IBM BNT RackSwitch 1455-24E, -48E, and -64C aid in planning IBM Power Systems data center switching environment

Overview

Three new IBM BNT data center Ethernet switches are available for IBM POWER7™ processor-based servers, offering three great alternatives for the access or distributed layer when laying out your IBM Power Systems™ data center switching environment. To order the IBM BNT RackSwitch G8124ER, the IBM BNT RackSwitch G8052R, or the IBM BNT RackSwitch G8264R, you must also order a supported POWER7 server or already have installed either a supported POWER7 server or products in the Midrange Storage or Enterprise Storage categories. A maximum of two switches may be ordered per POWER7 server, or a maximum of four switches may be ordered per storage product.

At a glance

IBM BNT RackSwitch G8124ER (1455-24E)

- Twenty-four 10 Gb SFP+ ports
- Redundant power supplies and fans
- Rack front-to-rear airflow
- Latency of less than 700 nanoseconds

IBM BNT RackSwitch G8052R (1455-48E)

- Forty-eight 1 Gb RJ45 ports and four 10 Gb SFP+ ports
- Redundant hot-swappable power supplies and fans
- Rack front-to-rear airflow
- Latency of 1.7 microseconds

IBM BNT RackSwitch G8264R (1455-64C)

- Forty-eight 10 Gb SFP+ ports and four 40 Gb QSFP+ ports
- Four 40 Gb QSFP+ ports that can each be converted to four 10 Gb SFP+ ports with optional breakout cable
- Redundant hot-swappable power supplies and fans
- Rack front-to-rear airflow
- Latency of less than 850 nanoseconds
The new IBM BNT data center Ethernet switches for Power Systems servers are
top-of-rack (TOR) switches designed to provide extremely low latency, low power
consumption, excellent costs of acquisition, and low total cost of ownership.
Matching the standard TOR configurations desired by most Power Systems data
centers, these 1U switches are mounted in the rear of the rack to optimize cabling,
and like Power® servers, are cooled with airflow entering through the front of the
rack and exiting through the rear of the rack. Front-to-rear rack airflow for these
switches is maintained by mounting the front of each switch facing the rear of the
rack.

- IBM BNT RackSwitch G8124ER (1455-24E)
- IBM BNT RackSwitch G8052R (1455-48E)
- IBM BNT RackSwitch G8264R (1455-64C)

The G8124ER provides up to twenty-four 10 Gb ports for either upstream or
downstream connections. The G8052R provides up to forty-eight 1 Gb ports from
the server to the switch and up to four 10 Gb ports for upstream high-speed
connections. And the G8264R provides an ultra-dense switch with up to sixty-four
10 Gb ports and also has 40 Gb capability when you choose to deploy it.

Power Systems sellers will appreciate working with the familiar AAS/WTAAS ordering
and e-config systems. In this structure, the switches are ordered using 1455-24E for
the G8124ER, 1455-48E for the G8052R, and 1455-64C for the G8264R.

**Note:** Some products may not be available in your country.

### Planned availability date

May 20, 2011

### Description

**IBM BNT RackSwitch G8124ER (1455-24E)**

The G8124ER RackSwitch offers twenty-four 10 Gb Ethernet (GbE) ports in a 1U
footprint. Designed with top performance in mind, the G8124ER RackSwitch provides
line-rate, high-bandwidth switching, filtering, and traffic queuing without delaying
data, and large data-center-grade buffers to keep traffic moving. Redundant power
and fans along with numerous high-availability features ensure that the G8124ER
RackSwitch is always available for business-sensitive traffic.

- The G8124ER offers 24 SFP+ ports that operate at 10 GbE or 1 Gb speeds.
- The switch is optimal for High-Performance Computing or other applications
  requiring the highest bandwidth and lowest latency.
- All ports are nonblocking 10 GbE with low (700 ns) deterministic latency.
- The G8124ER RackSwitch has rack front-to-rear airflow (switch rear-to-front
  airflow), which matches Power Systems racked equipment.
- Variable-speed fans automatically reduce power consumption.
- The switch also has a special mounting kit, allowing it to be mounted vertically or
  horizontally in a rack.
- Seamless, standards-based integration into existing Cisco and other networks
  helps reduce downtime and the learning curve.
- For network virtualization, VMready software on the switch helps reduce
  configuration complexity while significantly improving security levels in
  virtualized environments.
  - Automatically detects VM movement from one physical server to another
  - Instantly reconfigures each VM's network policies across VLANs to keep the
    network up and running without interrupting traffic or impacting performance
Performance

- 100% line-rate performance
- 480 Gbps nonblocking switching throughput (full duplex)
- 700 ns latency

Hardware features

Interface options

- Twenty-four SFP+ ports that operate at 10 GbE or 1 Gb speeds.
- Two 10/100/1000 Ethernet RJ45 ports for management
- One mini-USB console port for serial access
- Server-like port orientations that enable short and simple cabling

Features

- Rack front-to-rear airflow
- Two PSUs
- Rack-mount ears
- Cable set

IBM BNT RackSwitch G8052R (1455-48E)

The G8052R RackSwitch is a 1 Gb/10 GbE switch specifically designed for the data center, providing speed, intelligence, and interoperability on a proven platform. The G8052R RackSwitch offers 48 GbE ports and four 10 GbE ports in a 1U footprint. Designed with top performance in mind, the G8052R RackSwitch provides line-rate, high-bandwidth switching, filtering, and traffic queuing without delaying data, and large data-center-grade buffers to keep traffic moving.

- 48 x 1 GbE RJ45 ports and four 10 GbE SFP+ ports in an aggregation switch with unmatched line-rate Layer 2/3 performance at a very attractive price.
- The G8052R RackSwitch has rack front-to-rear airflow (switch rear-to-front airflow), which matches Power Systems racked equipment.
- Hot-swappable fans and power supplies make it easy to replace units without interrupting switch operation.
- Variable-speed fans automatically reduce power consumption.
- For network virtualization, VMready software on the switch simplifies configuration and improves security in virtualized environments. VMready automatically detects VM movement and reconfigures VM network policies across VLANs to keep the network up and running without impacting traffic or performance.
- Seamless, standards-based integration into existing Cisco and other networks reduces downtime and the learning curve.

Performance

- Single-switch ASIC design
- Full line-rate performance
- 176 Gbps (full duplex) switching architecture
- Low latency: 1.7 microseconds

Hardware features

Interfaces

- Forty-eight 10/100/1000 RJ45 ports
- Four 10 GbE SFP+ ports
• One USB port for external mass storage devices
• One fixed mini-USB console port for configuration and code changes via thumb drive, or boot from USB drive with new code

Features

• Rack front-to-rear airflow
• Two PSUs
• Four fans
• Rack-mount ears
• Cable set

IBM BNT RackSwitch G8264R (1455-64C)

The G8264R RackSwitch offers up to sixty-four 10 GbE ports in a 1U footprint. Designed with top performance in mind, the G8264R RackSwitch provides line-rate, high-bandwidth switching, filtering, and traffic queuing without delaying data, and large data-center-grade buffers to keep traffic moving. Redundant power and fans along with numerous high-availability features ensure that the G8264R RackSwitch is always available for business-sensitive traffic.

• The G8264R offers 48x SFP+ ports that operate at 10 GbE or 1 Gb speeds.
• It supports 4x QSFP+ ports for 40 GbE or 16 additional 10 GbE ports with optional breakout cables.
• The switch is optimal for High-Performance Computing or other applications requiring the highest bandwidth and lowest latency.
• All ports are nonblocking 10 GbE with low deterministic latency.
• The G8264R RackSwitch has rack front-to-rear airflow (switch rear-to-front airflow), which matches Power Systems racked equipment.
• Variable-speed fans automatically reduce power consumption.
• The switch also has a special mounting kit, allowing it to be mounted vertically or horizontally in a rack.
• Seamless, standards-based integration into existing Cisco and other networks helps reduce downtime and the learning curve.
• For network virtualization, VMready software on the switch helps reduce configuration complexity while significantly improving security levels in virtualized environments.
  – Automatically detects VM movement from one physical server to another
  – Instantly reconfigures each VM’s network policies across VLANs to keep the network up and running without interrupting traffic or impacting performance.

Performance

• 100% line-rate performance
• 1280 Gbps nonblocking switching throughput (full duplex)
• 960 Mbps

Hardware features

Interface options

• Forty-eight SFP+ ports that operate at 10 GbE or 1 Gb speeds
• Four QSFP+ ports
• One 10/100/1000 Ethernet RJ45 ports for management
• One USB port for mass storage device connection
• One mini-USB console port for serial access
• Server-like port orientations that enable short and simple cabling
## Features

- Rack front-to-rear airflow
- Two PSUs
- Rack-mount ears
- Serial cable

## Accessibility by people with disabilities

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


## Product number

The following are newly announced features on the specific models of the IBM Power Systems 1455 machine type:

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<thead>
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<th>Machine type</th>
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3m 10GbE Cable SFP+ Act Twinax 1455 24E EN02
5m 10GbE Cable SFP+ Act Twinax 1455 24E EN03

Education support

Visit the following websites for additional information:


Contact your IBM representative for course information.
Publications

None

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


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

Technical information

Specified operating environment

IBM BNT RackSwitch G8124ER (1455-24E)

Dimensions

- Width: 43.9 cm (17.3 in)
- Depth: 38.1 cm (15.0 in)
- Height: 4.45 cm (1.75 in); 1U
- Weight: 6.40 kg (14.08 lb)

Rack installation kit

- 2-post rack ears included; optional, versatile 4-post mounting kit available for server racks

LEDs

- System LEDs to indicate status
- Stacking LEDs to indicate Master/Member

Airflow

- Rack front-to-rear airflow
- Redundant variable speed fans for reduced power draw
Power

- Dual load-sharing, hot-swap internal power modules, 50-60 Hz, 100-240 V ac auto-switching per module.
- Typical power consumption of 116 W to 170 W

**IBM BNT RackSwitch G8052R (1455-48E)**

Dimensions

- Width: 43.9 cm (17.3 in)
- Depth: 44.5 cm (17.5 in)
- Height: 4.45 cm (1.75 in); 1U
- Weight: 5.45 kg (11.99 lb)

Rack installation kit

- 2-post rack ears included; optional, versatile 4-post mounting kit available for server racks

LEDs

- System LEDs to indicate status
- Stacking LEDs to indicate Master/Member

Airflow

- Rack front-to-rear airflow
- Redundant hot-swappable field-replaceable fans with variable speed to reduce power draw

Power: Redundant load-sharing hot-swappable power supply modules, operating at 200 W, 50-60 Hz, 100-240 V ac auto switching per module.

**IBM BNT RackSwitch G8264R (1455-64C)**

Dimensions

- Width: 43.9 cm (17.3 in)
- Depth: 38.1 cm (15.0 in)
- Height: 4.45 cm (1.75 in); 1U
- Weight: 6.40 kg (14.08 lb)

Rack installation kit

- 2-post rack ears included; optional, versatile 4-post mounting kit available for server racks

LEDs

- System LEDs to indicate status
- Stacking LEDs to indicate Master/Member

Airflow

- Rack front-to-rear airflow
- Redundant variable speed fans for reduced power draw

Power
- Dual load-sharing, hot-swap internal power modules, 50-60 Hz, 100-240 V ac auto-switching per module.
- Typical power consumption of 330 W

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

**Standards**

**Safety Certifications**
- UL-UL60950-1 (Second Edition)
- C-UL to CAN/CSA 22.2 No.60950-1 (Second Edition)
- TUV/GS to EN 60950-1:2006, Amendment, A11
- CB-IEC60950-1, all country deviations

**Electromagnetic Compatibility Certifications**
- FCC 47CFR Part 15 Class A
- EN 55022:2006 + A1:2007 (Class A)
- ICES-003 Class A
- VCCI Class A
- AS/NZS CISPR 22 Class A
- CISPR 22 Class A
- CE

**NEBS**
- GR-63-Core: NEBS, Physical Protection
- GR-1089-Core: EMC and Electrical Safety for Network Telecommunications Equipment
- Non PoE models: 24 port and 48 port

**Safety**
- Europe: EN 60950-1:2006+A11:2009

**EMC**

**Environmental**
- Reduction of Hazardous Substances (ROHS) 6

The IBM Ethernet products in this announcement may not be certified in your country for connection by any means whatsoever to interfaces of public telecommunications networks. Further certifications may be required by law prior to making any such connection. Contact IBM for information.

Homologation certificates and telecommunication certificates and approvals are in place, or are not required, for the following list of countries/regions. For any country not listed below, IBM is not currently in a position to ship to that country due to homologation or telecommunication activities not being completed for that country. IBM continues working to obtain approval to connect to public telecommunication networks in the currently restricted countries. Availability will be published in the future.
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**Note:** "EEA+" is EU + EFTA = Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, and UK.

Overseas areas part of EU: Portugal: Acores, and Madeira.

Spain: Canarias.

France: Guyane, Guadeloupe, Martinique, and Reunion.

USA includes US Territories: Puerto Rico, US Virgin Islands, Northern Mariana, and Guam.

In Japan, customers need to notify their telecommunication service provider of their intent to attach any of the networking products in this announcement to the public telephone network. Such notification should include a detailed description of the product to be used, date and time of installation, and a completed public telecommunications networks service request form.

**Operating environment**

- Operating temperature: 0°C to 45°C (32°F to 113°F)
- Storage temperature: -40°C to 70°C (-40°F to 158°F)
- Operating altitude: up to 3,049 m (10,000 ft)
- Nonoperating altitude: up to 4,877 m (16,000 ft)
- Relative humidity operating: 10% to 85% (noncondensing)
- Relative humidity nonoperating: 0% to 95% (noncondensing)

**Supported servers**

The IBM BNT Rack Switches are designed to support network connectivity for the following servers:

- IBM Power Systems
- IBM System p®
- IBM System i®
- IBM System x®
Planning information

Customer responsibilities

Upgrades

- Upgrade firmware via serial or TFTP
- Dual software images

These switches are designated as customer setup (CSU). CSU allowance is one day.

Cable orders

None

Security, auditability, and control

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, 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

Volume orders: Contact your IBM representative.

Warranty period
System Hardware - Three years

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 is the same as the machine it is installed in.

Warranty service
If required, IBM provides repair or exchange service depending on the types of warranty service specified for the machine. IBM will attempt to resolve your problem over the telephone, or electronically via an IBM website. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines on-site service is required, scheduling of service will depend the time of your call, machine technology and redundancy, and availability of parts. 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 (mandatory) or a Tier 2 (optional) CRU.

Tier 1 (mandatory) CRU
Installation of Tier 1 CRUs, as specified in this announcement, is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.

Tier 2 (optional) 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:

- Power supply
- Power cord
• Fan Assembly
• All external data and power cables
• Transceiver and uplink modules
• Complete switch
• Mounting hardware

CRU and On-site Service
At IBM's discretion, you will receive specified CRU service, or 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.

• IBM On-site Repair Limited, Next-Business-Day Onsite Response Time, Latest Call Registration 15:00, 9 hours per day, Monday through Friday, excluding public or national holidays

CRU and Courier or Depot Service
At IBM's discretion, you will receive specified CRU service, or you will disconnect the failing machine for collection arranged by IBM. IBM will provide you with a shipping container for you to return your machine to a designated service center. A courier will pick up your machine and deliver it to the designated service center. Following its repair or exchange, IBM will arrange the return delivery of the machine to your location. You are responsible for its installation and verification.

CRU and Customer Carry-In or Mail-In Service
At IBM's discretion, you will receive specified CRU service, or you will deliver or mail, as IBM specifies (prepaid unless IBM specifies otherwise), the failing machine suitably packaged to a location IBM designates. After IBM has repaired or exchanged the machine, IBM will make it available for your collection or, for mail-in service, IBM will return it to you at IBM's expense, unless IBM specifies otherwise. You are responsible for the subsequent installation and verification of the machine.

Additional reference for Europe
For additional information, refer to the European HW Operations Guide and Service Level Description Table available at

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

CRU and Machine Exchange Service
At IBM's discretion, you will receive specified CRU service, or IBM will initiate shipment of a replacement machine to your location. You are responsible for its installation and verification of operation. You must pack the failed machine into the shipping container that contained the replacement machine and return the failed machine to IBM. Transportation charges, both ways, are paid by IBM. You may be charged for the replacement machine if IBM does not receive the failed machine within 15 days of your receipt of the replacement.

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

During the warranty period, warranty service upgrades provide an enhanced level of On-site Service for an additional charge. Service levels are response-time objectives and are not guaranteed. See the Warranty service section for additional details.

IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM website. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines on-site service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts.

Maintenance service options

CRU and On-site Service

At IBM's discretion, you will receive CRU service or IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well-lit, and suitable for the purpose. The following on-site response-time objectives are available as warranty service upgrades for your machine.

Available offerings are:

- IBM On-site Repair, Same-Business-Day Onsite Response Time, Latest Call Registration 12:00, 9 hours per day, Monday through Friday, excluding public or national holidays
- IBM On-site Repair, Same-Business-Day Onsite Response Time, Latest Call Registration 18:00, 18 hours per day, Monday through Saturday, excluding public or national holidays
- IBM On-site Repair, Same-Business-Day 6 hours average Onsite Response Time, 24 hours per day, Monday through Sunday, 365 days a year

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

Maintenance services

If required, IBM provides repair or exchange service depending on the types of maintenance service specified for the machine. IBM will attempt to resolve your problem over the telephone or electronically, via an IBM website. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines on-site service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts. Service levels are response-time objectives and are not guaranteed. The specified level of 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. The following service selections are available as maintenance options for your machine type.

On-site Service

IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well lit, and suitable for the purpose.

Service levels are:
• IBM On-site Repair Limited, Next-Business-Day Onsite Response Time, Latest Call Registration 15:00, 9 hours per day, Monday through Friday, excluding public or national holidays
• IBM Onsite Repair, Next-Business-Day Onsite Response Time, 9 hours per day, Latest Call Registration 15:00, Monday through Friday, excluding public or national holidays
• IBM On-site Repair, Same-Business-Day Onsite Response Time, Latest Call Registration 12:00, 9 hours per day, Monday through Friday, excluding public or national holidays
• IBM On-site Repair, Same-Business-Day 6 hours average Onsite Response Time, 24 hours per day, Monday through Sunday, 365 days a year

**Customer Replaceable Unit (CRU) Service**

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

Based upon availability, CRUs will be shipped for next-business-day delivery. IBM specifies, in the materials shipped with a replacement CRU, whether a defective CRU must be returned to IBM. When return is required, 1) return instructions and a container are shipped with the replacement CRU, and 2) you may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

CRUs are designated as being either a Tier 1 (mandatory) or a Tier 2 (optional) CRU.

**Tier 1 (mandatory) CRUs:** Installation of Tier 1 CRUs, as specified in this announcement, is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.

For machines with On-site Same-day Response Service, IBM will replace a Tier 1 CRU part at your request, at no additional charge.

**Tier 2 (optional) CRUs:** You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge.

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

- Power supply
- Power cord
- Fan Assembly
- All external data and power cables
- Transceiver and uplink modules
- Complete switch
- Mounting hardware
- IBM BNT RackSwitch G8124ER (1455-24E)
- IBM BNT RackSwitch G8052R (1455-48E)
- IBM BNT RackSwitch G8264R (1455-64C)

**CRU and Courier or Depot Service**

At IBM's discretion, you will receive CRU service or you must disconnect the failing machine for collection arranged by IBM. IBM will provide you with a shipping container for you to return your machine to a designated service center. A courier will pick up your machine and deliver it to the designated service center. Following its repair or exchange, IBM will arrange the return delivery of the machine to your location. You are responsible for its installation and verification.
CRU and Customer Carry-In or Mail-In Service

At IBM’s discretion, you will receive CRU service or you will deliver or mail, as IBM specifies (prepaid, unless IBM specifies otherwise) the failing machine suitably packaged to a location IBM designates. After IBM has repaired or exchanged the machine, IBM will make it available for your collection or, for mail-in service, IBM will return it to you at IBM’s expense, unless IBM specifies otherwise. You are responsible for the subsequent installation and verification of the machine.

Committed Services (CS) for Europe

For service options with a committed level of service or any other special service option, contact your local business representative.

Additional reference for Europe

Refer to the following European documents:

- European Announcement Letter ZS03-0150 for IBM Customer Agreement (ICA)
- European Announcement Letter ZS04-0135 for Enterprise Agreement Contract
- European Announcement Letter ZS98-0118 for ServiceSuite™ Contract
- European HW Operations Guide and Service Level Description Table available at http://www-5.ibm.com/services/europe/maintenance/

CRU and Machine Exchange Service

At IBM’s discretion you will receive CRU service or IBM will initiate shipment of a replacement machine to your location. You are responsible for its installation and verification of operation. You must pack the failed machine into the shipping container that contained the replacement machine and return the failed machine to IBM. Transportation charges, both ways, are paid by IBM. You may be charged for the replacement machine if IBM does not receive the failed machine within 15 days of your receipt of the replacement.

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

Two (D)

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**

These machines are eligible under terms and conditions of IBM ServiceElite, the IBM Enterprise Service Agreement (ESA), or the IBM Maintenance Agreement. Consult your IBM representative for details.

**Field-installable features**

Yes

**Model conversions**

Yes

**Machine installation**

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

**Graduated program license charges apply**

No

**Licensed machine code**

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


**Machine using LMC Type Model**

- 1455-24E
- 1455-48E
- 1455-64C

IBM may release changes to the machine code. IBM plans to make the machine code changes available for download from the IBM System p technical support website

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

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

**Europe Business Partner terms and conditions**

For more information, Business Partners should refer to the relevant product exhibits on


**Prices**

For all local charges, contact your IBM representative.
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http://www.ibm.com/planetwide/

Corrections

(Corrected on June 2, 2011)
The product name IBM® BNT RackSwitch G8052R was corrected.

(Corrected on May 18, 2011)
In the Overview section, the first paragraph was revised.