

CPU Benchmarks

Over 1,000,000 CPUs Benchmarked


Intel Core i9-12900H

Price and performance details for the Intel Core i9-12900H can be found below. This is made using thousands of [PerformanceTest](#) benchmark results and is updated daily.

- The first graph shows the relative performance of the CPU compared to the 10 other common (single) CPUs in terms of PassMark CPU Mark.
- The 2nd graph shows the value for money, in terms of the CPU Mark per dollar.
- The pricing history data shows the price for a single Processor. For multiple Processors, multiply the price shown by the number of CPUs.

Is the Intel Core i9-12900H Good for Gaming?

This is a newly released CPU that contains 14 Cores and 20 Threads. The Intel Core i9-12900H also has reasonable threaded performance that will serve well in games. Paired with a good [videocard](#), *is this CPU Good for Gaming?* Yes, this would be a suitable CPU for gaming. [\[More...\]](#)

CPUS	Intel Core i9-12900H	Average CPU Mark
<div>High End</div> <div>High Mid Range</div> <div>Low Mid Range</div> <div>Low End</div>	Description: Intel Iris Xe Graphics	 <div>28758</div>
<div>Best Value (On Market)</div> <div>Best Value XY Scatter</div> <div>Best Value (All time)</div>	Class: Laptop Socket: FCBGA1744	
	Total Cores: 14 Cores, 20 Threads	
	Performance Cores: 6 Cores, 12 Threads, 2.5 GHz Base, 5.0 GHz Turbo	
	Efficient Cores: 8 Cores, 8 Threads, 1.8 GHz Base, 3.8 GHz Turbo	Single Thread Rating: 3858 Samples: 561* * Margin for error: Low
	Typical TDP: 45 W TDP Down: 35 W	<div>+ COMPARE</div>
<div>New Desktop</div> <div>New Laptop</div>	TDP Up : 115 W	
<div>Single Thread</div> <div>Systems with Multiple CPUs</div> <div>Overclocked</div> <div>Power Performance</div> <div>CPU Mark by Socket Type</div> <div>Cross-Platform CPU Performance</div> <div>Top Gaming CPUs</div>	Cache Size: L1: 1248 KB, L2: 11.5 MB, L3: 24 MB	
	Memory Support: Max. Memory Size: 64 GB (Up to DDR5 4800 MT/s, Up to DDR4 3200 MT/s, Up to)	
	Other names: 12th Gen Intel(R) Core(TM) i9-12900H, 12th Gen Intel Core i9-12900H	
	CPU First Seen on Charts: Q1 2022	

Compare ⁰

Common

Most
BenchmarkedAMD vs Intel
Market ShareYear on Year
Performance

CPUMark/\$Price: 46.61

Last Price Change: [\\$617.00 USD](#) (2022-01-01)

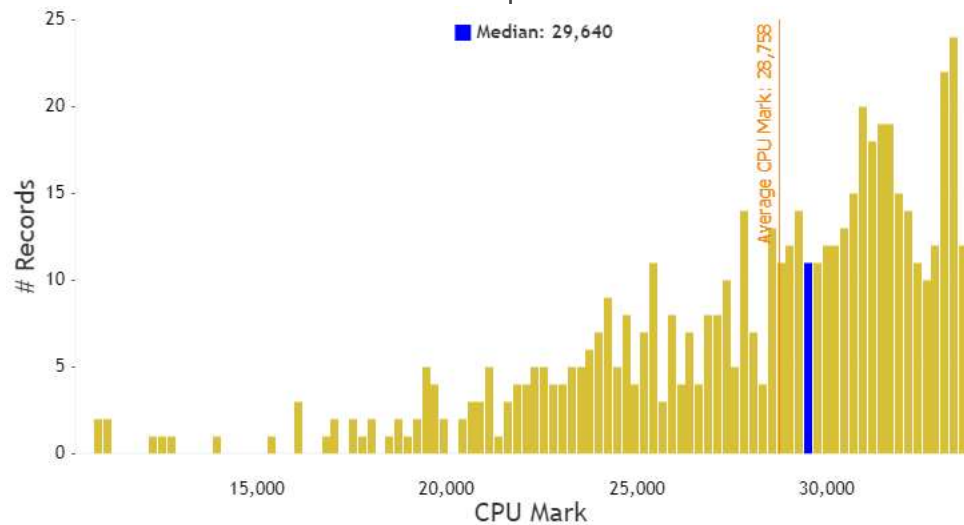
CPU Test Suite Average Results for Intel Core i9-12900H

Integer Math	98,550 MOps/Sec
Floating Point Math	71,142 MOps/Sec
Find Prime Numbers	112 Million Primes/Sec
Random String Sorting	37 Thousand Strings/Sec
Data Encryption	19,614 MBytes/Sec
Data Compression	327.1 MBytes/Sec
Physics	1,823 Frames/Sec
Extended Instructions	19,922 Million Matrices/Sec
Single Thread	3,858 MOps/Sec

From submitted results to PerformanceTest V10 as of 1st of December 2022.

CPU Mark Distribution for Intel Core i9-12900H

Submitted Baseline Distribution Graph as of 29th of November 2022



From submitted results to PerformanceTest V10 as of 29th of November 2022.

For distribution graph only: Results are [trimmed](#) to exclude outliers by disregarding the bottom 1% and top 1% of submissions.

Ad

**NVIDIA Xavier NX Edge Device**
Ultra-Small Supercomputer for Rapid AI



Search for **Intel Core i9-12900H**
from the Featured Merchants below:



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Pricing History

Price Summary

\$622 -
\$621 -
\$620 -
\$619 -
\$618 -
\$617 -
\$616 -
\$615 -
\$614 -
\$613 -
\$612 -

Jan '22

Machines with this CPU (or similar)



[ASUS ROG Strix Scar 15 \(2022\) Gaming Laptop, 15.6" 300Hz IPS FHD Display, NVIDIA GeForce RTX 3070 Ti, Intel Core i9 12900H, 16GB DDR5, 1TB SSD, Per-Key RGB Keyboard, Windows 11 Home, G533ZW-AS94](#)

\$1999.99
(www.amazon.com)



[New Precision 5770 Mobile Workstation Laptop 12th Gen Intel Core i9-12900H vPro RTX A3000, 12 GB DDR6 17" UHD+ Touch, 3840 x 2400, 500 nits 100% sRGB \(16TB SSD RAID|64GB RAM|11 PRO\)](#)

\$9999.00
(www.amazon.com)



[MSI Vector GP66 15.6" QHD 165Hz Gaming Laptop Intel Core i9-12900H RTX3080TI 32GB 1TB NVMe SSD Win11 - Black \(12UHSO-673\)](#)

\$2463.74
(www.amazon.com)



[MSI Pulse GL66 15.6" FHD 144Hz Gaming Laptop: Intel Core i7-12700H RTX 3070 16GB 512GB NVMe SSD, Type-C USB 3.2 Gen 1, RGB Gaming Keyboard, Cooler Boost 5, Win11 Home: Black 12UGKV-464](#)

\$1149.99
(www.amazon.com)



[CUK ROG Strix Scar 17 Gaming Laptop \(NVIDIA GeForce RTX 3080, Intel 14-Core i9-12900H, 32GB RAM, 2TB NVMe SSD, 17.3" WQHD 240Hz 3ms IPS, Windows 11 Home\) Gamer Notebook Computer \(Made by ASUS\)](#)

\$3079.99
(www.amazon.com)

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CPU Mark Relative to Top 10 Common Laptop CPUs



CPU Benchmarks



Processor

Average CPU Mark

Intel Core i9-12900H	28,758
Apple M1 Max 10 Core 3200 MHz	22,221
Apple M1 Pro 10 Core 3200 MHz	21,995
AMD Ryzen 7 5800H	21,334
Intel Core i7-11800H @ 2.30GHz	21,115
AMD Ryzen 7 4800H	18,890
Apple M1 8 Core 3200 MHz	14,352
Intel Core i7-10750H @ 2.60GHz	12,191
Intel Core i7-9750H @ 2.60GHz	11,111
Intel Core i7-8750H @ 2.20GHz	10,031
AMD Ryzen 5 3500U	7,052

CPU Value (CPU Mark / \$Price)

As of 2nd of December 2022 - Higher results represent better value

Processor

CPU Mark / \$Price

Intel Core i7-11800H @ 2.30GHz	53.45
Intel Core i9-12900H	46.61
Intel Core i7-8750H @ 2.20GHz	25.39
Intel Core i7-9750H @ 2.60GHz	11.57
Apple M1 8 Core 3200 MHz	NA
Apple M1 Max 10 Core 3200 MHz	NA
Apple M1 Pro 10 Core 3200 MHz	NA
AMD Ryzen 7 5800H	NA
AMD Ryzen 7 4800H	NA
AMD Ryzen 5 3500U	NA
Intel Core i7 10750H @ 2.60GHz	NA



Single Thread Rating

As of 2nd of December 2022 - Higher results represent better performance

Processor

Average Thread Rating

Intel Core i9-12900H		3,858
Apple M1 Max 10 Core 3200 MHz		3,851
Apple M1 Pro 10 Core 3200 MHz		3,829
Apple M1 8 Core 3200 MHz		3,738
Intel Core i7-11800H @ 2.30GHz		3,122
AMD Ryzen 7 5800H		3,074
Intel Core i7-10750H @ 2.60GHz		2,695
AMD Ryzen 7 4800H		2,629
Intel Core i7-9750H @ 2.60GHz		2,470
Intel Core i7-8750H @ 2.20GHz		2,314
AMD Ryzen 5 3500U		1,967

Last 5 Baselines for Intel Core i9-12900H

Most recent listed first

Baseline

CPU Mark

BL1684558 - Dec 02 2022		28251
BL1684550 - Dec 02 2022		24987
BL1684058 - Dec 01 2022		33250
BL1683739 - Dec 01 2022		32526
BL1683721 - Dec 01 2022		33664

Popular comparisons for Intel Core i9-12900H

As of 2nd of December 2022 - Higher results represent better performance

Processor

Average CPU Mark

Intel Core i9-12900H		28,758
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[Intel Core i9-12900HK vs Intel Core i9-12900H](#)

[29,015](#)

(+0.9%)



CPU Benchmarks



[Intel Core i9-12900HX vs Intel Core i9-12900H](#)

[35,216](#)

(+22.5%)

[Intel Core i9-12950HX vs Intel Core i9-12900H](#)

[32,011](#)

(+11.3%)

[Intel Core i7-12650H vs Intel Core i9-12900H](#)

[24,582](#)

(-14.5%)

[Intel Core i7-12800H vs Intel Core i9-12900H](#)

[24,393](#)

(-15.2%)

[Intel Core i9-11980HK @ 2.60GHz vs Intel Core i9-12900H](#)

[23,361](#)

(-18.8%)

[Intel Core i9-11950H @ 2.60GHz vs Intel Core i9-12900H](#)

[21,994](#)

(-23.5%)

[Intel Core i7-1280P vs Intel Core i9-12900H](#)

[20,282](#)

(-29.5%)

[Intel Xeon W-11955M @ 2.60GHz vs Intel Core i9-12900H](#)

[23,304](#)

(-19.0%)

[AMD Ryzen 9 6900HS vs Intel Core i9-12900H](#)

[24,046](#)

(-16.4%)

[AMD Ryzen 7 6800H vs Intel Core i9-12900H](#)

[23,809](#)

(-17.2%)

Is the Intel Core i9-12900H Good for Gaming?

As of 2nd of December 2022 - Higher results represent better performance

Processor

Relative [Gaming Score](#)

[Intel Core i9-12900HK](#)

[5,947](#)

Intel Core i9-12900H

5,748

[Intel Core i9-12900HX](#)

[5,565](#)

[Intel Core i9-12950HX](#)

[5,563](#)

[Intel Core i7-12800H](#)

[5,242](#)

[Intel Core i7-12650H](#)

[5,233](#)

[Intel Core i7-12700H](#)

[5,184](#)

[Intel Core i7-1280P](#)

[4,859](#)

[Intel Core i7-12800HX](#)

[4,823](#)

[Intel Core i7-12850HX](#)

[4,753](#)

[Intel Core i7-1250U](#)

[4,292](#)

[Intel Core i7-1260U](#)

[4.156](#)



CPU Benchmarks



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