

# System components

Components overview

Lenovo

## System board assembly

The SR780a V3 system board has two components:

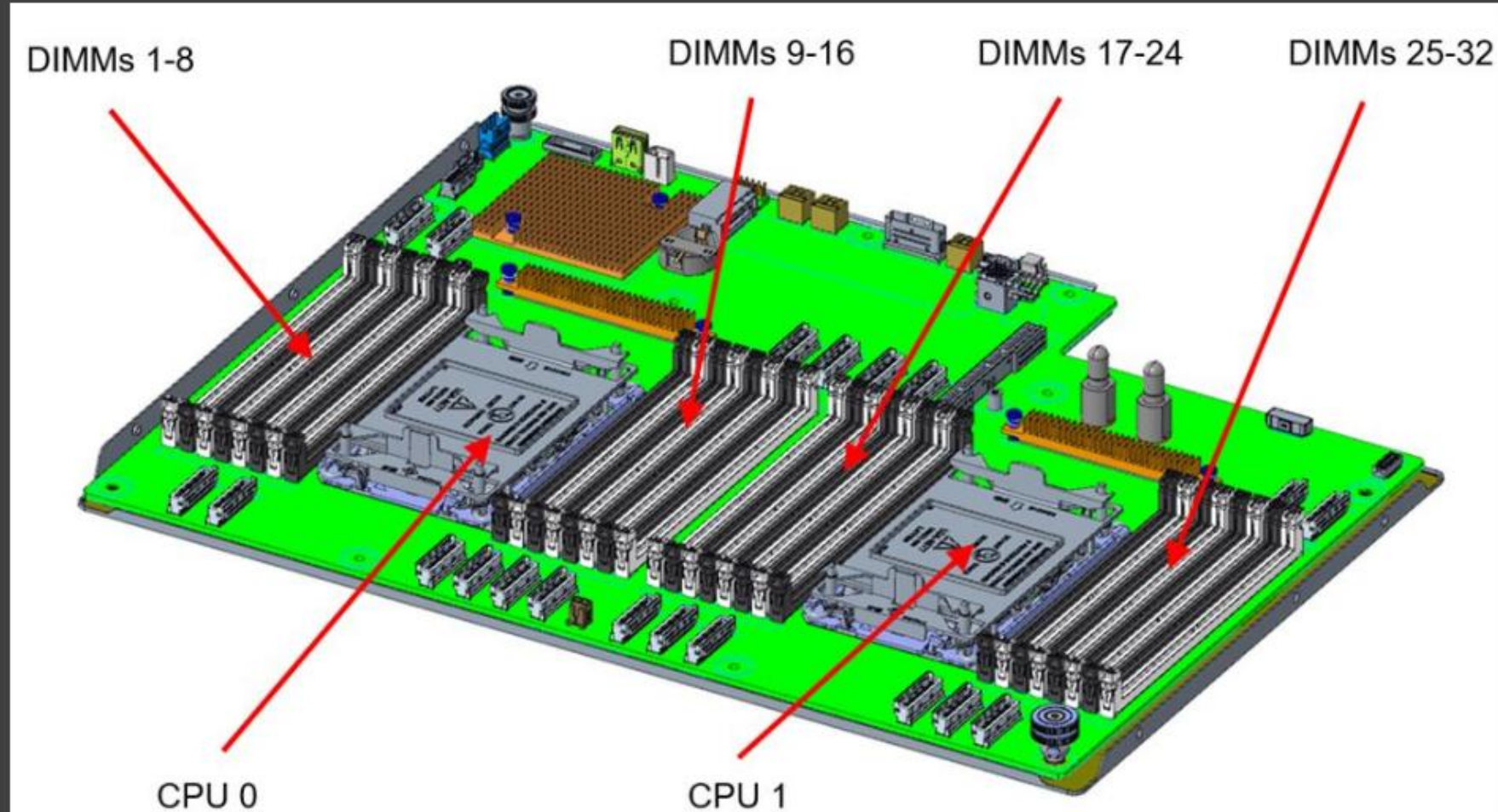
- Processor board
  - A board containing CPU sockets, PCIe connectors, memory slots, and other server component connectors

Click [HERE](#) to see the processor board.
- System I/O board
  - A board containing the system BMC (XCC2) management port, USB ports, and a VGA connector
  - Integrated Root of Trust security module containing the Trusted Platform Module (TPM), UEFI firmware, XCC2 firmware, and a silicon Root of Trust
  - A Micro SD card slot to extend XCC2 storage space for the backup of firmware and for remote console virtual media
  - A signal connector to the processor board

Click [HERE](#) to see the system I/O board.

# System board assembly

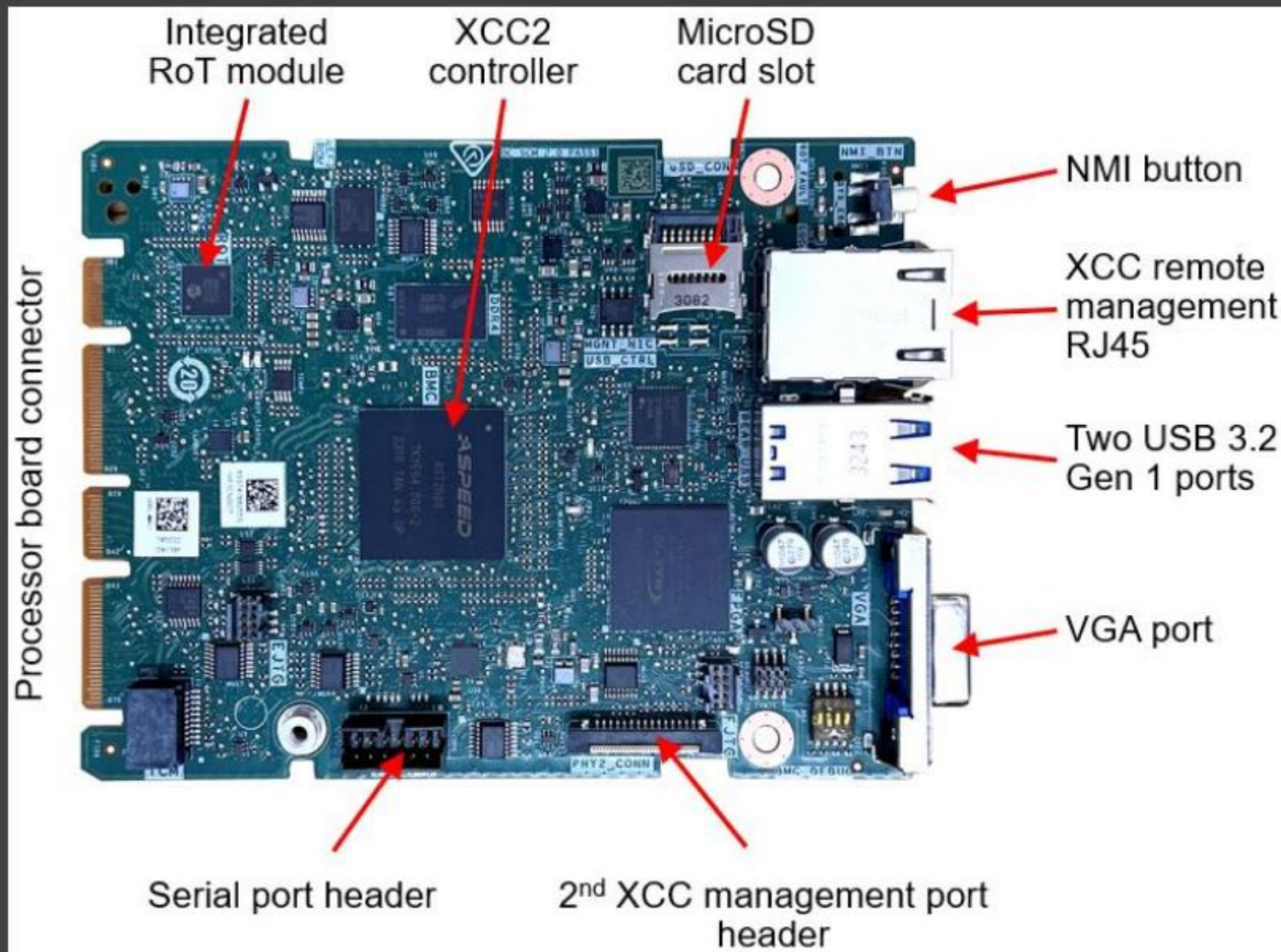
## Processor board



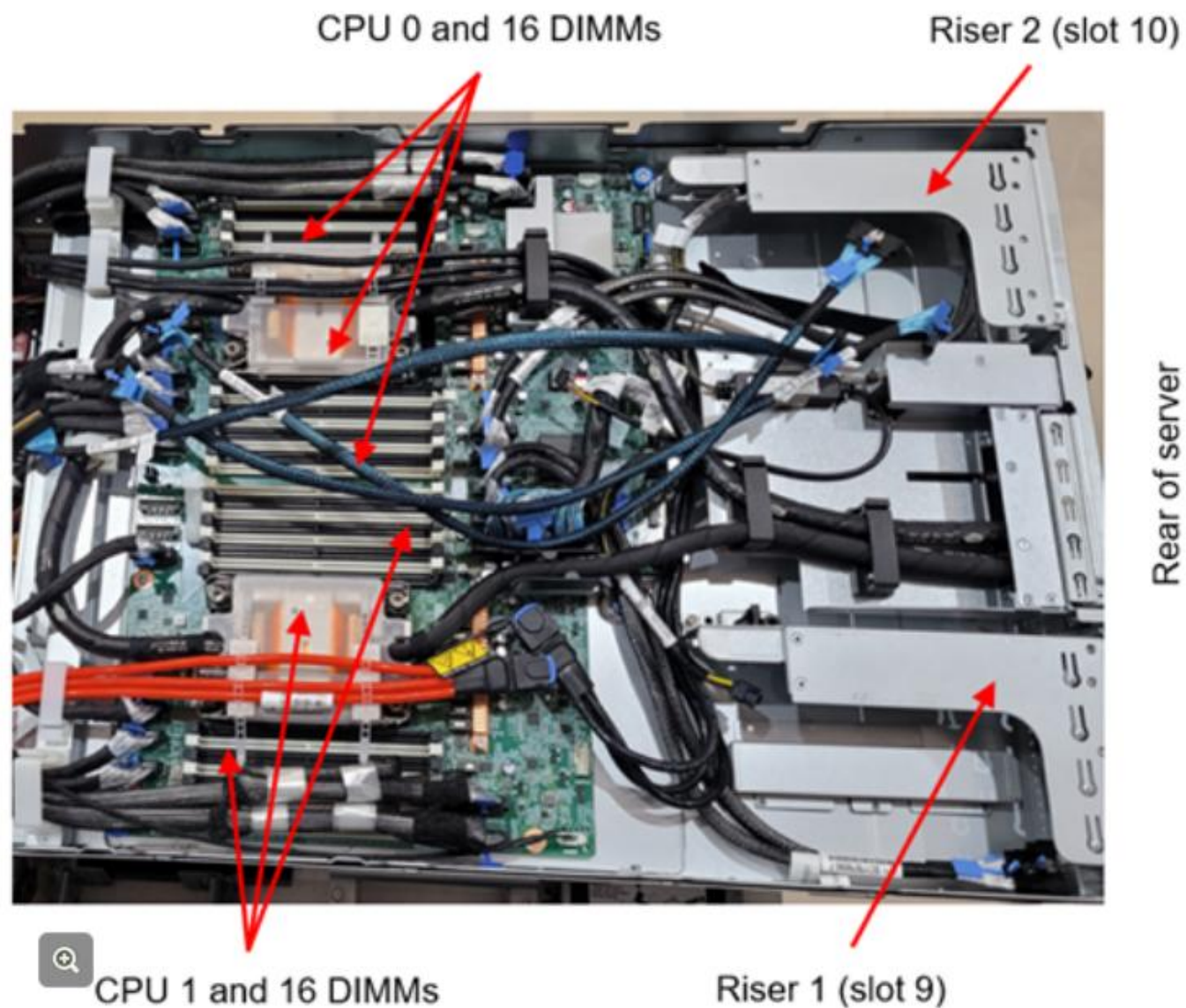


# System board assembly

## System I/O board



# CPU complex assembly





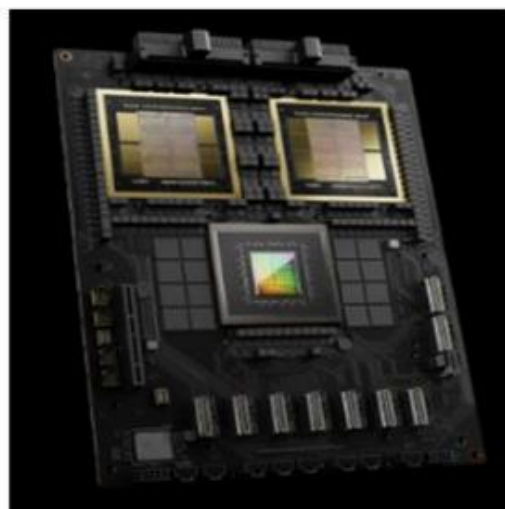
## OAM – GPUs

OAMs (OCP Accelerator Modules) are a type of GPU based on the [OCP \(Open Compute Project\)](#) standard design. They are designed to handle large-scale AI training and HPC data workloads. The standard configuration for the SR780a V3 is eight GPUs – users cannot purchase fewer than eight OAMs. For more information, refer to the following websites:

- [NVIDIA HGX H100](#)
- [NVIDIA HGX H200](#)
- [NVIDIA HGX B200](#)



An NVIDIA H200 GPU  
without a heat sink



An NVIDIA B200 GPU  
without a heat sink



An NVIDIA H100 GPU  
without a heat sink

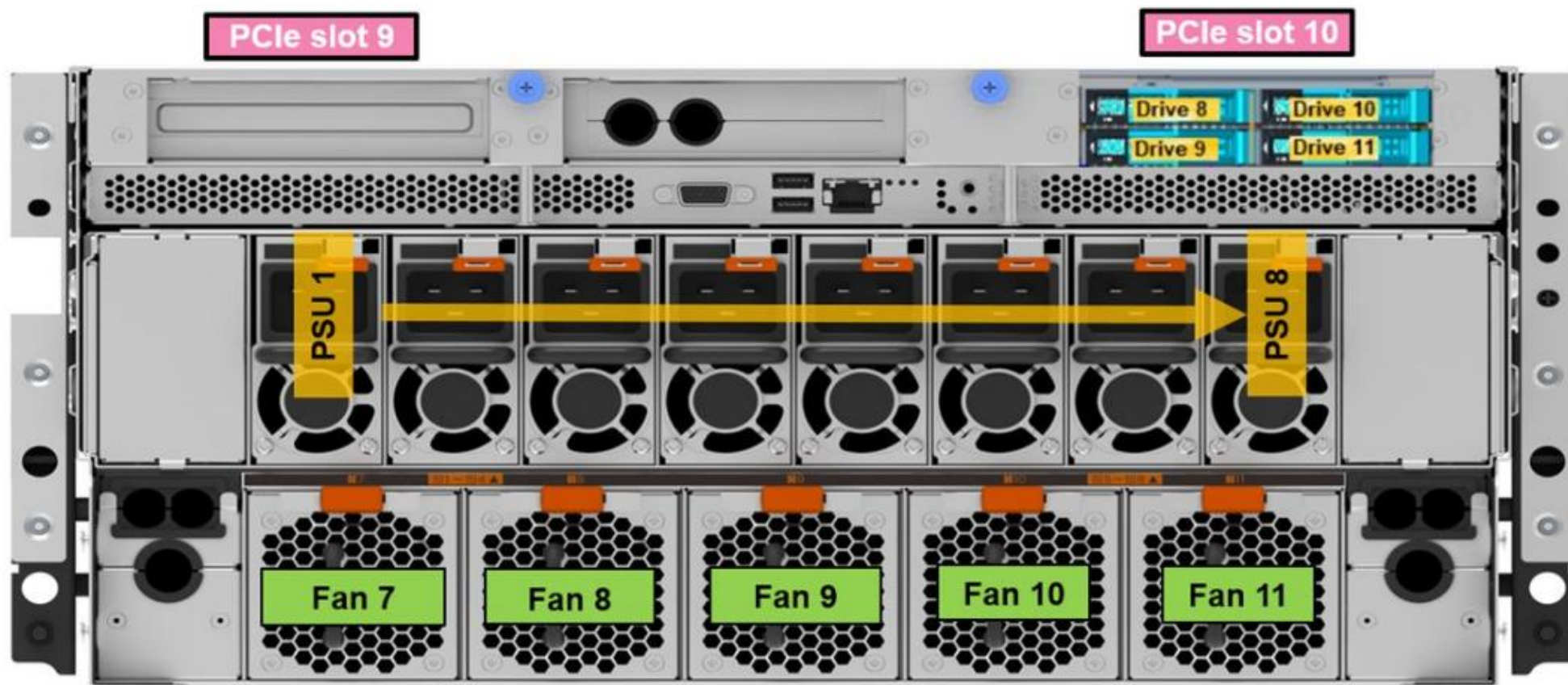
# Front components and slot numbering





## Rear components and slot numbering

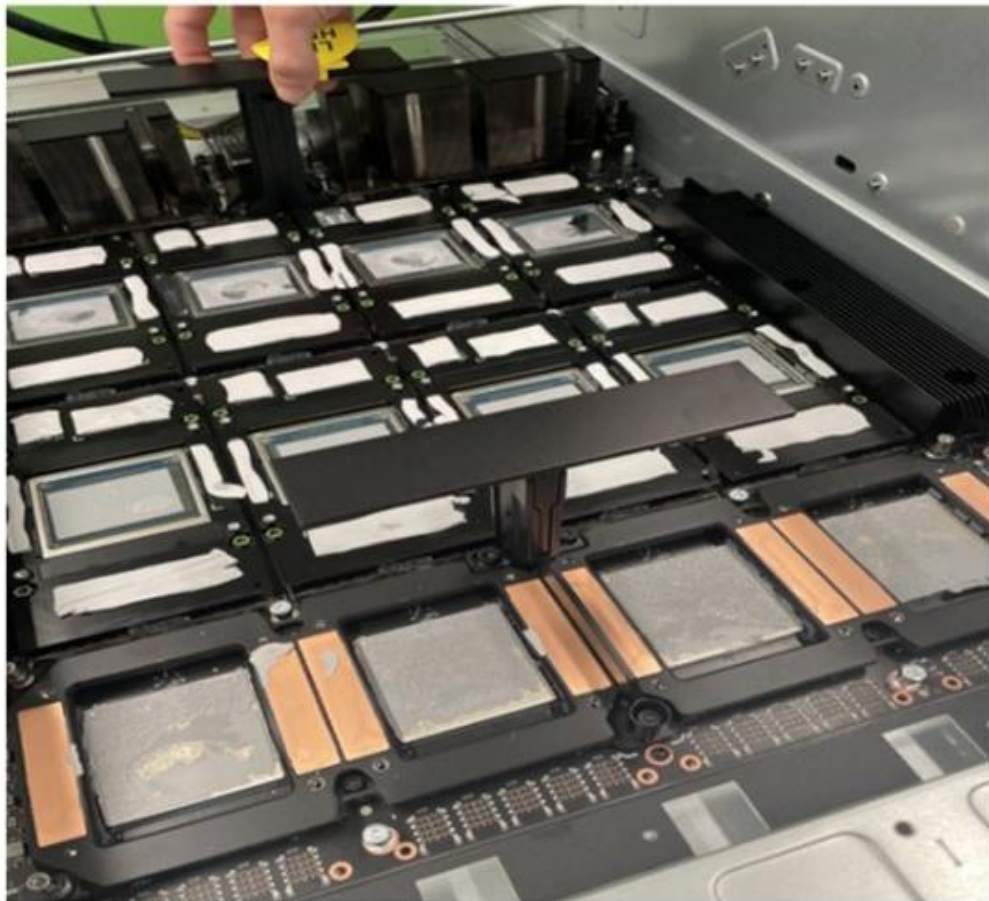
If the 2.5-inch drive bay option (bays 8 to 11) is installed, it will occupy PCIe slot 10.



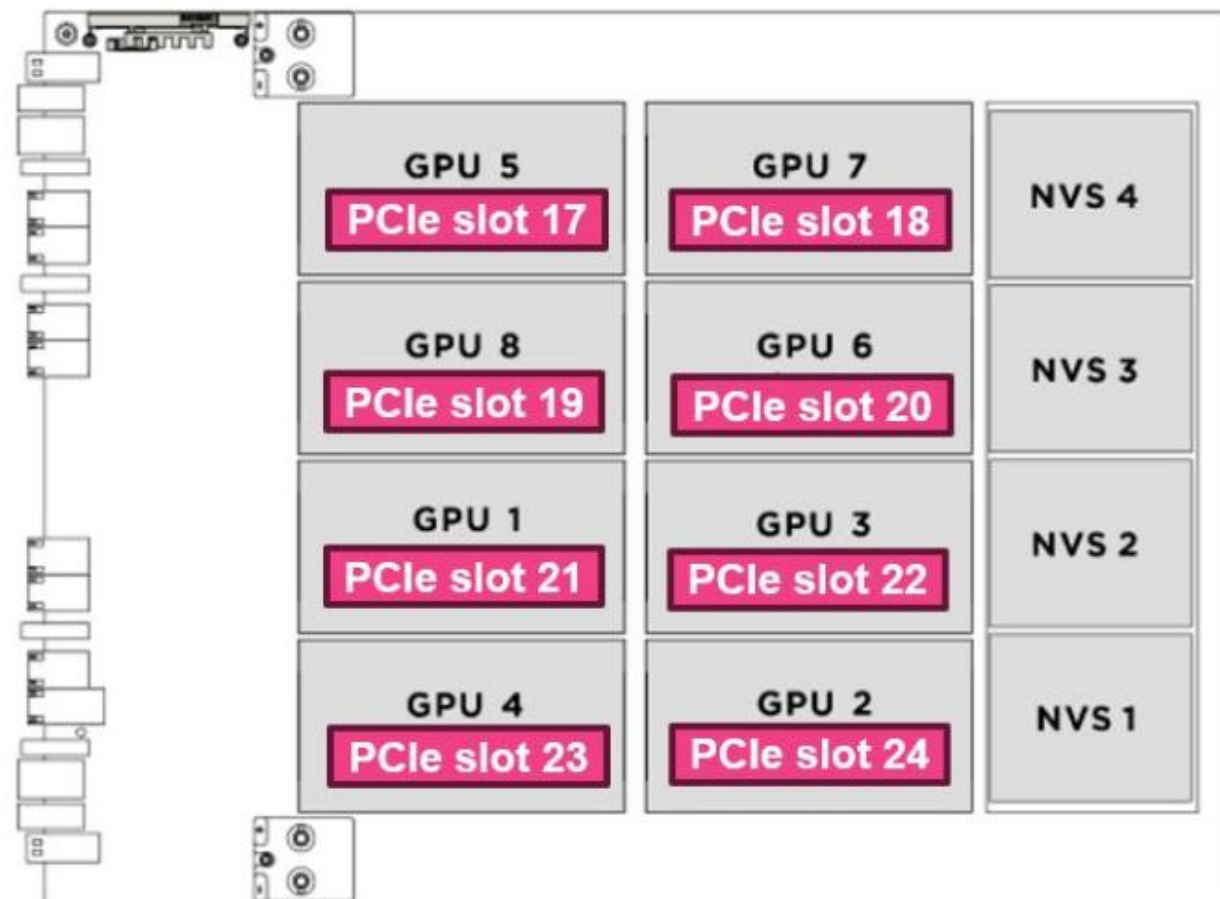


# NVIDIA GPU numbering

Front of the server



Front of the server



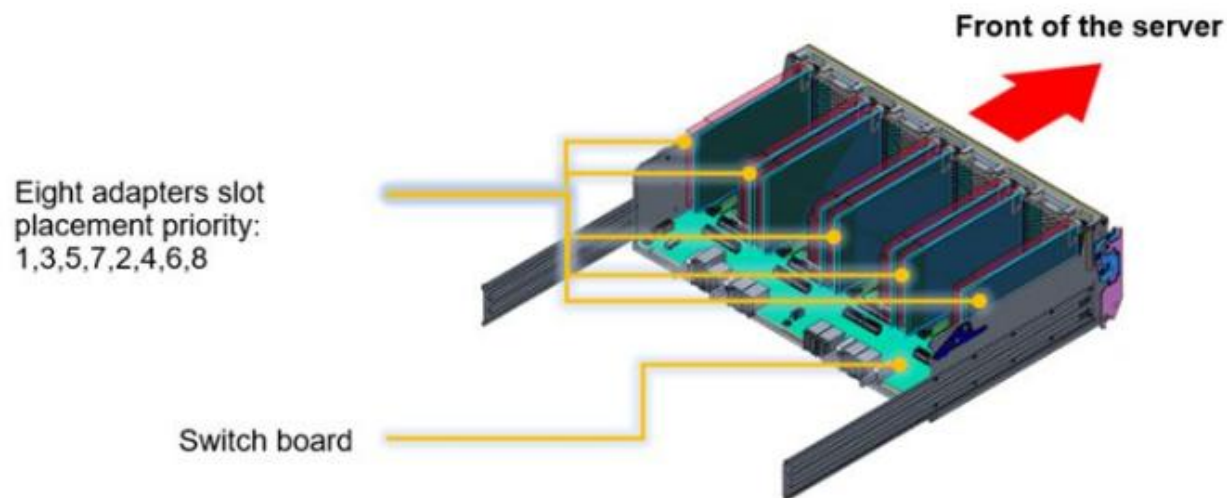
NVIDIA GPU numbering

## Front PCIe adapter in the switch board

The SR780a V3 has a front switch board for internal GPU to system board PCIe lane connections, and it supports eight adapters. Adapter support is as follows:

- ThinkSystem NVIDIA BF3 3140H QSFP112 1P 400G PCIe Gen5 x16
- Mellanox ConnectX-7 MCX75310AAS-NEAT 1x400G PCIe Gen5 x16 OSFP HHHH CSP
- ThinkSystem NVIDIA ConnectX-7 NDR OSFP400 1-Port PCIe Gen5 x16 InfiniBand Adapter
- ThinkSystem Broadcom 57508 100GbE QSFP56 2-port PCIe 4 Ethernet Adapter

For more information about the switch board adapters, refer to [Lenovo Press](#).



A switch board without PCIe adapters installed



## Rear PCIe adapters in the CPU complex

The SR780a V3 supports the following rear PCIe adapters: (Slot placement priority)

- Mellanox MCX623106AC-CDAT Dx 100GbE QSFP56 2-Port PCIe NIC -CSP I4: (9,10)
- Nvidia BF3 D3B6 FHHL 2x200G QSFP112 PCIe5x16 NIC CSP: (9,10)
- ThinkSystem Mellanox ConnectX-6 Lx 10/25GbE SFP28 2-Port PCIe Ethernet Adapter: (9,10)
- ThinkSystem Mellanox ConnectX-6 Dx 100GbE QSFP56 2-port PCIe Ethernet Adapter: (9,10)
- ThinkSystem NVIDIA BlueField-3 VPI QSFP112 2P 200G PCIe Gen5 x16 B3220: (9,10)

[No Title]

For the latest list of PCIe adapters supported by the SR780a V3, refer to the SR780a V3 Product Guide on [Lenovo Press](#).

**Note:** The SR780a V3 does not support RAID or HBA adapters.



## DIMMs

The SR780a V3 supports up to 32 DDR5 RDIMMs:

- One DIMM per channel, up to 4800 MHZ
  - Two DIMMs per channel, up to 5600 MHZ
  - Support for RDIMMs (1Rx8, 2Rx4, and 2Rx8)
  - Support for 3DS RDIMMs (2S2Rx4)
  - Support for the mixing of memory speeds
    - The system will operate at the lowest DIMM speed
  - Support for the mixing of DIMM vendors
  - DIMMs for each memory channel and CPU must have the same memory capacity and rank
  - DIMMs must be installed in a specific order based on the system configuration
- For more information, refer to the *Memory module installation rules and order* section of the *SR780a V3 User Guide* on the [Lenovo Docs](#) website
- Click [HERE](#) to see the SR780a V3 DIMMs block diagram

## M.2 adapters

The SR780a V3 supports two stacked M.2 NVMe drives that are directly attached to the processor board in the CPU complex.

