INTEL

Core i7-4790K

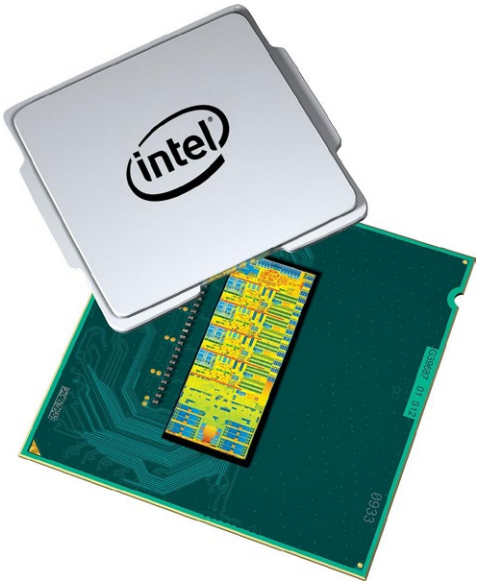
The Haswell architecture has reigned over the realm of desktop CPUs for the better part of two years—mighty impressive, when you think about it. We should be getting another processor architecture from Team Blue at some point this year, but for now, Haswell still rules the roost. The CPU we decided to install in this system build is the Core i7-4790K; code-named "Devil's Canyon," the 4790K is Intel's Haswell microarchitecture that's been doused with hot sauce.

Some of that hot sauce helps keep the 4790K a little cooler than its predecessors, especially if it's overclocked. Specifically, we're talking about Intel's state-of-the-art Next-Generation Polymer Thermal Interface Material, or NGPTIM if you're not into the whole brevity thing. NGPTIM sits between the processor's die and its integrated heat spreader. Prior to Devil's Canyon, enthusiasts discovered that previous generations of CPUs used a TIM that wasn't quite as robust at higher temperatures, leading them to delid their CPUs, or pry off the integrated heat spreader and apply their own TIM. This process improved overclocking performance at the expense of the processor's warranty. Intel designed its NGPTIM to obviate the need to delid the 4790K. It's a great move, not only because it should let overclockers go wild but also because it shows Intel is tuned in to the enthusiast community as is willing to dedicate time and effort to address its feedback.

This processor has a few more improvements that overclockers will surely appreciate. Compared to earlier Haswell processors, the 4790K includes even more capacitors, which help make power delivery to the die as smooth as possible. The CPU also gives you access to VCCIN, VDDQ, and DRAM voltages, letting you tweak them as you see fit.

Even without the aid of overclocking, the Core i7-4790K is one freaky-fast CPU. With a 4GHz base clock, the 4790K cruises ahead of every other Intel processor, including the mighty trio of Haswell-E Extreme Edition CPUs, on the basis of frequency alone. When the 4790K's Turbo Boost kicks in, it ramps the clock speed up to 4.4GHz. For programs that benefit more from clock speed rather than processing cores, the 4790K's 4GHz base clock makes it an absolute beast. That said, the 4790K is no slouch when it comes to multithreaded workloads. As a quad-core processor with Intel Hyper-Threading enabled, you can keep this chip quite busy.

All of this power is packed into a 37.5mm x 37.5mm package. Despite the fact that the 4790K hums along at a fiery 4GHz, Intel has engineered it to keep its heat under control. Thanks to a very modest 88W TDP, the 4790K is designed to be very friendly to CPU coolers and power supplies.



As expected, this firecracker of a processor excelled when we put it to the test. The Core i7-4790K was right at home in our system, and it will work just as well in yours. ■

Core i7-4790K
$350
Intel
www.intel.com

SPECS

Clock speed: 4GHz (base), 4.4GHz (turbo); 4 cores; Unlocked multiplier; Socket LGA1150; Dual-channel memory; 8MB Intel Smart Cache; Hyper-Threading; Turbo Boost; 22nm; 88W Max TDP