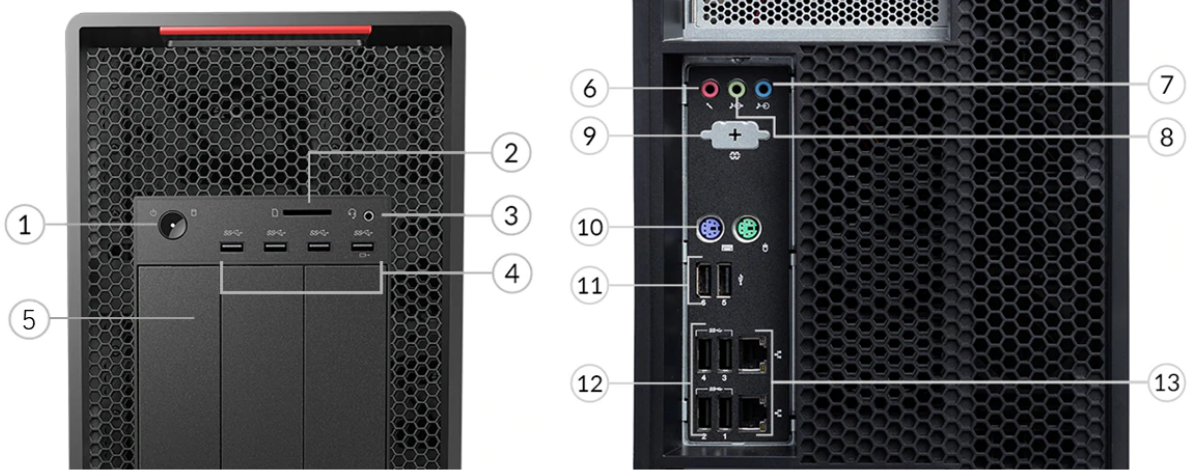


OVERVIEW



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

Notes:

- Ports with * are only available on selected models

PERFORMANCE

Processor

Processor Family

Up to two 205W Gen 1 or Gen 2 Intel® Xeon® Scalable family processors, Bronze, Silver, Gold, or Platinum

Processor**

| Processor Name | Cores | Threads | Base Frequency | Max Frequency | Cache | Memory Support | Processor Graphics |
|-------------------|-------|---------|----------------|---------------|---------|----------------|--------------------|
| Xeon Bronze 3104 | 6 | 6 | 1.7GHz | - | 8.25MB | DDR4-2133 | - |
| Xeon Bronze 3106 | 8 | 8 | 1.7GHz | - | 11MB | DDR4-2133 | - |
| Xeon Bronze 3204 | 6 | 6 | 1.9GHz | 1.9GHz | 8.25MB | DDR4-2133 | - |
| Xeon Bronze 3206R | 8 | 8 | 1.9GHz | 1.9GHz | 11MB | DDR4-2133 | - |
| Xeon Silver 4108 | 8 | 16 | 1.8GHz | 3.0GHz | 11MB | DDR4-2400 | - |
| Xeon Silver 4109T | 8 | 16 | 2.0GHz | 3.0GHz | 11MB | DDR4-2400 | - |
| Xeon Silver 4110 | 8 | 16 | 2.1GHz | 3.0GHz | 11MB | DDR4-2400 | - |
| Xeon Silver 4112 | 4 | 8 | 2.6GHz | 3.0GHz | 8.25MB | DDR4-2400 | - |
| Xeon Silver 4114 | 10 | 20 | 2.2GHz | 3.0GHz | 13.75MB | DDR4-2400 | - |
| Xeon Silver 4114T | 10 | 20 | 2.2GHz | 3.0GHz | 13.75MB | DDR4-2400 | - |
| Xeon Silver 4116 | 12 | 24 | 2.1GHz | 3.0GHz | 16.5MB | DDR4-2400 | - |
| Xeon Silver 4208 | 8 | 16 | 2.1GHz | 3.2GHz | 11MB | DDR4-2400 | - |
| Xeon Silver 4209T | 8 | 16 | 2.2GHz | 3.2GHz | 11MB | DDR4-2400 | - |
| Xeon Silver 4210 | 10 | 20 | 2.2GHz | 3.2GHz | 13.75MB | DDR4-2400 | - |
| Xeon Silver 4210R | 10 | 20 | 2.4GHz | 3.2GHz | 13.75MB | DDR4-2400 | - |
| Xeon Silver 4214 | 12 | 24 | 2.2GHz | 3.2GHz | 16.5MB | DDR4-2400 | - |
| Xeon Silver 4214R | 12 | 24 | 2.4GHz | 3.5GHz | 16.5MB | DDR4-2400 | - |
| Xeon Silver 4215 | 8 | 16 | 2.5GHz | 3.5GHz | 11MB | DDR4-2400 | - |
| Xeon Silver 4215R | 8 | 16 | 3.2GHz | 4.0GHz | 11MB | DDR4-2400 | - |
| Xeon Silver 4216 | 16 | 32 | 2.1GHz | 3.2GHz | 22MB | DDR4-2400 | - |
| Xeon Gold 5115 | 10 | 20 | 2.4GHz | 3.2GHz | 13.75MB | DDR4-2400 | - |
| Xeon Gold 5118 | 12 | 24 | 2.3GHz | 3.2GHz | 16.5MB | DDR4-2400 | - |
| Xeon Gold 5120 | 14 | 28 | 2.2GHz | 3.2GHz | 19.25MB | DDR4-2400 | - |
| Xeon Gold 5120T | 14 | 28 | 2.2GHz | 3.2GHz | 19.25MB | DDR4-2400 | - |
| Xeon Gold 5122 | 4 | 8 | 3.6GHz | 3.7GHz | 16.5MB | DDR4-2666 | - |
| Xeon Gold 5215 | 10 | 20 | 2.5GHz | 3.4GHz | 13.75MB | DDR4-2666 | - |
| Xeon Gold 5217 | 8 | 16 | 3.0GHz | 3.7GHz | 11MB | DDR4-2666 | - |
| Xeon Gold 5218 | 16 | 32 | 2.3GHz | 3.9GHz | 22MB | DDR4-2666 | - |
| Xeon Gold 5220 | 18 | 36 | 2.2GHz | 3.9GHz | 24.75MB | DDR4-2666 | - |
| Xeon Gold 5222 | 4 | 8 | 3.8GHz | 3.9GHz | 16.5MB | DDR4-2933 | - |
| Xeon Gold 6128 | 6 | 12 | 3.4GHz | 3.7GHz | 19.25MB | DDR4-2666 | - |
| Xeon Gold 6130 | 16 | 32 | 2.1GHz | 3.7GHz | 22MB | DDR4-2666 | - |
| Xeon Gold 6134 | 8 | 16 | 3.2GHz | 3.7GHz | 24.75MB | DDR4-2666 | - |
| Xeon Gold 6136 | 12 | 24 | 3.0GHz | 3.7GHz | 24.75MB | DDR4-2666 | - |
| Xeon Gold 6138 | 20 | 40 | 2.0GHz | 3.7GHz | 27.5MB | DDR4-2666 | - |
| Xeon Gold 6142 | 16 | 32 | 2.6GHz | 3.7GHz | 22MB | DDR4-2666 | - |
| Xeon Gold 6146 | 12 | 24 | 3.2GHz | 4.2GHz | 24.75MB | DDR4-2666 | - |

| | | | | | | | |
|---------------------|----|----|--------|--------|---------|-----------|---|
| Xeon Gold 6148 | 20 | 40 | 2.4GHz | 3.7GHz | 27.5MB | DDR4-2666 | - |
| Xeon Gold 6154 | 18 | 36 | 3.0GHz | 3.7GHz | 24.75MB | DDR4-2666 | - |
| Xeon Gold 6226 | 12 | 24 | 2.7GHz | 3.7GHz | 19.25MB | DDR4-2933 | - |
| Xeon Gold 6226R | 16 | 32 | 2.9GHz | 3.9GHz | 22MB | DDR4-2933 | - |
| Xeon Gold 6230 | 20 | 40 | 2.1GHz | 3.9GHz | 27.5MB | DDR4-2933 | - |
| Xeon Gold 6234 | 8 | 16 | 3.3GHz | 4.0GHz | 24.75MB | DDR4-2933 | - |
| Xeon Gold 6238T | 22 | 44 | 1.9GHz | 3.7GHz | 30.25MB | DDR4-2933 | - |
| Xeon Gold 6240R | 24 | 48 | 2.4GHz | 4.0GHz | 35.75MB | DDR4-2933 | - |
| Xeon Gold 6242 | 16 | 32 | 2.8GHz | 3.9GHz | 22MB | DDR4-2933 | - |
| Xeon Gold 6244 | 8 | 16 | 3.6GHz | 4.4GHz | 24.75MB | DDR4-2933 | - |
| Xeon Gold 6246 | 12 | 24 | 3.3GHz | 4.2GHz | 24.75MB | DDR4-2933 | - |
| Xeon Gold 6248 | 20 | 40 | 2.5GHz | 3.9GHz | 27.5MB | DDR4-2933 | - |
| Xeon Gold 6254 | 18 | 36 | 3.1GHz | 4.0GHz | 24.75MB | DDR4-2933 | - |
| Xeon Gold 6258R | 28 | 56 | 2.7GHz | 4.0GHz | 38.5MB | DDR4-2933 | - |
| Xeon Platinum 8160T | 24 | 48 | 2.1GHz | 3.7GHz | 33MB | DDR4-2666 | - |
| Xeon Platinum 8180 | 28 | 56 | 2.5GHz | 3.8GHz | 38.5MB | DDR4-2666 | - |
| Xeon Platinum 8280 | 28 | 56 | 2.7GHz | 4.0GHz | 38.5MB | DDR4-2933 | - |
| Xeon W-3223 | 8 | 16 | 3.5GHz | 4.0GHz | 16.5MB | DDR4-2666 | - |
| Xeon W-3225 | 8 | 16 | 3.7GHz | 4.3GHz | 16.5MB | DDR4-2666 | - |
| Xeon W-3235 | 12 | 24 | 3.3GHz | 4.4GHz | 19.25MB | DDR4-2933 | - |
| Xeon W-3245 | 16 | 32 | 3.2GHz | 4.4GHz | 22MB | DDR4-2933 | - |
| Xeon W-3265 | 24 | 48 | 2.7GHz | 4.4GHz | 33MB | DDR4-2933 | - |
| Xeon W-3275 | 28 | 56 | 2.5GHz | 4.4GHz | 38.5MB | DDR4-2933 | - |

Processor Sockets

2x FCLGA3647

Operating System

Operating System**

- Windows® 11 Pro 64 for Workstations
- Windows 11 DG Windows 10 Pro 64 for Workstations
- Windows 10 Pro 64 for Workstations
- Ubuntu Linux LTS
- No operating system

Graphics

Discrete Graphics Support

Supports up to two NVIDIA® Quadro® RTX 8000 with NVLink

Discrete Graphics Offering***

| Graphics | Memory | Power | Connector | SLI / NVlink |
|--------------|-------------|-------|------------------------|--------------|
| Quadro P400 | 2GB GDDR5 | 30W | 3x miniDP 1.4 | None |
| Quadro P600 | 2GB GDDR5 | 45W | 4x miniDP | None |
| Quadro P620 | 2GB GDDR5 | 40W | 4x miniDP 1.4 | None |
| Quadro P1000 | 4GB GDDR5 | 50W | 4x miniDP 1.4 | None |
| Quadro P2000 | 5GB GDDR5 | 75W | 4x DP | None |
| Quadro P2200 | 5GB GDDR5 | 75W | 4x DP 1.4 | None |
| Quadro P4000 | 8GB GDDR5 | 120W | 4x DP 1.4 | None |
| Quadro P5000 | 16GB GDDR5X | 180W | 1x DVI-D DL, 4x DP 1.4 | SLI |

| | | | | |
|------------------|---------------------|------|---------------------------|--------|
| Quadro P6000 | 24GB GDDR5X | 250W | 1x DVI-D DL, 4x DP 1.4 | SLI |
| NVIDIA T400 | 2GB GDDR6 | 40W | 3x miniDP 1.4 | None |
| NVIDIA T400 | 4GB GDDR6 | 40W | 3x miniDP 1.4 | None |
| NVIDIA T600 | 4GB GDDR6 | 40W | 4x miniDP 1.4 | None |
| NVIDIA T1000 | 4GB GDDR6 | 50W | 4x miniDP 1.4 | None |
| NVIDIA T1000 | 8GB GDDR6 | 50W | 4x miniDP 1.4 | None |
| Quadro RTX 4000 | 8GB GDDR6 | 160W | 3x DP 1.4, 1x VirtualLink | None |
| Quadro RTX 5000 | 16GB GDDR6 | 265W | 4x DP 1.4, 1x VirtualLink | NVLink |
| Quadro RTX 6000 | 24GB GDDR6 | 295W | 4x DP 1.4, 1x VirtualLink | NVLink |
| Quadro RTX 8000 | 48GB GDDR6 | 295W | 4x DP 1.4, 1x VirtualLink | NVLink |
| NVIDIA RTX A2000 | 6GB GDDR6 | 70W | 4x miniDP 1.4a | None |
| NVIDIA RTX A2000 | 12GB GDDR6 | 70W | 4x miniDP 1.4a | None |
| NVIDIA RTX A4000 | 16GB GDDR6 with ECC | 140W | 4x DP 1.4a | None |
| NVIDIA RTX A4500 | 20GB GDDR6 with ECC | 200W | 4x DP 1.4 | None |
| NVIDIA RTX A5000 | 24GB GDDR6 with ECC | 230W | 4x DP 1.4a | NVLink |
| NVIDIA RTX A6000 | 48GB GDDR6 with ECC | 300W | 4x DP 1.4a | NVLink |
| Quadro GP100 | 16GB HBM2 | 235W | 1x DVI-D DL, 4x DP | NVLink |
| Quadro GV100 | 32GB HBM2 | 250W | 4x DP 1.4 | NVLink |

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 C621 chipset

Memory

Max Memory^[1]

Up to 1TB DDR4-2933

Memory Type**

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

Memory Slots

16 DDR4 DIMM slots, 12 channels capable (8 DIMM slots with 6 channels per processor)

Memory Protection

ECC

Notes:

1. The max memory is based on the test results with current Lenovo® memory offerings. The system may support more memory as the technology develops.

Storage

Storage Support^[1]

Up to 6x 3.5" SATA HDD / 10x 2.5" SATA HDD / 8x 2.5" SAS HDD / 10x 2.5" SATA SSD / 4x 2.5" PCIe® SSD + 9x M.2 PCIe SSD + 2x PCIe AIC SSD

- 3.5" HDD up to 6TB each
- 2.5" SATA HDD up to 500GB each
- 2.5" SAS HDD up to 600GB each
- 2.5" SATA SSD up to 2TB each

- M.2 SSD up to 2TB each
- 2.5" PCIe SSD up to 1.5TB each
- PCIe AIC SSD up to 480GB each

Storage Type***

| Disk Type | Interface | RPM | Offering |
|---------------|------------|------|---------------------------|
| 2.5" PCIe SSD | PCIe NVMe® | - | 1.5TB |
| 2.5" SAS HDD | SAS 12Gb/s | 10K | 300GB / 600GB |
| 2.5" SATA SSD | SATA 6Gb/s | - | 256GB / 512GB / 1TB / 2TB |
| 2.5" SATA HDD | SATA 6Gb/s | 7.2K | 500GB / 500GB FIPS |
| 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. The system may support larger storage as the technology develops.

Removable Storage

Optical Support

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

Card Reader

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

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC662 codec

Power Supply

Power Supply

| Power | Type | Efficiency | Key Features |
|-------|-------|------------|--|
| 1400W | Fixed | 92% | Autosensing, 80 PLUS Platinum qualified. Countries with input voltage under 115V, output power limited to 1125 watts |

DESIGN

Mechanical

Form Factor

Tower (55L)

Dimensions (WxDxH)

200 x 620 x 446 mm (7.87 x 24.4 x 17.56 inches, with feet)

Weight

37 kg (81.6 lbs, maximum configuration)

Bays^[1]

- 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

3x flex bay, supports the following:

- 3x half-height optical drives
- 2x 5.25" 9.0mm optical drives
- 1x 5.25" 9.0mm optical drive + 1x 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 3.2 Gen 1 reader or 2x Thunderbolt™

Port 1 and 2: Front USB 3.2 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

- Three PCIe 3.0 x4
- Five PCIe 3.0 x16 (2nd CPU needed)

Expansion Slots Offering

Slot 1 (CPU1) PCIe 3.0 x16, full height, full length, 75W, double-width, by CPU1

Slot 2 (CPU1) PCIe 3.0 x4, full height, full length, 25W, open ended, by CPU1

Slot 3 (CPU1) PCIe 3.0 x16, full height, full length, 75W, double-width, by CPU1

Slot 4 (CPU1) PCIe 3.0 x4, full height, full length, 25W, open ended, by CPU1

Slot 5 (PCH) PCIe 3.0 x4, full height, half length, 25W, open ended, by PCH

Slot 6 (CPU2) PCIe 3.0 x16, full height, half length, 75W, by CPU2

Slot 7 (CPU2) PCIe 3.0 x16, full height, full length, 75W, double-width, by CPU2

Slot 8 (CPU2) PCIe 3.0 x16, full height, full length, 75W, by CPU2

Notes:

1. 4x 3.5" bay can also support up to 8x 2.5" SSD / HDD with 2 disks per bay. Additional 9440-8i or 9460-16i PCIe adapter and other parts are needed.

CONNECTIVITY

Network

Onboard Ethernet

Two gigabit Ethernet, Intel Ethernet Connection I219-LM and I210-AT, 2x RJ-45, supports Wake-on-LAN

Optional Ethernet

Additional Ethernet options via PCIe adapter

WLAN + Bluetooth^[1]

- Intel Dual-Band Wireless-AC 8265, 802.11ac Dual-Band 2x2 Wi-Fi® + Bluetooth 4.2
- No WLAN and Bluetooth

Notes:

1. Bluetooth 5.2 is hardware ready but may run at lower version due to OS limitation

Ports^[1]

Front Ports

- 1x USB 3.1 Gen 1 (Always On and fast charge)

- 3x USB 3.1 Gen 1
- 1x headphone / microphone combo jack (3.5mm)

Optional Front Ports***

- 1x eSATA (with flex module)
- 2x Thunderbolt (with flex module, USB-C form, one supports video-out)
- 1x USB-C 3.1 Gen 1 (with flex module)

Rear Ports^[2]

- 2x USB 2.0
- 4x USB 3.1 Gen 1
- 2x PS/2 ports (keyboard / mouse)
- 2x Ethernet (RJ-45)
- 1x line-in (3.5mm)
- 1x line-out (3.5mm)
- 1x microphone (3.5mm)

Optional Rear Ports***

- 2x USB-C 3.1 Gen 2 (via 2-port USB-C expansion card)
- 1x Thunderbolt
- 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;
USB 3.2 Gen 2x2 (SuperSpeed USB 20Gbps): 20 Gbit/s;
Thunderbolt 3/4: 40 Gbit/s;
FireWire 400: 400 Mbit/s;
FireWire 800: 800 Mbit/s
2. For video ports on discrete graphics, please see graphics section

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

- (Optional) Access Panel Lock Kit with Common Key
- (Optional) Access Panel Lock Kit with Unique Key
- Kensington® Security Slot

Chassis Intrusion Switch

Chassis intrusion switch

BIOS Security

- Administrator password
- Power-on password

MANAGEABILITY

System Management

System Management^{[1][2]}

Intel vPro with Intel AMT 11.0

Notes:

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

Diagnostic

Diagnostic

- Photo-audio transfer with Lenovo PC Diagnostics for Android™ and iOS
- ThinkStation® Diagnostics for Windows
- Front 4-digit diagnostic
- Lenovo UEFI Bootable Diagnostics

SERVICE

Warranty

Base Warranty^[1]

- 1-year limited onsite service
- 3-year limited onsite service with 9x5 NBD (for most models)

Notes:

1. More information 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

Green Certifications

- EPEAT™ Silver
- ENERGY STAR® 8.0 (on model 30BC003WUS)
- GREENGUARD®
- RoHS compliant

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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