

3rd to 5th Generation Intel® Core™ vPro™ Processor Family

5th generation Intel® Core™ vPro™ processor-based devices are designed to meet the mobility needs of your users and the security requirements of your enterprise. Choose from high performing 2 in 1s and Ultrabook™ devices with amazing battery life, so users can be productive longer. Built-in security features help protect data, identities, and network access.¹ Data productivity and protection is enhanced with our new Intel® SSD Pro 2500 Series drives, capable of OPAL 2.0 data protection models like secure managed containers and digital fencing. Your users can automatically dock to monitors, keyboards and USB accessories with Intel® Wireless Gigabit technology.² You also get the platform stability you need along with remote manageability to track and manage devices from any location.^{3,4} And Intel® Pro Wireless display makes it possible for users to simply and securely connect and project presentations in a conference room, no dongles required. So remember, when choosing for your enterprise, it's what's inside that counts.

Excellent Performance, Graphics, and Media

3rd gen Intel® Core™ Processors	3rd gen Customer Benefits	4th gen Intel® Core™ Processors	4th gen Customer Benefits	5th gen Intel® Core™ Processors	5th gen Customer Benefits
Processor					
22nm technology	Excellent CPU performance	Next generation Intel® microarchitecture codename Haswell	Great power efficiency and battery life, plus innovative new ultra-small desktop form factors Incredible range of performance	14nm technology	Leading-edge security for an unwired workplace. High-performing 5th gen Intel® Core™ vPro™ processor-based devices with built-in security features let you display and dock wirelessly. ²
3D Tri-Gate Transistor technology	Great battery life for mobile platforms, including Ultrabook™ devices, plus enables lower desktop power consumption				
Intel® Turbo Boost Technology 2.0 ⁵	Automatically allows processor cores to run faster than the rated operating frequency if they're operating below power, current, and temperature specification limits				
I/O					
USB 3.0 (5 Gbps)	Capable of transferring data up to 5 Gbps with appropriate cables and USB 3.0 ports				
Thunderbolt™ technology	Up to 10 Gbps each direction to enable high-performance peripherals on a single cable				

Excellent Performance, Graphics, and Media – Continued

3rd gen Intel® Core™ Processors	3rd gen Customer Benefits	4th gen Intel® Core™ Processors	4th gen Customer Benefits	5th gen Intel® Core™ Processors	5th gen Customer Benefits
Media and Display					
Intel® Wireless Display v3.x ⁶	Wireless display support for 3rd gen Intel® Core™ processor graphics	Intel® Wireless Display v4.2	Broadcast wirelessly to conference room projectors to make meetings more productive Secure wireless content sharing with colleagues keeps data safe Supports certificate-based security	Intel® Pro Wireless Display	Business-ready wireless display that delivers network security and protection with presenter controls for enhanced collaboration, bandwidth management, and remote IT controls. ⁷
Intel® HD Graphics 2500/4000 ⁸	Great, built-in graphics for mainstream gaming without a discrete video card	Intel® HD Graphics 4000/5000	Great performance for business productivity and mainstream gaming without a discrete video card	Intel® HD Graphics 5500/6000 ⁸	Stunning built-in visuals for business applications, HD conferencing and more without the need for a discrete video card. ⁹
Intel® Insider™ technology	Watch the latest releases of your favorite movies in full HD on your PC ¹⁰				
Intel® Quick Sync Video 2.0	Uses dedicated media processing in the silicon to make video creation and conversion fast and easy				
Wireless Communications					
Intel® Centrino® Advanced-N 6205 Intel® Centrino® Advanced-N 6235 Intel® Centrino® Ultimate-N 6300 Intel® Centrino® Advanced-N + WiMAX 6250 Intel® Centrino® Wireless-N + WiMAX 6150	Fast 802.11n Wi-Fi speeds, up to 300 Mbps, ¹¹ with great range and reliability Bluetooth 4.0 and Low Energy support	Intel® Dual Band Wireless-AC 7260 Intel® Dual Band Wireless-N 7260	1st Generation of 802.11ac product family with Wi-Fi speeds up to 867 Mbps ¹¹ Bluetooth 4.0 and Low Energy support	Intel® Dual Band Wireless-AC 7265 Intel® Dual Band Wireless-N 7265	2nd Generation of 802.11ac product family with Wi-Fi speeds up to 867 Mbps. ¹¹ Bluetooth 4.0 and Low Energy support Lower power consumption and higher throughput
N/A				Intel® Wireless Gigabit Docking ²	Wirelessly dock automatically to monitors, keyboards, and USB accessories. WiGi-based high performance even in dense environments. IT controls for dock configuration and management. ²

Great Responsiveness

Features	3rd gen Intel® Core™ Processors (with Intel® 7 Series Chipset)	3rd gen Customer Benefits	4th gen Intel® Core™ Processors	4th gen Customer Benefits	5th gen Intel® Core™ Processors	5th gen Customer Benefits
Quick Resume, plus long standby battery life	Intel® Rapid Start Technology ¹²	A quick resume from hibernate that is similar to resume-from-standby mode, plus long battery life on mobile PCs Low energy usage without sacrificing user experience Small CO ₂ footprint				
Access to information when you want it	Intel® Smart Connect Technology ¹³	Real-time content, continually refreshed, giving instant access to fresh data while minimizing power consumption				
Fast boot and application load	Intel® Smart Response Technology	Solid-State Drive (SSD)-like throughput performance with large hard disk drive capacity at a fraction of the cost for content creation and consumption				

Enhanced Security and Management

Features	3rd gen Intel® Core™ Processors	3rd gen Customer Benefits	4th gen Intel® Core™ Processors	4th gen Customer Benefits	5th gen Intel® Core™ Processors	5th gen Customer Benefits
Always fresh data with instant on experience	N/A	N/A	Intel® Ready Mode Technology	Replaces the traditional PC sleep state with a quiet, low power, active state to enables exciting always available user experiences such as personal cloud, data sharing, remote access, and collaboration.		
Protection of data and assets	N/A	N/A	Intel® SSD Pro 1500 Series	Security and control of storage solutions High reliability and fast disk response for enterprise servers and clients	Intel® SSD Pro 2500 Series	A business platform with an Intel® SSD Pro 2500 Series drive supporting OPAL 2.0* is the best solution for today's business data productivity and protection. New usage models for protecting data, like Secure Managed Containers are capable on an Intel Professional Family SSD with OPAL 2.0 support.

Enhanced Security and Management – Continued

Features	3rd gen Intel® Core™ Processors	3rd gen Customer Benefits	4th gen Intel® Core™ Processors	4th gen Customer Benefits	5th gen Intel® Core™ Processors	5th gen Customer Benefits
Hardware-enhanced authentication	Intel® Identity Protection Technology ¹⁴ (Intel® IPT) with Protected Transaction Display (PTD) Intel IPT with Public Key Infrastructure (PKI) support	Internal, protected hardware data path helps stop screen scrapers and key loggers Supports PKI to provide two-factor authentication – what-you-know (password) and what-you-have (certificate) with hardware-based key generation and encryption			Intel® Identity Protection with Multi-Factor Authentication ¹⁴	A hardware-strength, multi-factor authentication solution brought into a single implementation, management and enforcement umbrella to deliver an end-to-end, policy-based identity and access management solution that integrates well within IT infrastructures.
Accelerated key generation and encryption	Intel® Data Protection Technology with Intel® Advanced Encryption Standard—New Instructions and Secure Key ¹⁵	Fast, hardware-enhanced key generation, encryption, and decryption Generates high-quality random numbers, enabling excellent data encryption				
Protection against rootkits and malware; Secure boot support	Intel® Device Protection Technology with OS Guard ¹⁶ (Windows 8* and Linux*) Intel® TXT ¹⁶	Great protection from malware, with added protection against escalation of privilege (EoP) attacks Hardware-assisted validation through boot of VMs	3rd generation features, plus Intel® Device Protection Technology ¹	Support for BIOS protection and Windows 8/8.1* Secure and Measured Boot		
Remote management with KVM	3rd Gen Intel® vPro™ Technology ³	Enhanced and additional features for remote management and security	4th Gen Intel® vPro™ Technology	New features simplify more powerful management and security		
	KVM Remote Control ¹⁷	Full remote control and disk access: switchable graphical modes (portrait, landscape); simultaneously view up to three independent screens, providing added flexibility for multitasking; enhanced mouse improvements across multiple screens; 27 languages now supported	Enhanced KVM Remote Control	Previous gen benefits included, plus: • Now supports up to 2560x1600 resolution		





Enhanced Security and Management – Continued







Features	3rd gen Intel® Core™ Processors	3rd gen Customer Benefits	4th gen Intel® Core™ Processors	4th gen Customer Benefits	5th gen Intel® Core™ Processors	5th gen Customer Benefits
Remote management with KVM	Intel® Setup and Configuration Software 8.0	New scripting capabilities to customize system deployments	Intel® Setup and Configuration Software 9.0	Previous gen benefits, plus: <ul style="list-style-type: none"> Extended manageability configuration for systems with Intel® Professional Series SSDs Enhanced system discovery capabilities and Intel® Professional Series SSD health monitoring Migration support from Intel® SCS 8 Compatible for Intel Active Management Technology⁴ versions 6.2-9 	Intel® Setup and Configuration Software 10.0	Previous gen benefits plus: <ul style="list-style-type: none"> Support for Intel® AMT 10.0⁴ Discovery, configuration, and maintenance of: <ul style="list-style-type: none"> Intel® SSD Pro 2500 Series Discovery of additional Intel products: <ul style="list-style-type: none"> Intel® Identity Protection Technology OTP, PKI, and MFA Location Based Services Profile Editor using plugins to allow users to create configuration profiles for supported Intel products
	Intel® Active Management Technology 8.0 ¹⁷	Enhanced recovery and patching	Intel® Active Management Technology 9.0/9.5	Enhanced platform management	Intel® Active Management Technology 10.0 ⁴	Improved wireless deployments: Allows Admin Control Mode (ACM) configuration over secure wireless networks Microsoft* InstantGo support

Enterprise Enabling Technologies

Features	3rd gen Intel® Core™ Processors	3rd gen Customer Benefits	4th gen Intel® Core™ Processors	4th gen Customer Benefits	5th gen Intel® Core™ Processors	5th gen Customer Benefits
Enhanced Virtualization	N/A	N/A	Intel® VMCS Shadowing ^{3,18}	Enables intelligent desktop virtualization support and improved user experience with VMCS shadowing and nested virtualization	Intel® Graphics Virtualization Technology	Directly assign a full Intel CPU in silicon to a VM or share a GPU amongst several VMs
Data Sharing and Analysis	N/A	N/A	Intel® TSX-NI	Business Intelligence (BI) and Big Data performance for wider client-based data sharing and analysis		

Use the following tables to help your customers with their migration path

Intel® Core™ Processor Generation	Desktop Processors			Mobile Processors			3rd gen Benefits	4th gen Benefits	5th gen Benefits
	3rd gen	4th gen	5th gen	3rd gen	4th gen	5th gen			
<p>Intel® Core™ i7 and Intel® Core™ i7 vPro™ processors for power and enterprise users</p> <p>Use Intel® Core™ i7 vPro™ processor for added security and manageability</p> <div></div>	i7-3770 i7-3770S i7-3770T i7-3770K	i7-4770 i7-4770S i7-4770T i7-4765T i7-4770K	N/A N/A N/A N/A N/A	i7-3920XM i7-3820QM i7-3720QM i7-3520M i7-3667U i7-3612QM** i7-3610QM** i7-3517U** N/A i7-3687U i7-3689Y N/A i7-3940XM i7-3840QM i7-3740QM i7-3540M	i7-4500U i7-4600M i7-4600U i7-4610M i7-4610Y i7-4650U i7-4800MQ i7-4810MQ i7-4850HQ i7-4860HQ i7-4900MQ i7-4910MQ i7-4930MX i7-4940MX i7-4950HQ i7-4960HQ	i7-5500U i7-5550U i7-5557U i7-5600U i7-5650U i7-5700HQ i7-5750HQ i7-5850HQ i7-5950HQ	All the benefits of Intel® Core™ i5 and i5 vPro™ processors PLUS: Up to 8 processor cores and 8 MB Intel® Smart Cache for even faster performance		
<p>Intel® Core™ i5 and Intel® Core™ i5 vPro™ processors</p> <p>Mainstream performance for business users use Intel® Core™ i5 vPro™ processors for added security and manageability</p> <div></div>	i5-3570 i5-3570S i5-3570T i5-3550S i5-3550 i5-3470 i5-3475S i5-3470S i5-3470T i5-3570K	i5-4670 i5-4670S i5-4670T i5-4670 i5-4570 i5-4570S i5-4570T i5-4670K	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	i5-3360M i5-3320M i5-3427U i5-3210M** i5-3317U N/A i5-3437U i5-3439Y i5-3380M i5-3340M	i5-4210M i5-4210U i5-4220Y i5-4300M i5-4300U i5-4300Y i5-4302Y i5-4310M i5-4310U i5-4330M i5-4340M i5-4350U i5-4360U	i5-5200U i5-5250U i5-5257U i5-5287U i5-5300U i5-5350H i5-5350U	<p>Excellent performance in the enterprise for:</p> <ul style="list-style-type: none">• Business applications• Content creation• Slideshow creation• Financial analysis• Major improvements in graphics performance <p>Key for enterprise customers (Intel® vPro™ technology):</p> <ul style="list-style-type: none">• Performance on demand• Manageability helps reduce desk-side visits• Remote PC management• Strong hardware-based authentication• Fast data encryption <p>Support for flexible computing model with secure virtualization</p>		

Intel® Core™ Processor Generation	Desktop Processors			Mobile Processors			3rd gen Benefits	4th gen Benefits	5th gen Benefits
	3rd gen	4th gen	5th gen	3rd gen	4th gen	5th gen			
Intel® Core™ i3 processor Transactional for small business and consumers  	i3-3240 i3-3220 i3-3240 i3-3250 i3-3240T i3-3250T i3-3225 i3-3245 i3-3220T i3-3240T	i3-4130 i3-4130T i3-4150 i3-4150T i3-4330 i3-4330T i3-4340 i3-4350 i3-4350T i3-4360	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	i3-3110M** i3-3217U** i3-2370M**‡ i3-2377M**‡		i3-5005U i3-5010U i3-5015U i3-5020U i3-5157U	Desktop architecture improvements and high turbo frequencies help increase overall performance in all areas Fast cache can deliver excellent performance in specific business tasks, especially in financial analysis and applications (such as Microsoft Excel* 2010)		
Legacy Intel® Pentium® processor  	G2120 Use curr gen Use curr gen Use curr gen Use curr gen G21000T G2120T G2130 G2140 G2020 G2030 G2020T G2030T			N/A		3805U	Cost-effective processors for entry-level computing		
Legacy Intel® Celeron® processor  	Use curr gen Use curr gen Use curr gen G1620 G1610 G1610T G465 G470	Use curr gen Use curr gen N/A Use curr gen Use curr gen	N/A N/A N/A N/A N/A N/A N/A N/A	877 ‡ N/A 807 ‡ N/A B820 ‡ B820 ‡ B730 ‡ 1037U 1007U 847 1019Y 1020M 1000M 1005M		3205U 3755U	Cost-effective processors for entry-level mobile computing		

Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products.

** Transactional.

‡ These systems have processors based on 32nm manufacturing process technology.

Disclaimer: For transition only. Not a representation of performance.

¹ No computer system can provide absolute security under all conditions. Built-in security features available on select Intel® processors may require additional software, hardware, services and/or an Internet connection. Results may vary depending upon configuration. Consult your system manufacturer for more details. For more information, see <http://security-center.intel.com/>.

² Intel technologies may require enabled hardware, specific software, or services activation. Check with your system manufacturer or retailer.

³ (Intel® vPro™ Technology) Intel® vPro™ Technology is sophisticated and requires setup and activation. Availability of features and results will depend upon the setup and configuration of your hardware, software and IT environment. To learn more visit: <http://www.intel.com/technology/vpro>.

⁴ (Intel® AMT) 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.

⁵ (Intel® Turbo Boost Technology) 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>.

⁶ (Intel® Wireless Display) Requires an Intel® Wireless Display enabled system, compatible adapter and TV. 1080p and Blu-Ray* or other protected content playback only available on select Intel® processor-based systems with built-in visuals enabled, a compatible adapter and media player, and supporting Intel® WiDi software and graphics driver installed. Consult your PC manufacturer. For more information, see www.intel.com/go/widi.

⁷ No computer can be absolute secure. Intel® Pro Wireless Display network security features require a system with an Intel® processor with vPro™ Technology, 1080p and Blu-Ray or other protected content playback, a compatible Intel® WiDi adapter and media player, and supporting Intel® WiDi software and graphics driver installed. Check with your device manufacturer. Learn more by visiting www.intel.com/go/widi.

⁸ (Intel® HD Graphics) Available on the 3rd to 5th gen Intel® Core™ processor family. Includes Intel® HD Graphics, Intel® Quick Sync Video, Intel® Clear Video HD Technology, Intel® InTRU™ 3D Technology, and Intel® Advanced Vector Extensions. Also optionally includes Intel® Wireless Display depending on whether enabled on a given system or not. Whether you will receive the benefits of built-in visuals depends upon the particular design of the PC you choose. Consult your PC manufacturer whether built-in visuals are enabled on your system. Learn more about built-in visuals at <http://www.intel.com/technology/visualtechnology/index.htm>.

⁹ Built-in visual features are not enabled on all PCs and optimized software may be required. Check with your system manufacturer. Learn more at <http://www.intel.com/go/biv>.

¹⁰ 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.

¹¹ Based on the theoretical maximum enabled by 2x2 802.11n implementations with 2 spatial streams. Actual wireless throughput and/or range will vary depending on your specific operating system, hardware, and software configurations. Check with your PC manufacturer for details.

¹² (Intel® Rapid Start Technology) 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

¹³ (Intel® Smart Connect Technology) Intel® Smart Connect Technology requires a select Intel® processor, Intel® software and BIOS update, Intel® Wireless adapter, 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 (Intel® IPT) No computer system can provide absolute security. Requires an Intel® Identity Protection Technology-enabled system, including an enabled Intel® processor, enabled chipset, firmware, software, and Intel integrated graphics (in some cases) and participating website/service. Intel assumes no liability for lost or stolen data and/or systems or any resulting damages. For more information, visit <http://ipt.intel.com/>. Consult your system manufacturer and/or software vendor for more information.

¹⁵ (Intel® Data Protection Technology, includes Intel® AES-NI and Secure Key) No computer system can provide absolute security. Requires an enabled Intel® processor and software optimized for use of the technology. Consult your system manufacturer and/or software vendor for more information.

¹⁶ (Intel Platform/Device Protection Technology, includes BIOS Guard, OS Guard, Boot Guard, Platform Trust Technology, Anti-Theft Technology, Trusted Execution Technology, and Execute Disable Bit) No computer system can provide absolute security. Requires an enabled Intel® processor, enabled chipset, firmware, software and may require a subscription with a capable service provider (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. Consult your Service Provider for availability and functionality. For more information, visit <http://www.intel.com/go/anti-theft>. Consult your system manufacturer and/or software vendor for more information.

¹⁷ (KVM) KVM Remote Control (Keyboard, Video, Mouse) is only available with Intel® Core™ i5 vPro™ and Core™ i7 vPro™ processors with Intel® Active Management technology activated and configured and with integrated graphics active. Discrete graphics are not supported.

¹⁸ 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>

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