

PERFORMANCE

Processor

Processor Family

Up to one Intel® Xeon® W-2200 / W-2100 series processor

Processor

| Processor Name | Cores | Threads | Base Frequency | Max Frequency | Cache | Memory Support | Processor Graphics |
|----------------|-------|---------|----------------|---------------|---------|----------------|--------------------|
| 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

Operating System

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

Graphics

Discrete Graphics Support

Supports up to one NVIDIA® Quadro® RTX 8000, or two NVIDIA Quadro RTX 6000 with NVLink

Discrete Graphics Offering

| Graphics | Memory | Power | Connector | SLI / NVlink |
|--------------|-------------|-------|--------------------|--------------|
| NVS 810 | 4GB DDR3 | 68W | 8x miniDP | None |
| Quadro P400 | 2GB GDDR5 | 30W | 3x miniDP | None |
| Quadro P600 | 2GB GDDR5 | 45W | 4x miniDP | None |
| Quadro P620 | 2GB GDDR5 | 40W | 4x miniDP | None |
| Quadro P1000 | 4GB GDDR5 | 50W | 4x miniDP | None |
| Quadro P2000 | 5GB GDDR5 | 75W | 4x DP | None |
| Quadro P2200 | 5GB GDDR5 | 75W | 4x DP | None |
| Quadro P4000 | 8GB GDDR5 | 120W | 4x DP | None |
| Quadro P5000 | 16GB GDDR5X | 180W | 1x DVI-D DL, 4x DP | SLI |

| | | | | |
|-----------------|------------|------|-----------------------|--------|
| Quadro RTX 4000 | 8GB GDDR6 | 160W | 3x DP, 1x VirtualLink | None |
| Quadro RTX 5000 | 16GB GDDR6 | 265W | 4x DP, 1x VirtualLink | NVLink |
| Quadro RTX 6000 | 24GB GDDR6 | 295W | 4x DP, 1x VirtualLink | NVLink |
| Quadro RTX 8000 | 48GB GDDR6 | 295W | 4x DP, 1x VirtualLink | None |
| Quadro GP100 | 16GB HBM2 | 235W | 1x DVI-D DL, 4x DP | NVLink |
| Quadro GV100 | 32GB HBM2 | 250W | 4x DP | None |

Monitor Support

Supports multiple displays via discrete graphics

Chipset

Intel C422 chipset

Memory

Memory Type

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

Memory Slots

8 DIMM sockets with 4 channels

Memory Protection

ECC

Max Memory

Up to 512GB (with 8 x 64GB DDR4-2933 RDIMMs)

Notes:

- 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

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

Storage Controllers

| Storage Controller | Type | Interface | RAID | Cache |
|-----------------------------|----------|----------------------------|------------|--------------------|
| Onboard Intel RST 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 |

Storage Type

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

| | | | |
|--------------|-----------|---|---------------------|
| M.2 PCIe SSD | PCIe NVMe | - | 256GB/512GB/1TB/2TB |
| PCIe AIC SSD | PCIe NVMe | - | 480GB |

Removable Storage

Optical Support

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

Card Reader

- SD card reader
- 15-in-1 card reader
- Not configured

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC662 codec

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)

165 x 460 x 440 mm (6.5 x 18.1 x 17.3 inches, with feet)

Weight

24 kg (52.91 lbs, maximum configuration)

Bays

4x 3.5" disk bays (2 standard, 2 optional)

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

- 2x M.2 SSD with 2x Front Removable Drive Enclosures

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 adapters

Expansion Slots

- Two PCIe 3.0 x16
- One PCIe 3.0 x8
- Two PCIe 3.0 x4
- One PCI

Expansion Slots Offering

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

CONNECTIVITY

Network

Onboard Ethernet

Gigabit Ethernet, Intel Ethernet Connection I219-LM, 1x RJ45, supports Wake-on-LAN

Optional Ethernet

Additional Ethernet options via PCIe adapter

WLAN + Bluetooth™

- Intel Dual Band Wireless-AC 8265, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 4.2
- Not configured

Ports

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)

Notes:

- 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: 40 Gbit/s;
 - FireWire 400: 400 Mbit/s;
 - FireWire 800: 800 Mbit/s;

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

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

Notes:

- For video ports on discrete graphics, please see graphics section

Optional Rear Ports

- 2x USB-C 3.1 Gen 2 (via 2-port USB-C expansion card)
- 1x Thunderbolt
- 1x serial

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 1.2, TCG certified

Physical Locks

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

BIOS Security

- Power-on password
- Administrator password

MANAGEABILITY**System Management**

Intel vPro with Intel AMT 11

Diagnostic

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

SERVICE**Warranty****Base Warranty**

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

ENVIRONMENTAL**Environmental Specifications****Temperature**

Operating: 10° C to 35° C (50° F to 95° F)

Storage: -40°C to 60°C (-40°F to 140°F) in original shipping carton

Storage: -10°C to 60°C (14°F to 140°F) without carton

Altitude

Operating: -15.2m to 3048m (-50ft to 10000ft)

Storage: -15.2m to 10668m (-50ft to 35000ft)

Humidity

Relative Humidity Operating: 10% to 80% (non-condensing)

Relative Humidity Storage/Transit: 10% to 90% (non-condensing)

Wet Bulb Temperature Operating: 25°C (77°F) max

Wet Bulb Temperature Non-operating: 40°C (104°F) max

CERTIFICATIONS**Green Certifications**

- EPEAT™ Silver
- ENERGY STAR® 8.0 (On model 30BE00B7US)
- GREENGUARD®
- RoHS

ISV Certifications

Please visit www.thinkworkstations.com/isv-certifications/

