Smarter technology for all

Servicing the Lenovo ThinkSystem ST50 V2 server

Prerequisites

- ES51757B – Introducing ThinkSystem tools
  https://lenovoedu.lenovo.com/course/view.php?idnumber=ES51757B
- ES41759B – ThinkSystem problem determination
  https://lenovoedu.lenovo.com/course/view.php?idnumber=ES41759B
- ES42108B – ThinkSystem V2 architecture introduction
  https://lenovoedu.lenovo.com/course/view.php?idnumber=ES42108B
- ES42190 – Servicing the ThinkSystem 4350/5350/9350 RAID/HBA series adapters
  https://lenovoedu.lenovo.com/course/view.php?idnumber=ES42190

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Objectives

After completing the course, you will be able to:
- Describe the ThinkSystem ST50 V2 server
- Describe the server features and specifications
- Identify the server diagram
- Describe the problem determination and VPD update procedures for the ST50 V2

What's new

- Updated memory feature – refer to the [Memory features page](#)
- New UEFI BIOS firmware upgrade procedure – refer to the [UEFI BIOS firmware upgrade procedure page](#)

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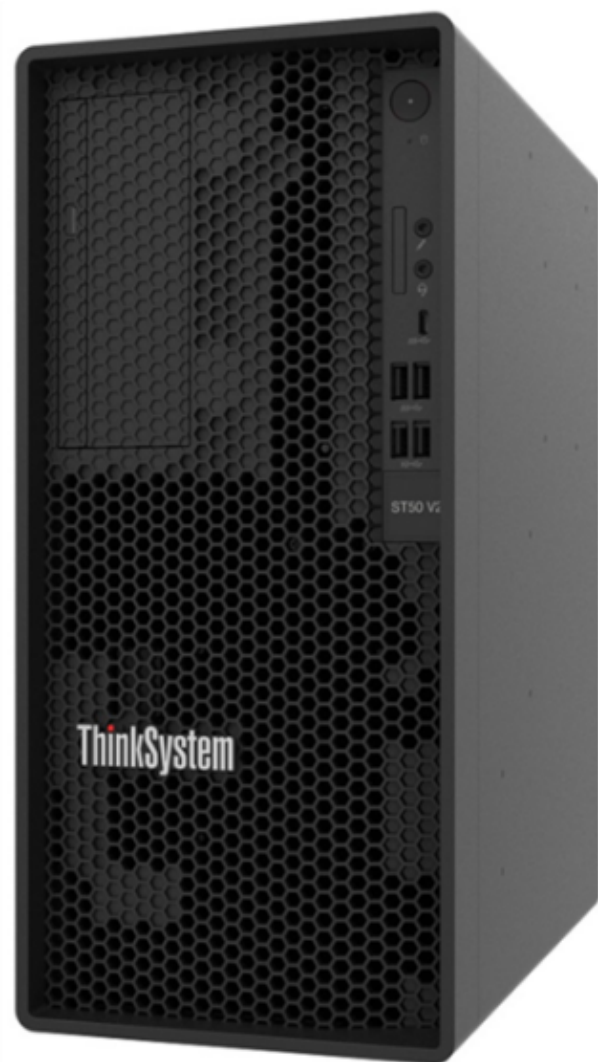# Product overview

Product description and front, rear, and inside views
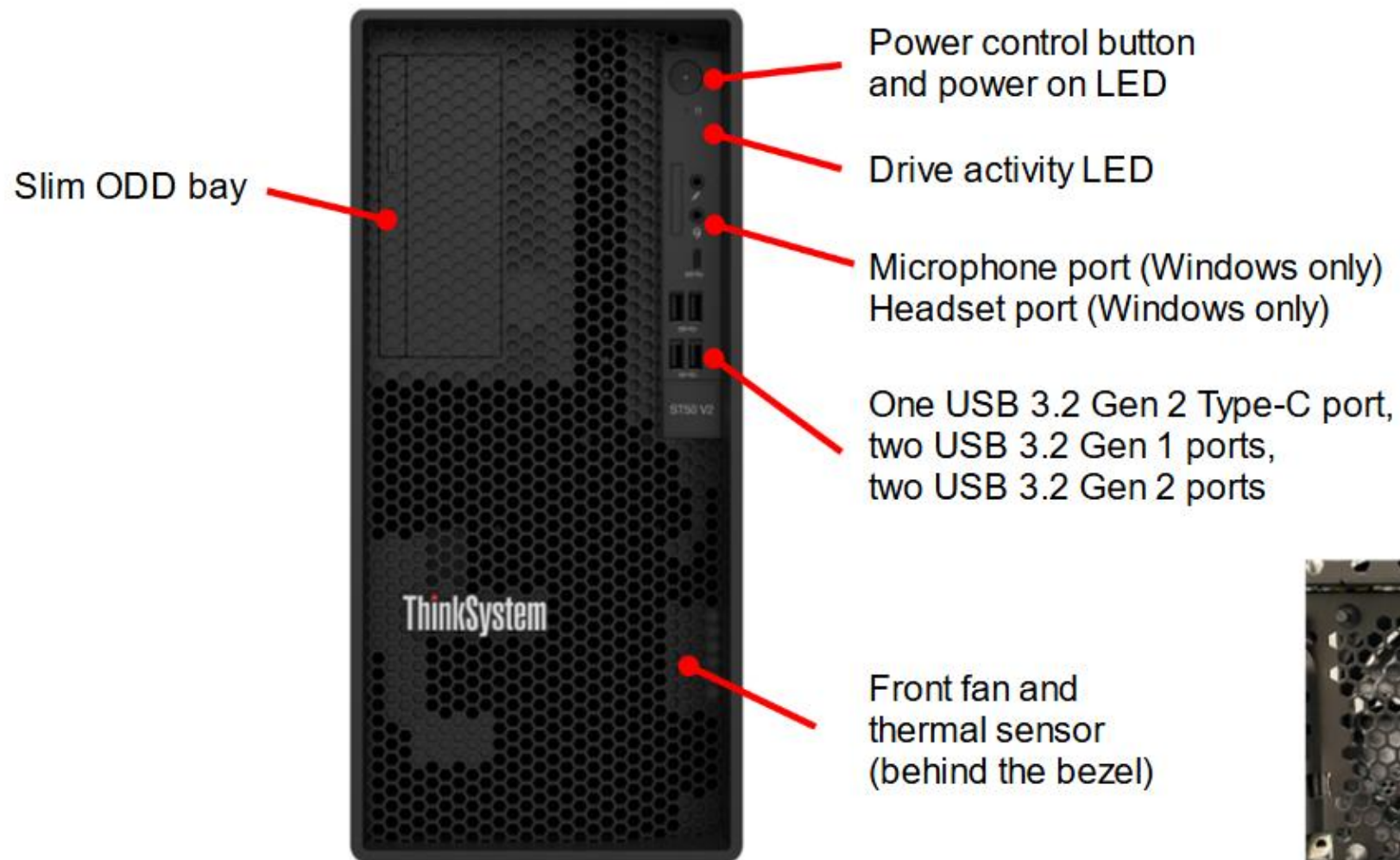
ThinkSystem ST50 V2 server product overview

The ThinkSystem ST50 V2 is a one-socket tower server with an Intel Xeon-E or Pentium processor with up to eight cores and a 95-watt TDP. It was designed to support small- to medium-sized businesses, and it supports a limited number of configurations. It has the following features:

- Up to 128 GB in four UDIMM slots using 32 GB UDIMMs; 3222 MHz TruDDR4 with an Intel Xeon-E processor installed

- I/O expansion provides three PCIe slots (one PCIe 4.0 x16, one PCIe 3.0 x1, and one PCIe 3.0 x16)

- Up to two 3.5-inch simple-swap drive bays, one 2.5-inch simple-swap drive bay, and one M.2 NVME drive A hybrid drive configuration of HDDs and SSDs is supported

- There are two machine types: the 7D8J and 7D8K with model type CTO1WW

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Front view

The following graphic shows the front of ThinkSystem ST50 V2 with one slim media bay.

Power control button
and power on LED

Drive activity LED

Slim ODD bay

Microphone port (Windows only)
Headset port (Windows only)

One USB 3.2 Gen 2 Type-C port,
two USB 3.2 Gen 1 ports,
two USB 3.2 Gen 2 ports

Front fan and
thermal sensor
(behind the bezel)

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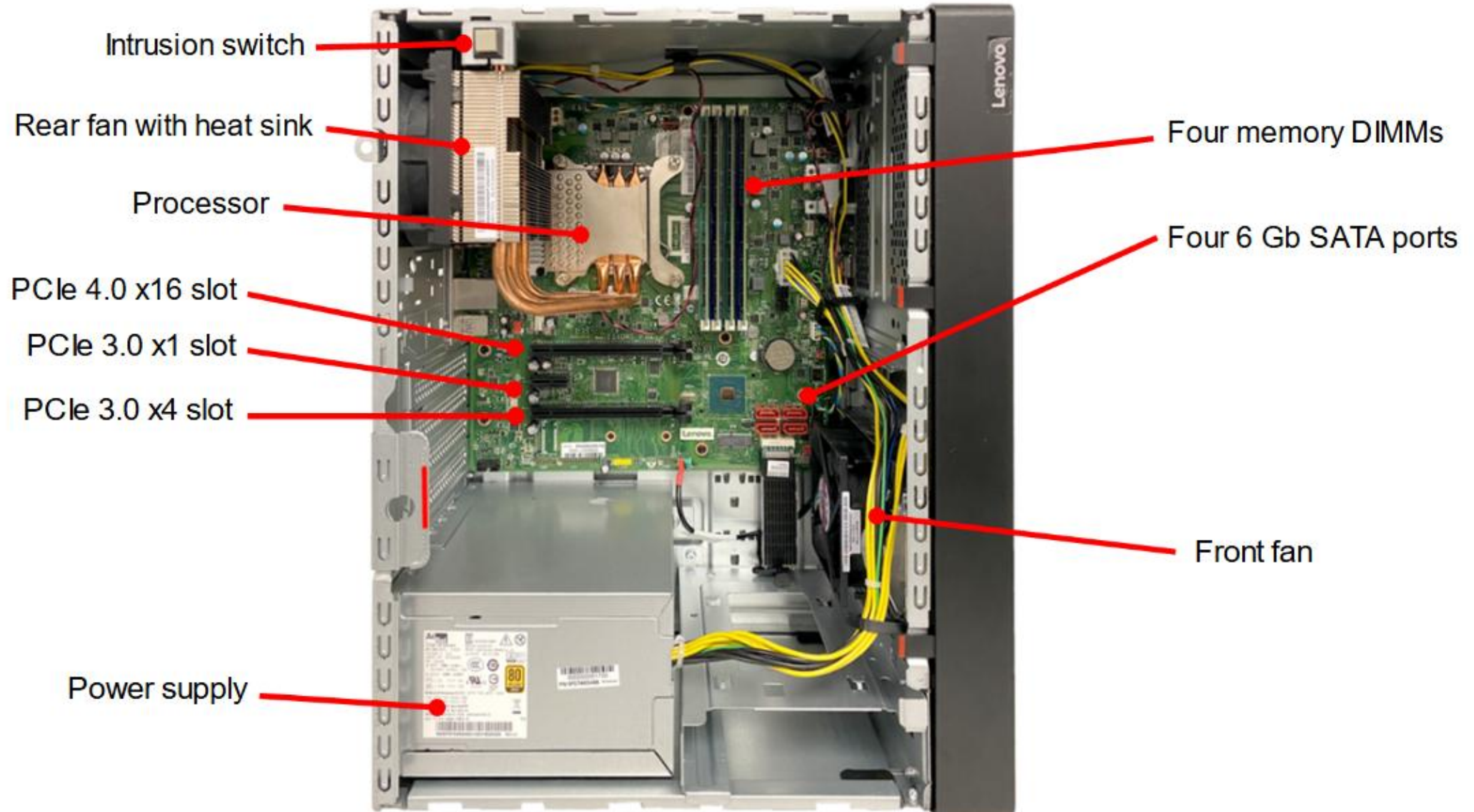# Rear view

The following graphic shows the rear of ST50 V2 with three PCIe slots and one fixed power supply.

Line out (Windows Client only)

Two Display Port

Four USB 3.2 Gen 1 ports

Serial port

Rear fan

1 Gb RJ-45 Ethernet port

PCIe 4.0 x16 slot

PCIe 3.0 x4 slot

PCIe 3.0 x1 slot

Fixed power supply

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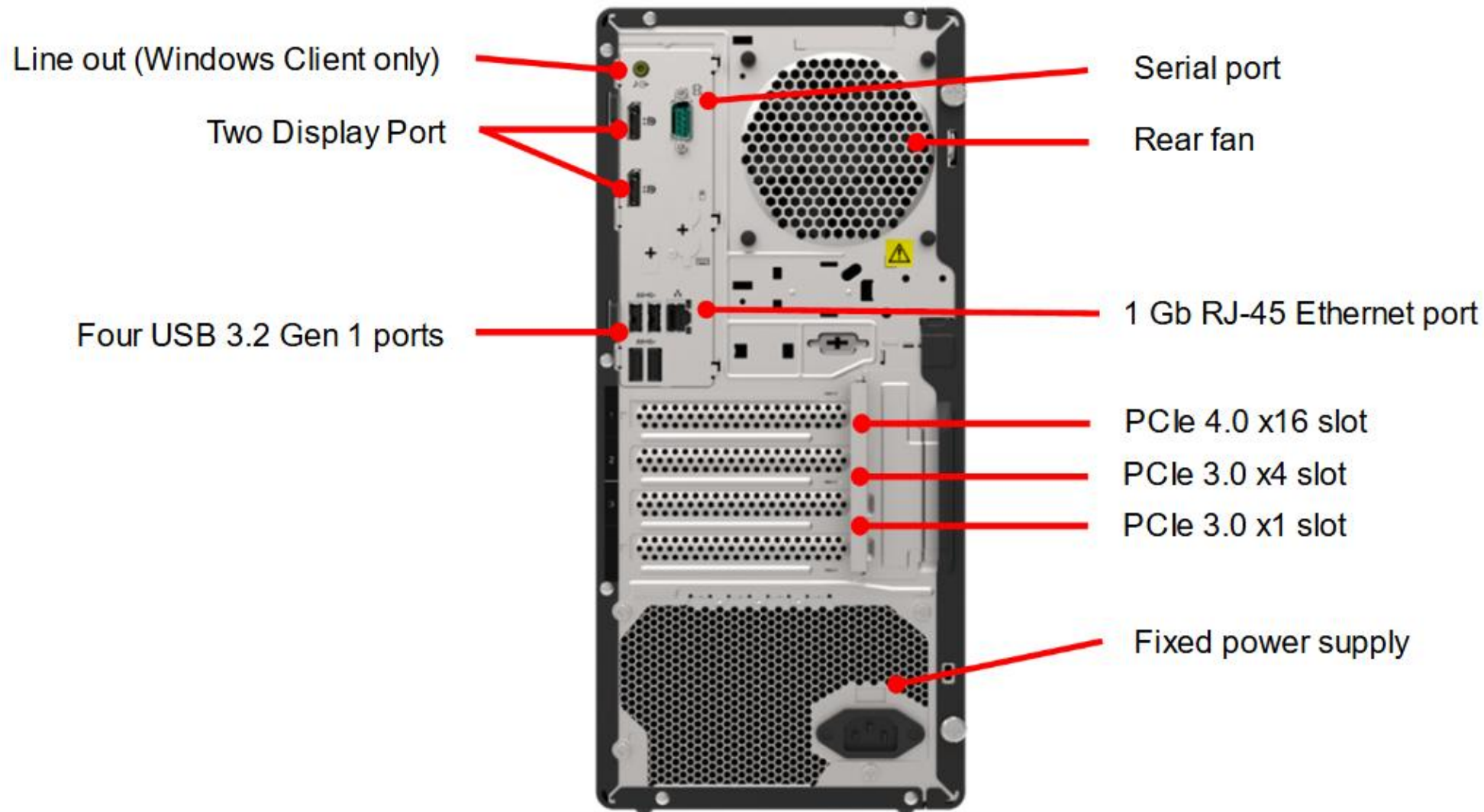
ST50 V2 internal view – without drive bays

Intrusion switch

Rear fan with heat sink

Processor

PCIe 4.0 x16 slot

PCIe 3.0 x1 slot

PCIe 3.0 x4 slot

Power supply

Four memory DIMMs

Four 6 Gb SATA ports

Front fan

ST50 V2 internal view – with drive bays

The ST50 V2 supports up to two 3.5-inch drives, a 2.5-inch hard drive, a slim ODD drive, and an M.2 NVMe drive for internal storage. The drive bays are as follows:

- Drive bay 1: One 3.5-inch hard drive
- Drive bay 2: One 2.5-inch hard drive
- Drive bay 3: One 3.5-inch hard drive
- Drive bay 4: One slim SATA ODD bay
- One M.2 2280 NVMe PCIe standard M.2 module for a boot option

Notes: The ST50 V2 supports a zero-disk configuration.
To support a 2.5-inch hard drive on drive bays 1 or 3, an expansion frame must be used. (Click HERE for a demonstration)

Optical drive

Drive bay 3

M.2 drive

Drive bay 2 (2.5-inch)

Drive bay 1 (3.5-inch)

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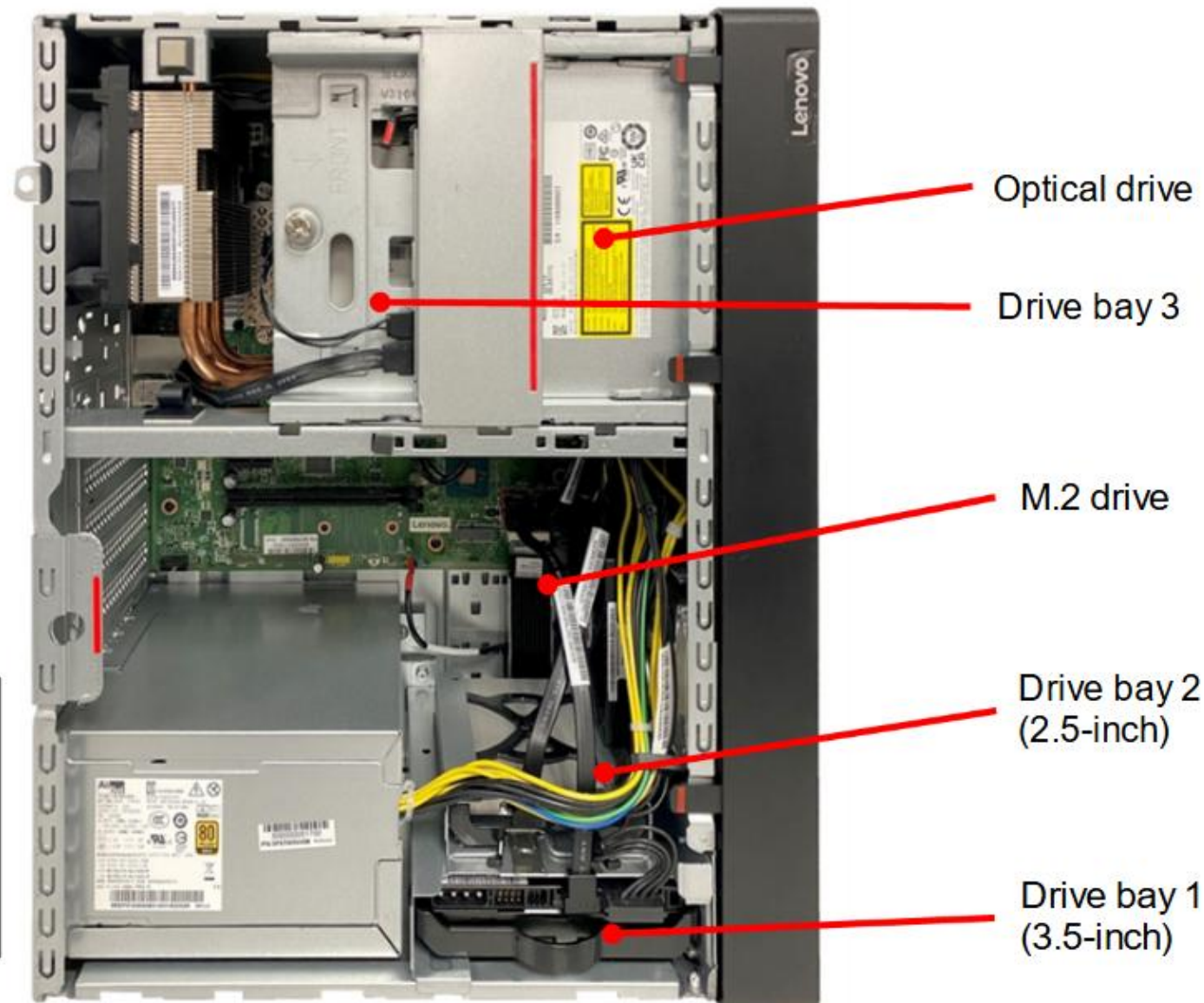
ThinkSystem ST50 V2 system board components
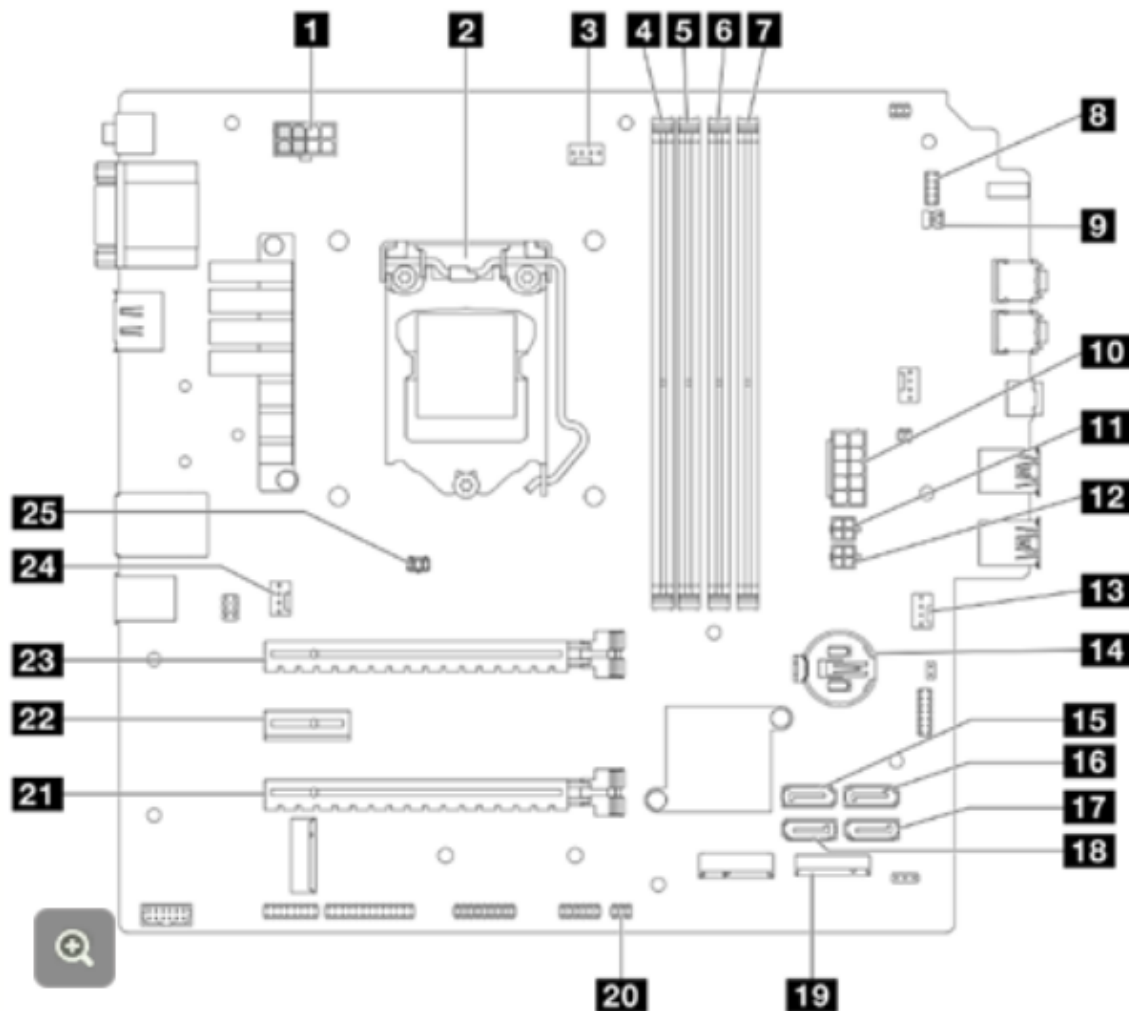
Label / Component	
1 Processor power connector	**14** 3V CR2032 battery
2 Processor socket	**15** SATA connector 3
3 Processor heat sink connector	**16** SATA connector 4
4 Memory module slot 1	**17** SATA connector 2
5 Memory module slot 2	**18** SATA connector 1
6 Memory module slot 3	**19** M.2 connector
7 Memory module slot 4	**20** Thermal sensor connector
8 Power button with LED connector	**21** PCIe slot 3
9 Mono amplifier connector	**22** PCIe slot 2
10 System power connector	**23** PCIe slot 1
11 SATA power 1 connector	**24** Rear fan connector
12 SATA power 2 connector	**25** Intrusion switch connector
13 Front fan connector	

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