

Smarter technology for all

# Servicing the ThinkSystem SR850 V3

ES72436

May 2023

Lenovo

# Prerequisites

- [ES42373 – Intel Xeon processor architecture for ThinkSystem V3 servers](#)
- [ES51757B – Introducing ThinkSystem tools](#)
- [ES52374 – ThinkSystem tools for the ThinkSystem V3 platform](#)
- [ES41759C – ThinkSystem problem determination](#)
- [ES51780C – Servicing the ThinkSystem storage controllers](#)

# Objectives

After completing the course, you will be able to:

- Describe the ThinkSystem SR850 V3 and its components
- List the SR850 V3 specifications
- Describe the SR850 V3 configurations and block diagrams
- Describe the SR850 V3 management tools
- Describe the problem determination steps and explain how to troubleshoot issues with the SR850 V3

# Product overview

Product description and front, rear, and inside views

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## Product overview

The ThinkSystem SR850 V3 is a 2U four-socket rack server that features 4<sup>th</sup> Generation Intel Xeon Scalable processors (Intel code name: Sapphire Rapids). The SR850 V3 supports up to 24 2.5-inch drives. Unlike the SR850 V2, the SR850 V3 does not have a processor expansion tray. The SR850 V3 can be installed with up to four processors in a newly designed single system board assembly.

There are three SR850 V3 machine types:

- 7D96: three-year warranty
- 7D97: one-year warranty
- 7D98: SAP HANA configurations with a three-year warranty





## Front view



Click the picture to see more information about the SR850 V3 front ports and LED information panel.

## Inside view

Click the buttons to see inside views of the SR850 V3.

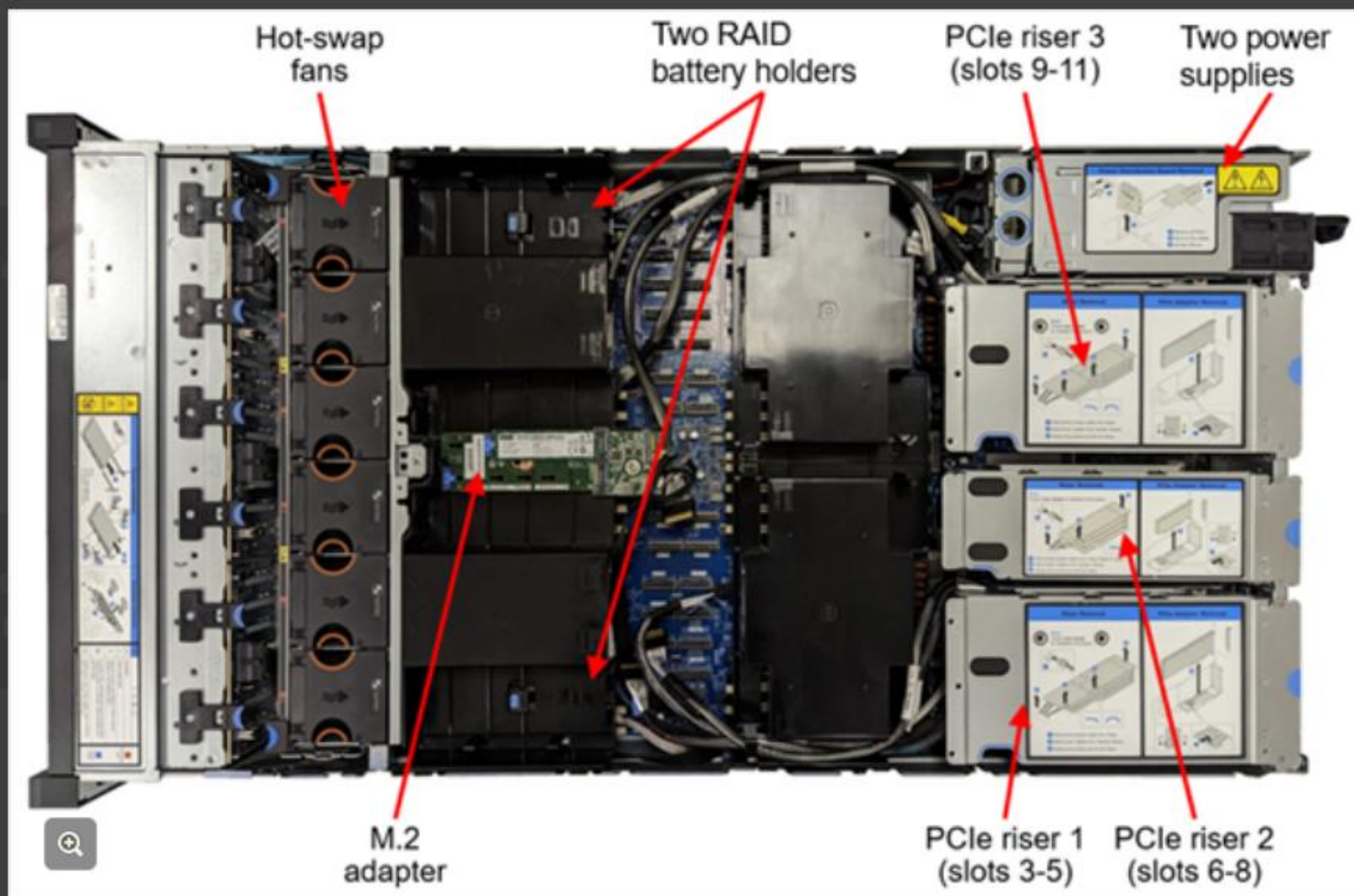
**Inside view with an  
air baffle**

**Inside view without  
an air baffle**



# Inside view

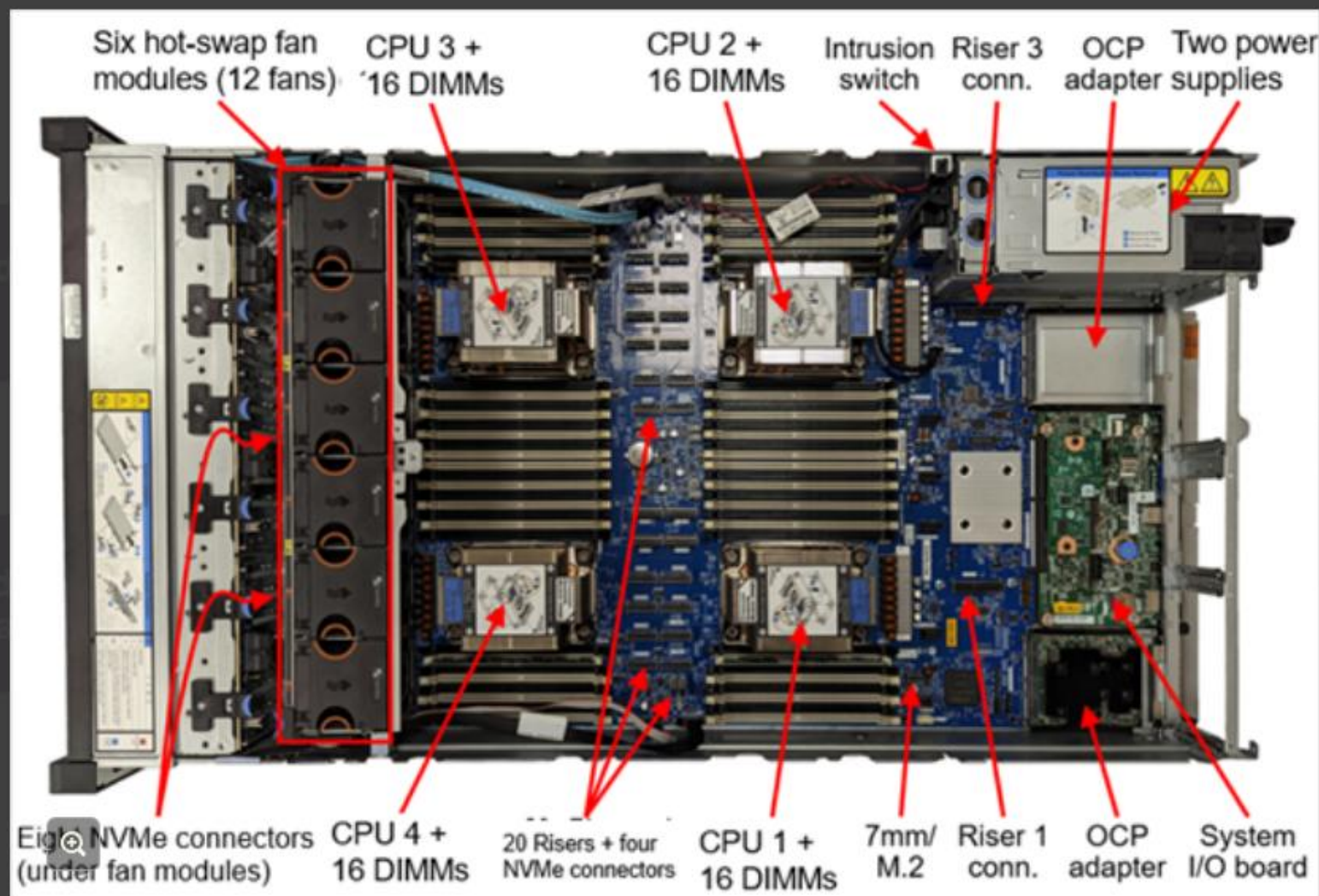
## Inside view with an air baffle





# Inside view

## Inside view without an air baffle



## System I/O board and RoT module

The SR850 V3 system board has three components:

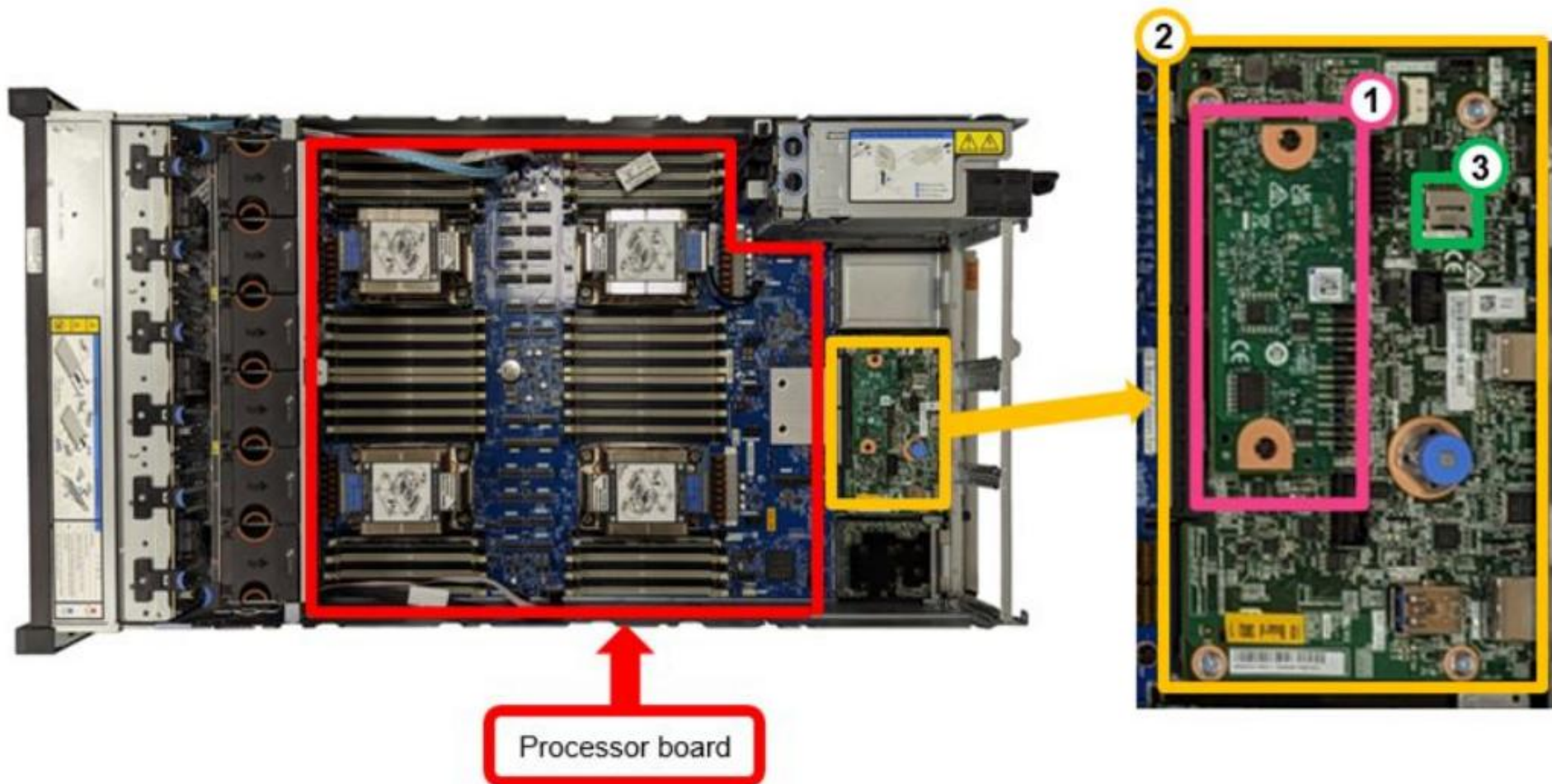
- Processor board
  - A board containing CPU sockets, PCIe slots, memory slots, and other server component connectors
- System I/O board
  - A board containing the system BMC (XCC2) management port, USB ports, and a VGA connector
  - A Micro SD card slot to extend XCC2 storage space for the backup of firmware and for remote console virtual media
- Firmware and Root of Trust security module (RoT module)
  - A mezzanine card containing the Trusted Platform Module (TPM), UEFI firmware, XCC2 firmware, and a silicon Root of Trust

Click [HERE](#) to see the processor board, BMC I/O board, and RoT module locations



# System I/O board and RoT module

## Processor board, system I/O board, and RoT module



- ① RoT module
- ② System I/O board
- ③ Micro SD card slot

## Rear view – PCIe slots

The SR850 V3 supports three types of rear configuration.



Nine PCIe slots, six full-height PCIe slots, and three low-profile PCIe slots



Two 7 mm drives, three full-height PCIe slots, and three low-profile PCIe slots

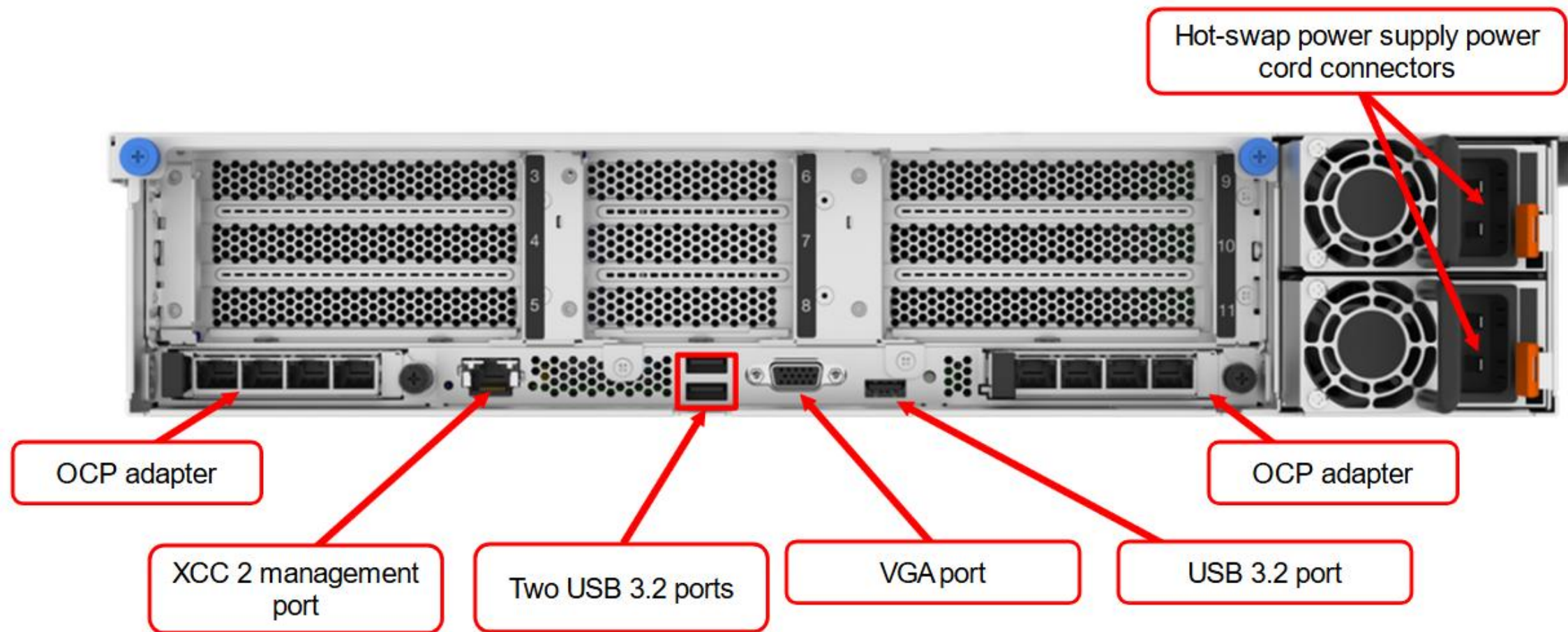


12 low-profile PCIe slots

**Note:** SR850 V3 models with 12 low-profile PCIe slots models cannot be upgraded in the field to support full-length adapters or double-width (DW) GPUs.



## Rear view – connectors





## Rear heat sink types

Depending on the processor and PCIe adapter configurations, the SR850 V3 should be installed with one of the following rear heat sinks:

**1U standard heat sink**

**2U standard heat sink**

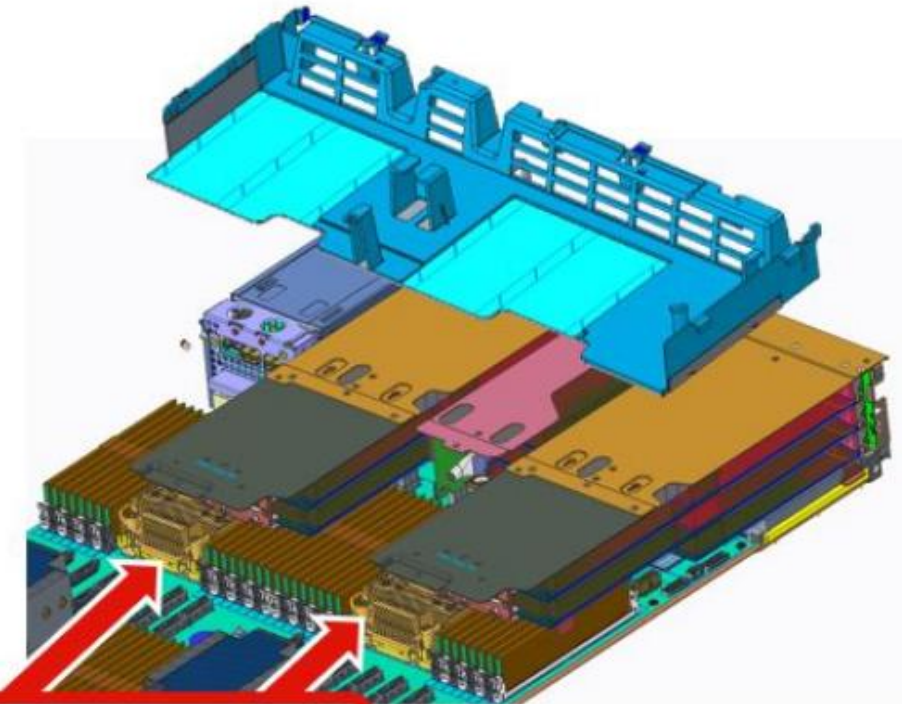
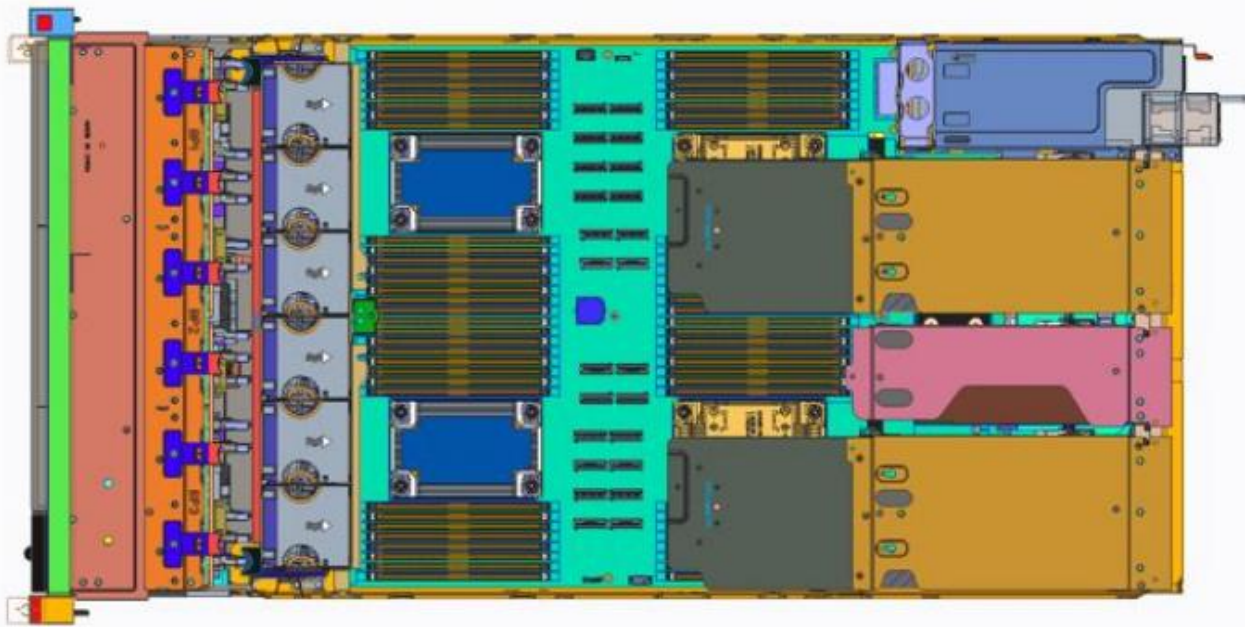
**2U performance heat sink**

Click the buttons to see more information about each type of heat sink.

## Rear 1U standard heat sink



- Support for full-length and half-length PCIe adapter configurations
- No support for the field kit to change from half-length to full-length PCIe riser cages
- A unique 1U rear air baffle is required



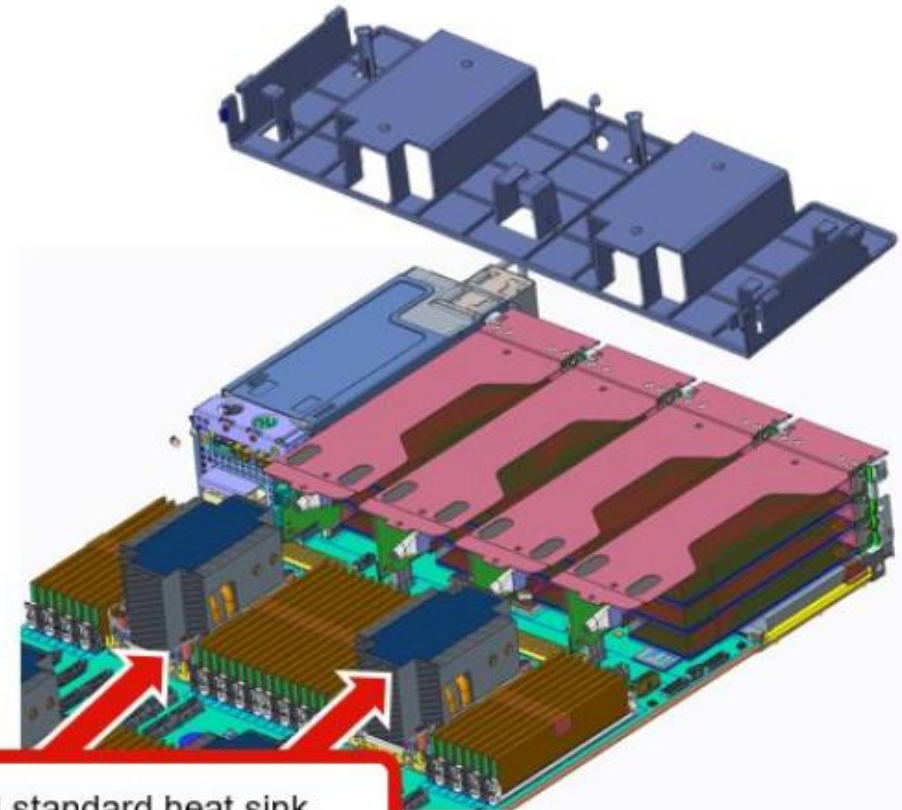
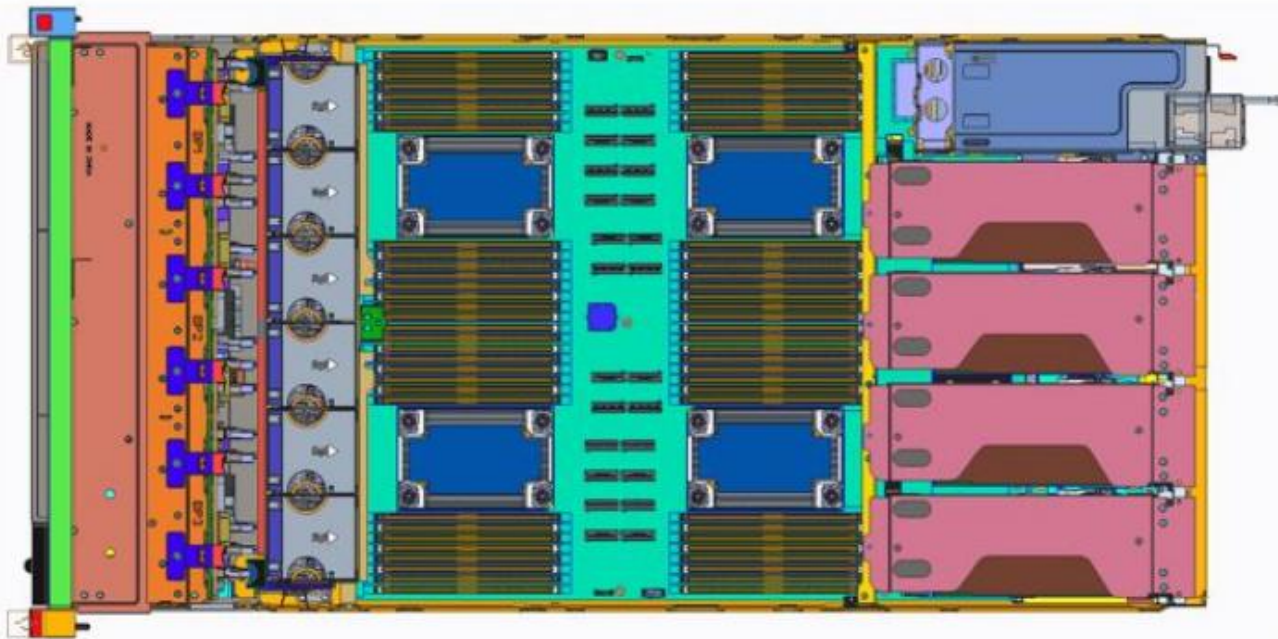
1U standard heat sink

## Rear 2U standard heat sink



### Rear heat sink types

- Support for the half-length PCIe adapter configuration only
- No support for the field kit to change from half-length to full-length PCIe riser cages
- A unique 2U rear air baffle is required



2U standard heat sink

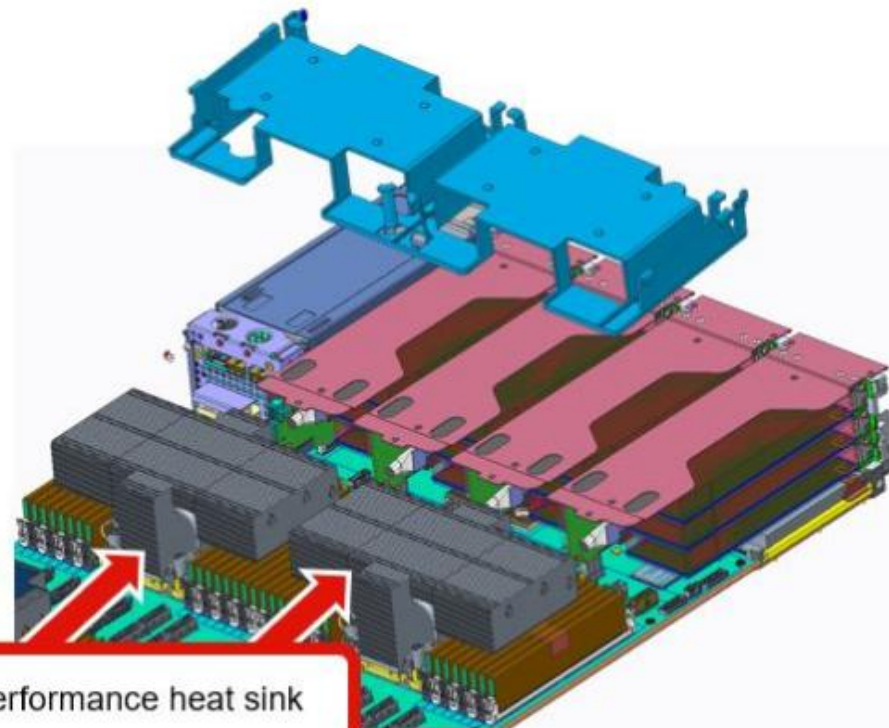
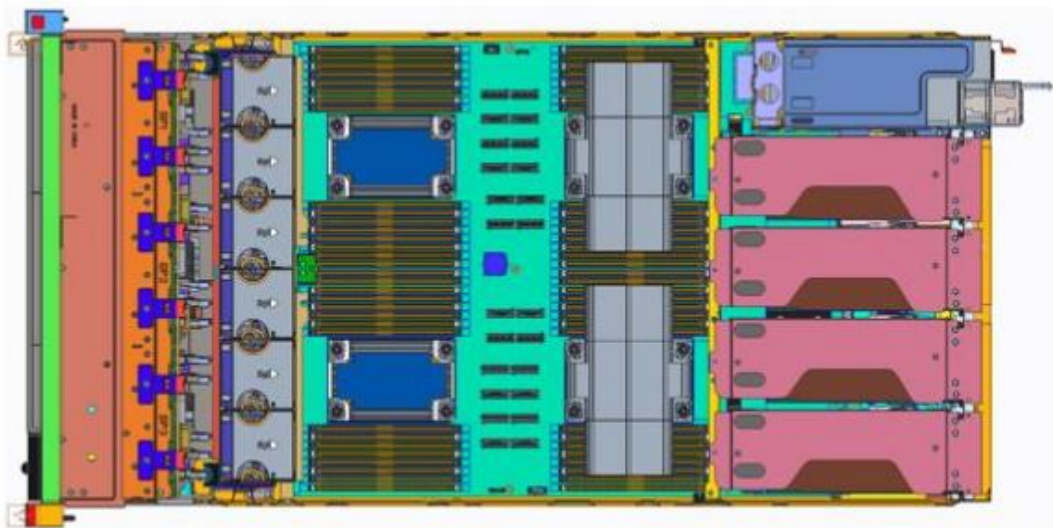


# Rear 2U performance heat sink



## Rear heat sink types

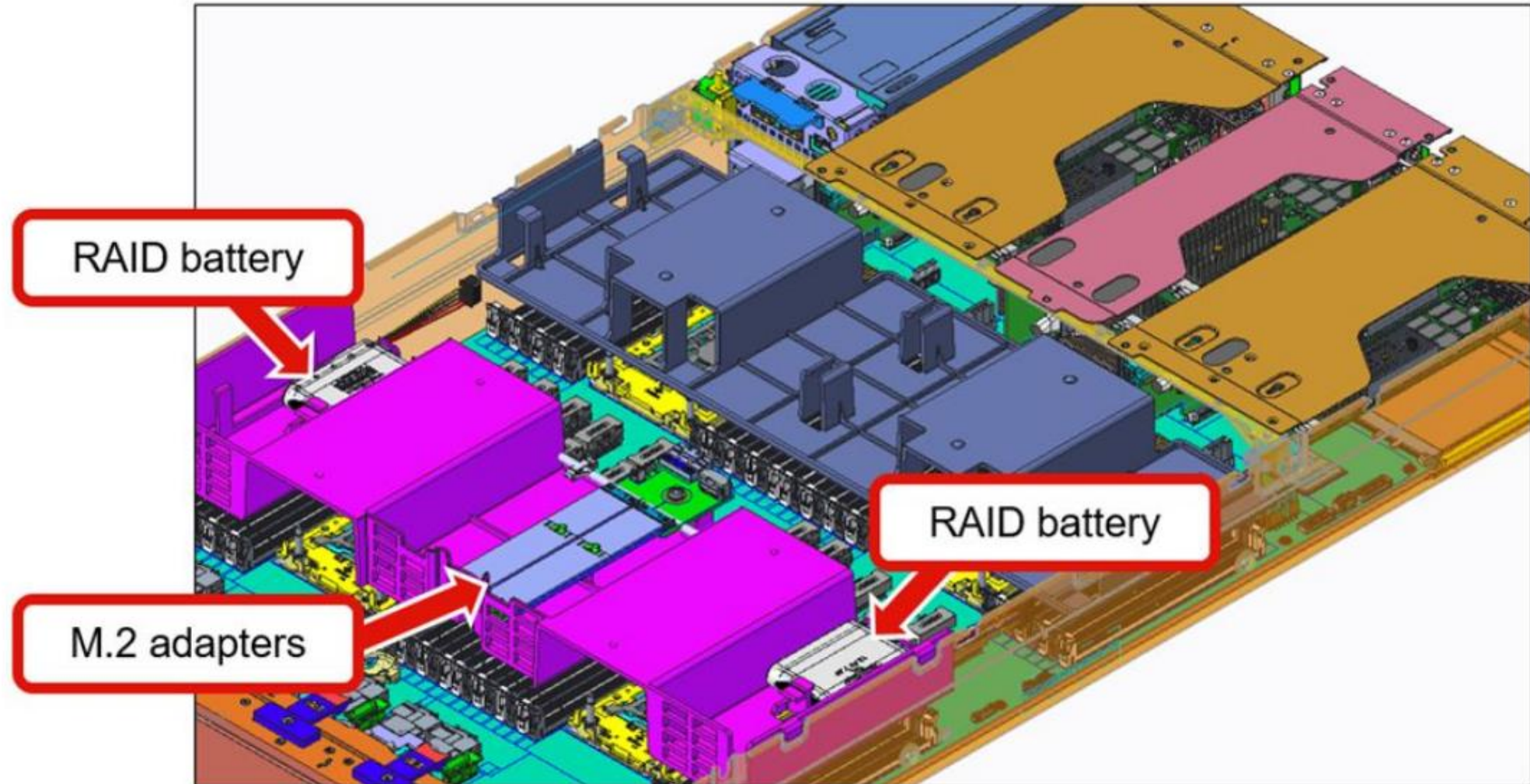
- Support for the half-length PCIe adapter configuration only
- No support for the field kit to change from half-length to full-length PCIe riser cages
- A unique 2U rear air baffle is required
- Before replacing a DIMM under a 2U performance heat sink, the service engineer must remove the 2U performance heat sink



2U performance heat sink

## RAID batteries and M.2 adapters

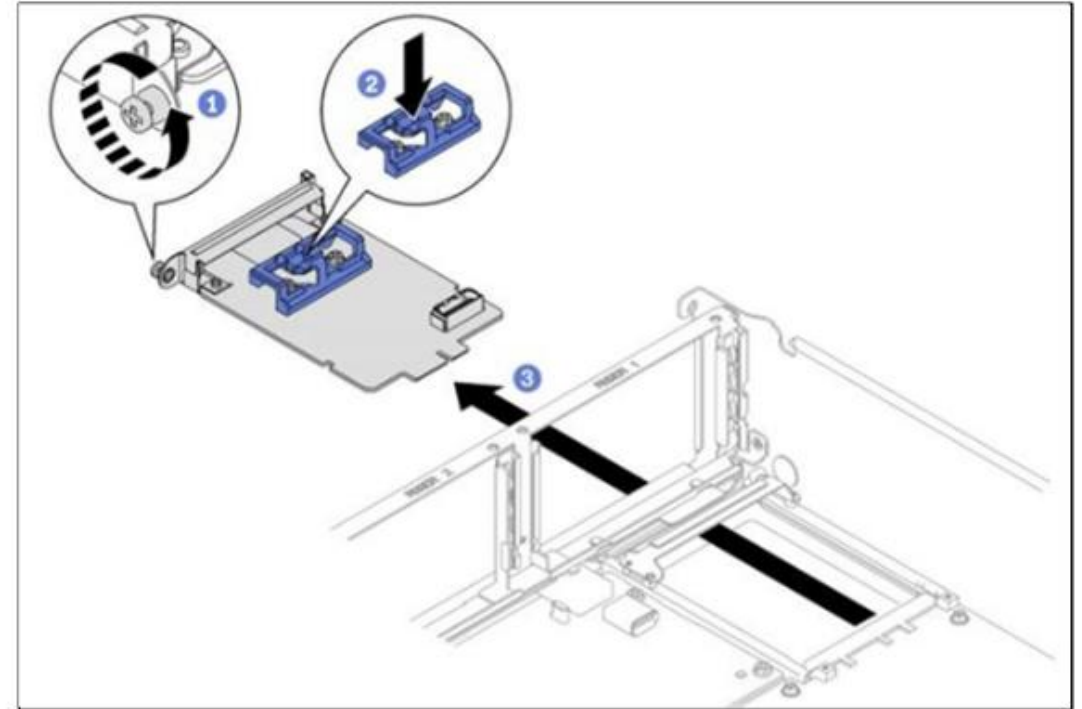
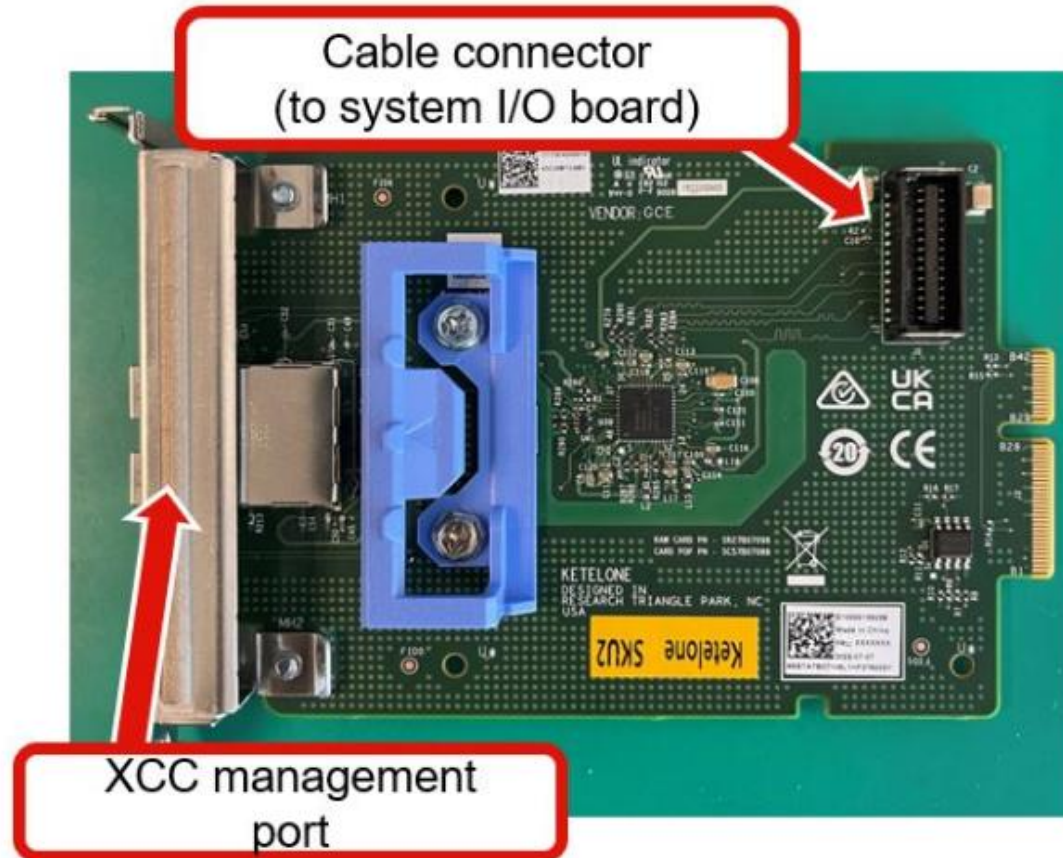
The SR850 V3 supports up to two RAID batteries and a side-by-side M.2 backplane with up to two M.2 adapters. The RAID batteries and M.2 backplane are attached to the front air baffle.





## Management NIC adapter

The SR850 V3 supports an optional management NIC adapter. The management NIC adapter provides a second RJ45 XCC management port. This adapter should be installed in the rear OCP slot 1.



Management NIC adapter removal schematic diagram