



Product Brief
Intel® Core™2 Duo processor
Maximizing Performance
Efficiency

Intel® Core™2 Duo Processor

Maximizing Dual-Core Performance Efficiency

Powerful. Energy Efficient. Leading CPU Performance.

- 45nm-based enabling high performance and power savings
- Up to 1066 MHz FSB
- New line of fully-featured 25W TDP CPUs to enable thinner, cooler designs

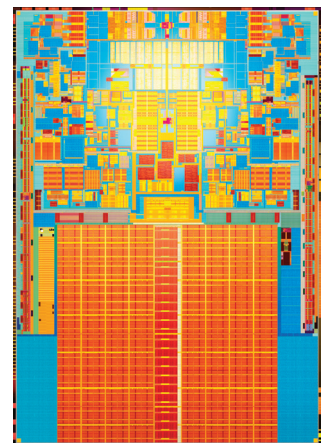
Based on the revolutionary Intel® Core™ microarchitecture, the newest update to the Intel® Core™2 Duo processor family provides even more powerful and enhanced energy-efficient features to power Intel's best notebook technologies: the Intel® Centrino® 2 processor technology family.

Along with being based on the industry-leading 45nm manufacturing process technology, the Intel Core 2 Duo processor was designed to help boost a PC's speed, improve energy efficiency with reduced power consumption, and extended battery life, while supporting the full range of notebook designs.

At the dual-core heart of Intel Centrino 2 processor technology, the Intel Core 2 Duo processor family features a faster FSB (up to 1066 MHz), higher clock speeds, and enhanced microarchitecture technologies, helping to maximize Intel Centrino 2 processor technology's dual-core performance and power savings. The family also includes an innovative line of fully featured 25W Thermal Design Power (TDP) CPUs, requiring fewer cooling technologies, enabling thinner, lighter, and cooler Intel Centrino 2 processor technology-based systems. Intel Core 2 Duo processor also includes innovative power-saving technologies to maximize dual-core CPU energy efficiency.

For the Intel Centrino 2 processor technology consumers, its Intel Core 2 Duo processor engine provides multimedia acceleration technologies built into the die itself. Technologies such as Intel® Advanced Digital Media Boost, Intel® Smart Memory Access, and others help to increase performance, and in some cases, the quality of the media experience.

For IT users of Intel Centrino 2 with vPro™ technology, its Intel Core 2 Duo processor engine includes hardware support for the next generation of manageability and security technologies.



Component/Feature	Functionality	Benefit
45nm, Hafnium Hi-K and Metal Gate Transistor Technology	Along with increased transistor count and density, Intel's 45nm Hafnium-based processor significantly reduces electrical leakage and high capacitance that is desirable for good transistor performance.	Higher performance, lower power dual-core processors than previous silicon-based, older processor technologies.
Power-Optimized (up to) 1066 MHz Front Side Bus	Higher data transfer rate, compared to 800 FSB-based processors.	Promotes enhanced dual-core performance and responsiveness, especially with demanding applications.
Line of 25W TDP CPUs	In addition to the traditional TDP line of dual-core processors, the new 25W line enables lower thermal design power.	Enables thinner, cooler, and quieter laptops and fully-featured, dual-core processors.
Intel® Advanced Smart Cache	Intel's unique shared L2 cache allows both cores access to shared data, minimizing bus traffic. It also allows one core to use the entire cache when the other core is inactive.	Helps improve dual-core CPU performance.
Intel® Intelligent Power Capability	Containing many sub-technologies, designed to provide optimal performance at low power consumption.	More energy-efficient performance and smarter battery performance for the dual-core CPU.
Intel® HD Boost	Expedites the rate at which streaming media instructions can be executed.	Great for multimedia applications such as video editing, digital photography, and advanced gaming.
Intel® Deep Power Down Technology	Intel® Deep Power Down Technology is a low-power state that allows both cores and L2 cache to be powered down when the processor is idle.	Enables Intel® Centrino® 2 processor technology-based notebooks to use less power while doing more.
Intel® Wide Dynamic Execution	Radix-16 technology divider with four lanes, deeper buffers, 14 stage efficient pipeline, Micro and Macro Ops Fusion, Additional ALU, Advanced Branch Prediction, Intel® 64 Architecture. ¹	Efficient per clock processing. Deep buffers allow processor to look into program flow for optimized parallel executions.
Intel® Smart Memory Access	Optimizes the available data bandwidth from the memory subsystem.	Improves system performance by optimizing available bandwidth in the system bus and memory subsystems.
Intel® Trusted Execution Technology ²	(Requires activation) hardware-based mechanisms that help protect against software-based attacks.	Provides the confidentiality and integrity of data stored or created on the client PC.

¹64-bit computing on Intel architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. Consult with your system vendor for more information.

²No computer system can provide absolute security under all conditions. Intel® Trusted Execution Technology is a security technology under development by Intel and requires for operation a computer system with Intel® Virtualization Technology, an Intel Trusted Execution Technology-enabled processor, chipset, BIOS, Authenticated Code Modules, and an Intel or other compatible measured virtual machine monitor. In addition, Intel Trusted Execution Technology requires the system to contain a TPMv1.2 as defined by the Trusted Computing Group and specific software for some uses. See <http://www.intel.com/technology/security/> for more information.

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