Can We Tock?

Skylake Perfects Intel's 14nm Platform

The PC is undergoing a series of major technological shifts. Gaming at 2,560 is giving way to gaming at 4K, single-monitor setups are being replaced by triple-screen configurations, and DirectX 11.2 is stepping aside for DirectX 12. Additionally, DDR3 memory is being replaced by much faster DDR4, PCIe-based storage devices are becoming more common, and Windows 8.1 is passing the baton to Windows 10.

Whether you are planning a new build or upgrading your current system, it's important to choose a platform designed to embrace these new technologies and ensure the highest performance, the greatest flexibility, and the absolute best experience.

The new 6th Generation Intel Core desktop processors and Intel's Z170 chipset represent the perfect platform to take advantage of all this new tech and change the way you game, stream, create, and work.

Skylake

Code-named "Skylake," Intel's 6th Generation Core processors take Intel's 14nm manufacturing process and refine it for even greater performance. The flagship processor, the Core i7-6700K, is a quad-core CPU with Hyper-Threading technology that allows it to run up to eight instruction threads simultaneously. It has a stock clock speed of 4GHz and a maximum single-core frequency of 4.2GHz through Intel's Turbo Boost 2.0 Technology, and it's equipped with 8MB of Intel Smart Cache memory.

The second processor in the Skylake lineup, the Core i5-6600K, is also a quad-core chip. It has a base frequency of 3.5GHz (max Turbo frequency of 3.9GHz) and 6MB of Intel Smart Cache.

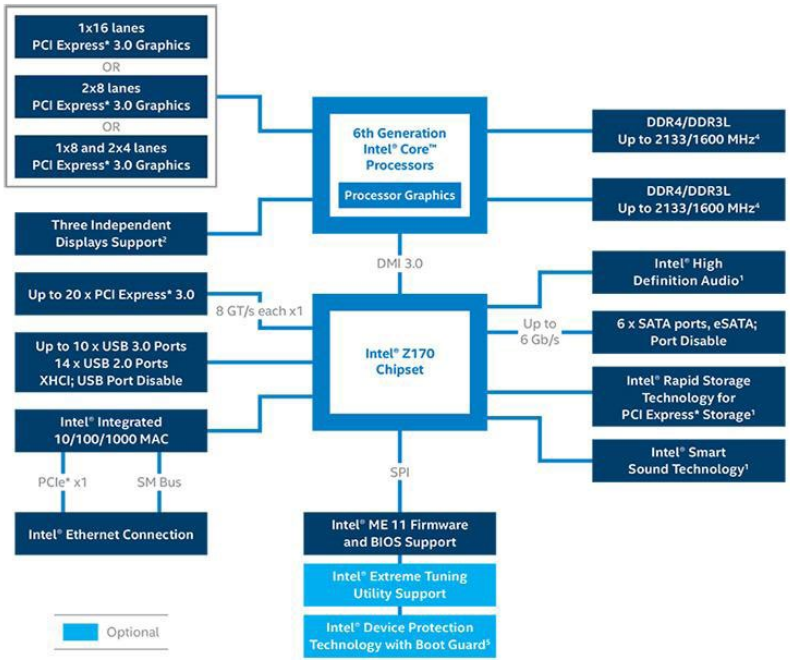
Both processors provide support for up to 64GB of dual-channel DDR4 memory, both have a 91-watt TDP (thermal design power), and both are equipped with Intel's new HD Graphics 530 processor graphics. Intel HD Graphics 530 runs at a base frequency of 350MHz, with a maximum dynamic frequency of 1.15GHz, and provides 4K support at 60Hz, triple-display support, and support for DirectX 12 and OpenGL 4.4.

In other words, not only are these blazing-fast processors perfect for gaming, editing video, working, multitasking, and more, but they also provide the highest level of graphics output available without a discrete GPU.

Z170

A good CPU needs a good chipset to unlock its full potential, and for 6th Generation Intel Core processors, that chipset is Z170. Designed to mesh perfectly with the Core i7-6700K and Core i5-6600K, the Z170 chipset provides dual-channel support for DDR4, the fastest desktop memory spec on the market today. DDR4 also operates at lower voltage settings than DDR3, which adds efficiency to this new platform's list of benefits.

Z170 comes equipped with Intel's new DMI (Direct Media Interface) 3.0, which provides four connection lanes between the CPU and PCH at 8GTps per lane, for a total of nearly 4GBps. Another upgrade from previous chipsets is Z170's larger Flex-IO hub, which increases the number of ports available to motherboard manufacturers for use as PCIe lanes, USB 3.0 ports, or SATA 6Gbps ports from 18 in Z97 to 26. In addition to allowing for greater flexibility in motherboard design, the new hub dedicates more bandwidth to PCIe devices for use with Intel's RST (Rapid Storage Technology), paving the way for more motherboards with



RAID support for SATA Express and M.2 storage devices.

Other supported technologies include Intel Ready Mode Technology (which can keep your system and its applications up-to-date via a constant connection), Intel Smart Sound Technology (an integrated DSP for audio offload and audio/voice features such as voice commands), Intel Device Protection Technology with Boot Guard (protects your system from malicious code prior to the OS launching), and more.

Born To Overclock

Most power users are familiar with Intel's K series processors and their unlocked multipliers, but with Skylake and Z170, Intel has provided the highest level of overclocking control yet. For starters, you have access to unlocked core ratios in 83 100MHz increments, as well as complete Turbo overrides for voltage and power limits. But you also get enhanced full-range BCLK (base clock) overclocking, which allows for adjustments in 1MHz increments up to 200MHz or higher—some sources report frequency gains greater than 400MHz when using liquid-nitrogen cooling. And in some cases, Z170 motherboard manufacturers will include overclocking utilities that will give you even finer-grained control.

Additionally, the platform provides increased granularity in memory overclocking, allowing adjustments in 100/133MHz increments, as opposed to the previous generation's 200/266MHz steps. Available DDR frequency overrides allow for memory clocks of up to 4,133MHz and higher. (Intel reports non-typical results of up to 4,795MTps with LN2.) Of course, you will also have access to simplified memory overclocking controls via Intel's XMP 2.0 memory profiles.

Skylake and Z170 also come with an unlocked processor graphics ratio and unlocked voltage controls, the latter of which should allow experts to fine-tune increases in the performance of their CPU without also increasing temps more than necessary.

Look Inside

As the Tock to Broadwell's Tick, Skylake is a big step forward. When teamed up with a Z170 motherboard, the Core i7-6700K and Core i5-6600K give you improved performance, greater power efficiency, increased overclocking control, and support for the latest PC technologies. ■