

# Symantec NetBackup™ 5220 Appliance and Symantec Storage Shelf Product Description

Release 2.5



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Documentation version:

PN:

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# About this guide

This chapter includes the following topics:

- Introducing this guide
- Product documentation

## Introducing this guide

This document describes hardware installation procedures for the NetBackup 5220 appliances running version 2.5 and up to two Symantec Storage Shelves. This document is available to customers and end users.

## Product documentation

The table below lists hardware-related documentation for the NetBackup 5220 appliance and Symantec Storage Shelf.

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

| Document                    | Description   |
|-----------------------------|---|
| Hardware Installation Guide | Provides hardware-specific information. Use this document as a reference guide to the <i>NetBackup Appliance Getting Started Guide</i> .                      |
| Product Description         | Describes all aspects of the appliance and storage shelf. Provides safety, compliance, and environmental information.   |
| Safety Guide                | Provides detailed safety information. Anyone who works on the hardware associated with the appliance and storage shelf should understand all safety concerns. |

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

| Document          | Description   |
|-------------------|---|
| Maintenance Guide | Provides guidelines for routine monitoring and physical maintenance of the units. |

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

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

- *NetBackup 52xx Appliance Administrator's Guide*
- *NetBackup 52xx Command Reference Guide*
- *NetBackup 5200 Series Getting Started Guide*
- *NetBackup 52xx Appliance Troubleshooting Guide*
- *NetBackup 52xx Appliance 2.5 Release Notes*

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

# 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. The NetBackup 5220 fulfills the unified management of the software and hardware, which reduces operations and maintenance cost, and minimizes the total cost of ownership (TCO). 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 sixteen disk drives. Thirteen drives provide storage. Two drives provide parity data that can be used to recreate data on a failed disk drive. One drive is a hot-spare. If there are I/O errors anywhere on a disk drive, all healthy subdisks and subdisks of redundant volumes on that disk are automatically moved to a designated spare disk.

The NetBackup 5220 2.5 appliance release supports the addition of two Symantec Storage Shelves. The additional storage provides:

- Increased deduplication backup capacity from 32TB to 64TB.
- Increased AdvancedDisk backup capacity from 40TB to 76TB.

The following table describes key features of the NetBackup 5220 appliance and Symantec Storage Shelf.

Table 2-1                      Features of NetBackup 5220

| Feature       | Description  |
|---------------|--|
| Energy saving | <ul style="list-style-type: none"><li>■ Supports disk soft start after power-on, controlling the disk startup current and reducing the overall power consumption of the appliance.</li><li>■ Supports high-efficiency power modules, reducing power consumption.</li><li>■ Supports intelligent fan speed control, reducing the power consumption of appliances.</li></ul> |

**Table 2-1** Features of NetBackup 5220 (*continued*)

| Feature                             | Description  |
|-------------------------------------|--|
| High performance and large capacity | <ul style="list-style-type: none"> <li>■ 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. The appliance has the ability to add 16 disks (one storage shelf) or 32 disks (two storage shelves) for a raw capacity of up to 48 TB.</li> <li>■ Supports high-performance processors with low-power consumption.</li> <li>■ Provides large-capacity intra-appliance switching bandwidths and high I/O throughout.</li> <li>■ Provides from 12 to 96 GB of main memory.</li> <li>■ Processor - two quad-core E5620 CPUs</li> </ul>                                 |
| High reliability                    | <ul style="list-style-type: none"> <li>■ Supports redundant power and fan modules.</li> <li>■ Supports hot-swappable disk modules and power modules.</li> <li>■ Estimated Mean Time Between Failures (MTBF) is &gt;100,000 hours.</li> </ul>   |
| Easy management                     | <ul style="list-style-type: none"> <li>■ Provides separate out-of-band management network interfaces, allowing customers to remotely turn on , turn off , and reset appliances through the network.</li> <li>■ Supports remotely configuring and managing appliances through KVM over IP.</li> <li>■ Provides customized management interfaces, simplifying maintenance operations and saving maintenance labor.</li> <li>■ Supports DHCP and automatically obtains the IP address from the management server, thus reducing configuration operations.</li> <li>■ Supports SNMP trap and automatically reports alarms.</li> <li>■ Supports reporting the disk information through the out-of-band management channel.</li> </ul> |
| RAID levels                         | <ul style="list-style-type: none"> <li>■ RAID 1 and RAID 6</li> <li>■ Appliance system disks: RAID 1 (software RAID)</li> <li>■ Data storage disks: RAID 6 (RAID chip on mainboard)</li> <li>■ Storage shelf data storage disks: RAID 6</li> </ul>   |
| Ports                               | <ul style="list-style-type: none"> <li>■ One 100 Mbit/s IPMI management network port</li> <li>■ One VGA port</li> <li>■ One RJ-11 serial port</li> <li>■ Four USB 2.0 ports</li> <li>■ Two 1GE service network ports, with the RJ-45 connector and link/active LED</li> </ul>  |

See “About the NetBackup 5220 appliance and the Symantec Storage Shelf” on page 12.

See Table 2-1 on page 12.

See “NetBackup 5220 and Symantec Storage Shelf accessories” on page 16.

The following table describes the hardware configuration of the Symantec Storage Shelf.

Table 2-2 Hardware Configuration of the Symantec Storage Shelf

| Component              | Description   |
|------------------------|---|
| Basic feature          | 3U high, holding 16 x 3.5” SAS drives   |
| I/O boards             | Two independent I/O SAS boards, each with 2 SAS connectors  |
| Management             | Serial port with CLI for troubleshooting - The IPMI port should only be used by Symantec Technical Support or a Symantec approved service provider.   |
| Disk type and quantity | <div><div>■</div> 16 x 2 TB, 7,200 rpm SAS disks</div> <div><div>■</div> 16 x 3 TB, 7,200 rpm SAS disks</div>   |
| RAID level             | RAID 6  |
| I/O port               | <div><div>■</div> 4 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.</div> <div><div>■</div> 2 serial RJ 11 ports (1 per I/O module) with a transfer rate of 115,200 baud.</div> |

## NetBackup 5220 physical overview

The NetBackup 5220 is 2U high and contains 10 disk drives that have a 2.5” form factor. Eight of the ten drives are accessible from the front of the appliance.

Figure 2-1 NetBackup 5220 front



**Figure 2-2** NetBackup 5220 rear



See “NetBackup 5220 front panel” on page 17.

See Figure 2-8 on page 19.

See “NetBackup 5220 rear panel and ports” on page 21.

See “Symantec Storage Shelf physical overview” on page 15.

## 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 2-3** Symantec Storage Shelf front



**Figure 2-4** Symantec Storage Shelf rear



See “Symantec Storage Shelf front panel” on page 30.

See “NetBackup 5220 physical overview” on page 14.

# NetBackup 5220 and Symantec Storage Shelf accessories

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

Table 2-3 External components

| Component          | Description   |
|--------------------|---|
| Mounting rails     | <p>The appliance and storage shelf require mounting rails.</p> <p>Standard Fully Extending Mounting Rails are included, PN 212-1963-00 (Intel AXXHERAIL2). These rails accommodate Standard Enterprise square hole 19” racks.</p> <p>An optional PN 212-1968-00 (Intel AXXBASRAIL13) Basic Rail Kit is available for round hole (non-Enterprise) racks.</p>   |
| Rack handles       | <p>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.</p>  |
| Bezel              | <p>A 2U Symantec bezel is available for the appliance. The storage shelf does not have a bezel.</p>   |
| SAS cables         | <p>Two SAS cables ship with each storage shelf.</p>   |
| Power cords        | <p>Two power cords are shipped with every appliance and storage shelf. The following types of power cords are available.</p> <ul style="list-style-type: none"><li>■ Standard North America power cords</li><li>■ Power cords for China, UK, Japan, and Australia</li><li>■ Power cords for EMEA; Japan, UK, EU, and South Africa.</li></ul>  |
| Add-in PCI-E Cards | <p>Symantec provides optional add-in network interface cards (NICs) and FC HBA cards for connectivity into customer environments. The available cards are listed below.</p> <ul style="list-style-type: none"><li>■ Intel X520-SR2 10GB LC fibre card</li><li>■ Intel E1G44HT quad port server NIC</li><li>■ QLogic 8GB PCI-E dual port fibre channel HBA</li><li>■ QLogic 8GB PCI-E quad port fibre channel HBA</li><li>■ RAID controller for Symantec Storage Shelf (Intel RS2P1008)</li></ul> <p><b>Note:</b> Customers must supply Ethernet or Fibre cables. These cables do not ship with the appliance.</p> |

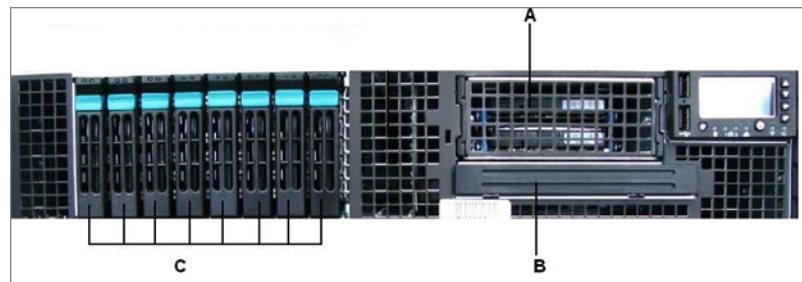


See “About the NetBackup 5220 appliance and the Symantec Storage Shelf” on page 12.

See Table 2-2 on page 14.

## NetBackup 5220 front panel

**Figure 2-5** NetBackup 5220 front panel

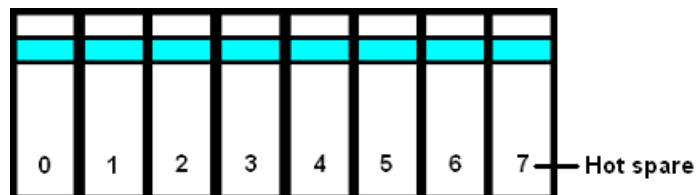


- A Flex Bay – Two fixed, built-in, 2.5” SATA hard disk drives forming a RAID 1 array. These disk drives also provide the operating system of the appliance. The system disk drives are not hot-swappable.
- B Slimline drive bay (functionality not available with NetBackup 5220)
- C Eight 2.5” 1TB SAS hard disk drives, labeled 0 to 7 from left to right. Drives in slots 0 to 6 are hot-swappable. The drive in slot 7 is the hot spare and is not hot-swappable.

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.

The following illustration shows the disk drive slot numbering for the appliance.

**Figure 2-6** NetBackup disk drive slot numbers

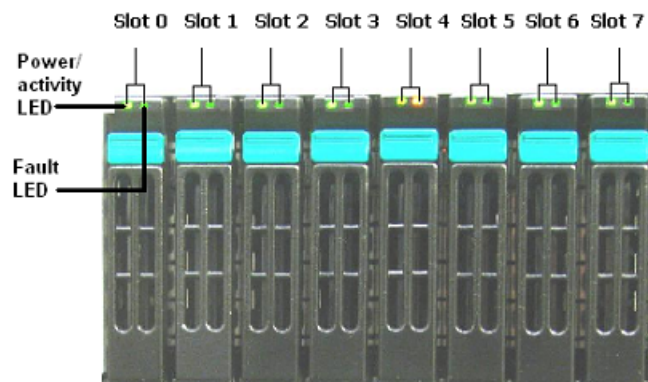


The NetBackup 5220 can provide storage capacity for storing other data besides the system data on the system disks. Except for the system disks and hot spare disks, all other disks are data disks and provide storage capacity.

**Warning:** When data is being read or written on disks, do not turn off the appliance by turning off the power. Otherwise, the disks data may be damaged. To turn off the appliance correctly, stop reading and writing data on the disks first. Then shutdown the appliance through the Web UI or the appliance shell menu .

The eight SAS disk drive modules each contain one disk drive. Each module has 2 LEDs, one red and one green. 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 2-7 Disk drive modules



One disk inside a carrier defines the “Disk Module.” There are two LEDs on each disk module. One LED indicates disk status. The other LED indicates Power and/or Activity.

Table 2-4 Disk module LEDs

| LED            | Color/State    | Indication                       |
|----------------|----------------|----------------------------------|
| Power/Activity | Solid Green    | Disk drive power is on.          |
|                | Blinking green | Disk drive activity is present.  |
| Fault          | Solid amber    | A disk drive fault is occurring. |
|                | Not lit        | There are no disk drive faults.  |

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

**Figure 2-8** NetBackup 5220 control panel



The following table lists the LEDs that are located on the appliance control panel.

**Table 2-5** NetBackup 5220 control panel LEDs

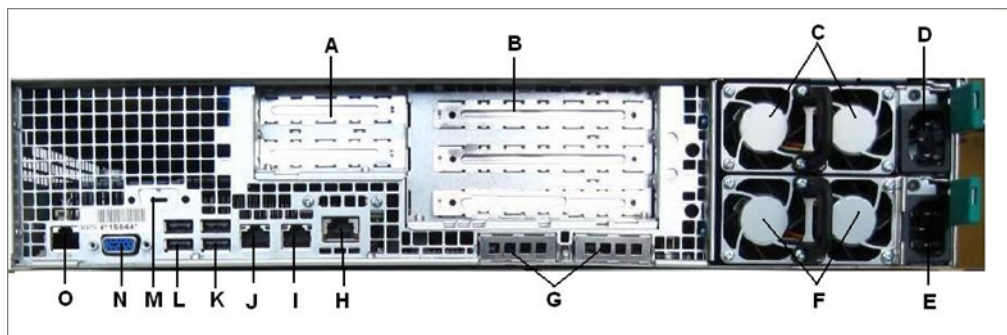
| Letter  | LED function  |
|---------|---|
| A       | <p>Hard Disk Activity LED</p> <p>Random flashing green light indicates hard disk drive activity (SAS).</p> <p>No light indicates no hard disk drive activity.</p>   |
| B and C | <p>NIC 1 and NIC2 Activity LED</p> <p>Continuous green light indicates a link between the appliance and the computer or network to which it is connected.</p> <p>Flashing green light indicates computer or network activity.</p> |

**Table 2-5** NetBackup 5220 control panel LEDs (*continued*)

| Letter | LED function  |
|--------|---|
| D      | <p>Appliance Status LED</p> <p>Solid amber indicates a critical or non-recoverable condition.</p> <p>Solid green indicates normal operation.</p> <p>Flashing green indicates degraded performance.</p> <p>Flashing amber indicates a non-critical condition.</p> <p>No light indicates POST is running or the appliance is off.</p> |
| E      | <p>Power/Sleep LED</p> <p>Continuous green light indicates the appliance has power applied to it or the appliance is S0 state.</p> <p>Flashing green indicates the appliance is in sleep or ACPI S1 state.</p> <p>No light indicates the power is off or the appliance is in ACPI S4 or S5 state.</p>                               |
| F      | <p>Appliance identification</p> <p>Solid blue indicates appliance identification is active.</p> <p>No light indicates appliance identification is not activated.</p>  |

## NetBackup 5220 rear panel and ports

**Figure 2-9** NetBackup 5220 rear panel



- A Low Profile PCI Express Add-in Card Slots (qty 2)
- B Full-height PCI Add-in Card Slots (qty 3)
- C Upper Power Supply Module
- D Upper Power Receptacle
- E Lower Power Receptacle
- F Lower Power Supply Module
- G I/O Expansion Module (optional)
- H Remote Management port - This IPMI port is for use by Symantec Technical Support personnel or Symantec-approved service providers.
- I NIC2 Service (input/output) Ethernet port
- J NIC1 Private (management) Ethernet port
- K and L USB 2.0 ports - Connects to a keyboard, mouse, or monitor
- M DB-9 Serial B Connector
- N Video Graphics Array (VGA) connector
- O RJ-45 Serial A Connector

See “NetBackup 5220 physical overview” on page 14.

See Figure 2-8 on page 19.

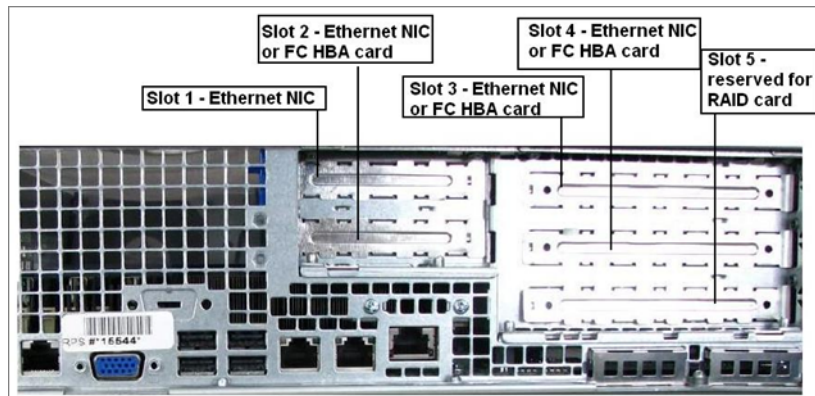
See “NetBackup 5220 front panel” on page 17.

## NetBackup 5220 slots and PCI add-in cards

The rear panel of the NetBackup 5220 appliance contains five PCI add-in slots, which can be configured with a variety of Ethernet Network Interface Cards (NICs) and a Fibre Channel Host Bus Adapter (FC HBA) card. The five slots and their designated assignments are shown below. Fans and AC power connections are located on the right-hand side of the rear panel, but they are not shown in this illustration.

See “NetBackup 5220 rear panel and ports” on page 21.

**Figure 2-10** NetBackup 5220 rear panel slot assignments



Slot usage is as follows:

|        |   |
|--------|---|
| 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's Guide* provides guidelines for creating 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 2-6** 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             | --   |
| Slot 4 | X          | X           | X             | --   |
| Slot 5 | --         | --          | --            | X    |

The following series of add-in cards are supported.

**Table 2-7** Add-in card series

| Series | Slot 1      | Slot 2           | Slot 3           | Slot 4           | Slot 5 |
|--------|-------------|------------------|------------------|------------------|--------|
| 5220 A | 4 port 1GE  | 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 HB  | 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 2-11 Series A

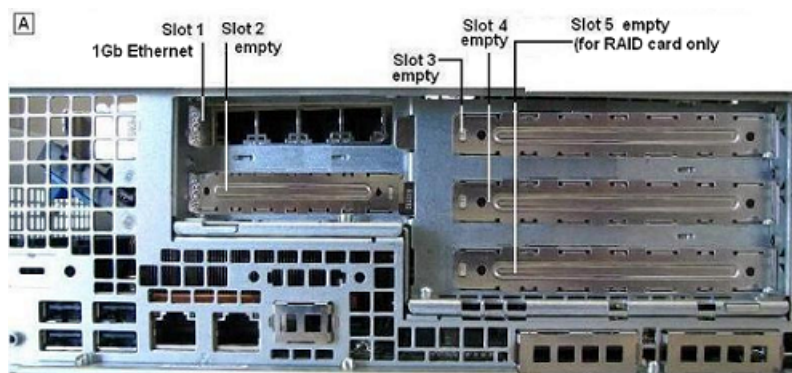


Figure 2-12 Series B

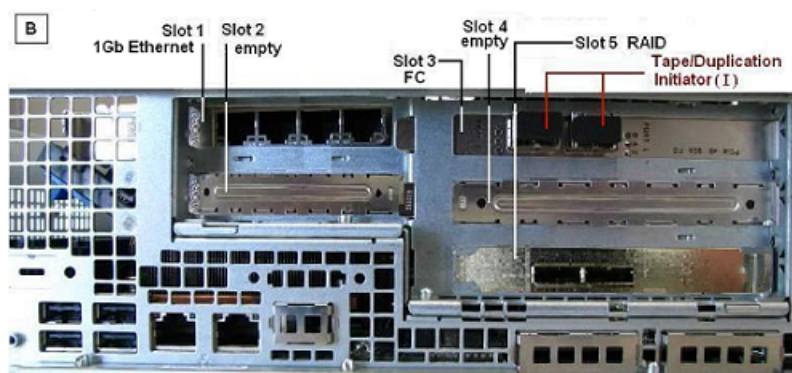
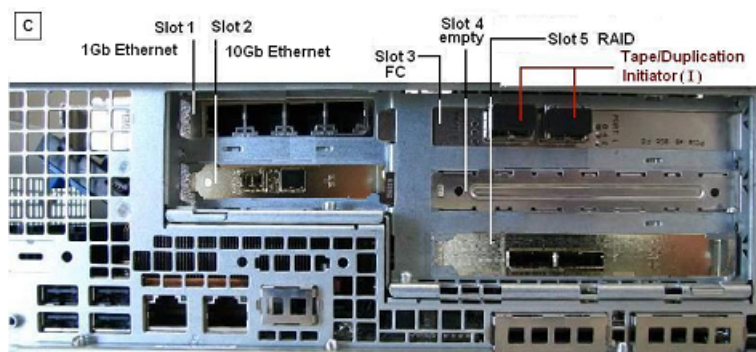
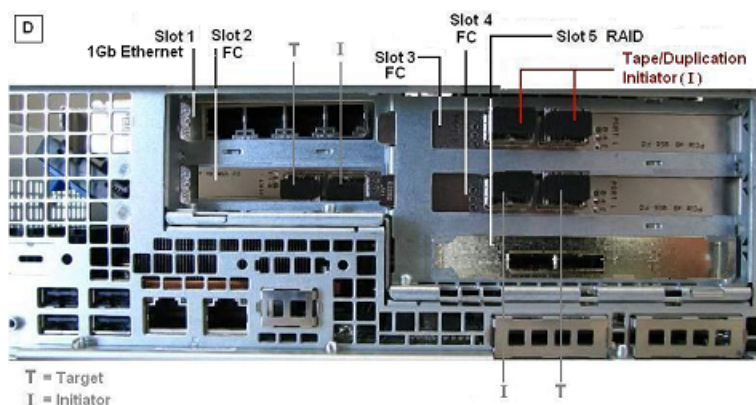


Figure 2-13 Series C

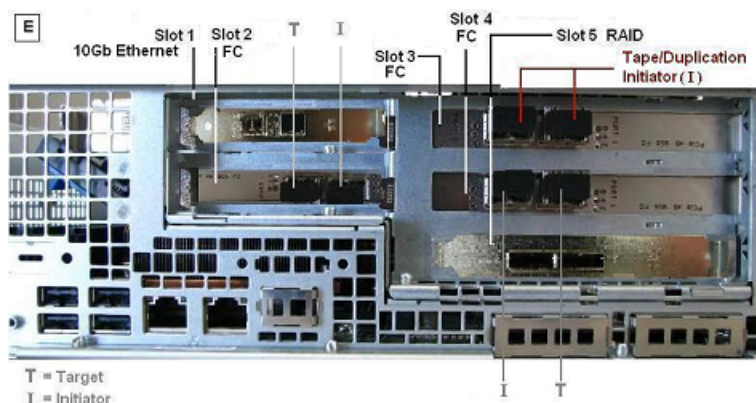




**Figure 2-14** Series D



**Figure 2-15** Series E



See “NetBackup 5220 2-Port 10GE NIC” on page 26.

See “NetBackup 5220 4-Port 1GE NIC” on page 27.

See “NetBackup 5220 RAID card” on page 25.

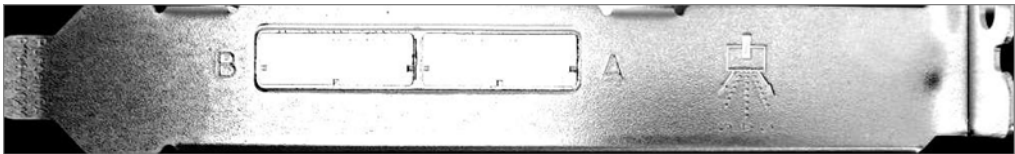
## NetBackup 5220 RAID card

The RAID card is installed into PCI-E slot 5 when one or two storage shelves are used. This RAID card expands the storage capacity of the appliance by utilizing the data storage disk drives in the storage shelves. If you are adding one or more storage shelves to an existing appliance, contact Symantec Technical Support to install additional components into the appliance if needed.

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

[www.symantec.com/docs/TECH188031](http://www.symantec.com/docs/TECH188031)

Figure 2-16 NetBackup 5220 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 SAS disks through the advanced serial technology.
  - Configures the Battery Backup Unit (BBU) to provide power failure protection.

## NetBackup 5220 2-Port 10GE NIC

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

Figure 2-17 NetBackup 5220 2-port 10GE NIC



Table 2-8 LED Descriptions for the 2-port 10GE NIC

| Type    | Color | Status   | Description                                       |
|---------|-------|----------|---|
| ACT/LNK | Green | Flashing | The link is normal and data is being transferred. |
|         | Green | On       | The link is normal.                               |
|         | n/a   | Off      | No link.  |

**Table 2-8** LED Descriptions for the 2-port 10GE NIC (*continued*)

| Type    | Color  | Status | Description                                       |
|---------|--------|--------|---|
| GRN=10G | n/a    | Off    | No link.  |
|         | Green  | On     | Data is being transferred at a rate of 10 Gbit/s. |
|         | Yellow | On     | Data is being transferred at a rate of 1 Gbit/s.  |

**Table 2-9** Port Descriptions for the 2-port 10GE NIC

| Component          | Details  |
|--------------------|--|
| Connectors         | Two LC fibre-optic connectors                            |
| Port cables        | SFP+ Direct Attach cables                                |
| Data rate per port | Optical: 10 Gbit/s, 1 Gbit/s<br>Direct attach: 10 Gbit/s |
| Network standard   | IEEE 802.3   |

**Table 2-10** Technical Specifications for the 2-port 10GE NIC

| Component             | Details  |
|-----------------------|--|
| Dimensions            | 5.73 inches long, measured without PCI-E bracket |
| Power consumption     | Maximum power: 10.7 W<br>Typical power: 10 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      | 90% RH (35°C, non-condensing)                    |

## NetBackup 5220 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 2-18 NetBackup 5220 4-port 1GE NIC

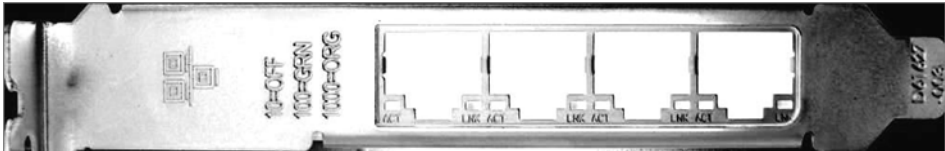


Table 2-11 LED Descriptions for the 4-port 1GE NIC

| Type | Color | Status   | Description  |
|------|-------|----------|--|
| ACT  | Green | Flashing | The link is normal and data is being transferred.  |
|      | Green | On       | The link is normal.                                |
|      | n/a   | Off      | No link.   |
| LNK  | n/a   | Off      | Data is being transferred at a rate of 10 Mbit/s.  |
|      | Green | On       | Data is being transferred at a rate of 100 Mbit/s. |
|      | Amber | On       | Data is being transferred at a rate of 1 Gbit/s.   |

Table 2-12 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 2-13 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)    |

## NetBackup 5220 2-Port 8Gb FC HBA

The 8GB FC HBAs connects the NetBackup 5220 to other network and storage devices. It can provide two tape out FC 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 for creating target mode, initiator mode, and tape-out mode environments.

**Figure 2-19** NetBackup 5220 2-port 8Gb FC HBA



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

**Table 2-14** LED Descriptions for the 2-port 8Gb FC HBA

| 8/Yellow             | 4/Green     | 2/Amber     | Description                                      |
|----------------------|-------------|-------------|--|
| Off                  | Off         | Off         | Power off.                                       |
| Off                  | Off         | On/Flashing | Data is being transferred at a rate of 2 Gbit/s. |
| Off                  | On/Flashing | Off         | Data is being transferred at a rate of 4 Gbit/s. |
| On/Flashing          | Off         | Off         | Data is being transferred at a rate of 8 Gbit/s. |
| On                   | On          | On          | Power on (before firmware initialization).       |
| Flashing             | Flashing    | Flashing    | Power on (after firmware initialization).        |
| Flashing alternately |             |             | Firmware error.                                  |

**Table 2-15** Port Descriptions for the 2-port 8Gb FC HBA

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

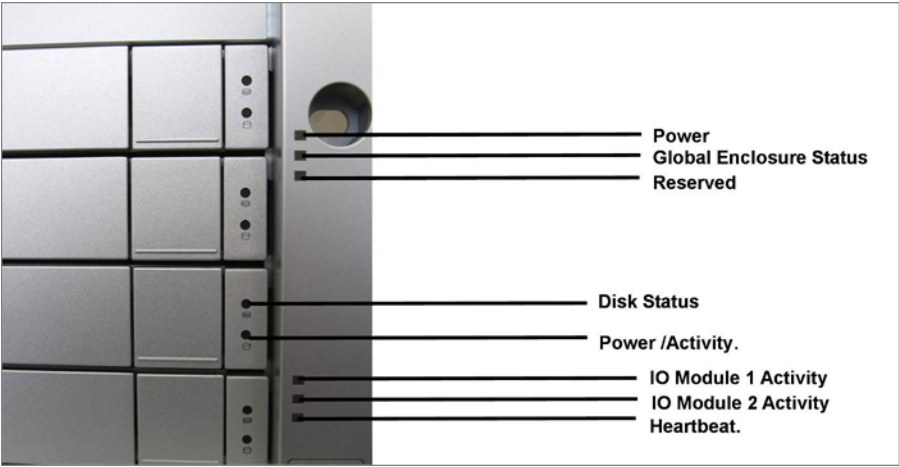
**Table 2-16**      Technical Specifications for the 2-port 8Gb FC HBA

| Component             | Details   |
|-----------------------|---|
| Dimensions            | Length: 6.6 inches<br>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)<br><br>5% RH to 93% RH (non-operating, non-condensing) |

## Symantec Storage Shelf front panel

The 16 disk modules in the Symantec Storage Shelf provide Disk Status and Power/Activity information. General information regarding the storage shelf is obtained by six other LEDs.

**Figure 2-20**      Symantec Storage Shelf front panel



The following illustration shows the numbering of disk drive slots in the storage shelf.

**Figure 2-21** Symantec Storage Shelf disk drive slots

|    |    |    |    |
|----|----|----|----|
| 1  | 2  | 3  | 4  |
| 5  | 6  | 7  | 8  |
| 9  | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 |

Hot spare

# Symantec Storage Shelf power modules

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

**Figure 2-22** Symantec Storage Shelf power supply LED



**Table 2-17** LEDs for the Symantec Storage Shelf power module

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

**Table 2-18**      Technical specifications for the Symantec 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                  |

# Appliance and storage shelf connections

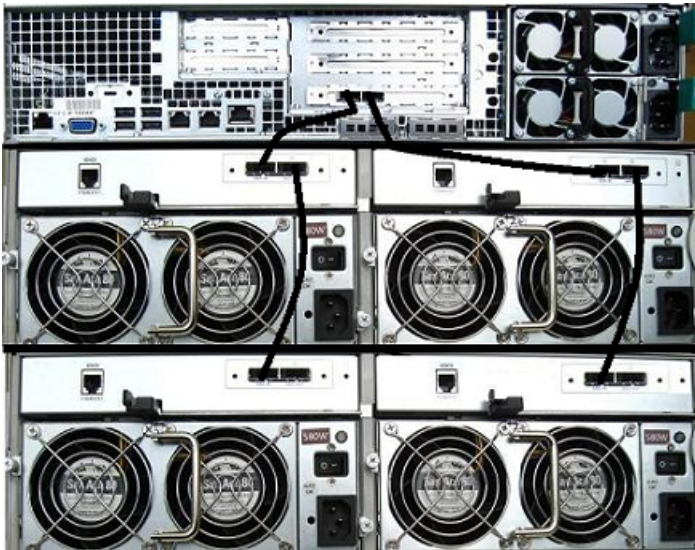
You can connect the appliance to one or two storage shelves.

If you are using one storage shelf, connect the OUT ports from the RAID PCI add-in card on the appliance to the SAS IN ports on the storage shelf.

If you are using two storage shelves, connect the SAS OUT ports on the storage shelf that is connected to the appliance to the SAS IN ports on the second storage shelf.

The following illustration shows the connections between one appliance and two storage shelves.

**Figure 2-23**      NetBackup 5220 and Symantec Storage Shelf connections - actual

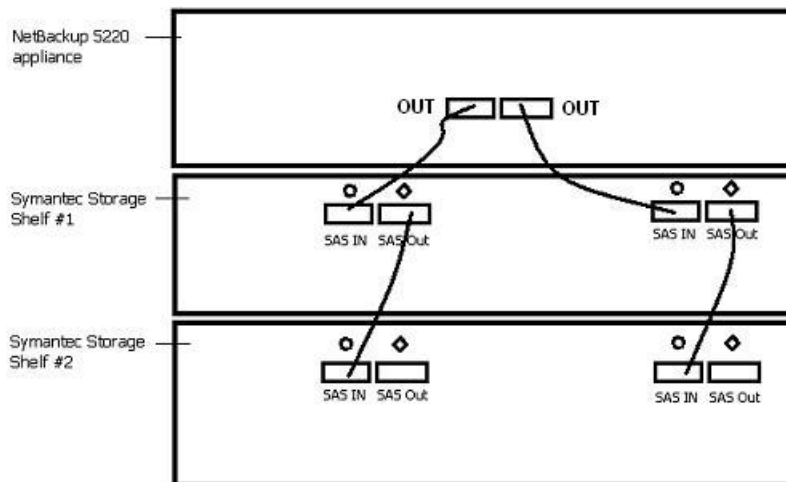




The storage shelf that connects to the appliance is known as Storage Shelf #1. The storage shelf that connects to Storage Shelf #1 is known as Storage Shelf #2. Storage Shelf #2 does not connect to any other devices or equipment.

The following schematic shows appliance and storage shelf port connections.

**Figure 2-24** NetBackup 5220 and Symantec Storage Shelf connections - schematic



See “SAS cable” on page 37.

You may encounter various scenarios with regard to appliances and the number of storage shelves you want to connect. Existing appliances that have been upgraded to version 2.5 may require a Storage Expansion Kit. There are several kits available. The kit you need depends on your specific situation. Refer to the following TechNote for details.

[www.symantec.com/docs/TECH188031](http://www.symantec.com/docs/TECH188031)



# Cables

This chapter includes the following topics:

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

## Power cable

Each AC power module of the appliance and of the storage device is configured with one 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 3-1** AC power cable



- A AC power connector to wall outlet.
- B AC power connector to an appliance or a storage device.

---

**Note:** This figure shows an example of possible connectors. Actual connectors vary per country.

---

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

## 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 service 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 3-2** Network cable



## Multi-Mode fibre cable

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

---

**Note:** Fibre cables are not delivered with the product. These cables must be supplied and prepared by customers.

---

**Figure 3-3** Multi-Mode fibre



## SAS cable

A SAS cable has a RAID connector on both ends. Two SAS cables ship with each storage device.

See “Appliance and storage shelf connections” on page 32.

**Figure 3-4** SAS Cable (with RAID connectors)





# NetBackup 5220 software interfaces

This chapter includes the following topics:

- About the Administrative Web UI
- About the appliance shell menu
- Supported browsers
- Supported IP

## About the Administrative Web UI

The NetBackup 5220 Administrative Web UI for local administration of the network, internal disk storage, and tape libraries. If you configure the appliance as a master server, you can use the interface to manage backup policies, storage lifecycle policies, and storage units. The Web UI provides overall system and individual disk information. The Web UI includes information about the disk drives in one or two storage shelves.

Refer to the *NetBackup 5200 Series Administrator's Guide* for details about the Web UI.

## About the appliance shell menu

CLI options in the NetBackup 5220 appliance shell menu let you access some of the system and individual disk information that is also found in the Administrative Web UI. The main configuration interface is the Administrative Web UI. If needed, you can reset some settings after you have completed the initial configuration in the Web UI. Log in with SSH tools from your Windows PC. For example, you can

use the Support > Logs commands to collect log information to use when troubleshooting.

Refer to the *NetBackup 5200 Series Command Reference Guide* for details

## Supported browsers

Internet Explorer and Mozilla Firefox are supported, at the following versions:

- IE7, IE8, IE9

---

**Note:** If you are using IE9, you must add the appliance URL to the Trusted Sites zone to see all GUI functionality.

---

- Mozilla Firefox 3.x, and above

---

**Note:** If you are using Firefox you must accept the “exception” and “confirm security exception” before accessing the appliance URL.

---

## Supported IP

The NetBackup appliances are now supported on a dual stack IPv4-IPv6 network. The NetBackup appliance can now communicate with, back up, and restore an IPv6 client. You can assign an IPv6 address to an appliance, configure DNS and routing to include IPv6 based systems. The Appliance Web UI can now be used to enter information about both IPv4 and IPv6 addresses.

Refer to the *NetBackup 5200 Series Getting Started Guide* at the following URL:

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



# 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
- Industry standards compliance for the NetBackup 5220
- Certifications for the NetBackup 5220

## Technical specifications

The following table describes the NetBackup 5220 specifications.

---

**Note:** The maximum weight of the appliance refers to the weight of the NetBackup 5220 with 8 disk modules and two power modules.

---

---

**Note:** The transportation weight is the sum of the maximum weight of the NetBackup 5220 or the storage shelf and the maximum weight of the transportation materials.

---

**Table 5-1** 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 (1U = 44.5 cm). The appliance can be installed in a rack cabinet that is 19 inches (1 inch = 2.54 cm) wide and 39.37 inches (100 cm) deep, or deeper. |
| Weight                              | <ul style="list-style-type: none"> <li>■ Maximum weight: 34.5 kg</li> <li>■ Transportation weight: Approx. 50 kg</li> </ul>   |
| Dimensions                          | 87 mm x 430 mm x 704 mm   |
| Power consumption                   | 750W maximum  |
| Power parameters                    | <ul style="list-style-type: none"> <li>■ AC voltage range: 100 V to 127 V, 200 V to 240 V</li> <li>■ AC frequency range: 47 Hz to 63 Hz</li> </ul>  |
| Inherent availability of the system | ≥ 99.95%  |
| MTTR (Mean Time to Repair)          | < 1 h   |

The following table describes the Symantec Storage Shelf specifications.

**Table 5-2** 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 (1U = 44.5 cm). The storage shelf can be installed in a rack cabinet that is 19 inches (1 inch = 2.54 cm) wide and 39.37 inches (100 cm) deep, or deeper. |
| Weight                              | <ul style="list-style-type: none"> <li>■ Maximum weight: 32.5 kg</li> <li>■ Transportation weight: Approx. 50 kg</li> </ul>  |
| Dimensions                          | 131 mm x 447 mm x 561 mm   |
| Power consumption                   | 580W maximum   |
| Power parameters                    | <ul style="list-style-type: none"> <li>■ AC voltage range: 100 V to 127 V, 200 V to 240 V</li> <li>■ AC frequency range: 47 Hz to 63 Hz</li> </ul>   |
| Inherent availability of the system | ≥ 99.95%   |

**Table 5-2** Technical specifications for the Symantec Storage Shelf *(continued)*

| Specification              | Description |
|----------------------------|-------------|
| MTTR (Mean Time to Repair) | < 1 h       |

## Environmental requirements

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

**Table 5-3** Environmental requirements for the NetBackup 5220 and Symantec Storage Shelf

| 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 m to +3,000 m<br><br>When the altitude ranges from -60 m to +1,800 m, the ambient temperature ranges from 5°C to 35°C. When the altitude ranges from 1,800 m to 3,000 m, the environment temperature decreases by 0.6°C each time when the altitude increases by 100 m. |
| Storage altitude           | -30.5 m to +3,000 m   |
| Noise                      | < 72 dBA<br><br>This value reflects the maximum noise of the NetBackup 5220 when the ambient temperature is 25°C.   |

## Protocol standards compliance

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

**Table 5-4** NetBackup 5220 and Symantec Storage Shelf protocol standard 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  |

# Safety and EMC standards compliance for the NetBackup 5220

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

**Table 5-5** Safety and EMC standards compliance for the NetBackup 5220

| 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           |
| European safety directive    | LVD Directive 2006/95/EC       |

# Industry standards compliance for the NetBackup 5220

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

**Table 5-6** Industry standards compliance for the NetBackup 5220

| 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       |

## Certifications for the NetBackup 5220

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

**Table 5-7** NetBackup 5220 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.   |

Table 5-7                      NetBackup 5220 certifications (continued)

| Certification | Description  |
|---------------|--|
| 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 released by the EU in 2003.<br><br>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.  |

# Safety

This chapter includes the following topics:

- Overview
- Symbol conventions
- Identifier conventions
- Combustible gas
- Batteries
- Lasers
- Optical fibres
- Power-on work

## Overview

Before you perform installation or maintenance operations, learn the safety regulations of the site. Read the safety precautions in this document for correct operating methods to ensure safety of persons and devices.





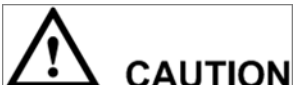
To prevent the risk of accidents, carefully read all operation instructions and precautions in this manual before performing any operation(s). The Caution, Warning, and Danger statements in this document do not cover all possible safety precautions that must be followed. Only specific supplements to standard safety precautions are provided. Personnel responsible for installing and maintaining Symantec products are required to understand the basics of standard electronic

device safety practices. Training and qualification are required to learn the proper operating methods.

## Symbol conventions

Warning symbols remind you of safety precautions to be followed during installation and maintenance operations.

Table 6-1      Warning symbols

| Symbol  | Description   |
|---|---|
|  | Indicates a hazard with a high level of risk that may result in death or serious injury.  |
|  | Indicates a hazard with a medium or a low level of risk, that can result in minor or moderate injury.   |
|  | Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results. |

## Identifier conventions

The following table describes warning and safety identifiers.

Table 6-2      Warning and safety identifiers






| Identifier  | Descriptions  |
|---|---|
|  | <p>Electrostatic discharge (ESD) prevention identifier</p> <p>To to avoid electrostatic injuries or damage you must take strict ESD-preventive measures such as wearing ESD-preventive gloves or an ESD preventive wrist strap.</p> |



Table 6-2 Warning and safety identifiers (continued)

| Identifier   | Descriptions   |
|--|--|
|   | <p>Weight warning identifier</p> <p>You must pay attention to the weight of the appliance before moving it.</p>  |
|   | <p>Warning identifier against inserting and removing system disks</p> <p>You should not insert or remove system disks without following proper procedures.</p> |
|   | <p>Power warning identifier</p> <p>You must shut off all power sources when turning off an appliance .</p>   |
|  | <p>Identifier for reading the manual</p> <p>You must read the manual before operating the appliance.</p>   |
| 0, 1, 2, 3, 4, 5, 6, 7   | <p>Drive identifier</p> <p>Indicates the ID number of the slot where a disk drive resides. The amount of slot numbers depends on each appliance.</p>           |

## Combustible gas

Never place or operate a device in an environment with combustible or explosive gases, or smoke.

Operations to any electronic devices in the presence of combustible gases cause an extreme danger.

## Batteries

Follow the safety precautions for operating lithium (Li-ion) batteries against personnel and device damage during installation and maintenance of Symantec products.

Be sure that you use correct replacement batteries. Otherwise, an explosion may occur.

- Only use batteries of the same or a similar model as recommended by the vendor.
- Deal with the waste batteries according to standard instructions.
- Do not put a lithium battery into a fire.

## Lasers

When you install and maintain equipment, observe standard laser safety precautions to prevent personnel injury or device damage.

The laser that is emitted by the optical interface board is an invisible infrared ray. This laser can cause permanent damage to eyes.

During device maintenance, direct eye exposure to the laser light must be avoided.

To prevent device damage when you operate the device, take the following precautions:

- Cap any unused optical interfaces and the optical connectors of unused tail fibres.
- Use caps when you remove the optical tail fibre that connects to an optical port that is in use. Cover the optical port on the device and the optical connector of the tail fibre with dust-proof caps.
- Use an attenuator when you perform a hardware loopback test on the optical connector with the tail optical fibre. The attenuator protects the optical transceiver from the received optical power.
- Disconnect the optical tail fibre between the peer device and the local device when you use the Optical Time Domain Effect Reflectometer (OTDR). Disconnecting the fibre protects the optical transceiver from the optical power source.
- Do not remove or insert the optical transceiver that connects to the optical fibre without proper safety procedures.

## Optical fibres

The laser beams of the optical interface board or inside the optical fibre may cause damage to the eyes. Do not expose your eyes to the laser beams.

The safe use of optical fibres ensures proper running of the device and avoids personnel injuries and device damage.

The fibre connectors and optical fibre interfaces of a laser must be cleaned with the special tools and the materials that are listed:

- The special cleaning solvent, Isoamylol is preferred. Propyl alcohol is the next best solvent. Other alcohols and formalin are forbidden.
- Non-woven lens tissue
- Special compressed gas
- Cotton stick (medical cotton or long fibre cotton)
- Special magnifier for optical connectors

When replacing a fibre, cap the connector of a fibre that is not used.

## Power-on work

This section describes the safety precautions for troubleshooting when the power is on. All steps must be taken to avoid personnel injury and device damage.

Before checking the device installation and cable connections, confirm that all power supplies to the device are off. Be sure to prevent personnel injury or damage to the devices that is caused by incorrect cable connections or loosened cables.

If you need to perform power-on operations and you need to touch power cables, you must take off the ESD-preventive wrist strap to prevent electrocution.

- Do not plug or unplug cables when power is on. Otherwise, data loss may occur.
- Before reconnecting the power supply, wait at least one minute.
- You must turn off all disk drive activity before turning off the power to the device, to avoid disk damage or data loss.

Do not touch the connectors of power cables or communication cables. Otherwise, you might receive an electrical shock.

Do not touch the device with bare hands in an electrostatic sensitive area. To avoid personnel injuries or damage to the devices, take ESD-preventive measures. Wear ESD-preventive gloves or an ESD-preventive wrist strap.

During troubleshooting, pay attention to the following:

- Do not carry out troubleshooting in stormy weather if lightening is possible.
- Ensure that the power cables are intact and effective grounding measures are taken.
- Keep the troubleshooting area clean and dry.

# Appendix

This appendix includes the following topics:

- Abbreviations and Acronyms

## Abbreviations and Acronyms

The following is a list of acronyms and abbreviations used in this document.

|      |                                       |
|------|---------------------------------------|
| AC   | Alternating Current                   |
| BBU  | Battery Backup Unit                   |
| BIOS | Basic Input/Output System             |
| BMC  | Baseboard Management Controller       |
| CCC  | China Compulsory Certification        |
| CE   | Conformite Europeenne                 |
| CPU  | Central Processing Unit               |
| CRU  | Customer Replaceable Unit             |
| DC   | Direct Current                        |
| DDR3 | 3rd Generation Double Data Rate SDRAM |
| DHCP | Dynamic Host Configuration Protocol   |

|       |   |
|-------|---|
| DIMM  | Dual Inline Memory Module                 |
| ECC   | Error Checking and Correction             |
| FC    | Fibre Channel                             |
| FCC   | Federal Communications Commission         |
| FRU   | Field Replaceable Unit                    |
| GE    | Gigabit Ethernet                          |
| HBA   | Host Bus Adapter                          |
| IIC   | Inter-Integrated Circuit                  |
| IOAT  | Input/Output Acceleration Technology      |
| IPMI  | Intelligent Platform Management Interface |
| KVM   | Keyboard Video Mouse                      |
| LC    | Lucent Connector                          |
| MTBF  | Mean Time Between Failures                |
| MTTR  | Mean Time To Repair                       |
| NIC   | Network Interface Card                    |
| PCI-E | Peripheral Component Interconnect Express |

|       |  |
|-------|--|
| RAID  | Redundant Array of Independent Disks                                 |
| REACH | Registration, Evaluation, Authorization and Restriction of Chemicals |
| RoHS  | Restriction of the Use of Certain Hazardous Substances               |
| SAS   | Serial Attached SCSI   |
| SATA  | Serial Advanced Technology Attachment                                |
| SNMP  | Simple Network Management Protocol                                   |
| TOC   | Total Cost of Ownership  |
| UL    | Underwriters Laboratories  |
| USB   | Universal Serial Bus   |
| VGA   | Video Graphics Array   |

