5U rack drawers (56 total hot-plug PCI slots and 8 total bays)

Storage: IBM 2104 Expandable Storage Plus (Ultra3 SCSI), IBM 7133 Serial Disk System (SSA), IBM 2105 Enterprise Storage Server

Attachment: SP System Attachment feature for use as SP-attached server

Operating system AIX Version 4.3.3 (unlimited user license) or Version 5.1 (unlimited user license)

Power requirements 220v AC/-48v DC

Warranty Onsite 24x7 for one year (limited) at no additional cost

Netfinity 5100

An easy-to-use, easy-to-manage server for hard-working businesses

A solid, dependable server for departments or workgroups, this 2-way offers high availability, excellent internal scalability and high performance in an extremely serviceable package.



Highlights of the Netfinity 5100

- Netfinity X-architecture is a design blueprint which leverages existing, innovative IBM technologies to build the most powerful, scalable and reliable Intel processor-based servers for your business -- whether you support ten or tens of thousands of users.
- Lighted guidance system to assist in quick identification of failing components, similar to the lights in a copier that identify the location of a paper jam.
- These offerings help minimize costs and maximize network uptime. Unique technology-enabled services like Remote Connect "call home" capability let your Netfinity server dial out to contact support services to keep your server up and running.

The Netfinity 5100 at a glance....

- Up to two Intel® Pentium® III processors, with up to 256KB full-speed Level 2 cache per processor
- Up to 4GB ECC SDRAM memory
- Integrated dual-channel Ultra160 LVD SCSI controller
- Support for up to 218.4GB¹ internal storage
- 5 PCI slots (3x64-bit , 2x32-bit)
- 10 bays
- Supported OS - Microsoft® Windows® 2000 Server/Advanced Server, Microsoft Windows NT®, Novell® NetWare®, SCO UnixWare®, and Linux® support
- 3-year onsite limited warranty², IBM Server Start Up Support, MoST Connect, Remote Connect, Update Connector, SystemXtra³
- Predictive Failure Analysis support on hard disk drives, CPU, cooling fans, power supplies, VRMs and memory
- Innovative Light Path Diagnostics

IBM TotalStorage™ Enterprise Storage Server Models F10 and F20



A high-performance disk storage solution for systems across the enterprise

IBM Enterprise Storage Server provides industry leading availability, performance, manageability, and scalability for business enterprises. The ESS, otherwise known as Shark, is ideal for organizations with growing e-business storage requirements.

Performance without Borders

The IBM Enterprise Storage Server is a second-generation Seascape* disk storage system that provides industry-leading availability, performance, manageability, and scalability. Virtually all types of servers can concurrently attach to the Enterprise Storage Server-including S/390, Windows NT, Windows 2000, Novell NetWare, AS/400, and many types of UNIX servers. As a result, the Enterprise Storage Server is ideal for organizations with growing e-business operations that are being handled by multiple heterogeneous servers.

Highlights

- Provides superior storage sharing for UNIX**, Windows NT**, Windows** 2000, Novell NetWare**, AS/400*, and S/390* servers
- Provides high performance with two powerful four-way RISC SMP processors, large cache, and serial disk attachment
- Features industry-standard, state-of-the-art copy services-including FlashCopy*, Peer-to-Peer Remote Copy, and Extended Remote Copy-for rapid backup and disaster recovery
- Uses redundant hardware and RAID 5 disk arrays to provide high availability for mission-critical business applications
- Enables enterprises with multiple heterogeneous hosts to scale up to 13.9 TB while maintaining excellent performance
- Provides fast data transfer rates with attached hosts via Fibre Channel, UltraSCSI, ESCON*, and FICON interfaces
- Increases administrative productivity by centralizing operations management and providing users with a single interface via a Web browser

Shared storage for all major types of servers

The IBM Enterprise Storage Server* is a second-generation Seascape* disk storage system that provides industry-leading availability, performance, manageability, and scalability. Virtually all types of servers can concurrently attach to the Enterprise Storage Server-including S/390, Windows NT, Windows 2000, Novell NetWare, AS/400, and many types of UNIX servers. As a result, the Enterprise Storage Server is ideal for organizations with growing e-business operations that are being handled by multiple heterogeneous servers.

Enterprise-strength storage for distributed systems

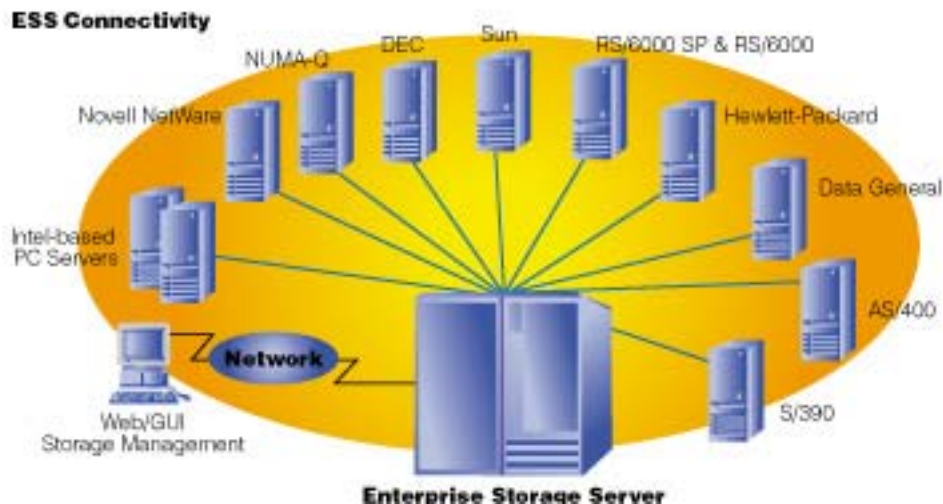
With more business-critical information processing being performed on distributed systems (running several different operating systems), the IBM Enterprise Storage Server addresses the need to protect and manage distributed data with the same level of performance previously reserved for the mainframe environment. The IBM Enterprise Storage Server does more than simply enable shared storage across enterprise platforms-it can improve the performance, availability, scalability, and manageability of enterprise-wide storage resources through a variety of powerful functions:

- FlashCopy provides fast data duplication capability. This option helps eliminate the need to stop applications for extended periods of time in order to perform backups and restores.

- Peer-to-Peer Remote Copy maintains a synchronous copy (always up-to-date with the primary copy) of data in a remote location. This backup copy of data can be used to quickly recover from a failure in the primary system without losing any transactions--an optional capability that can literally keep your e-business applications running.
- Extended Remote Copy (XRC) provides a copy of OS/390* data at a remote location (which can be connected using telecommunications lines at unlimited distances) to be used in case the primary storage system fails. The Enterprise Storage Server enhances XRC with full support for unplanned outages. In the event of a telecommunications link failure, this optional function enables the secondary remote copy to be resynchronized quickly--without requiring duplication of all data from the primary location--for full disaster recovery protection.
- Custom volumes enable volumes of various sizes to be defined for S/390 servers, enabling administrators to configure systems for optimal performance.
- Storage partitioning uses storage devices more efficiently by providing each server access to its own pool of storage capacity. Storage pools can be shared among multiple servers.

High availability to safeguard data access

Support for 24x7 operations is built into the IBM Enterprise Storage Server. RAID 5 disk arrays help provide data protection while remote copy technologies allow fast data backup and disaster recovery. The IBM Enterprise Storage Server is a high-performance RAID 5 storage server featuring dual active processing clusters with fail-over switching, hot spares, hot-swappable disk drives, and nonvolatile fast write cache, and redundant power and cooling.



The IBM Enterprise Storage Server also contains integrated functions to help prevent storage server downtime by constantly monitoring system functions. If a potential problem is detected, the IBM Enterprise Storage Server automatically "calls home" to report the problem. A technician can be dispatched to make repairs, often before the problem is noticed by data center staff. Maintenance--including licensed internal code revisions--can typically be performed without interrupting operations.

Built in flexibility

The IBM Enterprise Storage Server is a general-purpose disk system, providing outstanding flexibility with many options (IBM offers several predefined configurations to simplify ordering). The system consists of disk drives attached to a storage server via high-speed serial interfaces. A variety of host attachment options (UltraSCSI, ESCON, FICON, and Fibre Channel) enable the system to be optimized for the specific requirements of each computing environment.

Scalability for fast-growing environments

The IBM Enterprise Storage Server is especially designed for e-business and other applications with unpredictable growth requirements. It provides unprecedented scalability (up to 13.9 TB) while maintaining excellent performance. Disk drives for the IBM Enterprise Storage Server are provided as integrated packages of eight disk drives (known as eight-packs). Three disk drive capacities are available: 9.1 GB, 18.2 GB, and 36.4 GB. The server's base frame can hold a maximum of 16 eight-packs which, when used with 36 GB disks, yields a total capacity of nearly 3.4 TB. An add-on expansion

enclosure is the same size as the base frame and can contain twice as many eight-packs-up to 256 hard disk drives-to deliver a maximum capacity of more than 11.2 TB.

Built in investment protection

The IBM Enterprise Storage Server helps protect existing investments in IBM storage devices. For example, disk capacity from IBM Versatile Storage Server* frames and IBM 7133 Serial Disk System drawers (Models 020 and D40) can be attached to the IBM Enterprise Storage Server. Furthermore, first-generation (Models E10 and E20) Enterprise Storage Servers may be upgraded to the F-models, yielding up to 100% improvement in throughput. This upgrade protects customers' investments in ESS technology and enhances the scalability of installed Enterprise Storage Servers.

Performance enhancements for S/390 servers

Building on the capabilities of the IBM Versatile Storage Server and the RAMAC* Virtual Array family, the IBM Enterprise Storage Server improves function and performance for S/390 servers:

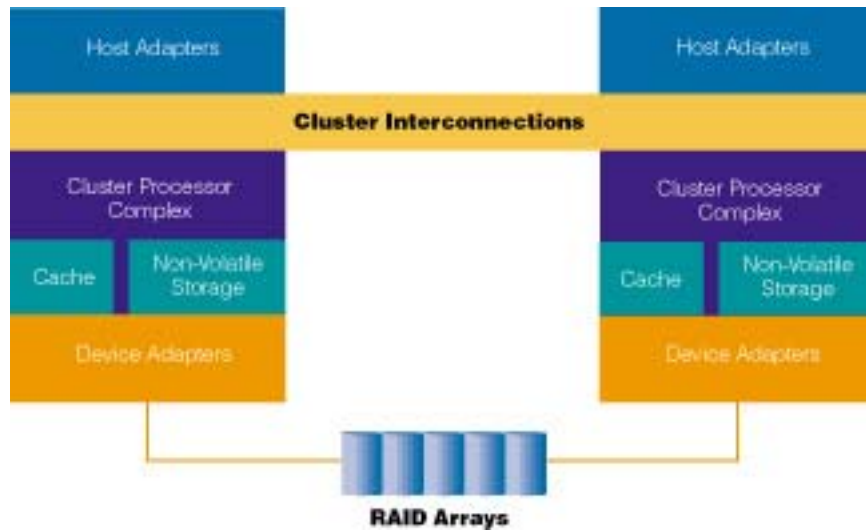
- **Multiple Allegiance:** This feature enables different operating systems to perform multiple, concurrent I/Os to the same logical volume-reducing queuing and significantly increasing performance. By enabling the Enterprise Storage Server to process more I/Os in parallel, Multiple Allegiance and optional Parallel Access Volumes can dramatically improve performance and enable more effective use of larger volumes. The result is simplified storage management at a reduced cost.
- **Parallel Access Volumes:** Previous S/390 systems allowed only one I/O operation per logical volume at a time. Now, performance is improved by enabling multiple I/Os from any operating system to access the same volume at the same time.
- **Priority I/O Queuing:** The storage server can ensure that important jobs have priority access to storage resources. With Priority I/O Queuing, the Enterprise Storage Server uses information provided by the OS/390 Workload Manager to manage the sequence in which I/Os are processed-matching I/O priority to your application priorities.

A complete management solution

The StorWatch™ family of products offers an integrated storage management tool set that enables storage administrators to centrally monitor and manage the IBM Enterprise Storage Servers.

The IBM StorWatch Enterprise Storage Server (ESS) Specialist helps storage administrators control and manage storage assets for the IBM Enterprise Storage Server. With a browser interface, users using the StorWatch Enterprise Storage Server Specialist tool can access the ESS Specialist from work, home or on the road through a secure network connection.

The IBM StorWatch Enterprise Storage Server (ESS) Expert helps storage administrators monitor the performance of all connected IBM Enterprise Storage Servers in the enterprise. This innovative software tool provides performance statistics, flexible asset management, and tracks a variety of capacity information through a common available browser interface. As such, this tool enables the administrators to centrally manage all Enterprise Storage Servers located anywhere in the enterprise. This is a fee-licensed feature.



Enterprise Storage Server at a glance

Model	2105-F10	2105-F20
Disk storage capacity	420 GB to 1.68 TB	420 GB to 11.2 TB
Raw disk storage	582 GB to 2.3 TB	582 GB to 13.9 TB
Cache size	8, 16, 24, 32 GB	8, 16, 24, 32 GB
Host server	Up to 32 SCSI or ESCON ports, up to 16 Fibre Channel/FICON ports, and	
Physical		
Dimensions	75.25" H x 54.50" W x 35.75" D *1913 mmx 1383 mm x 909 mm)	
Weight	2160 lb. (980kg)	2590 lb. (1175kg)
Operating		
Temperature	60 to 90 F (16 to 32 C)	
Relative humidity	20 to 80%	
Wet bulb maximum	73 F (23 C)	
Caloric value	11,000 BTU/hr	16,000 BTU/hr
Power supply	Single phase 50/60Hz	Three phase 50/60Hz
Electrical power	3.5 kVA	5.0 kVA

Supported systems

S/390; AS/400 (9406 models); Data General; DEC; Hewlett-Packard (9000 and 8000); Intel***-based PC servers; Novell NetWare; RS/6000*; RS/6000 SP; Sun**, NUMA-Q; Compaq

Nokia IIP 440

Scalable and flexible, with the capability to support up to 16 physical interfaces, the IP440 delivers superior high-speed performance that meets service provider and enterprise requirements.

IP Application Platforms

Nokia works together with the premier enterprise security software companies to create integrated solutions that provide greater control over your hardware, Operating System, and networking functionality.



Coupled with Firewall Sync (firewall synchronization technology from Check Point), Nokia ensures that access to network is never compromised.

Key features of the Nokia Security Platforms include the following:

- **Plug & Play Implementation**
Nokia IP Solutions integrate key network functionality and applications typically supplied by multiple vendors into one solution. Nokia integrated security products are shipped with the software pre-installed and tested, and arrive with minimal hardware installation demands.
- **Serviceability**
Nokia delivers high interface density, rack mountability, and front access connectors to facilitate maintenance. All key appliance service functions can be accomplished in the rack.
- **World-class network functionality**
A comprehensive set of IP routing protocols are available on all Nokia Security Platforms, including RIPv1/v2, OSPF, BGP4, VRRP, and more. Other networking functions supported are Router Discovery, Mail Relay, and DNS.
- **High Availability**
Mission critical applications require continuous network availability. VRRP (Virtual Router Redundancy Protocol) - standard on all Nokia IP Security Platforms - enables load-sharing and active redundancy between two or more Nokia systems. Coupled with Firewall Sync VRRP ensures that access to the network is never compromised.

Nokia IP 440

IP440 combines its industry-standard Intel platform with a high-speed IP routing and packet-forwarding operating system that ensures superior performance. The Intel platform, designed specifically for data networking, is scalable, robust and secure.

In addition to offering complete security-application software functionality and network services such as frame relay and routing, the 19" rack-mountable Nokia IP440 supports up to 16 physical interfaces. It includes four PCI slots with a wide-range of interface card options, including high-density 10/100 Ethernet, V.35/X.21, T1, and more. As a networking device, the IP440 supports a comprehensive suite of IP-routing protocols: RIPv1/RIPv2, IGRP, OSPF and BGP4 for unicast traffic, and DVMRP for multicast traffic.

Mission-critical applications require rigid security. Nokia routing software supports the industry-standard VRRP for high availability and FireWall-1 synchronization, enabling hot-standby configurations with support for load sharing with great throughput at an economical price/performance value.

The Nokia IP440 permits fully centralized remote management via a Nokia Horizon Manager and Voyager that operate with any standard browser. Command-line access via Telnet or a standard SNMP interface is also supported.

[Technical Specifications](#) (pdf format, 405 KB)

Cisco Catalyst 6000 Family Switches

The Catalyst® 6000 family, consisting of the Catalyst 6500 series and the Catalyst 6000 series, delivers high-performance, multilayer switching solutions for Enterprise and Service Provider networks. Designed to address the increased requirements for **gigabit scalability, high-availability, and multilayer switching** in backbone/distribution and server-aggregation environments, the Catalyst 6000 family delivers exceptional scalability and price/performance, supporting a wide range of interface densities, performance, and high-availability options.



By combining superior control-plane and packet-forwarding scalability with a rich set of intelligent services, the Catalyst 6000 family delivers the foundation for new-world Enterprise and Service Provider solutions, such as converged voice/video/data and e-commerce services.

New Products

The Catalyst 6000 family now enables Service Provider and Enterprise environments to take the next step in scalable network architectures. Combining the benefits of scalable performance, scalable control plane and extensive intelligent network services, the Catalyst 6000 family provides the framework for next generation network build outs.

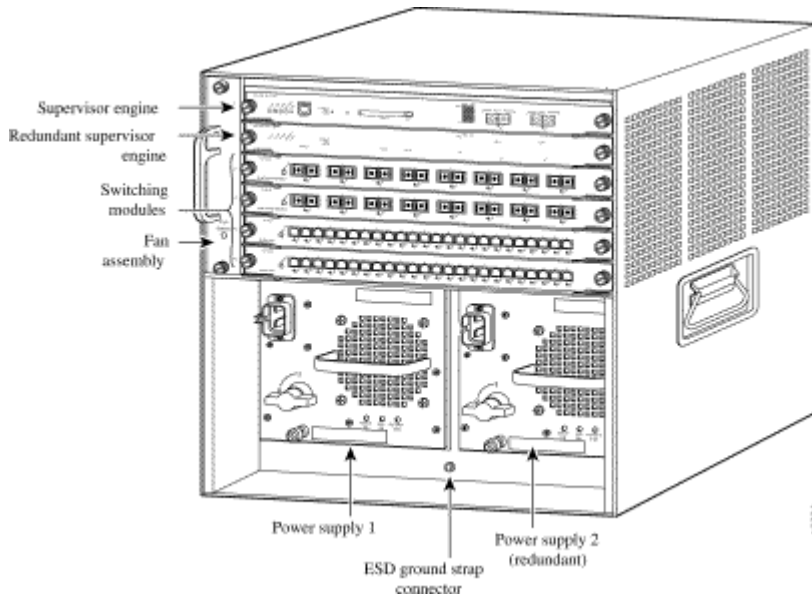
- The **Cisco Catalyst 6500 10GBASE-EX4 Metro 10 Gigabit Ethernet module** provides customers with scalable bandwidth and increased network reach with support of Layer 2/ Layer 3/ Layer 4-7 intelligent services on the Catalyst 6500 platform. Catalyst 6500 10 Gigabit Ethernet Module further extends the scalability and intelligent services on the Catalyst 6500 Series and provides investment protection for customers on the market-leading Cisco Catalyst 6500 platform.
- The new **Switch Fabric Module 2** offers scalable switching bandwidth delivering 256 Gbps for the Catalyst 6500 Series Switches. In combination with distributed forwarding switching lines cards, the Switch Fabric Module 2 enabled system can provide up to 24 Mpps of local forwarding per individual line card, while providing the highest level of network availability.
- The **Content Switching Module** meets the demands of high-speed Content Delivery Networks by tracking network sessions and server load conditions in real-time and directing each session to the most appropriate server.
- **Optical Services Modules (OSM)** are now available for the Catalyst 6500 series that provide optical WAN interfaces, PXF IP Services Processors for high-speed IP service application, and deep packet buffers.
- The **Switch Fabric Module** for the Catalyst 6500 series switches delivers best in class bandwidth performance for today's most advanced networks, scaling switching capacity to 256 Gbps.
- **Supervisor Engine 2**, in conjunction with MSFC2 enables a CEF-based architecture and works to enhance overall system performance to 100+ Mpps.
- Industry leading **Cisco Express Forwarding (CEF)** on Supervisor 2 and Gigabit Ethernet modules: Scalable control-plane, packet-forwarding performance, and intelligent services in the areas of security, high-availability, and QoS to deliver next generation solutions for dynamic Service Provider and Enterprise networks.
- **Catalyst 6500 series high performance Gigabit Ethernet switching modules** with local or distributed forwarding are ideal for deployment in gigabit backbone and server farm configurations or for aggregation of high-density 10/100-Mbps wiring closets.
- New, industry-leading **intelligent services in areas of QoS, high-availability and security**, enabling multiple deployment options across Service Provider and Enterprise networks.

Catalyst 6006 and Catalyst 6506 Switches

The Catalyst 6006 and Catalyst 6506 switch chassis have six slots each. (See Figure 1-1.) Slot 1 is reserved for the supervisor engine, which provides switching, local and remote management, and multiple gigabit uplink interfaces.

Slot 2 can contain an additional supervisor engine, which can act as a backup if the first supervisor engine fails. If a redundant supervisor engine is not required, slot 2 is available for a switching module. For a detailed description of supervisor engine operation in a redundant configuration, refer to the *Catalyst 6000 Family Software Configuration Guide*.

Figure 1-1: Catalyst 6006 Switch/Catalyst 6506 Switch



The Catalyst 6006 and Catalyst 6506 switches support the following:

- A supervisor engine with two gigabit interface uplinks and an optional redundant supervisor engine
 - Two supervisor engines, each with no Multilayer Switch Feature Card (MSFC) and no Policy Feature Card (PFC)
 - Two supervisor engines, each configured with a PFC daughter card
 - Two supervisor engines, each configured with both an MSFC and a PFC daughter card
- Up to five additional switching modules (Ethernet, Fast Ethernet, Gigabit Ethernet, and ATM) in any combination
- Hot-swappable fan assembly and modules
- Redundant AC-input or DC-input power supplies
- Backplane bandwidth of 32 Gbps (Catalyst 6006 switch) or scalable up to 256 Gbps (Catalyst 6506 switch)
- A Switch Fabric Module (WS-C6500-SFM or WS-X6500-SFM2) (Catalyst 6506 switch only)