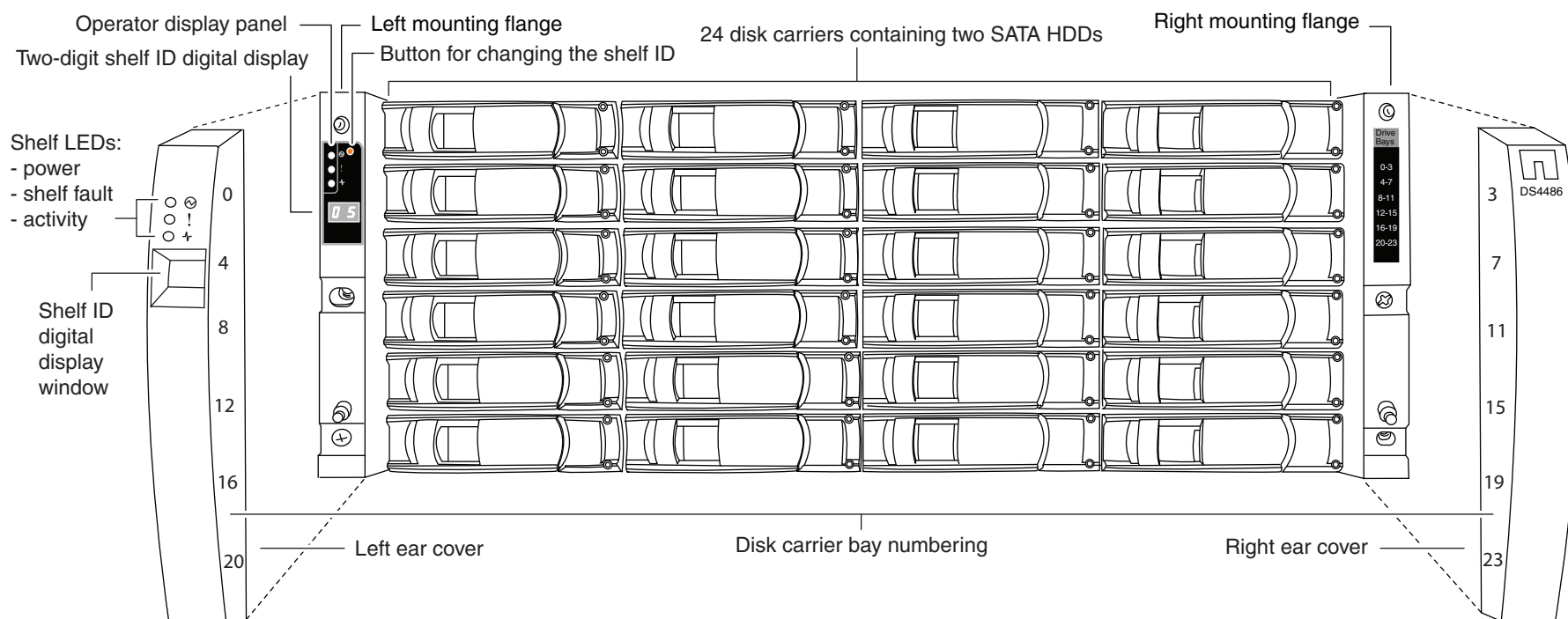
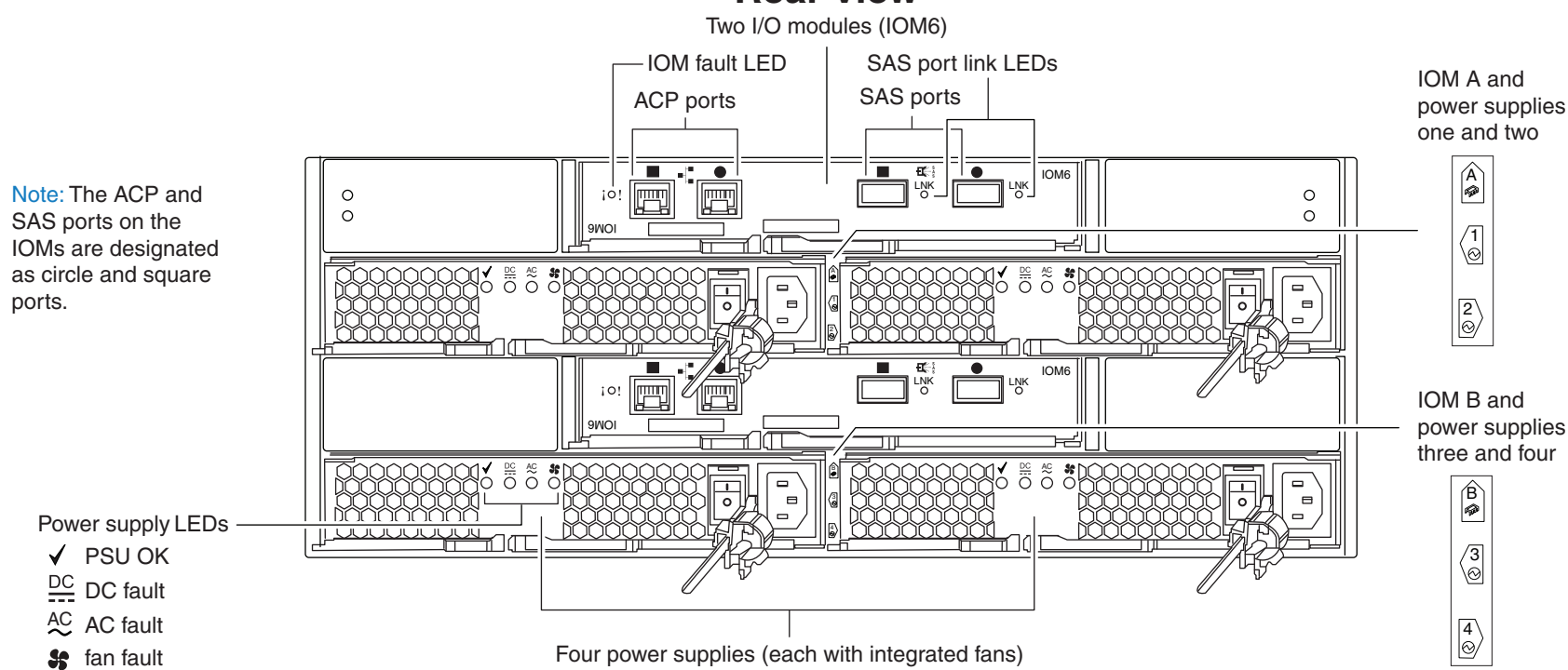


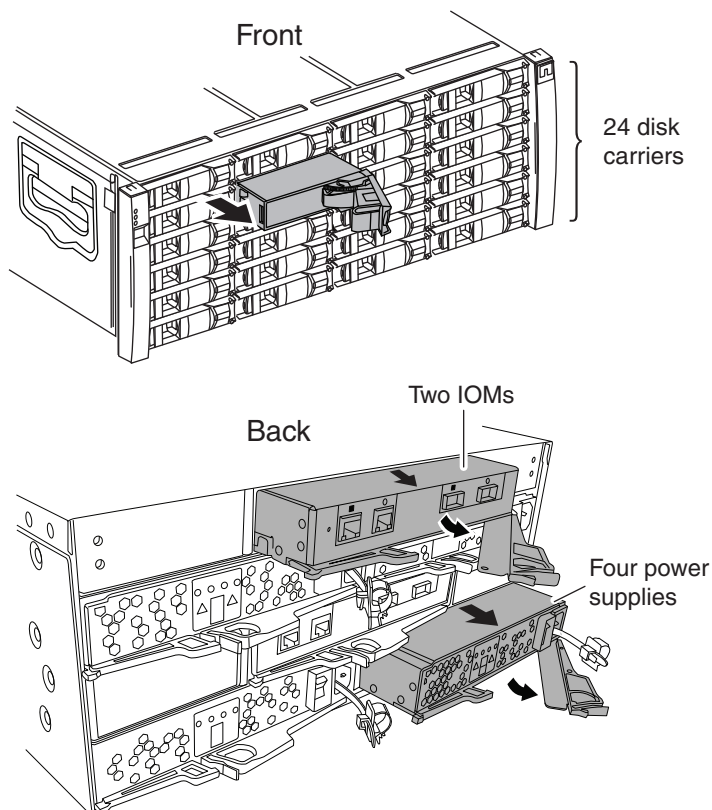
## Front view



## Rear view



### Component replacement map



- Power supplies and disk carriers are hot-swappable. (Replace the power supply within two minutes of removal to minimize disruption to the disk shelf's airflow.)
- IOMs are not hot-swappable in single-controller single-path configurations.

For component replacement instructions, including shelf replacement, LED behavior, and SES error messages, see the *DS4243, DS2246, DS4486, and DS4246 Disk Shelf Installation and Service Guide*.

### H1 shelf mode for DS4486 disk shelves

The system initiates the H1 shelf mode automatically when one of the disk drives in a disk carrier has faulted and data from the good disk drive is being copied to a spare. Do not remove any faulted disk carrier while the disk shelf is in H1 shelf mode.

For details about how H1 shelf mode works, see the *DS4243, DS2246, DS4486, and DS4246 Disk Shelf Installation and Service Guide*.

### Hot-adding disk shelves

If you are hot-adding disk shelves to an existing storage system, see the applicable document for the system requirements and procedure:

- For storage systems, see the *DS4243, DS2246, DS4486, and DS4246 Disk Shelf Installation and Service Guide*.
- For MetroCluster systems using SAS optical cables, see *Configuring a stretch MetroCluster system with SAS disk shelves and SAS optical cables*.
- For MetroCluster systems using FibreBridge 6500N bridges, see *Configuring a MetroCluster system with SAS disk shelves and FibreBridge 6500N bridges*.

These documents can be found on the NetApp Support Site at [support.netapp.com](http://support.netapp.com).

### Alternate Control Path (ACP) capability

For maximum storage availability and stability, storage systems with SAS disk shelves have the option to use the ACP capability. ACP is a protocol that enables Data ONTAP® to manage and control the DS4486 disk shelf storage subsystem. It uses a separate network from the data path so it can independently perform recovery whenever certain interruptions are detected in the data path.

To use the ACP capability, you must cable the ACP ports on the disk shelves and connect the disk shelves to the dedicated network interface on each storage system controller. At system setup, you enable ACP functionality by configuring ACP parameters. If your storage system does not have a dedicated onboard network interface for ACP, you assign one at system setup.

Standard ACP cabling rules apply to all storage systems and can be found in the *Universal SAS and ACP Cabling Guide*. ACP functionality, configuration, and enabling information can be found in the *Data ONTAP Storage Management Guide*.

**Note:** If at initial storage system setup you choose not to use the ACP capability, you can use it later by cabling the ACP connections and enabling ACP by running setup again.

## System requirements

For the most current information about supported Data ONTAP releases, platforms, SAS disk shelves, disk drives, and SAS cables, see the Hardware Universe on the NetApp Support Site at [support.netapp.com](http://support.netapp.com).

## Documentation

For more disk shelf and safety information, see the *DS4243, DS2246, DS4486, and DS4246 Disk Shelf Installation and Service Guide*.

All documentation can be found on the NetApp Support Site at [support.netapp.com](http://support.netapp.com).

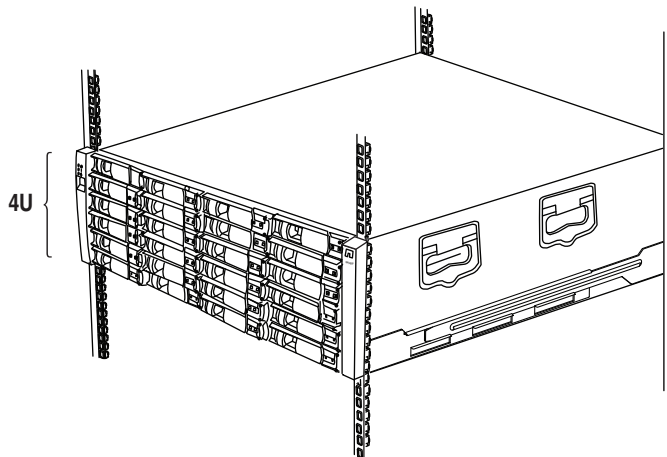
### 1 Ground yourself

Ground yourself to the storage system chassis. A grounding leash is shipped with new storage systems. You must provide your own if you are only installing a disk shelf.

**Note:** You do not need to ground DS4486 disk shelves; grounding is done through the power cords.

### 2 Installing the disk shelf

**Note:** Disk shelves ship with IOMs, power supplies, and four disk carriers installed in the disk shelf. The four disk carriers contain the Data ONTAP root volume. Best practice is to leave the drive carriers in the disk shelf when installing the disk shelf.



1. If you are installing the disk shelf in an equipment rack or NetApp cabinet, you must install the rail kit that came with your disk shelf.

**Note:** If you are installing the disk shelf in a NetApp cabinet, you should have received the X8783 rail kit.

2. Install and secure the disk shelf onto the support brackets and rack, or in the system cabinet, as applicable.

3. Carefully insert the remaining disk carriers into the disk shelf using two hands.

**Note:** Do not place hands on the disk drive boards exposed on the underside of the disk carrier.

## CAUTION LIFTING HAZARD

A disk shelf containing the two IOMs, four power supplies, and four disk carriers weighs 82 lbs (37 kg).



To reduce the weight of a disk shelf to approximately 53 lbs (24 kg), remove all the IOMs and power supplies before lifting.

### 3 Set disk shelf IDs

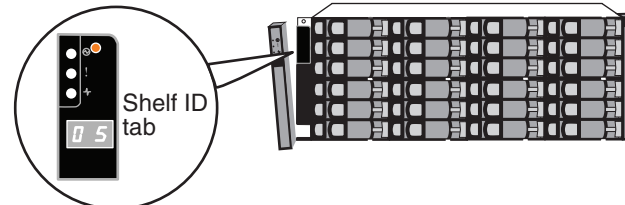
1. Connect power cords to the disk shelf and turn on the power to the disk shelf.  
**Note:** Connect power supplies in slots 1 and 3 to one power source and power supplies in slots 2 and 4 to a different power source for resiliency.

2. Visually verify that the ID for each disk shelf is unique. If not, set the disk shelf ID:

- Remove the left ear cover.
- Press and hold the button until the first digit blinks.
- Press the button until the correct number is displayed.
- Repeat steps b and c for the second digit.
- Press and hold the button until the second number stops blinking.

Result: Both numbers blink and the operator display panel fault LED illuminates in about five seconds.

- Power-cycle the disk shelf to make the new disk shelf ID take effect.



**Note:** A valid disk shelf ID is 0-98.

**Note:** A unique shelf ID is required for each SAS disk shelf within the entire storage system. If your storage system has SAS and FC disk shelves, shelf IDs do not need to be unique between the SAS and FC disk shelves. (FC shelf IDs continue to be unique within each FC loop. SAS shelf IDs continue to be unique to all other SAS shelves in the storage system.)

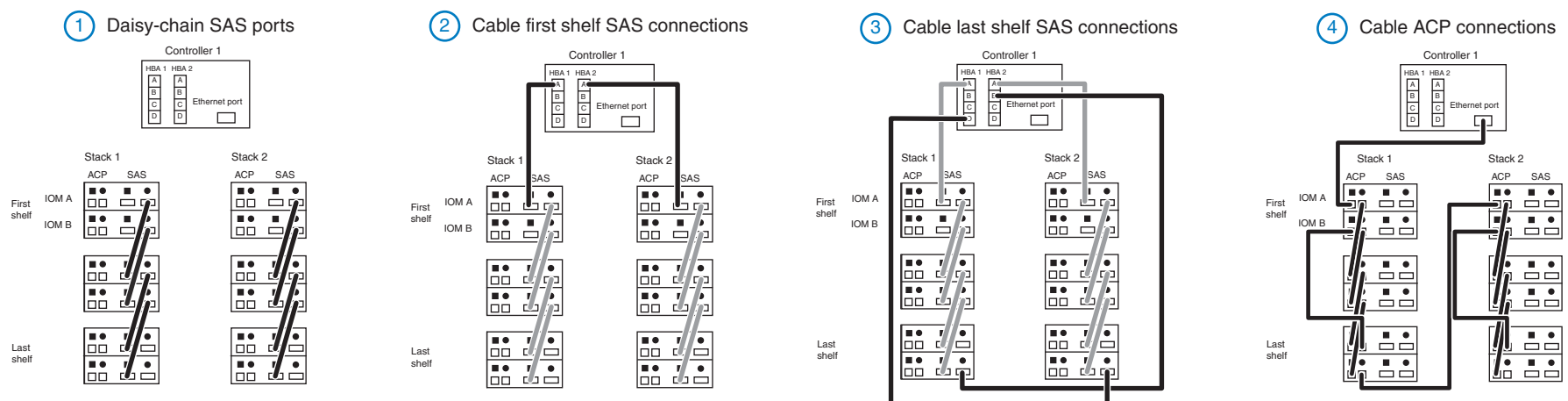
### 4 Cable the system

If you are using HBAs, they must already be installed in the storage system.

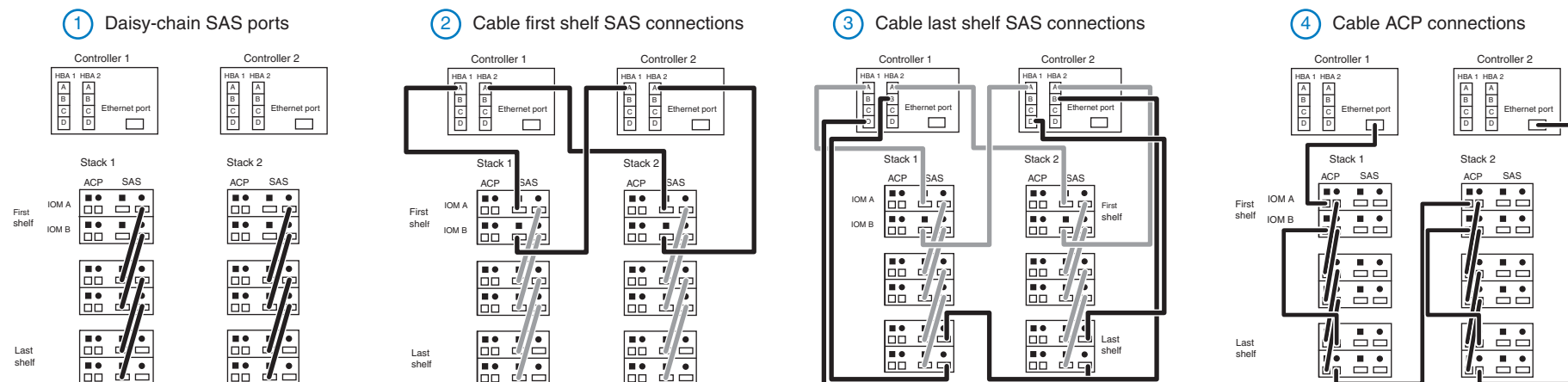
- Cable controllers. See the documentation that came with your storage system for how to cable the controllers.
- Cable disk shelves. Following are steps to cable two common configurations. For SAS and ACP rules, and more cabling configurations, see the *Universal SAS and ACP Cabling Guide*.

**Note:** To address failed cables, replace SAS copper for SAS optical cables, or correct cabling on a storage system that is up and serving data, see the *DS4243, DS2246, DS4486, and DS4246 Disk Shelf Installation and Service Guide*.

#### Single controller with two quad-port SAS HBAs supporting two stacks of disk shelves Dual-path connectivity



#### High availability (HA pair) with two quad-port SAS HBAs supporting two stacks of disk shelves Multipath HA connectivity



### 5 Boot the system and proceed with setup

- See the *Installation and Setup Instructions* that came with your storage system for booting your storage system and for system setup.

- To take advantage of the ACP capability, you can enable it at setup or later. See the *Data ONTAP Software Setup Guide* for the setup worksheet and other setup information.