

Product Brief

Intel[®] Pentium[®] Dual-Core Processor

Intel[®] Pentium[®] Dual-Core Processor for the Desktop PC



Product Overview

Go beyond everyday computing with the Intel® Pentium® dual-core desktop processor. An increasing number of software applications are now designed for dual-core processors enabling the user to be more creative and productive in the home or the office. The need for security and virus protection often means running more than one application at a time and the Pentium dual-core processor has the power to run them simultaneously.

Based on a new energy-efficient microarchitecture, the Pentium dual-core desktop processor delivers superior energy-efficient dual-core performance.

Energy Efficiency

Intel[®] Intelligent Power Capability, a feature of the Pentium dual-core processor, optimizes energy usage in the processor cores by turning computing functions on only when needed. This improves performance as well as the processor's energy efficiency by operating at lower frequencies that require less power to run. These more energy-efficient processors support smaller and quieter desktop PCs.

Better Acoustics

Pentium dual-core processors are equipped with a Digital Thermal Sensor (DTS) that enables efficient processor and platform thermal control. Thermal sensors located within the processor measure the maximum temperature on the die at any given time. The acoustic benefit of temperature monitoring is that system fans spin only as fast as needed to cool the system, and slower fans generate less noise.

Platform Support

When combined with an Intel® Express Chipset based board, you enjoy exceptional audio quality and a smooth visual experience with integrated Intel® High Definition Audio and Intel® Graphics Media Acceleration (GMA.) The flexible platform options bring an array of new capabilities like Voice over Internet Protocol (VoIP) or the colorful world of digital photography.

You can expand your computing options today with a desktop system based on the Intel Pentium dual-core processor.



Features and Benefits of the Intel® Pentium® Dual-Core Desktop Processor

Features	Benefits
Intel [®] Dual-Core Processing	Runs two independent processor cores in one physical package at the same frequency. Features 1 MB of shared L2 cache and 800 MHz Front Side Bus.
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	Optimizes the use of the data bandwidth from the memory subsystem to accelerate out-of-order execution. A newly designed prediction mechanism reduces the time in-flight instructions have to wait for data. New pre-fetch algorithms move data from system memory into fast L2 cache in advance of execution. These functions keep the pipeline full, improving instruction throughput and performance.
Intel® Advanced Smart Cache	The shared L2 cache is dynamically allocated to each processor core, based on workload. This efficient, dual-core optimized implementation increases the probability that each core can access data from the fast L2 cache, significantly reducing latency to frequently used data and improving performance.
Intel® Advanced Digital Media Boost	Accelerates the execution of Streaming SIMD Extension (SSE) instructions to significantly improve the performance on a broad range of applications, including video, audio, image and photo processing, multimedia, encryption, financial, engineering, and scientific applications. The 128-bit SSE instructions are now issued at a throughput rate of one per clock cycle, effectively doubling execution speed on a per clock basis over previous generation processors.
Intel [®] 64 Architecture ¹	An enhancement to Intel [®] 32-bit architecture that allows the processor to access larger amounts of memory. With appropriate 64-bit supporting hardware and software, platforms based on an Intel processor supporting Intel [®] 64 Architecture enable the use of extended virtual and physical memory.
Execute Disable Bit ²	Provides enhanced virus protection when deployed with a supported operating system. The Execute Disable Bit marks memory as executable or non-executable, allowing the processor to raise an error to the operating system. If malicious code attempts to run in non-executable memory, the malicious code is prevented from infecting the system.
Intel Designed Thermal Solution for Boxed Processors	Includes a 4-pin connector for fan speed control to help minimize the acoustic noise levels generated from running the fan at higher speeds for thermal performance ³ . Fan speed control technology is based on actual CPU temperature and power usage.

¹ Intel[®] 64 Architecture requires a computer system with a processor, chipset, BIOS, enabling software and/or operating system, device drivers, and applications designed for these features. Performance will vary depending on your configuration. Contact your vendor for more information.

² Enabling Execute Disable Bit functionality requires a PC with a processor with Execute Disable Bit capability and a supporting operating system. Check with your PC manufacturer on whether your system delivers Execute Disable Bit functionality.

³ The acoustic benefits of the 4-pin header are reliant on a properly designed motherboard. Consult your board manufacturer for compatibility.

Intel, the Intel logo, Intel. Leap ahead., the Intel. Leap ahead. logo, Pentium, and Pentium Inside are trademarks of Intel Corporation in the U.S. and other countries.

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

Copyright ° 2007 Intel Corporation. All rights reserved. 0407/MS/VD

Please Recycle

317016-001US

