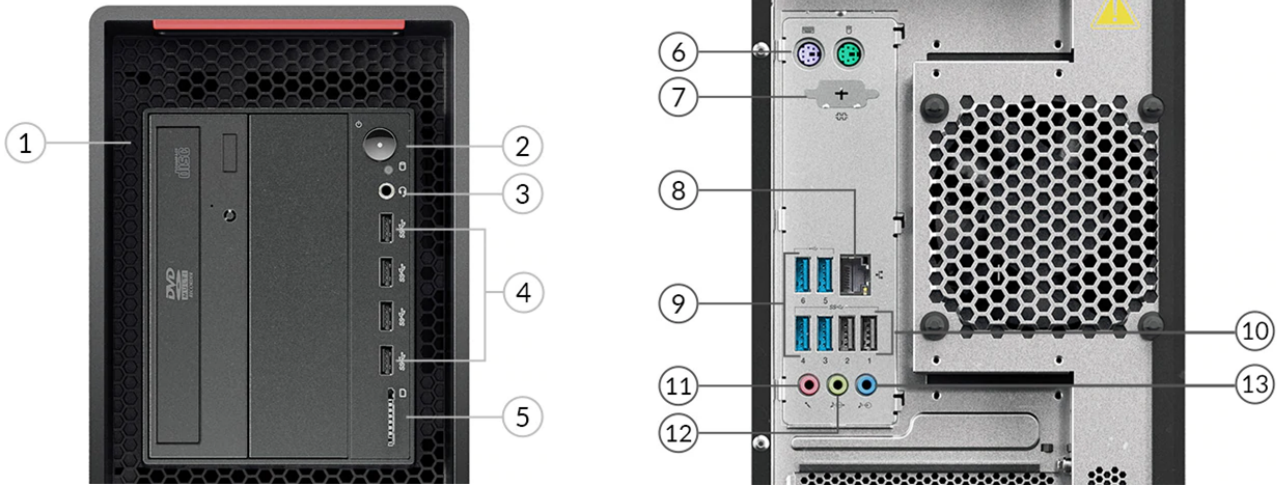


OVERVIEW



1. 2x Flex bay	8. Ethernet (RJ-45)
2. Power button	9. 4x USB 3.2 Gen 1
3. Headphone / microphone combo jack (3.5mm)	10. 2x USB 2.0
4. 4x USB 3.2 Gen 1	11. Microphone (3.5mm)
5. Card reader	12. Line-out (3.5mm)
6. 2x PS/2 ports (keyboard / mouse)	13. Line-in (3.5mm)
7. Serial *	

Notes:

- Items with * are only available on selected models

PERFORMANCE

Processor

Processor Family

Up to one Intel® Xeon® W-2100 / W-2200 Processor

Processor**^[1]

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support
Xeon W-2102	4	4	2.9GHz	-	8.25MB	DDR4-2400
Xeon W-2104	4	4	3.2GHz	-	8.25MB	DDR4-2400
Xeon W-2123	4	8	3.6GHz	3.9GHz	8.25MB	DDR4-2666
Xeon W-2125	4	8	4.0GHz	4.5GHz	8.25MB	DDR4-2666
Xeon W-2133	6	12	3.6GHz	3.9GHz	8.25MB	DDR4-2666
Xeon W-2135	6	12	3.7GHz	4.5GHz	8.25MB	DDR4-2666
Xeon W-2145	8	16	3.7GHz	4.5GHz	11MB	DDR4-2666
Xeon W-2155	10	20	3.3GHz	4.5GHz	13.75MB	DDR4-2666
Xeon W-2175	14	28	2.5GHz	4.3GHz	19MB	DDR4-2666
Xeon W-2195	18	36	2.3GHz	4.3GHz	24.75MB	DDR4-2666
Xeon W-2223	4	8	3.6GHz	3.9GHz	8.25MB	DDR4 2666
Xeon W-2225	4	8	4.1GHz	4.6GHz	8.25MB	DDR4 2933
Xeon W-2235	6	12	3.8GHz	4.6GHz	8.25MB	DDR4 2933
Xeon W-2245	8	16	3.9GHz	4.5GHz	16.5MB	DDR4 2933
Xeon W-2255	10	20	3.7GHz	4.5GHz	19.25MB	DDR4 2933
Xeon W-2265	12	24	3.5GHz	4.6GHz	19.25MB	DDR4 2933
Xeon W-2275	14	28	3.3GHz	4.6GHz	19.25MB	DDR4 2933
Xeon W-2295	18	36	3.0GHz	4.6GHz	24.75MB	DDR4 2933

Processor Sockets

1x FCLGA2066

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 8.5 (certified only, for detailed and latest information, please visit [Red Hat Certified Hardware](#))
- Ubuntu Linux LTS
- Ubuntu Linux with Data Science Preload
- Windows® 10 Pro 64 for Workstations
- 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 one NVIDIA® Quadro® RTX 8000

Discrete Graphics Offering***

Graphics	Memory	Power	Connector	Form Factor	SLI / NVLink
NVIDIA T400	2GB GDDR6	40W	3x miniDP 1.4	Single slot	None

NVIDIA T400 4GB	4GB GDDR6	40W	3x miniDP 1.4	Single slot	None
NVIDIA T600	4GB GDDR6	40W	4x miniDP 1.4	Single slot	None
NVIDIA T1000	4GB GDDR6	50W	4x miniDP 1.4	Single slot	None
NVIDIA T1000 8GB	8GB GDDR6	50W	4x miniDP 1.4	Single slot	None
NVIDIA RTX A2000	6GB GDDR6	70W	4x miniDP 1.4a	Dual 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	Dual slot	NVLink
NVIDIA RTX A5000	24GB GDDR6 with ECC	230W	4x DP 1.4a	Dual slot	NVLink
NVIDIA RTX A5500	24GB GDDR6 with ECC	230W	4x DP 1.4a	Dual slot	None
Quadro GP100	16GB HBM2	235W	1x DVI-D DL, 4x DP	Dual slot	NVLink
Quadro GV100	32GB HBM2	250W	4x DP 1.4	Dual slot	None
Quadro P1000	4GB GDDR5	50W	4x miniDP 1.4	Single slot	None
Quadro P2000	5GB GDDR5	75W	4x DP	Single slot	None
Quadro P2200	5GB GDDR5	75W	4x DP 1.4	Single slot	None
Quadro P400	2GB GDDR5	30W	3x miniDP 1.4	Single slot	None
Quadro P4000	8GB GDDR5	120W	4x DP 1.4	Single slot	None
Quadro P5000	16GB GDDR5X	180W	1x DVI-D DL, 4x DP 1.4	Dual slot	SLI
Quadro P600	2GB GDDR5	45W	4x miniDP	Single slot	None
Quadro P620	2GB GDDR5	40W	4x miniDP 1.4	Single slot	None
Quadro RTX 4000	8GB GDDR6	160W	3x DP 1.4, 1x VirtualLink	Single slot	None
Quadro RTX 5000	16GB GDDR6	265W	4x DP 1.4, 1x VirtualLink	Dual slot	NVLink
Quadro RTX 6000	24GB GDDR6	295W	4x DP 1.4, 1x VirtualLink	Dual slot	NVLink
Quadro RTX 8000	48GB GDDR6	295W	4x DP 1.4, 1x VirtualLink	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 C422 chipset

Memory

Max Memory^[1]

Up to 512GB (8x 64GB RDIMM)

Memory Type**

- DDR4-2666 RDIMM ECC
- DDR4-2933 RDIMM ECC

Memory Slots

8 DDR4 DIMM slots, 4 channels capable

Memory Protection

ECC

Notes:

[1] The max memory is based on the test results with current Lenovo® memory offerings.

Storage

Storage Support^{[1][2]}

Up to 6x 3.5" SATA HDD / 2.5" SATA HDD / 2.5" SATA SSD + 9x M.2 PCIe® SSD + 1x PCIe AIC SSD

- 3.5" HDD up to 6TB each
- 2.5" SATA HDD up to 500GB each
- 2.5" SATA SSD up to 2TB each
- 2.5" SAS HDD up to 600GB each
- M.2 PCIe SSD up to 2TB each
- PCIe AIC SSD up to 480GB each

Storage Type^{***}

Disk Type	Interface	RPM	Offering
2.5" SAS HDD	SAS 12Gb/s	10K	300GB / 600GB
2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB / 500GB FIPS
2.5" SATA SSD	SATA 6Gb/s	-	256GB / 512GB / 1TB / 2TB
3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB / 2TB / 4TB / 6TB
M.2 PCIe SSD	PCIe NVMe®	-	256GB / 512GB / 1TB / 2TB
PCIe AIC SSD	PCIe NVMe	-	480GB

Storage Controllers

Storage Controller	Type	Interface	RAID	Cache
Onboard Intel RSTe SATA RAID	Standard	SATA 6.0Gb/s	0/1/10/5	None
9440-8i PCIe	Optional	SAS 12.0Gb/s, SATA 6.0Gb/s	0/1/10/5	None
9460-16i PCIe	Optional	SAS 12.0Gb/s, SATA 6.0Gb/s	0/1/10/5/6	4GB DDR4, SuperCap
NVMe Basic	Optional	PCIe NVMe	0/1/10	None
NVMe Premium	Optional	PCIe NVMe	0/1/10/5	None
NVMe for Intel SSD	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

Optical Support

Up to two HH or 9.0mm optical drive, DVD-ROM, DVD±RW, and Blu-ray

Card Reader

- 15-in-1 card reader
- SD card reader
- No card reader

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC662 codec

Speakers

Single speaker

Power Supply

Power Supply^{**}

Power	Type	Efficiency	Key Features

690W	Fixed	92%	Autosensing, 80 PLUS Platinum qualified
900W	Fixed	92%	Autosensing, 80 PLUS Platinum qualified
1000W	Fixed	92%	Autosensing, 80 PLUS Platinum qualified

DESIGN

Mechanical

Form Factor

Tower (33L)

Dimensions (WxDxH)^[1]

165 x 455x 446 mm (6.5 x 17.9 x 17.6 inches)

Weight^[2]

24 kg (52.91 lbs, maximum configuration)

Bays

- 2x 3.5" disk bay (standard)
- 4x 3.5" disk bay (optional):
2 bays come with 3rd disk or Storage Bay Upgrade Kit
2 bays via flex bay

Flex Bays

2x flex bays, supports the following:

- 2x half-height optical drives
- 2x 5.25" 9.0mm optical drives
- 1x 5.25" 9.0mm optical drive + 2x 3.5"/2.5" SATA SSD/HDD
- 1x 3.5"/2.5" SATA SSD/HDD with Front Access Storage Enclosure
- 1x flex module for the following options:

Tray 1: 9.0mm optical

Tray 2: 15-in-1 USB 3.1 Gen 1 reader, 2x Thunderbolt™, or 4-digit diagnostic display

Port 1 and 2: Front USB 3.1 Gen 1 Type-C or eSATA

M.2 Slots

Up to 9x M.2 SSD:

- 2 via onboard slots
- 4 via Quad M.2 to PCIe adapter
- 3 via Single M.2 to PCIe adapter

Expansion Slots

Supports 5x PCIe 3.0 slots plus 1x PCI slot.

- Slot 1: PCIe 3.0 x8, full height, full length, 25W, double-width, by CPU
- Slot 2: PCIe 3.0 x16, full height, full length, 75W, by CPU
- Slot 3: PCIe 3.0 x4, full height, full length, 25W, double-width, by PCH
- Slot 4: PCIe 3.0 x16, full height, full length, 75W, by CPU
- Slot 5: PCI, full height, full length, 25W
- Slot 6: PCIe 3.0 x4, full height, half length, 25W, by PCH

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

Gigabit Ethernet, Intel Ethernet Connection I219-LM, 1x RJ-45, supports Wake-on-LAN

Optional Ethernet

Two additional Ethernet adapters support, up to four additional 10 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, Bitland BN8E88, 1x RJ-45, PCIe x1
- Gigabit Ethernet, Broadcom BCM5719, 4x RJ-45, PCIe x4
- Gigabit Ethernet, Broadcom BCM5720, 2x RJ-45, PCIe x1
- 5 Gigabit Ethernet, Marvell AQtion AQN-108, 1x RJ-45, PCIe x1
- 10 Gigabit Ethernet, Intel X540-T2, 2x RJ-45, PCIe x8
- 10 Gigabit Ethernet, Intel X550-T2, 2x RJ-45, PCIe x4
- 10 Gigabit Ethernet, Intel X710-DA2, 2x SFP+, PCIe x8
- 10 Gigabit Ethernet, Marvell AQtion AQN-107, 1x RJ-45, PCIe x4

WLAN + Bluetooth®

- Intel Wi-Fi® 6E AX210, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1 (Bluetooth 5.3 hardware ready), Intel vPro® technology support
- Intel Dual-Band Wireless-AC 8265, 802.11ac Dual-Band 2x2 Wi-Fi + Bluetooth 4.2
- No WLAN and Bluetooth

Ports^[1]

Front Ports

- 1x USB 3.2 Gen 1 (Always On and fast charge)
- 3x USB 3.2 Gen 1
- 1x headphone / microphone combo jack (3.5mm)

Optional Front Ports***

- 2x Thunderbolt 3 (with flex module, USB-C® form, one supports video-out)
- 1x USB-C 3.2 Gen 1 (support data transfer, with flex module)
- 1x eSATA (with flex module)

Rear Ports^[2]

- 2x USB 2.0
- 4x USB 3.2 Gen 1
- 1x Ethernet (RJ-45)
- 1x line-in (3.5mm)
- 1x line-out (3.5mm)
- 1x microphone (3.5mm)
- 2x PS/2 ports (keyboard / mouse)

Optional Rear Ports***

- 1x Thunderbolt 3
- 2x USB-C 3.2 Gen 2 (support data transfer, via 2-port USB-C expansion card)
- 1x serial

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) Access panel lock kit with unique key
- Kensington® Security Slot™, 3 x 7 mm

BIOS Security

- Administrator password
- Power-on password

MANAGEABILITY

System Management

System Management^[1]

Intel vPro with Intel AMT 11

Notes:

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

Diagnostic

Diagnostic

- ThinkStation® Diagnostics
- Photo-audio transfer with Lenovo PC Diagnostics for Android™ and iOS
- Front 4-digit diagnostic
- Lenovo UEFI Bootable Diagnostics
- None

SERVICE

Warranty^[1]

Base Warranty**

- 1-year limited onsite service
- 3-year limited onsite service

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
- ENERGY STAR 8.0 (on model 30BE00B7US)
- EPEAT™ Silver Registered
- GREENGUARD®
- RoHS compliant

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 www.thinkworkstations.com/isv-certifications/

- 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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