IBM zEnterprise BladeCenter Extension (zBX)

Table of contents

1 Overview
2 Key prerequisites
2 Planned availability date
3 Description
8 Product positioning
8 Statement of general direction
8 Product number
10 Publications
11 Technical information
15 Terms and conditions
18 Prices
18 Announcement countries
19 Corrections

At a glance

The new IBM® zEnterprise™ BladeCenter® Extension (zBX) Model 002 is designed to provide a redundant hardware infrastructure that supports the multiplatform environment of z196. The zBX Model 001 allows the management of heterogeneous resources to support the IBM Smart Analytics Optimizer application as a single entity of the System z10® . These infrastructures allow z196 and the System z10 to extend System z® qualities of service and management to a new set of devices.

The zBX delivers:

- Standard 42U racks for hosting multiplatform solutions
- Redundant hardware infrastructure for availability
- Preconfigured solution sizes for the IBM Smart Analytics Optimizer for DB2® for z/OS® V1.1 (5697-AQT)
- The zBX Model 002 includes support for POWER7™ Blades

Overview

IBM System z is taking a bold step into the future. For the first time it is possible to deploy an integrated hardware platform that brings mainframe and distributed technologies together - a system that can start to replace individual islands of computing and that can work to reduce complexity, improve security, and bring applications closer to the data they need.

IT today is all about creating an infrastructure that is dynamic and scalable as well as being flexible enough to satisfy both the needs of mission-critical work and the development and deployment of new workloads. This infrastructure must be able to make sense of data, a company's most valuable asset, with insight rather than hindsight, and it must allow a business to use IT to gain a competitive edge. In building such systems, multiplatform solutions have become the norm for handling computational acceleration and specialized processing. As these heterogeneous systems grow, the end-to-end management can become a burden on resources and the IT budget. A new technology is needed that can go to a new dimension in computing, where smarter systems and smarter software work together to address the needs of the business.

Today IBM is announcing the IBM zEnterprise BladeCenter Extension (zBX). The zBX is part of the IBM zEnterprise System, a system that combines the gold standard of enterprise computing with built-in function to extend IBM's mainframe-like governance and qualities of service to special-purpose workload optimizers and general-purpose application serving. End-to-end management is enabled for this heterogeneous environment by the IBM zEnterprise Unified Resource Manager, which

provides energy monitoring and management, goal-oriented policy management, increased security, virtual networking, and data management, consolidated in a single interface that can be tied to business requirements.

The IBM zEnterprise System is comprised of the IBM zEnterprise 196, the IBM zEnterprise Unified Resource Manager, and the IBM zEnterprise BladeCenter Extension (zBX).

The zBX Model 002 infrastructure works with the IBM zEnterprise 196 system to both host the IBM Smart Analytics Optimizer, and manage the interaction between the mainframe and distributed technologies. The blades are managed as part of a single logical virtualized environment by IBM zEnterprise Unified Resource Manager. The zBX Model 002 can support IBM Smart Analytics Optimizer for DB2 for z/OS V1.1 (5697-AQT) and supported POWER7 Blades.

The zBX Model 001 infrastructure works with the System z10 and extends management capabilities to manage IBM Smart Analytics Optimizer for DB2 for z/OS V1.1 (5697-AQT), a heterogeneous Business Intelligence (BI) application, as a single entity.

Key prerequisites

Refer to the Hardware requirements and Software requirements sections of this announcement.

Planned availability date

- November 19, 2010
  - zBX Model 002
    - -- Support IBM Smart Analytics Optimizer for DB2 for z/OS with feature #0610 in blade quantities of 7, 14 and 28
    - -- Support for POWER7 blades
- December 17, 2010
  - zBX Model 001 with all solution sizes of IBM Smart Analytics Optimizer blade feature #0610
  - zBX Model 002 with all solution sizes of IBM Smart Analytics Optimizer blade feature #0610
  - Model 001 and Model 002 MES feature upgrades within each model
- March 17, 2011
  - z10™ with 2458 Model 001 upgrades to z196 with 2458 Model 002

The zBX Model 001 and Model 002 are available as listed above in these countries.

- Only in the following American countries:

  Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Bermuda, Bolivia, British Virgin Islands, Canada, Cayman Islands, Chile, Columbia, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guadeloupe, Guatemala, Guyana, Guyane, Honduras, Jamaica, Martinique, Mauritius, Montserrat, Netherland Antilles, Panama, Paraguay, Peru, Puerto Rico, Saint Kitts and Nevis, Saint Lucia, St Pierre and Miquelon, St. Vincent and Granadines, Trinidad and Tobago, Turks and Caicos Islands, Uruguay, U.S. Virgin Island, USA, Venezuela

- Only in the following European, Middle Eastern, and African countries:

  Azores, Albania, Algeria, Andora, Austria, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Cameroon, Canarias, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Gambia, Georgia, Germany, Ghana, Gilbraltar, Greece, Greenland, Guernsey, Guinea-Bissau, Hungary, Iceland, Ireland, Isle of Man, Italy, Jersey, Kenya, Latvia, Leichtenstein,

Lithuania, Luxembourg, Macedonia, Madeira, Malawi, Malta, Mauritania, Mauritius, Mayotte, Monaco, Morocco, Mozambique, Namibia, Netherlands, Norway, Oman, Pakistan, Poland, Portugal, Qatar, Reunion, Romania, Samoa, San Marino, Senegal, Serbia, Seychelles, Slovakia, Slovenia, Spain, South Africa, Swaziland, Sweden, Switzerland, Tanzania, Togo, Tunisia, Turkey, UK, Zambia

- Only in the following Asia Pacific countries:

  Australia, Bangladesh, Bhutan, Brunei, French Polynesia, Guam, Hong Kong, India, Japan, Laos, Macau, Madagascar, Malaysia, Maldives, Mongolia, Myanmar, Nepal, New Caledonia, New Zealand, Northern Mariana, Philippines, Singapore, Sri Lanka, Taiwan, Thailand, Vanuatu

In addition, the Model 001 is available as listed above in these countries:

- Argentina, Bahrain, Brazil, Belarus, Croatia, Chile, China, Egypt, Jordan, Kuwait, Lebanon, Mexico, Russia, Saudi Arabia, South Korea, Ukraine, United Arab Emirates

The Model 002 is planned to be available on December 10, 2010, for the following countries:

- Argentina, Chile, Croatia, Mexico, Russia, Saudi Arabia, South Korea, Ukraine

  Orders for 2458 Model 002 will be accepted from these countries beginning November 23, 2010.

The Model 001 is planned to be available in first quarter 201,1 for the following countries:

- Israel, Indonesia, Yemen

The Model 002 is planned to be available in first quarter 2011, for the following countries:

- Bahrain, Belarus, Brazil, China, Egypt, Israel, Indonesia, Jordan, Kuwait, Lebanon, United Arab Emirates, Yemen

  Orders for 2458 Model 002 will be accepted from these countries beginning November 23, 2010.

Description

IBM is introducing the IBM zEnterprise BladeCenter Extension (zBX). The zBX hardware infrastructure will support special purpose IBM Smart Analytics Optimizer blades and POWER 7 blades. The zBX Model 001 is designed to support the IBM Smart Analytics Optimizer with the System z10 EC and System z10 BC. The zBX Model 002 attaches to the z196 server and is designed to support the IBM Smart Analytics Optimizer and the IBM BladeCenter PS701 Express® blades.

The IBM Smart Analytics Optimizer solution is designed to enable a new class of high speed business intelligence and analytic queries on System z complimenting current OLTP workloads already on the platform. For organizations with the majority of their data on System z , this combination is designed to offer significant value to both IT and the business.

The innovative technology within the IBM Smart Analytics Optimizer offers organizations the ability to integrate business insights into the fabric of their operational process, while accelerating queries and making business insights more accessible to the front line of business. The value of this applies to executive users that need to make well-founded, strategic decisions as well as knowledge workers who need to have insight into the daily operational aspects of the business.

There are five IBM Smart Analytics Optimizer solution sizes supported by the zBX Model 001 and Model 002. After completing a workload assessment as part of

the solution assurance process, the required number of blades (#0610) may be ordered in quantities of 7, 14, 28, 42, or 56. The solution requires IBM Smart Analytics Optimizer for DB2 for z/OS V1.1 (5697-AQT), DB2 V9 for z/OS (5635-DB2), PTFs for DB2 for z/OS , z/OS V1.10, or higher, XML Toolkit for z/OS V1.10, an x86 workstation for IBM Smart Analytics Optimizer studio, a System z10 or z196 with two OSA-Express3 10 GbE SR cards, a zBX with the required number of blades (#0610), and a DS5020 storage server to support the amount of DB2 raw data. More information on Smart Analytics Optimizer and the solution assurance process may be found in

http://www.ibm.com/software/data/infosphere/smart-analytics-optmizer-z/

The optional POWER7 blade can be installed in the zBX, enabling application integration with System z transaction processing, messaging, and data serving capabilities. The IBM BladeCenter PS701 Express is based on the new POWER7 processor-based PS blades. They represent one of the most flexible and cost-efficient solutions for AIX® deployments available in the market. The PS701 Express blade and the zBX Model 002 infrastructure are managed as a single logical virtualized environment by the zEnterprise Unified Resource Manager.

The IBM zEnterprise Unified Resource Manager, the zEnterprise 196, and the zEnterprise BladeCenter Extension are designed to be one logical system. When a zBX is serviced by IBM (under warranty or post-warranty maintenance service contract), IBM intends to deliver service on Power® blades installed in the zBX as if those blades were components of the zBX, unless the customer requests to have such service delivered according to the blade's entitlement.

The POWER7 blade (8406-71Y) is supported in the zBX Model 002 in the following hardware configurations.

Feature/Feature Code	Configuration #1	Configuration #2	Configuration #3
Processor Activations (#8412)	8	8	8
8GB Memory (#8208)	4	8	0
16GB Memory (#8209)	0	0	8
HDD 300GB (#8274)	1	1	1
CFFh 10GbE (#8275)	1	1	1
CIOv 8Gb FC (#8242)	1	1	1
PowerVM (#5228)	8	8	8

Note: Each 8406-71Y requires one #0612 as a planned POWER7 blade.

A quantity of 8 VIOS (5765-PVE) is required to support the blade. You may choose software maintenance period of one year or three years at a quantity of 8. The one year of software maintenance is obtained by ordering 5771-PVE and the three software maintenance is obtained by ordering 5773-PVE.

The PS701 Express blade with features and software may be obtained through an IBM Business Partner or Distributor, an IBM sales representative, or through

http://www.ibm.com

Further information on the IBM BladeCenter P701 Express blade can be found at

http://www.ibm.com/systems/bladecenter/hardware/servers/ps700series/index.html

More information on the z196 and z10 use of zBX can be found in Hardware Announcement ZG10-0249, dated July 22, 2010 , as well as the following two Web sites

http://www.ibm.com/systems/zenterprise
http://www.ibm.com/systems/zenterprise196

2458 Model 001 Network Connections

The zBX model 001 has been designed specifically for use with the z10 as its controlling CPC. Two connection types are required, a management network and a data network. The management network is supported by two independent and redundant Ethernet connections between the System z10 and the zBX. Once connected to a System z10 through the management network the resources of the zBX are viewed as a logical extension of the System z10 . These resources are then controlled and managed through the Hardware Management Console (HMC) and Support Element (SE) of the System z10 . The cabling necessary to implement this management network connection is provided with the zBX, and supports a maximum distance of 26 meters between the z10 and the zBX.

The data network is supported by a 10 Gigabit Ethernet (GbE) multimode fiber optic connection between the System z10 and the zBX. It consists of two independent data paths for redundancy. Any System z10 connecting to the zBX through the data network requires a port on two separate OSA-Express3 10 GbE features. All cables in support of the data network must be provided by the customer. The zBX is designed to support connectivity for up to eight System z10s. The maximum number of data connections to the System z10 is dependent depending on the configuration of the zBX Model 001 (see chart below).

IBM Smart Analytic Optimizer Blades (#0610)	Data Network Connections
7	2
14	2
28	4
42	6
56	8

The zBX uses short range (SR) transceivers to terminate the data network. OSA-Express3 10 GbE SR (Short Range) features are used on System z10 for a physically secure point-to-point connection. OSA-Express3 10 GbE LR (Long Range) features may be used in conjunction with an external Ethernet switch as long as SR optical connections are made with the zBX Model 001. Note that in this case the security of the network is no longer provided by physical configuration alone and the isolation of traffic to the zBX must now be provided by appropriate management and control of the customer-supplied switch.

The zBX Model 001 is configured with the necessary redundant hardware infrastructure to support the number of IBM Smart Analytics Optimizer (#0610) blades in the machine. The OSA-Express3 10 GbE features may be purchased as features for the System z10 .

Maximum distances for all Ethernet and Fibre Channel cables are:

- Data Network 10 Gigabit Ethernet
  - If multimode fiber (Short Range Optics)
    - With 50 micron fiber at 2000 MHz-km: 300 meters (984 feet)
    - With 50 micron fiber at 500 MHz-km: 82 meters (269 feet)
    - With 62.5 micron fiber at 200 MHz-km: 33 meters (108 feet)
  - If single mode fiber (Long Range Optics)
    - 10 km (6.2 miles)
- Fibre Channel SAN (Short Wave Optics)
  - If multimode fiber at 8 Gbps
    - With 50 micron fiber at 2000 MHz-km: 150 meters (492 feet)
    - With 50 micron fiber at 500 MHz-km: 50 meters (164 feet)
    - With 62.5 micron fiber at 200 MHz-km: 21 meters (69 feet)
  - If multimode fiber at 4 Gbps

-- With 50 micron fiber at 2000 MHz-km: 380 meters (1247 feet)
-- With 50 micron fiber at 500 MHz-km: 150 meters (492 feet)
-- With 62.5 micron fiber at 200 MHz-km: 70 meters (230 feet)

– If multimode fiber at 2 Gbps

-- With 50 micron fiber at 2000 MHz-km: 500 meters (1640 feet)
-- With 50 micron fiber at 500 MHz-km: 300 meters (984 feet)
-- With 62.5 micron fiber at 200 MHz-km: 150 meters (492 feet)

As with standard System x® practices, the zBX supports overhead Ethernet and Fibre Channel cables. At the customers request the IBM CE can remove the top plate and run the cables up.

2458 Model 002 Configuration and Network Connections

The zBX model 002 has been designed specifically for use with the z196 as its controlling CPC. The configuration is dictated by the quantity of blades supporting IBM Smart Analytics Optimizer (#0610) and the number of POWER7 blades (#0612) enabled.

The maximum number of blades that may be configured in a 2458 Model 002 is 112. There is one exception. Having seven blades (#0610) supporting IBM Smart Analytics Optimizer populates half of a BladeCenter chassis. Since one can not mix #0610 and POWER7 blades in the same BladeCenter chassis, this configuration will reduce the total number of blades that can be installed. As result, the following depicts the limits of the number of orderable blades.

IBM Smart Analytics Optimizer blades (#0610)	Max number PS701 blades	Max number total blades
0	112	112
7	98	105
14	98	112
28	84	112
42	70	112
56	56	112

Two new network connection types are provided, an intranode management network (INMN) and an intraensemble data network (IEDN). Once connected to a z196 through the INMN, the resources of the zBX are viewed as a logical extension of the z196. These resources are then controlled and managed through the Hardware Management Console (HMC) and Support Element (SE) of the z196. The cabling necessary to implement the INMN is provided with the zBX Model 002. The z196 connecting through the INMN is the controlling platform and must be within 26 meters of the zBX. INMN requires OSA-Express3 1000BaseT.

The IEDN is a 10 Gigabit Ethernet (GbE) multimode fiber optic connection between the z196 and the zBX. It consists of two independent data paths for redundancy. Any z196 connecting to the zBX through a IEDN requires a port on two separate OSA-Express3 10 GbE features. The zBX Model 002 can support up to eight IEDNs depending on the configuration of the zBX. All cables to connect the zBX to the z196 through the IEDN must be provided by the customer.

The zBX Model 002 uses either short range (SR) or long range (LR) transceivers to terminate the IEDN. These optics need to be specified when ordering the zBX. Either OSA-Express3 10 GbE SR (Short Range) or OSA-Express3 10 GbE LR (Long Range) features can be used on z196 for a physically secure point-to-point connection.

To ease order and configuration, the zBX integrated infrastructure provides the additional necessary hardware (for example, BladeCenter chassis, Power Distribution Units, and so on) to provide a redundant environment based on the quantity of defined blades.

Maximum distances for all Ethernet and Fibre Channel cables are:

- zEnterprise Hardware Management Console (HMC) Network 1000BASE-T Ethernet
  - 100 meters (328 feet), but can be extended through IP routing
- Interensemble data network (IEDN) 10 Gigabit Ethernet
  - If multimode fiber (Short Range Optics)
    - With 50 micron fiber at 2000 MHz-km: 300 meters (984 feet)
    - With 50 micron fiber at 500 MHz-km: 82 meters (269 feet)
    - With 62.5 micron fiber at 200 MHz-km: 33 meters (108 feet)
  - If single mode fiber (Long Range Optics)
    - 10 km (6.2 miles)
- Fiber Channel SAN (Short Wave Optics)
  - If multimode fiber at 8 Gbps
    - With 50 micron fiber at 2000 MHz-km: 150 meters (492 feet)
    - With 50 micron fiber at 500 MHz-km: 50 meters (164 feet)
    - With 62.5 micron fiber at 200 MHz-km: 21 meters (69 feet)
  - If multimode fiber at 4 Gbps
    - With 50 micron fiber at 2000 MHz-km: 380 meters (1247 feet)
    - With 50 micron fiber at 500 MHz-km: 150 meters (492 feet)
    - With 62.5 micron fiber at 200 MHz-km: 70 meters (230 feet)
  - If multimode fiber at 2 Gbps
    - With 50 micron fiber at 2000 MHz-km: 500 meters (1640 feet)
    - With 50 micron fiber at 500 MHz-km: 300 meters (984 feet)
    - With 62.5 micron fiber at 200 MHz-km: 150 meters (492 feet)

As with standard System x practices, the zBX supports overhead Ethernet and Fibre Channel cables. At the customers request the IBM CE can remove the top plate and run the cables up.

Availability and Service

The zBX Model 001 and Model 002 are based on the standard BladeCenter and blade hardware offerings. Therefore, existing product reliability is inherited. To enhance the availability of the zBX, these RAS capabilities have been incorporated in the infrastructure. They include:

- Hardware redundancy at various levels
  - Redundant power infrastructure
  - Redundant power and switch units in the BladeCenter chassis
  - Redundant cabling for management of zBX and data connections
- Concurrent to system operations
  - Install additional blades
  - Hardware repair
  - Firmware fixes and driver upgrades
- Automated callhome for hardware/firmware problems

The zBX Model 001 will be managed from the HMC and the supporting processor Support Elements (SE). The zBX Model 002 will be managed by the IBM zEnterprise Unified Resource Manager, accessible through the HMC, and the supporting processor Support Elements (SE). The following support will be provided:

- Trained IBM service technicians will perform maintenance actions from the Supporting system z Processor Support Elements.

- Firmware upgrades will be downloaded and applied from the supporting System z processors Support Elements for the Model 001 as they are on the host servers, or from the Unified Resource Manager through the Support Elements for the Model 002.
- Failures will be reported to IBM and the IBM support structure engaged using the host RETAIN® connection (24x7).
- Operators will be able to monitor and control all the zBX blades from the HMC for the Model 001 from the Unified Resource Manager panels via the HMC for the Model 002.

Please review the Warranty Service section of this announcement for further information about the increased support provided.

Accessibility by people with disabilities

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

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

Product positioning

The IBM zEnterprise BladeCenter Extension (zBX) will be attached to System z10 or z196 via two separate OSA-Express3 10 GbE features. It will provide the hardware infrastructure to host a new software application, IBM Smart Analytics Optimizer for DB2 for z/OS , V1.1 and the PS701 Express Blade.

Statement of general direction

In the first half of 2011, IBM intends to offer a System x blade running Linux® on System x for the IBM zEnterprise System on the zBX Model 002.

In the first half of 2011, IBM intends to offer a WebSphere® DataPower® Appliance for IBM zEnterprise System on the zBX Model 002.

All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice. Any reliance on these statements of general direction is at the relying party's sole risk and will not create liability or obligation for IBM .

Product number

Description	Machine Type	Model	Feature
zEnterprise BladeCenter Extension	2458	001	
		002	
HMC w/Dual EN			0091
Power 3Ph Delta w/cord			0520
Power w/o cord			0521
60A/208V 1Ph Cord			0531
63A/230V 1Ph Cord			0532
32A/380-415V 3Ph WYE Cord			0533
Rear Door Heat Exchanger			0540
Std Front Door			0541
Std Rear Door			0542
Acoustic Door Set			0543
Chassis Counter Weight			0544
Rack height reduction			0570
Primary zBX rack			0601
Expansion zBX rack			0602
zBX configured chassis asm			0603

10 GbE ESM Switch	0605
Fibre channel switch	0606
Mgmt TOR switch	0607
ISAOPT Blade	0610
8 Gb SW optical module	0615
ESM filler plate	0618
Rack filler plate	0619
US English	2924
France	2928
German	2929
Spanish - Non Spain	2930
Spain	2931
Italian	2932
Canadian French	2935
Portuguese	2978
Brazilian Portuguese	2979
UK English	2980
Norwegian	2983
Sweden Finland	2987
Netherlands	2988
Belgian French	2989
Denmark	2993
Swiss French, German	2997
Luxembourg Belgium ordered	5560
Iceland ordered in Denmark	5561
China ordered in Hong Kong	5562
Flat-panel display	6096
RPO Action Flag	9003

Description	Machine Type	Model	Feature
zEnterprise BladeCenter Extension	2458	001	
zBX Model 001			0500
10 Gb SR optical module			0614
1m LC Duplex cable			0616
5m LC Duplex cable			0617

Description	Machine Type	Model	Feature
zEnterprise BladeCenter Extension	2458	002	
zBX Model 002			0501
IEDN TOR switch			0608
Pwr Blade Enablement			0612
1000 mm CAT6 cable			0620
5m LC Duplex cable			0621
15 ft CAT6 cable			0624
3200 mm CAT6 cable			0625
10 GbE 1m SFP cable			0626
10 GbE 3m SFP cable			0627
10 GbE 7m SFP cable			0628
10 GbE LR 10km SFP			0632
10 GbE SR SFP			0633

Description	Machine Type	Model	Feature
zEnterprise BladeCenter Extension	2458	002	
Month indicator			0660
Day indicator			0661
Hour indicator			0662
Minute indicator			0663

Model conversions

zBX 2458 Model 001 can be upgraded to a 2458 Model 002. Note that each zBX has an affinity for a specific System z10 or z196. Therefore, upgrading from a Model 001 to a Model 002 also requires an upgrade from a z10 to a z196. In addition, upgrading a z10 to a z196 also forces a Model 001 to a Model 002 upgrade for an attached zBX.

Refer to the section of this announcement for details on the upgrade paths.

Feature conversions

Not applicable.

Education support

Visit the following Web site for additional information

http://www.ibm.com/training/us

Contact your IBM representative for course information.

Publications

The following publications are available now in the *Library* section of Resource Link™ .

Title	Order Number
zBX Installation Manual for Physical Planning 2458-001	GC28-6887
zBX Installation Manual for Physical Planning 2458-002	GC27-2611
PR/SM Planning Guide	SB10-7155
System Overview	SA22-1086
Functional Matrix	ZSW0-1335

The following publications are shipped with the product and available in the *Library* section of Resource Link .

Title	Order Number
zBX Service Guide	GC28-6884
zBX Installation Manual 2458-001	GC28-6885
zBX Installation Manual 2458-002	GC27-2610
zBX Safety Inspection	GC28-6889
System z Statement of Limited Warranty	GC28-6883
Systems Safety Notices	G229-9054
Systems Environmental Notices and User Guide	Z125-5823

The following publications will be available at planned availability in the *Library* section of Resource Link .

Title	Order Number
Application Programming Interfaces for JAVA	API-JAVA
Application Programming Interfaces	SB10-7030
Support Element Operations Guide (V2.11.0)	SC28-6869
Hardware Management Console Operations Guide (V2.11.0)	SC28-6895
IOCP User's Guide	SB10-7037

Publications for zBX can be obtained at Resource Link by accessing the following Web site

http://www.ibm.com/servers/resourcelink

Using the instructions on the Resource Link panels, obtain a user ID and password. Resource Link has been designed for easy access and navigation. The following Redpaper publications will provide additional information, once they become available.

Title	Order Number
Using IBM System z as the foundation for your information management architecture	REDP4606
IBM zEnterprise BladeCenter Extension Model 001	REDP4668

For other IBM Redbooks® publications, refer to

http://www.redbooks.ibm.com/

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

Dimensions:

	Depth	Width	Height
Each racks with standard covers as installed:			
- Inches	43.3	25.5	79.8
- Centimeter	109.9	64.8	202.7
Palletized rack (Americas)			
- Inches	51.0	32.9	78.8
- Centimeter	129.5	91.2	200.0
Palletized rack (Asia Pacific)			
- Inches	51.0	32.9	83.6
- Centimeter	129.5	91.2	212.5

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Maximum System Model 001
28  IBM  Smart Analytics
Optimizer Blades per rack


     582
     1280



Maximum System Model 002
28  IBM  Smart Analytics
Optimizer Blades per rack


      582
      1280


Maximum System Model 002
28  POWER7  blades per rack


     582
     1280
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Operating environment

Temperature:

- 10° to 32° C (50° to 89° F) for all models up to 900 meters; maximum ambient reduces 1° C per 300 meters above 900 meters

Relative humidity: 8% to 80% (percent)

Wet bulb (caloric value): 23° C (73° F) Operating Mode

Max dew point: 17° C (62.6° F) Operating Mode

Electrical power: All values are maximums for the specified solution size. Power factor is approximately unity for all cases.

- 12.1 kW, 14 blades
- 21.7 kW, 28 blades
- 31.3 kW, 42 blades
- 40.9 kW, 56 blades
- 50.5 kW, 70 blades
- 60.1 kW, 84 blades
- 69.7 kW, 98 blades
- 79.3 kW, 112 blades

Acoustical Noise Level for 28 blade configuration and standard door set:

- Declared A-Weighted Sound Power Level, LWAd (B) = 7.9
- Declared A-Weighted Sound Pressure Level, LpAm (dB) = 61

Acoustical Noise Level for 28 blade configuration and acoustic door set (#0543):

- Declared A-Weighted Sound Power Level, LWAd (B) = 7.5
- Declared A-Weighted Sound Pressure Level, LpAm (dB) = 57

Acoustical Noise Level for 56 blade configuration and standard door set:

- Declared A-Weighted Sound Power Level, LWAd (B) = 8.1

- Declared A-Weighted Sound Pressure Level, LpAm (dB) = 63

Acoustical Noise Level for 56 blade configuration and acoustic door set (#0543):

- Declared A-Weighted Sound Power Level, LWAd (B) = 7.7
- Declared A-Weighted Sound Pressure Level, LpAm (dB) = 59

Acoustical Noise Level for 112 blade configuration and standard door set:

- Declared A-Weighted Sound Power Level, LWAd (B) = 8.3
- Declared A-Weighted Sound Pressure Level, LpAm (dB) = 65

Acoustical Noise Level for 112 blade configuration and acoustic door set (#0543):

- Declared A-Weighted Sound Power Level, LWAd (B) = 7.9
- Declared A-Weighted Sound Pressure Level, LpAm (dB) = 61

Hardware requirements

You should review the PSP buckets for minimum Machine Change Levels (MCLs) and software PTF levels before IPLing operating systems. To support new functions and features, MCLs are required.

Descriptions of the MCLs are available now through Resource Link .

Access Resource Link at

http://www.ibm.com/servers/resourcelink

Select:

Fixes, Hardware, Exception Letters
Click on xxxxx
Click on Driver xx Customer Exception Letter

The most recent driver information is at the top of the list.

Peripheral hardware and device attachments

The IBM zEnterprise BladeCenter Extension supports the use of external disk devices for use with POWER7 blades. Supported devices can be found at

http://public.dhe.ibm.com/common/ssi/ecm/en/zsp03437usen/ZSP03437USEN.PDF

While the zBX supports devices as described in the document, IBM does not commit to provide support or service for an IBM device that has reached its End of Service effective date as announced by IBM.

Note: IBM cannot confirm the accuracy of performance, compatibility, or any other claims related to non-IBM products. Questions regarding the capabilities of non-IBM products should be addressed to the suppliers of those products.

Software requirements

The IBM Smart Analytics Optimizer software requires:

- z/OS 1.10
- IBM DB2 V9.1 for z/OS , or DB2 9 for z/OS Value Unit Edition
- DB2 Utilities Suite for z/OS V9.1.0
- XML Toolkit for z/OS , V1.10.0

The POWER7 blades requires:

- AIX 5.3 (Technology Level 12), and later, in Power 6 and 6+ compatibility mode, or AIX 6.1 (Technology Level 5), and later
- Power/VM Enterprise Edition

To enable DB2 for z/OS to route queries to an attached IBM Smart Analytics Optimizer a particular PTF needs to be applied, refer to the support document referenced below.

For additional information regarding the hardware and software requirements for installing IBM Smart Analytics Optimizer for z/OS , refer to

http://www.ibm.com/support/docview.wss?rs=4163&uid=swg27016498

The program's specifications and specified operating environment information may be found in documentation accompanying the program, if available, such as a README file, or other information published by IBM , such as an announcement letter. Documentation and other program content may be supplied only in the English language.

Planning information

Customer responsibilities

Information on customer responsibilities for site preparation can be found in the Library section of Resource Link at

http://www.ibm.com/servers/resourcelink

Cable orders

Fiber optic cable orders

Fiber optic cables for the zBX are available from IBM Site and Facilities Services.

Refer to the services section of Resource Link for further details. Access Resource Link at

http://www.ibm.com/servers/resourcelink

Cabling responsibilities

Fiber optic cables, cable planning, labeling, and placement are all customer responsibilities for new installations and upgrades. Fiber optic conversion kits and Mode Conditioning Patch (MCP) cables are not orderable as features on a zBX. Installation Planning Representatives (IPRs) and System Service Representatives (SSRs) will not perform the fiber optic cabling tasks without a services contract.

The following tasks are required to be performed by the customer prior to machine installation:

- All fiber optic cable planning.
- All purchasing of correct fiber optic cables.
- All installation of any required Mode Conditioning Patch (MCP) cables.
- All installation of any required Conversion Kits.
- All routing of fiber optic cables to correct floor cutouts for proper installation to server.

Additional service charges may be incurred during the server installation if the above cabling tasks are not accomplished as required.

For further details also refer to the Installation Manual for Physical Planning (IMPP), available on Resource Link .

Note: IBM Site and Facilities Services can satisfy your fiber optic as well as your copper cabling requirements.

Installability

The average installation time for a zBX is approximately 13 installer hours. This does not include planning hours. This assumes the Pre-Installation Configuration Service, a full System Assurance Product Review, and implementation of the cable services have been performed. Contact your IBM representative for details on these services.

Security, auditability, and control

The zBX uses the security and auditability features and functions of host hardware, 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.

Global Technology Services

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

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

Warranty period

One year

Warranty service

zBX provides increased service over normal blades with the following characteristics:

- IBM intends to deliver the enhanced System z model of service and support for all IBM blade products that are supported for use in the zBX. The enhanced service and support for Power7 blades is intended to be available when the blades are installed in a zBX and activated via a unique System z feature code (FC #0612). This service model includes 24x7 on-site support, including FRU replacement by the client's local Service Support Representative (SSR), during the zBX's warranty period. As such, a customer who installs supported IBM blades and acquires the requisite feature code on the zBX will receive the benefits of the zBX warranty service. This practice is valid unless the customer removes the blade and requests to have such service delivered according to the blade's entitlement.
- Warranty service upgrades and post-warranty IBM maintenance contracts should not be purchased by customers when ordering an IBM blade for installation in a zBX since System z is providing the higher level of service for blades while they are installed in a zBX.
- For all hardware that will be installed in System z servers serviced by IBM during their warranty period or under a post-warranty IBM maintenance service contract, there must be an active software maintenance agreement (SWMA) in place in order to service the software under its control. For example, for each POWER7 blade in the zBX (FC #0612) there must be an active PowerVM™ EE SWMA in place. Failure to maintain SWMA may result in IBM not being able to service that particular FC #0612.
- IBM POWER7 blades will be customer supplied and installed in this zBX solution.

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 and location specific information.

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 service is available as warranty for your machine type.

- IBM On-site Repair, Same Business Day 6 hours average On-site response Time, 24 hours per day, 7 days a week

Warranty service upgrades

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 and location specific information.

IBM 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.

There are no warranty service upgrades.

Usage plan machine

No

IBM hourly service rate classification

A

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.

Maintenance service offerings

This machine is eligible under Terms and Conditions of the IBM ServiceSuite™ (SSU), the IBM Enterprise Service Agreement (ESA) or under the IBM Maintenance Agreement. Consult your IBM Representative for details.

The maintenance service offering is

- IBM On-site Repair, Same Business Day 6 hours average On-site Response Time, 24 hours per day, 7 days a week.
- When a zBX is serviced by IBM under post-warranty maintenance service contract, it is IBM's intention to deliver service on Power blades installed in the zBX as if those blades were components of the zBX. This policy is valid unless the customer removes the blade and requests to have such service delivered according to the blade's entitlement.

Committed Services (CS)

For service options with a committed level of service or any other special service option, please contact your IBM representative. Refer to the following European documents:

- Announcement Letter ZS03-0150 for IBM Customer Agreement (ICA)
- Announcement Letter ZS04-0135 for Enterprise Agreement Contract
- Announcement Letter ZS98-0118 for ServiceSuite Contract
- Hardware Maintenance Operational Guides and Service Level Code Description Table available at

  http://www-5.ibm.com/services/europe/maintenance/

Field-installable features

Yes

Model conversions

No

Machine installation

Installation is performed by IBM . IBM will install the machine in accordance with the IBM installation procedures for the machine.

In the United States, contact IBM at 1-800-IBM-SERV (426-7378), in other countries contact the local IBM office.

Graduated program license charges apply

No

Licensed internal code

IBM Licensed Internal Code (LIC) is licensed for use by a customer on a specific machine, designated by serial number, under the terms and conditions of the IBM License Agreement for Machine Code, to enable a specific machine to function in accordance with its specifications as authorized by IBM and acquired by the customer. You can obtain the agreement at

http://www.ibm.com/systems/support/machine_warranties/machine_code.html

or by contacting your IBM representative. Specific Machine LIC Type Model 2458-001 or 2458-002.

In addition to the Licensed Internal Code, models of the zBX may also include code that is licensed under terms of one or more non-IBM license agreements. The specific licenses governing use of such code can be obtained at

http://www.ibm.com/systems/support/machine_warranties/sbp_servers.html

Europe Business Partner terms and conditions

Category: The products are added to the discount categories A.

Exhibit: The products are added to the System z hardware product exhibit.

Prices

For all local charges, contact your IBM representative.

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http://www.ibm.com/financing

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Announcement countries

All European, Middle Eastern, and African countries.

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

Corrections

(Corrected on May 22, 2012)
Hardware requirements/Peripheral hardware and device attachments section revised with new text.

(Corrected on November 19, 2010)
Planned availability section updated with additional information and revised list of countries. Product number section updated to include administrative feature codes.

(Corrected on August 4, 2010)
Hardware requirements section revised with new text.