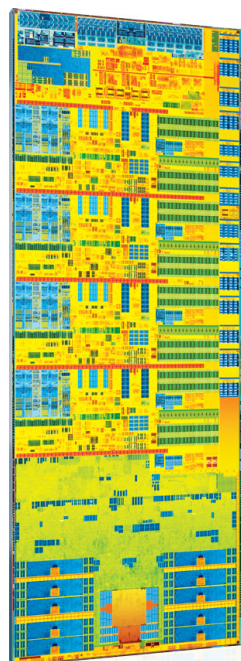
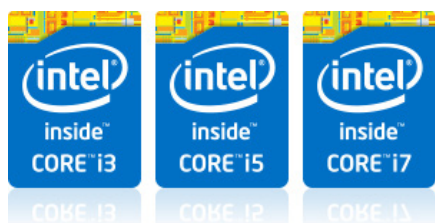


New Microarchitecture for 4th Gen Intel® Core™ Processor Platforms

Innovative new processor microarchitecture delivers substantial improvements in performance, graphics, security, and other features



An entirely new platform

Processor integration and manufacturing take huge leaps forward in the latest Intel® microarchitecture (codename Haswell). As the first new microarchitecture on the 22nm manufacturing process, it marks the arrival of a new 4th gen Intel® Core™ platform, which comprises 4th gen Intel Core processors and the Intel® 8 Series chipset family (codename Lynx Point).

This new platform delivers significant performance advancements—including vastly improved graphics, battery life, and security—for a zero-compromise computing experience. New enhancements include:

- A new multichip package integrates the chipset on one die with the CPU and graphics on one die connected via a low-power, on-package interface²⁴
- A new multichip package that embeds high-bandwidth memory on high-performance graphics quad-core processors to deliver better performance²⁵
- The new lower-power processor is optimized for Ultrabook™ devices to enable thinner, lighter clamshell, detachable, and convertible models
- New low-power processor states for orders of magnitude reduction on power consumption, yielding one of the biggest improvements in battery life (compared to previous generations) in Intel company history

- Support for Windows* 8 Connected Standby^{4,24}
- New sensor interfaces and rich I/O²⁴

Tighter integration conserves power and expands possibilities

- Lower power and faster access to I/O
- Fast access by cores and graphics to shared data in the last-level cache, which accelerates graphics processing
- A display engine that's repartitioned into the CPU, resulting in lower latency and higher resolutions
- Embedded high-bandwidth memory integrated in quad-core Intel® Iris™ Pro graphics 5200 processors to boost graphics performance
- Low-power (LP) DDR3 controller on 1 chip processor die²⁴
- Fully integrated voltage regulator for finer processor power control
- New configurable power levels for optimized design and performance

Amazing graphics and media processing

The new platform takes Intel® Built-In Visuals to a new level to provide superb visual performance to mainstream desktop and mobile PC users. Experience HD movies, stunning photos, and immersive 3D games with a suite of visual enhancements built into new Intel Core processors—no discrete graphics card required.

- A much more powerful graphics engine than previous Intel® microarchitectures delivers ultimate 3D, video processing, and visual enhancements.
- New hardware-based media accelerators and added graphics execution units deliver superior performance for gaming, HD video content, and 3D graphics.
- The latest Intel® Iris™ and HD Graphics provide support for DirectX 11.1, OpenGL 4.0, OpenCL 1.2.

Better, more responsive performance

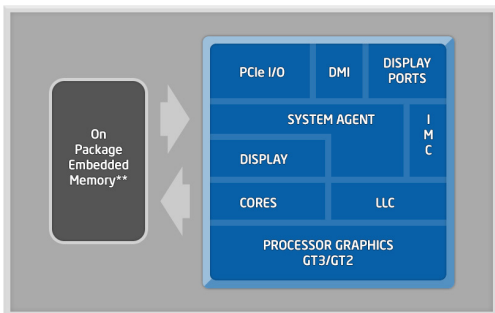
Intelligent power management with Intel® Turbo Boost 2.0¹⁰ dynamically controls performance and power—for cores and graphics—boosting performance exactly where and when it is needed, and saving energy when it counts. 4th gen Intel® Core™ processors support two to eight or more cores and up to sixteen or more threads with Intel® Hyper-Threading Technology (Intel® HT Technology).¹¹

Deeper, hardware-based security protection

With new processor microarchitecture, Intel helps deliver the most secure online experiences to date. Multiple safeguards are embedded deep into processor hardware, providing multiple defenses below the operating system, including:

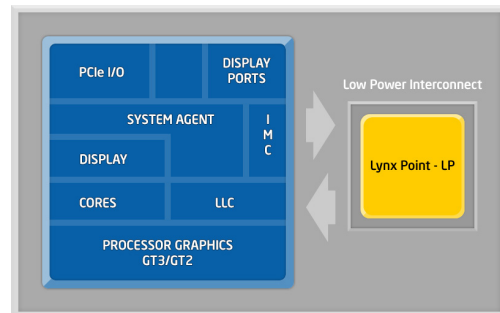
- New Instructions for faster encryption and performance

- Vulnerability-resistant BIOS/firmware protection
- Malware detection
- Enhanced security services such as Intel® Identity Protection Technology and Intel® Anti-Theft Technology



4th gen Intel® Core™ processor architecture for 2-chip mobile platforms

**On Package Cache Memory available only on select products.



Ultra-low-power 4th gen Intel® Core™ U/Y processor

4th gen Intel® Core™ processor features at a glance

Features	Benefits
Intel® Turbo Boost Technology 2.0 ¹⁰	Dynamically increases the processor's frequency, as needed, by taking advantage of thermal and power headroom when operating below specified limits.
Intel® Hyper-Threading Technology ¹¹	Delivers two processing threads per physical core. Highly threaded applications can get more work done in parallel, completing tasks sooner.
Intel® Built-In Visuals	<p>Intel® Iris™ Graphics*—Delivers stunning 3D visuals and faster, more advanced video and photo editing and high-speed game performance on the go and in your home. *Available on select SKUs only.</p> <p>Intel® Quick Sync Video—Delivers fast conversion of video for portable media players, online sharing, and video editing and authoring.</p> <p>Intel® Clear Video HD—Visual quality and color fidelity enhancements for HD playback and immersive web browsing.</p> <p>Intel® InTRU™ 3D²²—Enjoy the ultimate 3D visual experiences and your favorite 3D Blu-ray* movies, all delivered in stereo 3D and full 1080p resolution on your PC.</p> <p>Intel® HD Graphics—Allows playing of HD videos with exceptional clarity, viewing and editing of even the smallest details of photos, and playing today's modern games.</p> <p>Intel® Wireless Display—Lets you beam your apps and personal and online content such as movies, photos, and music to an HDTV with a simple wireless connection.</p> <p>Intel® Insider™²³—Stream or download 1080p HD premium movies on your PC through participating distributor sites across the world. Purchase content and view it later across multiple platforms using Ultraviolet* support.</p> <p>Intel® Advanced Vector Extensions—A set of new instructions to improve software performance for floating point-intensive applications such as audio processing, audio codecs, and image and video editing applications.</p>
Integrated Memory Controller	An integrated memory controller offers stunning memory read/write performance through efficient prefetching algorithms, lower latency, and higher memory bandwidth.
Intel® Smart Cache	The shared cache is dynamically allocated to each processor core, based on workload. This significantly reduces latency, improving performance.
Intel® Virtualization Technology ⁹	Allows one hardware platform to function as multiple "virtual" platforms. Offers improved manageability by limiting downtime and maintaining productivity by isolating computing activities into separate partitions.
Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI) ¹²	A faster, more secure AES engine for a variety of encryption apps, including whole disk encryption, file storage encryption, conditional access of HD content, internet security, and VoIP. Consumers benefit from protected internet and email content, plus faster, more responsive disk encryption.
Intel® Power Optimizer and Processor C-States	Intel® Power Optimizer increases periods of silicon sleep state across the platform ingredients, including the CPU, chipset, and third-party system components, reducing power and increasing battery life for Ultra and SV platforms. New Processor C-states (C8-C10) on Ultra platforms provide dramatically low idle power.
Fully Integrated Voltage Regulator (FIVR)	The voltage regulator is now integrated into 4th generation Intel® Core™ processors, improving battery life and providing design-cost and space savings for OEMs. This integration also allows finer power control for efficiency.
Configurable TDP	With Configurable TDP, the processor is now capable of modulating the maximum sustained power vs. performance. Configurable TDP thus provides design and performance flexibility to control system performance based on the cooling capability and usage scenarios. For example, a detachable Ultrabook™ may need more performance when used in a full clamshell mode (vs. tablet mode), or when balanced performance is needed in a quiet conference room setting.
On-Package Cache Memory	Delivers higher bandwidth for graphics and memory-intensive applications for Intel's highest-performance processor graphics products, resulting in big performance boosts on 4th gen Intel® Core™ Iris™ Pro Graphics 5200 products, with up to 128MB of capacity supported.
CPU/Memory/Graphics Overclocking	On select products, CPU/graphics and memory can be run at frequencies above the rated frequency of the part, resulting in higher performance.
Intel® Secure Key ¹⁸ (formerly Digital Random Number Generator [DRNG])	Security hardware-based random number generator that can be used for generating high-quality keys for cryptographic (encryption and decryption) protocols. Provides quality entropy that is highly sought after in the cryptography world for added security.

4th gen Intel® Core™ processor features at a glance

Features	Benefits
LINS	A set of new instructions that works in conjunction with AVX 2.0 instructions to accelerate CPU performance during certain operations that include high-definition content decoding, encryption during compression/decompression, and cryptographic security protocols.
TSX-NI	TSX-NI is a set of new instructions focused on enterprise-level multi-threaded performance scaling, making parallel operations more efficient via improved control of software threads and locks. This offers performance benefits for enterprise-level big data analytics/business intelligence and visualization apps, which involve multi-user collaboration.
Intel® Advanced Vector Extensions (Intel® AVX) 2.0	AVX 2.0 is an extension of AVX 1.0 with new optimized instructions to deliver enhanced performance on floating point-intensive apps. AVX 2.0 adds 256bit integer instructions and new instructions for FMA (Fused Multiply Add). FMA delivers better performance on media and floating point computations, including face recognition; professional imaging; high-performance computing; consumer video and imaging; compression; and encryption.
Collaborative Processor Performance Control (CPPC)	A new technology based on the ACPI 5.0 specification that dynamically modulates performance vs. active application power. It reduces active power to deliver better battery life and allows deeper lower power states to be reached (compared to prior generations of Intel Core processor products).
Intel® BIOS Guard (Codename Platform Flash Armoring Technology [PFAT])	Platform Flash Armoring Technology is an augmentation of existing chipset-based BIOS flash protection capabilities targeted to address the increasing malware threat to BIOS flash storage. It protects the BIOS flash from modification without platform manufacturer authorization, helps defend the platform against low-level DOS (denial of service) attacks, and restores BIOS to a known good state after an attack.
Intel® Boot Guard	Hardware-based boot integrity protection that prevents unauthorized software and malware takeover of boot blocks critical to a system's function, thus providing added level of platform security based on hardware. Configurable boot types include: Measured Boot —Measures the initial boot block into the platform storage device such as trusted platform module (TPM) or Intel® Platform Trust Technology (PTT). Verified Boot —Cryptographically verifies the platform initial boot block using the boot policy key.
Intel® OS Guard (Formerly Supervisor Mode Execution Protections [SMEP])	An enhanced hardware-based security feature that protects the OS (operating system) kernel. OS Guard protects areas of memory marked as user mode pages and prevents attack code, which is in a user mode page or a code page, to take over the OS kernel. OS Guard is not application-specific and protects the kernel from any application.
Intel® Platform Trust Technology	A trusted element of the platform execution that provides enhanced security by verifying the boot portion of the boot sequence.
VMCS shadowing	VMCS shadowing allows a Virtual Machine Manager (VMM) running in a guest (nested virtualization) to access a shadow VMCS memory area using the normal VMRead/VMWrite instructions. This new technology reduces overhead for a more natural and responsive user experience. It also allows users to take control of their personal and professional data and apps while being protected by game-changing security.
Intel® Active Management Technology (Intel® AMT) ²	Using built-in platform capabilities and popular third-party management and security applications, Intel AMT allows IT to better discover, heal, and protect networked computing assets.
Intel® Small Business Advantage (Intel® SBA) ¹⁴	Helps small businesses enhance the security and productivity of their small business with a range of out of the box features, including software monitor, data backup and restore, USB port blocker, health center, and wireless display.
Intel® Rapid Storage Technology	With additional hard drives added, provides quicker access to digital photo, video, and data files with RAID 0, 5, and 10, and greater data protection against a hard disk drive failure with RAID 1, 5, and 10. ²¹ Dynamic Storage Accelerator unleashes the maximum performance of Solid State Drives (SSD) when multitasking. ²¹
Intel® Smart Response Technology ⁸	Spend less time waiting, with faster access to the files and applications you use the most.
Intel® Smart Connect Technology ¹³	Stay current with automatic, no-wait updates to your email and social networks, even when your device is asleep. Combine with Intel® WiFi HotSpot Assistant ²⁶ to automatically connect to free and paid WiFi hotspots and refresh content in more locations worldwide.

4th gen Intel® Core™ processor features at a glance

Features	Benefits
Intel® Rapid Start Technology ⁵	Instantly return to where you left off with a device that goes from deep sleep to fully awake in a flash.
Intel® Anti-Theft Technology ¹⁶	Feel safe knowing that when you lose your notebook, you can remotely disable your notebook to be inoperable and lock your hard drive to protect your data with an Intel Anti-Theft Technology-enabled service.
Intel® Identity Protection Technology ¹⁷	Protect your one-time-password (OTP) credentials and PKI certificates ¹³ and add a layer of encrypted second factor authentication for online transactions. Log into your system or make secure credit card purchases on your system using near-field communication (NFC)-enabled cards.
Intel® High Definition Audio ²⁰	Integrated audio support enables premium digital surround sound and delivers advanced features such as multiple audio streams and jack re-tasking.
Universal Serial Bus 3.0	Integrated USB 3.0 support provides greater enhancement in performance with a design data rate of up to 5 gigabits per second (Gbps) with up to 6 USB 3.0 ports. ¹
Universal Serial Bus 2.0	Hi-Speed USB 2.0 support with a design data rate of up to 480 megabits per second (Mbps) with up to 14 USB 2.0 ports.
USB 2.0 Rate Matching Hub	Enables lower power requirements and manages the transition of the communication data rate from the high speed of the host controller to the lower speed of USB full-speed/low-speed devices.
Serial ATA (SATA) 6 Gb/s	Next-generation high-speed storage interface supporting up to 6 Gb/s transfer rates for optimal data access with up to 4 SATA 6Gb/s ports. ¹
Serial ATA (SATA) 3 Gb/s	High-speed storage interface supporting up to 6 SATA 3Gb/s ports. ¹
eSATA	SATA interface designed for use with external SATA devices. Provides a link for 3 Gb/s data speeds to eliminate bottlenecks found with current external storage solutions.
SATA Port Disable	Enables individual SATA ports to be enabled or disabled as needed. This feature provides added protection of data by preventing malicious removal or insertion of data through SATA ports. Especially targeted for eSATA ports.
PCI Express* 2.0 Interface	Offers up to 5 GT/s for fast access to peripheral devices and networking with up to 8 PCI Express 2.0 x1 ports, ¹ configurable as x2 and x4 depending on motherboard designs.
USB Port Disable	Enables individual USB ports to be enabled or disabled as needed. This feature provides added protection of data by preventing malicious removal or insertion of data through USB ports.
Intel® Integrated 10/100/1000 MAC	Support for the Intel® I217LM Gigabit Network Connection.
Green Technology	Manufactured with lead-free and halogen-free component packages.

Processor comparisons

H AND M PROCESSOR LINES	4TH GEN INTEL® CORE™ i7 PROCESSOR	4TH GEN INTEL® CORE™ i5 PROCESSOR	4TH GEN INTEL® CORE™ i3 PROCESSOR	INTEL® PENTIUM® PROCESSOR	INTEL® CELERON® PROCESSOR
Number of Processor Cores/Threads	4/8, 2/4	2/4	2/4	2/2	2/2
Intel® Turbo Boost Technology 2.0 ¹⁰	Yes	Yes	No	No	No
Number of Memory Channels (Speed)	2 (DDR3L 1600 MHz)	2 (DDR3L 1600 MHz)	2 (DDR3L 1600 MHz)	2 (DDR3L 1600 MHz)	2 (DDR3L 1600 MHz)
PCI Express Lanes	16	16	16	16	16
Intel® Hyper-Threading Technology ¹¹	Yes	Yes	Yes	No	No
Intel® Smart Cache	Yes	Yes	Yes	Yes	Yes
Intel® AES–New Instructions (AES–NI) ¹²	Yes	Yes	Yes	No	No
Intel® Advanced Vector Extensions (AVX) 2.0	Yes	Yes	Yes	No	No
Intel® Iris™ Pro Graphics ²⁵	Yes	No	No	No	No
Intel® HD Graphics	Yes	Yes	Yes	Yes	Yes
Intel® Quick Sync Video	Yes	Yes	Yes	No	No
Intel® Wireless Display ⁴	Yes	Yes	Yes	No	No
Independent Displays Supported	3	3	3	3	3
CPU Overclocking Support ⁷	Yes	No	No	No	No
Intel® Virtualization Technology ⁹ (Intel® VT)	Yes	Yes	Yes	Yes	Yes
Intel® Rapid Storage Technology	Yes	Yes	Yes	Yes	Yes
Intel® Smart Response Technology ⁸	Yes	Yes	Yes	Yes	Yes
Intel® Rapid Start Technology ⁵	Yes	Yes	Yes	Yes	Yes
Intel® Smart Connect Technology ¹³	Yes	Yes	Yes	Yes	Yes
Intel® Active Management Technology 9.0 ²	Yes ²	Yes ²	No	No	No
Intel® Small Business Advantage ¹⁴	Yes	Yes	Yes	No	No
Intel® TSX–NI ¹⁵	Yes	Yes	No	No	No
Intel® Anti-Theft Technology Support ¹⁶	Yes	Yes	Yes	No	No
Intel® Identity Protection Technology ¹⁷	Yes	Yes	Yes	No	No
Intel® Secure Key ¹⁸	Yes	Yes	Yes	Yes	Yes
Intel® OS Guard ¹⁹	Yes	Yes	Yes	No	No

Processor comparisons

U AND Y PROCESSOR LINES	4TH GEN INTEL® CORE™ i7 PROCESSOR	4TH GEN INTEL® CORE™ i5 PROCESSOR	4TH GEN INTEL® CORE™ i3 PROCESSOR	INTEL® PENTIUM® PROCESSOR	INTEL® CELERON® PROCESSOR (only applicable to U processor line)
Number of Processor Cores/Threads	2/4	2/4	2/4	2/2	2/2
Intel® Turbo Boost Technology 2.0 ¹⁰	Yes	Yes	No	No	No
Number of Memory Channels	2 (DDR3L 1600 MHz, LPDDR3 1600MHz) ²⁸	2 (DDR3L 1600 MHz, LPDDR3 1600MHz) ²⁸	2 (DDR3L 1600 MHz, LPDDR3 1600MHz) ²⁸	2 (DDR3L 1600 MHz, LPDDR3 1600MHz) ²⁸	2 (DDR3L 1600 MHz, LPDDR3 1600MHz) ²⁸
Intel® Hyper-Threading Technology ¹¹	Yes	Yes	Yes	No	No
Intel® Smart Cache	Yes	Yes	Yes	Yes	Yes
Intel® AES–New Instructions (AES–NI) ¹²	Yes	Yes	Yes	Yes ⁶	No
Intel® Advanced Vector Extensions (AVX) 2.0	Yes	Yes	Yes	No	No
Intel® Iris™ Graphics ²⁷	Yes	Yes	Yes	No	No
Intel® HD Graphics	Yes	Yes	Yes	Yes	Yes
Intel® Quick Sync Video	Yes	Yes	Yes	No	No
Intel® Wireless Display ⁴	Yes ^{6,27}	Yes ^{6,27}	Yes ^{6,27}	No	No
CPU Overclocking Support ⁷	Yes	No	No	No	No
Intel® Virtualization Technology ⁹ (Intel® VT)	Yes	Yes	Yes	Yes	Yes
Windows 8* Connected Standby Capable	Yes	Yes	Yes	Yes ⁶	No
Intel® Rapid Start Technology ⁵	Yes	Yes	Yes	No	No
Intel® Smart Connect Technology ¹³	Yes	Yes	Yes	Yes	Yes
Intel® Active Management Technology 9.5 ²	Yes	Yes	No	No	No
Intel® Small Business Advantage ¹⁴	Yes	Yes	Yes	No	No
Intel® TSX–NI ¹⁵	Yes	Yes	No	No	No
Intel® Anti-Theft Technology Support ¹⁶	Yes	Yes	Yes	No	No
Intel® Identity Protection Technology ¹⁷	Yes	Yes	Yes	No	No
Intel® Secure Key ¹⁸	Yes	Yes	Yes	Yes	Yes
Intel® Platform Trust Technology	Yes	Yes	Yes ^{4,6}	Yes ⁶	Yes ^{4,6}
Intel® Boot Guard	Yes	Yes	Yes ^{4,6}	Yes ⁶	Yes ^{4,6}
Intel® OS Guard ¹⁹	Yes	Yes	Yes	No	No

U and Y processor line platform input/output table

The 4th gen Intel® Core™ U and Y processor lines have integrated platform input/output. The following table summarizes the two configurations supported.

Platform input/output configuration		
FEATURE	PREMIUM	BASELINE
Independent Displays Supported	3	3
Intel® Rapid Storage Technology	RAID, AHCI support	AHCI support
Intel® Smart Response Technology ⁸	Yes	No
Intel® High Definition Audio ²⁰	Yes	Yes
Audio DSP	Yes	Yes
VGA	No	No
USB Ports	8 USB 2.0 (Up to 4 USB 3.0) ¹	8 USB 2.0 (Up to 4 USB 3.0) ¹
PCIe 2.0 Express Ports	Up to 6 devices across 12 lanes ¹	Up to 6 devices across 10 lanes ¹
SATA Ports	Up to 4 SATA 6Gbps ¹	2 SATA 6Gbps ¹
I2C		2
UART		2
SDIO		1
I2S		1
SPI (Generic)		2

For more information about new Intel microarchitecture found in 4th gen Intel Core processors, please visit www.intel.com/microarchitecture.

¹ Actual number of ports available may vary by processor number and system configuration. Please refer to the specifications corresponding to the processor number of interest or consult your system vendor for more information.

² Requires activation and a system with a corporate network connection, an Intel® AMT-enabled chipset, network hardware, and software. For notebooks, Intel AMT may be unavailable or limited over a host OS-based VPN, when connecting wirelessly, on battery power, sleeping, hibernating, or powered off. Results dependent upon hardware, setup, and configuration. For more information, visit Intel® Active Management Technology.

³ Requires an Intel® Wireless Display-enabled PC, tablet, or smartphone, a compatible adapter, and a TV. 1080p and Blu-Ray* or other protected content playback only available on select Intel® processors with built-in visuals enabled. Consult your PC manufacturer. For more information, see www.intel.com/go/widi.

⁴ Available on select models of the U processor line with Premium I/O configuration. See the product specifications of the processor model for details.

⁵ Requires a select Intel® processor, Intel® software and BIOS update, and a Solid-State Drive (SSD) or hybrid drive. Depending on system configuration, your results may vary. Contact your system manufacturer for more information.

⁶ Available only on all models of the Y processor line.

⁷ Available on select processor models only. WARNING: Altering clock frequency and/or voltage may: (i) reduce system stability and useful life of the system and processor; (ii) cause the processor and other system components to fail; (iii) cause reductions in system performance; (iv) cause additional heat or other damage; and (v) affect system data integrity. Intel has not tested, and does not warrant, the operation of the processor beyond its specifications. Intel assumes no responsibility that the processor, including if used with altered clock frequencies and/or voltages, will be fit for any particular purpose. For more information, visit Overclocking Intel Processors.

⁸ Requires an Intel® Core™ processor, an enabled chipset, Intel® Rapid Storage Technology software, and a properly configured hybrid drive (HDD + small SSD). Depending on system configuration, your results may vary. Contact your system manufacturer for more information.

⁹ Intel® Virtualization Technology requires a computer system with an enabled Intel® processor, BIOS, and virtual machine monitor (VMM). Functionality, performance or other benefits will vary depending on hardware and software configurations. Software applications may not be compatible with all operating systems. Consult your PC manufacturer. For more information, visit <http://www.intel.com/go/virtualization>.

¹⁰ Requires a system with Intel® Turbo Boost Technology. Intel Turbo Boost Technology and Intel Turbo Boost Technology 2.0 are only available on select Intel® processors. Consult your system manufacturer. Performance varies depending on hardware, software, and system configuration. For more information, visit <http://www.intel.com/go/turbo>.

¹¹ Available on select Intel® Core™ processors. Requires an Intel® HT Technology-enabled system. Consult your PC manufacturer. Performance will vary depending on the specific hardware and software used. For more information, including details on which processors support HT Technology, visit <http://www.intel.com/info/hyperthreading>.

¹² Intel® AES-NI requires a computer system with an AES-NI enabled processor, as well as non-Intel software to execute the instructions in the correct sequence. AES-NI is available on select Intel® processors. For availability, consult your reseller or system manufacturer. For more information, see Intel® Advanced Encryption Standard Instructions (AES-NI).

¹³ Intel® Smart Connect Technology requires an Intel® processor, Intel® software and BIOS update, and Internet connectivity. Solid-state memory or drive equivalent may be required. Depending on system configuration, your results may vary. Contact your system manufacturer for more information.

¹⁴ Requires an Intel® Small Business Advantage enabled system and proper configuration. Availability of features will depend upon the setup and configuration by your PC manufacturer. Consult your system manufacturer.

¹⁵ Available on select processor models enabled for Intel® vPro™ Technology.

¹⁶ No system can provide absolute security under all conditions. Requires an enabled chipset, BIOS, firmware and software, and a subscription with a capable Service Provider. Consult your system manufacturer and Service Provider for availability and functionality. Service may not be available in all countries. Intel assumes no liability for lost or stolen data and/or systems or any other damages resulting thereof. For more information, visit <http://www.intel.com/go/anti-theft>.

¹⁷ No system can provide absolute security under all conditions. Requires an Intel® Identity Protection Technology-enabled system, including a 2nd gen or higher Intel® Core™ processor enabled chipset, firmware and software, and participating website. Consult your system manufacturer. Intel assumes no liability for lost or stolen data and/or systems or any resulting damages. For more information, visit <http://ipt.intel.com/>.

¹⁸ No system can provide absolute security. Requires an Intel® Secure Key-enabled platform, available on select Intel processors, and software optimized to support Intel Secure Key. Consult your system manufacturer for more information.

¹⁹ No system can provide absolute security. Requires an Intel® OS Guard-enabled platform, available on select Intel processors, and an enabled operating system. Consult your system manufacturer for more information.

²⁰ Requires an Intel® HD Audio enabled system. Consult your PC manufacturer for more information. Sound quality will depend on equipment and actual implementation. For more information about Intel HD Audio, refer to Intel® High Definition Audio.

²¹ Requires a select Intel® Core™ processor, an enabled chipset, Intel® Rapid Storage Technology software, and a properly configured storage device.

²² Viewing stereo 3D content requires 3D glasses and a 3D-capable display. Physical risk factors may be present when viewing 3D material.

²³ Intel® Insider™ is a hardware-based content protection mechanism. Requires select Intel® Core™ processor-based PC with built-in visuals enabled, an internet connection, and content purchase or rental from qualified providers. Consult your PC manufacturer. For more information, visit www.intel.com/go/intelinsider.

²⁴ Available on U and Y processor lines only.

²⁵ Available on select models of the H processor line. See the product specifications of the processor model for details.

²⁶ Intel® WiFi Hotspot Assistant requires an Intel wireless adapter, Intel® PROSet/Wireless WiFi Software v15.6 or later, and an Internet connection for initial setup with the Easy WiFi* network. For more information, please visit <http://www.intel.com/wireless>.

²⁷ Available on select models of U processor line.

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