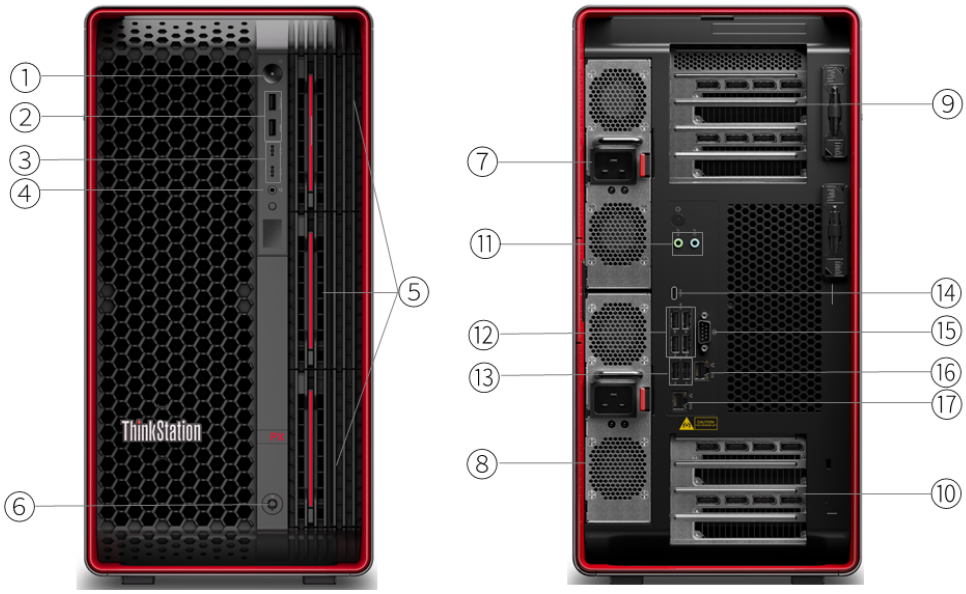
OVERVIEW



1. Power button	10. PCIe slots 6-9 (top to bottom, by CPU 1)
2. 2x USB 3.2 Gen 2 (one Always On) *	11. 2x Audio ports (line-out and line-in)
3. 2x USB-C 3.2 Gen 2 *	12. 4x USB 3.2 Gen 1
4. Headphone (3.5mm)	13. 2x USB 2.0
5. Front storage bays (HDD or M.2 SSD) *	14. USB-C 3.2 Gen 2x2
6. Lock for front storage bays *	15. Serial (9-pin) *
7. Power supply 2 *	16. Ethernet (GbE RJ-45)
8. Power supply 1 or rear storage bay *	17. Ethernet (10GbE RJ-45)
9. PCIe slots 1-5 (top to bottom, by CPU 2) *	

Notes:

- Items with * are only available on selected models
- Expansion cards are optional. More ports are available through the optional expansion cards

PERFORMANCE

Processor

Processor Family

Up to two 4th Gen Intel® Xeon® Scalable family processors, Silver, Gold, or Platinum. Supports up to 120 cores (60 cores per processor), up to 4.1GHz

Processor**[1]

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support
Xeon Silver 4410T	10	20	2.7GHz	4.0GHz	26.25MB	DDR5-4000 1DPC and 2DPC
Xeon Silver 4410Y	12	24	2.0GHz	3.9GHz	30MB	DDR5-4000 1DPC and 2DPC
Xeon Silver 4416+	20	40	2.0GHz	3.9GHz	37.5MB	DDR5-4000 1DPC and 2DPC
Xeon Gold 5416S	16	32	2.0GHz	4.0GHz	30MB	DDR5-4400 1DPC and 2DPC
Xeon Gold 5418Y	24	48	2.0GHz	3.8GHz	45MB	DDR5-4400 1DPC and 2DPC
Xeon Gold 5420+	28	56	2.0GHz	4.1GHz	52.5MB	DDR5-4400 1DPC and 2DPC
Xeon Gold 6430	32	64	2.1GHz	3.4GHz	60MB	DDR5-4400 1DPC and 2DPC
Xeon Gold 6438Y+	32	64	2.0GHz	4.0GHz	60MB	DDR5-4800 1DPC, DDR5-4400 2DPC
Xeon Gold 6442Y	24	48	2.6GHz	4.0GHz	60MB	DDR5-4800 1DPC, DDR5-4400 2DPC
Xeon Gold 5415+	8	16	2.9GHz	4.1GHz	22.5MB	DDR5-4400 1DPC and 2DPC
Xeon Gold 6416H	18	36	2.2GHz	4.2GHz	45MB	DDR5-4800 1DPC, DDR5-4400 2DPC
Xeon Gold 6418H	24	48	2.1GHz	4.0GHz	60MB	DDR5-4800 1DPC, DDR5-4400 2DPC
Xeon Platinum 8452Y	36	72	2.0GHz	3.2GHz	67.5MB	DDR5-4800 1DPC, DDR5-4400 2DPC
Xeon Platinum 8460Y+	40	80	2.0GHz	3.7GHz	105MB	DDR5-4800 1DPC, DDR5-4400 2DPC
Xeon Platinum 8468	48	96	2.1GHz	3.8GHz	105MB	DDR5-4800 1DPC, DDR5-4400 2DPC
Xeon Platinum 8470	52	104	2.0GHz	3.8GHz	105MB	DDR5-4800 1DPC, DDR5-4400 2DPC
Xeon Platinum 8480+	56	112	2.0GHz	3.8GHz	105MB	DDR5-4800 1DPC, DDR5-4400 2DPC
Xeon Platinum 8490H	60	120	1.9GHz	3.5GHz	112.5MB	DDR5-4800 1DPC, DDR5-4400 2DPC

Processor Sockets

2x FCLGA4677

Notes:

[1] Intel Max Turbo frequency will vary depending on application workload and the hardware and software configurations, see http://www.intel.com/technology/turboboost/ for more information.

Operating System

Operating System**

- Red Hat Enterprise Linux 9.2 (certified only, for detailed and latest information, please visit Red Hat Certified Hardware)
- Windows® 11 DG Windows 10 Pro 64 for Workstations
- Windows 11 Pro for Workstations
- No operating system

Graphics

Discrete Graphics Support[1]

Supports up to four NVIDIA® RTX 6000 Ada Generation

Discrete Graphics Offering

Graphics	Memory	Power	Connector	Form Factor	SLI / NVLink
NVIDIA T400 4GB	4GB GDDR6	40W	3x miniDP 1.4	Single slot	None
NVIDIA T1000 8GB	8GB GDDR6	50W	4x miniDP 1.4	Single slot	None

NVIDIA RTX A2000 12GB	12GB GDDR6	70W	4x miniDP 1.4a	Dual slot	None
NVIDIA RTX A4000	16GB GDDR6 with ECC	140W	4x DP 1.4a	Single slot	None
NVIDIA RTX A4500	20GB GDDR6 with ECC	200W	4x DP 1.4	-	NVLink
NVIDIA RTX A5500	24GB GDDR6 with ECC	230W	4x DP 1.4a	-	NVLink
NVIDIA RTX A6000	48GB GDDR6 with ECC	300W	4x DP 1.4a	Dual slot	NVLink
NVIDIA RTX 6000 Ada Generation	48GB GDDR6 with ECC	300W	4x DP 1.4a	Dual slot	None

Notes:

[1] Discrete graphics support may vary by configurations such as processor selection or power supply wattage.

Monitor Support

Monitor Support

Supports multiple displays via discrete graphics, the number of maximum monitors supported depends on the graphic card in use

Chipset

Chipset

Intel C741 chipset

Memory

Max Memory[1]

Up to 2TB (16x 128GB 3DS-RDIMMs and dual processor)

Memory Type**[2]

- DDR5-4800 3DS-RDIMM ECC
- DDR5-4800 RDIMM ECC

Memory Slots

16 DDR5 DIMM slots, 16 channels capable (8 DIMM slots with 8 channels per processor)

Memory Protection

ECC

Notes:

[1] The max memory is based on the test results with current Lenovo® memory offerings.
[2] System comes with DDR5-4800 memory and some configurations will run at DDR5-4400 or DDR5-4000 due to platform limitations.

Storage

Storage Support[1][2]

Up to seven drives (4x 3.5" SATA HDD + 3x M.2 SSD) or 9 drives (2x 3.5" SATA HDD + 7x M.2 SSD)
• 3.5" HDD supports hot-swap
• 3.5" HDD up to 12TB each
• M.2 SSD up to 4TB each

Storage Type***

Disk Type	Interface	RPM	Offering	Security
3.5" SATA HDD	SATA 6Gb/s	7.2K	2TB / 6TB / 12TB	-
M.2 2280 SSD	PCIe® NVMe®, PCIe 4.0 x4 Performance	-	512GB / 1TB / 2TB / 4TB	Opal 2.0

Storage Controllers

Storage Controller	Type	Interface	RAID	Cache
Onboard Intel RSTe SATA RAID	Standard	SATA 6.0Gb/s	0/1/10/5	None
Integrated NVMe controller	Standard	PCIe NVMe	-	None
NVMe Basic	Optional	PCIe NVMe	0/1/10	None
NVMe Premium	Optional	PCIe NVMe	0/1/10/5	None

Notes:

[1] The storage capacity supported is based on the test results with current Lenovo storage offerings.
[2] For certain post-manufacturing storage upgrades, additional upgrade kits may be required.

Removable Storage

Card Reader

No card reader

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC897-Q codec

Speakers

Single speaker, 1.5W x1

Power Supply

Power Supply[1]

Power	Type	Efficiency	Key Features
1850W	Hot-swap	92%	Up to two power supplies, autosensing, 80 PLUS Platinum qualified, team or redundant mode support with two power supplies, up to 2350W configuration under team mode

Notes:

[1] Countries with input voltage under 111V, output power limited to 1500 watts.

DESIGN

Mechanical

Form Factor

Tower (54L) or 5U rack, optional rack rail kit needed

Dimensions (WxDxH)[1]

220 x 575 x 440.4mm (8.7 x 22.6 x 17.3 inches, with feet)

Weight[2]

35.6 kg (78.5 lbs, maximum configuration)

Bays

Three front disk bays and one rear disk bay:
• Front bay 1 supports one 3.5" hot-swap HDD, standard
• Front bay 2 supports one 3.5" hot-swap HDD, standard; or two M.2 SSD via optional front access M.2 bay
• Front bay 3 supports one 3.5" hot-swap HDD, standard; or two M.2 SSD via optional front access M.2 bay
• Rear bay supports one 3.5" hot-swap HDD, optional, occupies 1st PSU cage

M.2 Slots

Up to 7x M.2 SSD:
• 3 via onboard slots
• 4 via front access M.2 bay

Expansion Slots

Supports up to 9 PCIe slots with 4 PCIe 5.0 slots and 5 PCIe 4.0 slots, slots 1-5 require 2nd CPU installed.
• Slot 1: PCIe 4.0 x16, full height, full length, 75W, by CPU 2
• Slot 2: PCIe 4.0 x16, full height, full length, 75W, by CPU 2
• Slot 3: PCIe 5.0 x16, full height, full length, 75W, by CPU 2
• Slot 4: PCIe 5.0 x16, full height, full length, 75W, by CPU 2
• Slot 5: PCIe 4.0 x8, full height, full length, 25W, by CPU 2
• Slot 6: PCIe 5.0 x16, full height, full length, 75W, by CPU 1
• Slot 7: PCIe 4.0 x16, full height, full length, 75W, by CPU 1
• Slot 8: PCIe 5.0 x16, full height, full length, 75W, by CPU 1
• Slot 9: PCIe 4.0 x16, full height, full length, 75W, by CPU 1

Notes:

[1] The system dimensions may vary depending on configurations.

[2] The system weight is approximate and based on results in Lenovo lab, which varies depending on the source of component, variance of the distribution of each component, and manufacturing process. It may not be the exact weight for each specific model.

CONNECTIVITY

Network

Onboard Ethernet

Two Ethernet, GbE + 10GbE, Intel Ethernet Connection I219-LM and Marvell AQtion AQC-113C, 2x RJ-45, supports Wake-on-LAN

Optional Ethernet

Two additional Ethernet adapters support, up to eight additional GbE ports
• Gigabit Ethernet, Intel I210-T1, 1x RJ-45, PCIe x1
• Gigabit Ethernet, Intel I350-T2, 2x RJ-45, PCIe x4
• Gigabit Ethernet, Intel I350-T4, 4x RJ-45, PCIe x4
• Gigabit Ethernet, Broadcom BCM5719, 4x RJ-45, PCIe x4
• Gigabit Ethernet, Broadcom BCM5720, 2x RJ-45, PCIe x1
• Gigabit Ethernet, Realtek RTL8168H, 1x RJ-45, PCIe x1

WLAN + Bluetooth®

- Intel Wi-Fi® 6E AX210, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1 (Bluetooth 5.3 hardware ready), Intel vPro® technology support[1]
- No WLAN and Bluetooth

Notes:

[1] Bluetooth 5.3 is hardware ready but may run at a lower version due to OS limitations.
Wi-Fi 6E is only enabled on Windows 11 and operates as Wi-Fi 6 with Windows 10.

Ports[1]

Front Ports

1x headphone / microphone combo jack (3.5mm)

Optional Front Ports

- 2x USB-C® 3.2 Gen 2 (support data transfer)
- 2x USB 3.2 Gen 2 (one Always On)

Rear Ports[2]

- 1x USB-C 3.2 Gen 2x2 (support data transfer)
- 2x USB 2.0
- 4x USB 3.2 Gen 1
- 1x Ethernet (10GbE RJ-45)
- 1x Ethernet (GbE RJ-45)
- 1x line-in (3.5mm)
- 1x line-out (3.5mm)

Optional Rear Ports

- 1x serial
- 2x PS/2

Notes:

[1] The transfer speed of following ports will vary and, depending on many factors, such as the processing speed of the host device, file attributes and other factors related to system configuration and your operating environment, will be slower than theoretical speed.
USB 2.0: 480 Mbit/s;
USB 3.2 Gen 1 (SuperSpeed USB 5Gbps, formerly USB 3.0 / USB 3.1 Gen 1): 5 Gbit/s;
USB 3.2 Gen 2 (SuperSpeed USB 10Gbps, formerly USB 3.1 Gen 2): 10 Gbit/s;
USB4® 20Gbps / USB 3.2 Gen 2x2 (SuperSpeed USB 20Gbps): 20 Gbit/s;
USB4 40Gbps (USB 40Gbps): 40 Gbit/s;
Thunderbolt™ 3/4: 40 Gbit/s.
[2] For video ports on discrete graphics, please see graphics section.

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified, FIPS 140-2 certified

Physical Locks

- (Optional) Access panel lock kit with common key
- (Optional) Front storage bay lock with common key
- Kensington® Security Slot™, 3 x 7 mm

Chassis Intrusion Switch

Chassis intrusion switch

BIOS Security

- Administrator password
- Power-on password
- UEFI Secure Boot
- Self-healing BIOS

MANAGEABILITY

System Management

System Management[1]

Intel vPro Enterprise with Intel AMT 16

Notes:

[1] Intel vPro offers a superset of DASH's defined capabilities.

Diagnostic

Diagnostic

- ThinkStation® Diagnostics
- Front Diagnostic Panel with QR code

SERVICE

Warranty[1]

Base Warranty**

- 1-year limited onsite service
- 2-year limited onsite service
- 3-year limited onsite service
- No base warranty

Notes:

[1] The warranty upgrades may be bundled with some models, please check the "Included upgrade" column in the specific model's configurations. For more service extensions, please go to https://smartfind.lenovo.com/. To learn more details of warranty policy, please access https://pcsupport.lenovo.com/warranty.

ENVIRONMENTAL

Operating Environment

Temperature

- Operating: 10°C (50°F) to 35°C (95°F)
- Storage: -40°C (-40°F) to 60°C (140°F)

Altitude

- Operating: 0 m (0 ft) to 3048 m (10,000 ft)
- Storage: 0 m (0 ft) to 12192 m (40,000 ft)

Humidity

- Operating: 20% to 80%

- Storage: 10% to 90%

CERTIFICATIONS

Green Certifications[1]

Green Certifications

- (Optional) ENERGY STAR® 8.0
- (Optional) EPEAT™ Gold Registered
- RoHS compliant
- TCO Certified 9.0

Notes:

[1] The items listed under the "Green Certifications" section may not only refer to certification but also registration or self-declaration.

ISV Certifications

ISV Certifications

Please visit ISV certifications for Lenovo Workstations

- Feature with ** means that only one offering listed under the feature is configured on selected models.
- Feature with *** means that one or more offerings listed under the feature could be configured on selected models.
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