Symantec NetBackup™ Appliance and Symantec Storage Shelf Product Description

Release 2.6.0.3

NetBackup 5220

Symantec™

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Chapter 1

NetBackup 5220 appliance and Symantec Storage Shelf hardware components

This chapter includes the following topics:

- About the NetBackup 5220 appliance and the Symantec Storage Shelf
- NetBackup 5220 Appliance physical overview
- Symantec Storage Shelf physical overview
- NetBackup 5220 Appliance and Symantec Storage Shelf accessories
- NetBackup 5220 Appliance front panel
- NetBackup 5220 Appliance rear panel and ports
- Appliance PCIe add-in cards and slots
- SAS RAID card
- 2-Port 10GE NIC
- 4-Port 1GE NIC
- 2-Port 8Gb FC HBA
- Symantec Storage Shelf front panel
- Symantec Storage Shelf power modules
- Appliance and storage shelf connections
- Product documentation

About the NetBackup 5220 appliance and the Symantec Storage Shelf

The NetBackup 5220 is an integrated backup appliance with high-density and high-performance. It consists of the backup device, backup software, and backup media. This appliance fulfills the unified management of software and hardware, which reduces operations and maintenance cost, and minimizes the total cost of ownership. The base configuration supports 4.5 TB of formatted RAID storage (base 2).

The Symantec Storage Shelf functions as a storage expansion device, in two configurations. A storage shelf holds 16 disk drives. Thirteen drives provide storage. Two drives provide the parity data that can be used to recreate data on a failed disk drive. One drive is a hot-spare. Any I/O errors on a disk drive automatically move all healthy subdisks and redundant volumes on that disk to a designated spare disk.

The NetBackup 2.5 appliance release, and higher, supports the addition of two Symantec Storage Shelves. Disk drives of 2-TB and 3-TB storage capacity are available. The additional storage provides increased deduplication and AdvancedDisk backup capacities beyond 32TB and 40TB, respectively. These values are dependent on the appliance software release. Specific details are provided in the *NetBackup Release Notes* for your release.

The NetBackup 2.6.0.3 appliance release supports the installation of up to four storage shelves.

Table 1-1 provides the available formatted storage capacities.

Table 1-1 NetBackup 5220 storage capacity options

Appliance available storage capacity	Storage shelf drives	Storage shelf available storage capacity	Appliance and one shelf available storage capacity	Appliance and two shelves available storage capacity	Appliance and three shelves available storage capacity	Appliance and four shelves available storage capacity
4.55 TB	2 TB	24 TB	28.55 TB	52.55 TB	*	*
4.55 TB	3 TB	36 TB	40.55 TB	76.55 TB	112.55 TB	148.55 TB

* If required, 2-TB storage disk drives can be provided.

Table 1-2 describes the key features of the NetBackup 5220 appliance and the Symantec Storage Shelf.

Table 1-2 Features of NetBackup 5220 Appliance and Storage Shelf

Feature	Description
Energy saving	■ Supports the disk soft start after turn on, controlling the disk startup current and reducing the overall power consumption of the appliance. ■ Supports the high-efficiency power modules that reduce power consumption. ■ Supports the intelligent fan speed control, reducing the power consumption of appliances.
High performance and large capacity	■ Supports 10 disks inside the appliance. Eight of these disks are externally accessible. These SAS disks provide up to 4.5TB of data storage. Two SATA disks within the appliance chassis provide system management. You can add up to four storage shelves to the appliance for increased storage capacity. See Table 1-1 on page 10. ■ Supports high-performance processors with low-power consumption. ■ Provides the large-capacity intra-appliance switching bandwidths and high I/O throughput. ■ Provides from 12 GB to 96 GB of main memory. ■ Processor - two quad-core E5620 CPUs
High reliability	■ Supports the redundant power and the fan modules. ■ Supports the hot-swappable disk modules and the power modules. ■ Estimated Mean Time Between Failures (MTBF) is > 100,000 hours.
Easy management	■ Provides the separate out-of-band management network interfaces, allowing customers to remotely turn on , turn off , and reset appliances through the network. ■ Supports remotely configuring and managing the appliances through KVM over IP. ■ Provides the customized management interfaces, the simplified maintenance operations, and saves maintenance labor. ■ Supports DHCP and automatically obtains the IP address from the management server, thus reducing configuration operations. ■ Supports the SNMP traps and automatically reports alarms. ■ Supports reporting the disk information through the out-of-band management channel.
RAID levels	■ RAID 1 and RAID 6 ■ Appliance system disks: RAID 1 (software RAID) ■ Data storage disks: RAID 6 (RAID chip on mainboard) ■ Storage shelf data storage disks: RAID 6
Ports	■ One 100 Mbits/sec IPMI management network port ■ One VGA port ■ One RJ-11 serial port ■ Four USB 2.0 ports ■ Two 1GE network ports, with the RJ-45 connector and link and active LEDs

See "About the NetBackup 5220 appliance and the Symantec Storage Shelf" on page 10.

See "NetBackup 5220 Appliance and Symantec Storage Shelf accessories" on page 14.

Table 1-3 describes the hardware configuration of the Symantec Storage Shelf.

Table 1-3 Hardware configuration of the Symantec Storage Shelf

Component	Description
Chassis	3U high, holding 16 x 3.5" SAS drives
I/O boards	Two independent I/O SAS boards, each with 2 SAS connectors
Disk type and quantity	■ 16 x 2 TB, 7,200 rpm SAS disks ■ 16 x 3 TB, 7,200 rpm SAS disks
RAID level	RAID 6
I/O port	■ Four SAS 6.0-Gbps ports (2 per I/O module). Each I/O module contains one SAS_IN port and one SAS_OUT port. Therefore, each storage shelf has two SAS_IN ports and two SAS_OUT ports. ■ Two serial RJ 11 ports (1 per I/O module) with a transfer rate of 115,200 baud.

See "About the NetBackup 5220 appliance and the Symantec Storage Shelf" on page 10.

NetBackup 5220 Appliance physical overview

The NetBackup 5220 is 2U high and contains ten disk drives that have a 2.5" form factor. Eight of the ten drives are accessible from the front of the appliance.

Figure 1-1 NetBackup 5220 front panel

Figure 1-2 NetBackup 5220 rear panel

See "Symantec Storage Shelf physical overview" on page 13.

Symantec Storage Shelf physical overview

The Symantec Storage Shelf is 3U high and contains 16 disk drives that have a 3.5" form factor.

Figure 1-3 Symantec Storage Shelf front panel

Figure 1-4 Symantec Storage Shelf rear panel

See "NetBackup 5220 Appliance front panel" on page 15.

NetBackup 5220 Appliance and Symantec Storage Shelf accessories

The following table lists additional the components that ship with the appliance and the storage shelf.

Table 1-4 Additional components

Component	Description
Mounting rails	The appliance and the storage shelf require mounting rails. Extensible mounting rails that accommodate Standard Enterprise square and round hole 19” racks are provided.
Rack handles	The appliance has one left and one right rack handle. The handles attach to the front of the appliance to secure it to the mounting post.
Bezels	A 2U Symantec bezel is available for the appliance. A 3U Symantec bezel is available for the storage shelf.
SAS cables	Two SAS cables ship with each storage shelf.
Power cords	Two power cords are shipped with every appliance. NetBackup storage shelves currently ship with two AC power cords. To improve the power distribution within a rack environment, Symantec will ship two Power Distribution Unit (PDU) compatible cords (C13-C14) instead of the AC power cords with these devices. The transition to the new cords will be gradual.
Add-in PCIe Cards	Symantec provides the following optional add-in network interface cards and FC HBA cards for connectivity into customer environments. ■ Intel X520-SR2 10Gb LC fibre card ■ Intel E1G44HT 1Gb Ethernet quad port server NIC ■ QLogic 8GB PCIe dual port Fibre Channel card ■ RAID controller for Symantec Storage Shelf (Intel RS2P1008) **Note:** Customers must supply Ethernet or Fibre cables. These cables do not ship with the appliance.

See “NetBackup 5220 Appliance physical overview” on page 12.

NetBackup 5220 Appliance front panel

Figure 1-5 NetBackup 5220 Appliance front panel

Table 1-5 Appliance front panel components

Number	Component
1	Flex Bay – Two fixed, built in, 2.5” SATA hard disk drives forming a RAID 1 array. These disk drives provide the operating system of the appliance. The system disk drives are not hot-swappable. Contact Symantec Technical Support for assistance.
2	USB ports
3	Control panel and data source.
4	Slimline drive bay (functionality not available with NetBackup 5220 Appliance)
5	The hot spare disk drive in slot 7 is hot-swappable.
6	Seven 2.5” 1TB SAS storage hard disk drives, labeled 0 to 6 from left to right. You can hot-swap these disks. Do not rearrange the disks from their factory installation. Only one drive can be removed from the appliance at one time. Place an empty module or blank into the slot until another drive is available. Proper cooling of the appliance requires all slots to be filled while the appliance is turned on.

Figure 1-6 shows the disk drive slot numbers for the appliance. Slot 7 contains the hot spare.

Figure 1-6 Disk drive slot numbers

Warning: When data is read or written on disks, do not turn off the appliance by turning off the power. Otherwise, the data may be damaged. To turn off the appliance correctly, stop reading and writing data on the disks first. Then shut down the appliance through the web UI or the NetBackup Appliance Shell Menu. Now you can physically turn off the appliance and disconnect the power cords.

The eight SAS disk drive modules each contain one disk drive. Each module has 2 LEDs, one red LED (8) and one green LED (9). The green LED flashes when drive activity occurs and is lit when no activity occurs. The red LED is lit when drive faults occur.

Figure 1-7 Disk drive modules and LEDs

Table 1-6 Appliance disk module LEDs

LED	Color/State	Indication
Fault (8)	Solid amber	A disk drive fault occurred.
	Not lit	Zero disk drive faults occurred.
Power/Activity (9)	Solid Green	Disk drive power is on.
	Flashes green	Disk drive activity is present.

The control panel of the appliance provides system activity and fault information.

Figure 1-8 NetBackup 5220 Appliance control panel

Table 1-7 lists the LEDs that are located on the appliance control panel.

Table 1-7 NetBackup 5220 Appliance control panel LEDs

Number	LED function
1	Hard disk Activity LED Random flashing green light indicates hard disk drive activity (SAS). No light indicates no hard disk drive activity.
2 and 3	NIC 1 and NIC2 Activity LED Continuous green light indicates a link between the appliance and the computer or network to which it is connected. Flashing green light indicates computer or network activity.
4	Appliance Status LED Solid amber indicates a critical or non-recoverable condition. Solid green indicates normal operation. Flashing green indicates degraded performance. Flashing amber indicates a non-critical condition. No light indicates POST is running or the appliance is off.

Table 1-7 NetBackup 5220 Appliance control panel LEDs *(continued)*

Number	LED function
5	Power/Sleep LED Continuous green light indicates that power is applied to the appliance or the appliance is in the S0 state. Flashing green indicates the appliance is in sleep or ACPI S1 state. No light indicates the power is off or the appliance is in ACPI S4 or S5 state.
6	Appliance identification Solid blue indicates appliance identification is active. No light indicates appliance identification is not activated.

See "NetBackup 5220 Appliance rear panel and ports" on page 18.

NetBackup 5220 Appliance rear panel and ports

Figure 1-9 Appliance rear panel

Table 1-8 Appliance rear panel details

Number	Component
1	Low Profile PCI Express Add-in Card Slots (qty 2)
2	Full-height PCI Add-in Card Slots (qty 3)
3	Upper Power Supply Module
4	Upper Power Receptacle

Table 1-8 Appliance rear panel details *(continued)*

Number	Component
5	Lower Power Receptacle
6	Lower Power Supply Module
7	I/O Expansion Module (reserved)
8	Remote management (IPMI) port
9	NIC2 (input and output) Ethernet port for connecting to the customer network
10	NIC1 Private (management) Ethernet port
11 and 12	USB 2.0 ports - Connects to a keyboard, mouse, or monitor
13	DB-9 Serial B Connector (reserved)
14	Video Graphics Array (VGA) connector
15	RJ-45 Serial A Connector

See "Appliance PCIe add-in cards and slots" on page 19.

Appliance PCIe add-in cards and slots

The rear panel of the appliance contains five PCI add-in slots, which can be configured with a variety of network interface cards (NICs). The five slots and their designated assignments are shown. Fans and AC power connections are located on the right-hand side of the rear panel, but they are not shown in this illustration.

Figure 1-10 NetBackup 5220 Appliance rear panel slot assignments

Slot usage is as follows:

Table 1-9 PCIe slot assignments

Slot number	Description
Slot 1	One 4-port 1GE NIC
Slot 2	One 2-port 10GE NIC, one 4-port 1GE NIC, or one 2-port FC HBA
Slot 3	One 2-port 10GE NIC, one 4-port 1GE NIC, or one 2-port FC HBA
Slot 4	One 2-port 10GE NIC, one 4-port 1GE NIC, or one 2-port FC HBA
Slot 5	Reserved for RAID controller

Rules for slot usage are as follows:

- Slots 1 through 4 may be used for Ethernet card population.
- Slot 5 is reserved for the RAID controller.
- Any combination of 4-port 1GE and 2-port 10-GE cards may be used.
- Optional NIC in slot 1.

The following list provides the maximum quantity of each type of add-in card, in one appliance.

- 4-port 1GE card - one
- 2-port 10GE card - one
- 2-port FC HBA card - three
  Refer to the *NetBackup 52xx Appliance Administrator's Guide* at the following URL. The *Administrator Guide* provides guidelines to create target mode, initiator mode, and tape-out mode environments.
  http://www.symantec.com/docs/DOC2792
- RAID card - one

The following table provides the support add-in card slot assignments.

Table 1-10 Add-in card supported slots

	4-port 1GE	2-port 10GE	2-port FC HBA	RAID
Slot 1	X	X	- -	- -
Slot 2	X	X	X	- -
Slot 3	X	X	X	- -

Table 1-10 Add-in card supported slots *(continued)*

	4-port 1GE	2-port 10GE	2-port FC HBA	RAID
Slot 4	X	X	X	- -
Slot 5	- -	- -	- -	X

The following series of add-in cards are supported.

Table 1-11 Add-in card series

Series	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5
5220 A	4-port 1GE	empty	empty	empty	empty
5220 B	4-port 1GE	empty	2-port 8G FC HBA	empty	RAID
5220 C	4-port 1GE	2-port 10GE	2-port 8G FC HBA	empty	RAID
5220 D	4-port 1GE	2-port 8G FC HBA	2-port 8G FC HBA	2-port 8G FC HBA	RAID
5220 E	2-port 10GE	2-port 8G FC HBA	2-port 8G FC HBA	2-port 8G FC HBA	RAID

The following images show the add-in cards in each of the series.

Figure 1-11 Series A

Series A components are described in the following table.

Table 1-12 Series A components

Number	Slot	Component
1	1	1 Gb Ethernet card
2	2	Empty
3	3	Empty
4	4	Empty
5	5	SAS RAID card, if at least one storage shelf is used.

Figure 1-12 Series B

The Series B components are described in the following table.

Table 1-13 Series B components

Number	Slot	Component
1	1	1 Gb Ethernet card
2	2	Empty
3	3	8 Gb FC HBA card
4	4	Empty
5	5	SAS RAID card, if at least one storage shelf is used.
6	3	Tape duplication initiator

Figure 1-13 Series C

The Series C components are described in the following table.

Table 1-14 Series C components

Number	Slot	Component
1	1	1 Gb Ethernet card
2	2	10 Gb Ethernet card
3	3	8 Gb FC HBA card
4	4	Empty
5	5	SAS RAID card, if at least one storage shelf is used.
6	3	Tape duplication initiator

Figure 1-14 Series D

The Series D components are described in the following table.

Table 1-15 Series D components

Number	Slot	Component
1	1	1 Gb Ethernet card
2	2	8 Gb FC HBA card
3	3	8 Gb FC HBA card
4	4	8 Gb FC HBA card
5	5	SAS RAID card, if at least one storage shelf is used.
6	3	Tape duplication initiator
7	2 and 4	Target
8	2 and 4	Initiator

Figure 1-15 Series E

Series E components are described in the following table.

Table 1-16 Series E components

Number	Slot	Component
1	1	10 Gb Ethernet card
2	2	8 Gb FC HBA card
3	3	8 Gb FC HBA card

Table 1-16 Series E components *(continued)*

Number	Slot	Component
4	4	8 Gb FC HBA card
5	5	SAS RAID card, if at least one storage shelf is used.
6	3	Tape duplication initiator
7	2 and 4	Target
8	2 and 4	Initiator

See " SAS RAID card" on page 25.

SAS RAID card

The RAID card is installed into PCIe slot 5 when one or two storage shelves are used. This RAID card expands the storage capacity of the appliance by using the data storage disk drives in the storage shelves. If you want to add one or more storage shelves to an existing appliance, contact Symantec Technical Support. Additional components may need to be installed into the appliance.

Refer to the following tech note for details regarding whether additional components are required.

www.symantec.com/docs/TECH188031

Figure 1-16 SAS RAID card

RAID card features include the following:

- Flexible SAS disk array structure to reduce costs.
- Supports RAID 6 and integrates RAID functions to avoid extra consumption on the CPU.
- Connects the SAS disks through the advanced serial technology.
- Configures the Battery Backup Unit (BBU) to provide power failure protection.

See " 2-Port 10GE NIC" on page 26.

2-Port 10GE NIC

NetBackup 5220 10GE (10 Gigabit Ethernet) NIC provides two 10GE network ports for backup.

Figure 1-17 2-port 10GE NIC

Table 1-17 LED descriptions for the 2-port 10GE NIC

Type	Color	Status	Description
ACT/LNK	Green	Flashing	The link is normal and data transfers.
	Green	On	The link is normal.
	n/a	Off	No link.
GRN=10G	n/a	Off	No link.
	Green	On	Data transfers at a rate of 10 Gbit/s.
	Yellow	On	Data transfers at a rate of 1 Gbit/s.

Table 1-18 Port descriptions for the 2-port 10GE NIC

Component	Details
Connectors	Two LC fiberoptic connectors
Port cables	SFP+ Direct Attach cables
Data rate per port	Optical: 10 Gbit/s, 1 Gbit/s Direct attach: 10 Gbit/s
Network standard	IEEE 802.3

Table 1-19 Technical specifications for the 2-port 10GE NIC

Component	Details
Dimensions	5.73 inches long, measured without PCIe bracket
Power consumption	Maximum power: 10.7 W Typical power: 10 W

Table 1-19 Technical specifications for the 2-port 10GE NIC *(continued)*

Component	Details
Operating temperature	0°C to 55°C (32°F to 131°F)
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Storage humidity	90% RH (35°C, non-condensing)

See " 4-Port 1GE NIC" on page 27.

4-Port 1GE NIC

The model of the 4-port 1GE (Gigabit Ethernet) NIC is Intel E1G44HT. The 4-port 1GE NIC provides four 1GE network ports for backup or replication.

Figure 1-18 4-port 1GE NIC

Table 1-20 LED descriptions for the 4-port 1GE NIC

Type	Color	Status	Description
ACT	Green	Flashing	The link is normal and data transfers.
	Green	On	The link is normal.
	n/a	Off	No link.
LNK	n/a	Off	Data transfers at a rate of 10 Mbit/s.
	Green	On	Data transfers at a rate of 100 Mbit/s.
	Amber	On	Data transfers at a rate of 1000 Gbit/s.

Table 1-21 Port descriptions for the 4-port 1GE NIC

Component	Details
Connectors	RJ45 (qty 4)
Port cables	Category-5, UTP (Unshielded Twisted Pair)
Network standard	IEEE 802.3

Table 1-22 Technical specifications for the 4-port 1GE NIC

Component	Details
Dimensions	Length: 5.33 inches Width: 2.71 inches
Power consumption	4.3W
Operating temperature	0°C to 55°C (32°F to 131°F)
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Storage humidity	90% RH (35°C, non-condensing)

See " 2-Port 8Gb FC HBA" on page 28.

2-Port 8Gb FC HBA

The 8GB FC HBAs connect the appliance to other network and storage devices. The two HBAs each provide FC tape out ports. By using the tape out card (Fibre Channel), data can be exported from the NetBackup 5220 to a tape library for offline storage.

Refer to the *NetBackup 52xx Appliance Administrator's Guide* for guidelines to create the target mode, the initiator mode, and the tape-out mode environments.

Figure 1-19 2-port 8Gb FC HBA

Note: Each port on the 8Gb FC HBA card shows three LEDs. The numbers "8", "4", and "2" correspond to the rate of data transfer (8Gbit/s, 4Gbit/s, or 2Gbit/s).

Table 1-23 LED descriptions for the 2-port 8Gb FC HBA

8/Yellow	4/Green	2/Amber	Description
Off	Off	Off	Power is off.
Off	Off	On/Flashes	Data transfers at a rate of 2 Gbit/s.
Off	On/Flashes	Off	Data transfers at a rate of 4 Gbit/s.

Table 1-23 LED descriptions for the 2-port 8Gb FC HBA *(continued)*

8/Yellow	4/Green	2/Amber	Description
On/Flashes	Off	Off	Data transfers at a rate of 8 Gbit/s.
On	On	On	Power is on (before firmware initialization).
Flashes	Flashes	Flashes	Power is on (after firmware initialization).
Flashes alternately			Firmware error.

Table 1-24 Port descriptions for the 2-port 8Gb FC HBA

Component	Details
Connectors	Dual 8Gbps Fibre Channel (FC)
Port cables	SFP+ with LC-style connector

Table 1-25 Technical Specifications for the 2-port 8Gb FC HBA

Component	Details
Dimensions	Length: 6.6 inches Width: 2.54 inches
Power consumption	Typical power: 6.2 W
Operating temperature	0°C to 55°C (32°F to 131°F)
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Storage humidity	10% RH to 90% RH (operating, non-condensing) 5% RH to 93% RH (non-operating, non-condensing)

See "Symantec Storage Shelf front panel" on page 29.

Symantec Storage Shelf front panel

The 16 disk modules in the Symantec Storage Shelf provide Disk Status and Power/Activity information. Six additional LEDs show general information about the entire storage shelf.

Figure 1-20 Symantec Storage Shelf front panel LEDs

Table 1-26 Symantec Storage Shelf front panel LEDs

Number	Description
1	Power
2	Global Enclosure Status
3	Reserved
4	Disk Status
5	Disk Power/Activity
6	I/O module 1 activity
7	I/O module 2 activity
8	Heartbeat

The following illustration shows the numbering of disk drive slots in the storage shelf. Slot 16 contains the hot spare.

Figure 1-21 Symantec Storage Shelf disk drive slots

See "Symantec Storage Shelf power modules" on page 31.

Symantec Storage Shelf power modules

The rear panel of the Symantec Storage Shelf contains two side-by-side power modules. Each module includes two fans, a connector to an AC power supply, an on/off switch, and a status LED.

You must connect both power modules to power sources.

Figure 1-22 Symantec Storage Shelf power supply LED

Table 1-27 LEDs for the Symantec Storage Shelf power module

Color/State	Indication
Not lit	Power not detected.
Solid Green	Power ok.
Flashes Green	Power ok but turned off.
Red	Turning on the storage shelf power module failed.

Table 1-28 Technical specifications for the Storage Shelf power module

Parameter category	Category	Description
Output features	Output power	Dual 580W
Input features	Input power	100-240-VAC auto-ranging
	AC frequency range	50-60Hz

See “Appliance and storage shelf connections” on page 31.

Appliance and storage shelf connections

Starting with NetBackup Appliance 2.6.0.3 release, you can use the appliance with one, two, three, or four storage shelves.

If you use one storage shelf, connect the SAS_OUT ports from the RAID card in the appliance to the SAS_IN ports on the storage shelf.

If you use two storage shelves, connect the SAS_OUT ports on the first storage shelf to the SAS_IN ports on the second storage shelf.

If you use three storage shelves, connect the SAS_OUT ports on the second storage shelf to the SAS_IN ports on the third storage shelf.

If you use four storage shelves, connect the SAS_OUT ports on the third storage shelf to the SAS_IN ports on the fourth storage shelf. The SAS_OUT ports on the fourth shelf are not connected to any devices.

Figure 1-23 shows the connections between an appliance and two storage shelves.

Figure 1-23 NetBackup 5220 Appliance and Symantec Storage Shelf connections - actual

The following schematic shows appliance and storage shelf port connections.

Figure 1-24 NetBackup 5220 Appliance and Symantec Storage Shelf connections - schematic

See "SAS cable" on page 38.

You may encounter various scenarios with regard to appliances and the number of storage shelves you want to connect. Appliances that have been upgraded to version 2.5 or higher may require a Storage Expansion Kit. Refer to the following tech note for details.

www.symantec.com/docs/TECH188031

See "Product documentation" on page 33.

Product documentation

Table 1-29 lists the hardware-related documentation for the NetBackup 5220 appliance and Symantec Storage Shelf.

Table 1-29 NetBackup 5220 and Symantec Storage Shelf hardware-related documentation

Document	Description
Hardware Installation and Initial Configuration Guide	Provides the instructions about installing the hardware into a rack and connecting the cables. Describes the initial configuration process.

Table 1-29 NetBackup 5220 and Symantec Storage Shelf hardware-related documentation *(continued)*

Document	Description
Safety and Maintenance Guide	Provides detailed safety information and guidelines for routine monitoring and physical maintenance of the units. Anyone who works on the hardware that is associated with the appliance and the storage shelf should understand all safety concerns.
Troubleshooting Guide	Provides information about analyzing issues with the hardware and the software aspects of the systems. Describes the removal and replacement of the customer replaceable hardware units (CRUs).

You can find the documentation that includes information about the NetBackup 5200 and the NetBackup 5220 appliances at the following URL.

http://www.symantec.com/docs/DOC2792

- *NetBackup 52xx Appliance Administrator Guide*
- *NetBackup 52xx Command Reference Guide*
- *NetBackup 5200 Series Getting Started Guide*
- *NetBackup 52xx Appliance Troubleshooting Guide*
- *NetBackup 52xx Appliance Release Notes*

See "About the NetBackup 5220 appliance and the Symantec Storage Shelf" on page 10.

Chapter 2

Cables

This chapter includes the following topics:

- Power cables
- Network cable
- Multi-Mode fibre cable
- SAS cable

Power cables

Each AC power module of the appliance and of the storage device requires a single AC power cable. One end of the AC power cable is connected to the power socket on the appliance or the storage device. The other end of the cable is connected to the external power supply.

Note: Power cables vary in different regions. Standard international cables are used as an example in this document.

Figure 2-1 AC power cable

A power cable includes live line, neutral line, and grounding lines.

NetBackup storage shelves currently ship with two AC power cords. To improve the power distribution within a rack environment, Symantec will ship two of the Power Distribution Unit (PDU) compatible cords (C13-C14) instead of the AC power cords. The transition to the new cords will be gradual.

Figure 2-2 and Table 2-1 show the C13 connector.

Figure 2-2 C13 connector to the appliance or to the storage shelf

Table 2-1 C13 connector details

Number	Component color
1	Green and yellow
2	Blue
3	Brown

Figure 2-3 and Table 2-2 show the C14 connector.

Figure 2-3 C14 plug to the PDU

Table 2-2 C14 plug details

Number	Components color
1	Green and yellow
2	Brown
3	Blue

See “Network cable” on page 37.

Network cable

The appliance communicates with the outside through an Ethernet network cable. One end of the network cable connects to the management network port or customer network port of the appliance. The other end of the cable connects to the network switch or an external gateway. Both ends of the cable are RJ-45 connectors.

Figure 2-4 Network cable

See "Multi-Mode fibre cable" on page 37.

Multi-Mode fibre cable

The appliance communicates with an FC switch through a multi-mode fibre. One end of the multi-mode fibre connects to a 10GE port or an FC port on the appliance. The other end of the cable connects to the FC switch or other network devices. The two ends of the multi-mode fibre are LC connectors.

Note: Fibre cables are not delivered with the product. Customers must provide these cables.

Figure 2-5 Multi-Mode fibre cable

See "SAS cable" on page 38.

SAS cable

A SAS cable has a SAS connector on both ends. Two SAS cables ship with each storage device. The maximum supported length of each SAS cable is 1 meter (3.28 feet).

Refer to the appliance and the storage system connection sections as needed for details.

Figure 2-6 SAS cable

See "Power cables" on page 35.

Chapter 3

Technical specifications, standards, and compliance information

This chapter includes the following topics:

- Technical specifications
- Environmental requirements
- Protocol standards compliance
- Safety and EMC standards compliance for the NetBackup 5220 Appliance
- Industry standards compliance for the NetBackup 5220 Appliance
- Certifications for the NetBackup 5220 Appliance

Technical specifications

Table 3-1 describes the NetBackup 5220 specifications.

Note: The maximum weight of the appliance refers to the weight of the NetBackup 5220 with eight disk modules and two power modules.

Table 3-1 Technical specifications for the NetBackup 5220 appliance

Specification	Description
Rack information	The rack installation height is the space occupied by a NetBackup 5220 in a rack cabinet. The rack height for the appliance is 2U (3.5 inches, 8.9 cm). The appliance can be installed in a rack that is 19 inches (48.29 cm) wide.
Weight	Approximately 50 lbs (22.7 kg)
Dimensions	87 mm x 430 mm x 704 mm
Power consumption	750W maximum
Power parameters	■ AC voltage range: 100 V to 127 V, 200 V to 240 V ■ AC frequency range: 47 Hz to 63 Hz
Inherent availability of the system	≥ 99.95%
MTTR (Mean Time to Repair)	< 1 hour

Table 3-2 describes the Symantec Storage Shelf specifications.

Table 3-2 Technical specifications for the Symantec Storage Shelf

Specification	Description
Rack information	The rack installation height is the space occupied by a storage shelf in a rack cabinet. The rack height for the appliance is 3U (5.25 inches, 13.35 cm). The storage shelf can be installed in a rack that is 19 inches (48.26 cm) wide. The rack rails that are provided for the Symantec Storage Shelf are extensible to 36” (914mm). This distance is the maximum depth that is allowed between rack posts. If the distance between rack posts is longer than 36” (914mm) the rails and the appliance cannot be properly installed.
Weight	71 lbs (32.5 kg)
Dimensions	131 mm x 447 mm x 561 mm
Power consumption	580W maximum
Power parameters	■ AC voltage range: 100 V to 127 V, 200 V to 240 V ■ AC frequency range: 47 Hz to 63 Hz

Table 3-2 Technical specifications for the Symantec Storage Shelf *(continued)*

Specification	Description
Inherent availability of the system	≥ 99.95%
MTTR (Mean Time to Repair)	< 1 hour

See "Environmental requirements" on page 41.

Environmental requirements

The following table lists the requirements for the NetBackup 5220 Appliance and the Symantec Storage Shelf.

Table 3-3 Environmental requirements

Component	Requirement
Operating temperature	10°C to 35°C (41°F to +95°F)
Storage temperature	-40°C to +70°C (-40°F to +158°F)
Transportation temperature	-40°C to +70°C (-40°F to +158°F)
Temperature gradient	10°C/h
Operating humidity	10% RH to 85% RH
Operating altitude	-30.5 meters to +3,000 meters When the altitude ranges from -60 meters to +1,800 meters, the ambient temperature ranges from 5°C to 35°C. When the altitude ranges from 1,800 meters to 3,000 meters, the environmental temperature decreases by 0.6°C when the altitude increases by 100 meters.
Storage altitude	-30.5 meters to +3,000 meters
Noise	< 72 A-weighted decibels This value reflects the maximum noise of the NetBackup 5220 when the ambient temperature is 25°C.

See "Protocol standards compliance" on page 42.

Protocol standards compliance

The following table provides protocols with which the NetBackup 5220 and the Symantec Storage Shelf comply.

Table 3-4 Protocol standards compliance

Standard	Version
IPMI2.0	Intelligent Platform Management Interface Specification Second Generation v2.0, Document Revision 1.0
SMBIOS	System Management BIOS (SMBIOS) Reference Specification, Version 2.5
SATA	Serial ATA Working Group, Serial ATA II: Extensions to Serial ATA. Revision 1.0a
ACPI	Advanced Configuration and Power Interface Specification, Revision 3.0, September 2
IP	RFC0791: Internet Protocol

See "Safety and EMC standards compliance for the NetBackup 5220 Appliance" on page 42.

Safety and EMC standards compliance for the NetBackup 5220 Appliance

The following table describes the listed compliance standards for the appliance.

Table 3-5 Appliance safety and EMC standards compliance

Standard	Version
IT Equipment safety standard	GB4943-2001
IEC standard	IEC 60950-1
UL safety standard	UL 60950-1
US EMC standard	FCC, 47 CFR Part 15, Subpart B
European safety standard	EN 60950-1
European EMC directive	EMC Directive 2004/108/EC
European EMC standard	EN 55024: 1998+A1+A2

Table 3-5 Appliance safety and EMC standards compliance *(continued)*

Standard	Version
European safety directive	LVD Directive 2006/95/EC

See "Industry standards compliance for the NetBackup 5220 Appliance" on page 43.

Industry standards compliance for the NetBackup 5220 Appliance

The following table describes the industry compliance standards for the appliance.

Table 3-6 Appliance industry standards compliance

Standard	Version
Ethernet standard	IEEE 802.3
FE standard	IEEE 802.3u
GE standard	IEEE 802.3z
IEEE standard test interface and boundary-scan architecture	IEEE 1149.1-2001
Failure mode and effects analysis (FMEA)	IEC 812
Reliability, maintainability, and availability standard	IEC 863
Environmental protection	ECMA TR/70

See "Certifications for the NetBackup 5220 Appliance" on page 43.

Certifications for the NetBackup 5220 Appliance

The following table describes the certifications that apply to the NetBackup 5220 Appliance.

Table 3-7 Appliance certifications

Certification	Description
CB	The IEC System for Conformity Testing to Standards for Safety of Electrical Equipment (referred to as the IECEE) is based on the use of specific IEC standards for electrical equipment. The Certification Body (CB) Scheme applies to electrical equipment within the scope of IEC standards for safety, accepted for use in the IECEE. The purpose of the CB Scheme is to create one standard across countries and remove the international trade protection from certifications and standards of individual nations.
CCC	CCC (China Compulsory Certification) is a standard addressing products relating to human health and safety, and environmental protection.
CE	CE (Conformite Europeenne) is a standard for Europe addressing RFI (EMC directive 2004/108/EC) and low voltage standards (directive 2006/95/EC).
C-tick	The C-tick compliance label means that the product conforms with applicable EMC and radio communication requirements for Australia and New Zealand.
FCC	Chapter 15 level A in FCC (Federal Communications Commission) Rules and Regulations applies to FRI standards for office computer equipment.
REACH	Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) is a European Council (EC) standard covering mandatory regulation of chemicals entering the European Union. The relevant regulation is EC 1907/2006.
RoHS	Restriction of the Use of Certain Hazardous Substances (RoHS) is a directive for environmental protection that is released by the EU in 2003. This regulation addresses limiting the maximum amount of hazardous materials present in the production of electronic equipment.
UL	UL (Underwriters Laboratories) is a non-profit safety test and certification organization.
WEEE	The EU Directive Waste of Electric and Electronic Equipment (WEEE) applies to the proper disposal of electronic waste. Compliant products show an upright wheeled trash bin with a large X over it.

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