

Scalable server delivers a unique, innovative design with extreme performance



IBM System x3950 M2



Highlights

- **Scalable solution delivers outstanding performance for realizing business demands with an easy pay-as-you-grow design**
- **Balanced design provides additional memory, processing power and I/O on demand**
- **Consistent, reliable performance delivers advanced data protection to help manage your risk**

Engineered with the needs of enterprise organizations in mind, the IBM x3950 M2 provides a scalable, efficient and highly reliable solution. This 4th generation X-Architecture® enterprise server combines 64-bit performance in a balanced design. The x3950 M2 can help organizations meet business demands with confidence, and since many organizations require servers that expand as business grows, the x3950 M2 provides the flexibility to run more applications on the same piece of hardware. These features deliver an optimized solution for large database enterprise application and virtualization services.

Manage growth, complexity with enhanced scalability

The x3950 M2 provides an uncomplicated, cost-effective and highly flexible solution. With the ability to scale up to a maximum of 96 cores using Intel® six-core processors, while maintaining balanced performance between processors, memory and I/O, the x3950 M2 can easily accommodate business expansion and the resulting need for additional application space.

Unique flexibility of the configurations allows the system to populate a minimum of two CPUs per chassis for additional access to memory and I/O that addresses an organization's specific application requirements. This flexibility allows for the creation of a 12-core, 32-DIMM server utilizing only

two processor sockets for processor licensing-constrained applications, and can be scaled to a 48-core, 128-DIMM server utilizing only eight processors.

The system's optimized design improves software features and hardware functionality. Deploying multi-chassis configurations is now simpler and easier, helping organizations reduce the time it takes to deploy a new chassis, or boot a system. The x3950 M2 accommodates easier firmware upgrades and can help make updates easier and more efficient.

Cable management is simplified by virtually eliminating the systems management network cable and incorporating in-band management in the scalability cable. Reduced cabling helps manage growth and complexity.

Innovation for business advantage

The x3950 M2 offers more power combined with superior performance. As business expands and organizations try to keep pace with faster, more intense data demands, the need for a powerful system becomes more important.

The x3950 M2 helps provide reliable

performance for high-end tasks while protecting IT investments. Now in its 4th generation, the system:

- *Introduces the first Intel Xeon® processor-based 8-socket system to achieve the 1,000,000 transactions per minute milestone for x86-64 systems and surpass it by more than 20%¹*
- *Accelerates TPC-C performance with up to 40% improvement over the Intel 7300 processor series-based platform¹*
- *Provides up to 1.5 times better 8-socket TPC-H performance for faster business decision analysis¹*
- *Features more than 100 cumulative #1 benchmarks, including a #1 8-socket benchmark²*
- *Enables customers to get the performance they expect with unique near-linear performance improvement when doubling the processors and memory*

Manage risk with proven reliability

Organizations depend on their database systems to function reliably to protect and process critical data. The x3950 M2 is built on IBM eX4 technology that can deliver consistent, high-end performance and advanced features to meet the needs of enterprise customers at a low entry price

point. With its efficient design, the x3950 M2 can help run an increased number of applications on one server, with a higher threshold for protecting data. Also, the system's enhanced memory subsystems work together to minimize bottlenecks, promoting fast, efficient and balanced functionality.

Designed for mission-critical availability, the x3950 M2 offers advanced Active Memory™ features, including:

- *Memory ProteXion™ to help prevent data loss. An advanced design provides a deeper level of redundancy that corrects single-chip errors to help keep the memory up and running longer without risking data integrity*
- *IBM Chipkill™ memory to help correct multiple, single-bit errors using off-the-shelf DIMMs*
- *Memory Mirroring with hot-swap and hot-add support to help protect data through the ability to write simultaneously to independent redundant memory cards³*
- *Advanced Buffer eXecution (ABX) provides on-board technology to help resist chip failure and improve availability and reliability, while delivering reduced power consumption*

Highly efficient data centers

The x3950 M2 is not only efficient in terms of scalability and utilization, it also leverages power-efficiency features such as:

- *Improved power management, operating at a lower wattage than competitive systems and the DDR II memory used in the x3950 M2 uses up to 37% less power than the Fully Buffered DIMMs used by the competition, providing energy and financial savings*

- *Enhanced energy efficiency to deliver a “green” solution and help reduce business costs*
- *IBM Systems Director Active Energy Manager™ helps monitor and cap power consumption to improve energy efficiency and help lower costs*

A flexible system for enterprise databases

With exceptional scalability, dependable performance and increased ease-of-use, the x3950 M2 provides a comprehensive solution to data management. The exclusive balanced

design enabled by IBM eX4 technology offers a significant advantage over competitors' systems by enabling less expensive processors (with smaller internal cache) to do the work of the more expensive processors with larger internal cache required by competitors, with equal or better performance⁴. The advanced features offer more data performance and protection than ever before.

IBM System x3950 M2 at a glance

Form factor	Rack/4U per chassis
Processor	Intel® Xeon® Processor 7400 series up to 2.66 GHz (six cores)/1066 MHz front-side bus
Number of processors (std/max)	2/4 per chassis (optional 2, 3, 4 chassis support)
Cache (max)	Up to 16 MB
Memory⁵ (max)	4 GB or 8 GB/256 GB max PC2-5300 DDR II
Expansion slots	7 total PCI-Express half-length, (2 Active™ PCI-Express)
Disk bays (total/hot-swap)	4/4 2.5" Serial Attached SCSI (SAS)
Maximum internal storage^{5, 6}	587 GB SAS per chassis (supports 73.4 GB and 146.8 GB hard disk drives)
Network interface	Integrated dual Gigabit Ethernet with TCP-IP Offload Engine
Power supply (std/max)	1440W 220V 2/2
Hot-swap components	Power supplies, fans, memory, HDDs and PCI-Express adapters
RAID support	Integrated RAID-0, -1, optional RAID 5
Systems management	Alert on LAN® 2, Automatic Server Restart, IBM Director, IBM ServerGuide, Remote Supervisor Adapter II SlimLine, light path diagnostics (independently powered), Predictive Failure Analysis® on hard disk drives, processors, VRMs, fans and memory, Wake on LAN®, Dynamic System Analysis (DSA)
Operating systems supported	Microsoft® Windows Server® 2003 (Standard, Enterprise and Datacenter editions 32-bit and 64-bit), 32- and 64-bit Red Hat Enterprise Linux® and SUSE Enterprise Linux, (Server and Advanced Server), VMware ESX Server
Limited Warranty⁷	3-year customer replaceable unit and onsite limited warranty



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¹ Visit www.tpc.org or ibm.com/systems/x/resources/benchmarks/index.html for more information.

² Visit ibm.com/systems/x/resources/benchmarks/index.html for more information.

³ Hot-add memory functionality requires operating system support.

⁴ Benchmark results available from www.tpc.org/tpcc/results/tpcc_last_ten_results.asp.

⁵ Maximum internal hard disk and memory capacities may require the replacement of any standard hard drives and/or memory and the population of all hard disk bays and memory slots with the largest capacity supported drives available. When referring to variable speed CD-ROMs, CD-Rs, CD-RWs and DVDs, actual playback speed will vary and is often less than the maximum possible.

⁶ When referring to storage capacity, TB = 1,000,000,000,000 bytes. Accessible capacity is less.

⁷ IBM hardware products are made from new parts, or new and serviceable used parts. Regardless, our warranty terms apply. For a copy of applicable product warranties, write to: Warranty Information, P.O. Box 12195, RTP, NC 27709, Attn: Dept. JDJA/B203. IBM makes no representation or warranty regarding third-party products or services, including those designated as ServerProven® or ClusterProven®.