

## 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	-

#### 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 5000, or two NVIDIA Quadro P4000

#### 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	None
Quadro RTX 4000	8GB GDDR6	160W	3x DP, 1x VirtualLink	None
Quadro RTX 5000	16GB GDDR6	265W	4x DP, 1x VirtualLink	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

4 DIMM sockets with 4 channels

### Memory Protection

ECC

### Max Memory

- Up to 128GB (with 4 x 32GB DDR4-2666 RDIMMs) on models with Intel Xeon W-2100 Series processor
- Up to 256GB (with 4 x 64GB DDR4-2933 RDIMMs) on models with Intel Xeon W-2200 Series processor

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 4x 3.5" SATA HDD / 2.5" SATA HDD / 2.5" SATA SSD + 5x M.2 PCIe 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 SSD up to 2TB 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
NVMe Basic	Optional	PCIe NVMe	0/1/10	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" SAS HDD	SAS 12Gb/s	10K	300GB/600GB
2.5" SATA SSD	SATA 6Gb/s	-	256GB/512GB/1TB/2TB
M.2 PCIe SSD	PCIe NVMe	-	256GB/512GB/1TB/2TB

## 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
- No card reader

## Multi-Media

### Audio Chip

High Definition (HD) Audio, Realtek® ALC662 codec

## Power Supply

Power	Type	Efficiency	Key Features
500W	Fixed	92%	Autosensing, 80 PLUS Platinum qualified
625W	Fixed	92%	Autosensing, 80 PLUS Platinum qualified

## DESIGN

### Mechanical

#### Form Factor

Tower (25L)

#### Dimensions (WxDxH)

175 x 426 x 376 mm (6.89 x 16.77 x 14.8 inches, with feet)

#### Weight

14.5 kg (31.96 lbs, maximum configuration)

#### Bays

- 2x 3.5" disk bay (standard)
- 2x 3.5" disk bay (optional, 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

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

#### M.2 Slots

Up to 5x M.2 SSD:

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

#### Expansion Slots

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

#### Expansion Slots Offering

Slot 1: PCIe 3.0 x16, full height, full length, 75W, by CPU

Slot 2: PCIe 3.0 x8, full height, full length, 25W, open ended, by CPU

Slot 3: PCIe 3.0 x16, full height, full length, 75W, by CPU,

Slot 4: 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
- No WLAN and Bluetooth

## Ports

### Front Ports

- 2x USB 3.1 Gen 1
- 1x microphone (3.5mm)
- 1x headphone (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 2.0, TCG certified

#### Physical Locks

Kensington® Security Slot

#### Chassis Intrusion Switch

- Chassis intrusion switch
- No chassis intrusion switch

#### 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 30BX0095US)
- GREENGUARD®
- RoHS compliant

### ISV Certifications

Please visit [www.thinkworkstations.com/isv-certifications/](http://www.thinkworkstations.com/isv-certifications/)

