IBM TotalStorage SAN portfolio expands with SAN140M director and SAN32M-1 switch for infrastructure simplification

Overview

The introduction of the TotalStorage® SAN m-type family of enterprise director and switch products expands the TotalStorage SAN portfolio, with products architected and scaled for use in complex enterprise SANs.

The initial offering of the TotalStorage SAN m-type family of enterprise director and switch products includes the TotalStorage SAN140M director (2027-140) and TotalStorage SAN32M-1 switch (2027-232).

The IBM TotalStorage SAN140M director (2027-140) supports up to 140 Fibre Channel ports for Open System and FICON™ attachment. From an initial configuration size of 16 ports, it can scale in four-port increments to 140 ports, all within 12-unit height chassis to support high-density SAN connectivity solutions. It enables Fibre Channel connectivity for large enterprise-class SANs.

The SAN140M director is designed to provide:

- 2 Gb Fibre Channel
- Up to 140 non-blocking fibre channel ports, an aggregate bandwidth of up to 28,000 MB/s
- High-availability connectivity technology
- SAN connectivity support for FCP and FICON environments
- SANtegrity security
- Non-disruptive scaling in four-port increments with a minimum configuration of 16 ports.

The IBM TotalStorage SAN32M-1 switch (2027-232) is designed to provide workgroup and departmental Fibre Channel SAN capability. The 2 Gb/sec SAN32M-1 offers up to 32 non-blocking ports, which may be configured with either shortwave or longwave optics, and support for FCP and FICON environments.

For specific configuration support dates and other details on availability, server models, operating system levels, and attachment capabilities, consult the product Web site. Support for some configurations may not be available on the initial availability date.

Key prerequisites

Refer to the Description section.

For specific availability dates, configuration options, server models, operating systems levels, and attachment capabilities, refer to:

http://www.ibm.com/totallstorage/SAN/m-type

Planned availability date

October 15, 2004

At a glance

The TotalStorage SAN m-type family of enterprise director and switch products offer:

- 2 Gb Fibre Channel, high-availability connectivity technology
- Enterprise Fabric Connectivity (EFC) Management that includes “call-home” and simple network management protocol (SNMP) alerts, e-mail notification, and support for up to 48 SAN m-type directors and switches across a private LAN
- In-band management with Open Systems Management Server features
- FICON in-band management support with the FICON In-Band Management Server feature
- SANtegrity security for FICON cascading support
- SAN140M director (2027-140): from 16 to 140 non-blocking Fibre Channels ports, in 12 U rack space, and support for FCP and FICON environments
- SAN32M-1 switch (2027-232): from 8- to 32-port non-blocking Fibre Channel ports, in 1.5 U rack space, and support for FCP and FICON environments

For ordering, contact:

Your IBM representative, an IBM Business Partner, or the Americas Call Centers at 800-IBM-CALL

Reference: YE001
Supported servers and storage systems

The TotalStorage SAN m-type family supports Fibre Channel connectivity for the following:

Servers
- IBM @server zSeries® and selected S/390® servers
- IBM @server pSeries® and selected RS/6000® servers
- IBM @server iSeries™ and selected AS/400® servers
- IBM @server xSeries® and selected Netfinity® servers
- Other Intel™-based servers running Linux™, Microsoft™ Windows™ 2000, or Windows 2003
- Selected Sun and HP servers

Storage software
- IBM TotalStorage SAN Volume Controller (SVC)
- IBM TotalStorage SAN File System (SFS)

Storage systems
- IBM TotalStorage Enterprise Storage Server™
- IBM TotalStorage FAS T Family of Storage Servers
- IBM TotalStorage Enterprise Tape System 3590 and 3592
- IBM TotalStorage Enterprise Tape Library 3494
- IBM TotalStorage Enterprise Tape Controller 3592 Model J70
- IBM TotalStorage Enterprise Tape Controller 3590 Model A60
- IBM 3581, 3582, 3583, and 3584 Ultrium LTO Tape Libraries
- Other selected storage systems

Note: For attachment to tape devices using FC-AL, the SAN140M and SAN32M-1 require the use of the SAN24M-1. For details of the SAN24M-1, refer to: Hardware Announcement 104-370 dated October 5, 2004.

Accessibility by people with disabilities

The following features support use by people with disabilities:
- Tactile landmarks on home keys.
- Visual or tactile and auditory indicator of each toggle key state or make the state of that toggle key available to software so that it can provide alternative indicators.
- Industry-standard keyboard and keypad layout.
- Keys which are tactically discernible without activating them.
- Key repeat delay is adjustable to at least two seconds.
- Industry-standard ports for alternative input and output devices.
- Industry-standard display connectors.
- Non-glare screen that allows displays to be repositioned.
- Color as an enhancement, not as the only way to distinguish keys, controls, or labels.
- Easily readable lettering and high contrast colors.
- An interface so that use of system sounds can be known to software.
- Physical volume control or an interface so that volume can be controlled with software.
- Upon request, provide documentation in an accessible format.

Software interface:
- Keyboard equivalents are provided for all actions.
- The product does not interfere with keyboard accessibility features built into the operating system.
- Labels are associated with controls, objects, icons, and images.
- Text is provided through standard system function calls or API.
- Color as an enhancement, not as the only way to convey information or indicate an action.
- System settings for font, size, and color for all user interface controls.
- Avoids the use of blinking text, objects or other elements.
- Documentation in an accessible format
- Documentation on all accessibility features including keyboard access

Statement of general direction

IBM plans to introduce industry standard 10 Gbps Fibre Channel interconnection technologies to the TotalStorage SAN m-type enterprise director and switch products. These multiprotocol capabilities are intended to help enable IP-based global remote copy services, iSCSI based host server integration, and SAN routing capabilities to selectively share resources between fabrics.

IBM intends to introduce multiprotocol SAN interconnection between existing and future TotalStorage SAN m-type and McDATA director products. The introduction of 10 Gbps Inter-Switch Links (ISLs) is intended to help customers deploy integrated enterprise class high-availability backbones, as well as provide switch investment protection when integrating IBM SAN m-type and McDATA fabric switches at the edge to support cost-effective infrastructure simplification solutions.

All statements regarding IBM’s plans, directions, and intent are subject to change or withdrawal without notice.

Trademarks

FICON, iSeries, and Enterprise Storage Server are trademarks of International Business Machines Corporation in the United States or other countries or both. TotalStorage, S/390, the e-business logo, zSeries, pSeries, RS/6000, AS/400, Netfinity, and xSeries are registered trademarks of International Business Machines Corporation in the United States or other countries or both. Intel is a trademark of Intel Corporation. Microsoft and Windows are trademarks of Microsoft Corporation. Linux is a trademark of Linus Torvalds in the United States, other countries or both. Other company, product, and service names may be trademarks or service marks of others.
Feature descriptions

Fibre Optic cables

Cable Coupler 50u SC/SC (#1800): A fiber cable coupler, multimode (50u), duplex SC/SC (female/female) designed to allow you to attach an existing fiber cable with SC connectors to a port with a LC connector.

Cable Coupler 9u SC/SC (#1801): A fiber cable coupler, singlenmode (9u), duplex SC/SC (female/female) designed to allow you to attach an existing fiber cable with SC connectors to a port with a LC connector.

Fiber Cable 9u 3m LC/SC (#1805): A 3 m, singlenode (9u) fiber cable, LC/SC, with a duplex (male) SC connector at one end, and a duplex (male) LC connector at the other end.

Fiber Cable 50u 10m LC/SC (#1810): A 10 m, multimode (50u) fiber cable, LC/SC, with a duplex (male) LC connector at one end, and a duplex (male) SC connector at the other end.

Fiber Cable 50u 10m LC/LC (#1811): A 10 m, multimode (50u) fiber cable, LC/LC, with duplex (male) LC connectors at both ends.

Transceivers

2G SW SFP Transceiver 4-Pk (#3204): Four short-wave SFP fiber optic transceivers, each with LC connector.

2G LW SFP Transceiver 4-Pk (#3205): Four long-wave SFP fiber optic transceivers, each with LC connector and supporting distances up to 10Km.

Extended LW 20 km Transceiver (#3220): One extended-distance long-wave small form-factor pluggable (SFP) transceiver that supports interconnection of SAN140M directors and SAN32M1 switches at distances up to 20 kilometers across a single-mode fiber optical cable connection. This extended LW transceiver when installed in the SAN140M director, replaces one of the shortwave or longwave transceivers on the 2 Gb UPM 4 port Modules, #6210 or #6211.

UPM 2Gb 4-pty 4 SW Trans (#6210): One UPM, a 2 Gb/sec, 4-port module with four short-wave (LC SFP) transceivers for the SAN140M director. The UPM is backwards compatible with the 1 Gb/sec FPM, and speed is negotiated (at link bring up) on an individual port-by-port basis.

UPM 2Gb 4-pty 4 LW Trans (#6211): One UPM 2 Gb/sec, 4-port module with four long-wave (LC SFP) transceivers for the SAN140M director. The UPM is backwards compatible with the 1 Gb/sec FPM, and speed is negotiated (at link bring up) on an individual port-by-port basis.

Other features


SAN32M1 SANtegrity Activation (#3007): Additional code within the SAN32M1 switch for SANtegrity security capability enabling fabric and switch binding. This feature optionally enhances the security of FCP environment, and is mandatory for FICON™ cascading configurations.

SAN32M1 FICON Mgt Server (#3008): Additional code within the SAN23M1 Enterprise Fibre Channel switch to support in-band management of the Director by System Automation for OS/390® and zSeries® 900 Servers. System Automation OS/390 provides a single point of control for managing connectivity in active I/O configurations. It takes an active role in detecting unusual I/O conditions and lets you view and change paths between a processor and an I/O device using the dynamic switching capability of the SAN32M1. This dynamic in-band management is currently in the 9032 ESCON® Directors.

SAN32M1 Open Trunking (#3020): Helps increase the total throughput between two TotalStorage® SAN m-type directors and/or switches automatically by redirecting traffic from high utilization links to links with available bandwidth. Open Trunking helps continuously monitor loads on all links, detect congestion, and can automatically balance traffic across available Inter-Switch Links (ISLs) without operator interaction. The receiving switch does not need to support Open Trunking capability.

SAN32M1 Preferred Path (#3022): Helps define routes across a fabric. The Preferred Path enhancement modifies the behavior of Open Trunking by providing guidance for the balancing function. The Preferred Path configuration helps address user preference regarding exit port assignment, but is subject to the standard rules regarding the FSPF protocol.

SAN32M1 Full Volatility (#3050): Supports high-security environments, which require that no customer data be...
prior to being shipped from the plant.

**SAN32M1 Element Manager (#3779):** Software and license necessary for the SAN32M1 to be managed by the Enterprise Fabric Connectivity (EFC) Manager.

**SAN140M Open sys Mgmt Server (#6002):** Open Systems Management software for the SAN140M director.

**SAN140M FICON in-band Mgt Svr (#6003):** Additional code within the SAN140M Enterprise Fibre Channel Director to support in-band management of the Director by System Automation for OS/390 and zSeries 900 Servers. System Automation OS/390 provides a single point of control for managing connectivity in active I/O configurations. It takes an active role in detecting unusual I/O conditions and lets a customer view and change paths between a processor and an input/output device using the dynamic switching capability of the SAN140M. This type of dynamic in-band management is currently in the 9032 ESCON Directors.

**SAN140M SANtegrity (#6007):** Additional code within the SAN140M director for SANtegrity security capability enabling fabric and switch binding. This feature optionally helps enhance the security of FCP environment, and is mandatory for FICON cascading configurations.

**SAN140M Open Trunking (#6120):** Helps optimize the total throughput between two TotalStorage SAN m-type directors and/or switches automatically by redirecting traffic from high utilization links to links with available bandwidth. Open Trunking helps continuously monitor loads on all links, detect congestion, and automatically balance traffic across available ISLs without operator interaction. The receiving switch does not need to support Open Trunking capability.

**SAN140M Element Manager (#6140):** Software and license necessary for the SAN140M to be managed by the EFC Manager.

**SAN140M Full Volatility (#6150):** Helps support high-security environments, which require no customer data be retained after power off. The Full Volatility feature is designed to configure a switch or director so that no frame data is stored after a power off.

**SAN140M Preferred Path (#6422):** Helps define routes across a fabric. The Preferred Path enhancement modifies the behavior of Open Trunking by providing guidance for the balancing function. The Preferred Path configuration helps address user preference regarding exit port assignment but is subject to the standard rules regarding the FSPF protocol.

### Installation in a 2032-C40 cabinet

**Inst SAN140M in Cab (Plant) (#9231):** Installation of the IBM TotalStorage SAN140M director in a 2032-C40 cabinet prior to being shipped from the plant.

**Inst SAN140M in Cab (Field) (#9232):** Installation of the IBM TotalStorage SAN140M director in a 2032-C40 cabinet by IBM when the switch is installed at the customer location. Note: the SAN140M director is only supported in the 2032-C40 cabinet.

**Inst SAN32M1 in Cab (Plant) (#9233):** Installation of the IBM TotalStorage SAN32M-1 switch in a 2032-C40 cabinet prior to being shipped from the plant.

**Inst SAN32M1 in Cab (Field) (#9234):** Installation of the IBM TotalStorage SAN32M-1 switch in a 2032-C40 cabinet by IBM when the switch is installed at the customer location. This feature includes shipment of a rack mount kit (extends 17 to 26 inches) suitable for 2032-C40 cabinet and most industry standard 19 inch racks.

**INST SAN32M1 IN IBM CAB (Field) (#9237):** Installation of the IBM TotalStorage SAN32M-1 switch in a supported IBM cabinet by IBM when the switch is installed at the customer location. This feature includes shipment of a rack mount kit (extends 24 to 32 inches) suitable for supported IBM cabinet.

### Publications

The following publications are shipped with the product on a CD-ROM.

Additional copies of publications are available at:

http://www.ibm.com/totalstorage/SAN/m-type

<table>
<thead>
<tr>
<th>Title</th>
<th>Order number</th>
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</thead>
<tbody>
<tr>
<td>IBM TotalStorage SAN140M Director Installation and Service Manual</td>
<td>GC26-7664</td>
</tr>
<tr>
<td>IBM TotalStorage SAN32M1 Fabric Switch Installation and Service Manual</td>
<td>GC26-7665</td>
</tr>
<tr>
<td>Enterprise Operating System Command Line Interface User Manual for IBM TotalStorage Products</td>
<td>GC26-7669</td>
</tr>
<tr>
<td>SANpilot User Manual for IBM TotalStorage Products</td>
<td>GC26-7670</td>
</tr>
<tr>
<td>McDATA Element Manager for IBM TotalStorage SAN32M1 Switch User Manual</td>
<td>GC26-7671</td>
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<tr>
<td>McDATA Element Manager for IBM TotalStorage SAN140M Director User Manual</td>
<td>GC26-7673</td>
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<tr>
<td>McDATA Fabricenter Equipment Cabinet Installation and Service for IBM Products Manual</td>
<td>GC26-7674</td>
</tr>
<tr>
<td>IBM Products in a SAN Environment Planning Manual</td>
<td>GC26-7675</td>
</tr>
<tr>
<td>IBM TotalStorage SAN 2027 Model 140 (SAN140M) Statement of Limited Warranty</td>
<td>GC26-7692</td>
</tr>
<tr>
<td>IBM TotalStorage SAN 2027 Model 232 (SAN32M1) Statement of Limited Warranty</td>
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</tr>
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### Services

**Integrated 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 for e-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 more details on available services, contact your IBM representative, or visit

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

For details on education offerings related to specific products, visit


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

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**Technical information**

**Physical specifications**

- **2027-140**
  - Width: 44.5 cm (17.5 in)
  - Depth: 61.3 cm (24.1 in)
  - Height: 52.9 cm (20.8 in)
  - Weight: 75.9 kg (167 lb)
- **2027-232**
  - Width: 44.5 cm (17.5 in)
  - Depth: 66.7 cm (26.25 in)
  - Height: 6.7 cm (2.63 in)
  - Weight: 11.8 kg (26 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**

- **2027-140**
  - Temperature: 10° to 38°C (40°F to 104°F)
  - Relative humidity: 8% to 80% (percent)
  - Wet bulb (caloric value): 2.873 BTU/hour
  - Electrical power: 100-120 / 200-240 VAC 50-60 Hz 4.2A
  - Noise level: 5.5 to 6.8 Bels
- **2027-232**
  - Temperature: 10° to 38°C (40°F to 104°F)
  - Relative humidity: 8% to 80% (percent)
  - Wet bulb (caloric value): 2.873 BTU/hour
  - Electrical power: 100-120 / 200-240 V ac 50 to 60 Hz 2.0A
  - Noise level: 5.5 to 6.8 Bels

**EMC Conformance**

- ICES 003 Class A
- FCC Part 15 Class A
- VCCI Class A ITE
- EN55022 Class A
- EN55024
- AS NZS 3548 Class A
- CISPR22 Class A

**Product safety/country testing/certification**

- CSA 60950 (Canada)
- UL Standard 60950
- IEC EN60950 (CF-Europe)
- EN60950 (Germany)
- TUV, NEMKO

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**Hardware requirements**

**Rack requirements:** The SAN140M director is only supported in the 2032-C40 cabinet. You must select either the plant or field cabinet integration code. To ensure you receive your choice of country specific power cord on the SAN140M, specify a country-specific power cord feature #10xx.

The SAN32M-1 is supported in the 2032-C40 (plant and field) and is supported IBM cabinets (field) upon selection of the appropriate cabinet integration code. To assure installability and serviceability in non-IBM industry standard 19-inch racks, review the installation planning information for any product specific installation requirements.

To ensure that you receive the correct rail kit for the SAN32M-1, you must select the appropriate plant or field cabinet installation feature. Feature #9234 specifies a rack mount kit (extends 17 to 26 inches) suitable for 2032 Model C40 cabinet and most industry standard 19 inch racks. Feature #9237 specifies a rack mount kit (extends 24 to 32 inches) suitable for a supported IBM cabinet.

To ensure you receive the correct country-specific power cord for the SAN32M-1, specify the power cord feature power cord #10xx.

**Cabinet Requirements:** Each 2032-C40 Cabinet requires at least one IBM TotalStorage SAN140M director or IBM TotalStorage SAN32M-1 switch to be ordered with your initial order. The 2032-C40 is designed to support the TotalStorage SAN m-type family of SAN director and switch products.

**Software requirements:** Specific details on supported operating system releases are available on the Web at:

http://www.ibm.com/totalstorage/SAN/m-type

**Compatibility:** Specific details on supported operating systems, servers, and devices, storage products attachability, SAN connectivity products, and configuration options are available on the Web at

http://www.ibm.com/totalstorage/SAN/m-type

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**Planning information**

**Cable orders**

**Fiber optic cable:** A fiber optic cable is required for attaching 2027 machines to the host system adapters, or other storage area Fibre Channel components. The cable can be customer supplied, or ordered with the 2027 machine in the lengths available. The attaching fiber cable must be 50.0/125 micrometers for distances up to 300 meters at 2 Gb/sec speed, or 62.5/125 micrometers for distances up to 175 meters at 2 Gb/sec speed. The connection is a LC connector type.

**Description**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1800</td>
<td>Cable Coupler 50u SC/SC</td>
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<td>1801</td>
<td>Cable Coupler 9u SC/SC</td>
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<td>1805</td>
<td>Fiber Cable 9u 3m LC/SC</td>
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<td>1810</td>
<td>Fiber Cable 50u 10m LC/SC</td>
</tr>
<tr>
<td>1811</td>
<td>Fiber Cable 50u 10m LC/LC</td>
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</table>

In many situations, the required lengths and installation of fiber optic cables will be unique to each customer's configuration and facility specifications. Product support
services, offered by IBM Global Services’ Site and Connectivity Solutions, can provide assistance for these unique cabling and installation requirements.

**Security, auditability, and control**

This product uses the security and auditability features of host hardware, host software, and/or application software to which it is attached.

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

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**Terms and conditions**

This product is available for purchase under the terms of the IBM Customer Agreement (ICA).

Each IBM machine is manufactured from parts that may be new or used. In some cases, a machine may not be new and may have been previously installed.

Regardless, appropriate IBM warranty terms apply.

**Volume orders:** Contact your IBM representative.

**IBM Global Financing:** Yes

**Warranty period:** One year

**Warranty service:** If required, IBM provides repair or exchange service depending on the type of warranty service specified for your machine. An IBM technician will attempt to resolve your problem over the telephone. You must follow IBM’s problem determination and resolution procedures. 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 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.

**On-site service:** IBM on-site repair (IOR), 24 hours per day, 7 days a week, same-day response. 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.

**Standard service level:** On-site service — IOR, 24 hours per day, 7 days a week, same-day response

**Alternative service levels**

- On-site service — IOR, 9 hours per day, 5 days a week, next-business-day (NBD) response
- On-site service — IOR, 9 hours per day, 5 days a week, same-day response
- On-site service — IOR, 24 hours per day, 7 days a week, 2-hour response

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

**Maintenance service:** The preferred go-to-market offerings are ServiceElect and ServiceSuite. However, ICA legacy contracts will still be available for current customers until they are withdrawn.

**Maintenance services:** If required, IBM provides repair or exchange service depending on the type of warranty service specified for your machine. An IBM technician will attempt to resolve your problem over the telephone. You must follow IBM’s problem determination and resolution procedures. 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 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.

**On-site service:** IOR, 24 hours per day, 7 days a week, same-day response. 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.

**Usage plan machine:** No

**IBM hourly service rate classification:** Two

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

**Field-installable features:** Yes

**Model conversions:** No

**Machine installation:** 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 800-IBM-SERV (426-7378), in other countries contact the local IBM office.

**Graduated charges:** No. This product does not contain licensed internal code or licensed machine code.

**Educational allowance:** A reduced charge is available to qualified education customers. The educational allowance may not be added to any other discount or allowance.
## Prices

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<thead>
<tr>
<th>Description</th>
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### Fiber optic cables

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<td>2027-232</td>
<td>3231</td>
<td>650</td>
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<td>Extended LW 35 km Transceiver</td>
<td>2027-140</td>
<td>3235</td>
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<td>UPM 2Gb 4-pt w/4 SW Transceiver</td>
<td>2027-140</td>
<td>6210</td>
<td>7,000</td>
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<td>UPM 2Gb 4-pt w/4 LW Transceiver</td>
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<td>4,261</td>
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<td>SAN32M1 SANtegrity Activation</td>
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<td>SAN32M1 Preferred Path</td>
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<td>SAN140M Open Sys Server</td>
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### Power cords

<table>
<thead>
<tr>
<th>Description</th>
<th>Machine type/model</th>
<th>Feature number</th>
<th>Purchase price¹</th>
<th>Plant/field install</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.K., 2.5m 220V/10a</td>
<td>2027-232</td>
<td>1012</td>
<td>NC</td>
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<td>European, 2.5m 220V/10a</td>
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<td>1013</td>
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<tr>
<td>Australian, 2.5m 220V/10a</td>
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<td>1014</td>
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<tr>
<td>USA, 9 ft 10 in 208-240v</td>
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<td>1016</td>
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<tr>
<td>Italy/Chile/Libya 220V/10a</td>
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<td>1021</td>
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<tr>
<td>Israel, 2.5m 250V/10a</td>
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<tr>
<td>Thai/Bolivia/Peru NEMA L6-15P, 250V/10a</td>
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<td>Plant</td>
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<td>Denmark 250V/10a</td>
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<tr>
<td>Africa/Burma/Bang 250V/10a</td>
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<td>Switz/Liecht 250V/10a</td>
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<td>U.S., 1.8m 240v/15a</td>
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<td>Twist-lock NEMA L6-15P</td>
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### Installation in 2032-C40 cabinet

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<th>Feature number</th>
<th>IOR 9 x 5 NBD</th>
<th>Plant/field install</th>
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<tbody>
<tr>
<td>Inst SAN140M in Cab (Plant)</td>
<td>2027-140</td>
<td>9231</td>
<td>$404</td>
<td>NC Plant</td>
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<td>Inst SAN140M in Cab (Field)</td>
<td>2027-140</td>
<td>9232</td>
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<td>NC Plant</td>
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<tr>
<td>Inst SAN32M1 in Cab (Plant)</td>
<td>2027-232</td>
<td>9233</td>
<td></td>
<td>NC Plant</td>
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<tr>
<td>Inst SAN32M1 in Cab (Field)</td>
<td>2027-232</td>
<td>9234</td>
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<td>NC Plant</td>
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<tr>
<td>Inst SAN32M1 in IBM Cab (Field)</td>
<td>2027-232</td>
<td>9237</td>
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<td>NC Plant</td>
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</tbody>
</table>

¹ Purchase price reflects the purchase price for a single unit acquired from IBM and is subject to change without notice. This price shall not limit, in any way, IBM resellers’ ability to set their own price.

### Annual minimum maintenance charges

<table>
<thead>
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<th>Machine type/model</th>
<th>Feature number</th>
<th>IOR 9 x 5 NBD</th>
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<tbody>
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<td>$404</td>
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<td>2027-232</td>
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For ServiceElect (ESA) maintenance service charges, contact IBM Global Services at 888-IBM-4343 (426-4343).

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