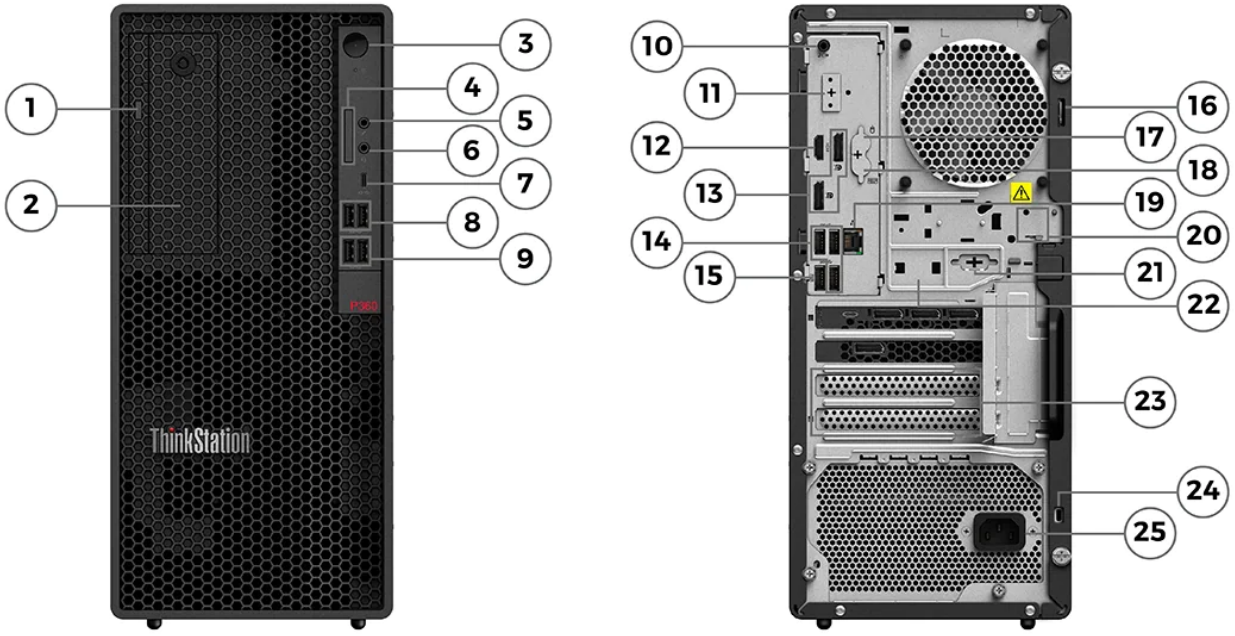
OVERVIEW



1. Optical drive *	14. 3x USB 3.2 Gen 1
2. Flex bay *	15. USB 3.2 Gen 1 (with Smart Power On feature)
3. Power button	16. Padlock loop *
4. Card reader *	17. PS/2 port (mouse) *
5. Microphone (3.5mm)	18. PS/2 port (keyboard) *
6. Headphone / microphone combo jack (3.5mm)	19. Ethernet (RJ-45)
7. USB-C 3.2 Gen 2 (data transfer only)	20. E-lock slot *
8. 2x USB 3.2 Gen 1	21. Serial (9-pin) *
9. 2x USB 3.2 Gen 2	22. Smart cable clip slots *
10. Line-out (3.5mm)	23. Optional ports on expansion cards *
11. Flex IO *	24. Kensington Security Slot
12. HDMI	25. Power connector
13. 2x DisplayPort	

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

PERFORMANCE

Processor

Processor Family

12th Generation Intel® Core™ i3 / i5 / i7 / i9 Processor

Processor**

Processor Name	Cores	Threads	Base Frequency	Max Frequency	Cache	Memory Support	Processor Graphics
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 i3-12300	4 (4 P-core + 0 E-core)	8	P-core 3.5GHz	P-core 4.4GHz	12MB	DDR5-4800	Intel UHD Graphics 730
Core i5-12600	6 (6 P-core + 0 E-core)	12	P-core 3.3GHz	P-core 4.8GHz	18MB	DDR5-4800	Intel UHD Graphics 770
Core i5-12400	6 (6 P-core + 0 E-core)	12	P-core 2.5GHz	P-core 4.4GHz	18MB	DDR5-4800	Intel UHD Graphics 730
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 i5-12600K	10 (6 P-core + 4 E-core)	16	P-core 3.7GHz / E-core 2.8GHz	P-core 4.9GHz / E-core 3.6GHz	20MB	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 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 i7-12700K	12 (8 P-core + 4 E-core)	20	P-core 3.6GHz / E-core 2.7GHz	P-core 4.9GHz / E-core 3.8GHz	25MB	DDR5-4800	Intel UHD Graphics 770
Core i9-12900K	16 (8 P-core + 8 E-core)	24	P-core 3.2GHz / E-core 2.4GHz	P-core 5.1GHz / E-core 3.9GHz	30MB	DDR5-4800	Intel UHD Graphics 770

Processor Sockets

1x FCLGA1700

Operating System

Operating System[**[1]]**

- Windows® 11 Pro
- Windows 11 Home
- Windows 11 Home Single Language
- Windows 11 DG Windows 10 Pro 64
- Ubuntu Linux LTS
- Red Hat Enterprise Linux 8.6 (certified only, Red Hat Enterprise Linux 8.7 available in late 2022, for detailed and latest information, please visit Red Hat Certified Hardware)
- No operating system

Notes:

1. Some features may not be supported on the system with Linux preload, including but not limited to Intel RST RAID, Human Presence Detection, etc.

Graphics

Integrated Graphics**

- Intel UHD Graphics 730
- Intel UHD Graphics 770

Discrete Graphics Support

Supports up to one NVIDIA® RTX A5000 or two NVIDIA T1000

Discrete Graphics Offering[***[1]]

Graphics	Memory	Power	Connector	SLI / NVlink
NVIDIA T400	2GB GDDR6	40W	3x miniDP 1.4	None
NVIDIA T400 4GB	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	8GB GDDR6	50W	4x miniDP 1.4	None
NVIDIA RTX A2000	6GB GDDR6	70W	4x miniDP 1.4a	None
NVIDIA RTX A2000 12GB	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 RTX A4500 will be available from April 2022.

Monitor Support

Monitor Support

Onboard graphics supports up to 4 independent displays via onboard two DP, one HDMI® and one optional USB-C®; the number of maximum monitors also depends on the discrete graphic card in use

Chipset

Chipset

Intel W680 chipset

Memory

Max Memory[1]

Up to 128GB DDR5-3600

Memory Type**[2]

- DDR5-3600 ECC
- DDR5-3600 non-ECC
- DDR5-4000 ECC
- DDR5-4000 non-ECC
- DDR5-4400 ECC
- DDR5-4400 non-ECC

Memory Slots

Four DDR5 UDIMM slots, dual-channel capable

Memory Protection

ECC on models with ECC DIMMs and ECC capable processor

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. ThinkStation® P360 Tower comes with DDR5-4800 memory and will run at DDR5-4400, DDR5-4000, and DDR5-3600 due to platform limitation:
   1x 8GB / 2x 8GB / 1x 16GB / 2x 16GB / 2x 32GB configurations run at DDR5-4400;
   4x 8GB / 4x 16GB configurations run at DDR5-4000;
   4x 32GB configuration runs at DDR5-3600

Storage

Storage Support[1]

Up to 2x 3.5" SATA HDD or 4x 2.5" SATA HDD; also supports up to 3x M.2 SSD (2 by onboard, 1 by M.2 to PCIe® adapter)
• 3.5" HDD up to 4TB each
• 2.5" HDD up to 1TB 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	Security
2.5" SATA HDD	SATA 6Gb/s	7.2K	1TB / 1TB FIPS	-
3.5" SATA HDD	SATA 6Gb/s	7.2K	1TB / 2TB / 4TB	-
M.2 2280 SSD	PCIe NVMe®, PCIe 4.0 x4 Performance	-	512GB / 1TB / 2TB / 4TB	Opal 2.0
M.2 2280 SSD	PCIe NVMe, PCIe 4.0 x4	-	256GB	Opal 2.0

Storage Controllers[3]

Storage Controller	Type	Interface	RAID	Cache
Integrated NVMe controller	Standard	PCIe NVMe	0/1	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. When using M.2 to PCIe adapter, M.2 SSD works at PCIe Gen 3.
   4TB M.2 SSD is pending availability.
3. NVMe RAID is supported on onboard M.2 slots.
   SATA RAID 5 and 10 are supported on 2.5" HDD.

Removable Storage

Optical Support

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

Card Reader

- SD card reader
- No card reader

Multi-Media

Audio Chip

High Definition (HD) Audio, Realtek® ALC897Q-CG codec

Speakers

Single speaker

Power Supply

Power Supply[**]

Power	Type	Efficiency	Key Features
500W	Fixed	92%	Autosensing, 80 PLUS Platinum qualified
750W	Fixed	92%	Autosensing, 80 PLUS Platinum qualified

DESIGN

Mechanical

Form Factor

Tower (17L)

Dimensions (WxDxH)[1]

170 x 315.4 x 376 mm (6.7 x 12.4 x 14.8 inches)

Weight[2]

9.67 kg (21.32 lbs, maximum configuration)

Bays

- 1x 3.5" disk bay (standard)
- 1x 3.5" disk bay (optional)
- 2x 2.5" disk bay (optional)

M.2 Slots

- Up to 3x M.2 SSD:
  - 2 via onboard M.2 PCIe Gen 4 slots
  - 1 via Single M.2 to PCIe adapter, PCIe Gen 3
- One M.2 slot for WiFi

Expansion Slots

- One PCIe 4.0 x16
- One PCIe 4.0 x16 (x4 lanes)
- Two PCIe 3.0 x1 (open ended)

Notes:

1. The system dimensions vary depending on configurations.
2. The system weight is approximate and based on results in Lenovo lab, which varies depending on the source of component, variance of the distribution of each component, and manufacturing process. It may not be the exact weight for each specific model.

CONNECTIVITY

Network

Onboard Ethernet

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

Optional Ethernet

Two additional Ethernet adapters support, up to two additional 10 GbE ports
• Gigabit Ethernet, Intel I210-T1, 1x RJ-45, PCIe x1
• Gigabit Ethernet, Intel I350-T2, 2x RJ-45, PCIe x4
• Gigabit Ethernet, Broadcom BCM5719, 4x RJ-45, PCIe x4
• Gigabit Ethernet, Broadcom BCM5720, 2x RJ-45, PCIe x1
• Gigabit Ethernet, Realtek RTL8168H, 1x RJ-45, PCIe x1
• 10 Gigabit Ethernet, Marvell AQtion AQN-107, 1x RJ-45, PCIe x4

WLAN + Bluetooth®**[1]

- Intel Wi-Fi® 6E AX211, 802.11ax 2x2 Wi-Fi + Bluetooth 5.1, 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 2
- 1x headphone / microphone combo jack (3.5mm)
- 1x microphone (3.5mm)

Rear Ports[2]

- 1x HDMI 2.1 TMDS
- 2x DisplayPort™ 1.4
- 4x USB 3.2 Gen 1 (one supports Smart Power On)
- 1x Ethernet (RJ-45)
- 1x line-out (3.5mm)

Optional Rear Ports

- 1x HDMI 2.1 TMDS (Flex IO)
- 1x VGA (Flex IO)
- 1x USB-C 3.2 Gen 1 with DisplayPort function (Flex IO)
- 1x DP 1.2 (Flex IO)
- 1x USB-C 3.2 Gen 2x2 (support data transfer, via USB-C expansion card, PCIe x4)
- 2x USB 3.2 Gen 1
- 1x Thunderbolt™ 4
- 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

SECURITY & PRIVACY

Security

Security Chip

Discrete TPM 2.0, TCG certified

Physical Locks

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

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® Enterprise with Intel AMT 16
- Non-vPro

Notes:

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

SERVICE

Warranty[1]

Base Warranty**

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

Notes:

1. The warranty upgrades may be bundled with some models, please check the "Included upgrade" column in the specific model's configurations. For more service extensions, please go to https://smartfind.lenovo.com/. To learn more details 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[1]

Green Certifications

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

Notes:

1. The items listed under the "Green Certifications" section may not only refer to certification but also registration or self-declaration.

Other Certifications

Mil-Spec Test

MIL-STD-810H military test passed

ISV Certifications

ISV Certifications

Please visit ISV certifications for Lenovo Workstations

- 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.
- Lenovo reserves the right to change specifications or other product information without notice. Lenovo is not responsible for photographic or typographical errors. LENOVO PROVIDES THIS PUBLICATION “AS IS,” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore this disclaimer may not apply to you.
- The specifications on this page may not be available in all regions, and may be changed or updated without notice.













Lenovo Preferred Pro II(4X30M86911)
Lenovo Preferred Pro II - Teclado - USB - Español - negro - para ThinkCentre M71X;ThinkPad L480;L580;P52;T480;T580;X280;X380 Yoga;ThinkStation P520



La tradición del teclado de alta calidad ThinkPad y ThinkCentre continúa con este teclado USB para fines generales. El teclado USB Preferred Pro II es muy similar a los estándares que se incluyen con los sistemas de escritorio ThinkCentre. También es compatible con sistemas portátiles y estaciones de acoplamiento ThinkStation y ThinkPad habilitados para USB. El reposamuñecas tiene una superficie acolchada que permite apoyar suave y cómodamente las muñecas. Los accesos directos comunes de Microsoft Windows se destacan en la parte frontal de las teclas correspondientes para maximizar la productividad. Tres LED para la modalidad de operación que se ubican en la esquina superior derecha se activarán individualmente o en combinación de acuerdo con la definición compatible con USB 2.0.

Argumentos de Venta

Todas las teclas en las secciones QWERTY y área numérica están cubiertas de goma
Patas inclinables ajustables

Ficha Técnica Resumida

Descripción del producto	Lenovo Preferred Pro II - teclado - Español
Tipo de dispositivo	Teclado
Interfaz	USB
Diseño	Español
Teclado numérico	Sí
Color	Negro
Dimensiones (Ancho x Profundidad x Altura)	45.33 cm x 16.88 cm x 3.416 cm
Peso	850 g
Garantía del fabricante	1 año de garantía
Diseñado para	ThinkCentre M700;M71X;M810;M900;M910;Thinkpad 13;13 Chromebook;ThinkPad A275;A475;E480;E580;L460;L480;L570;L580;P50;P51;P52;P71;T25;T460;T470;T480;T570; Yoga;X280;X380 Yoga;ThinkPad Yoga 260;370;ThinkStation P320;P520;P720;P920;V310;V410;V520-15;V520S-08

Ficha Técnica Completa

General

Tipo de dispositivo	Teclado
Interfaz	USB

Dispositivo de entrada

Diseño	Español
Tecnología del teclado	Cúpula de caucho

Altura ajustable	Sí
Características	Teclado numérico
Anchura	45.33 cm
Profundidad	16.88 cm
Altura	3.416 cm
Peso	850 g

Diverso

Color	Negro
Cumplimiento de normas	VCCI,BSMI,CB,IC,FCC,KCC,EAC,RCM

Garantía del fabricante

Servicio y mantenimiento	Garantía limitada - repuesto - 1 año

Parámetros de entorno

Temperatura mínima de funcionamiento	10 °C
Temperatura máxima de funcionamiento	40 °C
Ámbito de humedad de funcionamiento	8 - 80%

FICHA TÉCNICA

Lea el manual antes de usar el producto.
Sujeta a cambios para mejorar el producto sin previo aviso.

Mouse Óptico Dian Alámbrico



ESPECIFICACIONES GENERALES

Modelo	QAMA18001
Mouse	Alámbrico
Sensor Óptico	1200 Dpi
Conexión	USB
Color	Negro
Compatible	Windows XP Vista / 7 / 8 / 10
Botones	3
Tamaño	101.6*60*35 mm
Peso	000 gr
UPC	7503024642445

En nuestra página web podrá encontrar más información referente al producto.

DATASHEET



NVIDIA RTX A4000

Sleek Design. Powerful Performance.

Amplified Performance for Professionals

The NVIDIA RTX™ A4000 is the most powerful single-slot GPU for professionals, delivering real-time ray tracing, AI-accelerated compute, and high-performance graphics to your desktop. Built on the NVIDIA Ampere architecture, the RTX A4000 combines 48 second-generation RT Cores, 192 third-generation Tensor Cores, and 6,144 CUDA® cores with 16GB of graphics memory with error-correction code (ECC) so you can innovate with uncompromised computing accuracy and reliability. The RTX A4000 also features a power-efficient, single-slot PCIe form factor that fits into a wide range of workstation chassis, so you can do exceptional work without limits.

NVIDIA RTX professional graphics cards are certified with a broad range of professional applications, tested by leading independent software vendors (ISVs) and workstation manufacturers, and backed by a global team of support specialists. Get the peace of mind needed to focus on what matters with the premier visual computing solution for mission-critical business.

Features

- PCI Express Gen 4
- Four DisplayPort 1.4a connectors
- AV1 decode support
- DisplayPort with audio
- 3D stereo support with stereo connector
- NVIDIA GPUDirect® for Video support
- NVIDIA Quadro® Sync II[1] compatibility
- NVIDIA RTX Experience™
- NVIDIA RTX Desktop Manager software
- NVIDIA RTX IO support
- HDCP 2.2 support
- NVIDIA Mosaic[2] technology

1 Quadro Sync II card sold separately. | 2 Windows 10, Windows 11, and Linux. | 3 Peak rates based on GPU Boost Clock. | 4 Effective teraFLOPS (TFLOPS) using the new sparsity feature. | 5 Product is based on a published Khronos specification and is expected to pass the Khronos conformance testing process when available. Current conformance status can be found at **www.khronos.org/conformance**

SPECIFICATIONS

GPU memory	**16GB GDDR6**
Memory interface	**256-bit**
Memory bandwidth	**448 GB/s**
Error-correcting code (ECC)	**Yes**
NVIDIA Ampere architecture-based CUDA Cores	**6,144**
NVIDIA third-generation Tensor Cores	**192**
NVIDIA second-generation RT Cores	**48**
Single-precision performance	**19.2 TFLOPS[3]**
RT Core performance	**37.4 TFLOPS[3]**
Tensor performance	**153.4 TFLOPS[4]**
System interface	**PCIe 4.0 x16**
Power consumption	**Total board power: 140 W**
Thermal solution	**Active**
Form factor	**4.4" H x 9.5" L, single slot**
Display connectors	**4x DisplayPort 1.4a**
Max simultaneous displays	**4x 4096 x 2160 @ 120 Hz, 4x 5120 x 2880 @ 60 Hz, 2x 7680 x 4320 @ 60 Hz**
Power connector	**1x 6-pin PCIe**
Encode/decode engines	**1x encode, 1x decode (+AV1 decode)**
VR ready	**Yes**
Graphics APIs	**DirectX 12 Ultimate , Shader Model 6.6, OpenGL 4.6[5], Vulkan 1.3[5]**
Compute APIs	**CUDA 11.6, DirectCompute, OpenCL 3.0**

Learn more

To learn more about the NVIDIA RTX A4000, visit **www.nvidia.com/rtx-a4000/**

© 2022 NVIDIA Corporation. All rights reserved. NVIDIA, the NVIDIA logo, CUDA, GPUDirect, NVLink, Quadro, RTX Experience, and RTX are trademarks and/or registered trademarks of NVIDIA Corporation in the U.S. and other countries. Other company and product names may be trademarks of the respective companies with which they are associated. All other trademarks are property of their respective owners. MAY22