



HP Intel Core i9-13900 processor 36 MB Smart Cache

Brand : HP

Product code: 7A1N4AV

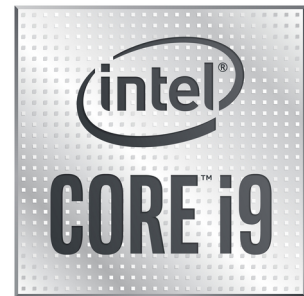
Product name : Intel Core i9-13900

Intel Core i9-13900 Processor 36M Cache, up to 5.60 GHz

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HP Intel Core i9-13900. Processor family: Intel® Core™ i9, Processor socket: LGA 1700, Processor manufacturer: Intel. Memory channels: Dual-channel, Maximum internal memory supported by processor: 192 GB, Memory types supported by processor: DDR4-SDRAM, DDR5-SDRAM. On-board graphics card model: Intel UHD Graphics 770, On-board graphics card outputs supported: Embedded DisplayPort (eDP) 1.4b, DisplayPort 1.4a, HDMI 2.1, On-board graphics card base frequency: 300 MHz. Market segment: Desktop, Use conditions: PC/Client/Tablet, Workstation, PCI Express slots version: 5.0, 4.0. Intel® Turbo Boost Max Technology 3.0 frequency: 5.5 GHz, Intel® Thermal Velocity Boost Frequency: 5.6 GHz



Processor		Features	
Processor manufacturer *	Intel	Export Control Classification Number (ECCN)	5A992C
Processor generation	13th gen Intel® Core™ i9	Commodity Classification Automated Tracking System (CCATS)	740.17B1
Processor model *	i9-13900	Processor special features	
Processor family *	Intel® Core™ i9	Intel® Hyper Threading Technology (Intel® HT Technology)	✓
Processor cores *	24	Intel® Turbo Boost Technology	2.0
Processor socket *	LGA 1700	Intel® Quick Sync Video Technology	✓
Processor threads	32	Intel® Clear Video HD Technology (Intel® CVT HD)	✓
Processor operating modes *	64-bit	Intel® AES New Instructions (Intel® AES-NI)	✓
Performance cores	8	Enhanced Intel SpeedStep Technology	✓
Efficient cores	16	Intel Trusted Execution Technology	✓
Processor boost frequency	5.6 GHz	Intel® Speed Shift Technology	✓
Performance-core boost frequency	5.2 GHz	Intel® Thermal Velocity Boost	✓
Performance-core base frequency	2 GHz	Intel® Adaptive Boost Technology	✓
Efficient-core boost frequency	4.2 GHz	Intel® Turbo Boost Max Technology 3.0 frequency	5.5 GHz
Efficient-core base frequency	1.5 GHz	Intel® Gaussian & Neural Accelerator (Intel® GNA) 3.0	✓
Processor cache	36 MB	Intel® Thermal Velocity Boost Frequency	5.6 GHz
Processor cache type	Smart Cache	Intel® Control-flow Enforcement Technology (CET)	✓
Processor base power	65 W	Intel® Thread Director	✓
Maximum turbo power	219 W	Intel VT-x with Extended Page Tables (EPT)	✓
Bus type	DMI4	Intel® Secure Key	✓
Maximum number of DMI lanes	8	Intel® Active Management Technology (Intel® AMT)	✓
Memory bandwidth supported by processor (max)	89.6 GB/s	Intel Stable Image Platform Program (SIPP)	✓
Processor codename	Raptor Lake	Intel® OS Guard	✓
Processor ARK ID	230499	Intel 64	✓
Memory		Intel Virtualization Technology (VT-x)	✓
Maximum internal memory supported by processor	192 GB		
Memory types supported by processor	DDR4-SDRAM, DDR5-SDRAM		
Memory channels *	Dual-channel		
ECC	✓		
Memory bandwidth (max)	89.6 GB/s		
Graphics			
On-board graphics card *	✓		
Discrete graphics card *	✗		
On-board graphics card model *	Intel UHD Graphics 770		

Graphics		Processor special features	
On-board graphics card outputs supported	Embedded DisplayPort (eDP) 1.4b, DisplayPort 1.4a, HDMI 2.1	Intel Virtualization Technology for Directed I/O (VT-d)	✓
On-board graphics card base frequency	300 MHz	Intel Turbo Boost Max Technology 3.0	✓
On-board graphics card dynamic frequency (max)	1650 MHz	Intel® Boot Guard	✓
Number of displays supported (on-board graphics)	4	Intel® Deep Learning Boost (Intel® DL Boost) on CPU	✓
On-board graphics card DirectX version	12.0	Intel® Volume Management Device (VMD)	✓
On-board graphics card OpenGL version	4.5	Mode-based Execute Control (MBE)	✓
On-board graphics card maximum resolution (DisplayPort)	7680 x 4320 pixels	Intel® vPro™ Platform Eligibility	✓
On-board graphics card maximum resolution (eDP - Integrated Flat Panel)	5120 x 3200 pixels	Intel® Standard Manageability (ISM)	✓
On-board graphics card maximum resolution (HDMI)	4096 x 2160 pixels	Intel® One-Click Recovery	✓
On-board graphics card refresh rate at maximum resolution (DisplayPort)	60 Hz	Intel® Remote Platform Erase (RPE)	✓
On-board graphics card refresh rate at maximum resolution (eDP - Integrated Flat Panel)	120 Hz	Intel® Virtualization Technology with Redirect Protection (VT-rp)	✓
On-board graphics card refresh rate at maximum resolution (HDMI)	60 Hz	Intel vPro® Enterprise Platform Eligibility	✓
On-board graphics card ID	0xA780	Intel® Threat Detection Technology (TDT)	✓
Discrete graphics card model *	Not available	Intel® Hardware Shield Eligibility	✓
Number of execution units	32	Intel® Total Memory Encryption - Multi Key	✓
Multi-Format Codec Engines	2	Intel vPro® Essentials Platform Eligibility	✓
Features		Operational conditions	
Execute Disable Bit	✓	Tjunction	100 °C
Idle States	✓	Technical details	
Thermal Monitoring Technologies	✓	Target market	Gaming, Content Creation
Market segment	Desktop	OpenCL version	3.0
Use conditions	PC/Client/Tablet, Workstation	Launch date	Q1'23
Maximum number of PCI Express lanes	20	Status	Launched
PCI Express slots version	5.0, 4.0	Logistics data	
PCI Express configurations	1x16+1x4, 2x8+1x4	Harmonized System (HS) code	8542310001
Supported instruction sets	SSE4.1, SSE4.2, AVX 2.0	Other features	
Scalability	1S	L2 cache	32768 KB
CPU configuration (max)	1	Maximum internal memory	192 GB
Embedded options available	✓	Graphics output	eDP 1.4b, DP 1.4a, HDMI 2.1
Direct Media Interface (DMI) Revision	4.0		

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