Powering your business ... on demand

xSeries 445

e-business

xSeries 382

xSeries 205

xSeries 305

IBM @server xSeries systems

Highlights

- ***High-performance, scalable xSeries servers, such as the new IBM @server xSeries 445, feature outstanding levels of availability, scalability and transaction performance.***

- ***Rack-optimized xSeries servers, such as the new IBM @server xSeries 382, help solve the data center space dilemma with outstanding performance and manageability in compact designs.***

- ***Universal xSeries servers deliver file, print, application and mail serving solutions for small businesses or distributed departmental computing.***

On demand ready

Becoming an on demand business means finding new ways to grow, adapt and respond in a dynamic business environment while managing costs. IBM @server™ xSeries® systems provide outstanding availability and systems management capabilities that help better manage and provision your computing resources, for a responsive IT environment that can grow with your business. Just the capabilities you need in today's on demand world.

High-performance hardware

The IBM @server product line features advanced servers that help lower costs, speed innovation and solve problems rapidly with improved efficiency. xSeries servers, a member of the IBM @server product family, provide Intel® processor-based server solutions that feature hands-off reliability through mainframe-inspired technologies and smart management tools.

Superior design, diverse offerings

xSeries servers range from affordable, workgroup systems to enterprise-class systems. Built on IBM Enterprise X-Architecture™ technology, a blueprint for building IBM mainframe muscle into Intel processor-based systems, xSeries servers deliver revolutionary advancements to I/O, memory and processors, and a pay-as-you-grow approach to Intel 32- and 64-bit xSeries systems. Pay as you grow allows businesses to pay for what they need today, reducing acquisition costs, while also helping protect their IT investment.

Smart systems management

IBM Director systems management software provides comprehensive systems management, helping reduce the risk of downtime and lower IT costs. While IBM Director takes predictive and proactive actions to keep systems running, you're free to concentrate on important business matters such as market opportunities or responding to customers.

BladeCenter solutions

Tackle your server management challenges with IBM @server BladeCenter. BladeCenter's modular design gathers computing resources into cost-effective, high-density enclosures that support hot-swappable, high-performance blade servers. BladeCenter offers the performance and manageability of IBM rack-optimized platforms—at twice the density of most of today's Intel processor-based 1U servers.

IBM @server xSeries systems

Get extra power when you need it with the new IBM @server BladeCenter Standby Capacity on Demand offering. You get a fully configured BladeCenter system with seven active blades and another seven blades in standby mode. Pay for the standby blades only after they're activated[1]—helping deliver additional computing capacity when it's needed.

Clustering solution

IBM @server Cluster 1350, IBM's industry-leading Linux cluster solution, now includes BladeCenter to provide both outstanding performance and double the density of traditional Intel processor-based 1U clusters. The Cluster 1350 combines the power of BladeCenter and other xSeries rack-optimized servers with IBM Cluster Systems Management for Linux software, IBM storage products, leading third-party networking components and a single point of contact for warranty service for all cluster components—creating powerful, reliable, flexible solutions for high-performance computing and commercial application environments. Visit **ibm.com**/servers/eserver/clusters/ for more information on the Cluster 1350 solution.

Microsoft solutions

xSeries works closely with Microsoft so that xSeries servers provide outstanding performance and robust functionality running the different versions of the Windows operating system. xSeries supports a broad range of offers from select products preloaded with the Windows operating system for customers who desire one-stop shopping to distributing the Datacenter Edition for customers demanding scalability and reliability.

Linux solutions

IBM works closely with the leading Linux distribution companies—Red Hat, Inc., SuSE Linux AG and Turbolinux, Inc.—to offer tested and validated configurations for xSeries servers. This helps deliver outstanding xSeries performance and functionality. Also, IBM fully supports United Linux. The range of Linux offerings available on xSeries servers gives you the flexibility to choose the optimum Linux implementation for your unique requirements.

Growing storage demands

Managing storage resources has become one of the most strategic issues today. Companies are moving fast to reduce backup windows, increase data availability, increase security and boost IT productivity to support today's round-the-clock, e-commerce driven applications.

From disk, tape, storage area networks, network attached storage, software and services to qualified IBM TotalStorage Solution Centers and IBM Business Partners, IBM offers a broad storage solutions portfolio. The TotalStorage® product portfolio provides scalable, open, integrated solutions for your storage and application needs.

Affordable xSeries solutions

xSeries systems are designed to match nearly any application workload environment, from the entry-level, uni-processor x205 to the enterprise-powered, up to 32-way x445. Visit **ibm.com**/eserver/xseries for more information on the high-performance line of xSeries servers.

> *"xSeries servers offer a convincing technological and cost-effective server concept that is optimally suited to our medium-sized clientele. xSeries systems offer us a fully flexible, highly available and extremely cost-saving IT basis, even for meeting increasing demands."*
>
> *— Frank Schäfer, IWKA InformationsSysteme GmbH*

	Universal			
xSeries model	**x205**	**x225**	**x235**	**x255**
Form Factor	Tower, rack/4U	Tower, rack/4U	Tower, rack/5U	Tower, rack/7U
Processor	Intel Pentium 4 up to 3.06GHz/533MHz front-side bus	Intel Xeon processor up to 3.06GHz/533MHz front-side bus	Intel Xeon processor up to 3.06GHz/533MHz front-side bus	Intel Xeon Processor MP at up to 2.8GHz
Number of processors (std/max)	1/1	1/2	1/2	1/4
Cache (max)	512KB L2	512KB L2	512KB	2MB L3
Memory (std/max)	128MB/2GB PC2100	512MB/8GB PC2100 DDR Chipkill™	512MB/12GB PC2100 DDR Chipkill™	512MB/24GB PC1600 DDR Chipkill™
Expansion Slots	5 PCI	5 total/4 PCI-X	6 total/2 Active PCI-X	6 Active PCI-X
Disk bays (total/hot-swap)	4 non-hot-swap SCSI, 3 hot-swap SCSI, 3 IDE	6/6 6 hot-swap SCSI 4 non-hot-swap SCSI	6/6	12/12 with optional 6-pack hot-swap hard disk drive kit
Maximum internal storage	360GB IDE, 587.2GB[2] SCSI	880.8GB Ultra320 hot-swap, 587.2GB Ultra320 non-hot-swap	1.3TB[2] Ultra320 SCSI	1.76TB Ultra320 SCSI
Network	Integrated 10/100/1000 Ethernet	Integrated 10/100/1000 Ethernet	Integrated 10/100/1000 Ethernet	Integrated 10/100/1000 Ethernet
System Management processor	Supports optional Remote Supervisor Adapter	Supports optional Remote Supervisor Adapter	Integrated (supports Remote Supervisor Adapter)	Integrated (supports Remote Supervisor Adapter)
Power supply (std/max)	340W 1/1	425W or (2) 514W hot-swap	1/2	370W 2/4 hot-swap (redundant at 110V and 220V)
Hot-swap components	Hard disk drives (select models)	Power supply, hard disk drives (select models)	Drives, power supply, fans and PCI-X slots	Power supply, fans, hard disk drives, PCI-X adapters
Light Path Diagnostics	Limited	Limited	Yes	Yes
RAID support	Optional	Integrated RAID-1	Integrated RAID-1, optional RAID-5	Optional
xSeries OS compatibilities	Red Hat, SuSE, Microsoft Windows®, Novell NetWare	Red Hat, SuSE, Microsoft Windows®, Novell NetWare	Red Hat, SuSE, Turbolinux, Microsoft Windows®, Novell NetWare	Red Hat, SuSE, Microsoft Windows®, Novell NetWare

	Rack-optimized				
xSeries model	**x305**	**x335**	**x345**	**x360**	**x382**
Form Factor	Rack/1U	Rack/1U	Rack/2U	Rack/3U	Rack/2U
Processor	Intel Pentium 4 processor with up to 3.06GHz/533MHz front-side bus	Intel Xeon processor up to 3.06GHz/533MHz front-side bus	Intel Xeon processor up to 3.06GHz/533MHz front-side bus	Intel Xeon Processor MP at up to 2.8GHz	Intel® Itanium® 2 up to 1.5GHz
Number of processors (std/max)	1/1	1/2	1/2	1/4 or 2/4	2/2
Cache (max)	512KB L2	512KB L2	512KB L2	1MB or 2MB	Up to 6MB
Memory (std/max)	256MB/4GB PC2100	512MB/8GB PC2100 ECC DDR Chipkill™	512MB/8GB PC2100 DDR Chipkill™	1GB/16GB[3] or 2GB/16GB PC1600 DDR Chipkill™	2GB or 4GB/16GB PC2100 DDR Chipkill™
Expansion Slots	2 PCI-X (133MHz)	2 PCI-X (64-bit 100MHz)	4/0 PCI-X, 1/0 PCI	6/6 Active PCI-X with optional 12 PCI-X slots via RXE-100 Remote Expansion Enclosure	3/3 PCI-X
Disk bays (total/hot-swap)	2/0	2/2	6/6	3/3	2/2
Maximum internal storage	240GB IDE or 293.6GB SCSI	293.6GB Ultra320 SCSI or 240GB IDE	880.8GB	220.2GB (supports 18GB, 36GB and 73GB hard disk drives)	293GB (supports 36GB, 73GB and 146GB hard disk drives)
Network	Dual integrated 10/100/1000 Ethernet	Dual integrated 10/100/1000 Ethernet	Dual integrated 10/100/1000 Ethernet	Integrated 10/100 Ethernet	Dual integrated 10/100/1000 Ethernet
System Management processor	Supports optional Remote Supervisor Adapter	Integrated (supports Remote Supervisor Adapter)	Integrated (supports Remote Supervisor Adapter)	Remote Supervisor Adapter in dedicated slot	Integrated Intel IPMI 1.5
Power supply (std/max)	220W1/1	332W 1/1	1/2	370W 1 or 2/3 hot-swap	350W 2/3
Hot-swap components	N/A	Ultra320 SCSI hard disk drives	Power supply, fans and hard disk drives	Power supply, fans, hard disk drives and PCI-X adapters	Power supply and hard disk drives
Light Path Diagnostics	N/A	Yes	Yes	Yes	NA
RAID support	Optional	Integrated RAID-1 (mirroring)	Integrated RAID-1, optional RAID-5	Optional	Integrated RAID-1
xSeries OS compatibilities	Red Hat, SuSE, Microsoft Windows®, Novell NetWare	Red Hat, Microsoft Windows®, Novell NetWare	Red Hat, SuSE, Turbolinux, Microsoft Windows®, Novell NetWare	Red Hat, SuSE, Microsoft Windows®, Novell NetWare	Red Hat, SuSE, Microsoft Windows®

	High-performance scalable	
xSeries model	**x445**	**x450**
Form Factor	Rack/4U per chassis	Rack/4U
Processor	Intel Xeon Processor MP up to 2.8GHz or Intel Xeon Processor 3.0GHz	Intel® Itanium® 2 processor at up to 1.5GHz
Number of processors (std/max)	2/32 with Intel Xeon Processor MP 2/4 with Intel Xeon Processor	1/4
Cache (max)	2MB L3, 64MB Xcel4™ per 4-way for Intel Xeon Processor MP or 512MB L2, 64MB XceL4 per 2-way for Intel Xeon Processor	Up to 6MB L3 and up to 64MB L4
Memory (std/max)	64GB Chipkill™ DDR SDRAM	1GB/40GB PC2100 DDR Chipkill™ memory
Expansion Slots	6/6 Active PCI-X per chassis with optional Remote I/O	Six 64-bit PCI-X (2 at 133MHz, 2 at 100MHz and 2 at 66MHz)
Disk bays (total/hot-swap)	2/2 Supporting Ultra320 SCSI	2/2
Maximum internal storage	293.6GB	146.8GB
Network	Integrated Dual 10/100/1000 Ethernet	Integrated Dual 10/100/1000 Ethernet
System Management processor	Remote Supervisor Adapter in dedicated slot	Remote Supervisor Adapter in dedicated slot
Power supply (std/max)	1050W 2/2 hot-swap	2 1050W/2
Hot-swap components	Power supplies, cooling fans, hard disk drives, PCI-X adapters and memory DIMMs	Power supply, fans, Active PCI-X adapters and hard disk drives
Light Path Diagnostics	Yes	Yes
RAID support	Integrated RAID-1	Integrated RAID-1, optional ServeRAID controllers for RAID-5
xSeries OS compatibilities	Red Hat, SuSE, Microsoft Windows®, Novell NetWare, VMware™ ESX Server™	Red Hat, SuSE, Microsoft Windows®

For more information:

World Wide Web

U.S.	**ibm.com**/eserver/xseries
Canada	**ibm.com**/ca/eserver/xseries

IBM @server xSeries Options

U.S.	**ibm.com**/pc/us/eserver/xseries/storage
Canada	**ibm.com**/pc/ca/eserver/xseries/options

IBM TotalStorage Products

ibm.com/totalstorage

On demand

ibm.com/services/ondemand

Buy Direct

U.S.	1 888 SHOP IBM
Canada	1 888 SHOP IBM

Reseller locator and general information

U.S.	1 800 426-4968
Canada	1 800 426-2255

IBM @server BladeCenter at a glance	
Form Factor	Rack/7U, high-availability midplane
Blade bays	14
Standard Media	CD-ROM and diskette drive accessible from each blade server
Switch Modules	4 switch module bays
Power supply module	Up to 4 hot-swap and redundant 1400W with load balancing and failover capabilities
Cooling modules	2 hot-swap and redundant blowers standard
Systems management hardware	1 management module standard, add an optional second module for redundancy
I/O ports	Keyboard, video, mouse, Ethernet, USB

IBM @server BladeCenter HS20 at a glance	
Processor	Intel Xeon processor up to 2.8GHz
Number of processors (std/max)	1/2
Level 2 cache	512KB
Front side bus	Up to 533MHz
Memory	Up to 8GB[4] DDR ECC Chipkill™
Internal hard disk drives	Up to 2 IDE (or up to 2 hot-swap Ultra320 SCSI drives with optional SCSI storage expansion unit)
Maximum internal storage	146.8GB[2] SCSI/80GB IDE
RAID support	Integrated IDE RAID standard on blade server, integrated RAID with SCSI storage expansion unit option
Network	2 Integrated Gigabit Ethernet controllers
I/O Upgrade	1 expansion card connection
Systems management hardware	Integrated system management processor
Systems management software	IBM Director with systems management and trial deployment tools, IBM Director Server Plus Pack optional
Predictive Failure Analysis	Hard disk drives, processors, blowers, memory
Light Path Diagnostics	Blade server, processor, memory, power supplies, blowers, switch module, management module, hard disk drives and expansion card
Limited warranty[5] and support	3-year onsite limited warranty
External storage	Support for IBM TotalStorage solutions (including FAStT and NAS family of products)
Operating systems supported	Microsoft® Windows® Server 2003, Microsoft Windows® 2000 Server/Advanced Server, Red Hat Linux, SuSE Linux, Novell Netware

"We evaluated blade technologies for more than a year and discovered that IBM's blade server was the only one that could meet all our requirements."

— Ron Cruz, FVP, Manager, IT Engineering of Independence Community Bank

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[1] The Standby Capacity on Demand offering requires agreement to purchase all standby blades within six months of delivery.

[2] When referring to storage capacity, GB = 1,000,000,000 bytes and TB = 1,000,000,000,000 bytes. Accessible capacity is less.

[3] Using 2GB DIMMs.

[4] Varies by model.

[5] For a copy of the IBM Statement of Limited Warranty, call 1 800 426-7378. Telephone support may be subject to additional charges. For onsite labor, IBM will attempt to diagnose and resolve the problem remotely before sending a technician.

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