Lenovo ThinkCentre M90a Pro Gen 4 Intel® Core™ i7 i7-13700 68,6 cm (27") 2560 x 1440 □□□□□ All-in-One PC 16 GB DDR5-SDRAM 512 GB SSD Windows 11 Pro Wi-Fi 6E (802.11ax) □□□□

Brand : Lenovo

Product family: ThinkCentre

Product code: 12JM0019SP

Product name : M90a Pro Gen 4

 $\begin{array}{c} \mbox{Lenovo ThinkCentre M90a Pro Gen 4. \cite{constraints} (27"), \\ \mbox{HD } \cite{co$





Display Camera Privacy type Privacy shutter Display diagonal * 68.6 cm (27") Display resolution * 2560 x 1440 pixels Network Touchscreen * X Wi-Fi * Quad HD HD type * Top Wi-Fi standard * Wi-Fi 6E (802.11ax) Native aspect ratio 16:9 Wi-Fi standards Wi-Fi 6E (802.11ax) 350 cd/m² Display brightness WLAN controller manufacturer Intel IPS Panel type WLAN controller model Intel Wi-Fi 6E AX211 sRGB RGB colour space Antenna type 2x2 Anti-glare screen Ethernet LAN * Colour gamut 99% Ethernet LAN data rates 100,1000 Mbit/s Processor Bluetooth * Processor manufacturer * Intel Bluetooth version 5.1 Intel® Core[™] i7 Processor family * Ports & interfaces 13th gen Intel® Core[™] i7 Processor generation Ethernet LAN (RJ-45) ports 1 i7-13700 Processor model * USB 3.2 Gen 1 (3.1 Gen 1) Type-A Processor cores 16 3 ports quantity ? Processor boost frequency 5.2 GHz USB 3.2 Gen 2 (3.1 Gen 2) Type-A 2 Performance cores 8 ports quantity Efficient cores 8 USB 3.2 Gen 2 (3.1 Gen 2) Type-C 1 Performance-core Max Turbo ports quantity ? 5.1 GHz Frequency Intel® Thunderbolt 4 Efficient-core Max Turbo Frequency 4.1 GHz Thunderbolt 4 ports quantity 1 2.1 GHz Performance-core base frequency HDMI ports quantity * 1 Efficient-core base frequency 1.5 GHz DisplayPorts quantity 1 Processor cache 30 MB Combo headphone/mic port 1 Processor cache type Smart Cache Design 65 W Processor base power Maximum turbo power 219 W Colour name Black Product colour * Black

Memory		Design	
Internal memory * Internal memory type Maximum internal memory * Memory slots	16 GB DDR5-SDRAM 64 GB 2	Cable lock slot	✓
		Cable lock slot type	Kensington
		Performance	
Memory slots type	SO-DIMM	Product type *	All-in-One PC
Memory clock speed	5600 MHz	Motherboard chipset	Intel Q670
Memory layout (slots x size)	1 x 16 GB	Trusted Platform Module (TPM)	 Image: A start of the start of
Memory form factor	DIMM/SO-DIMM	Trusted Platform Module (TPM) version	2.0
Storage		Software	
Total storage capacity *	512 GB	Operating system architecture	64-bit
Storage media *	SSD 512 GB	Operating system installed *	Windows 11 Pro
Total SSDs capacity Number of SSDs installed	1	Power	
SSD capacity	512 GB	AC adapter power	230 W
SSD interface	PCI Express 4.0	AC adapter frequency	50 - 60 Hz
NVMe	1	AC adapter input voltage	100 - 240 V
SSD form factor	M.2	Weight & dimensions	
Optical drive type *	DVD±RW	Width (with stand)	613.6 mm
Card reader integrated	٠	Depth (with stand)	219.8 mm
Graphics		Height (with stand)	411 mm
Discrete graphics card *	×	Weight (with stand)	11.2 kg
Discrete graphics card model *	Not available	Operational conditions	
On-board graphics card *	1	Operating temperature (T-T)	5 - 35 °C
On-board GPU manufacturer	Intel	Storage temperature (T-T)	-20 - 60 °C
On-board graphics card family			
	Intel [®] UHD Graphics	Operating relative humidity (H-H)	20 - 80%
On-board graphics card model *	Intel® UHD Graphics Intel UHD Graphics 770	Storage relative humidity (H-H)	10 - 90%
	·	Storage relative humidity (H-H) Operating altitude	10 - 90% -15.2 - 3048 m
On-board graphics card model *	·	Storage relative humidity (H-H) Operating altitude Non-operating altitude	10 - 90%
On-board graphics card model * Audio	Intel UHD Graphics 770	Storage relative humidity (H-H) Operating altitude Non-operating altitude Certificates	10 - 90% -15.2 - 3048 m -15.2 - 12192 m
On-board graphics card model * Audio Built-in speaker(s) *	Intel UHD Graphics 770	Storage relative humidity (H-H) Operating altitude Non-operating altitude	10 - 90% -15.2 - 3048 m
On-board graphics card model * Audio Built-in speaker(s) * Number of speakers	Intel UHD Graphics 770	Storage relative humidity (H-H) Operating altitude Non-operating altitude Certificates	10 - 90% -15.2 - 3048 m -15.2 - 12192 m
On-board graphics card model * Audio Built-in speaker(s) * Number of speakers RMS rated power	Intel UHD Graphics 770	Storage relative humidity (H-H) Operating altitude Non-operating altitude Certificates Compliance certificates	10 - 90% -15.2 - 3048 m -15.2 - 12192 m
On-board graphics card model * Audio Built-in speaker(s) * Number of speakers RMS rated power Built-in microphone	Intel UHD Graphics 770	Storage relative humidity (H-H) Operating altitude Non-operating altitude Certificates Compliance certificates Sustainability	10 - 90% -15.2 - 3048 m -15.2 - 12192 m RoHS
On-board graphics card model * Audio Built-in speaker(s) * Number of speakers RMS rated power Built-in microphone Camera	Intel UHD Graphics 770	Storage relative humidity (H-H) Operating altitude Non-operating altitude Certificates Compliance certificates Sustainability Sustainability certificates	10 - 90% -15.2 - 3048 m -15.2 - 12192 m RoHS
On-board graphics card model * Audio Built-in speaker(s) * Number of speakers RMS rated power Built-in microphone Camera Built-in camera *	Intel UHD Graphics 770	Storage relative humidity (H-H) Operating altitude Non-operating altitude Certificates Compliance certificates Sustainability Sustainability certificates Packaging content	10 - 90% -15.2 - 3048 m -15.2 - 12192 m ROHS ENERGY STAR, TCO, EPEAT Gold
On-board graphics card model * Audio Built-in speaker(s) * Number of speakers RMS rated power Built-in microphone Camera Built-in camera * Total megapixels	Intel UHD Graphics 770	Storage relative humidity (H-H) Operating altitude Non-operating altitude Certificates Compliance certificates Sustainability Sustainability certificates Packaging content Mouse included	10 - 90% -15.2 - 3048 m -15.2 - 12192 m ROHS ENERGY STAR, TCO, EPEAT Gold
On-board graphics card model * Audio Built-in speaker(s) * Number of speakers RMS rated power Built-in microphone Camera Built-in camera * Total megapixels	Intel UHD Graphics 770	Storage relative humidity (H-H) Operating altitude Non-operating altitude Certificates Compliance certificates Sustainability Sustainability certificates Packaging content Mouse included Mouse connectivity	10 - 90% -15.2 - 3048 m -15.2 - 12192 m ROHS ENERGY STAR, TCO, EPEAT Gold ✓ Wireless





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