



Intel® Core™ i9-13900E Processor

36M Cache, up to 5.20 GHz

Ordering Code

CM8071505103602

Spec Code

SRMG2

Intel® Core™ i9-13900E Processor (36M Cache- up to 5.20 GHz)	
Essentials	
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
Use Conditions	Embedded Broad Market Commercial Temp
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
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
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
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
TJUNCTION	100°C
Package Size	45.0 mm x 37.5 mm
Advanced Technologies	
Intel® Time Coordinated Computing (Intel® TCC)⚡	Yes
Intel® Gaussian & Neural Accelerator	3
Intel® Thread Director	Yes
Intel® Deep Learning Boost (Intel® DL Boost)	Yes
Intel® Speed Shift Technology	Yes
Intel® Turbo Boost Max Technology 3.0 ⚡	No
Intel® Turbo Boost Technology ⚡	2
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
Intel® Trusted Execution Technology ⓘ	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

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