

Product Collection 11th Generation Intel® Core™ i9 Processors

Code Name Products formerly Rocket Lake

Vertical Segment Desktop

Processor Number i9-11900K

Status Launched

Launch Date Q1'21

Lithography 14 nm

Use Conditions PC/Client/Tablet

CPU Specifications

Total Cores 8

Total Threads 16

Max Turbo Frequency 5.30 GHz

Intel® Thermal Velocity Boost Frequency 5.30 GHz

Intel® Turbo Boost Max Technology 3.0 Frequency[†] 5.20 GHz

Intel® Turbo Boost Technology 2.0 Frequency[†] 5.10 GHz

Processor Base Frequency 3.50 GHz

Cache 16 MB Intel® Smart Cache

Bus Speed 8 GT/s

TDP	125 W
Configurable TDP-down Base Frequency	3.00 GHz
Configurable TDP-down	95 W

Supplemental Information

Embedded Options Available	No
Datasheet	View now

Memory Specifications

Max Memory Size (dependent on memory type)	128 GB
Memory Types	DDR4-3200
Max # of Memory Channels	2
Max Memory Bandwidth	50 GB/s
ECC Memory Supported [†]	No

Processor Graphics

Processor Graphics [‡]	Intel® UHD Graphics 750
Graphics Base Frequency	350 MHz
Graphics Max Dynamic Frequency	1.30 GHz
Graphics Video Max Memory	64 GB
Execution Units	32
4K Support	Yes, at 60Hz
Max Resolution (HDMI) [‡]	4096x2160@60Hz

Max Resolution (DP)‡	5120 x 3200 @60Hz
Max Resolution (eDP - Integrated Flat Panel)‡	5120 x 3200 @60Hz
DirectX* Support	12.1
OpenGL* Support	4.5
OpenCL* Support	3.0
Intel® Quick Sync Video	Yes
Intel® InTru™ 3D Technology	Yes
Intel® Clear Video HD Technology	Yes
Intel® Clear Video Technology	Yes
# of Displays Supported †	3
Device ID	0x4C8A

Expansion Options

Scalability	1S Only
PCI Express Revision	4.0
PCI Express Configurations †	Up to 1x16+1x4, 2x8+1x4, 1x8+3x4
Max # of PCI Express Lanes	20

Package Specifications

Sockets Supported	FCLGA1200
Max CPU Configuration	1
Thermal Solution Specification	PCG 2019A
Intel® Thermal Velocity Boost Temperature	70 °C
T _{JUNCTION}	100°C

Package Size	37.5 mm x 37.5 mm
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Advanced Technologies

Intel® Gaussian & Neural Accelerator	2.0
Intel® Deep Learning Boost (Intel® DL Boost)	Yes
Intel® Optane™ Memory Supported †	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, Intel® AVX-512
Idle States	Yes
Enhanced Intel SpeedStep® Technology	Yes
Thermal Monitoring Technologies	Yes
Intel® Identity Protection Technology †	Yes

Security & Reliability

Intel vPro® Eligibility †	Intel vPro® Platform
Intel® AES New Instructions	Yes
Secure Key	Yes
Intel® Software Guard Extensions (Intel® SGX)	No
Intel® OS Guard	Yes

Intel® Trusted Execution Technology †	Yes
Execute Disable Bit †	Yes
Intel® Boot Guard	Yes
Intel® Stable IT Platform Program (SIPP)	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