

Product Brief

Intel® Core™ Duo
Processor

Intel® Core™ Duo Processor

Next Leap in Microprocessor Architecture



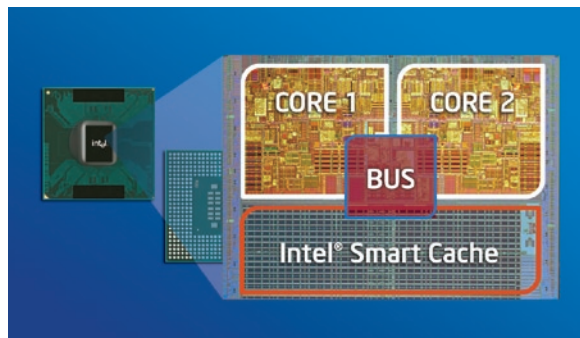
Intel® Core™ Duo processor breaks new ground. Its dual-core technology rewrites the rules of computing, delivering optimized power efficient computing and breakthrough dual-core performance with amazingly low power consumption.[†] Intel Core Duo processor is at the heart of Intel's premium desktop and notebook platforms: Intel® ViiV™ Technology and Intel® Centrino® Duo mobile technology, respectively.

More Efficient Use of Power

Demand for greater power efficiency in compute platforms is on the rise across all client segments and form factors. The Intel Core Duo processor balances great dual-core computing capabilities with power savings that enable extended battery life in notebooks. Its enhanced voltage efficiency supports cooler and quieter desktop-type systems.

Traditional mobile and desktop processors limit system design options. Users find they must compromise in areas such as cooling fan noise, battery life, performance and capabilities. With Intel Core Duo processors, the world's most innovative PC manufacturers can drive a new generation in computer product designs that meet end customer needs more effectively.





Specialized Dual-Core Microarchitecture

The Intel Core Duo processor includes two mobile-optimized execution cores in a single processor. This design enables execution of parallel threads or applications on separate cores with dedicated CPU resources. The results enable outstanding dual-core performance and greater system response when running multi-threaded or multiple demanding applications simultaneously.[†]

The Intel Core Duo processor features a high-performance core architecture that uses micro-op fusion and Advanced Stack Management techniques to maximize performance while optimizing power efficiencies. Micro-op fusion combines micro-ops derived from the same macro-op. Advanced Stack Management reduces the number of micro-ops in stack-related operations by tracking relative stack pointer changes locally. Reducing the number of micro-ops results in more efficient scheduling for better performance at lower power.

[†] System performance, battery life, and functionality will vary depending on your specific operating system, hardware and software configurations. References to enhanced performance as measured by SysMark*2004, PCMark*2005 and 3DMark*2005 refer to comparisons with previous generation processors. References to improved battery life as measured by MobileMark*2005, if applicable, refer to previous generation processors. See http://www.intel.com/products/centrino/more_info for more information.

Features and Benefits of the Intel® Core™ Duo Processor

Features	Benefits
Intel® Smart Cache – 2MB L2 cache with Advanced Transfer Cache Architecture	Delivers a smarter and more efficient cache and bus design to enable enhanced dual-core performance and power savings.
Intel® Digital Media Boost	Micro-architectural enhancements that include instruction optimizations and performance enhancements accelerate a diverse variety of processing-intensive tasks, such as audio/video processing, image processing, 3D graphics, and scientific calculations.
Intel® Dynamic Power Coordination with Dynamic Bus Parking	Dual-core on demand, coordinated performance with enhanced low power management features Dynamic Bus Parking. This enables platform power savings by allowing the chipset to power down with the processor in these low-frequency mode states.
Enhanced Intel® Deeper Sleep with Dynamic Cache Sizing	Allows the processor to lower voltage below the Deeper Sleep minimum voltage to enable enhanced power savings. Dynamic Cache Sizing is a new power savings mechanism that enables the Intel® Smart Cache to dynamically flush system memory based on demand or during periods of inactivity.
Intel® Advanced Thermal Manager	A new thermal management system delivers enhanced accuracy and more precise acoustic control to enable quieter, cooler, thinner system designs.
Power-Optimized 667 MHz System Bus	Utilizes Source-Synchronous Transfer (SST) of address and data enables improved performance by transferring data at 4X bus clock. Advanced Gunning Transceiver Logic (AGTL+) signaling technology, a variant of GTL+ signaling technology, delivering low power enhancements.
Enhanced Intel SpeedStep® Technology Support	Multiple performance modes enable optimum performance at the lowest power, using real-time dynamic switching of the voltage and frequency between multiple performance modes based on CPU demand.
New Intel 65nm Process Technology	Smaller transistors enable more logic and more frequency headroom for increased performance.

To learn more about the new, mobile-optimized Intel Core Duo processor, visit www.intel.com/products/processor.

Intel, the Intel logo, the Intel Leap Ahead logo, Intel Inside, the Intel Inside logo, Intel Core Duo, the Intel Core Duo logo, Intel Viiv, Intel SpeedStep, and Centrino Duo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

*Other names and brands may be claimed as the property of others.

Copyright © 2006 Intel Corporation. All rights reserved.
0106/MS/HB/PDF

310836-001US

