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System x family brochure

Highlights

- System x® servers—deliver a dynamic infrastructure that provides leadership quality and service that you can trust. These systems also enable you to:
  - Reduce operating costs with higher performance, energy efficiency, simplified management, virtualization and increased utilization
  - Manage present and future risk in challenging economic conditions with best-in-class RAS, industry-leading security, and future-proof IT
  - Improve service with an end-to-end approach to systems management
  - Provide a broad platform to serve the needs of cloud, business analytics, and technical computing/HPC

Adapting to a changing world demands innovative ideas and solutions. At the same time, the world is becoming smarter—more instrumented, interconnected and intelligent. Businesses must manage increasingly larger data pools and customer bases with higher expectations, without spending more on IT. System x delivers solutions that help clients reduce costs and improve service while still managing risk.

Market trends

Long gone are the days when a company could group inexpensive servers in a room and call it a data center. In today's data center environments, careful planning must be undertaken in order to validate the fitness of the facility to provide necessities such as the energy to power and cool servers, the appropriate physical area to manage them effectively, and the real estate to allow them to grow over time. Running out of room or overtaxing the data center's energy and thermal envelope is a typical issue.

New System x M5 servers combine commanding performance with built-in leadership security, efficiency and reliability to support a wide range of diverse enterprise workloads.

Some long-term market trends continue, such as the ever-increasing need for performance, especially given the reliance on solutions such as Data Analytics (Big Data), SAP HANA, and high performance computing (HPC)/technical computing workloads. Meanwhile, new trends are emerging, including a greater concern over security and energy/thermal issues, and a rapidly-growing interest in virtualization and cloud computing. More and more companies are looking to "go green," not only because it's good for the planet, but also because it's good for the bottom line. Organizations require a dynamic infrastructure—one that's secure, cost-efficient, "green," and able to react intelligently and effectively to change.

Enterprise X Architecture

The sixth generation of enterprise X Architecture® features innovative hardware, software and services that solve customer challenges today, and deliver an evolutionary fit-for-purpose, modular design approach to address tomorrow's challenges. The sixth generation capitalizes on best-in-class industry-standard technologies coupled with differentiated System x innovations to provide the greatest possible flexibility in x86 servers.

The System x3850 X6 and x3950 X6 servers—the sixth generation of enterprise X Architecture technology—can produce 100 percent faster compute performance than previous-generation systems.[1] The X6 portfolio increases virtualization density by delivering 3X more memory than previous generation systems. These servers also decrease operational complexity. This enables you to design faster analytics engines, rein in IT sprawl and deliver actionable information faster with higher reliability. X6 servers are fast, agile and resilient.

Count on X6 technology to deliver faster actionable information to drive better decision making. X6 servers consistently provide breakthrough performance, exceptional scalability and extremely high availability even as your technology and workload needs change. This enables you to design faster analytics engines, reign in IT sprawl and deliver information with high reliability.

Fast, agile and resilient X6 systems

The x3850 X6 delivers fast application performance thanks to an innovative scalable design and new storage technology that is designed to optimize overall solution performance. The x3850 X6 is one of the first System x servers designed and optimized for new eXFlash™ memory-channel storage. With eXFlash memory-channel storage, this server can deliver up to 12.8 TB of ultra-low latency flash storage—unmatched storage performance in an x86 server. With the new Intel Xeon E7-8800 and E7-4800 v2 processors, the x3850 X6 can deliver up to 6.0 TB of memory and 60 cores of processing power. Armed with these capabilities, you can host essential business-critical applications, implement large virtual machines or run sizeable in-memory databases without compromises in performance, capacity or scalability.

X6 technology delivers fast application performance thanks to an innovative scalable design and new storage technology that is designed to optimize overall solution performance.

The x3950 X6, also designed and optimized for new eXFlash memory-channel storage, can deliver up to 12.8 TB of ultra-low latency flash storage—unmatched storage performance in an x86 server. With the new Intel Xeon E7-8800 and E7-4800 v2 based processors, the x3950 X6 can deliver up to 12.0 TB of memory and 120 cores of processing power. This business-critical, enterprise-class server leverages unique eXFlash memory-channel storage to deliver this level of performance and value to clients.

The unique, adaptive modular rack design of the new x3850 X6 and x3950 X6 delivers agility, enabling you to design a fit-for-purpose solution that meets your needs. At the same time, you can realize infrastructure cost savings by hosting multiple generations of technology in a single platform[2]—without compromising performance or capacity. With X6 platforms:

- You can configure the server to fit the unique requirements of your applications and workloads.
- You can modify or upgrade X6 platforms easily with selectable modular book components. There are three types of X6 books, one for each of the major subsystems—storage, compute and I/O.
- You can scale capacity from 4-socket to 8-socket, to deliver twice the performance for growing applications without creating IT sprawl.
- You can use FastSetUp™ software for automated provisioning of a cluster of servers and realize time-to-value in minutes rather than days.
- You get agile system design that provides the ability to host multiple generations of technology in a single server.

The new X6 systems provide an efficient innovative way to manage your infrastructure as technology and workload needs change. Design faster analytics engines, reign in IT sprawl and deliver information with high reliability thanks to X6 technology. The X6 portfolio of servers is fast, agile and resilient.

System x rack and tower servers

The versatile System x family of rack and tower servers is designed to support a wide variety of business-critical applications, including cloud computing, virtual desktop infrastructure, analytics, big data, database, web and video serving, and e-mail, file and print. To meet your demanding workloads, the flagship System x servers offer the outstanding balance of high availability, performance, flexibility, density and efficiency—including I/O options, and increased processor speed and memory capacity. Feature on Demand (FoD) options enable you to add new features remotely, without downtime while managing costs.

System x servers feature extreme processing power and superior energy-management and cooling features.

Secure, efficient and reliable

The world-class System x M4 and M5 servers combine commanding performance with built-in leadership security, efficiency, and reliability to support a wide range of diverse enterprise workloads from infrastructure basics to Cloud Computing to Big Data and Analytics. The portfolio includes highly configurable models of rack and tower servers, dense systems, and blade and integrated systems to help data center clients address pressing business challenges.

All the M4 and M5 servers contain innovative industry-leading security built-in. System x Trusted Platform Assurance, an exclusive set of System x security features and practices, establishes a foolproof security foundation for workloads by delivering firmware that is securely built, tested, digitally signed and verified prior to execution. All System x servers undergo a secure development process and a rigorous validation cycle with controlled updates. Select servers also offer enterprise-class data protection with optional self-encrypting drives and simple, centralized key management through IBM Security Key Lifecycle Management.

With built-in innovations in power and thermal management design, such as extended operating temperature ranges, unique water cooling, dual fan zones, and active/standby mode for power supplies; the servers can deliver extreme data center energy and operational savings.

According to a May 2014 independent vendor survey conducted by Information Technology Intelligence Consulting (ITIC), for the sixth year in a row corporate enterprise users ranked System x server hardware number 1 in delivering the highest levels of reliability/uptime of any x86 servers in the industry.[3]

Each of the new rack servers has built-in proactive diagnostic tools for easy serviceability and reduced labor costs. For example, the new next-generation light path diagnostics panel—available on select models—delivers extensive status messages and error codes, and an intuitive, menu-driven display*. The servers are equipped with built-in redundant, hot-swappable components for no single point of failure. And they are backed with world-class IBM service and support.

The powerful, versatile new 2U two-socket System x3650 M5 rack server supports a wide range of enterprise solutions with leadership reliability and security. Integrated with up to two Intel E5-2600 v3 series processors, faster power-saving TruDDR4™ Memory, and industry-leading two-socket storage capacity, the x3650 M5 supports more workloads and faster business insights. Customers can select from an impressive array of storage configurations (up to 26 drive bays) that optimize diverse workloads from Cloud to Big Data to high IOPS analytics. It provides full end-to-end 12 Gbps support for up to four RAID adapters for enhanced performance and data protection.

Designed in a compact, 1U two-socket rack server, the new System x3550 M5 rack server offers a wide variety of standard and optional configurations for fueling almost any workload. It also supports the new Intel E5-2600 v3 processors for outstanding performance. Storage can include up to 12 drives in an impressive selection of sizes and types. It supports full end-to-end 12Gbps RAID.

Enhanced for performance and security, the 2-socket rack server portfolio also includes the best-selling x3650 M4 and the dense, performance-optimized 1U 2-socket x3550 M4.

The x3650 M4 HD is a high-density 2U two-socket storage server, based on the successful x3650 M4 platform. Designed for high performance data analytics and database workloads, the x3650 M4 HD features the Intel® Xeon® E5-2600 v2 processor family with up to 12 cores per CPU, an integrated 12 Gbps RAID controller for optimized performance and data protection, and up to 32 drives of HDD/SSD storage. The x3650 M4 HD provides maximum storage density, flexible PCIe and 10 GbE networking options in a 2U form factor.

The System x3650 M4 BD storage rack server is purpose-built with the capacity, performance, and efficiency for Big Data workloads, this 2U two-socket rack server is designed to rapidly analyze enormous volumes of data. It offers expansive capacity and the same superior performance as the popular System x3650 M4. The server also promotes a low total cost of ownership through its energy-efficient features such as its wide ambient operating temperature range and Platinum Plus power supplies, and it delivers low cost per terabyte.

For smaller or distributed office environments, System x offers the new entry-level single-socket 1U x3250 M5 rack server that doubles the capacity of its predecessor in a 22-inch compact chassis.

System x also supports the x3750 M4, a 4-socket server featuring a streamlined design, optimized for price/performance. Other servers targeted at small to medium businesses and distributed environments include the new entry-level single-socket x3100 M5 tower server, the all-in-one office powerhouse x3500 M4 tower (convertible to a rack server), and the general business 2-socket x3300 M4 tower platform. Rock-solid and reliable, these systems offer extensive flexibility, storage and

security for servers that can work deskside. These tower servers offer the performance speeds that are critical to businesses with remote offices that execute a high number of transactions.

To deliver the appropriate System x technology to meet the needs of your business, the System x portfolio supports a broad range of operating systems and virtualization solutions that allow you to consolidate and simplify your heterogeneous workloads on a single platform. Virtualization on System x servers helps reduce your costs and boost IT resiliency.

Density-optimized

NeXtScale™ System offers an innovative approach to maximum usable density in the data center space. It delivers the density, agility and scale you need for your most demanding workloads, including technical computing, grid deployments, analytics and large-scale cloud and virtualization infrastructures. NeXtScale now provides even greater performance, efficiency and flexibility with a choice of air-cooled or water-cooled offerings.

The air-cooled NeXtScale nx360 M5 is a half-wide, dual-socket server designed for data centers that require a broad set of high-performing server functions for a variety of workloads, but are constrained by floor space. By taking less physical space in the data center, the NeXtScale server significantly enhances density. You can pack up to 84 dual-socket servers in a standard 42U rack, twice as many as in traditional 1U servers. This server supports Intel Xeon E5-2600 v3 series processors up to 145 W and 18-core processors, providing more performance per server. Designed with industry-standard, off-the-shelf components, this general-purpose platform enables users to create a flexible, mix-and-match offering with compute, storage, and acceleration via graphics processing unit (GPU) or Intel Xeon Phi coprocessor.

NeXtScale System with Water Cool Technology, a new addition to the System x family, uses an innovative direct water-cooling design to more efficiently cool system components such as processors, memory and I/O cards. Instead of using fans, water is delivered directly to the server, and circulated throughout the system through cooling tubes, supporting water inlet temperatures up to 45 degrees Celsius. This makes expensive water chillers unnecessary and reduces total cost of ownership (TCO), while significantly improving energy efficiency in the data center, making for a greener environment. It also drives ongoing operational cost savings that result in quick payback of initial investment and continued savings for lower TCO. This is particularly essential in geographies with high electricity costs or high cost of floor space.

Integrated solutions

Deploying solutions for technical computing, analytics and cloud environments can place a significant burden on IT. The Intelligent Cluster™ solution leverages decades of experience to reduce the complexity of deployment with pre-integrated, delivered and fully-supported solutions that match best-in-industry components with optimized solution design. With Intelligent Cluster, you can focus your efforts on maximizing business value, instead of consuming valuable resources to design, optimize, install and support the infrastructure required to meet business demands.

As part of the Intelligent Cluster family, the System x GPFS Storage Server (GSS) is a high-performance, high- capacity storage solution. Like other Intelligent Cluster solutions, GSS is fully integrated and supported. Using a scalable building-block approach, performance and capacity increases as you add units, so you can start small and expand your storage as business needs grow. This solution is composed of standard rack servers coupled with JBODs, but given the fact that no storage controllers are needed, it is highly cost-effective. GSS provides extreme data integrity and very fast rebuild times, so your business isn't interrupted by delays or downtime.

Higher efficiency virtualization

System x rack-optimized servers can be purchased as a complete solution—with servers, networking, storage, management and infrastructure such as racks and power supplies. These tested integration platforms are unique in their ability to lower the risk and speed of deploying a more complex virtualized data center. Servers, network and storage work in concert to yield the highest performance and are designed to deliver reliability while new, intuitive management features have simplified the steps from power-on to ongoing maintenance. Now, IT managers, CIOs and CFOs can easily see the immediate return on investment.

Scaling easily to the cloud

System x virtualized platforms based on VMware ESXi, Microsoft Hyper-V and/or open source KVM can easily move to the cloud with easy-to-add software from System x. With the latest in cloud technology, IBM Cloud Manager with OpenStack makes it easy to dynamically request, provision and deploy both resources and workloads automatically and securely, using an intuitive self-service portal to create an affordable Infrastructure as a Service environment. Cloud is a perfect services delivery platform, dramatically improving total cost of ownership.

Choose your operating environment

To deliver System x technology that works for your business, System x offers a choice of operating systems and hypervisors, broadening the application offerings available and increasing the ways you can put System x servers to work. Choose from industry-leading operating systems, including Microsoft Windows, Red Hat Enterprise Linux, SUSE Linux Enterprise and Oracle Solaris, as well as VMware ESXi, KVM, and Microsoft Hyper-V hypervisors. These operating environments are available in most countries at competitive prices when you purchase new System x servers.

System x model	x3100 M5	x3250 M5	x3300 M4
Form factor	Tower, 4U or 5U rack mountable	Rack/1U	Tower, 4U rack mountable
Processor 	Intel Xeon Processor E3-1200 v3 (4-core) or Core i3 (2-core) or Pentium (2-core) up to 1600 MHz, or Celeron (2-core) up to 1333 MHz	Intel Xeon Processor E3-1200 v3 (4-core) or Core i3 (2-core) or Pentium (2-core) up to 1600 MHz, or Celeron (2-core) up to 1333 MHz	Up to two Intel Xeon Processor E5-2400 (8-core) up to 1600 MHz
Number of processors (std/max)	1/1	1/1	1/2
Cache (max)	Up to 8 MB	Up to 8 MB	Up to 20 MB per processor
Memory (std/max)	4 DIMM slots, maximum 32 GB DDR3 ECC 1600 MHz UDIMMs	4 DIMM slots, maximum 32 GB DDR3 ECC 1600 MHz UDIMMs	12 DIMM slots, maximum 192 GB with DDR3 1600 MHz RDIMMs
Expansion slots	Two PCIe 3.0 and two PCIe 2.0 slots	One PCIe 3.0 and one PCIe 3.0 slot dedicated for ServerRAID H1110	Up to four PCIe 3.0 and two PCIe 2.0 slots: optional PCI-X available via interposer conversion kit
Maximum internal storage	Up to 24 TB	Up to 24 TB	Up to 48 TB
Network interface	Dual-port GbE	Dual-port GbE with additional dual-port GbE via FoD	Dual-port GbE with additional dual-port GbE via FoD
Power supply (std/max)	1/2 300 W fixed 80 PLUS® Bronze or 350 W fixed (4U models); or 430 W redundant 80 PLUS Silver	1/2; 300 W fixed or hot-swap, redundant 460 W high efficiency	1/2 redundant 550 W/750 W 80 PLUS Platinum or fixed 460 W 80 PLUS Bronze
Light path diagnostics	Basic light path diagnostics	Limited	Limited
RAID support	Integrated 3 Gbps software RAID-0, -1, -10 (standard), RAID-5 upgrade via FoD; optional 6 Gbps hardware RAID-0, -1, -10 or -5, -50, -6, -60	Optional 3 Gbps software RAID-0, -1, -10 (standard), RAID-5 upgrade via FoD; optional 6Gbps hardware RAID-0, -1, -10 or -5, -50, -6, -60	Integrated 3 Gbps software RAID-0, -1, -10 (standard); optional 6 Gbps hardware RAID-0, -1, -10, or -5, -50, -6, -60
OS support (Available for purchase)	Microsoft Windows Server 2012/2008 R2, Red Hat Enterprise Linux, SUSE Linux, VMware ESX	Microsoft Windows Server 2012/2008 R2, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, VMware vSphere/ESXi	Microsoft Windows Server 2008 R2, Red Hat Enterprise Linux, SUSE Linux, VMware ESX Server, integrated hypervisor key

System x model	x3500 M4	x3530 M4	x3550 M4	x3550 M5
Form factor	Tower, 5U rack mountable	Rack/1U	Rack/1U	Rack/1U
Processor 	Up to two Intel Xeon Processor E5-2600 v2 (12-core) up to 1866 MHz	Up to two Intel Xeon Processor E5-2400 v2 (10-core) up to 1600 MHz	Up to two Intel Xeon Processor E5-2600 v2 (12-core) up to 1866 MHz	Up to two Intel Xeon Processor E5-2600 v3 (18-core) up to 2133 MHz
Number of processors (std/max)	1/2	1/2	1/2	1/2
Cache (max)	Up to 30 MB per processor	Up to 20 MB per processor	Up to 30 MB per processor	Up to 45 MB per processor socket
Memory (std/max)	24 DIMM slots, maximum 768 GB with DDR3 1866 MHz LRDIMMs	12 DIMM slots, maximum 384 GB with DDR3 1600 MHz LRDIMMs	24 DIMM slots, maximum 768 GB with DDR3 1866 MHz LRDIMMs	24 DIMM slots maximum, Up to 1.5 TB of memory with SK Hynix 64 GB† TruDDR4 Memory LRDIMMs,
Expansion slots	Up to six PCIe 3.0 and two PCIe 2.0 slots; optional PCI-X available via interposer conversion kit	Two PCIe 3.0 slots with slot-less RAID, optional PCI-X available	Two PCIe 3.0 slots with slot-less RAID, optional PCI-X available	Up to three PCIe expansion slots
Maximum internal storage	Up to 51.2 TB	Up to 24 TB	Up to 18TB	Up to 24 TB
Network interface	Quad-port GbE and dedicated IMM port	Dual-port GbE with additional dual-port GbE via FoD	Quad-port GbE with dedicated IMM port and optional dual 10 GbE embedded adapter	Standard quad-port GbE and one dedicated IMM port. Optional 10/40 GbE ML2 or PCIe adapter;
Power supply (std/max)	1/2 redundant 550 W/750 W/900 W, 80 PLUS Platinum	1/2; 460 W or 675 W redundant power	1/2; 550 W, 750 W and 750 W DC redundant power	1/2 redundant 550 W AC, 750 W AC, 900 W AC 80 PLUS® Platinum and 750 W AC 80 PLUS® Titanium (model dependent)
Light path diagnostics	Yes	Yes	Yes	Yes
RAID support	Optional 6 Gbps hardware RAID-0, -1, -10; optional RAID-5, -50, -6, -60. includes 12 Gbps RAID options	Optional 3 Gbps software RAID-0, -1, -10; optional hardware 6Gps hardware RAID-0, -1, -10 or -5, -50, -6, -60	Optional 6 Gbps or 12 Gbps hardware RAID-0, -1, -10, optional RAID-5, -50, -6, -60	12 Gbps dedicated RAID slot with support for hardware RAID-0, -1, -10 with optional RAID-5, -50, -6, -60
OS support (Available for purchase)	Microsoft Windows Server 2012/2008 R2, Red Hat Enterprise Linux, SUSE Linux Enterprise, VMware vSphere ESX and ESXi	Microsoft Windows Server 2012/2008 R2, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, VMware vSphere/ESXi	Microsoft Windows Server 2012/2008 R2, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, VMware vSphere/ESXi	Microsoft Windows Server, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, VMware vSphere

System x model	x3630 M4	x3650 M4	x3650 M5
Form factor	Rack/2U	Rack/2U	Rack/2U
Processor 	Up to two Intel Xeon Processor E5-2400 v2 (10-core) up to 1600 MHz	Up to two Intel Xeon Processor E5-2600 v2 (12-core) up to 1866 MHz	Up to two Intel® Xeon® Processor E5-2600 v3 (18-core) up to 2133 MHz
Number of processors (std/max)	1/2	1/2	1/2
Cache (max)	Up to 20 MB per processor	Up to 30 MB per processor	Up to 45 MB per processor socket
Memory (std/max)	12 DIMM slots, maximum 384 GB with DDR3 1600 MHz LRDIMMs	24 DIMM slots, maximum 768 GB with DDR3 1866 MHz LRDIMMs	24 DIMM slots maximum, Up to 1.5 TB of memory with SK Hynix 64 GB† TruDDR4 Memory LRDIMMs,
Expansion slots	Up to four PCIe 3.0 slots with slotless RAID, optional PCI-X available	Up to six PCIe 3.0 slots, optional PCI-X available	Up to eight PCIe expansion slots;
Maximum internal storage	Up to 84 TB	Up to 25.6 TB of 2.5-inch hot-swap SAS/SATA or up to 32 1.8-inch eXFlash SSDs	Up to 86.4 TB
Network interface	Dual-port GbE with additional dual-port GbE via FoD	Quad-port GbE and one dedicated IMM port. Optional dual 10 GbE embedded adapter	Standard quad-port GbE and one dedicated IMM port. Optional 10/40 GbE ML2 or PCIe adapter;
Power supply (std/max)	1/2; 550 W, 750 W, 750 W DC, 900 W redundant power	1/2; 550 W, 750 W, 900 W and 750 W DC redundant power	1/2 redundant 550 W AC, 750 W AC, 900 W AC 80 PLUS® Platinum, or 750 W AC 80 PLUS Titanium
Light path diagnostics	Yes	Yes	Yes
RAID support	Optional 3 Gbps software RAID-0, -1, -10; optional 6Gps hardware RAID-0, -1, -10 or RAID-5, -50, -6, -60	Integrated 6 Gbps hardware RAID-0, -1, -10, optional RAID-5, -50, -6, -60; includes 12 Gbps RAID options, Support multiple RAID adapters	12 Gbps dedicated RAID slot for the first RAID; support for up to four RAID adapters
OS support (Available for purchase)	Microsoft Windows Server 2012/2008 R2, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, VMware vSphere/ESXi	Microsoft Windows Server 2012/2008 R2, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, VMware vSphere/ESXi	Microsoft Windows Server, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, VMware vSphere

System x model	x3650 M4 BD	x3650 M4 HD	x3750 M4
Form factor	Rack/2U	Rack/2U	Rack/2U
Processor 	Up to two Intel Xeon Processor E5-2600 v2 (12-core) up to 1866 MHz	Up to two Intel Xeon Processor E5-2600 v2 (12-core) up to 1866 MHz	Up to four Intel Xeon Processor E5-4600 v2 (12-core) up to 1866 MHz
Number of processors (std/max)	1/2	1/2	2/4
Cache (max)	Up to 30 MB per processor	Up to 30 MB per processor	Up to 30 MB per processor
Memory (std/max)	16 DIMM slots, maximum 512 GB with DDR3 1866 MHz LRDIMMs	24 DIMM slots, maximum 768 GB with DDR3 1866 MHz LRDIMMs	48 DIMM slots, maximum 1.5 TB with DDR3 32 GB LRDIMMs
Expansion slots	Two PCIe 3.0 slots with slotless RAID, optional PCI-X available	Up to six PCIe 3.0 slots, optional PCI-X available	Up to eight PCIe slots; five PCIe standard with an additional three PCIe slots with expansion riser
Maximum internal storage	Up to 84 TB	Up to 41.6 TB	19.2 TB of 2.5-inch hot-swap SAS/SATA or up to 32 1.8-inch eXFlash SSDs
Network interface	Three-port GbE and one dedicated IMM port. Optional dual 10 GbE embedded adapter	Quad-port GbE and one dedicated IMM port. Optional dual 10 GbE embedded adapter	Mezzanine LOM gives choice of quad 1 GbE or dual 10 GbE adapters
Power supply (std/max)	750 W/900 W redundant power	1/2; 550 W, 750 W, 900 W and 750 W DC redundant power	1/2; 750 W, (900 W or 1400 W redundant power)
Light path diagnostics	Yes	Yes	Yes
RAID support	Optional 6 Gbps or 12 Gbps hardware RAID-0, -1,-10, optional RAID-5, -50, -6, -60, plus separate RAID for rear drives	Integrated 12 Gbps hardware RAID-0, -1, -10, optional RAID-5, -50, -6, -60, plus separate RAID for rear drives, Support multiple RAID adapters	Integrated 6 Gbps hardware RAID-0, -1, -10, optional RAID-5, -50, -6, -60
OS support (Available for purchase)	Microsoft Windows Server 2012/ 2008 R2, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, VMware vSphere/ESXi	Microsoft Windows Server 2012/2008 R2, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, VMware vSphere/ESXi	Microsoft Windows Server 2012/2008 R2, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, VMware vSphere

System x model	x3850 X6	x3950 X6
Form factor	Rack/4U	Rack/8U
Processor 	Intel® Xeon® E7-4800/8800 v2 processor families up to 3.2 GHz, up to up to 1800 MHz memory access, 15 cores per processor	Intel Xeon E7-4800/8800 v2 processor families up to 3.2 GHz, up to 1800 MHz memory access, 15 cores per processor
Number of processors (std/max)	Up to four max	Up to eight max
Cache (max)	Up to 37.5 MB	Up to 37.5 MB
Memory (std/max)	Up to 6 TB, 96 DIMM slots supporting 64 GB LRDIMMs	Up to 12.0 TB, 192 x 64 GB LRDIMMs
Expansion slots	Up to 11 PCIe; Gen3 (up to 11), Gen 2 (up to 2), up to five x16 slots; up to six full-length, full-height	Up to 22 PCIe; Gen3 (up to 22), Gen 2 (up to 4), up to ten x16 slots; up to 12 full-length, full-height
Maximum internal storage	Up to 9.6 TB (8 x 2.5-inch SAS/SATA HDDs) or up to 12.8 TB (8 x 2.5-inch SSDs) or 6.4 TB (16 x 1.8-inch eXFlash SSDs)	Up to 19.2 TB, 16 x 2.5-inch SAS/SATA hard disk drives (HDDs) or up to 25.6 TB, 16 x 2.5-inch SSDs or 12.8 TB, 32 x 1.8-inch eXFlash SSDs
Network interface	One ML2 Socket; ML2 card choices include: 4 x 1 GbE Copper or 2 x 10 GbE SFP+ or 2 x 10 GbE 10BaseT; Dedicated 1 GbE on-board management port	Two ML2 Sockets; ML2 card choices include: 4 x 1 GbE Copper or 2 x 10 GbE SFP+ or 2 x 10 GbE 10BaseT; Two dedicated 1 GbE on-board management ports
Power supply (std/max)	Up to four common 1400 W or 900 W AC or 4 x 750 W DC	Up to eight common 1400 W or 900 W AC or 8 x 750 W DC
Light path diagnostics	Yes	Yes
RAID support	RAID-0, -1, optional RAID-5, -6	RAID-0, -1, optional RAID-5, -6
OS support (Available for purchase)	Microsoft Windows Server, Red Hat Enterprise Linux Server, SUSE Linux Enterprise Server, VMware vSphere Hypervisor	Microsoft Windows Server, SUSE Linux Enterprise Server, Red Hat Enterprise Linux Server, VMware vSphere Hypervisor

System x model	NeXtScale nx360 M4
Form factor	Rack/half-U server/6U chassis max of 12 per 6U
Processor	Intel Xeon E5-2600 v2 series up to 2.7 GHz (12-core) or 3.0 GHz (10-core) and 1866 MHz
Number of processors (std/max)	2/2
Cache (max)	Up to 30 MB
Memory (std/max)	Up to 256 GB DDR3 1866 MHz (UDIMM/RDIMM/LRDIMM) via 8 DIMM slots
Expansion slots	2 PCIe Gen 3.0 slots (std.), optional PCI NeX (native expansion tray - for GPUs or coprocessors)
Maximum internal storage	Up to 32 TB per server with Storage NeX Tray (native expansion tray). Supports up to 8 x 4 TB HDDs with max capacity to 32 TB in 1U effective rack density
Network interface	Integrated dual Gigabit Ethernet (std), 2 InfiniBand FDR ports (slotless option), 2 x 10 GbE (slotless option)
Power supply (std/max)	900 W with 80 PLUS Platinum certification
Light path diagnostics	Yes
RAID support	Optional hardware RAID-0, -1, -10, -5, -6, -50, -60
OS support (Available for purchase)	Microsoft Windows Server, Red Hat Enterprise Linux, SUSE Linux Enterprise, VMware

NeXtScale System comprises powerful compute nodes and an energy-efficient, low-cost 12-bay chassis.

NeXtScale System nx360 M5 Air- and Water-Cool Nodes at a glance

	Air Cool	Water Cool Technology
Form factor/height	Half-wide 1U	Full-wide 1U tray including two half-wide compute nodes
Processor	Two Intel Xeon E5-2600 v3 series (4 core to 18 core)	
Number of processors (std/max)	16 DDR4 LP, 512 GB maximum with 32 GB LP LRDIMM	
Cache (max)	Up to 35 MB	
Memory (std/max)	16 DDR4 LP, 512 GB maximum with 32 GB LP LRDIMM	
Expansion slots	Two ML2 ports for InfiniBand FDR or 10 GbE*, two 10 GbE* one PCIe (x16 PCI Express 3.0)*	2x FDR InfiniBand ports per 1/2 wide server
Maximum internal storage	Up to 32 TB per server with Storage NeX Tray (native expansion tray). Supports up to 8 x 4 TB HDDs with max capacity to 32 TB in 1U effective rack density	No local storage or Storage NeX Support
Network interface	Two built-in 1 Gigabit Ethernet (GbE) ports standard	2x built in 1GbE standard per 1/2 wide server
Power supply (std/max)	Six hot-swappable, non-redundant, N+N or N+1 redundant 80 PLUS® Platinum, high energy efficiency, 900 W and 1300 W	
Light path diagnostics	Yes	Yes
RAID support	Optional hardware RAID-0, -1, -10, -5, -6, -50, -60	No RAID support
OS support (Available for purchase)	SUSE Linux Enterprise Server, Red Hat Enterprise Linux	

Notes

For more information

To learn more about the System x family brochure, contact your Business Partner or visit **lenovo.com**/servers

* Two slots are 2.0 and two slots are 3.0.

† Available at a later date

[1] 100 percent performance improvement is based on preliminary results of SPECint*_rate_base2006, SPECfp*_rate_base2006, and TPC-E benchmarks, plus performance gains from eXFlash DIMM storage. SPEC and TPC benchmark results will be available at www.spec.org and www.tpc.org, respectively, after 2/18/14. Configurations: 4-socket x3850 X6 server using Intel Xeon processor E7-4890 v2 vs. 4-socket server using the previous top-of-the-line E7-4870 (v1).

[2] When a newer generation of processor and memory technology becomes available, Compute Books can be replaced with newer ones. (All Compute Books must use matching technology.)

[3] ITIC 2014-2015 Global Server Hardware, Server OS Reliability Survey: http://public.dhe.ibm.com/common/ssi/ecm/en/xsl03126usen/XSL03126USEN.PDF

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