IBM Flex System x240 Compute Node

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At a glance

IBM® Flex System is a new category of computing that integrates multiple server architectures, networking, storage, and system management capability into a single system.

Offerings in this announcement will include:

- IBM Flex System Enterprise Chassis
- IBM Flex System Manager
- IBM Flex System Compute Nodes
- IBM Flex System Scalable Network and Storage Switches

The IBM Flex System x240 Compute Node is a high-performance server that offers outstanding performance for virtualization with new levels of CPU performance and memory capacity, and flexible configuration options.

For ordering, contact your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at 800-IBM-CALL (Reference: YE001).

Overview

The IBM Flex System x240 Compute Node is a high-performance server that offers outstanding performance for virtualization with new levels of CPU performance and memory capacity, and flexible configuration options. It is part of IBM Flex System, a new category of computing that integrates multiple server architectures, networking, storage, and system management capability into a single system that is easy to deploy and manage. IBM Flex System has full built-in virtualization support of servers, storage, and networking to speed provisioning and increase resiliency. In addition, it supports open industry standards such as operating systems, networking and storage fabrics, virtualization, and system management protocols, to easily fit within existing and future datacenter environments. IBM Flex System is scalable and extendable with multigeneration upgrades to protect and maximize IT investments.

The most forward thinking companies will completely rethink the way they deploy and manage their IT environments by evolving to a more open, agile, and integrated computing system that is dynamically managed from a single vantage point to simultaneously maximize efficiency and innovation.

By doing this, companies can:

- Improve efficiency and utilization through integration
- Optimize heterogeneous environments, providing the right architecture for the right workload
- Increase speed and dexterity at the enterprise level
- Improve control through simplicity, automation, compliance, and security
- Improve economics with faster time-to-value through real-time scalability
- Deliver insights faster to gain a competitive advantage

IBM Flex System will help enterprises achieve faster time to value of their IT assets, increase control of their environment, and minimize the complexity inherent in a highly virtualized environment.

Key prerequisites

- IBM Flex System Enterprise Chassis
- IBM network switch
- Appropriate PDUs and main power distribution
- Monitor, keyboard, and mouse for setup

Planned availability date

May 21, 2012

Description

IBM Flex System compute nodes

Compute nodes typically contain the number and type of microprocessors, memory modules, and hard disk drives that are needed to support a specific workload environment. These nodes use integrated network ports or optional network adapters to connect to external devices through the switches or modules that are installed in the chassis.

Note: The network adapters and ports in the nodes must be compatible with the network switches or modules in the chassis.

These compute nodes come with Intel Xeon™ microproessors and provide the function, reliability, and performance of the X-Architecture® systems in a small form factor design. They support a variety of Microsoft™ Windows™, Linux™, and VMware operating systems and are ideally suited for high-performance and virtualized environments such as memory-intensive computing, collaboration, general and mission-critical processing, and enterprise application workloads. All models come with an integrated management module (iMM2) that connects to the Chassis Management Module to provide the integrated systems-management functions for the node.

Flex System x240 Compute Node

The IBM Flex System x240 Compute Node is a high-density, scalable compute node that is ideally suited for high-performance and virtualized environments.

The Flex System x240 Compute Node provides support for optional devices, such as the following devices:

- Up to two multicore microprocessors
- Up to 24 dual inline LP memory modules (DIMMs)
- Up to two hot-swap storage drives
- Up to two I/O expansion adapters
- Up to two internal bootable USB flash keys

The Flex System x240 Compute Node is supported in the IBM Flex System Enterprise Chassis only.

The IBM Flex System x240 Compute Node supports memory mirroring. Chipkill is supported in any mode when x4-based DIMM memory is used. Chipkill memory correction for up to four bits per DIMM helps to keep your server up and running.

Standard IBM Flex System x240 Compute Node configuration

Model information

Model	Intel Xeon name	CPU Cores	CPU speed	GT/s	CPU power	Memory/ type	HDD interface
8737-R2x	E5-2690	8	2.9 GHz	8.0	135w	2x4 GB 1600 MHz	H/S SFF
	Cache: 20 MB						
8737-Q2x	E5-2667	6	2.9 GHz	8.0	130w	2x4 GB 1600 MHz	H/S SFF
	Cache: 15 MB						
8737-N2x	E5-2643	4	3.3 GHz	7.2	130w	2x4 GB 1600 MHz	H/S SFF
	Cache: 10 MB						
8737-M2x	E5-2680	8	2.7 GHz	8.0	130w	2x4 GB 1600 MHz	H/S SFF
	Cache: 20 MB						
8737-M1x	E5-2680	8	2.7 GHz	8.0	130w	2x4 GB 1600 MHz	H/S SFF
	Cache: 20 MB						
8737-L2x	E5-2660	8	2.2 GHz	8.0	95w	2x4 GB 1600 MHz	H/S SFF
	Cache: 20 MB						
8737-J1x	E5-2670	6	2.6 GHz	8.0	115w	2x4 GB 1600 MHz	H/S SFF
	Cache: 20 MB						
8737-H2x	E5-2640	6	2.5 GHz	7.2	95w	2x4 GB 1333 MHz	H/S SFF
	Cache: 15 MB						
8737-H1x	E5-2640	6	2.5 GHz	7.2	95w	2x4 GB 1333 MHz	H/S SFF
	Cache: 15 MB						
8737-G2x	E5-2630	6	2.3 GHz	7.2	95w	2x4 GB 1333 MHz	H/S SFF
	Cache: 15 MB						
8737-F2x	E5-2620	6	2.0 GHz	7.2	95w	2x4 GB 1333 MHz	H/S SFF
	Cache: 15 MB						
8737-D2x	E5-2609	4	2.4 GHz	6.4	80w	2x4 GB	H/S SFF
	Cache: 10 MB		1066 MHz				
8737-A1x	E5-2630L	6	2.0 GHz	7.2	60w	2x4 GB	H/S SFF
	Cache: 15 MB		1333 MHz				

EMEA x = G

Additional features

- The IBM Flex System x240 Compute Node system board contains 24 DIMM connectors.
  - Each DIMM connector supports 2 GB, 4 GB, 8 GB, 16 GB, or 32 GB low-profile (LP) double-date rate (DDR3) DRAM.
  - Chipkill is supported in x4 DIMM memory configurations only.
- Support is provided for up to two hot-swap, Small Form Factor (SFF) Serial Attached SCSI (SAS), Serial ATA (SATA), or Solid State (SSD) storage drives.
- Dual 10-Gigabit Ethernet connections are provided on select models.

IBM Flex System x240 Compute Node servers are designed for high throughput from processor to memory, and to bus I/O.

These features, combined with SMP capability and blade-thin density, make it an excellent choice for space- and power-constrained environments used for:

- Database
- Virtualization
- General enterprise applications such as ERP and SCM
- Simulations

High-availability and serviceability features

- Hot-swap capability

  Hot-swap compute nodes enable easy access to each node server.

- Management module

  The management module interfaces with each node server for single systems management control.

- Dynamic System Analysis (DSA)

  IBM Dynamic System Analysis (DSA) collects and analyzes system information to aid in diagnosing compute node problems. DSA collects the following information about the compute node:

  - Drive health information
  - Event logs for ServeRAID controllers and service processors
  - Hardware inventory, including PCI and USB information
  - Installed applications and hot fixes
  - Kernel modules
  - Light path diagnostics status
  - Network interfaces and settings
  - Performance data and details about processes that are running
  - RAID and controller configuration
  - Integrated management module 2 status and configuration
  - System configuration
  - Vital product data and firmware information

  DSA creates a DSA log, which is a chronologically ordered merge of the system-event log (as the IPMI event log), the IMM event log (as the ASM event log), and the operating-system event logs. You can send the DSA log as a file to a support representative or view the information as a text file or HTML file.

- Flexible network support

  The compute node provides flexible network capabilities:

  - The integrated Emulex BE3 dual-port Gigabit Ethernet (select models) controller supports connections to a 1 Gbps, 10 Gbps, or 100 Gbps network through an Ethernet-compatible switch module in the chassis. The controller also supports Wake on LAN technology.
  - The compute node has connectors on the system board for optional expansion adapters for adding network communication capabilities to the compute node. Depending on the model, you can install up to two I/O expansion adapters for network support. This provides the flexibility to install expansion adapters that support a variety of network communication technologies.

- Hard disk drive support

  The compute node supports up to two hot-swap hard disk drives. You can implement RAID 0 or RAID 1 for the drives.

- IBM ServerGuide Setup and Installation CD

  The ServerGuide Setup and Installation CD, which you can download from the web, provides programs to help you set up the compute node and install a Windows operating system. The ServerGuide program detects installed optional hardware devices and provides the correct configuration programs and device drivers.

- IBM X-Architecture

  IBM X-Architecture systems combine proven, innovative IBM designs to make your x86-processor-based compute node powerful, scalable, and reliable.

- Integrated management module 2 (iMM2)

  The integrated management module 2 (iMM2) combines systems-management function, video controller, the remote presence, and blue-screen capture features in a single chip. The iMM2 provides advanced systems-management control, monitoring, and alerting function. If an environmental condition exceeds a threshold or if a system component fails, the iMM2 lights LEDs to help you diagnose the problem, records the error in the IMM event log, and alerts you to the problem.

  Optionally, the iMM2 also provides a virtual presence capability for remote systems management capabilities. The iMM2 provides remote systems management through industry-standard interfaces:

  - Common Information Model (CIM)
  - Intelligent Platform Management Interface (IPMI) version 2.0
  - Simple Network Management Protocol (SNMP) version 3.0
  - Web browser

- Large system-memory capacity

  The compute node supports up to 768 GB of system memory. The memory controller provides support for up to 24 industry-standard registered or LRDIMM ECC DDR3 on low-profile (LP) DIMMs on the system board.

- Light path diagnostics

  Light path diagnostics provides light-emitting diodes (LEDs) to help diagnose problems.

- Microprocessor technology

  The compute node supports up to two multicore Intel Xeon microprocessors.

- Peripheral Component Interconnect Express® (PCIe)

  PCIe is a computer expansion bus that is used for chip-to-chip interconnect and expansion adapter interconnect. You can add optional I/O and storage devices.

- Power throttling

  By enforcing a configurable power policy known as power-domain oversubscription, the IBM Flex System chassis will allow for a larger overall chassis power budget depending on the number of power supplies installed. When a fault occurs in one or more power supplies, the power supplies can run oversubscribed for a short period of time. During this time period the compute nodes will throttle to safe power level in order to allow all components in the chassis to stay operational and survive the power supply failure. This policy is enforced by the Chassis Management Module in cooperation with every installed compute node in the IBM Flex System chassis. The policy is in effect when initial power is applied to the IBM Flex System chassis or when an administrator changes the policy.

  The following settings for this policy are available:

  - Basic power management
  - Power module redundancy (N+N or N+1)
  - Power module redundancy with compute node throttling allowed (N+N or N+1)

An administrator can configure the policy and monitor the overall chassis power environment by using the Chassis Management Module user interface.

- Systems-management support

  The compute node supports the IBM Flex System Chassis Management Module (CMM) and IBM Flex System Manager management software.

  - CMM is a hot-swap module that provides system-management functions for all components in an IBM Flex System chassis. It controls a serial port for remote connection and a 10/100 Mbps Ethernet remote-management connection.
  - IBM Flex System Manager management software is a platform-management foundation that streamlines the way you manage physical and virtual systems in a heterogeneous environment. By using industry standards, IBM Flex System Manager management software supports multiple operating systems and virtualization technologies.

Flex System networking portfolio

Networking in datacenters today is undergoing a transition from a discrete traditional model to a more flexible, optimized model or the "smarter" model. Clients are looking to support more workloads with decreasing or flat IT budget. The network architecture on the Flex System platform has been designed to address the key challenges clients are facing today in their datacenters. The key attributes of the network architecture on this platform are:

- Integrated
  - Efficient integrated management as part of the management appliance
  - Move from physical network management to logical network management in a virtualized environment
- Automated
  - Seamless provisioning, management, and deployment of both physical and virtual network parameters using tools like Virtual Fabric Manager, IBM SoftSwitch (5000v), and VMready®
- Optimized
  - Creation of a flat logical network so there are fewer elements to manage
  - Reduced cost and complexity by leveraging IBM Virtual Fabric and I/O convergence
  - Reduced risk and cost by leveraging scalable switches that can provide both port and bandwidth flexibility

One of the key attributes of the products on this platform is scalability. When modules are marked "Scalable" this means that clients can buy the base product with a certain number of ports and when they need to scale up for more ports, they can just buy the license to enable the extra ports without having to provision any new hardware.

The Flex System networking portfolio includes:

- IBM Flex System EN2092 1Gb Ethernet Scalable Switch

  This 1 Gb scalable switch is for clients looking to use the value of Flex System without moving to a 10 Gb environment. Key features of this switch module are:

  - The switch supports up to two logical partitions per physical switch.
  - It is a 52-port switch with 28 internal 1 Gb ports, 20 external 1 Gb ports, and 4 external 10 Gb ports.
  - The base switch provides 14 internal 1 Gb ports and 10 external 1 Gb RJ45 ports.
  - Upgrade 1 offers 14 additional internal 1 Gb ports and 10 additional external 1 Gb RJ45 ports.
  - Upgrade 2 enables the four 10 Gb uplink ports.

- Upgrade 1 can be applied to the base switch or to Upgrade 2.
- 10 Gb SFP+ ports can function at 1 Gb or 10 Gb.
- The switch provides support for full L2/L3 Ethernet functionality.

The IBM Flex System EN2092 1Gb Ethernet Scalable Switch offers 14 internal 1 Gb ports to each compute node and ten external 1 Gb ports as uplinks. The external ports are RJ45.

- IBM Flex System EN2092 1 Gb Ethernet Scalable Switch (Upgrade 1)

  Clients who require either more than two 1 Gb ports per server or more bandwidth can enable additional ports by using this switch upgrade. This option enables another 14 internal 1 Gb ports to each compute node and 10 additional external 1 Gb uplinks.

- IBM Flex System EN2092 1Gb Ethernet Scalable Switch (10 Gb Uplinks) (Upgrade 2)

  This option enables the four 10 Gb uplinks on this switch module for clients who require higher performance and bandwidth to connect to 10 Gb Top-of-Rack (ToR) switch modules. Clients need to purchase at least the base switch before they can enable these uplinks. These uplinks can be enabled on either partition of the switch.

- IBM Flex System Fabric EN4093 10Gb Scalable Switch

  This 10 Gb scalable switch offers uncompromised scalability, throughput, and performance. This switch can help clients migrate to 10 Gb infrastructure and offers virtualization features like Virtual Fabric and VMready. Clients should consider this switch if they:

  - Are building a 10 Gb Ethernet Infrastructure or migrating from 1 Gb to 10 Gb (mixed environment)
  - Are deploying virtualization
  - Want investment protection to upgrade to more ports and bandwidth (40 Gb)

  Some of the key features of this switch are:

  - This is a triple-density switch with the ability to scale based on your needs.
  - It offers a total 64 ports with 42 internal 10 Gb ports and 22 external 10 Gb ports.
  - The base switch provides 14 internal 10 Gb ports and 10 external SFP+ 10 Gb ports.
  - Upgrade 1 provides 14 additional internal 10 Gb ports and enables two 40 Gb QSFP ports that can be used as four 10 Gb ports.
  - Upgrade 2 offers 14 additional internal 10 Gb ports and enables 4 external SFP + 10 Gb ports.
  - Upgrade 1 is required to apply Upgrade 2.
  - 10 Gb SFP+ ports can function at 1 Gb or 10 Gb.
  - 40 Gb QSFP ports can function at 10 Gb or 40 Gb.
  - The switch provides full Layer 2/3 Ethernet function.
  - The switch offers Virtual Fabric support and management.

  This base switch model will enable 14 internal 10 Gb ports, one to each compute node, and 10 external 10 Gb ports to connect to a ToR switch module. All external 10 Gb ports are SFP+ based connections.

- IBM Flex System Fabric EN4093 10Gb Scalable Switch (Upgrade 1)

  This switch upgrade can be applied on the base switch when you require support four ports of 10 Gb on the server or if you just want more uplink bandwidth on the base switch. The upgrade will enable 14 additional internal 10 Gb ports, one to each compute node, and two 40 Gb uplinks. These 40 Gb uplinks are QSFP

connectors but can be converted to four 10 Gb uplinks using fan out cable. This upgrade can be applied if you already have the base switch model.

- IBM Flex System Fabric EN4093 10Gb Scalable Switch (Upgrade 2)

  This switch upgrade can be applied on top of Upgrade 1 when you want to support six ports of 10 Gb on the server or if you just want more uplink bandwidth on the base switch. The upgrade will enable 14 additional internal 10 Gb ports, one to each compute node, and four 10 Gb uplinks. These uplinks are SFP+ ports.

- IBM Flex System EN4091 10Gb Ethernet Pass-thru

  This module offers easy connectivity of the Flex System Chassis to an external network infrastructure. This is an unmanaged device enabling direct connectivity of a compute node in the chassis to an external Top-of-Rack switch. This module can function at both 1 Gb and 10 Gb speeds. It has 14 internal links and 14 external SFP+ uplinks.

- IBM Flex System EN2024 4-port 1Gb Ethernet Adapter

  This four-port 1 Gb adapter can provide 1 Gb connectivity to clients. When it is combined with the IBM Flex System EN2092 1Gb Ethernet Scalable Switch, clients can leverage an end-to-end 1 Gb solution on Flex System Chassis. This adapter is based on Broadcom 5718 ASIC and supports a PCIe Gen2 x4 interface with MSI/MSI-X. It also supports I/O virtualization features like VMWare NetQueue and Microsoft VMQ technologies.

- IBM Flex System CN4054 10Gb Virtual Fabric Adapter and IBM Flex System CN4054 Virtual Fabric Adapter (software upgrade)

  This is a four-port 10 Gb adapter that can scale up to 16 virtual ports and support multiple protocols like Ethernet, iSCSI, and FCoE. This adapter uses the third generation of Emulex ASIC (BE3) that supports hardware offload and acceleration for network and storage protocols. By using a common infrastructure for Ethernet and storage networks, datacenters can reduce capital expenses (CAPEX) and operating expenses (OPEX). Key features of this adapter are:

  - Each 10 Gb physical port can support up to four virtual ports (vNIC).
  - Each vNIC appears as an individual adapter to the operating system.
  - Each vNIC allocates bandwidth at increments of 100 Mb.
  - Clients can run advanced protocols like HW iSCSI or FCoE on one of the vNICs per physical port via the software upgrade key.
  - The adapter can connect at 1 Gb or 10 Gb speed.

  This adapter will support the following modes of operations:

  - Physical Mode (pNIC): In this mode the adapter will present four ports of 10 Gb and clients can upgrade to run either FCoE or HW iSCSI to connect to a storage target.
  - IBM Virtual Fabric Mode: In this mode each of the physical 10 Gb ports can present up to four virtual ports to the operating system. Therefore on this card, users can get up to 16 virtual ports. Clients can set the bandwidth of each of these virtual ports at increments of 100 Mb. Additionally they can apply the software upgrade to run storage protocols (HW iSCSI or FCoE) on four of the 16 virtual ports. This mode works with the IBM 10Gb Virtual Fabric Switch to provide end-to-end I/O virtualization. This adapter ships by default in this mode.
  - Switch Independent Mode: This functions like the IBM Virtual Fabric Mode except no setting or changes are required on the switch side. The adapter presents four virtual ports per physical port but on the switch side it is still a single 10 Gb port. This mode will enable clients to leverage the IBM Virtual Fabric capability with the 10Gb Pass-thru module also.

  Key benefits of this adapter are:

  - Ability to maximize I/O consolidation with high-performance 10 Gb ports

- One adapter to run multiple protocols
- Simplified setup and management options like CLI, Switch Interface, or Virtual Fabric Manager

- IBM Flex System EN4132 2-port 10Gb Ethernet Adapter

  This two-port 10 Gb adapter is based on Mellanox Connect X3 ASIC. This is a PCIe Gen 3 adapter that supports next-generation technology like RDMA and RoCE. Other key features of this adapter are:

  - Application acceleration
  - Low latency for specialized apps

  This adapter will work with the 10 Gb Flex System Fabric Switch and 10 Gb Pass-thru modules.

Fibre Channel Switch and Adapters

- IBM Flex System FC3171 8Gb SAN Switch and IBM Flex System FC3171 8Gb SAN Pass-thru

  These SAN modules enable 8 Gb connectivity to storage from the Flex System Chassis. These SAN modules offer enhanced Fibre Channel functions like Port Aggregation, Auto-StreamGuard, Enhanced N_Port ID Virtualization (NPIV), and Automatic Failover.

  Both of these modules run at high-performance 8 Gb speed. Two part numbers are offered to meet clients' requirements whether they need full switching function in the chassis or just a simple pass-thru solution.

- IBM Flex System FC5022 24-port 16Gb ESB SAN Scalable Switch, IBM Flex System FC5022 16Gb SAN Scalable Switch, and IBM Flex System FC5022 2-port 16Gb FC Adapter

  These SAN switch modules and HBA deliver an embedded option for IBM Flex System users deploying storage area networks in their enterprise. They offer end-to-end 16 Gb and 8 Gb connectivity. These scalable switches enable Dynamic Ports on Demand (DPOD) and grow with the needs of the clients. The N-Port Virtualization mode streamlines the infrastructure by reducing the number of domains to manage while enabling the ability to add or move servers without impact to the SAN. Management is simplified via an integrated management appliance, or clients using end-to-end Brocade SAN can leverage the Brocade management tools.

  Key features of this switch:

  - Superior scalability to allow greater intra-chassis connectivity
  - Extension, encryption, and compression capable
  - Diagnostic Port (D-Port) for superior validation and serviceability of network
  - Total of 48 ports wired with 28 ports internal and 20 external
  - Based on Brocade's seventh-generation Fibre Channel Switch ASIC

  Two versions of this switch are available:

  - IBM Flex System FC5022 16Gb SAN Scalable Switch

    This switch comes with 12 Dynamic Ports on Demand (DPOD) licenses that can be applied to either internal or external links on this switch. Clients who do not fully populate the chassis can leverage this switch without having to pay for ports they are not using.

  - IBM Flex System FC5022 24-port 16Gb Enterprise SAN Scalable Switch

    This switch comes with 24 DPOD licenses that can be applied to either internal or external links on this switch. This switch will also include these enhanced software licenses installed:

    -- ISL Trunking (up to 128Gb ISL Trucks)

-- Adaptive Networking
-- Advanced Performance Monitoring
-- Fabric Watch
-- Extended Fabrics
-- Server Application Optimization

To complement the 16Gb switches, we will offer a two-port 16 Gb adapter based on Brocade architecture to offer end-to-end 16 Gb connectivity to a SAN. This adapter can autonegotiate and work at 8 Gb speed also. It offers enhanced features like storage Target Rate Limiting (TRL), VM aware QoS, and 1M+ IOPS performance.

Clients can manage these devices via the integrated Flex System Manager or for advanced monitoring they can use the Brocade Network Advisor.

In summary, these SAN switches and adapter offer these key values:

-- First 16 Gbps embedded switch with up to 640 Gb bandwidth
-- Investment protection; growth in ports and bandwidth
-- Superior scalability to allow greater intrachassis connectivity
-- ISL Trunks up to 128Gb for superior performance, resiliency, and management
-- Extension, encryption, and compression capable
-- Diagnostic Port (D-Port) for superior serviceability
-- VM Aware Quality of Service from adapter through entire network

– IBM Flex System FC3172 2-port 8Gb FC Adapter

The QLogic 8Gb Fibre Channel adapter enables high-speed access for Flex System compute nodes to connect to a Fibre Channel storage area network (SAN). This adapter is based on the proven Qlogic 2532 8 Gb ASIC design and works with any of the 8 Gb or 16 Gb Flex System Fibre Channel switch modules. When compared to the previous-generation 4 Gb adapters, the new-generation 8 Gb adapters double the throughput speeds for Fibre Channel traffic. As a result, you can manage increased amounts of data and possibly benefit from a reduced hardware expense.

– IBM Flex System FC3052 2-port 8Gb FC Adapter

The Emulex 2-port 8Gb Fibre Channel adapter enables high-speed access for Flex System compute nodes to an external storage area network (SAN). This adapter is based on the proven Emulex Fibre Channel stack and works with any of the 8 Gb or 16 Gb Flex System Fibre Channel switch modules. When compared to the previous-generation 4 Gb adapters, the new-generation 8 Gb adapters double the throughput speeds for Fibre Channel traffic. As a result, you can manage increased amounts of data and possibly benefit from a reduced hardware expense.

InfiniBand and adapters

- IBM Flex System IB6131 InfiniBand Switch, IBM Flex System IB6132 2-port QDR InfiniBand Adapter, and IBM Flex System IB6132 2-port FDR InfiniBand Adapter

InfiniBand is a high-speed server-interconnect technology that is ideally suited as the interconnect technology for access layer and storage components specifically for application and back-end IPC applications, for connectivity between application and back-end layers, and from back-end to storage layers. Through use of host channel adapters (HCAs) and switches, InfiniBand technology is used to connect servers with remote storage and networking devices, and other servers. It can also be used inside servers for inter-processor communication (IPC) in parallel clusters.

IBM Flex System IB6131 InfiniBand Switch is an upgradeable device that can scale with your needs. Base switch enables 14 internal QDR links to each server and 18

QSFP uplink ports for inter-switch links or to connect to external servers. Clients can upgrade to FDR speed (56 Gb) via the Feature On Demand (FOD) process.

The InfiniBand QDR and FDR switches based on Mellanox technology are unmanaged switches. A subnet manager is required to establish an InfiniBand fabric. This module supports switch-embedded subnet managers and host-based subnet managers.

Accessibility by people with disabilities

A US Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at

http://www.ibm.com/able/product_accessibility/index.html

Product positioning

IBM Flex System suits multiple delivery models, from highly customizable hardware platforms to a fully integrated and optimized system.

- IBM Flex System hardware 'building blocks' made up of individual components that can be mixed and matched, and fully customizable with optional management
- IBM Flex System solutions made up of a chassis with an integrated management appliance, IBM networking, and storage standard
- IBM Flex System optimized offerings made up of preconfigured, highly customized systems - focused on selected workloads or single-purpose such as PureFlex or Cloudburst

Statement of general direction

- IBM plans to expand its next-generation portfolio of IBM Flex System compute nodes. These additional compute nodes will be optimized for virtualization with the highest level of integration - advanced management, new security enhancements, and flexible IO options. In addition, IBM will continue to expand the Flex System interconnect ecosystem offerings to support higher levels of capabilities and new fabric protocols such as converged networks.
- IBM plans to provide future upgrade offerings to enhance customer value in their new IBM PureFlex System investments as technology advancements are introduced. The availability details regarding these upgrade offerings will be made available in future announcements and communications.
- To enable access to these optional future upgrade offerings, customers should enable delivery of their IBM PureFlex System inventory to IBM through Electronic Service Agent™.

IBM's statements regarding its plans, directions, and intent are subject to change or withdrawal without notice at IBM's sole discretion. Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision. The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code, or functionality. Information about potential future products may not be incorporated into any contract. The development, release, and timing of any future features or functionality described for our products remains at our sole discretion.

Product number

The following are newly announced features on the specified models of the IBM xSeries® 8737 machine type:

Description	MT	Model	Feature
8737-AC1	8737	AC1	
8737-MC1	8737	MC1	
Integrated SATA Mirroring - 2 identical HDDs required	8737	AC1 MC1	0030
Integrated SATA Striping - 2 identical HDDs required	8737	AC1 MC1	0031
UID Asset Tag Label	8737	AC1 MC1	0747
EMEA Long Leadtime Configurations	8737	AC1 MC1	1763
Hungary CHW plant 9SH	8737	AC1 MC1	1764
Guad CHW plant 9KQ	8737	AC1 MC1	1765
ISTC CHW 9K2	8737	AC1 MC1	1766
RTP CHW 9NR	8737	AC1 MC1	1767
Offload Manufacturing to Guadalajara HVEC	8737	AC1 MC1	1768
Offload Manufacturing to RTP HVEC	8737	AC1 MC1	1769
Offload Manufacturing to ISTC	8737	AC1 MC1	1770
Routing for AP Foxconn	8737	AC1 MC1	1771
Capacity Scheduling Service	8737	AC1 MC1	1772
Custom SLA Scheduling Service	8737	AC1 MC1	1796
Custom Asset Tagging - Standard	8737	AC1 MC1	2200
Custom Asset Tagging - Enhanced	8737	AC1 MC1	2201
Custom Image Load - Server	8737	AC1 MC1	2204
Custom Media Shipgroup	8737	AC1 MC1	2206
Request for Global Trade Number (UPC or EAN)	8737	AC1 MC1	2207
Custom Software/Firmware Setting - Standard	8737	AC1 MC1	2208
Custom Software/Firmware Setting - Enhanced	8737	AC1 MC1	2209
Custom RAID Configuration	8737	AC1 MC1	2212
Custom Labeling	8737	AC1 MC1	2220
Custom Palletization	8737	AC1 MC1	2221
Request for a new Vendor Logo Hardware	8737	AC1 MC1	2247
Request for an existing IBM Feature	8737	AC1 MC1	2248
Request for an existing Public RPQ	8737	AC1 MC1	2249
RAID Configuration	8737	AC1 MC1	2302
Rack 01	8737	AC1 MC1	3101
Rack 02	8737	AC1 MC1	3102
Rack 03	8737	AC1 MC1	3103
Rack 04	8737	AC1	3104

		MC1	
Rack 05	8737	AC1	3105
		MC1	
Rack 06	8737	AC1	3106
		MC1	
Rack 07	8737	AC1	3107
		MC1	
Rack 08	8737	AC1	3108
		MC1	
Rack 09	8737	AC1	3109
		MC1	
Rack 10	8737	AC1	3110
		MC1	
Rack 11	8737	AC1	3111
		MC1	
Rack 12	8737	AC1	3112
		MC1	
Rack 13	8737	AC1	3113
		MC1	
Rack 14	8737	AC1	3114
		MC1	
Rack 15	8737	AC1	3115
		MC1	
Rack 16	8737	AC1	3116
		MC1	
Rack 17	8737	AC1	3117
		MC1	
Rack 18	8737	AC1	3118
		MC1	
Rack 19	8737	AC1	3119
		MC1	
Rack 20	8737	AC1	3120
		MC1	
Rack 21	8737	AC1	3121
		MC1	
Rack 22	8737	AC1	3122
		MC1	
Rack 23	8737	AC1	3123
		MC1	
Rack 24	8737	AC1	3124
		MC1	
Rack 25	8737	AC1	3125
		MC1	
Rack 26	8737	AC1	3126
		MC1	
Rack 27	8737	AC1	3127
		MC1	
Rack 28	8737	AC1	3128
		MC1	
Rack 29	8737	AC1	3129
		MC1	
Rack 30	8737	AC1	3130
		MC1	
Rack 31	8737	AC1	3131
		MC1	
Rack 32	8737	AC1	3132
		MC1	
Rack 33	8737	AC1	3133
		MC1	
Rack 34	8737	AC1	3134
		MC1	
Rack 35	8737	AC1	3135
		MC1	
Rack 36	8737	AC1	3136
		MC1	
Rack 37	8737	AC1	3137
		MC1	
Rack 38	8737	AC1	3138
		MC1	
Rack 39	8737	AC1	3139
		MC1	
Rack 40	8737	AC1	3140
		MC1	
Rack 41	8737	AC1	3141

		MC1	
Rack 42	8737	AC1	3142
		MC1	
Rack 43	8737	AC1	3143
		MC1	
Rack 44	8737	AC1	3144
		MC1	
Rack 45	8737	AC1	3145
		MC1	
Rack 46	8737	AC1	3146
		MC1	
Rack 47	8737	AC1	3147
		MC1	
Rack 48	8737	AC1	3148
		MC1	
Rack 49	8737	AC1	3149
		MC1	
Rack 50	8737	AC1	3150
		MC1	
Rack 51	8737	AC1	3151
		MC1	
Rack 52	8737	AC1	3152
		MC1	
Rack 53	8737	AC1	3153
		MC1	
Rack 54	8737	AC1	3154
		MC1	
Rack 55	8737	AC1	3155
		MC1	
Rack 56	8737	AC1	3156
		MC1	
Rack 57	8737	AC1	3157
		MC1	
Rack 58	8737	AC1	3158
		MC1	
Rack 59	8737	AC1	3159
		MC1	
Rack 60	8737	AC1	3160
		MC1	
Rack 61	8737	AC1	3161
		MC1	
Rack 62	8737	AC1	3162
		MC1	
Rack 63	8737	AC1	3163
		MC1	
Rack 64	8737	AC1	3164
		MC1	
BladeCenter 01	8737	AC1	3301
		MC1	
BladeCenter 02	8737	AC1	3302
		MC1	
BladeCenter 03	8737	AC1	3303
		MC1	
BladeCenter 04	8737	AC1	3304
		MC1	
BladeCenter 05	8737	AC1	3305
		MC1	
BladeCenter 06	8737	AC1	3306
		MC1	
BladeCenter 07	8737	AC1	3307
		MC1	
BladeCenter 08	8737	AC1	3308
		MC1	
BladeCenter 09	8737	AC1	3309
		MC1	
BladeCenter 10	8737	AC1	3310
		MC1	
BladeCenter 11	8737	AC1	3311
		MC1	
BladeCenter 12	8737	AC1	3312
		MC1	
BladeCenter 13	8737	AC1	3313
		MC1	
BladeCenter 14	8737	AC1	3314

		MC1	
BladeCenter 15	8737	AC1	3315
		MC1	
BladeCenter 16	8737	AC1	3316
		MC1	
BladeCenter 17	8737	AC1	3317
		MC1	
BladeCenter 18	8737	AC1	3318
		MC1	
BladeCenter 19	8737	AC1	3319
		MC1	
BladeCenter 20	8737	AC1	3320
		MC1	
BladeCenter 21	8737	AC1	3321
		MC1	
BladeCenter 22	8737	AC1	3322
		MC1	
BladeCenter 23	8737	AC1	3323
		MC1	
BladeCenter 24	8737	AC1	3324
		MC1	
BladeCenter 25	8737	AC1	3325
		MC1	
BladeCenter 26	8737	AC1	3326
		MC1	
BladeCenter 27	8737	AC1	3327
		MC1	
BladeCenter 28	8737	AC1	3328
		MC1	
BladeCenter 29	8737	AC1	3329
		MC1	
BladeCenter 30	8737	AC1	3330
		MC1	
BladeCenter 31	8737	AC1	3331
		MC1	
BladeCenter 32	8737	AC1	3332
		MC1	
BladeCenter 33	8737	AC1	3333
		MC1	
BladeCenter 34	8737	AC1	3334
		MC1	
BladeCenter 35	8737	AC1	3335
		MC1	
BladeCenter 36	8737	AC1	3336
		MC1	
BladeCenter 37	8737	AC1	3337
		MC1	
BladeCenter 38	8737	AC1	3338
		MC1	
BladeCenter 39	8737	AC1	3339
		MC1	
BladeCenter 40	8737	AC1	3340
		MC1	
BladeCenter location 01	8737	AC1	3401
		MC1	
BladeCenter location 02	8737	AC1	3402
		MC1	
BladeCenter location 03	8737	AC1	3403
		MC1	
BladeCenter location 04	8737	AC1	3404
		MC1	
BladeCenter location 05	8737	AC1	3405
		MC1	
BladeCenter location 06	8737	AC1	3406
		MC1	
BladeCenter location 07	8737	AC1	3407
		MC1	
BladeCenter location 08	8737	AC1	3408
		MC1	
BladeCenter location 09	8737	AC1	3409
		MC1	
BladeCenter location 10	8737	AC1	3410
		MC1	
BladeCenter location 11	8737	AC1	3411

		MC1	
BladeCenter location 12	8737	AC1	3412
		MC1	
BladeCenter location 13	8737	AC1	3413
		MC1	
BladeCenter location 14	8737	AC1	3414
		MC1	
IBM 500GB 7200 6Gbps NL SAS 2.5" SFF Slim-HS HDD	8737	AC1	5409
		MC1	
IBM 200GB SATA 1.8" MLC SSD	8737	AC1	5420
		MC1	
IBM 50GB SATA 1.8" MLC SSD	8737	AC1	5428
		MC1	
IBM 600GB 10K 6Gbps SAS 2.5" SFF Slim-HS HDD	8737	AC1	5433
		MC1	
IBM 146GB 15K 6Gbps SAS 2.5" SFF Slim-HS HDD	8737	AC1	5536
		MC1	
IBM 300GB 10K 6Gbps SAS 2.5" SFF Slim-HS HDD	8737	AC1	5599
		MC1	
Select Storage devices - no IBM-configured RAID required	8737	AC1	5977
		MC1	
Select Storage devices - IBM-configured RAID	8737	AC1	5978
		MC1	
SOFS Solution Code MFG Instruction	8737	AC1	6124
		MC1	
SAP-BWA Solution Code MFG Instruction	8737	AC1	6125
		MC1	
InfoSphere-BWA Solution Code MFG Instruction	8737	AC1	6126
		MC1	
GMAS Solution Code MFG Instruction	8737	AC1	6127
		MC1	
IBW-SSD Solution Code MFG Instruction	8737	AC1	6128
		MC1	
Cloudburst Solution Code MFG Instruction	8737	AC1	6129
		MC1	
SoNAS Solution Code MFG Instruction	8737	AC1	6130
		MC1	
2.5" Gen2 HS HDD Filler	8737	AC1	6421
		MC1	
Primary Array 2 HDDs	8737	AC1	7008
		MC1	
Primary Array 3 HDDs	8737	AC1	7009
		MC1	
Primary Array 4 HDDs	8737	AC1	7010
		MC1	
Primary Array 5 HDDs	8737	AC1	7011
		MC1	
Primary Array 6 HDDs	8737	AC1	7012
		MC1	
Primary Array 7 HDDs	8737	AC1	7013
		MC1	
Primary Array 8 HDDs	8737	AC1	7014
		MC1	
Secondary Array 2 HDDs	8737	AC1	7015
		MC1	
Secondary Array 3 HDDs	8737	AC1	7016
		MC1	
Secondary Array 4 HDDs	8737	AC1	7017
		MC1	
Secondary Array 5 HDDs	8737	AC1	7057
		MC1	
Secondary Array 6 HDDs	8737	AC1	7058
		MC1	
Customer Solution Center Services	8737	AC1	7831
		MC1	
e1350 Special Bid Solution Component	8737	AC1	7929
		MC1	
No HDD Selected	8737	AC1	8026
		MC1	
No Processor Selected	8737	AC1	8028
		MC1	
Consolidate Shipment	8737	AC1	8031
		MC1	

e1350 Solution Component	8737	AC1 MC1	8034
Compute Node	8737	AC1 MC1	8036
Management Node	8737	AC1 MC1	8037
Storage Node	8737	AC1 MC1	8038
Integrated SAS Mirroring - 2 identical HDDs required	8737	AC1 MC1	8039
Integrated SAS Striping - 2 identical HDDs required	8737	AC1 MC1	8040
TAA Compliant Order	8737	AC1 MC1	8067
General Racking Solution	8737	AC1 MC1	8072
Integrate BladeCenter® in Manufacturing	8737	AC1 MC1	8077
No 2.5" SAS HDD Selected	8737	AC1 MC1	8081
No Publications Selected	8737	AC1 MC1	8086
8GB (1x8GB, 2Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM	8737	AC1 MC1	8923
16GB (1x16GB, 4Rx4, 1.35V) PC3L-8500 CL7 ECC DDR3 1066MHz LP RDIMM	8737	AC1 MC1	8939
2GB (1x2GB, 1Rx8, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM	8737	AC1 MC1	8940
4GB (1x4GB, 1Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM	8737	AC1 MC1	8941
4GB (1x4GB, 2Rx8, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM	8737	AC1 MC1	8942
Memory Sparing	8737	AC1 MC1	9016
Enable Memory Mirroring	8737	AC1 MC1	9017
Storage Subsystem ID 01	8737	AC1 MC1	9170
Storage Subsystem ID 02	8737	AC1 MC1	9171
Storage Subsystem ID 03	8737	AC1 MC1	9172
Storage Subsystem ID 04	8737	AC1 MC1	9173
Storage Subsystem ID 05	8737	AC1 MC1	9174
Storage Subsystem ID 06	8737	AC1 MC1	9175
Storage Subsystem ID 07	8737	AC1 MC1	9176
Storage Subsystem ID 08	8737	AC1 MC1	9177
Storage Subsystem ID 09	8737	AC1 MC1	9178
Storage Subsystem ID 10	8737	AC1 MC1	9179
Storage Subsystem ID 11	8737	AC1 MC1	9180
Storage Subsystem ID 12	8737	AC1 MC1	9181
Storage Subsystem ID 13	8737	AC1 MC1	9182
Storage Subsystem ID 14	8737	AC1 MC1	9183
Storage Subsystem ID 15	8737	AC1 MC1	9184
Storage Subsystem ID 16	8737	AC1	9185

		MC1	
Storage Subsystem ID 17	8737	AC1	9186
		MC1	
Storage Subsystem ID 18	8737	AC1	9187
		MC1	
Storage Subsystem ID 19	8737	AC1	9188
		MC1	
Storage Subsystem ID 20	8737	AC1	9189
		MC1	
Preload Specify	8737	AC1	9200
		MC1	
Windows Specify	8737	MC1	9201
Red Hat Specify	8737	AC1	9202
SuSE Specify	8737	AC1	9203
AIX Specify	8737	AC1	9204
Drop-in-the-Box Specify	8737	AC1	9205
		MC1	
No Preload Specify	8737	AC1	9206
		MC1	
VMWare Specify	8737	AC1	9207
		MC1	
Solaris Specify	8737	AC1	9208
System x Cluster Upgrade	8737	AC1	A103
		MC1	
IBM 1TB 7.2K 6Gbps NL SATA 2.5" SFF HS HDD	8737	AC1	A1AV
		MC1	
IBM Flex System Compute Node WW packaging - Standard	8737	AC1	A1BA
		MC1	
Intel Xeon Processor E5-2680 8C 2.7GHz 20MB Cache 1600MHz 130W	8737	AC1	A1BB
		MC1	
IBM Flex System x240 Compute Node with embedded 10Gb Virtual Fabric	8737	AC1	A1BC
		MC1	
IBM Flex System x240 Compute Node	8737	AC1	A1BD
		MC1	
IBM Flex System x240 Compute Node Label	8737	AC1	A1BE
		MC1	
IBM Flex System x240 Compute Node Front Bezel	8737	AC1	A1BF
		MC1	
IBM Flex System x240 Compute Node Cover	8737	AC1	A1BJ
		MC1	
IBM Flex System x240 Compute Node CPU Filler	8737	AC1	A1BK
		MC1	
IBM Flex System Compute Node 2.5" SAS 2.0 Backplane	8737	AC1	A1BL
		MC1	
IBM Flex System FC3172 2-port 8Gb FC Adapter	8737	AC1	A1BM
		MC1	
System Documentation and Software-US English	8737	AC1	A1C2
		MC1	
Intel Xeon Processor E5-2603 4C 1.8GHz 10MB Cache 1066MHz 80W	8737	AC1	A1CQ
		MC1	
Intel Xeon Processor E5-2609 4C 2.4GHz 10MB Cache 1066MHz 80W	8737	AC1	A1CS
		MC1	
Intel Xeon Processor E5-2620 6C 2.0GHz 15MB Cache			

1333MHz 95W	8737	AC1 MC1	A1CT
Intel Xeon Processor E5-2630 6C 2.3GHz 15MB Cache 1333MHz 95W	8737	AC1 MC1	A1CU
Intel Xeon Processor E5-2640 6C 2.5GHz 15MB Cache 1333MHz 95W	8737	AC1 MC1	A1CV
Intel Xeon Processor E5-2650 8C 2.0GHz 20MB Cache 1600MHz 95W	8737	AC1 MC1	A1CW
Intel Xeon Processor E5-2660 8C 2.2GHz 20MB Cache 1600MHz 95W	8737	AC1 MC1	A1CX
Intel Xeon Processor E5-2643 4C 3.3GHz 10MB Cache 1600MHz 130W	8737	AC1 MC1	A1CY
Intel Xeon Processor E5-2667 6C 2.9GHz 15MB Cache 1600MHz 130W	8737	AC1 MC1	A1CZ
Intel Xeon Processor E5-2630L 6C 2.0GHz 15MB Cache 1333MHz 60W	8737	AC1 MC1	A1ER
Intel Xeon Processor E5-2650L 8C 1.8GHz 20MB Cache 1600MHz 70W	8737	AC1 MC1	A1ES
IBM 250GB 7.2K 6Gbps NL SATA 2.5" SFF HS HDD	8737	AC1 MC1	A1NX
IBM 500GB 7.2K 6Gbps NL SATA 2.5" SFF HS HDD	8737	AC1 MC1	A1NZ
IBM 1TB 7.2K 6Gbps NL SAS 2.5" SFF HS HDD	8737	AC1 MC1	A1P3
16GB (1x16GB, 2Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP RDIMM	8737	AC1 MC1	A1QT
IBM Flex System CN4054 Virtual Fabric Adapter (SW Upgrade)	8737	AC1 MC1	A1R0
IBM Flex System CN4054 10Gb Virtual Fabric Adapter	8737	AC1 MC1	A1R1
Intel Xeon Processor E5-2670 8C 2.6GHz 20MB Cache 1600MHz 115W	8737	AC1 MC1	A1SX
IBM Flex System x240 Compute Node Air Baffle	8737	AC1 MC1	A248
4GB (1x4GB, 2Rx8, 1.5V) PC3-12800 CL11 ECC DDR3 1600MHz LP RDIMM	8737	AC1 MC1	A24L
IBM Flex System Compute Node Fabric Connector	8737	AC1 MC1	A26R
IBM 900GB 10K 6Gbps SAS 2.5" SFF HS HDD	8737	AC1 MC1	A282
IBM 300GB 15K 6Gbps SAS 2.5" SFF HS HDD	8737	AC1 MC1	A283
4GB (1x4GB, 1Rx4, 1.5V) PC3-12800 CL11 ECC DDR3 1600MHz LP RDIMM	8737	AC1 MC1	A28Z
Intel Xeon Processor E5-2637 2C 3.0GHz 5MB Cache 1600MHz 80W	8737	AC1 MC1	A2EP
Intel Xeon Processor E5-2690 8C 2.9GHz 20MB Cache 1600MHz 135W	8737	AC1 MC1	A2ER
Intel Xeon Processor E5-2665 8C 2.4GHz 20MB Cache 1600MHz 115W	8737	AC1 MC1	A2ET
RFID Tag, AG/AP: 902-928Mhz	8737	AC1 MC1	A2EV
IBM 200GB SATA 2.5" MLC HS SSD	8737	AC1 MC1	A2FN
Primary Array - RAID 0	8737	AC1 MC1	A2K6
Primary Array - RAID 1	8737	AC1	A2K7

		MC1	
Primary Array - RAID 5	8737	AC1	A2K9
		MC1	
Primary Array - RAID 6	8737	AC1	A2KA
		MC1	
Primary Array - RAID 10	8737	AC1	A2KB
		MC1	
Secondary Array - RAID 0	8737	AC1	A2KF
		MC1	
Secondary Array - RAID 1	8737	AC1	A2KG
		MC1	
Secondary Array - RAID 5	8737	AC1	A2KJ
		MC1	
Secondary Array - RAID 6	8737	AC1	A2KK
		MC1	
Secondary Array - RAID 10	8737	AC1	A2KL
		MC1	
IBM Virtual Fabric Advanced Software Upgrade (LOM)	8737	AC1	A2TD
		MC1	
IBM 256GB SATA 2.5" MLC HS Entry SSD	8737	AC1	A2U3
		MC1	
IBM 128GB SATA 2.5" MLC HS Entry SSD	8737	AC1	A2U4
		MC1	
IBM USB Memory Key for VMWare ESXi 5.0	8737	AC1	A2VC
		MC1	
Intel Xeon Processor E5-2658 8C 2.1GHz 20MB Cache 1600MHz 95W	8737	AC1	A319
		MC1	
Intel Xeon Processor E5-2648L 8C 1.8GHz 20MB Cache 1600MHz 70W	8737	AC1	A31A
		MC1	
IBM Flex System x240 USB Enablement Kit	8737	AC1	A33M
		MC1	
PureFlex System Expansion Indicator	8737	AC1	A34H
		MC1	

The following are features already announced for the 8737 machine type:

Description	MT	Model	Feature
8737-AC1	8737	AC1	
8737-MC1	8737	MC1	
IBM Flex System EN2024 4-port 1Gb Ethernet Adapter	8737	AC1	A10Y
		MC1	
IBM Flex System FC5022 2-port 16Gb FC Adapter	8737	AC1	A1BP
		MC1	
Addl Intel Xeon Processor E5-2603 4C 1.8GHz 10MB Cache 1066MHz 80W	8737	AC1	A1D1
		MC1	
Addl Intel Xeon Processor E5-2609 4C 2.4GHz 10MB Cache 1066MHz 80W	8737	AC1	A1D3
		MC1	
Addl Intel Xeon Processor E5-2620 6C 2.0GHz 15MB Cache 1333MHz 95W	8737	AC1	A1D4
		MC1	
Addl Intel Xeon Processor E5-2630 6C 2.3GHz 15MB Cache 1333MHz 95W	8737	AC1	A1D5
		MC1	
Addl Intel Xeon Processor E5-2640 6C 2.5GHz 15MB Cache 1333MHz 95W	8737	AC1	A1D6
		MC1	
Addl Intel Xeon Processor E5-2650 8C 2.0GHz 20MB Cache 1600MHz 95W	8737	AC1	A1D7
		MC1	
Addl Intel Xeon Processor E5-2660 8C 2.2GHz 20MB Cache 1600MHz 95W	8737	AC1	A1D8
		MC1	
Addl Intel Xeon Processor E5-2680 8C 2.7GHz 20MB Cache 1600MHz 130W	8737	AC1	A1D9
		MC1	
Addl Intel Xeon Processor E5-2643 4C 3.3GHz 10MB Cache 1600MHz 130W	8737	AC1	A1DA
		MC1	

Addl Intel Xeon Processor E5-2667 6C 2.9GHz 15MB Cache 1600MHz 130W	8737	AC1 MC1	A1DB
Addl Intel Xeon Processor E5-2630L 6C 2.0GHz 15MB Cache 1333MHz 60W	8737	AC1 MC1	A1DD
Addl Intel Xeon Processor E5-2650L 8C 1.8GHz 20MB Cache 1600MHz 70W	8737	AC1 MC1	A1DE
IBM Flex System EN4132 2-port 10Gb Ethernet Adapter	8737	AC1 MC1	A1QY
IBM Flex System IB6132 2-port FDR Infiniband Adapter	8737	AC1 MC1	A1QZ
Addl Intel Xeon Processor E5-2670 8C 2.6GHz 20MB Cache 1600MHz 115W	8737	AC1 MC1	A1SY
16GB (1x16GB, 4Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP LRDIMM	8737	AC1 MC1	A290
Addl Intel Xeon Processor E5-2637 2C 3.0GHz 5MB Cache 1600MHz 80W	8737	AC1 MC1	A2EQ
Addl Intel Xeon Processor E5-2690 8C 2.9GHz 20MB Cache 1600MHz 135W	8737	AC1 MC1	A2ES
Addl Intel Xeon Processor E5-2665 8C 2.4GHz 20MB Cache 1600MHz 115W	8737	AC1 MC1	A2EU
IBM Flex System FC3052 2-port 8Gb FC Adapter	8737	AC1 MC1	A2N5
16GB (1x16GB, 2Rx4, 1.5V) PC3-12800 CL11 ECC DDR3 1600MHz LP RDIMM	8737	AC1 MC1	A2U5
Addl Intel Xeon Processor E5-2658 8C 2.1GHz 20MB Cache 1600MHz 95W	8737	AC1 MC1	A31B
Addl Intel Xeon Processor E5-2648L 8C 1.8GHz 20MB Cache 1600MHz 70W	8737	AC1 MC1	A31C
China Warranty	8737	AC1 MC1	7599
4GB (1x4GB, 2Rx8, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP UDIMM	8737	AC1 MC1	8648
32GB (1x32GB, 4Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP LRDIMM	8737	AC1 MC1	A291
8GB (1x8GB, 2Rx4, 1.5V) PC3-12800 CL11 ECC DDR3 1600MHz LP RDIMM	8737	AC1 MC1	A292
IBM Blank USB Memory Key for VMWare ESXi Downloads	8737	AC1 MC1	A2G0

The following are features already announced for the 3331 machine type:

Description	MT	Model	Feature
IBM Flex System EN2024 4-port 1Gb Ethernet Adapter	3331	HC1	A10Y
IBM Flex System FC5022 2-port 16Gb FC Adapter	3331	HC1	A1BP
Addl Intel Xeon Processor E5-2603 4C 1.8GHz 10MB Cache 1066MHz 80W	3331	HC1	A1D1
Addl Intel Xeon Processor E5-2609 4C 2.4GHz 10MB Cache 1066MHz 80W	3331	HC1	A1D3
Addl Intel Xeon Processor E5-2620 6C 2.0GHz 15MB Cache 1333MHz 95W	3331	HC1	A1D4
Addl Intel Xeon Processor E5-2630 6C 2.3GHz 15MB Cache 1333MHz 95W	3331	HC1	A1D5
Addl Intel Xeon Processor E5-2640 6C 2.5GHz 15MB Cache 1333MHz 95W	3331	HC1	A1D6

Addl Intel Xeon Processor E5-2650 8C 2.0GHz 20MB Cache 1600MHz 95W	3331	HC1	A1D7
Addl Intel Xeon Processor E5-2660 8C 2.2GHz 20MB Cache 1600MHz 95W	3331	HC1	A1D8
Addl Intel Xeon Processor E5-2680 8C 2.7GHz 20MB Cache 1600MHz 130W	3331	HC1	A1D9
Addl Intel Xeon Processor E5-2643 4C 3.3GHz 10MB Cache 1600MHz 130W	3331	HC1	A1DA
Addl Intel Xeon Processor E5-2667 6C 2.9GHz 15MB Cache 1600MHz 130W	3331	HC1	A1DB
Addl Intel Xeon Processor E5-2630L 6C 2.0GHz 15MB Cache 1333MHz 60W	3331	HC1	A1DD
Addl Intel Xeon Processor E5-2650L 8C 1.8GHz 20MB Cache 1600MHz 70W	3331	HC1	A1DE
IBM Flex System EN4132 2-port 10Gb Ethernet Adapter	3331	HC1	A1QY
IBM Flex System IB6132 2-port FDR Infiniband Adapter	3331	HC1	A1QZ
Addl Intel Xeon Processor E5-2670 8C 2.6GHz 20MB Cache 1600MHz 115W	3331	HC1	A1SY
16GB (1x16GB, 4Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP LRDIMM	3331	HC1	A290
Addl Intel Xeon Processor E5-2637 2C 3.0GHz 5MB Cache 1600MHz 80W	3331	HC1	A2EQ
Addl Intel Xeon Processor E5-2690 8C 2.9GHz 20MB Cache 1600MHz 135W	3331	HC1	A2ES
Addl Intel Xeon Processor E5-2665 8C 2.4GHz 20MB Cache 1600MHz 115W	3331	HC1	A2EU
IBM Flex System x240 USB Enablement Kit	3331	HC1	A2HN
IBM Flex System FC3052 2-port 8Gb FC Adapter	3331	HC1	A2N5
16GB (1x16GB, 2Rx4, 1.5V) PC3-12800 CL11 ECC DDR3 1600MHz LP RDIMM	3331	HC1	A2U5
Addl Intel Xeon Processor E5-2658 8C 2.1GHz 20MB Cache 1600MHz 95W	3331	HC1	A31B
Addl Intel Xeon Processor E5-2648L 8C 1.8GHz 20MB Cache 1600MHz 70W	3331	HC1	A31C
IBM Flex System FC3172 2-port 8Gb FC Adapter	3331	HC1	A1BM
IBM Flex System CN4054 10Gb Virtual Fabric Adapter	3331	HC1	A1R1
IBM Flex System CN4054 Virtual Fabric Adapter-SW	3331	HC1	A1R0

Single Entity Offerings (SEO)

Description	SEO number
IBM Flex System x240 Compute Node	8737R2U
	8737Q2U
	8737N2U
	8737M2U
	8737M1U
	8737L2U
	8737J1U
	8737H2U
	8737H1U
	8737G2U
	8737F2U
	8737D2U
	8737A1U

Option SEOs

The following are new unique option part numbers for IBM Flex System x240 Compute Node.

SEO Number	Description
81Y5180	Intel Xeon Processor E5-2603 4C 1.8GHz 10MB Cache 1066MHz 80W
81Y5182	Intel Xeon Processor E5-2609 4C 2.4GHz 10MB Cache 1066MHz 80W

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81Y5183 Intel Xeon Processor E5-2620 6C 2.0GHz 15MB Cache 1333MHz 95W
81Y5184 Intel Xeon Processor E5-2630 6C 2.3GHz 15MB Cache 1333MHz 95W
81Y5185 Intel Xeon Processor E5-2640 6C 2.5GHz 15MB Cache 1333MHz 95W
81Y5186 Intel Xeon Processor E5-2650 8C 2.0GHz 20MB Cache 1600MHz 95W
81Y5187 Intel Xeon Processor E5-2660 8C 2.2GHz 20MB Cache 1600MHz 95W
81Y5188 Intel Xeon Processor E5-2680 8C 2.7GHz 20MB Cache 1600MHz 130W
81Y5189 Intel Xeon Processor E5-2667 6C 2.9GHz 15MB Cache 1600MHz 130W
81Y5206 Intel Xeon Processor E5-2630L 6C 2.0GHz 15MB Cache 1333MHz 60W
81Y5179 Intel Xeon Processor E5-2650L 8C 1.8GHz 20MB Cache 1600MHz 70W
81Y9418 Intel Xeon Processor E5-2670 8C 2.6GHz 20MB Cache 1600MHz 115W
49Y8125 Intel Xeon Processor E5-2637 2C 3.0GHz 5MB Cache 1600MHz 80W
49Y8144 Intel Xeon Processor E5-2665 8C 2.4GHz 20MB Cache 1600MHz 115W
95Y4675 Intel Xeon Processor E5-2658 8C 2.1GHz 20MB Cache 1600MHz 95W
95Y4670 Intel Xeon Processor E5-2648L 8C 1.8GHz 20MB Cache 1600MHz 70W
49Y8116 Intel Xeon Processor E5-2690 8C 2.9GHz 20MB Cache 1600MHz 135W
81Y5190 Intel Xeon Processor E5-2643 4C 3.3GHz 10MB Cache 1600MHz 130W

49Y8119 IBM Flex System x240 USB Enablement Kit

90Y3554 IBM Flex System CN4054 10Gb Virtual Fabric Adapter
90Y3558 IBM Flex System CN4054 Virtual Fabric Adapter (SW Upgrade)
49Y7900 IBM Flex System EN2024 4-port 1Gb Ethernet Adapter
69Y1938 IBM Flex System FC3172 2-port 8Gb FC Adapter
88Y6370 IBM Flex System FC5022 2-port 16Gb FC Adapter
90Y3454 IBM Flex System IB6132 2-port FDR Infiniband Adapter
90Y3466 IBM Flex System EN4132 2-port 10Gb Ethernet Adapter
95Y2375 IBM Flex System FC3052 2-port 8Gb FC Adapter

00D4968 16GB (1x16GB, 2Rx4, 1.5V) PC3-12800 CL11 ECC DDR3 1600MHz LP
         RDIMM
49Y1567 16GB (1x16GB, 4Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP
         LRDIMM

The following feature numbers are automatically added to the
5372-SWX HIPO order whenever one of the hardware system units
are configured in an order

   HIPO
   feature
   number         Description

   4282      8737-AC1 Routing Code
   4283      8737-MC1 Routing Code
```

Business Partner information

If you are a Direct Reseller - System Reseller acquiring products from IBM, you may link directly to Business Partner information for this announcement. A PartnerWorld® ID and password are required (use IBM ID).

https://www.ibm.com/partnerworld/mem/sla.jsp?num=112-052

Publications

The *User's Guide, Maintenance Guide,* and *Problem Determination and Service Guide* for IBM Flex System x240 Compute Node solutions, in US English versions, are available from

https://www-304.ibm.com/systems/support/

Under "Product Support", select "System x®", and under "Choose your page" select "Documentation."

IBM Systems Information Center provide you with a single site where you can access product documentation for IBM systems hardware, operating systems, and server software. Through a consistent framework, you can efficiently find information and personalize your access. The IBM Systems information Centers are at

http://publib14.boulder.ibm.com/infocenter/systems

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.

System x , BladeCenter , and Flex System support services

Recommended core technical support

When you buy IBM System x technology, include the support services you need -- to help keep both your hardware and software working for you, day after day, at peak performance. It's your first step toward helping to protect your investment and sustain high levels of system availability. We offer service-level and response-time options to fit your business needs. And we'll help you get started with a core support package that includes:

- **Continuous system monitoring**

  Electronic monitoring that helps speed up problem-solving with automated, early detection of potential problems and system errors.

- **Hardware maintenance**

  World-class remote and on-site hardware problem determination and repair services.

- **Software technical support**

  Access to help line calls for fast, accurate answers to your questions during installation and throughout ongoing operations.

For more information, visit

http://www.ibm.com/servers/eserver/xseries/services.html

Technical information

Specified operating environment

Physical specifications

	8737-R2x
Processor	Intel Xeon E5-2690 8 core 135w
Internal speed	2.9 GHz
Maximum memory speed	1600 MHz
CPU interconnect speed	8.0 GT/s
Number standard	1
Maximum	2
L3 cache (full speed)	20 MB
Memory (LP ECC DDR3)	8 GB
DIMMs (Standard)	2 x 4 GB
DIMM sockets	24
Capacity	768 GB (1)
Mezzanine Card	Optional
Standard	0
Maximum (LOM)	1
Video	SVGA
Memory	128 MB
Disk controller	SAS
Channels	2
Connector internal	2
Connector external	0
RAID	Standard
Internal capacity	2 TB (2)
Total HDD or SSD bays	Up to 2
Management processor	Standard
Ethernet controller	Dual 10Gb (standard)
Front access connectors	
KVM connector	1 (3)
USB connector	1

	8737-Q2x
Processor	Intel Xeon E5-2667 6 core 130w
Internal speed	2.9 GHz
Maximum memory speed	1600 MHz
CPU interconnect speed	8.0 GT/s
Number standard	1
Maximum	2
L3 cache (full speed)	15 MB
Memory (LP ECC DDR3)	8 GB
DIMMs (Standard)	2 x 4 GB
DIMM sockets	24
Capacity	768 GB (1)
Mezzanine Card	Optional
Standard	0
Maximum (LOM)	1
Video	SVGA
Memory	128 MB
Disk controller	SAS
Channels	2
Connector internal	2
Connector external	0
RAID	Standard
Internal capacity	2 TB (2)
Total HDD or SSD bays	Up to 2
Management processor	Standard
Ethernet controller	Dual 10Gb (standard)
Front access connectors	
KVM connector	1 (3)

USB connector	1

8737-N2x

Processor	Intel Xeon E5-2643
	4 core 130w
Internal speed	3.3 GHz
Maximum memory speed	1600 MHz
CPU interconnect speed	8.0 GT/s
Number standard	1
Maximum	2
L3 cache (full speed)	10 MB
Memory (LP ECC DDR3)	8 GB
DIMMs (Standard)	2 x 4 GB
DIMM sockets	24
Capacity	768 GB (1)
Mezzanine Card	Optional
Standard	0
Maximum (LOM)	1
Video	SVGA
Memory	128 MB
Disk controller	SAS
Channels	2
Connector internal	2
Connector external	0
RAID	Standard
Internal capacity	2 TB (2)
Total HDD or SSD bays	Up to 2
Management processor	Standard
Ethernet controller	Dual 10Gb (standard)
Front access connectors	
KVM connector	1 (3)
USB connector	1

8737-M2x

Processor	Intel Xeon E5-2680
	8 core 130w
Internal speed	2.7 GHz
Maximum memory speed	1600 MHz
CPU interconnect speed	8.0 GT/s
Number standard	1
Maximum	2
L3 cache (full speed)	20 MB
Memory (LP ECC DDR3)	8 GB
DIMMs (Standard)	2 x 4 GB
DIMM sockets	24
Capacity	768 GB (1)
Mezzanine Card	Optional
Standard	0
Maximum (LOM)	1
Video	SVGA
Memory	128 MB
Disk controller	SAS
Channels	2
Connector internal	2
Connector external	0
RAID	Standard
Internal capacity	2 TB (2)
Total HDD or SSD bays	Up to 2
Management processor	Standard
Ethernet controller	Dual 10Gb (standard)
Front access connectors	
KVM connector	1 (3)
USB connector	1

8737-M1x

Processor	Intel Xeon E5-2680
	8 core 130w
Internal speed	2.7 GHz
Maximum memory speed	1600 MHz
CPU interconnect speed	8.0 GT/s
Number standard	1
Maximum	2
L3 cache (full speed)	20 MB
Memory (LP ECC DDR3)	8 GB
DIMMs (Standard)	2 x 4 GB
DIMM sockets	24
Capacity	768 GB (1)
Mezzanine Card	Optional
Standard	0
Maximum (LOM-less)	2
Video	SVGA
Memory	128 MB
Disk controller	SAS
Channels	2
Connector internal	2
Connector external	0
RAID	Standard
Internal capacity	2 TB (2)
Total HDD or SSD bays	Up to 2
Management processor	Standard
Ethernet controller	None
Front access connectors	
KVM connector	1 (3)
USB connector	1

8737-L2x

Processor	Intel Xeon E5-2660
	8 core 95w
Internal speed	2.2 GHz
Maximum memory speed	1600 MHz
CPU interconnect speed	8.0 GT/s
Number standard	1
Maximum	2
L3 cache (full speed)	20 MB
Memory (LP ECC DDR3)	8 GB
DIMMs (Standard)	2 x 4 GB
DIMM sockets	24
Capacity	768 GB (1)
Mezzanine Card	Optional
Standard	0
Maximum (LOM)	1
Video	SVGA
Memory	128 MB
Disk controller	SAS
Channels	2
Connector internal	2
Connector external	0
RAID	Standard
Internal capacity	2 TB (2)
Total HDD or SSD bays	Up to 2
Management processor	Standard
Ethernet controller	Dual 10Gb (standard)
Front access connectors	
KVM connector	1 (3)
USB connector	1

8737-J1x

Processor	Intel Xeon E5-2670
	8 core 95w
Internal speed	2.6 GHz
Maximum memory speed	1600 MHz
CPU interconnect speed	8.0 GT/s
Number standard	1
Maximum	2
L3 cache (full speed)	20 MB
Memory (LP ECC DDR3)	8 GB
DIMMs (Standard)	2 x 4 GB
DIMM sockets	24
Capacity	768 GB (1)
Mezzanine Card	Optional
Standard	0
Maximum (LOM-less)	2
Video	SVGA
Memory	128 MB
Disk controller	SAS
Channels	2
Connector internal	2
Connector external	0
RAID	Standard
Internal capacity	2 TB (2)
Total HDD or SSD bays	Up to 2
Management processor	Standard
Ethernet controller	None
Front access connectors	
KVM connector	1 (3)
USB connector	1

8737-H2x

Processor	Intel Xeon E5-2640
	6 core 95w
Internal speed	2.5 GHz
Maximum memory speed	1333 MHz
CPU interconnect speed	7.2 GT/s
Number standard	1
Maximum	2
L3 cache (full speed)	15 MB
Memory (LP ECC DDR3)	8 GB
DIMMs (Standard)	2 x 4 GB
DIMM sockets	24
Capacity	768 GB (1)
Mezzanine Card	Optional
Standard	0
Maximum (LOM)	1
Video	SVGA
Memory	128 MB
Disk controller	SAS
Channels	2
Connector internal	2
Connector external	0
RAID	Standard
Internal capacity	2 TB (2)
Total HDD or SSD bays	Up to 2
Management processor	Standard
Ethernet controller	Dual 10Gb (standard)
Front access connectors	
KVM connector	1 (3)
USB connector	1

8737-H1x

Processor	Intel Xeon E5-2640
	6 core 95w
Internal speed	2.5 GHz
Maximum memory speed	1333 MHz
CPU interconnect speed	7.2 GT/s
Number standard	1
Maximum	2
L3 cache (full speed)	15 MB
Memory (LP ECC DDR3)	8 GB
DIMMs (Standard)	2 x 4 GB
DIMM sockets	24
Capacity	768 GB (1)
Mezzanine Card	Optional
Standard	0
Maximum (LOM-less)	2
Video	SVGA
Memory	128 MB
Disk controller	SAS
Channels	2
Connector internal	2
Connector external	0
RAID	Standard
Internal capacity	2 TB (2)
Total HDD or SSD bays	Up to 2
Management processor	Standard
Ethernet controller	None
Front access connectors	
KVM connector	1 (3)
USB connector	1

8737-G2x

Processor	Intel Xeon E5-2630
	6 core 95w
Internal speed	2.3 GHz
Maximum memory speed	1333 MHz
CPU interconnect speed	7.2 GT/s
Number standard	1
Maximum	2
L3 cache (full speed)	15 MB
Memory (LP ECC DDR3)	8 GB
DIMMs (Standard)	2 x 4 GB
DIMM sockets	24
Capacity	768 GB (1)
Mezzanine Card	Optional
Standard	0
Maximum (LOM)	1
Video	SVGA
Memory	128 MB
Disk controller	SAS
Channels	2
Connector internal	2
Connector external	0
RAID	Standard
Internal capacity	2 TB (2)
Total HDD or SSD bays	Up to 2
Management processor	Standard
Ethernet controller	Dual 10Gb (standard)
Front access connectors	
KVM connector	1 (3)
USB connector	1

8737-F2x

Processor	Intel Xeon E5-2620 6 core 95w
Internal speed	2.0 GHz
Maximum memory speed	1333 MHz
CPU interconnect speed	7.2 GT/s
Number standard	1
Maximum	2
L3 cache (full speed)	15 MB
Memory (LP ECC DDR3)	8 GB
DIMMs (Standard)	2 x 4 GB
DIMM sockets	24
Capacity	768 GB (1)
Mezzanine Card	Optional
Standard	0
Maximum (LOM)	1
Video	SVGA
Memory	128 MB
Disk controller	SAS
Channels	2
Connector internal	2
Connector external	0
RAID	Standard
Internal capacity	2 TB (2)
Total HDD or SSD bays	Up to 2
Management processor	Standard
Ethernet controller	Dual 10Gb (standard)
Front access connectors	
KVM connector	1 (3)
USB connector	1

8737-D2x

Processor	Intel Xeon E5-2609 4 core 80w
Internal speed	2.4 GHz
Maximum memory speed	1066 MHz
CPU interconnect speed	6.4 GT/s
Number standard	1
Maximum	2
L3 cache (full speed)	10 MB
Memory (LP ECC DDR3)	8 GB
DIMMs (Standard)	2 x 4 GB
DIMM sockets	24
Capacity	768 GB (1)
Mezzanine Card	Optional
Standard	0
Maximum (LOM)	1
Video	SVGA
Memory	128 MB
Disk controller	SAS
Channels	2
Connector internal	2
Connector external	0
RAID	Standard
Internal capacity	2 TB (2)
Total HDD or SSD bays	Up to 2
Management processor	Standard
Ethernet controller	Dual 10Gb (standard)
Front access connectors	
KVM connector	1 (3)
USB connector	1

8737-A1x

Processor	Intel Xeon E5-2630L 6 core 60w

Internal speed	2.0 GHz
Maximum memory speed	1333 MHz
CPU interconnect speed	7.2 GT/s
Number standard	1
Maximum	2
L3 cache (full speed)	15 MB
Memory (LP ECC DDR3)	8 GB
DIMMs (Standard)	2 x 4 GB
DIMM sockets	24
Capacity	768 GB (1)
Mezzanine Card	Optional
Standard	0
Maximum (LOM-less)	2
Video	SVGA
Memory	128 MB
Disk controller	SAS
Channels	2
Connector internal	2
Connector external	0
RAID	Standard
Internal capacity	2 TB (2)
Total HDD or SSD bays	Up to 2
Management processor	Standard
Ethernet controller	None
Front access connectors	
KVM connector	1 (3)
USB connector	1

(1) Total system memory capacity is based on using 32 GB memory DIMMs.

(2) Capacities are based on installation of two 1 TB drives.

(3) Use of the IBM Flex System Console Breakout Cable provided with each chassis and sold separately allows connection of standard KVM options.

For latest information on supported HDD options, visit

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

IBM Flex System x240 Compute Node specifications

Video subsystem

- 128 MB DDR3
- Integrated on the iMM2

Supported IBM Flex System x240 Compute Node video resolutions

Resolution	Maximum refresh rate supported	Bpp
640 x 400	60, 72, 75, 85	8, 16, 24
800 x 600	60, 72, 75, 85	8, 16, 24
1024 x 768	60, 72, 75, 85	8, 16, 24
1280 x 1024	60, 75	8, 16, 24
1440 x 900	60, 60 RB	8, 16, 24
1600 x 1200	60, 75	8, 16, 24
1680 x 1050	60, 60 RB	8, 16, 24

Note: 24 Bpp (16.7 million colors) aligned on a 32-bit boundary for performance.

Note: Each resolution supports both CRT and Flat Panel monitors. For CRT monitors, each resolution complies with CRT ISO 9241.3.

- 1440 x 900 and 1680 x 1050 are typically wide screen flat panel (non-CRT) settings so they are only available at 60 Hz.
- 1440 x 900 and 1680 x 1050 are available at 60 Hz with support for 60 Hz Reduced Blanking Mode.
- For the resolutions supported by different operating systems, refer the operating system documentation.

Dimensions - IBM Flex System x240 Compute Node

- Height: 55.5 mm (2.19 in)
- Depth: 492.24 mm (19.38 in)
- Width: 217.35 mm (8.56 in)
- Maximum weight: 7.1 kg (15.6 lb) (depending on the configuration when options are added)

Electrical

IBM Flex System x240 Compute Node: 12.2 (nominal) V dc

Note: All weights and measurements are approximate.

Standards

Equipment approvals and safety

- FCC - Verified to comply with Part 15 of the FCC Rules Class A
- Canada ICES-004, issue 3 Class A
- UL/IEC 60950-1
- CSA C22.2 No. 60950-1
- NOM-019
- Argentina IEC 60950-1

Operating environment

The IBM Flex System x240 compute node complies with ASHRAE Class A3 specifications.

- Power on:
  - Temperature: 5? to 40?C (41? to 104?F)
  - Humidity, noncondensing: -12?C dew point (10.4?F) and 8% to 85% relative humidity
  - Maximum dew point: 24?C (75?F)
  - Maximum altitude: 3048 m (10,000 ft)
  - Maximum rate of temperature change: 5?C/hr (41?F/hr)
- Power off:
  - Temperature: 5?C to 45?C (41?F to 113?F)
  - Relative humidity: 8% to 85%
  - Maximum dew point: 27?C (80.6?F)
- Storage (non-operating):
  - Temperature: 1?C to 60?C (33.8?F to 140?F)
  - Altitude: 3050 m (10,006 ft)
  - Relative humidity: 5% to 80%
  - Maximum dew point: 29?C (84.2?F)
- Shipment (nonoperating):
  - Temperature: -40?C to 60?C (-40?F to 140?F)
  - Altitude: 10,700 m (35,105 ft)
  - Relative humidity: 5% to 100%
  - Maximum dew point: 29?C (84.2?F)
  - Particulate contamination

Hardware requirements

For service, the IBM Flex System x240 Compute Node requires a compatible:

- Monitor

- Combination USB keyboard and pointing device such as IBM part number 40K5372
- USB CD-RW/DVD drive such as the IBM and Lenovo part number 73P4515 or 73P4516

Software requirements

The following network operating systems are supported in the IBM Flex System x240 Compute Node.

The following network operating systems have been tested for compatibility with the IBM Flex System x240 Compute Node:

- Microsoft:
  - Microsoft Windows Server 2008 R2 with Service Pack 1
  - Microsoft Windows Server 2008, Datacenter x64 Edition with Service Pack 2
  - Microsoft Windows Server 2008, Enterprise x64 Edition with RA Service Pack 2
  - Microsoft Windows Server 2008 HPC Edition with HPC Service Pack 1
  - Microsoft Windows Server 2008, Standard x64 Edition with RA Service Pack 2
  - Microsoft Windows Server 2008, Web x64 Edition with RA Service Pack 2
- Linux:
  - Novell SUSE Linux Enterprise Server 10 for AMD64/EM64T, Service Pack 4
  - Novell SUSE Linux Enterprise Server 10 with Xen for AMD64/EM64T, Service Pack 4
  - Novell SUSE Linux Enterprise Server 11 for AMD64/EM64T, Service Pack 1
  - Novell SUSE Linux Enterprise Server 10 with Xen for AMD64/EM64T, Service Pack 1
  - Red Hat Enterprise Linux 5 Server x64 Edition, U7
  - Red Hat Enterprise Linux 5 Server with Xen x64 Edition, U7
  - Red Hat Enterprise Linux 6 Server x64 Edition, U2
- VMware:
  - VMware ESX 4.1, U2
  - VMware ESXi 4.1, U2
  - VMware vSphere 5

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

http://www-03.ibm.com/systems/info/x86servers/serverproven/compat/us

Compatibility

The IBM Flex System x240 Compute Node contains licensed system programs that include set configuration, set features, and test programs. IBM system BIOS is loaded from a "flash" EEPROM into system memory. This BIOS provides instructions and interfaces designed to support the standard features of the x240 Compute Node and to maintain compatibility with many current software programs.

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

Limitations

- The Flex System x240 Compute Nodes contain 24 DIMM sockets. A maximum of 768 GB of system memory is supported by using a 32 GB DIMM of ECC DDR3 memory in each of the DIMM sockets. A minimum of one memory feature must be installed. All memory installed must be of the same type (RDIMM, LR DIMM, or UDIMM).

- Processor modules must be of the same type, power level, and clock speed on each Flex System x240 Compute Node. Mixing processor modules of different speeds, power levels, or cache sizes or upgrading the base processors is not supported. Mixing processor speeds and memory speeds will result in the system running at the lower of rated speeds.
- The Flex System x240 Compute Node is supported only in the IBM Flex System Enterprise Chassis.
- One mezzanine expansion card may be installed on the Flex System x240 Compute Node.
- Mezzanine expansion cards installed in the Flex System x240 Compute Node require a switch module in the Flex System Enterprise Chassis of the same connectivity type.
- Regarding the used of Solid State Disk Drives, Solid-state Memory cells have an intrinsic, finite number of write cycles that each cell can incur. As a result each solid state device has a maximum amount of write cycles it can be subjected to, documented as TBW (Total Bytes Written). IBM is not responsible for replacement of hardware that has reached the maximum guaranteed number of write cycles. This limit may be revealed as the device failing to respond to system generated commands or becoming incapable of being written to. Additional information is available at

  http://www-03.ibm.com/systems/x/options/storage/solidstate/index.html

Planning information

Customer responsibilities

The IBM Flex System x240 Compute Node server is designated as customer setup. Customer setup instructions are shipped with each system.

Supported memory options

```
Option
number  Description

00D4968 16GB (1x16GB, 2RX4, 1.5V) PC3-12800 CL11 ECC DDR3 1600MHz LP
          RDIMM
49Y1567 16GB (2Gb, 2Rx4,1.35V) (LR from 4Rx4) PC3L-10600 DDR3-1333 LP
          LR-DIMM
49Y1400 16GB (2Gb, 4Rx4, 1.35V) PC3L-8500R LP RDIMM
49Y1563 16GB (4Gb,2Rx4,1.35V) PC3-10600 DDR3-1333 LP RDIMM
49Y1405 2GB (2Gb, 1Rx8, 1.35V) PC3L-10600R ECC LP RDIMM
90Y3105 32 GB (1x32Gb, 4Rx4, 1.35V) PC 3L-10600 CL9 ECC DDR3 1333 MHz LP
          LR-DIMM
49Y1406 4GB (2Gb, 1Rx4, 1.35V) PC3L-10600R ECC LP RDIMM
49Y1404 4GB (2Gb, 2Rx8, 1.35V) PC3L-10600E LP UDIMM
49Y1407 4GB (2Gb, 2Rx8, 1.35V) PC3L-10600R ECC LP RDIMM
49Y1559 4GB (2Gb,1Rx4, 1.5V) PC3-12800 DDR3-1600 LP RDIMM
90Y3178 4GB (2Gb,2Rx8,1.5V) PC3-12800 DDR3-1600 LP RDIMM
90Y3109 8GB (2Gb, 2Rx4,1.5V) PC3-12800 DDR3-1600 LP RDIMM
49Y1397 8GB 2Rx4 2Gbit PC3L-10600R LP RDIMM 1.35V Capable
```

Cable orders

All cables are supplied with the IBM Flex System x240 Compute Node. Depending on the applications, the cables may be fully installed, partially installed (plugged at one end and packaged for shipping), or included as part of a shipment group.

Packaging

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System x IBM Flex System x240 Compute Node shipping contents
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The system carton contains the system unit and a ship-group kit containing the following documents and CDs:

- Important Notices booklet

- IBM Warranty Information booklet
- Product Documentation CD that includes the following documents:
  - Installation and Service Guide
  - IBM Safety Information
  - Product machine code license and other licenses and notices
- Environmental Notice and User Guide Documentation CD

The *Installation and Service Guide* on the Product Documentation CD contains the installation, use, and troubleshooting information necessary to use and service the product.

Supplies

None

Security, auditability, and control

Three of the most important features in compute node design are reliability, availability, and serviceability (RAS). These RAS features help to ensure the integrity of the data that is stored in the compute node, the availability of the compute node when you need it, and the ease with which you can diagnose and correct problems.

The compute node has the following RAS features:

- Advanced Configuration and Power Interface (ACPI)
- Automatic server restart (ASR)
- Built-in diagnostics using DSA Preboot, which is stored NAND Flash memory
- Built-in monitoring for temperature, voltage, and hard disk drives
- Customer support center 24 hours per day, 7 days a week
- Customer upgrade of flash ROM-resident code and diagnostics
- Customer-upgradeable Unified Extensible Firmware Interface (UEFI) code and diagnostics
- ECC protected DDR3 memory
- ECC protection on the L2 cache
- Error codes and messages
- Integrated management module 2 (iMM2) that communicates with the Chassis Management Module to enable remote systems management
- Light path diagnostics
- Memory parity testing
- Microprocessor built-in self-test (BIST) during power-on self-test (PST)
- Microprocessor serial number access
- PCI Express 2.0 and PCI Express 3.0
- PCI PMI 2.2
- POST
- Power policy 24-hour support center
- Processor presence detection
- ROM-resident diagnostics
- System-error logging
- Vital product data (VPD) on memory
- Wake on LAN capability
- Wake on PCI (PME) capability
- Wake on USB 2.0 capability

This offering uses the security and auditability features from standard IBM offerings and supported Linux distributions.

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

Terms and conditions

IBM Global Financing

Yes

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

In the United States, call 800-IBM-SERV (426-7378), or write to:

Warranty Information
P.O. Box 12195
Research Triangle Park, NC 27709
Attn: Dept JDJA/B203

Warranty period

- Three years
- Optional features - One year

Note: For configurations that support the RAID battery, the RAID battery will be warranted for 1 year effective on its "Date of Installation." All other product warranty terms for the machine remain unchanged.

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 are the same as those for the machine in which it is installed.

The following have been designated as consumables, supply items, or structural parts and therefore not covered by this warranty:

- 2.5-inch HDD filler
- Top cover assembly
- Heatsink filler
- Airbaffle, above DIMM
- Handle, cam assembly left
- HDD cage
- Rear bulkhead
- Intel™ socket
- Heatsink assembly front (heat pipe)
- Heatsink assembly rear (heat pipe)

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:

- Front bezel with power button
- System service label
- Miscellaneous parts kit
- HDD backplane
- Mezz retention kit
- Memory DIMMs
- 3x8 double ended periscope receptacle
- Indicator panel
- 3.0 volt battery
- RFID label tag assembly
- 2 GB USB memory flash key
- Mezzanine adapters
- Air with USB baffle
- KVM dongle cable

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.

Call IBM at 1-800-IBM-SERV (426-7378) to assist with problem isolation for hardware to determine if warranty service is required. Telephone support may be subject to additional charges, even during the limited warranty period.

Calls must be received by 5:00 p.m. local time in order to qualify for NBD service.

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-947.ibm.com/support/entry/portal/docdisplay?lndocid=GCOR-3FBJK2

For more information on IWS, refer to Services Announcement 601-034, 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.

Maintenance services

ServicePac , ServiceSuite , ServiceElect, and ServiceElite

ServicePac®, ServiceSuite®, ServiceElect, and ServiceElite provide hardware warranty service upgrades, maintenance, and selected support services in one agreement.

Warranty service upgrade

During the warranty period, a warranty service upgrade provides an enhanced level of On-site Service for an additional charge. A warranty service upgrade must be purchased during the warranty period and is for a fixed term (duration). It is not refundable or transferable and may not be prorated. If required, IBM will provide the warranty service upgrade enhanced level of On-site Service acquired by the customer. Service levels are response-time objectives and are not guaranteed.

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.

CRUs will be provided as part of the machine's standard warranty CRU Service except that you may install a Tier 2 CRU yourself or request IBM installation, at no additional charge, under one of the On-site Service levels specified below.

IBM will repair the failing machine at your location and verify its operation. 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.

Maintenance service

If required, IBM provides repair or exchange service, depending on the type of maintenance 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.

CRU Service

If your problem can be resolved with a CRU (for example, keyboard, mouse, speaker, memory, or hard disk drive), IBM will ship the 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.

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.

On-site Service

IBM will repair the failing machine at your location and verify its operation. 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.

Maintenance service (ICA)

Maintenance services are available for ICA legacy contracts.

Alternative service (warranty service upgrades)

During the warranty period, a warranty service upgrade provides an enhanced level of On-site Service for an additional charge. A warranty service upgrade must be purchased during the warranty period and is for a fixed term (duration). It is not refundable or transferable and may not be prorated. If required, IBM will provide the warranty service upgrade enhanced level of On-site Service acquired by the customer. Service levels are response-time objectives and are not guaranteed.

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.

A CRU will be provided as part of the machine's standard warranty CRU Service except that you may install a Tier 1 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service designated for your machine.

IBM will repair the failing machine at your location and verify its operation. 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.

Maintenance service

If required, IBM provides repair or exchange service, depending on the type of maintenance 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.

CRU Service

If your problem can be resolved with a CRU (for example, keyboard, mouse, speaker, memory, or hard disk drive), IBM will ship the 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.

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.

On-site Service

IBM will repair the failing machine at your location and verify its operation. 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.

Non-IBM parts support

Warranty service

IBM is now shipping machines with selected non-IBM parts that contain an IBM field replaceable unit (FRU) part number label. These parts are to be serviced during the IBM machine warranty period. IBM is covering the service on these selected non-IBM parts as an accommodation to its customers, and normal warranty service procedures for the IBM machine apply.

Warranty service upgrades and maintenance services

Under certain conditions, IBM Integrated Technology Services repairs selected non-IBM parts at no additional charge for machines that are covered under warranty service upgrades or maintenance services.

IBM Service provides hardware problem determination on non-IBM parts (for example, adapter cards, PCMCIA cards, disk drives, or memory) installed within IBM machines covered under warranty service upgrades or maintenance services and provides the labor to replace the failing parts at no additional charge.

If IBM has a Technical Service Agreement with the manufacturer of the failing part, or if the failing part is an accommodations part (a part with an IBM FRU label), IBM may also source and replace the failing part at no additional charge. For all other non-IBM parts, customers are responsible for sourcing the parts. Installation labor is provided at no additional charge, if the machine is covered under a warranty service upgrade or a maintenance service.

Warranty service upgrades

IBM hourly service rate classification

One

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.

Graduated program license charges apply

No

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

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

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.

Access to IBM Flex System fix downloads will be granted upon entitlement validation. The terms and conditions for fixes will be covered under the License Agreement for Machine Code, International Program License Agreement, International License Agreement for Non-Warranted Programs and/or other terms provided with the fix, as applicable.

Educational allowance

None

Pricing

For current prices, contact IBM at 888-Shop-IBM (746-7426) or visit

http://www-03.ibm.com/systems/x/

The following are features already announced for the 3331 machine type:

Description	Model number	Feature number	Initial/ MES/ Both support	CSU	RP MES
IBM Flex System EN2024 4-port 1Gb Ethernet Adapter	HC1	A10Y	MES		

IBM Flex System FC5022 2-port 16Gb FC Adapter
HC1 A1BP MES
Addl Intel Xeon Processor E5-2603 4C 1.8GHz 10MB Cache 1066MHz 80W
HC1 A1D1 MES
Addl Intel Xeon Processor E5-2609 4C 2.4GHz 10MB Cache 1066MHz 80W
HC1 A1D3 MES
Addl Intel Xeon Processor E5-2620 6C 2.0GHz 15MB Cache 1333MHz 95W
HC1 A1D4 MES
Addl Intel Xeon Processor E5-2630 6C 2.3GHz 15MB Cache 1333MHz 95W
HC1 A1D5 MES
Addl Intel Xeon Processor E5-2640 6C 2.5GHz 15MB Cache 1333MHz 95W
HC1 A1D6 MES
Addl Intel Xeon Processor E5-2650 8C 2.0GHz 20MB Cache 1600MHz 95W
HC1 A1D7 MES
Addl Intel Xeon Processor E5-2660 8C 2.2GHz 20MB Cache 1600MHz 95W
HC1 A1D8 MES
Addl Intel Xeon Processor E5-2680 8C 2.7GHz 20MB Cache 1600MHz 130W
HC1 A1D9 MES
Addl Intel Xeon Processor E5-2643 4C 3.3GHz 10MB Cache 1600MHz 130W
HC1 A1DA MES
Addl Intel Xeon Processor E5-2667 6C 2.9GHz 15MB Cache 1600MHz 130W
HC1 A1DB MES
Addl Intel Xeon Processor E5-2630L 6C 2.0GHz 15MB Cache 1333MHz 60W
HC1 A1DD MES
Addl Intel Xeon Processor E5-2650L 8C 1.8GHz 20MB Cache 1600MHz 70W
HC1 A1DE MES
IBM Flex System EN4132 2-port 10Gb Ethernet Adapter
HC1 A1QY MES
IBM Flex System IB6132 2-port FDR Infiniband Adapter
HC1 A1QZ MES
Addl Intel Xeon Processor E5-2670 8C 2.6GHz 20MB Cache 1600MHz 115W
HC1 A1SY MES
16GB (1x16GB, 4Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP LRDIMM
HC1 A290 MES
Addl Intel Xeon Processor E5-2637 2C 3.0GHz 5MB Cache 1600MHz 80W
HC1 A2EQ MES
Addl Intel Xeon Processor E5-2690 8C 2.9GHz 20MB Cache 1600MHz 135W
HC1 A2ES MES
Addl Intel Xeon Processor E5-2665 8C 2.4GHz 20MB Cache 1600MHz 115W
HC1 A2EU MES
IBM Flex System x240 USB Enablement Kit
HC1 A2HN MES
IBM Flex System FC3052 2-port 8Gb FC Adapter
HC1 A2N5 MES
16GB (1x16GB, 2Rx4, 1.5V) PC3-12800 CL11 ECC DDR3 1600MHz LP RDIMM
HC1 A2U5 MES
Addl Intel Xeon Processor E5-2658 8C 2.1GHz 20MB Cache 1600MHz 95W
HC1 A31B Initial
Addl Intel Xeon Processor E5-2648L 8C 1.8GHz 20MB Cache 1600MHz 70W
HC1 A31C Initial
IBM Flex System FC3172 2-port 8Gb FC Adapter
HC1 A1BM Initial

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IBM Flex System CN4054 10Gb Virtual Fabric Adapter
                            HC1      A1R1          Initial

IBM Flex System CN4054 Virtual Fabric Adapter-SW
                            HC1      A1R0          Initial
```

The following are newly announced features on the specified models of the IBM xSeries 8737 machine type:

Description	Model number	Feature number	Initial/ MES/ Both support	CSU	RP MES
IBM Flex System x240 Compute Node	AC1			Yes	
IBM Flex System x240 Compute Node	MC1			Yes	
Integrated SATA Mirroring - 2 identical HDDs required	AC1	0030	Initial		
	MC1		Initial		
Integrated SATA Striping - 2 identical HDDs required	AC1	0031	Initial		
	MC1		Initial		
UID Asset Tag Label	AC1	0747	Initial		
	MC1		Initial		
EMEA Long Leadtime Configurations	AC1	1763	Initial		
	MC1		Initial		
Hungary CHW plant 9SH	AC1	1764	Initial		
	MC1		Initial		
Guad CHW plant 9KQ	AC1	1765	Initial		
	MC1		Initial		
ISTC CHW 9K2	AC1	1766	Initial		
	MC1		Initial		
RTP CHW 9NR	AC1	1767	Initial		
	MC1		Initial		
Offload Manufacturing to Guadalajara HVEC	AC1	1768	Initial		
	MC1		Initial		
Offload Manufacturing to RTP HVEC	AC1	1769	Initial		
	MC1		Initial		
Offload Manufacturing to ISTC	AC1	1770	Initial		
	MC1		Initial		
Routing for AP Foxconn	AC1	1771	Initial		
	MC1		Initial		
Capacity Scheduling Service	AC1	1772	Initial		
	MC1		Initial		
Custom SLA Scheduling Service	AC1	1796	Initial		
	MC1		Initial		
Custom Asset Tagging - Standard	AC1	2200	Initial		
	MC1		Initial		
Custom Asset Tagging - Enhanced	AC1	2201	Initial		
	MC1		Initial		

```
Custom Image Load - Server
                              AC1      2204          Initial
                              MC1                    Initial
Custom Media Shipgroup
                              AC1      2206          Initial
                              MC1                    Initial
Request for Global Trade Number (UPC or EAN)
                              AC1      2207          Initial
                              MC1                    Initial
Custom Software/Firmware Setting - Standard
                              AC1      2208          Initial
                              MC1                    Initial
Custom Software/Firmware Setting - Enhanced
                              AC1      2209          Initial
                              MC1                    Initial
Custom RAID Configuration
                              AC1      2212          Initial
                              MC1                    Initial
Custom Labeling
                              AC1      2220          Initial
                              MC1                    Initial
Custom Palletization
                              AC1      2221          Initial
                              MC1                    Initial
Request for a new Vendor Logo Hardware
                              AC1      2247          Initial
                              MC1                    Initial
Request for an existing IBM Feature
                              AC1      2248          Initial
                              MC1                    Initial
Request for an existing Public RPQ
                              AC1      2249          Initial
                              MC1                    Initial
RAID Configuration
                              AC1      2302          Initial
                              MC1                    Initial
Rack 01
                              AC1      3101          Initial
                              MC1                    Initial
Rack 02
                              AC1      3102          Initial
                              MC1                    Initial
Rack 03
                              AC1      3103          Initial
                              MC1                    Initial
Rack 04
                              AC1      3104          Initial
                              MC1                    Initial
Rack 05
                              AC1      3105          Initial
                              MC1                    Initial
Rack 06
                              AC1      3106          Initial
                              MC1                    Initial
Rack 07
                              AC1      3107          Initial
                              MC1                    Initial
Rack 08
                              AC1      3108          Initial
                              MC1                    Initial
Rack 09
                              AC1      3109          Initial
                              MC1                    Initial
Rack 10
                              AC1      3110          Initial
                              MC1                    Initial
Rack 11
                              AC1      3111          Initial
                              MC1                    Initial
Rack 12
                              AC1      3112          Initial
                              MC1                    Initial
Rack 13
                              AC1      3113          Initial
```

	MC1		Initial
Rack 14			
	AC1	3114	Initial
	MC1		Initial
Rack 15			
	AC1	3115	Initial
	MC1		Initial
Rack 16			
	AC1	3116	Initial
	MC1		Initial
Rack 17			
	AC1	3117	Initial
	MC1		Initial
Rack 18			
	AC1	3118	Initial
	MC1		Initial
Rack 19			
	AC1	3119	Initial
	MC1		Initial
Rack 20			
	AC1	3120	Initial
	MC1		Initial
Rack 21			
	AC1	3121	Initial
	MC1		Initial
Rack 22			
	AC1	3122	Initial
	MC1		Initial
Rack 23			
	AC1	3123	Initial
	MC1		Initial
Rack 24			
	AC1	3124	Initial
	MC1		Initial
Rack 25			
	AC1	3125	Initial
	MC1		Initial
Rack 26			
	AC1	3126	Initial
	MC1		Initial
Rack 27			
	AC1	3127	Initial
	MC1		Initial
Rack 28			
	AC1	3128	Initial
	MC1		Initial
Rack 29			
	AC1	3129	Initial
	MC1		Initial
Rack 30			
	AC1	3130	Initial
	MC1		Initial
Rack 31			
	AC1	3131	Initial
	MC1		Initial
Rack 32			
	AC1	3132	Initial
	MC1		Initial
Rack 33			
	AC1	3133	Initial
	MC1		Initial
Rack 34			
	AC1	3134	Initial
	MC1		Initial
Rack 35			
	AC1	3135	Initial
	MC1		Initial
Rack 36			
	AC1	3136	Initial
	MC1		Initial
Rack 37			
	AC1	3137	Initial
	MC1		Initial
Rack 38			

	AC1	3138	Initial
	MC1		Initial
Rack 39			
	AC1	3139	Initial
	MC1		Initial
Rack 40			
	AC1	3140	Initial
	MC1		Initial
Rack 41			
	AC1	3141	Initial
	MC1		Initial
Rack 42			
	AC1	3142	Initial
	MC1		Initial
Rack 43			
	AC1	3143	Initial
	MC1		Initial
Rack 44			
	AC1	3144	Initial
	MC1		Initial
Rack 45			
	AC1	3145	Initial
	MC1		Initial
Rack 46			
	AC1	3146	Initial
	MC1		Initial
Rack 47			
	AC1	3147	Initial
	MC1		Initial
Rack 48			
	AC1	3148	Initial
	MC1		Initial
Rack 49			
	AC1	3149	Initial
	MC1		Initial
Rack 50			
	AC1	3150	Initial
	MC1		Initial
Rack 51			
	AC1	3151	Initial
	MC1		Initial
Rack 52			
	AC1	3152	Initial
	MC1		Initial
Rack 53			
	AC1	3153	Initial
	MC1		Initial
Rack 54			
	AC1	3154	Initial
	MC1		Initial
Rack 55			
	AC1	3155	Initial
	MC1		Initial
Rack 56			
	AC1	3156	Initial
	MC1		Initial
Rack 57			
	AC1	3157	Initial
	MC1		Initial
Rack 58			
	AC1	3158	Initial
	MC1		Initial
Rack 59			
	AC1	3159	Initial
	MC1		Initial
Rack 60			
	AC1	3160	Initial
	MC1		Initial
Rack 61			
	AC1	3161	Initial
	MC1		Initial
Rack 62			
	AC1	3162	Initial
	MC1		Initial

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Rack 63
                        AC1     3163        Initial
                        MC1                 Initial
Rack 64
                        AC1     3164        Initial
                        MC1                 Initial
BladeCenter 01
                        AC1     3301        Initial
                        MC1                 Initial
BladeCenter 02
                        AC1     3302        Initial
                        MC1                 Initial
BladeCenter 03
                        AC1     3303        Initial
                        MC1                 Initial
BladeCenter 04
                        AC1     3304        Initial
                        MC1                 Initial
BladeCenter 05
                        AC1     3305        Initial
                        MC1                 Initial
BladeCenter 06
                        AC1     3306        Initial
                        MC1                 Initial
BladeCenter 07
                        AC1     3307        Initial
                        MC1                 Initial
BladeCenter 08
                        AC1     3308        Initial
                        MC1                 Initial
BladeCenter 09
                        AC1     3309        Initial
                        MC1                 Initial
BladeCenter 10
                        AC1     3310        Initial
                        MC1                 Initial
BladeCenter 11
                        AC1     3311        Initial
                        MC1                 Initial
BladeCenter 12
                        AC1     3312        Initial
                        MC1                 Initial
BladeCenter 13
                        AC1     3313        Initial
                        MC1                 Initial
BladeCenter 14
                        AC1     3314        Initial
                        MC1                 Initial
BladeCenter 15
                        AC1     3315        Initial
                        MC1                 Initial
BladeCenter 16
                        AC1     3316        Initial
                        MC1                 Initial
BladeCenter 17
                        AC1     3317        Initial
                        MC1                 Initial
BladeCenter 18
                        AC1     3318        Initial
                        MC1                 Initial
BladeCenter 19
                        AC1     3319        Initial
                        MC1                 Initial
BladeCenter 20
                        AC1     3320        Initial
                        MC1                 Initial
BladeCenter 21
                        AC1     3321        Initial
                        MC1                 Initial
BladeCenter 22
                        AC1     3322        Initial
                        MC1                 Initial
BladeCenter 23
                        AC1     3323        Initial
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                              MC1                 Initial
BladeCenter 24
                              AC1       3324      Initial
                              MC1                 Initial
BladeCenter 25
                              AC1       3325      Initial
                              MC1                 Initial
BladeCenter 26
                              AC1       3326      Initial
                              MC1                 Initial
BladeCenter 27
                              AC1       3327      Initial
                              MC1                 Initial
BladeCenter 28
                              AC1       3328      Initial
                              MC1                 Initial
BladeCenter 29
                              AC1       3329      Initial
                              MC1                 Initial
BladeCenter 30
                              AC1       3330      Initial
                              MC1                 Initial
BladeCenter 31
                              AC1       3331      Initial
                              MC1                 Initial
BladeCenter 32
                              AC1       3332      Initial
                              MC1                 Initial
BladeCenter 33
                              AC1       3333      Initial
                              MC1                 Initial
BladeCenter 34
                              AC1       3334      Initial
                              MC1                 Initial
BladeCenter 35
                              AC1       3335      Initial
                              MC1                 Initial
BladeCenter 36
                              AC1       3336      Initial
                              MC1                 Initial
BladeCenter 37
                              AC1       3337      Initial
                              MC1                 Initial
BladeCenter 38
                              AC1       3338      Initial
                              MC1                 Initial
BladeCenter 39
                              AC1       3339      Initial
                              MC1                 Initial
BladeCenter 40
                              AC1       3340      Initial
                              MC1                 Initial
BladeCenter location 01
                              AC1       3401      Initial
                              MC1                 Initial
BladeCenter location 02
                              AC1       3402      Initial
                              MC1                 Initial
BladeCenter location 03
                              AC1       3403      Initial
                              MC1                 Initial
BladeCenter location 04
                              AC1       3404      Initial
                              MC1                 Initial
BladeCenter location 05
                              AC1       3405      Initial
                              MC1                 Initial
BladeCenter location 06
                              AC1       3406      Initial
                              MC1                 Initial
BladeCenter location 07
                              AC1       3407      Initial
                              MC1                 Initial
BladeCenter location 08
```

```
                              AC1      3408          Initial
                              MC1                    Initial
BladeCenter location 09
                              AC1      3409          Initial
                              MC1                    Initial
BladeCenter location 10
                              AC1      3410          Initial
                              MC1                    Initial
BladeCenter location 11
                              AC1      3411          Initial
                              MC1                    Initial
BladeCenter location 12
                              AC1      3412          Initial
                              MC1                    Initial
BladeCenter location 13
                              AC1      3413          Initial
                              MC1                    Initial
BladeCenter location 14
                              AC1      3414          Initial
                              MC1                    Initial
IBM 500GB 7200 6Gbps NL SAS 2.5" SFF Slim-HS HDD
                              AC1      5409          Initial
                              MC1                    Initial
IBM 200GB SATA 1.8" MLC SSD
                              AC1      5420          Initial
                              MC1                    Initial
IBM 50GB SATA 1.8" MLC SSD
                              AC1      5428          Initial
                              MC1                    Initial
IBM 600GB 10K 6Gbps SAS 2.5" SFF Slim-HS HDD
                              AC1      5433          Initial
                              MC1                    Initial
IBM 146GB 15K 6Gbps SAS 2.5" SFF Slim-HS HDD
                              AC1      5536          Initial
                              MC1                    Initial
IBM 300GB 10K 6Gbps SAS 2.5" SFF Slim-HS HDD
                              AC1      5599          Initial
                              MC1                    Initial
Select Storage devices - no IBM-configured RAID
required
                              AC1      5977          Initial
                              MC1                    Initial
Select Storage devices - IBM-configured RAID
                              AC1      5978          Initial
                              MC1                    Initial
SOFS Solution Code MFG Instruction
                              AC1      6124          Initial
                              MC1                    Initial
SAP-BWA Solution Code MFG Instruction
                              AC1      6125          Initial
                              MC1                    Initial
InfoSphere-BWA Solution Code MFG Instruction
                              AC1      6126          Initial
                              MC1                    Initial
GMAS Solution Code MFG Instruction
                              AC1      6127          Initial
                              MC1                    Initial
IBW-SSD Solution Code MFG Instruction
                              AC1      6128          Initial
                              MC1                    Initial
Cloudburst Solution Code MFG Instruction
                              AC1      6129          Initial
                              MC1                    Initial
SoNAS Solution Code MFG Instruction
                              AC1      6130          Initial
                              MC1                    Initial
2.5" Gen2 HS HDD Filler
                              AC1      6421          Initial
                              MC1                    Initial
Primary Array 2 HDDs
                              AC1      7008          Initial
                              MC1                    Initial
Primary Array 3 HDDs
                              AC1      7009          Initial
```

```
                              MC1                   Initial
Primary Array 4 HDDs
                              AC1      7010         Initial
                              MC1                   Initial
Primary Array 5 HDDs
                              AC1      7011         Initial
                              MC1                   Initial
Primary Array 6 HDDs
                              AC1      7012         Initial
                              MC1                   Initial
Primary Array 7 HDDs
                              AC1      7013         Initial
                              MC1                   Initial
Primary Array 8 HDDs
                              AC1      7014         Initial
                              MC1                   Initial
Secondary Array 2 HDDs
                              AC1      7015         Initial
                              MC1                   Initial
Secondary Array 3 HDDs
                              AC1      7016         Initial
                              MC1                   Initial
Secondary Array 4 HDDs
                              AC1      7017         Initial
                              MC1                   Initial
Secondary  Array 5 HDDs
                              AC1      7057         Initial
                              MC1                   Initial
Secondary Array 6 HDDs
                              AC1      7058         Initial
                              MC1                   Initial
Customer Solution Center Services
                              AC1      7831         Initial
                              MC1                   Initial
e1350 Special Bid Solution Component
                              AC1      7929         Initial
                              MC1                   Initial
No HDD Selected
                              AC1      8026         Initial
                              MC1                   Initial
No Processor Selected
                              AC1      8028         Initial
                              MC1                   Initial
Consolidate Shipment
                              AC1      8031         Initial
                              MC1                   Initial
e1350 Solution Component
                              AC1      8034         Initial
                              MC1                   Initial
Compute Node
                              AC1      8036         Initial
                              MC1                   Initial
Management Node
                              AC1      8037         Initial
                              MC1                   Initial
Storage Node
                              AC1      8038         Initial
                              MC1                   Initial
Integrated SAS Mirroring - 2 identical HDDs
required
                              AC1      8039         Initial
                              MC1                   Initial
Integrated SAS Striping - 2 identical HDDs required
                              AC1      8040         Initial
                              MC1                   Initial
TAA Compliant Order
                              AC1      8067         Initial
                              MC1                   Initial
General Racking Solution
                              AC1      8072         Initial
                              MC1                   Initial
Integrate BladeCenter in Manufacturing
                              AC1      8077         Initial
                              MC1                   Initial
```

```
No 2.5" SAS HDD Selected
                              AC1      8081          Initial
                              MC1                    Initial
No Publications Selected
                              AC1      8086          Initial
                              MC1                    Initial
8GB (1x8GB, 2Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3
1333MHz LP RDIMM
                              AC1      8923          Initial
                              MC1                    Initial
16GB (1x16GB, 4Rx4, 1.35V) PC3L-8500 CL7 ECC DDR3
1066MHz LP RDIMM
                              AC1      8939          Initial
                              MC1                    Initial
2GB (1x2GB, 1Rx8, 1.35V) PC3L-10600 CL9 ECC DDR3
1333MHz LP RDIMM
                              AC1      8940          Initial
                              MC1                    Initial
4GB (1x4GB, 1Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3
1333MHz LP RDIMM
                              AC1      8941          Initial
                              MC1                    Initial
4GB (1x4GB, 2Rx8, 1.35V) PC3L-10600 CL9  ECC DDR3
1333MHz LP RDIMM
                              AC1      8942          Initial
                              MC1                    Initial
Memory Sparing
                              AC1      9016          Initial
                              MC1                    Initial
Enable Memory Mirroring
                              AC1      9017          Initial
                              MC1                    Initial
Storage Subsystem ID 01
                              AC1      9170          Initial
                              MC1                    Initial
Storage Subsystem ID 02
                              AC1      9171          Initial
                              MC1                    Initial
Storage Subsystem ID 03
                              AC1      9172          Initial
                              MC1                    Initial
Storage Subsystem ID 04
                              AC1      9173          Initial
                              MC1                    Initial
Storage Subsystem ID 05
                              AC1      9174          Initial
                              MC1                    Initial
Storage Subsystem ID 06
                              AC1      9175          Initial
                              MC1                    Initial
Storage Subsystem ID 07
                              AC1      9176          Initial
                              MC1                    Initial
Storage Subsystem ID 08
                              AC1      9177          Initial
                              MC1                    Initial
Storage Subsystem ID 09
                              AC1      9178          Initial
                              MC1                    Initial
Storage Subsystem ID 10
                              AC1      9179          Initial
                              MC1                    Initial
Storage Subsystem ID 11
                              AC1      9180          Initial
                              MC1                    Initial
Storage Subsystem ID 12
                              AC1      9181          Initial
                              MC1                    Initial
Storage Subsystem ID 13
                              AC1      9182          Initial
                              MC1                    Initial
Storage Subsystem ID 14
                              AC1      9183          Initial
                              MC1                    Initial
```

```
Storage Subsystem ID 15
                              AC1      9184          Initial
                              MC1                    Initial
Storage Subsystem ID 16
                              AC1      9185          Initial
                              MC1                    Initial
Storage Subsystem ID 17
                              AC1      9186          Initial
                              MC1                    Initial
Storage Subsystem ID 18
                              AC1      9187          Initial
                              MC1                    Initial
Storage Subsystem ID 19
                              AC1      9188          Initial
                              MC1                    Initial
Storage Subsystem ID 20
                              AC1      9189          Initial
                              MC1                    Initial
Preload Specify
                              AC1      9200          Initial
                              MC1                    Initial
Windows Specify
                              MC1      9201          Initial
Red Hat Specify
                              AC1      9202          Initial
SuSE Specify
                              AC1      9203          Initial
AIX Specify
                              AC1      9204          Initial
Drop-in-the-Box Specify
                              AC1      9205          Initial
                              MC1                    Initial
No Preload Specify
                              AC1      9206          Initial
                              MC1                    Initial
VMWare Specify
                              AC1      9207          Initial
                              MC1                    Initial
Solaris Specify
                              AC1      9208          Initial
System x Cluster Upgrade
                              AC1      A1Q3          Initial
                              MC1                    Initial
IBM 1TB 7.2K 6Gbps NL SATA 2.5" SFF HS HDD
                              AC1      A1AV          Initial
                              MC1                    Initial
IBM Flex System Compute Node WW packaging -
Standard
                              AC1      A1BA          Initial
                              MC1                    Initial
Intel Xeon Processor E5-2680 8C 2.7GHz 20MB Cache
1600MHz 130W
                              AC1      A1BB          Initial
                              MC1                    Initial
IBM Flex System x240 Compute Node with embedded
10Gb Virtual Fabric
                              AC1      A1BC          Initial
                              MC1                    Initial
IBM Flex System x240 Compute Node
                              AC1      A1BD          Initial
                              MC1                    Initial
IBM Flex System x240 Compute Node Label
                              AC1      A1BE          Initial
                              MC1                    Initial
IBM Flex System x240 Compute Node Front Bezel
                              AC1      A1BF          Initial
                              MC1                    Initial
IBM Flex System x240 Compute Node Cover
                              AC1      A1BJ          Initial
                              MC1                    Initial
IBM Flex System x240 Compute Node CPU Filler
                              AC1      A1BK          Initial
                              MC1                    Initial
IBM Flex System Compute Node 2.5" SAS 2.0 Backplane
```

```
                              AC1      A1BL          Initial
                              MC1                    Initial
IBM Flex System FC3172 2-port 8Gb FC Adapter
                              AC1      A1BM          Initial
                              MC1                    Initial


System Documentation and Software-US English
                              AC1      A1C2          Initial
                              MC1                    Initial









Intel Xeon Processor E5-2603 4C 1.8GHz 10MB Cache
1066MHz 80W
                              AC1      A1CQ          Initial
                              MC1                    Initial
Intel Xeon Processor E5-2609 4C 2.4GHz 10MB Cache
1066MHz 80W
                              AC1      A1CS          Initial
                              MC1                    Initial
Intel Xeon Processor E5-2620 6C 2.0GHz 15MB Cache
1333MHz 95W
                              AC1      A1CT          Initial
                              MC1                    Initial
Intel Xeon Processor E5-2630 6C 2.3GHz 15MB Cache
1333MHz 95W
                              AC1      A1CU          Initial
                              MC1                    Initial
Intel Xeon Processor E5-2640 6C 2.5GHz 15MB Cache
1333MHz 95W
                              AC1      A1CV          Initial
                              MC1                    Initial
Intel Xeon Processor E5-2650 8C 2.0GHz 20MB Cache
1600MHz 95W
                              AC1      A1CW          Initial
                              MC1                    Initial
Intel Xeon Processor E5-2660 8C 2.2GHz 20MB Cache
1600MHz 95W
                              AC1      A1CX          Initial
                              MC1                    Initial
Intel Xeon Processor E5-2643 4C 3.3GHz 10MB Cache
1600MHz 130W
                              AC1      A1CY          Initial
                              MC1                    Initial
Intel Xeon Processor E5-2667 6C 2.9GHz 15MB Cache
1600MHz 130W
                              AC1      A1CZ          Initial
                              MC1                    Initial
Intel Xeon Processor E5-2630L 6C 2.0GHz 15MB Cache
1333MHz 60W
                              AC1      A1ER          Initial
                              MC1                    Initial
Intel Xeon Processor E5-2650L 8C 1.8GHz 20MB Cache
1600MHz 70W
                              AC1      A1ES          Initial
                              MC1                    Initial
IBM 250GB 7.2K 6Gbps NL SATA 2.5" SFF HS HDD
                              AC1      A1NX          Initial
                              MC1                    Initial
IBM 500GB 7.2K 6Gbps NL SATA 2.5" SFF HS HDD
                              AC1      A1NZ          Initial
```

```
                              MC1                    Initial
IBM 1TB 7.2K 6Gbps NL SAS 2.5" SFF HS HDD
                              AC1      A1P3          Initial
                              MC1                    Initial
16GB (1x16GB, 2Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3
1333MHz LP RDIMM
                              AC1      A1QT          Initial
                              MC1                    Initial
IBM Flex System CN4054 Virtual Fabric Adapter (SW
Upgrade)
                              AC1      A1R0          Initial
                              MC1                    Initial
IBM Flex System CN4054 10Gb Virtual Fabric Adapter
                              AC1      A1R1          Initial
                              MC1                    Initial
Intel Xeon Processor E5-2670 8C 2.6GHz 20MB Cache
1600MHz 115W
                              AC1      A1SX          Initial
                              MC1                    Initial
IBM Flex System x240 Compute Node Air Baffle
                              AC1      A248          Initial
                              MC1                    Initial
4GB (1x4GB, 2Rx8, 1.5V) PC3-12800 CL11 ECC DDR3
1600MHz LP RDIMM
                              AC1      A24L          Initial
                              MC1                    Initial
IBM Flex System Compute Node Fabric Connector
                              AC1      A26R          Initial
                              MC1                    Initial
IBM 900GB 10K 6Gbps SAS 2.5" SFF HS HDD
                              AC1      A282          Initial
                              MC1                    Initial
IBM 300GB 15K 6Gbps SAS 2.5" SFF HS HDD
                              AC1      A283          Initial
                              MC1                    Initial
4GB (1x4GB, 1Rx4, 1.5V) PC3-12800 CL11 ECC DDR3
1600MHz LP RDIMM
                              AC1      A28Z          Initial
                              MC1                    Initial
Intel Xeon Processor E5-2637 2C 3.0GHz 5MB Cache
1600MHz 80W
                              AC1      A2EP          Initial
                              MC1                    Initial
Intel Xeon Processor E5-2690 8C 2.9GHz 20MB Cache
1600MHz 135W
                              AC1      A2ER          Initial
                              MC1                    Initial
Intel Xeon Processor E5-2665 8C 2.4GHz 20MB Cache
1600MHz 115W
                              AC1      A2ET          Initial
                              MC1                    Initial



RFID Tag, AG/AP: 902-928Mhz
                              AC1      A2EV          Initial
                              MC1                    Initial


IBM 200GB SATA 2.5" MLC HS SSD
                              AC1      A2FN          Initial
                              MC1                    Initial
Primary Array - RAID 0
                              AC1      A2K6          Initial
                              MC1                    Initial
Primary Array - RAID 1
                              AC1      A2K7          Initial
                              MC1                    Initial
Primary Array - RAID 5
                              AC1      A2K9          Initial
                              MC1                    Initial
Primary Array - RAID 6
                              AC1      A2KA          Initial
                              MC1                    Initial
```

```
Primary Array - RAID 10
                              AC1      A2KB          Initial
                              MC1                    Initial
Secondary Array - RAID 0
                              AC1      A2KF          Initial
                              MC1                    Initial
Secondary Array - RAID 1
                              AC1      A2KG          Initial
                              MC1                    Initial
Secondary Array - RAID 5
                              AC1      A2KJ          Initial
                              MC1                    Initial
Secondary Array - RAID 6
                              AC1      A2KK          Initial
                              MC1                    Initial
Secondary Array - RAID 10
                              AC1      A2KL          Initial
                              MC1                    Initial
IBM Virtual Fabric Advanced Software Upgrade (LOM)
                              AC1      A2TD          Initial
                              MC1                    Initial
IBM 256GB SATA 2.5" MLC HS Entry SSD
                              AC1      A2U3          Initial
                              MC1                    Initial
IBM 128GB SATA 2.5" MLC HS Entry SSD
                              AC1      A2U4          Initial
                              MC1                    Initial
IBM USB Memory Key for VMWare ESXi 5.0
                              AC1      A2VC          Initial
                              MC1                    Initial
Intel Xeon Processor E5-2658 8C 2.1GHz 20MB Cache
1600MHz 95W
                              AC1      A319          Initial
                              MC1                    Initial
Intel Xeon Processor E5-2648L 8C 1.8GHz 20MB Cache
1600MHz 70W
                              AC1      A31A          Initial
                              MC1                    Initial
IBM Flex System x240 USB Enablement Kit
                              AC1      A33M          Initial
                              MC1                    Initial
PureFlex System Expansion Indicator
                              AC1      A34H          Initial
                              MC1                    Initial
```

The following are features already announced for the 8737 machine type:

```
                                                    Initial/
                                                    MES/
                             Model  Feature         Both         RP
Description                  number number         support  CSU MES

AC1
                              AC1                            Yes
MC1
                              MC1                            Yes
IBM Flex System EN2024 4-port 1Gb Ethernet Adapter
                              AC1      A10Y          Initial
                              MC1                    Initial
IBM Flex System FC5022 2-port 16Gb FC Adapter
                              AC1      A1BP          Initial
                              MC1                    Initial
Addl Intel Xeon Processor E5-2603 4C 1.8GHz 10MB
Cache 1066MHz 80W
                              AC1      A1D1          Initial
                              MC1                    Initial
Addl Intel Xeon Processor E5-2609 4C 2.4GHz 10MB
Cache 1066MHz 80W
                              AC1      A1D3          Initial
                              MC1                    Initial
Addl Intel Xeon Processor E5-2620 6C 2.0GHz 15MB
Cache 1333MHz 95W
                              AC1      A1D4          Initial
```

```
                              MC1                    Initial
Addl Intel Xeon Processor E5-2630 6C 2.3GHz 15MB
Cache 1333MHz 95W
                              AC1      A1D5          Initial
                              MC1                    Initial
Addl Intel Xeon Processor E5-2640 6C 2.5GHz 15MB
Cache 1333MHz 95W
                              AC1      A1D6          Initial
                              MC1                    Initial
Addl Intel Xeon Processor E5-2650 8C 2.0GHz 20MB
Cache 1600MHz 95W
                              AC1      A1D7          Initial
                              MC1                    Initial
Addl Intel Xeon Processor E5-2660 8C 2.2GHz 20MB
Cache 1600MHz 95W
                              AC1      A1D8          Initial
                              MC1                    Initial
Addl Intel Xeon Processor E5-2680 8C 2.7GHz 20MB
Cache 1600MHz 130W
                              AC1      A1D9          Initial
                              MC1                    Initial
Addl Intel Xeon Processor E5-2643 4C 3.3GHz 10MB
Cache 1600MHz 130W
                              AC1      A1DA          Initial
                              MC1                    Initial
Addl Intel Xeon Processor E5-2667 6C 2.9GHz 15MB
Cache 1600MHz 130W
                              AC1      A1DB          Initial
                              MC1                    Initial
Addl Intel Xeon Processor E5-2630L 6C 2.0GHz 15MB
Cache 1333MHz 60W
                              AC1      A1DD          Initial
                              MC1                    Initial
Addl Intel Xeon Processor E5-2650L 8C 1.8GHz 20MB
Cache 1600MHz 70W
                              AC1      A1DE          Initial
                              MC1                    Initial
IBM Flex System EN4132 2-port 10Gb Ethernet Adapter
                              AC1      A1QY          Initial
                              MC1                    Initial
IBM Flex System IB6132 2-port FDR Infiniband
Adapter
                              AC1      A1QZ          Initial
                              MC1                    Initial
Addl Intel Xeon Processor E5-2670 8C 2.6GHz 20MB
Cache 1600MHz 115W
                              AC1      A1SY          Initial
                              MC1                    Initial
16GB (1x16GB, 4Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3
1333MHz LP LRDIMM
                              AC1      A290          Initial
                              MC1                    Initial
Addl Intel Xeon Processor E5-2637 2C 3.0GHz 5MB
Cache 1600MHz 80W
                              AC1      A2EQ          Initial
                              MC1                    Initial
Addl Intel Xeon Processor E5-2690 8C 2.9GHz 20MB
Cache 1600MHz 135W
                              AC1      A2ES          Initial
                              MC1                    Initial
Addl Intel Xeon Processor E5-2665 8C 2.4GHz 20MB
Cache 1600MHz 115W
                              AC1      A2EU          Initial
                              MC1                    Initial
IBM Flex System FC3052 2-port 8Gb FC Adapter
                              AC1      A2N5          Initial
                              MC1                    Initial
16GB (1x16GB, 2Rx4, 1.5V) PC3-12800 CL11 ECC DDR3
1600MHz LP RDIMM
                              AC1      A2U5          Initial
                              MC1                    Initial
Addl Intel Xeon Processor E5-2658 8C 2.1GHz 20MB
Cache 1600MHz 95W
                              AC1      A31B          Initial
```

```
                              MC1                   Initial
Addl Intel Xeon Processor E5-2648L 8C 1.8GHz 20MB
Cache 1600MHz 70W
                              AC1      A31C         Initial
                              MC1                   Initial
China Warranty
                              AC1      7599         Initial
                              MC1                   Initial
4GB (1x4GB, 2Rx8, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP UDIMM
                              AC1      8648         Initial
                              MC1                   Initial

32GB (1x32GB, 4Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP LRDIMM
                              AC1      A291         Initial
                              MC1                   Initial

8GB (1x8GB, 2Rx4, 1.5V) PC3-12800 CL11 ECC DDR3 1600MHz LP RDIMM
                              AC1      A292         Initial
                              MC1                   Initial
IBM Blank USB Memory Key for VMWare ESXi Downloads
                              AC1      A2G0         Initial
                              MC1                   Initial
```

IBM Flex System x240 Compute Node

Description	SEO number	Initial/ MES/ Both support	CSU	RP MES
E5-2690, 2.9 GHz 8C, 130w, 8GB	8737R2U	Both	Yes	
E5-2667, 2.9 GHz 6C, 130w, 8GB	8737Q2U	Both	Yes	
E5-2643, 3.3 GHz 4C, 130w, 8GB	8737N2U	Both	Yes	
E5-2680, 2.7 GHz 8C, 130w, 8GB	8737M2U	Both	Yes	
E5-2680, 2.7 GHz 6C, 130w, 8GB	8737M1U	Both	Yes	
E5-2660, 2.2 GHz 8C, 95w, 8GB	8737L2x	Both	Yes	
E5-2670, 2.6 GHz 8C, 115w, 8GB	8737J1x	Both	Yes	
E5-2640, 2.5 GHz 6C, 95w, 8GB	8737H2x	Both	Yes	
E5-2840, 2.5 GHz 6C, 95w, 8GB	8737H1x	Both	Yes	
E5-2830, 2.3 GHz 6C, 95w, 8GB	8737G2x	Both	Yes	
E5-2620, 2.0 GHz 6C, 95w, 8GB	8737F2x	Both	Yes	
E5-2609, 2.4 GHz 4C, 80w, 8GB	8737D2x	Both	Yes	
E5-2630L,2.0 GHz 6C, 60w, 8GB	8737A1x	Both	Yes	

SEO Options

Description	SEO number	Initial/ MES/ Both support	CSU	RP MES
Intel Xeon 8C 1.8GHz 20MB 1600MHz 70W	81Y5179	Both	Yes	
Intel Xeon 4C 1.8GHz 10MB 1066MHz 80W	81Y5180	Both	Yes	
Intel Xeon 4C 2.40GHz 10MB 1066MHz 80W	81Y5182	Both	Yes	
Intel Xeon 6C 2.0GHz 15MB 1333MHz 95W	81Y5183	Both	Yes	
Intel Xeon 6C 2.3GHz 15MB 1333MHz 95W	81Y5184	Both	Yes	
Intel Xeon 6C 2.5GHz 15MB 1333MHz 95W	81Y5185	Both	Yes	
Intel Xeon 8C 2.0GHz 20MB 1600MHz 95W	81Y5186	Both	Yes	
Intel Xeon 8C 2.2GHz 20MB 1600MHz 95W	81Y5187	Both	Yes	
Intel Xeon 8C 2.7GHz 20MB 1600MHz 130W	81Y5188	Both	Yes	
Intel Xeon 6C 2.6GHz 15MB 1600MHz 130W	81Y5189	Both	Yes	
Intel Xeon 4C 3.3GHz 10MB 1600MHz 130W	81Y5190	Both	Yes	
Intel Xeon 6C 2.0GHz 15MB 1333MHz 60W	81Y5206	Both	Yes	
Intel Xeon 8C 2.6GHz 20MB 1600MHz 115W	81Y9418	Both	Yes	
Intel Xeon 2C 3.0GHz 5MB 1600MHz 80W	49Y8125	Both	Yes	
Intel Xeon 8C 2.9GHz 20MB 1600MHz 135W	49Y8116	Both	Yes	
Intel Xeon 8C 2.4GHz 20MB 1600MHz 115W	49Y8144	Both	Yes	
Intel Xeon 8C 1.8GHz 20MB 1600MHz 70W	95Y4670	Both	Yes	
Intel Xeon 8C 2.1GHz 20MB 1600MHz 95W	95Y4675	Both	Yes	
IBM Flex System x240 USB Enablement Kit	49Y8119	Both	Yes	
IBM Flex System CN4054 10Gb Virtual	90Y3554	Both	Yes	

Fabric Adapter			
IBM Flex System CN4054 Virtual Fabric Adapter (SW Upgrade)	90Y3558	Both	Yes
IBM Flex System EN2024 4-port 1Gb Ethernet Adapter	49Y7900	Both	Yes
IBM Flex System FC3172 2-port 8Gb FC Adapter	69Y1938	Both	Yes
IBM Flex System FC5022 2-port 16Gb FC Adapter	88Y6370	Both	Yes
IBM Flex System IB6132 2-port FDR Infiniband Adapter	90Y3454	Both	Yes
IBM Flex System EN4132 2-port 10Gb Ethernet Adapter	90Y3466	Both	Yes
IBM Flex System FC3052 2-port 8Gb FC Adapter	95Y2375	Both	Yes
16GB (1x16GB, 2Rx4, 1.5V) PC3-12800 CL11 ECC DDR3 1600MHz LP RDIMM	00D4968	Both	Yes
16GB (1x16GB, 4Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz LP LRDIMM	49Y1567	Both	Yes

ServicePac for Warranty and Maintenance

ServicePac offerings are valid for models announced in the United States.

ServicePac for Warranty and Maintenance

		SEO	MTM
8737	3 Year Onsite Repair 9x5 4 Hour Response	00X8461	6756801
8737	3 Year Onsite Repair 24x7 4 Hour Response	00X8462	6756802
8737	3 Year Onsite Repair 24x7 2 Hour Response	00X8463	6756803
8737	4 Year Onsite Repair 9x5 Next Business Day	00X8464	6756804
8737	4 Year Onsite Repair 9x5 4 Hour Response	00X8465	6756805
8737	4 Year Onsite Repair 24x7 4 Hour Response	00X8466	6756806
8737	4 Year Onsite Repair 24x7 2 Hour Response	00X8467	6756807
8737	5 Year Onsite Repair 9x5 Next Business Day	00X8468	6756808
8737	5 Year Onsite Repair 9x5 4 Hour Response	00X8469	6756809
8737	5 Year Onsite Repair 24x7 4 Hour Response	00X8470	675680A
8737	5 Year Onsite Repair 24x7 2 Hour Response	00X8471	675680B
8737	3 Year Onsite Repair 24x7 4 Hour Response with HDDR	00X8472	675680C
8737	4 Year Onsite Repair 24x7 4 Hour Response with HDDR	00X8473	675680D
8737	4 Year Onsite Repair 9x5 Next Business Day Response with HDDR	00X8474	675680F
8737	5 Year Onsite Repair 24x7 4 Hour Response with HDDR	00X8475	675680G
8737	5 Year Onsite Repair 9x5 Next Business Day Response with HDDR	00X8476	675680H

ServicePac for Maintenance Agreement

		SEO	MTM
8737	1 Year Onsite Repair 9x5 Next Business Day	00X8477	6756MY0
8737	1 Year Onsite Repair 9x5 4 Hour Response	00X8478	6756MY1
8737	1 Year Onsite Repair 24x7 4 Hour Response	00X8479	6756MY2
8737	1 Year Onsite Repair 24x7 2 Hour Response	00X8480	6756MY3
8737	2 Year Onsite Repair 9x5 Next Business Day	00X8481	6756MY4
8737	2 Year Onsite Repair 9x5 4 Hour Response	00X8482	6756MY5
8737	2 Year Onsite Repair 24x7 4 Hour Response	00X8483	6756MY6
8737	2 Year Onsite Repair 24x7 2 Hour Response	00X8484	6756MY7
8737	1 Year Onsite Repair 24x7 4 Hour Response with HDDR	00X8485	6756MY8
8737	2 Year Onsite Repair 24x7 4 Hour Response with HDDR	00X8486	6756MY9
8737	1 Year Onsite Repair 9x5 Next Business Day Response with HDDR	00X8487	6756MYA
8737	2 Year Onsite Repair 9x5 Next Business Day with HDDR	00X8488	6756MYB

ServicePac for Essential Support:
Warranty and Maintenance Option plus Remote Technical Response

		SEO	MTM
8737	3 Year Essential Support 24x7 4 Hour Response	00X8489	N/A

SERVICEPAC FOR Essential Support:
Maintenance plus Remote Technical Support

		SEO	MTM
8737	1 Year Essential Support 24x7 4 Hour Response	00X8490	N/A
8737	1 Year Essential Support 9x5 Next Business Day Response	00X8491	N/A

Visit the following web link for ServicePac information

http://www-935.ibm.com/services/us/its/html/servicepac_americas.html

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