System x
Smarter Computing

Novosti u System x svijetu

Dražen Miličević IBM Hrvatska
Solution Representative/Brand Specialist - System x
Systems & Technology Group

A comprehensive portfolio of IBM's x86 computing solutions to suit varying workloads

System x Rack and Tower

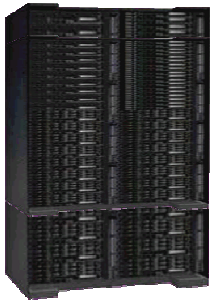
- Broad, fit-for-purpose portfolio
- Powerful, energy efficient rack systems to power web and business application workloads
- Tower servers ideal for networking or department level infrastructure

IBM PureSystems & Flex System

- Combined compute, storage, networking, virtualization and management
- Single expert infrastructure system to sense and anticipate resource needs to optimize infrastructure
- Integrated patterns of expertise designed to automate and optimize the deployment and maintenance of workloads
- Available integrated or build to order, supporting infrastructure, business application, technical computing, database, and virtualization requirements

System x Enterprise X-Architecture

- Highly resilient, 2, 4 & 8 processor systems with scalable memory 2x the competition
- Mission-critical applications: BI, CRM and ERP, database and dense virtualization



System x iDataPlex

- Flexible design for large scale datacenters
- Up to 5X compute density for most efficient space and energy utilization
- High performance computing, modeling and simulation, Web and collaboration infrastructure

IBM BladeCenter

- Client wants to extend current BladeCenter infrastructure
- Business applications, infrastructure applications
- Has NEBS compliance requirements
- Distributed computing needs requiring an integrated solution e.g. BladeCenter S at large centers

Take advantage of the benefits from System x infrastructure solutions

Quality

- Predictive Failure Analysis
- New Light Path Diagnostics
- Redundant HS disks, fans and power
- Tool-less design

Lower the risk of virtualizing your business-critical applications

Value

- Feature on Demand
- New management module
  - Fast boot time & remote presence
- High efficiency thermal and power design

The capabilities you need now and the ability to scale as your business needs grow

Performance

- eXFlash
- Slotless, multi-vendor flexible networking
- Integrated RAID card
- Significant performance boost

Pool your IT resources to put data and computing power where it's needed most

Management Tools positioning

Upward integration into Tivoli Service Management

Tivoli software IBM Tivoli

IBM Systems platform solution for System x, BladeCenter, Power Systems, System z and storage

IBM Systems Director

- Easy to learn and use platform management
- Management of physical and virtual resources across heterogeneous systems

Redesigned system tool portfolio for single-system management and scripting

ToolsCenter

- Consolidated, integrated suite of management tools
- Powerful bootable media creator

Hardware and firmware that is standard across all new systems

IMM

Integrated Management Module (IMM 2)

- Standards-based hardware combines diagnostic & remote control

Unified Extensible Firmware Interface (UEFI)

- Next generation BIOS

What is IBM® Systems Director ?

A platform for lifecycle management

- **Consolidation of Platform Management Tools**
  - Single consistent cross-platform management tool
  - Simplified tasks via Web based interface
  - Manage many systems from one console

- **Integrated Physical and Virtual Management**
  - Discovery and Inventory of physical and virtual resources
  - Configuration and provisioning of platform resources
  - Status, Health, and Monitoring of platform resources
  - Visualization of server resource topologies
  - Move virtual servers between systems without disruption to running workloads

- **Platform Update Management**
  - Simplified consistent cross-platform tools to acquire, distribute and install firmware and OS updates

Systems Director helps to . . .

- Find and identify systems on the network
- Determine if systems are working properly
- Configure and deploys new systems
- Optimize systems for peak performance
- Monitor network devices
- Deploy virtual images
- Reduce time to execute systems administrative tasks

- Keep system firmware and drivers up to date
- Manage Energy
- Improve System Availability
- Manage multiple systems as a single entity
- Reduce virtualization complexity
- Automated discovery and topology views to simplify troubleshooting

Simplified management of physical and virtual infrastructure

Rapid deployment and optimization of IT resources

Reduction in time-consuming management tasks

Achieve smarter systems with IBM Systems Director add-ons

Quality

IBM Systems Director can help save 34% in administrative costs

A leading IT analyst said that the new System x portfolio integrates advances such as UEFI firmware, embedded hypervisor support, integrated storage controllers, hot-swap hard drives, and a built-in altimeter that enable coordinated, system-level improvements. "These are not just a few more incremental server SKUs; this new generation represents a good opportunity for systematic server refreshes."

IBM Systems Director Active Energy Manager™

Learn More

IBM Systems Director Network Control

Learn More

IBM Systems Director VMControl™

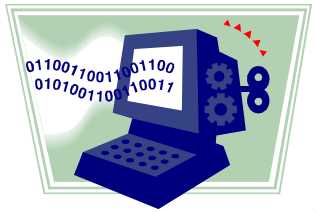
Learn More

"Challenges of Operational Management for Enterprise Server Installations," International Technology Group, © 2008

Innovative design of the new IMMv2

Feature on Demand for IMMv2

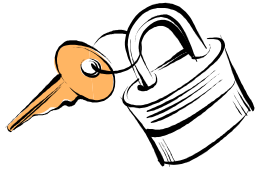
- Three levels of manageability
  - **Basic**
  - **Standard***
    - Remote Presence
  - **Advanced***
    - Mobile interface



*requires upgrade fee

Enhanced Security

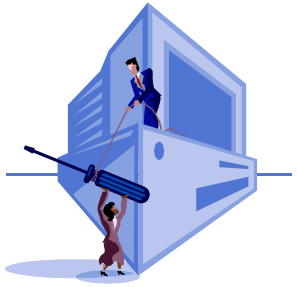
- CRTM (core root of trust measurement) on boot.
- TPM inside IMMv2 (trusted platform module)
- IMMv2 accepts only trusted signed updates
- Runtime firmware measurements with attestation



Improvements in IMMv2 HW Design

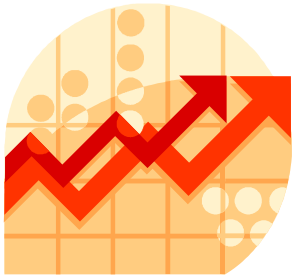
Easy Serviceability

- Text Logs
- Alerting
- First Failure Data Capture



Performance & Reliability

- More responsive
- Faster Power On
- IMM-UEFI Decoupled Boot
- Responsibility for flash device management



Note: Current IMM & IMMv2 firmware not interchangeable

Windows Server 2012 Editions

Cloud Optimize Every Business – Deliver Best-in-Class Hybrid IT

NO VIRTUALIZATION RIGHTS

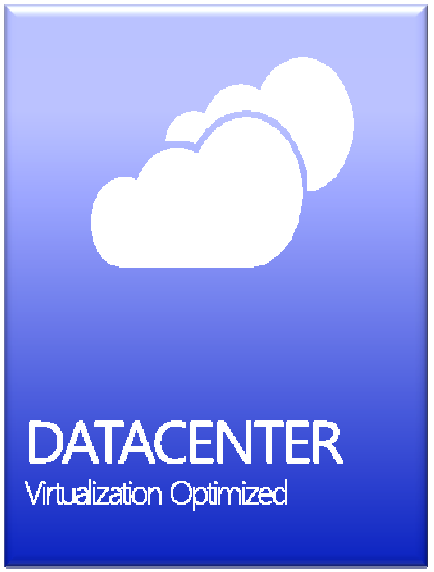
- Per Server licensing
- Limited to 1 processor only
- Up to 15 users
- Cannot be virtualized (a guest OS) and cannot be used as a virtualization host OS

LIMITED VIRTUALIZATION RIGHTS

- Per Server licensing
- Up to 2 processors only
- Up to 25 users
- Can be virtualized (as a guest OS) but cannot be used as a virtualization host OS

2 VIRTUAL INSTANCES

- Processor + CALs
- Up to 2 processors per license; no processor limit
- Virtual Use Rights: 2 Instances per license
- Full product features (parity with Datacenter)



UNLIMITED VIRTUALIZATION

- Processor + CALs
- Up to 2 processors per license; no processor limit
- Virtual Use Rights: Unlimited Instances
- Full product features

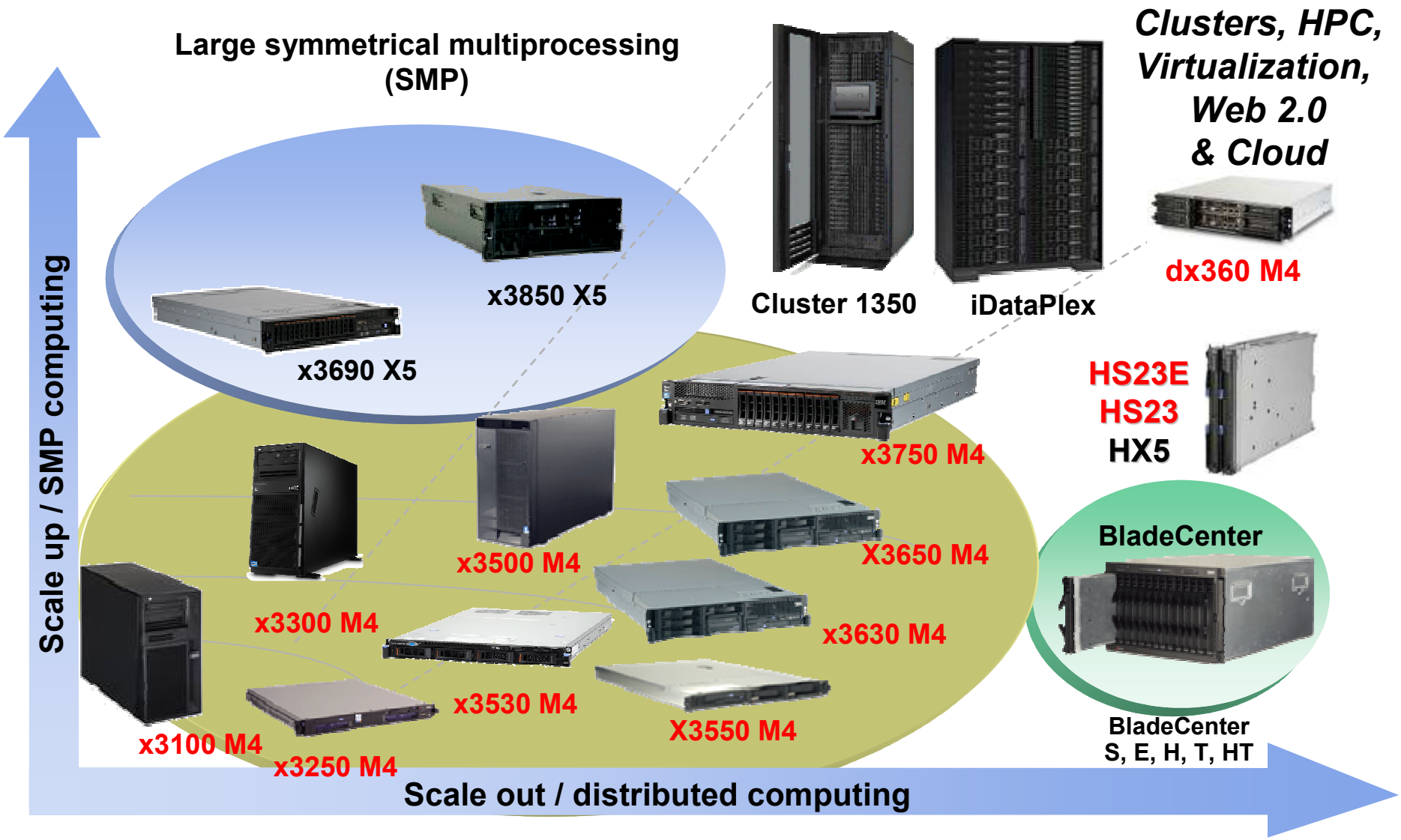
Windows Server 2012 – Base Feature Comparison

Cloud Optimize Every Business – Deliver Best-in-Class Hybrid IT

System	Resource	Maximum Number		Improvement Factor
		WinSrv 2008 R2	WinSrv 2012	
Host	Logical processors on hardware	64	320	5x
	Physical memory	1 TB	4 TB	4x
	Virtual processors per host	512	2,048	4x
Virtual machine	Virtual processors per VM	4	64	16x
	Memory per virtual machine	64 GB	1 TB	16x
	Active virtual machines	384	1,024	2.7x
Cluster	Nodes	16	64	4x
	Virtual machines	1,000	4,000	4x

IBM System x the largest product breadth for Virtualization

Right - Easy - Open - Green



Business Critical

System x3650 M4

System x3550 M4

System x3500 M4

- Up to 8 cores per CPU
- Up to 768GB of memory
- 10Gb networking
- Flexible RAID design

Value 2-Socket

System x3630 M4

System x3530 M4

System x3300 M4

- Up to 8 cores per CPU
- Up to 384GB of memory
- Maximum storage capacity
- Upgradable networking

Entry 1-Socket

System x3250 M4

System x3100 M4

- Entry priced
- Up to 32GB of memory

10x	**10GbE** NIC Has been design in to new M4 servers
4x	**RAID bandwidth** increased from PCIe Gen2 x4 to Gen3 x8
3x	**Memory capacity** increased from 288GB to 768GB Memory Speed increased from 1333MHz to 1600MHz
2x	**Disk capacity** from 8TB to 16TB w/ Tape & ODD for x3650M4 from 4TB to 8TB w/ ODD for x3550M4 **RAID cache** increased from 512MB to 1GB
82%	**Performance Improvement** +82.02% SPECfp_rate_base2006 +68.97% SPECint_rate_base2006 +50.48% SAP-2T

System x3100 M4

System x3100 M4 overview

	IBM x3100 M4
Processors	Xeon, Core i3, Pentium
#Socket	1
Form factor	4U mini tower Tower to rack
Max Memory	32GB / 4 DIMMs DDR3 server-class ECC
HDD bays	4x 3.5” SS SATA or 8x 2.5” HS SAS*
RAID	Standard ServeRAID C100 supports 0,1,10; ServeRAID 5 (by upgrade key)* HW RAID 0/1/5 support
PCI-express x16/x8/x4/x1	1(mechanical x16, electrical x8) /1/1/1
Power	350W fixed or 300W HE (model dependent); Optional redundant power*
TPM	Standard
Ethernet	Dual gigabit
Management	IMM2, shared port
Warranty	1 year (parts/labor)

*Available at refresh 2Q12

What's new with System x3100 M4

	x3100 M3	x3200 M3	x3100 M4	Benefits
Processor	▪ Intel Xeon 3400	▪ Intel Xeon 3400	▪ **Intel E3-1200**	▪ **Increased performance**
Memory	▪ 4 slots ▪ Max. 16GB UDIMM	▪ 6 slots ▪ Max. 32GB RDIMM ▪ Max. 16GB UDIMM	▪ 4 slots ▪ Max. 32GB UDIMM	
Disk	▪ 4 x 3.5" SS SATA	▪ 4 x 3.5" SS/HS ▪ 8 x 2.5" SS/HS	▪ 4 x 3.5" SS ▪ 8 x 2.5" HS*	▪ **Onboard RAID**
I/O	▪ x16, x8, x4, x1	▪ x16, x8, x4, x1	▪ x16, x8, x4, x1	
Power	▪ Fixed	▪ 430W Redundant	▪ **80+ Certified PSU** ▪ **Redundant Power***	▪ **Greater Reliability**
Misc.		▪ IMM	▪ **IMM2** ▪ **FoD**	▪ **Scalable management** ▪ **Low cost** ▪ **Smaller form factor**

*1H12 Update

System x3300 M4

The dual-socket IBM System x3300 M4 tower server

Next generation General Business dual-socket tower server

- **Ultra scalable features**
  - Pay as you go, pay as you grow
  - Easy low cost upgrade solution to 10GB network
  - Easy upgrade to advanced RAID, cache or battery
  - Scale up on CPU, Memory and HDD
  - Add additional 2x 1Gb Network ports via FoD
- **Customer Benefits**
  - Choice of three super efficient 80 plus power supplies providing the right wattage support according to customer needs
  - Optional Redundant simple swap fans and power supply to support business critical application
  - Designed for scalability and reducing parts on the floor when upgrading
  - Upgrades are easier to install for partners and clients
  - New ServeRAID C105 embedded low cost SW RAID solution
  - Recognized #1 Trusted Brand and IBM DNA
- **Where to Win…**
  - **Target Workloads:** Distributed branch applications, Small office email & collaboration, Web serving and Virtualization
  - **Target Industries:** Retail, Banking, Insurance, miscellaneous small business
  - **Target Customers:** Emerging SMBs

IBM x3300 M4	
Processors	Sandy Bridge-EN up to 95W
#Socket	1+1
Form factor	4U Tower (Tower to Rack via option)
Memory Slots Max Memory	6 + 6 slots (UDIMM/RDIMM) Up to 192GB *384GB - LRDIMM
Media bays	Standard DVD-ROM and Tape Bay
Disk Drive type	2.5” SAS/SATA or 3.5” SAS/SATA
HDD bays	Up to 16x 2.5” or 8x 3.5” HDDs
RAID	ServeRAID C105: 0,1,10 std HW RAID card 0,1,10 std, optional 5, 50, 6, 60, cash. Batt.
NIC/TPM	2 x 1Gb std, 2 additional 1Gb via FoD
PCIe	1st CPU: Gen3 HL PCIe x8 (x8 link) ,Gen3 HL PCIe x8 (x4 link) , Gen3 FL PCIe x16 (x8 link) , Gen2 HL PCIe x4 (x1 link) , Gen2 HL PCIe x8 (x4 link) (PCI-X capable) 2nd CPU: Gen3 HL PCIe x8 (x8 link)
Power	CFF 550W/750W, 460W fixed
I/O Ports	USB: 2 front/4 back/2 internal 1 Serial port, 1 VGA port
Fan Design	N+1 Simple swap redundant fans
System Mag.	IMMv2 with dedicated/share port
Warranty	3 years (parts/labor)

* Available in 1H 2013

What's new with System x3300 M4

	x3200 M3	x3400 M3	x3300 M4	Benefits
Processor	▪ Intel Xeon 3400 series ▪ 30W, 90W ▪ 2-core and 4-core	▪ Intel Xeon 5600 series ▪ 40W, 60W, 80W, 95W ▪ 4-core and 6-core	▪ **Intel Xeon E5-2400 series** ▪ 60W, 70W, 80W, 95W ▪ 2-core, 4-core, 6-core,**8-core**	▪ **Increased performance**
Memory	▪ 2 channels per CPU ▪ 6 slots RDIMM ▪ 4 slots UDIMM ▪ 1.5V or 1.35V ▪ Max 1333MHz ▪ Max. 32GB RDIMM ▪ Max. 16GB UDIMM	▪ 3 channels per CPU ▪ 16 slots RDIMM ▪ 12 slots UDIMM ▪ 1.5V or 1.35V ▪ Max 1333MHz ▪ Max. 128GB RDIMM ▪ Max. 48GB UDIMM	▪ 3 channels per CPU ▪ **12 slots RDIMM** ▪ **12 slots UDIMM** ▪ 1.5V or 1.35V ▪ **Max 1600MHz** ▪ **Max. 192GB RDIMM** ▪ **Max. 64GB UDIMM** ▪ **Max. 384GB LRDIMM***	▪ **Significant memory increase means more VMS and faster applications** ▪ **Greater choice of memory options**
Disk	▪ Up to 8 2.5” SAS/SATA with ODD (optional) ▪ or 4 3.5” SAS/SATA	▪ Up to 16 2.5” SAS/SATA with ODD (optional) ▪ or 8 3.5” SAS/SATA	▪ 16 2.5” SAS/SATA with ODD (optional) ▪ or 8 3.5” SAS/SATA	▪ **Flexible storage options** ▪ **Increased storage capacity** ▪ **Improved RAID options**
I/O	▪ Gen2 two x8, two x4, Legacy two x 32-bit/33 MHz)	▪ Gen2 one x16 , two x8 , two x8 FHFL (x8 Link)	▪ **1 CPU – Gen3 one x16 (x8 link), one x8, one x8 (x4 link),** Gen2 one x8 (x4 link), one x4(x1 link) ▪ **2 CPU – 1 additional Gen3 x8**	▪ **Additional I/O lanes** ▪ **Faster PCIe speed**
Power	▪ 401 Fixed or 430W Redundant	▪ 670W Fixed or 920W Redundant	▪ **460W, 550W & 750W** ▪ **Bronze fixed PSU, Platinum Redundant PSU**	▪ **Additional power supply options** ▪ **Greater energy efficiency**
Misc.	▪ IMM ▪ Dual port Ethernet	▪ IMM ▪ Dual port Ethernet	▪ **IMMv2** ▪ **Quad port Gigabit Ethernet (2 standard, 2 via FoD)**	▪ **Scalable management** ▪ **Double the connectivity** ▪ **Simple, low-cost upgrades**

* Available in 1H 2013

System x3500 M4

IBM System x3500 M4

An all-in-one business solution you can put under your desk. The x3500 is a two-socket tower server designed to meet the most demanding needs of a growing business or a distributed enterprise.

System x3500 M4	
Processors	Sandy Bridge EP up to 8 cores
#Socket	2
Form factor	Tower (5U rack option)
Memory Slots Max Memory	24 slots (UDIMM/RDIMM) Up to 768GB
Media bays	Standard DVD-ROM and Tape Bay
Disk Drive type	2.5” SAS/SATA or 3.5” SATA
HDD bays	Up to 32x 2.5” or 8x 3.5” HDDs
RAID	6Gb Cache RAID: M5115 or M5125 RAID 0,1,10,5,50 optional 6,60
NIC/TPM	4x 1Gb + 2x 10Gb(opt.) /TPM Std.
PCIe	Up to 8 PCI slots From Proc. 1: 1 PCIe Gen2 x16 (Up to 225W), 4 PCIe Gen2 x8 (2 with Elec x4), 1 PCIe Gen2 x8 (Elec x4) From Processor 2: 2 PCIe Gen2 x 16 (Up to 225W) Optional: 1 PCI-X (by interposer card)
Power	Redundant 750W/900W, 80 plus
I/O Ports	USB: 2 front/4 back/2 internal 1 Serial port, 1 VGA port
Fan Design	3+3 Simple swap redundant fans
Light Path	Front Light Path Diagnostic
System Mgmt.	IMM v2 with dedicated port
Warranty	3 years (parts/labor)

What's new with System x3500 M4

	x3400 M3	x3500 M3	x3500 M4	Benefits
Processor	▪ Intel Xeon 5600 series ▪ 40W, 60W, 80W, 95W ▪ 4-core and 6-core	▪ Intel Xeon 5600 series ▪ 40W, 60W, 80W, 95W and 130W ▪ 4-core and 6-core	▪ **Intel E5-2600 series** ▪ 50W, 60W, 70W, 80W, 95W, 130W , **135W** ▪ 4-core, 6-core, **8-core**	▪ **Max 8 cores compared to 6 cores** ▪ **Average performance increase of 80%**
Memory	▪ 3 channels per CPU ▪ 16 slots RDIMM ▪ 12 slots UDIMM ▪ 1.5V or 1.35V ▪ Max 1333MHz ▪ Max. 128GB RDIMM ▪ Max. 48GB UDIMM	▪ 3 channels per CPU ▪ 16 slots RDIMM ▪ 12 slots UDIMM ▪ 1.5V or 1.35V ▪ Max 1333MHz ▪ Max. 192GB RDIMM ▪ Max. 48GB UDIMM	▪ **4 channels per CPU** ▪ **24 slots RDIMM** ▪ **16 slots UDIMM** ▪ 1.5V or 1.35V ▪ **Max 1600MHz** ▪ **Max. 768GB LRDIMM** ▪ **Max. 64GB UDIMM** ▪ **LR DIMMs**	▪ **4x memory capacity 192GB to 768GB** ▪ **1600MHz vs 1333MHz** ▪ **Greater choice of memory options**
Disk	▪ Up to 16 2.5” SAS/SATA with ODD (optional) ▪ or 8 3.5” SAS/SATA	▪ Up to 24 2.5” SAS/SATA with ODD (optional) ▪ or 8 3.5” SAS/SATA	▪ **32 2.5” SAS/SATA** with ODD (optional) ▪ or 8 3.5” SAS/SATA ▪ New RAID Portfolio	▪ **Flexible storage options** ▪ **Increased storage capacity** ▪ **Improved RAID options with Flash & 4x performance**
I/O	▪ 1 x16 FHFL, 2 x8 FHFL, 2 x4 FHFL (x8 mech)	▪ 1 x16 FHFL, 2 x8 FHFL, 2 x4 FHFL (x8 mech)	▪ 1 CPU -1 x16, 2 x8, 2 x4 (x8 mech) ▪ 2 CPU – 2 additional x16	▪ **Additional I/O lanes offers 2 additional x16 slots** ▪ **PCI Gen 3.0 (2x performance increase)**
Power	▪ 670W Fixed or 920W Redundant	▪ 920W Redundant	▪ **550W*, 750W & 900W** ▪ **Platinum PSU – Redundant**	▪ **80 plus platinum PSU** ▪ **53% greater energy efficiency**
Misc.	▪ IMM ▪ 2 x 1GbE	▪ IMM ▪ 2 x 1 GbE	▪ **IMMv2** ▪ **4 x 1 GbE** ▪ **FoD**	▪ **Scalable management** ▪ **Double the connectivity** ▪ **Advance LPD** ▪ **Simple, low-cost upgrades**

Tower Servers - Workload positioning

Business Critical (x3500 M4)

Maximum 2 Socket Performance & Uptime

- POS
- Storage
- VDI
- Database
- Virtualization/ Consolidation
- ERP

General Business (x3300 M4)

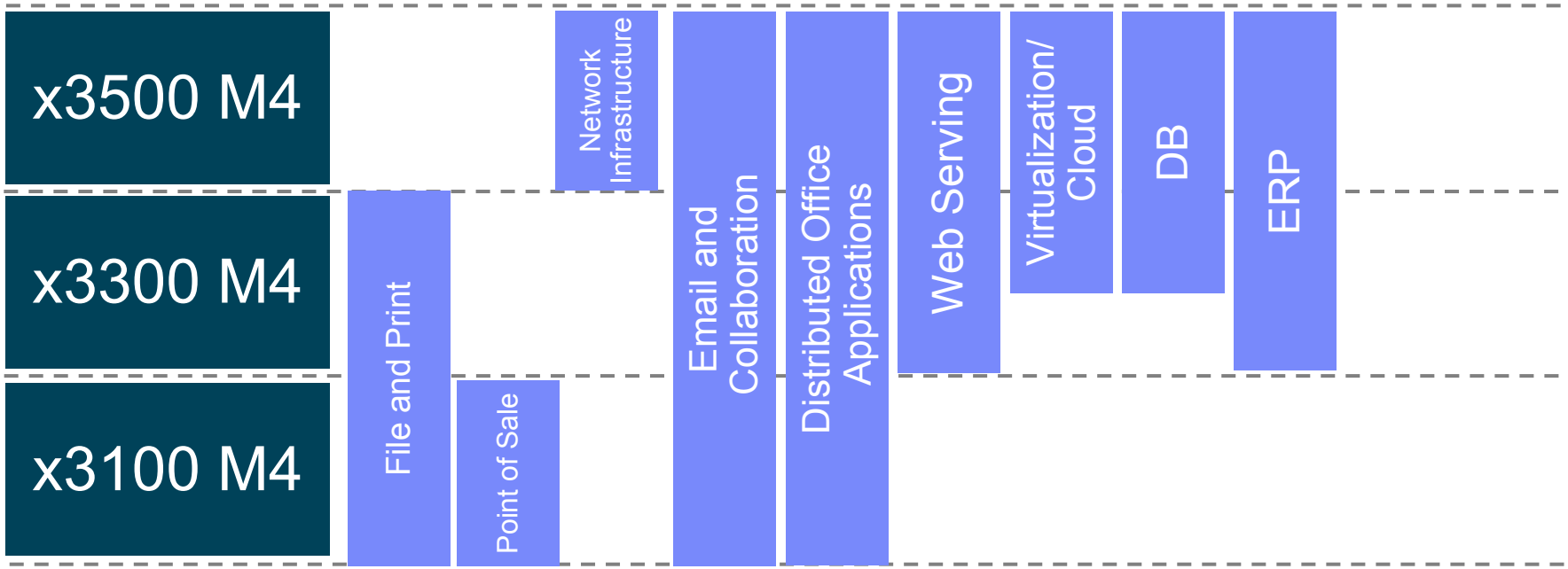
Cost Balanced 2 Socket Performance

- Retail
- Web
- Virtualization
- Virtual Storage

Entry Value (x3100 M4)

Cost optimized 1 Socket design

- Single applications
- Small office server
- File & Print



System x3250 M4

System x3250 M4 overview

	IBM x3250 M4
Processors	Xeon, Corei3, Pentium
#Socket	1
Form factor	1U rack, 22” deep
Max Memory	32GB / 4 DIMMs DDR3 server-class ECC
HDD bays	2x 3.5” SS SATA or 4x 2.5” HS SAS or 4x 2.5” SS SATA (via CTO)
RAID	Standard ServeRAID C100 0/1/10; HW RAID 0/1/5 upgradable
PCI-express x16/x8/x4/x1	0 / 1 /1 (dedicated for RAID 0,1) /0
Power	1.300W fixed, 80 + Bonze 2. 460W Redundant, 80+ silver
TPM	Standard
Ethernet	Dual gigabit
Management	IMM2, shared port
Warranty	3 year (parts/labor)

What's new with System x3250 M4

	x3250 M3	x3250 M4	Benefits
Processor	▪ Intel Xeon 3400 Series	▪ **Intel E3-1200 series**	▪ **Increased performance**
Memory	▪ 6 slots ▪ Max. 32GB RDIMM ▪ Max. 16GB UDIMM	▪ 4 slots ▪ Max. 32GB UDIMM	
Disk	▪ 2 x 3.5" SS/HS ▪ 4 x 2.5" SS/HS	▪ 2 x 3.5" SS ▪ 4 x 2.5" SS/HS	▪ **Onboard RAID**
I/O	▪ 2 x16	▪ 1 x16, 1 x8	
Power	▪ Fixed	▪ **Redundant Power**	▪ **Greater Reliability**
Misc.	▪ IMM	▪ **IMM2** ▪ **FoD**	▪ **Scalable management** ▪ **Entry priced**

System x3530 M4

The 2-socket System x3530 M4

dual-socket performance in 1U compact footprint. Value, flexible, go green, built for Total Cost ownership with IBM commitment.

General business computing

Competitive Price points and flexibility for entry 2S 1U

Innovative option upgrade deliver TCO to customers

Easy server management

The IBM x3530 M4 General Business 2S 1U Server

Density comes to the General Business Portfolio

The right combination of Cost, Density, Features and Efficiency.
Optimized for entry price point

Competitive Price points and flexibility

- ✓ Choose 2.5” or 3.5” HDDs
- ✓ Flexible RAID solutions
- ✓ 2+2 scalable 1Gb networking via FoD
- ✓ Cost optimized UDIMM or RDIMM memory
- ✓ Redundant fans (Non HS)

Innovative design with New features

- ✓ Support latest Intel Sandy Bridge EN processors (priced below EP)
- ✓ Cost effective ServeRAID C105 solution + advanced HW RAID options
- ✓ Smart use of FoD: 2+2 1Gb networking, SATA port enabler from 4-8, IMM2 upgrade to Remote presence.
- ✓ Choice between shared and dedicated system management port Advanced RAID up sells
- ✓ Great deal of reuse high volume parts (PSUs, HDD, memory)
- ✓ Selection of energy efficient fixed and hot swap PSU options

Where to install

- ✓ Business infrastructure, File & print, web serving, Web 2.0, virtualization, Light database, ERP applications, small HPC install
- ✓ Full range of clients: Small Medium business, Large enterprise

	IBM x3530 M4
Processors	Sandy Bridge EN up to 95W
#Socket	2
Form factor	1U Rack
Memory Slots Max Memory	12 slots (UDIMM/RDIMM/); 192GB*
Media bays	Optional DVD
Disk Drive type	SAS/SATA
HDD bays	4x 3.5” SS/HS HDDs or 8x 2.5” HS
RAID	ServerRAID C105 RAID 0,1,10 Slotless RAID and advanced HW RAID option
NIC/TPM	4x 1Gb on board (2 std, up sell 2 ports by FoD) / standard TPM
PCIe (x16/x8)	2 PCIe slots (x16/x8) (1/0 or 0/2) + Slotless RAID x4
Power	1.Fixed 460W (new) 2.Redundant 460W 3.Redundant 675W HE AEM / Energy Star (model dependant)
USB ports VGA ports	2 front / 4 Rear / 1 internal (hypervisor no internal tape support) 1 front (standard for 2.5”, optional for 3.5”)/ 1 back
Fan Design	NHS Redundant Fans
Light Path	Basic LED; Optional advanced light path as sell up
System MGMT	IMM 2, Remote presence, shared or dedicated port optional
Warranty	3 years

System x3630 M4

The IBM x3630 M4 General Business 2S 2U Server

General business computing

1 product 2 use cases

Innovative option upgrade deliver TCO to customers

Competitive Price points and flexibility for General Business 2S 2U

IBM System x3630 M4 server delivers dual-socket performance in 2U compact footprint. Value, flexible, built for Total Cost ownership with IBM commitment. The x3630 M4 provides power efficiency, all PSU meets 80-PLUS® certification to enable greater energy savings.

The IBM x3630 M4 General Business 2S 2U Server

½ of the worlds most powerful 2U portfolio

Grow IBM in the world's largest server segment.
Significantly lower cost that EP.
One product – two personalities.

2 use cases in 1 product

- ✓ Optimized for cost and capacity with large 3.5" HDD support
- ✓ Start with SW RAID or slotless HW RAID which allows to upgrade to advanced RAID without consuming PCI slot
- ✓ CFF PSU including Platinum 80plus options
- ✓ Lowest cost/TB and highest TB/U
- ✓ Redundant fans + HS PSU to support general business applications
- ✓ FoD upgrades make things easy to stock and install for partners or clients

Innovative design with New features

- ✓ Supporting the Intel latest Sandy Bridge EN processors
- ✓ Innovative networking with FoD 2+2 up sell, MGMT port choice between shared and dedicated option
- ✓ Proven DDR3 technology with choice of UDIMM and RDIMM
- ✓ Rich remote experience with IMM v2 including a new mobile interface

Best For

- ✓ Web 2.0, File & print, web serving, Enterprise business infrastructure, virtualization, HPC, virtual PC consolidation, ERP applications and Database
- ✓ Full range of clients: Small business, Large enterprise

IBM x3630 M4	
Processors	Sandy Bridge EN up to 8 cores up to 95W
# Socket	2
Form factor	2U Rack
Memory Slots Max Memory	12slots (UDIMM/RDIMM), Support 2DPC@1600MHz 192GB/384GB* (RDIMM)
Media bays	Optional DVD or Tape →Value Model
Disk Drive	NL 3.5" SAS/SATA
HDD bays	4 or 8 x 3.5" SS SATA or 8 x 3.5" HS SAS/SATA →Value Model 12 + 2 x 3.5" HS → Storage Rich Model
RAID	SW RAID or advanced HW RAID →Value Model Slotless RAID, advanced HW RAID →Storage Rich Model
NIC/TPM	4 x 1Gb on board (2 standard, plus optional 2 ports by FoD) / standard TPM
PCIe (x16/x8)	2 PCIe slots (x16/x8) (1/0 or 0/2) + Slotless RAID x4 for 1st CPU + 2 PCIe slots (x16/x8) (1/0 or 0/2) with 2nd CPU 14 HDDs models support 2 PCIe slots, optional upgrade Slotless RAID from x4 to x8 with 2nd CPU installed
Power	550W/750W,.Redundant, 80PLUS Platinum certified
USB ports VGA ports	2 front / 4 Rear / 2 internal 1 front (for Value Model) / 1 Rear
Fan Design	NHS Redundant System Fans
Light Path	Standard Lightpath upgradeable to advanced Lightpath →value model Basic LED Lightpath →Storage Rich Model
System MGT.	IMM 2, shared or dedicated port optional
Warranty	3/3 years (parts/labor)

System x3550 M4

IBM System x3550 M4

Dense two-socket, 1U rack x86 server that can handle your business-critical application workloads. Big things do come in small packages.

- Rich networking options
- Support for Intel Xeon E5-2600 processors
- Optimized for density and performance

System x3550 M4	
Processors	Sandy Bridge EP up to 8 cores
#Socket	2
Form factor	1U Rack
Memory Slots Max Memory	24 slots (UDIMM/RDIMM) Up to 768GB
Media bays	DVD Bay (Optional w/ 2.5” HDDs)
Disk Drive type	SAS/SATA/SSD
HDD bays	8x 2.5” or 3x 3.5” HDDs
RAID	Slotless RAID
NIC/TPM	4x 1Gb (std.) + 2x 10Gb (slotless opt.) /TPM
PCIe (x16/x8)	2 PCIe ports (1/1 or 2/0) + Slotless 10 Gb NIC and RAID
Power	AC 550W/750W, DC 750W Up to 80 plus Platinum
USB ports VGA ports	2 front/4 back/2 internal 1 front/1 back
Fan Design	6x Hot swap redundant fans
Light Path	Light Path panel in front
System MGMT	IMMv2, dedicated LAN port
Warranty	3 years (parts/labor)

What's new with System x3550 M4

	x3550 M3	x3550 M4	Benefits
Processor	▪ Intel Xeon 5600 series ▪ 40W, 60W, 80W, 95W and 130W ▪ 4-core and 6-core	▪ **Intel E5-2600 series** ▪ 50W, 60W, 70W, 80W, 95W, 130W & 135W ▪ 4-core, 6-core, **8-core**	▪ **Max 8 cores & 135W Support** ▪ **Average performance increase of 80%** ▪ **IBM System x3650 M4 sets new record for 2-processor server performance on TPC-E**
Memory	▪ 3 channels per CPU ▪ 18 slots RDIMM ▪ 12 slots UDIMM ▪ 1.5V or 1.35V ▪ Max 1333MHz ▪ Max. 256GB RDIMM ▪ Max. 48GB UDIMM	▪ **4 channels per CPU** ▪ **24 slots RDIMM** ▪ **16 slots UDIMM** ▪ 1.35V memory ▪ **Max 2DPC@1600MHz (RDIMM)** ▪ **Max. 768GB LRDIMM** ▪ **Max. 64GB UDIMM**	▪ **2.6x memory capacity (256GB to 768GB)** ▪ **1600MHz vs 1333MHz** ▪ **Greater choice of memory options** ▪ **#1 SPECvirt rating**
Disk	▪ Up to 8 2.5” SAS/SATA with ODD (optional)	▪ 8 2.5” SAS/SATA with ODD (optional) ▪ **3 3.5” SAS/SATA**	▪ **Flexible storage options** **–3.5” HDD & ability to support 16 2.5”HDDs with Optical and tape** ▪ **Increased storage capacity** ▪ **Improved RAID options with Flash & 4x performance** ▪ **Optional eXFlash**
I/O	▪ 1 x16 FHHL, 1 x16 LP ▪ Dual port Ethernet	▪ 1 CPU -1 x16 FHHL, 1 x8 LP (x16 with 2 CPU) ▪ **Quad port Gigabit Ethernet** ▪ **Slotless 10Gb mezz (optional)**	▪ **Additional I/O lanes offers** ▪ **PCI Gen 3.0 (2x performance increase)** ▪ **Additional 2 - 1GbE ports standard** ▪ **Optional 10Gb mezz**
Power	▪ 460W, 675W, 675HE Redundant	▪ **550W, 750W, 900W Redundant Power** ▪ **Platinum level**	▪ **80 plus platinum PSU** ▪ **37% greater energy efficiency**
Misc.	▪ IMM	▪ **IMMv2** ▪ **FoD Components**	▪ **Scalable management** ▪ **Advance LPD** ▪ **Simple, low-cost upgrades**

System x3650 M4

IBM System x3650 M4

Up to any IT challenge, the x3650 M4 blends the ultimate in uptime, performance, and IO flexibility with density, cost efficiency, and rock solid reliability.

- Rich networking options
- Flexible RAID down design
- Full support for Intel Xeon E5-2600 processors
- Optimized for flexibility and performance
- IBM eXFlash high IOPS technology

System x3650 M4	
Processors	Sandy Bridge EP up to 8 cores
#Socket	2
Form factor	2U Rack
Memory Slots Max Memory	24 slots (UDIMM/RDIMM) Up to 768GB
Media bays	Optional DVD and Tape Bay
Disk Drive type	SAS/SATA/SSD
HDD bays	16x 2.5” or 6x 3.5” HDDs
RAID	RAID on Motherboard
NIC/TPM	4x 1Gb (std.) + 2x 10Gb (slotless opt.) /TPM
PCIe (x16/x8)	3-6 PCIe ports (2/2, 1/4 or 0/6) or 4 PCI-X or 2 Double Width PCIe support w/ Slotless 10 Gb NIC and RAID
Power	AC 750W/900W550W, DC 750W Up to 80 plus Platinum
USB ports VGA ports	2 front/4 back/2 internal 1 front/1 back
Fan Design	4x Hot swap redundant fans
Light Path	Light Path panel in front
System MGMT	IMMv2, dedicated LAN port
Warranty	3 years (parts/labor)

What's new with System x3650 M4

	x3650 M3	x3650 M4	Benefits
Processor	▪ Intel Xeon 5600 series ▪ 40W, 60W, 80W, 95W and 130W ▪ 4-core and 6-core	▪ **Intel E5-2600 series** ▪ 50W, 60W, 70W, 80W, 95W, 130W, **135W** ▪ 4-core, 6-core, **8-core**	▪ **Max 8 cores & 135W Support** ▪ **Average performance increase of 80%** ▪ **IBM System x3650 M4 sets new record for 2-processor server performance on TPC-E**
Memory	▪ 3 channels per CPU ▪ 18 slots RDIMM ▪ 12 slots UDIMM ▪ 1.5V or 1.35V ▪ Max 1333MHz ▪ Max. 256GB RDIMM ▪ Max. 48GB UDIMM	▪ **4 channels per CPU** ▪ **24 slots RDIMM** ▪ **16 slots UDIMM** ▪ 1.5V or 1.35V ▪ **Max 1600MHz** ▪ **Max. 768GB LRDIMM** ▪ **Max. 64GB UDIMM**	▪ **2.6x memory capacity (256GB to 768GB)** ▪ **1600MHz vs 1333MHz** ▪ **Greater choice of memory options** ▪ **#1 SPECvirt rating**
Disk	▪ Up to 16 2.5” SAS/SATA with ODD (optional)	▪ 16 2.5” SAS/SATA with ODD **& Tape** (optional) ▪ **6 3.5” SAS/SATA** ▪ **RAID on Planar**	▪ **Flexible storage options** – **3.5” HDD & ability to support 16 2.5”HDDs with Optical and tape** ▪ **Increased storage capacity** ▪ **Improved RAID options with Flash & 4x performance** ▪ **Optional eXFlash**
I/O	▪ 2-4 slots depending on config ▪ 2 x16 FHFL, or 2 x8 FHFL, 1 x8 FHHL, 1 x8 LP ▪ Dual Port Gigabit Ethernet	▪ **3-6 slots** depending on config ▪ 1 CPU – 1 x16 FHFL, 1 x8 FHHL (or 3 x8) ▪ 2 CPU – add’l 1 x16 FHFL, 1 x8 FHHL (or 3 x8) ▪ **Quad port Gigabit Ethernet** ▪ **plus slotless 10Gb mezz (optional)**	▪ **Additional I/O lanes offers** ▪ **PCI Gen 3.0 (2x performance increase)** ▪ **Additional 2 - 1GbE ports standard** ▪ **Optional 10Gb mezz**
Power	▪ 460W, 675W, 675HE Redundant	▪ **550W, 750W, 900W** Redundant Power ▪ **Platinum level**	▪ **80 plus platinum PSU** ▪ **37% greater energy efficiency**
Misc.	▪ IMM	▪ **IMMv2** ▪ **FoD components**	▪ **Scalable management** ▪ **Advance LPD** ▪ **Simple, low-cost upgrades**

System x3750 M4

The x3750 M4 is a 4 socket server featuring a streamlined design, optimized for price/performance, with advanced flexibility and expandability. The x3750 M4 provides maximum storage density, flexible PCI and 10GbE networking options in a 2U form factor.

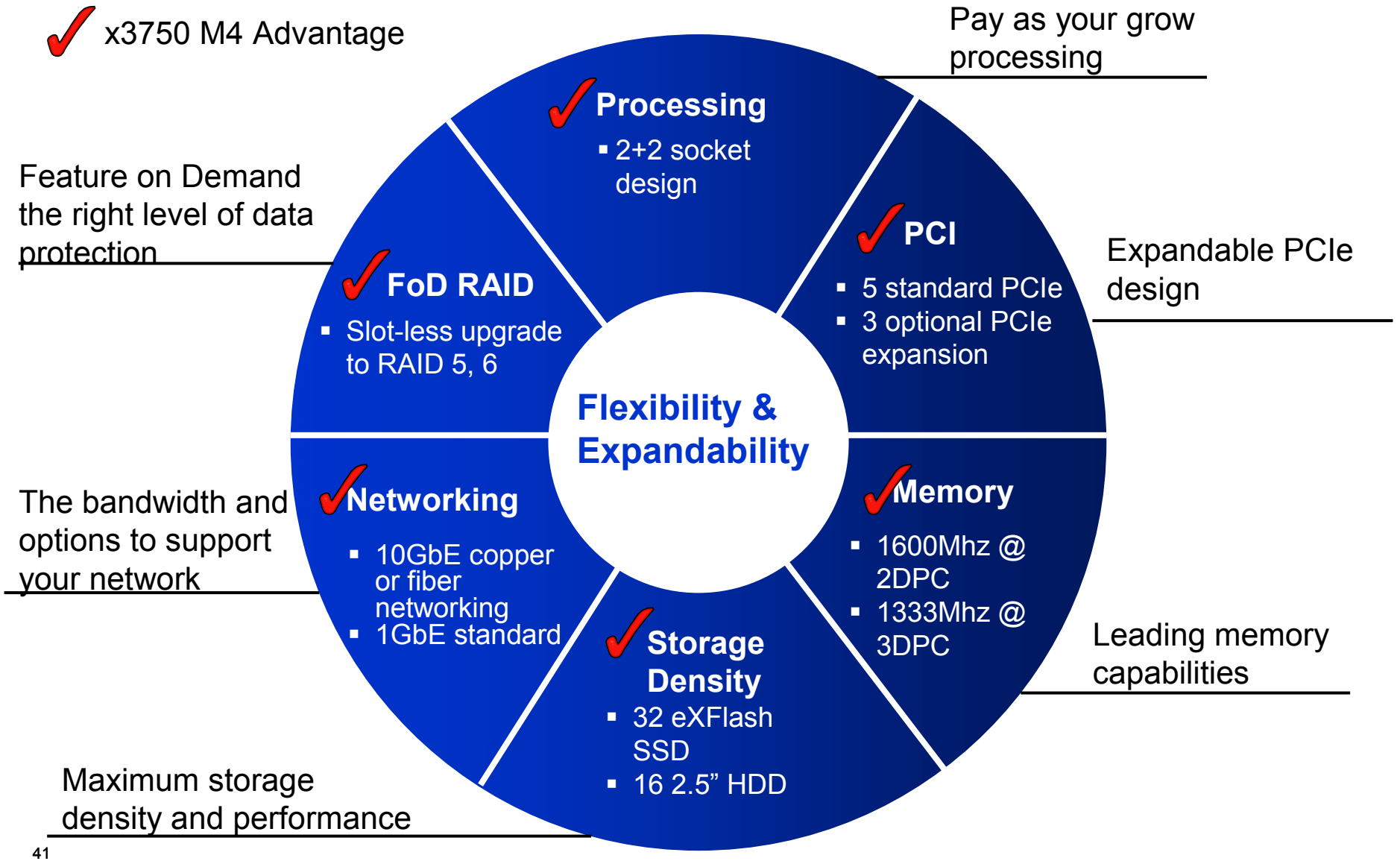
Workloads

- High Performance Computing
- Floating Point computations
- Small/Medium DBs requiring fast I/O

Key Features

- Full support for Intel Xeon E5-4600 processors
- 4 sockets, 48 DIMM slots in a 2U form factor
- 2+2 socket design
- Mix and match internal storage with up to 16 HDD or 32 eXFlash drives
- Integrated 10GbE Networking with options for fiber or copper
- Up to 8 PCIe I/O slots with a 5 + 3 design.

x3750 M4 offers advanced flexibility and expandability in a 2U design



Feature Comparison

	x3650 M4	x3750 M4	x3690 X5	x3850 X5
Processor	▪ Intel E5-2600 series ▪ 50W, 60W, 70W, 80W, 95W, 130W, 135W ▪ 4-core, 6-core and 8-core	▪ Intel E5-4600 series ▪ 95W, 115W, 130W ▪ 4-core, 6-core, 8-core	▪ Intel E7-2800 ▪ 95W, 105W, 130W ▪ 6-core, 8-core, 10-core	▪ Intel E7-4800 ▪ 95W, 105W, 130W ▪ 6-core, 8-core, 10-core
Memory	▪ 24 DIMM slots ▪ 768 GB max memory	▪ 48 DIMM slots ▪ 1.5 TB max memory	▪ 32 / 64* DIMM slots ▪ 1 TB / 2 TB* max memory	▪ 64 / 96* DIMM slots ▪ 2 TB / 3 TB* max memory * With MAX5
HDD/SSD	▪ 3.5” HDD – 6 ▪ 2.5” HDD – 16 ▪ 1.8” SSD – 32 eXFlash	▪ 3.5” HDD – 0 ▪ 2.5” HDD – 16 ▪ 1.8” SSD – 32 eXFlash	▪ 3.5” HDD - 0 ▪ 2.5”HDD – 16 ▪ 1.8” SSD – 24 eXFlash	▪ 3.5” HDD – 0 ▪ 2.5” HDD – 8 ▪ 1.8” SSD – 16 eXFlash
Ethernet	▪ Four 1 Gb Ethernet ▪ Dual 10 Gb Ethernet mezzanine option (copper or fiber)	▪ Two 1 Gb Ethernet ▪ Dual 10 Gb Ethernet integrated controller with selection of copper or fiber ports	▪ Two 1 Gb Ethernet ▪ Dual 10 Gb Ethernet adapter (fiber)	▪ Two 1 Gb Ethernet ▪ Dual 10 Gb Ethernet adapter (fiber)
PCIe	▪ 6 PCIe slots ▪ 2 HH/HL ▪ 2 FH/HL ▪ 2 FH/FL	▪ 8 PCIe total slots ▪ 5 HH/HL ▪ 3 FH/HL	▪ 5 PCIe slots ▪ 2 HH/HL ▪ 2 x8 FH/FL ▪ 1 x16 FH/FL	▪ 7 PCIe slots ▪ 3 FH/HL ▪ 4 FH/FL
RAS	▪ Standard	▪ Standard	▪ Enhanced for Mission Critical availability	▪ Enhanced for Mission Critical availability
Power	▪ 550W, 750W, 900W Redundant Power	▪ 900W, 1400W Redundant Power	▪ 675W Redundant Power	▪ 1975W Redundant Power
Other		▪ 2 + 2 Socket and memory expansion	▪ MAX5 ▪ Workload Optimized Models ▪ SAP HANA certified	▪ MAX5 ▪ Scalable to 8-Way ▪ Workload Optimized Models ▪ SAP HANA certified

Memory Module

Memory Selection

DIMM Type	When to Use
RDIMM 	• For Max performance up to 1600MHz • Best balance of capacity, reliability, and workload performance • Cannot mix with UDIMM/LRDIMM/HyperCloud
UDIMM 	• Lowest latency/power usage • Lower list price points vs RDIMMs • Cannot mix with RDIMM/LRDIMM/HyperCloud
LRDIMM 	• Maximum system memory = 768GB • Highest Performance for memory capacities greater then 384GB. • Workloads needing maximum memory (Virtualization, Databases) • Cannot mix with RDIMM/UDIMM/HyperCloud
HyperCloud 	• Highest Performance for memory capacities from >256GB to 384GB. • Up to 25% memory performance increase vs 16GB RDIMMs at 3DPC) • Targeted for large memory footprint financial/HPC applications. • Cannot mix with UDIMM/LRDIMM/RDIMM

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IBM leadership is about more than just servers

How does IBM differentiate itself in the crowded x86 marketplace where servers share the same industry-standard components?


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