



Storage Controller Considerations

This appendix provides storage controller (HBA) information.

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Storage Controller Card Firmware Compatibility

Firmware on the storage controller (RAID or HBA) must be verified for compatibility with the current Cisco IMC and BIOS versions that are installed on the node. If not compatible, upgrade or downgrade the storage controller firmware using the Host Upgrade Utility (HUU) for your firmware release to bring it to a compatible level.



Note **For nodes running in standalone mode only:** After you replace controller hardware (HX-RAID-M6T, HX-RAID-M6HD, HX-RAID-M6SD, HX-SAS-M6T, or HX-SAS-M6HD), you must run the Cisco UCS Host Upgrade Utility (HUU) to update the controller firmware, even if the firmware Current Version is the same as the Update Version. Running HUU is necessary to program any controller specific values to the storage controller for the specific node. If you do not run HUU, the storage controller may not be discovered..

See the HUU guide for your Cisco IMC release for instructions on downloading and using the utility to bring node components to compatible levels: [HUU Guides](#).

RAID Backup (Supercap)

This server supports installation of one Supercap unit. The unit mounts to a bracket in-line with the fan modules.

The optional SCPM provides approximately three years of backup for the disk write-back cache DRAM in the case of a sudden power loss by offloading the cache to the NAND flash.

For Supercap unit replacement instructions, see [Replacing the Supercap \(RAID Backup\)](#).

Mixing Drive Types in RAID Groups

For the best performance follow these guidelines:

- Use either all SAS or all SATA drives in a RAID group.
- Use the same capacity for each drive in the RAID group.
- Never mix HDDs and SSDs in the same RAID group.

Storage Controller Cable Connectors and Backplanes

This section describes cabling for the storage controllers and backplanes. The SAS/SATA cables are factory-installed and are used for all supported internal controllers.

This section also contains diagrams that show the cable-to-drive mapping.

Cisco M6 12G Modular SAS RAID Controller or HBA For Up To 16 Drives (UCSC-RAID-M6T)

The drive support differs by server version, as described in the following sections. These controllers are supported only in these server versions:

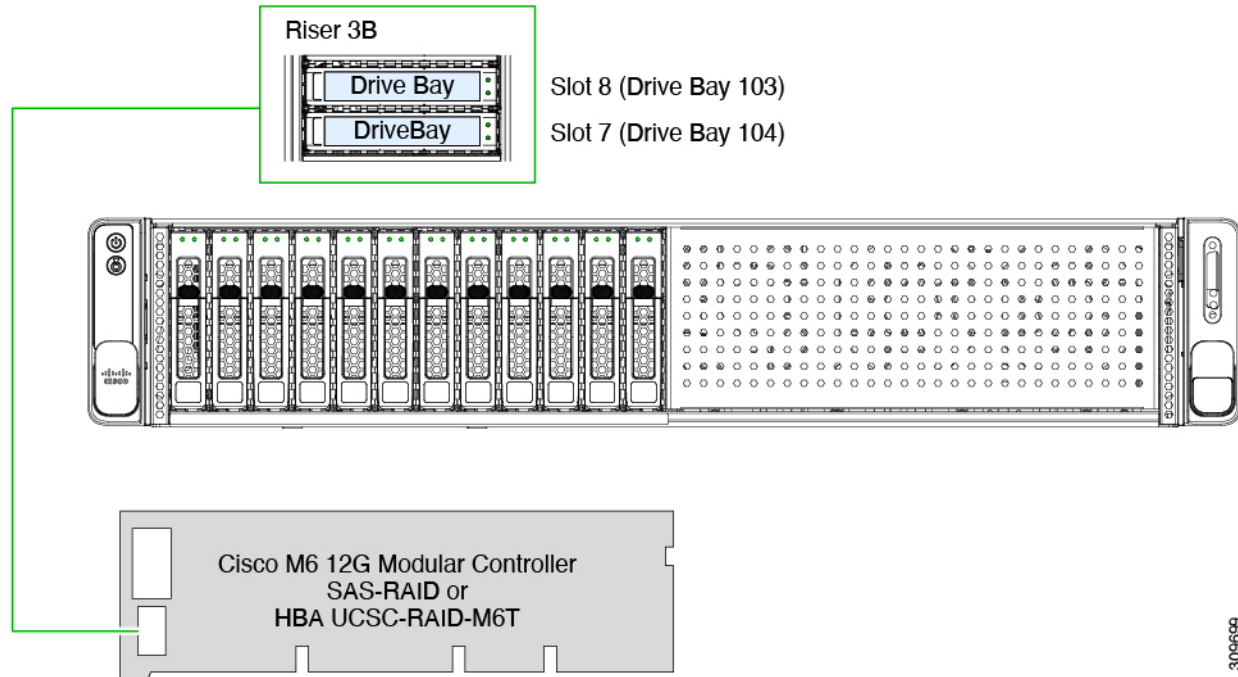
- SFF 12-Drives, SAS/SATA
- SFF 12-Drives NVMe

SFF 12-Drives SAS/SATA

This HW RAID or HBA option can control up to 12 front-loading SAS/SATA drives in this server version, plus two rear-loading SAS/SATA drives.

1. Connect a SAS/SATA cable from the small Slimline connector on the RAID card.
2. Connect a SAS/SATA cable to the Riser 3B connector on the PCE Riser 3 cage.

Figure 1: SFF, 12-Drive UCSC-C240-M6S Cabling With UCSC-RAID-M6T



Cisco 12G Modular SAS RAID Controller or HBA For Up To 28 Drives (UCSC-RAID-M6SD)

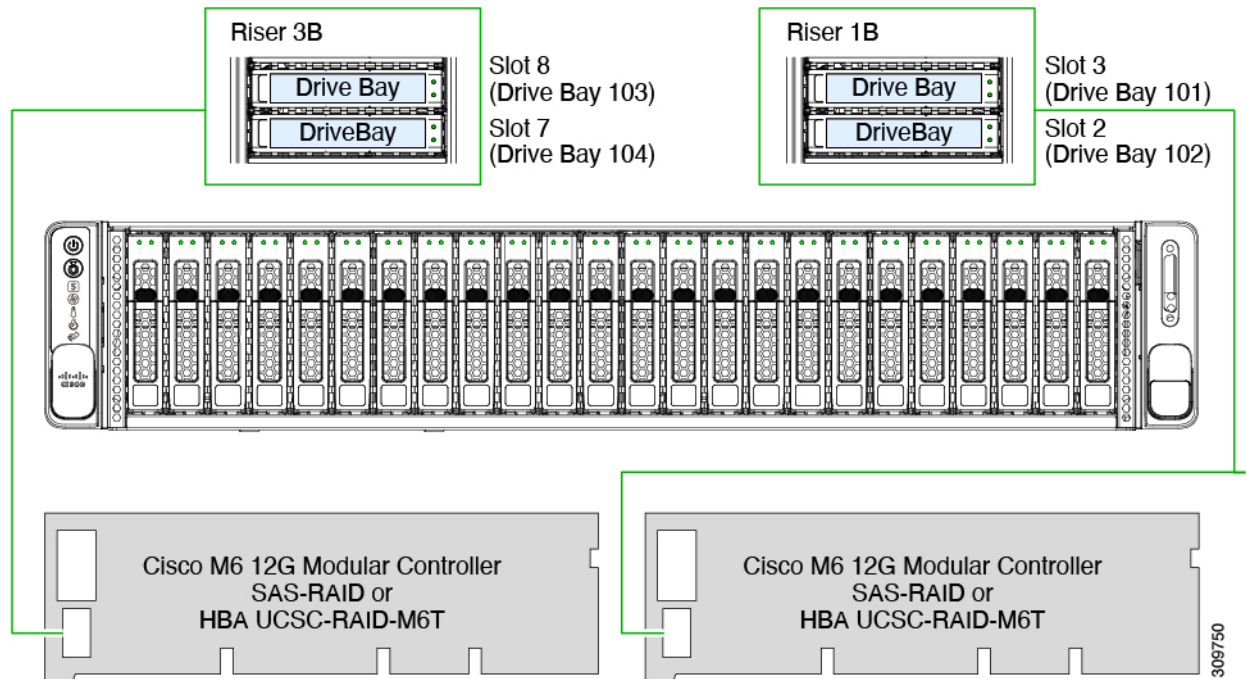
This controller is supported only in this server version:

- SFF 24-Drives SAS/SATA
- SFF 24 Drives NVMe

This HW RAID or HBA option can control up to 24 front-loading SAS/SATA drives in this server version, plus 2 rear-loading SAS/SATA drives.

1. Connect a SAS/SATA cable from the small Slimline connector on the RAID card.
2. Connect a SAS/SATA cable to the Riser 3B connector on the PCE Riser 3 cage.
3. Connect a SAS/SATA cable from the second small Slimline connector on the RAID card.
4. Connect a SAS/SATA cable to the Riser 1B connector on the PCE Riser 1 cage.

Figure 2: SFF, 24-Drive UCSC-C240-M6SX Cabling With UCSC-RAID-M6SD



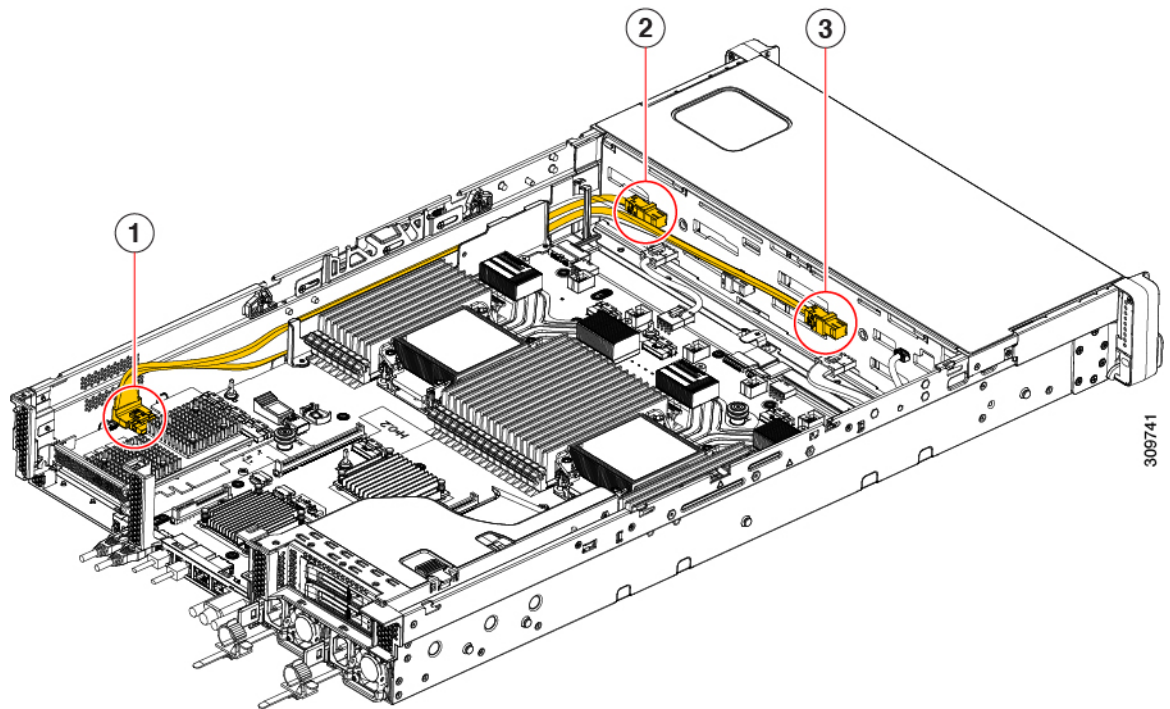
Cisco 12G Modular SAS RAID Controller or HBA For Up To 32 Drives (UCSC-RAID-M6HD)

LFF 12-Drives

This HW RAID or HBA option can control up to 12 front-loading SAS/SATA drives in this server version, plus 2 rear-loading SAS/SATA drives, and up to 4 optional mid mount drives. This option is only supported for the LFF drive version of the server.

To connect the RAID card to the front-loading drives, connect the split cable (Y cable) as follows:

1. Connect the single end (1) of the SAS/SATA cable to the RAID card.
2. Connect each of the dual-end connectors (2 and 3) to the two front backplane connectors.

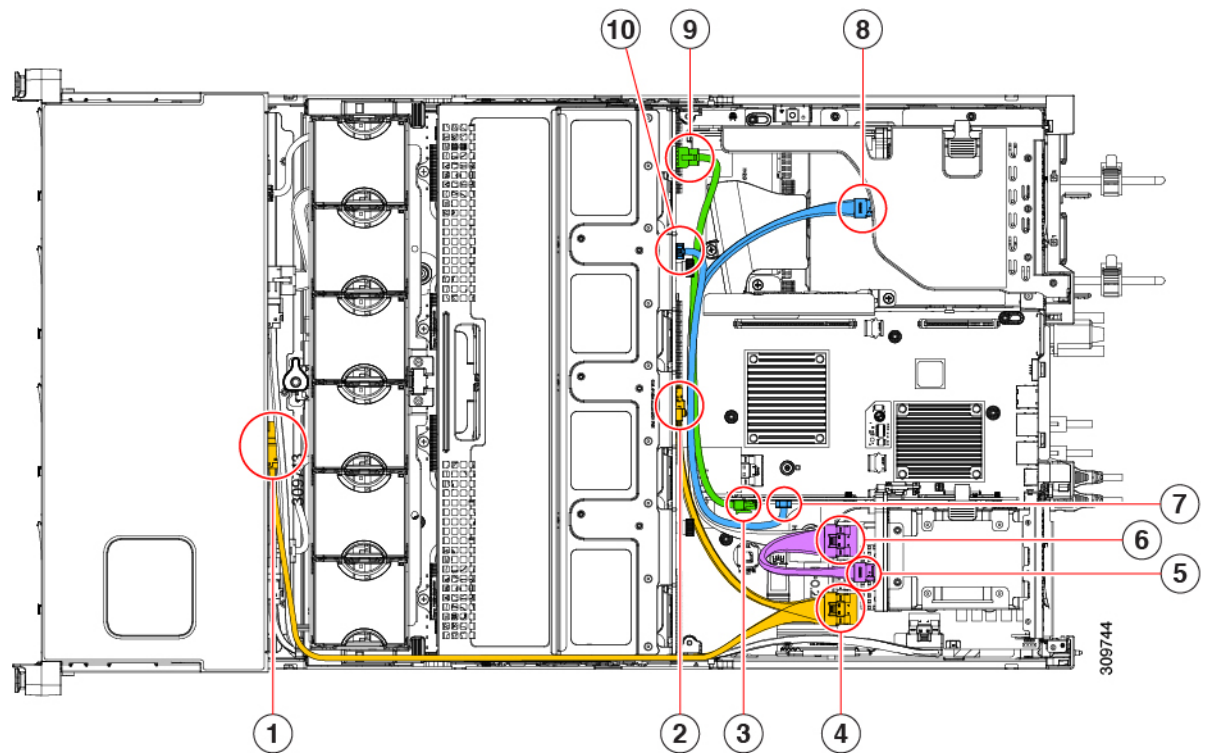


To connect the RAID card to the front drives and the mid-mount drives:

1. Connect one end of the SAS/SATA cable from the RAID card to the midplane connector.

To connect the rear drives:

1. Connect the SAS/SATA cable from the RAID card (6) to the Riser 1 connector (5).
2. Connect the SAS/SATA cable from the RAID card (7) to the Riser 3 connector (8) and the midplane connector (10).



For More RAID Utility Information

Cisco RAID Information

- For embedded SATA support of drives connected to SATA through the SATA Interposer card, the drives are managed directly as AHCI drives.
- The Cisco HX C Series M6 storage adapter supports only SAS/SATA drives. Tri-mode support is not supported.
- For basic information about RAID and for using the utilities for the RAID controller cards that are supported in Cisco servers, see the [Cisco UCS Servers RAID Guide](#).

Broadcom RAID Information

- For hardware SAS MegaRAID configuration—[Broadcom 12Gb/s MegaRAID™ Tri-Mode Software User Guide](#).
- The Broadcom utilities have help documentation for more information about using the utilities. Go to [Broadcom StorCLI 12Gb/s MegaRAID™ Tri-Mode User Guide](#).