



# 12<sup>th</sup> Gen Intel® Core™ i9-12900KS Processor

The 12<sup>th</sup> Gen Intel® Core™ i9-12900KS is the World's Fastest Desktop Processor at

# 5.5 GHz<sup>1</sup>

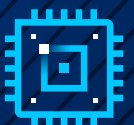
Designed for the **Most Demanding Gamers and Creators**

Available In Tray and Box

## 12<sup>th</sup> Gen Intel® Core™ Processor Family Featuring:



**NEW** Intel® Thermal Velocity Boost<sup>7</sup>



**NEW** Intel® Adaptive Boost Technology<sup>10</sup>



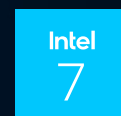
Performance Hybrid Architecture<sup>2</sup>



Intel® Thread Director<sup>2</sup>



Intel® 7 Process Technology



PCIe Gen 5.0 and 4.0 Support<sup>3</sup>



DDR5 and DDR4 Support<sup>4</sup>



Core and Memory Overclocking<sup>5</sup>



Visit **Intel® Partner Alliance** for More Information

1. Based on its Max Turbo Frequency of 5.5GHz, which is the highest for any Desktop processor. Additional details at [intel.com/performanceindex](https://www.intel.com/performanceindex). See Notices & Disclaimers for details. **Geo usage instructions:** Some countries & geographies may have restrictions on superlative claims. Please contact your geo legal before using this claim.

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# 12<sup>th</sup> Gen Intel® Core™ i9-12900KS

## Processor Specifications

Socket		<b>LGA1700</b>
Processor Cores (P-cores + E-cores) <sup>6</sup>		<b>16 (8+8)</b>
Processor Threads		<b>24</b>
Intel® Smart Cache (L3)		<b>30 MB</b>
Total L2 Cache		<b>14 MB</b>
Processor Turbo Frequency	Intel® Thermal Velocity Boost Frequency <sup>7,8</sup>	<b>Up to 5.5 GHz</b>
	Intel® Turbo Boost Max Technology 3.0 Frequency <sup>7,8</sup>	<b>Up to 5.3 GHz</b>
	Single P-core Turbo Frequency <sup>7,8</sup>	<b>Up to 5.2 GHz</b>
	Single E-core Turbo Frequency <sup>7,8</sup>	<b>Up to 4.0 GHz</b>
Processor Base Frequency	P-core Base Frequency <sup>8</sup>	<b>3.4 GHz</b>
	E-core Base Frequency <sup>8</sup>	<b>2.5 GHz</b>
Unlocked <sup>5</sup>		<b>Yes</b>
Processor Graphics		<b>Intel® UHD Graphics 770</b>
Total CPU PCIe Lanes		<b>20</b>
CPU PCIe 5.0 Lanes <sup>3</sup>		<b>16</b>
CPU PCIe 4.0 Lanes		<b>4</b>
Memory Type Supported <sup>9</sup>		<b>DDR5 up to 4800 MT/s DDR4 up to 3200 MT/s</b>
Max Memory Capacity <sup>9</sup>		<b>128 GB</b>
Memory Channels		<b>2</b>
Chipset Compatibility		<b>Intel® 600 Series Chipset</b>
Processor Base Power		<b>150 W</b>
Maximum Turbo Power		<b>241 W</b>

### Notices & Disclaimers

1. Max Turbo Frequency is the maximum single-core frequency at which the processor is capable of operating using Intel® Turbo Boost Technology and, if present, Intel® Turbo Boost Max Technology 3.0 and Intel® Thermal Velocity Boost. Intel® Thermal Velocity Boost (Intel® TVB) is a feature that opportunistically and automatically increases clock frequency above single-core and multi-core Intel® Turbo Boost Technology frequencies based on how much the processor is operating below its maximum temperature and whether turbo power budget is available. The frequency gain and duration is dependent on the workload, capabilities of the processor and the processor cooling solution. For more details on Core i9 12900KS specifications, refer to [ark.intel.com](https://ark.intel.com) Intel® Core™ i9-12900KS is a special edition of Intel® Core™ i9-12900K, with even better frequencies.

**Geo usage instructions: Some countries & geographies may have restrictions on superlative claims. Please contact your geo legal before using this claim.**

2. Intel® Thread Director is designed into 12<sup>th</sup> Gen Intel® Core™ desktop processors and helps supporting operating systems more intelligently channel workloads. No user action required. See [intel.com](https://intel.com) for details.
3. CPU PCIe 5.0 lanes are only validated for discrete graphics (x16) and PCIe storage (1x4). 1x16 bifurcated to 2x8 provides discrete graphics (x8) + additional storage configuration support (1x8).
4. DDR5 Memory speeds are associated with IDPC configurations. For additional 2DPC configuration details refer to the Alder Lake Processor External Design Specification (EDS), Doc ID 619501.
5. Unlocked features are present when paired with an eligible Intel® 600 Series chipset. 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.
6. Processor cores listed first are the total number of cores in the processor followed by the number of P-cores and E-cores in parentheses (P+E).
7. Intel® Hyper-Threading Technology, Intel® Adaptive Boost Technology, Intel® Turbo Boost Max Technology 3.0 and Intel® Thermal Velocity Boost are only available on Performance-cores.
8. 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 <https://www.intel.com/content/www/us/en/architecture-and-technology/turbo-boost/turbo-boost-technology.html> for more information.
9. Memory speeds are associated with IDPC configurations. Maximum memory capacity of 128GB is achievable with 2DPC configuration. For additional 2DPC configuration details refer to the Alder Lake Processor External Design Specification (EDS), Doc ID 619501.
10. Only available on Intel® Core™ i9-12900KS processors.

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Performance varies by use, configuration and other factors. Learn more at [www.intel.com/PerformanceIndex](https://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.

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