Smarter technology for all

Servicing the ThinkSystem SR950 V3

ES72516

December 2023

Prerequisites

- ES42373B – Intel Xeon processor architecture for ThinkSystem V3 servers

- ES51757B – Introducing ThinkSystem tools

- ES52374 – ThinkSystem tools for the ThinkSystem V3 platform

- ES41759C – Introducing ThinkSystem problem determination

- ES51780C - Servicing ThinkSystem storage controllers

- ES42190 - Servicing the ThinkSystem 4350/5350/9350 RAID/HBA series adapters

Objectives

After completing the course, you will be able to:
- Describe the features and specifications of the ThinkSystem SR950 V3
- Identify the components of the SR950 V3
- Describe the configurations of SR950 V3
- Describe the SR950 V3 management tools
- Describe the specific problem determination steps and explain how to troubleshoot issues with the SR950 V3

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Important service advice for the SR950 V3

Important information about the AC power cords

AC power cord connection sequence

The correct sequence has to be followed when plugging AC power cords into, or removing them from, the primary and secondary chassis. If the correct sequence is not followed, there could be a system failure or the system event log might show an error message.

- When unplugging AC power cords, first unplug them from all the PSUs on the primary chassis and then from all the PSUs on the secondary chassis. Failure to do this might cause a system failure or result in an error message stating that the primary chassis has disappeared or is offline.

- When plugging in AC power cords, first plug them into all the PSUs on the secondary chassis and then into all the PSUs on the primary chassis. Failure to do this might cause a system failure or result in an error message stating that the secondary chassis cannot be detected.

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Product overview

Product description and front, rear, and inside views

Product overview

The SR950 V3 is an eight-socket, 8U server that offers many technological advances, including 4th Generation Intel Xeon Scalable processors, scale-up capacity of up to 32 TB of system memory, up to 14 PCIe slots (six at the front, eight at the rear), and up to 16 2.5-inch or E3.S EDSFF drive bays. The SR950 V3 is comprised of two 4U chassis (primary and secondary servers) that are cabled together for ease of installation. There are three SR950 V3 machine types:

- 7DC4 - three-year warranty
- 7DC5 - one-year warranty
- 7DC6 - SAP HANA configurations with a three-year warranty

ThinkSystem SR950 V3 with security bezel

ThinkSystem SR950 V3 without security bezel

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Front view – 8U server

The 8U SR950 V3 comprises two 4U chassis (primary and secondary) cabled together with eight UPI cables and two sideband cables.
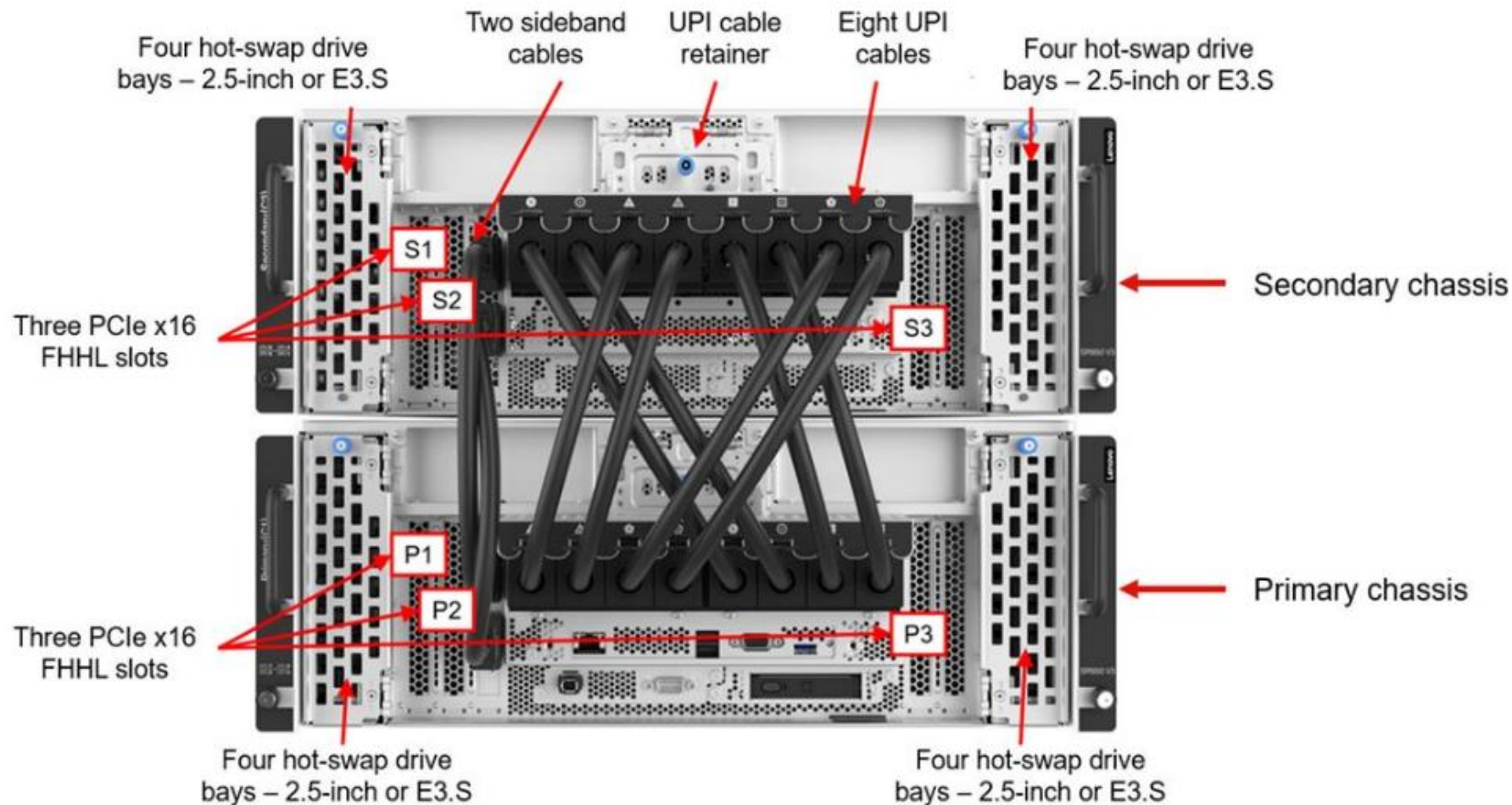
Click the buttons to see the drive configurations

2.5-inch drive

E3.S drive

| Px | PCIe slot number (Primary chassis) |
| Sx | PCIe slot number (Secondary chassis) |

Four hot-swap drive bays – 2.5-inch or E3.S

Two sideband cables

UPI cable retainer

Eight UPI cables

Four hot-swap drive bays – 2.5-inch or E3.S

S1
S2
S3

Three PCIe x16 FHHL slots

Secondary chassis

P1
P2
P3

Three PCIe x16 FHHL slots

Primary chassis

Four hot-swap drive bays – 2.5-inch or E3.S

Four hot-swap drive bays – 2.5-inch or E3.S

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16 2.5-inch drives

Secondary chassis

Drive bays 8 to 11
- Drive 9
- Drive 8
- Drive 11
- Drive 10

BP3

Drive bays 12 to 15
- Drive 13
- Drive 12
- Drive 15
- Drive 14

BP4

Primary chassis

Drive bays 0 to 3
- Drive 1
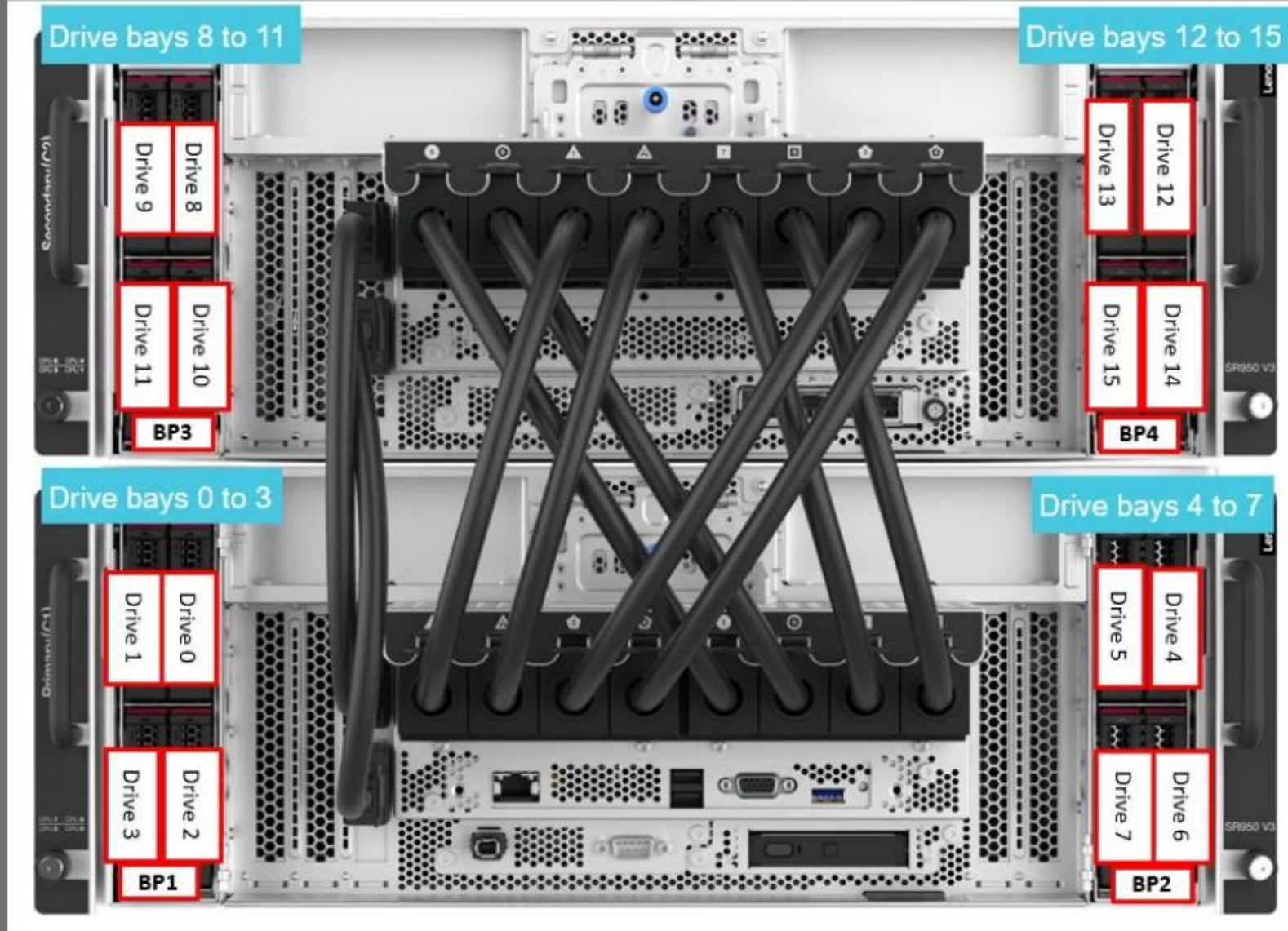- Drive 0
- Drive 3
- Drive 2

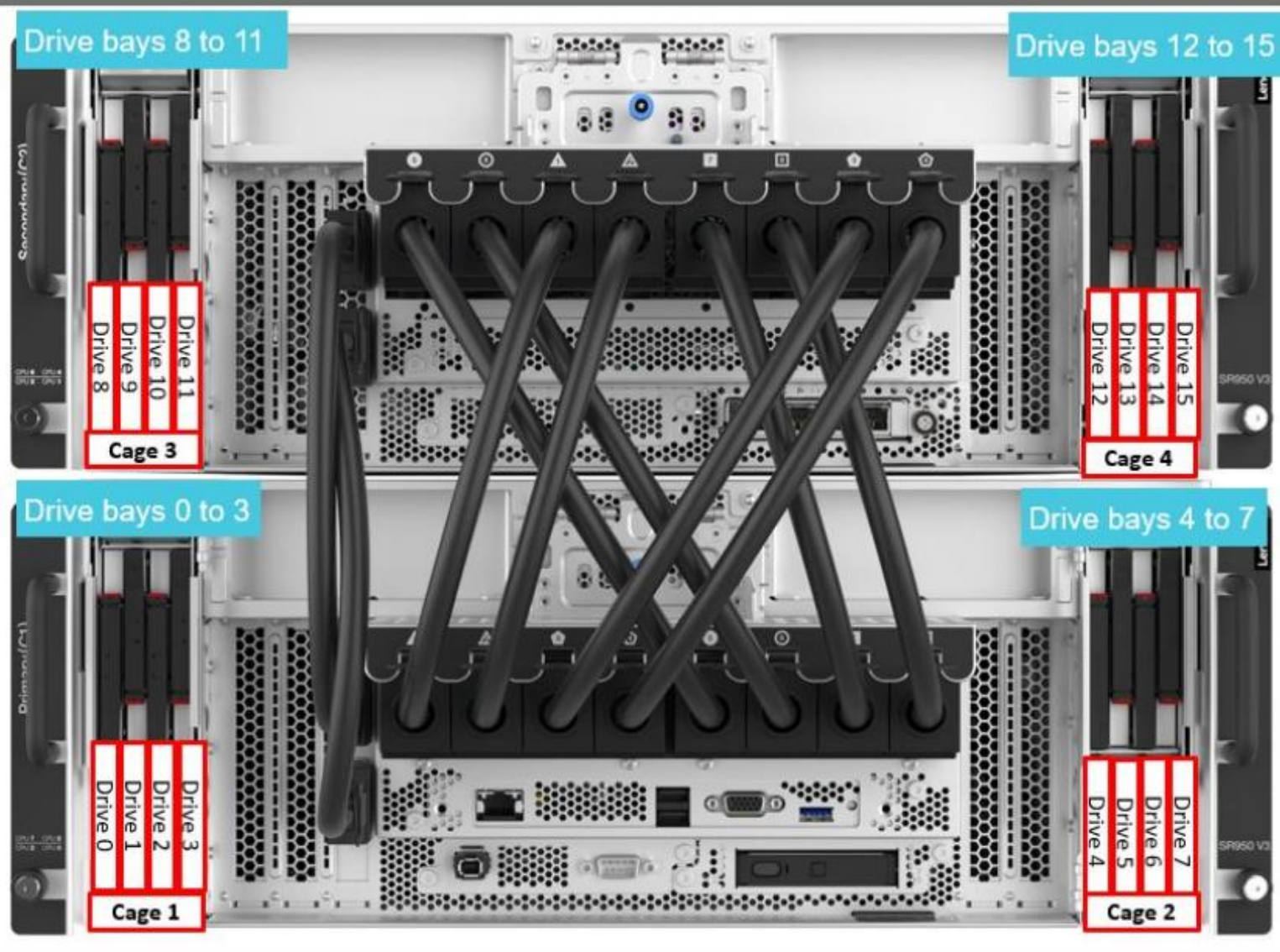BP1

Drive bays 4 to 7
- Drive 5
- Drive 4
- Drive 7
- Drive 6

BP2

16 E3.S EDSFF drives

Secondary chassis

Drive bays 8 to 11

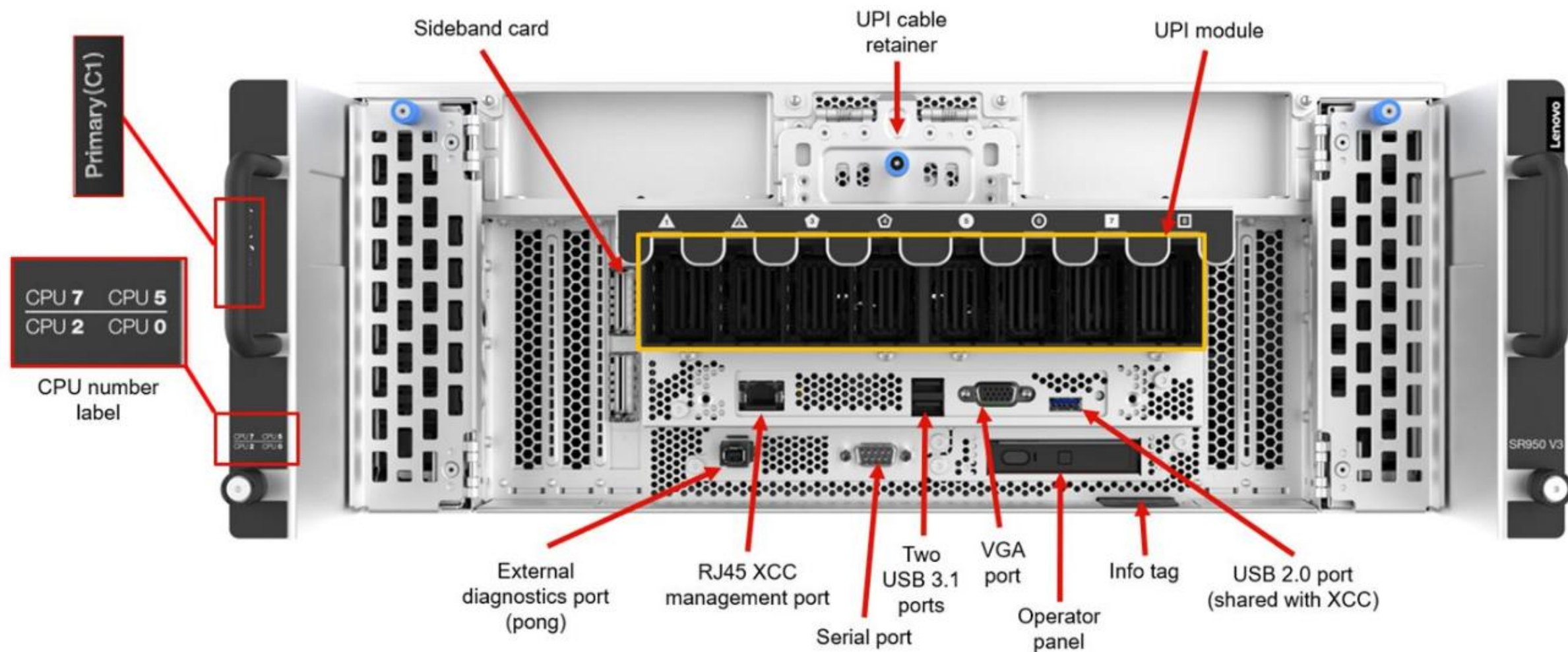Drive bays 12 to 15

Drive 8 Drive 9 Drive 10 Drive 11 — Cage 3

Drive 12 Drive 13 Drive 14 Drive 15 — Cage 4

Primary chassis

Drive bays 0 to 3

Drive bays 4 to 7

Drive 0 Drive 1 Drive 2 Drive 3 — Cage 1

Drive 4 Drive 5 Drive 6 Drive 7 — Cage 2

Front view – Primary chassis

Sideband card

UPI cable retainer

UPI module

Primary(C1)

CPU 7   CPU 5
CPU 2   CPU 0

CPU number label

External diagnostics port (pong)

RJ45 XCC management port

Two USB 3.1 ports

VGA port

Info tag

USB 2.0 port (shared with XCC)

Serial port

Operator panel

Front view – Secondary chassis

Unlike the primary chassis, the secondary chassis only has UPI module connectors at the front.

Sideband card

UPI cable retainer

UPI module

Secondary(C2)

CPU 6   CPU 4
CPU 3   CPU 1

CPU number label
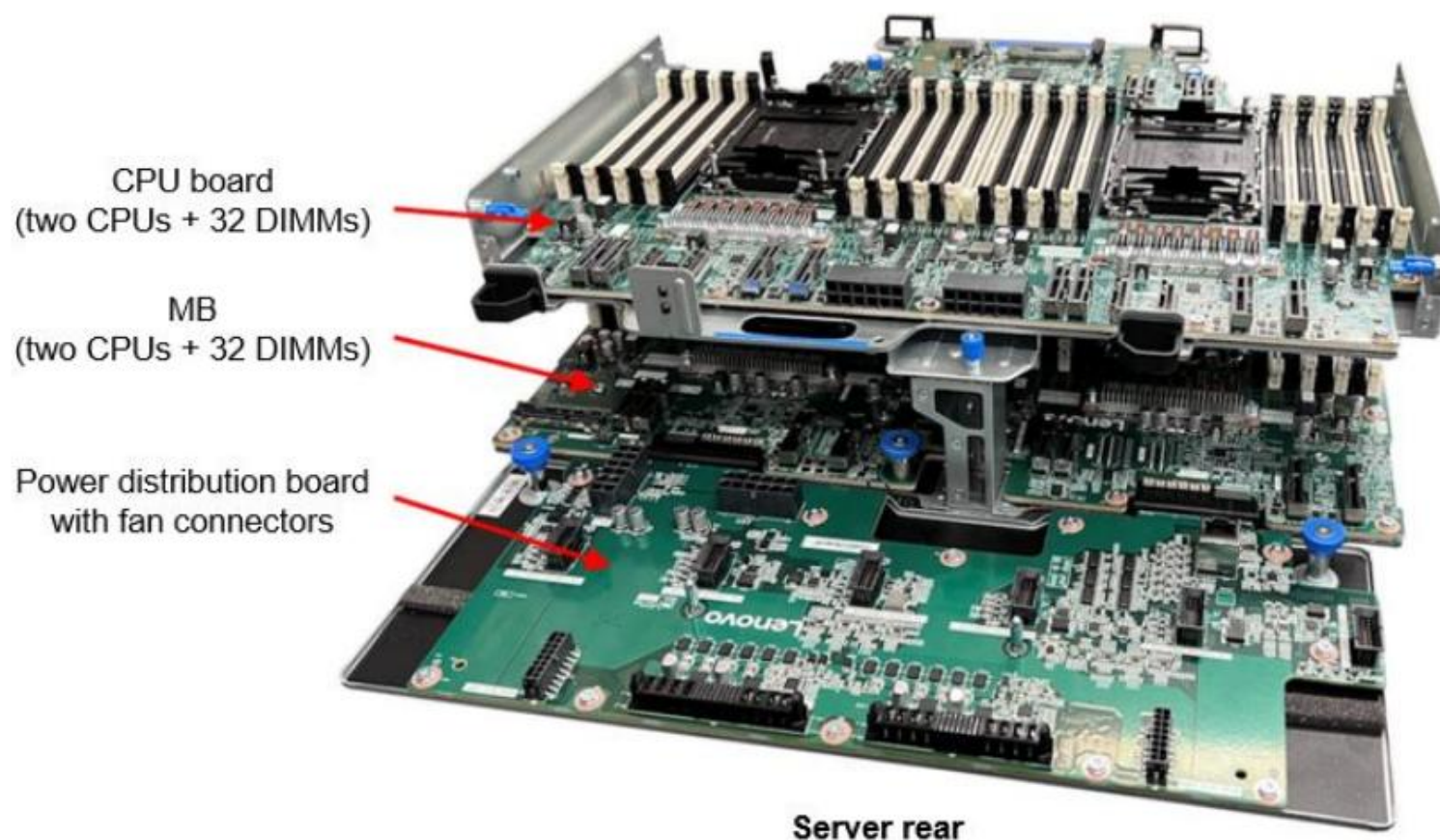
Info tag

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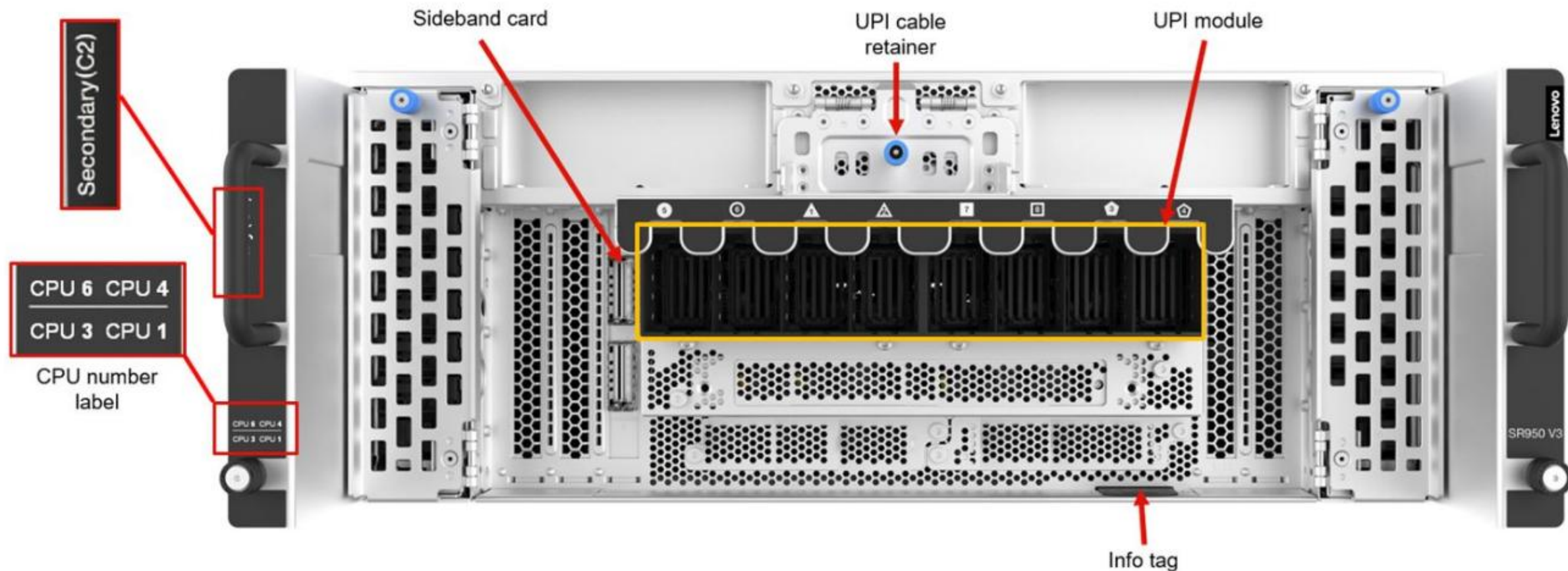
Rear view

Px — PSU slot number (primary chassis)

Sx — PSU slot number (secondary chassis)

Px — PCIe slot number (primary chassis)

Sx — PCIe slot number (secondary chassis)

Secondary chassis

S1 S4
S2 S5
S3 S6

S5
S6
S7
S8

Four PCIe x16 FHHL slots

Primary chassis

OCP

P1 P4
P2 P5
P3 P6

P5
P6
P7
P8

Four PCIe x16 FHHL slots

12 hot-swap power supplies
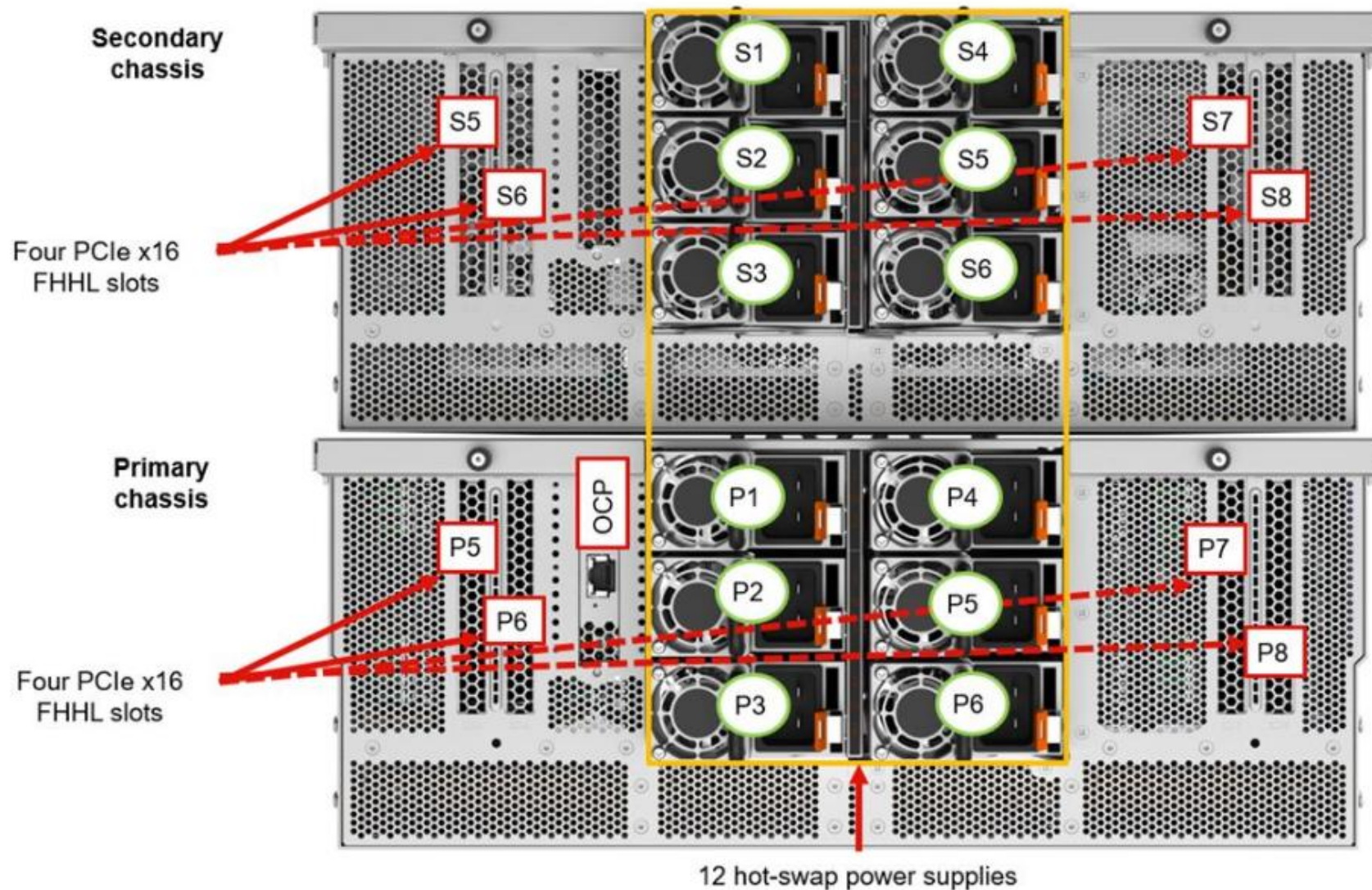
Inside view

In each chassis, the server has a lower processor board (MB) with two processors and 32 DIMM slots, an upper processor board (CPU board) with two processors and 32 DIMM slots, and a power distribution board. Both the MB and CPU board get their power from the power distribution board, and the MB and CPU board are connected with UPI cables at the front of the server.

CPU board
(two CPUs + 32 DIMMs)

MB
(two CPUs + 32 DIMMs)

Power distribution board
with fan connectors

Server rear

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Top view

This figure shows the locations of key components inside the server.

4 drive bays | Sideband card | 2 front PCIe slots | Top cover intrusion switch | UPI cables | CPU board | 6 simple-swap fan modules (12x fans) | Rear 2-slot PCIe riser | 6 power supplies

Reserved

UPI cable cage | System I/O board (Primary only) | 4 drive bays | 1 front PCIe slot | 2 CPUs + 32 DIMMs on CPU board | 2 CPUs + 32 DIMMs on main board (under CPU board) | Rear 2-slot PCIe riser | OCP adapter (Primary only)