Smarter technology for all

Servicing the ThinkSystem SR630 V4

ES72641

September 2024

Prerequisites

- ES42692 - Intel Xeon processor architecture for ThinkSystem V4 servers
- ES52678 – ThinkSystem tools for the ThinkSystem V4 platform
- ES41759C – Introducing ThinkSystem problem determination
- ES51757B – Introducing ThinkSystem tools
- ES52374 – ThinkSystem tools for the ThinkSystem V3 platform
- ES51780C – Servicing Lenovo ThinkSystem storage controllers

Objectives

After completing the course, you will be able to:

- Describe the features and specifications of the ThinkSystem SR630 V4
- Identify the components of the SR630 V4
- Describe the configurations of the SR630 V4
- Describe the SR630 V4 management tools
- Describe the specific problem determination steps and explain how to troubleshoot issues with the SR630 V4

Product overview

Product description and front, rear, and inside views

ThinkSystem SR630 V4 product overview

The SR630 V4 (machine types: 7DG8, 7DG9, 7DGA, 7DGB, and 7DK1) is a 1U two-socket (1U2S) rack server that features Intel Xeon 6 Scalable E-core (code name: Sierra Forest) and P-core (code name: Granite Rapids) processors. The chassis supports either 2.5-inch or E3.S drives, and an expander can be used to support two 2.5-inch rear drives. The SR630 V4 also supports dual hot-swap M.2 drives with the new mechanical design. Up to three single-width GPUs are supported with limitations.

Note: E3.S drive support is scheduled for April 2025.

SR630 V4 specifications

Attribute	Specifications
Form factor	1U rack server
Processor	Up to two Intel Xeon 6 Scalable E-core (code name: Sierra Forest) and P-core (code name: Granite Rapids)
Memory	Supports up to 32 TruDDR5 RDIMMs, MCRDIMMs
Disk drive bays	• Up to 12 2.5-inch or 16 EDSFF E3.S drives • Front: Up to 10 hot-swappable 2.5-inch or 16 hot-swappable EDSFF E3.S drives • Rear: Two hot-swappable 2.5-inch drives • Two M.2 boot drives, hot-swappable option • Direct NVMe, Intel VROC/VMD (RAID 0,1,5, and 10)
Network interface	Two OCP 3.0 adapters

Note: For the latest specifications, refer to the product guide on Lenovo Press.

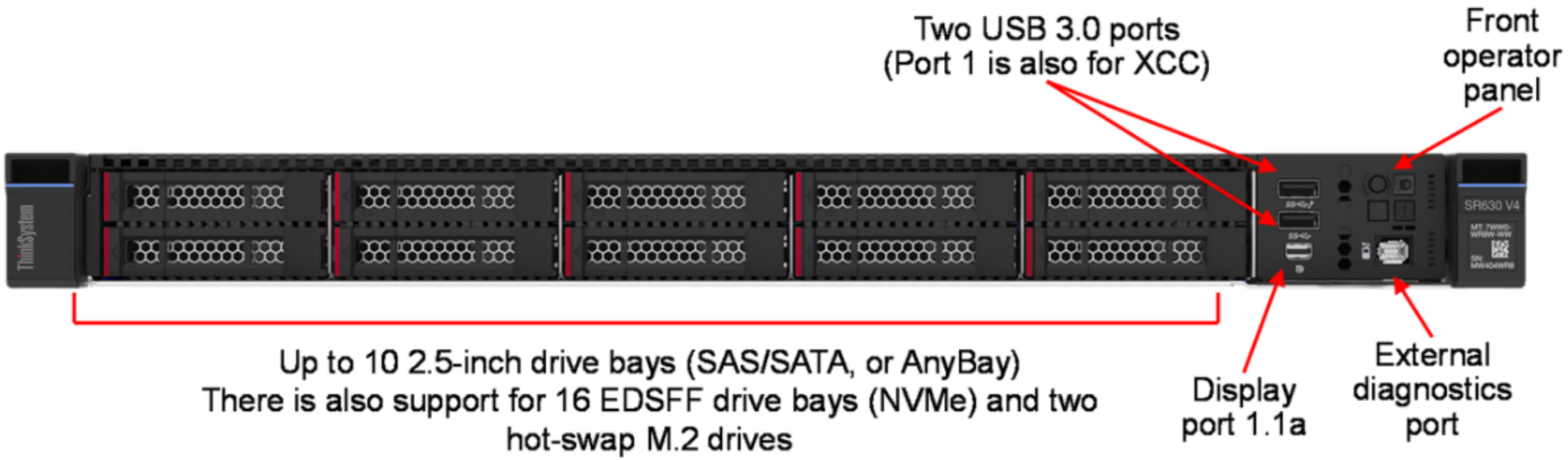
SR630 V4 specifications

Attribute	Specifications
PCIe expansion slots	• Up to five PCIe 5.0 slots • Two OCP 3.0 slots • Internal HBA/RAID adapter
GPU support	Three single-width 75 W GPUs
Cooling	Four 2-in-1 hot-swap system fan packs (standard, high-performance, and ultra)
Power supplies	Two hot-swap redundant power supplies
HBA or RAID support	• Intel VROC/VMD for NVMe RAID • RAID controllers with eight or 16 ports • Non-RAID HBA with eight or 16 ports • Internal CFF 16i HBA/RAID

Note: For the latest specifications, refer to the product guide on Lenovo Press.

Front view

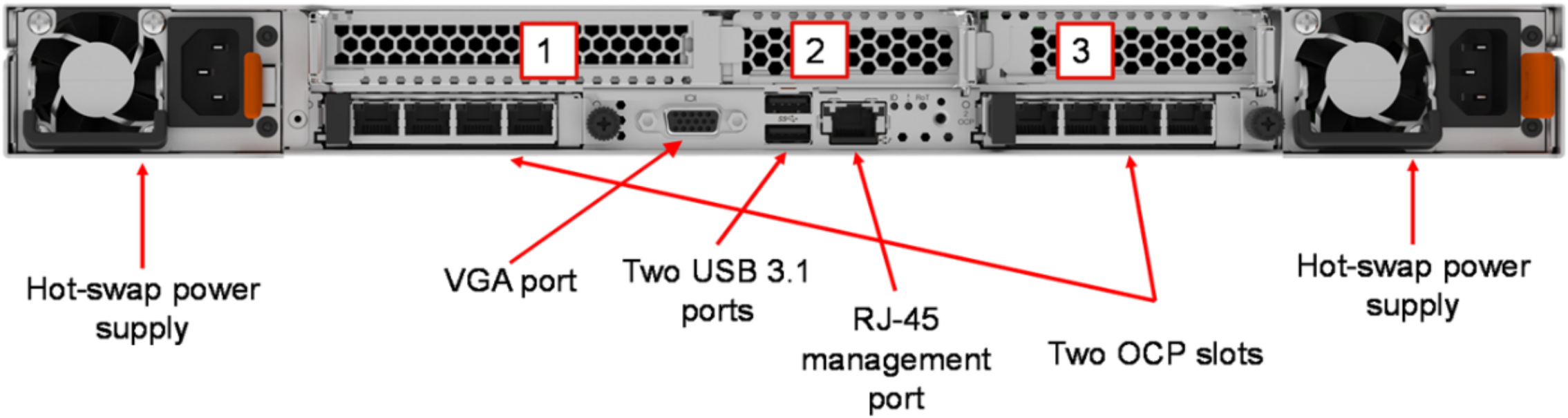
This figure shows the configuration with 10 2.5-inch drives. The other front drive configurations will be shown in the *System configurations and diagrams* section of this course.



Note: For additional front hot-swap drive and PCIe slot configuration information, refer to the Front drive bay configurations page.

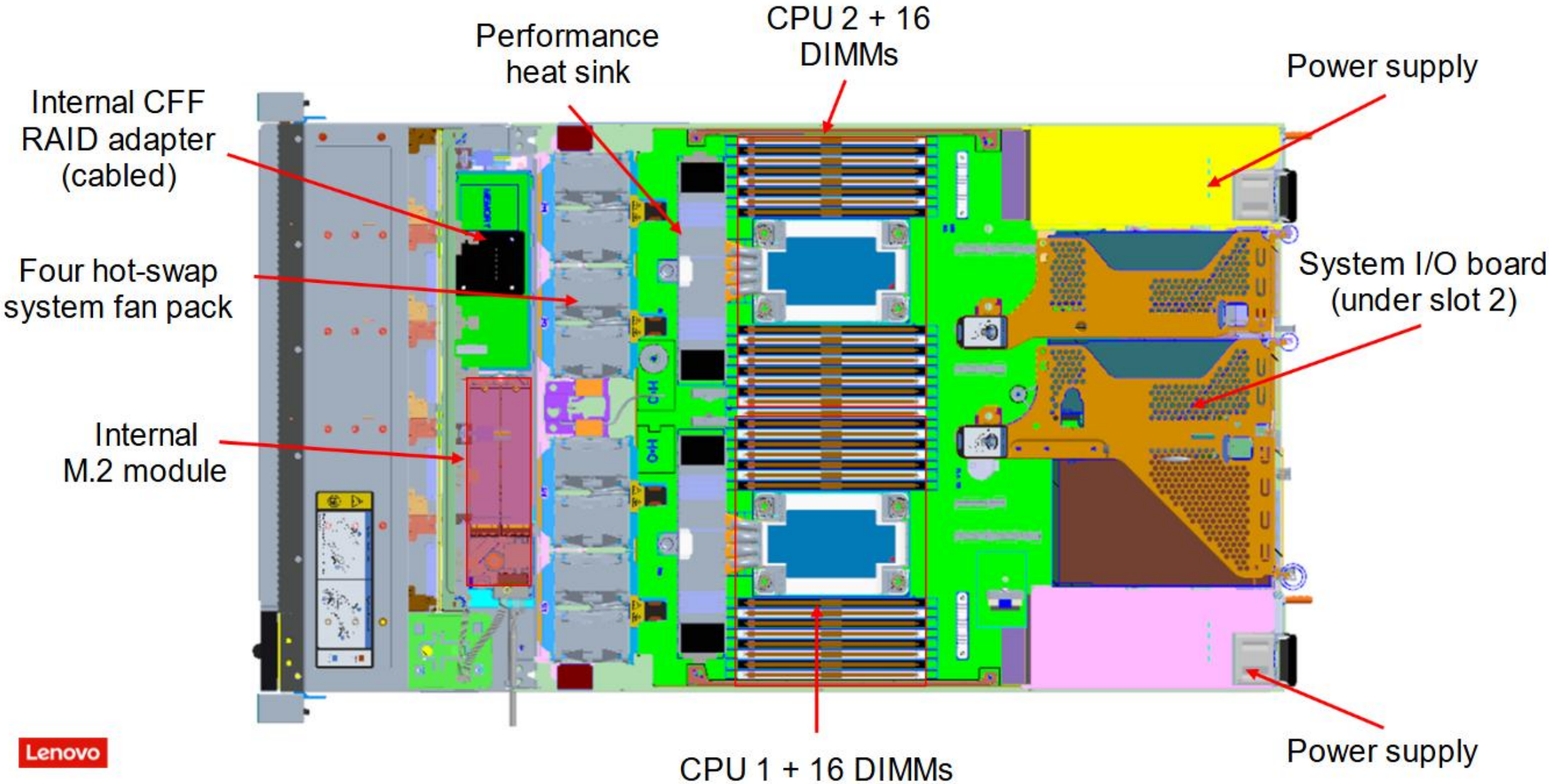
Rear view

This figure shows the configuration with three PCIe slots. The other rear configurations will be shown in the *System configurations and diagrams* section of this course.

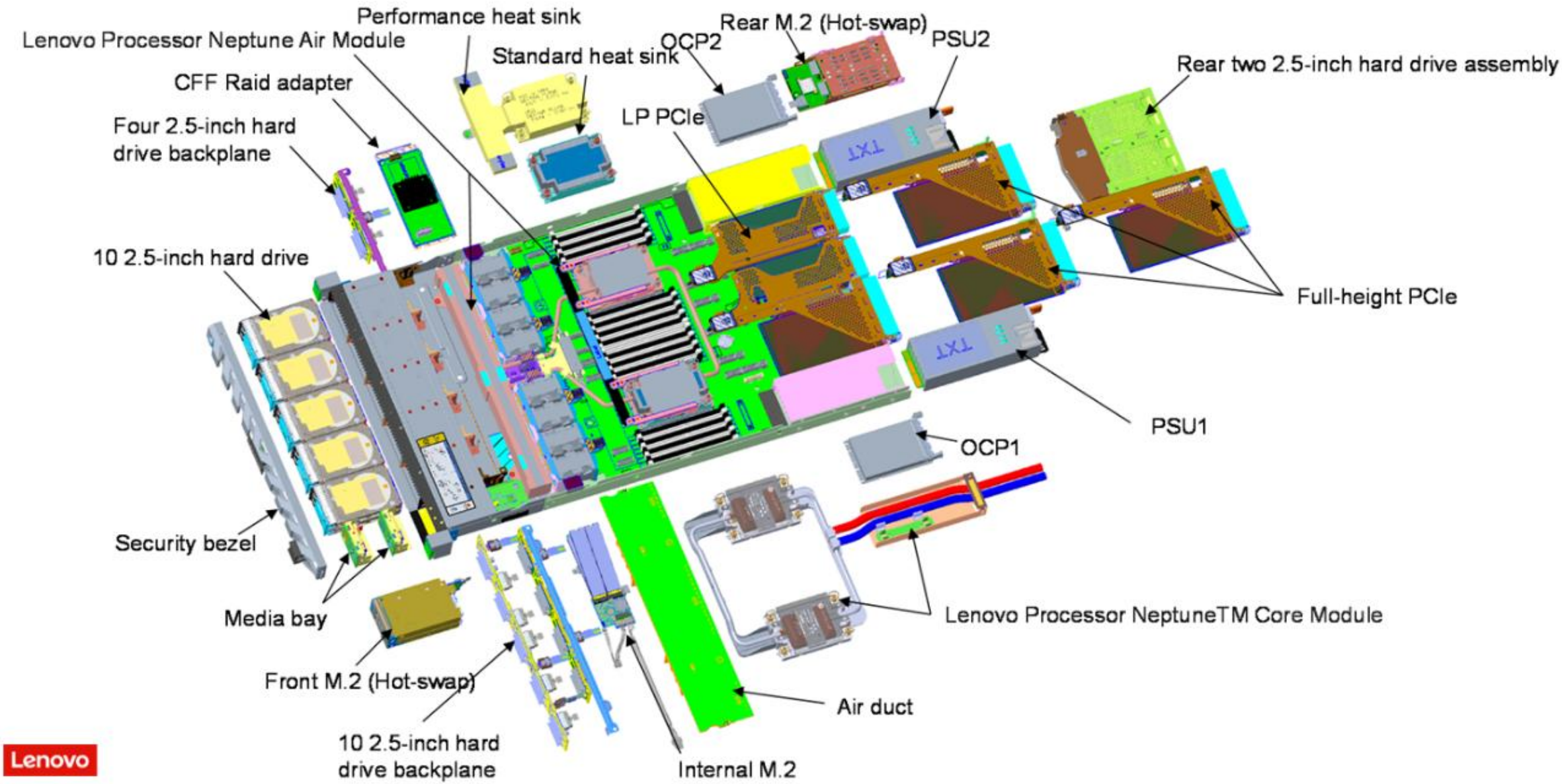


Note: For additional rear hot-swap drive and PCIe slot configuration information, refer to the Rear drive bay configurations page.

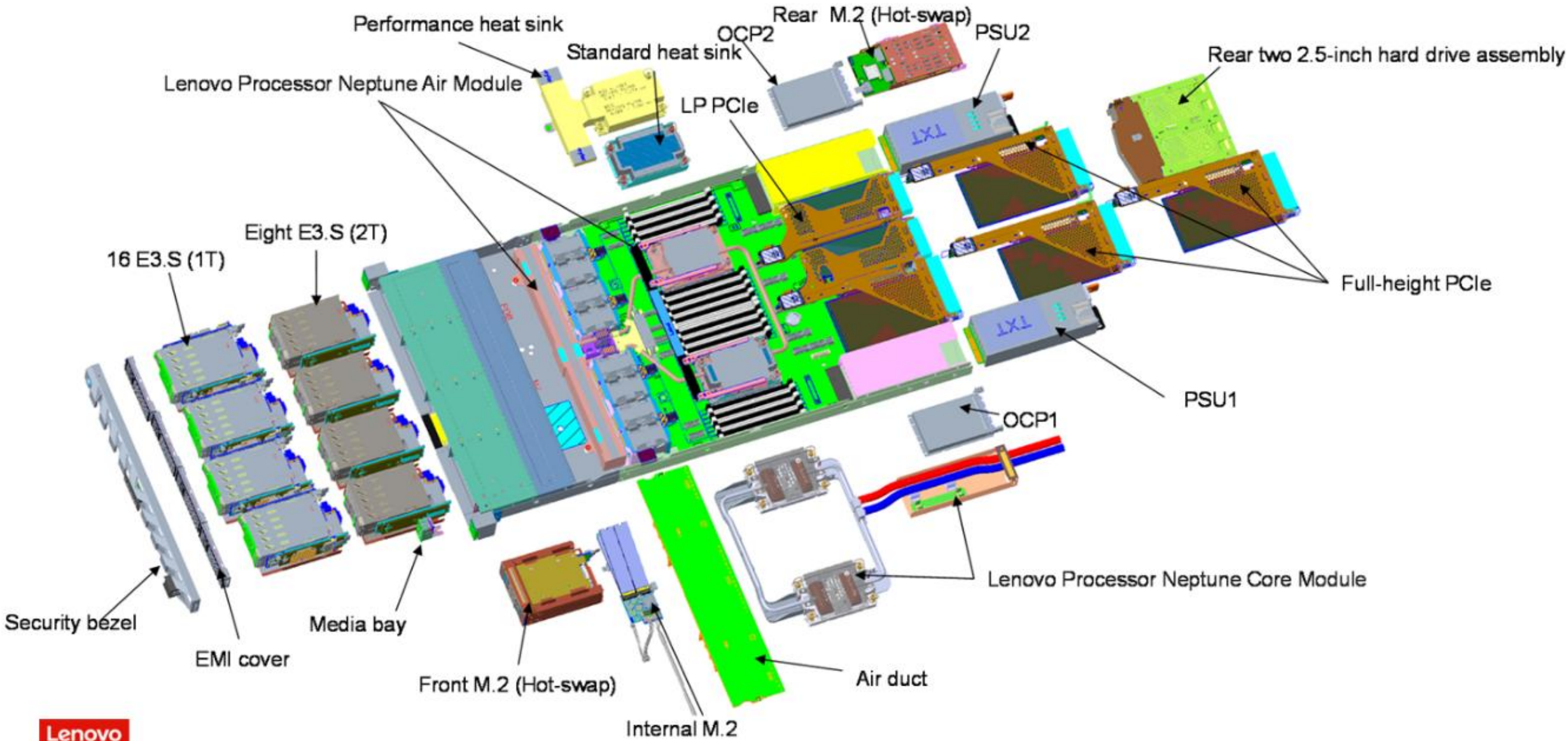
Inside view


Performance heat sink
CPU 2 + 16 DIMMs
Power supply
Internal CFF RAID adapter (cabled)
Four hot-swap system fan pack
System I/O board (under slot 2)
Internal M.2 module
CPU 1 + 16 DIMMs
Power supply

Exploded view - 2.5-inch system



Exploded view – front I/O system

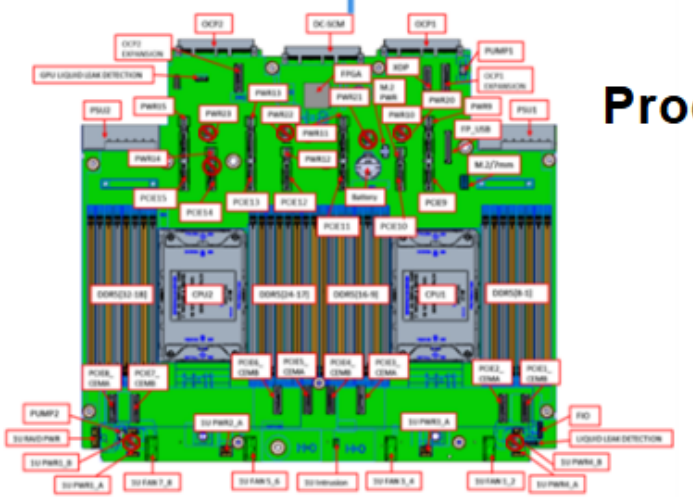


System I/O board and processor board

The SR630 V4 system board has two components:

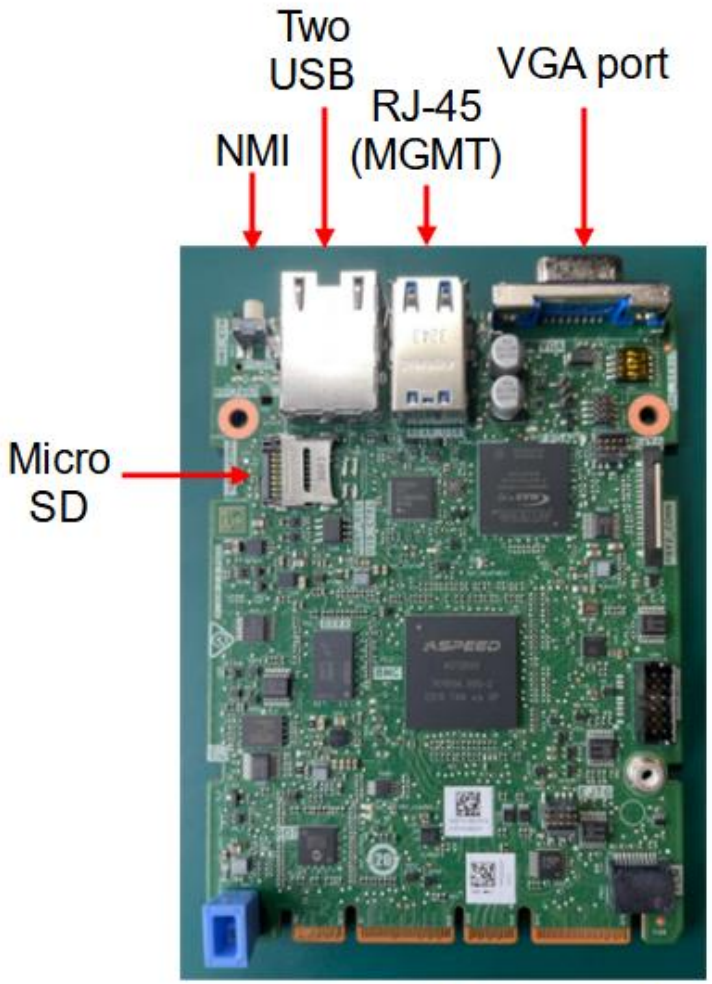
- Processor board
  - A board containing CPU sockets, PCIe slots, memory slots, and other server component connectors
- System I/O board
  - A board containing the system BMC (XCC3) management port, USB ports, and a VGA connector
  - A Micro SD card slot to extend XCC3 storage space for the backup of firmware and for remote console virtual media

System I/O board

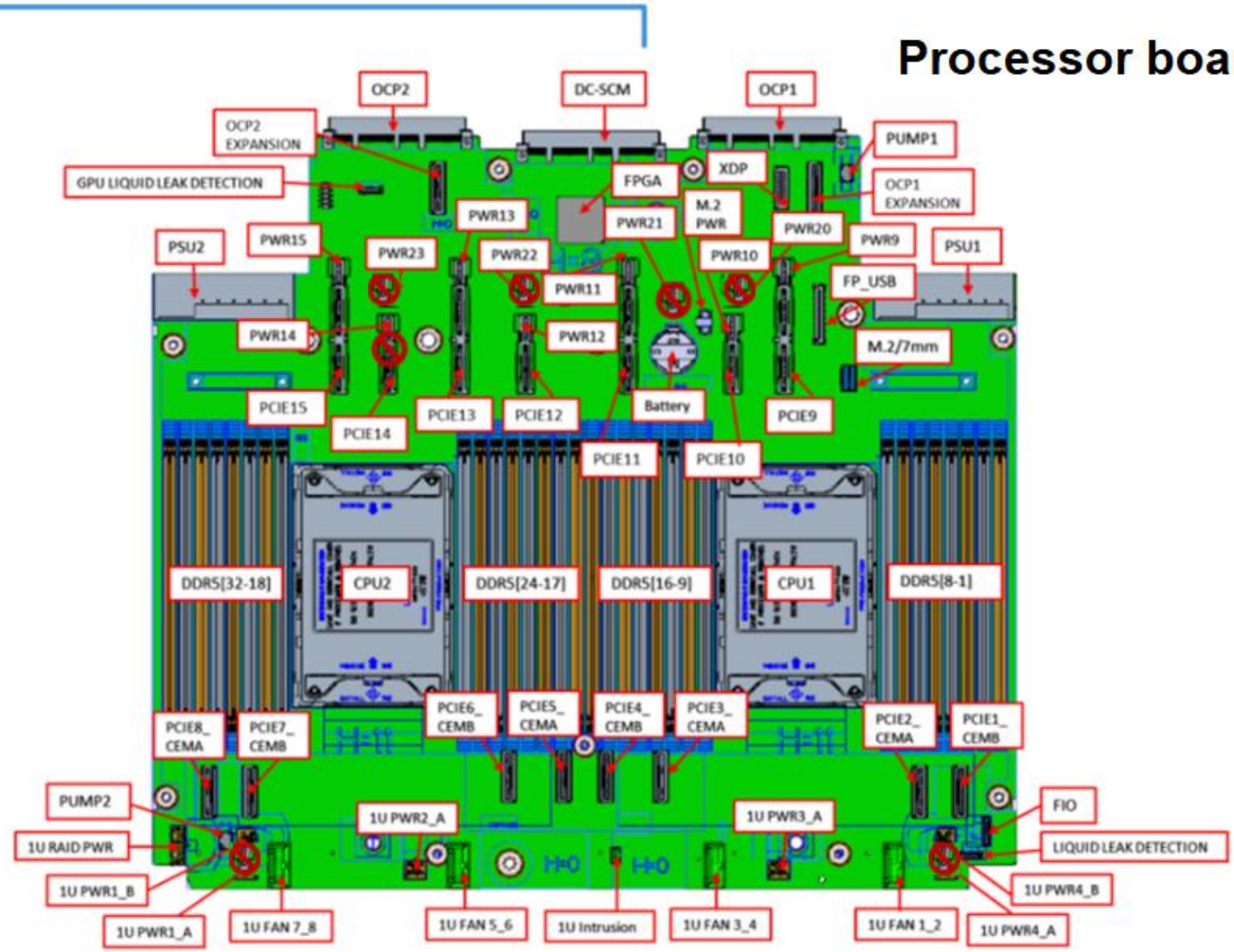


Processor board

Processor and I/O board connectors



System I/O board



External diagnostics handset

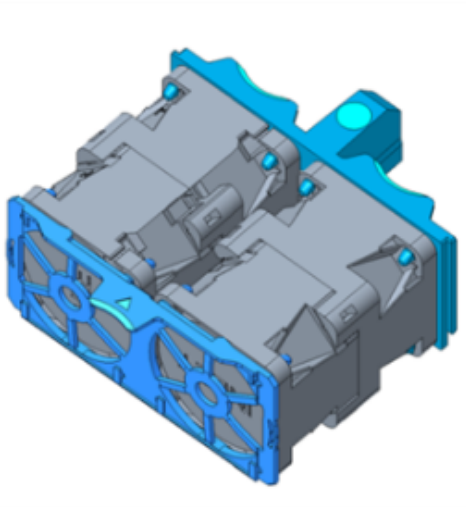
The SR630 V4 supports the external LCD diagnostic panel. The panel can be used to quickly access system information, such as active errors, system health status, firmware version, network connection status, and health information.

External diagnostic port (pong)

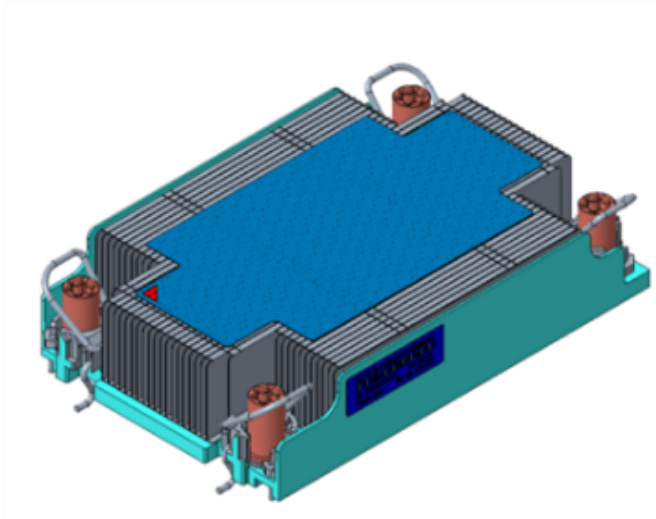
Note: External diagnostics handset support is scheduled for April 2025.

SR630 V4 thermal parts

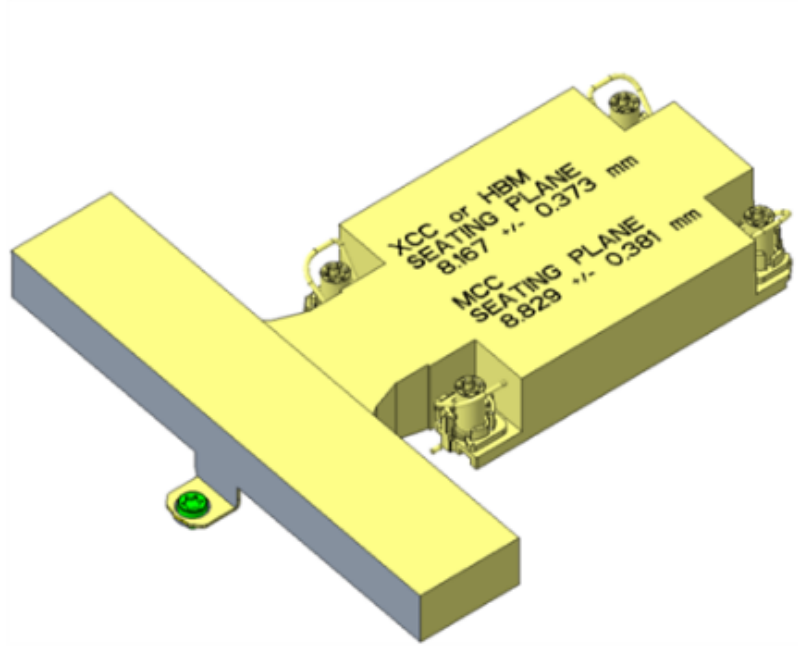
The SR630 V4 has a new 2-in-1 system fan module design which supports three types of fan: a 23k standard fan, a 28k high-performance fan, and a 34k ultra fan module. The SR630 V4 also supports the standard and high-performance heat sinks for processors with different TDPs.



System fan pack



Standard heat sink
For processors with a TDP of 205 W or less



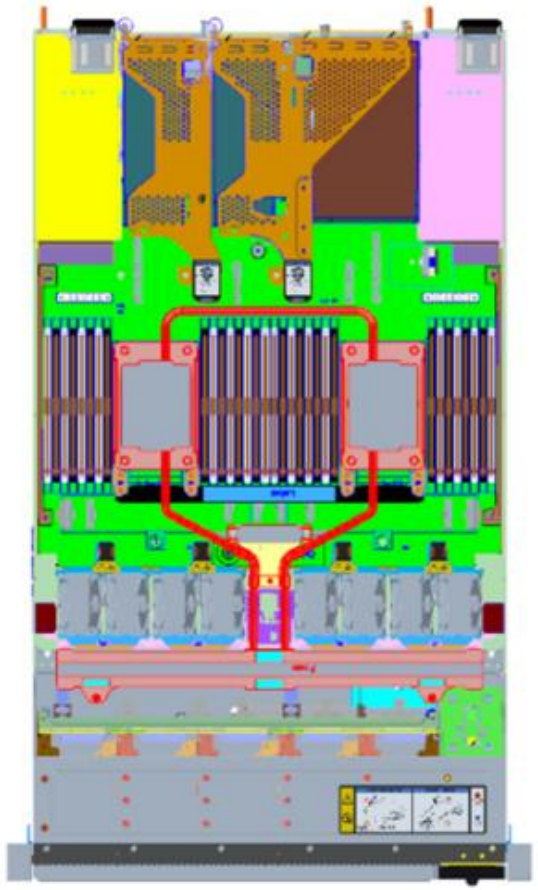
Performance heat sink
For processors with a TDP more than of 205 W

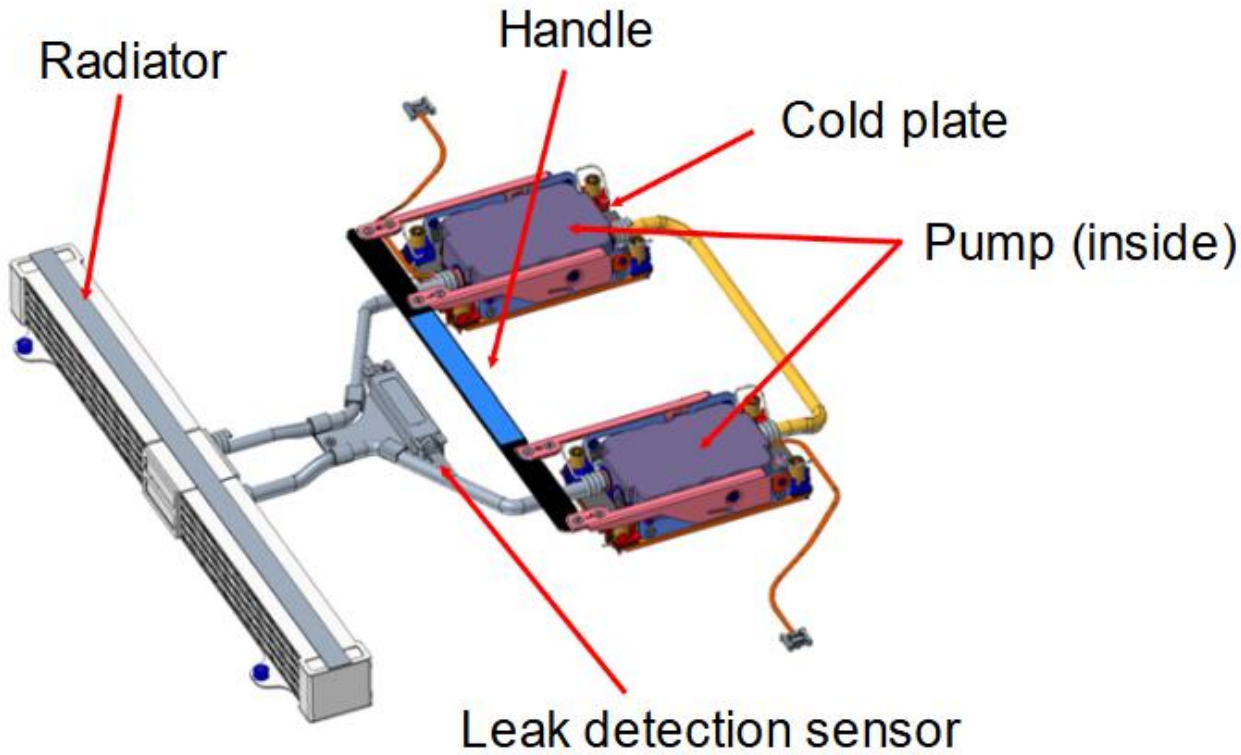
SR630 V4 liquid cooling solutions

The SR630 V4 supports two types of liquid cooling solutions: Lenovo Processor Neptune Air Module and Lenovo Processor NeptuneTM Core Module (Click each icon to see details)

Lenovo Processor Neptune Air Module

Lenovo Processor Neptune Core Module





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Lenovo Processor Neptune Air Module

Lenovo Processor Neptune Core Module