Storage Controller Considerations

This appendix contains the following topics:

- Supported Storage Controllers and Cables, on page 1
- Storage Controller Card Firmware Compatibility, on page 2
- RAID Backup (Supercap), on page 2
- Write-Cache Policy for Cisco 12G SAS Modular RAID Controllers, on page 2
- Mixing Drive Types in RAID Groups, on page 3

Supported Storage Controllers and Cables

This server supports a single, PCIe-style, SAS RAID or HBA controller that plugs into a dedicated internal socket.

Note NVMe PCIe SSDs cannot be controlled by RAID controller.

This server supports the RAID and HBA controller options and cable requirements shown in the following table.

Controller	Server Version/Maximum Drives Controlled	RAID Levels	Optional Supercap Backup?	Required Cables	
UCSC-RAID-HP-D Required in dual CPU configuration	Cisco UCSC 24G Tri-Mode RAID Controller with 4GB FBWC (14 drives each) for SAS/SATA/NVMe operating at 3Gbps, 6Gbps, 12Gbps and 24Gbps.	0, 1, 5, 6, 10, 50, 60, RAID0, and RAID00 JBOD mode is also supported	28 Two controllers, each manages 14 drives Controller 1: Slots 1-12 plus 103 and 104 Controller 2: Slots 13-24 plus 101 and 102	CBL-SASR1B-C245M8 for Riser 1 CBL-SASR1-C245M8 for Riser 1 CBL-SASR3B-C245M8 for Riser 3 BL-SASR3-C245M8 for Riser 3	4GB FBWC

UCSC-9500-8E-D	Cisco 9500-8e PCIe Gen 4.0 Tri-Mode Storage 12G SAS/SATA/NVMe HBA for external JBOD attach	All models of UCS C225 M8 and UCS C245 M8 server	NA	SAS HBA	NA

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 server. 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 servers running in standalone mode only: After you replace controller hardware (UCSC-RAID-M8, UCSC-RAID-M8HD, UCSC-SAS-M8, or UCSC-SAS-M8HD), 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. This is necessary to program the controller's suboem-id to the correct value for the server SKU. If you do not do this, drive enumeration might not display correctly in the software. This issue does not affect servers controlled in UCSM mode.

See the HUU guide for your Cisco IMC release for instructions on downloading and using the utility to bring server 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).

Write-Cache Policy for Cisco 12G SAS Modular RAID Controllers

For this server and other Cisco Generation M8 servers, the default write-cache policy for the Cisco Modular RAID controllers is flash-back write cache (FBWC). This utilizes the optimal performance characteristics of the controller.

You can change the write policy using the following methods:

- For standalone servers, use the Cisco IMC interface to set Virtual Drive Properties > Write Policy. See the “Managing Storage Adapters” section in your Cisco IMC Configuration Guide.

  Cisco IMC GUI and CLI Configuration Guides

- Use the LSI Option ROM Configuration Utility.

Mixing Drive Types in RAID Groups

- When you mix HDDs and SSDs ensure that:
  - all HDDs have their own RAID volume
  - all SSDs have their own RAID volume
- When using a Cisco M8 12G SAS RAID controller or Cisco 12G SAS HBA, you can mix SAS HDDs and SAS/SATA SSDs.
- SED drives can be mixed with the non-SED drives