Intel® Core™ i7 Processor

Go to the next level of multi-core performance. Allocate your processing power. Accelerate your life.

Overview

With faster, intelligent multi-core technology that applies processing power dynamically when needed most, the new Intel® Core™ i7 processors deliver an incredible breakthrough in PC performance. They're the best desktop processors on the planet.[1]

Multitask applications faster and unleash incredible digital media creation. Experience maximum performance for everything you do, thanks to the combination of Intel® Turbo Boost Technology[2] and Intel® Hyper-Threading Technology[3], which maximizes performance to match your workload.

A Smarter Way to Work and Play

Whether you're casually checking e-mail and surfing the Web or multitasking compute-intensive applications such as HD video encoding, you want a processor that enables maximum PC performance. With the Intel Core i7 processor, you'll get just that. An unprecedented four-core, eight-thread design with Intel Hyper-Threading Technology[3] ensures incredible performance, no matter what your computing needs.

And with more than double the memory bandwith for faster memory access[4], you'll achieve more while waiting less.

Shatter Your Limits

It's time for digital content creation that's limited only by your imagination. Experience total creative freedom with the power to encode video up to 40% faster.[5] And enjoy incredible performance on other multimedia tasks like image rendering, photo retouching, and editing.

Gaming on the Edge—and Beyond

The Intel® Core™ i7 processor provides new levels of brilliant performance for highly threaded immersive games. By distributing AI, physics, and rendering across eight software threads, the Intel Core i7 processor lets you concentrate on taking down the bad guys while your PC handles all the visual details such as texturing and shading that keep you feeling totally immersed. It's a gaming experience so perfect, you just might lose yourself in the action.

Processor Comparison Table

	Intel® Core™ i7-940	Intel® Core™ i7-920	Intel® Core™2 Quad Q9550
Number of Simultaneous Threads	8 (with Hyper-Threading)	8 (with Hyper-Threading)	4
Processor Integrated Memory Controller	Yes	Yes	No
Intel® Turbo Boost Technology²	Yes	Yes	No
Number of Memory Channels	3	3	2
Intel® Express Chipset	X58	X58	X38, P45, P35 G45, G35
Socket	LGA1366	LGA1366	LGA775

Features and Benefits of the Intel® Core™ i7 Processor

Feature	Benefit
Quad-Core Processing	Provides four independent execution cores in one processor package. Four dedicated processing cores help operating systems and applications deliver additional performance, so end users can experience better multitasking and multithreaded performance across many types of applications and workloads.
Intel® Hyper-Threading Technology³	Delivers two processing threads per physical core for a total of eight threads for massive computational throughput. With Intel® Hyper-Threading Technology, highly threaded applications can get more work done in parallel, completing tasks sooner. With more threads available to the operating system, multitasking becomes even easier. This amazing processor can handle multiple applications working simultaneously, allowing you to do more with less wait time.
Intel® Turbo Boost Technology²	Dynamically increases the processor's frequency as needed by taking advantage of thermal and power headroom when operating below specified limits. Get more performance automatically, when you need it the most.
8 MB Intel® Smart Cache	This large last-level cache enables dynamic and efficient allocation of shared cache to all four cores to match the needs of various applications for ultra-efficient data storage and manipulation.
Intel® QuickPath Interconnect	Intel's latest system interconnect design increases bandwidth and lowers latency, while achieving data transfer speeds as high as 25.6 GB/s.
Integrated Memory Controller	An integrated memory controller with three channels of DDR3 1066 MHz offers memory performance up to 25.6 GB/s. Combined with the processor's efficient prefetching algorithms, this memory controller's lower latency and higher memory bandwidth delivers amazing performance for data-intensive applications.
Intel® HD Boost	Includes the full SSE4 instruction set, significantly improving a broad range of multimedia and compute-intensive applications. The 128-bit SSE instructions are issued at a throughput rate of one per clock cycle allowing a new level of processing efficiency with SSE4-optimized applications.
Digital Thermal Sensor (DTS)	Provides for more efficient processor and platform thermal control improving system acoustics. The DTS continuously measures the temperature at each processing core. The ability to continuously measure and detect variations in processor temperature enables system fans to spin only as fast as needed to cool the system. The combination of these technologies can result in significantly lower noise emissions from the PC.
Intel® Wide Dynamic Execution	Improves execution speed and efficiency, delivering more instructions per clock cycle. Each core can complete up to four full instructions simultaneously.
Intel® Smart Memory Access	Improves system performance by optimizing the use of the available data bandwidth from the memory subsystem and reducing the effective latency of memory accesses.

For more information, visit the Intel Web site: www.intel.com/products/desktop/processors

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