



Intel® Core™ i9-13900E Processor

36M Cache, up to 5.20 GHz

Ordering Code

CM8071505103602

Spec Code

SRMG2

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| 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 |

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| Supplemental Information | |
| Marketing Status | Launched |
| Launch Date | Q1'23 |
| Embedded Options Available | Yes |
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| 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 |
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| 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 |
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| Expansion Options | |
| Direct Media Interface (DMI) Revision | 4 |
| Max # of DMI Lanes | 8 |

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| 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 |
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| 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 |
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| 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 |
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| Security & Reliability | |
| Intel® Standard Manageability (ISM) ‡ | Yes |
| Intel® Control-Flow Enforcement Technology | Yes |
| Intel® AES New Instructions | Yes |

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| 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 |