

Smarter technology for all

Servicing the ThinkSystem SR780a V3

ES72671C

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Lenovo

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Preface

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The information in this publication is current as of the date of the latest revision and is subject to change at any time without notice.

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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](#)

Objectives

After completing the course, you will be able 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

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ThinkSystem SR780a V3 product overview

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



SR780a V3 specification

Features	SR780a V3
Form factor	5U rack server
Processor	Two 5 th 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	<ul style="list-style-type: none">Front: Up to eight 2.5-inch hot-swap NVMe drivesRear: Up to four 2.5-inch hot-swap NVMe drivesBoot: Up to two M.2 Non-hot-swap (VROC RAID support)
PCIe slots	Up to 11 PCIe Gen 5 x16 slots: <ul style="list-style-type: none">Front: Eight PCIe Gen 5 x16 FHHL slots with GPU Direct supportRear: Up to three PCIe Gen 5.0 FHHL slots (two x16 slots, or two x8 slots + one x16 slot) One of the rear x16 slots can be replaced with four 2.5-inch hot-swap drive bays
Power	Eight hot-swap redundant AC power supplies with up to N+N redundancy <small>80 PLUS Titanium certification</small>

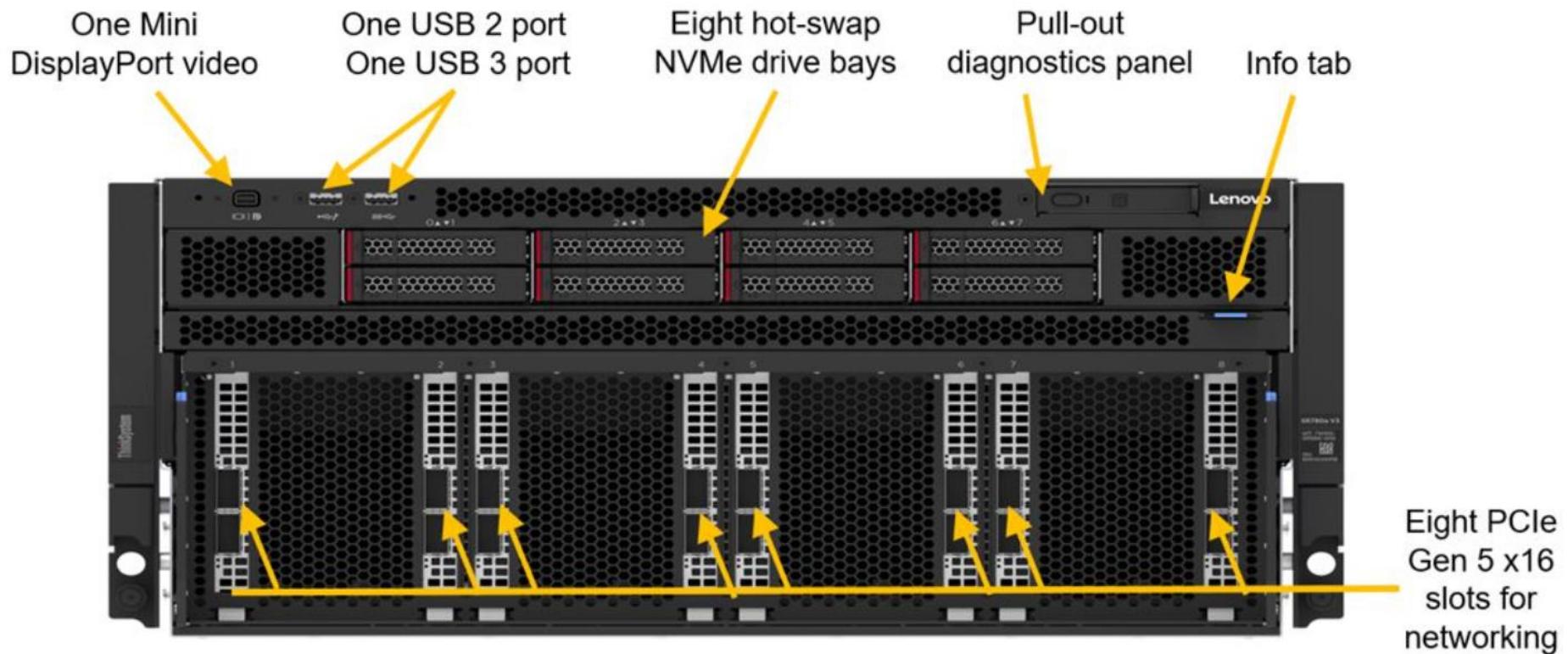
Note: For the latest specifications, refer to the product guide on [Lenovo Press](#).

SR780a V3 specification

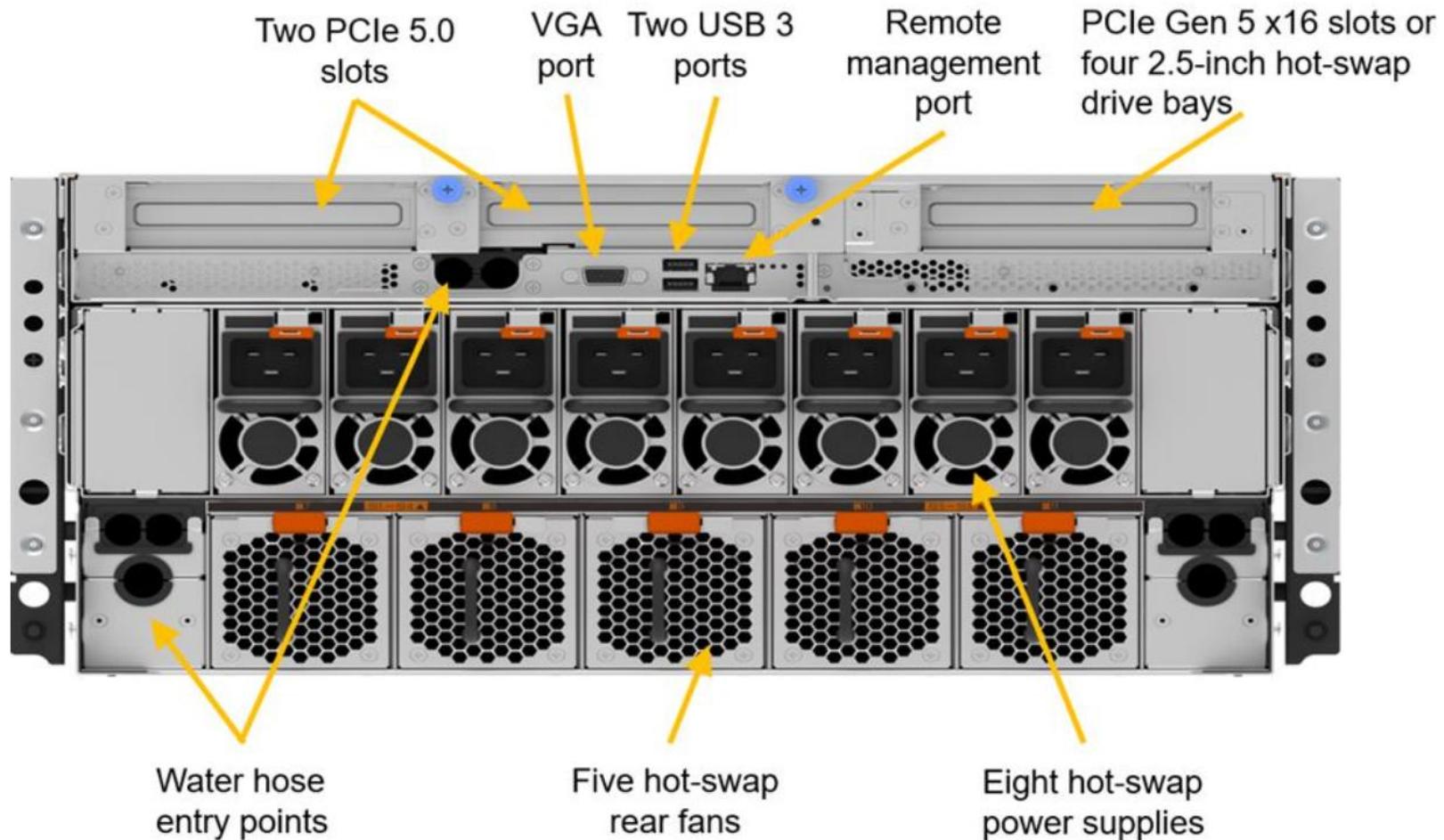
Features	SR780a V3
Power	<p>Eight hot-swap redundant AC power supplies with up to N+N redundancy</p> <p>80 PLUS Titanium certification</p> <p>2600 W AC power supplies requiring 220 V AC supply</p>
Cooling	<p>CPUs, GPUs, and NVLink switches are cooled using 6th Gen Lenovo Neptune water cooling</p> <p>Up to 75% of the heat generated by the server is removed using warm water – all other components are cooled using fans</p> <ul style="list-style-type: none">• Six internal dual-rotor fans for the compute and storage subsystem, N+1 redundancy• Five rear-mounted dual-rotor fans for the lower components including the front PCIe slots and PCIe switches, N+1 redundancy• One fan integrated in each power supply – front-to-rear airflow
GPU	<ul style="list-style-type: none">• Eight NVIDIA H100 700W SXM5 GPUs with 80GB HBM3 memory• Eight NVIDIA H200 700W SXM5 GPUs with 141GB HBM3 memory• Eight NVIDIA B200 1000W SXM6 GPUs with 180GB HBM3 memory
Management tools	<p>XClarity series tools:</p> <ul style="list-style-type: none">• XClarity Controller2 (XCC2)• XClarity Provisioning Manager (LXPM)• XClarity Essentials (LXCE)

Note: For the latest specifications, refer to the product guide on [Lenovo Press](#).

Front view



Rear view



Inside views



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

Assembled view

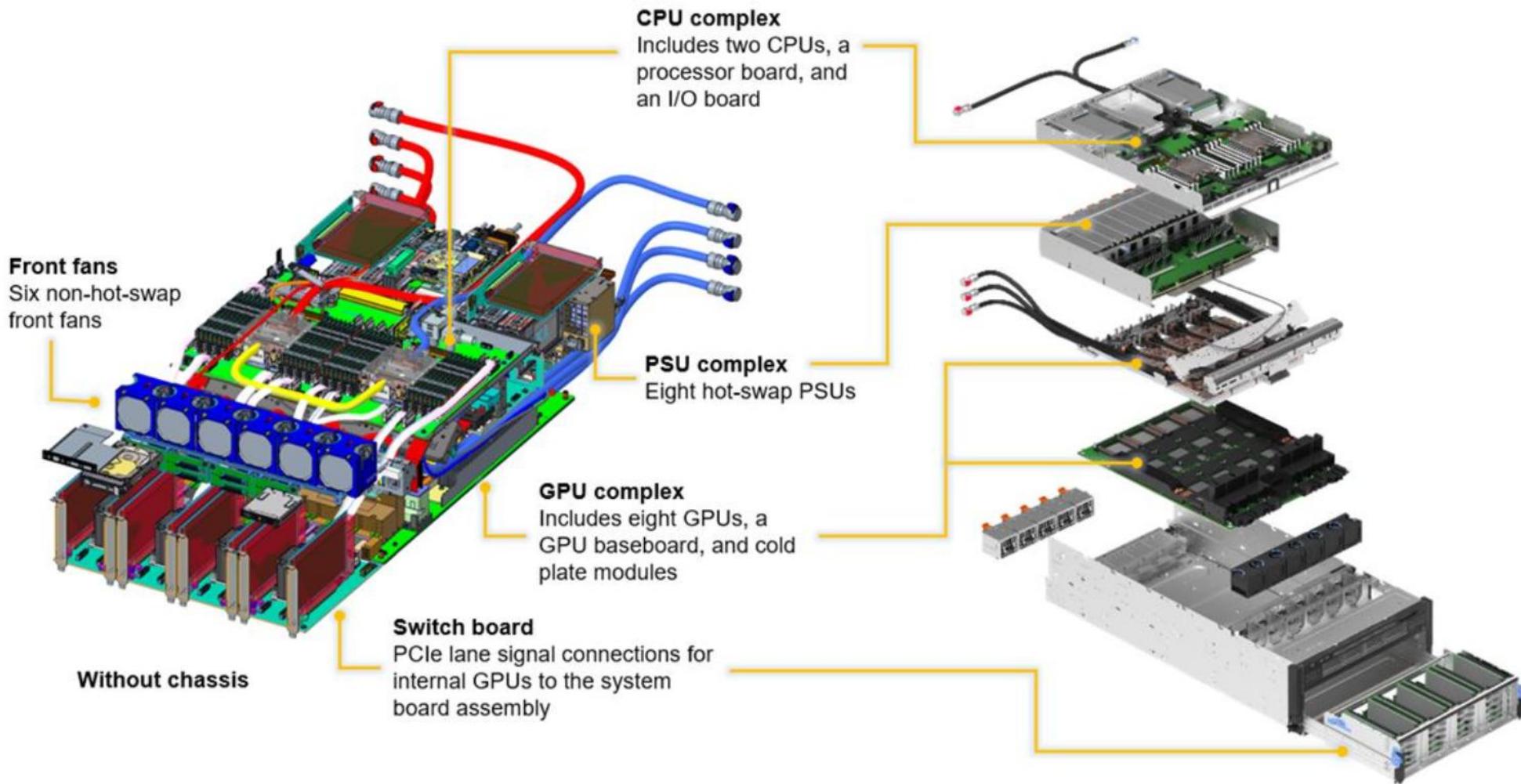
Side view

Exploded view

CPU complex

GPU water loop

Assembled view



Assembled view

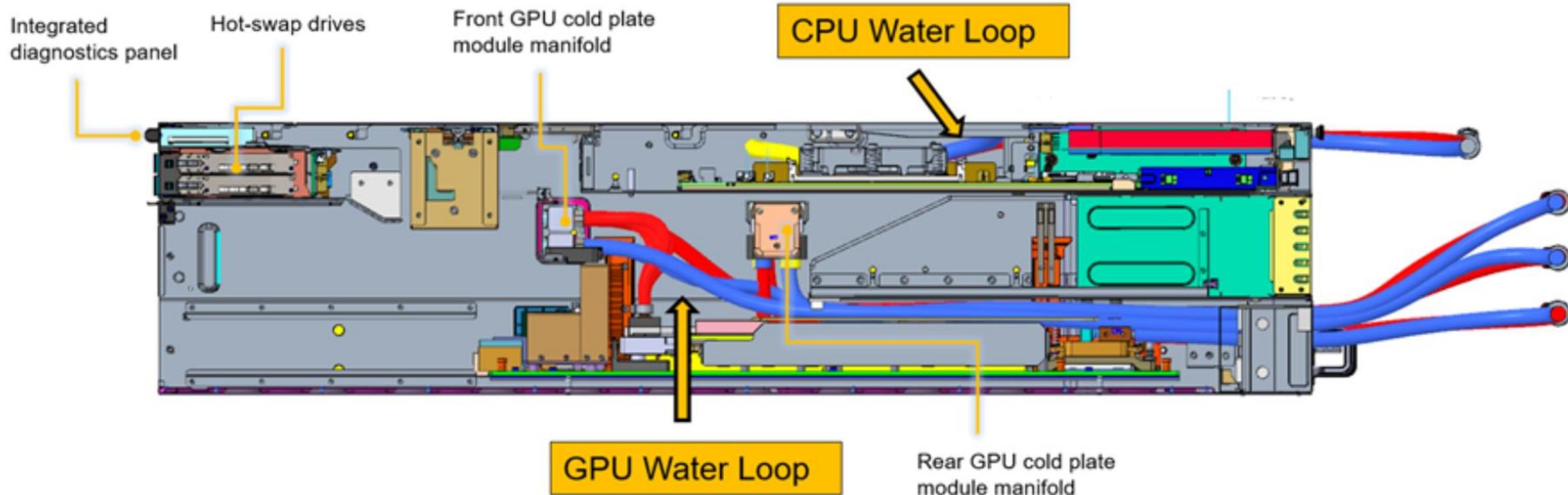
Side view

Exploded view

CPU complex

GPU water loop

Side view



Assembled view

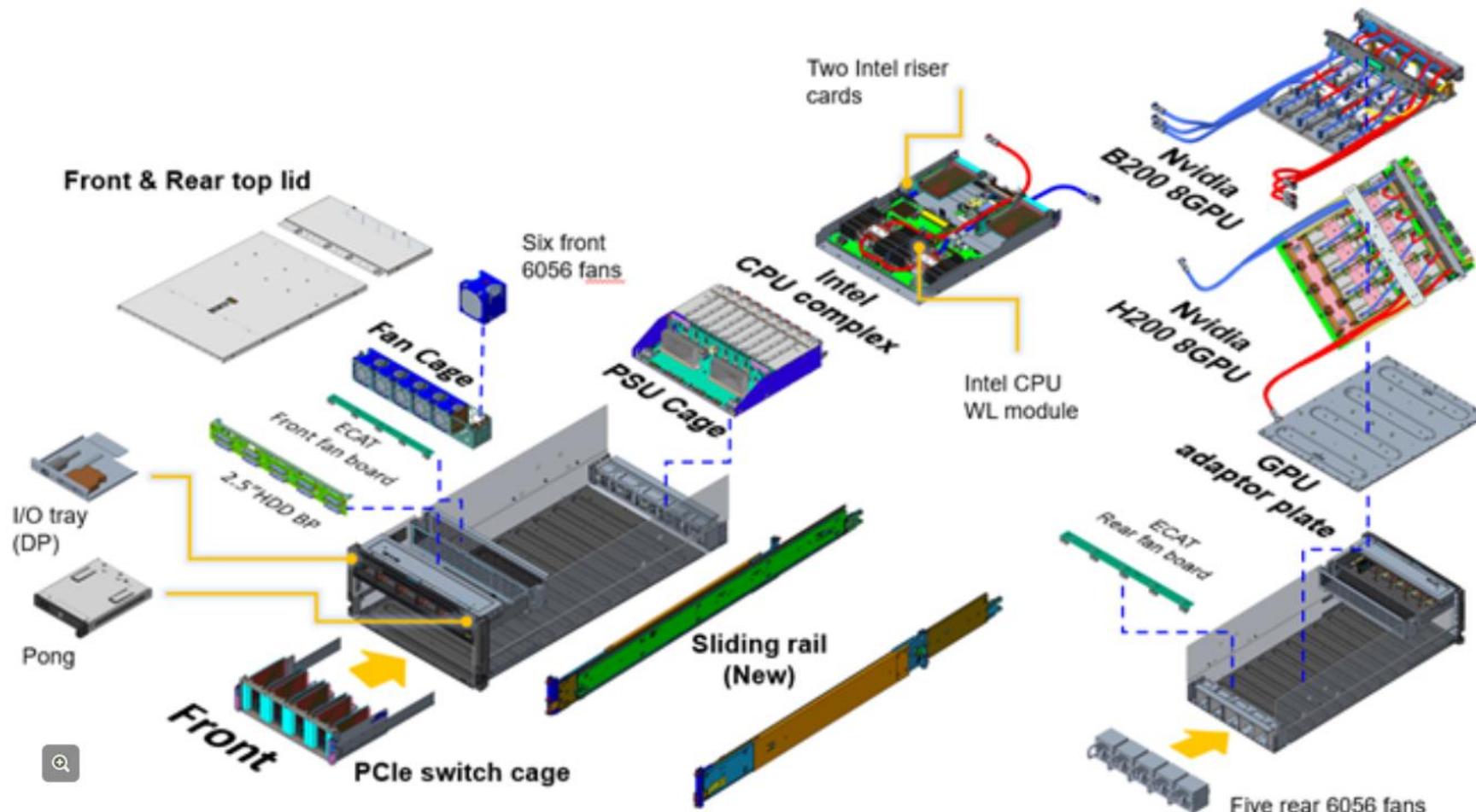
Side view

Exploded view

CPU complex

GPU water loop

Exploded view



Assembled view

Side view

Exploded view

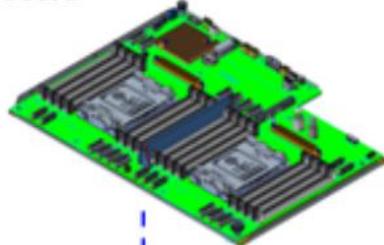
CPU complex

GPU water loop

CPU complex



Processor board



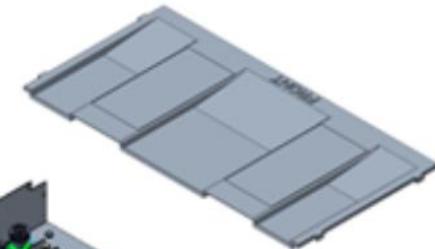
PCIe riser assembly



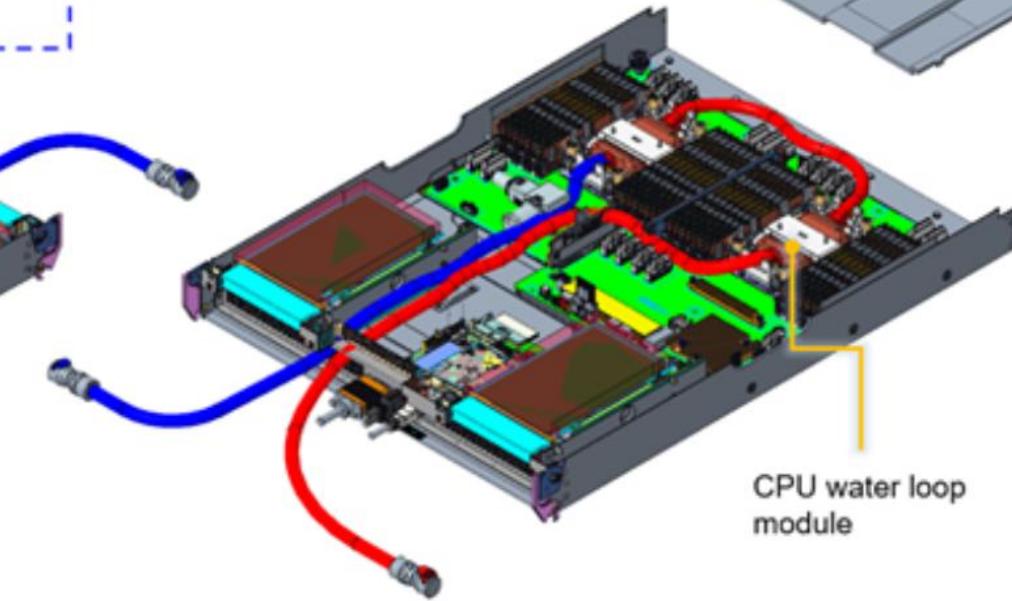
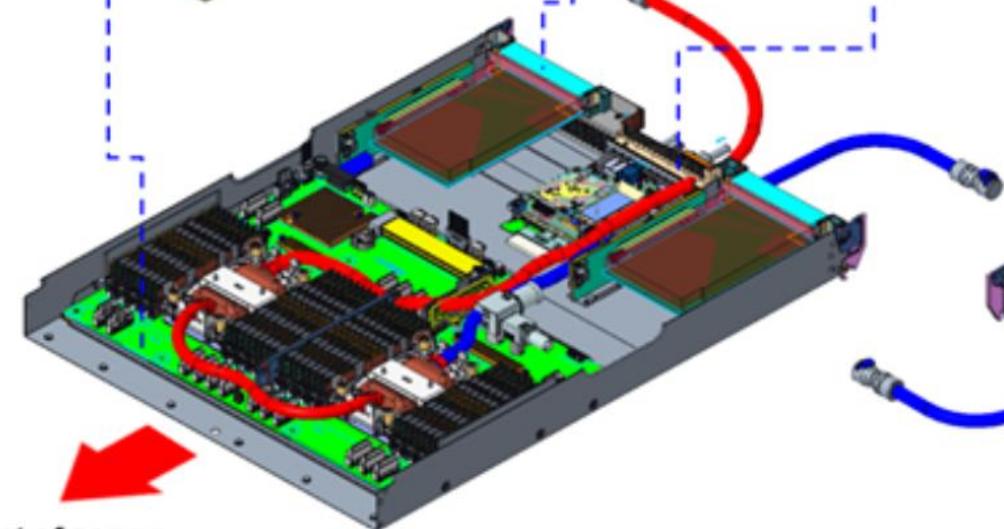
System I/O board
(Integrated Root of Trust)



CPU air baffle



Front of server



Assembled view

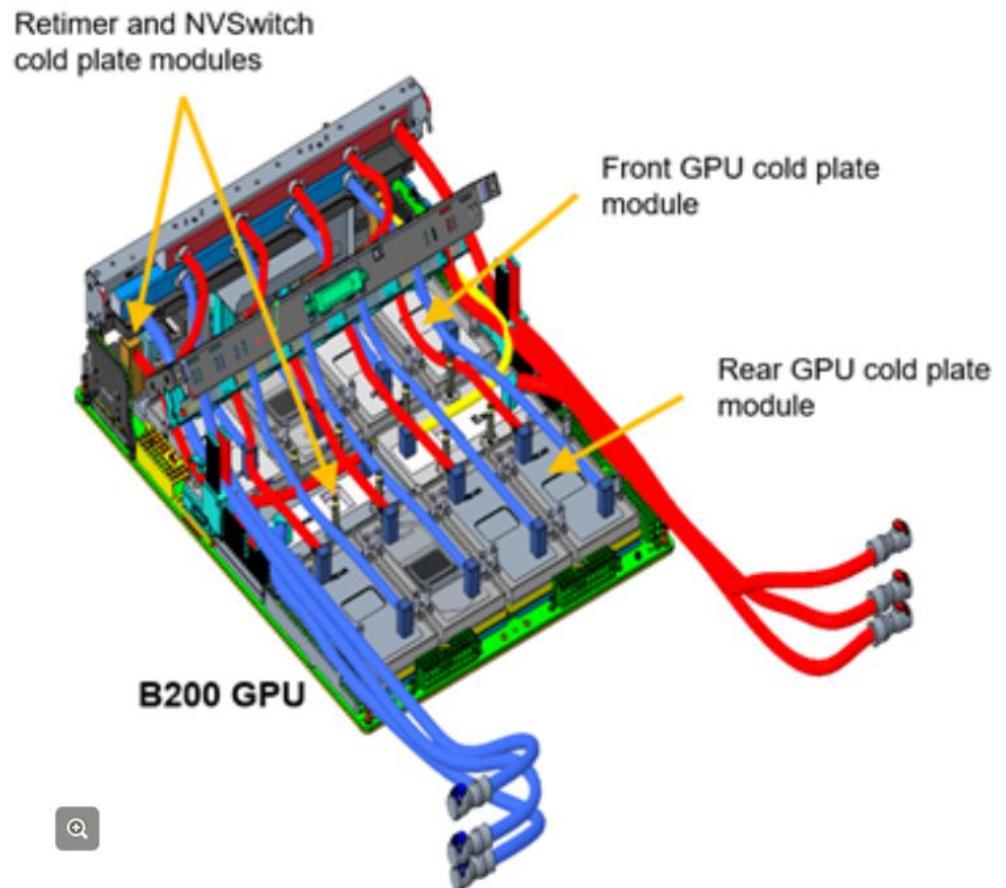
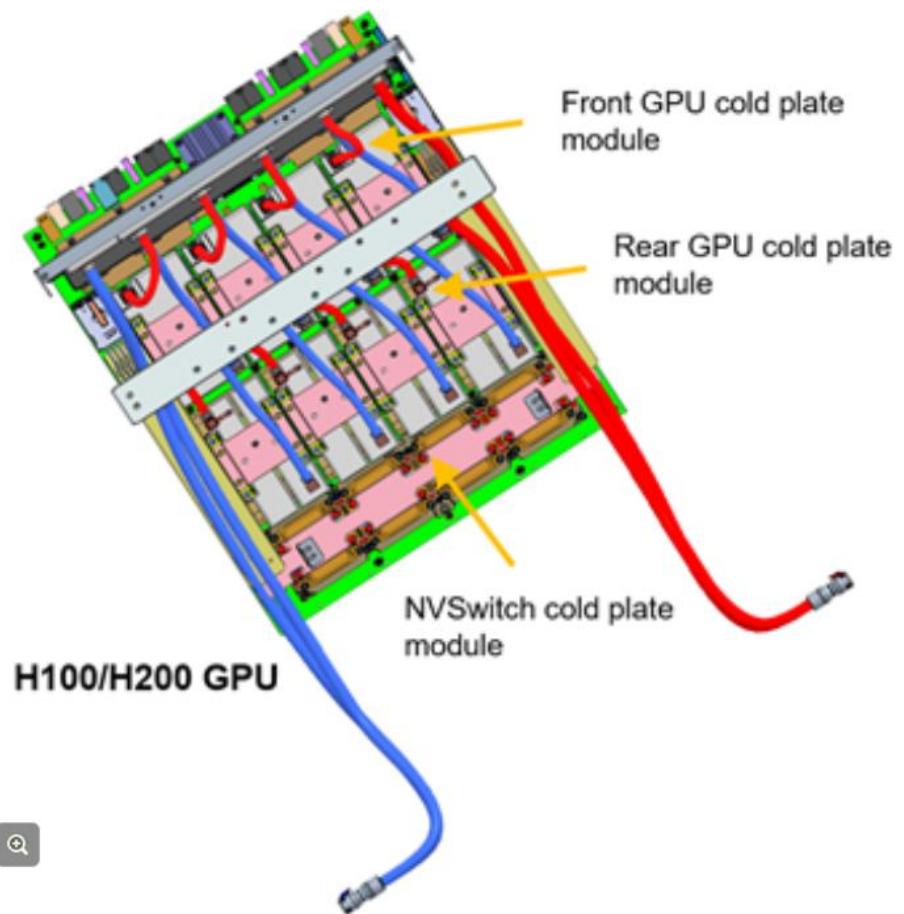
Side view

Exploded view

CPU complex

GPU water loop

GPU water loop



Assembled view

Side view

Exploded view

CPU complex

GPU water loop