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experience
what's inside™

INTRODUCING INTEL'S MOST POWERFUL DESKTOP PROCESSORS
A NEW WORLD OF GAMING DOMINANCE AND INCREDIBLE CONTENT CREATION

INTEL'S FIRST 10 CORE DESKTOP PROCESSOR!

With the new Intel® Core™ i7 processor Extreme Edition for the X-series platform, Intel delivers the power of 10! This family of processors enables simultaneous, compute intensive, multi-threaded workloads, powered by up to 10 cores and 20 threads. They deliver platform scalability to meet exacting demands with up to 40 PCIe 3.0 lanes and support for high speed storage, up to 4 discrete graphics cards, and Thunderbolt™ technology. These Intel® Core™ i7 processors support quad channel DDR4 memory, boast up to 25MB of Intel® Smart Cache, and are fully unlocked for unleashed performance. Finally, this processor family is the first to feature the NEW Intel® Turbo Boost Max Technology 3.0 which delivers more than 15% better single-threaded performance[6,7].

BOOST YOUR SYSTEM FOR AN AMAZING GAMING EXPERIENCE!

Want to immerse yourself in action packed AAA gameplay while live streaming, chatting with friends and recording highlights? Look no further than the Intel® Core™ i7 processor family for X-series platforms. Compete with a performance edge without compromising your livestream or gameplay. With over 30% improvement in the 3D Mark Fire Strike Physics score[8,14], you can play with confidence and get into the game! Worried about demanding requirements of a unique nature? Even better...With the Intel® Core™ i7-69xx/68xx processor family, you can leverage the Intel® Extreme Tuning Utility (Intel® XTU) to build a custom overclocking solution to meet those demanding needs and utilize Intel® Turbo Boost Max Technology 3.0 to prioritize the workloads that matter most.

PLAY WITH CONFIDENCE AND GET INTO THE GAME

UNLEASH YOUR BATTLE-TESTED GAME SKILLS WITH A FINELY TUNED INTEL® CORE™ I7-69XX/68XX PROCESSOR.

PERFORMANCE HEADROOM TO SCALE WITH YOUR VR APPETITE

VIRTUAL REALITY IS HERE!

A new era in Virtual Reality has begun and achieving the premium VR experiences delivered by the leading head mounted displays on the market will require powerful PCs. VR technology will only get better and more demanding as richer content is developed. One way to make sure your new rig is as future proof as possible is by investing in an Intel® Core™ i7 processor supporting the Intel® X99 platform. These processors deliver up to 20% faster performance.[12,14] So, whether it is 360 degree 4K video trekking through the Himalayas or the imagined depths of some unknown creative construct, know that your system has the flexibility and performance headroom to scale with your VR appetite.

AMAZING PLATFORM FOR CONTENT CREATION

Is your system putting limits on your creative aspirations? Whether you are a Professional, hobbyist or simply creating high quality personal memories, the Intel® Core™ i7-69xx/68xx processor family will release you to achieve new creative heights. 10 cores dramatically improves content creation workflows with 25% faster 4K video editing and 20% faster video transcoding.[9,10,14] Quad channel memory improves responsiveness and decreases start up time when you are working with large files and applications. The more frequently you import new footage, the less time waiting and more time creating. These Intel® Core™ i7 processors supporting the Intel® X99 platform also support Thunderbolt™ 3 technology add-in cards, delivering 40Gbps bi-directional bandwidth and are 8X faster than USB3.0 and 4X faster than Firewire5. The Intel® Core™ i7-69xx/68xx processors are designed to handle heavy workloads and the most popular content creation apps with the stability that you have come to rely on from Intel. And for creators on the go, create 360 degree videos 25% faster[11,14] for an immersive experience worth sharing. You'll be the envy of your friends with action camera post-production videos as audacious as your adventures!

LESS TIME WAITING AND MORE TIME CREATING

ALL THE FAMILIAR BENEFITS OF THE INTEL® X99 PLATFORM

The Intel® Core™ i7-69xx/68xx processors are designed to work in combination with Intel® X99 Chipset-based systems or boards[1]. Motherboards based on the Intel® X99 Chipset are ideal for unlocking the best features of the NEW Intel® Core™ i7 processor family, enabling full overclocking control, up to 20 threads of processing performance, 4 channels of DDR4 memory operating at target speeds up to 2400MHz which provides best performance for Gaming and Content Creation usages. The historical unlocking of these high-end processors provides additional headroom to the specified frequencies for Cores and Memory. These new processors are intended for customers who demand high performance, robust platform features and overclocking flexibility[2].

INTEL® CORE™ i7 69XX/68XX PROCESSOR FAMILY IN THE LGA2011 V3 SOCKET   FEATURES

	INTEL® CORE™ i7-6950X PROCESSOR EXTREME EDITION	INTEL® CORE™ i7-6900K PROCESSOR	INTEL® CORE™ i7-6850K PROCESSOR	INTEL® CORE™ i7-6800K PROCESSOR
Number of Processor Cores / Threads	10 / 20	8 / 16	6 / 12	6 / 12
Intel© Turbo Boost Max Technology 3.0	Yes	Yes	Yes	Yes
Intel© Turbo Boost Technology 2.0	Yes	Yes	Yes	Yes
Number of Memory Channels	4 (DDR4 2400 MHz)	4 (DDR4 2400 MHz)	4 (DDR4 2400 MHz)	4 (DDR4 2400 MHz)
PCI Express Lanes	40	40	40	28
PCI Express 3.0	Yes	Yes	Yes	Yes
Unlocked Core Multiplier	Yes	Yes	Yes	Yes
Intel© Hyper-Threading Technology	Yes	Yes	Yes	Yes
Intel© Smart Cache	25MB L3 shared	20MB L3 shared	15MB L3 shared	15MB L3 shared
AES New Instructions (AES-NI)	Yes	Yes	Yes	Yes
Overclocking Enabled	Yes	Yes	Yes	Yes
Intel© Virtualization Technology	Yes	Yes	Yes	Yes
Recommended Intel© Chipset	X99	X99	X99	X99

INTEL® CORE™ i7 69XX/68XX PROCESSOR FAMILY   ADDITIONAL FEATURES

BRAND NAME AND PROCESSOR NUMBER[1]	INTEL® CORE™ i7-6950X PROCESSOR EXTREME EDITION	INTEL® CORE™ i7-6900K PROCESSOR	INTEL® CORE™ i7-6850K PROCESSOR	INTEL® CORE™ i7-6800K PROCESSOR
Base Clock Speed (GHz)	3.0	3.2	3.6	3.4
Intel© Turbo Boost Max Technology 3.0	Yes	Yes	Yes	Yes
Intel© Turbo Boost Frequency[2] (GHz)	Up to 3.5	Up to 3.7	Up to 3.8	Up to 3.6
PCI Express* 3.0 Lanes	40	40	40	28
Memory Support	4 channels DDR4-2400	4 channels DDR4-2400	4 channels DDR4-2400	4 channels DDR4-2400
TDP	140W	140W	140W	140W
Socket (LGA)	2011-v3	2011-v3	2011-v3	2011-v3

1. NOTE: Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See www.intel.com/products/processor_number for details.

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

NEW INTEL® CORE™ I7 PROCESSORS FOR SOCKET LGA 2011-V3 FEATURES AT A GLANCE

FEATURES[1]	BENEFITS
Intel® Turbo Boost Max Technology 3.0	Identifies the fastest core on the processor die to provide improved single threaded performance on X-Series processors. The driver provided along with the feature allows end users to direct workloads to the fastest core by setting priority to preferred applications[1].
Intel® Turbo Boost Technology 2.0[1]	Dynamically increases the processor's frequency, as needed, by taking advantage of thermal and power headroom when operating below specified limits.
Intel® Hyper-Threading Technology[1]	Delivers two processing threads per physical core. Highly threaded applications can get more work done in parallel, completing tasks sooner
Integrated Memory Controller	Supports 4 channels of DDR4-2400 memory with 1 DIMM per channel. Support for the Intel® Extreme Memory Profile (Intel® XMP) specification, revision 2.0 for DDR4.
Intel® Smart Cache	Up to 25MB of shared cached allows faster access to your data by enabling dynamic and efficient allocation of the cache to match the needs of each core significantly reducing latency to frequently used data and improving performance.
Overclocking Enabled[2,3]	Fully unlocked core multipliers, power, base clock and DDR4 memory ratios for amazing flexibility with overclocking
Chipset/Motherboard Compatibility	Supported by the Intel® X99 Chipset
Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI)[1]	A fast, secure AES engine for a variety of encryption apps, including whole disk encryption, file storage encryption, conditional access of HD content, internet security, and VOIP. Consumers benefit from protected internet and email content, plus fast, responsive disk encryption.
Intel® Virtualization Technology[1]	Allows one hardware platform to function as multiple "virtual" platforms. Offers improved manageability by limiting downtime and maintaining productivity by isolating computing activities into separate partitions.
PCI Express* 3.0 Interface[4]	Offers up to 8GT/S for fast access to peripheral devices and networking up to 40 lanes.
Green Technology	Manufactured with lead-free and halogen-free[6] component packages
Conflict Free	"Conflict-free" means "DRC conflict-free", which is defined by the Securities and Exchange Commission rules to mean products that do not contain minerals (tin, tantalum, tungsten and/or gold) that directly or indirectly finance or benefit armed groups in the Democratic Republic of Congo (DRC) or adjoining countries. We also use the term "conflict-free" in a broader sense to refer to suppliers, supply chains, smelters and refiners whose sources of conflict minerals do not finance conflict in the DRC or adjoining countries.

For more information, visit **www.intel.com/content**

1 Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. Check with your system manufacturer or retailer or learn more at www.intel.com.

2 Warning: Altering clock frequency and/or voltage may: (i) reduce system stability and useful life of the system 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 has not tested, and does not warranty, the operation of the processor beyond its specifications. Intel assumes no responsibility that the processor, including if used with altered clock frequencies and/ or voltages, will be fit for any particular purpose. For more information, visit https://www-ssl.intel.com/ content/www/us/en/gaming/overclocking-intel-processors.html.

   Altering PC 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.

3 Intel® Core™ i7 processors designated by "K" and "X" in the processor number are unlocked for performance tuning.

4 Actual number of ports available may vary by processor number and system configuration. Please refer to the specifications corresponding to the processor number of interest or consult your system vendor for more information.

5 Results have been estimated or simulated using internal Intel analysis or architecture simulation or modeling, and provided to you for informational purposes. Any differences in your system hardware, software or configuration may affect your actual performance.

6 Compute Intensive Application Performance. SPEC* CPU2000/2006 is a benchmark from the SPEC consortium that measures device performance and throughput using compute intensive application subtests. SPECint*_base2000/2006 measures how fast a device completes a single integer compute task. SPECint*_rate_base2000/2006 measures throughput, or how many integer compute tasks a device can accomplish in a given amount of time. OS support: Desktop Windows*, UNIX*/Linux* and Mac* OS.

7 Intel® Turbo Boost Technology: Requires a system with Intel® Turbo Boost Technology. Intel Turbo Boost Technology and Intel Turbo Boost Technology 2.0 are only available on select Intel® processors. Consult your PC manufacturer. Performance varies depending on hardware, software, and system configuration. For more information, visit http://www.intel.com/go/turbo

8 3DMark* 1.2 is a benchmark from Futuremark* that measures DX* 9 / OpenGL* ES 2.0, OpenGL ES 3.0/3.1, DX 10 and DX 11 gaming performance. There are five main tests: "Ice Storm" for DX 9 / OpenGL ES 2.0, "Sling Shot" for OpenGL ES 3.0/3.1, "Cloud Gate" for DX 10, "Sky Diver" for DX11 and "Fire Strike" for DX 11 graphics. Reported metrics: Graphics Score (GPU), Physics Score (CPU), Combined Score (GPU & CPU) and an overall 3DMark Score (higher is better for all Scores). OS support: Desktop Windows*, Android*, iOS* and Windows RT.

9 HandBrake 0.10.2.7286 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 ~1480 MB, 1920x858, ~17.1 Mbps, 24fps, H.264, .mp4 video file.

10 Adobe Premiere Pro CC 2015.1 The project 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.

11 Kolor Autopano Video Pro 2.3.2 The workload consists of six 30 second videos. All of them have the following specs: 106MB, 1920 x 1440, 30Mbps, 47.952fps, H.264, .mp4 container. The six videos are synchronized using motion, analyzed for stitching quality using computed RMS curve and stability values.

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

13 CINEBENCH* R11.5 and R15 is a benchmark from MAXON Computer that measures the performance of desktop OpenGL* 3D modeling applications.

14 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/performance

All data measured on Beta version: v1.0.0.1025 driver software and subject to change

AMAZING FLEXIBILITY FOR OVERCLOCKING

FULL CONFIGURATION

Intel® Core™ i7-6950X Processor (3.0GHz up to 3.5GHz, 10C/20T, 25MB, 140W TDP) measured on - Motherboard: Gigabyte X99 Designare, Memory: 8x8GB DDR4-2133MHz, Storage: Intel 750 PCIe SSD -400GB, OS: Windows* 10 (TH2) , Graphics: Nvidia GTX 980Ti (Driver v364.51), BIOS:BIOS D10, **Intel® Turbo Boost Max Driver Beta Version1.0.0.1025**, System Power Management Policy: **Balanced**

Intel® Core™ i7-5960X Processor (3.0GHz up to 3.5GHz, 8C/16T, 20MB, 140W TDP) measured on - Motherboard: Gigabyte X99 SOC Champion , Memory: 4x4GB DDR4-2133MHz, Storage: Intel 750 PCIe SSD -400GB , OS: Windows 10 (TH2), Graphics: Nvidia GTX 980Ti (Driver v364.51), BIOS: BIOS F21A, System Power Management Policy: High Performance

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