



8TH GEN INTEL[®] CORE[™] DESKTOP PROCESSORS

SEPTEMBER 2017



AUG 21ST 2017

8th Gen Intel® Core™ Family Introduction
Launched Mobile U-Series Processors

OCT 5TH 2017



8th Gen Intel® Core™ Desktop
K SKU and Premium Consumer Processors

1H 2018

8th Gen Intel® Core™
Commercial and Broad Consumer Processors

INTRODUCING INTEL'S[®] 8TH GEN INTEL[®] CORE[™] DESKTOP PROCESSOR FAMILY



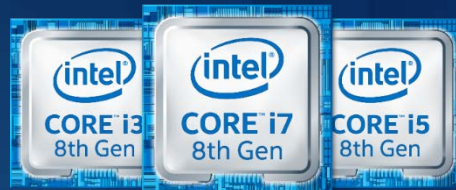
DESKTOP PROCESSOR FAMILIES



INTEL® PENTIUM®/CELERON® ENTRY PERFORMANCE

- Leadership performance at entry system price points
- Enjoy content and connect to the world through the internet

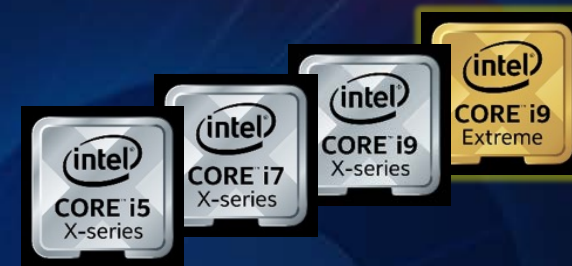
1. As measured by a sampling of AAA game titles using the games' benchmark mode measuring frames per second (FPS) on Intel Core i7-8700K Processor. Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark 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 visit www.intel.com/benchmarks.



8TH GEN INTEL® CORE™ PREMIUM PERFORMANCE

- i7-8700K - Intel's BEST gaming desktop processor¹
- Wide range of performance options for consumers
- Up to 6 cores and 12 threads
- A range of unlocked K SKU processors
- Up to 40 platform PCIe 3.0 lanes

LAUNCHING OCTOBER 5, 2017



INTEL® CORE™ X-SERIES EXTREME PERFORMANCE

- Ultimate performance and extreme mega-tasking
- Scalable from Intel® Core™ i5 through Core™ i9 Extreme Edition
- All processors unlocked
- Up to 4 memory channels
- Up to 68 platform PCIe 3.0 lanes

NEW 8TH GEN INTEL[®] CORE[™] DESKTOP PROCESSOR FAMILY MARKET INSIGHTS

Gaming



36% Growth CAGR in Retail Gaming PC Sales over the last 5 years¹

Content Creation



130M+ Digital Content Creators²

Overclocking



80% Increase in Unlocked CPU Sales Q2'14 vs. Q2'17³

Sources:

1. NPD & GfK Retail Sales. Assumptions: Performance CPUs (Intel: Core i5 and i7 H-series Mobile, X- & S-series Desktop, AMD: FX); Discrete graphics at 3D Mark score of ≥ 2000 (approx. Nvidia GTX level); Windows OS
2. Total addressable market for Adobe's creative products – Forbes March 27, 2017; Facebook users as of 2/1/2017; IMRA Digital Content Creators Market Sizing and Polling Report 2015. US/UK/China only. Population size numbers are rounded. PRC population figure consists of Tier 1 and 2 only
3. Internal Intel estimates

NEW 8TH GEN INTEL[®] CORE[™] DESKTOP PLATFORM OVERVIEW

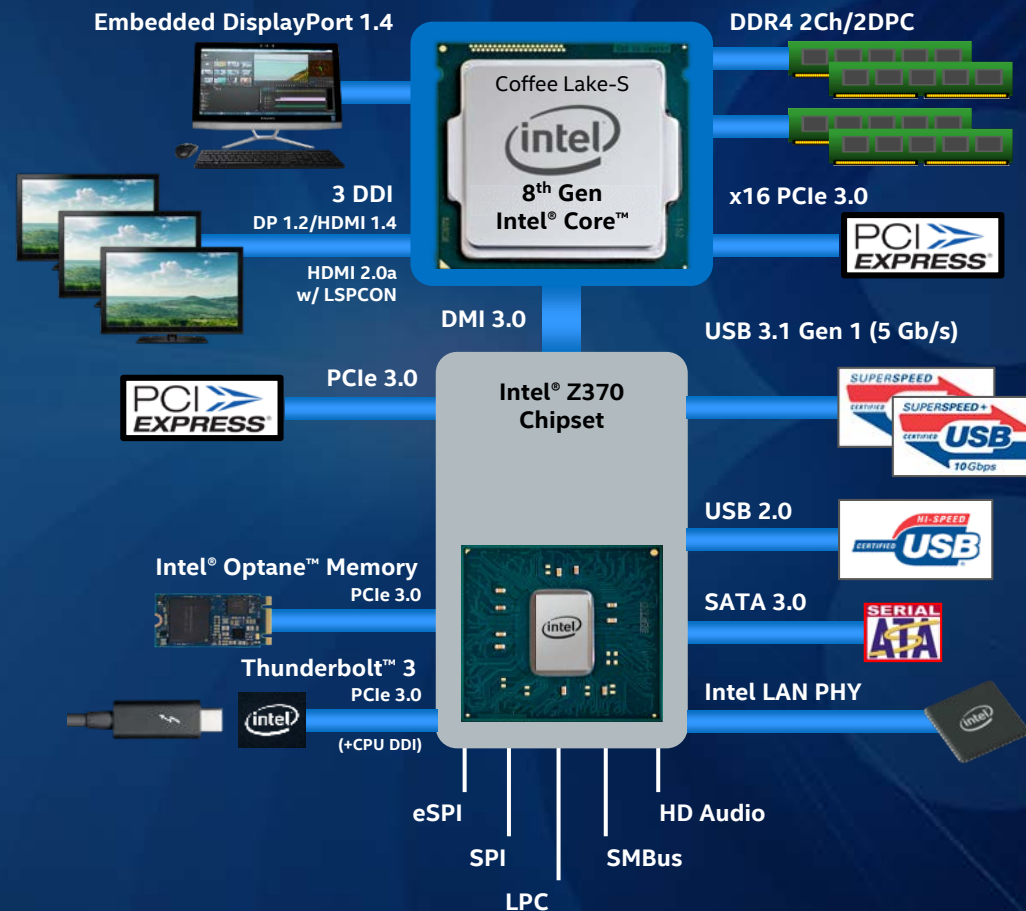
MORE CORES

MORE INTEL[®] SMART CACHE

BEST IN CLASS DESIGN

ENHANCED OVERCLOCKING

IMPROVED 14NM PROCESS



ARCHITECTURE + DESIGN + MANUFACTURING = PREMIUM PERFORMANCE

NEW INTEL® Z370 CHIPSET MOTHERBOARD

IMPROVED POWER DELIVERY FOR 6-CORE PROCESSORS

ENHANCED PACKAGE POWER DELIVERY FOR OVERCLOCKING

MEMORY ROUTING SUPPORT FOR DDR4-2666



8TH GEN INTEL® CORE™ DESKTOP PROCESSORS REQUIRE INTEL® 300 SERIES CHIPSET MOTHERBOARDS TO DELIVER THE RATED PERFORMANCE

NEW 8TH GEN INTEL[®] CORE[™] DESKTOP PROCESSOR FAMILY



Delivering Premium Performance for What Comes Next

- i7-8700K - Intel's BEST gaming desktop processor ever¹
- First 6-core Intel[®] Core[™] i5 desktop processor
- First 4-core Intel[®] Core[™] i3 desktop processor
- Up to 12MB Intel[®] Smart Cache

Amazing Responsiveness with Intel[®] Optane[™] Memory

- Accelerate System Responsiveness
- Optimize Overall Productivity
- High Performance Large Capacity Storage

Built for Gamers, Content Creators, and Overclockers

- A range of unlocked K SKU processors that deliver maximum tuning flexibility
- Up to 40 platform PCIe 3.0 lanes for system expandability on graphics, storage, and I/O
- Supported with Intel[®] Z370 chipset motherboards

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BETTER GAMING WITH 8TH GEN INTEL® CORE™ PROCESSORS

POWERFUL, FLUID, VIVID GAMING

- i7-8700K - Intel's BEST gaming desktop processor ever¹
- Up to 195 FPS² on Gears of War* 4
- Up to **25% more FPS³** on Gears of War* 4 vs. 7th Gen

AN OPTION FOR EVERY GAMER

- A wide range of performance options for gamers
- Unlocked SKUs available at each Intel® Core™ brand
- Launch games FASTER⁴ with Intel® Optane™ memory

THE WORLD IS WATCHING

- Up to 80 FPS⁵ while mega-tasking
- Game + Stream + Record up to **45% better⁶** with PlayerUnknown's Battlegrounds* vs. 7th Gen
- Game + Stream + Record up to **2X faster⁷** with PlayerUnknown's Battlegrounds* vs. a 3 yr old PC

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 visit www.intel.com/benchmarks.

1. As measured by a sampling of AAA game titles using the games' benchmark mode measuring frames per second (FPS) on Intel Core i7-8700K Processor
2. As measured by Gears of War* 4 Workload on Intel® Core™ i7-8700K Processor (6C/12T)
3. As measured by Gears of War* 4 Workload comparing Intel® Core™ i7-8700K Processor (6C/12T) vs. Intel® Core™ i7-7700K Processor (4C/8T)
4. Compared to HDD alone
5. As measured by Mega-tasking Gaming Scenario on Playerunknown's Battleground* - no QSV - on Intel® Core™ i7-8700K Processor (6C/12T)
6. As measured by Mega-tasking Gaming Scenario on Playerunknown's Battleground* comparing Intel® Core™ i7-8700K Processor (6C/12T) vs. Intel® Core™ i7-7700K Processor (4C/8T)
7. As measured by Mega-tasking Gaming Scenario on Playerunknown's Battleground* comparing Intel® Core™ i7-8700K Processor (6C/12T) vs. Intel® Core™ i7-4790K Processor (4C/8T)

*Other names and brands may be claimed as the property of others.

BETTER CONTENT CREATION WITH 8TH GEN INTEL® CORE™ PROCESSORS

ADVANCE YOUR CREATIVITY

- Up to **32% faster¹ 4K video editing** vs. 7th Gen
- Load media projects **FASTER²** with Intel® Optane™ memory
- Hardware support for 4K HDR

CREATE

Up to

4.5X

FASTER³

EDIT

Up to

65%

FASTER⁴

SHARE

Up to

7.8X

FASTER⁵



vs.

**3 yr old
Desktop**

1. As measured by 4K Video Adobe Premier Pro workload comparing Intel® Core™ i7-8700K Processor (6C/12T) vs. Intel® Core™ i7-7700K Processor (4C/8T)

2. Compared to HDD alone

3. As measured by PowerDirector HEVC Video workload comparing Intel® Core™ i7-8700K Processor (6C/12T) vs. Intel® Core™ i7-4790K Processor (4C/8T)

4. As measured by Photo Editing Adobe Photoshop Lightroom workload comparing Intel® Core™ i7-8700K Processor (6C/12T) vs. Intel® Core™ i7-4790K Processor (4C/8T)

5. As measured by Handbrake* Transcode workload comparing Intel® Core™ i7-8700K Processor (6C/12T) vs. Intel® Core™ i7-4790K Processor (4C/8T)

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BETTER OVERCLOCKING WITH 8TH GEN INTEL® CORE™ PROCESSORS

PERFORMANCE MATTERS

New Features:¹

- Per Core Overclocking²
- Max Memory Ratio up to 8,400 MT/s
- Real-Time Memory Latency Control
- Extended PLL Trim Controls
- Enhanced Package Power Delivery

EXTREME TUNING

- Intel® Extreme Tuning Utility (Intel® XTU)
- Intel® Extreme Memory Profile 2.0 (Intel® XMP) technology

PEACE OF MIND

- Performance Tuning Protection Plan available

1. On select SKUs only.

2. When more than one core is active, the lower ratio is applied. Per core P-states and per core voltage are not supported

BETTER RESPONSIVENESS WITH INTEL® OPTANE™ MEMORY

ACCELERATE SYSTEM RESPONSIVENESS

OPTIMIZE PRODUCTIVITY

HIGH PERFORMANCE LARGE CAPACITY STORAGE

SYSTEM
RESPONSIVENESS

Up to
2.1X¹

FASTER

WEB
LAUNCH

Up to
8.6X²

FASTER



vs.
5 yr old
Desktop

1. As measured by SYSmark* 2014 SE (Second Edition) Responsiveness Subtest comparing Intel® Core™ i5-8400 (6C/6T) with 16GB Intel Optane Memory vs. Intel® Core™ i5-3470 Processor without Intel® Optane™ memory
2. As measured by Chrome Launch Workload comparing Intel® Core™ i5-8400 (6C/6T) with 16GB Intel Optane Memory vs. Intel® Core™ i5-3470 Processor without Intel® Optane™ memory

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Intel® Optane™ memory requires specific hardware and software configuration. Visit www.intel.com/Optanememory for configuration requirements.

NEW 8TH GEN INTEL[®] CORE[™] PROCESSOR FAMILY

Processor number ¹	Base clock speed (GHz)	Intel [®] Turbo Boost Technology 2.0 maximum single core turbo frequency (GHz)	Cores/Threads	Thermal Design Power	Unlocked ¹	Intel [®] Smart Cache	Memory support	Intel [®] Optane [™] Memory Support ⁴	RCP pricing (USD 1K)
Intel [®] Core [™] i7-8700K	3.7	4.7	6/12	95	√	12 MB	Two channels DDR4-2666 ²	√	\$359
Intel [®] Core [™] i7-8700	3.2	4.6	6/12	65		12 MB	Two channels DDR4-2666 ²	√	\$303
Intel [®] Core [™] i5-8600K	3.6	4.3	6/6	95	√	9 MB	Two channels DDR4-2666 ²	√	\$257
Intel [®] Core [™] i5-8400	2.8	4	6/6	65		9 MB	Two channels DDR4-2666 ²	√	\$182
Intel [®] Core [™] i3-8350K	4	N/A	4/4	91	√	8 MB	Two channels DDR4-2400 ³	√	\$168
Intel [®] Core [™] i3-8100	3.6	N/A	4/4	65		6 MB	Two channels DDR4-2400 ³	√	\$117

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)

1. See overclocking disclaimer

2. POR is UDIMM DDR4 2666. 1 and 2 DPC. SODIMM is DDR4 2400 1 DPC with 2666 under investigation.

3. POR is UDIMM DDR4 2400 1 and 2 DPC and SODIMM DDR4 2400 1 DPC.

4. Intel[®] Optane[™] memory requires specific hardware and software configuration. Visit www.intel.com/Optanememory for configuration requirements

SUMMARY

- i7-8700K - Intel's Best Gaming Desktop Processor¹ with up to 25% more FPS² and up to 45% better³ mega-tasking vs. 7th Gen
- Up to 32% faster⁴ 4K video editing vs. 7th Gen
- First 6-core Intel® Core™ i5 and first 4-core Intel® Core™ i3
- Available beginning October 5th 2017; OEM systems Q4'17

1. As measured by a sampling of AAA game titles using the games' benchmark mode measuring frames per second (FPS) on Intel Core i7-8700K Processor.

2. As measured by Gears of War* 4 Workload comparing Intel® Core™ i7-8700K Processor (6C/12T) vs. Intel® Core™ i7-7700K Processor (4C/8T)

3. As measured by Mega-tasking Gaming Scenario on Playerunknown's battleground comparing Intel® Core™ i7-8700K Processor (6C/12T) vs. Intel® Core™ i7-7700K Processor (4C/8T)

4. As measured by 4K Video Adobe Premier Pro workload comparing Intel® Core™ i7-8700K Processor (6C/12T) vs. Intel® Core™ i7-7700K Processor (4C/8T)

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Intel processors of the same SKU may vary in frequency or power as a result of natural variability in the production process.

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.

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.

Intel is a sponsor and member of the BenchmarkXPRT Development Community, and was the major developer of the XPRT family of benchmarks. Principled Technologies is the publisher of the XPRT family of benchmarks. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases.

Tests measure 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 intel.com/benchmarks.

Results have been estimated based on internal Intel analysis and are provided for informational purposes only. Any difference in system hardware or software design or configuration may affect actual performance and are based on pre-production system measurements.

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*Other names and brands may be claimed as the property of others.

CONFIGURATIONS

Intel® Core™ Desktop Processors:

- Intel® Core™ i7-8700K Processor, PL1=95W TDP, 6C12T, Turbo up to 4.7GHz, Graphics: NVIDIA* GTX 1080Ti Graphics Driver: 384.94, Memory: 2x8GB, Storage: Intel SSD 545 Series 240GB, OS: Windows* 10 RS2, Game Settings: High
- Intel® Core™ i7-8700K Processor, PL1=95W TDP, 6C12T, Turbo up to 4.7GHz, Graphics: NVIDIA* GTX 1080Ti, Memory: 2x8GB, Storage: Intel SSD 545 Series 240GB, OS: Windows* 10 RS2
- Intel® Core™ i7-7700K Processor, PL1=91W TDP, 4C8T, Turbo up to 4.5GHz, Graphics: NVIDIA* GTX 1080Ti, Memory: 2x8GB, Storage: Intel SSD 545 Series 240GB, OS: Windows* 10 RS2
- Intel® Core™ i7-4790K Processor, PL1=84W TDP, 4C8T, Turbo up to 4.4GHz, Graphics: NVIDIA* GTX 1080Ti, Memory: 2x8GB, Storage: Intel SSD 545 Series 240GB, OS: Windows* 10 RS2

Intel® Optane™ memory:

- Intel® Core™ i5-8400 Processor, PL1=65W TDP, 6C6T, Turbo up to 4GHz, Graphics: Intel UHD Graphics 630, Memory: 2x4GB, Storage: Western Digital HDD Black 1TB, Optane: 16GB Intel Optane Memory, OS: Windows* 10 RS2
- Intel® Core™ i5-3470 Processor, PL1=77W TDP, 4C4T, Turbo up to 3.6GHz, Graphics: Intel HD Graphics 2500, Memory: 2x4GB, Storage: Western Digital HDD Black 1TB, OS: Windows* 10 RS2

BENCHMARK DESCRIPTIONS

- **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 DESCRIPTIONS

- **4K to 1080p HEVC Transcode Workload:** Using Handbrake, the workload video file is a ~6.27 GB, 3840 x 1714, 73.4 Mbps, 24fps, H.264, .mov video file that is transcoded to a ~1920x1080, ~3.5 Mbps, 24fps, HEVC, .mkv video file.
- **PowerDirector Ultra HD HEVC Video Creation:** The workload is a video project containing a 3840x2160, H.264, .mp4 file (shot on a GoPro HERO4 Black action camera) with added text overlays and video effects. The output file is a 1 min. 46 sec., 3840x2160, ~35Mbps, HEVC, ~440MB, .mp4 video file.
- **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 bitrate of approximately 80 Mbps. The input file sizes total 1.90 GB. The video stream is 3840x2160 (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.
- **Megatasking Gaming Scenario on Playerunknown’s battleground :** FPS while playing, streaming, recording via OBS and Twitch
- **Gears of War* 4 Game Workload :** measures average frame-rate (FPS) while playing Gears of War* 4
- **Browser Launch Workload –** Workload developed by Intel® measuring the time elapsed to launch Google* Chrome

