



Platform Brief
Intel® Centrino® 2 processor
technology

Intel® Centrino® 2 Processor Technology

The New Standard of Mobility

Advancing all vectors of mobility

- Intel's best-performing notebook technology¹
- Designed to improve battery life
- Faster 802.11n and more options to connect wirelessly²
- Full range of notebook designs
- For consumers, native Blu-ray* playback capabilities
- For business, next level of manageability and security

A new breakthrough

The Intel® Centrino® 2 processor technology family represents the most significant advancement in mobility since the original launch of Intel Centrino processor technology in 2003. Containing Intel's best mobile technologies, Intel Centrino 2 features new breakthroughs on all five vectors of mobility: performance, battery life, wireless, form factor, and manageability capabilities. Intel Centrino 2 processor technology also includes advancements designed to enhance the mobility experience for both consumer and business users.

A new level of performance efficiency

The Intel Centrino 2 processor technology family takes mobile performance to the next level with several new innovative technologies. Built with the revolutionary Intel® Core™ microarchitecture at its foundation, the Intel Centrino 2 processor technology family contains a newly enhanced Intel® Core™2 Duo processor, featuring a faster FSB (up to 1066 MHz), higher clock speeds, and new microarchitecture enhancements – all helping to maximize dual-core performance. Intel Centrino 2 processor technology family also includes faster DDR2 (800 MHz), compared to the prior generation, as well as DDR3 support (up to 1066 MHz) – all helping Intel Centrino 2 processor technology deliver great system performance and responsiveness.

A new level of energy efficiency

Every component in the Intel Centrino 2 processor technology family integrates power-saving technologies. Intel engineers figured out a unique technique to maximize performance when needed and then get back to 'idle' state as fast as possible. This technique allows the Intel Centrino 2 processor technology family to deliver both outstanding mobile performance and enable great battery life at the same time.



A new level of wireless capabilities

The Intel Centrino 2 processor technology family features robust wireless options to allow for not only faster 802.11n connections but more options to connect wirelessly. Intel Centrino 2 processor technology enables a faster wireless experience (up to 450 Mbps) when coupled with a 450 Mbps wireless access point. Its Wi-Fi options also include enhanced dual-band support to help maximize throughput and minimize network interference.

A new level of flexibility for notebook designs

The Intel Centrino 2 family enables a full line of notebook designs so you can choose the best one to fit your needs. The family also includes an innovative line of fully-featured 25W TDP CPUs that require fewer cooling technologies, resulting in thinner, lighter, and cooler systems.

A new level of consumer mobility

On top of these native features, the Intel Centrino 2 processor technology family adds additional features, further enhancing the mobile experience for consumers. For consumers, the system features native Blu-ray* logo-capable playback so you can enjoy your HD movies on-the-go.

Features and Benefits of the Intel® Centrino® 2 processor technology

Component/Feature	Functionality	Benefit
Intel® Core™2 Duo processor		
45nm, Hafnium Hi-K and Metal Gate Transistor Technology	Along with increased transistor count and density, Intel's 45nm processed, Hafnium-based transistors significantly reduce electrical leakage and high capacitance that is desirable for good transistor performance.	Higher performance, lower power 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.	Enables better system 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, mainstream performance.
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 for the dual-core CPU.
Intel® HD Boost	Expedites the rate at which streaming media instructions can be executed.	Great for enabled 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.	The power to use less and do more – enables longer battery life by getting the dual-core CPU to an idle state quickly.
Intel® Dynamic Power Coordination	Helps manage voltage and power consumption. One core can demand high performance while the other core can independently transition to a low-power state.	Enables reduction in power consumption to help improve battery life.
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. ³	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	(Requires activation) hardware-based mechanisms that help protect against software-based attacks.	Provide the confidentiality and integrity of data stored or created on the client PC. ⁴

Component/Feature	Functionality	Benefit
Mobile Intel® 4 Series Express Chipset Family		
Power-Optimized (up to) 1066 MHz System Bus	Increased system bus speed for increased data transfer rates.	Supports full line of the new Intel® Core™2 Duo processors.
Supports DDR3 (up to 1066 MHz) memory	Third-generation double-data rate SDRAM.	Provides higher bandwidth and an increase in system performance at a lower power.
Supports faster DDR2 (800 MHz) memory	Faster DDR2 memory support (vs. prior generations).	Delivers fast, high data bandwidth performance and up to 8 GB memory addressability for faster system responsiveness and support of 64-bit computing.
Mobile Intel® Graphics Media Accelerator 4700MHD, Mobile Intel® Graphics Media Accelerator 4500MHD	Advanced, next-generation integrated graphics controller with integrated Blu-ray* playback acceleration. GM47 core graphics speed – up to 640 MHz. GM45 core graphics speed - up to 533 MHz.	Up to 1.8 times integrated graphics performance over prior generation. Improved performance and power saving capabilities. Fully Windows Vista* Premium certified and native enabled Blu-ray logo* support. ⁵
Various media port support: HDMI, HDCP, Integrated DisplayPort (Embedded and External)	High Definition Media Interfaces and/or Content Protection that provides a mechanism to transmit high definition video/audio.	Protect and/or transmit HD content (video and audio).
Intel® VT with Directed I/O (VT-d) ⁶	(Requires activation) Run multiple operating systems and applications as independent virtual machines, allowing one computer system to function as multiple “virtual” systems.	Improves the reliability, flexibility, and performance of I/O in a virtualized environment.
Intel® High Definition Audio	Integrated audio support enables premium digital sound and delivers advanced features, such as multiple audio streams and jack re-tasking.	Interface enables support for premium integrated audio.
Intel® Matrix Storage Manager with AHCI-LPM	High-speed interface for backing up or instantly recovering from a RAID system.	Can protect against a hard drive failure by mirroring all data between two hard drives.
Intel® Stable Image Platform Program (Intel® SIPP)	Aligns and stabilizes key Intel platform components to enable a more predictable annual transition from one generation of technology to the next.	Allows IT to ensure consistent software image for at least 12 months with launch hardware.
Switchable Graphics	System contains two graphic cores. The “switch” is based on Power Policy (A/C vs. battery) or user setting.	Receive a blend of energy-efficiency of Intel’s integrated graphics with the power of discrete graphics in a single notebook solution.

Component/Feature	Functionality	Benefit
Intel® WiFi Link 5000 Series		
Faster 802.11n	Peak throughput up to 450 Mbps with an enhanced 802.11n access router.	Faster 802.11n connections for enhanced online multimedia streaming.
Friendly Neighbor Assurance	Non-interference with the >100M legacy devices that share the 2.4 GHz band.	Dual-band support to ensure maximum throughput and minimal interference to legacy networks.
EAP/AES-CCM Wi-Fi Connection Security	Support for EAP (Extensible Authentication Protocol)-based Authentication and AES-CCM (Advanced Encryption Standard)-based encryption.	Enhanced Wi-Fi security enabled.
Support for Cisco* Compatible Extensions v1-4	Cisco Compatible Extensions program sets criteria so that client devices can be designed to be interoperable with a Cisco WLAN infrastructure.	Optimizes Cisco innovations for enhanced security, mobility, quality of service, and network management.

¹System performance, battery life, power savings, high-definition quality, video playback and functionality, and wireless performance and functionality will vary depending on your specific operating system, hardware, chipset, connection availability and rate, site conditions, and software configurations. References to enhanced performance including wireless refer to comparisons with previous generation Intel technologies. Wireless connectivity and some features may require you to purchase additional software, services or external hardware. Visit: <http://www.intel.com/performance/> for more information on performance, wireless, power savings and energy efficiency.

²Actual results may vary based on your specific hardware, connection rate, site conditions, and software configurations. See <http://www.intel.com/performance/mobile/wireless/index.htm> for more information. Wireless N standard currently not available in all countries. Check with your PC and access point manufacturer for details.

³64-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.

⁴The original equipment manufacturer must provide TPM functionality, which may not be available in all countries.

⁵As measured by 3DMark®06 comparing latest generation Intel® Centrino® 2 processor technology-based notebooks including Intel Graphics, with first generation dual-core Intel Centrino processor technology based notebooks. Actual performance may vary. See <http://www.intel.com/go/consumerbenchmarks> for important additional information.

⁶Intel® Virtualization Technology requires a computer system with an enabled Intel® processor, BIOS, virtual machine monitor (VMM) and, for some uses, certain platform software enabled for it. Functionality, performance or other benefits will vary depending on hardware and software configurations and may require a BIOS update. Software applications may not be compatible with all operating systems. Please check with your application vendor.

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