Product Brief

Intel® Pentium® Processor

Intel® Pentium® Processor for the Desktop PC

Product Overview

Go beyond everyday computing with the Intel® Pentium® processor dual-core. 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 Intel Pentium processor dual-core has the power to run them simultaneously.

5000 Series Processors on 45nm Technology

Intel's new 45nm manufacturing technology, with hafnium-infused Hi-k transistors, enables even more processor performance. By doubling the transistor density, improving efficiency and speed relative to the previous generation, and increasing cache size by up to 50 percent, this technology delivers more performance without using more energy.

Better Acoustics

The Intel Pentium processor dual-core is 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, users 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 processor dual-core.

Features and Benefits of the Intel® Pentium® Processor

Features	Benefits
Intel® Dual-Core Processing	Runs two independent processor cores in one physical package at the same frequency. Features up to 2 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 prefetch 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, and 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 processor temperature and power usage.

[1] 64-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.

[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. Contact your board manufacturer for compatibility.