News Release

October 8, 2018

Contact Intel PR

Intel Announces World's Best Gaming Processor: New 9th Gen Intel Core i9-9900K

Intel Unveils Full Desktop Product Lineup for Gaming and Content Creation, Including New 9th Gen Intel Core and Intel Core X-series Processors

NEWS HIGHLIGHTS

- Debuts 9th Gen Intel® Core™ desktop processors, including the Intel Core i9-9900K processor, the world's best gaming processor[1], with preorders starting today.
- Full details on new Intel Core X-series processors designed for premium content creation platforms, with availability in November.
- Updates on the new Intel® Xeon® W-3175X processor, a 28-core workstation powerhouse for compute intensive workloads and applications, which will ship from Intel in December.

NEW YORK, Oct. 8, 2018 – Intel today announced the 9th Gen Intel® Core™ i9-9900K, the world's best gaming processor [1], and said preorders for the new processor would begin today. The announcement was made as part of a series of new desktop processor introductions that will enable amazing performance and platform features to meet a range of consumer needs from gaming to content creation. New processors introduced today include the first 9th Gen Intel Core processors, new Intel Core X-series processors and the Intel® Xeon® W-3175X processor.

"Our goal is to deliver leadership performance across all computing segments and product lines," said Anand Srivatsa, vice president and general manager, Desktop, Systems and Channel, within the Client Computing Group at Intel. "Today's announcements underscore our ability to do exactly that, including, hands-down, the world's best processor for gaming. Whether a gamer, a creator or an expert using the most advanced workstation applications possible, Intel and our partners are focused on delivering balanced platforms with real-world leadership performance and robust capabilities that exceed their needs."

Let the Games Begin

The 9th Gen Intel Core i9-9900K is the world's best processor for gaming[1]. It brings an exceptional level of performance to the desktop product line, signified by the first Intel Core i9 brand in the mainstream desktop segment. All three of the 9th Gen Intel Core processors unveiled today (i5-9600K, i7-9700K and i9-9900K) enable fast, immersive experience for gamers, with up to 8 cores and 16 threads, up to 5.0 GHz single-core turbo frequency[2], and 16 MB Intel Smart Cache.

9th Gen Intel Core desktop processors deliver amazing performance, including unlocked [3] "K" SKUs at each brand level and up to 40 platform PCIe 3.0 lanes for system expandability for gaming, creating and overclocking[3]. Improvements in this generation include:

- Enabling more than 220 FPS on three of the most popular global PC game titles [4].
- With Intel® Turbo Boost Technology 2.0 delivering up to 5.0 GHz single-core frequency, gamers can enjoy their favorite games with up to 10 percent[5] more FPS across popular gaming titles compared with the previous generation, as well as up to 37 percent more FPS compared with a 3-year-old PC[6].
- Capture game play, transcode and stream while playing. With this type of megatasking, gamers can enjoy up to 11 percent[7] more FPS compared with the previous generation and up to 41 percent more FPS compared with a 3-year-old PC[8].
- Video editing improved on Adobe Premiere* – Up to 34 percent [9] faster video editing compared with the previous generation and up to 97 percent faster compared with a 3-year-old PC[10].

- Overall system performance improved up to 15 percent better as compared with previous generation and up to 40 percent as compared with a 3-year-old PC[11].
- Overclock[3] these new processors with the Intel® Extreme Tuning Utility (Intel® XTU), a precision tool for advanced overclocking, and take advantage of the additional thermal headroom with solder thermal interface material (STIM).

To realize the full potential of the new 9th Gen Intel Core processor, Intel is introducing the new Intel® Z390 chipset. The Intel Z390 chipset includes high-speed integrated USB 3.1 Gen 2 and integrated Intel® Wireless-AC with support for Gigabit Wi-Fi speed. The 9th Gen Intel Core processors are also compatible with all Intel® 300 Series chipset motherboards for more consumer options.

Preorders for the 9th Gen Intel Core processors and Intel Z390 chipset motherboards begin today from a variety of global vendors and retailers.

» Download all images (ZIP, 98 MB)

Ultimate PC Platform for Creators and Experts

Intel also announced seven (i7-9800X, i9-9820X, i9-9900X, i9-9920X, i9-9940X, i9-9960X and i9-9980XE) new Intel Core X-series processors for Intel's most

scalable desktop platform with a variety of core counts and I/O capabilities, as well as details on the Intel Xeon W-3175X processor. Designed with high frequencies and platform features for both lightly threaded and heavily threaded workloads, these processors are designed to handle the most demanding tasks and applications. Both products are built on the Intel® Mesh Architecture, which increases memory and I/O bandwidth, while decreasing latency – a critical need for the demanding workloads of creators and experts.

The new Intel Core X-series processors offer scalable options ranging from 8 to 18 cores with premium performance and platform technologies that help creators turn their imaginations into realities. With up to 18 cores, 36 threads, 24.75 MB Intel Smart Cache, and up to 68 platform PCIe lanes, Intel Core X-series processor-based systems enable creators to quickly and simultaneously record, encode, edit, render and transcode.

With Intel® Turbo Boost Max Technology 3.0 delivering up to 4.5 GHz[12] single-core frequency, the most critical workloads can be directed to the processor's two fastest cores, optimizing for lightly threaded performance when necessary. This means customers do not have to make a tradeoff between choosing a processor for lightly threaded or heavily threaded workloads.

Intel Core X-series processors will also enable software developers to write applications that take advantage of Intel® AVX-512 instructions to accelerate computing performance for parallel workloads.

For the select, highly threaded and computing-intensive applications such as architectural and industrial design and professional content creation, Intel will deliver the unlocked[3] Intel® Xeon® W-3175X processor. This new 28-core Intel Xeon processor was built with real-world performance in mind for these large, intensive workloads with up to 4.3 GHz[13] single-core turbo frequency, 56 threads and unlocked for those who want to push performance even higher. This platform also provides 38.5 MB Intel Smart Cache, 6-channel DDR4 memory support with up to 512 GB at 2666 MHz, and ECC and standard RAS support.

The new Intel Core X-series processors will be available in November; the Intel Xeon W-3175X processor will ship from Intel in December.

To celebrate the launch of the new 9th Gen Intel Core processors, Intel is hosting the 9th Gen Intel Core i9 Processor Dreamstakes to give away nine unique, once-in-a-lifetime VIP trips to world-class esports and gaming events, including Intel Extreme Masters, the Overwatch League*, ESL One* and the NBA2K* League. In addition, thousands of digital codes for some of the most popular games will be given away with this sweepstakes. Visit corei9.intel.com to view official rules and enter for a chance to win starting on Nov. 5, 2018.

MORE: 9th Gen Intel Core (Press Kit) | 9th Gen Intel Core processors (Product Brief) | Intel Core X-series processors (Product Brief)

SKU Table for 9th Gen Intel® Core™ Processors

Processor Number	Base Clock Speed (GHz)	Intel® Turbo Boost Technology 2.0 Maximum Single Core Turbo Frequency (GHz)	Cores / Threads	TDP	Intel® Smart Cache	Unlocked	Platform PCIE Lanes	Memory Support	Intel® Optane™ Memory Support	RCP Pricing (USD 1K)
9th Gen Intel® Core™ i9-9900K	3.6	5.0	8/16	95W	16MB	Yes	Up to 40	Two channels DDR4-2666	Yes	$488
9th Gen Intel® Core™ i7-9700K	3.6	4.9	8/8	95W	12MB	Yes	Up to 40	Two channels DDR4-2666	Yes	$374

9th Gen Intel® Core™ i5-9600K	3.7	4.6	6/6	95W	9MB	Yes	Up to 40	Two channels DDR4-2666	Yes	$262

SKU Table for Intel® Core™ X-series Processors

Processor Number	Base Clock Speed (GHz)	Intel® Turbo Boost Technology 2.0 Frequency (GHz)	Intel® Turbo Boost Max Technology 3.0 Frequency (GHz)	Cores / Threads	Intel® Smart Cache	Platform PCIE 3.0 Lanes	Unlocked	TDP	Memory Support	Intel® Optane™ Memory Support	RCP Pricing (USD 1K)
Intel® Core™ X-series i9-9980XE	3.0	4.4	4.5	18/36	24.75 MB	Up to 68	Yes	165W	Four channelsDDR4-2666	Yes	$1,979
Intel® Core™ X-series i9-9960X	3.1	4.4	4.5	16/32	22 MB	Up to 68	Yes	165W	Four channelsDDR4-2666	Yes	$1,684
Intel® Core™ X-series i9-9940X	3.3	4.4	4.5	14/28	19.25 MB	Up to 68	Yes	165W	Four channelsDDR4-2666	Yes	$1,387
Intel® Core™ X-series i9-9920X	3.5	4.4	4.5	12/24	19.25 MB	Up to 68	Yes	165W	Four channelsDDR4-2666	Yes	$1,189
Intel® Core™ X-series i9-9900X	3.5	4.4	4.5	10/20	19.25 MB	Up to 68	Yes	165W	Four channelsDDR4-2666	Yes	$989
Intel® Core™ X-series i9-9820X	3.3	4.1	4.2	10/20	16.5 MB	Up to 68	Yes	165W	Four channelsDDR4-2666	Yes	$898
Intel® Core™ X-series i7-9800X	3.8	4.4	4.5	8/16	16.5 MB	Up to 68	Yes	165W	Four channelsDDR4-2666	Yes	$589

[1]As measured by in-game benchmark mode performance where available, or highest median frames per second (FPS) where benchmark mode is unavailable. PC Gaming Processors Compared: 9th Gen Intel® Core™ i9-9900K, Intel® Core™ i9-9980XE Extreme Edition, and Intel® Core™ i9-9900X X-series; 8th Gen Intel® Core™ i7-8700K and i7-8086K; and AMD Ryzen™ 7 2700X, AMD Ryzen™ Threadripper 2990WX, and AMD Ryzen™ Threadripper 2950X. Prices of compared products may differ. Configurations: Graphics: NVIDIA GeForce GTX 1080 TI, Memory: 4x16GB DDR4 (2666 or 2933 per highest speed of the corresponding processor), Storage: 1TB, OS: Windows* 10 RS4 Build 1803, Samsung 970 Pro SSD. Results: Intel® Core™ i9-9900K scored better on the majority of the 19 game titles tested. The Intel® Core™ i9-9900K scored the same as the Intel® Core™ i7-8700K and the Intel® Core™ i7-8086K on “Middle Earth: Shadow of War,” and scored less than the Intel® Core™ i9-9980XE Extreme Edition on “Rise of the Tomb Raider.” More detail on workloads, test methodology, and configurations available at [http://facts.pt/11u9e2].

Performance results are based on testing by Principled Technologies as of October 4, 2018, and may not reflect all publicly available security updates. See configuration disclosure for details. No product can be absolutely secure.

Intel will be marketing the Intel® Core™ i9-9900K with the tag line “Performance Unleashed” in certain jurisdictions, including PRC and Vietnam. Intel will be marketing the Intel® Core™ i9-9900K with the tag line “Intel’s Best Gaming Desktop Processor” in certain jurisdictions, including Argentina, Belarus, Belize, Chile, Egypt, El Salvador, Guatemala, Honduras, Italy, Japan, Panama, Peru, Russia, Saudi Arabia, Turkey and Ukraine. If you are media or an influencer from these countries, or otherwise communicating directly to residents in these countries (e.g., on local-language social media), please only refer to the tag line Intel will be using in that country in lieu of the claim on this slide/document.

[2]Refers to the maximum single-core frequency that can be achieved with Intel® Turbo Boost Technology 2.0

[3]Warning: Altering PC clock or memory frequency and/or voltage may (i) reduce system stability and use life of the system, memory and processor; (ii)

cause the processor and other system components to fail; (iii) cause reductions in system performance; (iv) cause additional heat or other damage; and (v) affect system data integrity. Intel assumes no responsibility that the memory, included if used with altered clock frequencies and/or voltages, will be fit for any particular purpose. Check with memory manufacturer for warranty and additional details.

[4]9th Gen Intel® Core™ i9-9900K processor achieved up to 309 FPS on Rainbow Six: Siege; up to 224 FPS on Fortnite; up to 440 FPS on Counter-Strike: Global Offensive; and up to 221 FPS on PlayerUnknown Battlegrounds. Performance results are based on testing by Principled Technologies as of October 4, 2018, and may not reflect all publicly available security updates. See configuration disclosure for details. No product can be absolutely secure.

[5]As measured by World of Tanks enCore Demo App, Hitman 2 FPS and Conqueror's Blade FPS workloads comparing 9th Gen Intel® Core™ i9-9900K Processor vs. 8th Gen Intel® Core™ i7-8700K Processor

[6]As measured by World of Tanks enCore Demo App, Hitman 2 FPS and Conqueror's Blade FPS workloads comparing 9th Gen Intel® Core™ i9-9900K Processor vs. 6th Gen Intel® Core™ i7-6700K Processor

[7]As measured by Mega-tasking Scenario on Total War: WARHAMMER II comparing 9th Gen Intel® Core™ i9-9900K Processor vs. 8th Gen Intel® Core™ i7-8700K Processor

[8]As measured by Mega-tasking Scenario on Total War: WARHAMMER II comparing 9th Gen Intel® Core™ i9-9900K Processor vs. 6th Gen Intel® Core™ i7-6700K Processor

[9]As measured by Video Editing with Adobe Premiere Pro Workload comparing Intel® Core™ i9-9900K Processor vs. Intel® Core™ i7-8700K Processor

[10]As measured by Video Editing with Adobe Premiere Pro Workload comparing Intel® Core™ i9-9900K Processor vs. Intel® Core™ i7-6700K Processor

[11]As Measured by SYSmark* 2014 SE Overall on 9th Gen Intel® Core™ i9-9900K vs. 8th Gen Intel® Core™ i7-8700K and 9th Gen Intel® Core™ i9-9900K vs. 6th Gen Intel® Core™ i7-6700K

[12]Refers to the maximum single-core frequency that can be achieved with Intel® Turbo Boost Max Technology 3.0. Intel® Turbo Boost Max Technology 3.0 delivering up to 4.5 GHz single-core turbo frequency on i7-9800X, i9-9900X, i9-9920X, i9-9940X, i9-9960X, and i9-9980XE list. Intel® Turbo Boost Max Technology 3.0 delivers up to 4.2 GHz single-core turbo frequency on the Intel® Core™ X-series i9-9820X.

[13]Refers to the maximum single-core frequency that can be achieved with Intel® Turbo Boost Technology 2.0

Additional Disclosures:

Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors.

Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more complete information about performance and benchmark results, visit http://www.intel.com/benchmarks.

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at intel.com.

Tests document performance of components on a particular test, in specific systems. Differences in hardware, software, or configuration will affect actual performance. Consult other sources of information to evaluate performance as you consider your purchase. For more complete information about performance and benchmark results, visit http://www.intel.com/benchmarks.

Statements in this document that refer to Intel's plans and expectations for the quarter, the year, and the future, are forward-looking statements that involve a number of risks and uncertainties. A detailed discussion of the factors that could affect Intel's results and plans is included in Intel's SEC filings, including the annual report on Form 10-K.

Performance results (except for those related to "best gaming processor" claim) are based on testing as of October 2, 2018 and may not reflect all publicly available security updates. See configuration disclosure for details. No product can be absolutely secure.

Benchmark Details

SYSmark* 2014 SE (Second Edition) is a benchmark from the BAPCo* consortium that measures the performance of Windows* platforms. SYSmark tests the usage scenarios: Office Productivity, Media Creation, Responsiveness and Data/Financial Analysis. SYSmark contains real applications from Independent Software Vendors such as Microsoft* and Adobe*. Reported metrics: SYSmark 2014 SE Rating and a rating for each scenario result (higher is better for all). Scaling efficiencies: CPU dominant, sensitive to frequency, core count and memory. QSV enabled.

Workload details

Game FPS Workload – Median game FPS of Total War: WARHAMMER II (Skaven – lab mode) Benchmark mode

Demo App Workload – Median points within the demo workload of World of Tanks enCore Benchmark mode

Game FPS Workload – Median game FPS of Hitman 2 Benchmark mode

Game FPS Workload – Median game FPS of Conqueror's Blade Benchmark mode

Mega-tasking Scenario on Total War: WARHAMMER II – FPS while playing, streaming, recording via OBS and Twitch

Adobe Photoshop Lightroom workload: The workload consists of 50 .jpeg photos shot on a Nikon D800 camera ranging in size of 11.3 MB – 29.8 MB.

This scenario measures the time to export the photos at a reduced file size for sharing/upload to social networks.

4K Video Adobe Premier Pro Workload: The project “PPCS” contains seven clips totaling 2 minute and 21 seconds of 4K H.264 MP4 footage recorded at a bit rate of approximately 80 Mbps. The input file sizes total 1.90 GB. The video stream is 3840×2160 (4K) in H.264 format with a framerate of 29.97 FPS. The audio stream is 1536 Kbps, 48.0 KHz, 16 bit Stereo in WAV format. The performance test measures the time to export the entire clip to a 4K H.264 MP4 format. The output is a high quality 4K video file.

Blender 2.76b workload consists of a render of a ~6.9 MB character model of a flying squirrel.

Unreal Engine workload measures the time to build “Production” quality lighting for a demo scene.

System Configurations

Intel® Core™ i9-9900K Processor, PL1=95W TDP, 8C16T, Turbo up to 5.0GHz, Motherboard: GIGABYTE Z390, Graphics: NVIDIA GTX 1080Ti, Memory: 4x4GB DDR4, Storage: 512GB Intel NVMe SSD 760p, OS: Windows* 10 RS4 Build 1803, BIOS Version T0d with MCU 0x96

Intel® Core™ i7-8700K Processor, PL1=95W TDP, 6C12T, Turbo up to 4.7GHz, Motherboard: ASUS Z370, Graphics: NVIDIA GTX 1080Ti, Memory: 4x4GB DDR4, Storage: 512GB Intel NVMe SSD 760p, OS: Windows* 10 RS4 Build 1803, BIOS Version 1002 with MCU 0x96

Intel® Core™ i7-6700K Processor, PL1=95W TDP, 4C8T, Turbo up to 4.2GHz, Motherboard: ASUS Z170MPLUS, Graphics: NVIDIA GTX 1080Ti, Memory: 4x4GB DDR4, Storage: 512GB Intel NVMe SSD 760p, OS: Windows* 10 RS4 Build 1803, BIOS Version 3805 with MCU 0xC2

Intel® Core™ X-series i9-9980XE Processor (VIS), PL1=165W TDP, 18C36T, Turbo up to 4.5GHz, Motherboard: ASUS Prime X299, Graphics: NVIDIA GTX 1080Ti, Memory: 8x8GB DDR4 2400, Storage: 480GB Intel NVMe SSD 900p, OS: Windows* 10 RS4 Build 17134.137, BIOS Version 1401 with MCU 0x2000043

Tags: 2018 Intel Desktop Launch Event, 9th Gen Intel Core

Other News

March 16, 2021
11th Gen Intel Core: Unmatched Overclocking, Game Performance

March 16, 2021
11th Gen Intel Core Desktop

March 12, 2021
Intel Sports

About Intel

Intel (Nasdaq: INTC) is an industry leader, creating world-changing technology that enables global progress and enriches lives. Inspired by Moore’s Law, we continuously work to advance the design and manufacturing of semiconductors to help address our customers’ greatest challenges. By embedding intelligence in the cloud, network, edge and every kind of computing device, we unleash the potential of data to transform business and society for the better. To learn more about Intel’s innovations, go to newsroom.intel.com and intel.com.

Latest News: Client Computing

March 16, 2021

11th Gen Intel Core: Unmatched Overclocking, Game Performance

March 16, 2021

11th Gen Intel Core Desktop

March 12, 2021

Intel Sports

Read More