



IBM Flex System x240 Compute Node

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At a glance

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

IBM PureFlex System offerings 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, 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 PureFlex 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 PureFlex 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 data center environments. IBM PureFlex 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 by 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 PureFlex System can help enterprises to achieve faster time-to-value of their IT assets, increase control of their environment, and minimize the complexity inherent in highly virtualized environments.

Key prerequisites

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

Planned availability date

- May 21, 2012: For all features except for features EFD3 and EFD5.
- June 15, 2012: For features EFD3 and EFD5.

Description

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 pass-thru modules that are installed in the chassis.

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

These compute nodes come with Intel Xeon™ microprocessors and provide the function, reliability, and performance of the X-Architecture® systems in a small form factor design. They support various 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.

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 memory modules (DIMMs)
- Up to two hot-swap storage drives
- Up to two I/O expansion adapters

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 all memory configurations.

Standard IBM Flex system X240 compute node processor configurations

Feature Number	Intel™		CPU		Cache	HDD interface
	Xeon Name	Cores	speed (GHz)	CPU power		
EP30/EP31	E5-2690	8	2.9	130W	20MB	H/S SFF
EP3E/EP3F	E5-2667	6	2.9	130W	15MB	H/S SFF
EP3G/EP3L	E5-2643	4	3.3	130W	10MB	H/S SFF
EP3C/EP3D	E5-2660	8	2.2	95W	20MB	H/S SFF
EP3R/EP3S	E5-2670	8	2.6	115W	20MB	H/S SFF
EP38/EP39	E5-2609	4	2.4	80W	10MB	H/S SFF
EP32/EP33	E5-2637	2	3.0	80W	5MB	H/S SFF
EP34/EP35	E5-2665	8	2.4	115W	20MB	H/S SFF
EP36/EP37	E5-2603	4	1.8	80W	10MB	H/S SFF
EP3A/EP3B	E5-2620	6	2.0	95W	15MB	H/S SFF
EP3M/EP3N	E5-2630L	6	2.0	60W	15MB	H/S SFF
EP3P/EP3Q	E5-2650L	8	1.8	70W	20MB	H/S SFF
EP3J/EP3K	E5-2650	8	2.0	95W	20MB	H/S SFF
EPA5/EPB5	E5-2630	6	2.3	95W	15MB	H/S SFF
EPA6/EPB6	E5-2640	6	2.5	95W	15MB	H/S SFF
EPA7/EPB7	E5-2680	8	2.7	130W	20MB	H/S SFF
EP3T/EP3U	E5-2648L	8	1.8	70W	20MB	H/S SFF
EP3V/EP3W	E5-2658	8	2.1	95W	20MB	H/S SFF

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, or 32 GB low profile (LP) double-data rate (DDR3) DRAM
 - Chipkill is supported in all memory configurations
- Support is provided for up to two hot-swap, Small Form Factor (SFF) Serial Attached SCSI (SAS), Serial ATA (SATA), or SolidState (SSD) storage drives
- Dual 10-Gigabit Ethernet connections are provided

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 controller supports connections to a 10 Mbps, 100 Mbps, or 1000 Mbps 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 various 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 II (iMM2) combines systems management functions, 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 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.

- PCI Express®

PCI Express is a serial interface that is used for chip-to-chip interconnect and expansion adapter interconnect. You can add optional I/O and storage devices.

- Powerthrottling

Each compute node is powered by two Enterprise Voltage Regulator-Down (EVRD) 12.0 voltage regulators. By enforcing a 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. This policy is in effect when the 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
- Powermodule redundancy (N+N or N+1)
- Powermodule 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.

- 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.

IBM PureFlex system for the Flex System x240 Compute Node

The IBM PureFlex System consists of predefined, preconfigured Flex System components to simplify client purchasing and provide the total PureFlex System integrated value proposition.

The IBM Flex System x240 Compute Node can be ordered as part of a PureFlex System. There are three IBM PureFlex System offerings available:

- IBM PureFlex System Express for smaller installations (Feature #EFD1)
- IBM PureFlex System Standard for application systems (Feature #EFD2)
- IBM PureFlex System Enterprise for scalable cloud deployments; includes redundancy for resilient operation (Feature #EFD3)

A PureFlex System consists of:

- A Flex System Compute Node, chosen from:
 - Flex System p260 (7895-22X)
 - Flex System p460 (7895-42X)
 - Flex System x240 (7863-10X)

Note: The Flex System p260 does not offer an IBM PureFlex System Enterprise. The Flex System p460 does not offer an IBM PureFlex System Express. The IBM PureFlex System Enterprise requires two Compute Nodes.

- A Flex System Enterprise Chassis (7893-92X)
- A Flex System Manager (7955-01M)
- A Storwize® V7000 Disk System (2076-124)
- Two IBM 1455 BNT® Rack Switches G8264 Model 64C (With IBM Flex Enterprise only, with the Flex System p460)
- Two IBM 1455 BNT Rack Switches G8052 Model 48E (With IBM PureFlex Enterprise only, with the Flex System p460)
- Two IBM 2498 SAN24B-4 Express Model B24 (With IBM Flex Enterprise only, with the Flex System p460)
- An IBM PureFlex System 42U Rack (7953-94X)

Additional Flex System Compute Nodes, Flex System Chassis, Flex System Managers, and IBM PureFlex System 42U Racks can be ordered once the basic requirements for the IBM PureFlex System are met. Storwize V7000 Disk Systems can be ordered separately without meeting the requirements for the IBM PureFlex System. These additional orders will contain feature numbers EFD4 (Expansion Option) or EFD5 (Custom Expansion). The Flex System Manager is not available with EFD4.

The following IBM PureFlex System configurations will not be supported until April 24, 2012:

- Expansion Option (#EFD4) on the Flex System Enterprise Chassis (7893-92X)
- Expansion Option (#EFD4) on the Storwize V7000 Disk System (2076-124)
- IBM PureFlex Enterprise (#EFD3) on the Flex System p460 Compute Node (7895-42X)
- IBM PureFlex Enterprise (#EFD3) and Expansion Option (#EFD4) on the IBM 1455 BNT Rack Switches (1455-64C/48E) and the IBM 2498 SASN24B-4 Express Model B24 (2498-B24)

Contact your local Sales Representative for custom configuration requests.

Information about minimum configurations and options when ordering those products can be found in their online *Sales Manuals* at:

Product	Sales Manual
IBM Flex System p260 Compute Node	7895-22X
IBM Flex System p460 Compute Node	7895-42X
IBM Flex System x240 Compute Node	7863-10X
IBM Flex System Chassis	7893-92X
IBM Flex System Manager	7955-01M
IBM Flex System PureFlex System 42U Rack	7953-94X
IBM 1455 BNT Rack Switch G8264	1455-64C
IBM 1455 BNT Rack Switch G8052	1455-48E
IBM 2498 SAN24B-4 Express Model B24	2498-B24
IBM Storwize v7000 Disk System	2076-124

For more information about IBM PureFlex Systems, visit

<http://www.ibm.com/pureflex>

IBM PureFlex System Express

The IBM PureFlex System Express requirements when ordering the IBM Flex System x240 Compute Node are:

- 1 x Flex System x240 Compute Node (7863-10X), with the following features:
 - 1 x #EN20 Compute Node with 10Gb Virtual Fabric
 - or
 - 1 x #EN21 Compute Node without 10Gb Virtual Fabric
- Select 1 Processor Module from:
 - #EP31/EP33/EP35/EP37/EP39/EP3B/EP3D/EP3F/EP3K/EP3L/EP3N/EP3Q/EP3S/EPA5/EPA6/EPA7/EP3U/EP3W
 - 1 x #EM05 or #EEM2 4 GB minimum memory
 - 1 x #1759 (Not required with #EN20) IBM Flex System CN4054 10 Gb Virtual Fabric Adapter
 - 1 x #1764 IBM Flex System FC3172 2-port 8Gb Fibre Channel Adapter
 - 1 x #4646 Integrate ITE in Chassis
 - 1 x #4651 Rack Indicator, Rack #1
 - 1 x #4681 Chassis specify, Chassis #1
 - 1 x #EBK2 IBM Flex System x240 USB Enablement Kit
 - 1 x #EBK3 2 GB USB Hypervisor Key (VMware 5.0)
 - 1 x #ED01-#ED0E System Publications & Media
 - 1 x #ESCO Shipping and Handling (No charge)
 - 1 x #EFD1 or #EFD4 PureFlex System Order Indicator

NOTE: #EBK2 and #EBK3 are required only with the IBM SmartCloud Entry for IBM Flex System (5765-SCP)

NOTE: #1759 and #1764 are always required in the configuration.

- 1 x Flex System Enterprise Chassis (7893-92X), with the following features:
 - 1 x #3593 IBM FLEX System EN4093 10 Gb Virtual Fabric Scalable Switch
 - 1 x #3595 IBM Flex System FC3171 8 Gb SAN Switch
 - 2 x #3282 10 GbE SFP+ Transceiver
 - 2 x #3286 8 GB SFP+ Transceiver
 - 5 x #EB29 1000Base-T SFP RJ45 Transceiver
 - 1 x #9039 Base CME
 - 1 x #3592 Redundant CME
 - 2 x #9059 Base Power Module (2X)
 - 2 x #4558 Power Cord (2.5M) to PDU/UPS
 - 1 x #9038 Base Fans (4X)
 - 1 x #4649 Rack Integration Services
 - 1 x #4651 Rack Indicator, Rack #1
 - 2 x #4681 Chassis Specify, Chassis #1
 - 2 x #1111 CAT5E Ethernet Cable, 3M Blue
 - 1 x #0457 Integrate x240 in Chassis

1 x #0466	Integrate FSM in Chassis
1 x #EFM1	Open Fabric Manager
1 x #EPU1-#EPUE	System Documentation and Software
1 x #ESCO	Shipping and Handling (No charge)
1 x #EFD1 or #EFD4	PureFlex System Order Indicator

NOTE: #EFD4 does not require the following features: #0466, #3282, or #EB29. #EFD4 requires #0492.

1 x Flex System Manager (FSM) (7955-01M), with the following features:	
1 x #EB31	Platform Manager S/W Bundle
4 x #EM09	32 GB Memory
2 x #1771	IBM 200 GB 1.8" SATA SSD
1 x #3767	1TB 7.2K RPM 2.5" SATA Disk Drive
1 x #4646	Integrate ITE in Chassis
1 x #4651	Rack Indicator, Rack #1
1 x #4681	Chassis Specify, Chassis #1
1 x #ED11-ED1E	System Publications and Media
1 x #ESCO	Shipping and Handling (No charge)
1 x #EFD1	PureFlex System Order Indicator

1 x Storwize v7000 Disk System (2076-124), with the following features:	
1 x #0010	Storwize v7000 S/W Preload
2 x #5305	1M or 5M Fiber Optic Cable
8 x #3206	600 GB 2.5-inch 20k HDD
2 x #3512 or #3214	200 or 400 GB 2.5-inch SSD
2 x #6008	Cache 8 GB
1 x #9730	Power Cord - PDU Connection
2 x #9801	AC Power Supply
1 x #EFD0	v7000 Routing Indicator
1 x #4651	Rack Indicator, Rack #1
1 x #9170	Controller #1 Group
1 x #EFD1 or #EFD4	PureFlex System Order Indicator

NOTE: #EFD4 does not require the following features: #3206, #3512, #3514, or #9170. #EFD4 requires #9171.

1 x PureFlex System 42U Rack (7953-94X), with the following features:	
4 x #4651	Rack Indicator, Rack #1
2 x #7189 or #7196	Optional PDUs
1 x #ER01	Integrate Chassis in Rack
1 x #ER04	Rack Content Specify - 2076-124
1 x #ER1B	Reserve 1U empty space - bottom
1 x #ER1T	Reserve 1U empty space - top
1 x #EC02 or #EC05	Rack Rear Door or RDHX
1 x #EC03	Side Doors
1 x #EC06	Rack Front Door (Blue)
1 x #ESCO	Shipping and Handling (No charge)
1 x #EFD1 or #EFD4	PureFlex System Order Indicator

NOTE: #EFD4 does not require the following features: #ER01, #ER03, #ER04, #4651, #7189, or #7196. #EFD4 requires either #EC03 or #EC04.

IBM PureFlex System Standard

The IBM PureFlex System Standard requirements when ordering the IBM Flex System x240 Compute Node are:

1 x Flex System x240 Compute Node (7863-10X), with the following features:	
1 x #EN20	Compute Node with 10Gb virtual Fabric
or	
1 x #EN21	Compute Node without 10Gb Virtual Fabric

Select 1 Processor Module from:

#EP31/EP33/EP35/EP37/EP39/EP3B/EP3D/EP3F/EP3K/EP3L/EP3N/EP3Q/EP3S/EPA5
/EPA6/EPA7/EP3U/EP3W

1 x #EM05 or #EEM2	4 GB minimum memory
1 x #1759 (Not required with #EN20)	IBM Flex System CN4054 10 Gb Virtual Fabric Adapter
1 x #1764	IBM Flex System FC3172 2-port 8Gb Fibre Channel Adapter
1 x #4646	Integrate ITE in Chassis
1 x #4651	Rack Indicator, Rack #1
1 x #4681	Chassis specify, Chassis #1
1 x #EBK2	IBM Flex System x240 USB Enablement Kit
1 x #EBK3	2 GB USB Hypervisor Key (VMware 5.0)
1 x #ED01-#ED0E	System Publications & Media
1 x #ESCO	Shipping and Handling (No charge)
1 x #EFD2 or #EFD4	PureFlex System Order Indicator

NOTE: #EBK2 and #EBK3 are required only with the IBM SmartCloud Entry for IBM Flex System (5765-SCP)

NOTE: #1759 and #1764 are always required in the configuration.

1 x Flex System Enterprise Chassis (7893-92X), with the following features:

1 x #3593	IBM Flex System EN4093 10 Gb Virtual Fabric Scalable Switch
2 x #3595	IBM Flex System FC3171 8 Gb SAN Switch
4 x #3282	10 GbE SFP+ Transceiver
4 x #3286	8 Gb SFP+ Transceiver
5 x #EB29	1000Base-T SFP RJ45 Transceiver
1 x #9039	Base CME
1 x #3592	Redundant CME
2 x #9059	Base Power Module (2X)
2 x #3590	Redundant Power Module
4 x #4558	Power Cord (2.5M) to PDU/UPS
1 x #9038	Base Fans (4X)
1 x #7805	Additional Fans (2X)
1 x #4649	Rack Integration Services
1 x #4651	Rack Indicator, Rack #1
2 x #4681	Chassis Specify, Chassis #1
2 x #1111	CAT5E Ethernet Cable, 3M Blue
1 x #0457	Integrate x240 in Chassis
1 x #0466	Integrate FSM in Chassis
1 x #EFM1	Open Fabric Manager
1 x #EPU1-#EPUE	System Documentation and Software
1 x #ESCO	Shipping and Handling (No charge)
1 x #EFD2 or #EFD4	PureFlex System Order Indicator

NOTE: #EFD4 does not require the following features: #0466, #3282, or #EB29. #EFD4 requires #0492.

1 x Flex System Manager (7955-01M), with the following features:

1 x #EB32	Virtualization manager S/w Bundle Indicator
4 x #EM09	32 GB Memory
2 x #1771	IBM 200 GB 1.8" SATA SSD
1 x #3767	1TB 7.2K RPM 2.5" SATA Disk Drive
1 x #4646	Integrate ITE in Chassis
1 x #4651	Rack Indicator, Rack #1
1 x #4681	Chassis Specify, Chassis #1
1 x #ED11-ED1E	System Publications and Media
1 x #ESCO	Shipping and Handling (No charge)
1 x #EFD2	PureFlex System Order Indicator

1 x Storwize V7000 Disk System (2076-124), with the following features:

1 x #0010	Storwize V7000 S/w Preload
4 x #5305	5M Fiber Optic Cable
8 x #3206	600 GB 2.5-inch 20K HDD
2 x #3512 or #3415	200 or 400 GB 2.5-inch SSD
2 x #6008	Cache 8 GB
1 x #9730	Power Cord - PDU Connection
2 x #9801	AC Power Supply

1 x #EFD0	V7000 Routing Indicator
1 x #4651	Rack Indicator, Rack #1
1 x #9170	Controller #1 Group
1 x #EFD2 or #EFD4	PureFlex System Order Indicator

NOTE: #EFD4 does not require the following features: #3206, #3512, #3514, or #9170. #EFD4 requires #9171.

1 x PureFlex System 42U Rack (7953-94X), with the following features:	
4 x #4651	Rack Indicator, Rack #1
2 x #7189 or #7196	Optional PDUs
1 x #ER01	Integrate Chassis in Rack
1 x #ER04	Rack Content Specify - 2076-124
1 x #ER1B	Reserve 1U empty space - bottom
1 x #ER1T	Reserve 1U empty space - top
1 x #EC02 or #EC05	Rack Rear Door or RDHX
1 x #EC03	Side Doors
1 x #EC06	Rack Front Door (Blue)
1 x #ESCO	Shipping and Handling (No charge)
1 x #EFD2 or #EFD4	PureFlex System Order Indicator

NOTE: #EFD4 does not require the following features: #ER01, #ER03, #ER04, #4651, #7189, or #7196. #EFD4 requires #4652 and either #EC03 or #EC04.

IBM PureFlex System Enterprise

The IBM PureFlex System Enterprise requirements when ordering the IBM Flex System x240 Compute Node are as follows.

The PureFlex System Enterprise requires that two compute nodes (2 x 7895-42X or 2 x 7863-10X) be selected.

2 x Flex System x240 Compute Node (7863-10X), with the following features:	
1 x #EN20	Compute Node with 10Gb Virtual Fabric
or	
1 x #EN21	Compute Node without 10Gb Virtual Fabric
Select 1 Processor Module from:	
#EP31/EP33/EP35/EP37/EP39/EP3B/EP3D/EP3F/EP3K/EP3L/EP3N/EP3Q/EP3S/EPA5 /EPA6/EPA7/EP3U/EP3W	
1 x #EM05 or #EEM2	4 GB minimum memory
1 x #1759 (Not required with #EN20)	IBM Flex System CN4054 10 Gb Virtual Fabric Adapter
1 x #1764	IBM Flex System FC3172 2-port 8Gb Fibre Channel Adapter
1 x #4646	Integrate ITE in Chassis
1 x #4651	Rack Indicator, Rack #1
1 x #4681	Chassis specify, Chassis #1
1 x #EBK2	IBM Flex System x240 USB Enablement Kit
1 x #EBK3	2 GB USB Hypervisor Key (VMware 5.0)
1 x #ED01-#ED0E	System Publications & Media
1 x #ESCO	Shipping and Handling (No charge)
1 x #EFD3 or #EFD4	PureFlex System Order Indicator

NOTE: #EBK2 and #EBK3 are required only with the IBM SmartCloud Entry for IBM Flex System (5765-SCP)

NOTE: #1759 and #1764 are always required in the configuration.

1 x Flex System Enterprise Chassis (7893-92X), with the following features:	
2 x #3593	IBM FLEX System EN4093 10 Gb Virtual Fabric Scalable Switch
2 x #3596	Port Upgrade 1 for #3593
2 x #3597	Port Upgrade 2 for #3593
2 x #3595	IBM Flex System FC3171 8 Gb SAN Switch
8 x #3286	8 Gb SFP+ Transceiver
4 x #3282	10 GbE SFP+ Transceiver
6 x #EB29	1000Base-T SFP RJ45 Transceiver

1 x #9039	Base CME
1 x #3592	Redundant CME
2 x #9059	Base Power Module (2X)
4 x #3590	Redundant Power Module
6 x #4558	Power Cord (2.5M) to PDU/UPS
1 x #9038	Base Fans (4X)
2 x #7805	Additional Fans (2X)
1 x #4649	Rack Integration Services
1 x #4651	Rack Indicator, Rack #1
3 x #4681	Chassis Specify, Chassis #1
2 x #1111	CAT5E Ethernet Cable, 3M Blue
4 x #ECB4	10 GbE SFP+ Copper DAC Cable, 1M
2 x #0457	Integrate x240 in Chassis
1 x #0466	Integrate FSM in Chassis
1 x #EFM1	Open Fabric Manager
1 x #EPU1-#EPUE	System Documentation and Software
1 x #ESCO	Shipping and Handling (No charge)
1 x #EFD3 or #EFD4	PureFlex System Order Indicator

NOTE: #EFD4 does not require the following features: #0466, #3282, #EB29. #EFD4 requires only 1 x #3593, #EFD4 requires #0492.

1 x Flex System Manager (7955-01M), with the following features:	
1 x #EB32	Virtualization manager S/w
	Bundle Indicator
4 x #EM09	32 GB Memory
2 x #1771	IBM 200 GB 1.8" SATA SSD
1 x #3767	1TB 7.2K RPM 2.5" SATA Disk Drive
1 x #4646	Integrate ITE in Chassis
1 x #4651	Rack Indicator, Rack #1
1 x #4681	Chassis Specify, Chassis #1
1 x #ED11-ED1E	System Publications and Media
1 x #ESCO	Shipping and Handling (No charge)
1 x #EFD3	PureFlex System Order Indicator

1 x Storwize v7000 Disk System (2076-124), with the following features:	
1 x #0010	Storwize v7000 S/w Preload
4 x #5305	5M Fiber Optic Cable
8 x #3206	600 GB 2.5-inch 20k HDD
4 x #3512 or #3514	200or 400 GB 2.5-inch SSD
2 x #6008	Cache 8 GB
1 x #9730	Power Cord - PDU Connection
2 x #9801	AC Power Supply
1 x #EFD0	V7000 Routing Indicator
1 x #4651	Rack Indicator, Rack #1
1 x #9170	Controller #1 Group
1 x #EFD3 or #EFD4	PureFlex System Order Indicator

NOTE: #EFD4 does not require the following features: #3206, #3512, #3514, or #9170. #EFD4 requires #9171.

1 x PureFlex System Rack 42U (7953-94X), with the following features:	
5 x #4651	Rack Indicator, Rack #1
2 x #7189 or #7196	Optional PDUs
1 x #ER01	Integrate Chassis in Rack
1 x #ER04	Rack Content Specify - 2076-124
1 x #ER1B	Reserve 1U empty space - bottom
1 x #ER1T	Reserve 1U empty space - top
1 x #EC02 or #EC05	Rack Rear Door or RDHX
1 x #EC03	Side Doors
1 x #EC06	Rack Front Door (Blue)
1 x #ESCO	Shipping and Handling (No charge)
1 x #EFD3 or #EFD4	PureFlex System Order Indicator

NOTE: #EFD4 does not require the following features: #ER01, #ER03, #ER04, #4651, #7189, or #7196. #EFD4 requires #4652 and either #EC03 or #EC04.

PureFlex system networking portfolio

Networking in data centers 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 PureFlex System is designed to address the key challenges clients are facing today in their data centers. The key attributes of the network architecture on this platform are:

- Unified network management:
 - Efficient integrated management as part of the management appliance
 - Migration from physical network management to logical network management in a virtualized environment
- Optimized and automated network virtualization:
 - Seamless provisioning, management, and deployment of both physical and virtual network parameters using tools like Virtual Fabric Manager, IBM SoftSwitch (5000v), and VMready®
- Simplified network infrastructure:
 - 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 most of the products on this platform is scalability. When modules are labeled 'scalable,' this means that clients can buy the base product with certain number of ports; and when they require 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 PureFlex System networking portfolio includes:

- IBM Flex System EN2092 1Gb Ethernet Scalable Switch (#3598 on 7893-92X)
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 internal 1 Gb ports and 10 external 1 Gb RJ45 ports.
 - Upgrade 2 provides four 10 Gb uplink ports.
 - Upgrade 1 can be applied to 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.

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) (#3594 on the 7893-92X)
Clients who require either more than two 1 Gb ports per server or more bandwidth can enable additional ports by using this switch. This option enables another 14 internal 1 Gb ports to each compute node and ten external 1 Gb uplinks.

- IBM Flex System EN2092 1Gb Ethernet Scalable Switch (10 Gb Uplinks) (#3599 on the 7893-92X)

This option enables 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 basic switch before they can enable these uplinks. These uplinks can be enabled on either partition of the switch.

- IBM Flex System EN4093 10Gb Virtual Fabric Scalable Switch (#3593 on the 7893-92X)

This 10 Gb scalable switch that offers uncompromising 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)
- This is a triple-density switch with 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 internal 10 Gb ports and two 40 Gb QSFP ports that can be used as four 10 Gb ports.
- Upgrade 2 offers 14 internal 10 Gb ports and 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 basic switch will enable 14 internal 10 Gb ports, one to each compute node, and 10 external 10 Gb ports to connect to ToR switch module. All external 10 Gb ports are SFP+ based connections.

- IBM Flex System EN4093 10 Gb Virtual Fabric Scalable Switch (Upgrade 1) (#3596 on the 7893-92X)

This switch can be applied on the basic switch when you want to support four ports of 10 Gb on the server or if you just want more uplink bandwidth on the basic switch. The upgrade will enable 14 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 has the basic switch.

- IBM Flex System EN4093 10Gb Virtual Fabric Scalable Switch (Upgrade 2) (#3597 on the 7893-92X)

This switch 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 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 (#3700 on the 7893-92X)

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

- IBM Flex System FC3171 8Gb SAN Switch (#3595 on the 7893-92X) and IBM Flex System FC3171 8 Gb SAN Pass-thru (#3591 on the 7893-92X)

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 these modules run at high-performance 8 Gb speed. Two features are offered to meet customer 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 (#3771 on the 7893-92X) and IBM Flex System FC5022 16Gb SAN Scalable Switch (#3770 on the 7893-92X), and IBM Flex System FC5022 2-port 16Gb FC Adapter (#EC2B)

These 16 Gb switch modules deliver an embedded option for IBM Flex System users deploying storage area networks in their enterprise. These scalable switches enable Dynamic Ports on Demand (DPOD) and grow with the needs of the clients. The N-Port Virtualization model 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 through the use of 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 allows greater intrachassis connectivity
- Encryption and compression capable
- Diagnostic Port (D-Port) for superior serviceability
- Total of 48 ports wired as 28 ports internal and 20 external
- Based on Brocade's eighth-generation Condor-3 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 (PDOD) 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 16 Gb SAN Scalable Switch

This switch comes with 12 DPOD licenses that can be applied to either internal or external links on this switch. This switch will also include the enhanced software licenses like:

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

The IBM Flex System FC5022 2-port 16 Gb FC adapter is based on Brocade architecture to offer end-to-end 16 Gb connectivity to SAN. This adapter can auto negotiate and work at 8 Gb and 4 Gb speed also. It offers enhanced features like N-port Trunking and enhanced encryption for security.

The adapter offers these key values:

- First 16 Gbps embedded switch with up to 640 Gb bandwidth
- Investment protection; growth in ports and bandwidth

- Superior scalability to allows greater intrachassis connectivity
- Encryption and compression capable
- Diagnostic Port (D-Port) for superior serviceability

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

- IBM Flex System IB6131 InfiniBand Switch (#3699 on the 7893-92X) and IBM Flex System IB6132 2-port FDR InfiniBand Adapter (#EC2C)

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 eight CX4 uplink ports for inter-switch links or to connect to external servers. Clients can upgrade to FDR speed (56 Gb) using the Feature On Demand (FOD) process.

The InfiniBand QDR and DDR switch blades 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.

- IBM Flex System EN2024 4-port 1 Gb Ethernet Adapter (#1760)

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 10 Gb Virtual Fabric Adapter (#1759) and IBM Flex System CN4054 Virtual Fabric Adapter (software upgrade)(#EB2B)

This is a four-port 10 Gb adapter that can scale to up to 16 virtual ports and support multiple protocols like Ethernet, iSCSI, and FCoE. This is part of 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 offer up to four virtual ports (vNIC).
- Each vNIC appears as an individual adapter to the operating system.
- Each vNIC allocate bandwidth at increments of 100 Mb.
- Clients can run advanced protocols like HW iSCSI or FCoE on one of the vNICs per physical port by using the upgrade key.
- The adapter can connect at 1 Gb or 10 Gb bandwidth.

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 10 Gb 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 10 Gb Pass-thru module also.

Key benefits of this adapter are:

- 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 (#EC2D)

This two-port 10 Gb adapter 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 Virtual Fabric Switch and 10 Gb Pass-thru modules.

- IBM Flex System FC3172 2-port 8 Gb FC Adapter (#1764)

The QLogic 8 Gb 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 8 Gb FC Adapter (#EC25)

The Emulex 2-port 8 Gb Fibre Channel adapter enables high speed access for Flex System compute nodes to 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.

IBM Flex system x240 compute node at a glance

When ordering a Flex System x240 Compute Node after meeting the basic requirements of the Foundations, the following processor module and minimum memory rules apply.

- Form factor
 - The Flex System x240 Compute Node is a half-wide ITE (Information Technology Element)
- Processor modules
 - Initial order only (must choose one)
 - Intel Xeon E5-2690 8-core 2.9 GHz (#EP31)
 - Intel Xeon E5-2637 2-core 3.0 GHz (#EP33)
 - Intel Xeon E5-2665 8-core 2.4 GHz (#EP35)

- Intel Xeon E5-2603 4-core 1.8 GHz (#EP37)
- Intel Xeon E5-2609 4-core 2.4 GHz (#EP39)
- Intel Xeon E5-2620 6-core 2.0 GHz (#EP3B)
- Intel Xeon E5-2660 8-core 2.2 GHz (#EP3D)
- Intel Xeon E5-2667 6-core 2.9 GHz (#EP3F)
- Intel Xeon E5-2650 8-core 2.0 GHz (#EP3K)
- Intel Xeon E5-2643 4-core 3.3 GHz (#EP3L)
- Intel Xeon E5-2630L 6-core 2.0 GHz (#EP3N)
- Intel Xeon E5-2650L 8-core 1.8 GHz (#EP3Q)
- Intel Xeon E5-2670 8-core 2.6 GHz (#EP3S)
- Intel Xeon E5-2630 6-core 2.3 GHz (#EPA5)
- Intel Xeon E5-2640 6-core 2.5 GHz (#EPA6)
- Intel Xeon E5-2680 8-core 2.7 GHz (#EPA7)
- Intel Xeon E5-2648L 8-core 1.8 GHz (#EP3U)
- Intel Xeon E5-2658 8-core 2.1 GHz (#EP3W)
- Initial or MES order (optional)
 - Intel Xeon E5-2690 8-core 2.9 GHz (#EP30)
 - Intel Xeon E5-2637 2-core 3.0 GHz (#EP32)
 - Intel Xeon E5-2665 8-core 2.4 GHz (#EP34)
 - Intel Xeon E5-2603 4-core 1.8 GHz (#EP36)
 - Intel Xeon E5-2609 4-core 2.4 GHz (#EP38)
 - Intel Xeon E5-2620 6-core 2.0 GHz (#EP3A)
 - Intel Xeon E5-2660 8-core 2.2 GHz (#EP3C)
 - Intel Xeon E5-2667 6-core 2.9 GHz (#EP3E)
 - Intel Xeon E5-2650 4-core 3.3 GHz (#EP3G)
 - Intel Xeon E5-2643 8-core 2.0 GHz (#EP3J)
 - Intel Xeon E5-2630L 6-core 2.0 GHz (#EP3M)
 - Intel Xeon E5-2650L 8-core 1.8 GHz (#EP3P)
 - Intel Xeon E5-2670 8-core 2.6 GHz (#EP3R)
 - Intel Xeon E5-2630 6-core 2.3 GHz (#EPB5)
 - Intel Xeon E5-2640 6-core 2.5 GHz (#EPB6)
 - Intel Xeon E5-2680 8-core 2.7 GHz (#EPB7)
 - Intel Xeon E5-2648L 8-core 1.8 GHz (#EP3T)
 - Intel Xeon E5-2658 8-core 2.1 GHz (#EP3V)
- Memory (standard and maximum)
 - Base offering: 4 GB (2 x 2 GB). Up to 768 GB maximum in 24 DIMM slots (12 features).
 - 32 GB (2 x 16 GB) 1066 MHz DDR3, LP RDIMMs (1.35V) (#EEM1)
 - 4 GB (2 x 2 GB) 1333 MHz DDR3, LP UDIMMs (1.35V) (#EEM2)
 - 8 GB (2 x 4 GB) 1333 MHz DDR3, LP UDIMMs (1.35V) (#EEM3)
 - 8 GB (2 x 4 GB) 1333 MHz DDR3, LP RDIMMs (1.35V) (#EEM4)
 - 8 GB (2 x 4 GB) 1600 MHz DDR3, LP RDIMMs (1.5V) (#EEM5)
 - 32 GB (2 x 16 GB) 1333 MHz DDR3, LP LRDIMMs (1.35V) (#EEM6)
 - 64 GB (2 x 32 GB) 1066 MHz DDR3, LP RDIMMs (1.35V) (#EEM7)
 - 64 GB (2 x 32 GB) 1333 MHz DDR3, LP LRDIMMs (1.35V) (#EEM8)
 - 16 GB (2 x 8 GB) 1600 MHz DDR3, LP RDIMMs (1.5V) (#EEM9)
 - 4 GB (2 x 2 GB) 1333 MHz DDR3, LP RDIMMs (1.35V) (#EM05)
 - 8 GB (2 x 4 GB) 1333 MHz DDR3, LP RDIMMs (1.35V) (#EM09)

- 16 GB (2 x 8 GB) 1333 MHz DDR3, LP RDIMMs (1.35V) (#EM17)
- 32 GB (2 x 16 GB) 1333 MHz DDR3, LP RDIMMs (1.35V) (#EM33)
- 32 GB (2 x 16 GB) 1600 MHz CL11 DDR3, LP RDIMMs (1.5V) (#EEMB)
- 8 GB (2 x 4 GB) 2RX8 1600 MHz CL11 DDR3, LP RDIMMs (1.5V) (#EEMC)
- Internal drive storage
 - Maximum of two SAS/SATA Small Form Factor (SFF) 2.5-inch drives
 - 300 GB 10K RPM SAS SSF Hard Disk Drive (HDD)(#3743)
 - 600 GB 10K RPM SAS SSF Hard Disk Drive (HDD)(#3766)
 - 146 GB 15K RPM SAS SFF Hard Disk Drive (HDD)(#EHD1)
 - 500 GB 7.2K RPM SAS SFF Hard Disk Drive (HDD)(#EHD2)
 - 200 GB SAS SFFSolidState Drive (SSD)(#EHD3)
 - 900 GB 10K RPM SAS SFF Hard Disk Drive (HDD)(#EHD4)
 - 300 GB 15K RPM SAS SFF Hard Disk Drive (HDD)(#EHD5)
 - 1 TB 7.2K RPM SAS SFF Hard Disk Drive (HDD)(#EHD6)
 - 250 GB 7.2K RPM SATA SFF Hard Disk Drive (HDD)(#EHD7)
 - 500 GB 7.2K RPM SATA SFF Hard Disk Drive (HDD)(#EHD8)
 - 1 TB 7.2K RPM SATA SFF Hard Disk Drive (HDD)(#EHD9)
 - 256 GB SAS SFFSolidState Drive (SSD)(#EHDC)
 - 128 GB SAS SFFSolidState Drive (SSD)(#EHDD)
- Networking
 - Dual-port Gigabit Ethernet
- Mezzanine Expansion Cards
 - Maximum one optional expansion card supported with #EN20
 - Maximum two optional expansion cards supported with #EN21
 - Supported adapters are:
 - IBM Flex System CN4054 10 Gb Virtual Fabric Adapter (#1759)
 - IBM Flex System EN2024 4-port 1Gb Ethernet Adapter (#1763)
 - IBM Flex System FC3172 2-port 8Gb Fibre Channel Adapter (#1764)
 - IBM Flex System FC5022 2-port 16Gb FC Adapter (#EC2B)
 - IBM Flex System IB6132 2-port FDR InfiniBand Adapter (#EC2C)
 - IBM Flex System EN4132 2-port 10Gb Ethernet Adapter (#EC2D)
 - IBM Flex System FC3052 2-port 8Gb FC Adapter (#EC25)

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

Section 508 of the US Rehabilitation Act

IBM Flex System x240 Compute Node is capable as of November 18, 2011, when used in accordance with associated IBM documentation, of satisfying the applicable requirements of Section 508 of the Rehabilitation Act, provided that any assistive technology used with the product properly interoperates with it. A US Section 508 Voluntary Product Accessibility Template (VPAT) can be requested through the IBM website

http://www-03.ibm.com/able/product_accessibility/index.html

Product positioning

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

- IBM PureFlex System Hardware "building blocks" are made up of individual components that can be mixed, matched, and fully customizable with optional management.
- IBM PureFlex System Solutions consist of chassis with integrated management appliance, IBM networking, and storage standard.
- IBM PureFlex System Optimized offerings made up of preconfigured, highly customized systems focused on selected workloads or single-purpose, such as IBM PureSystems or IBM CloudBurst® .

Statement of General Direction

Enhancement for Compute Nodes and I/O

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'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 specific models of the IBM Power Systems™ 7863 machine type:

Description	MT	Model	Feature
IBM Flex System x240 Compute Node	7863	10X	
Solution Delivery Integration (SDI) Bulk MES Order Indicator	7863	10X	0003
Purescale Application Indicator	7863	10X	0714
US TAA Compliance Indicator	7863	10X	0983
Custom Service Specify, Rochester Minn, USA	7863	10X	1140
IBM Flex System CN4054 10 Gb Virtual Fabric Adapter	7863	10X	1759
iSCSI/FCoE Upgrade Key for #1759	7863	10X	1760
IBM Flex System EN2024 4-port 1Gb Ethernet Adapter	7863	10X	1763

IBM Flex System FC3172 2-port 8Gb Fibre Channel Adapter	7863	10X	1764
300 GB 10,000 RPM 2.5" SAS Disk Drive	7863	10X	3743
600 GB 10,000 RPM 2.5" SAS Disk Drive	7863	10X	3766
Integrate Flex Server in Chassis (BP)	7863	10X	4645
Integrate ITE in Chassis	7863	10X	4646
Rack Indicator- Not Factory Integrated	7863	10X	4650
Rack Indicator, Rack #1	7863	10X	4651
Rack Indicator, Rack #2	7863	10X	4652
Rack Indicator, Rack #3	7863	10X	4653
Rack Indicator, Rack #4	7863	10X	4654
Rack Indicator, Rack #5	7863	10X	4655
Rack Indicator, Rack #6	7863	10X	4656
Rack Indicator, Rack #7	7863	10X	4657
Rack Indicator, Rack #8	7863	10X	4658
Rack Indicator, Rack #9	7863	10X	4659
Rack Indicator, Rack #10	7863	10X	4660
Rack Indicator, Rack #11	7863	10X	4661
Rack Indicator, Rack #12	7863	10X	4662
Rack Indicator, Rack #13	7863	10X	4663
Rack Indicator, Rack #14	7863	10X	4664
Rack Indicator, Rack #15	7863	10X	4665
Rack Indicator, Rack #16	7863	10X	4666
Chassis indicator-Not Factory Integrated	7863	10X	4680
BladeCenter chassis specify, Chassis #1	7863	10X	4681
BladeCenter chassis specify, Chassis #2	7863	10X	4682
BladeCenter chassis specify, Chassis #3	7863	10X	4683
BladeCenter chassis specify, Chassis #4	7863	10X	4684
BladeCenter chassis specify, Chassis #5	7863	10X	4685
BladeCenter chassis specify, Chassis #6	7863	10X	4686
BladeCenter chassis specify, Chassis #7	7863	10X	4687
BladeCenter chassis specify, Chassis #8	7863	10X	4688
BladeCenter chassis specify, Chassis #9	7863	10X	4689
OEM (Generic) Indicator	7863	10X	7770
OEM (GROUPE BULL) Indicator	7863	10X	7773
OEM (Hitachi) Indicator	7863	10X	7775
OEM Publications for IBM Logo Product	7863	10X	7779
Order Routing Indicator- System Plant	7863	10X	9169
Month Indicator	7863	10X	9461
Day Indicator	7863	10X	9462
Hour Indicator	7863	10X	9463
Minute Indicator	7863	10X	9464
Qty Indicator	7863	10X	9465
Countable Member Indicator	7863	10X	9466
IBM Flex System Embedded Virtual Fabric S/W upgrade	7863	10X	EB2C
warranty for China	7863	10X	EB2D
Slot 1 Specify Code	7863	10X	EB2G
Blank 2 Gb USB Key Option	7863	10X	EBK1
IBM Flex System x240 USB Enablement Kit	7863	10X	EBK2
2 GB USB Hypervisor Key (VMware 5.0)	7863	10X	EBK3
IBM Flex System FC3052 2-port 8Gb FC Adapter	7863	10X	EC25
IBM Flex System FC5022 2-port 16Gb FC Adapter	7863	10X	EC2B
IBM Flex System IB6132 2-port FDR InfiniBand Adapter	7863	10X	EC2C
IBM Flex System EN4132 2-port 10Gb Ethernet Adapter	7863	10X	EC2D
System Publications - U.S. English	7863	10X	ED01
System Publications - U.K. English	7863	10X	ED02
System Publications - Brazilian Portuguese	7863	10X	ED03
System Publications - Japanese	7863	10X	ED04
System Publications - Japanese English	7863	10X	ED05
System Publications - Korean	7863	10X	ED06
System Publications - Korean English	7863	10X	ED07
System Publications - Simplified Chinese	7863	10X	ED08
System Publications - Traditional Chinese (Hong Kong)	7863	10X	ED09
System Publications - Traditional Chinese (Taiwan)	7863	10X	ED0A
System Publications - French	7863	10X	ED0B
System Publications - Spanish	7863	10X	ED0C
System Publications - German	7863	10X	ED0D
System Publications - Italian	7863	10X	ED0E
32GB (2x16GB RDIMMs) DDR3 1066 MHz System Memory	7863	10X	EEM1

4GB (2x2GB UDIMMs) DDR3 1333 MHz System Memory	7863	10X	EEM2
8GB (2x4GB UDIMMs) DDR3 1333 MHz System Memory	7863	10X	EEM3
8GB (2x4GB RDIMMs) DDR3 1333 MHz System Memory	7863	10X	EEM4
8GB (2x4GB RDIMMs) CL11 DDR3 1600 MHz System Memory	7863	10X	EEM5
32GB (2x16GB LRDIMMs) CL9 DDR3 1333 MHz System Memory	7863	10X	EEM6
64GB (2x32GB RDIMMs) DDR3 1066 MHz System Memory	7863	10X	EEM7
64GB (2x32GB LRDIMMs) DDR3 1333 MHz System Memory	7863	10X	EEM8
16GB (2x8GB RDIMMs) DDR3 1600 MHz System Memory	7863	10X	EEM9
32GB (2x16GB RDIMMs) CL11 DDR3 1600 MHz System Memory	7863	10X	EEMB
8GB (2x4GB RDIMMs) CL11 DDR3 1600 MHz System Memory	7863	10X	EEMC
IBM PureFlex System Express Indicator	7863	10X	EFD1
IBM PureFlex System Standard Indicator	7863	10X	EFD2
IBM PureFlex System Enterprise Indicator	7863	10X	EFD3
IBM PureFlex System Expansion Indicator	7863	10X	EFD4
IBM PureFlex System Custom Configuration Indicator	7863	10X	EFD5
146 GB 15,000 RPM 2.5" SAS Disk Drive	7863	10X	EHD1
500 GB 7,200 RPM 2.5" SAS Disk Drive	7863	10X	EHD2
200 GB 2.5" SATA SSD	7863	10X	EHD3
900 GB 10,000 RPM 2.5" SAS Disk Drive	7863	10X	EHD4
300 GB 15,000 RPM 2.5" SAS Disk Drive	7863	10X	EHD5
1 TB 7,200 RPM 2.5" SAS Disk Drive	7863	10X	EHD6
250 GB 7,200 RPM 2.5" SATA Disk Drive	7863	10X	EHD7
500 GB 7,200 RPM 2.5" SATA Disk Drive	7863	10X	EHD8
1 TB 7,200 RPM 2.5" SATA Disk Drive	7863	10X	EHD9
256 GB 2.5" SATA SSD	7863	10X	EHDC
128 GB 2.5" SATA SSD	7863	10X	EHDD
4GB (2x2GB RDIMMs) DDR3 1333 MHz System Memory	7863	10X	EM05
8GB (2x4GB RDIMMs) DDR3 1333 MHz System Memory	7863	10X	EM09
16GB (2x8GB RDIMMs) DDR3 1333 MHz System Memory	7863	10X	EM17
32GB (2x16GB RDIMMs) DDR3 1333 MHz System Memory	7863	10X	EM33
Microsoft Windows Indicator - R2 Multilingual	7863	10X	EMS1
Microsoft Windows Indicator - R2 Traditional Chinese			
Microsoft Windows Indicator - Enterprise 10 Multi-lingual	7863	10X	EMS4
Microsoft Windows Indicator - Enterprise 10 Traditional Chinese	7863	10X	EMS5
Microsoft Windows Indicator - Enterprise 25 Multi-lingual	7863	10X	EMS7
Microsoft Windows Indicator - Enterprise 25 Traditional Chinese	7863	10X	EMS8
Microsoft Windows Indicator - Datacenter - Multilingual	7863	10X	EMSA
Microsoft Windows Indicator - Datacenter - Traditional Chinese	7863	10X	EMSB
Compute Node with 10Gb Virtual Fabric	7863	10X	EN20
Compute Node without 10Gb Virtual Fabric	7863	10X	EN21
Additional 8-core 2.9 GHz Processor, 20MB Cache	7863	10X	EP30
8-core 2.9 GHz Processor, 20MB Cache	7863	10X	EP31
Additional 2-core 3.0 GHz Processor, 5MB Cache	7863	10X	EP32
2-core 3.0 GHz Processor, 5MB Cache	7863	10X	EP33
Additional 8-core 2.4 GHz Processor, 20MB Cache	7863	10X	EP34
8-core 2.4 GHz Processor, 20MB Cache	7863	10X	EP35
Additional 4-core 1.8 GHz Processor, 10MB Cache	7863	10X	EP36
4-core 1.8 GHz Processor, 10MB Cache	7863	10X	EP37
Additional 4-core 2.4 GHz Processor, 10MB Cache	7863	10X	EP38
4-core 2.4 GHz Processor, 10MB Cache	7863	10X	EP39
Additional 6-core 2.0 GHz Processor, 15MB Cache	7863	10X	EP3A
6-core 2.0 GHz Processor, 15MB Cache	7863	10X	EP3B
Additional 8-core 2.2 GHz Processor, 20MB Cache	7863	10X	EP3C
8-core 2.2 GHz Processor, 20MB Cache	7863	10X	EP3D
Additional 6-core 2.9 GHz Processor, 10MB Cache	7863	10X	EP3E
6-core 2.9 GHz Processor, 15MB Cache	7863	10X	EP3F
Additional 4-core 3.3 GHz Processor, 10MB Cache	7863	10X	EP3G
Additional 8-core 2.0 GHz Processor, 20MB Cache	7863	10X	EP3J

8-core 2.0 GHz Processor, 20MB Cache	7863	10X	EP3K
4-core 3.3 GHz Processor, 10MB Cache	7863	10X	EP3L
Additional 6-core 2.0 GHz Processor, 15MB Cache	7863	10X	EP3M
6-core 2.0 GHz Processor, 15MB Cache	7863	10X	EP3N
Additional 8-core 1.8 GHz Processor, 20MB Cache	7863	10X	EP3P
8-core 1.8 GHz Processor, 20MB Cache	7863	10X	EP3Q
Additional 8-core 2.6 GHz Processor, 20MB Cache	7863	10X	EP3R
8-core 2.6 GHz Processor, 20MB Cache	7863	10X	EP3S
Additional 8-core 1.8 GHz Processor, 20MB Cache	7863	10X	EP3T
8-core 1.8 GHz Processor, 20MB Cache	7863	10X	EP3U
Additional 8-core 2.1 GHz Processor, 20MB Cache	7863	10X	EP3V
8-core 2.1 GHz Processor, 20MB Cache	7863	10X	EP3W
6-core 2.3 GHz Processor, 15MB Cache	7863	10X	EPA5
6-core 2.5 GHz Processor, 15MB Cache	7863	10X	EPA6
8-core 2.7 GHz Processor, 20MB Cache	7863	10X	EPA7
Additional 6-core 2.3 GHz Processor, 15MB Cache	7863	10X	EPB5
Additional 6-core 2.5 GHz Processor, 15MB Cache	7863	10X	EPB6
Additional 8-core 2.7 GHz Processor, 20MB Cache	7863	10X	EPB7
RFID Tags for Servers, Compute Nodes, Chassis, Racks, and HMCs	7863	10X	ERF1
S&H - No Charge	7863	10X	ESC0
S&H	7863	10X	ESC4

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=112-082>

Publications

IBM Power Systems hardware documentation provides you with the following topical information:

- System overview
- Planning for the system
- Installing and configuring the system
- Working with consoles, terminals, and interfaces
- Managing system resources
- Working with operating systems and software applications
- Troubleshooting, service, and support

You can access the product documentation on a DVD (S5KT-7087) or at

<http://publib.boulder.ibm.com/infocenter/pseries/index.jsp>

The following information is shipped with the 7863-10X:

- Power® Hardware Information DVD (SK5T-7087)
- Installing the 7863-10X
- Safety Information
- Statement of Warranty

Hardware documentation such as installation instructions, user's information, and service information is available to download or view at

<http://www.ibm.com/systems/support>

Visit the IBM System Support Site, which contains the documentation for the hardware

<http://www.ibm.com/systems/support>

The IBM Systems Information Center provides you with a single information center 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 Center

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

IBM Publications Center Portal

<http://www.ibm.com/shop/publications/order>

The Publications Center is a worldwide central repository for IBM product publications and marketing material with a catalog of 70,000 items. Extensive search facilities are provided, as well as payment options through credit card. Many publications are available online in various file formats, which can currently be downloaded free of charge.

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.

Flex System support services

Recommended core technical support: Make the most of IBM Flex System technology, include the essential support services - to help keep both the hardware and software working day after day, at peak performance. It is the first step toward helping to protect the investment and sustain high levels of system availability. We offer service-level and response-time options to fit business needs. And to help with the introduction of these IBM systems, we have created a tiered structure of offerings that will help get you started with a core support package of options. The tiered support structure of offerings for IBM systems builds upon the base hardware warranty service through enhanced service levels to the minimum recommended level of Essential Support elements covering 24x7 Hardware and Software Support which should include:

- Continuous system monitoring

Electronic monitoring through IBM Electronic Service Agent™ that helps speed up problem-solving with automated, early detection of potential problems and system errors. IBM Electronic Service Agent provides proactive reporting of

hardware events and enhances the ability to avoid problems with its call home abilities.

- Hardware maintenance

We recommend as part of an Essential Support element to every IBM system, IBM's World-class remote and on-site hardware problem determination and repair services enhanced with the call home abilities of IBM Electronic Service Agent . IBM Technical Support Services provided a tiered range of Warranty Service Upgrade and Maintenance offerings over and above base warranty to ensure high levels of availability and consistency of service, our Essential Support tier including Warranty Service Upgrade is the recommended entry level for all our clients.

- Software technical support

We recommend, as part of an Essential Support element with every IBM system, Software Support Services from IBM Technical Support Services providing access to help line calls for fast, accurate answers to your questions during installation and throughout ongoing operations. Support packages are available on IBM Operating Systems and third-party Operating Systems as well as for IBM and third-party virtualization products. IBM Technical Support Services provided a tiered range of Software Support offerings to ensure high levels of availability and consistency of service, our Essential Support tier is the recommended entry level for all our clients.

Base/Basic and Essential support options are available across all geographies with High Availability and Premium services having availability tailored to geographic market needs.

For more information, visit

<http://www-935.ibm.com/services/us/en/it-services/tech-support-and-maintenance-services.html>

Technical information

Specified operating environment

Physical specifications

IBM Flex System x240 Compute Node

7863-10X

Processor Intel Xeon Name	Cores	CPU speed (GHz)	Cache
E5-2690	8	2.9	20MB
E5-2667	6	2.9	15MB
E5-2643	4	3.3	10MB
E5-2660	8	2.2	20MB
E5-2670	8	2.6	20MB
E5-2609	4	2.4	10MB
E5-2637	2	3.0	5MB
E5-2665	8	2.4	20MB
E5-2603	4	1.8	10MB
E5-2620	6	2.0	15MB
E5-2630L	6	2.0	15MB
E5-2650L	8	1.8	20MB
E5-2650	8	2.0	20MB
E5-2630	6	2.3	15MB
E5-2640	6	2.5	15MB
E5-2680	8	2.7	20MB
E5-2648L	8	1.8	20MB
E5-2658	8	2.1	20MB

Memory (LP ECC DDR3)	4,8,16,32,64 GB features
Maximum speed	1600 MHZ
DIMMs (Minimum)	2 x 2 GB
DIMM sockets	24
Maximum Capacity	768 GB ¹
Mezzanine card	Optional
Standard	0
Maximum with #EN20	1
Maximum with #EN21	2
Video	SVGA
Memory	128 MB
Disk controller	SAS
Channels	2
Connector int.	2
Connector ext.	0
RAID	Standard
Internal capacity	2 TB ²
Total HDD or SSD Bays	Up to 2
Management processor	Standard
Ethernet controller	Dual 10 Gb (Standard)

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

²Capacities are based on installation of two 1 TB SAS HDDs.

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: 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 - 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-003, issue 4, Class A
- UL/IEC 60950-1
- CSA22.2 No.60950-1
- NOM-019
- Argentina IEC 60950-1

Operating environment

The IBM Flex System x240 Compute Node products are designed to operate in a general business environment, such as a Class A or A1, temperature and humidity-controlled room.

- Temperature
 - 10.0°C to 35.0°C (50°F to 95°F) (Server on)
 - 10.0°C to 43.0°C (50°F to 109.4°F) (Server off)
- Relative humidity: 10% to 80%
- Maximum altitude: 2,133.6 m (7,000 ft) at 28°C. Decrease maximum altitude by 1,000 ft for every 1°C increase in ambient temperature up to 3,000 ft at 35°C ambient.
- Declared noise level: 5.7 bels (idling)

Hardware requirements

Minimum system configuration

Each Flex System x240 Compute Node must contain a minimum of:

- Compute Node base chosen from:
 - IBM Flex System x240 Compute Node with Embedded 10Gb Virtual Fabric (#EN20)
 - IBM Flex System x240 Compute Node without Embedded 10Gb Virtual Fabric (#EN21)
- One Intel Xeon Processor chosen from:
 - Intel Xeon 8-core 2.9 GHz (#EP31)
 - Intel Xeon 2-core 3.0 GHz (#EP33)
 - Intel Xeon 8-core 2.4 GHz (#EP35)
 - Intel Xeon 4-core 1.8 GHz (#EP37)
 - Intel Xeon 4-core 2.4 GHz (#EP39)
 - Intel Xeon 6-core 2.0 GHz (#EP3B)
 - Intel Xeon 8-core 2.2 GHz (#EP3D)
 - Intel Xeon 6-core 2.9 GHz (#EP3F)
 - Intel Xeon 8-core 2.0 GHz (#EP3K)
 - Intel Xeon 4-core 3.3 GHz (#EP3L)
 - Intel Xeon 6-core 2.0 GHz (#EP3N)
 - Intel Xeon 8-core 1.8 GHz (#EP3Q)
 - Intel Xeon 8-core 2.6 GHz (#EP3S)
 - Intel Xeon 6-core 2.3 GHz (#EPA5)
 - Intel Xeon 6-core 2.5 GHz (#EPA6)
 - Intel Xeon 8-core 2.7 GHz (#EPA7)
 - Intel Xeon 8-core 1.8 GHz (#EP3U)

- Intel Xeon 8-core 2.1 GHz (#EP3W)
- Minimum 4 GB of memory chosen from:
 - 32 GB (2 x 16 GB) 1066 MHz DDR3, LP RDIMMs (1.35V) (#EEM1)
 - 4 GB (2 x 2 GB) 1333 MHz DDR3, LP UDIMMs (1.35V) (#EEM2)
 - 8 GB (2 x 4 GB) 1333 MHz DDR3, LP UDIMMs (1.35V) (#EEM3)
 - 8 GB (2 x 4 GB) 1333 MHz DDR3, LP RDIMMs (1.35V) (#EEM4)
 - 8 GB (2 x 4 GB) 1RX4 1600 MHz DDR3, LP RDIMMs (1.5V) (#EEM5)
 - 32 GB (2 x 16 GB) 1333 MHz DDR3, LP LRDIMMs (1.35V) (#EEM6)
 - 64 GB (2 x 32 GB) 1066 MHz DDR3, LP RDIMMs (1.35V) (#EEM7)
 - 64 GB (2 x 32 GB) 1333 MHz DDR3, LP LRDIMMs (1.35V) (#EEM8)
 - 16 GB (2 x 8 GB) 1600 MHz DDR3, LP RDIMMs (1.5V) (#EEM9)
 - 4 GB (2 x 2 GB) 1333 MHz DDR3, LP RDIMMs (1.35V) (#EM05)
 - 8 GB (2 x 4 GB) 1333 MHz DDR3, LP RDIMMs (1.35V) (#EM09)
 - 16 GB (2 x 8 GB) 1333 MHz DDR3, LP RDIMMs (1.35V) (#EM17)
 - 32 GB (2 x 16 GB) 1333 MHz DDR3, LP RDIMMs (1.35V) (#EM33)
 - 32 GB (2 x 16 GB) 1600 MHz DDR3, LP RDIMMs (1.5V) (#EEMB)
 - 8 GB (2 x 4 GB) 2RX8 1600 MHz DDR3, LP RDIMMs (1.5V) (#EEMC)
- Shipping and Handling (No charge) (#ESCO)
- PureFlex System Order Indicator (#EFD5)
- An on-order or installed IBM PureFlex System Enterprise Chassis (7893-92X).

For service, the server requires a compatible:

- Keyboard
- Combination USB keyboard and pointing device
- USB CD-RW/DVD drive

Software requirements

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 IBM Flex System 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 about 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.
- 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. One, but only one, of feature EP31, EP33, EP35, EP37, EP39, EP3B, EP3D, EP3F, EP3K, EP3L, EP3N, EP3Q, EP3S, EPA5, EPA6, or EPA7 must be chosen. One of feature EP30, EP32, EP34, EP36, EP38, EP3A, EP3C, EP3E, EP3G, EP3J, EP3M, EP3P, EP3R, EPB5, EPB6, or EPB7 may also be chosen.

- The Flex System x240 Compute Node is supported only in the IBM PureFlex System Enterprise Chassis (7893-92X).
- A minimum of one feature number (#ED01-ED0E) (System Publications -- Language specific) is required at each client location.
- One mezzanine expansion card may be installed on the Flex System x240 Compute Node with #EN20. Two mezzanine expansion cards may be installed on the Flex System x240 Compute Node with #EN21.
- Mezzanine expansion cards installed in the Flex System x240 Compute Node require a switch module in the PureFlex System Enterprise Chassis of the same connectivity type.

Refer to the [Software requirements](#) section for operating system limitations.

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 communicate to system generated commands or become incapable of being written to.

Planning information

Cable orders

No cables required.

Security, auditability, and control

This product uses the security and auditability features of host software and application software.

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

IBM Electronic Services

IBM has transformed its delivery of hardware and software support services to help you achieve higher system availability. Electronic Services is a web-enabled solution that offers an exclusive, no-additional-charge enhancement to the service and support available for IBM servers. These services are designed to provide the opportunity for greater system availability with faster problem resolution and preemptive monitoring. Electronic Services comprises two separate, but complementary, elements: Electronic Services news page and Electronic Services Agent.

The Electronic Services news page is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. The news page enables you to gain easier access to IBM resources for assistance in resolving technical problems.

The Electronic Service Agent is no-additional-charge software that resides on your server. It monitors events and transmits system inventory information to IBM on a periodic, client-defined timetable. The Electronic Service Agent automatically reports hardware problems to IBM. Early knowledge about potential problems enables IBM to deliver proactive service that may result in higher system availability and performance. In addition, information collected through the Service Agent is made available to IBM service support representatives when they help answer your questions or diagnose problems. Installation and use of IBM Electronic Service Agent for problem reporting enables IBM to provide better support and service for your IBM server.

To learn how Electronic Services can work for you, visit

<http://www.ibm.com/support/electronic>

Terms and conditions

Volume orders: Contact your IBM representative.

IBM Global Financing

Yes

Warranty period

Three years.

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 that 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.

Warranty service

If required, IBM provides repair or exchange service depending on the types of warranty service specified for the machine. IBM will attempt to resolve your problem over the telephone, or electronically via an IBM website. You must follow the problem determination and resolution procedures that IBM specifies. Scheduling of service will depend the time of your call and is subject to parts availability. If applicable to your product, parts considered Customer Replaceable Units (CRUs) will be provided as part of the machine's standard warranty service.

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-specific and location-specific information.

CRU service

IBM provides replacement CRUs to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM upon your request. CRUs are designated as being either a Tier 1 (mandatory) or a Tier 2 (optional) CRU.

Tier 1 CRU:

Installation of Tier 1 CRUs is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.

Tier 2 CRU:

You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge.

Based upon availability, CRUs 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. 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 have been designated as Tier 1 CRUs:

- Front bezel with power button
- System service label
- Misc 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

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.

Service level is:

- 9 hours per day, Monday through Friday, excluding holidays, next-business-day response. Calls must be received by 5:00 p.m. local time in order to qualify for next-business-day response.

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 their clients, and normal warranty service procedures for the IBM machine apply.

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International Warranty Services (IWS)

IWS is available in selected countries or regions.

The warranty service type, for example, On-site repair and customer replaceable unit, and service level, 9 x 5 next-business-day and 24 x 7, 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?Indocid=MIGR-5070246>

For more information on IWS, refer to Services Announcement [601-034](#), dated September 25, 2001 .

Warranty service upgrades

During the warranty period, warranty service upgrades provide 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 client. Service levels are response-time objectives and are not guaranteed. Refer to the **Warranty service** section for additional details.

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.

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. The following on-site response-time objectives are available as warranty service upgrades for your machine.

The service level is:

- 9 hours per day, Monday through Friday, excluding holidays, 4-hour average, same-business-day response
- 24 hours per day, 7 days a week, 4-hour average response, same day
- 24 hours per day, 7 days a week, 2-hour average response, same day

Customer Replaceable Units (CRUs) may be provided as part of the machine's standard warranty CRU Service except that you may install a CRU yourself or request IBM installation, at no additional charge, under the CRU and On-site Service level specified above. For additional information on the CRU Service, refer to the warranty information.

Maintenance services

If required, IBM provides repair or exchange service depending on the types of maintenance service specified for the machine. IBM will attempt to resolve your problem over the telephone or electronically, using 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. Scheduling of service will depend upon the time of your call and is subject to parts availability. Service levels are response-time objectives and are not guaranteed. The specified level of maintenance 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-specific and location-specific information. The following service selections are available as maintenance options for your machine type.

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.

Service levels are:

- 9 hours per day, Monday through Friday, excluding holidays, next-business-day response
- 9 hours per day, Monday through Friday, excluding holidays, 4-hour average response, same-business day
- 24 hours per day, 7 days a week, 4-hour average response, same day
- 24 hours per day, 7 days a week, 2-hour average response, same day

Customer Replaceable Unit Service

If your problem can be resolved with a CRU (for example, keyboard, mouse, speaker, memory, or hard disk drive), and depending upon the maintenance service offerings in your geography, IBM will ship the replacement CRU to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM upon your request.

Based upon availability, CRUs will be shipped for next business day delivery. IBM specifies, in the materials shipped with a replacement CRU, whether a defective CRU must be returned to IBM. When return is required, 1) return instructions and a container are shipped with the replacement CRU, and 2) 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.

CRUs may be provided as part of the machine's standard maintenance service except that you may install a CRU yourself or request IBM installation, at no additional charge, under any of the On-site Service levels specified above.

Non-IBM parts service

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

This service includes hardware problem determination (PD) on the non-IBM parts (for example, adapter cards, PCMCIA cards, disk drives, memory) installed within IBM machines 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, clients 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.

Usage plan machine

No

IBM hourly service rate classification

Two

When a type of service involves the exchange of a machine part, the replacement may not be new, but will be in good working order.

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

Yes

The applicable processor tier is: Small.

Licensed Machine Code

This product does not contain Licensed Internal Code or Licensed Machine Code.

Access to IBM PureFlex 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 other terms provided with the fix, as applicable.

Educational allowance

A reduced charge is available to qualified education clients. The educational allowance may not be added to any other discount or allowance.

The educational allowance is 5% for the products in this announcement.

Prices

For additional information and current prices, contact your local IBM representative.

The following are newly announced features on the specific models of the IBM Power Systems 7863 machine type:

Description	Model Number	Feature Number	Initial/MES/Both/Support		RP	
			CSU	MES	CSU	MES
IBM 7863-10X	10X				Yes	
Purescale App Indicator	10X	0714	Both		Yes	
US TAA Compliance Indicator	10X	0983	Both		Yes	No
Custom Serv. Specify, Roch	10X	1140	Both		Yes	No
CN4054 10 Gb Virtual Fabric						

Upgrade Key for #1759	10X	1759	Both	Yes	No
EN2024 4-port 1Gb E'net Adaptr	10X	1760	Both	Yes	No
FC3172 2-port 8Gb FC Adapter	10X	1763	Both	Yes	No
300 GB 10,000 RPM 2.5 SAS Disk	10X	1764	Both	Yes	No
600 GB 10,000 RPM 2.5 SAS Disk	10X	3743	Both	Yes	No
Integrate Flex Server Chassis	10X	3766	Both	Yes	No
Integrate ITE in Chassis	10X	4645	Initial	N/A	No
Integrate ITE in Chassis	10X	4646	Initial	N/A	No
One and only one rack indicator feature is required on all orders (#4650 to #4666).					
No Factory Integration Ind.					
Rack Indicator, Rack 1	10X	4650	Initial	N/A	No
Rack Indicator, Rack 2	10X	4651	Initial	N/A	No
Rack Indicator, Rack 3	10X	4652	Initial	N/A	No
Rack Indicator, Rack 4	10X	4653	Initial	N/A	No
Rack Indicator, Rack 5	10X	4654	Initial	N/A	No
Rack Indicator, Rack 6	10X	4655	Initial	N/A	No
Rack Indicator, Rack 7	10X	4656	Initial	N/A	No
Rack Indicator, Rack 8	10X	4657	Initial	N/A	No
Rack Indicator, Rack 9	10X	4658	Initial	N/A	No
Rack Indicator, Rack 10	10X	4659	Initial	N/A	No
Rack Indicator, Rack 11	10X	4660	Initial	N/A	No
Rack Indicator, Rack 12	10X	4661	Initial	N/A	No
Rack Indicator, Rack 13	10X	4662	Initial	N/A	No
Rack Indicator, Rack 14	10X	4663	Initial	N/A	No
Rack Indicator, Rack 15	10X	4664	Initial	N/A	No
Rack Indicator, Rack 16	10X	4665	Initial	N/A	No
ChasIndicator-Not fact integr	10X	4666	Initial	N/A	No
BC Chassis, Chassis #1	10X	4680	Initial	N/A	No
BC Chassis, Chassis #2	10X	4681	Initial	N/A	No
BC Chassis, Chassis #3	10X	4682	Initial	N/A	No
BC Chassis, Chassis #4	10X	4683	Initial	N/A	No
BC Chassis, Chassis #5	10X	4684	Initial	N/A	No
BC Chassis, Chassis #6	10X	4685	Initial	N/A	No
BC Chassis, Chassis #7	10X	4686	Initial	N/A	No
BC Chassis, Chassis #8	10X	4687	Initial	N/A	No
BC Chassis, Chassis #9	10X	4688	Initial	N/A	No
BC Chassis, Chassis #9	10X	4689	Initial	N/A	No
Order Routing Indicator System	10X	9169	Initial	N/A	No

Month Indicator					
	10X	9461	Initial	N/A	No
Day Indicator					
	10X	9462	Initial	N/A	No
Hour Indicator					
	10X	9463	Initial	N/A	No
Minute Indicator					
	10X	9464	Initial	N/A	No
Qty Indicator					
	10X	9465	Initial	N/A	No
Countable Member Indicator					
	10X	9466	Initial	N/A	No
Virtual Fabric S/W Upgrade					
	10X	EB2C	Both	Yes	No
Warranty for China					
	10X	EB2D	Both	Yes	No
Slot 1 Specify Code					
	10X	EB2G	Both	Yes	No
Blank 2 Gb USB Key Option					
	10X	EBK1	Both	Yes	No
USB Enablement Kit					
	10X	EBK2	Both	Yes	No
2GB USB Hypervisor Key					
	10X	EBK3	Both	Yes	No
FC3052 2-port 8Gb FC Adapter					
	10X	EC25	Both	Yes	No
FC5022 2-port 16Gb FC Adapter					
	10X	EC2B	Both	Yes	No
IB6132 2-port InfiniBand Adapt					
	10X	EC2C	Both	Yes	No
EN4132 2-port 10Gb E'net Adapt					
	10X	EC2D	Both	Yes	No
System Pubs-US English					
	10X	ED01	Both	Yes	No
System Pubs-UK English					
	10X	ED02	Both	Yes	No
System Pubs-Brazilian Port					
	10X	ED03	Both	Yes	No
System Pubs-Japanese					
	10X	ED04	Both	Yes	No
System Pubs-Japanese English					
	10X	ED05	Both	Yes	No
System Pubs-Korean					
	10X	ED06	Both	Yes	No
System Pubs-Korean English					
	10X	ED07	Both	Yes	No
System Pubs - Chinese English					
	10X	ED08	Both	Yes	No
System Pubs-Chinese Hong Kong					
	10X	ED09	Both	Yes	No
System Pubs- Chinese Taiwan					
	10X	ED0A	Both	Yes	No
System Pubs-French					
	10X	ED0B	Both	Yes	No
System Pubs-Spanish					
	10X	ED0C	Both	Yes	No
System Pubs-German					
	10X	ED0D	Both	Yes	No
System Pubs-Italian					
	10X	ED0E	Both	Yes	No
32GB (2x16GB RDIMMs) Memory					
	10X	EEM1	Both	Yes	No
4GB (2x2GB UDIMMs) Memory					
	10X	EEM2	Both	Yes	No
8GB (2x4GB UDIMMs) Memory					
	10X	EEM3	Both	Yes	No
8GB (2x4GB RDIMMs) Memory					
	10X	EEM4	Both	Yes	No
8GB (2x4GB RDIMMs) Memory					
	10X	EEM5	Both	Yes	No
32GB (2x16GB LRDIMMs) Memory					
	10X	EEM6	Both	Yes	No
64GB (2x32GB RDIMMs) Memory					
	10X	EEM7	Both	Yes	No

64GB (2x32GB LRDIMMs) Memory	10X	EEM8	Both	Yes	No
16GB (2x8GB RDIMMs) Memory	10X	EEM9	Both	Yes	No
32GB (2x16GB RDIMMs) Memory	10X	EEMB	Both	Yes	No
8GB (2x4GB RDIMMs) Memory	10X	EEMC	Both	Yes	No
PureFlex System Express Ind.	10X	EFD1	Initial	N/A	No
PureFlex System Standard Ind.	10X	EFD2	Initial	N/A	No
PureFlex System Enterprise Ind	10X	EFD3	Initial	N/A	No
PureFlex System Expansion Ind	10X	EFD4	Initial	N/A	No
PureFlex System Custom Ind.	10X	EFD5	Initial	N/A	No
146 GB 15,000 RPM 2.5 SAS Disk	10X	EHD1	Both	Yes	No
500 GB 7,200 RPM 2.5 SAS Disk	10X	EHD2	Both	Yes	No
200 GB 2.5 SATA SSD	10X	EHD3	Both	Yes	No
900 GB 10,000 RPM 2.5 SAS Disk	10X	EHD4	Both	Yes	No
300 GB 15,000 RPM 2.5 SAS Disk	10X	EHD5	Both	Yes	No
1 TB 7,200 RPM 2.5 SAS Disk	10X	EHD6	Both	Yes	No
250 GB 7,200 RPM 2.5 SATA Disk	10X	EHD7	Both	Yes	No
500 GB 7,200 RPM 2.5 SATA Disk	10X	EHD8	Both	Yes	No
1 TB 7,200 RPM 2.5 SATA Disk	10X	EHD9	Both	Yes	No
256 GB 2.5 SATA SSD	10X	EHDC	Both	Yes	No
128 GB 2.5 SATA SSD	10X	EHDD	Both	Yes	No
4GB (2x2GB RDIMMs) Memory	10X	EM05	Both	Yes	No
8GB (2x4GB RDIMMs) Memory	10X	EM09	Both	Yes	No
16GB (2x8GB RDIMMs) Memory	10X	EM17	Both	Yes	No
32GB (2x16GB RDIMMs) Memory	10X	EM33	Both	Yes	No
MS Ind.- R2 Multi-lingual	10X	EMS1	Initial	N/A	No
MS Ind.-R2 Trad. Chinese	10X	EMS2	Initial	N/A	No
MS Ind.-Ent 10 Multit-lingual	10X	EMS4	Initial	N/A	No
MS Ind.-Ent 10 Trad. Chinese	10X	EMS5	Initial	N/A	No
MS Ind.-Ent 25 Multit-lingual	10X	EMS7	Initial	N/A	No
MS Ind.-Ent 25 Trad. Chinese	10X	EMS8	Initial	N/A	No
MS Ind.-Data Cen Multit-lingual	10X	EMSA	Initial	N/A	No
MS Ind.-Data Cen Trad. Chinese	10X	EMSB	Initial	N/A	No
Compute Node w/10Gb Virtual Fa	10X	EN20	Initial	Yes	No
Compute Node w/o 10Gb Virtual	10X	EN21	Initial	Yes	No
Add. 8-core 2.9GHZ, 20MB Proc	10X	EP30	Both	Yes	No
8-core 2.9GHZ, 20MB Processor	10X	EP31	Both	Yes	No
Add. 2-core 3.0GHZ, 5MB Proc	10X	EP32	Both	Yes	No

2-core 3.0GHz, 5MB Processor	10X	EP33	Both	Yes	No
Add. 8-core 2.4GHz, 20MB Proc	10X	EP34	Both	Yes	No
8-core 2.4GHz, 20MB Processor	10X	EP35	Both	Yes	No
Add. 4-core 1.8GHz, 10MB Proc	10X	EP36	Both	Yes	No
4-core 1.8GHz, 10MB Processor	10X	EP37	Both	Yes	No
Add. 4-core 2.4GHz, 10MB Proc	10X	EP38	Both	Yes	No
4-core 2.4GHz, 10MB Processor	10X	EP39	Both	Yes	No
Add. 6-core 2.0GHz, 15MB Proc	10X	EP3A	Both	Yes	No
6-core 2.0GHz, 15MB Processor	10X	EP3B	Both	Yes	No
Add. 8-core 2.2GHz, 20MB Proc	10X	EP3C	Both	Yes	No
8-core 2.2GHz, 20MB Processor	10X	EP3D	Both	Yes	No
Add. 6-core 2.9GHz, 15MB Proc	10X	EP3E	Both	Yes	No
6-core 2.9GHz, 15MB Processor	10X	EP3F	Both	Yes	No
Add. 4-core 3.3GHz, 10MB Proc	10X	EP3G	Both	Yes	No
Add. 8-core 2.0GHz, 15MB Proc	10X	EP3J	Both	Yes	No
8-core 2.0GHz, 20MB Processor	10X	EP3K	Both	Yes	No
4-core 3.3GHz, 10MB Processor	10X	EP3L	Both	Yes	No
Add. 6-core 2.0GHz, 15MB Proc	10X	EP3M	Both	Yes	No
6-core 2.0GHz, 15MB Processor	10X	EP3N	Both	Yes	No
Add. 8-core 1.8GHz, 20MB Proc	10X	EP3P	Both	Yes	No
8-core 1.8GHz, 20MB Processor	10X	EP3Q	Both	Yes	No
Add. 8-core 2.6GHz, 20MB Proc	10X	EP3R	Both	Yes	No
8-core 2.6GHz, 20MB Processor	10X	EP3S	Both	Yes	No
Add. 8-core 1.8GHz, 20MB Proc	10X	EP3T	Both	Yes	No
8-core 1.8GHz, 20MB Processor	10X	EP3U	Both	Yes	No
Add. 8-core 2.1GHz, 20MB Proc	10X	EP3V	Both	Yes	No
8-core 2.1GHz, 20MB Processor	10X	EP3W	Both	Yes	No
This feature is only available to SDIs as an MES order.					
6-core 2.3 GHz, 15MB Processor	10X	EPA5	Both	Yes	No
This feature is only available to SDIs as an MES order.					
6-core 2.5 GHz, 15MB Processor	10X	EPA6	Both	Yes	No
This feature is only available to SDIs as an MES order.					
8-core 2.7 GHz, 20MB Processor	10X	EPA7	Both	Yes	No
6-core 2.3 GHz, 15MB Processor	10X	EPB5	Both	Yes	No
6-core 2.5 GHz, 15MB Processor	10X	EPB6	Both	Yes	No
8-core 2.7 GHz, 20MB Processor	10X	EPB7	Both	Yes	No
RFID Tags for Compute Nodes	10X	ERF1	Initial	N/A	No
S&H - No Charge	10X	ESC0	Initial	N/A	No
S&H					

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Prices in the following PDF prices link are suggested list prices on day of announcement for the US only. They are provided for your information only. Dealer prices may vary, and prices may also vary by country. IBM list price does not include tax or shipping and is subject to change without notice.

[ENUS-112-082-LIST_PRICES_2012_04_11.PDF](#)

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Corrections

(Corrected on May 10, 2012)

Revised Description, Product number, Technical information, Hardware requirements, and Prices sections.