13th Gen Intel® Core™ Desktop Processors

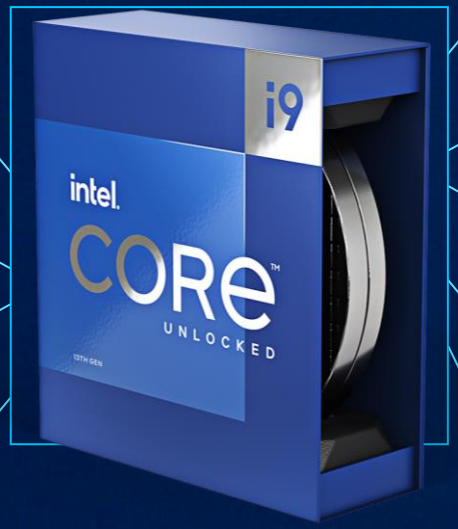
Prelaunch Quick Reference Guide

NEW Up to 24 processor cores (8 P-cores + 16 E-cores) and up to 32 threads

INCREASED L3 Intel® Smart Cache on Intel® Core™ i5 desktop processors and above

EXTENDED Performance hybrid architecture[1]

IMPROVED P-core performance



INDUSTRY LEADING support for CPU PCIe 5.0 (up to 16 lanes)[2]

INCREASED PCH PCIe 4.0 lanes with Intel® 700 Series chipset

INCREASED USB3.2 Gen 2x2 (20G) ports with Intel® Z790 chipset

EXPANDED compatibility with Intel® 600 and 700 Series chipset-based motherboards

NEW DDR5 memory support running up to 5600 MT/s; continued DDR4 memory support

SKU Chart

Processor Number	Processor Cores (P-cores + E-cores)[3]	Processor Threads[4]	Intel® Smart Cache (L3)	Total L2 Cache	Processor Turbo Frequency				Processor Base Frequency		Unlocked[6]	Processor Graphics[7]	CPU PCIe Lanes	Maximum Memory Speed (MT/s)[8]	Memory Channels	Maximum Memory Capacity[8]	Processor Base Power (W)	Maximum Turbo Power (W)
					Intel® Thermal Velocity Boost Frequency (GHz)[4]	Intel® Turbo Boost Max Technology 3.0 Frequency (GHz)[4]	P-core Max Turbo Frequency (GHz)[5]	E-core Max Turbo Frequency (GHz)[5]	P-core Base Frequency (GHz)[5]	E-core Base Frequency (GHz)[5]								
i9-13900K	24 (8+16)	32	36 MB	32 MB	Up to 5.8	Up to 5.7	Up to 5.4	Up to 4.3	3.0	2.2	√	Intel® UHD Graphics 770	20	DDR5-5600 DDR4-3200	2	128 GB	125	253
i9-13900KF	24 (8+16)	32	36 MB	32 MB	Up to 5.8	Up to 5.7	Up to 5.4	Up to 4.3	3.0	2.2	√	n/a	20	DDR5-5600 DDR4-3200	2	128 GB	125	253
i9-13900F	24 (8+16)	32	36 MB	32 MB	Up to 5.6	Up to 5.5	Up to 5.2	Up to 4.2	2.0	1.5		n/a	20	DDR5-5600 DDR4-3200	2	128 GB	65	219
i9-13900	24 (8+16)	32	36 MB	32 MB	Up to 5.6	Up to 5.5	Up to 5.2	Up to 4.2	2.0	1.5		Intel® UHD Graphics 770	20	DDR5-5600 DDR4-3200	2	128 GB	65	219
i7-13700K	16 (8+8)	24	30 MB	24 MB	n/a	Up to 5.4	Up to 5.3	Up to 4.2	3.4	2.5	√	Intel® UHD Graphics 770	20	DDR5-5600 DDR4-3200	2	128 GB	125	253
i7-13700KF	16 (8+8)	24	30 MB	24 MB	n/a	Up to 5.4	Up to 5.3	Up to 4.2	3.4	2.5	√	n/a	20	DDR5-5600 DDR4-3200	2	128 GB	125	253
i7-13700F	16 (8+8)	24	30 MB	24 MB	n/a	Up to 5.2	Up to 5.1	Up to 4.1	2.1	1.5		n/a	20	DDR5-5600 DDR4-3200	2	128 GB	65	219
i7-13700	16 (8+8)	24	30 MB	24 MB	n/a	Up to 5.2	Up to 5.1	Up to 4.1	2.1	1.5		Intel® UHD Graphics 770	20	DDR5-5600 DDR4-3200	2	128 GB	65	219

Intel® processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families.
All processors are lead-free (per EU RoHS directive July 2006) and halogen free (residual amounts of halogens are below November 2007 proposed IPC/JEDEC J-STD-709 standards).
All processors support Intel® Virtualization Technology (Intel® VT-x).
For numbered references, see notices and disclaimers for details.

SKU Chart

Processor Number	Processor Cores (P-cores + E-cores)[3]	Processor Threads[4]	Intel® Smart Cache (L3)	Total L2 Cache	Processor Turbo Frequency				Processor Base Frequency		Unlocked[6]	Processor Graphics[7]	CPU PCIe Lanes	Maximum Memory Speed (MT/s)[8]	Memory Channels	Maximum Memory Capacity[8]	Processor Base Power (W)	Maximum Turbo Power (W)
					Intel® Thermal Velocity Boost Frequency (GHz)[4]	Intel® Turbo Boost Max Technology 3.0 Frequency (GHz)[4]	P-core Max Turbo Frequency (GHz)[5]	E-core Max Turbo Frequency (GHz)[5]	P-core Base Frequency (GHz)[5]	E-core Base Frequency (GHz)[5]								
i5-13600K	14 (6+8)	20	24 MB	20 MB	n/a	n/a	Up to 5.1	Up to 3.9	3.5	2.6	√	Intel® UHD Graphics 770	20	DDR5-5600 DDR4-3200	2	128 GB	125	181
i5-13600KF	14 (6+8)	20	24 MB	20 MB	n/a	n/a	Up to 5.1	Up to 3.9	3.5	2.6	√	n/a	20	DDR5-5600 DDR4-3200	2	128 GB	125	181
i5-13600	14 (6+8)	20	24 MB	11.5 MB	n/a	n/a	Up to 5.0	Up to 3.7	2.7	2.0		Intel® UHD Graphics 770	20	DDR5-4800 DDR4-3200	2	128 GB	65	154
i5-13500	14 (6+8)	20	24 MB	11.5 MB	n/a	n/a	Up to 4.8	Up to 3.5	2.5	1.8		Intel® UHD Graphics 770	20	DDR5-4800 DDR4-3200	2	128 GB	65	154
i5-13400	10 (6+4)	16	20 MB	9.5 MB	n/a	n/a	Up to 4.6	Up to 3.3	2.5	1.8		Intel® UHD Graphics 730	20	DDR5-4800 DDR4-3200	2	128 GB	65	148
i5-13400F	10 (6+4)	16	20 MB	9.5 MB	n/a	n/a	Up to 4.6	Up to 3.3	2.5	1.8		n/a	20	DDR5-4800 DDR4-3200	2	128 GB	65	148
i3-13100	4 (4+0)	8	12 MB	5 MB	n/a	n/a	Up to 4.5	n/a	3.4	n/a		Intel® UHD Graphics 730	20	DDR5-4800 DDR4-3200	2	128 GB	60	89
i3-13100F	4 (4+0)	8	12 MB	5 MB	n/a	n/a	Up to 4.5	n/a	3.4	n/a		n/a	20	DDR5-4800 DDR4-3200	2	128 GB	58	89

Intel® processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families.
All processors are lead-free (per EU RoHS directive July 2006) and halogen free (residual amounts of halogens are below November 2007 proposed IPC/JEDEC J-STD-709 standards).
All processors support Intel® Virtualization Technology (Intel® VT-x).
For numbered references, see notices and disclaimers for details.

SKU Chart

Processor Number	Processor Cores (P-cores + E-cores)[3]	Processor Threads[4]	Intel® Smart Cache (L3)	Total L2 Cache	Processor Turbo Frequency				Processor Base Frequency		Unlocked[6]	Processor Graphics[7]	CPU PCIe Lanes	Maximum Memory Speed (MT/s)[8]	Memory Channels	Maximum Memory Capacity[8]	Processor Base Power (W)	Maximum Turbo Power (W)
					Intel® Thermal Velocity Boost Frequency (GHz)[4]	Intel® Turbo Boost Max Technology 3.0 Frequency (GHz)[4]	P-core Max Turbo Frequency (GHz)[5]	E-core Max Turbo Frequency (GHz)[5]	P-core Base Frequency (GHz)[5]	E-core Base Frequency (GHz)[5]								
i9-13900T	24 (8+16)	32	36 MB	32 MB	n/a	Up to 5.3	Up to 5.1	Up to 3.9	1.1	0.8		Intel® UHD Graphics 770	20	DDR5 5600 DDR4 3200	2	128GB	35	106
i7-13700T	16 (8+8)	24	30 MB	24 MB	n/a	Up to 4.9	Up to 4.8	Up to 3.6	1.4	1.0		Intel® UHD Graphics 770	20	DDR5 5600 DDR4 3200	2	128GB	35	106
i5-13600T	14 (6+8)	20	24 MB	11.5 MB	n/a	n/a	Up to 4.8	Up to 3.4	1.8	1.3		Intel® UHD Graphics 770	20	DDR5 4800 DDR4 3200	2	128GB	35	92
i5-13500T	14 (6+8)	20	24 MB	11.5 MB	n/a	n/a	Up to 4.6	Up to 3.2	1.6	1.2		Intel® UHD Graphics 770	20	DDR5 4800 DDR4 3200	2	128GB	35	92
i5-13400T	10 (6+4)	16	20 MB	9.5 MB	n/a	n/a	Up to 4.4	Up to 3.0	1.3	1.0		Intel® UHD Graphics 730	20	DDR5 4800 DDR4 3200	2	128GB	35	82
i3-13100T	4 (4+0)	8	12 MB	5 MB	n/a	n/a	Up to 4.2	n/a	2.5	n/a		Intel® UHD Graphics 730	20	DDR5 4800 DDR4 3200	2	128GB	35	69

Intel® processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families.
All processors are lead-free (per EU RoHS directive July 2006) and halogen free (residual amounts of halogens are below November 2007 proposed IPC/JEDEC J-STD-709 standards).
All processors support Intel® Virtualization Technology (Intel® VT-x).
For numbered references, see notices and disclaimers for details.

Notices & Disclaimers

Performance varies by use, configuration and other factors. Learn more at www.Intel.com/PerformanceIndex.

Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available updates. See backup for configuration details. No product or component can be absolutely secure.

Your costs and results may vary.

Intel technologies may require enabled hardware, software or service activation.

1. Performance hybrid architecture combines two core microarchitectures, Performance-cores (P-cores) and Efficient-cores (E-cores), on a single processor die first introduced on 12th Gen Intel Core processors. Select 13th Gen Intel Core processors do not have performance hybrid architecture, only P-cores, and have same cache size as prior generation; see ark.intel.com for sku details.
2. CPU PCIe 5.0 lanes are only validated for discrete graphics (x16) and PCIe storage (1x4). 1x16 bifurcation to 2x8 supported on select Intel® 600 and 700 Series chipsets.
3. Processor cores listed first are the total number of cores in the processor. The number of Performance-cores and the number of Efficient-cores are listed in parentheses (P+E).
4. Intel® Hyper-Threading Technology, Intel® Turbo Boost Max Technology 3.0, and Intel® Thermal Velocity Boost are only available on Performance-cores.
5. Efficient-core frequencies are lower to optimize power usage. The frequency of cores and core types varies by workload, power consumption, and other factors. Visit www.intel.com/technology/turboboost for more information.
6. Unlocked features for overclocking are present when paired with the eligible Intel® 600/700 Series chipset SKU. Overclocking Disclaimer: Unlocked features are present with select chipsets and processor combinations. Altering clock frequency or voltage may void any product warranties and reduce stability, security, performance, and life of the processor and other components. Check with system and component manufacturers for details.
7. Available only on 13th Gen Intel® Core™ processors featuring integrated graphics
8. Maximum memory speeds are associated with 1 DIMM per Channel (1DPC) configurations. Additional DIMM loading on any channel may impact maximum memory speed. Up to DDR5-5600 MT/s 1DPC UDIMM 1Rx8, 1Rx16 and DDR5-5200 1Rx8, 1Rx16, 2Rx8 on select SKUs. Maximum memory capacity is achievable with 2DPC configurations. For additional 2DPC configuration details, refer to the Raptor Lake Processor External Design Specification (EDS), Doc ID 640555.