Smarter technology for all

Servicing the ThinkSystem SR780a V3

ES72671

September 2024

Prerequisites

- ES42373B – 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

Lenovo

Objectives

This course enabled you to:

- Describe the ThinkSystem SR780a V3 and its components
- List the SR780a V3 specifications
- Describe the SR780a V3 configurations and block diagrams
- Describe the SR780a V3 management tools
- Describe the problem determination steps and explain how to troubleshoot issues with the SR780a V3

Product overview

Product description and front, rear, and inside views

ThinkSystem SR780a V3 product overview

The ThinkSystem SR780a V3 (machine type: 7DJ5) is a 5U, water-cooled, two-socket, GPU-rich rack server. The SR780a V3 is designed for demanding AI computing or HPC workloads.
It supports two 5th Generation Intel Xeon Scablable processors and eight NVIDIA OAM (open compute project accelerator module) GPUs. Supported GPUs include the NVIDIA H100, H200, and B200 (planned).

SR780a V3 specification

Features	SR780a V3
Form factor	5U rack server
Processor	Two 5th Generation Intel Xeon Scalable processors, TDP up to 350 W
Memory	32 DIMM slots with two processors (16 DIMM slots per processor) Each processor has eight memory channels, with two DIMMs per channel (DPC) Lenovo TruDDR5 RDIMMs are supported DIMMs operate at up to 5600 MHz at 1 DPC and up to 4400 MHz at 2 DPC
Storage	• Front: Up to eight 2.5-inch hot-swap NVMe drives • Rear: Up to four 2.5-inch hot-swap NVMe drives • Boot: Up to two M.2 Non-hot-swap (VROC RAID support)
PCIe slots	• Eight PCIe 5.0 x16 FHHL slots in the front connected to a PCIe switch board for GPU connectivity • Two PCIe 5.0 x16 FHHL slots in the rear connected directly to the CPUs [No Title]
Power	Eight hot-swap 2600 W CFFv4 PSUs, support N+N redundancy
Cooling	• Direct water cooling for CPU, GPU, and NVLink switches • Air cooled with N+1 hot-swap fan solution for the rest of the system

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

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Power	Eight hot-swap 2600 W CFFv4 PSUs, support N+N redundancy
Cooling	• Direct water cooling for CPU, GPU, and NVLink switches • Air cooled with N+1 hot-swap fan solution for the rest of the system
GPU	• Eight NVIDIA H100 700W SXM5 GPUs with 80GB HBM3 memory • Eight NVIDIA H200 700W SXM5 GPUs with 141GB HBM3 memory • Eight NVIDIA B200 1000W SXM5 GPUs with 192GB HBM3 memory
Management tools	XClarity series tools: • XClarity Controller2 (XCC2) • XClarity Provisioning Manager (LXPM) • XClarity Essentials (LXCE)
OS support	Ubuntu, RHEL, ESXi

[No Title]

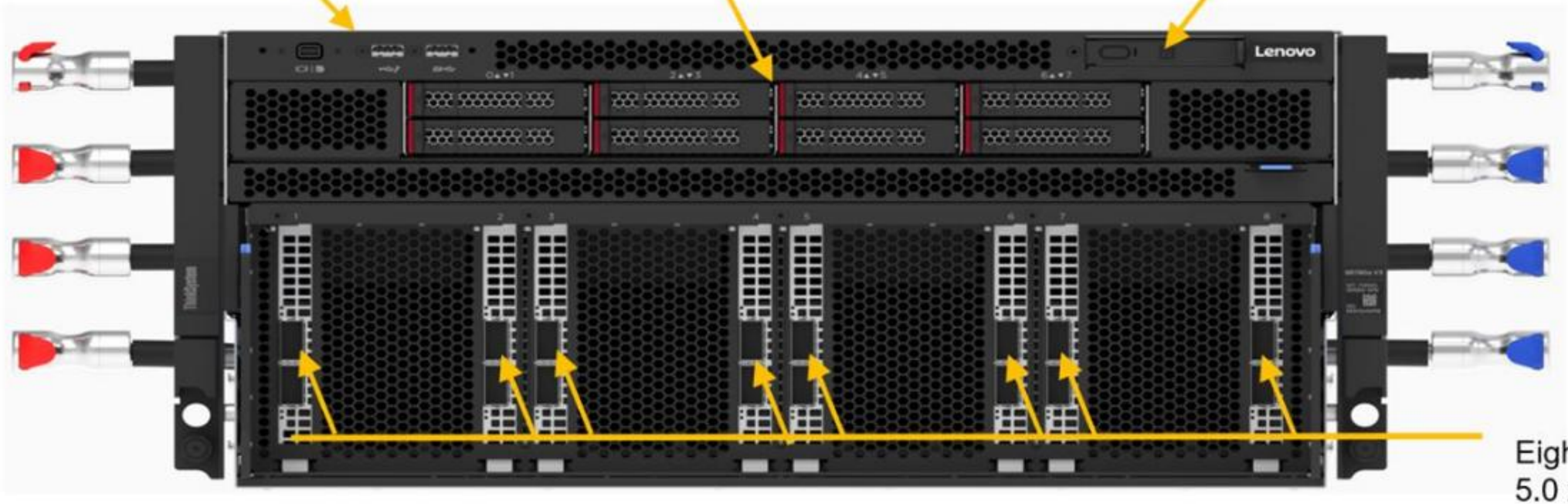
Note: For the latest specifications, refer to the product guide on Lenovo Press.

Front view

One Mini DisplayPort
One USB 2.0 with XCC
One USB 3.2 Gen 1

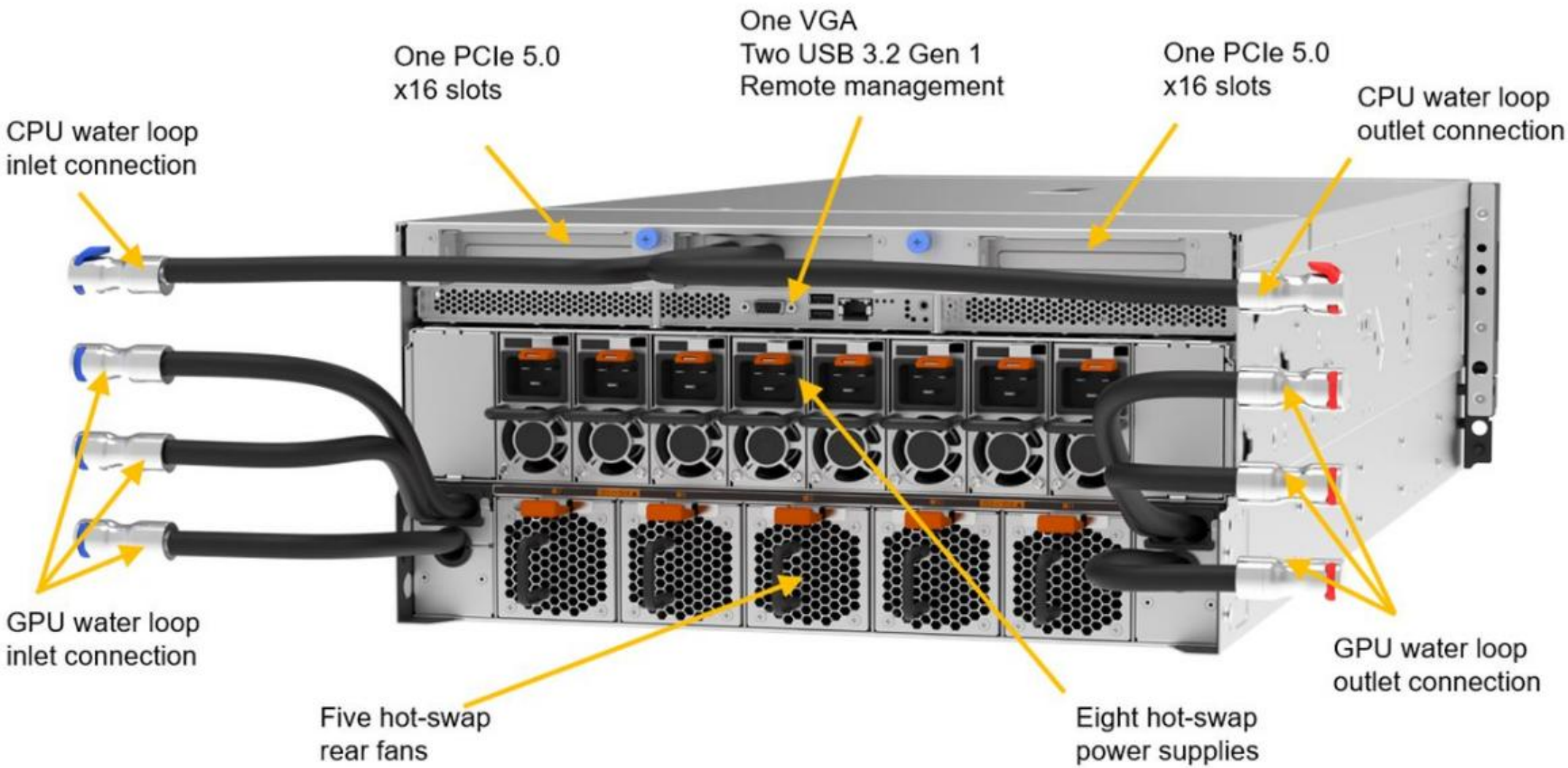
Eight hot-swap NVMe drive bays

Integrated diagnostics panel: Includes system LEDs and power button



Eight PCIe 5.0 x16 slots for networking

Rear view

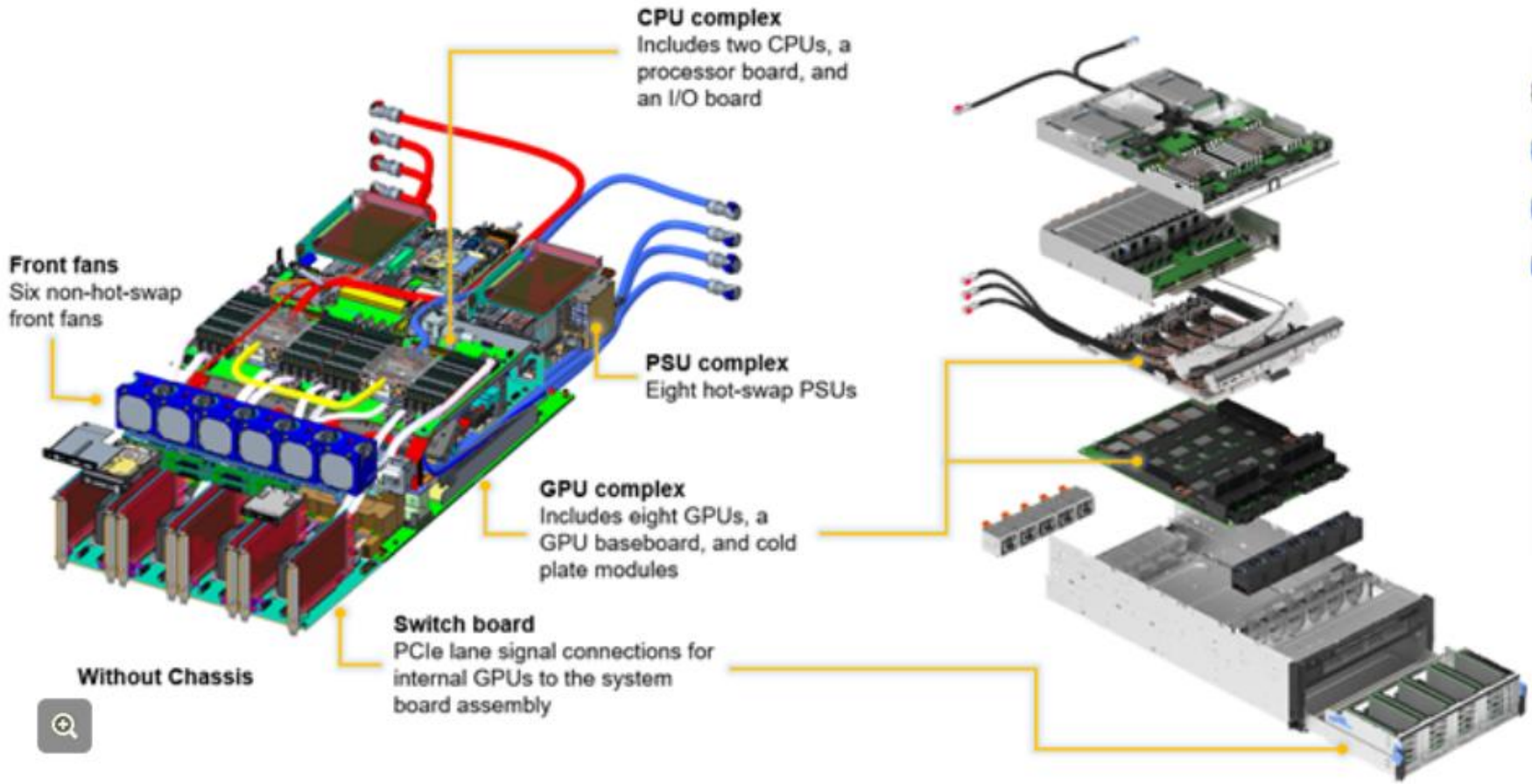

One PCIe 5.0
x16 slots
One VGA
Two USB 3.2 Gen 1
Remote management
One PCIe 5.0
x16 slots
CPU water loop
outlet connection
CPU water loop
inlet connection
GPU water loop
inlet connection
Five hot-swap
rear fans
Eight hot-swap
power supplies
GPU water loop
outlet connection

Inside views

Click the buttons to see inside views of the SR780a V3.

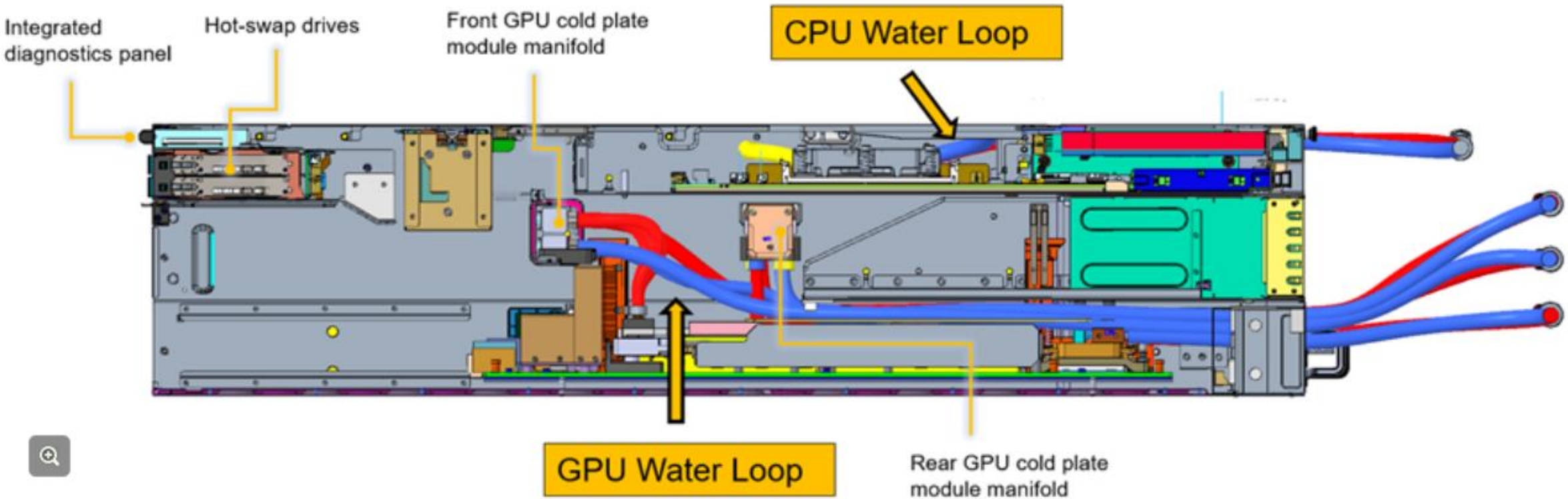
Assembled view | Side view | Exploded view | CPU complex | GPU water loop

Assembled view



Assembled view | Side view | Exploded view | CPU complex | GPU water loop

Side view



Assembled view
Side view
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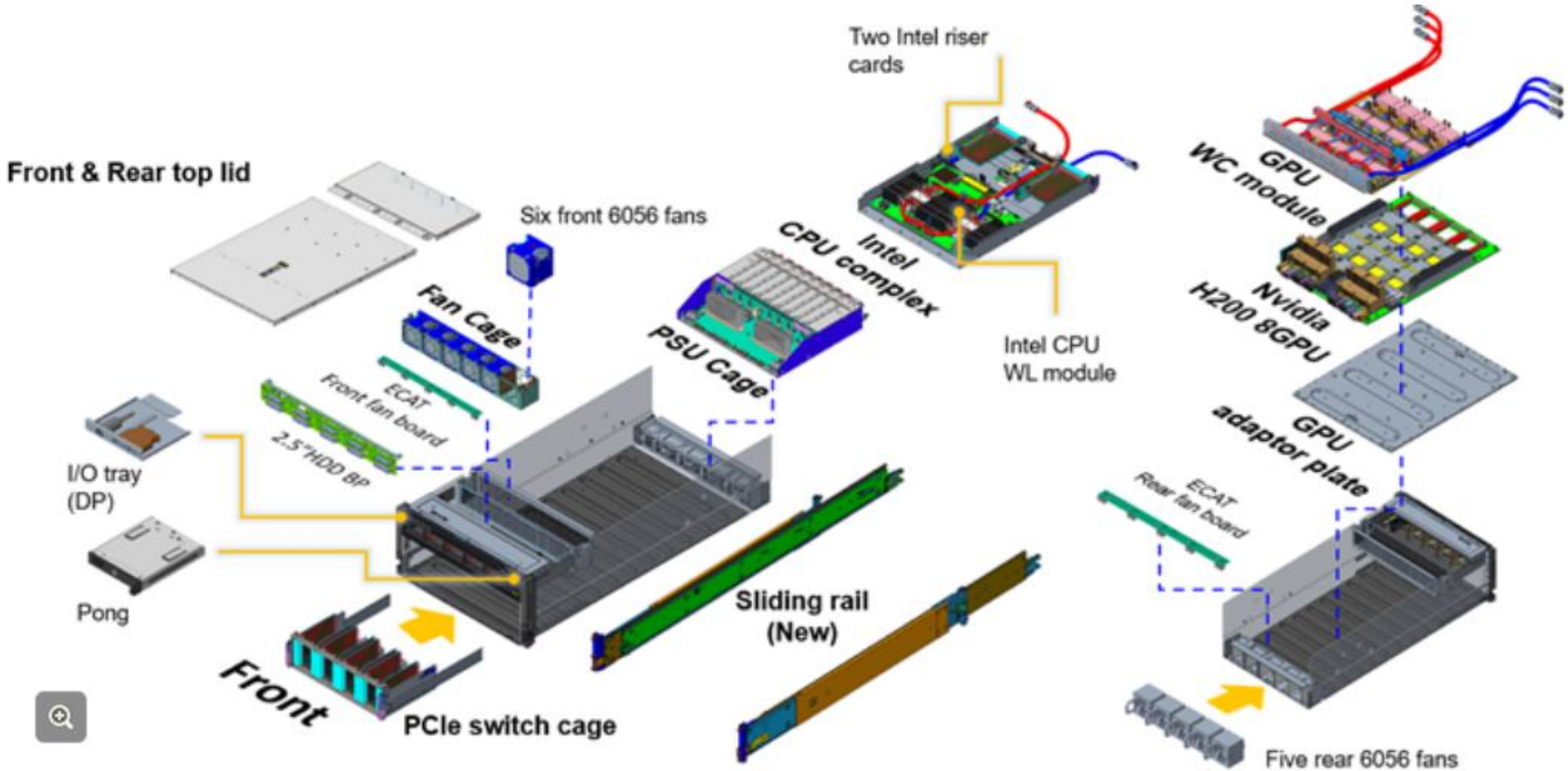
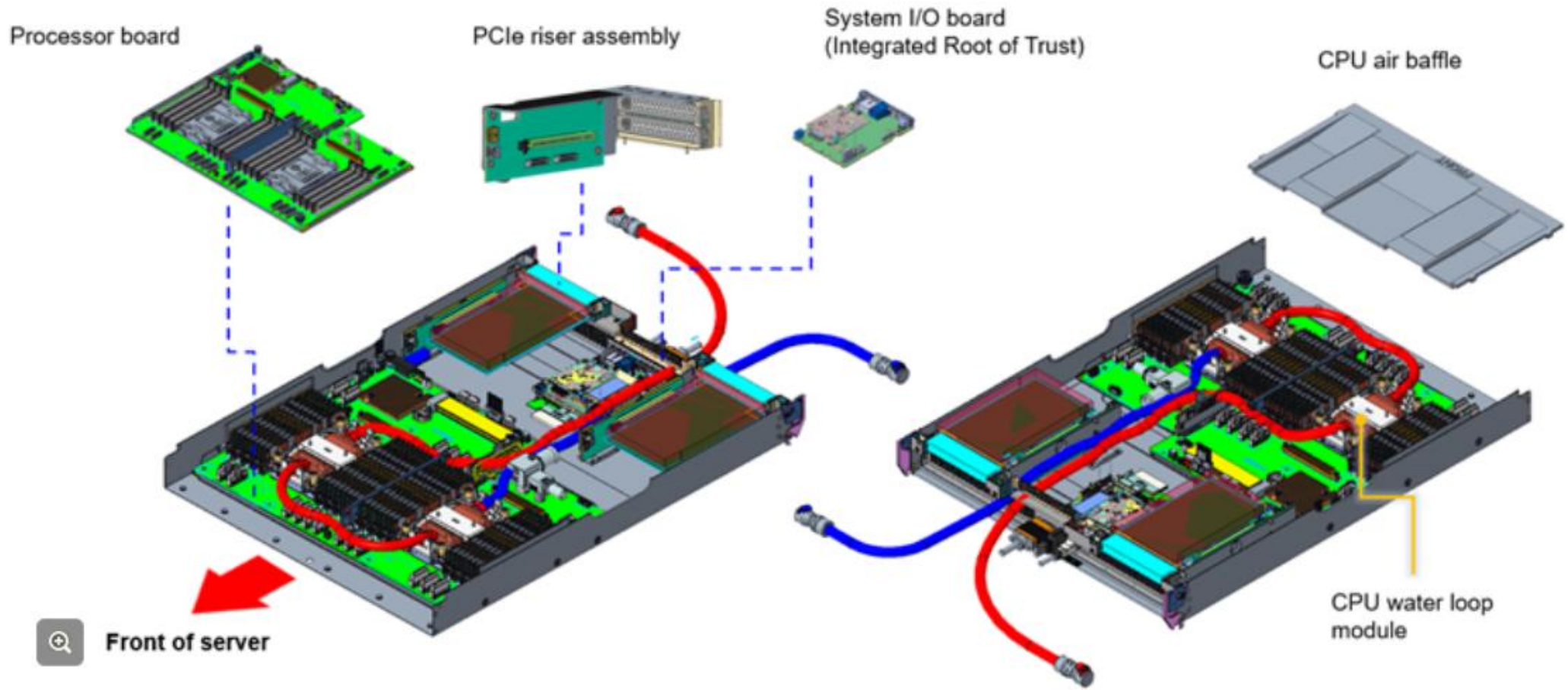
GPU water loop

Exploded view



Assembled view | Side view | Exploded view | CPU complex | GPU water loop

CPU complex



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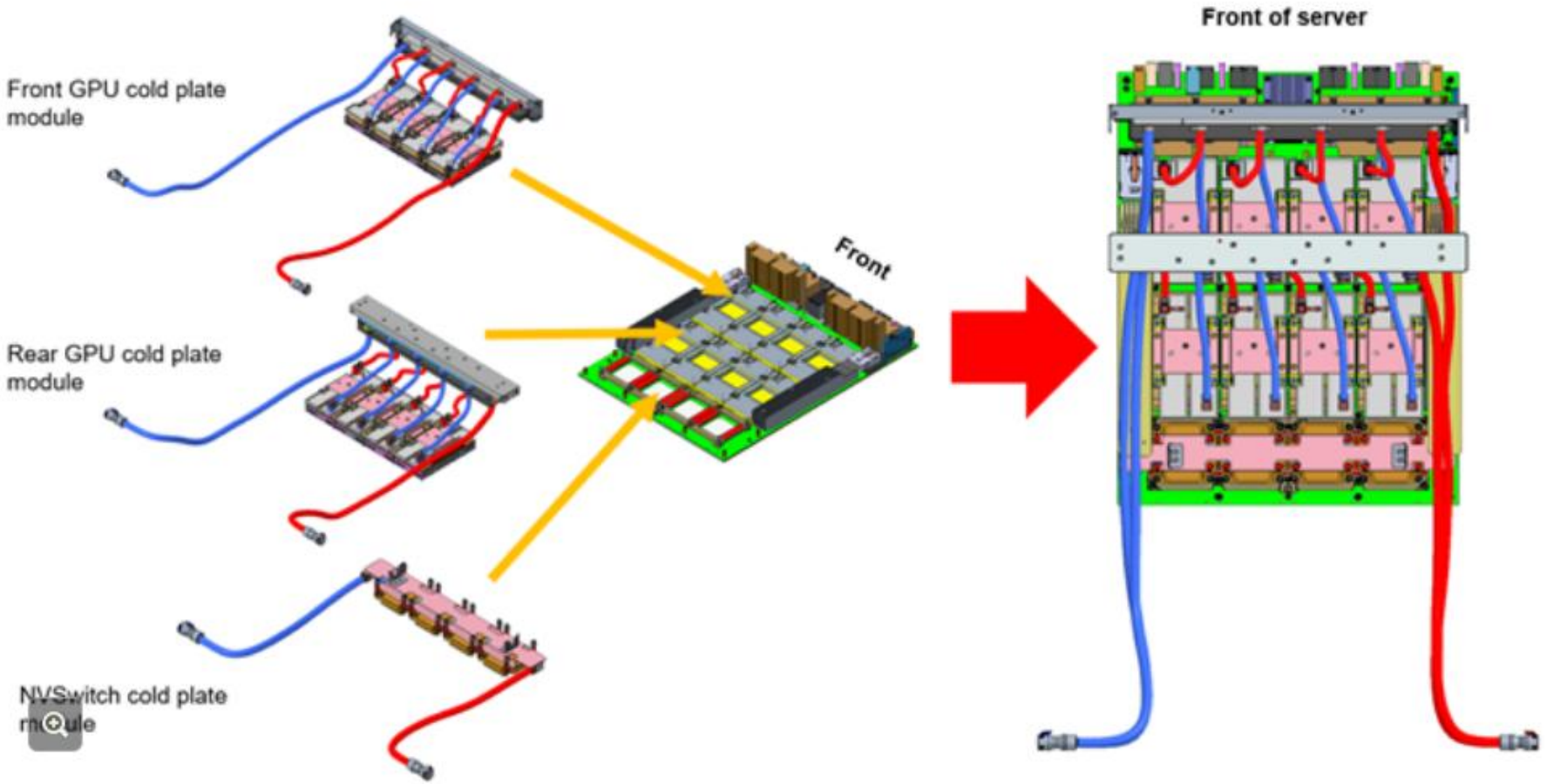
GPU water loop



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