

11/23/2020 05:40:40 PM

Intel® Core™ i9-10900K Processor (20M Cache, up to 5.30 GHz)

Essentials

Product Collection 10th Generation Intel® Core™ i9 Processors

Code Name Products formerly Comet Lake

Vertical Segment Desktop

Processor Number i9-10900K

Status Launched

Launch Date Q2'20

Lithography 14 nm

Use Conditions PC/Client/Tablet

Recommended Customer Price \$488.00 - \$499.00

CPU Specifications

of Cores 10

of Threads 20

Processor Base Frequency 3.70 GHz

Max Turbo Frequency 5.30 GHz

Intel® Thermal Velocity Boost Frequency 5.30 GHz

Cache 20 MB Intel® Smart Cache

Bus Speed 8 GT/s

Intel® Turbo Boost Max Technology 3.0 Frequency ‡ 5.20 GHz

Intel® Turbo Boost Technology 2.0 Frequency‡ 5.10 GHz

TDP 125 W

Configurable TDP-down Frequency 3.30 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 DDR4-2933

Max # of Memory Channels 2

Max Memory Bandwidth 45.8 GB/s

ECC Memory Supported ‡ No

Processor Graphics

Processor Graphics ‡ Intel® UHD Graphics 630

Graphics Base Frequency 350 MHz

Graphics Max Dynamic Frequency 1.20 GHz

Graphics Video Max Memory 64 GB

4K Support Yes, at 60Hz

Max Resolution (HDMI)‡ 4096 x 2160@30Hz

Max Resolution (DP)‡ 4096 x 2304@60Hz

Max Resolution (eDP - Integrated Flat Panel)‡ 4096 x 2304@60Hz

DirectX* Support 12

OpenGL* Support 4.5

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 0x9BC5

Expansion Options

Scalability 1S Only

PCI Express Revision 3

PCI Express Configurations ‡ Up to 1x16, 2x8, 1x8+2x4

Max # of PCI Express Lanes 16

Package Specifications

Sockets Supported FCLGA1200

Max CPU Configuration 1

Thermal Solution Specification PCG 2015D

Intel® Thermal Velocity Boost Temperature 70 °C

TJUNCTION 100°C

Package Size 37.5mm x 37.5mm

Advanced Technologies

Intel® Optane™ Memory Supported ‡ Yes

Intel® Thermal Velocity Boost Yes

Intel® Turbo Boost Max Technology 3.0 ‡ Yes

Intel® Turbo Boost Technology ‡ 2

Intel vPro® Platform Eligibility ‡ Yes

Intel® Hyper-Threading Technology ‡ 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

Intel® Transactional Synchronization Extensions No

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® Identity Protection Technology ‡ Yes

Intel® Stable Image Platform Program (SIPP) Yes

Security & Reliability

Intel® AES New Instructions Yes

Secure Key Yes

Intel® Software Guard Extensions (Intel® SGX) Yes with Intel® ME

Intel® OS Guard Yes

Intel® Trusted Execution Technology ‡ Yes

Execute Disable Bit ‡ Yes

Intel® Boot Guard Yes