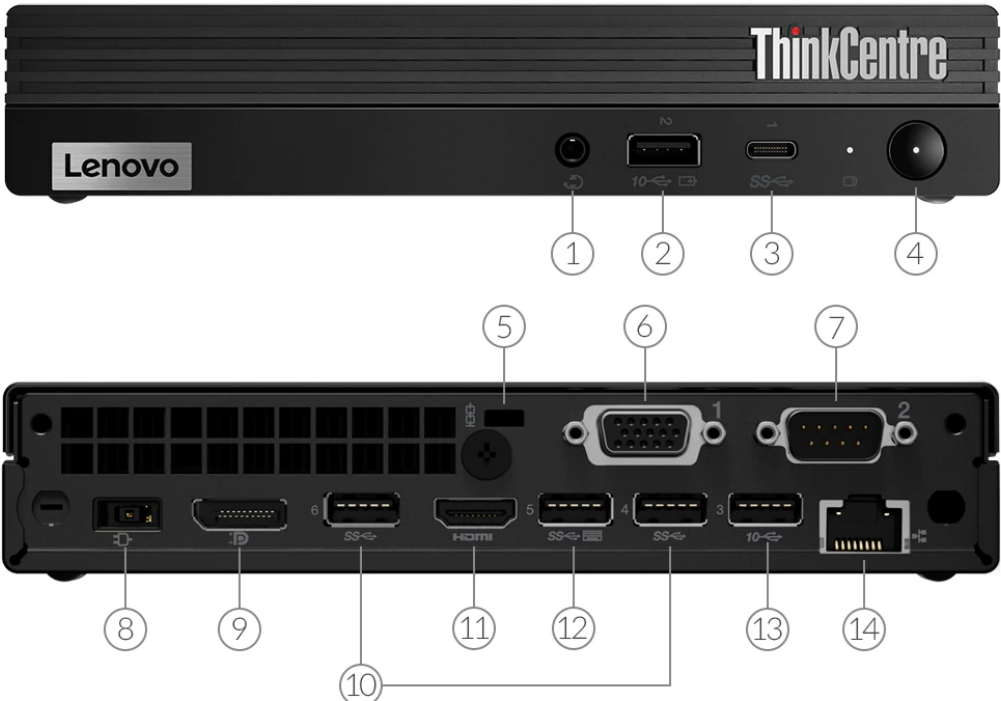


OVERVIEW



1. Headphone / microphone combo jack (3.5mm)	8. Power connector
2. USB 3.2 Gen 2	9. DisplayPort
3. USB-C 3.2 Gen 1	10. USB 3.2 Gen 1
4. Power button	11. HDMI
5. Kensington Security Slot	12. USB 3.2 Gen 1
6. Optional port 1 (VGA is shown)	13. USB 3.2 Gen 2
7. Optional port 2 (serial is shown)	14. Ethernet (RJ-45)

PERFORMANCE

Processor

Processor Family

Intel® Celeron®, Intel Pentium®, or 10th Generation Intel Core™ i3 / i5 / i7 / i9 Processor

Processor**

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
Celeron G5900T	2	2	3.2GHz	-	2MB	DDR4-2666	Intel UHD Graphics 610
Celeron G5905T	2	2	3.3GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Pentium Gold G6400T	2	4	3.4GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Pentium Gold G6500T	2	4	3.5GHz	-	4MB	DDR4-2666	Intel UHD Graphics 630
Core i3-10100T	4	8	3.0GHz	3.8GHz	6MB	DDR4-2666	Intel UHD Graphics 630
Core i3-10300T	4	8	3.0GHz	3.9GHz	8MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10400T	6	12	2.0GHz	3.6GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10500T	6	12	2.3GHz	3.8GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10600T	6	12	2.4GHz	4.0GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i7-10700T	8	16	2.0GHz	4.5GHz	16MB	DDR4-2933	Intel UHD Graphics 630
Core i9-10900T	10	20	1.9GHz	4.6GHz	20MB	DDR4-2933	Intel UHD Graphics 630

Operating System

Operating System**

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

Graphics

Graphics**[1]

Graphics	Type	Memory	Connector	Max Resolution	Key Features
Intel UHD graphics 610	Integrated	Shared	1x HDMI®, 1x DP, 1x optional video port (2nd HDMI / VGA / 2nd DP / USB-C® / dual DP)	4096x2160@24Hz(onboard HDMI), 4096x2304@60Hz(DP), 3840x2160@60Hz(Dual DP, MST mode), 2048x1536@50Hz(VGA), 4096x2304@60Hz(USB-C)	DirectX® 12
Intel UHD graphics 630	Integrated	Shared	1x HDMI, 1x DP, 1x optional video port (2nd HDMI / VGA / 2nd DP / USB-C / dual DP)	4096x2160@24Hz(onboard HDMI), 4096x2304@60Hz(DP), 3840x2160@60Hz(Dual DP, MST mode), 2048x1536@50Hz(VGA), 4096x2304@60Hz(USB-C)	DirectX 12

Notes:

1. The information of integrated graphics are not applicable for the models without integrated graphics (for the details, please refer to processor section)

Monitor Support

Monitor Support

Supports up to 3 independent displays via (onboard DP, onboard HDMI, and one optional port [VGA / 2nd DP / 2nd HDMI / USB-C]) or (one onboard port [DP / HDMI] and optional dual DP [MST mode])

Chipset

Chipset

Intel H470 chipset

Memory

Max Memory^[1]

Up to 64GB DDR4-2933

Memory Slots

Two DDR4 SO-DIMM slots, dual-channel capable

Memory Type^{**[2]}

- DDR4-2666
- DDR4-2933

Notes:

1. The max memory is based on the test results with current Lenovo® memory offerings. The system may support more memory as the technology develops.
2. Installed memory is actually 3200MHz, but may run at 2666MHz or 2933MHz, depending on the memory support capability of processor

Storage

Storage Support^[1]

Up to two drives, 1x 2.5" HDD + 1x M.2 SSD

- 2.5" HDD up to 1TB
- M.2 SSD up to 2TB
- Optional Intel Optane™ Memory, M.2

Storage Type^{***}

Disk Type	Interface	RPM	Security
2.5" SATA HDD	SATA 6Gb/s	7.2K	-
M.2 2242 SSD	PCIe® NVMe®, PCIe 3.0 x2	-	-
M.2 2242 SSD	PCIe NVMe, PCIe 3.0 x4	-	-
M.2 2280 SSD	PCIe NVMe, PCIe 3.0 x4	-	Opal
M.2 2280 SSD	PCIe NVMe, PCIe 3.0 x4	-	-
Intel Optane Memory M10	PCIe NVMe, PCIe 3.0 x2	-	-

RAID

No support

Notes:

1. The storage capacity supported is based on the test results with current Lenovo storage offerings. The system may support larger storage as the technology develops.

Removable Storage

Optical^{**}

- DVD-ROM, slim (9.0mm), via USB external ODD box
- DVD burner (DVD±RW), slim (9.0mm), via USB external ODD box
- None

Card Reader

No card reader

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC233VB codec or ALC897Q codec

Speakers

Single speaker, 1.5W x1

Power Supply

Power Supply**

Power	Type	Efficiency	Key Features
65W	Adapter	89%	Autosensing
90W	Adapter	89%	Autosensing
135W	Adapter	89%	Autosensing
No power supply	-	-	-

DESIGN

Input Device

Keyboard**

- Lenovo Calliope Keyboard (USB connector), black
- Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Lenovo Traditional Keyboard (USB connector), black
- No keyboard

Mouse**

- Lenovo Calliope Mouse (USB connector), black
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
- Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- No mouse

Mechanical

Form Factor

Tiny (1L)

Dimensions (WxDxH)

Models	Dimensions
Tiny only	179 x 183 x 34.5 / 37 mm with rubber feet (7.05 x 7.2 x 1.36 / 1.5 inches with rubber feet)
With VESA mount & ODD box	187 x 183.8 x 66.5 mm (7.36 x 7.24 x 2.62 inches)

Weight

Models	Weight
Tiny only	Around 1.25 kg (2.76 lbs)
With VESA mount & ODD box	Around 1.74 kg (3.84 lbs)

Case Color

Black

Bays

1x 2.5" disk bay

Expansion Slots

Two M.2 slots (one for WLAN, one for SSD)

EOU

(Optional) toolless chassis open (toolless chassis screw required) and toolless M.2 SSD, HDD, memory assembly / removal

Stand

- Vertical stand
- No stand

Mounting

- VESA mount bracket kit, supports VESA mount 75mm and 100mm
- None

Others

- (Optional) Dust filter
- (Optional) Power adapter cage

CONNECTIVITY**Network****Onboard Ethernet**

Gigabit Ethernet, Intel Ethernet Connection I219-V, 1x RJ-45, supports Wake-on-LAN

Optional Ethernet

No optional Ethernet

WLAN + Bluetooth[®]^[1]**

- Realtek RTL8822CE, 802.11ac Dual Band 2x2 Wi-Fi[®] + Bluetooth 5.0, M.2 card
- Intel Wireless-AC 9462, 802.11ac Dual Band 1x1 Wi-Fi + Bluetooth 5.0, M.2 card
- Intel Wireless-AC 9560, 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
- No WLAN and Bluetooth

Notes:

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

Ports^[1]**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)

Optional Front Ports

None

Rear Ports^[2]

- 3x USB 3.2 Gen 1
- 1x USB 3.2 Gen 2
- 1x HDMI
- 1x DisplayPort™
- 1x Ethernet (RJ-45)

Optional Rear Ports^{***}

- 2x USB 3.2 Gen 1 ports (share one USB 3.2 Gen 1 bandwidth, occupy optional port 1 and 2)
- 2x DisplayPort ports (occupy Optional port 1 and 2)
- Optional port 1 (one of VGA / 2nd DisplayPort / 2nd HDMI / serial / USB-C 3.2 Gen 1 with DisplayPort function)
- Optional port 2 (serial)

Notes:

1. The transfer speed of following ports will vary and, depending on many factors, such as the processing speed of the host device, file attributes and other factors related to system configuration and your operating environment, will be slower than theoretical speed.
USB 2.0: 480 Mbit/s;
USB 3.2 Gen 1 (SuperSpeed USB 5Gbps, formerly USB 3.0 / USB 3.1 Gen 1): 5 Gbit/s;
USB 3.2 Gen 2 (SuperSpeed USB 10Gbps, formerly USB 3.1 Gen 2): 10 Gbit/s;
USB 3.2 Gen 2x2 (SuperSpeed USB 20Gbps): 20 Gbit/s;
Thunderbolt™ 3/4: 40 Gbit/s
2. For video ports on discrete graphics, please see graphics section

Monitor Cable**Monitor Cable^{***}**

- DP to dual DP dongle
- DP to DVI-D dongle

- DP to HDMI 1.4 dongle
- DP to VGA cable (1.5M)
- DP to VGA dongle
- HDMI to HDMI cable (1.5m)
- HDMI to VGA dongle
- No monitor cable

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

Kensington® Security Slot, 3 x 7 mm

Chassis Intrusion Switch

Chassis intrusion switch

Fingerprint Reader

- Touch style fingerprint reader on mouse
- No fingerprint reader

BIOS Security

- Administrator password
- Power-on password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Smart USB protection (allows keyboard / mouse only, blocks all storage devices)
- Individual USB port disablement

MANAGEABILITY

System Management

System Management

Non-vPro

SERVICE

Warranty

Base Warranty**^[1]

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

Notes:

1. More information of warranty policy, please access <https://pcsupport.lenovo.com/warranty>

ENVIRONMENTAL

Operating Environment

Temperature

- Operating: 5°C (41°F) to 35°C (95°F)
- Storage: -40°C (-40°F) to 60°C (140°F)

Humidity

- Operating: 20% to 80%
- Storage: 10% to 90%

Altitude

- Operating: 0 m (0 ft) to 3048 m (10,000 ft)
- Storage: 0 m (0 ft) to 12192 m (40,000 ft)

CERTIFICATIONS**Green Certifications****Green Certifications**

- (Optional) EPEAT™ Gold
- (Optional) EPEAT Silver
- ENERGY STAR® 8.0
- ErP Lot 3
- TCO Certified 8.0
- RoHS compliant

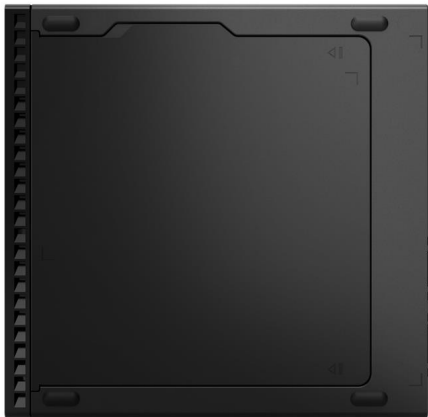
Other Certifications**Other Certifications**

- (Optional) TÜV Rheinland® Low Noise
- (Optional) TÜV Rheinland Ultra Low Noise

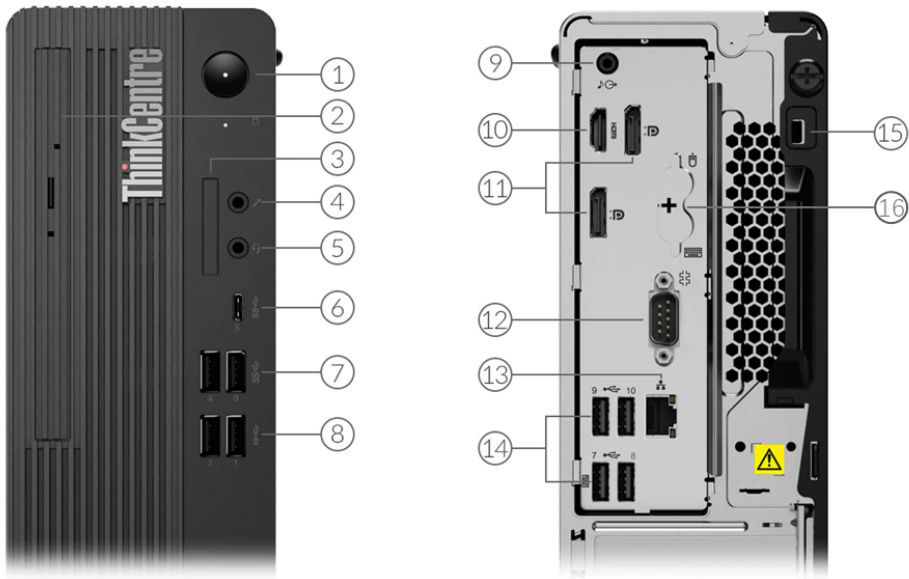
Mil-Spec Test

MIL-STD-810H military test passed (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)

- Feature with ** means that only one offering listed under the feature is configured on selected models.
- Feature with *** means that one or more offerings listed under the feature could be configured on selected models.
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OVERVIEW



1. Power button	9. Line-out (3.5mm)
2. Optical drive *	10. HDMI
3. Card reader *	11. 2x DisplayPort
4. Microphone (3.5mm)	12. Serial
5. Headphone / microphone combo jack (3.5mm)	13. Ethernet (RJ-45)
6. USB-C 3.2 Gen 1	14. 4x USB 2.0
7. 2x USB 3.2 Gen 1	15. Kensington Security Slot
8. 2x USB 3.2 Gen 2	16. 2x PS/2 ports (keyboard / mouse) *

- Notes:
- Ports with * are only available on selected models
 - More ports are available through the optional expansion cards (not shown on the sample product above)

PERFORMANCE

Processor

Processor Family

Intel® Celeron®, Intel Pentium®, or 10th Generation Intel Core™ i3 / i5 / i7 / i9 Processor

Processor**

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
Celeron G5900	2	2	3.4GHz	-	2MB	DDR4-2666	Intel UHD Graphics 610
Celeron G5905	2	2	3.5GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Celeron G5920	2	2	3.5GHz	-	2MB	DDR4-2666	Intel UHD Graphics 610
Celeron G5925	2	2	3.6GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Pentium Gold G6400	2	4	4.0GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Pentium Gold G6500	2	4	4.1GHz	-	4MB	DDR4-2666	Intel UHD Graphics 630
Pentium Gold G6600	2	4	4.2GHz	-	4MB	DDR4-2666	Intel UHD Graphics 630
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 i5-10400F	6	12	2.9GHz	4.3GHz	12MB	DDR4-2666	-
Core i5-10500	6	12	3.1GHz	4.5GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10505	6	12	3.2GHz	4.6GHz	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 i7-10700F	8	16	2.9GHz	4.8GHz	16MB	DDR4-2933	-
Core i9-10900	10	20	2.8GHz	5.2GHz	20MB	DDR4-2933	Intel UHD Graphics 630
Core i9-10900F	10	20	2.8GHz	5.2GHz	20MB	DDR4-2933	-

Operating System

Operating System**

- Windows® 11 Pro 64
- Windows 11 Home 64
- Windows 11 DG Windows 10 Pro 64
- Windows 10 Pro 64
- Windows 10 Home 64
- Windows 10 IoT Enterprise
- Ubuntu Linux
- No operating system

Graphics

Graphics**[1]

Graphics	Type	Memory	Connector	Max Resolution	Key Features
Intel UHD graphics 610	Integrated	Shared	1x HDMI®, 2x DP	1920x1080@60Hz(HDMI), 4096x2304@60Hz(DP)	DirectX® 12
Intel UHD graphics 630	Integrated	Shared	1x HDMI, 2x DP	1920x1080@60Hz(HDMI), 4096x2304@60Hz(DP)	DirectX 12
AMD Radeon™ 520	Discrete	2GB GDDR5	2x DP 1.2	4096x2160@60Hz(DP)	DirectX 12
AMD Radeon RX	Discrete	4GB	1x HDMI 2.0, 1x DP	4096x2160@60Hz(HDMI),	DirectX 12

550X		GDDR5	1.4	3840x2160@60Hz(DP)	
NVIDIA® GeForce GT 730	Discrete	2GB GDDR5	1x VGA, 1x HDMI 1.4	2048x1536@75Hz(VGA), 3840x2160@30Hz(HDMI)	DirectX 12

Notes:

1. The information of integrated graphics are not applicable for the models without integrated graphics (for the details, please refer to processor section)

Monitor Support

Monitor Support^[1]

Supports up to 3 independent displays via onboard ports (HDMI and 2x DisplayPort™), more displays support via discrete graphics

Notes:

1. Onboard video ports are only available for the models with integrated graphics

Chipset

Chipset

Intel H470 chipset

Memory

Max Memory^[1]

Up to 128GB DDR4-2933

Memory Slots

Four DDR4 DIMM slots, dual-channel capable

Memory Type^{**}

- DDR4-2666
- DDR4-2933

Notes:

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

Storage

Storage Support^[1]

Up to three drives, 1x 2.5"/3.5" HDD + 1x 2.5" HDD + 1x M.2 SSD

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

Storage Type^{***}

Disk Type	Interface	RPM	Security
2.5" SATA HDD	SATA 6Gb/s	7.2K	-
3.5" SATA HDD	SATA 6Gb/s	7.2K	-
M.2 2242 SSD	PCIe® NVMe®, PCIe 3.0 x2	-	-
M.2 2280 SSD	PCIe NVMe, PCIe 3.0 x4	-	Opal
M.2 2280 SSD	PCIe NVMe, PCIe 3.0 x4	-	-
Intel Optane Memory M10	PCIe NVMe, PCIe 3.0 x2	-	-

RAID

No support

Notes:

1. The storage capacity supported is based on the test results with current Lenovo storage offerings. The system may support larger storage as the technology develops.

Removable Storage

Optical**

- DVD-ROM, SATA 1.5Gb/s, slim (9.0mm)
- DVD burner (DVD±RW), SATA 1.5Gb/s, slim (9.0mm)
- None

Card Reader

- 3-in-1 card reader (SD, SDHC, SDXC)
- No card reader

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC623-CG codec

Speakers

Single speaker, 1W x1

Power Supply

Power Supply**

Power	Type	Efficiency	Key Features
180W	Fixed	85%	-
260W	Fixed	85%	100-240V, 50-60Hz
310W	Fixed	92%	100-240V, 50-60Hz
380W	Fixed	92%	-

DESIGN

Input Device

Keyboard**

- Lenovo Calliope Keyboard (USB connector), black
- Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Lenovo Traditional Keyboard (USB connector), black
- No keyboard

Mouse**

- Lenovo Calliope Mouse (USB connector), black
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
- Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- No mouse

Mechanical

Form Factor

SFF (8.2L)

Dimensions (WxDxH)

93 x 298 x 340 mm (3.6 x 11.7 x 13.4 inches)

Packaging Dimensions (WxDxH)

195 x 395 x 530 mm (7.68 x 15.55 x 20.87 inches)

Weight

Around 5.3 kg (11.7 lbs)

Packaging Weight

7.5 kg (16.75 lbs)

Case Color

Black

Bays

ThinkCentre M70s

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

Expansion Slots

- One PCIe 3.0 x1, low-profile (length < 155mm, height < 68mm)
- One PCIe 3.0 x16, low-profile (length < 155mm, height < 68mm)
- Two dummy slots, only brackets for optional port extension
- Two M.2 slots (one for WLAN, one for SSD)

Stand

- Vertical stand
- No stand

Others

- (Optional) Dust filter
- Supports Smart Power On

CONNECTIVITY

Network

Onboard Ethernet

Gigabit Ethernet, Intel Ethernet Connection I219-V, 1x RJ-45, supports Wake-on-LAN

Optional Ethernet**

- Gigabit Ethernet, Bitland BN8E88, 1x RJ-45, PCIe x1
- Gigabit Ethernet, Intel Ethernet Server Adapter I350-T4, 4x RJ-45, PCIe x4
- No optional Ethernet

WLAN + Bluetooth®**^[1]

- Realtek RTL8822CE, 802.11ac Dual Band 2x2 Wi-Fi® + Bluetooth 5.0, M.2 card
- Intel Wireless-AC 9462, 802.11ac Dual Band 1x1 Wi-Fi + Bluetooth 5.0, M.2 card
- Intel Wireless-AC 9560, 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
- No WLAN and Bluetooth

Notes:

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

Ports^[1]

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)

Optional Front Ports

- 1x card reader
- None

Rear Ports^[2]

- 4x USB 2.0
- 1x HDMI
- 2x DisplayPort
- 1x serial (9-pin)
- 1x Ethernet (RJ-45)
- 1x line-out (3.5mm)

Optional Rear Ports***

- 2x USB 3.2 Gen 1 (via 2-port USB expansion card, PCIe x1)
- 2x USB-C 3.2 Gen 2 (via 2-port USB-C expansion card, PCIe x4)
- 1x serial
- 4x serial (via 4-port serial expansion card, PCIe x1)
- 1x parallel

- 2x PS/2

Notes:

1. The transfer speed of following ports will vary and, depending on many factors, such as the processing speed of the host device, file attributes and other factors related to system configuration and your operating environment, will be slower than theoretical speed.
USB 2.0: 480 Mbit/s;
USB 3.2 Gen 1 (SuperSpeed USB 5Gbps, formerly USB 3.0 / USB 3.1 Gen 1): 5 Gbit/s;
USB 3.2 Gen 2 (SuperSpeed USB 10Gbps, formerly USB 3.1 Gen 2): 10 Gbit/s;
USB 3.2 Gen 2x2 (SuperSpeed USB 20Gbps): 20 Gbit/s;
Thunderbolt™ 3/4: 40 Gbit/s
2. For video ports on discrete graphics, please see graphics section

Monitor Cable

Monitor Cable***

- DP to dual DP dongle
- DP to DVI-D dongle
- DP to HDMI 1.4 dongle
- DP to VGA cable (1.5M)
- DP to VGA dongle
- HDMI to HDMI cable
- HDMI to VGA dongle
- No monitor cable

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

- (Optional) E-lock
- (Optional) Smart Cable Clip
- Kensington® Security Slot, 3 x 7 mm
- Padlock Loop

Chassis Intrusion Switch

- Chassis intrusion switch
- No chassis intrusion switch

Fingerprint Reader

- Touch style fingerprint reader on mouse
- No fingerprint reader

BIOS Security

- Administrator password
- Power-on password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Smart USB protection (allows keyboard / mouse only, blocks all storage devices)
- Individual USB port disablement

MANAGEABILITY

System Management

System Management

Non-vPro

SERVICE

Warranty

Base Warranty^[1]**

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

Notes:

1. More information of warranty policy, please access <https://pcsupport.lenovo.com/warranty>

ENVIRONMENTAL**Operating Environment****Temperature**

- Operating: 5°C (41°F) to 35°C (95°F)
- Storage: -40°C (-40°F) to 60°C (140°F)

Humidity

- Operating: 20% to 80%
- Storage: 10% to 90%

Altitude

- Operating: 0 m (0 ft) to 3048 m (10,000 ft)
- Storage: 0 m (0 ft) to 12192 m (40,000 ft)

CERTIFICATIONS**Green Certifications****Green Certifications^[1]**

- (Optional) EPEAT™ Gold
- (Optional) EPEAT Silver
- (Optional) ENERGY STAR® 8.0
- ErP Lot 3
- TCO Certified 8.0
- RoHS compliant

Notes:

1. ENERGY STAR 8.0 and EPEAT are only available for MT 11DB/11DC

Other Certifications**Other Certifications**

- (Optional) TÜV Rheinland® Low Noise
- (Optional) TÜV Rheinland Ultra Low Noise

Mil-Spec Test

MIL-STD-810H military test passed (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)

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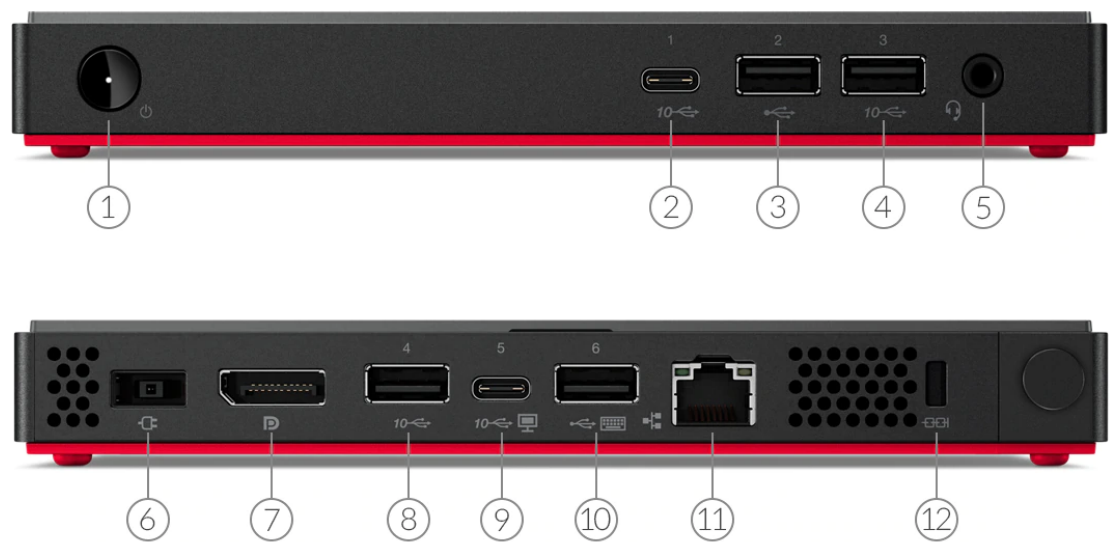
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OVERVIEW



1. Power button	7. DisplayPort
2. USB-C 3.2 Gen 2	8. USB 3.2 Gen 2
3. USB 2.0	9. USB-C 3.2 Gen 2 (display and power-in)
4. USB 3.2 Gen 2	10. USB 2.0
5. Headphone / microphone combo jack (3.5mm)	11. Ethernet (RJ-45)
6. Power connector	

PERFORMANCE

Processor

Processor Family

AMD Ryzen™ 3 / 5 Processor

Processor**

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
AMD Ryzen 3 PRO 3300U	4	4	2.1GHz	3.5GHz	2MB L2 / 4MB L3	DDR4-2400	AMD Radeon™ Vega 6 Graphics
AMD Ryzen 5 PRO 3500U	4	8	2.1GHz	3.7GHz	2MB L2 / 4MB L3	DDR4-2400	AMD Radeon Vega 8 Graphics

Operating System

Operating System**

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

Graphics

Graphics**[1]

Graphics	Type	Memory	Connector	Max Resolution	Key Features
AMD Radeon Vega 6 Graphics	Integrated	Shared	1x DisplayPort™, 1x USB-C®	3840x2160@60Hz(DP), 3840x2160@60Hz(USB-C)	DirectX® 12
AMD Radeon Vega 8 Graphics	Integrated	Shared	1x DisplayPort, 1x USB-C	3840x2160@60Hz(DP), 3840x2160@60Hz(USB-C)	DirectX 12

Notes:

1. The information of integrated graphics are not applicable for the models without integrated graphics (for the details, please refer to processor section)

Monitor Support

Monitor Support

Supports up to 2 independent displays via onboard ports (DisplayPort and USB-C)

Chipset

Chipset

AMD SoC (System on Chip) platform

Memory

Max Memory[1]

8GB soldered memory, not upgradable

Memory Slots

Memory soldered to systemboard, no slots, dual-channel

Memory Type

DDR4-2400

Notes:

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

Storage

Storage Support[1]

Up to two drives, 2x M.2 SSD

- M.2 SSD up to 1TB each

Storage Type***

Disk Type	Interface	RPM	Security
M.2 2242 SSD	PCIe® NVMe®, PCIe 3.0 x2	-	-
M.2 2242 SSD	PCIe NVMe, PCIe 3.0 x4	-	-
M.2 2280 SSD	PCIe NVMe, PCIe 3.0 x4	-	Opal

RAID

No support

Notes:

1. The storage capacity supported is based on the test results with current Lenovo storage offerings. The system may support larger storage as the technology develops.

Removable Storage

Optical

None

Card Reader

No card reader

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC233 codec

Speakers

Single speaker, 1W x1

Power Supply

Power Supply

Power	Type	Efficiency	Key Features
65W	Adapter	89%	Autosensing
No power supply	-	-	-

DESIGN

Input Device

Keyboard**

- Lenovo Calliope Keyboard (USB connector), black
- Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Lenovo Traditional Keyboard (USB connector), black
- No keyboard

Mouse**

- Lenovo Calliope Mouse (USB connector), black
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
- Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- No mouse

Mechanical

Form Factor

Nano (0.35L)

Dimensions (WxDxH)

179 x 88 x 22 mm (7.05 x 3.46 x 0.87 inches)

Packaging Dimensions (WxDxH)

490 x 125 x 255 mm (19.29 x 4.92 x 10.04 inches)

Weight

Around 0.505 kg (1.11 lbs)

Packaging Weight

0.83 kg (1.83 lbs)

Case Color

Iron grey (top cover), black (mid bezel), red (bottom cover)

Bays

No bays

Expansion Slots

- One M.2 slot (for WLAN)
- Two M.2 slots (for SSD, one supports up to PCIe 3.0 x4, one supports up to PCIe 3.0 x2)

Stand

No stand

IO Box

No IO box

Mounting**

- VESA mount bracket kit with adapter holder, supports VESA mount 75mm and 100mm
- VESA mount bracket kit, supports VESA mount 75mm and 100mm
- DIN rail mount bracket kit
- None

CONNECTIVITY

Network

Onboard Ethernet

Gigabit Ethernet, Realtek RTL8111FP-CG, 1x RJ-45, supports Wake-on-LAN

Optional Ethernet

No optional Ethernet

WLAN + Bluetooth®^[1]**

- Realtek RTL8822CE, 802.11ac Dual Band 2x2 Wi-Fi® + Bluetooth 5.0, M.2 card
- Realtek Wi-Fi 6 RTL8852AE, 802.11ax Dual Band 2x2 Wi-Fi + Bluetooth 5.2, M.2 card
- Qualcomm® QCA6174A, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 4.2, M.2 card
- Intel® Wireless-AC 9260, 802.11ac Dual Band 2x2 Wi-Fi + Bluetooth 5.0, M.2 card
- No WLAN and Bluetooth

Notes:

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

Ports^[1]

Front Ports

- 1x USB 2.0
- 1x USB 3.2 Gen 2
- 1x USB-C 3.2 Gen 2
- 1x headphone / microphone combo jack (3.5mm)

Rear Ports^[2]

- 1x USB 2.0
- 1x USB 3.2 Gen 2
- 1x USB-C 3.2 Gen 2 (support display function and power-in [20V and >45W])
- 1x DisplayPort
- 1x Ethernet (RJ-45)

Notes:

1. The transfer speed of following ports will vary and, depending on many factors, such as the processing speed of the host device, file attributes and other factors related to system configuration and your operating environment, will be slower than theoretical speed.

USB 2.0: 480 Mbit/s;
USB 3.2 Gen 1 (SuperSpeed USB 5Gbps, formerly USB 3.0 / USB 3.1 Gen 1): 5 Gbit/s;
USB 3.2 Gen 2 (SuperSpeed USB 10Gbps, formerly USB 3.1 Gen 2): 10 Gbit/s;
USB 3.2 Gen 2x2 (SuperSpeed USB 20Gbps): 20 Gbit/s;
Thunderbolt™ 3/4: 40 Gbit/s

2. For video ports on discrete graphics, please see graphics section

Monitor Cable

Monitor Cable***

- USB-C to DP dongle
- USB-C to HDMI® dongle
- USB-C to VGA dongle
- DP to HDMI 1.4 dongle
- DP to VGA dongle
- No monitor cable

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

Kensington® Security Slot, 3 x 7 mm

Chassis Intrusion Switch

Chassis intrusion switch

Fingerprint Reader

- Touch style fingerprint reader on mouse
- No fingerprint reader

BIOS Security

- Administrator password
- Power-on password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Smart USB protection (allows keyboard / mouse only, blocks all storage devices)
- Individual USB port disablement

MANAGEABILITY

System Management

System Management

DASH 1.1 / 1.2

SERVICE

Warranty

Base Warranty**[]

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

Notes:

1. More information of warranty policy, please access <https://pcsupport.lenovo.com/warranty>

ENVIRONMENTAL

Operating Environment

Temperature

- Operating: 5°C (41°F) to 35°C (95°F)
- Storage: -40°C (-40°F) to 60°C (140°F)

Humidity

- Operating: 20% to 80%
- Storage: 10% to 90%

Altitude

- Operating: 0 m (0 ft) to 3048 m (10,000 ft)
- Storage: 0 m (0 ft) to 12192 m (40,000 ft)

CERTIFICATIONS

Green Certifications

Green Certifications

- EPEAT™ Silver
- ENERGY STAR® 8.0
- ErP Lot 3
- TCO Certified 8.0
- RoHS compliant
- REACH
- WEEE

Other Certifications

Other Certifications

TÜV Rheinland® Ultra Low Noise

Mil-Spec Test

MIL-STD-810H military test passed (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)

- Feature with ** means that only one offering listed under the feature is configured on selected models.
- Feature with *** means that one or more offerings listed under the feature could be configured on selected models.
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AMD



AMD



AMD



AMD

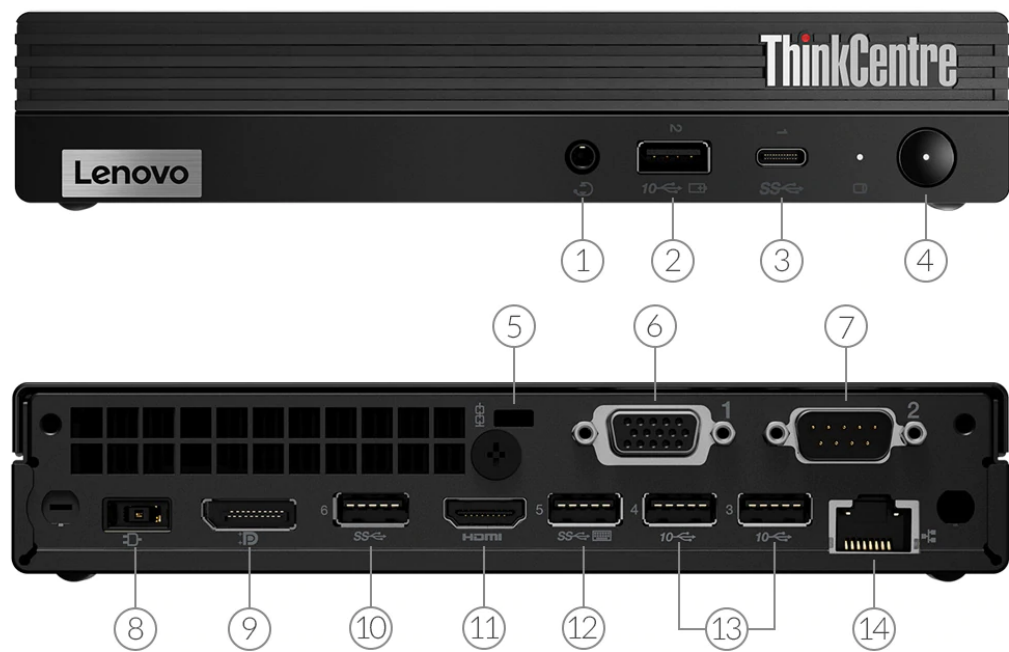


AMD



AMD

OVERVIEW



1. Headphone / microphone combo jack (3.5mm)	8. Power connector
2. USB 3.2 Gen 2	9. DisplayPort
3. USB-C 3.2 Gen 1	10. USB 3.2 Gen 2
4. Power button	11. HDMI
5. Kensington Security Slot	12. USB 3.2 Gen 2
6. Optional port 1 (VGA is shown) *	13. 2x USB 3.2 Gen 1
7. Optional port 2 (serial is shown) *	14. Ethernet (RJ-45)

Notes:

- Ports with * are only available on selected models

PERFORMANCE

Processor

Processor Family

Intel® Celeron®, Intel Pentium®, or 10th Generation Intel Core™ i3 / i5 / i7 / i9 Processor

Processor**

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
Celeron G5900T	2	2	3.2GHz	-	2MB	DDR4-2666	Intel UHD Graphics 610
Celeron G5905T	2	2	3.3GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Pentium Gold G6400T	2	4	3.4GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Pentium Gold G6500T	2	4	3.5GHz	-	4MB	DDR4-2666	Intel UHD Graphics 630
Core i3-10100T	4	8	3.0GHz	3.8GHz	6MB	DDR4-2666	Intel UHD Graphics 630
Core i3-10300T	4	8	3.0GHz	3.9GHz	8MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10400T	6	12	2.0GHz	3.6GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10500T	6	12	2.3GHz	3.8GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i5-10600T	6	12	2.4GHz	4.0GHz	12MB	DDR4-2666	Intel UHD Graphics 630
Core i7-10700T	8	16	2.0GHz	4.5GHz	16MB	DDR4-2933	Intel UHD Graphics 630
Core i9-10900T	10	20	1.9GHz	4.6GHz	20MB	DDR4-2933	Intel UHD Graphics 630

Operating System

Operating System**

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

Graphics

Graphics**[1]

Graphics	Type	Memory	Connector	Max Resolution	Key Features
Intel UHD graphics 610	Integrated	Shared	1x HDMI®, 1x DP, 1x optional video port (2nd HDMI / VGA / 2nd DP / USB-C® / dual DP)	4096x2160@24Hz(onboard HDMI), 4096x2304@60Hz(DP), 3840x2160@60Hz(Dual DP, MST mode), 2048x1536@50Hz(VGA), 4096x2304@60Hz(USB-C)	DirectX® 12
Intel UHD graphics 630	Integrated	Shared	1x HDMI, 1x DP, 1x optional video port (2nd HDMI / VGA / 2nd DP / USB-C / dual DP)	4096x2160@24Hz(onboard HDMI), 4096x2304@60Hz(DP), 3840x2160@60Hz(Dual DP, MST mode), 2048x1536@50Hz(VGA), 4096x2304@60Hz(USB-C)	DirectX 12

Notes:

- The information of integrated graphics are not applicable for the models without integrated graphics (for the details, please refer to processor section)

Monitor Support

Monitor Support

Supports up to 3 independent displays via (onboard DP, onboard HDMI, and one optional port [VGA / 2nd DP / 2nd HDMI / USB-C]) or (one onboard port [DP / HDMI] and optional dual DP [MST mode])

Chipset

Chipset

Intel Q470 chipset

Memory

Max Memory^[1]

Up to 64GB DDR4-2933

Memory Slots

Two DDR4 SO-DIMM slots, dual-channel capable

Memory Type^{**}

- DDR4-2666
- DDR4-2933

Notes:

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

Storage

Storage Support^[1]

Up to two drives, 1x 2.5" HDD + 1x M.2 SSD

- 2.5" HDD up to 1TB
- M.2 SSD up to 2TB
- Optional Intel Optane™ Memory, M.2

Storage Type^{***}

Disk Type	Interface	RPM	Security
2.5" SATA HDD	SATA 6Gb/s	7.2K	-
M.2 2242 SSD	PCIe® NVMe®, PCIe 3.0 x2	-	-
M.2 2242 SSD	PCIe NVMe, PCIe 3.0 x4	-	-
M.2 2280 SSD	PCIe NVMe, PCIe 3.0 x4	-	Opal
M.2 2280 SSD	PCIe NVMe, PCIe 3.0 x4	-	-
Intel Optane Memory M10	PCIe NVMe, PCIe 3.0 x2	-	-

RAID

No support

Notes:

1. The storage capacity supported is based on the test results with current Lenovo storage offerings. The system may support larger storage as the technology develops.

Removable Storage

Optical^{**}

- DVD-ROM, slim (9.0mm), via USB external ODD box
- DVD burner (DVD±RW), slim (9.0mm), via USB external ODD box
- None

Card Reader

No card reader

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC233VB codec or ALC897Q codec

Speakers

Single speaker, 1.5W x1

Power Supply

Power Supply**

Power	Type	Efficiency	Key Features
65W	Adapter	89%	Autosensing
90W	Adapter	89%	Autosensing
135W	Adapter	89%	Autosensing
No power supply	-	-	-

DESIGN

Input Device

Keyboard**

- Lenovo Calliope Keyboard (USB connector), black
- Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Lenovo Traditional Keyboard (USB connector), black
- No keyboard

Mouse**

- Lenovo Calliope Mouse (USB connector), black
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
- Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- No mouse

Mechanical

Form Factor

Tiny (1L)

Dimensions (WxDxH)

Models	Dimensions
Tiny only	179 x 183 x 34.5 / 37 mm with rubber feet (7.05 x 7.2 x 1.36 / 1.5 inches with rubber feet)
With VESA mount & ODD box	187 x 183.8 x 66.5 mm (7.36 x 7.24 x 2.62 inches)

Packaging Dimensions (WxDxH)

- Tiny only: 141 x 268 x 490 mm (5.55 x 10.55 x 19.29 inches)
- With VESA mount & ODD box: 166 x 268 x 490 mm (6.54x 10.55 x 19.29 inches)

Weight

Models	Weight
Tiny only	1.25 kg (2.76 lbs)
With VESA mount & ODD box	1.74 kg (3.84 lbs)

Packaging Weight

- Tiny only: 2.848 kg (6.28 lbs)
- With VESA mount & ODD box: 3.575 kg (7.88 lbs)

Case Color

Black

Bays

1x 2.5" disk bay

Expansion Slots

Two M.2 slots (one for WLAN, one for SSD)

EOU

(Optional) toolless chassis open (toolless chassis screw required) and toolless M.2 SSD, HDD, memory assembly / removal

Stand

- Vertical stand
- No stand

Mounting

- VESA mount bracket kit, supports VESA mount 75mm and 100mm
- None

Others

- (Optional) Dust filter
- (Optional) Power adapter cage

CONNECTIVITY

Network

Onboard Ethernet

Gigabit Ethernet, Intel Ethernet Connection I219-LM, 1x RJ-45, supports Wake-on-LAN

Optional Ethernet

No optional Ethernet

WLAN + Bluetooth®^[1]**

- Realtek RTL8822CE, 802.11ac Dual Band 2x2 Wi-Fi® + Bluetooth 5.0, M.2 card
- Intel Wireless-AC 9560, 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, Intel vPro technology support, M.2 Card
- No WLAN and Bluetooth

Notes:

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

Ports^[1]

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)

Optional Front Ports

None

Rear Ports^[2]

- 2x USB 3.2 Gen 1
- 2x USB 3.2 Gen 2
- 1x HDMI
- 1x DisplayPort™
- 1x Ethernet (RJ-45)

Optional Rear Ports^{***}

- 2x USB 3.2 Gen 1 ports (share one USB 3.2 Gen 1 bandwidth, occupy optional port 1 and 2)
- 2x DisplayPort ports (occupy Optional port 1 and 2)
- Optional port 1 (one of VGA / 2nd DisplayPort / 2nd HDMI / serial / USB-C 3.2 Gen 1 with DisplayPort function)
- Optional port 2 (serial)

Notes:

1. The transfer speed of following ports will vary and, depending on many factors, such as the processing speed of the host device, file attributes and other factors related to system configuration and your operating environment, will be slower than theoretical speed.
USB 2.0: 480 Mbit/s;
USB 3.2 Gen 1 (SuperSpeed USB 5Gbps, formerly USB 3.0 / USB 3.1 Gen 1): 5 Gbit/s;
USB 3.2 Gen 2 (SuperSpeed USB 10Gbps, formerly USB 3.1 Gen 2): 10 Gbit/s;
USB 3.2 Gen 2x2 (SuperSpeed USB 20Gbps): 20 Gbit/s;
Thunderbolt™ 3/4: 40 Gbit/s
2. For video ports on discrete graphics, please see graphics section

Monitor Cable

Monitor Cable***

- DP to dual DP dongle
- DP to DVI-D dongle
- DP to HDMI 1.4 dongle
- DP to VGA cable (1.5M)
- DP to VGA dongle
- HDMI to HDMI cable (1.5m)
- HDMI to VGA dongle
- No monitor cable

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

Kensington® Security Slot, 3 x 7 mm

Chassis Intrusion Switch

Chassis intrusion switch

Fingerprint Reader

- Touch style fingerprint reader on mouse
- No fingerprint reader

BIOS Security

- Administrator password
- Power-on password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Smart USB protection (allows keyboard / mouse only, blocks all storage devices)
- Individual USB port disablement

MANAGEABILITY

System Management

System Management^{[1][2]}

- Intel vPro with Intel AMT 14.0
- Non-vPro

Notes:

1. Intel vPro offers a superset of DASH's defined capabilities.
2. Require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection

SERVICE

Warranty

Base Warranty^[1]**

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

Notes:

1. More information of warranty policy, please access <https://pcsupport.lenovo.com/warranty>

ENVIRONMENTAL

Operating Environment

Temperature

- Operating: 5°C (41°F) to 35°C (95°F)
- Storage: -40°C (-40°F) to 60°C (140°F)

Humidity

- Operating: 20% to 80%
- Storage: 10% to 90%

Altitude

- Operating: 0 m (0 ft) to 3048 m (10,000 ft)
- Storage: 0 m (0 ft) to 12192 m (40,000 ft)

CERTIFICATIONS

Green Certifications

Green Certifications

- (Optional) EPEAT™ Gold
- (Optional) EPEAT Silver
- ENERGY STAR® 8.0
- ErP Lot 3
- TCO Certified 8.0
- RoHS compliant

Other Certifications

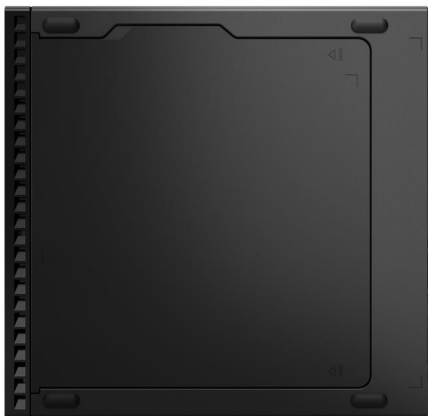
Other Certifications

- (Optional) TÜV Rheinland® Low Noise
- (Optional) TÜV Rheinland Ultra Low Noise

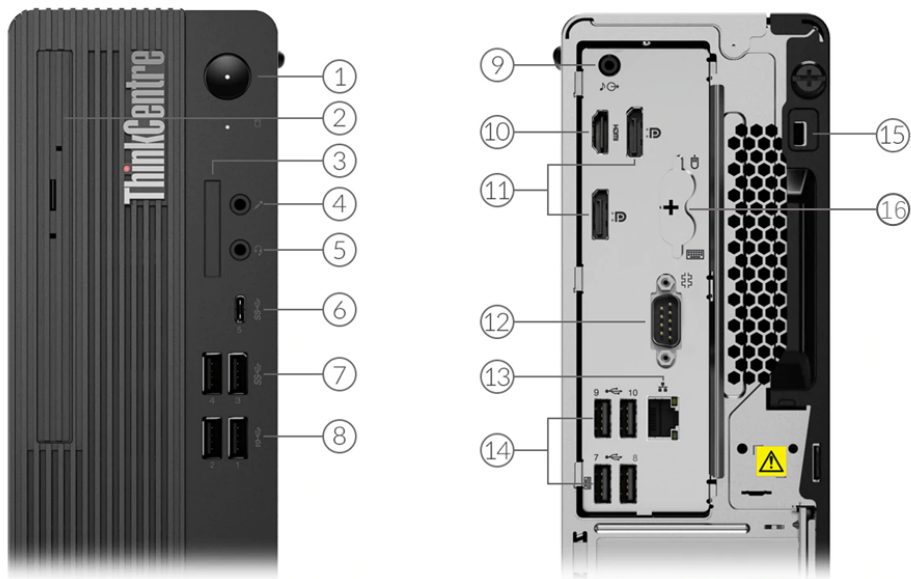
Mil-Spec Test

MIL-STD-810H military test passed (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)

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OVERVIEW



1. Power button	9. Line-out (3.5mm)
2. Optical drive *	10. HDMI
3. Card reader *	11. 2x DisplayPort
4. Microphone (3.5mm)	12. Serial
5. Headphone / microphone combo jack (3.5mm)	13. Ethernet (RJ-45)
6. USB-C 3.2 Gen 1	14. 4x USB 3.2 Gen 1
7. 2x USB 3.2 Gen 1	15. Kensington Security Slot
8. 2x USB 3.2 Gen 2	16. 2x PS/2 ports (keyboard / mouse) *

Notes:

- Ports with * are only available on selected models

PERFORMANCE

Processor

Processor Family

Intel® Celeron®, Intel Pentium®, or 10th Generation Intel Core™ i3 / i5 / i7 / i9 Processor

Processor**

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
Celeron G5900	2	2	3.4GHz	-	2MB	DDR4-2666	Intel UHD Graphics 610
Celeron G5905	2	2	3.5GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Celeron G5920	2	2	3.5GHz	-	2MB	DDR4-2666	Intel UHD Graphics 610
Celeron G5925	2	2	3.6GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Pentium Gold G6400	2	4	4.0GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Pentium Gold G6500	2	4	4.1GHz	-	4MB	DDR4-2666	Intel UHD Graphics 630
Pentium Gold G6600	2	4	4.2GHz	-	4MB	DDR4-2666	Intel UHD Graphics 630
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 i5-10400F	6	12	2.9GHz	4.3GHz	12MB	DDR4-2666	-
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 i7-10700F	8	16	2.9GHz	4.8GHz	16MB	DDR4-2933	-
Core i9-10900	10	20	2.8GHz	5.2GHz	20MB	DDR4-2933	Intel UHD Graphics 630
Core i9-10900F	10	20	2.8GHz	5.2GHz	20MB	DDR4-2933	-

Operating System

Operating System**

- Windows® 11 Pro 64
- Windows 11 Home 64
- Windows 11 DG Windows 10 Pro 64
- Windows 10 Pro 64
- Windows 10 Home 64
- Windows 10 IoT Enterprise
- Ubuntu Linux
- No operating system

Graphics

Graphics**[1]

Graphics	Type	Memory	Connector	Max Resolution	Key Features
Intel UHD graphics 610	Integrated	Shared	1x HDMI®, 2x DP	1920x1080@60Hz(HDMI), 4096x2304@60Hz(DP)	DirectX® 12
Intel UHD graphics 630	Integrated	Shared	1x HDMI, 2x DP	1920x1080@60Hz(HDMI), 4096x2304@60Hz(DP)	DirectX 12
AMD Radeon™ 520	Discrete	2GB GDDR5	2x DP 1.2	4096x2160@60Hz(DP)	DirectX 12
AMD Radeon RX 550X	Discrete	4GB GDDR5	1x HDMI 2.0, 1x DP 1.4	4096x2160@60Hz(HDMI), 3840x2160@60Hz(DP)	DirectX 12

NVIDIA® GeForce® GT 730	Discrete	2GB GDDR5	1x VGA, 1x HDMI 1.4	2048x1536@75Hz(VGA), 3840x2160@30Hz(HDMI)	DirectX 12
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Notes:

1. The information of integrated graphics are not applicable for the models without integrated graphics (for the details, please refer to processor section)

Monitor Support

Monitor Support

Supports up to 3 independent displays via onboard ports (HDMI and 2x DisplayPort™), more displays support via discrete graphics

Chipset

Chipset

Intel Q470 chipset

Memory

Max Memory^[1]

Up to 128GB DDR4-2933

Memory Slots

Four DDR4 DIMM slots, dual-channel capable

Memory Type^{**}

- DDR4-2666
- DDR4-2933

Notes:

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

Storage

Storage Support^[1]

Up to three drives, 1x 2.5"/3.5" HDD + 1x 2.5" HDD + 1x M.2 SSD

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

Storage Type^{***}

Disk Type	Interface	RPM	Security
2.5" SATA HDD	SATA 6Gb/s	7.2K	-
3.5" SATA HDD	SATA 6Gb/s	7.2K	-
M.2 2242 SSD	PCIe® NVMe®, PCIe 3.0 x2	-	-
M.2 2280 SSD	PCIe NVMe, PCIe 3.0 x4	-	Opal
M.2 2280 SSD	PCIe NVMe, PCIe 3.0 x4	-	-
Intel Optane Memory M10	PCIe NVMe, PCIe 3.0 x2	-	-

RAID

RAID 0/1 support for HDDs (RAID preset only available via special bid model)

Notes:

1. The storage capacity supported is based on the test results with current Lenovo storage offerings. The system may support larger storage as the technology develops.

Removable Storage

Optical^{**}

- DVD-ROM, SATA 1.5Gb/s, slim (9.0mm)

- DVD burner (DVD±RW), SATA 1.5Gb/s, slim (9.0mm)
- None

Card Reader

- 3-in-1 card reader (SD, SDHC, SDXC)
- No card reader

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC623-CG codec

Speakers

Single speaker, 1W x1

Power Supply

Power Supply**

Power	Type	Efficiency	Key Features
180W	Fixed	85%	-
260W	Fixed	85%	100-240V, 50-60Hz
310W	Fixed	92%	100-240V, 50-60Hz
380W	Fixed	92%	-

DESIGN

Input Device

Keyboard**

- Lenovo Calliope Keyboard (USB connector), black
- Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Lenovo Traditional Keyboard (USB connector), black
- No keyboard

Mouse**

- Lenovo Calliope Mouse (USB connector), black
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
- Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- No mouse

Mechanical

Form Factor

SFF (8.2L)

Dimensions (WxDxH)

93 x 298 x 340 mm (3.6 x 11.7 x 13.4 inches)

Packaging Dimensions (WxDxH)

195 x 395 x 530 mm (7.68 x 15.55 x 20.87 inches)

Weight

Around 5.3 kg (11.7 lbs)

Packaging Weight

7.6 kg (16.76 lbs)

Case Color

Black

Bays

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

Expansion Slots

- One PCIe 3.0 x1, low-profile (length < 155mm, height < 68mm)
- One PCIe 3.0 x16, low-profile (length < 155mm, height < 68mm)
- Two dummy slots, only brackets for optional port extension
- Two M.2 slots (one for WLAN, one for SSD)

Stand

- Vertical stand
- No stand

Others

- (Optional) Dust filter
- Supports Smart Power On

CONNECTIVITY

Network

Onboard Ethernet

Gigabit Ethernet, Intel Ethernet Connection I219-LM, 1x RJ-45, supports Wake-on-LAN

Optional Ethernet**

- Gigabit Ethernet, Bitland BN8E88, 1x RJ-45, PCIe x1
- Gigabit Ethernet, Intel Ethernet Server Adapter I350-T4, 4x RJ-45, PCIe x4
- No optional Ethernet

WLAN + Bluetooth®^[1]**

- Realtek RTL8822CE, 802.11ac Dual Band 2x2 Wi-Fi® + Bluetooth 5.0, M.2 card
- Intel Wireless-AC 9560, 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, Intel vPro technology support, M.2 Card
- No WLAN and Bluetooth

Notes:

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

Ports^[1]

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)

Optional Front Ports

- 1x card reader
- None

Rear Ports^[2]

- 4x USB 3.2 Gen 1
- 1x HDMI
- 2x DisplayPort
- 1x serial (9-pin)
- 1x Ethernet (RJ-45)
- 1x line-out (3.5mm)

Optional Rear Ports***

- 2x USB 2.0 (via 2-port adapter)
- 2x USB 3.2 Gen 1 (via 2-port USB expansion card, PCIe x1)
- 2x USB-C 3.2 Gen 2 (via 2-port USB-C expansion card, PCIe x4)
- 1x serial
- 4x serial (via 4-port serial expansion card, PCIe x1)
- 1x parallel
- 2x PS/2

Notes:

1. The transfer speed of following ports will vary and, depending on many factors, such as the processing speed of the host device, file

attributes and other factors related to system configuration and your operating environment, will be slower than theoretical speed.

USB 2.0: 480 Mbit/s;

USB 3.2 Gen 1 (SuperSpeed USB 5Gbps, formerly USB 3.0 / USB 3.1 Gen 1): 5 Gbit/s;

USB 3.2 Gen 2 (SuperSpeed USB 10Gbps, formerly USB 3.1 Gen 2): 10 Gbit/s;

USB 3.2 Gen 2x2 (SuperSpeed USB 20Gbps): 20 Gbit/s;

Thunderbolt™ 3/4: 40 Gbit/s

2. For video ports on discrete graphics, please see graphics section

Monitor Cable

Monitor Cable***

- DP to dual DP dongle
- DP to DVI-D dongle
- DP to HDMI 1.4 dongle
- DP to VGA cable (1.5M)
- DP to VGA dongle
- HDMI to HDMI cable (1.5m)
- HDMI to VGA dongle
- No monitor cable

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

- (Optional) E-lock
- (Optional) Smart Cable Clip
- Kensington® Security Slot, 3 x 7 mm
- Padlock Loop

Chassis Intrusion Switch

- Chassis intrusion switch
- No chassis intrusion switch

Fingerprint Reader

- Touch style fingerprint reader on mouse
- No fingerprint reader

BIOS Security

- Administrator password
- Power-on password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Smart USB protection (allows keyboard / mouse only, blocks all storage devices)
- Individual USB port disablement

MANAGEABILITY

System Management

System Management^{[1][2]}

- Intel vPro with Intel AMT 14.0
- Non-vPro

Notes:

1. Intel vPro offers a superset of DASH's defined capabilities.
2. Require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection

SERVICE

Warranty

Base Warranty^[1]**

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

Notes:

1. More information of warranty policy, please access <https://pcsupport.lenovo.com/warranty>

ENVIRONMENTAL**Operating Environment****Temperature**

- Operating: 5°C (41°F) to 35°C (95°F)
- Storage: -40°C (-40°F) to 60°C (140°F)

Humidity

- Operating: 20% to 80%
- Storage: 10% to 90%

Altitude

- Operating: 0 m (0 ft) to 3048 m (10,000 ft)
- Storage: 0 m (0 ft) to 12192 m (40,000 ft)

CERTIFICATIONS**Green Certifications****Green Certifications**

- (Optional) EPEAT™ Gold
- (Optional) EPEAT Silver
- (Optional) ENERGY STAR® 8.0
- ErP Lot 3
- TCO Certified 8.0
- RoHS compliant

Other Certifications**Other Certifications**

- (Optional) TÜV Rheinland® Low Noise
- (Optional) TÜV Rheinland Ultra Low Noise

Mil-Spec Test

MIL-STD-810H military test passed (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)

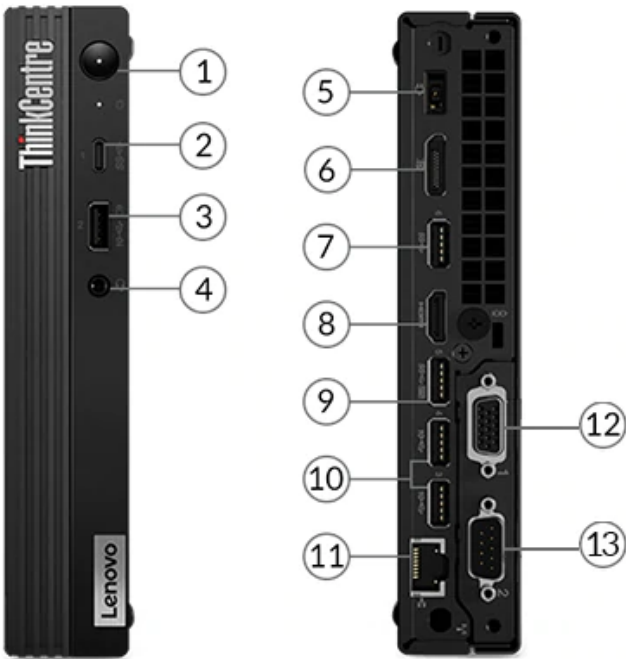
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OVERVIEW



1. Power button	8. HDMI
2. USB-C 3.2 Gen 1	9. USB 3.2 Gen 1
3. USB 3.2 Gen 2	10. 2x USB 3.2 Gen 2
4. Headphone / microphone combo jack (3.5mm)	11. Ethernet (RJ-45)
5. Power connector	12. Optional port 1 (VGA is shown) *
6. DisplayPort	13. Optional port 2 (serial is shown) *
7. USB 3.2 Gen 1	

Notes:

- Ports with * are only available on selected models

PERFORMANCE

Processor

Processor Family

Intel® Celeron®, Intel Pentium®, or 10th Generation Intel Core™ i3 / i5 / i7 / i9 Processor

Processor**

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
Celeron G5900	2	2	3.4GHz	-	2MB	DDR4-2666	Intel UHD Graphics 610
Celeron G5900T	2	2	3.2GHz	-	2MB	DDR4-2666	Intel UHD Graphics 610
Celeron G5905	2	2	3.5GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Celeron G5905T	2	2	3.3GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Celeron G5920	2	2	3.5GHz	-	2MB	DDR4-2666	Intel UHD Graphics 610
Celeron G5925	2	2	3.6GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Pentium Gold G6400	2	4	4.0GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Pentium Gold G6400T	2	4	3.4GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Pentium Gold G6500	2	4	4.1GHz	-	4MB	DDR4-2666	Intel UHD Graphics 630
Pentium Gold G6500T	2	4	3.5GHz	-	4MB	DDR4-2666	Intel UHD Graphics 630
Pentium Gold G6600	2	4	4.2GHz	-	4MB	DDR4-2666	Intel UHD Graphics 630
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

Operating System

Operating System**

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

Graphics

Graphics**[1]

Graphics	Type	Memory	Connector	Max Resolution	Key Features
Intel UHD graphics 610	Integrated	Shared	1x HDMI®, 1x DP, 1x optional video port (2nd HDMI / VGA / 2nd DP / USB-C® / dual DP)	4096x2160@24Hz(onboard HDMI), 4096x2304@60Hz(DP), 3840x2160@60Hz(Dual DP, MST mode), 2048x1536@50Hz(VGA), 4096x2304@60Hz(USB-C)	DirectX® 12
Intel UHD graphics 630	Integrated	Shared	1x HDMI, 1x DP, 1x optional video port (2nd HDMI / VGA / 2nd DP / USB-C / dual DP)	4096x2160@24Hz(onboard HDMI), 4096x2304@60Hz(DP), 3840x2160@60Hz(Dual DP, MST mode), 2048x1536@50Hz(VGA), 4096x2304@60Hz(USB-C)	DirectX 12

Notes:

1. The information of integrated graphics are not applicable for the models without integrated graphics (for the details, please refer to processor section)

Monitor Support

Monitor Support

Supports up to 3 independent displays via (onboard DP, onboard HDMI, and one optional port [VGA / 2nd DP / 2nd HDMI / USB-C]) or (one onboard port [DP / HDMI] and optional dual DP [MST mode])

Chipset

Chipset

Intel Q470 chipset

Memory

Max Memory[1]

Up to 64GB DDR4-2933

Memory Slots

Two DDR4 SO-DIMM slots, dual-channel capable

Memory Type**[2]

- DDR4-2666
- DDR4-2933

Notes:

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

2. Installed memory is actually 3200MHz, but may run at 2666MHz or 2933MHz, depending on the memory support capability of processor

Storage

Storage Support[1]

Up to three drives, 1x 2.5" HDD + 2x M.2 SSD

- 2.5" HDD up to 1TB

- M.2 SSD up to 2TB each
- Optional Intel Optane™ Memory, M.2

Storage Type***

Disk Type	Interface	RPM	Security
2.5" SATA HDD	SATA 6Gb/s	7.2K	-
M.2 2242 SSD	PCIe® NVMe®, PCIe 3.0 x2	-	-
M.2 2242 SSD	PCIe NVMe, PCIe 3.0 x4	-	-
M.2 2280 SSD	PCIe NVMe, PCIe 3.0 x4	-	Opal
M.2 2280 SSD	PCIe NVMe, PCIe 3.0 x4	-	-
Intel Optane Memory M10	PCIe NVMe, PCIe 3.0 x2	-	-

RAID

RAID 0/1 support for M.2 SSDs (RAID preset only available via special bid model)

Notes:

1. The storage capacity supported is based on the test results with current Lenovo storage offerings. The system may support larger storage as the technology develops.

Removable Storage

Optical**

- DVD-ROM, slim (9.0mm), via USB external ODD box
- DVD burner (DVD±RW), slim (9.0mm), via USB external ODD box
- None

Card Reader

No card reader

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC233VB codec

Speakers

Single speaker, 1.5W x1

Power Supply

Power Supply**

Power	Type	Efficiency	Key Features
65W	Adapter	89%	Autosensing
90W	Adapter	89%	Autosensing
135W	Adapter	89%	Autosensing
230W	Adapter	89%	Autosensing
No power supply	-	-	-

DESIGN

Input Device

Keyboard**

- Lenovo Calliope Keyboard (USB connector), black
- Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Lenovo Traditional Keyboard (USB connector), black
- No keyboard

Mouse**

- Lenovo Calliope Mouse (USB connector), black
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black

- Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- No mouse

Mechanical

Form Factor

Tiny (1L)

Dimensions (WxDxH)

Models	Dimensions
Tiny only	179 x 183 x 34.5 / 37 mm with rubber feet (7.05 x 7.2 x 1.36 / 1.5 inches with rubber feet)
With VESA mount & ODD box	187 x 183.8 x 66.5 mm (7.36 x 7.24 x 2.62 inches)

Weight

Models	Weight
Tiny only	1.25 kg (2.76 lbs)
With VESA mount & ODD box	1.74 kg (3.84 lbs)

Case Color

Black

Bays

1x 2.5" disk bay

Expansion Slots^[1]

- One PCIe 3.0 x8, low-profile
- Three M.2 slots (one for WLAN, two for SSD)

EOU

(Optional) toolless chassis open (toolless chassis screw required) and toolless M.2 SSD, HDD, memory assembly / removal

Stand

- Vertical stand
- No stand

Mounting

- VESA mount bracket kit, supports VESA mount 75mm and 100mm
- None

Others

- (Optional) Dust filter
- (Optional) Power adapter cage

Notes:

1. PCIe 3.0 x8 slot is for Lenovo qualified PCIe cards, Intel I350-T4 ethernet card and 4x serial port expansion card. The PCIe card occupies the space of 2.5" HDD/SSD and optional ports, they are mutually exclusive.

CONNECTIVITY

Network

Onboard Ethernet

Gigabit Ethernet, Intel Ethernet Connection I219-LM, 1x RJ-45, supports Wake-on-LAN

Optional Ethernet^[1]

- Gigabit Ethernet, Intel Ethernet Server Adapter I350-T4, 4x RJ-45, PCIe x4
- No optional Ethernet

WLAN + Bluetooth®**^[2]

- Realtek RTL8822CE, 802.11ac Dual Band 2x2 Wi-Fi® + Bluetooth 5.0, M.2 card
- Intel Wireless-AC 9560, 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, Intel vPro technology support, M.2 Card
- No WLAN and Bluetooth

Notes:

1. Intel Ethernet Server Adapter I350-T4 is not available in EMEA
2. Bluetooth 5.2 is hardware ready but may run at a lower version due to OS limitation

Ports^[1]

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)

Optional Front Ports

None

Rear Ports^[2]

- 2x USB 3.2 Gen 1
- 2x USB 3.2 Gen 2
- 1x HDMI
- 1x DisplayPort™
- 1x Ethernet (RJ-45)

Optional Rear Ports***

- 2x USB 3.2 Gen 1 ports (share one USB 3.2 Gen 1 bandwidth, occupy optional port 1 and 2)
- 4x USB 3.2 Gen 1 ports (share one USB 3.2 Gen 1 bandwidth, occupy optional port 1 and 2)
- 2x DisplayPort ports (occupy Optional port 1 and 2)
- Optional port 1 (one of VGA / 2nd DisplayPort / 2nd HDMI / serial / USB-C 3.2 Gen 1 with DisplayPort function)
- Optional port 2 (serial)

Notes:

1. The transfer speed of following ports will vary and, depending on many factors, such as the processing speed of the host device, file attributes and other factors related to system configuration and your operating environment, will be slower than theoretical speed.
USB 2.0: 480 Mbit/s;
USB 3.2 Gen 1 (SuperSpeed USB 5Gbps, formerly USB 3.0 / USB 3.1 Gen 1): 5 Gbit/s;
USB 3.2 Gen 2 (SuperSpeed USB 10Gbps, formerly USB 3.1 Gen 2): 10 Gbit/s;
USB 3.2 Gen 2x2 (SuperSpeed USB 20Gbps): 20 Gbit/s;
Thunderbolt™ 3/4: 40 Gbit/s
2. For video ports on discrete graphics, please see graphics section

Monitor Cable

Monitor Cable***

- DP to dual DP dongle
- DP to DVI-D dongle
- DP to HDMI 1.4 dongle
- DP to VGA cable (1.5M)
- DP to VGA dongle
- HDMI to HDMI cable (1.5m)
- HDMI to VGA dongle
- No monitor cable

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

Kensington® Security Slot, 3 x 7 mm

Chassis Intrusion Switch

Chassis intrusion switch

Fingerprint Reader

- Touch style fingerprint reader on mouse
- No fingerprint reader

BIOS Security

- Administrator password

- Power-on password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Self-healing BIOS
- Smart USB protection (allows keyboard / mouse only, blocks all storage devices)
- Individual USB port disablement

MANAGEABILITY

System Management

System Management^{[1][2]}

- Intel vPro with Intel AMT 14.0
- Non-vPro

Notes:

1. Intel vPro offers a superset of DASH's defined capabilities.
2. Require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection

SERVICE

Warranty

Base Warranty^{**[1]}

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

Notes:

1. More information of warranty policy, please access <https://pcsupport.lenovo.com/warranty>

ENVIRONMENTAL

Operating Environment

Temperature

- Operating: 5°C (41°F) to 35°C (95°F)
- Storage: -40°C (-40°F) to 60°C (140°F)

Humidity

- Operating: 20% to 80%
- Storage: 10% to 90%

Altitude

- Operating: 0 m (0 ft) to 3048 m (10,000 ft)
- Storage: 0 m (0 ft) to 12192 m (40,000 ft)

CERTIFICATIONS

Green Certifications

Green Certifications

- (Optional) EPEAT™ Gold
- (Optional) EPEAT Silver
- ENERGY STAR® 8.0
- ErP Lot 3
- TCO Certified 8.0
- RoHS compliant

Other Certifications

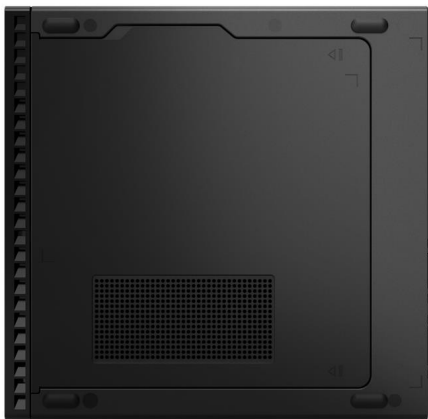
Other Certifications

- (Optional) TÜV Rheinland® Low Noise
- (Optional) TÜV Rheinland Ultra Low Noise

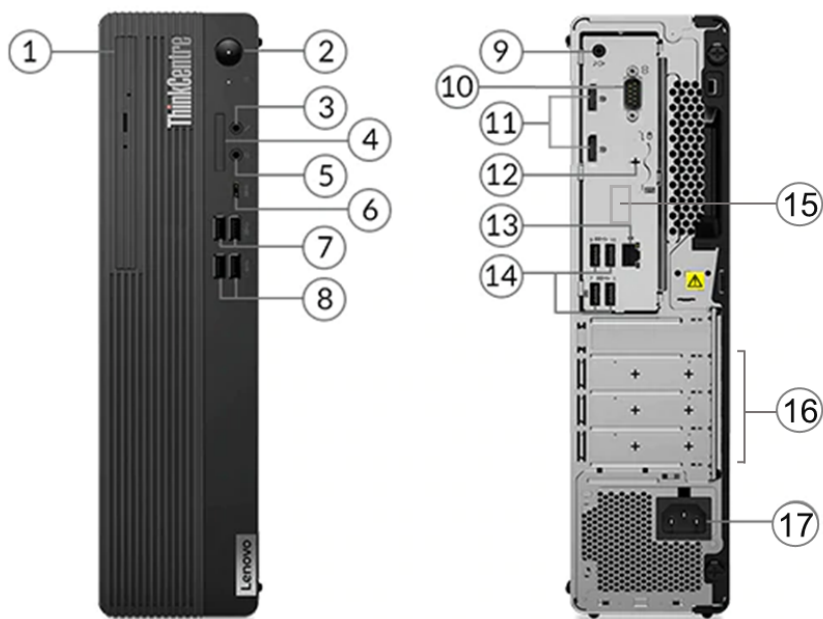
Mil-Spec Test

MIL-STD-810H military test passed (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)

- Feature with ** means that only one offering listed under the feature is configured on selected models.
- Feature with *** means that one or more offerings listed under the feature could be configured on selected models.
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OVERVIEW



1. Optical drive *	10. Serial
2. Power button	11. 2x DisplayPort
3. Microphone (3.5mm)	12. 2x PS/2 ports (keyboard / mouse) *
4. Card reader *	13. Ethernet (RJ-45)
5. Headphone / microphone combo jack (3.5mm)	14. 4x USB 3.2 Gen 1
6. USB-C 3.2 Gen 1	15. Optional Video Port (HDMI / DP / USB-C) *
7. 2x USB 3.2 Gen 1	16. Optional ports on expansion cards *
8. 2x USB 3.2 Gen 2	17. Power connector
9. Line-out (3.5mm)	

Notes:

- Ports with * are only available on selected models

PERFORMANCE

Processor

Processor Family

Intel® Celeron®, Intel Pentium®, or 10th Generation Intel Core™ i3 / i5 / i7 / i9 Processor

Processor**

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
Celeron G5900	2	2	3.4GHz	-	2MB	DDR4-2666	Intel UHD Graphics 610
Celeron G5905	2	2	3.5GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Celeron G5920	2	2	3.5GHz	-	2MB	DDR4-2666	Intel UHD Graphics 610
Celeron G5925	2	2	3.6GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Pentium Gold G6400	2	4	4.0GHz	-	4MB	DDR4-2666	Intel UHD Graphics 610
Pentium Gold G6500	2	4	4.1GHz	-	4MB	DDR4-2666	Intel UHD Graphics 630
Pentium Gold G6600	2	4	4.2GHz	-	4MB	DDR4-2666	Intel UHD Graphics 630
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 i5-10400F	6	12	2.9GHz	4.3GHz	12MB	DDR4-2666	-
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 i7-10700F	8	16	2.9GHz	4.8GHz	16MB	DDR4-2933	-
Core i9-10900	10	20	2.8GHz	5.2GHz	20MB	DDR4-2933	Intel UHD Graphics 630
Core i9-10900F	10	20	2.8GHz	5.2GHz	20MB	DDR4-2933	-

Operating System

Operating System**

- Windows® 11 Pro 64
- Windows 11 Home 64
- Windows 11 DG Windows 10 Pro 64
- Windows 10 Pro 64
- Windows 10 Home 64
- Windows 10 IoT Enterprise
- Ubuntu Linux
- No operating system

Graphics

Graphics**[1]

Graphics	Type	Memory	Connector	Max Resolution	Key Features
Intel UHD graphics 610	Integrated	Shared	2x DP, 1x optional video port (HDMI® / 3rd DP / USB-C®)	4096x2160@24Hz(onboard HDMI), 4096x2304@60Hz(DP), 4096x2304@60Hz(USB-C)	DirectX® 12
Intel UHD graphics 630	Integrated	Shared	2x DP, 1x optional video port (HDMI / 3rd DP / USB-C)	4096x2160@24Hz(onboard HDMI), 4096x2304@60Hz(DP), 4096x2304@60Hz(USB-C)	DirectX 12
AMD Radeon™ 520	Discrete	2GB GDDR5	2x DP 1.2	4096x2160@60Hz(DP)	DirectX 12
AMD Radeon	Discrete	4GB	1x HDMI 2.0, 1x DP 1.4	4096x2160@60Hz(HDMI),	DirectX 12

RX 550X		GDDR5		3840x2160@60Hz(DP)	
NVIDIA® GeForce GT 730	Discrete	2GB GDDR5	1x VGA, 1x HDMI 1.4	2048x1536@75Hz(VGA), 3840x2160@30Hz(HDMI)	DirectX 12

Notes:

1. The information of integrated graphics are not applicable for the models without integrated graphics (for the details, please refer to processor section)

Monitor Support

Monitor Support

Supports up to 3 independent displays via onboard ports (2x DisplayPort™ and 1x optional port [HDMI / 3rd DP / USB-C]), more displays support via discrete graphics

Chipset

Chipset

Intel Q470 chipset

Memory

Max Memory^[1]

Up to 128GB DDR4-2933

Memory Slots

Four DDR4 DIMM slots, dual-channel capable

Memory Type^{**}

- DDR4-2666
- DDR4-2933

Notes:

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

Storage

Storage Support^[1]

Up to four drives, 1x 2.5"/3.5" HDD + 1x 2.5" HDD + 2x M.2 SSD

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

Storage Type^{***}

Disk Type	Interface	RPM	Security
2.5" SATA HDD	SATA 6Gb/s	7.2K	-
3.5" SATA HDD	SATA 6Gb/s	7.2K	-
M.2 2242 SSD	PCIe® NVMe®, PCIe 3.0 x2	-	-
M.2 2280 SSD	PCIe NVMe, PCIe 3.0 x4	-	Opal
M.2 2280 SSD	PCIe NVMe, PCIe 3.0 x4	-	-
Intel Optane Memory M10	PCIe NVMe, PCIe 3.0 x2	-	-

RAID

RAID 0/1 support (RAID preset only available via special bid model)

Notes:

1. The storage capacity supported is based on the test results with current Lenovo storage offerings. The system may support larger storage as the technology develops.

Removable Storage

Optical**

- DVD-ROM, SATA 1.5Gb/s, slim (9.0mm)
- DVD burner (DVD±RW), SATA 1.5Gb/s, slim (9.0mm)
- None

Card Reader

- 3-in-1 card reader (SD, SDHC, SDXC)
- No card reader

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC623-CG codec

Speakers

Single speaker, 1W x1

Power Supply

Power Supply**

Power	Type	Efficiency	Key Features
180W	Fixed	85%	-
260W	Fixed	85%	100-240V, 50-60Hz
310W	Fixed	92%	100-240V, 50-60Hz
380W	Fixed	92%	-

DESIGN

Input Device

Keyboard**

- Lenovo Calliope Keyboard (USB connector), black
- Lenovo Calliope Wireless Keyboard (2.4GHz via USB receiver), black
- Lenovo Traditional Keyboard (USB connector), black
- No keyboard

Mouse**

- Lenovo Calliope Mouse (USB connector), black
- Lenovo Calliope Wireless Mouse (2.4GHz via USB receiver), black
- Lenovo Fingerprint Mouse (USB connector), Windows Hello support, black
- No mouse

Mechanical

Form Factor

SFF (8.2L)

Dimensions (WxDxH)

93 x 298 x 340 mm (3.6 x 11.7 x 13.4 inches)

Packaging Dimensions (WxDxH)

195 x 395 x 530 mm (7.68 x 15.55 x 20.87 inches)

Weight

Around 5.3 kg (11.7 lbs)

Packaging Weight

7.6 kg (16.76 lbs)

Case Color

Black

Bays

- 1x 2.5" disk bay (optional, or bay comes with disk)
- 1x 3.5" disk bay

- 1x slim ODD bay

Expansion Slots

- One PCIe 3.0 x1, low-profile (length < 155mm, height < 68mm)
- One PCIe 3.0 x4, low-profile (length < 155mm, height < 68mm)
- One PCIe 3.0 x16, low-profile (length < 155mm, height < 68mm)
- One dummy slot, only bracket for optional port extension
- Three M.2 slots (one for WLAN, two for SSD)

Stand

- Vertical stand
- No stand

Others

- (Optional) Dust filter
- Supports Smart Power On

CONNECTIVITY

Network

Onboard Ethernet

Gigabit Ethernet, Intel Ethernet Connection I219-LM, 1x RJ-45, supports Wake-on-LAN

Optional Ethernet**

- Gigabit Ethernet, Bitland BN8E88, 1x RJ-45, PCIe x1
- Gigabit Ethernet, Intel Ethernet Server Adapter I350-T4, 4x RJ-45, PCIe x4
- 2.5 Gigabit Ethernet, Realtek RTL8125BGS, 1x RJ-45, PCIe x1
- No optional Ethernet

WLAN + Bluetooth®^[1]**

- Realtek RTL8822CE, 802.11ac Dual Band 2x2 Wi-Fi® + Bluetooth 5.0, M.2 card
- Intel Wireless-AC 9560, 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, Intel vPro technology support, M.2 Card
- No WLAN and Bluetooth

Notes:

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

Ports^[1]

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)

Optional Front Ports

- 1x card reader
- None

Rear Ports^[2]

- 4x USB 3.2 Gen 1
- 2x DisplayPort
- 1x serial (9-pin)
- 1x Ethernet (RJ-45)
- 1x line-out (3.5mm)

Optional Rear Ports***

- 2x USB 2.0 (via 2-port adapter)
- 2x USB 3.2 Gen 1 (via 2-port USB expansion card, PCIe x1)
- 2x USB-C 3.2 Gen 2 (via 2-port USB-C expansion card, PCIe x4)
- Optional video port (one of HDMI / DisplayPort / USB-C 3.2 Gen 1 with DisplayPort function)
- 1x serial
- 4x serial (via 4-port serial expansion card, PCIe x1)
- 1x parallel

- 2x PS/2

Notes:

1. The transfer speed of following ports will vary and, depending on many factors, such as the processing speed of the host device, file attributes and other factors related to system configuration and your operating environment, will be slower than theoretical speed.
USB 2.0: 480 Mbit/s;
USB 3.2 Gen 1 (SuperSpeed USB 5Gbps, formerly USB 3.0 / USB 3.1 Gen 1): 5 Gbit/s;
USB 3.2 Gen 2 (SuperSpeed USB 10Gbps, formerly USB 3.1 Gen 2): 10 Gbit/s;
USB 3.2 Gen 2x2 (SuperSpeed USB 20Gbps): 20 Gbit/s;
Thunderbolt™ 3/4: 40 Gbit/s
2. For video ports on discrete graphics, please see graphics section

Monitor Cable

Monitor Cable***

- DP to dual DP dongle
- DP to DVI-D dongle
- DP to HDMI 1.4 dongle
- DP to VGA cable (1.5M)
- DP to VGA dongle
- No monitor cable

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

- (Optional) E-lock
- (Optional) Smart Cable Clip
- Kensington® Security Slot, 3 x 7 mm
- Padlock Loop

Chassis Intrusion Switch

- Chassis intrusion switch
- No chassis intrusion switch

Fingerprint Reader

- Touch style fingerprint reader on mouse
- No fingerprint reader

BIOS Security

- Administrator password
- Power-on password
- Hard disk password
- Boot sequence control
- Boot without keyboard and mouse
- Self-healing BIOS
- Smart USB protection (allows keyboard / mouse only, blocks all storage devices)
- Individual USB port disablement

MANAGEABILITY

System Management

System Management^{[1][2]}

- Intel vPro with Intel AMT 14.0
- Non-vPro

Notes:

1. Intel vPro offers a superset of DASH's defined capabilities.
2. Require choosing a vPro-support Wi-Fi adapter to enable vPro function through wireless connection

SERVICE

Warranty

Base Warranty**^[1]

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

Notes:

1. More information of warranty policy, please access <https://pcsupport.lenovo.com/warranty>

ENVIRONMENTAL

Operating Environment

Temperature

- Operating: 5°C (41°F) to 35°C (95°F)
- Storage: -40°C (-40°F) to 60°C (140°F)

Humidity

- Operating: 20% to 80%
- Storage: 10% to 90%

Altitude

- Operating: 0 m (0 ft) to 3048 m (10,000 ft)
- Storage: 0 m (0 ft) to 12192 m (40,000 ft)

CERTIFICATIONS

Green Certifications

Green Certifications^[1]

- (Optional) EPEAT™ Gold
- (Optional) EPEAT Silver
- (Optional) ENERGY STAR® 8.0
- ErP Lot 3
- TCO Certified 8.0
- RoHS compliant

Notes:

1. ENERGY STAR 8.0 and EPEAT are only available for MT 11D1/11D2

Other Certifications

Other Certifications

- (Optional) TÜV Rheinland® Low Noise
- (Optional) TÜV Rheinland Ultra Low Noise

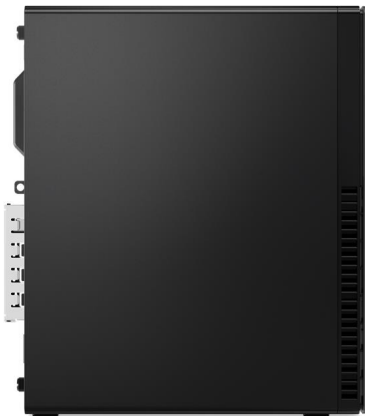
Mil-Spec Test

MIL-STD-810H military test passed (Low Pressure [Altitude], High Temperature, Low Temperature, Temperature Shock, Humidity, Sand and Dust, Vibration, Shock, Fungus, Solar Radiation)

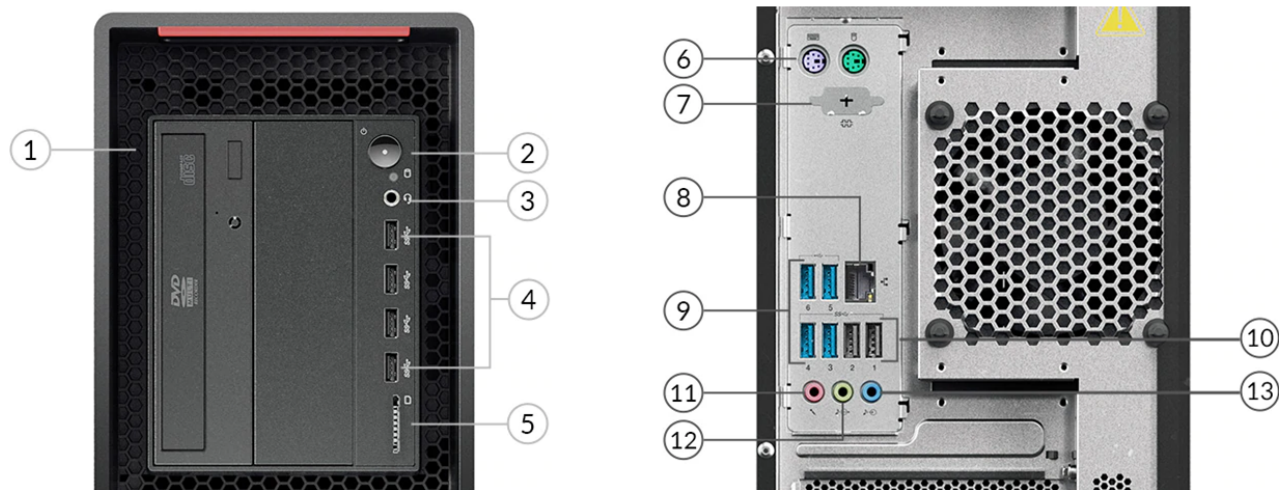
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- Feature with *** means that one or more offerings listed under the feature could be configured on selected models.
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OVERVIEW



1. 2x Flex bay	8. Ethernet (RJ-45)
2. Power button	9. 4x USB 3.1 Gen 1
3. Headphone / microphone combo jack (3.5mm)	10. 2x USB 2.0
4. 4x USB 3.1 Gen 1	11. Microphone (3.5mm)
5. Card reader	12. Line-out (3.5mm)
6. 2x PS/2 ports (keyboard / mouse)	13. Line-in (3.5mm)
7. Serial *	

Notes:

- Ports with * are only available on selected models

PERFORMANCE

Processor

Processor Family

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

Operating System**

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

Graphics

Discrete Graphics Support

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

Discrete Graphics Offering***

Graphics	Memory	Power	Connector	SLI / NVlink
Quadro P400	2GB GDDR5	30W	3x miniDP 1.4	None
Quadro P600	2GB GDDR5	45W	4x miniDP	None
Quadro P620	2GB GDDR5	40W	4x miniDP 1.4	None
Quadro P1000	4GB GDDR5	50W	4x miniDP 1.4	None
Quadro P2000	5GB GDDR5	75W	4x DP	None
Quadro P2200	5GB GDDR5	75W	4x DP 1.4	None

Quadro P4000	8GB GDDR5	120W	4x DP 1.4	None
Quadro P5000	16GB GDDR5X	180W	1x DVI-D DL, 4x DP 1.4	SLI
NVIDIA T400	2GB GDDR6	40W	3x miniDP 1.4	None
NVIDIA T400	4GB GDDR6	40W	3x miniDP 1.4	None
NVIDIA T600	4GB GDDR6	40W	4x miniDP 1.4	None
NVIDIA T1000	4GB GDDR6	50W	4x miniDP 1.4	None
NVIDIA T1000	8GB GDDR6	50W	4x miniDP 1.4	None
Quadro RTX 4000	8GB GDDR6	160W	3x DP 1.4, 1x VirtualLink	None
Quadro RTX 5000	16GB GDDR6	265W	4x DP 1.4, 1x VirtualLink	NVLink
Quadro RTX 6000	24GB GDDR6	295W	4x DP 1.4, 1x VirtualLink	NVLink
Quadro RTX 8000	48GB GDDR6	295W	4x DP 1.4, 1x VirtualLink	None
NVIDIA RTX A2000	6GB GDDR6	70W	4x miniDP 1.4a	None
NVIDIA RTX A2000	12GB GDDR6	70W	4x miniDP 1.4a	None
NVIDIA RTX A4000	16GB GDDR6 with ECC	140W	4x DP 1.4a	None
NVIDIA RTX A4500	20GB GDDR6 with ECC	200W	4x DP 1.4	None
NVIDIA RTX A5000	24GB GDDR6 with ECC	230W	4x DP 1.4a	NVLink
NVIDIA RTX A6000	48GB GDDR6 with ECC	300W	4x DP 1.4a	NVLink
Quadro GP100	16GB HBM2	235W	1x DVI-D DL, 4x DP	NVLink
Quadro GV100	32GB HBM2	250W	4x DP 1.4	None

Monitor Support

Monitor Support

Supports multiple displays via discrete graphics, the number of maximum monitors supported depends on the graphic card in use

Chipset

Chipset

Intel C422 chipset

Memory

Max Memory^[1]

- Up to 256GB (8x 32GB RDIMMs) DDR4-2666
- Up to 512GB (8x 64GB RDIMMs) DDR4-2933

Memory Type**

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

Memory Slots

8 DDR4 DIMM slots, 4 channels capable

Memory Protection

ECC

Notes:

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

Storage

Storage Support^[1]

Up to 6x 3.5" SATA HDD / 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

- 2.5" SAS HDD up to 600GB each
- M.2 PCIe SSD up to 2TB each
- PCIe AIC SSD up to 480GB each

Storage Type***

Disk Type	Interface	RPM	Offering
2.5" SAS HDD	SAS 12Gb/s	10K	300GB / 600GB
2.5" SATA SSD	SATA 6Gb/s	-	256GB / 512GB / 1TB / 2TB
2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB / 500GB FIPS
3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB / 2TB / 4TB / 6TB
M.2 PCIe SSD	PCIe NVMe®	-	256GB / 512GB / 1TB / 2TB
PCIe AIC SSD	PCIe NVMe	-	480GB

Storage Controllers

Storage Controller	Type	Interface	RAID	Cache
Onboard Intel RSTe SATA RAID	Standard	SATA 6.0Gb/s	0/1/10/5	None
9440-8i PCIe	Optional	SAS 12.0Gb/s, SATA 6.0Gb/s	0/1/10/5	None
9460-16i PCIe	Optional	SAS 12.0Gb/s, SATA 6.0Gb/s	0/1/10/5/6	4GB DDR4, SuperCap
NVMe Basic	Optional	PCIe NVMe	0/1/10	None
NVMe Premium	Optional	PCIe NVMe	0/1/10/5	None
NVMe for Intel SSD	Optional	PCIe NVMe	0/1/10/5	None

Notes:

1. The storage capacity supported is based on the test results with current Lenovo storage offerings. The system may support larger storage as the technology develops.

Removable Storage

Optical Support

Up to 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

Speakers

Single speaker

Power Supply

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

M.2 Slots

Up to 9x M.2 SSD:

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

Expansion Slots

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

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 RJ-45, supports Wake-on-LAN

Optional Ethernet

Additional Ethernet options via PCIe adapter

WLAN + Bluetooth^[1]

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

Notes:

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

Ports^[1]

Front Ports

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

ThinkStation P520

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

Optional Front Ports***

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

Rear Ports^[2]

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

Optional Rear Ports***

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

Notes:

1. The transfer speed of following ports will vary and, depending on many factors, such as the processing speed of the host device, file attributes and other factors related to system configuration and your operating environment, will be slower than theoretical speed.
USB 2.0: 480 Mbit/s;
USB 3.2 Gen 1 (SuperSpeed USB 5Gbps, formerly USB 3.0 / USB 3.1 Gen 1): 5 Gbit/s;
USB 3.2 Gen 2 (SuperSpeed USB 10Gbps, formerly USB 3.1 Gen 2): 10 Gbit/s;
USB 3.2 Gen 2x2 (SuperSpeed USB 20Gbps): 20 Gbit/s;
Thunderbolt 3/4: 40 Gbit/s;
2. For video ports on discrete graphics, please see graphics section

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

- (Optional) Access Panel Lock Kit with Common Key
- (Optional) Access Panel Lock Kit with Unique Key
- Kensington® Security Slot, 3 x 7 mm

BIOS Security

- Administrator password
- Power-on password

MANAGEABILITY

System Management

System Management^{[1][2]}

Intel vPro with Intel AMT 11.0

Notes:

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

Diagnostic

Diagnostic

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

- None

SERVICE

Warranty

Base Warranty**^[1]

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

Notes:

1. More information of warranty policy, please access <https://pcsupport.lenovo.com/warranty>

ENVIRONMENTAL

Operating Environment

Temperature

- Operating: 10°C (50°F) to 35°C (95°F)
- Storage: -40°C (-40°F) to 60°C (140°F)

Altitude

- Operating: 0 m (0 ft) to 3048 m (10,000 ft)
- Storage: 0 m (0 ft) to 12192 m (40,000 ft)

Humidity

- Operating: 20% to 80%
- Storage: 10% to 90%

CERTIFICATIONS

Green Certifications

Green Certifications

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

ISV Certifications

ISV Certifications

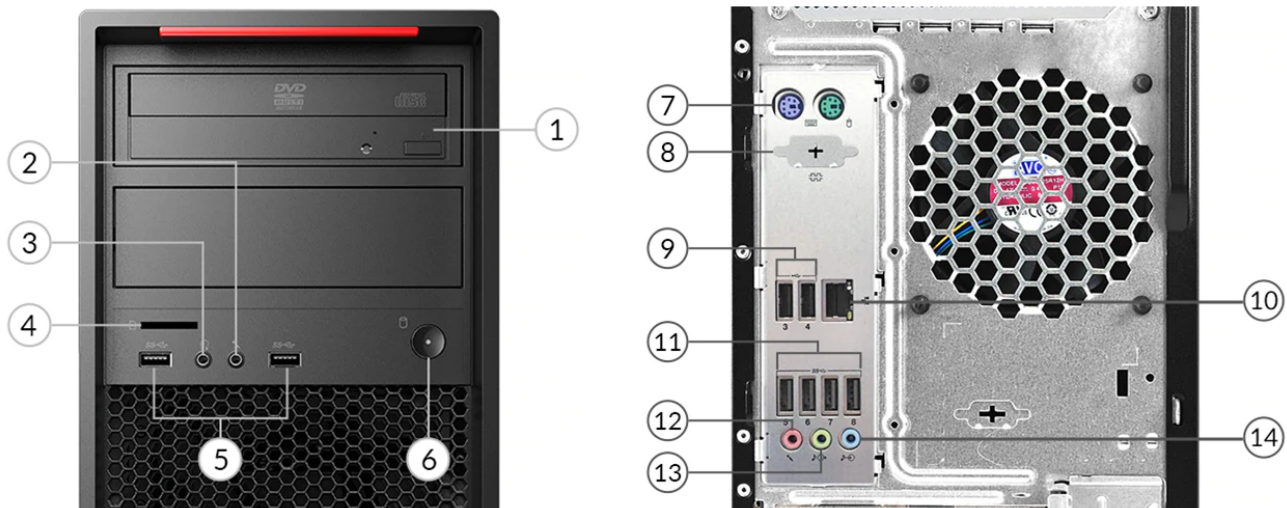
Please visit www.thinkworkstations.com/isv-certifications/

- Feature with ** means that only one offering listed under the feature is configured on selected models.
- Feature with *** means that one or more offerings listed under the feature could be configured on selected models.
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OVERVIEW



1. Optical drive *	8. Serial *
2. Microphone (3.5mm)	9. 2x USB 2.0
3. Headphone (3.5mm)	10. Ethernet (RJ-45)
4. Card reader	11. 4x USB 3.1 Gen 1
5. 2x USB 3.1 Gen 1	12. Microphone (3.5mm)
6. Power button	13. Line-out (3.5mm)
7. 2x PS/2 ports (keyboard / mouse)	14. Line-in (3.5mm)

Notes:

- Ports with * are only available on selected models

PERFORMANCE

Processor

Processor Family

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

Operating System**

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

Graphics

Discrete Graphics Support

Supports up to one NVIDIA® Quadro® RTX 5000 or two NVIDIA Quadro P4000

Discrete Graphics Offering***[1]

Graphics	Memory	Power	Connector	SLI / NVlink
Quadro P400	2GB GDDR5	30W	3x miniDP 1.4	None
Quadro P600	2GB GDDR5	45W	4x miniDP	None
Quadro P620	2GB GDDR5	40W	4x miniDP 1.4	None
Quadro P1000	4GB GDDR5	50W	4x miniDP 1.4	None
Quadro P2000	5GB GDDR5	75W	4x DP	None
Quadro P2200	5GB GDDR5	75W	4x DP 1.4	None
Quadro P4000	8GB GDDR5	120W	4x DP 1.4	None
Quadro P5000	16GB GDDR5X	180W	1x DVI-D DL, 4x DP 1.4	None
NVIDIA T400	2GB GDDR6	40W	3x miniDP 1.4	None
NVIDIA T400	4GB GDDR6	40W	3x miniDP 1.4	None

NVIDIA T600	4GB GDDR6	40W	4x miniDP 1.4	None
NVIDIA T1000	4GB GDDR6	50W	4x miniDP 1.4	None
NVIDIA T1000	8GB GDDR6	50W	4x miniDP 1.4	None
Quadro RTX 4000	8GB GDDR6	160W	3x DP 1.4, 1x VirtualLink	None
Quadro RTX 5000	16GB GDDR6	265W	4x DP 1.4, 1x VirtualLink	None
NVIDIA RTX A2000	6GB GDDR6	70W	4x miniDP 1.4a	None
NVIDIA RTX A2000	12GB GDDR6	70W	4x miniDP 1.4a	None
NVIDIA RTX A4000	16GB GDDR6 with ECC	140W	4x DP 1.4a	None
NVIDIA RTX A4500	20GB GDDR6 with ECC	200W	4x DP 1.4	None
NVIDIA RTX A5000	24GB GDDR6 with ECC	230W	4x DP 1.4a	None

Notes:

1. NVIDIA Quadro RTX 5000 supports manufacture configure only, none standalone option is available.

Monitor Support

Monitor Support

Supports multiple displays via discrete graphics, the number of maximum monitors supported depends on the graphic card in use

Chipset

Chipset

Intel C422 chipset

Memory

Max Memory^[1]

- Up to 128GB (4x 32GB DDR4-2666 RDIMMs)
- Up to 256GB (4x 64GB RDIMMs) DDR4-2933

Memory Type^{**}

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

Memory Slots

4 DDR4 DIMM slots, 4 channels capable

Memory Protection

ECC

Notes:

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

Storage

Storage Support^[1]

Up to 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
- 2.5" SAS HDD up to 600GB each
- M.2 SSD up to 2TB each

Storage Type^{***}

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

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

Storage Controllers

Storage Controller	Type	Interface	RAID	Cache
Onboard Intel RSTe SATA RAID	Standard	SATA 6.0Gb/s	0/1/10/5	None
9440-8i PCIe	Optional	SAS 12.0Gb/s, SATA 6.0Gb/s	0/1/10/5	None
NVMe Basic	Optional	PCIe NVMe	0/1/10	None
NVMe for Intel SSD	Optional	PCIe NVMe	0/1/10/5	None

Notes:

1. The storage capacity supported is based on the test results with current Lenovo storage offerings. The system may support larger storage as the technology develops.

Removable Storage

Optical Support

Up to 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

Speakers

Single speaker

Power Supply

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

M.2 Slots

Up to 5x M.2 SSD:

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

Expansion Slots

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

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 RJ-45, supports Wake-on-LAN

Optional Ethernet

Additional Ethernet options via PCIe adapter

WLAN + Bluetooth^[1]

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

Notes:

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

Ports^[1]

Front Ports

- 2x USB 3.1 Gen 1
- 1x headphone (3.5mm)
- 1x microphone (3.5mm)

Optional Front Ports^{***}

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

Rear Ports^[2]

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

Optional Rear Ports^{***}

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

Notes:

1. The transfer speed of following ports will vary and, depending on many factors, such as the processing speed of the host device, file attributes and other factors related to system configuration and your operating environment, will be slower than theoretical speed.

- USB 2.0: 480 Mbit/s;
 - USB 3.2 Gen 1 (SuperSpeed USB 5Gbps, formerly USB 3.0 / USB 3.1 Gen 1): 5 Gbit/s;
 - USB 3.2 Gen 2 (SuperSpeed USB 10Gbps, formerly USB 3.1 Gen 2): 10 Gbit/s;
 - USB 3.2 Gen 2x2 (SuperSpeed USB 20Gbps): 20 Gbit/s;
 - Thunderbolt 3/4: 40 Gbit/s;
2. For video ports on discrete graphics, please see graphics section

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

Kensington® Security Slot, 3 x 7 mm

Chassis Intrusion Switch

- Chassis intrusion switch
- No chassis intrusion switch

BIOS Security

- Administrator password
- Power-on password

MANAGEABILITY

System Management

System Management^{[1][2]}

Intel vPro with Intel AMT 11.0

Notes:

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

Diagnostic

Diagnostic

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

SERVICE

Warranty

Base Warranty^{**[1]}

- 1-year limited onsite service
- 3-year limited onsite service with 9x5 NBD (for most models)
- No base warranty

Notes:

1. More information of warranty policy, please access <https://pcsupport.lenovo.com/warranty>

ENVIRONMENTAL

Operating Environment

Temperature

- Operating: 10°C (50°F) to 35°C (95°F)
- Storage: -40°C (-40°F) to 60°C (140°F)

Altitude

- Operating: 0 m (0 ft) to 3048 m (10,000 ft)
- Storage: 0 m (0 ft) to 12192 m (40,000 ft)

Humidity

- Operating: 20% to 80%
- Storage: 10% to 90%

CERTIFICATIONS

Green Certifications

Green Certifications

- EPEAT™ Silver
- ENERGY STAR® 8.0 (on model 30BX0095US)
- GREENGUARD®
- RoHS compliant

ISV Certifications

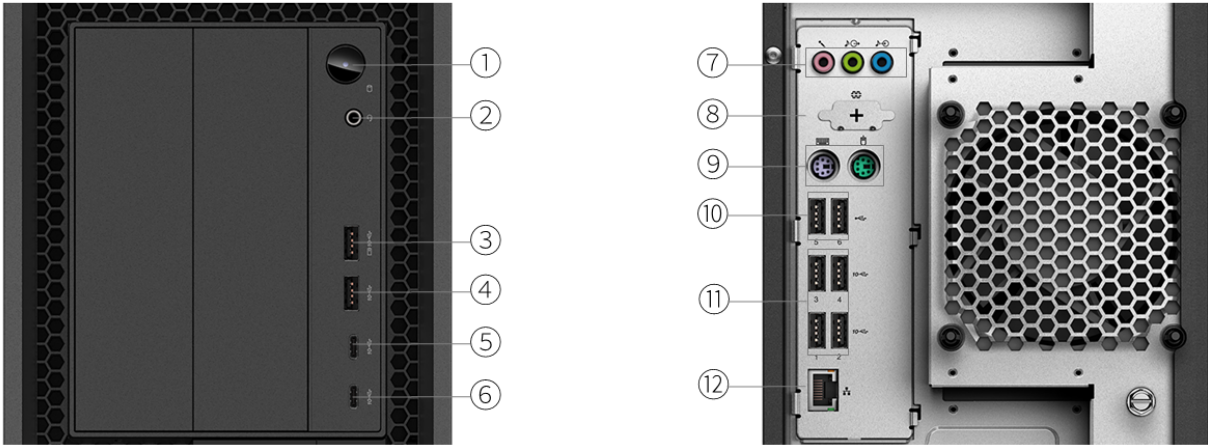
ISV Certifications

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

- Feature with ** means that only one offering listed under the feature is configured on selected models.
- Feature with *** means that one or more offerings listed under the feature could be configured on selected models.
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OVERVIEW



1. Power button	7. 3x Audio ports (3.5mm)
2. Headphone / microphone combo jack (3.5mm)	8. Serial *
3. USB 3.2 Gen 2	9. 2x PS/2 ports (keyboard / mouse)
4. USB 3.2 Gen 2	10. 2x USB 2.0
5. USB-C 3.2 Gen 2	11. 4x USB 3.2 Gen 2
6. USB-C 3.2 Gen 2	12. Ethernet (10GbE RJ-45)

- Notes:
- Ports with * are only available on selected models

PERFORMANCE

Processor

Processor Family

Up to one AMD Ryzen™ Threadripper PRO 5000 or 3000 Series Processor

Processor**

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
AMD Ryzen Threadripper PRO 5945WX	12	24	4.1GHz	4.5GHz	6MB L2 / 64MB L3	DDR4-3200	-
AMD Ryzen Threadripper PRO 5955WX	16	32	4.0GHz	4.5GHz	8MB L2 / 64MB L3	DDR4-3200	-
AMD Ryzen Threadripper PRO 5965WX	24	48	3.8GHz	4.5GHz	12MB L2 / 128MB L3	DDR4-3200	-
AMD Ryzen Threadripper PRO 5975WX	32	64	3.6GHz	4.5GHz	16MB L2 / 128MB L3	DDR4-3200	-
AMD Ryzen Threadripper PRO 5995WX	64	128	2.7GHz	4.5GHz	32MB L2 / 256MB L3	DDR4-3200	-
AMD Ryzen Threadripper PRO 3945WX	12	24	4.0GHz	4.3GHz	6MB L2 / 64MB L3	DDR4-3200	-
AMD Ryzen Threadripper PRO 3955WX	16	32	3.9GHz	4.3GHz	8MB L2 / 64MB L3	DDR4-3200	-
AMD Ryzen Threadripper PRO 3975WX	32	64	3.5GHz	4.2GHz	16MB L2 / 128MB L3	DDR4-3200	-
AMD Ryzen Threadripper PRO 3995WX	64	128	2.7GHz	4.2GHz	32MB L2 / 256MB L3	DDR4-3200	-

Processor Sockets

1x Socket SP3

Operating System

Operating System**

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

Graphics

Discrete Graphics Support

Supports up to two NVIDIA® Quadro® RTX 8000 with NVLink, two NVIDIA RTX A6000 with NVLink, or two AMD Radeon™ PRO W6800

Discrete Graphics Offering***

Graphics	Memory	Power	Connector	SLI / NVlink
Quadro P620	2GB GDDR5	40W	4x miniDP 1.4	None
Quadro P1000	4GB GDDR5	50W	4x miniDP 1.4	None
Quadro P2200	5GB GDDR5	75W	4x DP 1.4	None
NVIDIA T400	4GB GDDR6	40W	3x miniDP 1.4	None
NVIDIA T600	4GB GDDR6	40W	4x miniDP 1.4	None
NVIDIA T1000	4GB GDDR6	50W	4x miniDP 1.4	None
NVIDIA T1000	8GB GDDR6	50W	4x miniDP 1.4	None
Quadro RTX 4000	8GB GDDR6	160W	3x DP 1.4, 1x VirtualLink	None

Quadro RTX 5000	16GB GDDR6	265W	4x DP 1.4, 1x VirtualLink	NVLink
Quadro RTX 6000	24GB GDDR6	295W	4x DP 1.4, 1x VirtualLink	NVLink
Quadro RTX 8000	48GB GDDR6	295W	4x DP 1.4, 1x VirtualLink	NVLink
NVIDIA RTX A2000	12GB GDDR6	70W	4x miniDP 1.4a	None
NVIDIA RTX A4000	16GB GDDR6 with ECC	140W	4x DP 1.4a	None
NVIDIA RTX A4500	20GB GDDR6 with ECC	200W	4x DP 1.4	NVlink
NVIDIA RTX A5000	24GB GDDR6 with ECC	230W	4x DP 1.4a	NVLink
NVIDIA RTX A5500	24GB GDDR6 with ECC	230W	4x DP 1.4a	NVLink
NVIDIA RTX A6000	48GB GDDR6 with ECC	300W	4x DP 1.4a	NVLink
Quadro GV100	32GB HBM2	250W	4x DP 1.4	NVLink
AMD Radeon Pro WX 3200	4GB GDDR5	50W	4x miniDP 1.4	-
AMD Radeon Pro W5500	8GB GDDR6	125W	4x DP 1.4	-
AMD Radeon Pro W5700	8GB GDDR6	205W	5x miniDP 1.4, 1x USB-C®	-
AMD Radeon PRO W6400	4GB GDDR6	50W	2x DP 1.4	-
AMD Radeon PRO W6600	8GB GDDR6	130W	4x DP 1.4	-
AMD Radeon PRO W6800	32GB GDDR6 with ECC	250W	6x miniDP 1.4a	-
AMD Radeon Pro VII	16GB HBM2	250W	6x DP 1.4	-

Monitor Support

Monitor Support

Supports multiple displays via discrete graphics, the number of maximum monitors supported depends on the graphic card in use

Chipset

Chipset

AMD WRX80

Memory

Max Memory^[1]

Up to 1TB (8x 128GB DDR4-3200 RDIMMs)

Memory Type

DDR4-3200 RDIMM ECC

Memory Slots

8 DDR4 DIMM slots, 8 channels capable

Memory Protection

ECC

Notes:

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

Storage

Storage Support^[1]

Up to 5x 3.5" SATA HDD + 11x M.2 SSD

- 3.5" HDD up to 4TB each

• Onboard M.2 SSD up to 4TB each

• M.2 SSD by M.2 to PCIe® adapter up to 2TB

Storage Type^{***[2]}

Disk Type	Interface	RPM	Offering
3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB / 2TB / 4TB

M.2 PCIe SSD	PCIe NVMe®, PCIe 3.0	-	256GB / 512GB / 1TB / 2TB
M.2 PCIe SSD	PCIe NVMe, PCIe 4.0	-	256GB / 512GB / 1TB / 2TB / 4TB

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

- Notes:
- 1. The storage capacity supported is based on the test results with current Lenovo storage offerings. The system may support larger storage as the technology develops.
 - 2. 4TB M.2 SSD is for onboard M.2 slots only

Removable Storage

Optical Support

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

Card Reader

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

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC4050H codec

Speakers

Single speaker

Power Supply

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

- Two PCIe 4.0 x8
- Four PCIe 4.0 x16

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^[1]

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

Notes:

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

Ports^[1]**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)

Rear Ports^[2]

- 2x USB 2.0
- 4x USB 3.2 Gen 2
- 2x PS/2 ports (keyboard / mouse)
- 1x Ethernet (10GbE RJ-45)
- 1x line-in (3.5mm)
- 1x line-out (3.5mm)
- 1x microphone (3.5mm)

Optional Rear Ports^{***}

- 2x USB-C 3.2 Gen 2 (via 2-port USB-C expansion card, PCIe x4)
- 1x Thunderbolt™ 3
- 1x serial

Notes:

1. The transfer speed of following ports will vary and, depending on many factors, such as the processing speed of the host device, file attributes and other factors related to system configuration and your operating environment, will be slower than theoretical speed.
USB 2.0: 480 Mbit/s;
USB 3.2 Gen 1 (SuperSpeed USB 5Gbps, formerly USB 3.0 / USB 3.1 Gen 1): 5 Gbit/s;
USB 3.2 Gen 2 (SuperSpeed USB 10Gbps, formerly USB 3.1 Gen 2): 10 Gbit/s;
USB 3.2 Gen 2x2 (SuperSpeed USB 20Gbps): 20 Gbit/s;
Thunderbolt 3/4: 40 Gbit/s;
2. For video ports on discrete graphics, please see graphics section

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

Discrete TPM 2.0, TCG certified

Physical Locks

- (Optional) Access Panel Lock Kit with Common Key
- (Optional) Access Panel Lock Kit with Unique Key
- Kensington® Security Slot, 3 x 7 mm

Chassis Intrusion Switch

Chassis intrusion switch

BIOS Security

- Administrator password
- Power-on password

MANAGEABILITY

System Management

System Management^{[1][2]}

AMD Pro Manageability

Notes:

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

Diagnostic

Diagnostic

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

SERVICE

Warranty

Base Warranty^[1]

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

Notes:

1. More information of warranty policy, please access <https://pcsupport.lenovo.com/warranty>

ENVIRONMENTAL

Operating Environment

Temperature

- Operating: 10°C (50°F) to 35°C (95°F)
- Storage: -40°C (-40°F) to 60°C (140°F)

Altitude

- Operating: 0 m (0 ft) to 3048 m (10,000 ft)
- Storage: 0 m (0 ft) to 12192 m (40,000 ft)

Humidity

- Operating: 20% to 80%
- Storage: 10% to 90%

CERTIFICATIONS

Green Certifications

Green Certifications

- EPEAT™ Silver
- ENERGY STAR® 8.0 (on model 30E00006US)
- GREENGUARD®
- RoHS compliant

ISV Certifications

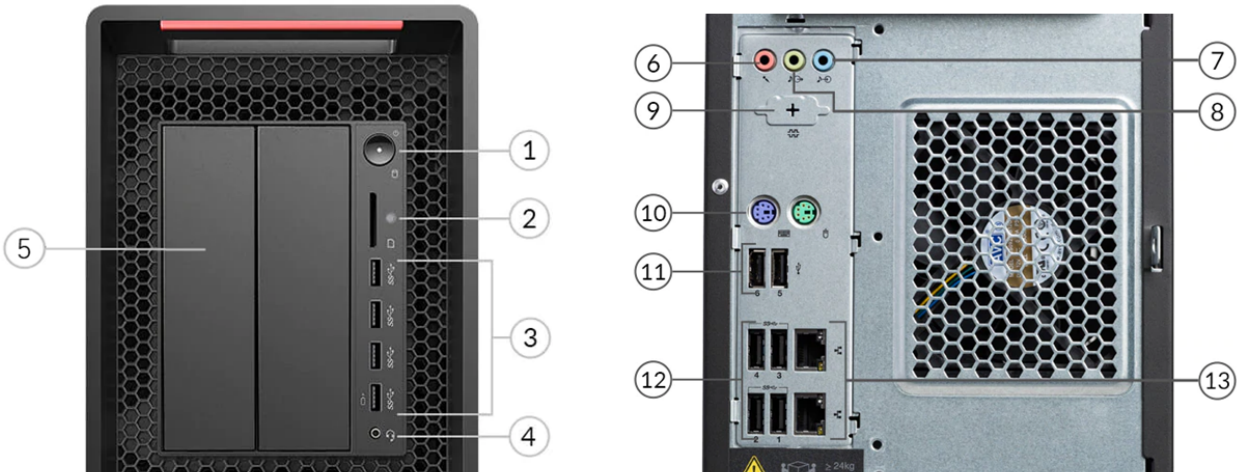
ISV Certifications

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

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- Feature with *** means that one or more offerings listed under the feature could be configured on selected models.
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OVERVIEW



1. Power button	8. Line-out (3.5mm)
2. Card reader	9. Serial *
3. 4x USB 3.1 Gen 1	10. 2x PS/2 ports (keyboard / mouse)
4. Headphone / microphone combo jack (3.5mm)	11. 2x USB 2.0
5. 2x Flex bay	12. 4x USB 3.1 Gen 1
6. Microphone (3.5mm)	13. 2x Ethernet (RJ-45)
7. Line-in (3.5mm)	

Notes:

- Ports with * are only available on selected models

PERFORMANCE

Processor

Processor Family

Up to two 165W Gen 1 or Gen 2 Intel® Xeon® Scalable family processors, Bronze, Silver, Gold, or Platinum

Processor**

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

Xeon Gold 6148	20	40	2.4GHz	3.7GHz	27.5MB	DDR4-2666	-
Xeon Gold 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

Operating System**

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

Graphics

Discrete Graphics Support

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

Discrete Graphics Offering***

Graphics	Memory	Power	Connector	SLI / NVlink
Quadro P400	2GB GDDR5	30W	3x miniDP 1.4	None
Quadro P600	2GB GDDR5	45W	4x miniDP	None
Quadro P620	2GB GDDR5	40W	4x miniDP 1.4	None
Quadro P1000	4GB GDDR5	50W	4x miniDP 1.4	None
Quadro P2000	5GB GDDR5	75W	4x DP	None
Quadro P2200	5GB GDDR5	75W	4x DP 1.4	None
Quadro P4000	8GB GDDR5	120W	4x DP 1.4	None
Quadro P5000	16GB GDDR5X	180W	1x DVI-D DL, 4x DP 1.4	SLI
Quadro P6000	24GB GDDR5X	250W	1x DVI-D DL, 4x DP 1.4	SLI
NVIDIA T400	2GB GDDR6	40W	3x miniDP 1.4	None
NVIDIA T400	4GB GDDR6	40W	3x miniDP 1.4	None
NVIDIA T600	4GB GDDR6	40W	4x miniDP 1.4	None
NVIDIA T1000	4GB GDDR6	50W	4x miniDP 1.4	None
NVIDIA T1000	8GB GDDR6	50W	4x miniDP 1.4	None
Quadro RTX 4000	8GB GDDR6	160W	3x DP 1.4, 1x VirtualLink	None
Quadro RTX 5000	16GB GDDR6	265W	4x DP 1.4, 1x VirtualLink	NVLink
Quadro RTX 6000	24GB GDDR6	295W	4x DP 1.4, 1x VirtualLink	NVLink

Quadro RTX 8000	48GB GDDR6	295W	4x DP 1.4, 1x VirtualLink	NVLink
NVIDIA RTX A2000	6GB GDDR6	70W	4x miniDP 1.4a	None
NVIDIA RTX A2000	12GB GDDR6	70W	4x miniDP 1.4a	None
NVIDIA RTX A4000	16GB GDDR6 with ECC	140W	4x DP 1.4a	None
NVIDIA RTX A4500	20GB GDDR6 with ECC	200W	4x DP 1.4	None
NVIDIA RTX A5000	24GB GDDR6 with ECC	230W	4x DP 1.4a	NVLink
NVIDIA RTX A5500	24GB GDDR6 with ECC	230W	4x DP 1.4a	NVLink
NVIDIA RTX A6000	48GB GDDR6 with ECC	300W	4x DP 1.4a	NVLink
Quadro GP100	16GB HBM2	235W	1x DVI-D DL, 4x DP	NVLink
Quadro GV100	32GB HBM2	250W	4x DP 1.4	NVLink

Monitor Support

Monitor Support

Supports multiple displays via discrete graphics, the number of maximum monitors supported depends on the graphic card in use

Chipset

Chipset

Intel C621 chipset

Memory

Max Memory^[1]

Up to 768GB DDR4-2933

Memory Type**

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

Memory Slots

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

Memory Protection

ECC

Notes:

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

Storage

Storage Support^[1]

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

- 3.5" HDD up to 6TB each
- 2.5" SATA HDD up to 500GB each
- 2.5" SAS HDD up to 600GB each
- 2.5" SATA SSD up to 2TB each
- M.2 SSD up to 2TB each
- 2.5" PCIe SSD up to 1.5TB each
- PCIe AIC SSD up to 480GB each

Storage Type***

Disk Type	Interface	RPM	Offering
2.5" PCIe SSD	PCIe NVMe®	-	1.5TB
2.5" SAS HDD	SAS 12Gb/s	10K	300GB / 600GB
2.5" SATA SSD	SATA 6Gb/s	-	256GB / 512GB / 1TB / 2TB
2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB / 500GB FIPS

3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB / 2TB / 4TB / 6TB
M.2 PCIe SSD	PCIe NVMe	-	256GB / 512GB / 1TB / 2TB
PCIe AIC SSD	PCIe NVMe	-	480GB

Storage Controllers

Storage Controller	Type	Interface	RAID	Cache
Onboard Intel RSTe SATA RAID	Standard	SATA 6.0Gb/s	0/1/10/5	None
9440-8i PCIe	Optional	SAS 12.0Gb/s, SATA 6.0Gb/s	0/1/10/5	None
9460-16i PCIe	Optional	SAS 12.0Gb/s, SATA 6.0Gb/s	0/1/10/5/6	4GB DDR4, SuperCap
NVMe Basic	Optional	PCIe NVMe	0/1/10	None
NVMe Premium	Optional	PCIe NVMe	0/1/10/5	None
NVMe for Intel SSD	Optional	PCIe NVMe	0/1/10/5	None

Notes:

1. The storage capacity supported is based on the test results with current Lenovo storage offerings. The system may support larger storage as the technology develops.

Removable Storage

Optical Support

Up to 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

Speakers

Single speaker

Power Supply

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^[1]

- 2x 3.5" disk bay (standard)

- 4x 3.5" disk bay (optional):
 - 2 bays come with 3rd disk or Storage Bay Upgrade Kit
 - 2 bays via flex bay

Flex Bays

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

M.2 Slots

Up to 9x M.2 SSD:

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

Expansion Slots

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

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

Notes:

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

CONNECTIVITY

Network

Onboard Ethernet

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

Optional Ethernet

Additional Ethernet options via PCIe adapter

WLAN + Bluetooth^[1]

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

Notes:

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

Ports^[1]

Front Ports

- 1x USB 3.1 Gen 1 (Always On and fast charge)
- 3x USB 3.1 Gen 1
- 1x headphone / microphone combo jack (3.5mm)

Optional Front Ports***

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

Rear Ports^[2]

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

Optional Rear Ports^{***}

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

Notes:

1. The transfer speed of following ports will vary and, depending on many factors, such as the processing speed of the host device, file attributes and other factors related to system configuration and your operating environment, will be slower than theoretical speed.
USB 2.0: 480 Mbit/s;
USB 3.2 Gen 1 (SuperSpeed USB 5Gbps, formerly USB 3.0 / USB 3.1 Gen 1): 5 Gbit/s;
USB 3.2 Gen 2 (SuperSpeed USB 10Gbps, formerly USB 3.1 Gen 2): 10 Gbit/s;
USB 3.2 Gen 2x2 (SuperSpeed USB 20Gbps): 20 Gbit/s;
Thunderbolt 3/4: 40 Gbit/s;
2. For video ports on discrete graphics, please see graphics section

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

- (Optional) Access Panel Lock Kit with Common Key
- (Optional) Access Panel Lock Kit with Unique Key
- Kensington® Security Slot, 3 x 7 mm

Chassis Intrusion Switch

Chassis intrusion switch

BIOS Security

- Administrator password
- Power-on password

MANAGEABILITY

System Management

System Management^{[1][2]}

Intel vPro with Intel AMT 11.0

Notes:

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

Diagnostic

Diagnostic

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

SERVICE

Warranty

Base Warranty**^[1]

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

Notes:

1. More information of warranty policy, please access <https://pcsupport.lenovo.com/warranty>

ENVIRONMENTAL

Operating Environment

Temperature

- Operating: 10°C (50°F) to 35°C (95°F)
- Storage: -40°C (-40°F) to 60°C (140°F)

Altitude

- Operating: 0 m (0 ft) to 3048 m (10,000 ft)
- Storage: 0 m (0 ft) to 12192 m (40,000 ft)

Humidity

- Operating: 20% to 80%
- Storage: 10% to 90%

CERTIFICATIONS

Green Certifications

Green Certifications

- EPEAT™ Silver
- ENERGY STAR® 8.0 (on model 30BA00EQUUS)
- GREENGUARD®
- RoHS compliant

ISV Certifications

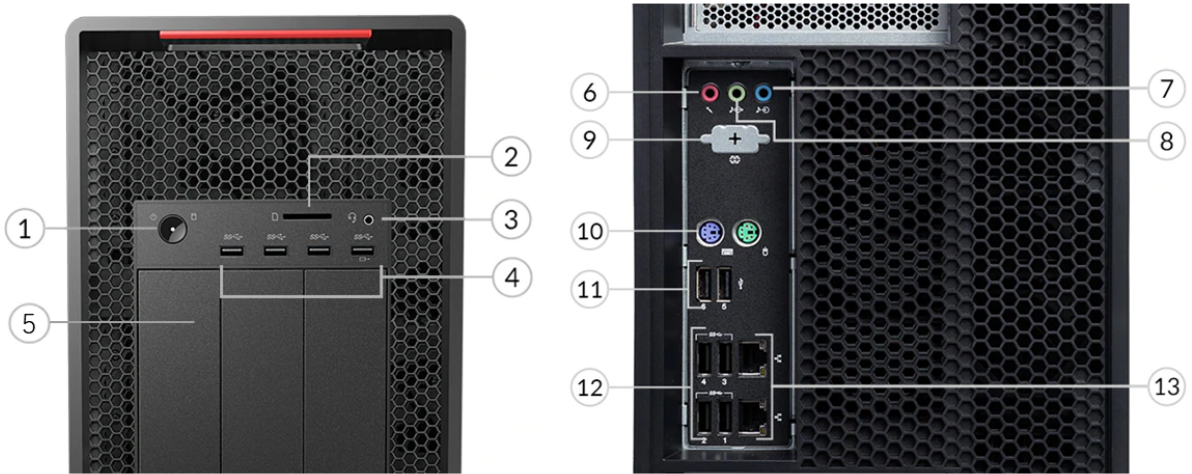
ISV Certifications

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

- Feature with ** means that only one offering listed under the feature is configured on selected models.
- Feature with *** means that one or more offerings listed under the feature could be configured on selected models.
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OVERVIEW



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

Notes:

- Ports with * are only available on selected models

PERFORMANCE

Processor

Processor Family

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

Processor**

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

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

Processor Sockets

2x FCLGA3647

Operating System

Operating System**

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

Graphics

Discrete Graphics Support

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

Discrete Graphics Offering***

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

Quadro P6000	24GB GDDR5X	250W	1x DVI-D DL, 4x DP 1.4	SLI
NVIDIA T400	2GB GDDR6	40W	3x miniDP 1.4	None
NVIDIA T400	4GB GDDR6	40W	3x miniDP 1.4	None
NVIDIA T600	4GB GDDR6	40W	4x miniDP 1.4	None
NVIDIA T1000	4GB GDDR6	50W	4x miniDP 1.4	None
NVIDIA T1000	8GB GDDR6	50W	4x miniDP 1.4	None
Quadro RTX 4000	8GB GDDR6	160W	3x DP 1.4, 1x VirtualLink	None
Quadro RTX 5000	16GB GDDR6	265W	4x DP 1.4, 1x VirtualLink	NVLink
Quadro RTX 6000	24GB GDDR6	295W	4x DP 1.4, 1x VirtualLink	NVLink
Quadro RTX 8000	48GB GDDR6	295W	4x DP 1.4, 1x VirtualLink	NVLink
NVIDIA RTX A2000	6GB GDDR6	70W	4x miniDP 1.4a	None
NVIDIA RTX A2000	12GB GDDR6	70W	4x miniDP 1.4a	None
NVIDIA RTX A4000	16GB GDDR6 with ECC	140W	4x DP 1.4a	None
NVIDIA RTX A4500	20GB GDDR6 with ECC	200W	4x DP 1.4	None
NVIDIA RTX A5000	24GB GDDR6 with ECC	230W	4x DP 1.4a	NVLink
NVIDIA RTX A5500	24GB GDDR6 with ECC	230W	4x DP 1.4a	NVLink
NVIDIA RTX A6000	48GB GDDR6 with ECC	300W	4x DP 1.4a	NVLink
Quadro GP100	16GB HBM2	235W	1x DVI-D DL, 4x DP	NVLink
Quadro GV100	32GB HBM2	250W	4x DP 1.4	NVLink

Monitor Support

Monitor Support

Supports multiple displays via discrete graphics, the number of maximum monitors supported depends on the graphic card in use

Chipset

Chipset

Intel C621 chipset

Memory

Max Memory^[1]

Up to 1TB DDR4-2933

Memory Type^{**}

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

Memory Slots

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

Memory Protection

ECC

Notes:

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

Storage

Storage Support^[1]

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

- 3.5" HDD up to 6TB each
- 2.5" SATA HDD up to 500GB each

- 2.5" SAS HDD up to 600GB each
- 2.5" SATA SSD up to 2TB each
- M.2 SSD up to 2TB each
- 2.5" PCIe SSD up to 1.5TB each
- PCIe AIC SSD up to 480GB each

Storage Type***

Disk Type	Interface	RPM	Offering
2.5" PCIe SSD	PCIe NVMe®	-	1.5TB
2.5" SAS HDD	SAS 12Gb/s	10K	300GB / 600GB
2.5" SATA SSD	SATA 6Gb/s	-	256GB / 512GB / 1TB / 2TB
2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB / 500GB FIPS
3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB / 2TB / 4TB / 6TB
M.2 PCIe SSD	PCIe NVMe	-	256GB / 512GB / 1TB / 2TB
PCIe AIC SSD	PCIe NVMe	-	480GB

Storage Controllers

Storage Controller	Type	Interface	RAID	Cache
Onboard Intel RSTe SATA RAID	Standard	SATA 6.0Gb/s	0/1/10/5	None
9440-8i PCIe	Optional	SAS 12.0Gb/s, SATA 6.0Gb/s	0/1/10/5	None
9460-16i PCIe	Optional	SAS 12.0Gb/s, SATA 6.0Gb/s	0/1/10/5/6	4GB DDR4, SuperCap
NVMe Basic	Optional	PCIe NVMe	0/1/10	None
NVMe Premium	Optional	PCIe NVMe	0/1/10/5	None
NVMe for Intel SSD	Optional	PCIe NVMe	0/1/10/5	None

Notes:

1. The storage capacity supported is based on the test results with current Lenovo storage offerings. The system may support larger storage as the technology develops.

Removable Storage

Optical Support

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

Card Reader

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

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC662 codec

Speakers

Single speaker

Power Supply

Power Supply

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

DESIGN

Mechanical

Form Factor

Tower (55L)

Dimensions (WxDxH)

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

Weight

37 kg (81.6 lbs, maximum configuration)

Bays^[1]

- 2x 3.5" disk bay (standard)
- 4x 3.5" disk bay (optional):
 - 2 bays come with 3rd disk or Storage Bay Upgrade Kit
 - 2 bays via flex bay

Flex Bays

3x flex bay, supports the following:

- 3x half-height optical drives
- 2x 5.25" 9.0mm optical drives
- 1x 5.25" 9.0mm optical drive + 1x 3.5"/2.5" SATA SSD/HDD
- 1x 3.5"/2.5" SATA SSD/HDD with Front Access Storage Enclosure
- 1x flex module for the following options:

Tray 1: 9.0mm optical

Tray 2: 15-in-1 USB 3.2 Gen 1 reader or 2x Thunderbolt™

Port 1 and 2: Front USB 3.2 Gen 1 Type-C or eSATA

M.2 Slots

Up to 9x M.2 SSD:

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

Expansion Slots

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

Expansion Slots Offering

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

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

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

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

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

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

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

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

Notes:

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

CONNECTIVITY

Network

Onboard Ethernet

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

Optional Ethernet

Additional Ethernet options via PCIe adapter

WLAN + Bluetooth^[1]

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

Notes:

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

Ports^[1]

Front Ports

- 1x USB 3.1 Gen 1 (Always On and fast charge)
- 3x USB 3.1 Gen 1
- 1x headphone / microphone combo jack (3.5mm)

Optional Front Ports^{***}

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

Rear Ports^[2]

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

Optional Rear Ports^{***}

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

Notes:

1. The transfer speed of following ports will vary and, depending on many factors, such as the processing speed of the host device, file attributes and other factors related to system configuration and your operating environment, will be slower than theoretical speed.
USB 2.0: 480 Mbit/s;
USB 3.2 Gen 1 (SuperSpeed USB 5Gbps, formerly USB 3.0 / USB 3.1 Gen 1): 5 Gbit/s;
USB 3.2 Gen 2 (SuperSpeed USB 10Gbps, formerly USB 3.1 Gen 2): 10 Gbit/s;
USB 3.2 Gen 2x2 (SuperSpeed USB 20Gbps): 20 Gbit/s;
Thunderbolt 3/4: 40 Gbit/s;
2. For video ports on discrete graphics, please see graphics section

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

- (Optional) Access Panel Lock Kit with Common Key
- (Optional) Access Panel Lock Kit with Unique Key
- Kensington® Security Slot, 3 x 7 mm

Chassis Intrusion Switch

Chassis intrusion switch

BIOS Security

- Administrator password
- Power-on password

MANAGEABILITY

System Management

System Management^{[1][2]}

Intel vPro with Intel AMT 11.0

Notes:

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

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

Diagnostic

Diagnostic

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

SERVICE

Warranty

Base Warranty^[1]

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

Notes:

1. More information of warranty policy, please access <https://pcsupport.lenovo.com/warranty>

ENVIRONMENTAL

Operating Environment

Temperature

- Operating: 10°C (50°F) to 35°C (95°F)
- Storage: -40°C (-40°F) to 60°C (140°F)

Altitude

- Operating: 0 m (0 ft) to 3048 m (10,000 ft)
- Storage: 0 m (0 ft) to 12192 m (40,000 ft)

Humidity

- Operating: 20% to 80%
- Storage: 10% to 90%

CERTIFICATIONS

Green Certifications

Green Certifications

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

ISV Certifications

ISV Certifications

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

- Feature with ** means that only one offering listed under the feature is configured on selected models.
- Feature with *** means that one or more offerings listed under the feature could be configured on selected models.
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