



IBM PureFlex and IBM Flex System enhanced with new Flex p260 node

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At a glance

The IBM Flex System™ p260 Compute Node is a standard-width node with two 4-core, 64-bit, 4.0 GHz POWER7+™ processors, or two 8-core 64-bit, 3.6 GHz or 4.1 GHz POWER7+ processors and 16 DIMM slots, which can contain up to a maximum of 512 GB of memory. Two optional SAS small form factor (SFF) 2.5-inch hard disk drives (HDDs) or 1.8-inch SATA solid-state drives (SSDs) can be installed in the p260 Compute Node. The p260 is part of IBM Flex System, a new category of computing that integrates multiple server architectures, networking, storage, and system management capability into a single system.

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

Overview

To meet today's complex and ever-changing business demands, you need a solid foundation of compute, storage, networking, and software resources that is simple to deploy and can quickly and automatically adapt to changing conditions. You also need to be able to take advantage of broad expertise and proven best practices in systems management, applications, hardware maintenance, and more. The IBM PureFlex™ System combines leading-edge compute capabilities and advanced IBM storage hardware and storage management along with patterns of expertise and integrates them in complete, optimized solutions.

IBM Flex System p260 Compute Nodes are POWER7® and POWER7+ based servers optimized for virtualization, performance, and extraordinary efficiency. The nodes support IBM AIX®, IBM i, or Linux™ operating environments and are designed to run a wide variety of workloads in your PureFlex System or Flex System.

Key prerequisites

- An IBM Flex System Enterprise Chassis (7893-92X)
- An operating system (IBM AIX , IBM i, Red Hat Linux , or SUSE Linux operating systems)

Planned availability date

December 3, 2012, except for features EFD1, EFD2, EFD3, EFD4, EFD5, EFD6, EFD7, and EFD8, which are available December 10, 2012.

Description

IBM Flex System p260 Compute Node

The IBM Flex System p260 Compute Node is the latest high-density Information Technology Element (ITE) server with POWER7+ and EnergyScale™ technology.

The IBM Flex System p260 Compute Node is a standard-width node with two 4-core, 64-bit, 4.0 GHz POWER7+ processors, or two 8-core, 64-bit, 3.6 GHz or 4.1 GHz POWER7+ processors and 16 DIMM slots, which can contain up to a maximum of 512 GB of memory. Two optional SAS SFF 2.5-inch HDDs or 1.8-inch SATA solid-state drives (SSDs) can be installed in the p260 Compute Node.

Integrated features on the p260 Compute Node include:

- USB 2.0 controller with one front panel port
- SAS controller
- Service processor
- Two PCIe expansion card slots

The IBM Flex System p260 Compute Node can be installed only in the IBM Flex System Enterprise Chassis (7893-92X). The chassis has 14 ITE bays for ITE servers and supports up to 14 standard-width nodes or 7 double-width nodes.

In short-term extended thermal conditions, the p260 Compute Node automatically reduces the frequency of the processor to maintain acceptable thermal or power levels. The processor frequency will automatically cycle back up as thermal or power conditions improve.

Clients should be aware that there may be applications that are sensitive to processor frequency changes. For instance, frequency reductions could potentially impact benchmarking or applications and tools that depend on execution times for accounting, CPU utilization, or profiling. It is recommended that clients check with their individual application vendors to see if there are possible impacts.

IBM Flex System p260 Compute Node features and benefits include:

- Highly efficient and flexible design of the IBM ITE
 - Densely pack more servers into a smaller space.
 - Tailor the system to meet varied business requirements.
 - Integrate networking switch infrastructure for improved cabling and data center maintenance.
 - Deploy in virtually any office environment for quieter, highly secure, and contaminant-protected operation.
- Pioneering IBM EnergyScale technology and software, an optional feature available for an additional charge
 - Designed to generate less heat by managing application utilization and server energy consumption.
 - Designed to use less energy to cool the system.
- Industry-leading PowerVM® virtualization technology
 - Potentially reduce infrastructure costs by doing more with fewer servers.

- Simplify IT operations to leverage storage, network, and computing resources to control costs and be more responsive.
- Innovative reliability features and systems management
 - Help expedite hardware repairs and reduce service time.
 - Enable scheduled maintenance with proactive monitoring of critical system components to help reduce unplanned failures.
- Choice of IBM AIX , IBM i, or Linux operating environment
 - Standardize on a single platform that runs the large and varied portfolio of applications that support your business.

IBM PureFlex System

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

The IBM Flex System p260 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 (#EFD1)
- IBM PureFlex System Standard for application systems (#EFD2)
- IBM PureFlex System Enterprise scalable cloud deployments; includes redundancy for resilient operation (#EFD3)

A PureFlex System consists of:

A Flex System Compute Node, chosen from:

- Flex System p260 (7895-22X/7895-23X)
- Flex System p460 (7895-42X)
- Flex System x240 (7863-10X)
- Flex System p24L (1457-7FL)
- Flex System x440 (7917-45X)
- Flex System x220 (7906-25X)

Note: IBM PureFlex System Enterprise requires two compute nodes.

- A Flex System Chassis (7893-92X)
- A Flex System Manager (7955-01M)
- A Storwize® V7000 Disk System (2076-124) or an IBM Flex System V7000 Storage Node (4939-A49)
- Two IBM 1455 BNT® Rack Switch G8264R Model 64C (with IBM Flex Enterprise only, with the Flex System p460)
- Two IBM 1455 BNT Rack Switch G8052R Model 48E (with IBM Flex 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 Flex System are met. These additional orders will be indicated by feature number EFD4 (Expansion Option) along with EFD6, EFD7, or EFD8, or feature number EFD5 (Custom Expansion). Storwize V7000 Disk Systems or IBM Flex System V7000 Storage Nodes can be ordered separately without meeting the requirements for the Flex System.

The maximum number of machine type/models (MTMs) allowed with PureFlex System Express (#EFD1), PureFlex System Standard (#EFD2), PureFlex System Enterprise (#EFD3), and the Expansion Option (#EFD4) are:

Machine type/Model	Express	Standard	Enterprise
7953-94X Rack	2	2	2
7893-92X Chassis	3	3	3
7955-01M FSM	1	1	1
2076-124 Controller	2	2	2
2076-224 Expansion	18	18	18
4939-A49 Controller	9	9	9
4939-A29 Expansion	6	6	6
1455-64C Switch	1	1	2
1455-48E Switch	1	1	2
2498-B24 Switch	1	2	2

Maximum compute nodes with 3 x 7893-92X Chassis:

7895-42X p460 ITE	20	20	20
7895-22X p260 ITE	41	41	41
7895-23X p260 ITE	41	41	41
1457-7FL p24L ITE	41	41	41
7863-10X x240 ITE	41	41	41
7917-45X x440 ITE	20	20	20
7906-25X x220 ITE	41	41	41

Components of the PureFlex System may be separately orderable on a special bid basis from your IBM representative or Business Partner.

Contact your local IBM representative for custom configuration requests.

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

<http://www.ibm.com/common/ssi>

Product	Sales Manual
IBM Flex System p260 Compute Node	7895-22X/7895-23X
IBM Flex System p460 Compute Node	7895-42X
IBM Flex System x240 Compute Node	7863-10X
IBM Flex System p24L Compute Node	1457-7FL
IBM Flex System x440 Compute Node	7917-45X
IBM Flex System x220 Compute Node	7906-25X
IBM Flex System Enterprise Chassis	7893-92X
IBM PureFlex System 42U Rack	7953-94X
IBM Storwize V7000 Disk System	2076-124
IBM Flex System V7000 Storage Node	4939-A49
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

For more information on 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 p260 (7895-23X) Compute Node are:

1 x Flex System p260 Compute Node (7895-23X), with the following features:

1 x #EPRA, #EPRB, or #EPRD	Processor Module
8 x #8491 with #EPRD	Processor Activations

or

16 x #8491 with #EPRA/#EPRB	Processor Activations
4 or 8 x #EEMD	64 GB Minimum Memory with EPRD

1 x #1762	128 GB Minimum Memory with EPRA/EPRB
1 x #1764	IBM Flex System EN4054 4-port 10Gb Ethernet Adapter
1 x #4646	IBM Flex System FC3172 2-port 8Gb Fibre Channel Adapter
1 x #4651	Integrate ITE in Chassis
1 x #4681	Rack indicator, Rack #1
1 x #5005	Chassis specify, Chassis #1
1 x #2145 or #2146 or #2147	Software Preinstall
1 x #0265 or #0266 or #0267	Operating System Indicator
1 x #7067	Partition Specify
8/16 x #5227	Top Cover, No HDDs or SSDs
1 x #ED31-#ED3E	PowerVM Standard (per core)
1 x #ESCO	Installation/User Guide
1 x #EFD1 or #EFD4/#EFD6	Shipping and Handling (no charge) PureFlex System Order Indicator

Note: Features 1762 and 1764 are always required in the configuration. Features EEMD, 5277, and 7067 are minimums and can be replaced. Feature 0566 or 0567 is required with feature 2145.

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

1 x #3593	IBM Flex System EN4093 10Gb Virtual Fabric Scalable Switch
1 x #3595	IBM Flex System FC3171 8Gb SAN Switch
or	
1 x #3771	IBM Flex System FC5022 16Gb SAN Switch
4 or 6 x #EB29	1000Base-T SFP RJ45 Transceiver
2 x #3282	10 GbE SFP+ Transceiver
2 x #3286	8 GB SFP+ Transceiver (Must be ordered when #3595 and V7000 Disk System (2076-124) are both selected)
2 x #5370	Brocade 8 Gb SFP+ Transceiver (Must be ordered when #3771 and Storwize V7000 Disk System (2076-124) are both selected)
1 x #9039	Base CME
1 x #3592	Redundant CME
2 x #9059	Base Power Module (2X)
2 x #3590	Additional Power Module (2x)
2 x #4558	Power Cord (2.5M) to PDU/UPS
2 x #4560	Power Cord (4.3M), To Wall (208V/16A)
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 #ECS3	Integrate p260 in Chassis
1 x #0466	Integrate FSM in Chassis
1 x #ECS2	Integrate Flex System V7000 in Chassis (When 2076-124 is ordered)
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/#EFD6	PureFlex System Order Indicator

Note: Quantity of EB29 required is four when IBM Flex System V7000 Storage Node is selected and six when IBM Storwize V7000 Disk System is selected. Features 3591 and 3771 may not be mixed in the chassis. Feature EFD4 does not require the following features: 0466, 3282, or EB29. Feature EFD4 requires feature 0492.

1 x Flex System Manager (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 or #EFD4/#EFD6	PureFlex System Order Indicator

Note: Either the IBM Flex System V7000 Storage Node (4939-A49) or the Storwize V7000 Disk System (2076-124) must be selected. Both may not be selected.

1 x IBM Flex System V7000 Storage Node (4939-A49), with the following features:

1 x #4646	Integrate ITE in Chassis
1 x #4681	Chassis Specify, Chassis #1
2 x #AD41 or #AD43	200 or 400 GB 2.5-inch SSD
8 x #AD23 or #AD24	600 or 900 GB 2.5-inch HDD

or

16 x #AD21 or #AD32	300 GB 10k or 15k 2.5-inch HDD
2 x #ADB2	8 Gb Fibre Channel 4-port Card
1 x #4651	Rack Indicator, Rack #1
1 x #9170	Controller # 1 Group
1 x #AD00	Controller Enclosure
1 x #EFD1 or #EFD4/#EFD6	PureFlex System Order Indicator

Note: Feature AD41 is the default and can be replaced by feature AD43. After meeting the SSD minimum of 2 and HDD minimum of 8 or 16, any SSD or HDD drive can be chosen to a maximum of 24. Feature AD0Z must then be ordered in quantity of 24 minus the total quantity of SSDs and HDDs ordered. Feature EFD4 does not require feature 9170. Feature EFD4 requires feature 9171 or 9172.

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

1 x #0010	Storage Engine Preload
2 x #5305	5 m Fiber Optic Cable
8 x #3546 or #3549	600 or 900 GB 2.5-inch HDD

or

16 x #3543 or #3253	300 GB 10k or 15k 2.5-inch HDD
2 x #6008	Cache 8 GB
1 x #9730	Power Cord - PDU Connection
2 x #9801	AC Power Supply
1 x #4651	Rack Indicator, Rack #1
1 x #EFD0	V7000 Routing Code
1 x #9170	Controller # 1 Group
1 x #EFD1 or #EFD4/#EFD6	PureFlex System Order Indicator

Note: Two pieces of feature 3512 are defaulted on the order but can be removed. Maximum amount of SSDs and HDDs is 24 for the first V7000 controller. Feature EFD4 does not require the following features: 3206, 3512, 3514, or 9170. Feature EFD4 requires feature 9171.

1 x IBM 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 (If 2076-124 selected)
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 #EU21 or #EC01	Rack Front Door

1 x #ESCO	Shipping and Handling (no charge)
1 x #EFD1 or #EFD4/#EFD6	PureFlex System Order Indicator

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

IBM PureFlex System Standard

The IBM PureFlex System Standard requirements when ordering the IBM Flex System p260 Compute Node are:

1 x Flex System p260 Compute Node (7895-23X), with the following features:	
1 x #EPRA, #EPRB, or #EPRD	Processor Module
8 x #8491 with #EPRD	Processor Activations
or	
16 x #8491 with #EPRA/#EPRB	Processor Activations
4 or 8 x #EEMD	64 GB Minimum Memory with EPRD; 128 GB Minimum Memory with EPRA/EPRB
1 x #1762	IBM Flex System EN4054 4-port 10Gb Ethernet 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 #5005	Software Preinstall
1 x #2145 or #2146 or #2147	Operating System Indicator
1 x #0265 or #0266 or #0277	Partition Specify
1 x #7067	Top Cover, No HDDs or SSDs
8/16 x #5228	PowerVM Enterprise (per core)
1 x #ED31-#ED3E	Installation/User Guide
1 x #ESCO	Shipping and Handling (no charge)
1 x #EFD2 or #EFD4/#EFD7	PureFlex System Order Indicator

Note: Features 1762 and 1764 are always required in the configuration. Features EEMD and 7067 are minimums and can be replaced. Feature 0566 or 0567 is required with feature 2145.

1 x Flex System Enterprise Chassis (7893-92X), with the following features:	
1 x #3593	IBM Flex System EN4093 10Gb Virtual Fabric Scalable Switch
2 x #3595	IBM Flex System FC3171 8Gb SAN Switch
or	
2 x #3771	IBM Flex System FC5022 16Gb SAN Switch
4 or 6 x #EB29	1000Base-T SFP RJ45 Transceiver
4 x #3286	8 Gb SFP+ Transceiver (Must be ordered when #3595 and V7000 Disk System (2076-124) are both selected)
4 x #5370	Brocade 8 Gb SFP+ Transceiver (Must be ordered when #3771 and V7000 Disk System (2076-124) are both selected)
4 x #3282	10 GbE SFP+ 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

4 x #4560	Power Cord (4.3M), To Wall (208V/16A)
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 #ECS3	Integrate p260 in Chassis
1 x #0466	Integrate FSM in Chassis
1 x #ECS2	Integrate Flex System V7000 in Chassis (when 2076-124 is ordered)
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/#EFD7	PureFlex System Order Indicator

Note: Quantity of feature EB29 required is four when IBM Flex System V7000 Storage Node is selected and six when IBM Storwize V7000 Disk System is selected. Features 3591 and 3771 may not be mixed in the chassis. Feature EFD4 does not require the following features: 0466, 3282, or EB29. Feature EFD4 requires feature 0492.

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

1 x #EB31	Platform Manager Software Bundle Indicator
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 or #EFD4/#EFD7	PureFlex System Order Indicator

Note: Either the IBM Flex System V7000 Storage Node (4939-A49) or the Storwize V7000 Disk System (2076-124) must be selected. Both may not be selected.

1 x IBM Flex System V7000 Storage Node (4939-A49), with the following features:

1 x #4646	Integrate ITE in Chassis
1 x #4681	Chassis Specify, Chassis #1
2 x #AD41 or #AD43	200 or 400 GB 2.5-inch SSD
8 x #AD23 or #AD24	600 or 900 GB 2.5-inch HDD

or

16 x #AD21 or #AD32	300 GB 10k or 15k 2.5-inch HDD
2 x #ADB2	8 Gb Fibre Channel 4-port Card
1 x #4651	Rack Indicator, Rack #1
1 x #9170	Controller # 1 Group
1 x #AD00	Controller Enclosure
1 x #EFD2 or #EFD4/#EFD7	PureFlex System Order Indicator

Note: Feature AD41 is the default and can be replaced by feature AD43. After meeting the SSD minimum of 2 and HDD minimum of 8 or 16, any SSD or HDD drive can be chosen to a maximum of 24. Feature AD0Z must then be ordered in quantity of 24 minus the total quantity of SSDs and HDDs ordered. Feature EFD4 does not require feature 9170. Feature EFD4 requires feature 9171 or 9172.

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
2 x #3512 or #3514	200 or 400 GB 2.5-inch SSD

8 x #3546 or #3549 600 or 900 GB 2.5-inch HDD

or

16 x #3543 or #3253	300 GB 10k or 15k 2.5-inch HDD
2 x #6008	Cache 8 GB
1 x #9730	Power Cord - PDU Connection
2 x #9801	AC Power Supply
1 x #9170	Controller #1 Group
1 x #4651	Rack Indicator, Rack #1
1 x #EFD0	V7000 Routing Indicator
1 x #EFD2 or #EFD4/#EFD7	PureFlex System Order Indicator

Note: Maximum amount of SSDs and HDDs is 24 for the first V7000 controller. Feature EFD4 does not require the following features: 3206, 3512, 3514, or 9170. Feature EFD4 requires feature 9171.

1 x IBM 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 (If 2076-124 selected)
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 #EU21 or #EC21	Rack Front Door
1 x #ESC0	Shipping and Handling (no charge)
1 x #EFD2 or #EFD4/#EFD7	PureFlex System Order Indicator

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

IBM PureFlex System Enterprise

The IBM PureFlex System Enterprise requirements when ordering the IBM Flex System p260 Compute Node are:

2 x Flex System p260 Compute Node (7895-23X), each with the following features:

1 x #EPRA, #EPRB, or #EPRD	Processor Module
8 x #8491 with #EPRD	Processor Activations
or	
16 x #8491 with #EPRA/#EPRD	Processor Activations
4 or 8 x #EEMD	64 GB Minimum Memory with EPRD; 128 GB Minimum Memory with EPRA/EPRB
1 x #1762	IBM Flex System EN4054
1 x #1764	4-port 10Gb Ethernet Adapter IBM Flex System FC3172
1 x #4646	2-port 8Gb Fibre Channel Adapter
1 x #4651	Integrate ITE in Chassis
1 x #4681	Rack Indicator, Rack #1
1 x #5005	Chassis specify, Chassis #1
1 x #2145 or #2146 or #2147	Software Preinstall
1 x #0265 or #0266 or #0277	Operating System Indicator
1 x #7067	Partition Specify
8/16 x #5228	Top Cover, No HDDs or SSDs
1 x #ED31-#ED3E	PowerVM Enterprise (per core)
1 x #ESC0	Installation/User Guide
1 x #EFD3 or #EFD4/#EFD8	Shipping and Handling (no charge) PureFlex System Order Indicator

Note: Features 1762 and 1764 are always required in the configuration. Features EEMD and 7067 are minimums and can be replaced. Feature 0566 or 0567 is required with feature 2145.

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

2 x #3593	IBM Flex System EN4093 10Gb Virtual Fabric Scalable Switch
2 x #3596	EN4093 Switch Upgrade 1
2 x #3597	EN4093 Switch Upgrade 2
2 x #3595	IBM Flex System FC3171 8Gb SAN Switch
or	
2 x #3771	IBM Flex System FC5022 16Gb SAN Switch
4 or 6 x #EB29	1000Base-T SFP RJ45 Transceiver
8 x #3286	8 GB SFP+ Transceiver (Must be ordered when #3595 and V7000 Disk System (2076-124) are both selected)
8 x #5370	Brocade 8 Gb SFP+ Transceiver (Must be ordered when #3771 and V7000 Disk System (2076-124) are both selected)
4 x #3282	10 GbE SFP+ 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
6 x #4560	Power Cord (4.3M), To Wall (208V/16A)
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	1m 10 GbE SFP+ DAC Cable
2 x #ECS3	Integrate p260 in Chassis
1 x #0466	Integrate FSM in Chassis
1 x #ECS2	Integrate Flex System V7000 in Chassis (when 2076-124 is ordered)
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/#EFD8	PureFlex System Order Indicator

Note: Quantity of features EB29 required is four when IBM Flex System V7000 Storage Node is selected and six when IBM Storwize V7000 Disk System is selected. Features 3591 and 3771 may not be mixed in the chassis. Feature EFD4 does not require the following features: 0466, 3282, or EB29. Feature EFD4 requires feature 0492.

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

1 x #EB31	Platform Manager Software Bundle Indicator
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 or #EFD4/#EFD8	PureFlex System Order Indicator

Note: Either the IBM Flex System V7000 Storage Node (4939-A49) or the Storwize V7000 Disk System (2076-124) must be selected. Both may not be selected.

1 x IBM Flex System V7000 Storage Node (4939-A49), with the following features:

1 x #4646	Integrate ITE in Chassis
1 x #4681	Chassis Specify, Chassis #1
4 x #AD41 or #AD43	200 or 400 GB 2.5-inch SSD
8 x #AD23 or #AD24	600 or 900 GB 2.5-inch HDD

or

16 x #AD21 or #AD32	300 GB 10k or 15k 2.5-inch HDD
2 x #ADB2	8 Gb Fibre Channel 4-port Card
1 x #4651	Rack Indicator, Rack #1
1 x #9170	Controller #1 Group
1 x #AD00	Controller Enclosure
1 x #EFD3 or #EFD4/#EFD8	PureFlex System Order Indicator

Note: Feature AD41 is the default and can be replaced by feature AD43. After meeting the SSD minimum of 4 and HDD maximum of 8 or 16, any SSD or HDD drive can be chosen to a maximum of 24. Feature AD0Z must then be ordered in quantity of 24 minus the total quantity of SSDs and HDDs ordered. Feature EFD4 does not require feature 9170. Feature EFD4 requires feature 9171 or 9172.

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

1 x #0010	Storwize V7000 S/W Preload
8 x #5305	5m Fiber Optic Cable
2 x #3512 or #3514	200 or 400 GB 2.5-inch SSD
8 x #3546 or #3549	600 or 900 GB 2.5-inch HDD

or

16 x #3543 or #3253	300 GB 10k or 15k 2.5-inch HDD
2 x #6008	Cache 8 GB
1 x #9730	Power Cord - PDU Connection
2 x #9801	AC Power Supply
1 x #9170	Controller #1 Group
1 x #4651	Rack Indicator, Rack #1
1 x #EFD0	V7000 Routing Indicator
1 x #EFD3 or #EFD4/#EFD8	PureFlex System Order Indicator

Note: Maximum amount of SSDs and HDDs is 24 for the first V7000 controller. Feature EFD4 does not require the following features: 3206, 3512, 3514, or 9170. Feature EFD4 requires feature 9171.

1 x IBM PureFlex System 42U Rack (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 (If 2076-124 selected)
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 #EU21 or #EC01	Rack Front Door
1 x #ESCO	Shipping and Handling (no charge)
1 x #EFD3 or #EFD4/#EFD8	PureFlex System Order Indicator

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

PowerVM Editions (Advanced Power Virtualization) (Optional)

The IBM Flex System p260 Compute Node supports PowerVM technology. The p260 is designed to make it more affordable to consolidate multiple independent applications on a single ITE server using the same proven virtualization technologies offered on IBM Power® servers.

The p260 supports two leading-edge virtualization technologies: PowerVM Standard Edition (#5227) and PowerVM Enterprise Edition (#5228).

- PowerVM Standard Edition makes the p260 an ideal platform for consolidation of AIX, Linux, and IBM i operating system applications, designed to help clients reduce infrastructure complexity and cost. Offering an intuitive, web-based interface for managing virtualization within a single compute node, the IVM component of VIOS allows the small business IT manager to quickly and easily set up and manage logical partitions (LPARs). It also enables Virtual I/O and Virtual Ethernet so that storage and communications adapters can be shared among all the LPARs running on the p260. Ultimately, IBM Micro-Partitioning® technology allows each processor core to be subdivided into as many as 10 virtual servers. And because the p260 is built with POWER7+ technology, other advanced virtualization functions such as Shared Dedicated Capacity may be exploited.
- PowerVM Enterprise Edition includes all the features of PowerVM Standard Edition plus a capability called Live Partition Mobility. Live Partition Mobility allows for the movement of a running AIX or Linux partition from one POWER6®, POWER7 or POWER7+ processor-based server to another. Designed to have no application downtime, Live Partition Mobility could result in better system utilization, improved application availability, and potential energy savings. With Live Partition Mobility, planned application downtime due to regular server maintenance can be a thing of the past. Software Maintenance for Virtual I/O Server (577x-PVE) must be purchased with VIOS (5765-PVE). PowerVM Enterprise Edition must be purchased separately.

Capacity Backup (CBU) Support for IBM i on the IBM Flex System p260 Compute Node

The CBU designation can help meet your requirements for use of a second system as backup, high availability, and disaster recovery. It enables you to temporarily transfer IBM i processor entitlements and IBM i user entitlements purchased for a primary machine to a secondary CBU system. Temporarily transferring these resources, instead of purchasing them for a secondary system, may result in significant savings.

The CBU specify feature number 4898 for the IBM Flex System p260 Compute Node (7895-23X) is available as part of a new compute node purchase. This CBU feature cannot be added to an existing compute node.

Certain system prerequisites must be met, and system registration and approval is required before the CBU specify feature can be applied on a new server.

Standard IBM i terms and conditions do not allow either IBM i processor entitlements or IBM i user entitlements to be transferred permanently or temporarily. These entitlements remain with the machine for which they were ordered. When you register the association between a primary and on-order CBU system, you must agree to certain terms and conditions regarding the temporary transfer. After a CBU system designation is approved and the system is installed, you can temporarily move your optional IBM i processor entitlement and user entitlements from the primary system to the CBU system for any purpose, provided the corresponding primary system processors are not being used concurrently for production purposes. The CBU system can therefore better support failover and role swapping for a full range of test, disaster recovery, and high availability scenarios. Temporary entitlement transfer means that the entitlement is a property transferred from the primary system to the CBU system, and may remain in use on the CBU as long as the registered primary and CBU systems are in deployment for the high availability or disaster recovery operation.

Primary System (Processor Group)	Capacity Backup System (Processor Group)
JS23/JS43 (P10)	PS701/PS702 (P10), PS700 (P05)
JS23/JS43 (P10)	PS701/PS702 (P10), PS700 (P05)
JS22 (P10)	PS701/PS702 (P10), PS700 (P05)
JS23/JS43 (P10)	PS700 (P05)

PS701/PS702 (P10)	PS701/PS702 (P10), PS700 (P05)
PS701/PS702 (P10)	PS700 (P05)
PS701/PS702 (P10)	PS700 (P05)
PS700 (P05)	PS700 (P05)
PS703 (P10)	PS703 (P10)
PS704 (P10)	PS703 (P10), PS704 (P10)
PS704 (P10)	PS700 (P05)
PS704 (P10)	PS700 (P05)
P260 (P10)	P703 (P10), P704(P10), P260(P10), P460 (P10)
P460 (P10)	P703 (P10), P704(P10), P260(P10), P460 (P10)

These systems have IBM i software licenses with an IBM i P05 or P10 processor group. The primary machine must be in the same enterprise and country as the CBU system.

Before you can temporarily transfer IBM i processor entitlements from the registered primary system, you must have more than one IBM i processor entitlement on the primary machine and at least one IBM i processor entitlement on the CBU server. You can then transfer any IBM i processor entitlements above the minimum one, assuming the total IBM i workload on the primary system does not require the IBM i entitlement that you want to transfer during the time of the transfer. During this temporary transfer, the CBU system's internal records of its total number of IBM i processor entitlements are not updated, and you may see IBM i license noncompliance warning messages from the CBU system. These warning messages in this situation do not mean you are not in compliance.

The p260 high availability options include PowerHA® with Geographic Mirroring. You may also use Metro Mirror or Global Mirror replication solutions provided by the storage subsystem, and other third-party software replication packages.

Before you can temporarily transfer IBM i user entitlements, you must have more than five IBM i user entitlements on the p260 primary server and at least five IBM i user entitlements on the CBU server. You can transfer optional entitlements (any IBM i user entitlements above the minimum five) from the primary to the CBU. The user entitlements transferred to the CBU may not be used concurrently on the primary server from which they were transferred. If the primary server is of a P10 processor group, then the primary server must have a minimum of 10 user entitlements and the optional user entitlements (those over the 10 required) may be transferred temporarily to the CBU. As a general principle of the CBU on i offering, temporary entitlement transfer cannot originate on the CBU.

For example, if you have a p260 as your primary system with two IBM i processor entitlements (one above the minimum) and 50 IBM i user entitlements (40 above the minimum), you can temporarily transfer up to one IBM i processor entitlement and up to 40 user entitlements. During this temporary transfer, the CBU system's internal records of its total number of IBM i processor and user entitlements are not updated, and you may see IBM i license noncompliance warning messages from the CBU system.

If your primary or CBU machine is sold or discontinued from use, any temporary entitlement transfers must be returned to the machine on which they were originally acquired.

For CBU registration and further details, visit

<http://www.ibm.com/systems/power/hardware/cbu>

N_Port ID Virtualization - NPIV

NPIV provides direct access to Fibre Channel adapters from multiple client partitions, simplifying the management of Fibre Channel SAN environments. NPIV support is included with PowerVM Standard and Enterprise Editions.

Systems Management and Administrative Tools

Integrated diagnostic and administrative tools like IBM Predictive Failure Analysis and light path diagnostics are designed to simplify administration to help lower costs

and improve control of the IT environment. Remote management capabilities allow automating IT networking tasks.

Proven technology like VIOS allows the sharing of disk drives, communications, and Fibre Channel adapters.

Systems management support for IBM Flex System p260 Compute Node

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

- 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.
- 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 p260 Compute Node highlights

Note: Minimum requirements are for EFD5 (Custom Expansion) only.

- Form factor
The IBM Flex System p260 Compute Node is a standard-width node for the IBM Flex System Enterprise Chassis.
- Processor cores
The p260 contains either two 4-core 64-bit 4.0 GHz or two 8-core 3.6 GHz or 4.1 GHz POWER7+ processors.
- Level 2 (L2) cache
256 KB per processor core
- Level 3 (L3) cache
4 MB per processor core
- Memory (standard and maximum)
Base offering: 16 GB. Up to 512 GB maximum in 16 DIMM slots. ECC and Chipkill DDR3 SDRAM memory running at 1066 MHz.
Note: Maximum of 128 GB with HDDs installed.
- Internal drive storage maximums (optional)
 - Two 300 GB, 600 GB, or 900 GB 2.5-inch Serial Attached SCSI (SAS) 10,000 RPM non-hot-swappable HDDs
 - Two 177 GB 1.8-inch SATA SSDs
 - Integrated RAID 0 or RAID 1 standard on ITE with support for disk mirroring
- I/O
Two PCIe slots available.
- Optional connectivity
 - IBM Flex System IB6132 2-port QDR InfiniBand Adapter (#1761)
 - IBM Flex System EN4054 4-port 10Gb Ethernet Adapter (#1762)
 - IBM Flex System FC3172 2-port 8Gb Fibre Channel Adapter (#1764)
 - IBM Flex System EN2024 4-port 1Gb Ethernet Adapter (#1763)
 - IBM Flex System CN4058 8-port 10Gb Converged Adapter (#EC24)
 - IBM Flex System EN4132 2-port 10Gb RoCE Adapter (#EC26)
- PowerVM Standard Edition

Virtual LAN, POWER Hypervisor™, Micro-Partitioning, Virtual I/O Server with Integrated Virtualization Manager, Shared Dedicated Capacity, and PowerVM Lx86

- PowerVM Enterprise Edition (optional, when running AIX or Linux)
All the features of PowerVM Standard Edition plus Live Partition Mobility and Active Memory™ Sharing
- Systems management
Integrated systems management processor, light path diagnostics, Predictive Failure Analysis, Cluster Systems Management for AIX (CSM), Serial Over LAN, and IPMI-compliant
- RAS features
 - IBM Chipkill ECC detection and correction
 - Processor Instruction Retry
 - Service processor with fault monitoring
 - Hot-plug power supplies and cooling fans (on chassis)
 - Dynamic processor deallocation
 - Dynamic deallocation of logical partitions and PCIe bus slots
 - Extended error handling on PCIe slots
 - Redundant power supplies and cooling fans (on chassis)
- High availability
 - IBM PowerHA family

Support for IBM i 6.1 and IBM i 7.1

Support for IBM Flex System p260 Compute Node:

IBM i 6.1 and IBM i 7.1 support the IBM Flex System p260 Compute Node. For IBM i, the p260 ITE server is supported in the IBM Flex System Enterprise Chassis. The p260 also supports AIX and Linux operating systems.

IBM i uses the PowerVM VIOS partition for access to Flex System resources and storage devices. The VIOS partition owns adapters on the compute node and virtualizes the resources to the IBM i partition.

IBM i operating system supports the following I/O adapters and storage options on the p260:

- IBM Flex System EN4054 4-port 10Gb Ethernet Adapter (#1762)
- IBM Flex System EN2024 4-port 1Gb Ethernet Adapter (#1763)
- IBM Flex System FC3172 2-port 8Gb Fibre Channel Adapter (#1764)
- IBM Flex System CN4058 8-port 10Gb Converged Adapter (#EC24)
- IBM 300 GB SAS 10K SFF HDD (#8274)
- IBM 600 GB SAS 10K SFF HDD (#8276)
- IBM 900 GB SAS 10K SFF HDD (#8311)
- IBM 177 GB SATA SSD (#8207)

For use with IBM i, the compute node can be deployed with one VIOS partition and one IBM i partition, with one VIOS partition and multiple IBM i partitions, or with one VIOS partition and a combination of IBM i, AIX, and Linux partitions.

IBM i 6.1 (5761-SS1) and IBM i 7.1 (5770-SS1) include per processor core and per user entitlements for compute nodes.

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" made up of individual components that can be mixed and matched, and are fully customizable with optional management
- IBM PureFlex System solutions made up 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 applications such as IBM PureFlex System

Statement of general direction

IBM intends to provide to those clients with AIX 5.3 Technology Level 12 (and the associated service extension offering) the ability to run that environment on the IBM Flex System p260 Compute Nodes (7895-23X).

For IBM PureFlex Systems with Power compute nodes, IBM intends to update IBM Flex System Manager by providing capabilities for Qbg.

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.

Reference information

Refer to Hardware Announcement [112-017](#), dated April 11, 2012 .

Refer to Hardware Announcement [112-018](#), dated April 11, 2012 .

Refer to Hardware Announcement [112-080](#), dated April 11, 2012 .

Product number

The following are newly announced features on the specific models of the IBM Power Systems™ 7895 machine type:

Description	Machine type	Model	Feature number
IBM Power Systems 7895	7895	23X	
Linux Software Preinstall	7895	23X	8143
Linux Software Preinstall (Business Partners)	7895	23X	8144
AIX/VIOS Software Preinstall	7895	23X	8146
AIX/VIOS Software Preinstall (Business Partners)	7895	23X	8147
IBM Flex System CN4058 8-port 10Gb Converged Adapter	7895	23X	EC24
IBM Flex System EN4132 2-port 10Gb RoCE Adapter	7895	23X	EC26
System Guides - English	7895	23X	ED31
System Guides - UK English	7895	23X	ED32

System Guides - Brazilian Portuguese	7895	23X	ED33
System Guides - Japanese	7895	23X	ED34
System Guides - Japanese English	7895	23X	ED35
System Guides - Korean	7895	23X	ED36
System Guides - Korean English	7895	23X	ED37
System Guides - Chinese English	7895	23X	ED38
System Guides - Chinese Hong Kong	7895	23X	ED39
System Guides - Chinese Taiwan	7895	23X	ED3A
System Guides - French	7895	23X	ED3B
System Guides - Spanish	7895	23X	ED3C
System Guides - German	7895	23X	ED3D
System Guides - Italian	7895	23X	ED3E
64GB (2 x 32GB RDIMMs) 4Gb DDR3 1066 MHz System Memory	7895	23X	EEMF
IBM PureFlex System Express Expansion Indicator	7895	23X	EFD6
IBM PureFlex System Standard Expansion Indicator	7895	23X	EFD7
IBM PureFlex System Enterprise Expansion Indicator	7895	23X	EFD8
Build-To-Order Indicator	7895	23X	EFD9
16-core 4.1 GHZ POWER7+ Processor Module	7895	23X	EPRA
16-core 3.6 GHZ POWER7+ Processor Module	7895	23X	EPRB
8-core 4.0 GHZ POWER7+ Processor Module	7895	23X	EPRD
RDX USB External Docking Station for Removable Disk Cartridge	7895	23X	EU04

The following are features already announced for the IBM Power Systems 7895 machine type:

Description	Machine type	Model	Feature number
One CSC Billing Unit	7895	23X	0010
Ten CSC Billing Units	7895	23X	0011
AIX Partition Specify	7895	23X	0265
Linux Partition Specify	7895	23X	0266
IBM i Operating System Partition Specify	7895	23X	0267
IBM i 6.1 with 6.1.1 Machine Code Specify Code	7895	23X	0566
IBM i 7.1 Specify Code	7895	23X	0567
US TAA Compliance Indicator	7895	23X	0983
USB External Docking Station for Removable Disk Drive	7895	23X	1104
USB 500 GB Removable Disk Drive	7895	23X	1107
Custom Service Specify, Rochester Minn, USA	7895	23X	1140
IBM Flex System IB6132 2-port QDR InfiniBand Adapter	7895	23X	1761
IBM Flex System EN4054 4-port 10Gb Ethernet Adapter	7895	23X	1762
IBM Flex System EN2024 4-port 1Gb Ethernet Adapter	7895	23X	1763
IBM Flex System FC3172 2-port 8Gb Fibre Channel Adapter	7895	23X	1764
Primary OS - IBM i	7895	23X	2145
Primary OS - AIX	7895	23X	2146
Primary OS - Linux	7895	23X	2147
Factory Deconfiguration of 1-core	7895	23X	2319
Integrate Blade Server in Chassis (BP)	7895	23X	4645
Integrate ITE in Chassis	7895	23X	4646
One and only one rack indicator feature is required on all orders (#4650 to #4666).			
Rack Indicator- Not Factory Integrated	7895	23X	4650
Rack Indicator, Rack #1	7895	23X	4651
Rack Indicator, Rack #2	7895	23X	4652
Rack Indicator, Rack #3	7895	23X	4653
Rack Indicator, Rack #4	7895	23X	4654
Rack Indicator, Rack #5	7895	23X	4655
Rack Indicator, Rack #6	7895	23X	4656
Rack Indicator, Rack #7	7895	23X	4657
Rack Indicator, Rack #8	7895	23X	4658
Rack Indicator, Rack #9	7895	23X	4659
Rack Indicator, Rack #10	7895	23X	4660
Rack Indicator, Rack #11	7895	23X	4661
Rack Indicator, Rack #12	7895	23X	4662

Rack Indicator, Rack #13	7895	23X	4663
Rack Indicator, Rack #14	7895	23X	4664
Rack Indicator, Rack #15	7895	23X	4665
Rack Indicator, Rack #16	7895	23X	4666
Chassis indicator-Not Factory Integrated	7895	23X	4680
Chassis specify, Chassis #1	7895	23X	4681
Chassis specify, Chassis #2	7895	23X	4682
Chassis specify, Chassis #3	7895	23X	4683
Chassis specify, Chassis #4	7895	23X	4684
Chassis specify, Chassis #5	7895	23X	4685
Chassis specify, Chassis #6	7895	23X	4686
Chassis specify, Chassis #7	7895	23X	4687
Chassis specify, Chassis #8	7895	23X	4688
Chassis specify, Chassis #9	7895	23X	4689
IBM i CBU Specify Code	7895	23X	4898
Software Preinstall	7895	23X	5005
PowerVM Standard Edition	7895	23X	5227
PowerVM Enterprise Edition	7895	23X	5228
Top Cover, Diskless Model	7895	23X	7067
Top Cover, SSDs Installed	7895	23X	7068
Top Cover, HDDs Installed	7895	23X	7069
8GB (2x4GB RDIMMs) DDR3 1066 MHZ System Memory	7895	23X	8196
177 GB 1.8" SATA Solid State Drive	7895	23X	8207
300 GB SAS 10K RPM SFF HDD	7895	23X	8274
600 GB SAS 10K RPM SFF HDD	7895	23X	8276
900 GB SAS 10K RPM SFF HDD	7895	23X	8311
One Processor Entitlement	7895	23X	8491
Order Routing Indicator- System Plant	7895	23X	9169
New AIX License Core Counter	7895	23X	9440
New IBM i License Core Counter	7895	23X	9441
New Red Hat License Core Counter	7895	23X	9442
New SUSE License Core Counter	7895	23X	9443
Other AIX License Core Counter	7895	23X	9444
Other Linux License Core Counter	7895	23X	9445
3rd Party Linux License Core Counter	7895	23X	9446
VIOS Core Counter	7895	23X	9447
Month Indicator	7895	23X	9461
Day Indicator	7895	23X	9462
Hour Indicator	7895	23X	9463
Minute Indicator	7895	23X	9464
Qty Indicator	7895	23X	9465
Countable Member Indicator	7895	23X	9466
16GB (2 x 8GB RDIMMs) 4Gb DDR3 1066 MHZ System Memory	7895	23X	EEMD
32GB (2 x 16GB RDIMMs) 4Gb DDR3 1066 MHZ System Memory	7895	23X	EEME
IBM PureFlex System Express Indicator	7895	23X	EFD1
IBM PureFlex System Standard Indicator	7895	23X	EFD2
IBM PureFlex System Enterprise Indicator	7895	23X	EFD3
IBM PureFlex System Expansion Indicator	7895	23X	EFD4
IBM PureFlex System Custom Configuration Indicator	7895	23X	EFD5
Trial PowerVM Live Partition Mobility	7895	23X	ELPM
RFID Tags for Servers, Compute Nodes, Chassis, Racks, and HMCs	7895	23X	ERF1
S&H - No Charge	7895	23X	ESC0
S&H	7895	23X	ESC4
1TB Removable Disk Drive Cartridge	7895	23X	EU01
RDX 320 GB Removable Disk Drive	7895	23X	EU08

Feature conversions

The existing components being replaced during a model or feature conversion become the property of IBM and must be returned.

Feature conversions are always implemented on a "quantity of one for quantity of one" basis. Multiple existing features may not be converted to a single new feature. Single existing features may not be converted to multiple new features.

The following conversions are available to customers:

Feature conversions for 7895-23X virtualization engine features

From FC:	To FC:	Return parts
5227 - PowerVM Standard Edition	5228 - PowerVM Enterprise Edition	No

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=112-169>

Reliability, Availability, and Serviceability (RAS)

The reliability of the IBM Flex System p260 Compute Node (7895-23X) starts with components, devices, and subsystems that are designed to be fault-tolerant. POWER7+ uses lower voltage technology in the processor SCMs that improves reliability and stacked latches to reduce soft error (SER) susceptibility. During the design and development process, subsystems go through rigorous verification and integration testing processes. During system manufacturing, systems go through a thorough testing process to help ensure high product quality levels.

The processor and memory subsystem contains a number of features designed to avoid or correct environmentally induced, single-bit, intermittent failures as well as handle solid faults in components, including selective redundancy to tolerate certain faults without requiring an outage or parts replacement.

Publications

No publications are shipped with the announced product.

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 is at

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

Services

Global Technology Services

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

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

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

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

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

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

For details on education offerings related to specific products, visit

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

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

Technical information

Specified operating environment

Physical specifications

- IBM Flex System p260 Compute Node (7895-23X)
 - Height: 55.9 mm (2.2 in)
 - Width: 218.4 mm (8.6 in)
 - Depth: 492.7 mm (19.4 in)
 - Weight: 7.7 kg (17.0 lb)
- IBM Flex System Enterprise Chassis (7893-92X)
 - Height: 440 mm (17.5 in)
 - Width: 447 mm (17.6 in)
 - Depth: 800 mm (31.5 in)
 - Weight: 159 kg (350 lb)

To assure installability and serviceability in non-IBM industry-standard racks, review the installation planning information for any product-specific installation requirements.

Operating environment

- Temperature:
 - 10° to 35°C (50° to 95°F) at 0 to 914 m (0 to 3,000 ft)
 - 10° to 32°C (50° to 90°F) at 914 to 2,133 m (3,000 to 7,000 ft)

<http://www-912.ibm.com/see/EnergyEstimator>

- Relative humidity: 8% to 80%
- Maximum altitude: 2,133 m (7,000 ft)
- Power consumption (@ +12 V supplied by Flex System Enterprise Chassis): 634 watts maximum

Note: The maximum measured value is the worst case power consumption expected from a fully populated server under an intensive workload. The maximum measured value also accounts for component tolerance and non-ideal operating conditions. Power consumption and heat load vary greatly by server configuration and utilization. The IBM Systems Energy Estimator should be used to obtain a heat output estimate based on a specific configuration.

EMC conformance

- US: FCC - Verified to comply with Part 15 of the FCC Rules Class A
- Canada: ICES-004, issue 3 Class A
- EMEA: EN55022: 2006 + A1:2007 Class A
- EMEA: EN55024: 1998 + A1:2001 + A2:2003
- Australia and New Zealand: CISPR 22, Class A

Safety certifications

- US: (UL Mark) UL 60950-1 1st Edition
- CAN: (cUL Mark) CAN/CSA22.2 No.60950-1 1st Edition
- Europe: EN 60950-1:2006+A11:2009
- CB: IEC60950-1, 2nd Edition
- Russia: (GOST Mark) IEC60950-1

Hardware requirements

IBM Flex System p260 Compute Node:

7895-23X	Processor	L3 Cache	Memory	Local Storage
	8-core 4.0/ 16-core 3.6/ 16-core 4.1 GHz POWER7+	4 MB/ core	16 GB - 512 GB	Two optional 2.5" HDDs or 1.8" SSDs

Minimum system configuration

The IBM Flex System p260 Compute Node can be ordered as a Custom Expansion (#EFD5) order.

Each Custom Expansion 7895-23X configuration must contain a minimum of:

- One processor chosen from:
 - 8-core (2 x 4-core) 4.0 GHz 2-socket planar (#EPRD)
 - 16-core (2 x 8-core) 3.6 GHz 2-socket planar (#EPRA)
 - 16-core (2 x 8-core) 4.1 GHz 2-socket planar (#EPRB)
- Eight or sixteen Processor Entitlements (one of these):
 - 8 x #8491 with #EPRD
 - 16 x #8491 with #EPRA and #EPRB
- 16 GB memory chosen from:
 - 8 GB (2 x 4 GB DIMMs) DDR3 1066 MHz (#8196)
 - 16 GB (2 x 8 GB DIMMs) DDR3 1066 MHz (#EEMD)
 - 32 GB (2 x 16 GB DIMMs) DDR3 1066 MHz (#EEME)
 - 64 GB (2 x 32 GB DIMMs) DDR3 1066 MHz (#EEMF)

Note: If HDDs are installed, features EEME and EEMF are not allowed.

- One Ethernet adapter, chosen from:
 - IBM Flex System EN4054 4-port 10Gb Ethernet Adapter (#1762)
 - IBM Flex System EN2024 4-port 1Gb Ethernet Adapter (#1763)
 - IBM Flex System CN4058 8-port 10Gb Converged Adapter (#EC24)
- PowerVM Standard Edition (#5227) or PowerVM Enterprise Edition (#5228)
- One top cover, chosen from:
 - No HDDs or SSDs installed (#7067)
 - SSDs (#8207, or follow-on) installed (#7068)
 - HDDs (#8274/#8276/#8311, or follow-on) installed (#7069)
- One Primary Operating System Indicator, chosen from:
 - IBM i (#2145 -- requires #0565 or #0566)
 - AIX (#2146)
 - Linux (2147)

- 1 x #ESC0 Shipping and Handling (no charge)
- 1 x #EFD5 PureFlex System Order Indicator

Note: A minimum of one copy of the IBM Flex System p260/p460 Compute Node Installation/User Guide (ED31-ED3E) is required at each customer installation.

Optional and additional features

- Up to 512 GB of system memory
 - A maximum of eight memory features (16 DIMMs) may be installed in the 7895-23X.
 - If an HDD is installed in the 7895-23X, then only 8 GB (#8196) or 16 GB (#EEMD) memory features are allowed.
 - Minimum memory with an SSD or no SSD/HDD installed is 16 GB with a maximum of 512 GB. Minimum memory with an HDD installed is 16 GB with a maximum of 128 GB.
 - Memory DIMMs must be installed in matched pairs (same size and speed) but memory features may be mixed.
 - The p260 supports Memory Scrubbing, ECC, and Chipkill.
 - Memory features operate at 1066 MHz.
- Storage devices
 - The p260 does not support removable media within the compute node.
 - The p260 has two locations for installation of one or two optional 2.5-inch SAS SFF HDDs.
 - The p260 has two locations for installation of one or two optional 1.8-inch SATA SSDs.
 - SSDs and HDDs may not be mixed in the p260.

Expansion cards

The IBM Flex System p260 Compute Node has two slots supporting the following PCIe expansion cards:

- IBM Flex System IB6132 2-port QDR InfiniBand Adapter (#1761)
- IBM Flex System EN4054 4-port 10Gb Ethernet Adapter (#1762)
- IBM Flex System EN2024 4-port 1Gb Ethernet Adapter (#1763)
- IBM Flex System FC3172 2-port 8Gb FC Adapter (#1764)
- IBM Flex System CN4058 8-port 10Gb Converged Adapter (#EC24)
- IBM Flex System EN4132 2-port 10Gb RoCE Adapter (#EC26)

A maximum of 1 x #EC26, #1761, or #1764 is allowed.

A maximum of 2 x #EC24, #1762, or #1763 is allowed.

Software requirements

The IBM Flex System p260 Compute Node server supports the AIX , Linux , and IBM i operating systems, providing the flexibility of using applications written for any one of the three. IBM has qualified two popular Linux distributions for use with the p260:

- Red Hat Enterprise Linux for POWER®
- SUSE Linux Enterprise Server for POWER

One or more of the following operating systems is required for an operational IBM Flex System p260 Compute Node:

If installing the AIX operating system (one of these):

- AIX V7.1 with the 7100-02 Technology Level, or later

- AIX V6.1 with the 6100-08 Technology Level, or later

If installing the IBM i operating system:

- IBM i 6.1 with i 6.1.1 machine code, or later
- IBM i 7.1, or later

For more detailed information about IBM i support for this announcement, refer to the IBM i Technology Updates at

<http://www.ibm.com/developerworks/ibmi/techupdates/hw>

Note: VIOS is required with the IBM i operating system.

If installing VIOS:

- VIOS 2.2.2.0

If installing the Linux operating system (one of these):

- SUSE Linux Enterprise Server 11 Service Pack 2 for POWER , with current maintenance updates available from SUSE to enable all planned functionality
- Red Hat Enterprise Linux for POWER 6.3, or later

Users should also update their systems with the latest Linux for POWER service and productivity tools from the IBM website

<http://www14.software.ibm.com/webapp/set2/sas/f/lopdiags/home.html>

Note: For systems ordered with the Linux operating system, IBM ships the most current versions available from the distributor. If your hardware requires a different version of a Linux OS than that shipped by IBM , you must obtain it by downloading it from the Linux distributor's website. Information concerning access to a distributor's website is located on the product registration card delivered to you as part of your Linux OS order.

Processor is the unit of measure by which this program is licensed. A *processor* (commonly called a *processor core* or *CPU*) is a functional unit within a computing device that interprets and executes instructions. A processor consists of at least an instruction control unit and one or more arithmetic or logic units. With multicore technology, each core is considered a processor. For programs eligible for sub-capacity licensing, a Proof of Entitlement (PoE) must be acquired for all activated processors available for use in each partition (utilizing eligible partitioning technologies) where the program runs. A PoE must be acquired for all activated processor cores available for use on the server.

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 are required.

Security, auditability, and control

Security and auditability features include:

- A power-on password function provides control of who has access to the data and server setup program on the server.
- A selectable boot sequence can be used to prevent unauthorized installation of software or removal of data from the diskette drive.

Limitations: The IBM Flex System Enterprise Chassis and the IBM Flex System p260 Compute Node have no security-intrusion detection.

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 one 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 services

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 upon 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- 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 or a Tier 2 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:

- Hard disk drive
- Hard disk drive flex cable
- Hard disk drive interposer
- Mezzanine cards
- Battery
- Bezel
- Memory DIMMs
- Top cover
- Management card

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 service level is:

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

Non-IBM parts 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 customers, and normal warranty service procedures for the IBM machine apply.

International warranty service

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

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

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

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

<http://www-947.ibm.com/support/entry/portal/docdisplay?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, a warranty service upgrade provides an enhanced level of On-site Service for an additional charge. A warranty service upgrade must be purchased during the warranty period and is for a fixed term (duration). It is not refundable or transferable and may not be prorated. If required, IBM will provide the warranty service upgrade enhanced level of On-site Service acquired by the customer. Service levels are response-time objectives and are not guaranteed. See the [Warranty services](#) section for additional details.

IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM website. 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.

CRUs will be provided as part of the machine's standard warranty CRU Service except that you may install a Tier 1 CRU yourself or request IBM installation, at no additional charge, under one of the On-site Service levels specified below. For additional information on the CRU Service, see the warranty information.

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 service level is:

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

Note: Canada does not offer 2-hour response option.

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 one of the On-site service levels specified above. For additional information on the CRU service, see 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, via an IBM website. 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.

The service level is:

- 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.
- 24 hours per day, 7 days a week, 4-hour average response
- 24 hours per day, 7 days a week, 2-hour average response

Note: Canada does not offer 2-hour response option.

Customer Replaceable Unit (CRU) Service

If your problem can be resolved with a CRU (for example, 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 at any time 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, return instructions and a container are shipped with the replacement CRU, and you may be charged for the

replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

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, customers are responsible for sourcing the parts. Installation labor is provided at no additional charge, if the machine is covered under a warranty service upgrade or a maintenance service.

Warranty service upgrades

Usage plan machine

No

IBM hourly service rate classification

One

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

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

Machine using LMC Type Model 7895-23X

Access to Machine Code updates is conditioned on entitlement and license validation in accordance with IBM policy and practice. IBM may verify entitlement through customer number, serial number, electronic restrictions, or any other means or methods employed by IBM in its discretion.

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

Access to " IBM 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/or other terms provided with the fix, as applicable.

Educational allowance

A reduced charge is available to qualified education customers. 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 7895 machine type:

Description	Model number	Feature number	Purchase Price	Minimum Monthly Maint. Charge	Initial/ Monthly MES/ Both/ Support	RP CSU MES
IBM 7895-23X	23X					Yes
One CSC Billing Unit	23X	0010			Both	Yes No
Ten CSC Billing Units	23X	0011			Both	Yes No
AIX Partition Specify	23X	0265			Both	Yes No
Linux Partition Specify	23X	0266			Both	Yes No
IBM i Partition Specify	23X	0267			Both	Yes No
IBM i 6.1 w/6.1.1 Machine Code	23X	0566			Both	Yes No
IBM i 7.1 Specify Code	23X	0567			Both	Yes No
US TAA Compliance Indicator	23X	0983			Both	Yes No
USB External Docking Station R	23X	1104			Support	Yes No
USB 500 GB Removable Disk Dr	23X	1107			Both	Yes No
Custom Serv. Specify, Roch	23X	1140			Both	Yes No
IB6132 2-port QDR InfiniBand	23X	1761			Both	Yes No

EN4054 4-port 10Gb E'net Adapt	23X	1762	Both	Yes	No
EN2024 4-port 1Gb E'net Adaptr	23X	1763	Both	Yes	No
FC3172 2-port 8Gb FC Adapter	23X	1764	Both	Yes	No
Primary OS - IBM i	23X	2145	Both	Yes	No
Primary OS AIX	23X	2146	Both	Yes	No
Primary OS Linux	23X	2147	Both	Yes	No
Factory Deconfiguration of 1 c	23X	2319	Initial	N/A	No
Integrate Blade Server Chassis	23X	4645	Initial	N/A	No
Integrate ITE in Chassis	23X	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	23X	4650	Initial	N/A	No
Rack Indicator, Rack 2	23X	4651	Initial	N/A	No
Rack Indicator, Rack 3	23X	4652	Initial	N/A	No
Rack Indicator, Rack 4	23X	4653	Initial	N/A	No
Rack Indicator, Rack 5	23X	4654	Initial	N/A	No
Rack Indicator, Rack 6	23X	4655	Initial	N/A	No
Rack Indicator, Rack 7	23X	4656	Initial	N/A	No
Rack Indicator, Rack 8	23X	4657	Initial	N/A	No
Rack Indicator, Rack 9	23X	4658	Initial	N/A	No
Rack Indicator, Rack 10	23X	4659	Initial	N/A	No
Rack Indicator, Rack 11	23X	4660	Initial	N/A	No
Rack Indicator, Rack 12	23X	4661	Initial	N/A	No
Rack Indicator, Rack 13	23X	4662	Initial	N/A	No
Rack Indicator, Rack 14	23X	4663	Initial	N/A	No
Rack Indicator, Rack 15	23X	4664	Initial	N/A	No
Rack Indicator, Rack 16	23X	4665	Initial	N/A	No
ChasIndicator-Not fact integr	23X	4666	Initial	N/A	No
Chassis specify, Chassis #1	23X	4680	Initial	N/A	No
Chassis specify, Chassis #2	23X	4681	Initial	N/A	No
Chassis specify, Chassis #3	23X	4682	Initial	N/A	No
Chassis specify, Chassis #4	23X	4683	Initial	N/A	No
Chassis specify, Chassis #5	23X	4684	Initial	N/A	No
Chassis specify, Chassis #6	23X	4685	Initial	N/A	No
Chassis specify, Chassis #7	23X	4686	Initial	N/A	No
Chassis specify, Chassis #8	23X	4687	Initial	N/A	No
Chassis specify, Chassis #9	23X	4688	Initial	N/A	No
Chassis specify, Chassis #9	23X	4689	Initial	N/A	No

IBM i CBU Specify Code	23X	4898		Both	Yes	No
Software Preinstall	23X	5005		Initial	N/A	No
PowerVM Standard Edition	23X	5227		Both	Yes	No
PowerVM Enterprise Edition	23X	5228		Both	Yes	No
Top Cover, Diskless Model	23X	7067		Both	Yes	No
Top Cover, SSDs Installed	23X	7068		Both	Yes	No
Top Cover, HDDs Installed	23X	7069		Both	Yes	No
Linux Software Preinstall	23X	8143		Initial	N/A	No
Linux Software Preinstall BP	23X	8144		Initial	N/A	No
Software Preinstall	23X	8146		Initial	N/A	No
8GB (2x4GB RDIMMs) Memory	23X	8196		Both	Yes	No
177 GB Solid State Drive	23X	8207		Both	Yes	No
300 GB SAS 10K RPM SAS HDD	23X	8274		Both	Yes	No
600 GB SAS 10K RPM SFF	23X	8276		Both	Yes	No
900 GB SAS 10K RPM SFF	23X	8311		Both	Yes	No
One Processor Entitlement	23X	8491		Both	Yes	No
Order Routing Indicator System	23X	9169		Initial	N/A	No
New AIX License Core Counter	23X	9440	NC	Initial	N/A	No
New IBM i Lic Core Counter	23X	9441	NC	Initial	N/A	No
New Red Hat Lic Core Counter	23X	9442	NC	Initial	N/A	No
New SUSE Lic Core Counter	23X	9443	NC	Initial	N/A	No
Other AIX Lic Core Counter	23X	9444	NC	Initial	N/A	No
Other Linux Lic Core Counter	23X	9445	NC	Initial	N/A	No
3rd Party Linux Lic Core Cnt	23X	9446	NC	Initial	N/A	No
VIOS Core Counter	23X	9447	NC	Initial	N/A	No
Month Indicator	23X	9461		Initial	N/A	No
Day Indicator	23X	9462		Initial	N/A	No
Hour Indicator	23X	9463		Initial	N/A	No
Minute Indicator	23X	9464		Initial	N/A	No
Qty Indicator	23X	9465		Initial	N/A	No
Countable Member Indicator	23X	9466		Initial	N/A	No
CN4058 8-port 10Gb Converged	23X	EC24		Both	Yes	No
EN4132 2-port 10Gb RoCE Adaptr	23X	EC26		Both	Yes	No
Custom Serv. Specify, Shen	23X	ECSC		Both	Yes	No
System Guides - English	23X	ED31		Both	Yes	No
System Guides - UK English	23X	ED32		Both	Yes	No
System Guides - Braz Portugues	23X	ED33		Both	Yes	No

System Guides - Japanese	23X	ED34	Both	Yes	No
System Guides - Japanese Eng.	23X	ED35	Both	Yes	No
System Guides - Korean	23X	ED36	Both	Yes	No
System Guides - Korean English	23X	ED37	Both	Yes	No
System Guides - Chinese Eng.	23X	ED38	Both	Yes	No
System Guides - Chinese HK	23X	ED39	Both	Yes	No
System Guides - Chinese Taiwan	23X	ED3A	Both	Yes	No
System Guides - French	23X	ED3B	Both	Yes	No
System Guides - Spanish	23X	ED3C	Both	Yes	No
System Guides - German	23X	ED3D	Both	Yes	No
System Guides - Italian	23X	ED3E	Both	Yes	No
16GB (2 x 8GB RDIMMs) Memory	23X	EEMD	Both	Yes	No
32GB (2 x 16GB RDIMMs) Memory	23X	EEME	Both	Yes	No
64GB (2 x 32GB RDIMMs) Memory	23X	EEMF	Both	Yes	No
PureFlex System Express Ind.	23X	EFD1	Initial	N/A	No
PureFlex System Standard Ind.	23X	EFD2	Initial	N/A	No
PureFlex System Enterprise Ind	23X	EFD3	Initial	N/A	No
PureFlex System Expansion Ind	23X	EFD4	Initial	N/A	No
PureFlex System Custom Ind.	23X	EFD5	Initial	N/A	No
PureFlex Express Expansion Ind	23X	EFD6	Initial	N/A	No
PureFlex Standard Expansion In	23X	EFD7	Initial	N/A	No
PureFlex Enterprise Expansion	23X	EFD8	Initial	N/A	No
BTO Indicator	23X	EFD9	Initial	N/A	No
Trial Live Partition Mobility	23X	ELPM	Both	Yes	No
16-core 4.1 GHZ POWER7+ Proc	23X	EPRA	Initial	N/A	No
16-core 3.6 GHZ POWER7+ Proc	23X	EPRB	Initial	N/A	No
8-core 4.0 GHZ POWER7+ Proc	23X	EPRD	Initial	N/A	No
RFID Tags for Compute Nodes	23X	ERF1	Initial	N/A	No
S&H - No Charge	23X	ESC0	Initial	N/A	No
S&H	23X	ESC4	Initial	N/A	No
1TB Removable Disk Cartridge	23X	EU01	Both	Yes	No
RDX USB External Docking	23X	EU04	Both	Yes	No
RDX 320 GB Removable Disk Driv	23X	EU08	Both	Yes	No

Feature conversions

Feature conversions for 7895-23X virtualization engine features:

From FC:	To FC:	Parts Returned	Purchase Price
5227 - PowerVM Standard Edition	5228 - PowerVM Enterprise Edition	No	

Pricing terms

Prices in the following PDF prices link are suggested list prices on day of announcement for the U.S. 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-112-169-LIST_PRICES_2012_11_13.PDF](#)

ServicePac prices

For ServiceElect (ESA) maintenance service charges, contact IBM Global Services at 888-IBM-4343 (426-4343).

IBM Global Financing

IBM Global Financing offers competitive financing to credit-qualified customers to assist them in acquiring IT solutions. Offerings include financing for IT acquisition, including hardware, software, and services, from both IBM and other manufacturers or vendors. Offerings (for all customer segments: small, medium, and large enterprise), rates, terms, and availability can vary by country. Contact your local IBM Global Financing organization or visit

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

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Order now

To order, contact the Americas Call Centers or your local IBM representative, or your IBM Business Partner.

To identify your local IBM representative or IBM Business Partner, call 800-IBM-4YOU (426-4968).

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