

Servicing the Lenovo ThinkSystem DM7100 Series and DM240N

ES51952

April 2020

Lenovo

Prerequisites

[ES71914B - Servicing the Lenovo ThinkSystem DM Series storage](#)

[ES42026 - ONTAP 9.7 Administration](#)

Objectives

After completing the course, you will be able to:

- Describe the ThinkSystem DM7100 Series storage controllers and the DM240N expansion enclosure and components
- List the features and specifications
- Describe how to connect the cables in the DM7100 Series
- Describe the FRU replacement procedures
- Provide an overview of ONTAP 9.7
- Describe the problem determination steps and explain how to troubleshoot issues with the ThinkSystem DM7100 Series

Product overview

Product description and front, rear, and inside views

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DM7100 Series and DM240N product overview

The new mid-range DM7100 Series has two models: the All Flash Array (AFA) DM7100F (MT: 7D25) and the Hybrid Array DM7100H (MT: 7D26). Both the DM7100F and DM7100H are only available in a dual-controller configuration. The DM7100 Series can be configured with either four 25 Gb Ethernet SFP28 ports or four 16 Gb Fibre Channel (FC) SFP+ ports via a mezzanine card. Both DM7100 Series models run ONTAP 9.7 or later software.



Front view with cover – DM7100F

- Full NVMe solution with All Flash system – MT: 7D25
- 4U high enclosure
- Two 10-core CPUs per storage controller, 40 cores in a high-availability (HA) pair
- 128 GB of memory (256 GB in an HA pair), 16 GB NVDIMM (32 GB in an HA pair)
- The system has no internal drives and must be paired with an expansion unit
- Limited to two DM240N NVMe expansion shelves of SSDs per HA pair or 20 DM240S 12 Gb SAS expansion shelves of SSDs only. An HA pair supports up to 480 drives.

System LEDs for system power,
system fault, and location

Cover

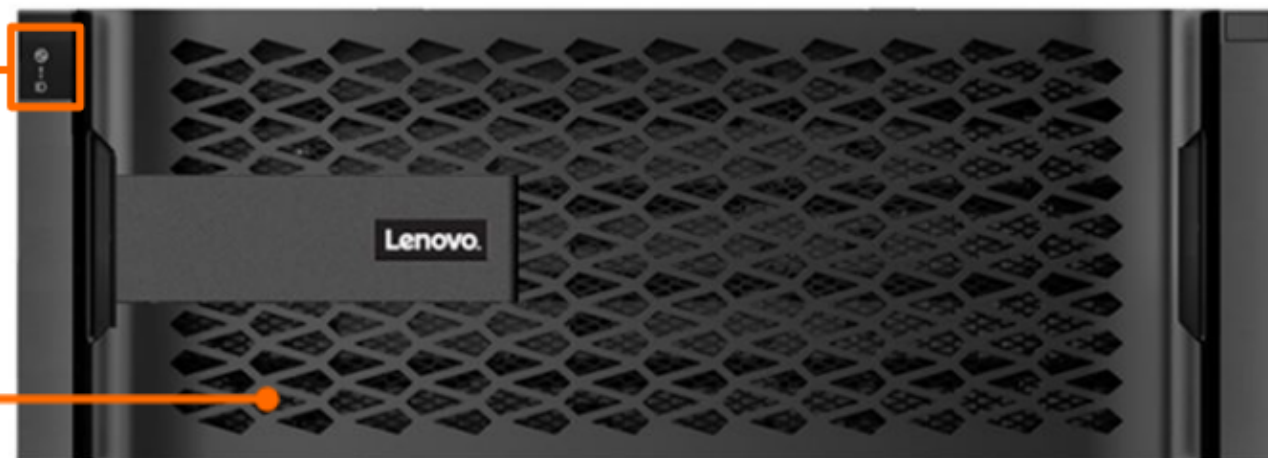


Front view with cover – DM7100H

- Hybrid controller. MT: 7D26
- 4U high enclosure
- Two 10-core CPUs per storage controller, 40 cores in a high-availability (HA) pair
- 128 GB memory (256 GB in an HA pair), 16 GB NVDIMM (32 GB in an HA pair)
- The system has no internal drives, and must be paired with an expansion unit
- Supports connections to DM120S, DM240S, and DM600S SAS expansion shelves
- DM240S, DM120S, and DM600S enclosures can be combined for a maximum of 720 drives
- Two slots for M.2 NVMe Flash cache modules (2 TB or 4 TB in an HA pair) for storage acceleration

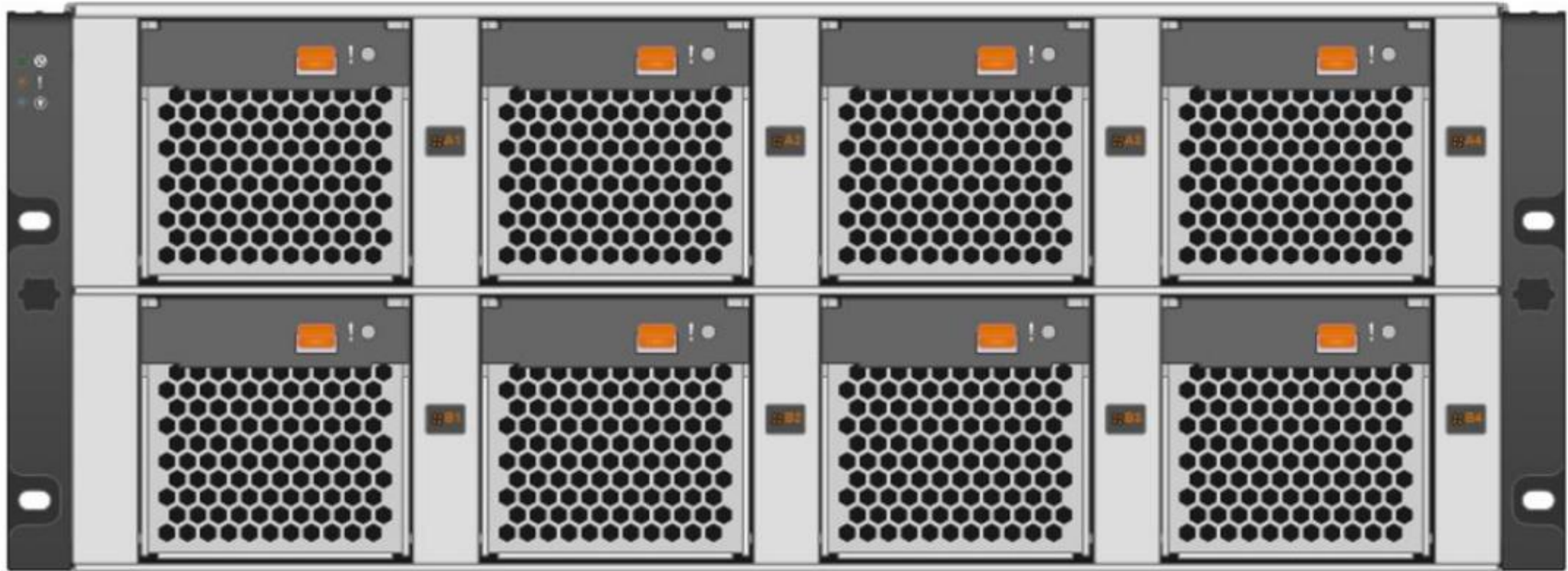
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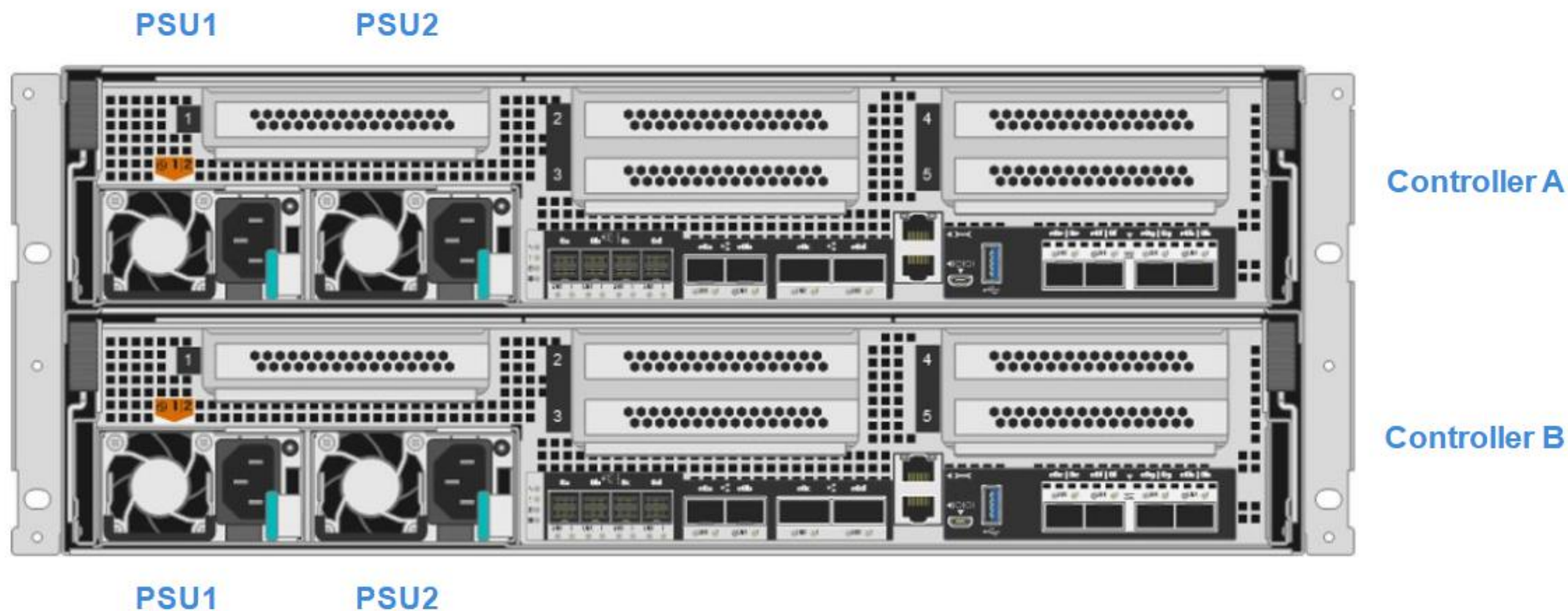
Front view without cover – DM7100 Series

Each DM7100 Series enclosure has eight internal fan modules. Each fan module houses two internal blowers.



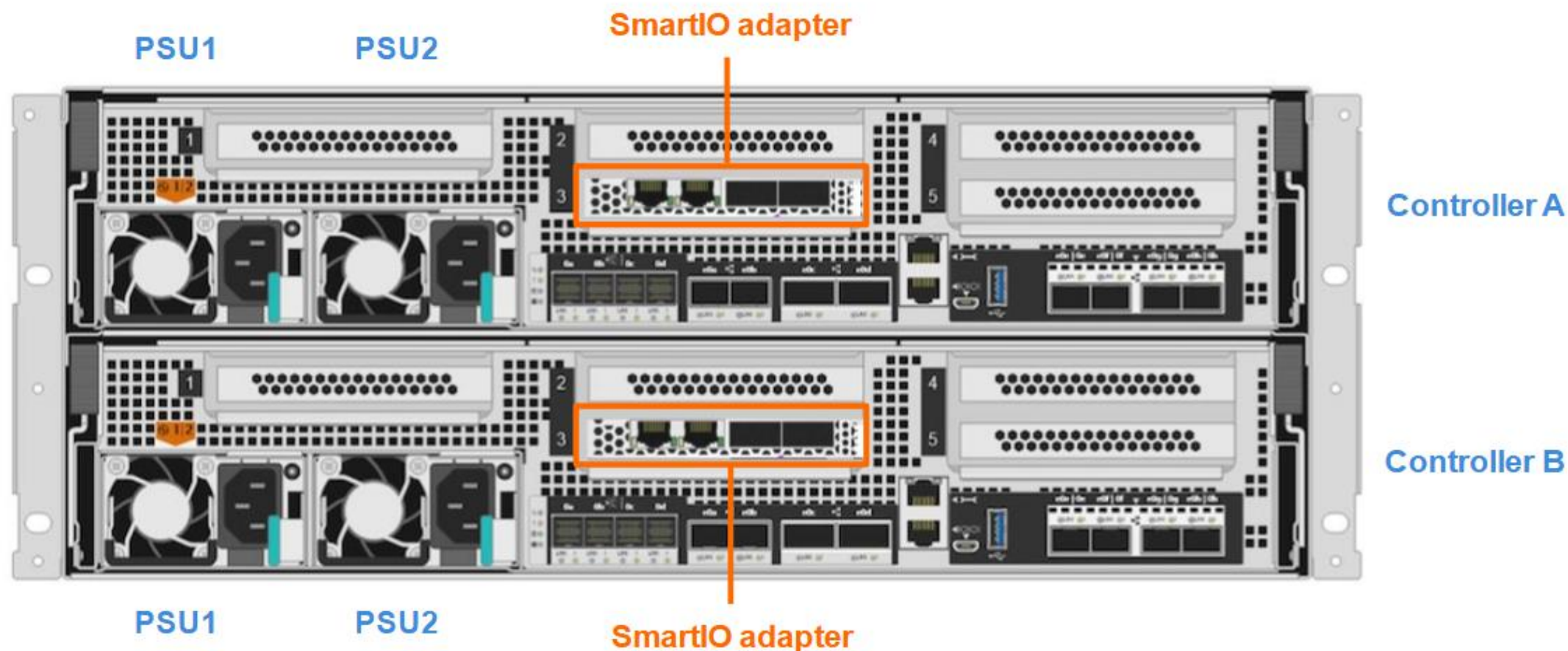
Rear view – DM7100H

Each DM7100 Series enclosure has two controllers. Each controller has two power supply units (PSU) that support 110 or 220 V ac.

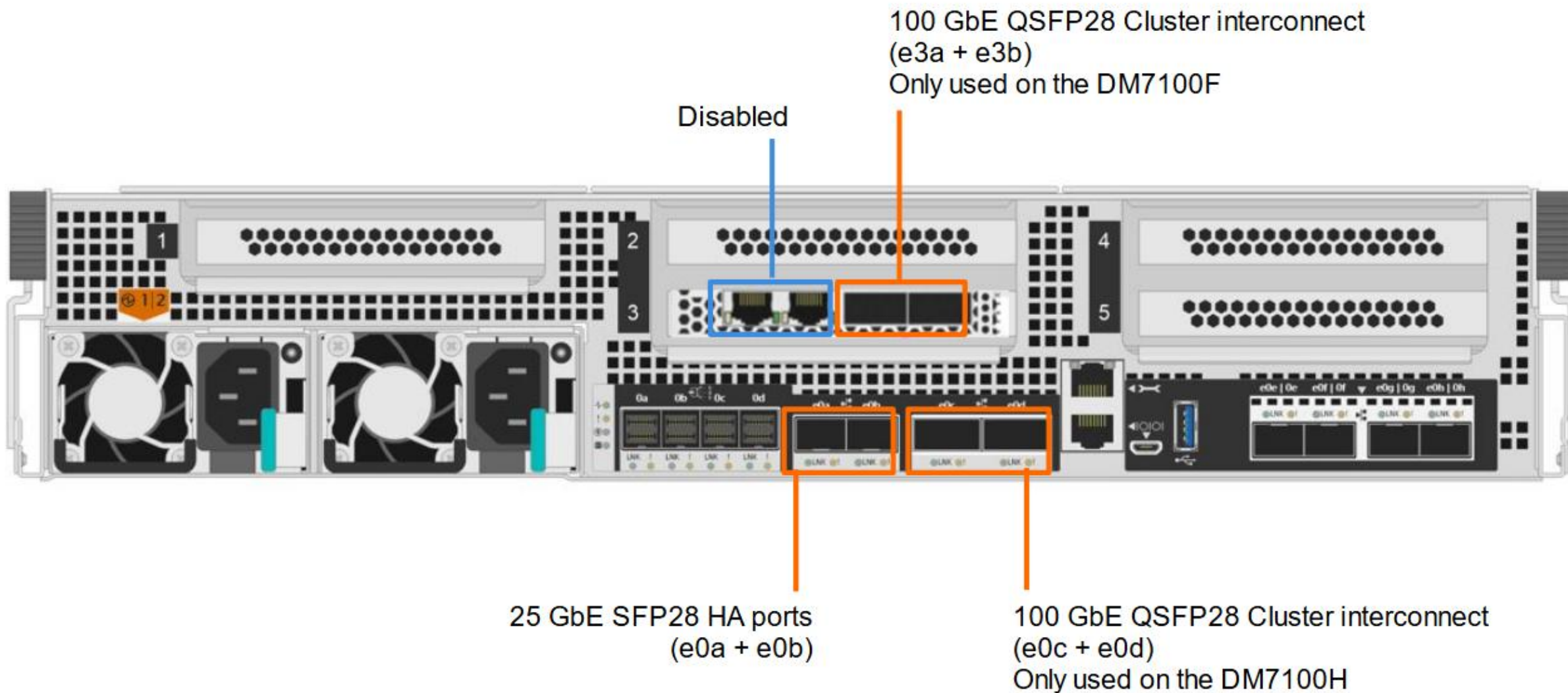


Rear view – DM7100F

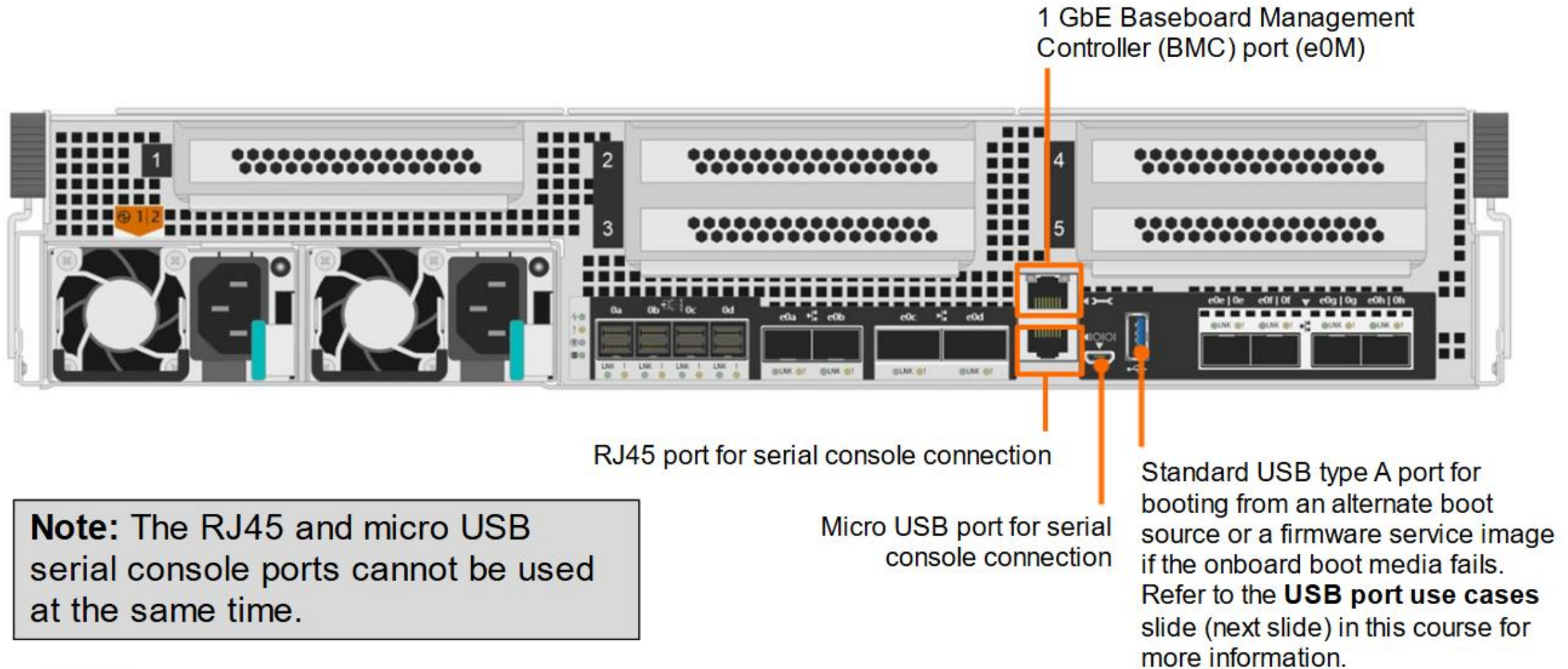
SmartIO adapters are used on DM7100F controllers only.



DM7100 Series controller ports - Cluster and HA ports



DM7100 Series controller ports - Management ports

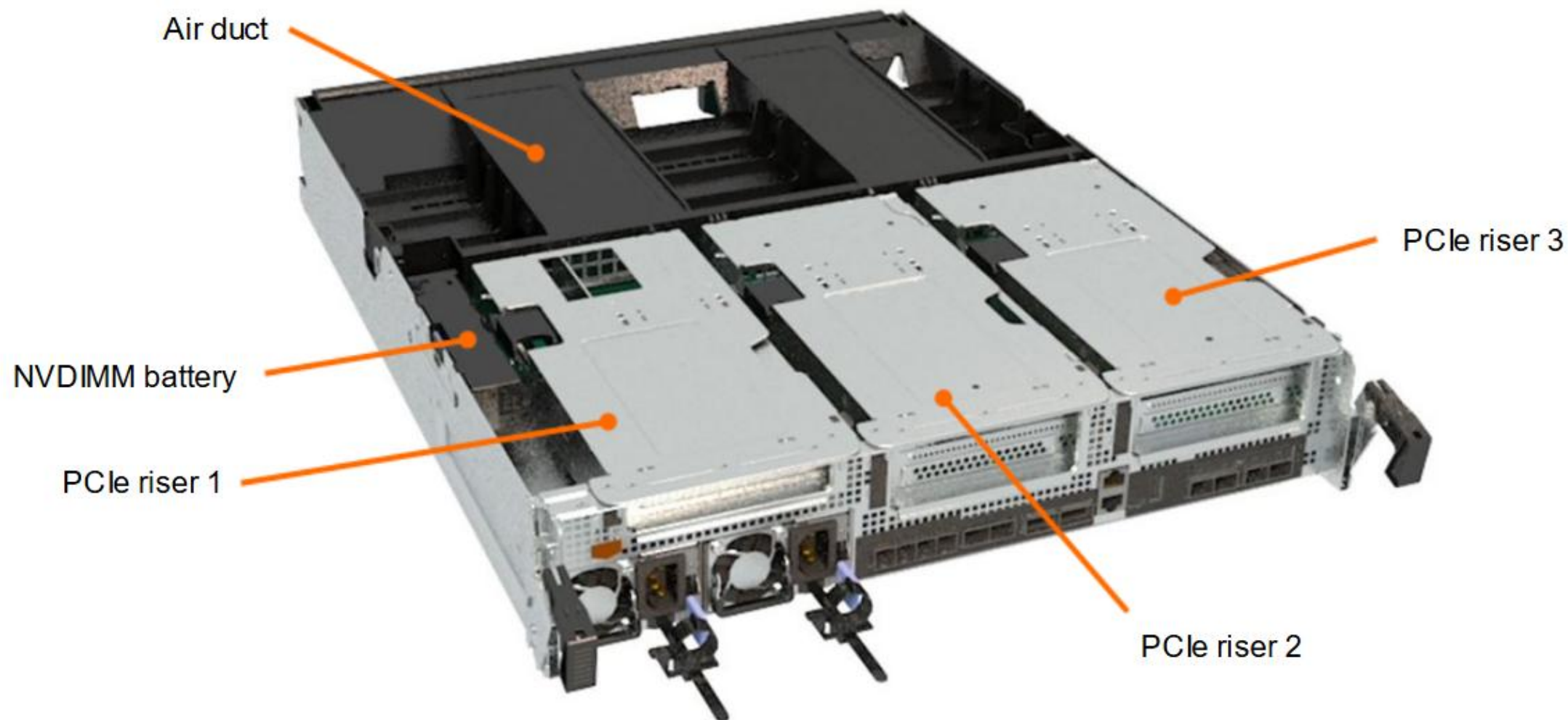


USB port use cases

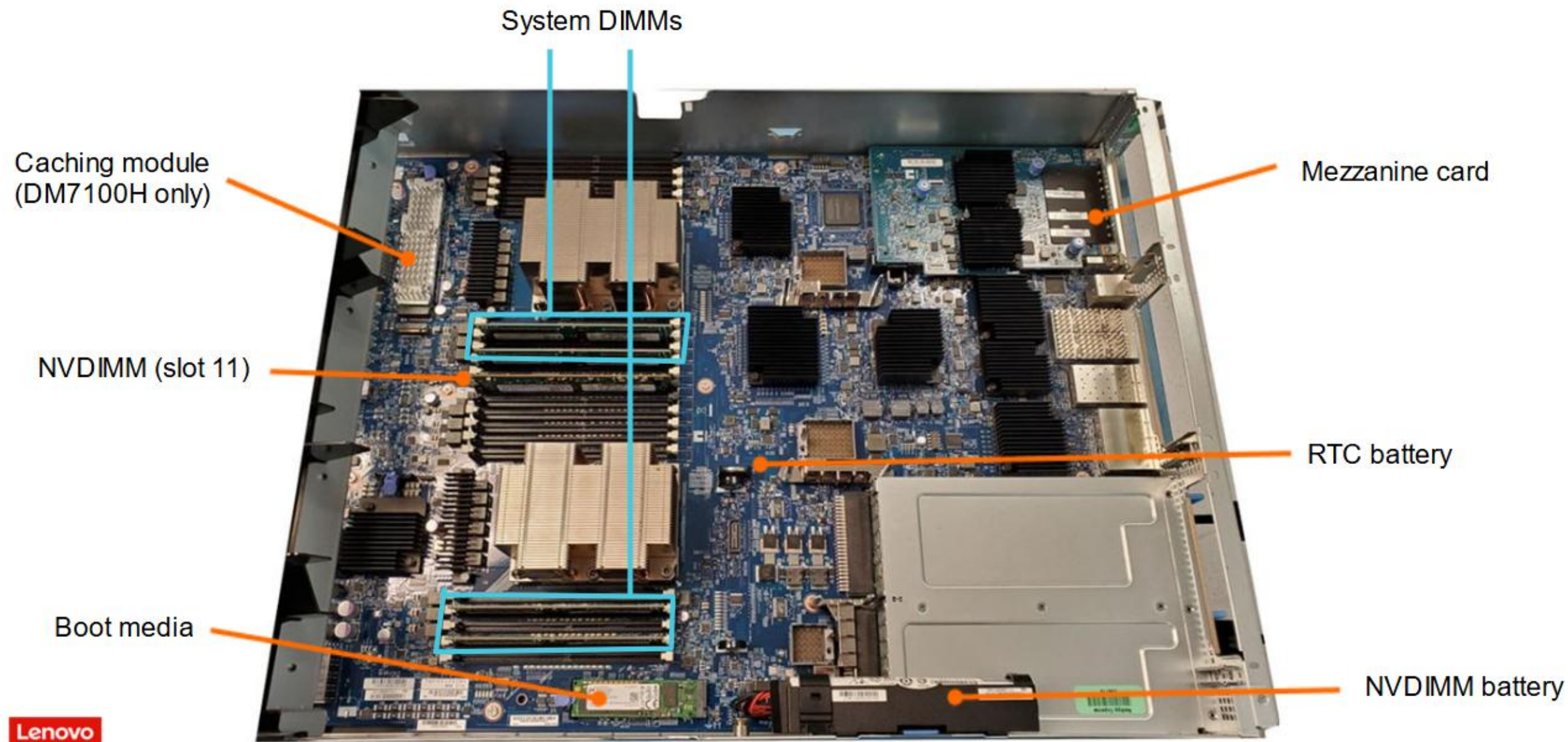
This table shows the scenarios in which USB ports can be used. Each scenario has its own prerequisites and commands.

Scenario	Prerequisites	Command
Perform boot device recovery from the LOADER prompt	<ul style="list-style-type: none">• The USB 2.0 device is formatted to FAT32 with the correct ONTAP image.tgz file• The device is not hot-pluggable. After you insert the USB device, you must boot to the LOADER prompt.	<ul style="list-style-type: none">• At the LOADER prompt, use the <code>boot_recovery</code> command with the netboot image.• At the boot menu, select the appropriate ONTAP image.
Fetch ONTAP software for installation	The USB 2.0 device is formatted to FAT32 with the correct ONTAP image.	<ul style="list-style-type: none">• Use the <code>system node image update/get</code> command.• From the additional options for the command, fetch ONTAP software from the USB device.
Fetch service images for firmware updates	The USB 2.0 device is formatted to FAT32 with the correct service image.	<ul style="list-style-type: none">• Use the <code>system node firmware download</code> command.• From the additional options for the command, fetch ONTAP software from the USB device.

DM7100 Series controller top view



DM7100 Series controller inside view – without PCIe risers



DM240N front view

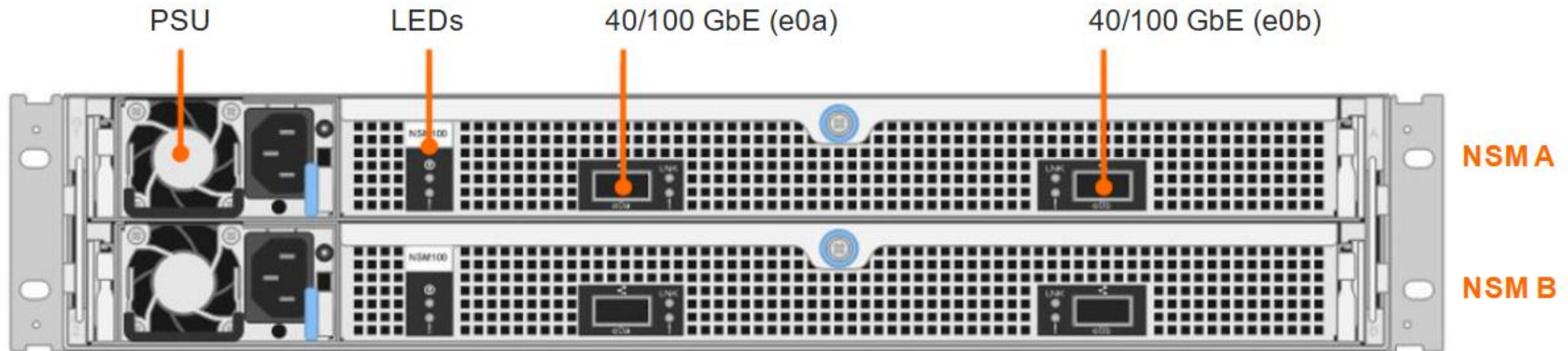
NVMe expansion enclosure – MT: 7Y62

- 2U height, 24-drive NVMe expansion unit
- Uses two NVMe shelf modules (NSM) for redundancy – the NSM is also called the NVMe I/O Module
- Ethernet connectivity is possible using remote direct memory access (RDMA) over converged Ethernet (RoCE)
 - RoCE is a low latency data access protocol
- Connects directly to the DM7100F

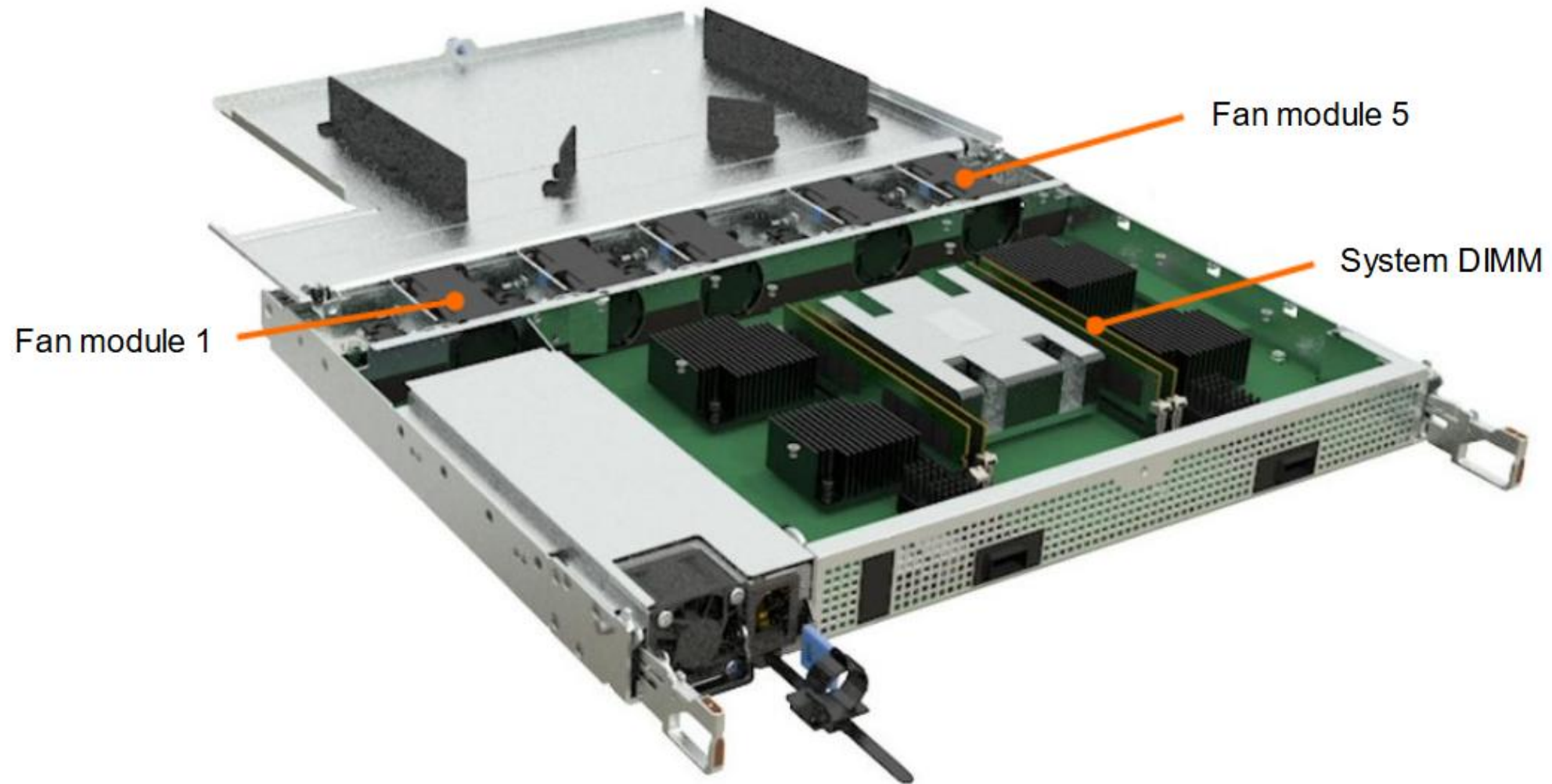


DM240N rear view

Each NSM has two 40/100 GbE ports labeled e0a and e0b.



DM240N NSM inside view



DM240N exploded view

