

## Intel Core i9-12900K processor 30 MB Smart Cache Box

Brand : Intel

Product family: Core

Product code:  
BX8071512900K

Product name : Intel® Core™  
i9-12900K Processor (30M  
Cache, up to 5.20 GHz)



Intel® Core™ i9-12900K Processor (30M Cache, up to 5.20 GHz)

Intel Core i9-12900K. Processor family: Intel® Core™ i9, Processor socket: LGA 1700, Processor manufacturer: Intel. Memory channels: Dual-channel, Maximum internal memory supported by processor: 128 GB, Memory types supported by processor: DDR4-SDRAM, DDR5-SDRAM. On-board graphics card model: Intel UHD Graphics 770, On-board graphics card base frequency: 300 MHz, On-board graphics card dynamic frequency (max): 1550 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: 5.2 GHz



Processor		Features	
Processor manufacturer *	Intel	Embedded options available	✗
Processor generation	12th gen Intel® Core™ i9	Thermal solution specification	PCG 2020A
Processor model *	i9-12900K	Export Control Classification Number (ECCN)	5A992CN3
Processor family *	Intel® Core™ i9	Commodity Classification Automated Tracking System (CCATS)	G167599
Processor cores *	16	<b>Processor special features</b>	
Processor socket *	LGA 1700	Intel® Hyper Threading Technology (Intel® HT Technology)	✓
Component for	PC	Intel® Turbo Boost Technology	2.0
Processor threads	24	Intel® Quick Sync Video Technology	✓
Processor operating modes *	64-bit	Intel® Clear Video HD Technology (Intel® CVT HD)	✓
Performance cores	8	Intel® AES New Instructions (Intel® AES-NI)	✓
Efficient cores	8	Enhanced Intel SpeedStep Technology	✓
Processor boost frequency	5.2 GHz	Intel Trusted Execution Technology	✓
Performance-core boost frequency	5.1 GHz	Intel® Speed Shift Technology	✓
Performance-core base frequency	3.2 GHz	Intel® Turbo Boost Max Technology 3.0 frequency	5.2 GHz
Efficient-core boost frequency	3.9 GHz	Intel® Total Memory Encryption	✓
Efficient-core base frequency	2.4 GHz	Intel® Control-flow Enforcement Technology (CET)	✓
Processor cache	30 MB	Intel® Thread Director	✓
Processor cache type	Smart Cache	Intel VT-x with Extended Page Tables (EPT)	✓
Box *	✓	Intel® Secure Key	✓
Cooler included *	✗	Intel® Active Management Technology (Intel® AMT)	✓
Processor base power	125 W	Intel Stable Image Platform Program (SIPP)	✓
Maximum turbo power	241 W	Intel® OS Guard	✓
Bus type	DMI4	Intel 64	✓
Maximum number of DMI lanes	8	Intel Virtualization Technology (VT-x)	✓
Memory bandwidth supported by processor (max)	76.8 GB/s	Intel Virtualization Technology for Directed I/O (VT-d)	✓
Processor codename	Alder Lake	Intel Turbo Boost Max Technology 3.0	✓
Processor ARK ID	134599	Intel® Optane™ Memory Ready	✓
<b>Memory</b>		Intel® Boot Guard	✓
Maximum internal memory supported by processor	128 GB		
Memory types supported by processor	DDR4-SDRAM, DDR5-SDRAM		
Memory channels *	Dual-channel		
ECC	✓		
Non-ECC	✓		
Memory bandwidth (max)	76.8 GB/s		
<b>Graphics</b>			
On-board graphics card *	✓		
Discrete graphics card *	✗		
On-board graphics card model *	Intel UHD Graphics 770		

Graphics		Processor special features	
On-board graphics card base frequency	300 MHz	Intel® Deep Learning Boost (Intel® DL Boost)	✓
On-board graphics card dynamic frequency (max)	1550 MHz	Intel® Volume Management Device (VMD)	✓
Number of displays supported (on-board graphics)	4	Mode-based Execute Control (MBE)	✓
On-board graphics card DirectX version	12.0	Intel® vPro™ Platform Eligibility	✓
On-board graphics card OpenGL version	4.5	Intel® Standard Manageability (ISM)	✓
On-board graphics card maximum resolution (DisplayPort)	7680 x 4320 pixels	Intel® One-Click Recovery	✓
On-board graphics card maximum resolution (eDP - Integrated Flat Panel)	5120 x 3200 pixels	Intel® Virtualization Technology with Redirect Protection (VT-rp)	✓
On-board graphics card maximum resolution (HDMI)	4096 x 2160 pixels	Intel vPro® Enterprise Platform Eligibility	✓
On-board graphics card refresh rate at maximum resolution (DisplayPort)	60 Hz	Intel® Threat Detection Technology (TDT)	✓
On-board graphics card refresh rate at maximum resolution (eDP - Integrated Flat Panel)	120 Hz	Intel® Hardware Shield Eligibility	✓
On-board graphics card refresh rate at maximum resolution (HDMI)	60 Hz	Intel® Total Memory Encryption - Multi Key	✓
On-board graphics card ID	0x4680		
Discrete graphics card model *	Not available		
Number of execution units	32		
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	2.1
Use conditions	PC/Client/Tablet, Workstation	Launch date	Q4'21
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	85423119
Supported instruction sets	SSE4.1, SSE4.2, AVX 2.0	Packaging data	
Scalability	1S	Package type	Retail box
CPU configuration (max)	1	Weight & dimensions	
		Processor package size	45 x 37.5 mm
		Other features	
		Maximum internal memory	128 GB
		Graphics output	eDP 1.4b, DP 1.4a, HDMI 2.1



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