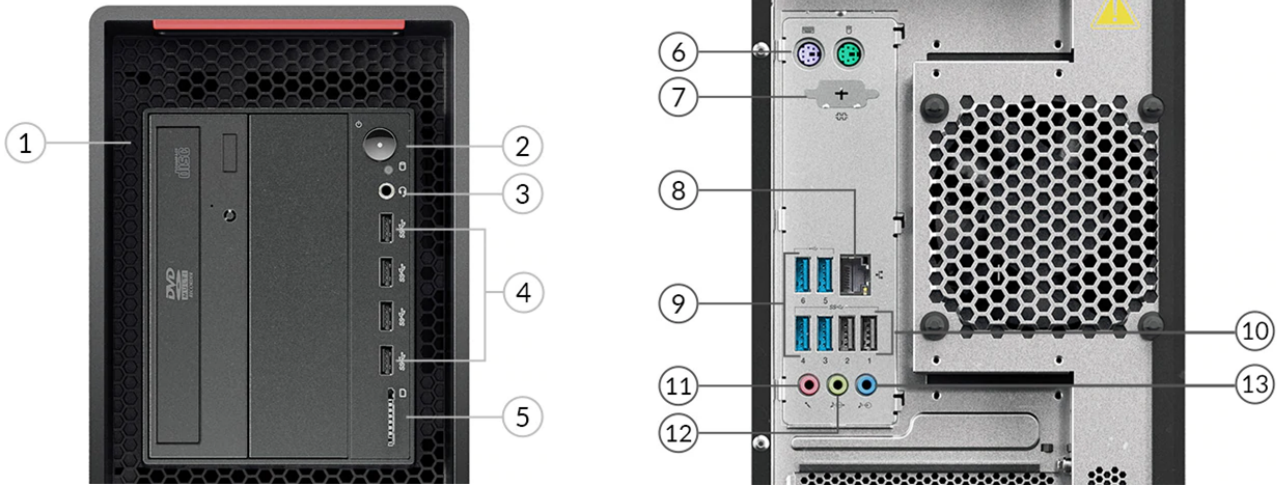


OVERVIEW



| | |
|--|------------------------|
| 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 detailed storage bays information and how to upgrade optional drives for ThinkStation® products, please visit [ThinkStation Storage Upgrade Guide](#)

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 Dual-Band Wireless-AC 8265, 802.11ac Dual-Band 2x2 Wi-Fi® + Bluetooth 4.2
- Intel Wi-Fi 6E AX210, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1 (Bluetooth 5.3 hardware ready), Intel vPro® technology support
- 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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