Intel Core i9-14900K processor 36 MB Smart Cache Box

Brand : Intel

Product family: Core

Product code:
BX8071514900K

Product name : i9-14900K

Boxed Intel® Core™ i9 processor 14900K (36M Cache, up to 6.00 GHz) FC-LGA16A
Intel Core i9-14900K. 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: Workstation, PC/Client/Tablet, PCI Express slots version: 4.0, 5.0. Intel® Turbo Boost Max Technology 3.0 frequency: 5.8 GHz, Intel® Thermal Velocity Boost Frequency: 6 GHz

Processor

Processor manufacturer *	Intel
Processor generation	Intel Core i9-14xxx
Processor model *	i9-14900K
Processor family *	Intel® Core™ i9
Processor cores *	24
Processor socket *	LGA 1700
Processor threads	32
Processor operating modes *	64-bit
Performance cores	8
Efficient cores	16
Processor boost frequency	6 GHz
Performance-core boost frequency	5.6 GHz
Performance-core base frequency	3.2 GHz
Efficient-core boost frequency	4.4 GHz
Efficient-core base frequency	2.4 GHz
Processor cache	36 MB
Processor cache type	Smart Cache
Box *	✓
Processor base power	125 W
Maximum turbo power	253 W
Stepping	B0
Maximum number of DMI lanes	8
Memory bandwidth supported by processor (max)	89.6 GB/s
Processor codename	Raptor Lake
Processor ARK ID	236773

Memory

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
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

Features

Maximum number of PCI Express lanes	20
PCI Express slots version	4.0, 5.0
PCI Express configurations	1x16+1x4, 2x8+1x4
Supported instruction sets	AVX 2.0, SSE4.1, SSE4.2
Scalability	1S
CPU configuration (max)	1
Embedded options available	✗
Thermal solution specification	PCG 2020A
Direct Media Interface (DMI) Revision	4.0
Export Control Classification Number (ECCN)	5A992C
Commodity Classification Automated Tracking System (CCATS)	740.17B1

Processor special features

Intel® Hyper Threading Technology (Intel® HT Technology)	✓
Intel® Turbo Boost Technology	2.0
Intel® Quick Sync Video Technology	✓
Intel® Clear Video HD Technology (Intel® CVT HD)	✓
Intel® AES New Instructions (Intel® AES-NI)	✓
Enhanced Intel SpeedStep Technology	✓
Intel® Speed Shift Technology	✓
Intel® Thermal Velocity Boost	✓
Intel® Adaptive Boost Technology	✓
Intel® Turbo Boost Max Technology 3.0 frequency	5.8 GHz
Intel® Gaussian & Neural Accelerator (Intel® GNA) 3.0	✓
Intel® Thermal Velocity Boost Frequency	6 GHz
Intel® Control-flow Enforcement Technology (CET)	✓
Intel® Thread Director	✓
Intel VT-x with Extended Page Tables (EPT)	✓
Intel® Secure Key	✓
Intel® OS Guard	✓
Intel 64	✓

Graphics

On-board graphics card dynamic frequency (max)	1650 MHz
Number of displays supported (on-board graphics)	4
On-board graphics card DirectX version	12.0
On-board graphics card OpenGL version	4.5
On-board graphics card maximum resolution (DisplayPort)	7680 x 4320 pixels
On-board graphics card maximum resolution (eDP - Integrated Flat Panel)	5120 x 3200 pixels
On-board graphics card maximum resolution (HDMI)	4096 x 2160 pixels
On-board graphics card refresh rate at maximum resolution (DisplayPort)	60 Hz
On-board graphics card refresh rate at maximum resolution (eDP - Integrated Flat Panel)	120 Hz
On-board graphics card refresh rate at maximum resolution (HDMI)	60 Hz
On-board graphics card ID	0xA780
Discrete graphics card model *	Not available
Number of execution units	32
Multi-Format Codec Engines	2

Features

Execute Disable Bit	✔
Idle States	✔
Thermal Monitoring Technologies	✔
Market segment	Desktop
Use conditions	Workstation, PC/Client/Tablet

Processor special features

Intel Virtualization Technology (VT-x)	✔
Intel Virtualization Technology for Directed I/O (VT-d)	✔
Intel Turbo Boost Max Technology 3.0	✔
Intel® Boot Guard	✔
Intel® Deep Learning Boost (Intel® DL Boost)	✔
Intel® Volume Management Device (VMD)	✔
Mode-based Execute Control (MBE)	✔
Intel® Standard Manageability (ISM)	✔

Operational conditions

Tjunction	100 °C

Technical details

OpenCL version	3.0
Launch date	Q4'23
Status	Launched

Logistics data

Harmonized System (HS) code	8542310001

Weight & dimensions

Processor package size	45 x 37.5 mm

Other features

L2 cache	32768 KB
Maximum internal memory	192 GB
Graphics output	eDP 1.4b, DP 1.4a, HDMI 2.1

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