

Intel® Core™ i9-13900K Processor

[intel ark.intel.com/content/www/us/en/ark/products/230496/intel-core-i913900k-processor-36m-cache-up-to-5-80-ghz.html](https://ark.intel.com/content/www/us/en/ark/products/230496/intel-core-i913900k-processor-36m-cache-up-to-5-80-ghz.html)

36M Cache, up to 5.80 GHz



Essentials

- [Product Collection 13th Generation Intel® Core™ i9 Processors](#)
- [Processor Number i9-13900K](#)

CPU Specifications

- [Total Cores](#) 24
- # of Performance-cores 8
- # of Efficient-cores 16
- [Total Threads](#) 32
- [Max Turbo Frequency](#) 5.80 GHz
- [Intel® Thermal Velocity Boost Frequency](#) 5.80 GHz
- [Intel® Turbo Boost Max Technology 3.0 Frequency](#) [±] 5.70 GHz
- [Performance-core Max Turbo Frequency](#) 5.40 GHz
- [Efficient-core Max Turbo Frequency](#) 4.30 GHz
- Performance-core Base Frequency 3.00 GHz
- Efficient-core Base Frequency 2.20 GHz
- [Cache](#) 36 MB Intel® Smart Cache
- Total L2 Cache 32 MB
- [Processor Base Power](#) 125 W
- [Maximum Turbo Power](#) 253 W

Memory Specifications

- [Max Memory Size \(dependent on memory type\)](#) 128 GB
- [Memory Types](#) Up to DDR5 5600 MT/s
Up to DDR4 3200 MT/s
- [Max # of Memory Channels](#) 2
- [Max Memory Bandwidth](#) 89.6 GB/s
- [ECC Memory Supported](#) [±] Yes

Processor Graphics

- Processor Graphics ‡ Intel® UHD Graphics 770
- Graphics Base Frequency 300 MHz
- Graphics Max Dynamic Frequency 1.65 GHz
- Graphics Output eDP 1.4b, DP 1.4a, HDMI 2.1
- Execution Units 32
- Max Resolution (HDMI)‡ 4096 x 2160 @ 60Hz
- Max Resolution (DP)‡ 7680 x 4320 @ 60Hz
- Max Resolution (eDP - Integrated Flat Panel)‡ 5120 x 3200 @ 120Hz
- DirectX* Support 12
- OpenGL* Support 4.5
- OpenCL* Support 3.0
- Multi-Format Codec Engines 2
- Intel® Quick Sync Video Yes
- Intel® Clear Video HD Technology Yes
- # of Displays Supported † 4
- Device ID 0xA780

Expansion Options

- Direct Media Interface (DMI) Revision 4.0
- Max # of DMI Lanes 8
- Scalability 1S Only
- PCI Express Revision 5.0 and 4.0
- PCI Express Configurations ‡ Up to 1x16+4, 2x8+4
- Max # of PCI Express Lanes 20
- Sockets Supported FCLGA1700

Advanced Technologies

- Intel® Gaussian & Neural Accelerator 3.0
- Intel® Thread Director Yes
- Intel® Deep Learning Boost (Intel® DL Boost) Yes
- Intel® Speed Shift Technology Yes
- Intel® Thermal Velocity Boost Yes
- Intel® Turbo Boost Max Technology 3.0 ‡ Yes
- Intel® Turbo Boost Technology ‡ 2.0
- Intel® Hyper-Threading Technology ‡ Yes
- Intel® 64 ‡ Yes
- Instruction Set 64-bit
- Instruction Set Extensions Intel® SSE4.1, Intel® SSE4.2, Intel® AVX2
- Idle States Yes
- Enhanced Intel SpeedStep® Technology Yes
- Thermal Monitoring Technologies Yes
- Intel® Flex Memory Access Yes

- Intel® Volume Management Device (VMD). Yes

Security & Reliability

- Intel vPro® Eligibility[‡] Intel vPro® Enterprise, Intel vPro® Essentials, Intel vPro® Platform
- Intel® Threat Detection Technology (TDT) Yes
- Intel® Active Management Technology (AMT)[‡] Yes
- Intel® Standard Manageability (ISM)[‡] Yes
- Intel® Remote Platform Erase (RPE) [‡] Yes
- Intel® One-Click Recovery [‡] Yes
- Intel® Hardware Shield Eligibility[‡] Yes
- Intel® Control-Flow Enforcement Technology Yes
- Intel® Total Memory Encryption - Multi Key Yes
- Intel® AES New Instructions Yes
- Secure Key Yes
- Intel® OS Guard Yes
- Intel® Trusted Execution Technology[‡] Yes
- Execute Disable Bit[‡] Yes
- Intel® Boot Guard Yes
- Mode-based Execute Control (MBEC) Yes
- Intel® Stable IT Platform Program (SIPP) Yes
- Intel® Virtualization Technology with Redirect Protection (VT-rp) [‡] Yes
- Intel® Virtualization Technology (VT-x)[‡] Yes
- Intel® Virtualization Technology for Directed I/O (VT-d)[‡] Yes
- Intel® VT-x with Extended Page Tables (EPT)[‡] Yes