

PSREF

Product Specifications Reference

ThinkStation



ThinkStation

Version 575
April 7, 2021

Lenovo™

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Summary of Changes

This section describes the technical changes made in this edition.

This edition might also include minor corrections and editorial changes which are not identified.

April 7, 2021 - Version 575

Additions in this update

► **New product(s)**

None

► **Spec updated**

ThinkStation P920

Withdrawals in this update

► **Withdrawn product(s)**

None

PERFORMANCE

Processor

Processor Family

Up to one Intel® Xeon®, Core™ i9, i7, i5, or i3 processor

Processor

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
Pentium® Gold G5620	2	4	4.0GHz	-	4MB	DDR4-2400	Intel UHD Graphics 630
Core i3-8100	4	4	3.6GHz	-	6MB	DDR4-2400	Intel UHD Graphics 630
Core i3-8300	4	4	3.7GHz	-	8MB	DDR4-2400	Intel UHD Graphics 630
Core i3-9100	4	4	3.6GHz	4.2GHz	6MB	DDR4-2400	Intel UHD Graphics 630
Core i3-9300	4	4	3.7GHz	4.3GHz	8MB	DDR4-2400	Intel UHD Graphics 630
Core i5-8500	6	6	3.0GHz	4.1GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-9400	6	6	2.9GHz	4.1GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-9400F	6	6	2.9GHz	4.1GHz	9MB	DDR4-2666	-
Core i5-9500	6	6	3.0GHz	4.4GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-9600	6	6	3.1GHz	4.6GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i7-8700	6	12	3.2GHz	4.6GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i7-9700	8	8	3.0GHz	4.7GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i9-9900	8	16	3.1GHz	5.0GHz	16MB	DDR4-2666	Intel UHD Graphics 630
Xeon E-2174G	4	8	3.8GHz	4.7GHz	8MB	DDR4-2666	Intel UHD Graphics P630
Xeon E-2224	4	4	3.4GHz	4.6GHz	8MB	DDR4-2666	-
Xeon E-2224G	4	4	3.5GHz	4.7GHz	8MB	DDR4-2666	Intel UHD Graphics P630
Xeon E-2226G	6	6	3.4GHz	4.7GHz	12MB	DDR4-2666	Intel UHD Graphics P630
Xeon E-2234	4	8	3.6GHz	4.8GHz	8MB	DDR4-2666	-
Xeon E-2236	6	12	3.4GHz	4.8GHz	12MB	DDR4-2666	-
Xeon E-2244G	4	8	3.8GHz	4.8GHz	8MB	DDR4-2666	Intel UHD Graphics P630
Xeon E-2246G	6	12	3.6GHz	4.8GHz	12MB	DDR4-2666	Intel UHD Graphics P630
Xeon E-2274G	4	8	4.0GHz	4.9GHz	8MB	DDR4-2666	Intel UHD Graphics P630
Xeon E-2276G	6	12	3.8GHz	4.9GHz	12MB	DDR4-2666	Intel UHD Graphics P630
Xeon E-2278G	8	16	3.4GHz	5.0GHz	16MB	DDR4-2666	Intel UHD Graphics P630

Processor Sockets

1x FCLGA1151

Operating System

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

Graphics

Integrated Graphics

- Intel UHD Graphics 630
- Intel UHD Graphics P630
- None

Discrete Graphics Support

Supports up to two NVIDIA® Quadro® P1000

Discrete Graphics Offering

Graphics	Memory	Power	Connector	SLI / NVlink
Quadro P400	2GB GDDR5	30W	3x miniDP	None
Quadro P620	2GB GDDR5	40W	4x miniDP	None
Quadro P1000	4GB GDDR5	50W	4x miniDP	None

Monitor Support

Supports multiple displays via onboard video ports and discrete graphics

Chipset

Intel C246 chipset

Memory

Memory Type

- DDR4-2666 UDIMM ECC
- DDR4-2666 UDIMM non-ECC

Memory Slots

4 DIMM sockets with 2 channels

Memory Protection

ECC on models with ECC DIMMs and Xeon processor

Max Memory

Up to 64GB

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 1x 3.5" SATA HDD / 2x 2.5" SATA HDD / SSD + 3x M.2 PCIe SSD

- 3.5" HDD up to 4TB
- 2.5" SATA HDD up to 500GB each
- 2.5" SATA SSD up to 1TB each
- M.2 PCIe SSD up to 2TB each
- Optional Intel Optane™ Memory

Storage Controllers

Storage Controller	Type	Interface	RAID	Cache
Onboard Intel RST PCIe RAID	Standard	PCIe NVMe	0/1	None
Onboard Intel RST SATA RAID	Standard	SATA 6.0Gb/s	0/1	None

Storage Type

Disk Type	Interface	RPM	Offering
2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB FIPS
2.5" SATA SSD	SATA 6Gb/s	-	256GB/512GB/1TB
Optane Memory	PCIe NVMe	-	32GB

M.2 PCIe SSD	PCIe 3.0 NVMe	-	256GB/512GB/1TB/2TB
3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB

Removable Storage

Optical Support

Optional one 9.0mm optical drive, DVD-ROM, DVD±RW, and Blu-ray

Card Reader

- SD card reader
- No card reader

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC233 codec

Power Supply

Power	Type	Efficiency	Key Features
210W	Fixed	85%	100V - 240V, Climate Savers Computing Bronze and 80 PLUS Bronze qualified
260W	Fixed	92%	100V - 240V, Climate Savers Computing Platinum and 80 PLUS Platinum qualified

DESIGN

Mechanical

Form Factor

Mini-tower (8.4L)

Dimensions (WxDxH)

92.5 x 305.6 x 343.5 mm (3.6 x 12 x 13.5 inches)

Weight

7.6kg (16.76 lbs)

Bays

- 1x slim ODD bay (standard)
- 1x 3.5" disk bay (standard)
- 1x 2.5" disk bay (optional, comes with disk)

M.2 Slots

Up to 3x M.2 SSD:

- 1 via onboard slot
- 2 via Single M.2 to PCIe adapter

Expansion Slots

- Two PCIe 3.0 x16
- One PCIe 3.0 x1

Expansion Slots Offering

Slot 1: PCIe 3.0 x16, low profile, links to CPU
Slot 2: PCIe 3.0 x1, low profile, links to PCH
Slot 3: PCIe 3.0 x16 (negotiable link width x4), low profile, links to 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™

ThinkStation P330 SFF Gen 2

- Intel Wireless-AC 9560, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 5.1, M.2 card
- No WLAN and Bluetooth

Ports

Front Ports

- 2x USB 3.1 Gen 1
- 2x USB 3.1 Gen 2
- 1x USB-C 3.1 Gen 1
- 1x headphone / microphone combo jack (3.5mm)
- 1x microphone (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;

Rear Ports

- 2x USB 2.0
- 2x USB 3.1 Gen 1
- 1x serial (9-pin)
- 1x Ethernet (RJ-45)
- 1x line-out (3.5mm)
- 2x DisplayPort™

Notes:

- For video ports on discrete graphics, please see graphics section
- DP needs Core, Pentium, or -G suffix Xeon processor

Optional Rear Ports

- 1x video (DisplayPort or HDMI®)
- 2x USB 2.0
- 2x USB 3.1 Gen 1 (via 2-port USB expansion card)
- 2x USB-C 3.1 Gen 1 (via 2-port USB-C expansion card)
- 1x Thunderbolt
- 1x serial
- 4x serial (via 4-port serial expansion card, PCIe x1)
- 1x parallel
- 2x PS/2

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

- (Optional) E-lock
- (Optional) Cable lock
- 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 12 (vPro-enable processor and WiFi needed)
- Standard Manageability

SERVICE

Warranty

Base Warranty

- 1-year limited onsite service
- 3-year limited onsite service
- No base warranty

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

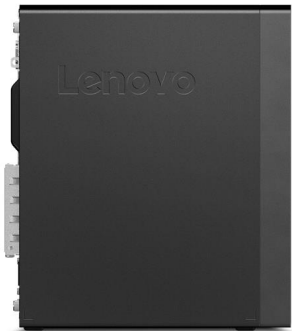
CERTIFICATIONS

Green Certifications

- EPEAT™ Silver
- ENERGY STAR® 8.0
- GREENGUARD®
- RoHS compliant

ISV Certifications

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



PERFORMANCE

Processor

Processor Family

Up to one Intel® Core™ i9, i7, i5, or i3 processor

Processor

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
Core i3-8100	4	4	3.6GHz	-	6MB	DDR4-2400	Intel UHD Graphics 630
Core i3-8100T	4	4	3.1GHz	-	6MB	DDR4-2400	Intel UHD Graphics 630
Core i3-8300	4	4	3.7GHz	-	8MB	DDR4-2400	Intel UHD Graphics 630
Core i3-8300T	4	4	3.2GHz	-	8MB	DDR4-2400	Intel UHD Graphics 630
Core i3-9100	4	4	3.6GHz	4.2GHz	6MB	DDR4-2400	Intel UHD Graphics 630
Core i3-9100T	4	4	3.1GHz	3.7GHz	6MB	DDR4-2400	Intel UHD Graphics 630
Core i3-9300	4	4	3.7GHz	4.3GHz	8MB	DDR4-2400	Intel UHD Graphics 630
Core i3-9300T	4	4	3.2GHz	3.8GHz	8MB	DDR4-2400	Intel UHD Graphics 630
Core i3-9320	4	4	3.7GHz	4.4GHz	8MB	DDR4-2400	Intel UHD Graphics 630
Core i5-8400	6	6	2.8GHz	4.0GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-8400T	6	6	1.7GHz	3.3GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-8500	6	6	3.0GHz	4.1GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-8500T	6	6	2.1GHz	3.5GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-8600	6	6	3.1GHz	4.3GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-8600T	6	6	2.3GHz	3.7GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-9400	6	6	2.9GHz	4.1GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-9400T	6	6	1.8GHz	3.4GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-9500	6	6	3.0GHz	4.4GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-9500T	6	6	2.2GHz	3.7GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-9600	6	6	3.1GHz	4.6GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-9600T	6	6	2.3GHz	3.9GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i7-8700	6	12	3.2GHz	4.6GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i7-8700T	6	12	2.4GHz	4.0GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i7-9700	8	8	3.0GHz	4.7GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i7-9700T	8	8	2.0GHz	4.3GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i9-9900T	8	16	2.1GHz	4.4GHz	16MB	DDR4-2666	Intel UHD Graphics 630

Processor Sockets

1x FCLGA1151

Operating System

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

Graphics

Integrated Graphics

Intel UHD Graphics 630

Discrete Graphics Support

Supports one optional discrete graphics card on 35W processor models

Discrete Graphics Offering

Graphics	Memory	Power	Connector	SLI / NVlink
Quadro® P620	2GB GDDR5	40W	4x miniDP	None
Quadro P1000	4GB GDDR5	50W	4x miniDP	None

Monitor Support

Supports multiple displays via onboard video ports and discrete graphics

Chipset

Intel Q370 chipset

Memory

Memory Type

DDR4-2666 Non-ECC

Memory Slots

Two DDR4 SO-DIMM slots, dual-channel capable

Max Memory

Up to 64GB

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 1x 2.5" HDD + 2x M.2 SSD

- 2.5" HDD up to 2TB
- M.2 SSD up to 1TB each

Storage Type

Disk Type	Interface	RPM	Offering
2.5" SATA HDD	SATA 6Gb/s	5.4K	2TB
M.2 PCIe SSD	PCIe NVMe	-	128GB/256GB/512GB/1TB
2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB

Removable Storage

Optical Support

Optional one 9.0mm optical drive via optical drive kit, DVD-ROM or DVD±RW

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC233 codec

Power Supply

Power	Type	Efficiency	Key Features
135W	Adapter	88%	Autosensing

DESIGN

Mechanical

Form Factor

Tiny (1L)

Dimensions (WxDxH)

ThinkStation P330 Tiny

37 x 183 x 179 mm (1.5 x 7.2 x 7.0 inches)

Weight

1.32kg (2.91lbs)

Bays

1x 2.5" disk bay

Notes:

- 2.5" disk bay is available on models without discrete graphics card

M.2 Slots

Uo to 2x M.2 SSD via onboard slots

Expansion Slots

One PCIe 3.0 x16 or x4 slot, low-profile, via riser card

Expansion Slots Offering

One PCIe slot via specific riser card:

PCIe 3.0 x16 (negotiable link width x8) and low profile for discrete graphics card,
PCIe 3.0 x4 and low profile for i350-T4 adapter and quad COM ports adapter

CONNECTIVITY

Network

Onboard Ethernet

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

Optional Ethernet

Gigabit Ethernet, Intel Ethernet Server Adapter I350-T4, 4x RJ-45, PCIe x4

WLAN + Bluetooth™

- Intel Wireless-AC 9560, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 5.1, M.2 card
- No WLAN and Bluetooth
- Intel Dual Band Wireless-AC 8265, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 4.2, M.2 Card

Ports

Front Ports

- 1x USB 3.1 Gen 1 (Always On and fast charge)
- 1x USB-C 3.1 Gen 1
- 1x headphone / microphone combo jack (3.5mm)
- 1x microphone (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;

Rear Ports

- 2x USB 3.1 Gen 1
- 2x USB 3.1 Gen 2
- 1x Ethernet (RJ-45)
- 1x HDMI®
- 1x DisplayPort™

Notes:

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

Optional Rear Ports

- 2x USB-C 3.1 Gen 1 (via 2-port USB-C expansion card)
- Optional Port 1 (VGA / 2nd DisplayPort / 2nd HDMI / serial / USB-C 3.1 Gen 1 with DisplayPort function, select one)
- Optional Port 2 (serial)
- 4x serial (via 4-port serial expansion card, PCIe x1)

SECURITY & PRIVACY**Security****Security Chip**

Discrete TPM 1.2, TCG certified

BIOS Security

- Power-on password
- Administrator password

MANAGEABILITY**System Management**

- Intel vPro with Intel AMT 12 (vPro-enable processor and WiFi needed)
- Standard Manageability

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® 7.0
- GREENGUARD®
- RoHS compliant

Other Certifications**Mil-Spec Test**

MIL-STD-810G military test passed



ISV Certifications

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



PERFORMANCE

Processor

Processor Family

Up to one Intel® Xeon®, Core™ i9, i7, i5, or i3 processor

Processor

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
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Core i3-8300	4	4	3.7GHz	-	8MB	DDR4-2400	Intel UHD Graphics 630
Core i3-9100	4	4	3.6GHz	4.2GHz	6MB	DDR4-2400	Intel UHD Graphics 630
Core i3-9100F	4	4	3.6GHz	4.2GHz	6MB	DDR4-2400	-
Core i3-9300	4	4	3.7GHz	4.3GHz	8MB	DDR4-2400	Intel UHD Graphics 630
Core i5-8500	6	6	3.0GHz	4.1GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-9400	6	6	2.9GHz	4.1GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-9400F	6	6	2.9GHz	4.1GHz	9MB	DDR4-2666	-
Core i5-9500	6	6	3.0GHz	4.4GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-9600	6	6	3.1GHz	4.6GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i5-9600K	6	6	3.7GHz	4.6GHz	9MB	DDR4-2666	Intel UHD Graphics 630
Core i7-8700	6	12	3.2GHz	4.6GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i7-8700K	6	12	3.7GHz	4.7GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i7-9700	8	8	3.0GHz	4.7GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i7-9700K	8	8	3.6GHz	4.9GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i9-9900	8	16	3.1GHz	5.0GHz	16MB	DDR4-2666	Intel UHD Graphics 630
Core i9-9900K	8	16	3.6GHz	5.0GHz	16MB	DDR4-2666	Intel UHD Graphics 630
Xeon E-2174G	4	8	3.8GHz	4.7GHz	8MB	DDR4-2666	Intel UHD Graphics P630
Xeon E-2186G	6	12	3.8GHz	4.7GHz	12MB	DDR4-2666	Intel UHD Graphics P630
Xeon E-2224	4	4	3.4GHz	4.6GHz	8MB	DDR4-2666	-
Xeon E-2224G	4	4	3.5GHz	4.7GHz	8MB	DDR4-2666	Intel UHD Graphics P630
Xeon E-2226G	6	6	3.4GHz	4.7GHz	12MB	DDR4-2666	Intel UHD Graphics P630
Xeon E-2234	4	8	3.6GHz	4.8GHz	8MB	DDR4-2666	-
Xeon E-2236	6	12	3.4GHz	4.8GHz	12MB	DDR4-2666	-
Xeon E-2244G	4	8	3.8GHz	4.8GHz	8MB	DDR4-2666	Intel UHD Graphics P630
Xeon E-2246G	6	12	3.6GHz	4.8GHz	12MB	DDR4-2666	Intel UHD Graphics P630
Xeon E-2274G	4	8	4.0GHz	4.9GHz	8MB	DDR4-2666	Intel UHD Graphics P630
Xeon E-2276G	6	12	3.8GHz	4.9GHz	12MB	DDR4-2666	Intel UHD Graphics P630
Xeon E-2278G	8	16	3.4GHz	5.0GHz	16MB	DDR4-2666	Intel UHD Graphics P630

Xeon E-2286G	6	12	4.0GHz	4.9GHz	12MB	DDR4-2666	Intel UHD Graphics P630
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Processor Sockets

1x FCLGA1151

Operating System

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

Graphics

Integrated Graphics

- Intel UHD Graphics 630
- Intel UHD Graphics P630
- None

Discrete Graphics Support

Supports up to one NVIDIA® Quadro® RTX 4000, or two NVIDIA Quadro P2200, 400W PSU is needed

Discrete Graphics Offering

Graphics	Memory	Power	Connector	SLI / NVlink
Quadro P400	2GB GDDR5	30W	3x 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

Monitor Support

Supports multiple displays via onboard video ports and discrete graphics

Chipset

Intel C246 chipset

Memory

Memory Type

- DDR4-2666 UDIMM ECC
- DDR4-2666 UDIMM non-ECC

Memory Slots

4 DIMM sockets with 2 channels

Memory Protection

ECC on models with ECC DIMMs and Xeon processor

Max Memory

Up to 64GB

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 3x 3.5" SATA HDD / 4x 2.5" SATA HDD / SSD + 3x M.2 PCIe SSD

- 3.5" HDD up to 4TB each
- 2.5" SATA HDD up to 500GB each
- 2.5" SATA SSD up to 1TB each
- M.2 SSD up to 1TB each
- Optional Intel Optane™ Memory

Storage Controllers

Storage Controller	Type	Interface	RAID	Cache
Onboard Intel RST SATA RAID	Standard	SATA 6.0Gb/s	0/1/10/5	None
Onboard Intel RST PCIe RAID	Standard	PCIe NVMe	0/1	None

Storage Type

Disk Type	Interface	RPM	Offering
2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB FIPS
2.5" SATA SSD	SATA 6Gb/s	-	256GB/512GB/1TB
M.2 PCIe SSD	PCIe 4.0 NVMe	-	256GB/512GB/1TB
Optane Memory	PCIe NVMe	-	32GB
3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB

Removable Storage

Optical Support

Optional one 9.0mm optical drive, DVD-ROM, DVD±RW, and Blu-ray

Card Reader

- SD card reader
- No card reader

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC233 codec

Power Supply

Power	Type	Efficiency	Key Features
250W	Fixed	92%	100V - 240V, Climate Savers Computing Platinum and 80 PLUS Platinum qualified
400W	Fixed	92%	100V - 240V, Climate Savers Computing Platinum and 80 PLUS Platinum qualified

DESIGN

Mechanical

Form Factor

Tower (18L)

Dimensions (WxDxH)

165 x 328 x 376 mm (6.5 x 12.9 x 14.8 inches)

Weight

9.8 kg (21.61 lbs)

Bays

- 1x 3.5" disk bay (standard)
- 1x 2.5" disk bay (optional, comes with disk or Storage Bay Upgrade Kit)
- 2x 3.5" disk bay (optional):
 - 1 bay come with disk or Storage Bay Upgrade Kit
 - 1 bay via Flex bay

Flex Bays

1x Flex bay, supports one of the following:

- Flex module for optional front eSATA/Thunderbolt™/IEEE1394

ThinkStation P330 Tower Gen 2

- 3rd disk bay, 3.5" or 2.5", removable, via Front Access Storage Enclosure, using SATA 4 connector as eSATA mode
- 3rd disk bay, 3.5" or 2.5", via 5.25" to 3.5" HDD Kit

M.2 Slots

Up to 3x M.2 SSD:

- 1 via onboard slot
- 2 via Single M.2 to PCIe adapter

Expansion Slots

- Two PCIe 3.0 x16
- One PCIe 3.0 x1

Expansion Slots Offering

Slot 1: PCIe 3.0 x16, full height, half length, links to CPU

Slot 2: PCIe 3.0 x1, full height, full length, links to PCH

Slot 3: PCIe 3.0 x16 (negotiable link width x4), full height, half length, links to 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 Wireless-AC 9560, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 5.1, M.2 card
- No WLAN and Bluetooth

Ports

Front Ports

- 2x USB 3.1 Gen 1
- 2x USB 3.1 Gen 2
- 1x USB-C 3.1 Gen 1
- 1x headphone / microphone combo jack (3.5mm)
- 1x microphone (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 IEEE1394 (with flex module)

Rear Ports

- 2x USB 2.0
- 2x USB 3.1 Gen 1
- 1x serial (9-pin)
- 1x Ethernet (RJ-45)
- 1x line-out (3.5mm)
- 2x DisplayPort™

Notes:

- For video ports on discrete graphics, please see graphics section
- DP needs Core, Pentium, or -G suffix Xeon processor

Optional Rear Ports

- 1x video (DisplayPort or HDMI®)
- 2x USB 2.0
- 2x USB 3.1 Gen 1 (via 2-port USB expansion card)
- 2x USB-C 3.1 Gen 1 (via 2-port USB-C expansion card)
- 1x Thunderbolt
- 1x serial
- 4x serial (via 4-port serial expansion card, PCIe x1)
- 1x parallel
- 2x PS/2

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 1.2, TCG certified

Physical Locks

- (Optional) E-lock
- (Optional) Cable lock
- Kensington® Security Slot
- Padlock Loop

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 12 (vPro-enable processor and WiFi needed)
- Standard Manageability

SERVICE

Warranty

Base Warranty

- 1-year limited onsite service
- 3-year limited onsite service
- No base warranty

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
- GREENGUARD®
- RoHS compliant

ISV Certifications

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



PERFORMANCE

Processor

Processor Family

Up to one Intel® Xeon®, Core™ i9, i7, i5, or i3 processor

Processor

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
Core i3-10100	4	8	3.6GHz	4.3GHz	6MB	DDR4-2666	Intel UHD Graphics 630
Core i3-10300	4	8	3.7GHz	4.4GHz	8MB	DDR4-2666	Intel UHD Graphics 630
Core i3-10320	4	8	3.8GHz	4.6GHz	8MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10400	6	12	2.9GHz	4.3GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10500	6	12	3.1GHz	4.5GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10600	6	12	3.3GHz	4.8GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i7-10700	8	16	2.9GHz	4.8GHz	16MB	DDR4-2933	Intel UHD Graphics 630
Core i9-10900	10	20	2.8GHz	5.2GHz	20MB	DDR4-2933	Intel UHD Graphics 630
Xeon W-1250	6	12	3.3GHz	4.7GHz	12MB	DDR4-2666	Intel UHD Graphics P630
Xeon W-1270	8	16	3.4GHz	5.0GHz	16MB	DDR4-2933	Intel UHD Graphics P630
Xeon W-1290	10	20	3.2GHz	5.2GHz	20MB	DDR4-2933	Intel UHD Graphics P630

Processor Sockets

1x FCLGA1200

Operating System

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

Graphics

Integrated Graphics

- Intel UHD Graphics 630
- Intel UHD Graphics P630

Discrete Graphics Support

Supports up to two NVIDIA® Quadro® P1000

Discrete Graphics Offering

Graphics	Memory	Power	Connector	SLI / NVlink
Quadro P400	2GB GDDR5	30W	3x miniDP	None
Quadro P620	2GB GDDR5	40W	4x miniDP	None
Quadro P1000	4GB GDDR5	50W	4x miniDP	None

Monitor Support

Supports multiple displays via onboard video ports and discrete graphics

Chipset

Intel W480 chipset

Memory

Memory Type

- DDR4-2933 UDIMM ECC
- DDR4-2933 UDIMM non-ECC

Memory Slots

4 DIMM sockets with 2 channels

Memory Protection

ECC on models with ECC DIMMs and Xeon processor

Max Memory

Up to 128GB

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 1x 3.5" SATA HDD / 2x 2.5" SATA HDD / SSD + 4x M.2 PCIe SSD

- 3.5" HDD up to 4TB
- 2.5" SATA HDD up to 1TB each
- 2.5" SATA SSD up to 1TB each
- M.2 SSD up to 2TB each
- Optional Intel Optane™ Memory

Storage Controllers

Storage Controller	Type	Interface	RAID	Cache
Onboard Intel RST PCIe RAID	Standard	PCIe NVMe	0/1	None
Onboard Intel RST SATA RAID	Standard	SATA 6.0Gb/s	0/1	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	1TB FIPS
2.5" SATA SSD	SATA 6Gb/s	-	512GB/1TB
M.2 PCIe SSD	PCIe NVMe	-	256GB/512GB/1TB/2TB

Removable Storage

Optical Support

Optional one 9.0mm optical drive, DVD-ROM, DVD±RW, and Blu-ray

Card Reader

- SD card reader
- No card reader

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC623 codec

Power Supply

Power	Type	Efficiency	Key Features
310W	Fixed	92%	Autosensing, 80 PLUS Platinum qualified
380W	Fixed	92%	Autosensing, 80 PLUS Platinum qualified

DESIGN

Mechanical

Form Factor

Mini-tower (8.2L)

Dimensions (WxDxH)

92.5 x 309.7 x 339.5 mm (3.6 x 9.3 x 13.4 inches)

Weight

5.65 kg (12.46 lbs, maximum configuration)

Bays

- 1x 2.5" disk bay (optional, comes with disk or Storage Bay Upgrade Kit)
- 1x 3.5" disk bay (optional, comes with disk or Storage Bay Upgrade Kit)

M.2 Slots

Up to 4x M.2 SSD:

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

Expansion Slots

- Two PCIe 3.0 x16
- One PCIe 3.0 x1

Expansion Slots Offering

Slot 1: PCIe 3.0 x16, low profile, links to CPU

Slot 2: PCIe 3.0 x1, low profile, links to PCH

Slot 3: PCIe 3.0 x16 (negotiable link width x4), low profile, links to 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™

- No WLAN and Bluetooth
- Intel Wi-Fi 6 AX201, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1, M.2 Card

Ports

Front Ports

- 2x USB 3.2 Gen 1
- 2x USB 3.2 Gen 2
- 1x USB-C 3.2 Gen 1
- 1x headphone / microphone combo jack (3.5mm)
- 1x microphone (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;

Rear Ports

- 2x USB 2.0
- 2x USB 3.2 Gen 1
- 1x serial (9-pin)
- 1x Ethernet (RJ-45)
- 1x line-out (3.5mm)
- 2x DisplayPort™

Notes:

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

Optional Rear Ports

- 2x USB 2.0
- 2x USB-C 3.2 Gen 2 (via 2-port USB-C expansion card)
- 1x video (DisplayPort, HDMI®, or USB-C)
- 1x Thunderbolt
- 2x USB 3.2 Gen 1 (via 2-port USB expansion card, PCIe x1)
- 1x serial
- 4x serial (via 4-port serial expansion card, PCIe x1)
- 1x parallel
- 2x PS/2

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

- (Optional) E-lock
- (Optional) Cable lock
- 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 Technology, DASH
- Standard Manageability

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
- RoHS compliant

ISV Certifications

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



PERFORMANCE

Processor

Processor Family

Up to one Intel® Core™ i9, i7, i5, or i3 processor

Processor

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
Core i3-10100	4	8	3.6GHz	4.3GHz	6MB	DDR4-2666	Intel UHD Graphics 630
Core i3-10100T	4	8	3.0GHz	3.8GHz	6MB	DDR4-2666	Intel UHD Graphics 630
Core i3-10300	4	8	3.7GHz	4.4GHz	8MB	DDR4-2666	Intel UHD Graphics 630
Core i3-10300T	4	8	3.0GHz	3.9GHz	8MB	DDR4-2666	Intel UHD Graphics 630
Core i3-10320	4	8	3.8GHz	4.6GHz	8MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10400	6	12	2.9GHz	4.3GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10400T	6	12	2.0GHz	3.6GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10500	6	12	3.1GHz	4.5GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10500T	6	12	2.3GHz	3.8GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10600	6	12	3.3GHz	4.8GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10600T	6	12	2.4GHz	4.0GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i7-10700	8	16	2.9GHz	4.8GHz	16MB	DDR4-2933	Intel UHD Graphics 630
Core i7-10700T	8	16	2.0GHz	4.5GHz	16MB	DDR4-2933	Intel UHD Graphics 630
Core i9-10900	10	20	2.8GHz	5.2GHz	20MB	DDR4-2933	Intel UHD Graphics 630
Core i9-10900T	10	20	1.9GHz	4.6GHz	20MB	DDR4-2933	Intel UHD Graphics 630

Processor Sockets

1x FCLGA1200

Operating System

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

Graphics

Integrated Graphics

Intel UHD Graphics 630

Discrete Graphics Support

Supports one optional discrete graphics card

Discrete Graphics Offering

Graphics	Memory	Power	Connector	SLI / NVlink
Quadro® P620	2GB GDDR5	40W	4x miniDP	None
Quadro P1000	4GB GDDR5	50W	4x miniDP	None

Monitor Support

Supports multiple displays via onboard video ports and discrete graphics

Chipset

Intel Q470 chipset

Memory

Memory Type

DDR4-2933 non-ECC

Memory Slots

Two DDR4 SO-DIMM slots

Max Memory

Up to 64GB

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 2x M.2 SSD

- M.2 SSD up to 2TB each

Storage Type

Disk Type	Interface	RPM	Offering
M.2 PCIe SSD	PCIe NVMe	-	256GB/512GB/1TB/2TB

Removable Storage

Optical Support

Optional one 9.0mm optical drive via optical drive kit, DVD-ROM or DVD±RW

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC233 codec

Power Supply

Power	Type	Efficiency	Key Features
170W	Adapter	89%	100V - 240V
230W	Adapter	89%	100V - 240V

DESIGN

Mechanical

Form Factor

Tiny (1L)

Dimensions (WxDxH)

37 x 183 x 179 mm (1.5 x 7.2 x 7.0 inches)

Weight

1.4 kg (3 lbs, maximum configuration)

Bays

No bays

M.2 Slots

Up to 2x M.2 SSD via onboard slots

Expansion Slots

One PCIe 3.0 x16 or x4 slot, low-profile, via riser card

Expansion Slots Offering

One PCIe slot via specific riser card:
PCIe 3.0 x16 (negotiable link width x8) and low profile for discrete graphics card,
PCIe 3.0 x4 and low profile for ethernet adapter and Thunderbolt™ adapter

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™

- Realtek RTL8822CE, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 5.0, M.2 card
- Intel Wi-Fi 6 AX201, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1, M.2 Card
- Intel Wireless-AC 9560, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 5.1, M.2 card
- No WLAN and Bluetooth

Ports

Front Ports

- 1x USB 3.2 Gen 2 (Always On and fast charge)
- 1x USB-C 3.2 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;

Rear Ports

- 2x USB 3.2 Gen 1 (one supports Smart Power On)
- 2x USB 3.2 Gen 2
- 1x Ethernet (RJ-45)
- 1x HDMI®
- 1x DisplayPort™

Notes:

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

Optional Rear Ports

- 2x USB-A 3.2 Gen 1
- 1x Thunderbolt
- Optional Port 1 (VGA / 2nd DisplayPort / 2nd HDMI / serial / USB-C 3.2 Gen 1 with DisplayPort function, select one)
- Optional Port 2 (serial)

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

Kensington® Security Slot

BIOS Security

- Power-on password
- Administrator password

MANAGEABILITY

System Management

- Intel vPro with Intel AMT 14 (vPro-enable processor and WiFi needed)
- Standard Manageability

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: 0m to 3048m (0ft to 10000ft)

Storage: 0m to 12192m (0ft to 40000ft)

Humidity

Relative Humidity Operating: 10% to 90% (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
- GREENGUARD®
- RoHS compliant

Other Certifications

Mil-Spec Test

MIL-STD-810G military test passed

ISV Certifications

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



PERFORMANCE

Processor

Processor Family

Up to one Intel® Xeon®, Core™ i9, i7, i5, or i3 processor

Processor

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
Core i3-10100	4	8	3.6GHz	4.3GHz	6MB	DDR4-2666	Intel UHD Graphics 630
Core i3-10300	4	8	3.7GHz	4.4GHz	8MB	DDR4-2666	Intel UHD Graphics 630
Core i3-10320	4	8	3.8GHz	4.6GHz	8MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10400	6	12	2.9GHz	4.3GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10500	6	12	3.1GHz	4.5GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10600	6	12	3.3GHz	4.8GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10600K	6	12	4.1GHz	4.8GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i7-10700	8	16	2.9GHz	4.8GHz	16MB	DDR4-2933	Intel UHD Graphics 630
Core i7-10700K	8	16	3.8GHz	5.1GHz	16MB	DDR4-2933	Intel UHD Graphics 630
Core i9-10900	10	20	2.8GHz	5.2GHz	20MB	DDR4-2933	Intel UHD Graphics 630
Core i9-10900K	10	20	3.7GHz	5.3GHz	20MB	DDR4-2933	Intel UHD Graphics 630
Xeon W-1250	6	12	3.3GHz	4.7GHz	12MB	DDR4-2666	Intel UHD Graphics P630
Xeon W-1250P	6	12	4.1GHz	4.8GHz	12MB	DDR4-2666	Intel UHD Graphics P630
Xeon W-1270	8	16	3.4GHz	5.0GHz	16MB	DDR4-2933	Intel UHD Graphics P630
Xeon W-1270P	8	16	3.8GHz	5.1GHz	16MB	DDR4-2933	Intel UHD Graphics P630
Xeon W-1290	10	20	3.2GHz	5.2GHz	20MB	DDR4-2933	Intel UHD Graphics P630
Xeon W-1290P	10	20	3.7GHz	5.3GHz	20MB	DDR4-2933	Intel UHD Graphics P630

Processor Sockets

1x FCLGA1200

Operating System

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

Graphics

Integrated Graphics

- Intel UHD Graphics 630
- Intel UHD Graphics P630

Discrete Graphics Support

Supports up to one NVIDIA® Quadro® RTX 5000, or two NVIDIA Quadro P2200, 500W PSU is needed

Discrete Graphics Offering

Graphics	Memory	Power	Connector	SLI / NVlink
Quadro P400	2GB GDDR5	30W	3x miniDP	None
Quadro P620	2GB GDDR5	40W	4x miniDP	None
Quadro P1000	4GB GDDR5	50W	4x miniDP	None
Quadro P2200	5GB GDDR5	75W	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 onboard video ports and discrete graphics

Chipset

Intel W480 chipset

Memory

Memory Type

- DDR4-2933 UDIMM ECC
- DDR4-2933 UDIMM non-ECC

Memory Slots

Four DDR4 UDIMM slots, dual-channel capable

Memory Protection

ECC on models with ECC DIMMs and Xeon processor

Max Memory

Up to 128GB DDR4-2933

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 2x 3.5" SATA HDD / 4x 2.5" SATA HDD / SSD + 4x M.2 PCIe SSD

- 3.5" HDD up to 4TB each
- 2.5" SATA HDD up to 1TB each
- 2.5" SATA SSD up to 1TB each
- M.2 PCIe SSD up to 2TB each
- Optional Intel Optane™ Memory

Storage Controllers

Storage Controller	Type	Interface	RAID	Cache
Onboard Intel RST SATA RAID	Standard	SATA 6.0Gb/s	0/1/10/5	None
Onboard Intel RST PCIe RAID	Standard	PCIe NVMe	0/1	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	1TB FIPS
2.5" SATA SSD	SATA 6Gb/s	-	512GB/1TB
M.2 PCIe SSD	PCIe NVMe	-	256GB/512GB/1TB/2TB
Intel Optane Memory	PCIe NVMe	-	-

Removable Storage

Optical Support

Optional one 9.0mm optical drive, DVD-ROM, DVD±RW, and Blu-ray

Card Reader

- SD card reader
- No card reader

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC623 codec

Power Supply

Power	Type	Efficiency	Key Features
300W	Fixed	90%	100V - 240V, 80 PLUS Gold qualified
500W	Fixed	92%	100V - 240V, 80 PLUS Platinum qualified

DESIGN

Mechanical

Form Factor

Tower (17L)

Dimensions (WxDxH)

170 x 315.35 x 376 mm (6.7 x 12.4 x 14.8 inches)

Weight

9.38 kg (20.68 lbs, maximum configuration)

Bays

- 1x 3.5" disk bay (standard)
- 1x 3.5" disk bay (optional, via Flex bay)
- 2x 2.5" disk bay (optional, comes with disk or optional upgrade kit)

M.2 Slots

Up to 4x M.2 SSD:

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

Expansion Slots

- Two PCIe 3.0 x16
- One PCIe 3.0 x1

Expansion Slots Offering

Slot 1: PCIe 3.0 x16, full height, full length, links to CPU

Slot 2: PCIe 3.0 x1, full height, full length, links to PCH

Slot 3: PCIe 3.0 x16 (negotiable link width x4), full height, full length, links to 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™

- No WLAN and Bluetooth
- Intel Wi-Fi 6 AX201, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1, M.2 Card

Ports

Front Ports

- 2x USB 3.2 Gen 1
- 2x USB 3.2 Gen 2
- 1x USB-C 3.2 Gen 1
- 1x headphone / microphone combo jack (3.5mm)
- 1x microphone (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;

Rear Ports

- 2x USB 2.0
- 2x USB 3.2 Gen 1
- 1x serial (9-pin)
- 1x Ethernet (RJ-45)
- 1x line-out (3.5mm)
- 2x DisplayPort™

Notes:

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

Optional Rear Ports

- 2x USB 2.0
- 2x USB-C 3.2 Gen 2 (via 2-port USB-C expansion card)
- 1x video (DisplayPort, HDMI®, or USB-C)
- 1x Thunderbolt
- 2x USB 3.2 Gen 1 (via 2-port USB expansion card, PCIe x1)
- 1x serial
- 4x serial (via 4-port serial expansion card, PCIe x1)
- 1x parallel
- 2x PS/2

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

- (Optional) E-lock
- (Optional) Cable lock
- Kensington® Security Slot
- Padlock Loop

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 14 (vPro-enable processor and WiFi needed)
- Standard Manageability

SERVICE

Warranty

Base Warranty

- 1-year limited onsite service

- 2-year limited onsite service
- 3-year limited onsite service

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
- RoHS compliant

ISV Certifications

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



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) on models with Intel Xeon W-2200 Series processor
- Up to 256GB (with 8 x 32GB DDR4-2666 RDIMMs) on models with Intel Xeon W-2100 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 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
2.5" SAS HDD	SAS 12Gb/s	10K	300GB/600GB
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
M.2 PCIe SSD	PCIe NVMe	-	256GB/512GB/1TB/2TB

PCIe AIC SSD	PCIe NVMe	-	480GB
2.5" SATA SSD	SATA 6Gb/s	-	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
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

- 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
- 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™

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

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 compliant

ISV Certifications



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



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 256GB (with 4 x 64GB DDR4-2933 RDIMMs) on models with Intel Xeon W-2200 Series processor
- Up to 128GB (with 4 x 32GB DDR4-2666 RDIMMs) on models with Intel Xeon W-2100 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
2.5" SAS HDD	SAS 12Gb/s	10K	300GB/600GB
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
M.2 PCIe SSD	PCIe NVMe	-	256GB/512GB/1TB/2TB
2.5" SATA SSD	SATA 6Gb/s	-	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™

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

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/



PERFORMANCE

Processor

Processor Family

Up to one AMD Ryzen™ Threadripper PRO processor

Processor

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
AMD Ryzen Threadripper PRO 3945WX	12	24	4.0GHz	4.3GHz	6MB L2 / 64MB L3	DDR4-Up to 3200	-
AMD Ryzen Threadripper PRO 3955WX	16	32	3.9GHz	4.3GHz	8MB L2 / 64MB L3	DDR4-Up to 3200	-
AMD Ryzen Threadripper PRO 3975WX	32	64	3.5GHz	4.2GHz	16MB L2 / 128MB L3	DDR4-Up to 3200	-
AMD Ryzen Threadripper PRO 3995WX	64	128	2.7GHz	4.2GHz	32MB L2 / 256MB L3	DDR4-Up to 3200	-

Processor Sockets

1x Socket sWRX4

Operating System

- Windows® 10 Pro 64
- 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 P620	2GB GDDR5	40W	4x miniDP	None
Quadro P1000	4GB GDDR5	50W	4x miniDP	None
Quadro P2200	5GB GDDR5	75W	4x DP	None
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	NVLink
Quadro GV100	32GB HBM2	250W	4x DP	NVLink
NVIDIA RTX A6000	48 GB GDDR6	300W	4x DP	None

Monitor Support

Supports multiple displays via discrete graphics

Chipset

AMD WRX80

Memory

Memory Type

DDR4-3200 RDIMM ECC

Memory Slots

8 DIMM sockets with 8 channels

Memory Protection

ECC

Max Memory

Up to 1TB (with 8 x 128GB DDR4-3200 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 5x 3.5" SATA HDD + 9x M.2 SSD

- 3.5" HDD up to 4TB each
- M.2 SSD up to 2TB each

Storage Controllers

Storage Controller	Type	Interface	RAID	Cache
Integrated NVMe controller	Standard	PCIe NVMe	0/1/10/5	None
Integrated SATA controller	Standard	SATA 6.0Gb/s	0/1/10/5	None

Storage Type

Disk Type	Interface	RPM	Offering
M.2 PCIe SSD	PCIe 4.0 NVMe	-	256GB/512GB/1TB
M.2 PCIe SSD	PCIe 3.0 NVMe	-	256GB/512GB/1TB/2TB
3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/2TB/4TB

Removable Storage

Optical Support

Optional one 9.0mm optical drive, DVD-ROM or DVD±RW

Card Reader

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

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC4050H codec

Power Supply

Power	Type	Efficiency	Key Features
1000W	Fixed	92%	Autosensing, 80 PLUS Platinum qualified

DESIGN

Mechanical

Form Factor

Tower (33L)

Dimensions (WxDxH)

165 x 460 x 446 mm (6.5 x 18.1 x 17.6 inches, with feet)

Weight

24 kg (52.91 lbs, maximum configuration)

Bays

- 2x 3.5" disk bay (standard)
- 3x 3.5" disk bay (optional):
2 bays come with 3rd disk or Storage Bay Upgrade Kit
1 bay via Flex bay

Flex Bays

1x Flex bay, supports one of the following:

- Front Access Storage Enclosure
- 5.25" Slim ODD and HDD cage

M.2 Slots

Up to 11x M.2 SSD:

- 2 via onboard slots
- 8 via Quad M.2 to PCIe adapters (only supports PCIe 3.0 SSD)
- 1 via Single M.2 to PCIe adapter (only supports PCIe 3.0 SSD)

Expansion Slots

- Four PCIe 4.0 x16
- Two PCIe 4.0 x8

Expansion Slots Offering

Slot 1: PCIe 4.0 x16, full height, full length, by CPU

Slot 2: PCIe 4.0 x8, full height, full length, by CPU

Slot 3: PCIe 4.0 x16, full height, full length, by CPU

Slot 4: PCIe 4.0 x16, full height, full length, by CPU

Slot 5: PCIe 4.0 x16, full height, full length, by CPU

Slot 6: PCIe 4.0 x8, full height, full length, by IOH

CONNECTIVITY

Network

Onboard Ethernet

10GbE Ethernet, Marvell AQtion AQN-107, 1x 10GbE RJ-45

Optional Ethernet

Additional Ethernet options via PCIe adapter

WLAN + Bluetooth™

- No WLAN and Bluetooth
- Intel® Wireless-AC 9260, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 5.1

Ports

Front Ports

- 1x USB 3.2 Gen 2
- 1x USB 3.2 Gen 2 (Always On and fast charge)
- 2x USB-C 3.2 Gen 2
- 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;

Rear Ports

- 2x USB 2.0
- 4x USB 3.2 Gen 2
- 2x PS/2 ports (keyboard/mouse)
- 1x Ethernet (10GbE 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

1x serial

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

- Power-on password
- Administrator password

MANAGEABILITY

System Management

AMD Pro Manageability

Diagnostic

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

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 30E00006US)
- GREENGUARD®
- RoHS compliant

ISV Certifications

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



PERFORMANCE

Processor

Processor Family

Up to two 165 W 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 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 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 Platinum 8160T	24	48	2.1GHz	3.7GHz	33MB	DDR4-2666	-
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	-

Processor Sockets

2x FCLGA3647

Operating System

- 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
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 P6000	24GB GDDR5X	250W	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	NVLink
Quadro GP100	16GB HBM2	235W	1x DVI-D DL, 4x DP	NVLink
Quadro GV100	32GB HBM2	250W	4x DP	NVLink

Monitor Support

Supports multiple displays via discrete graphics

Chipset

Intel C621 chipset

Memory

Memory Type

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

Memory Slots

12 DIMM sockets with 12 channels. 6 DIMM sockets with 6 channels per processor

Memory Protection

ECC

Max Memory

768GB (DDR4-2933 RDIMM) or 384GB (DDR4-2666 RDIMM)

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 / 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 4TB 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
- 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
2.5" SAS HDD	SAS 12Gb/s	10K	300GB/600GB
2.5" PCIe SSD	PCIe NVMe	-	1.5TB
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
M.2 PCIe SSD	PCIe NVMe	-	256GB/512GB/1TB/2TB
PCIe AIC SSD	PCIe NVMe	-	480GB
2.5" SATA SSD	SATA 6Gb/s	-	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
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 (36L)

Dimensions (WxDxH)

175 x 485 x 446 mm (6.89 x 19.1 x 17.6 inches, with feet)

Weight

25.7 kg (56.7 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

Notes:

- 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.

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

- Three PCIe 3.0 x16 (2nd CPU needed)
- One PCIe 3.0 x4
- One PCIe 3.0 x8
- One PCI

Expansion Slots Offering

Slot 1: PCIe 3.0 x16, full height, full length, 75W, by CPU2
Slot 2: PCIe 3.0 x16, full height, full length, 75W, double-width, by CPU1
Slot 3: PCIe 3.0 x8, full height, full length, 25W, open ended, by CPU1
Slot 4: PCIe 3.0 x16, full height, full length, 75W, double-width, by CPU1
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

Two gigabit Ethernet, Intel Ethernet Connection I219-LM and I210-AT, 2x RJ45, supports Wake-on-LAN

Optional Ethernet

Additional Ethernet options via PCIe adapter

WLAN + Bluetooth™

- No WLAN and Bluetooth
- Intel Dual Band Wireless-AC 7260, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 4.2
- Intel Dual Band Wireless-AC 8265, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 4.2

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)
- 2x 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

Chassis Intrusion Switch

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

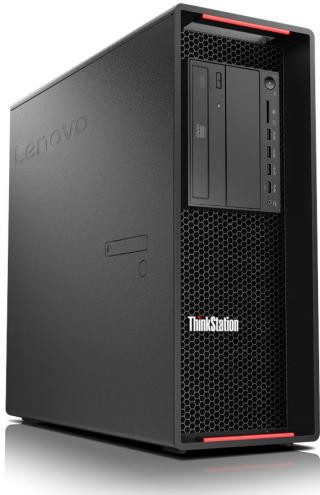
CERTIFICATIONS

Green Certifications

- EPEAT™ Silver
- ENERGY STAR® 8.0 (On model 30BA00EQU)
- GREENGUARD®
- RoHS compliant

ISV Certifications

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



PERFORMANCE

Processor

Processor Family

Up to two 205 W 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 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

- 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
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 P6000	24GB GDDR5X	250W	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	NVLink
Quadro GP100	16GB HBM2	235W	1x DVI-D DL, 4x DP	NVLink
Quadro GV100	32GB HBM2	250W	4x DP	NVLink

Monitor Support

Supports multiple displays via discrete graphics

Chipset

Intel C621 chipset

Memory

Memory Type

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

Memory Slots

16 DIMM sockets with 12 channels. 8 DIMM sockets with 6 channels per processor

Memory Protection

ECC

Max Memory

Up to 1TB (DDR4-2666 LRDIMM or DDR4-2933 RDIMM) or 512GB (DDR4-2666 RDIMM)

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 / 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 4TB 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
- 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" SAS HDD	SAS 12Gb/s	10K	300GB/600GB

2.5" SATA SSD	SATA 6Gb/s	-	256GB/512GB/1TB/2TB
2.5" PCIe SSD	PCIe NVMe	-	1.5TB
M.2 PCIe SSD	PCIe NVMe	-	256GB/512GB/1TB/2TB
PCIe AIC SSD	PCIe NVMe	-	480GB

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	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

- 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

Notes:

- 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

Flex Bays

3x Flex bay, supports 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
- 3x M.2 SSD with 3x 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

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

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

CONNECTIVITY

Network

Onboard Ethernet

Two gigabit Ethernet, Intel Ethernet Connection I219-LM and I210-AT, 2x 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

- 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)
- 2x 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

- (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

- 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

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

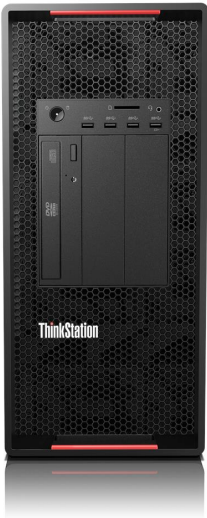
CERTIFICATIONS

Green Certifications

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

ISV Certifications

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



ThinkStation P920 Rack Platform Specifications

Product Specifications Reference (PSREF)

Form factor	2U rack							Diagnostic	Light Path Diagnostics				
Dimensions	Height: 87 mm (3.4 in). Width: 445 mm (17.5 in). Depth: 720 mm (28.3 in)							Base warranty	3-year limited onsite service with 9x5/NBD				
Weight	Maximum configuration: 70.54 lb (32 kg)							Warranty upgrades	5WS7A72784 Foundation Service - 3Yr Next Business Day Response				
Processor Sockets	2x FCLGA3647								5WS7A72785 Foundation Service - 4Yr Next Business Day Response				
Processor Support	Up to two Gen 2 Intel Xeon Scalable family processors, Bronze, Silver, or Gold								5WS7A72786 Foundation Service - 5Yr Next Business Day Response				
Processor Offering	Processor	# of Cores	# of Threads	Base Frequency	Cache	TDP	Memory Types		5PS7A72787 Essential Service - 3Yr 24x7 4Hr Response + YourDrive YourData				
	Xeon Gold 6252	24	48	2.1GHz	35.75MB	150W	DDR4-2933		5PS7A72788 Essential Service - 4Yr 24x7 4Hr Response + YourDrive YourData				
	Xeon Gold 6234	8	16	3.3GHz	25MB	130W	DDR4-2933	5PS7A72789 Essential Service - 5Yr 24x7 4Hr Response + YourDrive YourData					
	Xeon Gold 6230	20	40	2.1GHz	28MB	125W	DDR4-2933						
	Xeon Gold 5218	16	32	2.3GHz	22MB	125W	DDR4-2666						
	Xeon Gold 5215	10	20	2.5GHz	13.75MB	85W	DDR4-2666						
	Xeon Silver 4215	8	16	2.5GHz	11MB	85W	DDR4-2400						
	Xeon Silver 4214	12	24	2.2GHz	17MB	85W	DDR4-2400						
	Xeon Silver 4210	10	20	2.2GHz	14MB	85W	DDR4-2400						
	Xeon Silver 4208	8	16	2.1GHz	11MB	85W	DDR4-2400						
Xeon Bronze 3204	6	6	1.9GHz	8.25MB	85W	DDR4-2133							
Chipset	Intel C624 Platform Controller Hub							Environmental specification	HD Audio				
Memory Sockets	24 DIMM sockets with 12 channels. 12 DIMM sockets with 6 channels per processor								Front ports				
Memory Types	DDR4-2933 RDIMM, 8GB/16GB/32GB available								Rear ports				
Memory Capacity	768GB with 24x 32GB DDR4-2933 RDIMM								Operating system				
Memory protection	ECC, memory mirroring, and memory sparing								Microsoft Windows Server 2016 and 2019. Red Hat Enterprise Linux (RHEL) 7 and 8. SUSE Linux Enterprise Server (SLES) 12 and 15. VMware vSphere (ESXi) 6.5 and 6.7.				
Expansion slots	Slot 1 (riser card 1)	Full height, half length, double-wide									Supports ASHRAE A4 with limitations.		
	Slot 2	Not present, for double-wide card in slot 1									Temperature - operating		
	Slot 3 (riser card 1)	PCIe 3.0 x16 (x8 lanes). Full height, half length									A4: 5°C to 45°C (41°F to 113°F) A3: 5°C to 40°C (41°F to 104°F) A2: 10°C to 35°C (50°F to 95°F)		
	Slot 4 (onboard)	PCIe 3.0 x8, low profile									Temperature - non operating (no package)		
	Slot 5 (riser card 2)	PCIe 3.0 x16, full height, half length, requires 2nd CPU									-10°C to 60°C (14°F to 140°F)		
	Slot 6 (riser card 2)	PCIe 3.0 x16, full height, half length, requires 2nd CPU									Temperature - non operating (with package)		
	Slot 7 (onboard)	PCIe 3.0 x8 (dedicated to an internal storage controller)									-40°C to 70°C (-40°F to 158°F)		
Integrated Graphics	Integrated Matrox G200 in XClarity Controller								Altitude - operating				
Discrete Graphics Offering	Graphics	Memory		Power	Connector	SLI / NVlink	Max Qty		(Unpressurized): 0-10000ft (0-3048m)				
	Quadro P620	2GB GDDR5		40W	4xminiDP		3	Humidity - operating, non-condensing					
	Quadro RTX 4000	8GB GDDR6		160W	3xDP, 1xVirtualLink		3	A4: 8%~90%. A3: 8%~85%.					
	Quadro RTX 5000	16GB GDDR6		265W	4xDP, 1xVirtualLink		2	Humidity - storage (with package), non-condensing					
	T4	16GB GDDR6		70W	-		5	8%~90%					
	V100	16GB/32GB HBM2		250W	-		2						
Storage Controller	Storage Controller	Type	Interface	RAID		Cache		Models should meet the following requirements to support A3 and A4:					
Storage Support	530-8i	Optional	12Gbps SAS	0/1/10/5/50		-		<ul style="list-style-type: none">NVMe drives not installedPCIe flash adapter not installedGraphic processing unit (GPU) not installedMust have redundant PSUProcessors with TDP more than or equal to 150-watt not installed					
	Disk Type	Interface	RPM	Offering		Max Qty		Environmental Certifications					
	3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB/4TB/6TB/8TB/10TB/12TB/14TB		8		Energy Star Server 2.1 certified. More environmental information please see: www.lenovo.com/social_responsibility/us/en/environment/					
	3.5" SATA SSD	SATA 6Gb/s	7.2K	240GB/480GB/960GB/1.92TB/3.84TB		8		ISV certifications					
	M.2 SATA SSD	SATA 6Gb/s		480GB		2		Certifications from NVIDIA Quadro ISV Certified					
Storage Bays	Bay Type	Maximum Drives Qty									Options	4XB7A62801	
Power supply	M.2	2x M.2 SATA SSD non-hot swap										Intel S4510 3.5" 240G SSD OPT	
	Disk bay	8x 3.5" SATA/SAS hot-swap disk bays										4XB7A62802	
												Intel S4510 3.5" 480G SSD OPT	
Media reader	None									4XB7A62803			
Network interfaces	One dedicated management port. One LOM slot for customized LOM with up to four RJ-45 10GbE ports. Wake-on-LAN and NC-SI are available on Port 0 of LOM									Intel S4510 3.5" 960G SSD OPT			
WLAN + Bluetooth	None									4XB7A62804			
Security features	Power-on and admin password. Trusted Platform Module, TCG 1.2 compliant, upgrade to 2.0 via UEFI setting. Optional lockable security bezel									Intel S4510 3.5" 1.92T SSD OPT			
Systems management	XClarity Controller Standard. Energy Manager. XClarity Administrator. Lenovo Capacity Planner. Provisioning Manager. Essentials									4XB7A62805			
												Intel S4510 3.5" 3.84T SSD OPT	
											4XB7A62806		

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Warranty: For a copy of applicable warranties, write to: Lenovo Warranty Information, 1009 Think Place, Morrisville, NC, 27560. Lenovo makes no representation or warranty regarding third party products or services. The Lenovo Limited Warranty applies only to Lenovo hardware products purchased for your own use, and does not transfer upon resale.

Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.

Lenovo Services:

Carry-in or Mail-in Service: Parts and labor repair coverage where the customer is responsible for shipping (including packaging) or delivery to authorized warranty provider or repair center.

Depot or Courier Service: Parts and labor repair coverage where shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Expedited Depot: Parts and labor coverage with expedited turnaround. Shipping (including packaging) or delivery to the repair center is paid for by Lenovo.

Onsite / In-home Service: Parts and labor repair coverage where labor is provided onsite at your place of business.

If Lenovo determines your product problem is covered by the product warranty and cannot be resolved over the telephone, a technician will be dispatched to arrive onsite, typically the next day.

International Warranty Service (IWS): PC repair coverage for customers who require a critical warranty repair while travelling internationally. Visit www.lenovo.com/internationalwarranty for details. Visit www.lenovo.com/warranty for Lenovo Warranty Services terms and conditions for complete details and restrictions.

Included software: may differ from its retail version (if available), and may not include user manuals or all program functionality. Software license agreements may apply.

Battery life: Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning, and other customer preferences.

Visit <http://psref.lenovo.com/> for the latest version of Product Specifications Reference.

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