IBM System x3630 M3 storage-rich servers include new Intel Xeon multicore processors with next-generation microarchitecture

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At a glance

The IBM® System x3630 M3 offers a cost-effective high-capacity storage solution with exceptional energy-smart design, leadership virtualization, and powerful systems management. It features up to two 6-core Intel® Xeon® Series 5600 processors and high-density memory designs with twelve DDR3 RDIMM slots. This 2U-high System x3630 M3 is built on IBM X-Architecture®, consolidates storage and server as one, offers easy management, saves floor space and power consumption, costing less money than traditional enterprise offerings.

Power, scalability, control, and serviceability for dynamic web-serving and business applications deliverable on demand:

- Ultrathin, high-availability, rack-optimized, 2U platform

- Powerful Intel Xeon Series multicore processor with new microarchitecture design featuring Quick Path Interconnect (QPI) technology with Intel Extended Memory 64 Technology (EM64T)

- 4 GB, 8 GB, or 16 GB (optional) of high-speed DDR3 SDRAM Registered DIMM memory; 12 DIMM slots that support up to 192 GB

- Support for hot-swap SAS/SATA HDDs: up to twelve plus two 3.5-inch hot-swap SAS/SATA HDD bays or twenty-four plus four 2.5-inch hot-swap SAS/SATA HDD bays

- Two PCI-Express x8 high-performance Gen 2 and one PCI-Express x4 buried I/O Gen 2 slots, one PCI-E x8(x8) and one PCI-E x16(x8) and one PCI-E x16(x4) (electrical channel)

- 675-watt auto-ranging power supply (redundant power supply optional)

- Integrated systems management processor (Integrated Management Module, or IMM)

- Integrated dual GB Ethernet standard for network communication

- One 16550A-compatible serial port (rear), five USB ports (two front, two rear, and one internal), and one video port

Overview

Optimized for energy efficiency and performance

Innovative energy-smart design with powerful high-performance processors, a large capacity of high-performing DDR3 memory, and a balanced feature set ideal for many general business applications:

- Powerful Intel multicore processors
- Energy-efficient design incorporating low 675 W and power supplies rated at up to 92% efficiency, redundant cooling fans, and energy-efficient planar components to help lower operational costs
- Highly functional chipset optimized for better application computing supporting general business workloads
- Twelve DIMM slots that enable you to deploy up to 192 GB of DDR3 SDRAM Registered DIMM memory, with 4 GB, 8 GB, or 16 GB (optional) of memory (model dependent)
- Standard hot-swap SAS and SATA HDDs up to twelve plus two LFF HDDs or twenty-four plus four SFF HDDs
- Integrated dual GB Ethernet standard for network communication
- Support for embedded VMware ESXi 4.0 hypervisor activated with optional 2 GB USB key
- Two PCI-Express x8 high-performance Gen 2 and one PCI-Express x4 buried I/O Gen 2 slots, one PCI-E x8(x8) and one PCI-E x16(x8) and one PCI-E x16(x4) (electrical channel)

Manage with efficiency

High availability, manageability, and serviceability features help diagnose problems quickly, even from remote locations:

- IBM Systems Director Active Energy Manager™ (AEM) for advanced power management, including real-time monitoring, trending, and reporting of power consumption
- Snoop filters to boost processor performance
- Memory Channel Mode: Independent/Mirroring/Sparing (Sparing model for WSM-EP only), configurable using Unified Extensible Firmware Interface (UEFI) setup
- Integrated Management Module (IMM) systems management processor
- Monitoring and control of operating status and key server components
- IPMI 2.0-compliant full IMM for enterprise-class systems management to monitor, maintain, and maximize server availability, including full remote systems management
- Optional IBM Virtual Media Key to enable the remote presence and blue-screen capture features
- Predictive Failure Analysis® (PFA) on selected components that helps warn of problems before they occur
- Fast and easy servicing through innovative light path diagnostics and improved onboard diagnostics

Ultimate fault tolerant protection

- Redundant fans with calibrated vectored cooling, (to keep components cool), and simplified fan replacement
- Optional hot-swap, redundant power supplies to help reduce downtime
- High-performance hot-swap SAS and SATA HDDs at front HDDs backplane, and optional hot-swap at rear HDDs backplane
- Hot-swap SATA/SAS models support HW RAID-0/1/10 (optional 5/50 with SED) or 0/1/10/5/50 (optional 6/60 with SED) with 256 MB or 512 MB cache (optional battery)

- ServerGuide[TM1], IBM Director, and web support
- Three-year, customer replaceable unit (CRU) and on-site labor[2], limited warranty[3]; optional warranty service upgrades available

[1] The Microsoft® Windows® Preinstallation Environment software included as part of ServerGuide software, may be used for boot, diagnostic, setup, restoration, installation, configuration, test, or disaster recovery purposes only.

Note: The Microsoft Windows Preinstallation Environment software contains a security feature that will cause an end-user customer's system to reboot without prior notification to the end-user customer after 24 hours of continuous use of the Microsoft Windows Preinstallation Environment. During routine usage of ServerGuide, which does not usually require usage of the Microsoft Windows Preinstallation Environment software for such an extended time period, this condition should not occur.

[2] You may be asked certain diagnostic questions before a technician is sent.

[3] For information on IBM's Statement of Limited Warranty, contact your IBM representative or reseller. Copies are available upon request.

Key prerequisites

- Monitor
- USB keyboard
- USB mouse

Note: PS/2 style keyboard and mouse are not supported.

Planned availability date

March 15, 2011

Description

System x3630 M3-related options

The System x3630 M3 servers feature an Intel Xeon multicore processor that supports internal processing speeds of up to 3.20 GHz, and processing operations to memory up to 1333 MHz. They contain integrated, full-speed 4 MB, 8 MB, or 12 MB shared among cores L3 cache.

High-performance server subsystems

These servers are high-throughput, network servers with excellent scalability when you add memory and a second processor.

Two Intel Xeon connectors are standard on the system board to support installation of a second processor. High-speed DDR3 SDRAM Registered DIMM memory is optimized for 800 MHz, 1066 MHz, or 1333 MHz processor-to-memory subsystem performance.

Additional features

- Support for powerful Intel multicore processors:
  - Quad-Core Intel Xeon Processor E5603
  - Quad-Core Intel Xeon Processor E5607
  - Quad-Core Intel Xeon Processor E5620
  - Six-Core Intel Xeon Processor E5645

- Six-Core Intel Xeon Processor E5649
- Six-Core Intel Xeon Processor X5650
- Six-Core Intel Xeon Processor X5675
- System board containing 12 DIMM connectors, supporting 4 GB, 8 GB, or 16 GB (optional) DDR3 SDRAM Registered DIMM memory, with:
  - Support for up to 192 GB of system memory
  - Support for Chipkill™ memory
  - Support two DIMMs Per Channel (2DPC) 1333 MHz for Intel Xeon L5640 and X5600 Series processors
- SATA controller
- Internal hardware RAID card supports that employs high-speed (up to 6.0 Gbps) dual differential pairs to communicate with hot-swap SAS/SATA HDDs
- Intel 82575 Dual Gigabit Ethernet PCIe controllers speeding network communications to LAN clients

The System x3630 M3 subsystems are tuned to provide solid system throughput from processor, to memory, to bus, to disk-intensive I/O. These features combined with multicore capability make this server an excellent choice for:

- Database
- Linux® clusters
- File and print
- Virtualization
- Online gaming
- Video and photo sharing
- Web searching
- Blogging and messaging
- Video recording
- Mail server (Notes® and Exchange)

High-availability and serviceability features

The System x3630 M3 server subsystem delivers excellent reliability and serviceability features:

- Twelve plus two LFF or twenty-four plus four SFF hot-swap SAS/SATA HDDs bays
- Redundant cooling fans
- Optional hot-swap, redundant power supplies
- ECC DIMMs combined with an integrated ECC memory controller correcting many soft and hard single-bit memory errors, while minimizing disruption of service to LAN clients
- Chipkill memory to detect and correct many multibit memory errors, helping keep the server up and running, while taking the inoperative memory offline
- ECC to improve data integrity and help reduce downtime
- PFA on memory and HDD options to help alert the system administrator of an imminent component failure
- Intel 82575 Gigabit Ethernet controllers that support:
  - Failover
  - PXE 2.0 Boot Agent
  - IPMI 2.0
  - Wake on LAN®
- Worldwide, voltage-sensing 675-watt power supply
- Up to four sets of counter-rotating fans that provide excellent cooling for added reliability:

- – Each power supply comes with its own internal cooling fans.
- – Redundant fans cool processor, memory, and HDD bays.
- – Fan speed controls are incorporated to reduce noise, while reducing system temperatures.
- Integrated systems management processor for diagnostic, reset, POST, and auto recovery functions; monitoring temperature, voltage, and fan speed; alerts generated when thresholds are exceeded (refer to the Limitations section for restrictions)
- Information LED panel giving visual indications of system well-being
- Light path diagnostics and onboard diagnostics providing an error log that can help find a failing component, helping reduce downtime and service costs
- Easy access to system board, adapter cards, processor, and memory
- CPU failure recovery in dual-socket configurations:
  - – Forces failed processor offline
  - – Reboots server automatically
  - – Generates alerts
  - – Continues operations with the working processor

Expandability and growth

The System x3630 M3 server contains high levels of function and storage capacity for a 2U, 19-inch rack-drawer package. It supports customer installation of adapters, processors, memory, and HDD options. Functions such as SVGA video, SATA, and Gigabit Ethernet controller are integrated on the system board. Internal hardware RAID card is needed for system hot-swap SATA/SAS HDD drives. Features include:

- Rack-optimized design for 19-inch-wide, industry-standard rack cabinets supported in the NetBAY42 and NetBAY25
- Twelve DIMM connectors capable of support for up to 192 GB of system memory
- Twelve plus two LFF or twenty-four plus four SFF, hot-swap SAS/SATA HDD bays supporting
  - – HS 300GB 15K 6Gb/s SAS 3.5 in
  - – HS 450GB 15K 6Gb/s SAS 3.5 in
  - – HS 600GB 15K 6Gb/s SAS 3.5 in
  - – HS 1TB 7.2K 6Gb/s SAS 3.5 in
  - – HS 2TB 7.2K 6Gb/s SAS 3.5 in
  - – HS 250GB 7.2K 3Gb/s SATA 3.5 in
  - – HS 500GB 7.2K 3Gb/s SATA 3.5 in
  - – HS 1TB 7.2K 3Gb/s SATA 3.5 in
  - – HS 2TB 7.2K 3Gb/s SATA 3.5 in
  - – HS 146GB 10K 6Gb/s SAS 2.5 in
  - – HS 300GB 10K 6Gb/s SAS 2.5 in
  - – HS 146GB 15K 6Gb/s SAS 2.5 in
  - – HS 500GB 7.2K 6Gb/s SAS 2.5 in
  - – HS 160GB 7.2K 3Gb/s SATA 2.5 in
  - – HS 500GB 7.2K 3Gb/s SATA 2.5 in
  - – HS 600GB 10K 6Gb/s SAS 2.5 in
  - – HS 300GB 10K 6Gb/s SAS 2.5 in GEN2 FDE
  - – HS 146GB 15K 6Gb/s SAS 2.5 in GEN2 FDE

Systems management

Integrated Management Module (IMM)

The System x3630 M3 includes an Integrated Management Module that provides industry-standard Intelligent Platform Management Interface (IPMI) 2.0-compliant systems management. The IMM comes standard, and shares one of the two onboard Ethernet ports for access. The IMM can be accessed via software that is compatible with IPMI 2.0 (for example, xCAT).

Features and benefits:

- Monitoring:
  - System voltages
  - Battery voltage
  - System temperatures
- Fan speed control.
- Fan tachometer monitor.
- Good Power signal monitor.
- System ID and planar version detection.
- System power and reset control.
- NMI detection (system interrupts).
- SMI detection and generation (system interrupts).
- Serial port text console redirection.
- System LED control (power, HDD, activity, alerts, and heartbeat).
- An embedded web server that gives you remote control from any standard web browser. No additional software is required on the remote administrator's workstation.
- For users who are accustomed to a command-line interface (CLI), the ability for the administrator to use the CLI from a Telnet session to perform some of the functions that can be performed from the web server.
- Secure Sockets Layer (SSL) and Lightweight Directory Access Protocol (LDAP).
- Built-in LAN and serial connectivity that supports virtually any network infrastructure.
- Multiple alerting functions that warn systems administrators of potential problems through email, IPMI PETs, and SNMP.

In addition, you can purchase an optional IBM Virtual Media Key to enable the remote presence and blue-screen capture features. You can add this key to the server through a connector on the planar. This key enables easy console redirection with text and graphics, keyboard, and mouse support (operating system must support USB) over the system management LAN connections.

With video compression now built into the adapter hardware, the adapter allows the greater screen sizes and refresh rates that are usual in the marketplace. This feature helps enable the user to display server activities from power-on to full operation remotely with remote user interaction at virtually any time.

IBM Director

The System x3630 M3 server also features IBM Director, a powerful, highly integrated, systems-management software solution built on industry standards and designed for ease of use. Exploit your existing enterprise or workgroup-management environments, and use rich security to access and manage physically dispersed IT assets more efficiently over the Internet. It can help reduce costs through potentially:

- Reduced downtime
- Increased productivity of IT personnel and end users

- Reduced service and support costs

IT administrators can view the hardware configuration of remote systems in detail, and monitor the usage and performance of critical components such as processors, HDDs, and memory.

IBM Director includes a portfolio of integrated server tools that work with the systems management monitoring functions. Typical functions and monitoring capabilities can include:

- PFA-enabled critical hardware components
- Temperature
- Voltage
- Fan speed
- Light path diagnostics

IT administrators have comprehensive, virtual on-site control of System x® servers with the ability to remotely:

- Access the server, often regardless of its status
- Inventory and display detailed system and component information
- View server bootup during POST
- Browse and delete logs of events and errors
- Reset or power cycle the server
- Monitor and set thresholds on server health including:
  - Operating system load
  - POST time-out
  - Voltage
  - Temperature
- Set proactive alerts for critical server events including PFA on:
  - Memory
  - HDDs
- Define automated actions, such as:
  - Send email or page to an administrator
  - Execute a command or program
  - Deliver an error message to the IBM Director console
- Flash BIOS
- Monitor and graph the use of server resources, such as:
  - Memory
  - Processor
  - HDDs
- Identify potential performance bottlenecks and react to prevent downtime

IBM Director Agent integrates into leading workgroup and enterprise systems management environments via upward integration modules (available from IBM and third parties). Advanced management capabilities built into System x servers are available through:

- Tivoli® Enterprise and Tivoli NetView®
- Computer Associates Unicenter TNG
- HP OpenView
- Microsoft SMS
- BMC Patrol

- NetIQ

World-class support tools and programs

The System x3630 M3 server includes a number of tools and programs designed to make ownership a positive experience. From the start, IBM programs help you purchase servers, get them running, and keep them running over the long haul. IBM can help your company maintain ownership of technology leadership network servers.

- IBM customer replaceable unit (CRU) and on-site, three-year limited warranty with next-business-day (NBD) service (same-business-day service optionally available) helps protect your investment if a problem occurs. This service also includes replacement of parts identified through Predicted Failure Analysis (PFA).
- The ServerProven[4] program lets you confidently configure your server with various devices and operating systems. This program provides compatibility information from actual testing of the System x3630 M3 server with various adapters and devices.
- The web-based ServerGuide includes online publications, in addition to utilities and drivers that enable assisted loading of popular network operating systems.
- Electronic support on the web provides additional support in an easy-to-use format.

[4]IBM makes no warranties, expressed or implied, regarding non-IBM products and services that are ServerProven®, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. These products are offered and warranted solely by third parties.

Standard System x3630 M3 configurations

```
                                 HDD
Model     Processor  Memory  GT/s  Interface   HDD     Other

7377-A2x  1.60 GHz    4 GB   4.8   SAS/SATA   3.5-in  Open bay
          Cache:      4 MB                            hot-swap
7377-B2x  2.26 GHz    4 GB   4.8   SAS/SATA   3.5-in  Open bay
          Cache:      8 MB                            hot-swap
7377-C2x  2.40 GHz    4 GB   5.86  SAS/SATA   2.5-in  Open bay
          Cache:     12 MB                            hot-swap
7377-D2x  2.40 GHz    4 GB   5.86  SAS/SATA   3.5-in  Open bay
          Cache:     12 MB                            hot-swap
7377-F2x  2.53 GHz    4 GB   5.86  SAS/SATA   2.5-in  Open bay
          Cache:     12 MB                            hot-swap
7377-64x  2.66 GHz    4 GB   6.4   SAS/SATA   3.5-in  Open bay
          Cache:     12 MB                            hot-swap
7377-G2x  3.06 GHz    4 GB   6.4   SAS/SATA   2.5-in  Open bay
          Cache:     12 MB                            hot-swap

EMEA part numbers x = G
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Product positioning

System x3630 M3 is a 2U, dual-socket rack server for single or multiple general business application hosting built on innovative IBM X-Architecture leveraging Intel Quick Path Interconnect (QPI) technology. Featuring power-optimized, high-performance Intel Xeon multicore processors, and an energy-efficient design with balanced functionality, the System x3630 M3 can help reduce cost, improve service, and allow you to manage risk easily and simply.

The System x3630 M3 is suitable for mid-market and SMB rack clients looking to optimize their IT budgets, and is designed for single or multiple general business application hosting and virtualized, nonblade environments.

Optimized for speed

The new System x3630 M3 server models offer new levels of fast Intel Xeon multicore processors with up to 6.4 GT/s and lower power for datacenter environments and collaboration applications. This server is uniquely optimized for better application computing with a highly functional chipset and twelve DIMM slots for a maximum of 192 GB of ECC DDR3 SDRAM.

Intel Turbo Boost Technology is one of the many exciting new features that Intel has built into the latest-generation Intel microarchitecture. It automatically allows processor cores to run faster than the base operating frequency if they are operating below power, current, and temperature specification limits.

Innovation comes standard

- Boost application efficiency with snoop filters that free up cache and improve processor performance.
- A basic light path improves in-rack manageability and allows easy problem identification.

Ultimate fault tolerant protection

- Memory mirroring/sparing/independent feature enables you to increase memory reliability.
- Hot-swap SATA/SAS models support HW RAID-0/1/5/6/10 using Windows 2008 R2.

Target applications

- Database
- Email collaboration
- Online gaming
- Video and photo sharing
- Web searching
- Blogging and messaging
- Video recording
- Mail server (Notes and Exchange)
- File and print
- Virtualization
- Linux clustering
- Scientific and technical computing

Product number

```
GAV Models
Description         Machine    Model          Part Number

IBM System x3630 M3  7377      A2G            7377A2G
                     7377      B2G            7377B2G
                     7377      C2G            7377C2G
                     7377      D2G            7377D2G
                     7377      F2G            7377F2G
                     7377      64G            737764G
                     7377      G2G            7377G2G
```

Publications

The following CD-ROMs are shipped with the System x3630 M3 server.

- *System x3630 M3 Installation and User's Guide* contains an introduction to the computer, installation and setup, installing options, reference information, and problem determination. The installation guide has easy-to-use text and illustrations to enable you to quickly set up your System x3630 M3 server.
- *Documentation/User's Guide CD* contains translated versions of the product user's guide.
- *ServerGuide* contains online publications and drivers to support the System x3630 M3 server. In addition, it includes a set of easy-to-use utilities to help you install the system using CDs of several popular network operating systems.
- IBM Director systems management software is included.

Note: Software versions, features, and functions shipped with these systems may change as new releases become available or may be discontinued at any time.

The *System x3630 M3 Installation Guide* and *Problem Determination and Service Guide (PDSG)*, in U.S. English versions, are available from

http://www-304.ibm.com/jct01004c/systems/support/

Under Product Support, select System x, and under Popular links, select Publications lookup. Select the Product family and click on continue.

Services

Global Technology Services

IBM services include business consulting, outsourcing, hosting services, applications, and other technology management.

These services help you learn about, plan, install, manage, or optimize your IT infrastructure to be an On Demand Business. They can help you integrate your high-speed networks, storage systems, application servers, wireless protocols, and an array of platforms, middleware, and communications software for IBM and many non-IBM offerings. IBM is your one-stop shop for IT support needs.

For details on available services, contact your IBM representative or visit

http://www.ibm.com/services/

For details on available IBM Business Continuity and Recovery Services, contact your IBM representative or visit

http://www.ibm.com/services/continuity

For details on education offerings related to specific products, visit

http://www.ibm.com/services/learning/index.html

Select your country, and then select the product as the category.

Technical information

Specified operating environment

Physical specifications

	7377-A2G	7377-B2G
Processor	Xeon E5603	Xeon E5607
Cores	4	4
Internal speed	1.60 GHz	2.26 GHz
External speed	4.8 GT/s	4.8 GT/s
Number standard	1	1

```
Maximum              2                2
Cache                4 MB             8 MB
Memory(SDRAM)        4 GB ECC         4 GB ECC
 (2 Gb 1Rx4, 1.35V
  ChipKill)
 DIMMs               1 x 4 GB         1 x 4 GB
 DIMM sockets        12               12
 Address capability  192 GB           192 GB
Video                SVGA             SVGA
 Memory              16 MB            16 MB
HDD controller       SAS/SATA         SAS/SATA
 Channels            8                8
 Connector internal  2                2
 Connector external  0                0
 ServeRAID™             M1015            M1015
HDD
Total drive bays     12               12
 5.25-in slim        0                0
 3.5-in slim         12               12
 2.5-in slim         0                0
 Hot-swap            12               12
 Internal capacity   12 TB            12 TB
Bays available       12               12
 5.25-in slim        0                0
 3.5-in slim         12               12
 2.5-in slim         0                0
 Hot-swap            12               12
Total slots          3                3
 x16(x8)  PCI-E slot 1                1
 x8(x8)   PCI-E slot 1                1
 x16(x4)  PCI-E slot 1                1
 Slots available     2                2
Management proc.     Standard         Standard
Ethernet controller  2 x 1 GB         2 x 1 GB
Diskette drive       0                0
Power supply         675 W            675 W
 Number standard     1                1
 Hot-swap            Yes              Yes
 Redundant power     Optional         Optional
 Auto restart        Yes              Yes



                     7377-C2G         7377-D2G


Processor            Xeon E5620       Xeon E5645
 Cores               4                6
 Internal speed      2.40 GHz         2.40 GHz
 External speed      5.86 GT/s        5.86 GT/s
 Number standard     1                1
 Maximum             2                2
 Cache               12 MB            12 MB
Memory(SDRAM)        4 GB ECC         4 GB ECC
 (2 Gb 1Rx4, 1.35V
  ChipKill)
 DIMMs               1 x 4 GB         1 x 4 GB
 DIMM sockets        12               12
 Address capability  192 GB           192 GB
Video                SVGA             SVGA
 Memory              16 MB            16 MB
HDD controller       SAS/SATA         SAS/SATA
 Channels            8                8
 Connector internal  2                2
 Connector external  0                0
 ServeRAID           M5014            M5014
HDD
Total drive bays     24               12
 5.25-in slim        0                0
 3.5-in slim         0                12
 2.5-in slim         24               0
 Hot-swap            24               12
 Internal capacity   24 TB            12 TB
```

```
Bays available            24                12
 5.25-in slim             0                 0
 3.5-in slim              0                 12
 2.5-in slim              24                0
 Hot-swap                 24                12
Total slots               3                 3
 x16(x8)  PCI-E slot      1                 1
 x8(x8)   PCI-E slot      1                 1
 x16(x4)  PCI-E slot      1                 1
Slots available           2                 2
Management proc.          Standard          Standard
Ethernet controller       2 x 1 GB          2 x 1 GB
Diskette drive            0                 0
Power supply              675 W             675 W
 Number standard          1                 1
 Hot-swap                 Yes               Yes
 Redundant power          Optional          Optional
 Auto restart             Yes               Yes


                          7377-F2G          7377-64G


Processor                 Xeon E5649        Xeon X5650
 Cores                    6                 6
 Internal speed           2.53 GHz          2.66 GHz
 External speed           5.86 GT/s         6.4  GT/s
 Number standard          1                 1
 Maximum                  2                 2
 Cache                    12 MB             12 MB
 Memory(SDRAM)            4 GB ECC          4 GB ECC
  (2 Gb 1Rx4, 1.35V
   ChipKill)
 DIMMs                    1 x 4 GB          1 x 4 GB
 DIMM sockets             12                12
 Address capability       192 GB            192 GB
Video                     SVGA              SVGA
 Memory                   16 MB             16 MB
HDD controller            SAS/SATA          SAS/SATA
 Channels                 8                 8
 Connector internal       2                 2
 Connector external       0                 0
 ServeRAID                M5015             M5015 + battery
HDD
Total drive bays          24                12
 5.25-in slim             0                 0
 3.5-in slim              0                 12
 2.5-in slim              24                0
 Hot-swap                 24                12
 Internal capacity        24 TB             12 TB
Bays available            24                12
 5.25-in slim             0                 0
 3.5-in slim              0                 12
 2.5-in slim              24                0
 Hot-swap                 24                12
Total slots               3                 3
 x16(x8)  PCI-E slot      1                 1
 x8(x8)   PCI-E slot      1                 1
 x16(x4)  PCI-E slot      1                 1
Slots available           2                 2
Management proc.          Standard          Standard
Ethernet controller       2 x 1 GB          2 x 1 GB
Diskette drive            0                 0
Power supply              675 W             675 W
 Number standard          1                 1
 Hot-swap                 Yes               Yes
 Redundant power          Optional          Optional
 Auto restart             Yes               Yes
```

```
Processor              Xeon X5675
 Cores                 6
 Internal speed        3.06 GHz
 External speed        6.4  GT/s
 Number standard       1
 Maximum               2
 Cache                 12 MB
Memory(SDRAM)          4 GB ECC
(2 Gb 1Rx4, 1.35V
 ChipKill)
 DIMMs                 1 x 4 GB
 DIMM sockets          12
 Address capability    192 GB
Video                  SVGA
 Memory                16 MB
HDD controller         SAS/SATA
 Channels              8
 Connector internal    2
 Connector external    0
 ServeRAID             M5015 + battery
HDD
Total drive bays       24
 5.25-in slim          0
 3.5-in slim           0
 2.5-in slim           24
 Hot-swap              24
 Internal capacity     24 TB
Bays available         24
 5.25-in slim          0
 3.5-in slim           0
 2.5-in slim           24
 Hot-swap              24
Total slots            3
 x16(x8)  PCI-E slot   1
 x8(x8)   PCI-E slot   1
 x16(x4)  PCI-E slot   1
Slots available        2
Management proc.       Standard
Ethernet controller    2 x 1 GB
Diskette drive         0
Power supply           675 W
 Number standard       1
 Hot-swap              Yes
 Redundant power       Optional
 Auto restart          Yes
```

Notes:

- Capacities are based on installation of 2.5-inch 2 TB HDDs. For the latest information on supported HDD options, visit

   http://www-03.ibm.com/servers/eserver/serverproven/compat/us/
- One PCI-Express Gen 2 x16(x8) slot and one PCI-Express Gen 2 x8(x8) slot (full height, half length) on first slot and one PCI-Express Gen 2 x16(x4) buried slot (low profile) on second slot.

Video subsystem

- SVGA compatible video controller (Matrox G200eV)

- Integrated on Integrated Management Module (IMM)

- Integrated on planar and connected to the PCI bus

- One analog video port

- Avocent Digital Video Compression (with Virtual Media Key option)

- DDR2-250MHz SDRAM video memory controller (video memory is not expandable)

Supported video mode capabilities for the SVGA PCI controller with a 200 MHz memory clock:

```
Microsoft Windows 2000 or Windows 2003 (32- and 64-bit) and
 Linux (all distributions)


                            Refresh
Resolution         Colors  Rate (Hz)

 640 x 480 x 8      256    60, 72, 75, 85
 640 x 480 x 16     64K    60, 72, 75, 85
 640 x 480 x 32     16M    60, 72, 75, 85
 800 x 600 x 8      256    60, 72, 75, 85
 800 x 600 x 16     64K    60, 72, 75, 85
 800 x 600 x 32     16M    60, 72, 75, 85
1024 x 768 x 8      256    60, 72, 75, 85
1024 x 768 x 16     64K    60, 70, 75, 85
1024 x 768 x 32     16M    60, 70, 75, 85
1280 x 1024 x 8     256    60, 70, 75, 85
1280 x 1024 x 16    64K    60, 70, 75, 85
1280 x 1024 x 32    16M    60
1600 x 1200 x 8     256    60, 70, 75, 85
1600 x 1200 x 16    64K    60, 70, 75, 85
```

Note: Some modes are not supported by all monitors.

Dimensions

- Width:
  - With top cover: 447 mm (17.598 in)
  - With front bezel: 487.995 mm (19.212 in)
- Depth:
  - EIA Flange to rear: 719.39 mm (28.32 in)
  - Overall: 749.39 mm (29.5 in)
- Height: 86.5 mm (3.406 in)

Weight

- Minimum configuration 16.20 kg (35.68 lb)
- Maximum configuration 29.20 kg (64.32 lb)

Electrical

- 100 to 127 (nominal) V ac; 50 Hz or 60 Hz; 7.8 A
- 200 to 240 (nominal) V ac; 50 Hz or 60 Hz; 3.8 A
- Input kilovolt-amperes (kVA) (approximately):
  - Minimum configuration: 0.22 kVA
  - Maximum configuration: 0.78 kVA
- Btu output:
  - Minimum configuration: 762 Btu/hr (223 watts)
  - Maximum configuration: 2662 Btu/hr (780 watts)
- Acoustical noise level emission level. Sound power levels:
  - 6.1 bels (idling)
  - 6.1 bels (operating)

Note: The noise emission level stated is the declared (upper limit) sound power level, in bels, for a random sample of machines. All measurements made in accordance with ISO 7779 and reported in conformance with ISO 9296.

System x3630 M3 servers are intended for use as rack-drawer servers and are tested and designed to operate in a horizontal position.

Standards

These systems support or comply with the following standards:

- Multi Processor Specification (MPS) 1.4
- Peripheral Component Interconnect (PCI) specification 2.3
- Hardware-enabled to meet the International Organization for Standardization (ISO) 9241, Part 3

Equipment approvals and safety

- Russia/GOST ME01, IEC-60950-1, GOST R 51318.22-99, GOST R 51318.24-99, GOST R 51317.3.2-2006, GOST R 51317.3.3-99,
- IEC 60950-1 (CB Certificate and CB Test Report)
- CE Mark (EN55022 Class A, EN60950-1, EN55024, EN61000-3-2, EN61000-3-3)
- CISPR 22, Class A
- TUV-GS (EN60950-1 /IEC60950-1,EK1-ITB2000)

Operating environment

Air temperature:

- Server on:
  - 10° C to 35° C (50° F to 95° F); altitude: 0 to 915 m (3,000 ft)
  - 10° C to 32° C (50° F to 90° F); altitude: 915 to 2,134 m (3,000 to 7,000 ft)
  - 10° C to 28° C (50° F to 83° F); altitude: 2,134 to 3,050 m (7,000 to 10,000 ft)
- Server off: 5° C to 45° C (41° F to 113° F)
- Shipment: -40° C to +60° C (-40° F to 140° F)

Humidity:

- Server on: 20% to 80%, Max Dew Point 21° C, Max rate of change 5° C/hr
- Server off: 8% to 80%, Max Dew Point 27° C
- Shipment: 5% to 100%

Hardware requirements

For attended installation of an operating system, this server requires a compatible:

- USB keyboard
- USB mouse
- HDD
- Display

Unattended or remote installation may be performed without requiring some or all of these components. Review your unattended software installation program information for specific hardware configuration requirements.

For service, the server requires a compatible:

- USB keyboard
- USB mouse
- HDD
- Display

When having the unit serviced, plan to have these components attached to your server either directly or indirectly via a console.

Software requirements

The following software products have been tested by IBM and software publishers in the latest available versions, and where appropriate, are or will soon be certified by the publisher to be compatible with the System x3630 M3.

Operating systems

- Microsoft
  - Windows Server 2008 R2 (Std, Ent, DC, Web)
  - Windows Server 2008 (Std, Ent, DC, Web) 64-bit
  - Windows Small Business Server 2008 (Std, Prem)
  - Windows Essential Business Server 2008 (Std, Prem)
  - Windows Server 2003 R2 (Std, Ent, DC) 32-bit
  - Windows Server 2003 R2 (Std, Ent, DC) 64-bit
  - Windows Small Business Server 2003 R2 (Std, Prem)
- Linux
  - Red Hat Enterprise Linux 6 - 32 bit
  - Red Hat Enterprise Linux 6 - 64 bit (including KVM)
  - Red Hat Enterprise Linux 5 Server x64 Edition
  - Red Hat Enterprise Linux 5 Server with Xen x64 Edition
  - SUSE LINUX Enterprise Server 10 for AMD64/EM64T
  - SUSE LINUX Enterprise Server 10 with Xen for AMD64/EM64T
  - SUSE LINUX Enterprise Server 11 for x86
  - SUSE LINUX Enterprise Server 11 for AMD64/EM64T
  - SUSE LINUX Enterprise Server 11 with Xen for AMD64/EM64T
- VMware
  - VMware ESX 4.1
  - VMware ESXi 4.1
  - VMware ESX 4.0
  - VMware ESXi 4.0

Note: For information on additional support, certification, version information, or network operating systems, visit

   http://www-03.ibm.com/servers/eserver/serverproven/compat/us/

Compatibility

The System x3630 M3 server contains licensed system programs that include set configuration, set features, and test programs. System UEFI is loaded from a "flash" EEPROM into system memory. This BIOS provides instructions and interfaces designed to support the standard features of the System x3630 M3 server and to maintain compatibility with many current software programs.

For detailed information about IBM and non-IBM devices, adapters, software, and network operating systems supported with xSeries® servers, visit

   http://www-03.ibm.com/servers/eserver/serverproven/compat/us/

Contact your IBM representative, IBM Business Partner, or refer to the *IBM Sales Manual* for information on the compatibility of hardware and software for xSeries servers. The *Sales Manual* is updated periodically as new features and options are announced that support these servers.

Limitations

- The System x3630 M3 server contains a single, configurable serial port. It can be configured to be operating-system-controlled, service-processor-controlled, or shared between the two. You can set the configuration by altering the BIOS. The default configuration from the factory is in the shared position. In the shared position, the service processor controls the port until the operating system is running, then the operating system takes control. The service processor can regain control of the port for user-configured dial-out situations or if the operating system is not available, but operating system control cannot be reestablished without resetting the server.
- System x3630 M3 servers can address a maximum of 192 GB of system memory. All supported system memory is addressable through direct memory access. The System x3630 M3 server supports 1 GB, 2 GB, 4 GB, 8 GB, and 16 GB DDR3 SDRAM Registered DIMM memory. All supported DIMMs can coexist in the same system. Refer to the Planning information section for supported memory options.
- To ensure proper air flow for cooling, the System x3630 M3 server requires a rack with a perforated door, such as the NetBAY42 SR or NetBAY25 SR. An alternative is to remove the front door of rack cabinets where the door panel is of solid construction.
- Microprocessor upgrades must be of the same Quick Path Interconnect (QPI) link speed, Integrated Memory Controller frequency, core frequency, power segment, internal cache size and type. Mixing processors of different stepping levels but same model (as per CPUID instruction) is supported. Mixing microprocessors of different QPI, core speed, cache size, core quantity and power segment is not supported.
- Use the version of ServerGuide that is shipped with the system, or a later version, to load software and drivers. Earlier versions of ServerGuide may not be compatible with the server.

Refer to the Software requirements section for operating system limitations.

Planning information

Customer responsibilities

System x3630 M3 and related options

The System x3630 M3 server and related options are designated as customer setup. Customer setup instructions are shipped with system and options.

Configuration information

Bay configuration System x3630 M3 hot-swap models contain a DASD backplane supporting up to twelve plus two LFF or twenty plus four SFF hot-swap, SATA/SAS compliant drive bays.

Rack installations

System x3630 M3 2U rack-drawer models are designed to be installed in a 19-inch rack cabinet designed for 711.1 mm (28 in) deep devices, such as the NetBAY42U ER and NetBAY42U SR. Installation into some of the older Netfinity® racks (9306900, 9306910, 9306200) will require a rack extension kit for proper cable bend radius and cooling.

If a System x3630 M3 server is mounted in a non-IBM rack, the rack must satisfy the following specifications:

- The rack must meet EIA-310-D standards for mounting flanges and hole locations.
- The front to rear distance of the mounting flanges must be 635 - 788 mm (25 - 31 in)
- The thickness of the mounting flanges must be 1.9 - 3.3 mm (0.08 and 0.13 in).

- The mounting flanges must have either 7.1 mm (0.28 in) diameter holes or 9.6 mm (0.38 in) square holes on the standard EIA hole spacing.
- The rack must have a minimum depth of 50 mm (1.97 in) between the front mounting flange and inside of the front door for appropriate cooling.
- The rack must have a minimum depth of 166 mm (6.53 in) between the rear mounting flange and inside of the rear door to install the server and provide cable management space.
- The minimum side-to-side clearance in the rack between the front and rear mounting flanges must be 467 mm (18.2 in) to accommodate the width of the server and the slide mounting brackets.
- The minimum side-to-side clearance in the rack between each door and the mounting flanges must be 484 mm (19.1 in) to accommodate the slide mounting brackets.
- The rack must include perforated front and rear doors and must not prevent the flow of cool air into or out of the rack.
- The weight-handling capacity of the rack must be able to support the maximum rack configuration, including all servers, external cables, power distribution units, and so on.
- The rack must provide proper stabilization so that the rack does not become unstable when servers are pulled out for service.

Processor options

The System x3630 M3 server is an Intel Xeon processor system that supports internal processing speeds of up to 3.20 GHz and processing operations to memory up to 1333 MHz. It contains an integrated, 12 MB shared among cores L3 cache. This dual-socket system supports a second processor with the same QuickPath Interconnect (QPI) link speed, Integrated Memory Controller frequency, core frequency, power segment, internal cache size and type of processor as the first.

Power considerations

The System x3630 M3 server includes a standard 675-watt power supply. This power supply is capable of providing sufficient power to run the server fully configured with supported devices.

Supported power options

The following power options are supported:

- 675 W redundant power supply

Cable orders

The dual 10/100/1000 Mbps, full-duplex, Ethernet PCI-E controllers, standard with the System x3630 M3 server, are connected directly to independent RJ-45 connectors. The RJ-45 connectors provide a 10/100/1000 Base-T interface (either at half- or full-duplex) for connecting twisted-pair cable to the Ethernet network. Cabling is not included with the server. To connect the Ethernet controller to a repeater or switch, use a UTP cable with RJ-45 connectors at both ends. For 100 Mbps, or higher, Category 5e, or better, cabling must be used.

There are no additional cabling requirements, other than for system power, keyboard, mouse, and monitor connections.

Installability

The System x3630 M3 server requires about 30 minutes for installation. Installation includes unpacking, setting up, and powering on the system. Additional time is required to install an operating system, additional adapters, or features.

Packaging

One box

- System unit carton: System unit
- Country kit
  - System x3630 M3 Installation Guide
  - Rack Installation Guide
  - ServeRAID Support Package

The System x3630 M3 server is shipped in a single package. The country kit is contained inside the system unit carton.

Processor upgrade options

- Intel Xeon processor
- Safety instructions and warranty

Supplies

None

Security, auditability, and control

Security and auditability features include:

- Power-on and privileged-access password functions provide controls of who has access to the data and server setup program on the server.
- A set unattended boot mode allows the system keyboard to be locked to all entries except the password and at the same time allows other computers on the network to access the system disk drive.
- A selectable boot sequence can be used to prevent unauthorized installation of software or removal of data from the diskette drive.

These servers are intended to be installed and secured in a rack. It is a customer's responsibility to ensure that the server and rack installation are secure to prevent sensitive data from being removed.

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communications facilities.

Global Technology Services

Contact your IBM representative for the list of selected services available in your country, either as standard or customized offerings, for the efficient installation, implementation, and/or integration of this product.

Terms and conditions

To obtain copies of the IBM Statement of Limited Warranty, contact your reseller or IBM.

Warranty period

- Three years
- Optional features - One year

An IBM part or feature installed during the initial installation of an IBM machine is subject to a full warranty effective on the date of installation of the machine. An IBM part or feature which replaces a previously installed part or feature assumes the remainder of the warranty period for the replaced part or feature. An IBM part or feature added to a machine without replacing a previously installed part or feature is subject to a full warranty effective on its date of installation. Unless specified

otherwise, the warranty period, type of warranty service, and service level of a part or feature is the same as the machine it is installed.

The following has been designated as a consumable or supply item and is, therefore, not covered by this warranty:

- Battery (RAID)

Warranty service

If required, IBM provides repair or exchange service, depending on the type of warranty service specified below for the machine. IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM website. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines On-site Service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts. Service levels are response-time objectives and are not guaranteed. The specified level of warranty service may not be available in all worldwide locations. Additional charges may apply outside IBM's normal service area. Contact your local IBM representative or your reseller for country- and location-specific information.

The type of service is Customer Replaceable Unit (for example, keyboard, mouse, speaker, memory, or hard disk drive) Service and On-site Service.

Customer Replaceable Unit (CRU) Service

IBM provides a replacement CRU to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM at any time on your request. A CRU is designated as being either a Tier 1 (mandatory) or a Tier 2 (optional) CRU. Installation of Tier 1 CRUs, as specified in this announcement, is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation. You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service designated for your Machine.

Based upon availability, a CRU will be shipped for next business day (NBD) delivery. IBM specifies in the materials shipped with a replacement CRU whether a defective CRU must be returned to IBM. When return is required, return instructions and a container are shipped with the replacement CRU, and you may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

The following parts or features have been designated as Tier 1 CRUs:

- Blank filler
- Cable-management arm
- Hot-swap hard disk drive
- Hot-swap power supply
- Lift handle kit
- Power cord
- Service label
- System label
- Top cover

On-site Service

At IBM's discretion you will receive CRU service or IBM or your reseller will repair the failing machine at your location and verify its operation. If required, On-site Repair is provided, 9 hours per day, Monday through Friday excluding holidays, NBD response. You must provide a suitable working area to allow disassembly and

reassembly of the IBM machine. The area must be clean, well lit, and suitable for the purpose. On-site Service is not available in all countries, and some countries have kilometer or mileage limitations from an IBM service center. In those locations where On-site Service is not available, the normal in-country service delivery is used.

International Warranty Service

International Warranty Service (IWS) is available in selected countries or regions.

The warranty service type and the service level provided in the servicing country may be different from that provided in the country in which the machine was purchased.

Under IWS, warranty service will be provided with the prevailing warranty service type and service level available for the IWS-eligible machine type in the servicing country, and the warranty period observed will be that of the country in which the machine was purchased.

To determine the eligibility of your machine and to view a list of countries where service is available, visit

  http://www-304.ibm.com/jct01004c/systems/support/supportsite.wss/warrantyform?brandind=5000008

For more information on IWS, refer to Services Announcement ZS01-0168, dated September 25, 2001.

Licensing

Programs included with this product are licensed under the terms and conditions of the License Agreements that are shipped with the system.

IBM hourly service rate classification

Two

Field-installable features

Yes

Model conversions

No

Machine installation

Customer setup. Customers are responsible for installation according to the instructions IBM provides with the machine.

Licensed Machine Code

IBM Machine Code is licensed for use by a customer on the IBM machine for which it was provided by IBM under the terms and conditions of the IBM License Agreement for Machine Code, to enable the machine to function in accordance with its specifications, and only for the capacity authorized by IBM and acquired by the customer. You can obtain the agreement by contacting your IBM representative or visiting

  http://www-304.ibm.com/servers/support/machine_warranties/machine_code.html

IBM may release changes to the Machine Code. IBM plans to make the Machine Code changes available for download from the IBM System x technical support website

If the machine does not function as warranted and your problem can be resolved through your application of downloadable Machine Code, you are responsible for downloading and installing these designated Machine Code changes as IBM specifies. If you would prefer, you may request IBM to install downloadable Machine Code changes; however, you may be charged for that service.

Prices

For all local charges, contact your IBM representative.

ServicePac for Warranty and Maintenance Options

ServicePac® Service Upgrades

The announced products are also eligible for ServicePac warranty upgrades. ServicePacs provide a higher level of service than that provided under the base IBM Machine Warranty.

ServicePacs can be purchased from your IBM Business Partner and are specific to the machines/products listed.

```
ServicePac                              Ordering
     Offering                PC number          Part Number

3yr On-site Repair          PC400 e-ServicePac   - 40M6919 (2)
9hr x 5 days 4hr Resp Target

3yr On-site Repair          P635 e-ServicePac    - 12X6611 (2)
24hr x 7 days 4hr Resp Target

3yr On-site Repair          PC505  e-ServicePac  - 41W9359(4)
24hr x 7 days 6hr Committed
Service

3yr On-site Repair          PC934  e-ServicePac  - 54Y4500
24hr x 7 days 6hr Committed                        (UK only)
Service

3yr On-site Repair          PC1215 e-ServicePac  - 91Y5074
24hr x 7 days 6hr Committed                        (France only)
Service

3yr On-site Repair          PC1096 e-ServicePac  - 68Y5029
24hr x 7 days 6hr Committed                        (Italy only)
Service

3yr On-site Repair          PC1120 e-ServicePac  - 68Y5150 (7)
24hr x 7 days 6hr Committed
Service

3yr On-site Repair          PC528  e-ServicePac  - 41W9679 (5)
24hr x 7 days 8hr Committed
Service

3yr On-site Repair          PC1111 e-ServicePac  - 68Y4936 (8)
24hr x 7 days 8hr Committed
Service

3yr On-site Repair          PC513 e-ServicePac   - 41W9367 (9)
24hr x 7 days 24hr Committed
Service

3yr On-site Repair          PC831 e-ServicePac   - 51J9366 (6)
24hr x 7 days 24hr Committed
Service

4yr On-site Repair          PC1082 e-ServicePac  - 65Y5229 (2)
9hr x 5 days 4hr Resp Target
```

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4yr On-site Repair           PC1071 e-ServicePac    - 65Y5217 (2)
24hr x 7 days 4hr Resp Target

5yr On-site Repair           PC1072 e-ServicePac    - 65Y5218 (2)
9hr x 5 days 4hr Resp Target

5yr On-site Repair           PC1138 e-ServicePac    - 68Y5334 (2)
24hr x 7 days 4hr Resp Target

3yr On-site Repair           PC1020 e-ServicePac    - 65Y0986
9hr x 5 days NBD Comm Parts                           (Russia only)
```

Announcement countries For ServicePacs

Announcement is restricted to the following countries:

```
e-ServicePac

Austria, Belgium, Bulgaria, Croatia, Czech Rep,
Denmark, Egypt, Estonia, Finland, France(1), Germany, Greece,
Hungary, Ireland, Israel, Italy, Latvia, Lithuania, Luxembourg,
Morocco, Netherlands, Norway, Pakistan, Poland, Portugal, Romania,
Russia(2), S. Africa, Serbia, Slovakia, Slovenia, Spain,
Sweden, Switzerland, Tunisia, Turkey, UK(3), Ukraine,
Tunisia, Morocco

     (1) Except overseas territories
     (2) Except Russia
     (3) UK mainland only
     (4) Austria, Germany, South Africa, and Turkey only
     (5) Czech Republic, Hungary, Poland, Russia, Slovakia, Slovenia,
         Switzerland, Romania, Croatia, Serbia, Bulgaria, Morocco, and
         Tunisia only
     (6) Czech Republic, Hungary, Poland, Russia, Bulgaria, Slovakia,
         Slovenia, Turkey, Romania, Croatia, Serbia, Morocco,
         and Tunisia only
     (7) Belgium, Netherlands, and Luxembourg only
     (8) Sweden, Norway, Denmark, and Finland only
     (9) Austria, Germany, Switzerland, South Africa, Belgium, Luxembourg,
         and Netherlands only
```

Maintenance

The products in this document are also covered by Maintenance Agreements and
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   http://www.ibm.com/financing

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Announcement countries

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http://www.ibm.com/planetwide/

Corrections

(Corrected on February 28, 2011)
IBM System x3630 product name corrected throughout announcement.