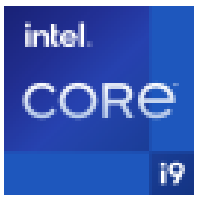
Intel® Core™ i9-12900KF Processor

ark.intel.com/content/www/us/en/ark/products/134600/intel-core-i912900kf-processor-30m-cache-up-to-5-20-ghz.html

30M Cache, up to 5.20 GHz



Essentials

- Product Collection 12th Generation Intel® Core™ i9 Processors
- Processor Number i9-12900KF

CPU Specifications

- Total Cores 16
- # of Performance-cores 8
- # of Efficient-cores 8
- Total Threads 24
- Max Turbo Frequency 5.20 GHz
- Intel® Turbo Boost Max Technology 3.0 Frequency ‡ 5.20 GHz
- Performance-core Max Turbo Frequency 5.10 GHz
- Efficient-core Max Turbo Frequency 3.90 GHz
- Performance-core Base Frequency 3.20 GHz
- Efficient-core Base Frequency 2.40 GHz
- Cache 30 MB Intel® Smart Cache
- Total L2 Cache 14 MB
- Processor Base Power 125 W
- Maximum Turbo Power 241 W

Memory Specifications

- Max Memory Size (dependent on memory type) 128 GB
- Memory Types Up to DDR5 4800 MT/s
  Up to DDR4 3200 MT/s
- Max # of Memory Channels 2
- Max Memory Bandwidth 76.8 GB/s

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

Advanced Technologies

- Intel® Gaussian & Neural Accelerator 3.0
- Intel® Thread Director Yes
- Intel® Deep Learning Boost (Intel® DL Boost) Yes
- Intel® Optane™ Memory Supported ‡ Yes
- Intel® Speed Shift Technology 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® Volume Management Device (VMD) Yes

Security & Reliability

- Intel® Standard Manageability (ISM) ‡ Yes
- Intel® Control-Flow Enforcement Technology Yes
- Intel® AES New Instructions Yes
- Secure Key Yes
- Intel® OS Guard Yes
- Execute Disable Bit ‡ Yes
- Intel® Boot Guard Yes
- Mode-based Execute Control (MBEC) 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