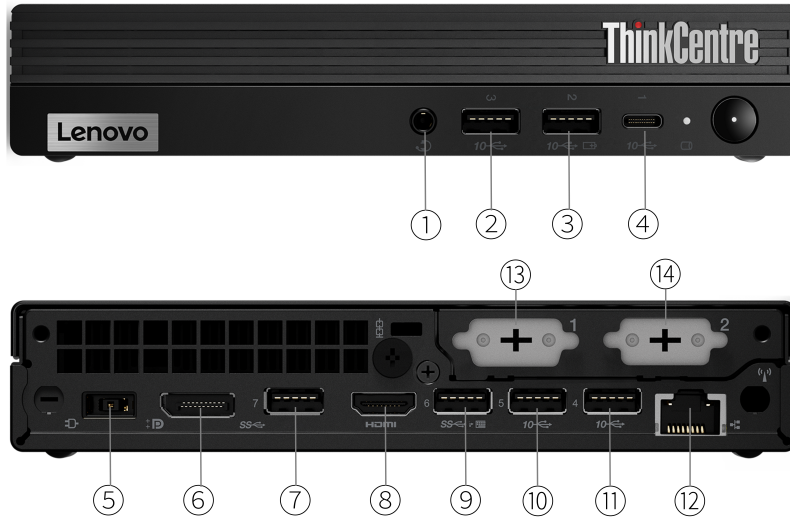


OVERVIEW



1. Headphone / microphone combo jack (3.5mm)	8. HDMI
2. USB 3.2 Gen 2	9. USB 3.2 Gen 1 (with Smart Power On feature)
3. USB 3.2 Gen 2 (Always On and fast charge)	10. USB 3.2 Gen 2
4. USB-C 3.2 Gen 2	11. USB 3.2 Gen 2
5. Power connector	12. Ethernet (RJ-45)
6. DisplayPort	13. Optional port 1 *
7. USB 3.2 Gen 1	14. Optional port 2 *

Notes:

- Ports with * are only available on selected models

PERFORMANCE

Processor

Processor Family

Intel® Celeron®, Intel Pentium®, or 12th Generation Intel Core™ i3 / i5 / i7 / i9 Processor

Processor

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
Celeron G6900	2	2	3.4GHz	-	4MB	DDR5-4800	Intel UHD Graphics 710
Celeron G6900T	2	2	2.8GHz	-	4MB	DDR5-4800	Intel UHD Graphics 710
Pentium Gold G7400T	2	4	3.1GHz	-	6MB	DDR5-4800	Intel UHD Graphics 710
Pentium Gold G7400	2	4	3.7GHz	-	6MB	DDR5-4800	Intel UHD Graphics 710
Core i3-12100	4 (4 P-core + 0 E-core)	8	P-core 3.3GHz	P-core 4.3GHz	12MB	DDR5-4800	Intel UHD Graphics 730
Core i3-12100T	4 (4 P-core + 0 E-core)	8	P-core 2.2GHz	P-core 4.1GHz	12MB	DDR5-4800	Intel UHD Graphics 730
Core i3-12300T	4 (4 P-core + 0 E-core)	8	P-core 2.3GHz	P-core 4.2GHz	12MB	DDR5-4800	Intel UHD Graphics 730
Core i3-12300	4 (4 P-core + 0 E-core)	8	P-core 3.5GHz	P-core 4.4GHz	12MB	DDR5-4800	Intel UHD Graphics 730
Core i5-12400	6 (6 P-core + 0 E-core)	12	P-core 2.5GHz	P-core 4.4GHz	18MB	DDR4-3200	Intel UHD Graphics 730
Core i5-12400T	6 (6 P-core + 0 E-core)	12	P-core 1.8GHz	P-core 4.2GHz	18MB	DDR5-4800	Intel UHD Graphics 730
Core i5-12600	6 (6 P-core + 0 E-core)	12	P-core 3.3GHz	P-core 4.8GHz	18MB	DDR5-4800	Intel UHD Graphics 770
Core i5-12500T	6 (6 P-core + 0 E-core)	12	P-core 2.0GHz	P-core 4.4GHz	18MB	DDR5-4800	Intel UHD Graphics 770
Core i5-12500	6 (6 P-core + 0 E-core)	12	P-core 3.0GHz	P-core 4.6GHz	18MB	DDR5-4800	Intel UHD Graphics 770
Core i5-12600T	6 (6 P-core + 0 E-core)	12	P-core 2.1GHz	P-core 4.6GHz	18MB	DDR5-4800	Intel UHD Graphics 770
Core i7-12700	12 (8 P-core + 4 E-core)	20	P-core 2.1GHz / E-core 1.6GHz	P-core 4.8GHz / E-core 3.6GHz	25MB	DDR5-4800	Intel UHD Graphics 770
Core i7-12700T	12 (8 P-core + 4 E-core)	20	P-core 1.4GHz / E-core 1.0GHz	P-core 4.6GHz / E-core 3.4GHz	25MB	DDR5-4800	Intel UHD Graphics 770
Core i9-12900	16 (8 P-core + 8 E-core)	24	P-core 2.4GHz / E-core 1.8GHz	P-core 5.0GHz / E-core 3.8GHz	30MB	DDR5-4800	Intel UHD Graphics 770
Core i9-12900T	16 (8 P-core + 8 E-core)	24	P-core 1.4GHz / E-core 1.0GHz	P-core 4.8GHz / E-core 3.6GHz	30MB	DDR5-4800	Intel UHD Graphics 770

Operating System

Operating System^[1]

- Windows® 11 Pro 64
- Windows 11 Home 64
- Windows 11 DG Windows 10 Pro 64
- Windows 10 IoT Enterprise LTSC 2021
- Ubuntu Linux
- Red Hat Enterprise Linux (certified only)

ThinkCentre M90q Gen 3

- No operating system

Notes:

- Windows 10 IoT Enterprise LTSC 2021 is for special bid only.

Graphics

Graphics^[1]

Graphics	Type	Memory	Boost Clock	TGP	Connector	Max Resolution	Key Features	Remark
Intel UHD graphics 710	Integrated	Shared	-	-	1x HDMI® 2.1 TMDS, 1x DP 1.4, 2x punch out ports([2x HDMI/VGA/DP] or [USB-C® with DP function, HDMI/VGA/DP])	4096x2160@60Hz(HDMI), 1920x1200@60Hz(VGA), 4096x2160@60Hz(DP), 4096x2160@60Hz(USB-C with DP function)	DirectX® 12	-
Intel UHD graphics 730	Integrated	Shared	-	-	1x HDMI 2.1 TMDS, 1x DP 1.4, 2x punch out ports([2x HDMI/VGA/DP] or [USB-C with DP function, HDMI/VGA/DP])	4096x2160@60Hz(HDMI), 1920x1200@60Hz(VGA), 4096x2160@60Hz(DP), 4096x2160@60Hz(USB-C with DP function)	DirectX 12	-
Intel UHD graphics 770	Integrated	Shared	-	-	1x DP 1.4, 1x HDMI 2.1 TMDS, 2x punch out ports([2x HDMI/VGA/DP] or [USB-C with DP function, HDMI/VGA/DP])	4096x2160@60Hz(HDMI), 1920x1200@60Hz(VGA), 4096x2160@60Hz(DP), 4096x2160@60Hz(USB-C with DP function)	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 4 independent displays via (onboard DP, onboard HDMI, punch out port 1 [VGA / HDMI / DP / USB-C], and punch out port 2 [VGA / HDMI / DP])

Chipset

Chipset

Intel Q670 Chipset

Memory

Max Memory^[1]

Up to 64GB DDR5-4800

Memory Slots

Two DDR5 SO-DIMM slots, dual-channel capable

Memory Type

DDR5-4800

Notes:

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

Storage

Storage Support^[1]

ThinkCentre M90q Gen 3

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

Storage Type

Disk Type	Interface	RPM	Offering	Security
2.5" SATA HDD	SATA 6Gb/s	7.2K	500GB / 1TB	-
M.2 2242 SSD	PCIe® NVMe®, PCIe 3.0 x2	-	128GB	-
M.2 2280 SSD	PCIe NVMe, PCIe 4.0 x4 Value	-	256GB / 512GB / 1TB	Opal2
M.2 2280 SSD	PCIe NVMe, PCIe 4.0 x4 Performance	-	512GB / 1TB / 2TB	Opal2

RAID

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

- 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® ALC256VB codec

Speakers

- Single speaker, 2W x1
- Premium single speaker, 2W 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, 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), black
- No mouse

Mechanical

Form Factor

Tiny (1L)

Dimensions (WxDxH)

Models	Dimensions
Tiny only	179 x 182.9 x 36.5 mm with rubber feet (7.05 x 7.2 x 1.44 inches with rubber feet)
Tiny & ODD	204.2 x 186.6 x 64 mm with rubber feet (8.04 x 7.35 x 2.52 inches with rubber feet)

Packaging Dimensions (WxDxH)

- Tiny only : 490 x 268 x 141 mm (19.29 x 10.55 x 5.55 inches)
- Tiny & ODD : 490 x 268 x 166 mm (19.29 x 10.55 x 6.54 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 & ODD: 3.58 kg (7.89 lbs)
- Tiny only: 2.848 kg (6.28 lbs)

Case Color

Black

Bays

1x 2.5" disk bay

Expansion Slots

- One PCIe 4.0 x8, low-profile
- Two M.2 PCIe Gen 4x4 slots (for SSD)
- One M.2 slot (for WLAN)

EOU

- (Optional) toolless chassis open (toolless chassis screw required) and toolless M.2 SSD, HDD, memory assembly / removal
- No support

Stand

- Vertical stand
- No stand

IO Box

No IO box

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

- Gigabit Ethernet, Intel Ethernet Server Adapter I350-T4, 4x RJ-45, PCIe x4
- No optional Ethernet
- 2.5 Gigabit Ethernet, Realtek RTL8125BGS, 1x RJ-45, supports Wake-on-LAN

WLAN + Bluetooth^[1]

- AMD RZ616, Wi-Fi® 6E, 802.11ax Dual Band 2x2 Wi-Fi + Bluetooth 5.2, M.2 Card
- Realtek RTL8822BE, 802.11ac Dual Band 1x1 Wi-Fi + Bluetooth 5.2, M.2 card
- Realtek Wi-Fi 6 RTL8852AE, 802.11ax Dual Band 2x2 Wi-Fi + Bluetooth 5.2, M.2 card
- Realtek Wi-Fi 6E RTL8852CE, 802.11ax Dual Band 2x2 Wi-Fi + Bluetooth 5.2, M.2 card
- Intel Wi-Fi 6 AX201, 802.11ax 2x2 Wi-Fi + Bluetooth 5.2, Intel vPro technology support, M.2 Card
- Intel Wi-Fi 6 AX201, 802.11ax 2x2 Wi-Fi + Bluetooth 5.2, M.2 Card
- Intel Wi-Fi 6E AX211, 802.11ax 2x2 Wi-Fi + Bluetooth 5.2, 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
- 1x USB 3.2 Gen 2 (Always On and 5V@2.1A charging)
- 1x USB-C 3.2 Gen 2
- 1x headphone / microphone combo jack (3.5mm)

Optional Front Ports

None

Rear Ports^[2]

- 2x USB 3.2 Gen 1 (one supports Smart Power On)
- 2x USB 3.2 Gen 2
- 1x HDMI 2.1 TMDS
- 1x DisplayPort™ 1.4
- 1x Ethernet (RJ-45)

Optional Rear Ports

- 2x USB 3.2 Gen 1 (share one USB 3.2 Gen 1 bandwidth, occupies port 1 and 2)
- Punch out port 1 (one of VGA / DisplayPort / HDMI / serial / USB-C 3.2 Gen 1 with DisplayPort functions)
- 4x USB 3.2 Gen 1 ports (share one USB 3.2 Gen 1 bandwidth, occupy optional port 1 and 2)
- 1x 2.5GbE RJ-45, via RTL8125BGS
- 4x GbE RJ-45, via I350-T4
- Punch out port 2 (one of VGA / DisplayPort / HDMI / serial / 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**

- DP to dual DP dongle
- DP to HDMI dongle
- DP to VGA dongle
- HDMI to HDMI cable (1.5m)
- HDMI to VGA dongle
- DP to DVI 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
- Certificate based BIOS management
- Cover presence switch
- Self-healing BIOS
- Smart USB protection (allows keyboard / mouse only, blocks all storage devices)
- Individual USB port disablement

MANAGEABILITY

System Management

System Management^[1]

- Intel vPro Enterprise with Intel AMT 16.0
- Non-vPro

Notes:

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

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

- EPEAT™ Gold
- ENERGY STAR® 8.0
- ErP Lot 3
- TCO Certified 9.0
- RoHS compliant

Other Certifications

Other Certifications

(Optional) TÜV Rheinland® Ultra Low Noise

Mil-Spec Test

MIL-STD-810H military test passed

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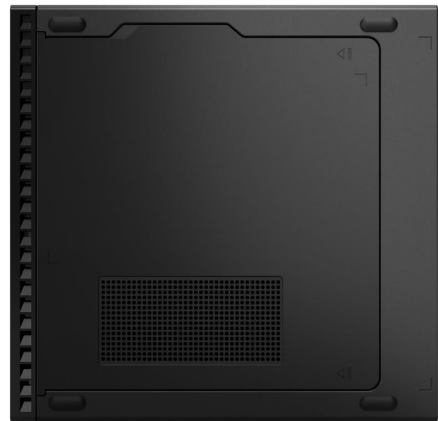
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