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, formely USB 3.0 / USB 3.1 Gen 1): 5 Gbit/s;
  USB 3.2 Gen 2 (SuperSpeed USB 10Gbps, formely 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
- 1x 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: 10^0 C to 35^0 C (50^0 F to 95^0 F)
Storage: -40^0C to 60^0C (-40^0F to 140^0F) in original shipping carton
Storage: -10^0C to 60^0C (14^0F to 140^0F) 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: 25^0C (77^0F) max
Wet Bulb Temperature Non-operating: 40^0C (104^0F) max

CERTIFICATIONS

Green Certifications

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

ISV Certifications

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