Oracle® ZFS Storage Appliance Cabling Guide

For ZS3-x, 7x20 Controllers, and DE2-24, Sun Disk Shelves

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Using This Documentation

- **Overview** – Describes how to cable the Oracle ZFS Storage Appliance
- **Audience** – Technicians, system administrators, and authorized service providers
- **Required knowledge** – Experience working with the Oracle ZFS Storage Appliance

Product Documentation Library

Visit http://www.oracle.com/goto/ZFSStorage/docs for the Oracle ZFS Storage Appliance documentation library.

For related documentation, including white papers, visit http://www.oracle.com/technetwork/server-storage/sun-unified-storage/overview/index.html and click on the Documentation tab. For late-breaking information and known issues about this product, visit My Oracle Support at http://support.oracle.com.

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♦ ♦ ♦ CHAPTER 1

Cabling

This section describes cabling between the Oracle ZFS Storage Appliance controller and the storage shelves.

Cabling Guidelines

To cable the controller to the disk shelves, use the the following guidelines:

Cabinet Configuration

- Do not span disk chains across multiple cabinets.
- Mount the controller in the center of the cabinet.
- Do not remove cabinet panels to run cables between cabinets.
- Install disk shelves at the bottom of the cabinet, placing the heaviest disk shelves bottommost, such as the DE2-24C.

Load Distribution

- Balance the number of disk shelves across the disk chains in your system.
- The maximum number of disk shelves supported by each disk chain is six.
- Connect each disk chain to two HBAs if available.
- Do not mix disks with different capacities or rotation speeds within a single disk shelf.
- To maximize performance, use the maximum number of disk chains supported by the controller’s SAS HBAs. For example, four SAS HBAs with eight chains and eight disk shelves will have better performance than two SAS HBAs with four chains and eight disk shelves.

Cable Lengths

- The maximum cable length between DE2-24 disk shelves is two meters.
- The maximum cable length between Sun Disk Shelves is 0.5 meters.
- The maximum cable length between a controller and disk shelves is six meters.

Using DE2-24 and Sun Disk Shelves Together

- To use DE2-24 and Sun Disk Shelves together, the controller must use 4X4 port SAS-2 HBAs.
- Do not use DE2-24 and Sun Disk Shelves in the same disk chain.

Maximum Number of Disk Shelves per Controller Configuration

The following table shows the maximum supported controller configurations.

NOTE: Controllers cannot use 2X4 port SAS-2 HBAs and 4X4 port SAS-2 HBAs at the same time. To use DE2-24 and Sun Disk Shelves together, the controller must use 4X4 port SAS-2 HBAs, which are only supported with software version 2013.1.0 and later.

TABLE 1-1 Maximum Number of Disk Shelves per Controller Configuration

Controller	Max. Shelves	Max. 2X4 Port SAS-2 HBA	Max. 4X4 Port SAS-2 HBA
ZS3-2	16	NA	2
ZS3-4	36	NA	4
7120	2	1	NA
7320	6	1	1
7420	36	6	6

Connecting to Attached Storage

Disk shelves can be added to standalone or clustered storage controllers without powering down the appliance or loss of service to clients. Use the diagrams in this section to connect one or more disk shelves. After connecting expansion storage, verify that you have redundant paths to each disk shelf.

Caution - Improper orientation of mini-SAS HD cables during installation can damage the HBA connector and cause the HBA to malfunction. Position the blue release tab downward for horizontally mounted HBAs or to the right for vertically mounted HBAs. See MOS (https://support.oracle.com) Doc ID 1643673.1.

The following list provides links to cable diagrams for standalone and clustered controllers.

Oracle DE2-24 Disk Shelf to 2X4 Port SAS-2 HBAs

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    - "ZS3-4 Clustered to Mixed Disk Shelves (4 HBAs)" on page 163

Next Steps

After connecting attached storage, apply power and configure the appliance.

- Chapter 4, “Powering On and Configuring the System,” in “Oracle ZFS Storage Appliance Installation Guide ”
- “Initial Configuration” in “Oracle ZFS Storage Appliance Installation Guide ”

Storage expansion may require adding or replacing HBAs in your configuration. For information, see the following sections:

- ZS3-2 Maintenance Procedures: “PCIe Cards and Risers” in “Oracle ZFS Storage Appliance Customer Service Manual ”
- ZS3-4 Maintenance Procedures: “PCIe Cards and Risers” in “Oracle ZFS Storage Appliance Customer Service Manual ”
- 7x20 Maintenance Procedures: “PCIe Cards and Risers” in “Oracle ZFS Storage Appliance Customer Service Manual ”

♦ ♦ ♦ CHAPTER 2

Oracle DE2-24 Disk Shelf to 2X4 Port SAS-2 HBAs

DE2-24 to 7120

7120 Standalone to DE2-24 Disk Shelves

The following figures show the supported configurations for the Oracle ZFS Storage 7120 standalone controller. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 2-1 7120 standalone controller with one HBA connected to one DE2-24 disk shelf in a single chain

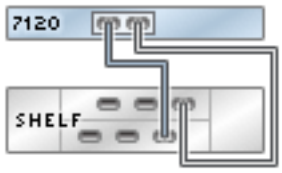
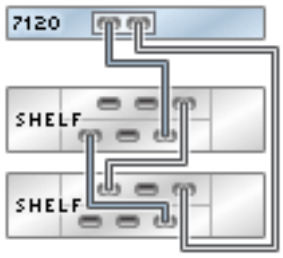


FIGURE 2-2 7120 standalone controller with one HBA connected to two DE2-24 disk shelves in a single chain



DE2-24 to 7320

7320 Standalone to DE2-24 Disk Shelves

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7320 standalone controllers with one HBA. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 2-3 7320 standalone controller with one HBA connected to one DE2-24 disk shelf in a single chain

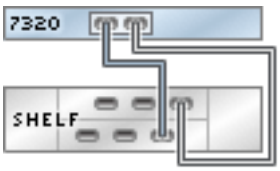


FIGURE 2-4 7320 standalone controller with one HBA connected to two DE2-24 disk shelves in a single chain

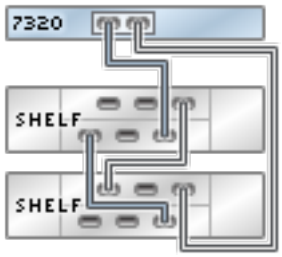
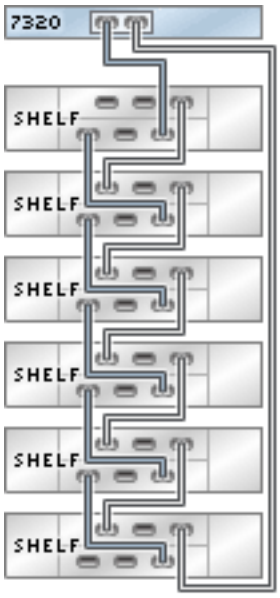


FIGURE 2-5 7320 standalone controller with one HBA connected to six DE2-24 disk shelves in a single chain



7320 Clustered to DE2-24 Disk Shelves

The following figures show a subset of the supported configurations for the Oracle ZFS Storage 7320 clustered controllers with one HBA. To cable the controller to the disk shelves, use the

"Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 2-6 7320 clustered controllers with one HBA connected to one DE2-24 disk shelf in a single chain

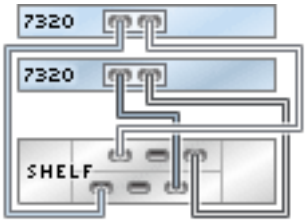


FIGURE 2-7 7320 clustered controllers with one HBA connected to two DE2-24 disk shelves in a single chain

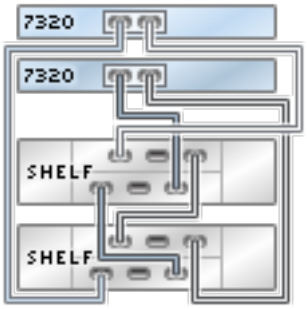
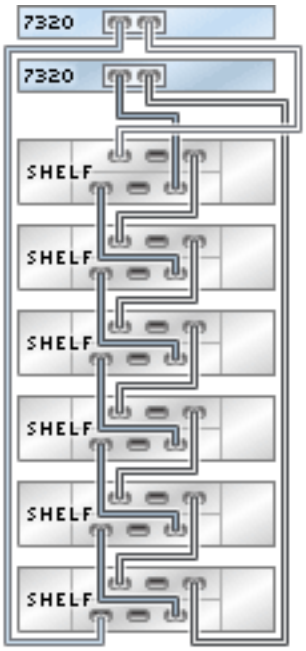


FIGURE 2-8 7320 clustered controllers with one HBA connected to six DE2-24 disk shelves in a single chain



DE2-24 to 7420

7420 Standalone to DE2-24 Disk Shelves

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 standalone controllers with two HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

7420 Standalone to DE2-24 Disk Shelves (2 HBAs)

FIGURE 2-9 7420 standalone controller with two HBAs connected to one DE2-24 disk shelf in a single chain

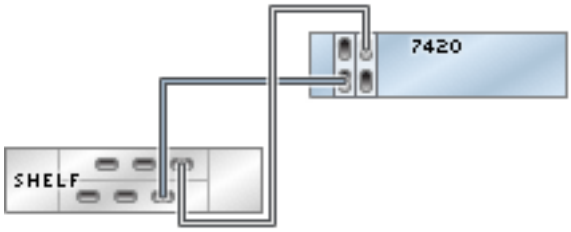


FIGURE 2-10 7420 standalone controller with two HBAs connected to two DE2-24 disk shelves in two chains

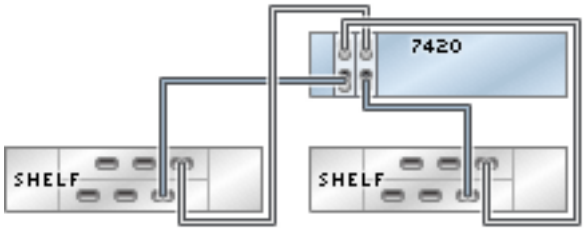


FIGURE 2-11 7420 standalone controller with two HBAs connected to four DE2-24 disk shelves in two chains

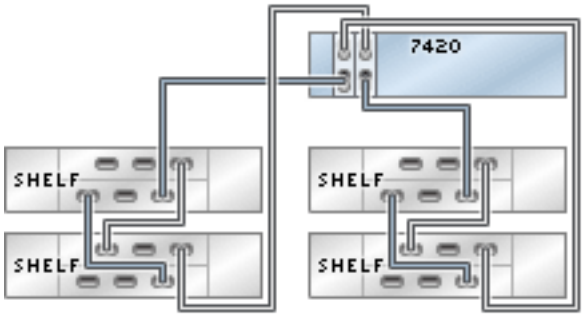
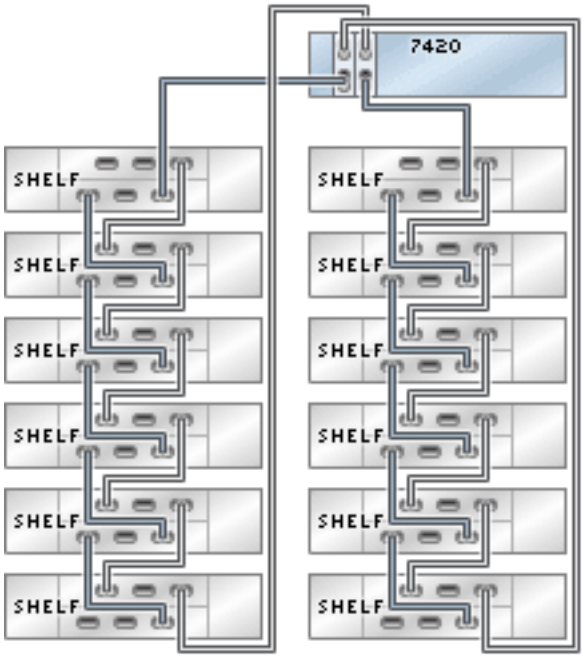


FIGURE 2-12 7420 standalone controller with two HBAs connected to 12 DE2-24 disk shelves in two chains



7420 Standalone to DE2-24 Disk Shelves (3 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 standalone controllers with three HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 2-13 7420 standalone controller with three HBAs connected to one DE2-24 disk shelf in a single chain

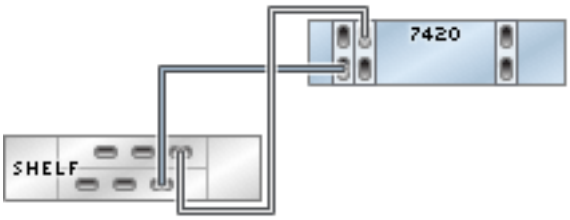


FIGURE 2-14 7420 standalone controller with three HBAs connected to two DE2-24 disk shelves in two chains

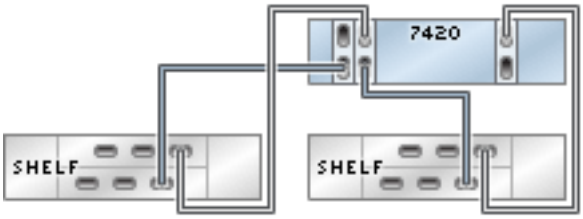


FIGURE 2-15 7420 standalone controller with three HBAs connected to three DE2-24 disk shelves in three chains

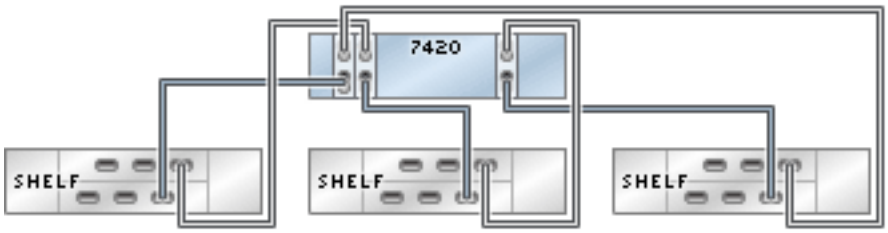


FIGURE 2-16 7420 standalone controller with three HBAs connected to six DE2-24 disk shelves in three chains

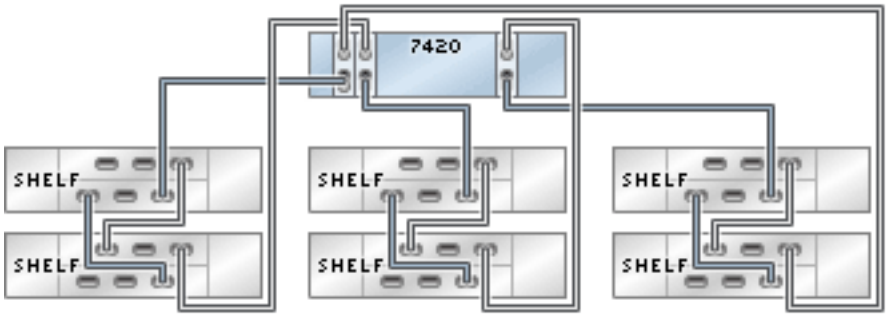
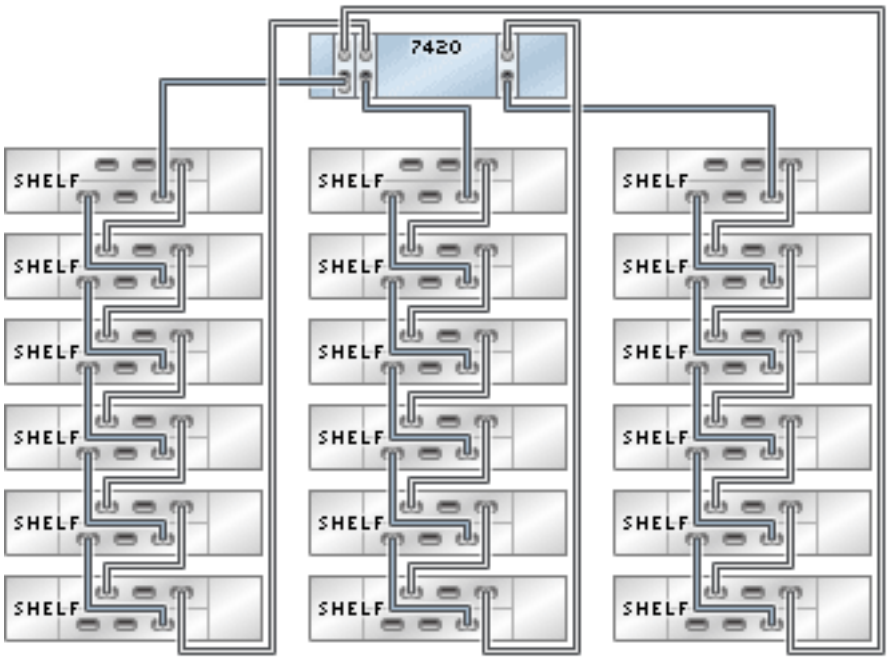


FIGURE 2-17 7420 standalone controller with three HBAs connected to 18 DE2-24 disk shelves in three chains



7420 Standalone to DE2-24 Disk Shelves (4 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 standalone controllers with four HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 2-18 7420 standalone controller with four HBAs connected to one DE2-24 disk shelf in a single chain

FIGURE 2-19 7420 standalone controller with four HBAs connected to two DE2-24 disk shelves in two chains

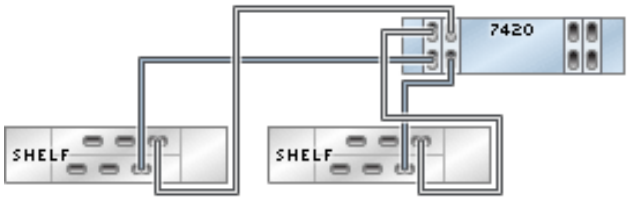


FIGURE 2-20 7420 standalone controller with four HBAs connected to three DE2-24 disk shelves in three chains

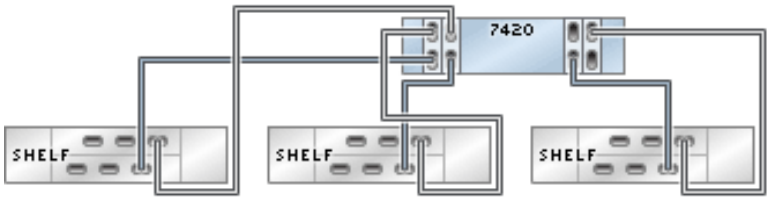


FIGURE 2-21 7420 standalone controller with four HBAs connected to four DE2-24 disk shelves in four chains

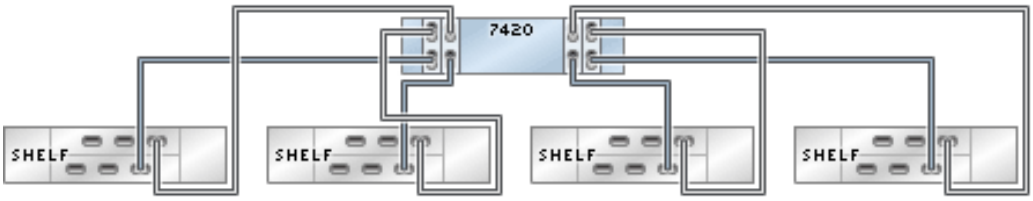


FIGURE 2-22 7420 standalone controller with four HBAs connected to eight DE2-24 disk shelves in four chains

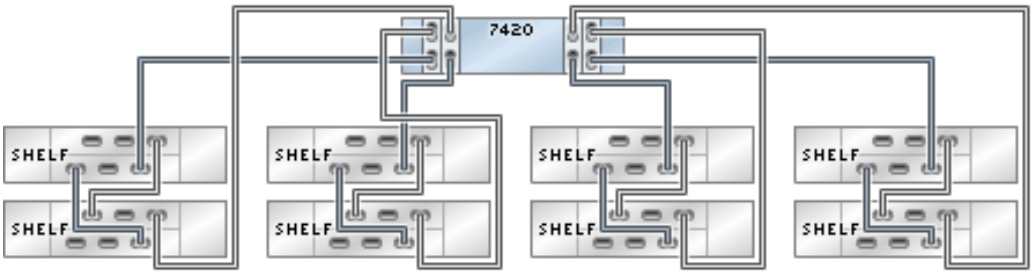
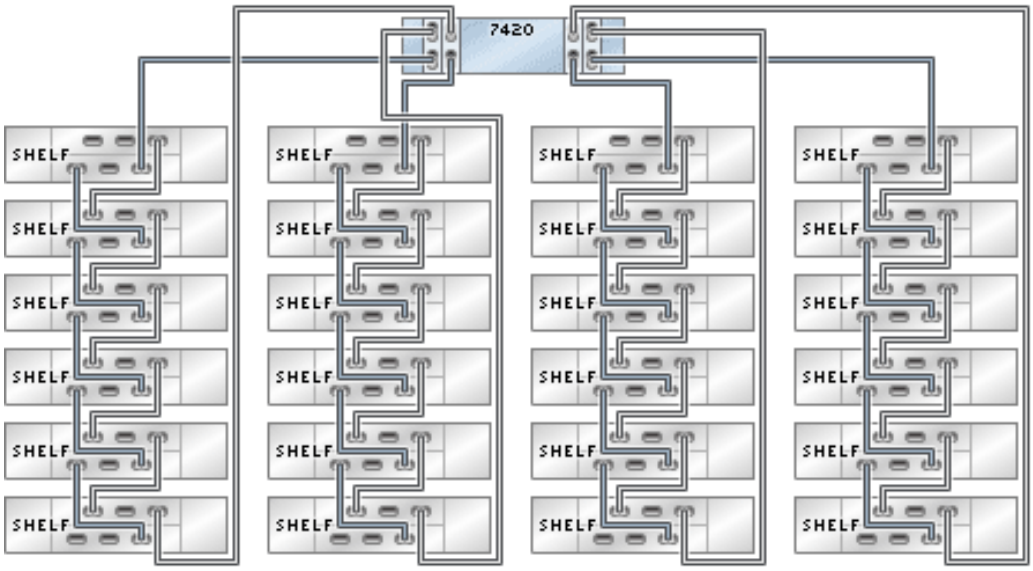


FIGURE 2-23 7420 standalone controller with four HBAs connected to 24 DE2-24 disk shelves in four chains



7420 Standalone to DE2-24 Disk Shelves (5 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 standalone controllers with five HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 2-24 7420 standalone controller with five HBAs connected to one DE2-24 disk shelf in a single chain

FIGURE 2-25 7420 standalone controller with five HBAs connected to two DE2-24 disk shelves in two chains

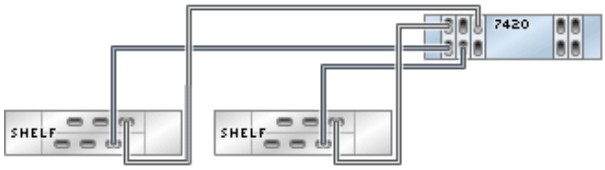


FIGURE 2-26 7420 standalone controller with five HBAs connected to three DE2-24 disk shelves in three chains

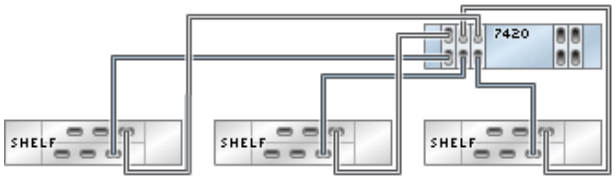


FIGURE 2-27 7420 standalone controller with five HBAs connected to four DE2-24 disk shelves in four chains

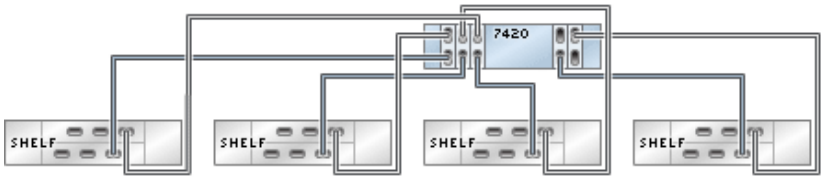


FIGURE 2-28 7420 standalone controller with five HBAs connected to five DE2-24 disk shelves in five chains

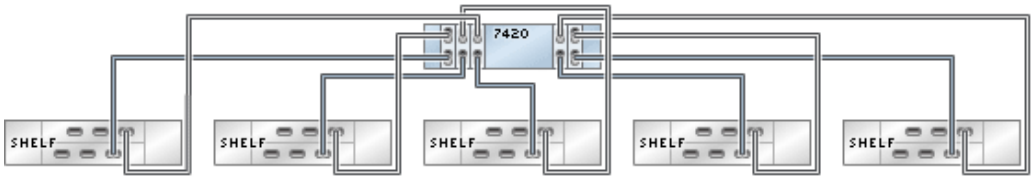


FIGURE 2-29 7420 standalone controller with five HBAs connected to ten DE2-24 disk shelves in five chains

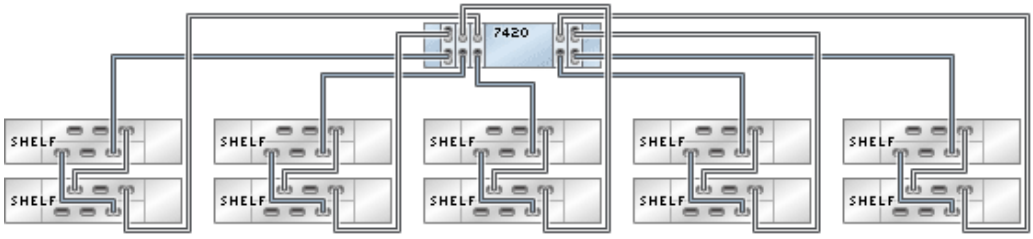
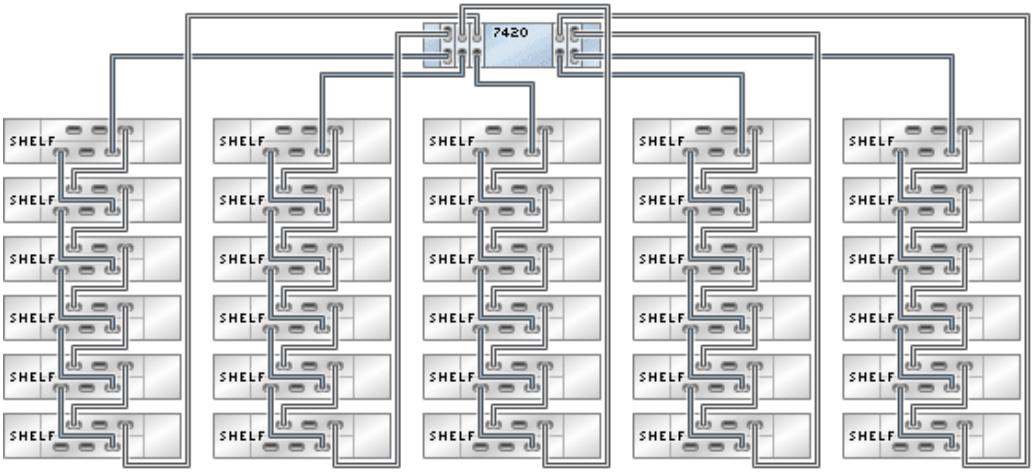


FIGURE 2-30 7420 standalone controller with five HBAs connected to 30 DE2-24 disk shelves in five chains



7420 Standalone to DE2-24 Disk Shelves (6 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 standalone controllers with six HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 2-31 7420 standalone controller with six HBAs connected to one DE2-24 disk shelf in a single chain

FIGURE 2-32 7420 standalone controller with six HBAs connected to two DE2-24 disk shelves in two chains

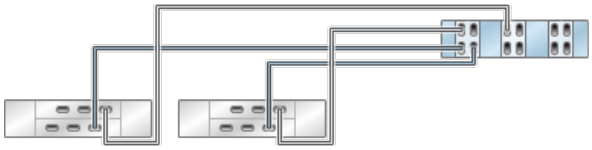


FIGURE 2-33 7420 standalone controller with six HBAs connected to three DE2-24 disk shelves in three chains

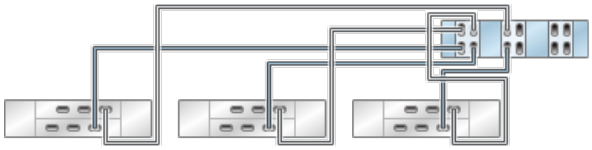


FIGURE 2-34 7420 standalone controller with six HBAs connected to four DE2-24 disk shelves in four chains

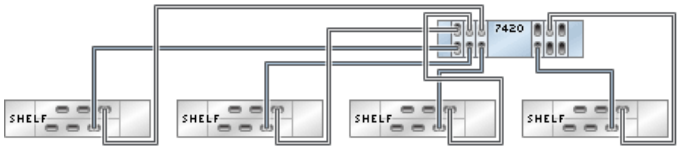


FIGURE 2-35 7420 standalone controller with six HBAs connected to five DE2-24 disk shelves in five chains

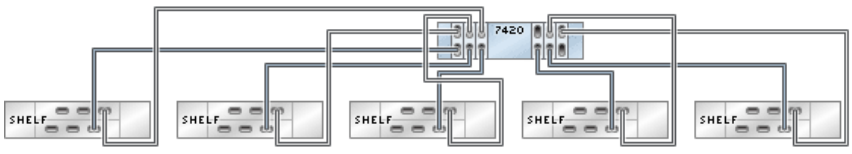


FIGURE 2-36 7420 standalone controller with six HBAs connected to six DE2-24 disk shelves in six chains

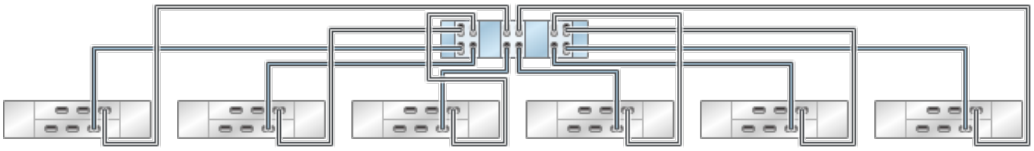


FIGURE 2-37 7420 standalone controller with six HBAs connected to 12 DE2-24 disk shelves in six chains

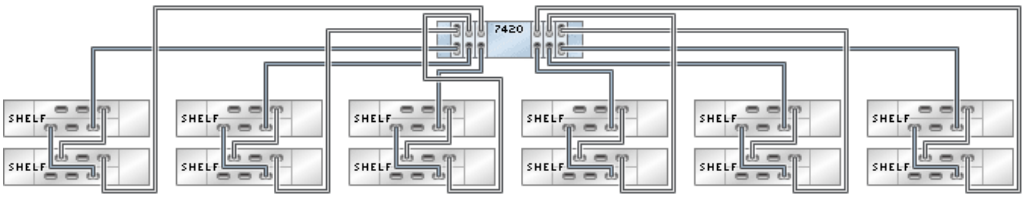
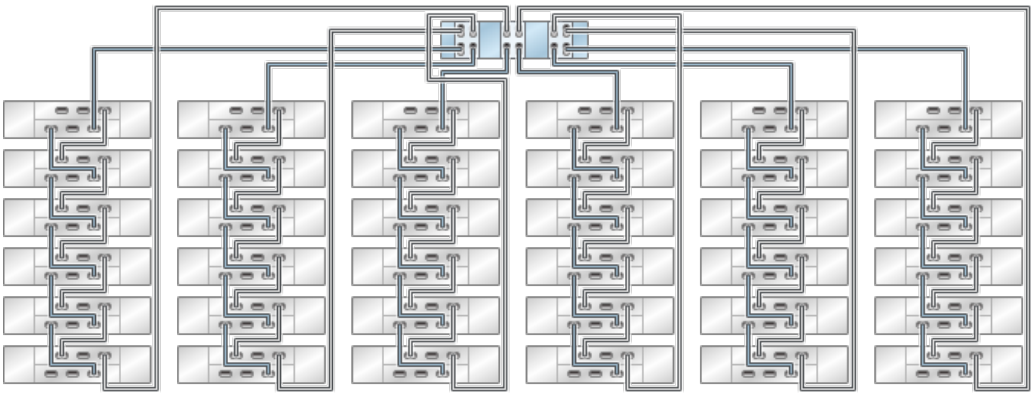


FIGURE 2-38 7420 standalone controller with six HBAs connected to 36 DE2-24 disk shelves in six chains



7420 Clustered to DE2-24 Disk Shelves

7420 Clustered to DE2-24 Disk Shelves (2 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 clustered controllers with two HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 2-39 7420 clustered controllers with two HBAs connected to one DE2-24 disk shelf in a single chain

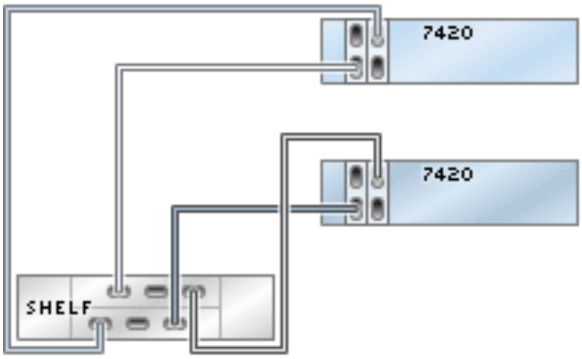


FIGURE 2-40 7420 clustered controllers with two HBAs connected to two DE2-24 disk shelves in two chains

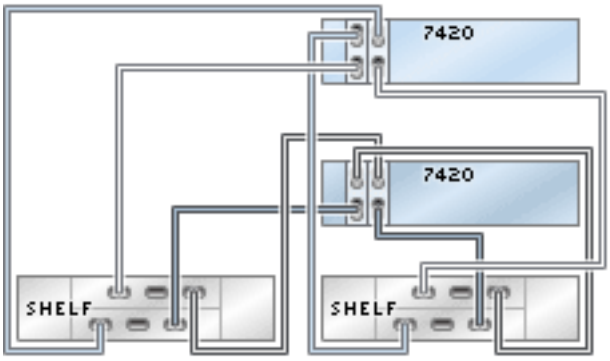


FIGURE 2-41 7420 clustered controllers with two HBAs connected to four DE2-24 disk shelves in two chains

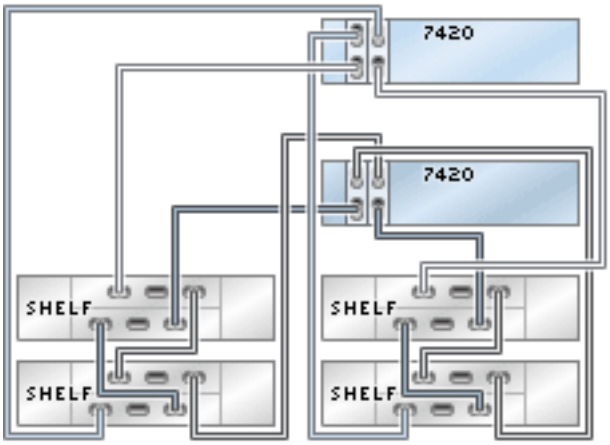
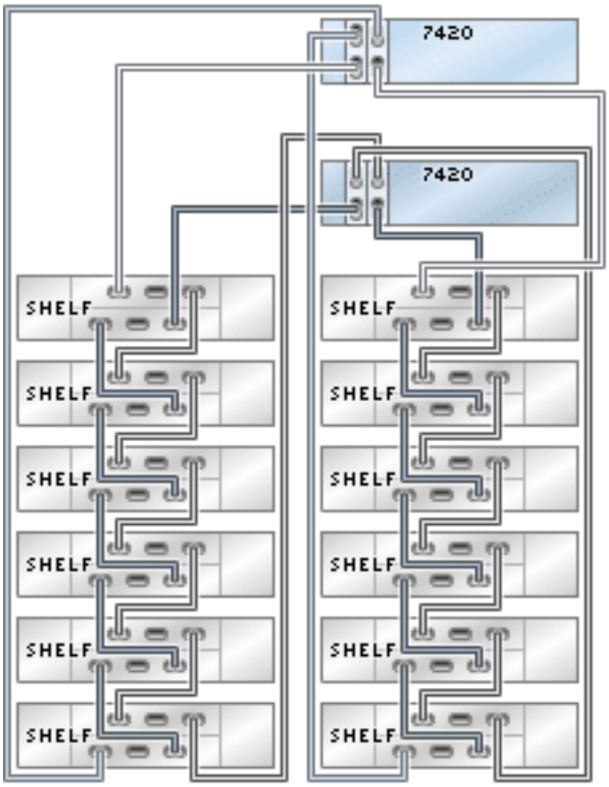


FIGURE 2-42 7420 clustered controllers with two HBAs connected to 12 DE2-24 disk shelves in two chains



7420 Clustered to DE2-24 Disk Shelves (3 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 clustered controllers with three HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 2-43 7420 clustered controllers with three HBAs connected to one DE2-24 disk shelf in a single chain

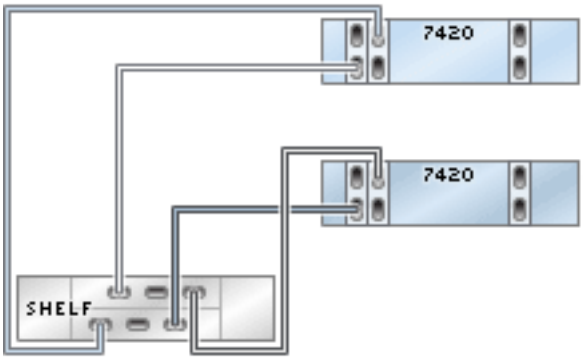


FIGURE 2-44 7420 clustered controllers with three HBAs connected to two DE2-24 disk shelves in two chains

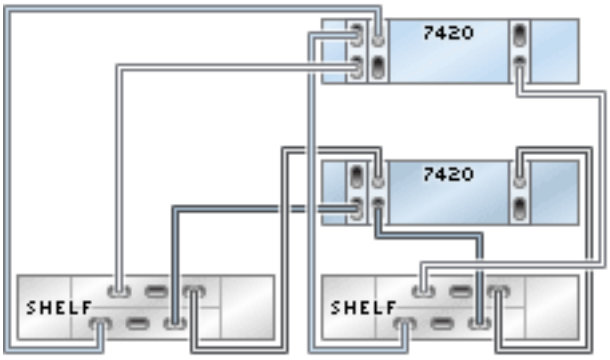


FIGURE 2-45 7420 clustered controllers with three HBAs connected to three DE2-24 disk shelves in three chains

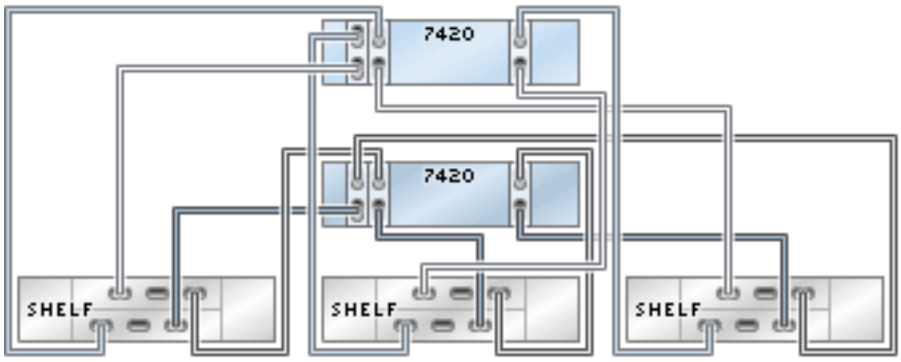


FIGURE 2-46 7420 clustered controllers with three HBAs connected to six DE2-24 disk shelves in three chains

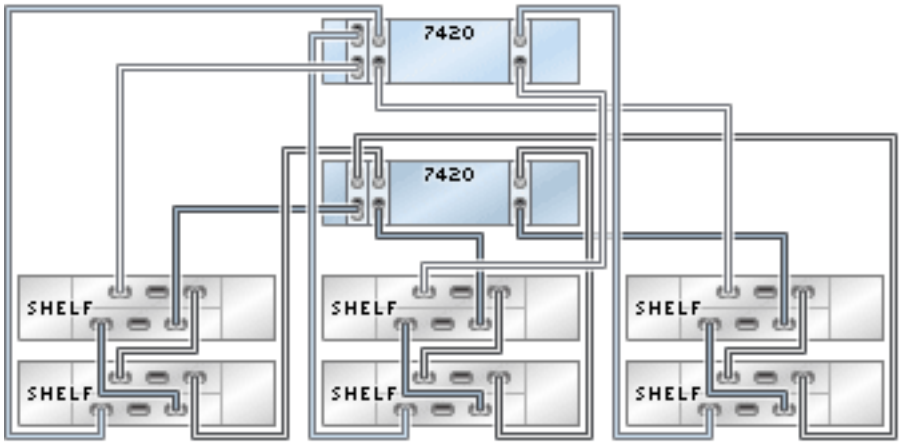
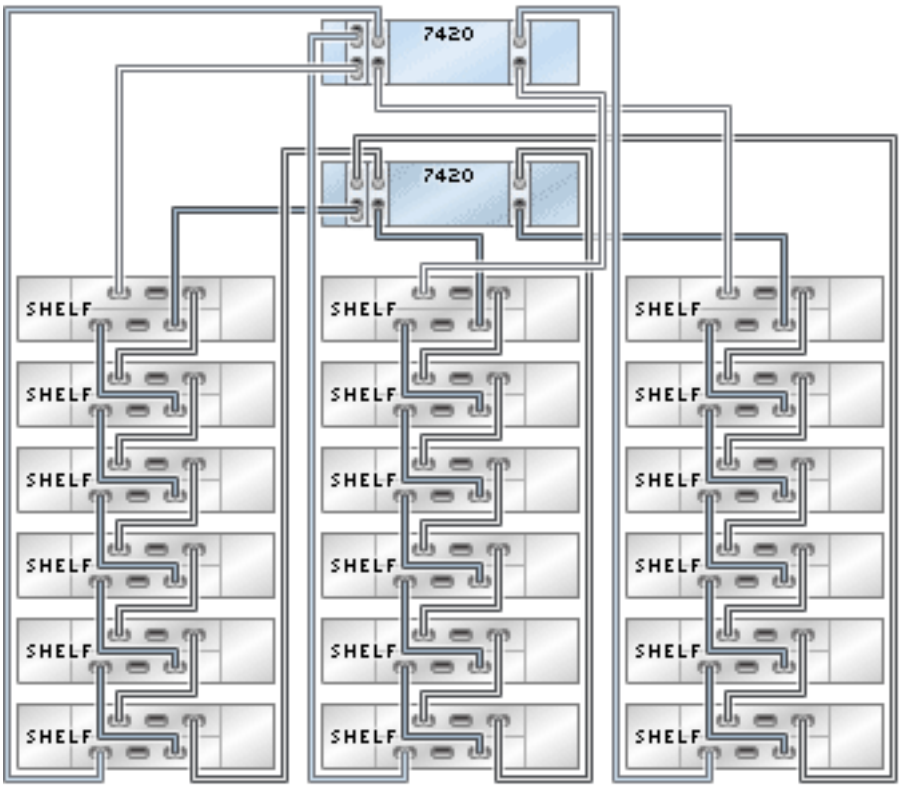


FIGURE 2-47 7420 clustered controllers with three HBAs connected to 18 DE2-24 disk shelves in three chains



7420 Clustered to DE2-24 Disk Shelves (4 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 clustered controllers with four HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 2-48 7420 clustered controllers with four HBAs connected to one DE2-24 disk shelf in a single chain

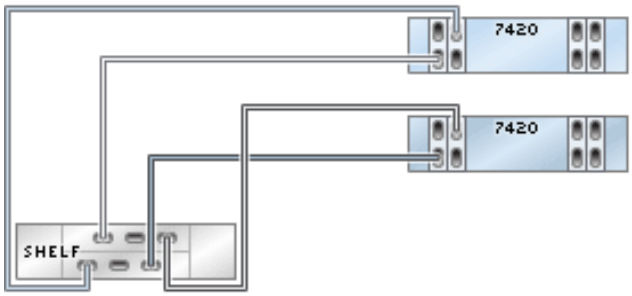


FIGURE 2-49 7420 clustered controllers with four HBAs connected to two DE2-24 disk shelves in two chains

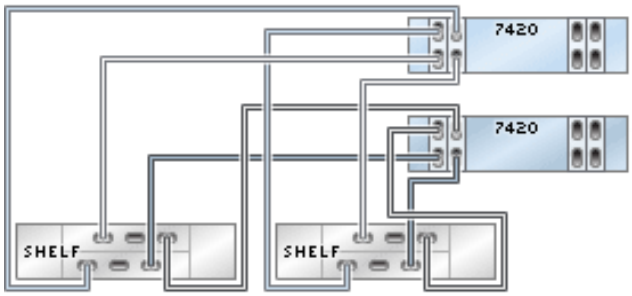


FIGURE 2-50 7420 clustered controllers with four HBAs connected to three DE2-24 disk shelves in three chains

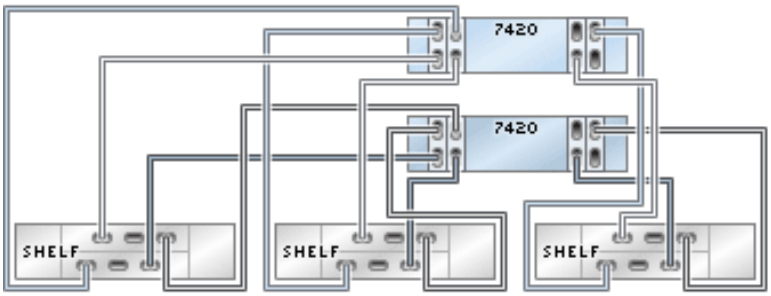


FIGURE 2-51 7420 clustered controllers with four HBAs connected to four DE2-24 disk shelves in four chains

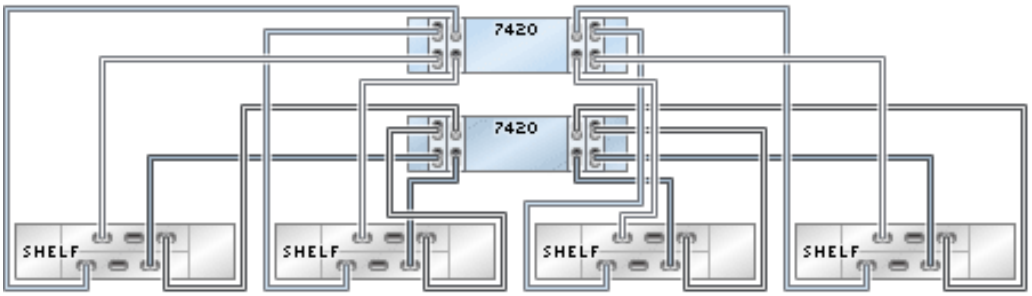


FIGURE 2-52 7420 clustered controllers with four HBAs connected to eight DE2-24 disk shelves in four chains

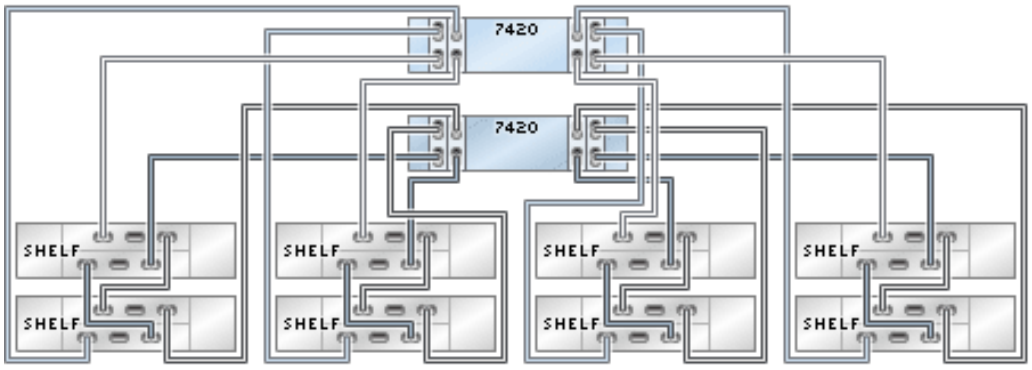
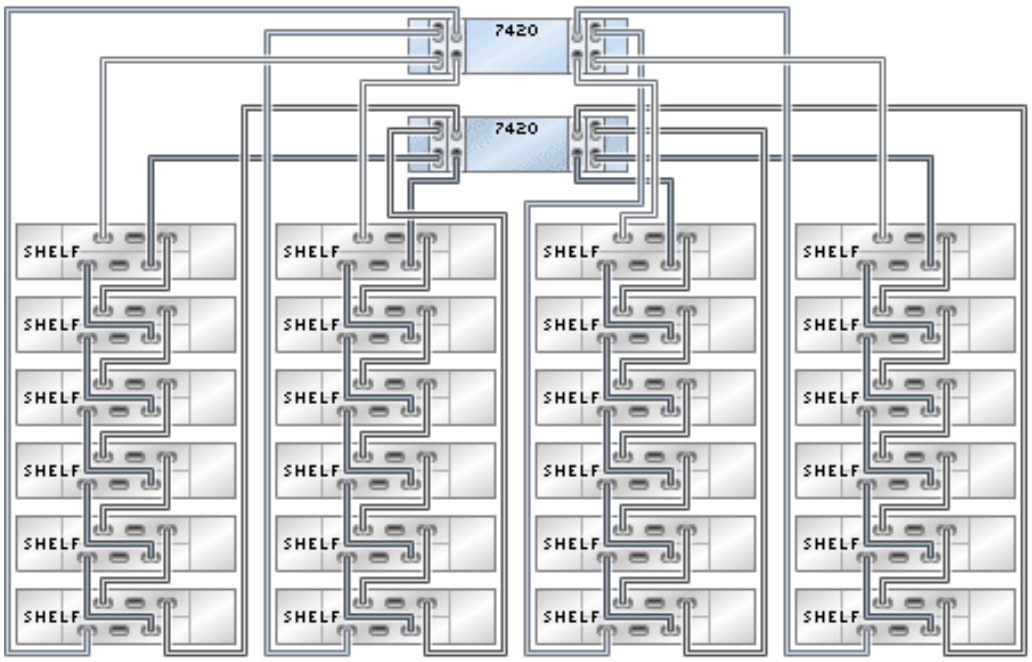


FIGURE 2-53 7420 clustered controllers with four HBAs connected to 24 DE2-24 disk shelves in four chains



7420 Clustered to DE2-24 Disk Shelves (5 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 clustered controllers with five HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 2-54 7420 clustered controllers with five HBAs connected to one DE2-24 disk shelf in a single chain

FIGURE 2-55 7420 clustered controllers with five HBAs connected to two DE2-24 disk shelves in two chains

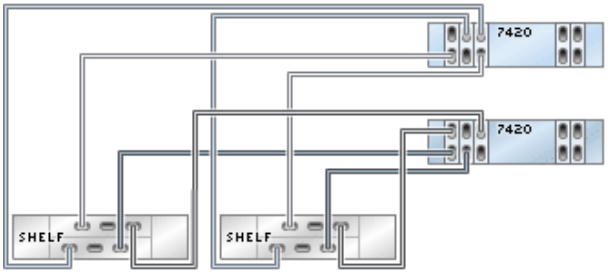


FIGURE 2-56 7420 clustered controllers with five HBAs connected to three DE2-24 disk shelves in three chains

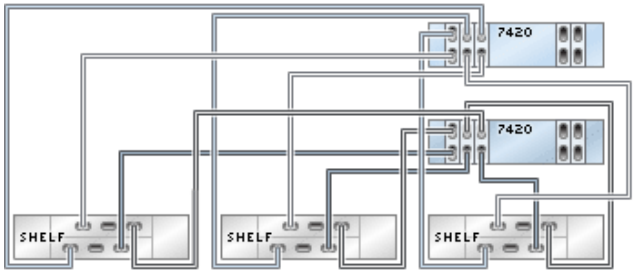


FIGURE 2-57 7420 clustered controllers with five HBAs connected to four DE2-24 disk shelves in four chains

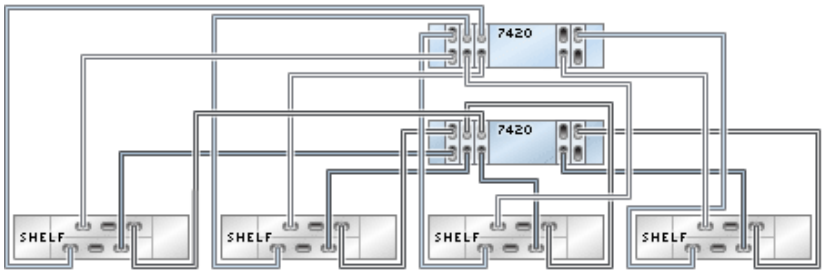


FIGURE 2-58 7420 clustered controllers with five HBAs connected to ten DE2-24 disk shelves in five chains

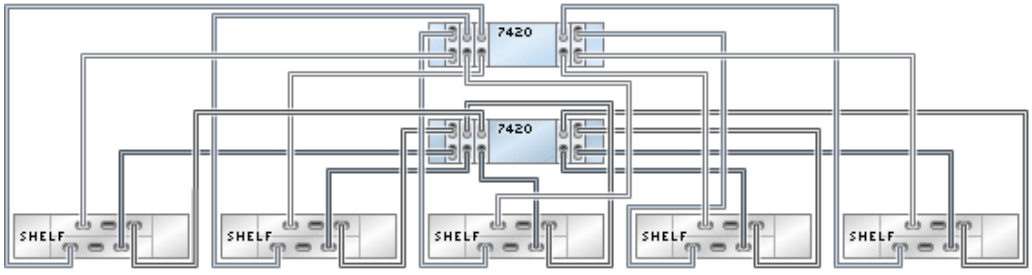


FIGURE 2-59 7420 clustered controllers with five HBAs connected to ten DE2-24 disk shelves in five chains

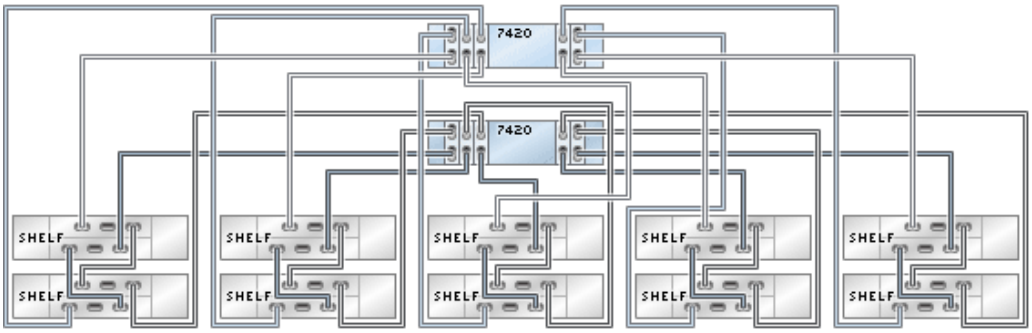
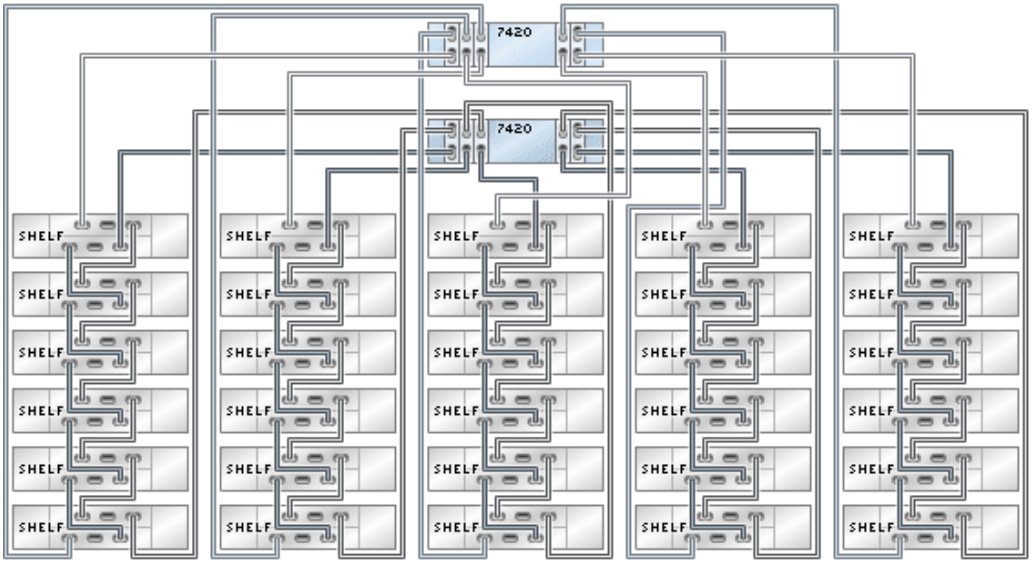


FIGURE 2-60 7420 clustered controllers with five HBAs connected to 30 DE2-24 disk shelves in five chains



7420 Clustered to DE2-24 Disk Shelves (6 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 clustered controllers with six HBAs. To cable the controller to the disk shelves, use the “Cabling Guidelines” on page 7, which include the “Maximum Number of Disk Shelves per Controller Configuration” on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 2-61 7420 clustered controllers with six HBAs connected to one DE2-24 disk shelf in a single chain

FIGURE 2-62 7420 clustered controllers with six HBAs connected to two DE2-24 disk shelves in two chains

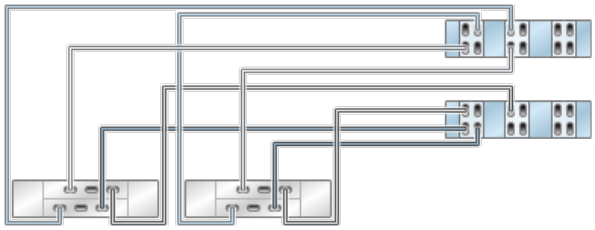


FIGURE 2-63 7420 clustered controllers with six HBAs connected to three DE2-24 disk shelves in three chains

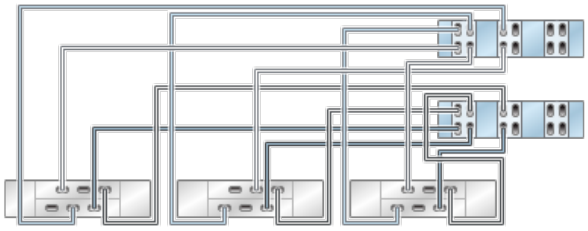


FIGURE 2-64 7420 clustered controllers with six HBAs connected to four DE2-24 disk shelves in four chains

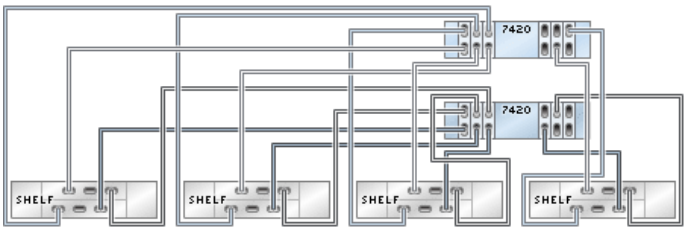


FIGURE 2-65 7420 clustered controllers with six HBAs connected to five DE2-24 disk shelves in five chains

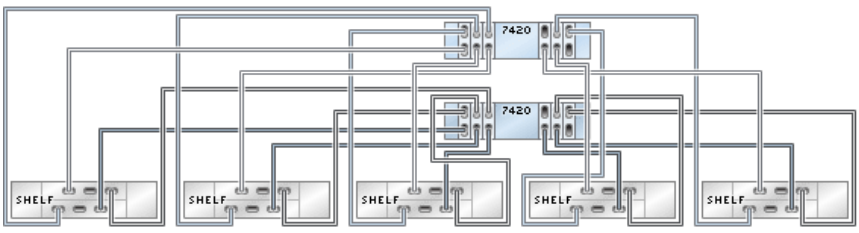


FIGURE 2-66 7420 clustered controllers with six HBAs connected to six DE2-24 disk shelves in six chains

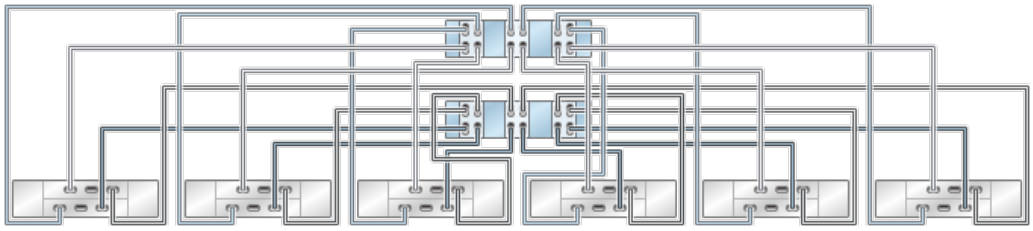


FIGURE 2-67 7420 clustered controllers with six HBAs connected to 12 DE2-24 disk shelves in six chains

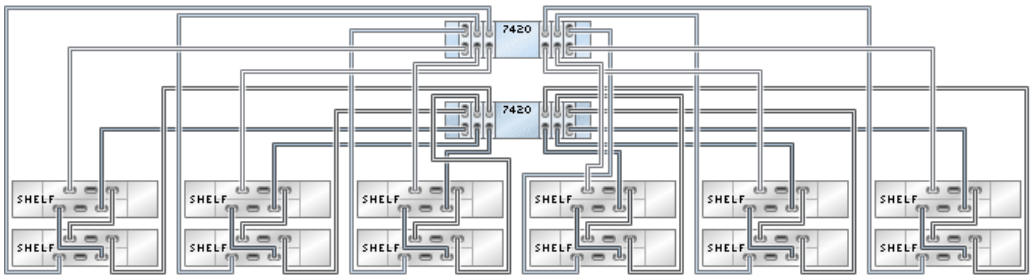
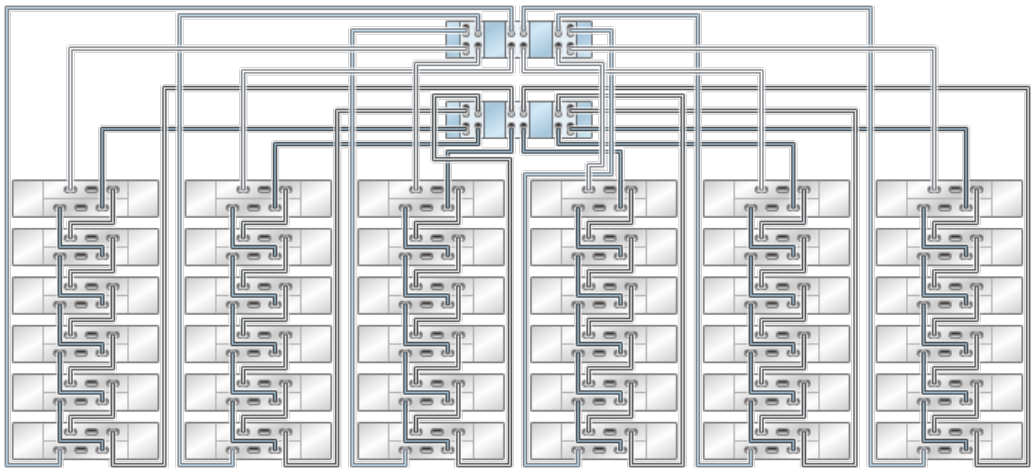


FIGURE 2-68 7420 clustered controllers with six HBAs connected to 36 DE2-24 disk shelves in six chains



♦ ♦ ♦ CHAPTER 3

Oracle DE2-24 Disk Shelf to 4X4 Port SAS-2 HBAs

DE2-24 to 7320

7320 Standalone to DE2-24 Disk Shelves

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7320 standalone controllers with one HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-1 7320 standalone controller with one HBA connected to one DE2-24 disk shelf in a single chain

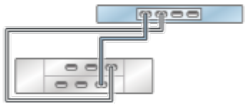


FIGURE 3-2 7320 standalone controller with one HBA connected to two DE2-24 disk shelves in two chains

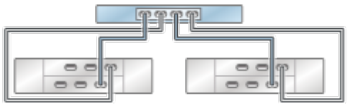
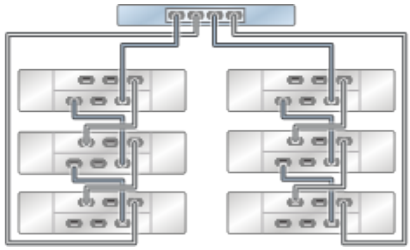


FIGURE 3-3 7320 standalone controller with one HBA connected to six DE2-24 disk shelves in two chains



7320 Clustered to DE2-24 Disk Shelves

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7320 clustered controllers with one HBA. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-4 7320 clustered controllers with one HBA connected to one DE2-24 disk shelf in a single chain

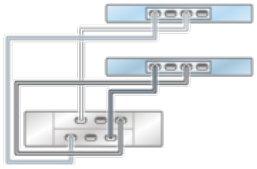


FIGURE 3-5 7320 clustered controllers with one HBA connected to two DE2-24 disk shelves in two chains

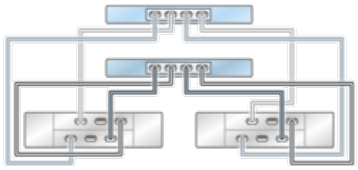
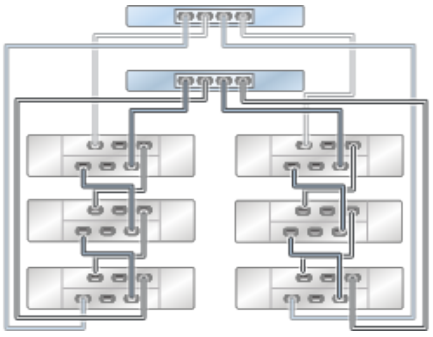


FIGURE 3-6 7320 clustered controllers with one HBA connected to six DE2-24 disk shelves in two chains



DE2-24 to 7420

7420 Standalone to DE2-24 Disk Shelves

7420 Standalone to DE2-24 Disk Shelves (2 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 standalone controllers with two HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-7 7420 standalone controller with two HBAs connected to one DE2-24 disk shelf in a single chain

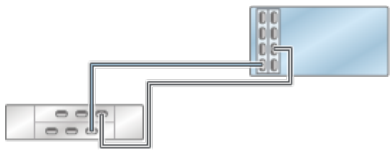


FIGURE 3-8 7420 standalone controller with two HBAs connected to two DE2-24 disk shelves in two chains

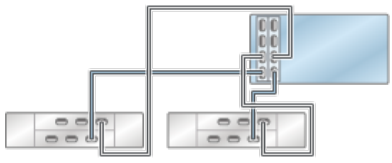


FIGURE 3-9 7420 standalone controller with two HBAs connected to three DE2-24 disk shelves in three chains

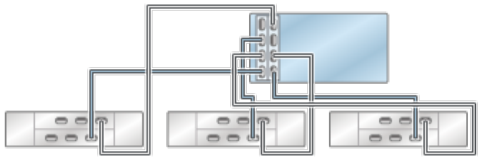


FIGURE 3-10 7420 standalone controller with two HBAs connected to four DE2-24 disk shelves in four chains

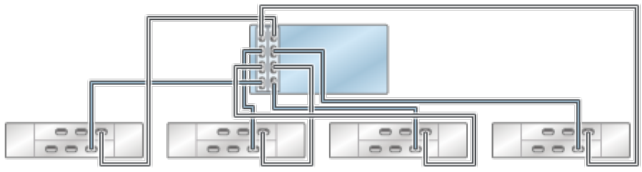
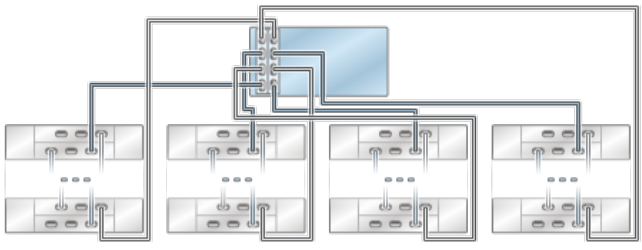


FIGURE 3-11 7420 standalone controller with two HBAs connected to multiple DE2-24 disk shelves in four chains



7420 Standalone to DE2-24 Disk Shelves (3 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 standalone controllers with three HBAs. To cable the controller to the disk shelves, use

the “Cabling Guidelines” on page 7, which include the “Maximum Number of Disk Shelves per Controller Configuration” on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-12 7420 standalone controller with three HBAs connected to one DE2-24 disk shelf in a single chain

FIGURE 3-13 7420 standalone controller with three HBAs connected to two DE2-24 disk shelves in two chains

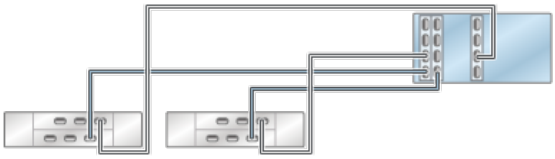


FIGURE 3-14 7420 standalone controller with three HBAs connected to three DE2-24 disk shelves in three chains

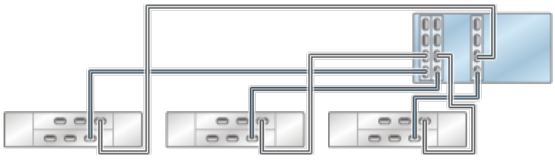


FIGURE 3-15 7420 standalone controller with three HBAs connected to four DE2-24 disk shelves in four chains

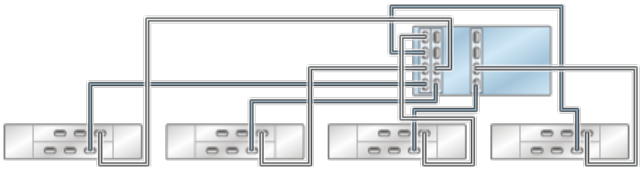


FIGURE 3-16 7420 standalone controller with three HBAs connected to five DE2-24 disk shelves in five chains

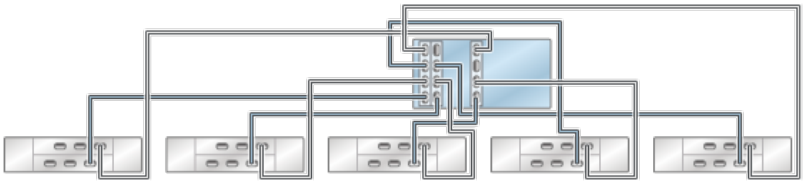


FIGURE 3-17 7420 standalone controller with three HBAs connected to six DE2-24 disk shelves in six chains

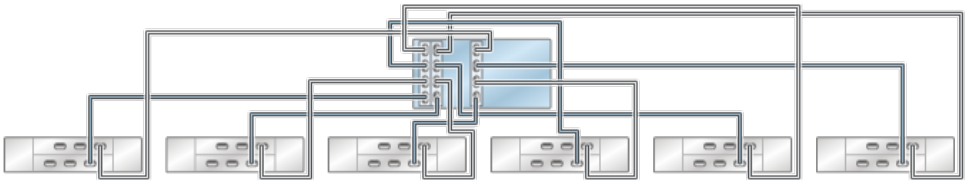
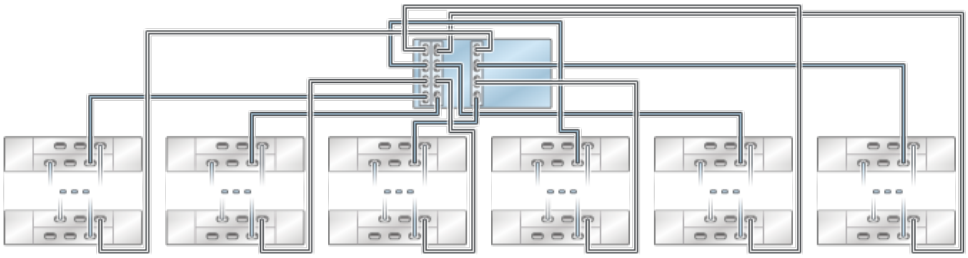


FIGURE 3-18 7420 standalone controller with three HBAs connected to multiple DE2-24 disk shelves in six chains



7420 Standalone to DE2-24 Disk Shelves (4 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 standalone controllers with four HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-19 7420 standalone controller with four HBAs connected to one DE2-24 disk shelf in a single chain

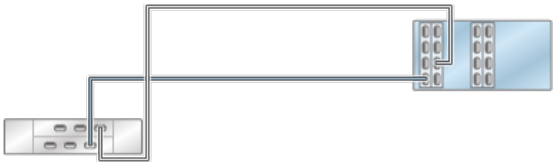


FIGURE 3-20 7420 standalone controller with four HBAs connected to two DE2-24 disk shelves in two chains

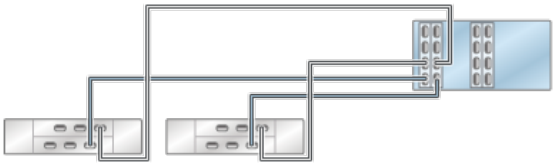


FIGURE 3-21 7420 standalone controller with four HBAs connected to three DE2-24 disk shelves in three chains

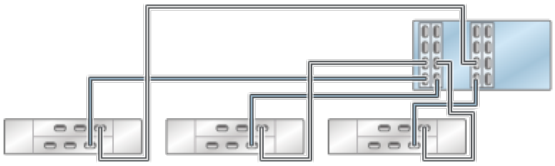


FIGURE 3-22 7420 standalone controller with four HBAs connected to four DE2-24 disk shelves in four chains

FIGURE 3-23 7420 standalone controller with four HBAs connected to five DE2-24 disk shelves in five chains

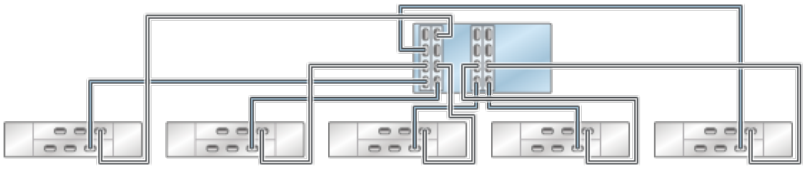


FIGURE 3-24 7420 standalone controller with four HBAs connected to six DE2-24 disk shelves in six chains

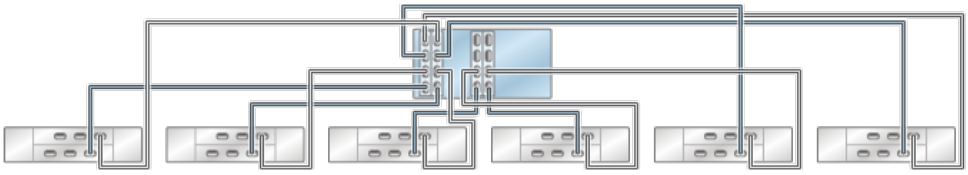


FIGURE 3-25 7420 standalone controller with four HBAs connected to seven DE2-24 disk shelves in seven chains

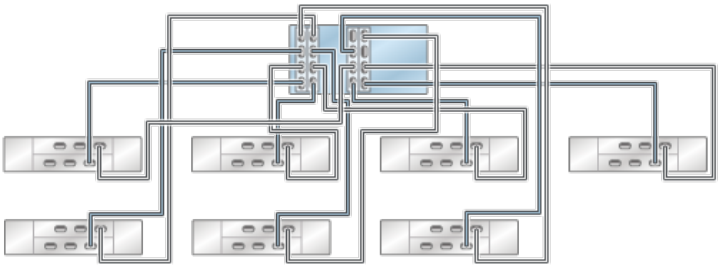


FIGURE 3-26 7420 standalone controller with four HBAs connected to eight DE2-24 disk shelves in eight chains

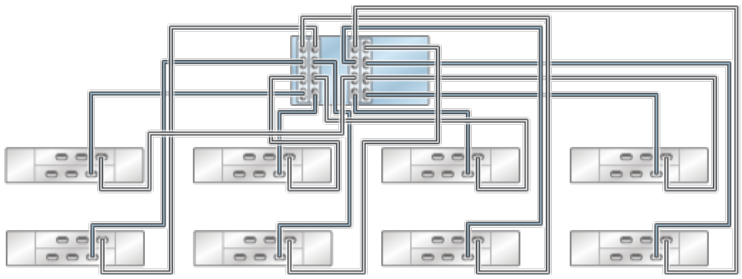
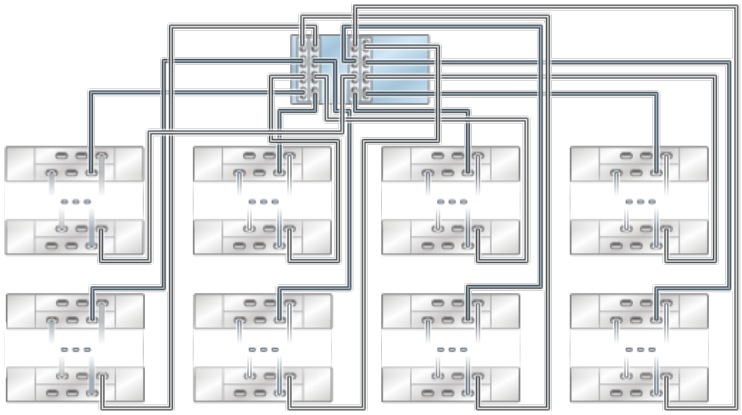


FIGURE 3-27 7420 standalone controller with four HBAs connected to multiple DE2-24 disk shelves in eight chains



7420 Clustered to DE2-24 Disk Shelves

7420 Clustered to DE2-24 Disk Shelves (2 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 clustered controllers with two HBAs. To cable the controller to the disk shelves, use the

"Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-28 7420 clustered controllers with two HBAs connected to one DE2-24 disk shelf in a single chain

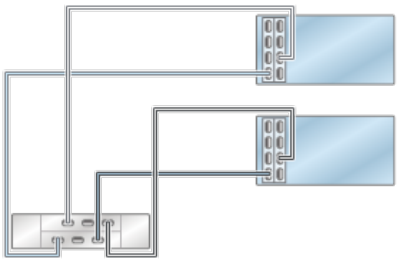


FIGURE 3-29 7420 clustered controllers with two HBAs connected to two DE2-24 disk shelves in two chains

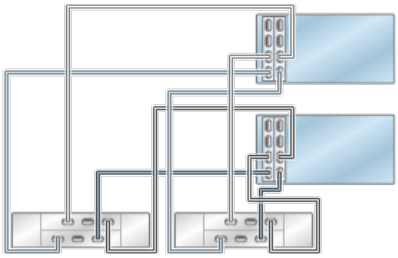


FIGURE 3-30 7420 clustered controllers with two HBAs connected to three DE2-24 disk shelves in three chains

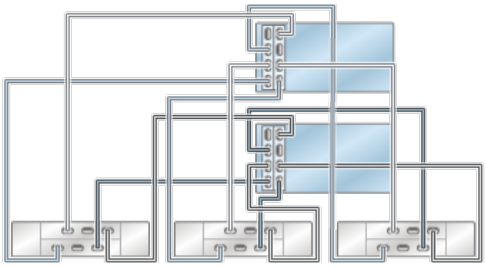


FIGURE 3-31 7420 clustered controllers with two HBAs connected to four DE2-24 disk shelves in four chains

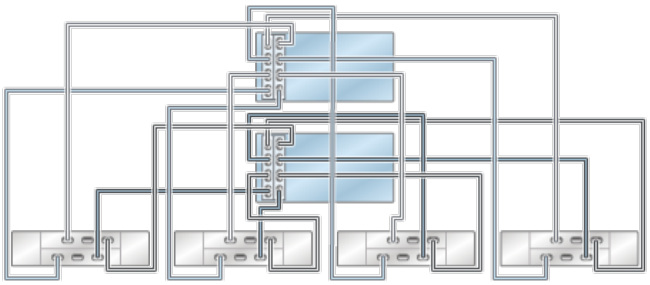
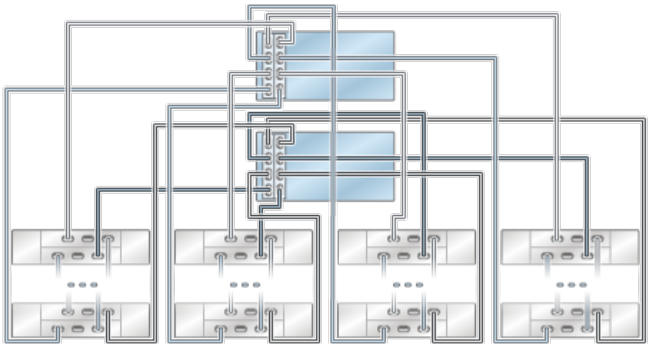


FIGURE 3-32 7420 clustered controllers with two HBAs connected to multiple DE2-24 disk shelves in four chains



7420 Clustered to DE2-24 Disk Shelves (3 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 clustered controllers with three HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-33 7420 clustered controllers with three HBAs connected to one DE2-24 disk shelf in a single chain

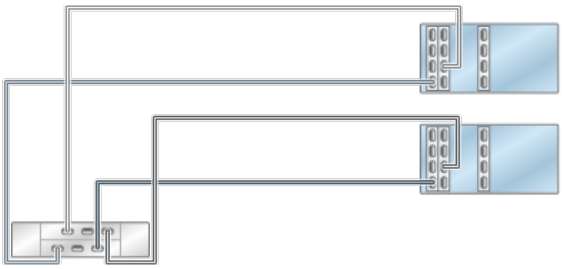


FIGURE 3-34 7420 clustered controllers with three HBAs connected to two DE2-24 disk shelves in two chains

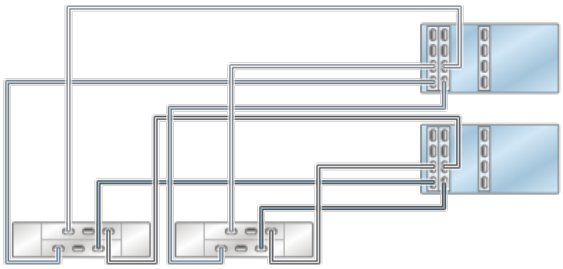


FIGURE 3-35 7420 clustered controllers with three HBAs connected to three DE2-24 disk shelves in three chains

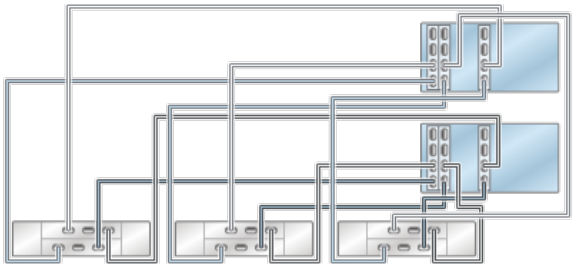


FIGURE 3-36 7420 clustered controllers with three HBAs connected to four DE2-24 disk shelves in four chains

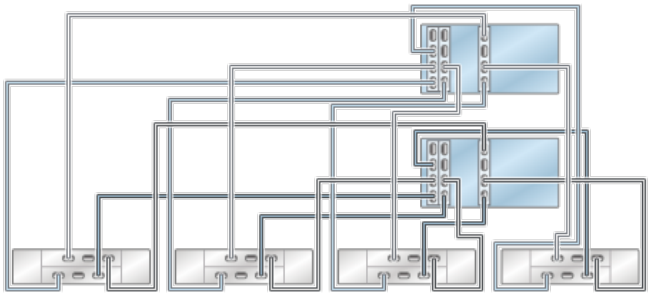


FIGURE 3-37 7420 clustered controllers with three HBAs connected to five DE2-24 disk shelves in five chains

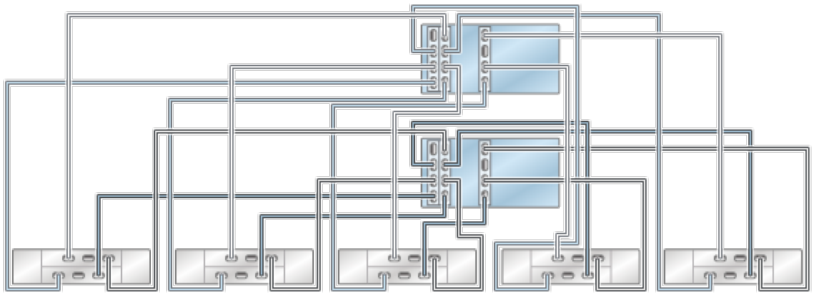


FIGURE 3-38 7420 clustered controllers with three HBAs connected to six DE2-24 disk shelves in six chains

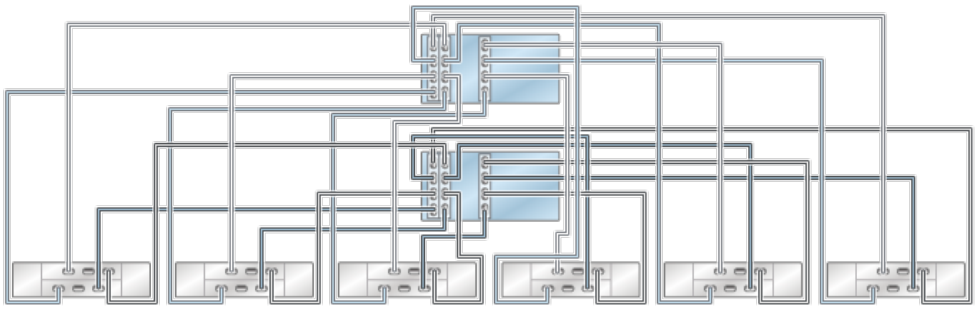
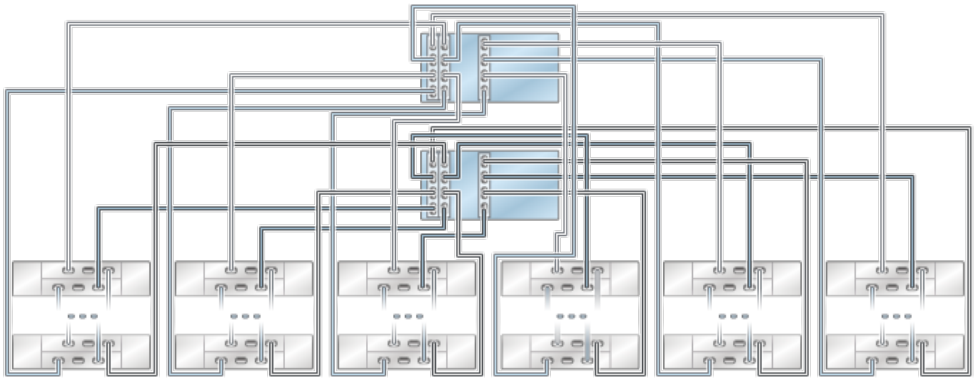


FIGURE 3-39 7420 clustered controllers with three HBAs connected to multiple DE2-24 disk shelves in six chains



7420 Clustered to DE2-24 Disk Shelves (4 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 clustered controllers with four HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-40 7420 clustered controllers with four HBAs connected to one DE2-24 disk shelf in a single chain

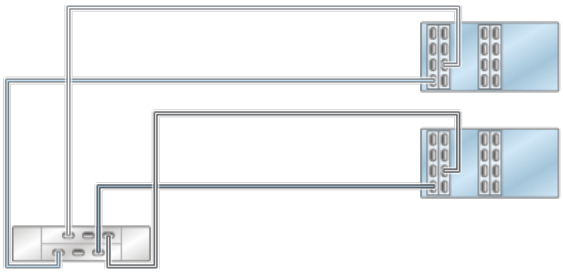


FIGURE 3-41 7420 clustered controllers with four HBAs connected to two DE2-24 disk shelves in two chains

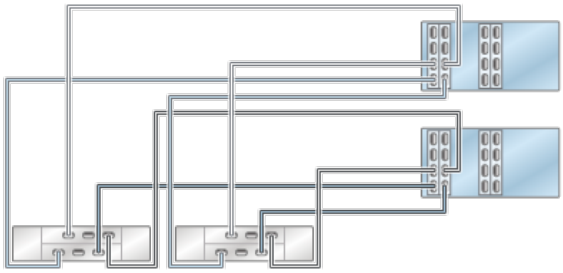


FIGURE 3-42 7420 clustered controllers with four HBAs connected to three DE2-24 disk shelves in three chains

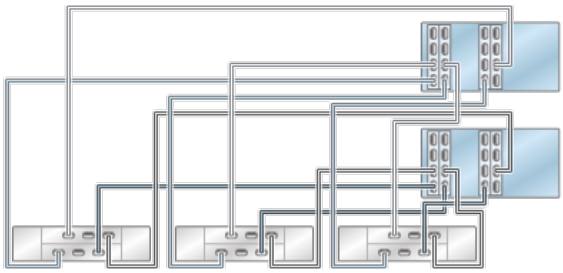


FIGURE 3-43 7420 clustered controllers with four HBAs connected to four DE2-24 disk shelves in four chains

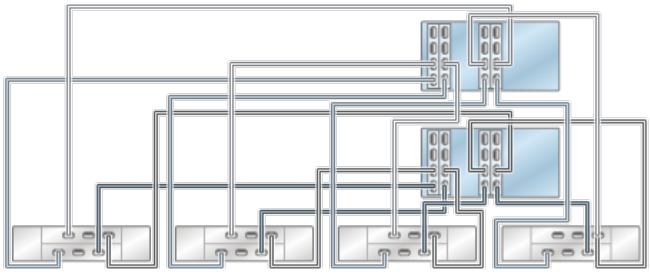


FIGURE 3-44 7420 clustered controllers with four HBAs connected to five DE2-24 disk shelves in five chains

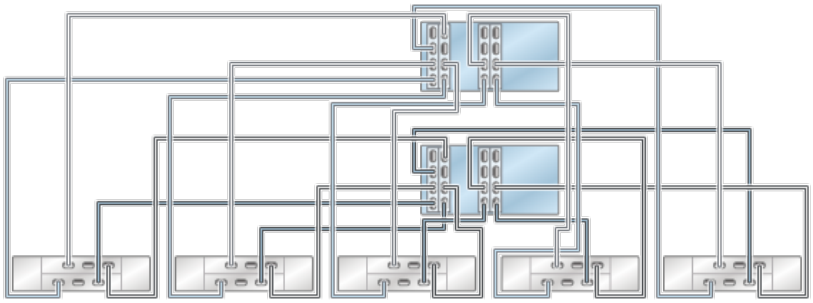


FIGURE 3-45 7420 clustered controllers with four HBAs connected to six DE2-24 disk shelves in six chains

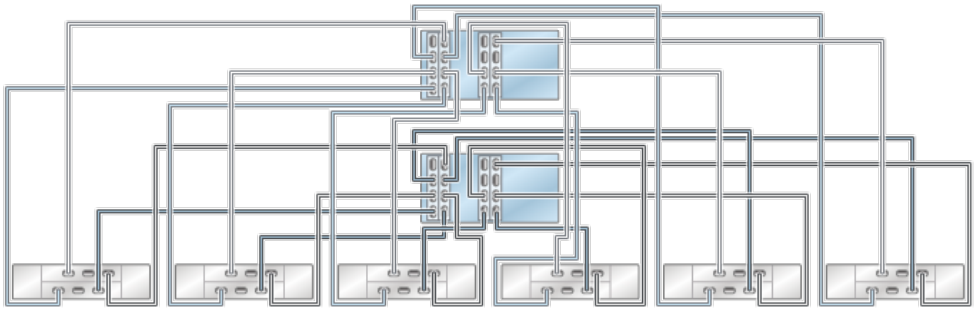


FIGURE 3-46 7420 clustered controllers with four HBAs connected to seven DE2-24 disk shelves in seven chains

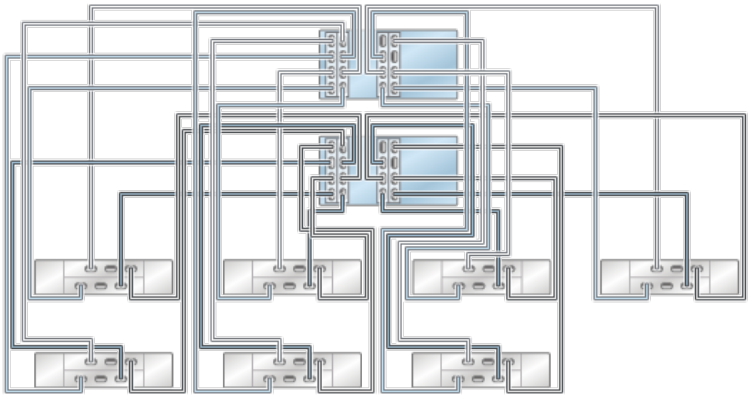


FIGURE 3-47 7420 clustered controllers with four HBAs connected to eight DE2-24 disk shelves in eight chains

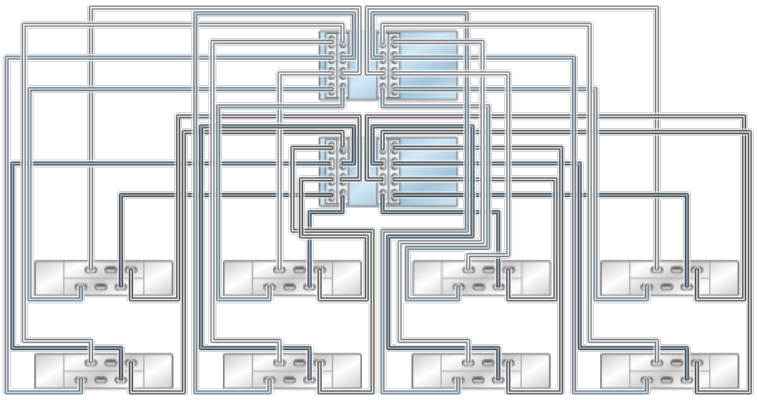
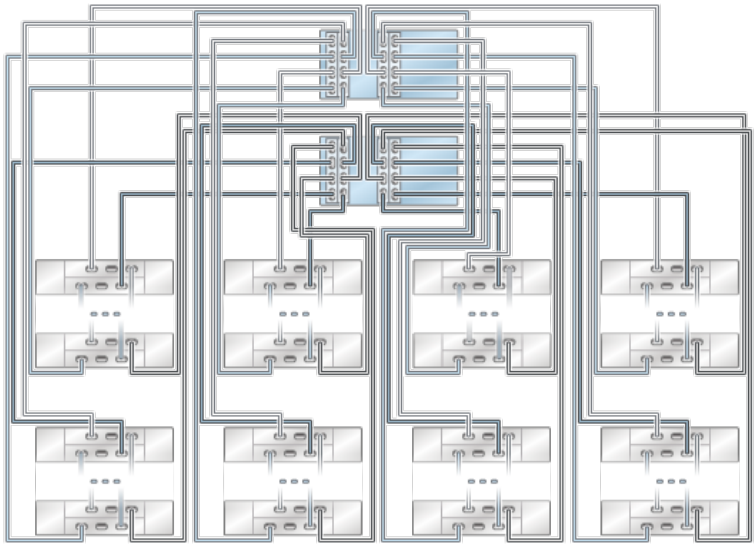


FIGURE 3-48 7420 clustered controllers with four HBAs connected to multiple DE2-24 disk shelves in eight chains



DE2-24 to ZS3-2

ZS3-2 Standalone to DE2-24 Disk Shelves

ZS3-2 Standalone to DE2-24 Disk Shelves (1 HBA)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-2 standalone controllers with one HBA. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-49 ZS3-2 standalone controller with one HBA connected to one DE2-24 disk shelf in a single chain

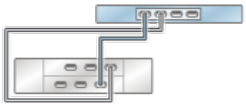


FIGURE 3-50 ZS3-2 standalone controller with one HBA connected to two DE2-24 disk shelves in two chains

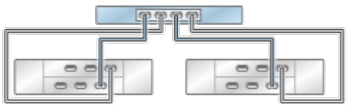
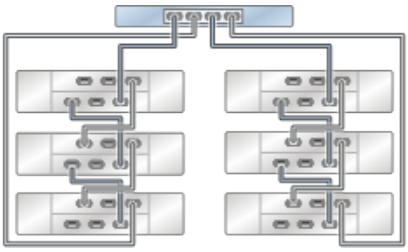


FIGURE 3-51 ZS3-2 standalone controller with one HBA connected to six DE2-24 disk shelves in two chains



ZS3-2 Standalone to DE2-24 Disk Shelves (2 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-2 standalone controllers with two HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-52 ZS3-2 standalone controller with two HBAs connected to one DE2-24 disk shelf in one chain

FIGURE 3-53 ZS3-2 standalone controller with two HBAs connected to two DE2-24 disk shelves in two chains

FIGURE 3-54 ZS3-2 standalone controller with two HBAs connected to three DE2-24 disk shelves in three chains

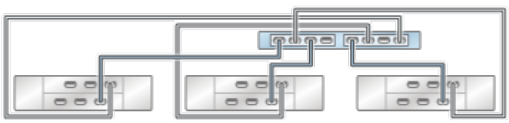


FIGURE 3-55 ZS3-2 standalone controller with two HBAs connected to four DE2-24 disk shelves in four chains

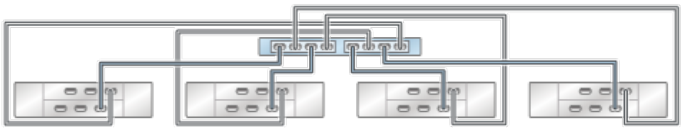


FIGURE 3-56 ZS3-2 standalone controller with two HBAs connected to eight DE2-24 disk shelves in four chains

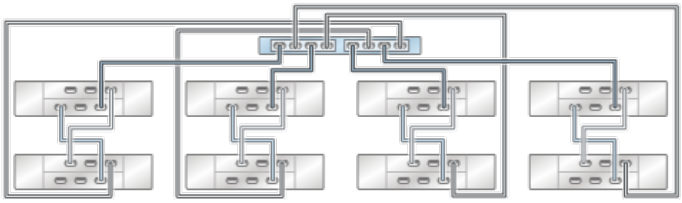
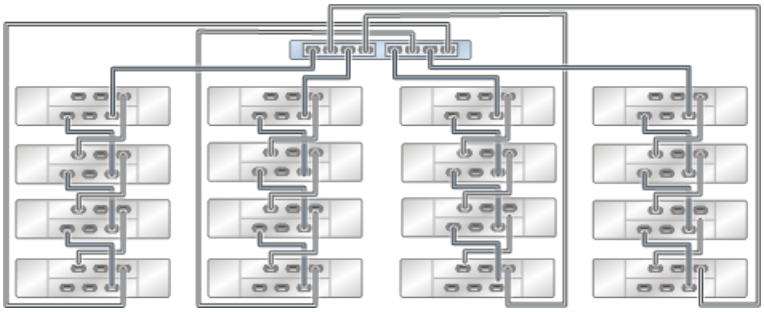


FIGURE 3-57 ZS3-2 standalone controller with two HBAs connected to sixteen DE2-24 disk shelves in four chains



ZS3-2 Clustered to DE2-24 Disk Shelves

ZS3-2 Clustered to DE2-24 Disk Shelves (1 HBA)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-2 clustered controllers with one HBA. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-58 ZS3-2 clustered controllers with one HBA connected to one DE2-24 disk shelf in a single chain

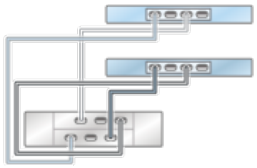


FIGURE 3-59 ZS3-2 clustered controllers with one HBA connected to two DE2-24 disk shelves in two chains

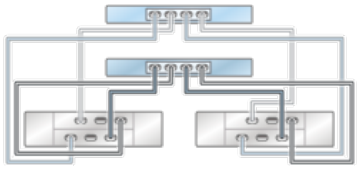
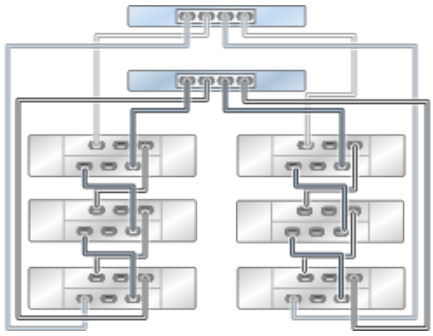


FIGURE 3-60 ZS3-2 clustered controllers with one HBA connected to six DE2-24 disk shelves in two chains



ZS3-2 Clustered to DE2-24 Disk Shelves (2 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-2 clustered controllers with two HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-61 ZS3-2 clustered controllers with two HBAs connected to one DE2-24 disk shelf in a single chain

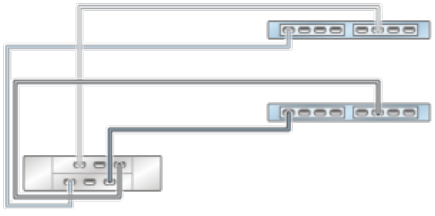


FIGURE 3-62 ZS3-2 clustered controllers with two HBAs connected to two DE2-24 disk shelves in two chains

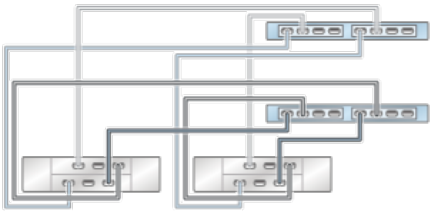


FIGURE 3-63 ZS3-2 clustered controllers with two HBAs connected to three DE2-24 disk shelves in three chains

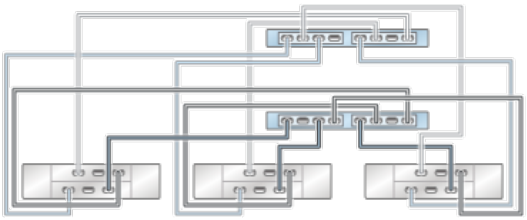


FIGURE 3-64 ZS3-2 clustered controllers with two HBAs connected to four DE2-24 disk shelves in four chains

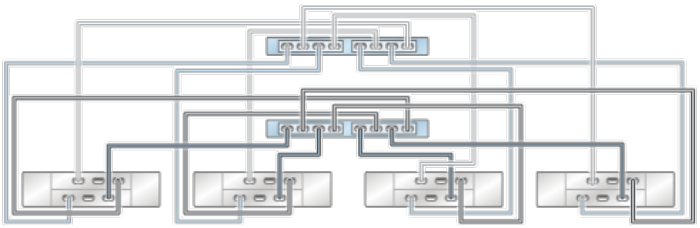


FIGURE 3-65 ZS3-2 clustered controllers with two HBAs connected to eight DE2-24 disk shelves in four chains

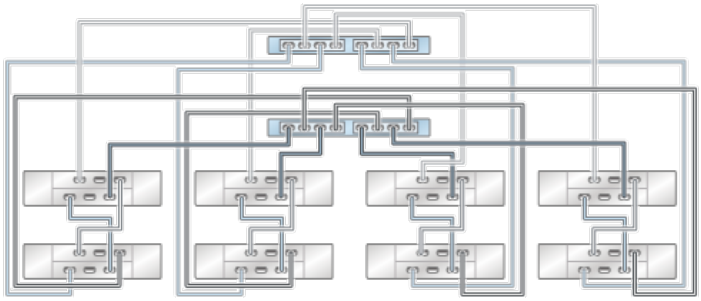
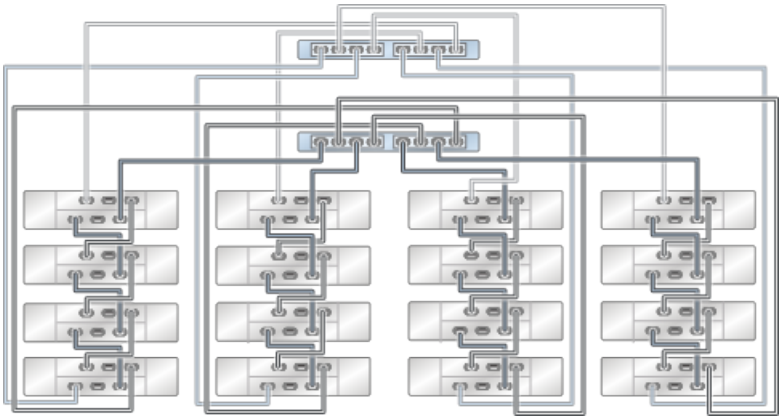


FIGURE 3-66 ZS3-2 clustered controllers with two HBAs connected to sixteen DE2-24 disk shelves in four chains



DE2-24 to ZS3-4

ZS3-4 Standalone to DE2-24 Disk Shelves

ZS3-4 Standalone to DE2-24 Disk Shelves (2 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-4 standalone controllers with two HBAs. To cable the controller to the disk shelves, use the “Cabling Guidelines” on page 7, which include the “Maximum Number of Disk Shelves per Controller Configuration” on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-67 ZS3-4 standalone controller with two HBAs connected to one DE2-24 disk shelf in a single chain

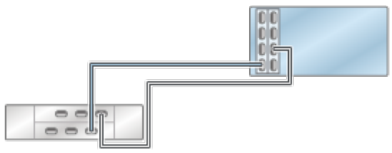


FIGURE 3-68 ZS3-4 standalone controller with two HBAs connected to two DE2-24 disk shelves in two chains

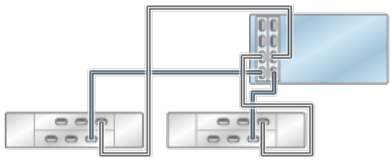


FIGURE 3-69 ZS3-4 standalone controller with two HBAs connected to three DE2-24 disk shelves in three chains

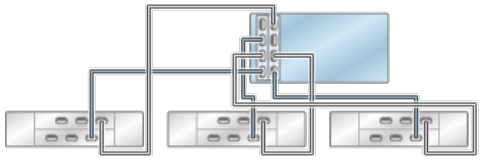


FIGURE 3-70 ZS3-4 standalone controller with two HBAs connected to four DE2-24 disk shelves in four chains

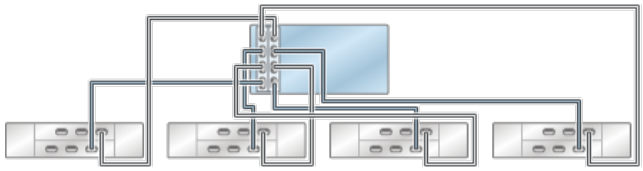
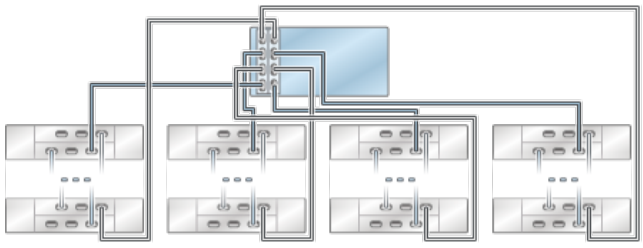


FIGURE 3-71 ZS3-4 standalone controller with two HBAs connected to multiple DE2-24 disk shelves in four chains



ZS3-4 Standalone to DE2-24 Disk Shelves (3 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-4 standalone controllers with three HBAs. To cable the controller to the disk shelves, use

the “Cabling Guidelines” on page 7, which include the “Maximum Number of Disk Shelves per Controller Configuration” on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-72 ZS3-4 standalone controller with three HBAs connected to one DE2-24 disk shelf in a single chain

FIGURE 3-73 ZS3-4 standalone controller with three HBAs connected to two DE2-24 disk shelves in two chains

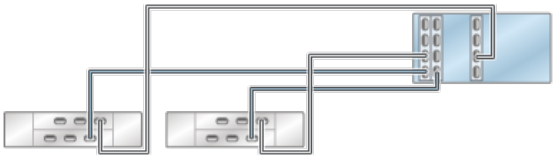


FIGURE 3-74 ZS3-4 standalone controller with three HBAs connected to three DE2-24 disk shelves in three chains

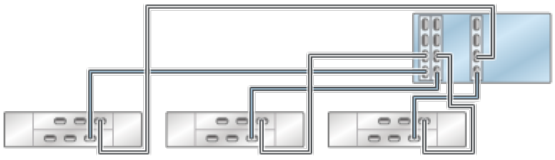


FIGURE 3-75 ZS3-4 standalone controller with three HBAs connected to four DE2-24 disk shelves in four chains

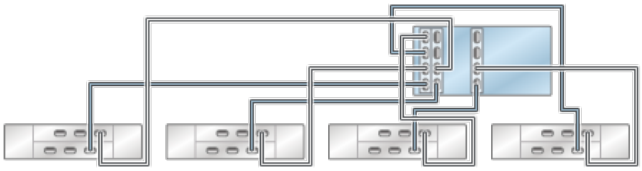


FIGURE 3-76 ZS3-4 standalone controller with three HBAs connected to five DE2-24 disk shelves in five chains

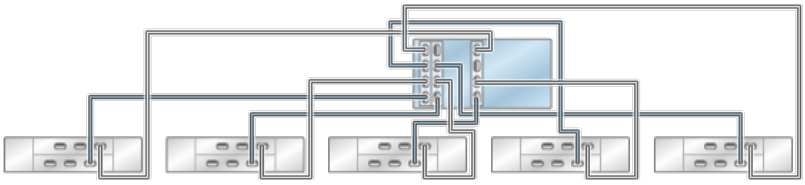


FIGURE 3-77 ZS3-4 standalone controller with three HBAs connected to six DE2-24 disk shelves in six chains

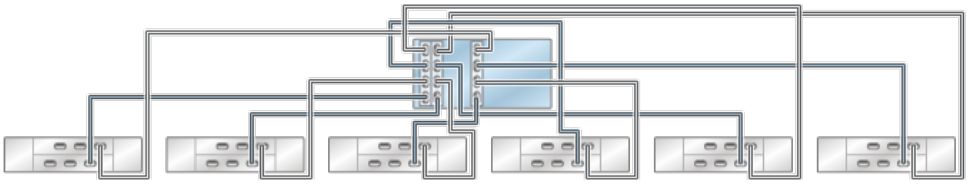
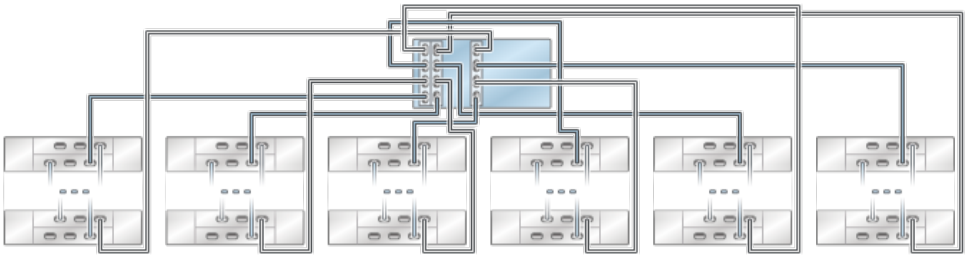


FIGURE 3-78 ZS3-4 standalone controller with three HBAs connected to multiple DE2-24 disk shelves in six chains



ZS3-4 Standalone to DE2-24 Disk Shelves (4 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-4 standalone controllers with four HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-79 ZS3-4 standalone controller with four HBAs connected to one DE2-24 disk shelf in a single chain

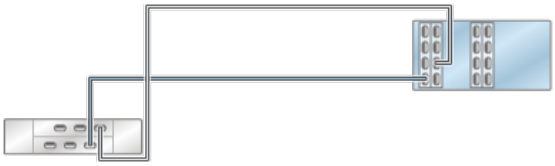


FIGURE 3-80 ZS3-4 standalone controller with four HBAs connected to two DE2-24 disk shelves in two chains

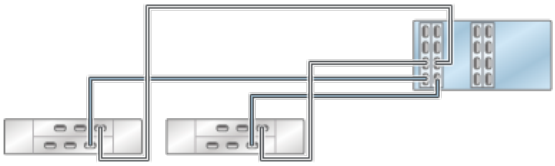


FIGURE 3-81 ZS3-4 standalone controller with four HBAs connected to three DE2-24 disk shelves in three chains

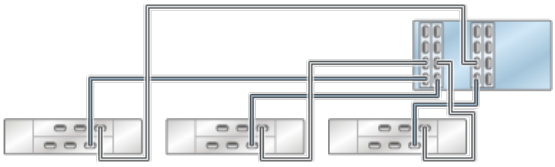


FIGURE 3-82 ZS3-4 standalone controller with four HBAs connected to four DE2-24 disk shelves in four chains

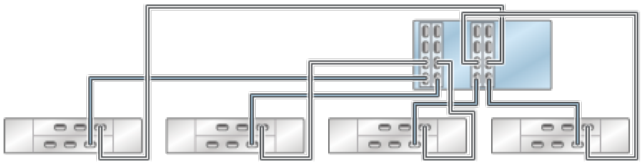


FIGURE 3-83 ZS3-4 standalone controller with four HBAs connected to five DE2-24 disk shelves in five chains

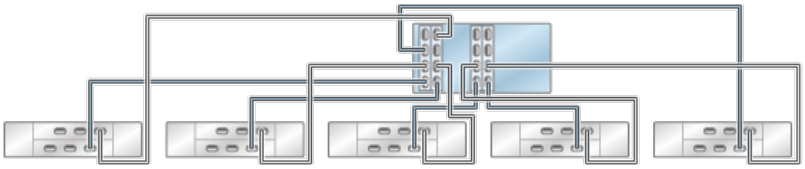


FIGURE 3-84 ZS3-4 standalone controller with four HBAs connected to six DE2-24 disk shelves in six chains

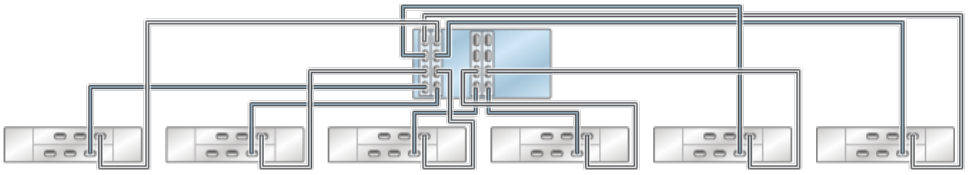


FIGURE 3-85 ZS3-4 standalone controller with four HBAs connected to seven DE2-24 disk shelves in seven chains

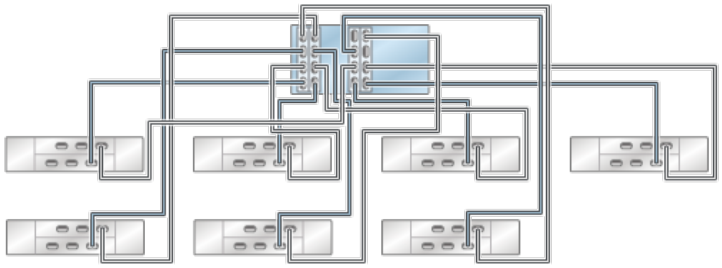


FIGURE 3-86 ZS3-4 standalone controller with four HBAs connected to eight DE2-24 disk shelves in eight chains

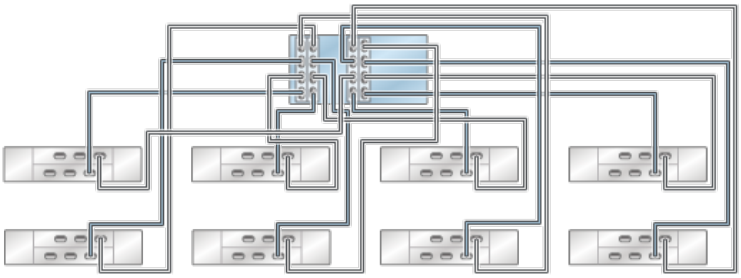
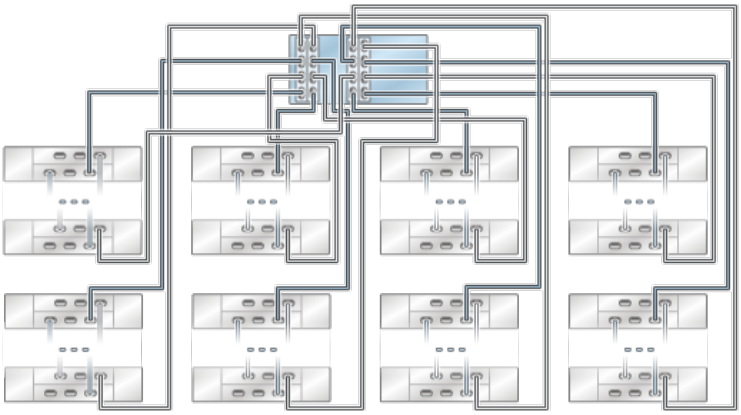


FIGURE 3-87 ZS3-4 standalone controller with four HBAs connected to multiple DE2-24 disk shelves in eight chains



ZS3-4 Clustered to DE2-24 Disk Shelves

ZS3-4 Clustered to DE2-24 Disk Shelves (2 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-4 clustered controllers with two HBAs. To cable the controller to the disk shelves, use the

"Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-88 ZS3-4 clustered controllers with two HBAs connected to one DE2-24 disk shelf in a single chain

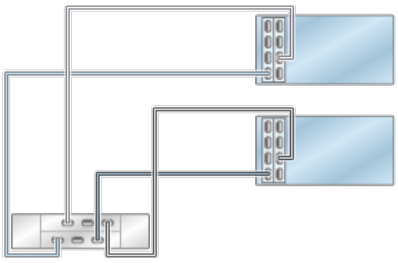


FIGURE 3-89 ZS3-4 clustered controllers with two HBAs connected to two DE2-24 disk shelves in two chains

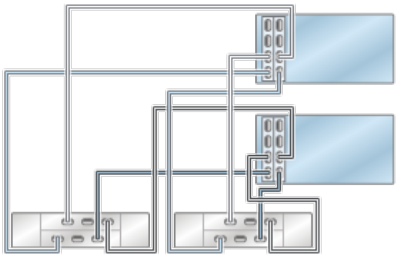


FIGURE 3-90 ZS3-4 clustered controllers with two HBAs connected to three DE2-24 disk shelves in three chains

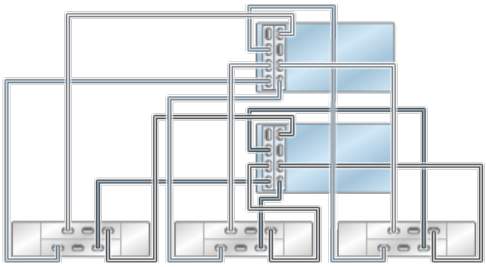


FIGURE 3-91 ZS3-4 clustered controllers with two HBAs connected to four DE2-24 disk shelves in four chains

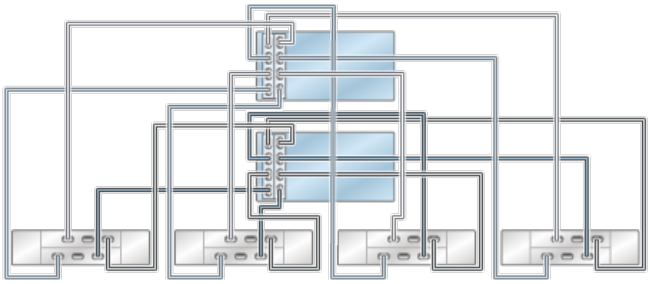
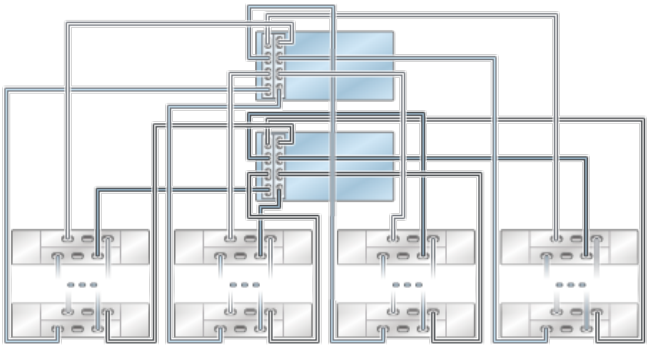


FIGURE 3-92 ZS3-4 clustered controllers with two HBAs connected to multiple DE2-24 disk shelves in four chains



ZS3-4 Clustered to DE2-24 Disk Shelves (3 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-4 clustered controllers with three HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-93 ZS3-4 clustered controllers with three HBAs connected to one DE2-24 disk shelf in a single chain

FIGURE 3-94 ZS3-4 clustered controllers with three HBAs connected to two DE2-24 disk shelves in two chains

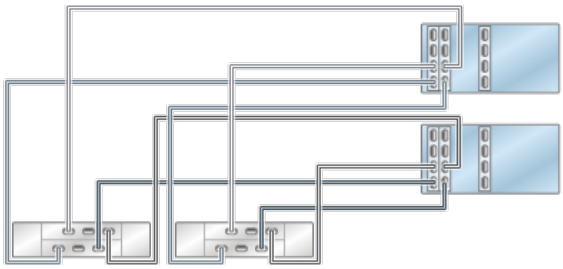


FIGURE 3-95 ZS3-4 clustered controllers with three HBAs connected to three DE2-24 disk shelves in three chains

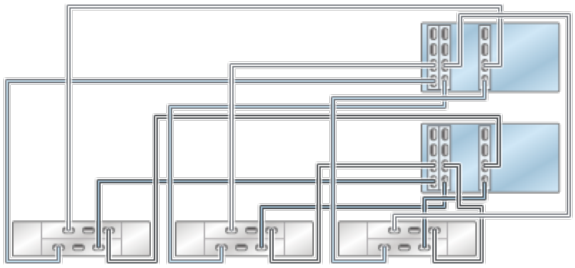


FIGURE 3-96 ZS3-4 clustered controllers with three HBAs connected to four DE2-24 disk shelves in four chains

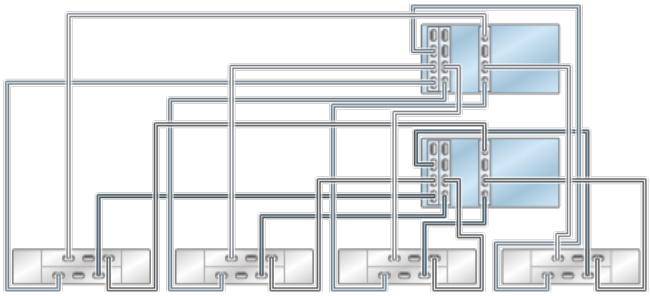


FIGURE 3-97 ZS3-4 clustered controllers with three HBAs connected to five DE2-24 disk shelves in five chains

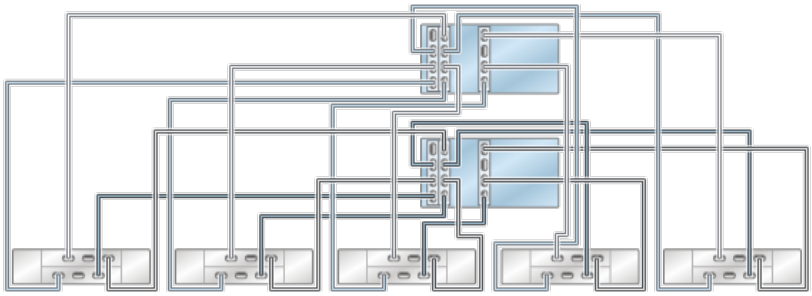


FIGURE 3-98 ZS3-4 clustered controllers with three HBAs connected to six DE2-24 disk shelves in six chains

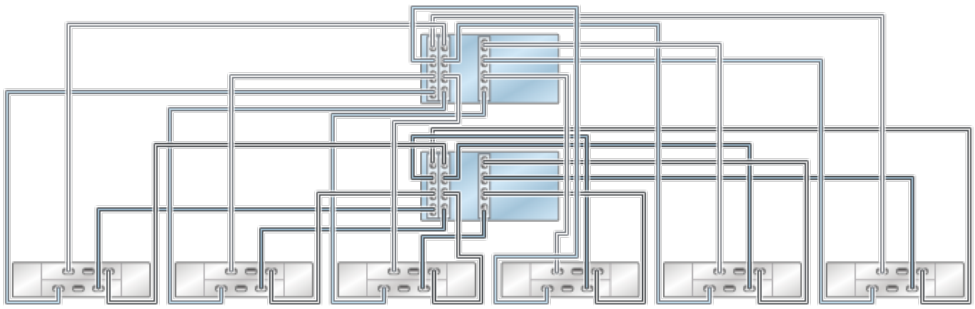
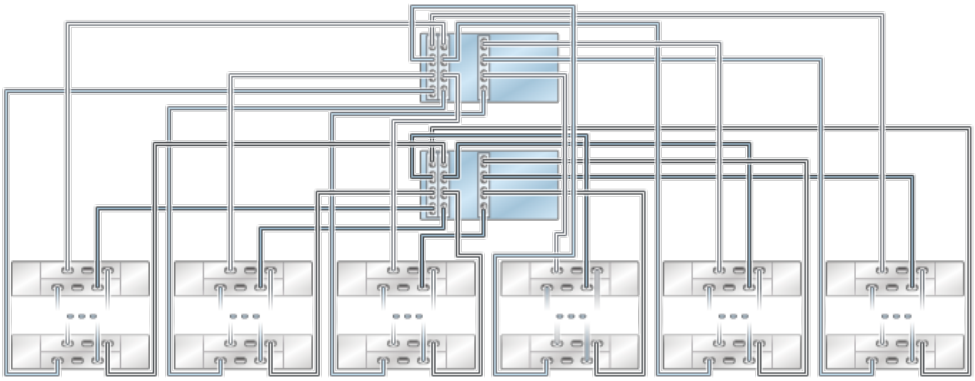


FIGURE 3-99 ZS3-4 clustered controllers with three HBAs connected to multiple DE2-24 disk shelves in six chains



ZS3-4 Clustered to DE2-24 Disk Shelves (4 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-4 clustered controllers with four HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 3-100 ZS3-4 clustered controllers with four HBAs connected to one DE2-24 disk shelf in a single chain

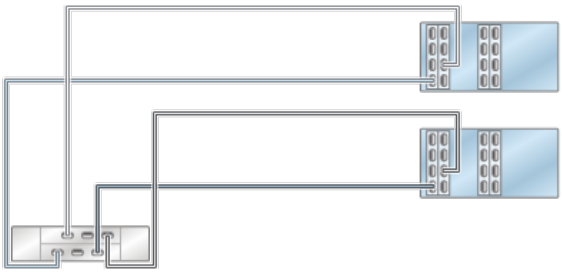


FIGURE 3-101 ZS3-4 clustered controllers with four HBAs connected to two DE2-24 disk shelves in two chains

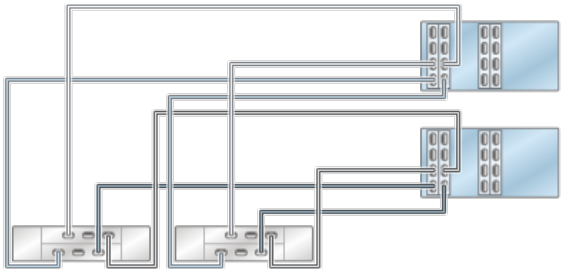


FIGURE 3-102 ZS3-4 clustered controllers with four HBAs connected to three DE2-24 disk shelves in three chains

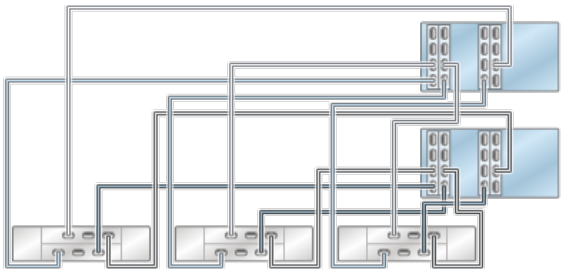


FIGURE 3-103 ZS3-4 clustered controllers with four HBAs connected to four DE2-24 disk shelves in four chains

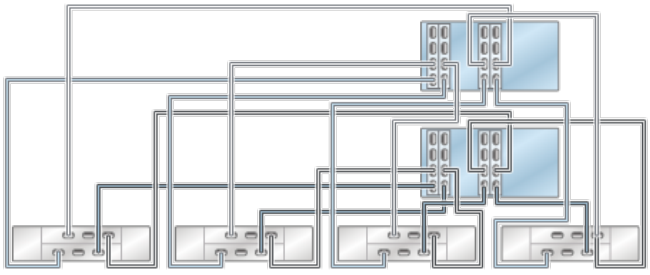


FIGURE 3-104 ZS3-4 clustered controllers with four HBAs connected to five DE2-24 disk shelves in five chains

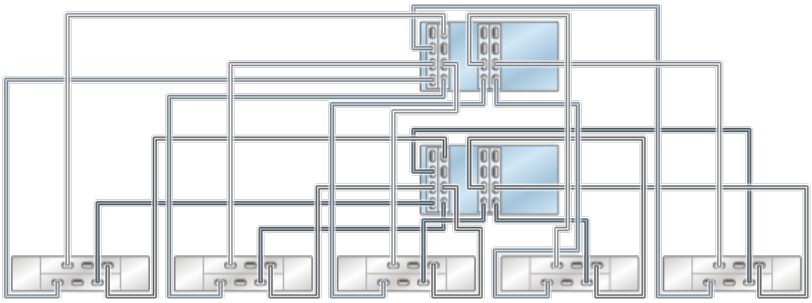


FIGURE 3-105 ZS3-4 clustered controllers with four HBAs connected six DE2-24 disk shelves in six chains

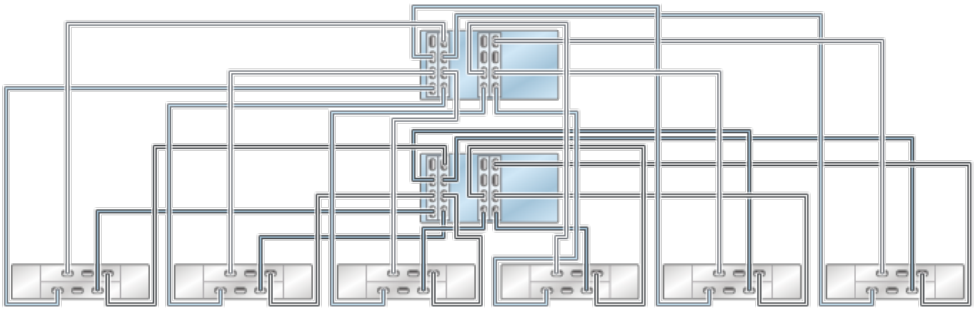


FIGURE 3-106 ZS3-4 clustered controllers with four HBAs connected to seven DE2-24 disk shelves in seven chains

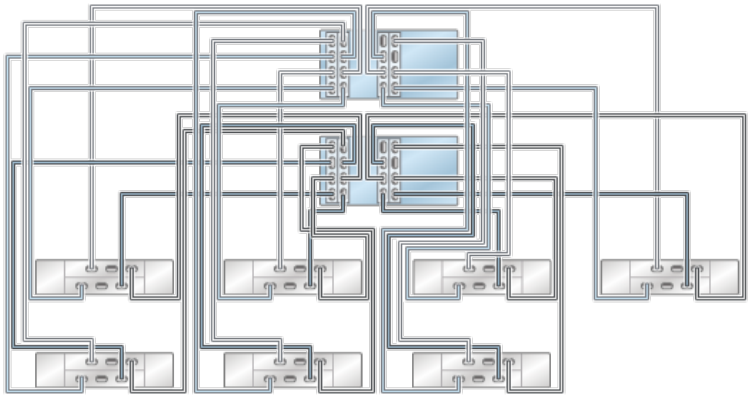


FIGURE 3-107 ZS3-4 clustered controllers with four HBAs connected to eight DE2-24 disk shelves in eight chains

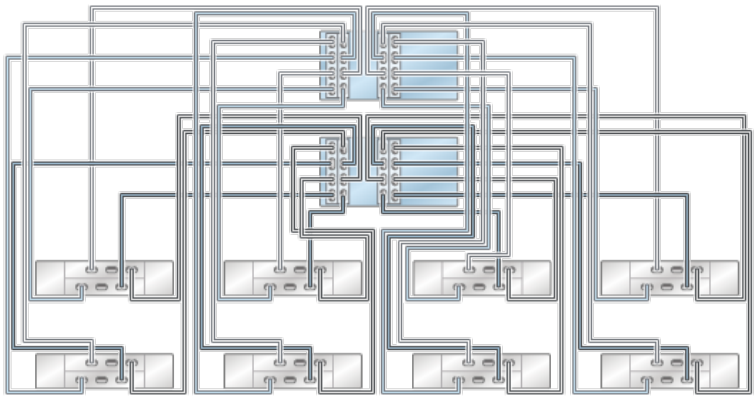
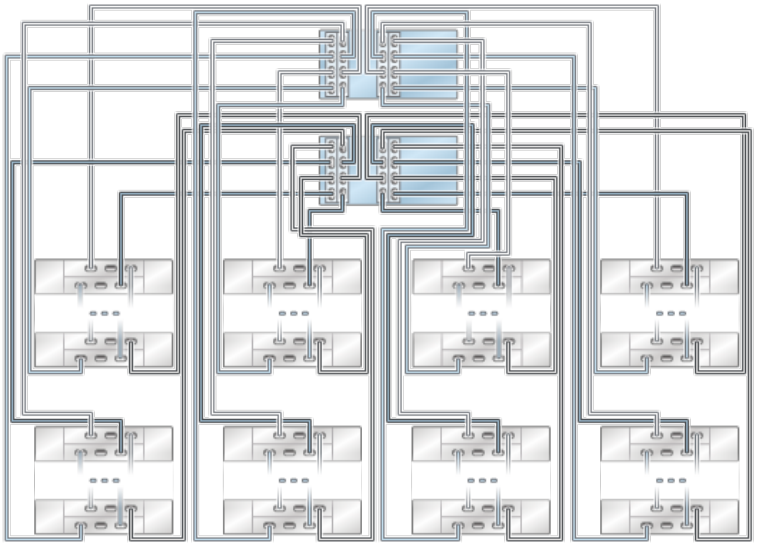


FIGURE 3-108 ZS3-4 clustered controllers with four HBAs connected to multiple DE2-24 disk shelves in eight chains



♦ ♦ ♦ CHAPTER 4

Sun Disk Shelf

Sun Disk Shelf to 7120

7120 Standalone to Sun Disk Shelves

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7120 standalone controllers with one HBA. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 4-1 7120 standalone controller with one HBA connected to one Sun Disk Shelf in a single chain

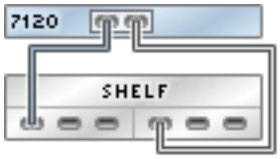
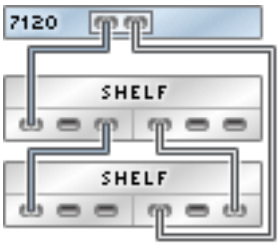


FIGURE 4-2 7120 standalone controller with one HBA connected to two Sun Disk Shelves in a single chain



Sun Disk Shelf to 7320

7320 Standalone to Sun Disk Shelves

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7320 standalone controllers with one HBA. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 4-3 7320 standalone controller with one HBA connected to one Sun Disk Shelf in a single chain

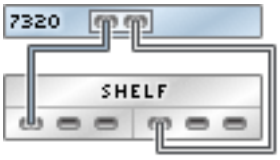


FIGURE 4-4 7320 standalone controller with one HBA connected to two Sun Disk Shelves in a single chain

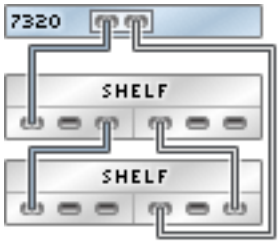
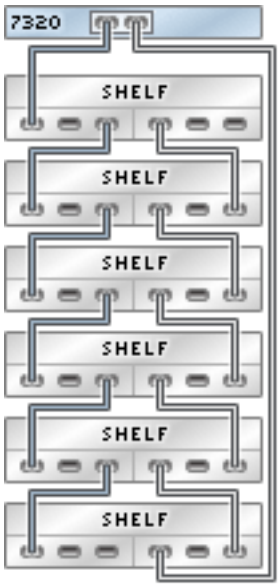


FIGURE 4-5 7320 standalone controller with one HBA connected to six Sun Disk Shelves in a single chain



7320 Clustered to Sun Disk Shelves

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7320 clustered controllers with one HBA. To cable the controller to the disk shelves, use the

"Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 4-6 7320 clustered controllers with one HBA connected to one Sun Disk Shelf in a single chain

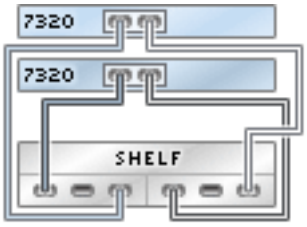


FIGURE 4-7 7320 clustered controllers with one HBA connected to two Sun Disk Shelves in a single chain

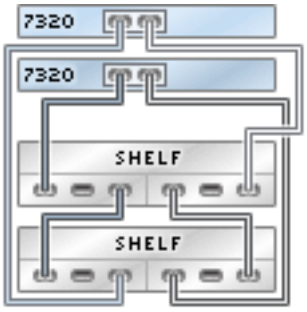
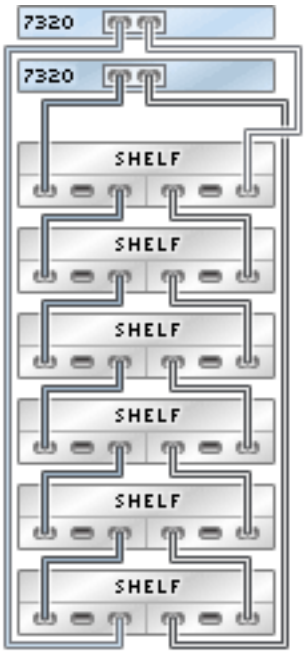


FIGURE 4-8 7320 clustered controllers with one HBA connected to six Sun Disk Shelves in a single chain



Sun Disk Shelf to 7420

7420 Standalone to Sun Disk Shelves

7420 Standalone to Sun Disk Shelves (2 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 standalone controllers with two HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 4-9 7420 standalone controller with two HBAs connected to one Sun Disk Shelf in a single chain

FIGURE 4-10 7420 standalone controller with two HBAs connected to two Sun Disk Shelves in two chains

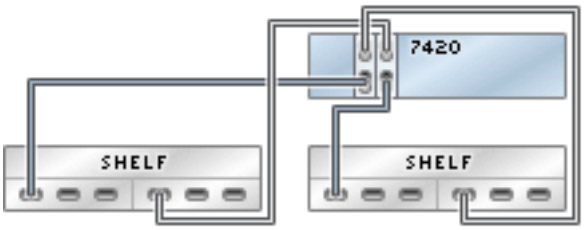


FIGURE 4-11 7420 standalone controller with two HBAs connected to four Sun Disk Shelves in two chains

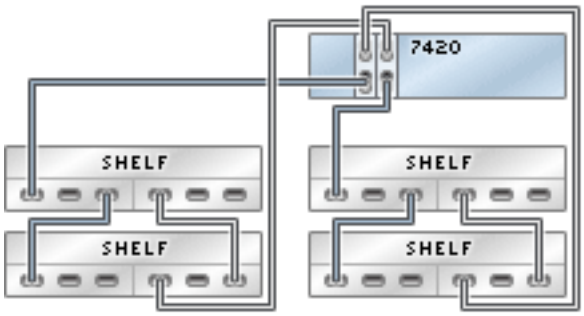
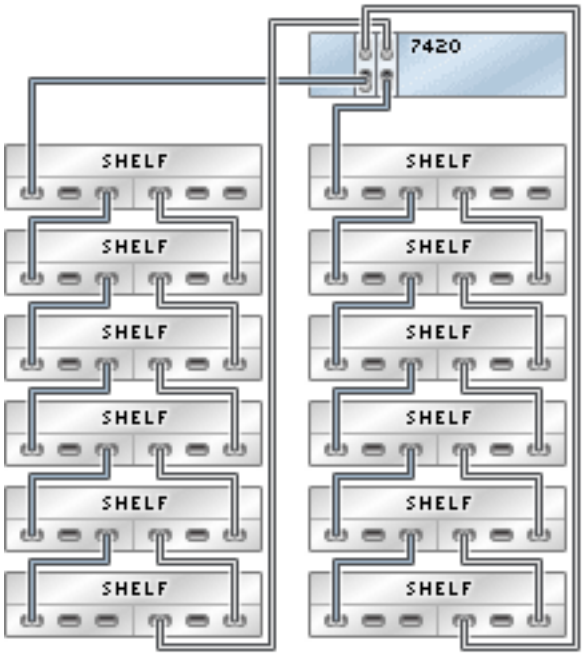


FIGURE 4-12 7420 standalone controller with two HBAs connected to 12 Sun Disk Shelves in two chains



7420 Standalone to Sun Disk Shelves (3 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 standalone controllers with three HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 4-13 7420 standalone controller with three HBAs connected to one Sun Disk Shelf in a single chain

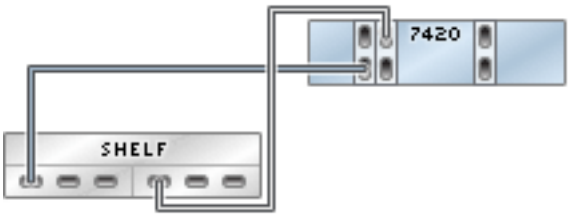


FIGURE 4-14 7420 standalone controller with three HBAs connected to two Sun Disk Shelves in two chains

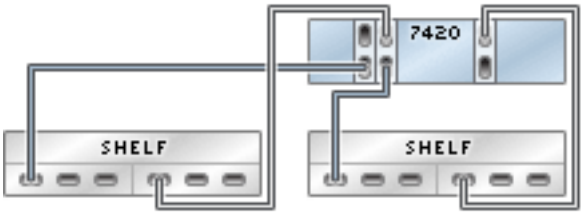


FIGURE 4-15 7420 standalone controller with three HBAs connected to three Sun Disk Shelves in three chains

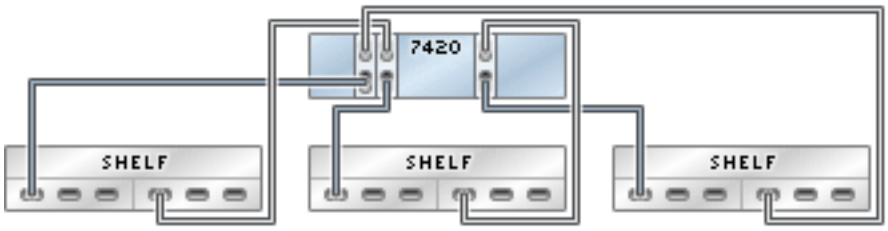


FIGURE 4-16 7420 standalone controller with three HBAs connected to six Sun Disk Shelves in three chains

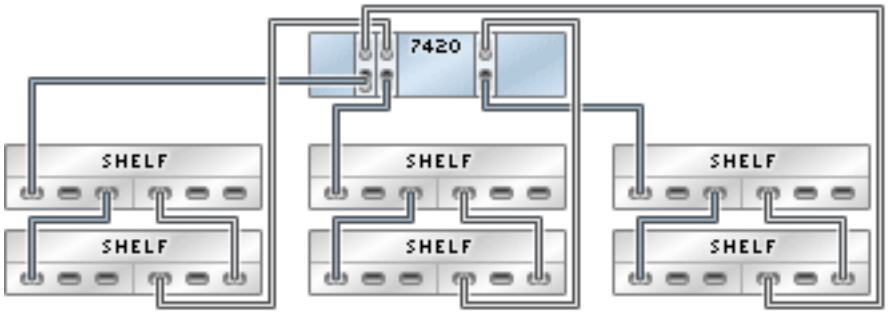
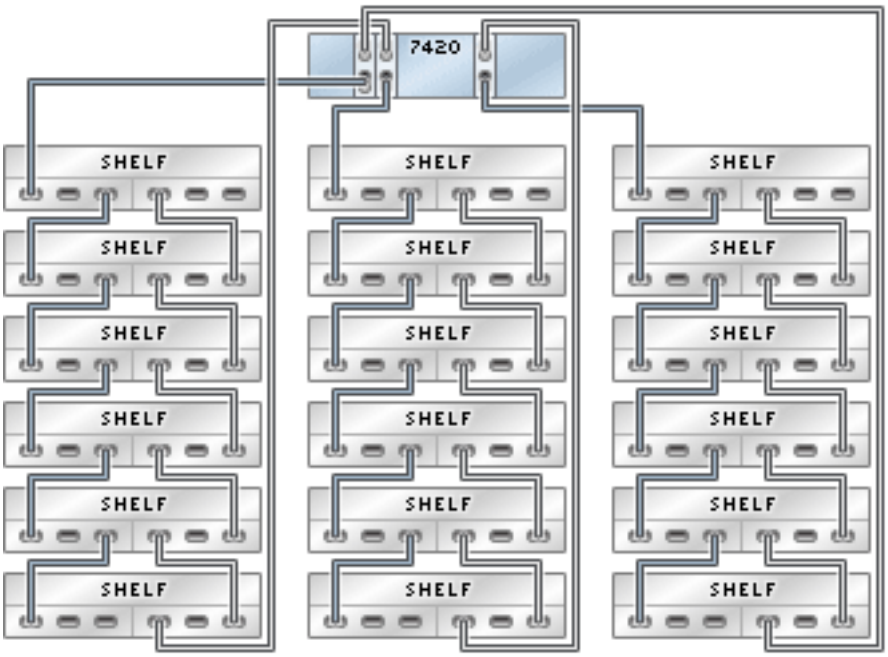


FIGURE 4-17 7420 standalone controller with three HBAs connected to 18 Sun Disk Shelves in three chains



7420 Standalone to Sun Disk Shelves (4 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 standalone controllers with four HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 4-18 7420 standalone controller with four HBAs connected to one Sun Disk Shelf in a single chain

FIGURE 4-19 7420 standalone controller with four HBAs connected to two Sun Disk Shelves in two chains

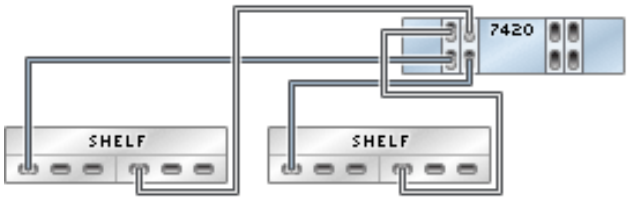


FIGURE 4-20 7420 standalone controller with four HBAs connected to three Sun Disk Shelves in three chains

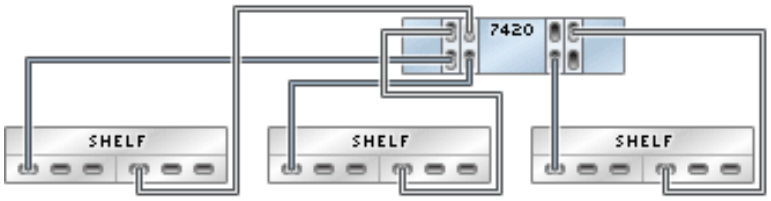


FIGURE 4-21 7420 standalone controller with four HBAs connected to four Sun Disk Shelves in four chains

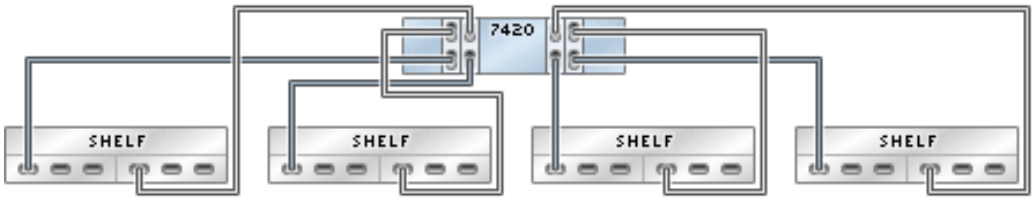


FIGURE 4-22 7420 standalone controller with four HBAs connected to eight Sun Disk Shelves in four chains

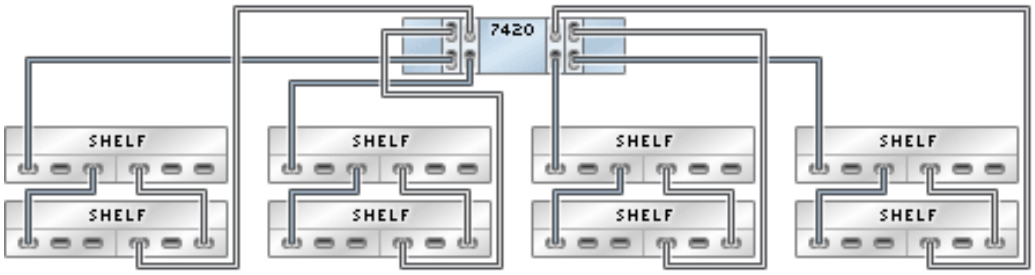
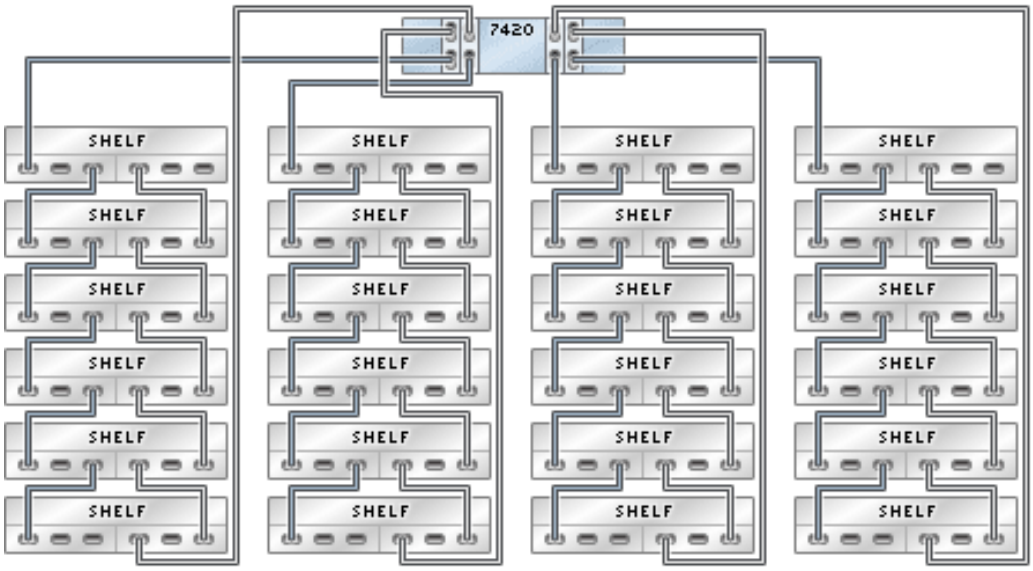


FIGURE 4-23 7420 standalone controller with four HBAs connected to 24 Sun Disk Shelves in four chains



7420 Standalone to Sun Disk Shelves (5 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 standalone controllers with five HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 4-24 7420 standalone controller with five HBAs connected to one Sun Disk Shelf in a single chain

FIGURE 4-25 7420 standalone controller with five HBAs connected to two Sun Disk Shelves in two chains

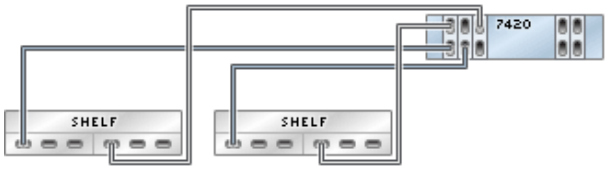


FIGURE 4-26 7420 standalone controller with five HBAs connected to three Sun Disk Shelves in three chains

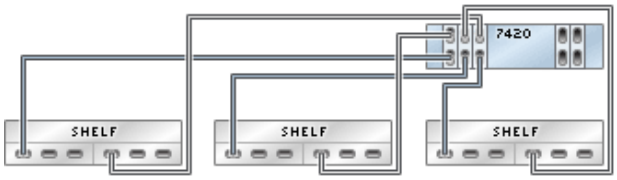


FIGURE 4-27 7420 standalone controller with five HBAs connected to four Sun Disk Shelves in four chains

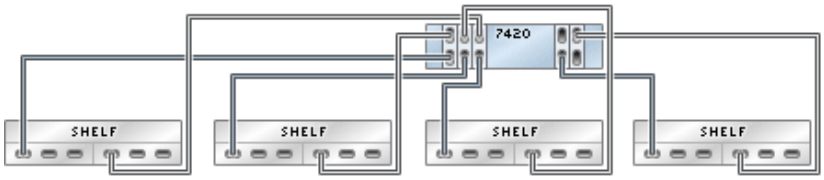


FIGURE 4-28 7420 standalone controller with five HBAs connected to five Sun Disk Shelves in five chains

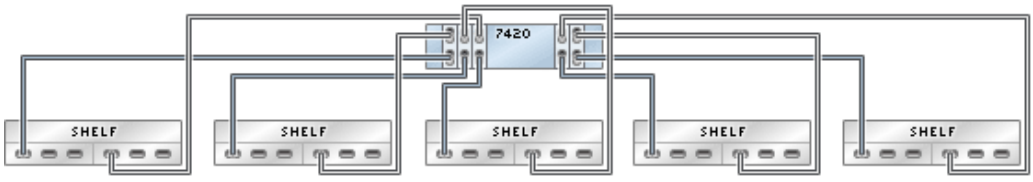


FIGURE 4-29 7420 standalone controller with five HBAs connected to ten Sun Disk Shelves in five chains

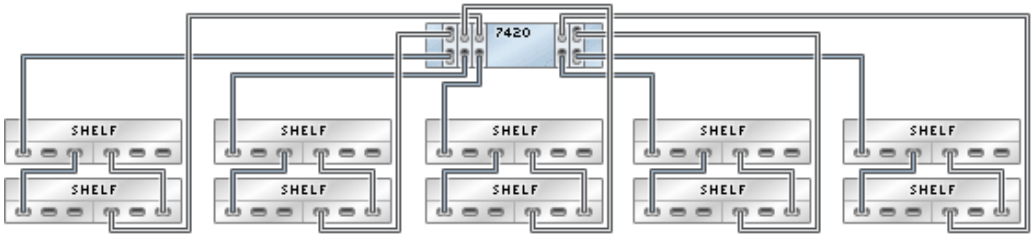
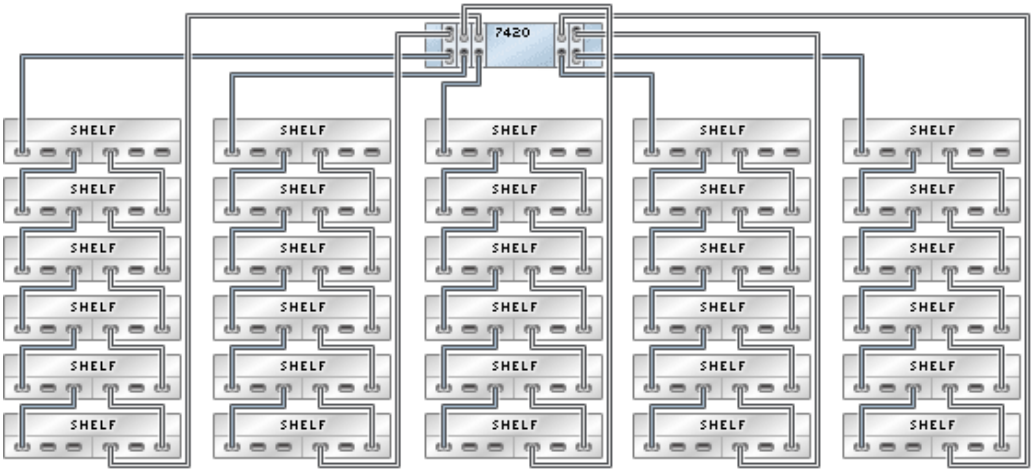


FIGURE 4-30 7420 standalone controller with five HBAs connected to 30 Sun Disk Shelves in five chains



7420 Standalone to Sun Disk Shelves (6 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 standalone controllers with six HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 4-31 7420 standalone controller with six HBAs connected to one Sun Disk Shelf in a single chain

FIGURE 4-32 7420 standalone controller with six HBAs connected to two Sun Disk Shelves in two chains

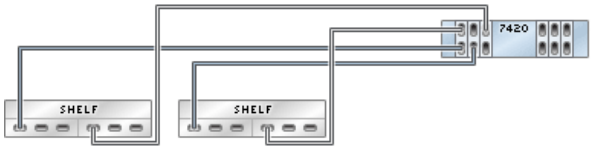


FIGURE 4-33 7420 standalone controller with six HBAs connected to three Sun Disk Shelves in three chains

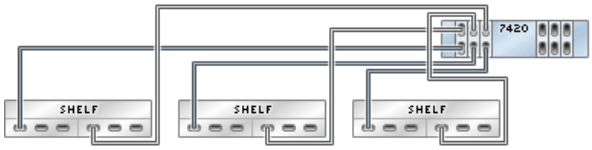


FIGURE 4-34 7420 standalone controller with six HBAs connected to four Sun Disk Shelves in four chains

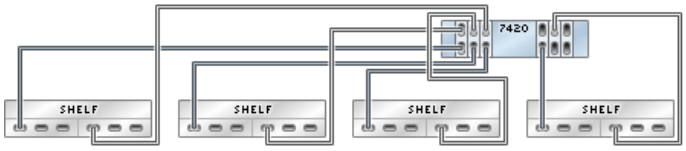


FIGURE 4-35 7420 standalone controller with six HBAs connected to five Sun Disk Shelves in five chains

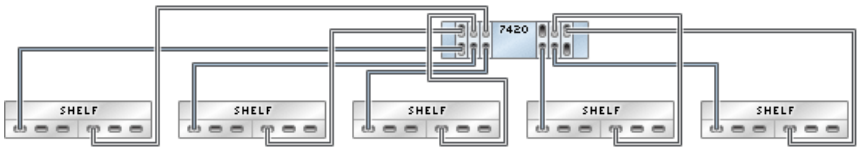


FIGURE 4-36 7420 standalone controller with six HBAs connected to six Sun Disk Shelves in six chains

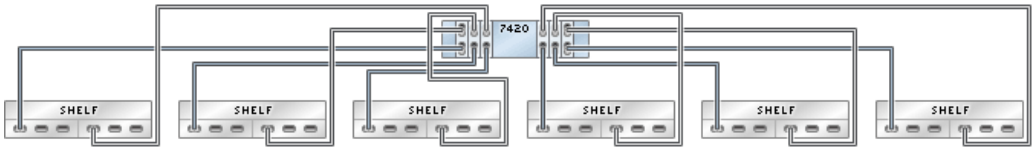


FIGURE 4-37 7420 standalone controller with six HBAs connected to 12 Sun Disk Shelves in six chains

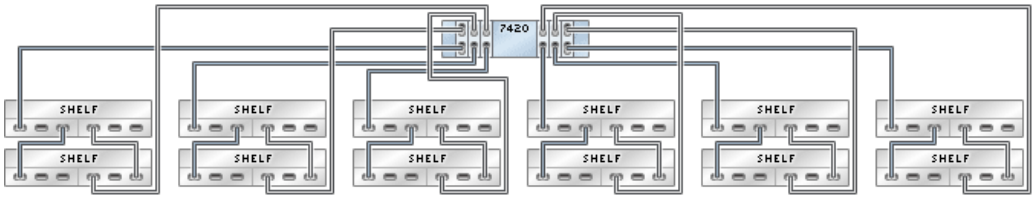
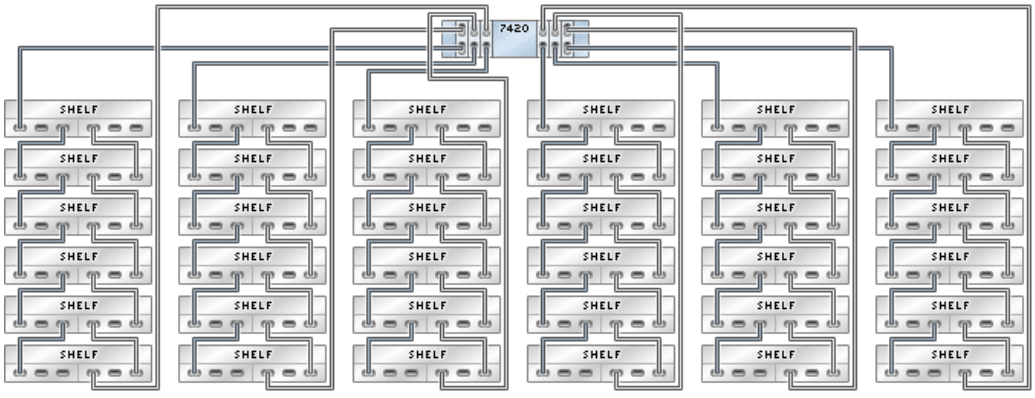


FIGURE 4-38 7420 standalone controller with six HBAs connected to 36 Sun Disk Shelves in six chains



7420 Clustered to Sun Disk Shelves

7420 Clustered to Sun Disk Shelves (2 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 clustered controllers with two HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 4-39 7420 clustered controllers with two HBAs connected to one Sun Disk Shelf in a single chain

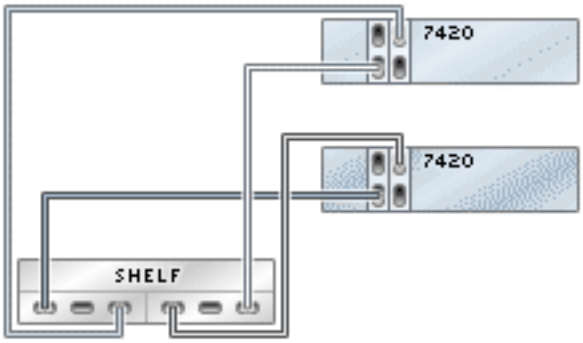


FIGURE 4-40 7420 clustered controllers with two HBAs connected to two Sun Disk Shelves in two chains

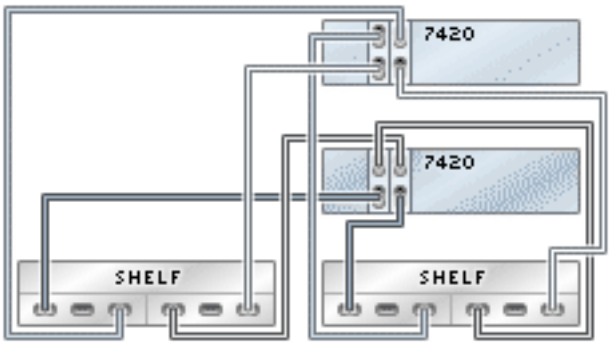


FIGURE 4-41 7420 clustered controllers with two HBAs connected to four Sun Disk Shelves in two chains

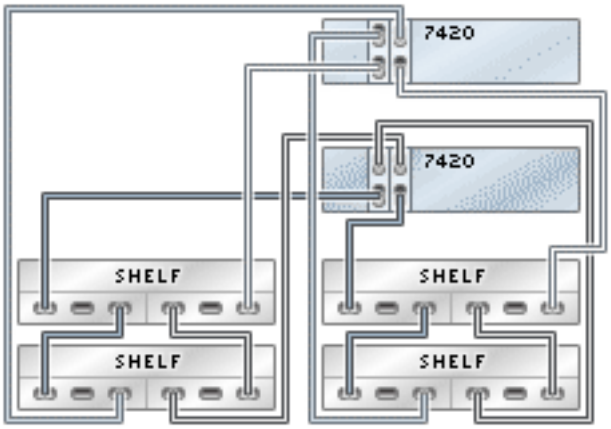
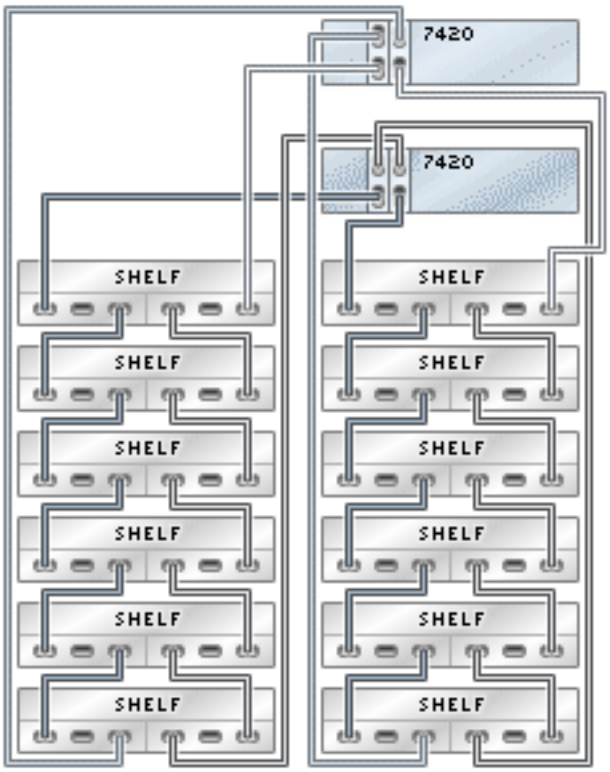


FIGURE 4-42 7420 clustered controllers with two HBAs connected to 12 Sun Disk Shelves in two chains



7420 Clustered to Sun Disk Shelves (3 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 clustered controllers with three HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 4-43 7420 clustered controllers with three HBAs connected to one Sun Disk Shelf in a single chain

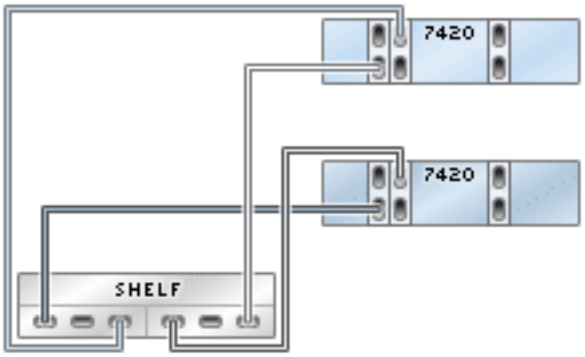


FIGURE 4-44 7420 clustered controllers with three HBAs connected to two Sun Disk Shelves in two chains

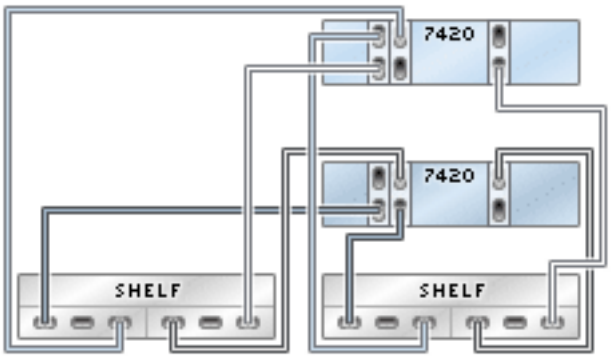


FIGURE 4-45 7420 clustered controllers with three HBAs connected to three Sun Disk Shelves in three chains

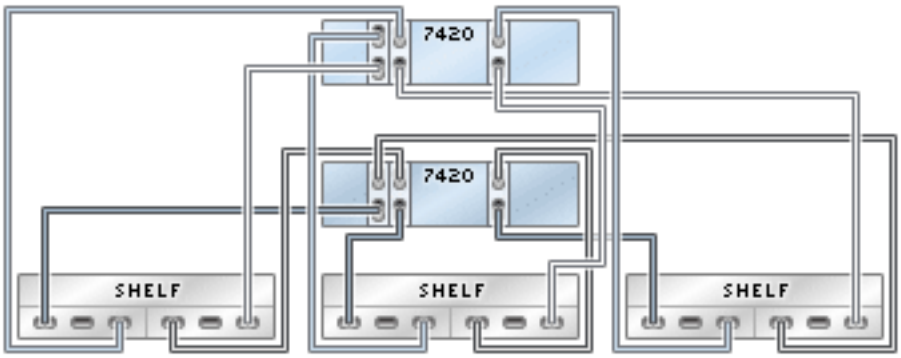


FIGURE 4-46 7420 clustered controllers with three HBAs connected to six Sun Disk Shelves in three chains

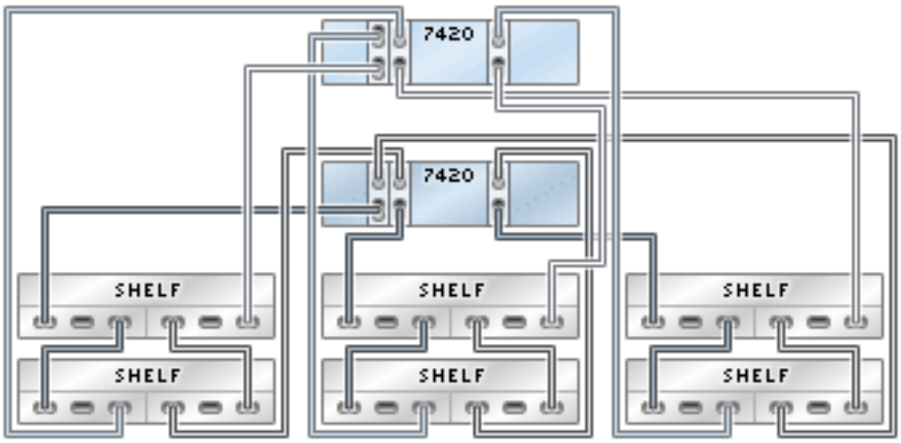
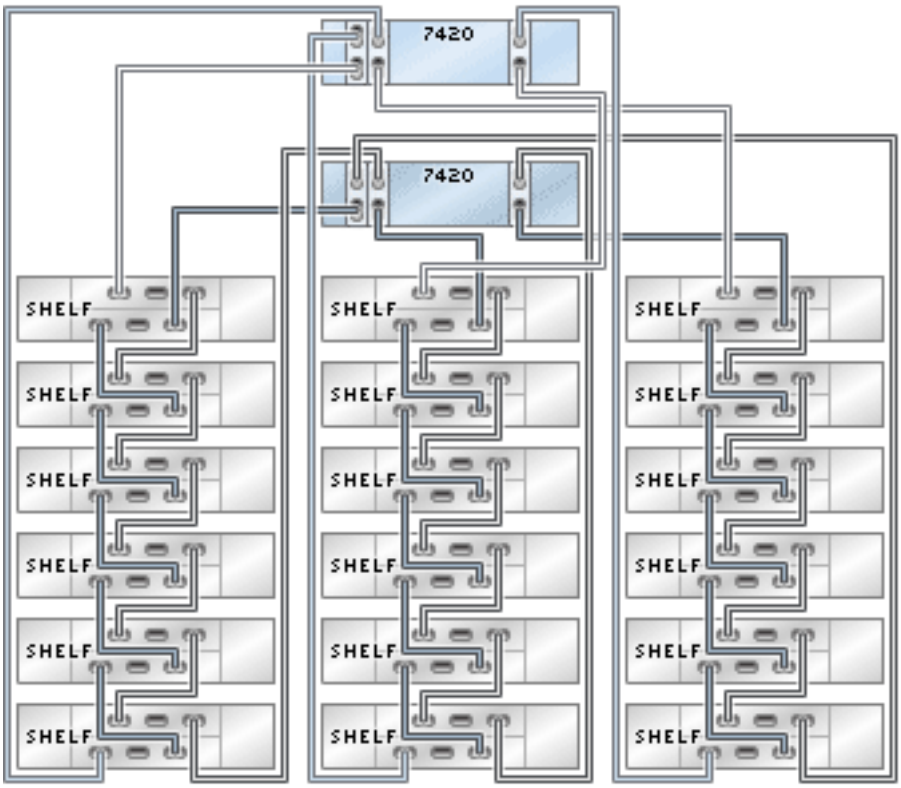


FIGURE 4-47 7420 clustered controllers with three HBAs connected to 18 Sun Disk Shelves in three chains



7420 Clustered to Sun Disk Shelves (4 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 clustered controllers with four HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 4-48 7420 clustered controllers with four HBAs connected to one Sun Disk Shelf in a single chain

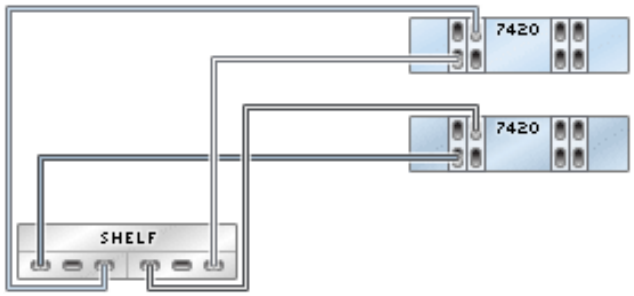


FIGURE 4-49 7420 clustered controllers with four HBAs connected to two Sun Disk Shelves in two chains

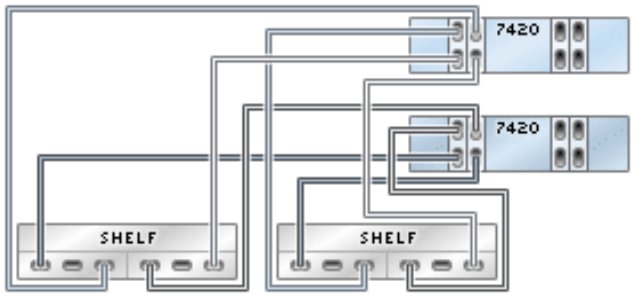


FIGURE 4-50 7420 clustered controllers with four HBAs connected to three Sun Disk Shelves in three chains

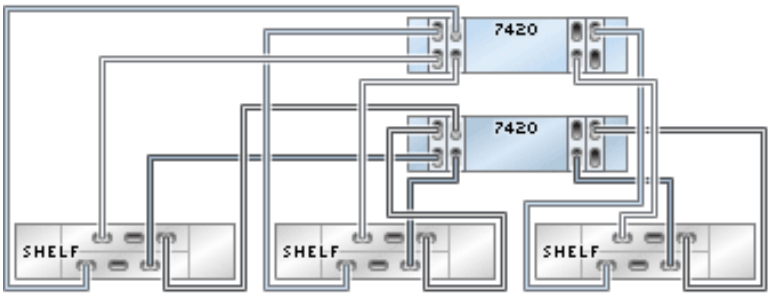


FIGURE 4-51 7420 clustered controllers with four HBAs connected to four Sun Disk Shelves in four chains

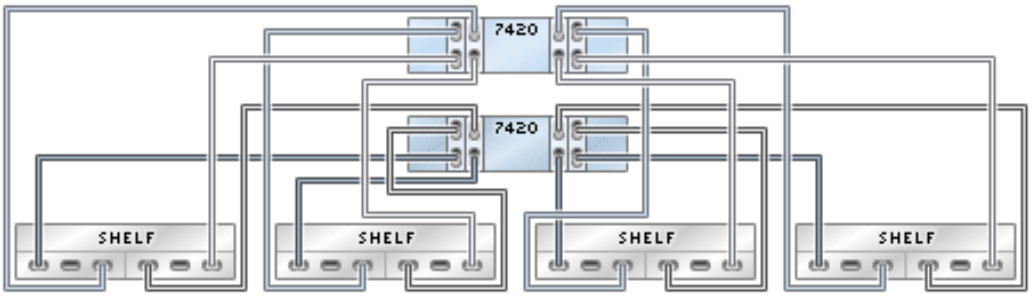


FIGURE 4-52 7420 clustered controllers with four HBAs connected to eight Sun Disk Shelves in four chains

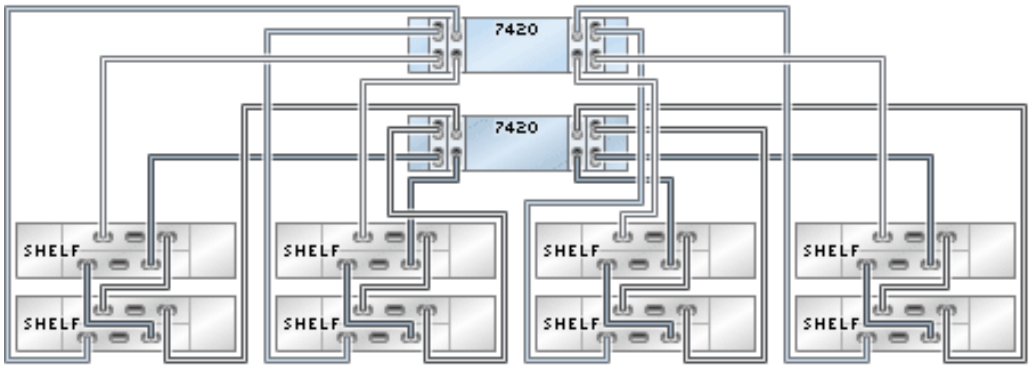
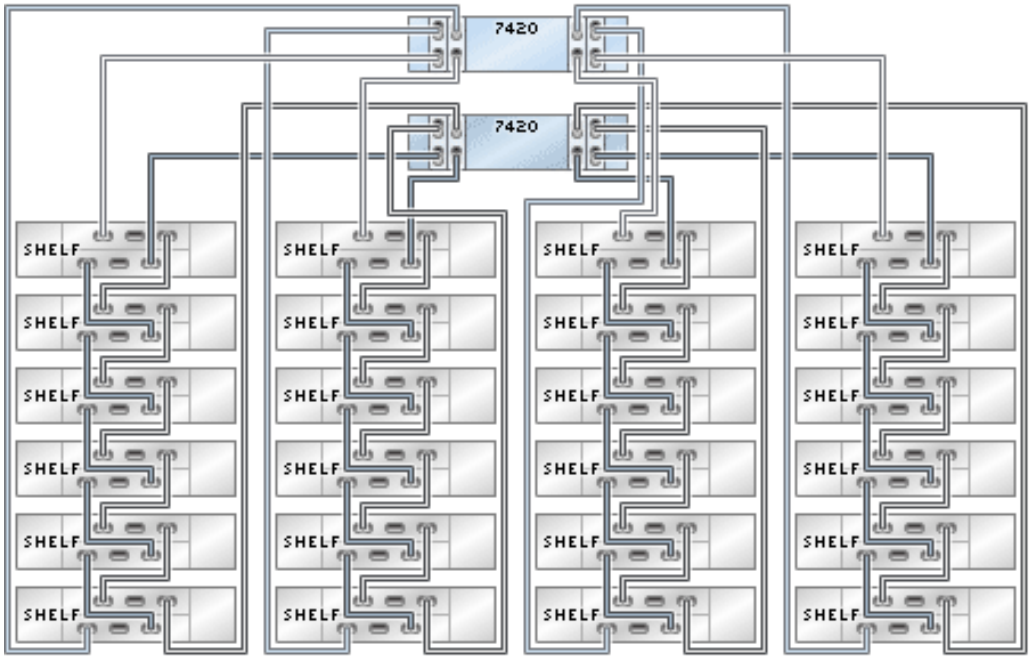


FIGURE 4-53 7420 clustered controllers with four HBAs connected to 24 Sun Disk Shelves in four chains



7420 Clustered to Sun Disk Shelves (5 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 clustered controllers with five HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

FIGURE 4-54 7420 clustered controllers with five HBAs connected to one Sun Disk Shelf in a single chain

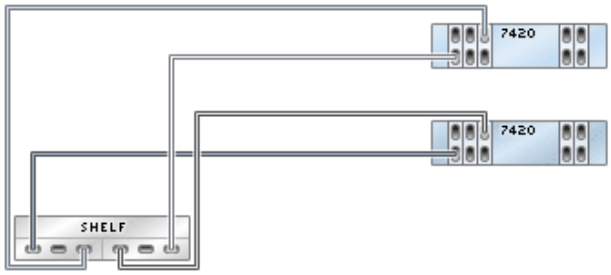


FIGURE 4-55 7420 clustered controllers with five HBAs connected to two Sun Disk Shelves in two chains

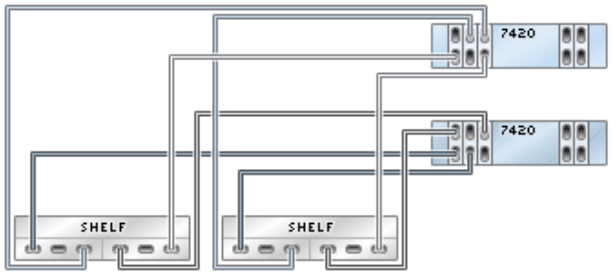


FIGURE 4-56 7420 clustered controllers with five HBAs connected to three Sun Disk Shelves in three chains

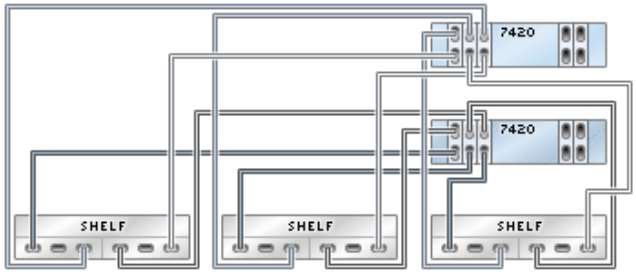


FIGURE 4-57 7420 clustered controllers with five HBAs connected to four Sun Disk Shelves in four chains

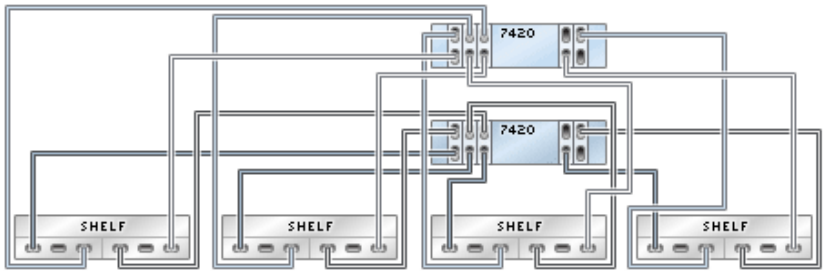


FIGURE 4-58 7420 clustered controllers with five HBAs connected to five Sun Disk Shelves in five chains

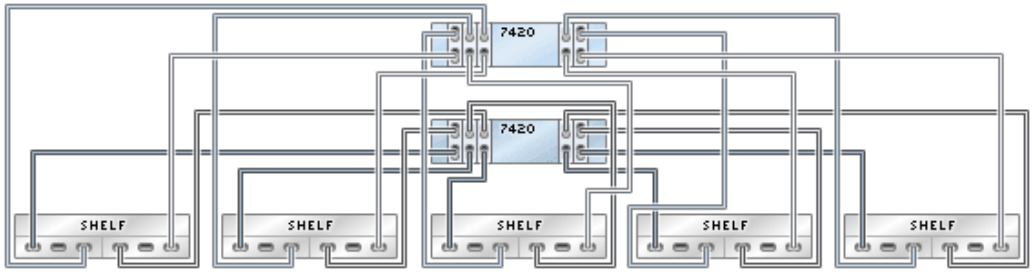


FIGURE 4-59 7420 clustered controllers with five HBAs connected to ten Sun Disk Shelves in five chains

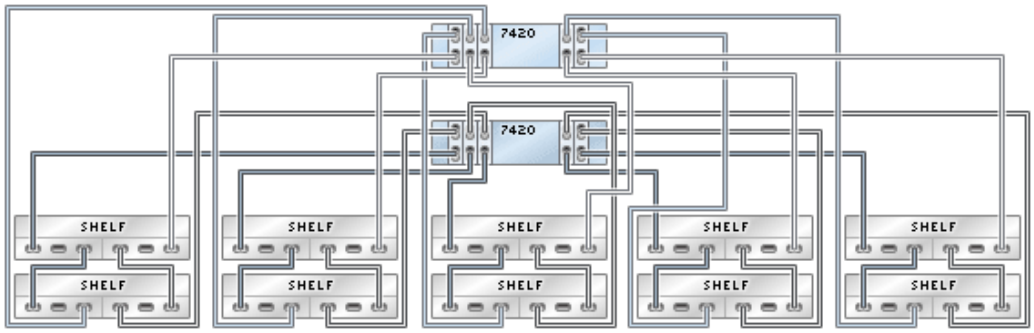
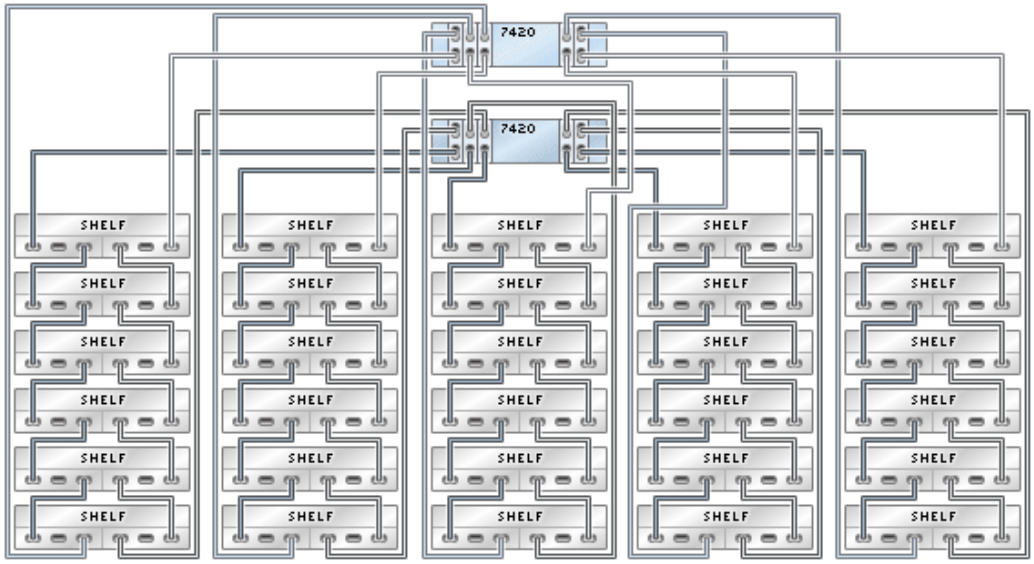


FIGURE 4-60 7420 clustered controllers with five HBAs connected to 30 Sun Disk Shelves in five chains



7420 Clustered to Sun Disk Shelves (6 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 clustered controllers with six HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model.

FIGURE 4-61 7420 clustered controllers with six HBAs connected to one Sun Disk Shelf in a single chain

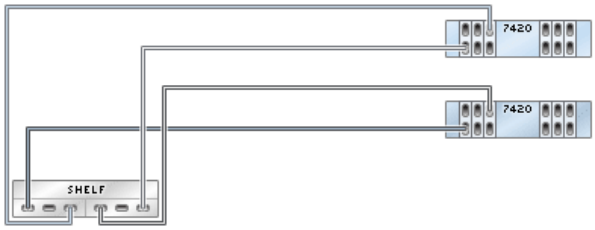


FIGURE 4-62 7420 clustered controllers with six HBAs connected to two Sun Disk Shelves in two chains

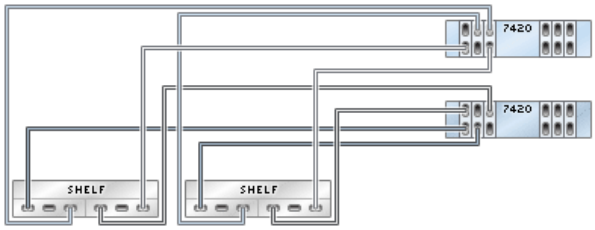


FIGURE 4-63 7420 clustered controllers with six HBAs connected to three Sun Disk Shelves in three chains

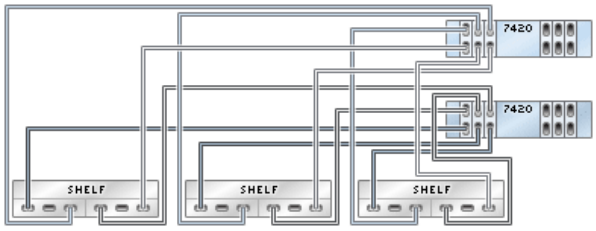


FIGURE 4-64 7420 clustered controllers with six HBAs connected to four Sun Disk Shelves in four chains

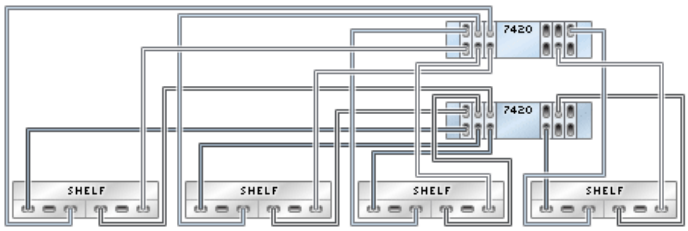


FIGURE 4-65 7420 clustered controllers with six HBAs connected to five Sun Disk Shelves in five chains

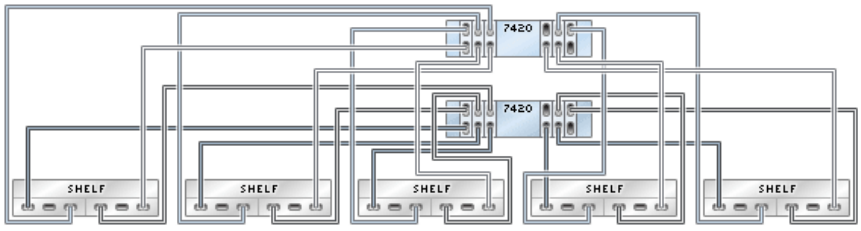


FIGURE 4-66 7420 clustered controllers with six HBAs connected to six Sun Disk Shelves in six chains

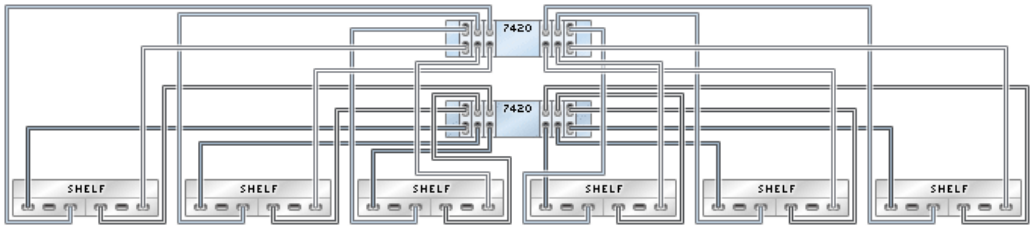


FIGURE 4-67 7420 clustered controllers with six HBAs connected to 12 Sun Disk Shelves in six chains

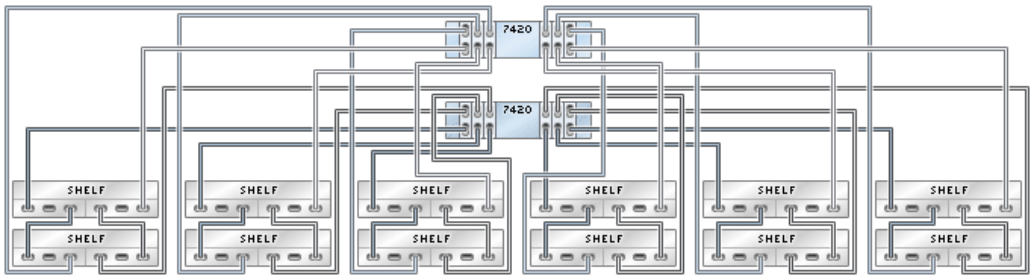
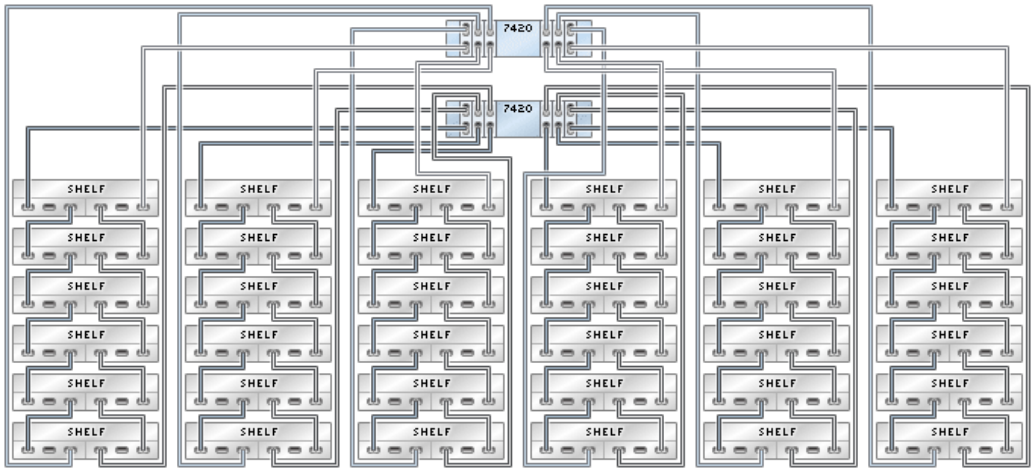


FIGURE 4-68 7420 clustered controllers with six HBAs connected to 36 Sun Disk Shelves in six chains



♦ ♦ ♦ CHAPTER 5

Mixed DE2-24 and Sun Disk Shelves

DE2-24 and Sun Disk Shelves to 7320

7320 Standalone to Mixed Disk Shelves

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7320 standalone controllers with one HBA. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Using mixed disk shelves on a controller requires the following:

- The controller must use only 4X4 port SAS-2 HBAs
- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-1 7320 standalone controller with one HBA connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

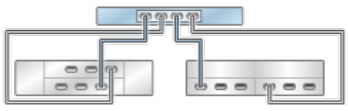
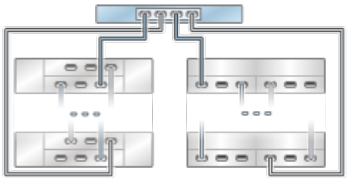


FIGURE 5-2 7320 standalone controller with one HBA connected to multiple mixed disk shelves in two chains (DE2-24 shown on the left)



7320 Clustered to Mixed Disk Shelves

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7320 clustered controllers with one HBA. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Using mixed disk shelves on a controller, requires the following:

- The controller must use only 4X4 port SAS-2 HBAs
- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-3 7320 clustered controllers with one HBA connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

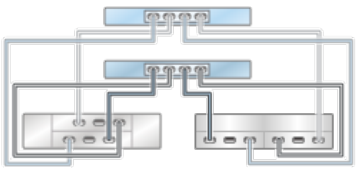
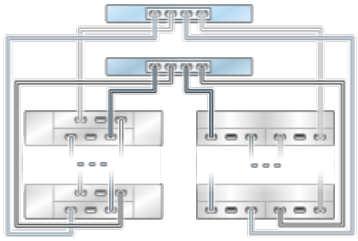


FIGURE 5-4 7320 clustered controllers with one HBA connected to multiple mixed disk shelves in two chains (DE2-24 shown on the left)



DE2-24 and Sun Disk Shelves to 7420

7420 Standalone to Mixed Disk Shelves

7420 Standalone to Mixed Disk Shelves (2 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 standalone controllers with two HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Using mixed disk shelves on a controller, requires the following:

- The controller must use only 4X4 port SAS-2 HBAs
- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-5 7420 standalone controllers with two HBAs connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

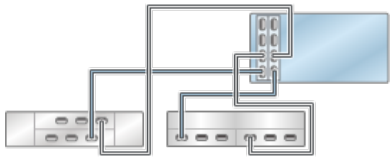


FIGURE 5-6 7420 standalone controllers with two HBAs connected to three mixed disk shelves in three chains (DE2-24 shown on the left)

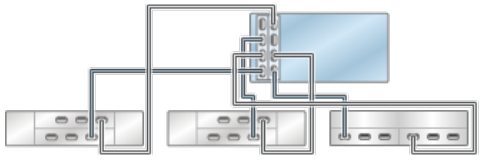


FIGURE 5-7 7420 standalone controllers with two HBAs connected to four mixed disk shelves in four chains (DE2-24 shown on the left)

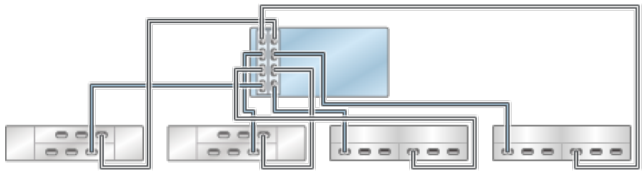
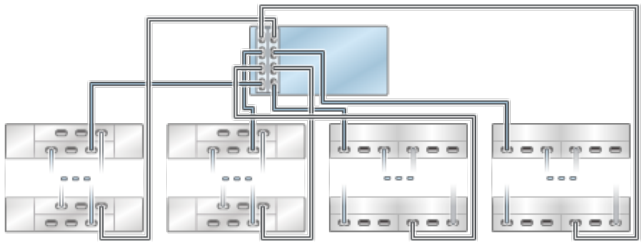


FIGURE 5-8 7420 standalone controllers with two HBAs connected to multiple mixed disk shelves in four chains (DE2-24 shown on the left)



7420 Standalone to Mixed Disk Shelves (3 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 standalone controllers with three HBAs. To cable the controller to the disk shelves, use the “Cabling Guidelines” on page 7, which include the “Maximum Number of Disk Shelves per Controller Configuration” on page 8.

Using mixed disk shelves on a controller, requires the following:

- The controller must use only 4X4 port SAS-2 HBAs
- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-9 7420 standalone controllers with three HBAs connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

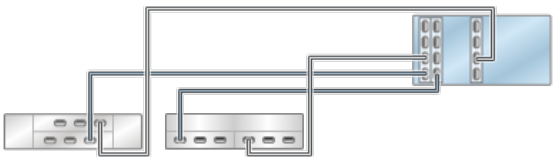


FIGURE 5-10 7420 standalone controllers with three HBAs connected to three mixed disk shelves in three chains (DE2-24 shown on the left)

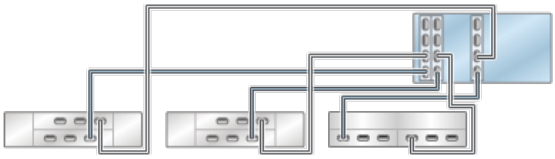


FIGURE 5-11 7420 standalone controllers with three HBAs connected to four mixed disk shelves in four chains (DE2-24 shown on the left)

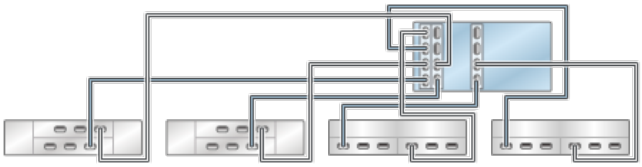


FIGURE 5-12 7420 standalone controllers with three HBAs connected to five mixed disk shelves in five chains (DE2-24 shown on the left)

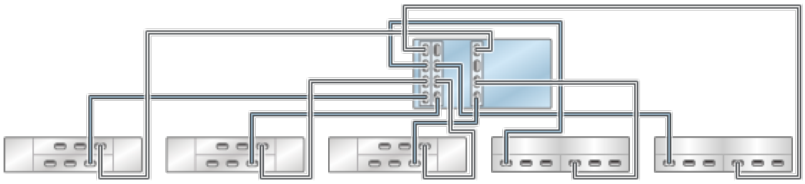


FIGURE 5-13 7420 standalone controllers with three HBAs connected to six mixed disk shelves in six chains (DE2-24 shown on the left)

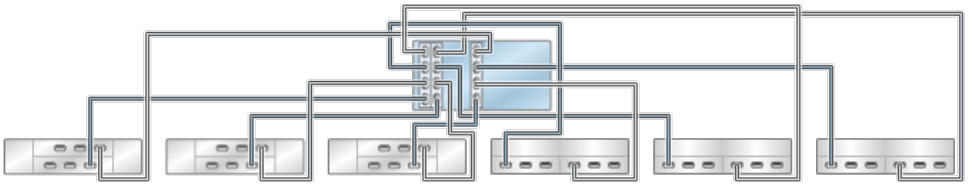
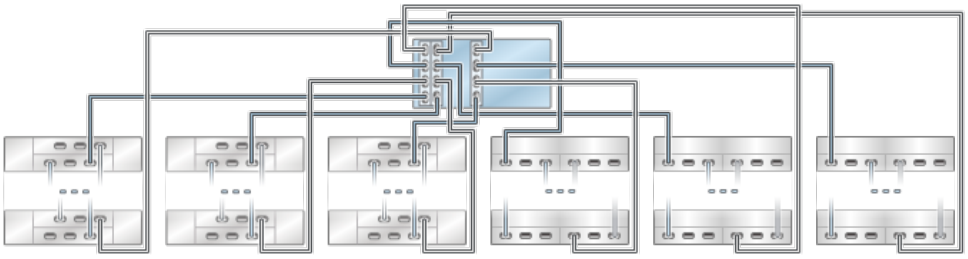


FIGURE 5-14 7420 standalone controllers with three HBAs connected to multiple mixed disk shelves in six chains (DE2-24 shown on the left)



7420 Standalone to Mixed Disk Shelves (4 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 standalone controllers with four HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Using mixed disk shelves on a controller, requires the following:

- The controller must use only 4X4 port SAS-2 HBAs
- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-15 7420 standalone controllers with four HBAs connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

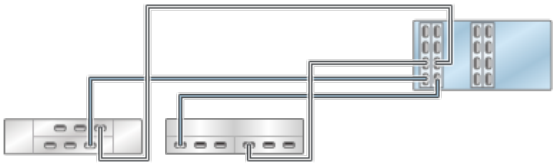


FIGURE 5-16 7420 standalone controllers with four HBAs connected to three mixed disk shelves in three chains (DE2-24 shown on the left)

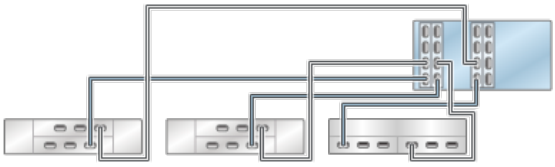


FIGURE 5-17 7420 standalone controllers with four HBAs connected to four mixed disk shelves in four chains (DE2-24 shown on the left)

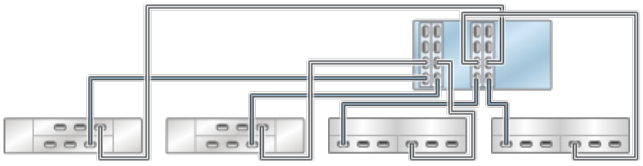


FIGURE 5-18 7420 standalone controllers with four HBAs connected to five mixed disk shelves in five chains (DE2-24 shown on the left)

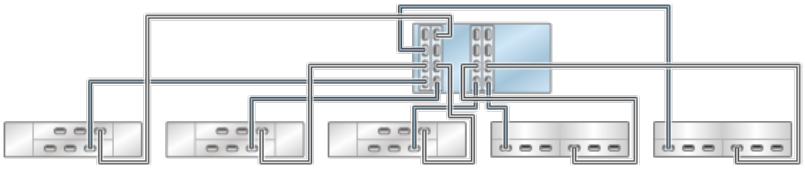


FIGURE 5-19 7420 standalone controllers with four HBAs connected to six mixed disk shelves in six chains (DE2-24 shown on the left)

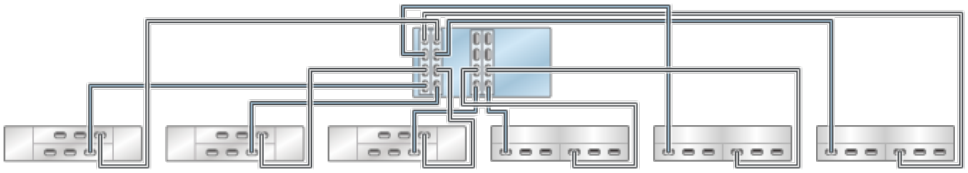


FIGURE 5-20 7420 standalone controllers with four HBAs connected to seven mixed disk shelves in seven chains (DE2-24 shown on the top)

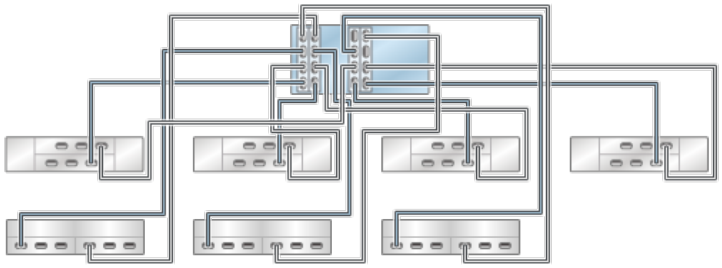


FIGURE 5-21 7420 standalone controllers with four HBAs connected to eight mixed disk shelves in eight chains (DE2-24 shown on the top)

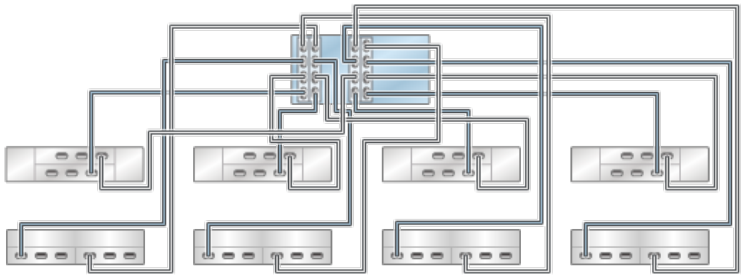
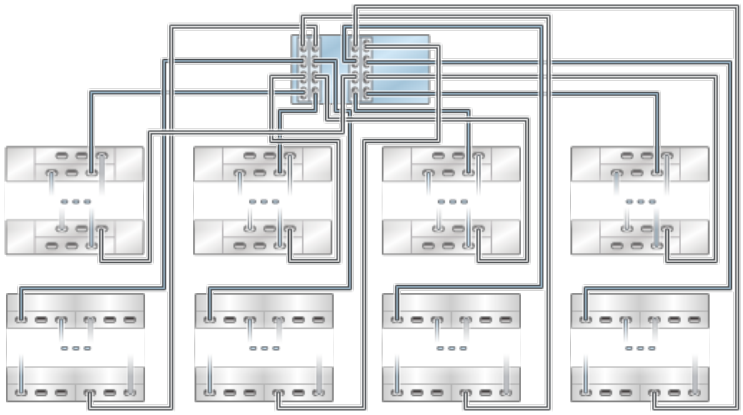


FIGURE 5-22 7420 standalone controllers with four HBAs connected to multiple mixed disk shelves in eight chains (DE2-24 shown on the top)



7420 Clustered to Mixed Disk Shelves

7420 Clustered to Mixed Disk Shelves (2 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 clustered controllers with two HBAs. To cable the controller to the disk shelves, use the

"Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Using mixed disk shelves on a controller, requires the following:

- The controller must use only 4X4 port SAS-2 HBAs
- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-23 7420 clustered controllers with two HBAs connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

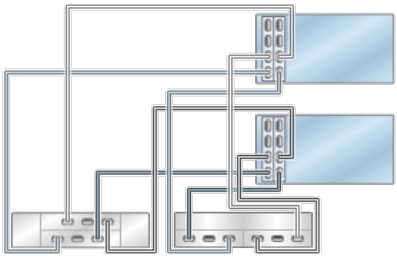


FIGURE 5-24 7420 clustered controllers with two HBAs connected to three mixed disk shelves in two chains (DE2-24 shown on the left)

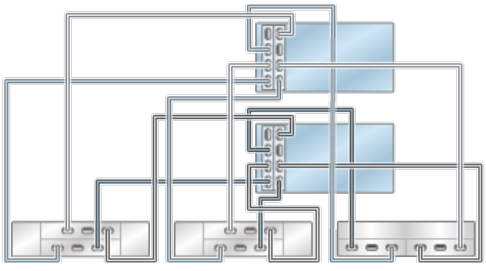


FIGURE 5-25 7420 clustered controllers with two HBAs connected to four mixed disk shelves in four chains (DE2-24 shown on the left)

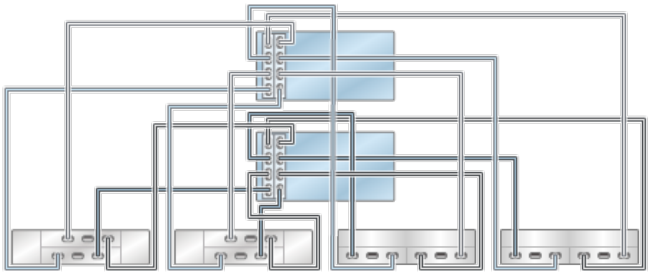
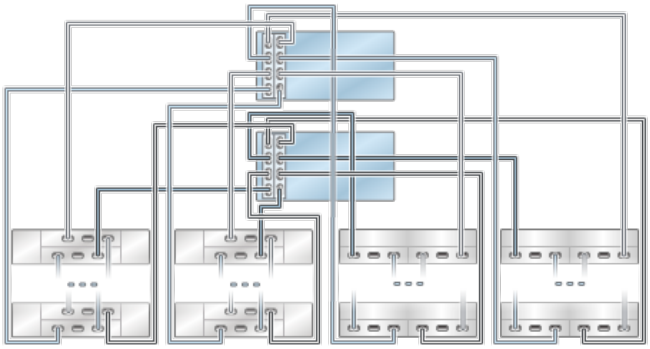


FIGURE 5-26 7420 clustered controllers with two HBAs connected to multiple mixed disk shelves in four chains (DE2-24 shown on the left)



7420 Clustered to Mixed Disk Shelves (3 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 clustered controllers with three HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Using mixed disk shelves on a controller, requires the following:

- The controller must use only 4X4 port SAS-2 HBAs

- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-27 7420 clustered controllers with three HBAs connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

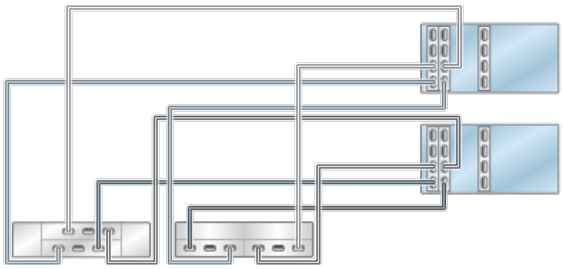


FIGURE 5-28 7420 clustered controllers with three HBAs connected to three mixed disk shelves in three chains (DE2-24 shown on the left)

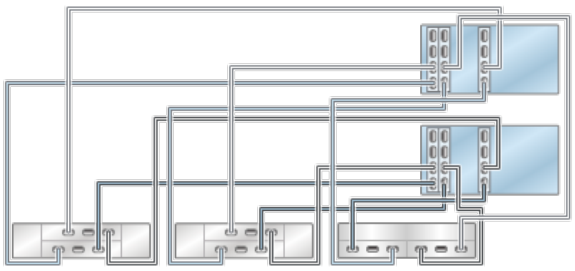


FIGURE 5-29 7420 clustered controllers with three HBAs connected to four mixed disk shelves in four chains (DE2-24 shown on the left)

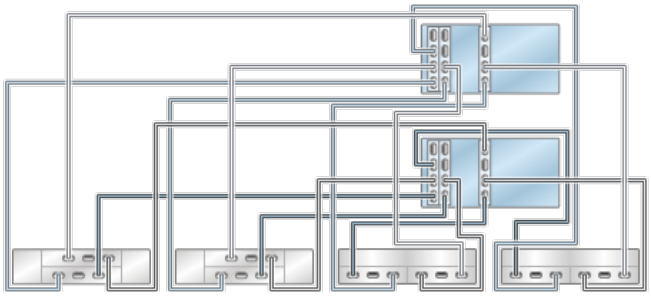


FIGURE 5-30 7420 clustered controllers with three HBAs connected to five mixed disk shelves in five chains (DE2-24 shown on the left)

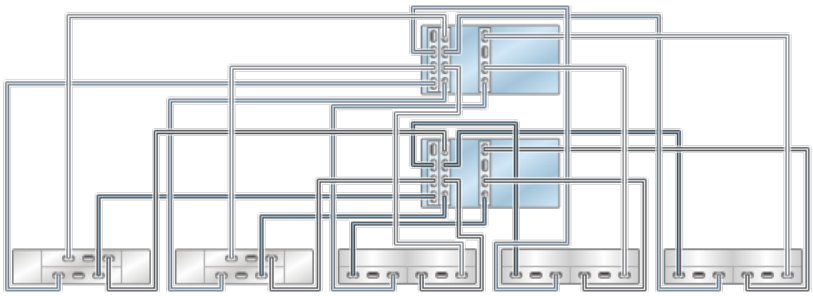


FIGURE 5-31 7420 clustered controllers with three HBAs connected to six mixed disk shelves in six chains (DE2-24 shown on the left)

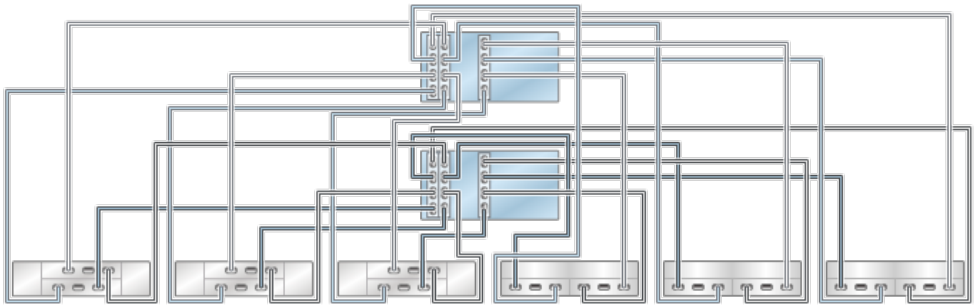
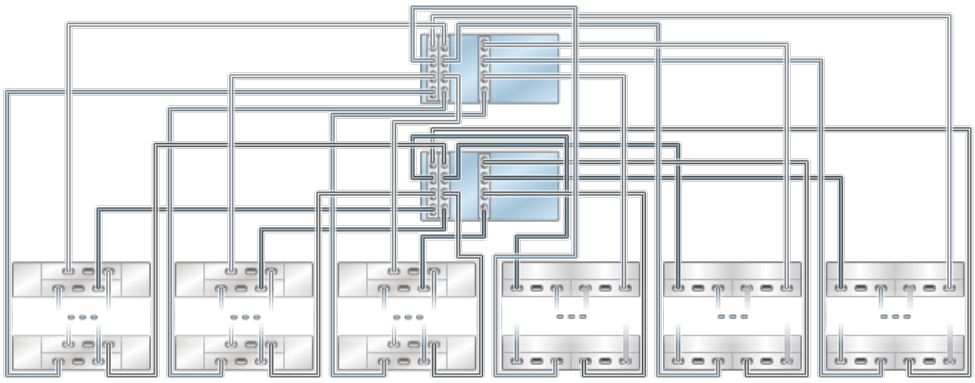


FIGURE 5-32 7420 clustered controllers with three HBAs connected to multiple mixed disk shelves in six chains (DE2-24 shown on the left)



7420 Clustered to Mixed Disk Shelves (4 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage 7420 clustered controllers with four HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Using mixed disk shelves on a controller, requires the following:

- The controller must use only 4X4 port SAS-2 HBAs
- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-33 7420 clustered controllers with four HBAs connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

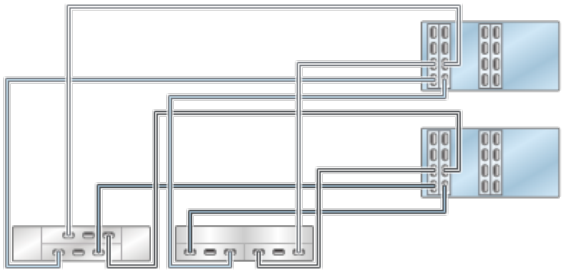


FIGURE 5-34 7420 clustered controllers with four HBAs connected to three mixed disk shelves in three chains (DE2-24 shown on the left)

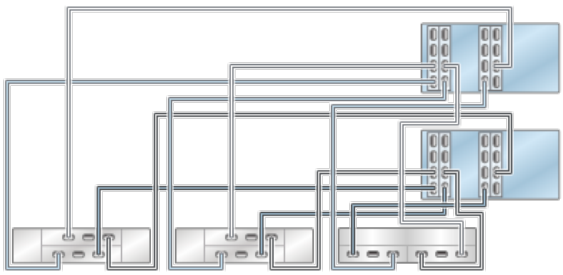


FIGURE 5-35 7420 clustered controllers with four HBAs connected to four mixed disk shelves in four chains (DE2-24 shown on the left)

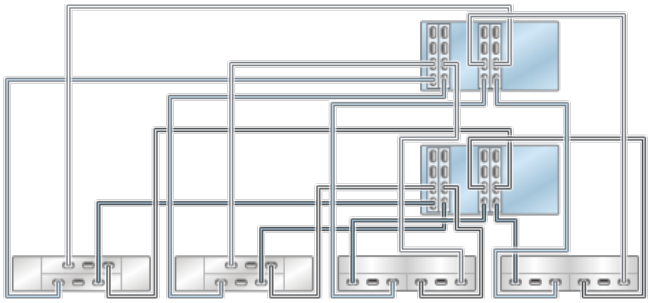


FIGURE 5-36 7420 clustered controllers with four HBAs connected to five mixed disk shelves in five chains (DE2-24 shown on the left)

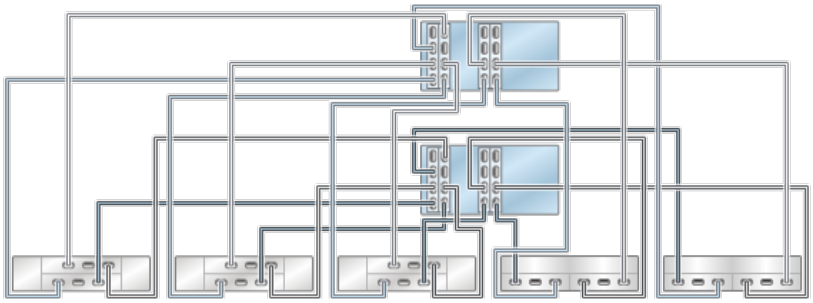


FIGURE 5-37 7420 clustered controllers with four HBAs connected to six mixed disk shelves in six chains (DE2-24 shown on the left)

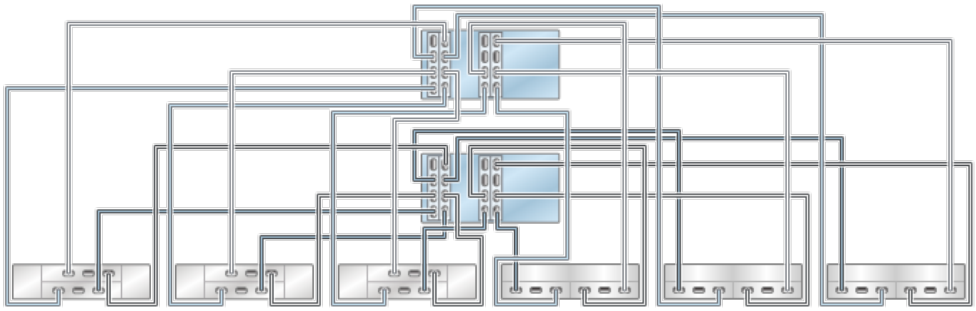


FIGURE 5-38 7420 clustered controllers with four HBAs connected to seven mixed disk shelves in seven chains (DE2-24 shown on the top)

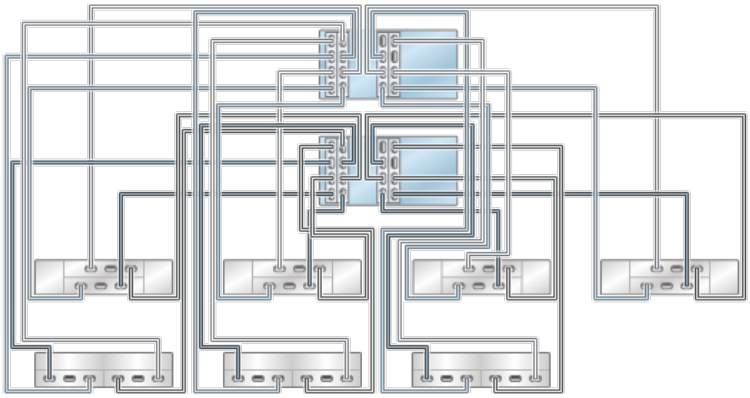


FIGURE 5-39 7420 clustered controllers with four HBAs connected to eight mixed disk shelves in eight chains (DE2-24 shown on the top)

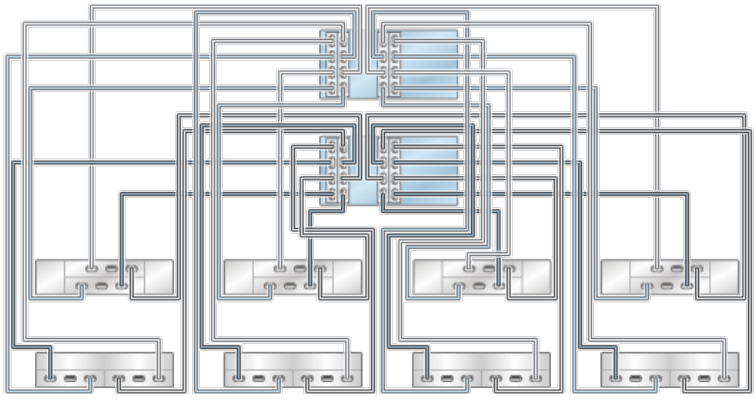
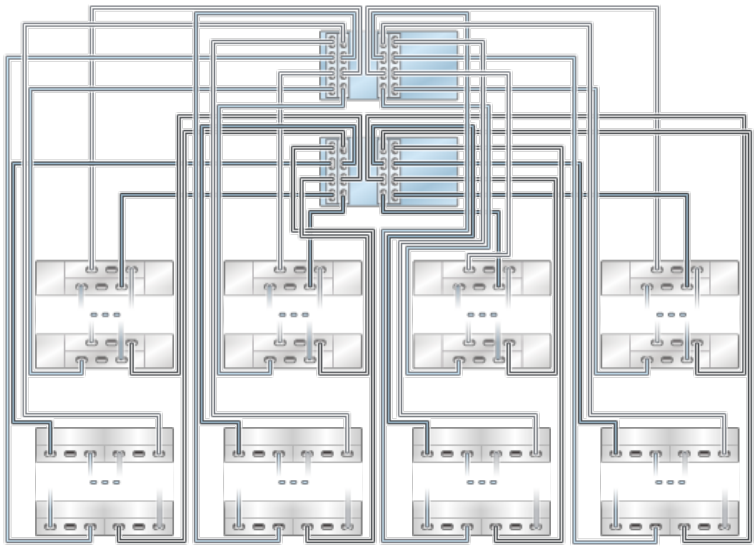


FIGURE 5-40 7420 clustered controllers with four HBAs connected to multiple mixed disk shelves in eight chains (DE2-24 shown on the top)



DE2-24 and Sun Disk Shelves to ZS3-2

ZS3-2 Standalone to Mixed Disk Shelves

ZS3-2 Standalone to Mixed Disk Shelves (1 HBA)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-2 standalone controllers with one HBA. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Using mixed disk shelves on a controller requires the following:

- The controller must use only 4X4 port SAS-2 HBAs
- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-41 ZS3-2 standalone controller with one HBA connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

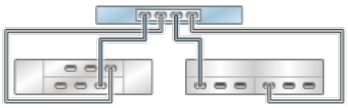
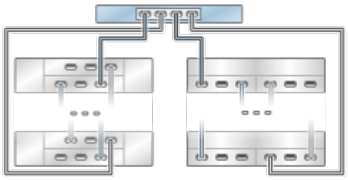


FIGURE 5-42 ZS3-2 standalone controller with one HBA connected to multiple mixed disk shelves in two chains (DE2-24 shown on the left)



ZS3-2 Standalone to Mixed Disk Shelves (2 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-2 standalone controllers with two HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Using mixed disk shelves on a controller requires the following:

- The controller must use only 4X4 port SAS-2 HBAs
- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-43 ZS3-2 standalone controller with two HBAs connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

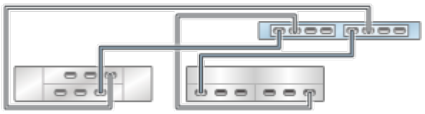


FIGURE 5-44 ZS3-2 standalone controller with two HBAs connected to three mixed disk shelves in three chains (DE2-24 shown on the left)

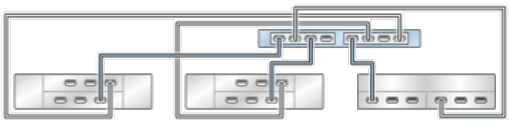


FIGURE 5-45 ZS3-2 standalone controller with two HBAs connected to four mixed disk shelves in four chains (DE2-24 shown on the left)

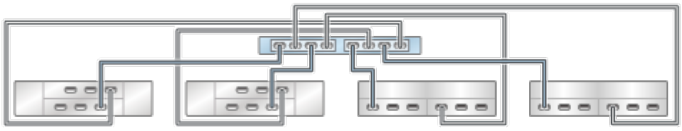
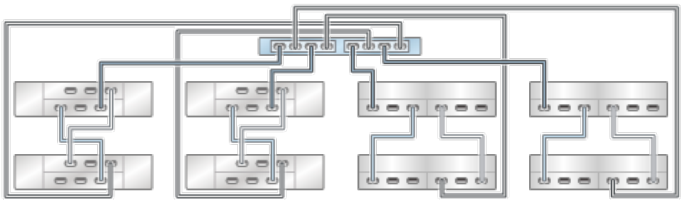


FIGURE 5-46 ZS3-2 standalone controller with two HBAs connected to eight mixed disk shelves in four chains (DE2-24 shown on the left)



ZS3-2 Clustered to Mixed Disk Shelves

ZS3-2 Clustered to Mixed Disk Shelves (1 HBA)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-2 clustered controllers with one HBA. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Using mixed disk shelves on a controller, requires the following:

- The controller must use only 4X4 port SAS-2 HBAs
- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-47 ZS3-2 clustered controllers with one HBA connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

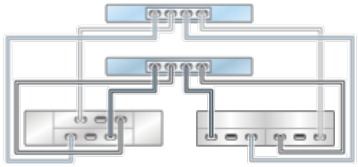
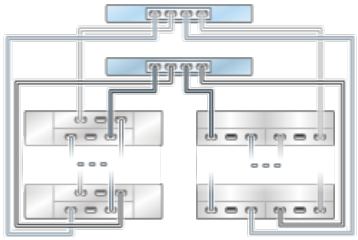


FIGURE 5-48 ZS3-2 clustered controllers with one HBA connected to multiple mixed disk shelves in two chains (DE2-24 shown on the left)



ZS3-2 Clustered to Mixed Disk Shelves (2 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-2 clustered controllers with two HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Using mixed disk shelves on a controller, requires the following:

- The controller must use only 4X4 port SAS-2 HBAs
- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-49 ZS3-2 clustered controller with two HBAs connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

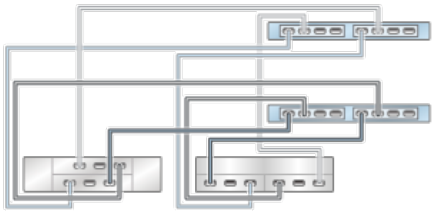


FIGURE 5-50 ZS3-2 clustered controller with two HBAs connected to three mixed disk shelves in three chains (DE2-24 shown on the left)

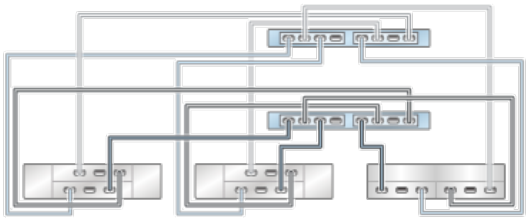


FIGURE 5-51 ZS3-2 clustered controller with two HBAs connected to four mixed disk shelves in four chains (DE2-24 shown on the left)

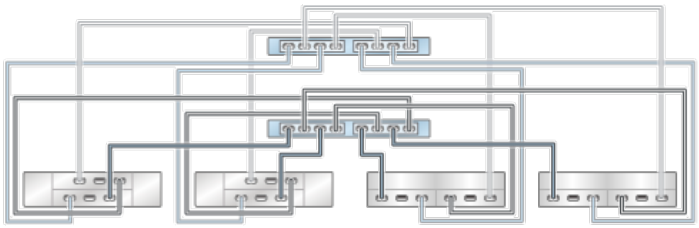
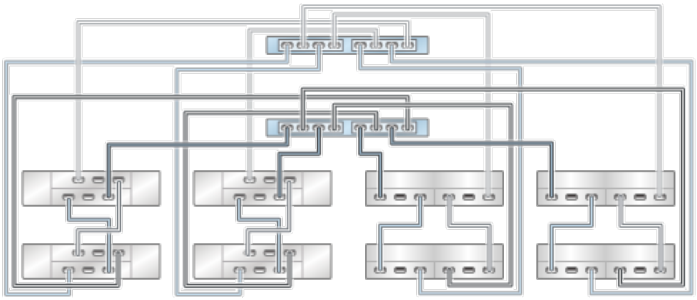


FIGURE 5-52 ZS3-2 clustered controller with two HBAs connected to eight mixed disk shelves in four chains (DE2-24 shown on the left)



DE2-24 and Sun Disk Shelves to ZS3-4

ZS3-4 Standalone to Mixed Disk Shelves

ZS3-4 Standalone to Mixed Disk Shelves (2 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-4 standalone controllers with two HBAs. To cable the controller to the disk shelves, use the “Cabling Guidelines” on page 7, which include the “Maximum Number of Disk Shelves per Controller Configuration” on page 8.

Using mixed disk shelves on a controller, requires the following:

- The controller must use only 4X4 port SAS-2 HBAs
- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-53 ZS3-4 standalone controllers with two HBAs connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

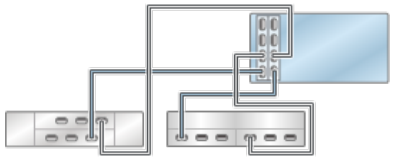


FIGURE 5-54 ZS3-4 standalone controllers with two HBAs connected to three mixed disk shelves in three chains (DE2-24 shown on the left)

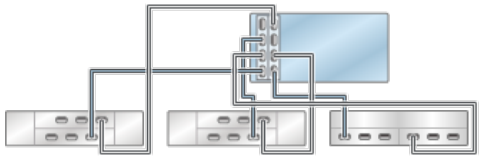


FIGURE 5-55 ZS3-4 standalone controllers with two HBAs connected to four mixed disk shelves in four chains (DE2-24 shown on the left)

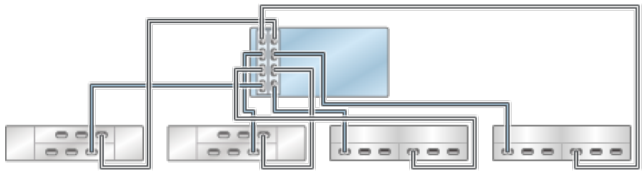
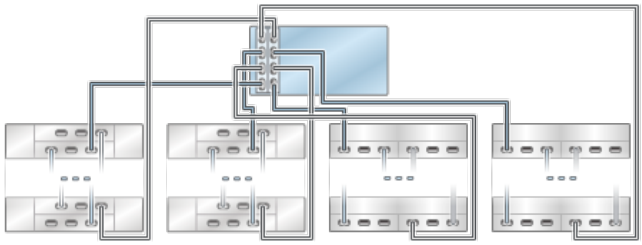


FIGURE 5-56 ZS3-4 standalone controllers with two HBAs connected to multiple mixed disk shelves in four chains (DE2-24 shown on the left)



ZS3-4 Standalone to Mixed Disk Shelves (3 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-4 standalone controllers with three HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Using mixed disk shelves on a controller, requires the following:

- The controller must use only 4X4 port SAS-2 HBAs
- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-57 ZS3-4 standalone controllers with three HBAs connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

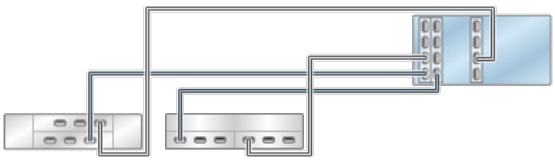


FIGURE 5-58 ZS3-4 standalone controllers with three HBAs connected to three mixed disk shelves in three chains (DE2-24 shown on the left)

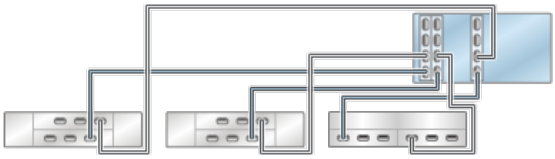


FIGURE 5-59 ZS3-4 standalone controllers with three HBAs connected to four mixed disk shelves in four chains (DE2-24 shown on the left)

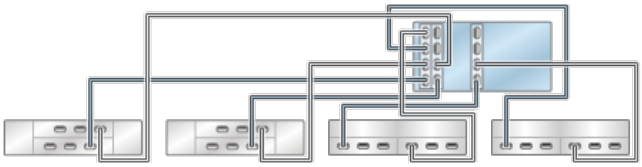


FIGURE 5-60 ZS3-4 standalone controllers with three HBAs connected to five mixed disk shelves in five chains (DE2-24 shown on the left)

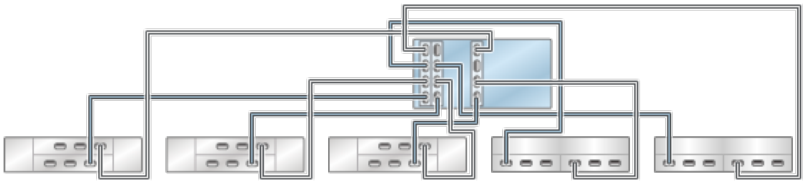


FIGURE 5-61 ZS3-4 standalone controllers with three HBAs connected to six mixed disk shelves in six chains (DE2-24 shown on the left)

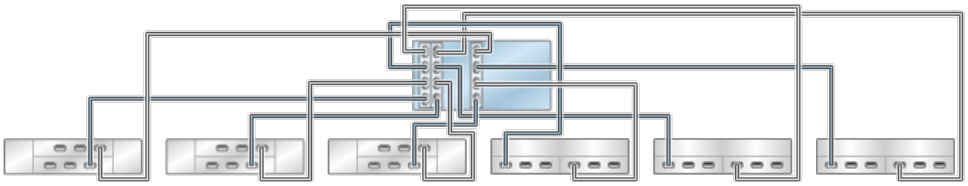
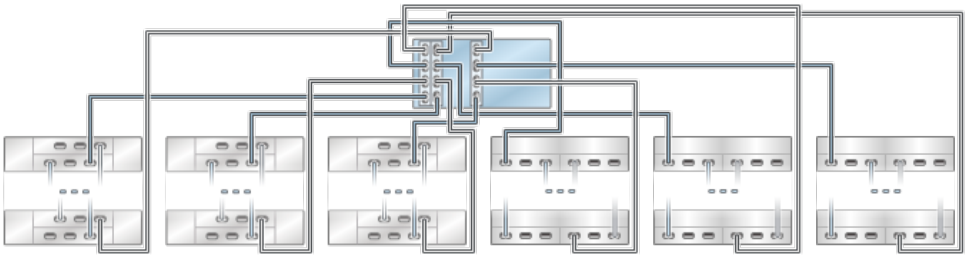


FIGURE 5-62 ZS3-4 standalone controllers with three HBAs connected to multiple mixed disk shelves in six chains (DE2-24 shown on the left)



ZS3-4 Standalone to Mixed Disk Shelves (4 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-4 standalone controllers with four HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Using mixed disk shelves on a controller, requires the following:

- The controller must use only 4X4 port SAS-2 HBAs
- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-63 ZS3-4 standalone controllers with four HBAs connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

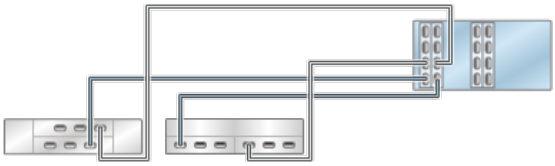


FIGURE 5-64 ZS3-4 standalone controllers with four HBAs connected to three mixed disk shelves in three chains (DE2-24 shown on the left)

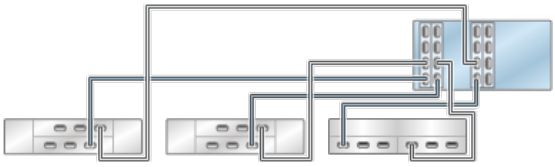


FIGURE 5-65 ZS3-4 standalone controllers with four HBAs connected to four mixed disk shelves in four chains (DE2-24 shown on the left)

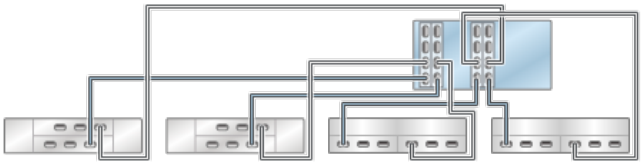


FIGURE 5-66 ZS3-4 standalone controllers with four HBAs connected to five mixed disk shelves in five chains (DE2-24 shown on the left)

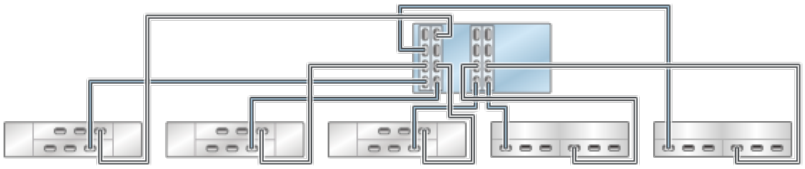


FIGURE 5-67 ZS3-4 standalone controllers with four HBAs connected to six mixed disk shelves in six chains (DE2-24 shown on the left)

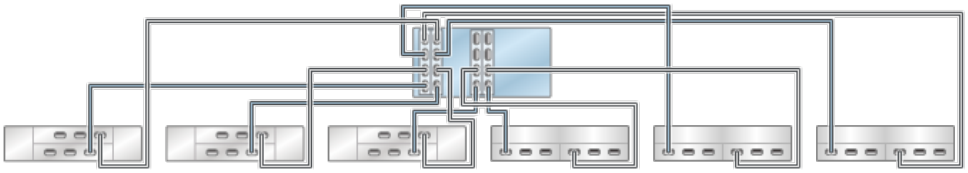


FIGURE 5-68 ZS3-4 standalone controllers with four HBAs connected to seven mixed disk shelves in seven chains (DE2-24 shown on the top)

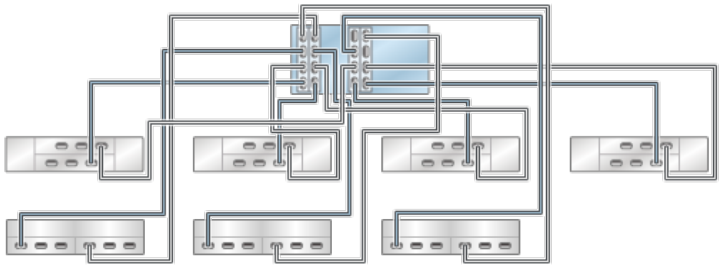


FIGURE 5-69 ZS3-4 standalone controllers with four HBAs connected to eight mixed disk shelves in eight chains (DE2-24 shown on the top)

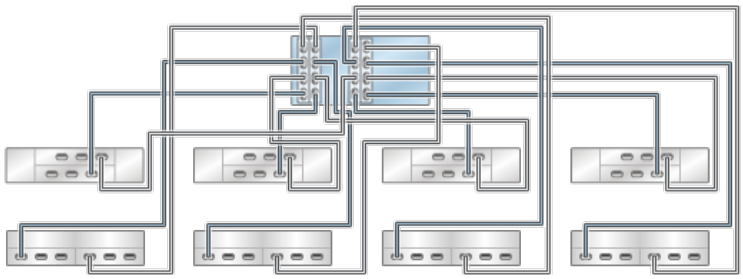
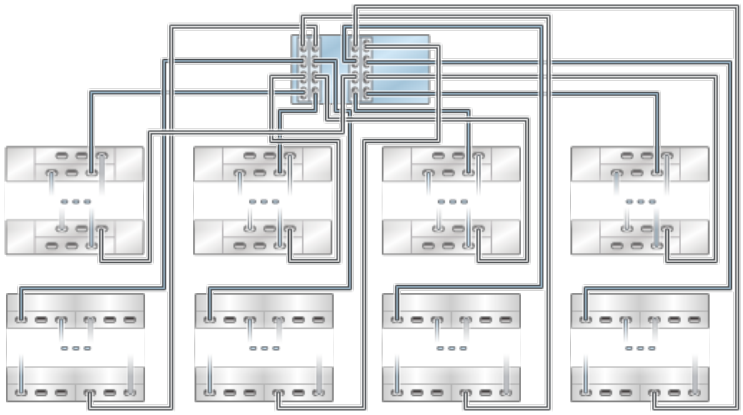


FIGURE 5-70 ZS3-4 standalone controllers with four HBAs connected to multiple mixed disk shelves in eight chains (DE2-24 shown on the top)



ZS3-4 Clustered to Mixed Disk Shelves

ZS3-4 Clustered to Mixed Disk Shelves (2 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-4 clustered controllers with two HBAs. To cable the controller to the disk shelves, use the

"Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Using mixed disk shelves on a controller, requires the following:

- The controller must use only 4X4 port SAS-2 HBAs
- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-71 ZS3-4 clustered controllers with two HBAs connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

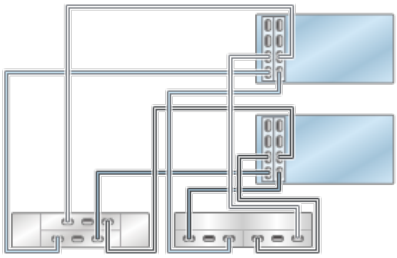


FIGURE 5-72 ZS3-4 clustered controllers with two HBAs connected to three mixed disk shelves in two chains (DE2-24 shown on the left)

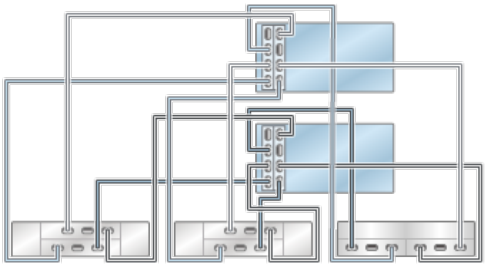


FIGURE 5-73 ZS3-4 clustered controllers with two HBAs connected to four mixed disk shelves in four chains (DE2-24 shown on the left)

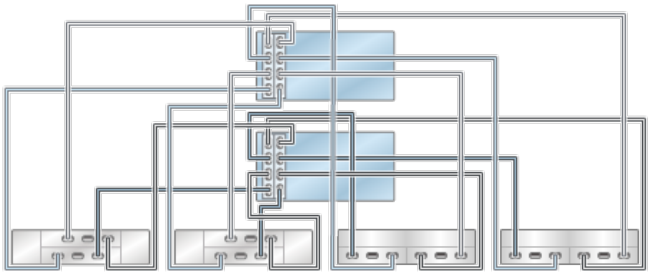
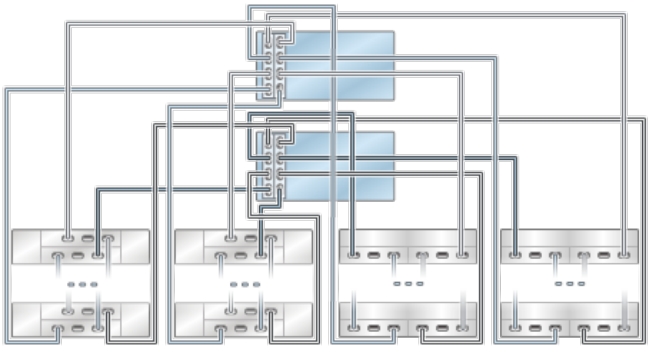


FIGURE 5-74 ZS3-4 clustered controllers with two HBAs connected to multiple mixed disk shelves in four chains (DE2-24 shown on the left)



ZS3-4 Clustered to Mixed Disk Shelves (3 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-4 clustered controllers with three HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Using mixed disk shelves on a controller, requires the following:

- The controller must use only 4X4 port SAS-2 HBAs

- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-75 ZS3-4 clustered controllers with three HBAs connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

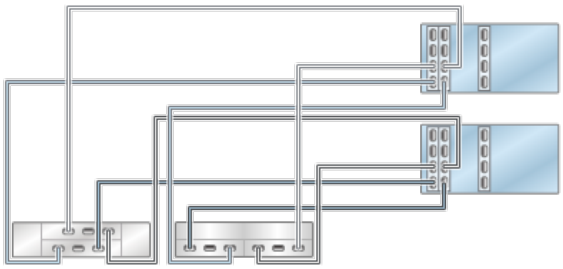


FIGURE 5-76 ZS3-4 clustered controllers with three HBAs connected to three mixed disk shelves in three chains (DE2-24 shown on the left)

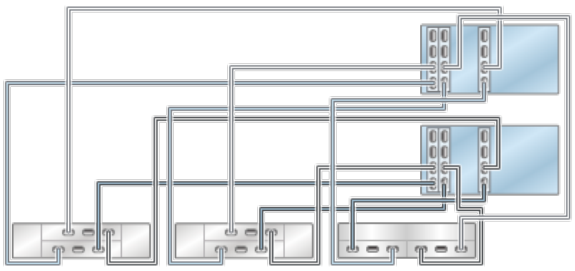


FIGURE 5-77 ZS3-4 clustered controllers with three HBAs connected to four mixed disk shelves in four chains (DE2-24 shown on the left)

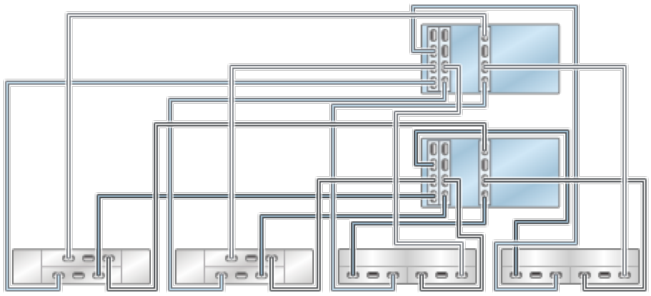


FIGURE 5-78 ZS3-4 clustered controllers with three HBAs connected to five mixed disk shelves in five chains (DE2-24 shown on the left)

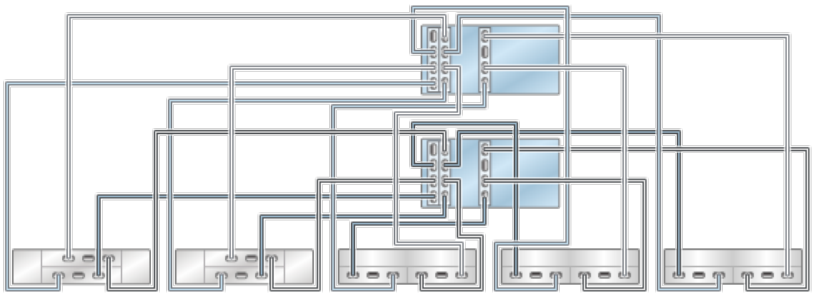


FIGURE 5-79 ZS3-4 clustered controllers with three HBAs connected to six mixed disk shelves in six chains (DE2-24 shown on the left)

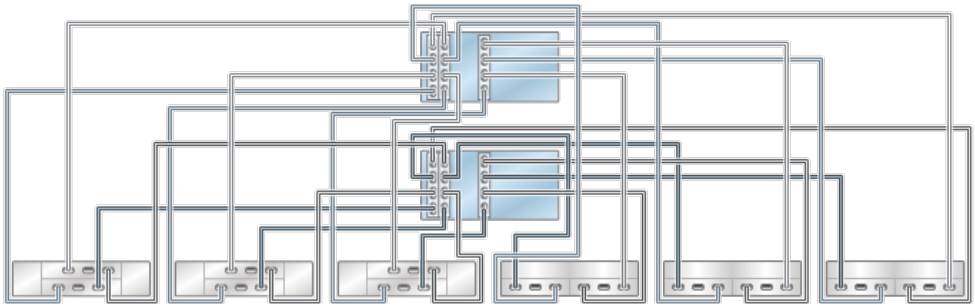
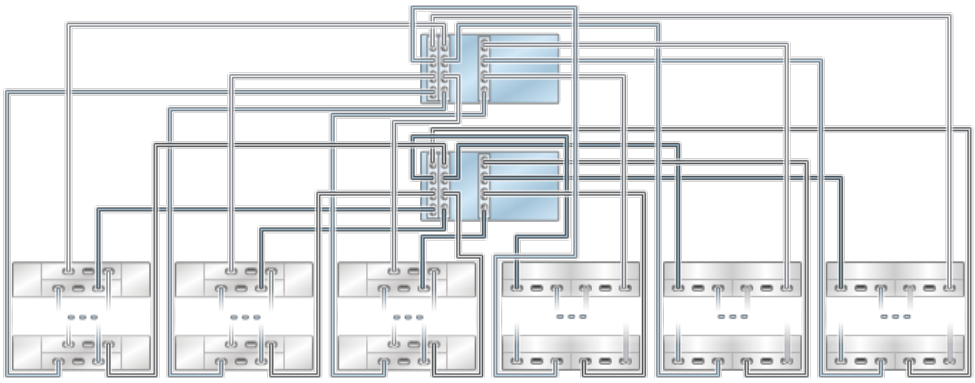


FIGURE 5-80 ZS3-4 clustered controllers with three HBAs connected to multiple mixed disk shelves in six chains (DE2-24 shown on the left)



ZS3-4 Clustered to Mixed Disk Shelves (4 HBAs)

The following figures show a subset of the supported configurations for Oracle ZFS Storage ZS3-4 clustered controllers with four HBAs. To cable the controller to the disk shelves, use the "Cabling Guidelines" on page 7, which include the "Maximum Number of Disk Shelves per Controller Configuration" on page 8.

Using mixed disk shelves on a controller, requires the following:

- The controller must use only 4X4 port SAS-2 HBAs
- Do not use mixed disk shelves in the same chain

Note - For hardware port locations, see the PCIe Options section in the Hardware Maintenance Overview for your controller model. 4X4 port SAS-2 HBAs are only supported with software version 2013.1.0 and later.

FIGURE 5-81 ZS3-4 clustered controllers with four HBAs connected to two mixed disk shelves in two chains (DE2-24 shown on the left)

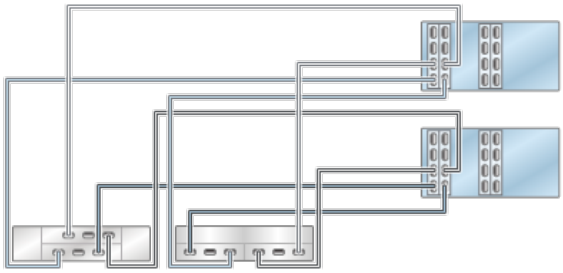


FIGURE 5-82 ZS3-4 clustered controllers with four HBAs connected to three mixed disk shelves in three chains (DE2-24 shown on the left)

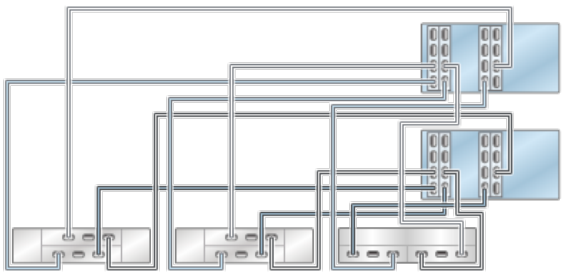


FIGURE 5-83 ZS3-4 clustered controllers with four HBAs connected to four mixed disk shelves in four chains (DE2-24 shown on the left)

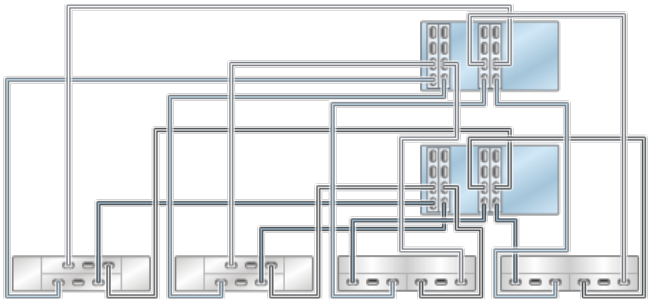


FIGURE 5-84 ZS3-4 clustered controllers with four HBAs connected to five mixed disk shelves in five chains (DE2-24 shown on the left)

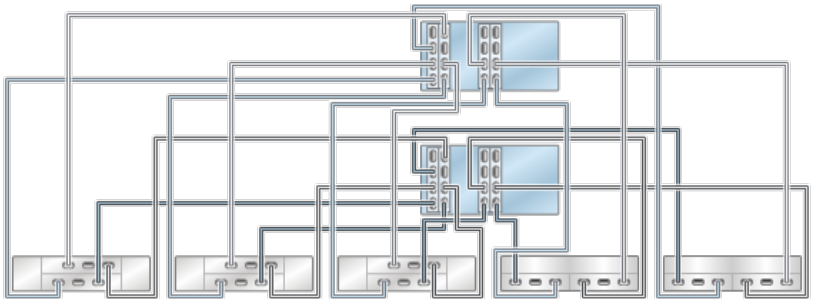


FIGURE 5-85 ZS3-4 clustered controllers with four HBAs connected to six mixed disk shelves in six chains (DE2-24 shown on the left)

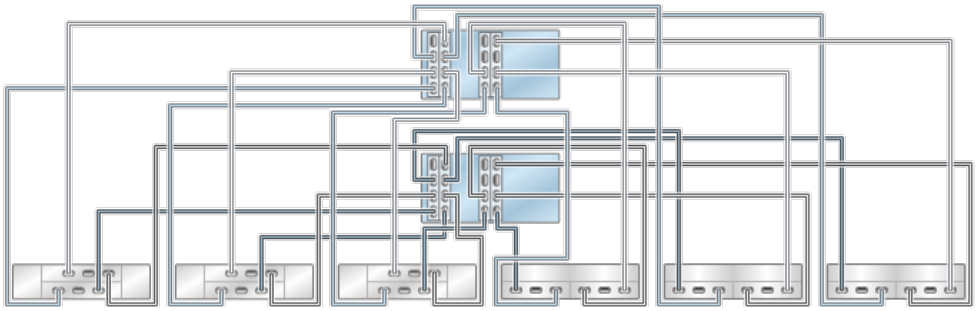


FIGURE 5-86 ZS3-4 clustered controllers with four HBAs connected to seven mixed disk shelves in seven chains (DE2-24 shown on the top)

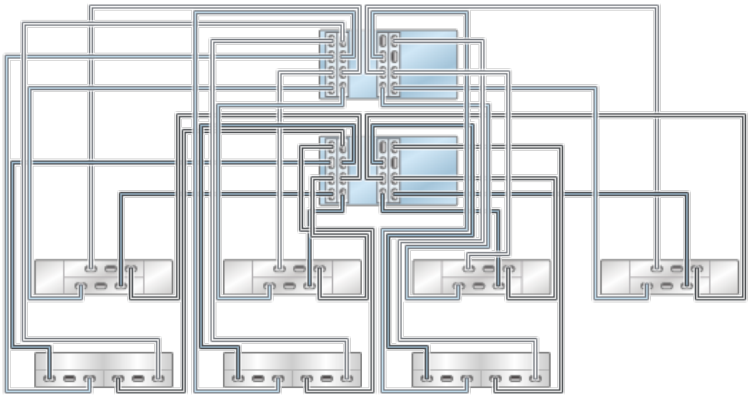


FIGURE 5-87 ZS3-4 clustered controllers with four HBAs connected to eight mixed disk shelves in eight chains (DE2-24 shown on the top)

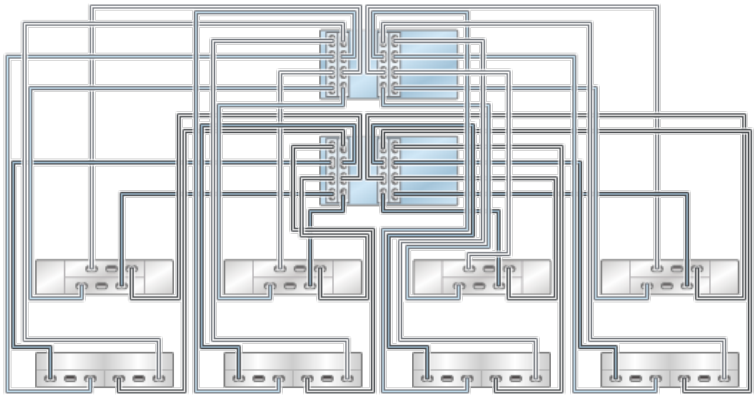
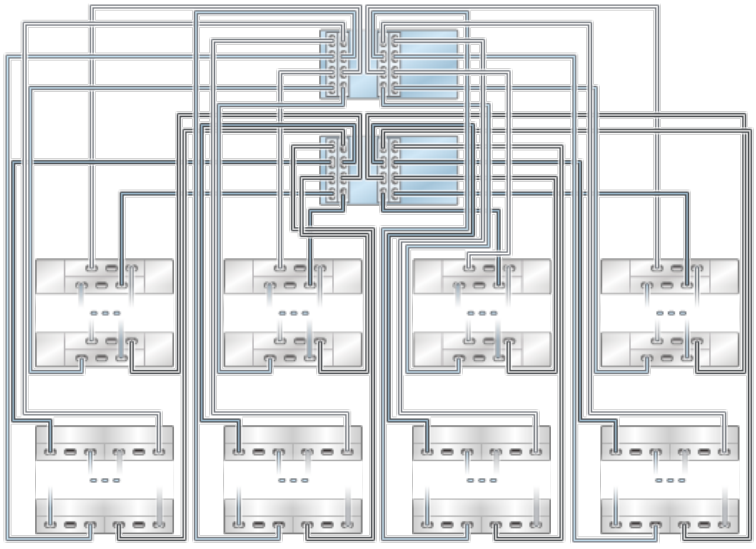



FIGURE 5-88 ZS3-4 clustered controllers with four HBAs connected to multiple mixed disk shelves in eight chains (DE2-24 shown on the top)