

Intel® Core™ i9-13900E Processor

36M Cache, up to 5.20 GHz

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Product Collection	13th Generation Intel® Core™ i9 Processors
Code Name	Products formerly Raptor Lake
Vertical Segment	Embedded
Processor Number	i9-13900E
Lithography	Intel 7
Recommended Customer Price	\$554.00

Sign in with your CNDA account to view additional SKU details.

CPU Specifications

Total Cores	24
# of Performance-cores	8
# of Efficient-cores	16
Total Threads	32
Max Turbo Frequency	5.20 GHz
Performance-core Max Turbo Frequency	5.20 GHz
Efficient-core Max Turbo Frequency	4.00 GHz
Performance-core Base Frequency	1.80 GHz
Efficient-core Base Frequency	1.30 GHz
Processor Base Frequency	1.80 GHz
Cache	36 MB Intel® Smart Cache
Total L2 Cache	32 MB
Processor Base Power	65 W
TDP	65 W

Supplemental Information

Marketing Status	Launched
Launch Date	Q1'23
Embedded Options Available	Yes
Use Conditions	Embedded Broad Market Commercial Temp

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

GPU Specifications

GPU Name‡	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

Package Specifications

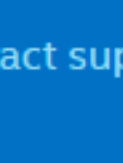
Sockets Supported	FCLGA1700
Max CPU Configuration	1
Thermal Solution Specification	PCG 2020C
T _{JUNCTION}	100°C
Package Size	45.0 mm x 37.5 mm
Max Operating Temperature	100 °C

Advanced Technologies

Intel® Time Coordinated Computing (Intel® TCC)‡	Yes
Intel® Gaussian & Neural Accelerator	3.0
Intel® Thread Director	Yes
Intel® Deep Learning Boost (Intel® DL Boost) on CPU	Yes
Intel® Speed Shift Technology	Yes
Intel® Turbo Boost Max Technology 3.0 ‡	No
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 vPro® Eligibility †	Intel vPro® Enterprise
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	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 (VT-x) ‡	Yes
Intel® Virtualization Technology for Directed I/O (VT-d) ‡	Yes
Intel® VT-x with Extended Page Tables (EPT) ‡	Yes



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Refer to Datasheet for formal definitions of product properties and features.

‡ This feature may not be available on all computing systems. Please check with the system vendor to determine if your system delivers this feature, or reference the system specifications (motherboard, processor, chipset, power supply, HDD, graphics controller, memory, BIOS, drivers, virtual machine monitor-VMM, platform software, and/or operating system) for feature compatibility. Functionality, performance, and other benefits of this feature may vary depending on system configuration.

Some products can support AES New Instructions with a Processor Configuration update, in particular, i7-2630QM/i7-2635QM, i7-2670QM/i7-2675QM, i5-2430M/i5-2435M, i5-2410M/i5-2415M. Please contact OEM for the BIOS that includes the latest Processor configuration update.

*Announced" SKUs are not yet available. Please refer to the Launch Date for market availability.

Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See <http://www.intel.com/content/www/us/en/processors/processor-numbers.html> for details.

Intel® Iris® Xe Graphics only: to use the Intel® Iris® Xe brand, the system must be populated with 128-bit (dual channel) memory. Otherwise, use the Intel® UHD brand.

Intel® Arc™ graphics only available on select H-series Intel® Core™ Ultra processor powered systems with at least 16GB of system memory in a dual-channel configuration. OEM enablement required; check with OEM or retailer for system configuration details.

See <http://www.intel.com/content/www/us/en/architecture-and-technology/hyper-threading/hyper-threading-technology.html?wapkw=hyper+threading> for more information including details on which processors support Intel® HT Technology.

Max Turbo Frequency refers to the maximum single-core processor frequency that can be achieved with Intel® Turbo Boost Technology. See www.intel.com/technology/turboboost/ for more information and applicability of this technology.

Processors that support 64-bit computing on Intel® architecture require an Intel 64 architecture-enabled BIOS.

System and Maximum TDP is based on worst case scenarios. Actual TDP may be lower if not all I/Os for chipsets are used.

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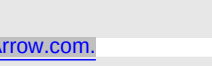
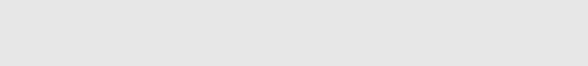
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