



# 12th Gen Intel® Core™ Processors— Desktop 125W Series

Game. Stream. Record.



**Accelerated  
gameplay**

Unleash faster gaming



**Complex workflows  
in a snap**

Boundless creation



**Office tasks  
at hyper-speed**

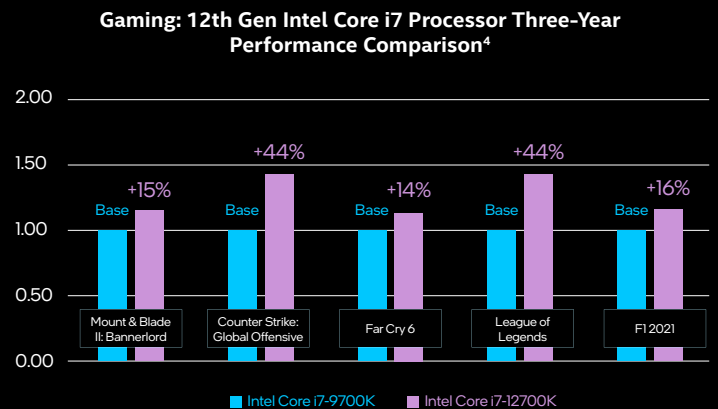
Reinvent productivity



## 12th Gen Intel Core Mobile Processors for Desktop (125W)

12th Gen Intel Core Mobile Processor	Processor cores	Processor threads	Number of P-cores <sup>1</sup>	Number of E-cores <sup>1</sup>	Intel Smart Cache	Maximum turbo frequency (GHz) <sup>2</sup>		Base frequency (GHz) <sup>2</sup>		Processor graphics	Max graphics frequency (GHz)	Compare to this processor
						P-core	E-core	P-core	E-core			
<b>i5-12600KF</b>	10	16	6	4	20 MB	4.9	3.6	3.7	2.8	Not applicable (N/A)	N/A	AMD Ryzen 7 5800X
<b>i5-12600K</b>	10	16	6	4	20 MB	4.9	3.6	3.7	2.8	Intel UHD Graphics 770	1.45	AMD Ryzen 7 5800X
<b>i7-12700KF</b>	12	20	8	4	25 MB	4.9	3.8	3.6	2.7	N/A	N/A	AMD Ryzen 9 5900X
<b>i7-12700K</b>	12	20	8	4	25 MB	4.9	3.8	3.6	2.7	Intel UHD Graphics 770	1.50	AMD Ryzen 9 5900X
<b>i9-12900K</b>	16	24	8	8	30 MB	5.2	3.9	3.2	2.4	Intel UHD Graphics 770	1.55	AMD Ryzen 9 5950X (Vermeer)
<b>i9-12900KF</b>	16	24	8	8	30 MB	5.2	3.9	3.2	2.4	N/A	N/A	AMD Ryzen 9 5950X (Vermeer)

 12th Gen Intel Core i5-12600K <b>up to 32%</b> higher on WebXPRT <sup>3</sup> compared to 9th Gen Intel Core i5	 12th Gen Intel Core i7-12700K <b>up to 29%</b> higher on WebXPRT <sup>4</sup> compared to 9th Gen Intel Core i7	 12th Gen Intel Core i9-12900K <b>up to 31%</b> higher on WebXPRT <sup>5</sup> compared to 9th Gen Intel Core i9
 12th Gen Intel Core i5-12600K <b>up to 51%</b> higher on CrossMark <sup>3</sup> compared to 9th Gen Intel Core i5	 12th Gen Intel Core i7-12700K <b>up to 50%</b> higher on CrossMark <sup>4</sup> compared to 9th Gen Intel Core i7	 12th Gen Intel Core i9-12900K <b>up to 41%</b> higher on CrossMark <sup>5</sup> compared to 9th Gen Intel Core i9



## Workloads

Testing by Intel as of 12/16/2021.

WebXPRT 4 is a browser benchmark that compares the performance of almost any web-enabled device. It contains HTML5, JavaScript, and WebAssembly-based scenarios created to mirror the tasks you do every day: Photo Enhancement, Organize Album Using AI, Stock Option Pricing, Encrypt Notes and OCR Scan using WASM, Sales Graphs, and Online Homework.

CrossMark is an easy-to-run native cross-platform benchmark that measures overall system performance and system responsiveness using models of real-world applications. CrossMark supports devices running Windows, iOS, and macOS platforms. CrossMark is available for download in the Windows Store, iTunes, and the Mac App Store.

Measured average frames per second at 1080p High settings for the title Mount & Blade II: Bannerlord.

Measured average frames per second at 1080p High settings for the title Counter Strike: Global Offensive.

Measured average frames per second at 1080p High settings for the title Far Cry 6.

Measured average frames per second at 1080p High settings for the title League of Legends.

Measured average frames per second at 1080p High settings for the title F1 2021.

## Configurations

Processor: Intel Core i5-12600K (up to 4.5 GHz, 10 cores, 16 threads); tested on reference platform; NVIDIA GeForce RTX 3080 GPU firmware 94.02.71.40.E3; memory: 32 GB DDR4, 3,200 MHz; storage: 1 TB Samsung NVMe SSD; display resolution: 1920\*1080; PC BIOS: 707; OS: Windows 10 21H1; power mode: high performance.

Processor: Intel Core i7-12700K (up to 4.7 GHz, 12 cores, 20 threads); tested on reference platform; NVIDIA GeForce RTX 3080 GPU firmware 94.02.71.40.E3; memory: 32 GB DDR4, 3,200 MHz; storage: 1 TB Samsung NVMe SSD; display resolution: 1920\*1080; PC BIOS: 707; OS: Windows 10 21H1; power mode: high performance.

Processor: Intel Core i9-12900K (up to 4.9 GHz, 16 cores, 24 threads); tested on reference platform; NVIDIA GeForce RTX 3080 GPU firmware 94.02.71.40.E3; memory: 32 GB DDR4, 3,200 MHz; storage: 1 TB Samsung NVMe SSD; display resolution: 1920\*1080; PC BIOS: 707; OS: Windows 10 21H1; power mode: high performance.

Processor: Intel Core i5-9600K (up to 4.6 GHz, 6 cores, 6 threads); tested on reference platform; NVIDIA GeForce RTX 3080 GPU firmware 94.02.71.40.E3; memory: 32 GB DDR4, 3,200 MHz; storage: 1 TB Samsung NVMe SSD; display resolution: 1920\*1080; PC BIOS: 2401; OS: Windows 10 21H1; power mode: high performance.

Processor: Intel Core i7-9700K (up to 4.9 GHz, 8 cores, 8 threads); tested on reference platform; NVIDIA GeForce RTX 3080 GPU firmware 94.02.71.40.E3; memory: 32 GB DDR4, 3,200 MHz; storage: 1 TB Samsung NVMe SSD; display resolution: 1920\*1080; PC BIOS: 2401; OS: Windows 10 21H1; power mode: high performance.

Processor: Intel Core i9-9900K (up to 5.0 GHz, 8 cores, 16 threads); tested on reference platform; NVIDIA GeForce RTX 3080 GPU firmware 94.02.71.40.E3; memory: 32 GB DDR4, 3,200 MHz; storage: 1 TB Samsung NVMe SSD; display resolution: 1920\*1080; PC BIOS: 2401; OS: Windows 10 21H1; power mode: high performance.

<sup>1</sup> Performance hybrid architecture combines two core microarchitectures, Performance-cores (P-cores) and Efficient-cores (E-cores), on a single processor die. Select 12th Gen Intel Core processors (certain 12th Gen Intel Core i5 processors and lower) do not have performance hybrid architecture, only P-cores.

<sup>2</sup> The frequency of cores and core types varies by workload, power consumption, and other factors. Visit [www.intel.com/content/www/us/en/architecture-and-technology/turbo-boost/turbo-boost-technology.html](https://www.intel.com/content/www/us/en/architecture-and-technology/turbo-boost/turbo-boost-technology.html) for more information.

<sup>3</sup> Based on superior performance of the 12th Gen Intel Core i5-12600K processor against the 9th Gen Intel Core i5-9500K processor. Intel processor performance is estimated based on measurements with Intel Reference Validation Platforms. See [www.intel.com/PerformanceIndex](https://www.intel.com/PerformanceIndex) for additional details.

<sup>4</sup> Based on superior performance of the 12th Gen Intel Core i7-12700K processor against the 9th Gen Intel Core i7-9700K processor. Intel processor performance is estimated based on measurements with Intel Reference Validation Platforms. See [www.intel.com/PerformanceIndex](https://www.intel.com/PerformanceIndex) for additional details.

<sup>5</sup> Based on superior performance of the 12th Gen Intel Core i9-12900K processor against the 9th Gen Intel Core i9-9900K processor. Intel processor performance is estimated based on measurements with Intel Reference Validation Platforms. See [www.intel.com/PerformanceIndex](https://www.intel.com/PerformanceIndex) for additional details.

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 configuration disclosure for additional details.

No product or component can be absolutely secure.

Your costs and results may vary.

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