

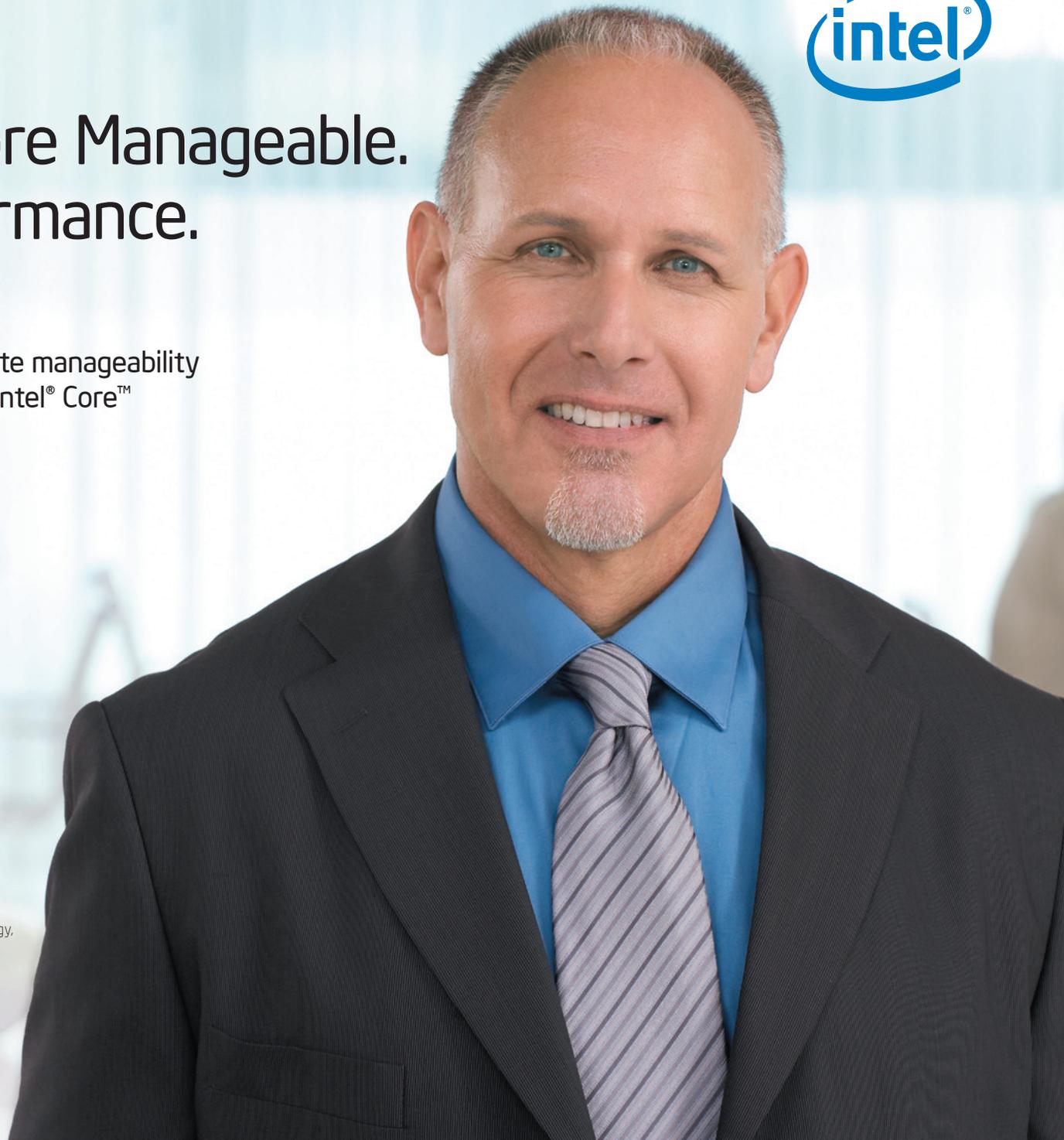


# More Secure. More Manageable. Intelligent Performance. That's Smart ROI

The intelligence of security and remote manageability on every chip with the all new 2010 Intel® Core™ vPro™ processor family.



Features like Intel® Turbo Boost Technology, Intel® Hyper-Threading Technology, Intel® Active Management Technology, Intel® Anti-Theft Technology, Intel® Trusted Execution Technology, KVM, Intel® Stable Image Platform Program, AES-NI, and Execute Disable Bit can provide many benefits, but may require specific system configuration and/or hardware and software vendor support. Detailed information provided on page 8.



# The intelligence of security and manageability on every chip

Control meets cost savings with the all new 2010 Intel® Core™ vPro™ processor family for laptop and desktop PCs: More secure. More manageable. Adaptable performance. Now that's smart ROI.

Secure your PCs. Cut your costs. Have more control than ever before, with the all new 2010 Intel® Core™ vPro™ processor family.

PCs powered by a new 2010 Intel® Core™ vPro™ processor help businesses cut costs and increase efficiency, so you can reap a positive ROI for years to come! How? The all new 2010 Intel Core vPro processor family has intelligent technology that adapts to the needs of your business, with smart security, cost-saving manageability and intelligent performance. This family of processors is

designed to keep downtime and desk-side visits to a minimum, enabling remote monitoring, diagnosis and repair of PCs – even if they're shut down or the operating system (OS) is unresponsive! And with a new Intel Core vPro processor inside, your PCs will be so smart they could even disable themselves if they get lost or stolen?

## The all new 2010 Intel® Core™ vPro™ processor family: Smart security, reduced costs, and lower power bills

- Run business productivity applications up to 80% faster and multitask up to 2x faster<sup>2</sup>
- Cut PC maintenance costs by up to 50%<sup>3</sup>
- Speed up patch saturation by 42%<sup>4</sup> and reduce patch deployment costs by up to 98%<sup>5</sup>
- Shift more workers to laptops and gain up to 51 more minutes per user per day in user productivity<sup>6</sup>
- Reduce energy costs by up to 50% through improved power management, enabled by secure remote power up/down<sup>7</sup>

Now, more than ever, Intel is the best choice for smart, safe and reliable computing. And when it comes to equipping your business for success today and tomorrow, the all new 2010 Intel Core vPro processor family is simply the best choice.





# Intelligent security, cost-cutting efficiency, and maximum productivity

The all new 2010 Intel Core vPro processor family helps businesses cut costs and increase efficiency with adaptable performance and unique hardware-assisted security and manageability features.

## Seamless integration with management consoles

Computers with a new 2010 Intel® Core™ vPro™ processor integrate seamlessly with consoles from leading Independent Software Vendors (ISVs). Because these capabilities are built into the hardware, they deliver OS-absent manageability and down-the-wire security even when the PC is off, the OS is unresponsive, or software agents are disabled – even in 802.1x, PXE, Cisco Self-Defending Network\* (Cisco SDN\*), and Microsoft Network Access Protection\* (Microsoft NAP\*) environments!

## Wide industry support

Laptop and desktop PCs with a new 2010 Intel Core vPro processor are available from a wide range of PC manufacturers and technology service providers. These intelligent, feature-rich PCs are ready to accommodate new technologies, compute models, and software such as Windows\* 7, all in an energy-efficient package that helps you save on power bills.

Intelligent security, performance, and efficiency are built into a new Intel Core vPro processor to help businesses integrate globally and work locally.

- New Intel® Core™ i7 vPro™ processor-based PCs<sup>1</sup>
- New Intel® Core™ i5 vPro™ processor-based PCs<sup>1</sup>

You can now maximize security inside and outside the corporate firewall with powerful, policy-based features that work even if the OS is inoperable or the hard drive has been removed! You can remotely unlock encrypted hard drives for maintenance or security updates, disable or delete encryption keys for a lost or stolen system, and reactivate a system rapidly when it is returned.<sup>9</sup> New technologies such as hardware-based KVM<sup>9</sup> (Keyboard Video Mouse) Remote Control make it even easier to

remotely diagnose and repair a PC – even if the OS is unresponsive. You can also centrally schedule diagnostic events to run locally on PCs, even if they are powered down and disconnected. With ENERGY STAR<sup>10</sup> compliance and efficient performance, you can cut power costs while delivering the performance to handle the latest multi-threaded OSs and applications – including Windows\* 7, Office\* 2007, encryption software, application streaming, and video conferencing.

## All new 2010 Intel® Core™ vPro™ processor family uses cases and capabilities

Plugged into an AC power source and connected to a wired or wireless network inside the corporate firewall, the security and management capabilities of the all new 2010 Intel Core vPro processor family are virtually identical for both laptops and desktop PCs. Key capabilities – such as remote power up, remote boot, console redirection, KVM remote control, access to preboot BIOS settings – are also available for wireless laptops on AC power regardless of sleep state. Outside the corporate network, all capabilities are available over secure communications on a wired LAN for both laptop and desktop PCs. Remote capabilities such as agent presence checking, PC disable (“poison pill”), fast call for help, asset inventorying and alerting, are available even over a host OS-based virtual private network (VPN).

Intel® Active Management Technology <sup>1</sup> and Anti Theft <sup>8</sup> Use Cases	Usages	Works with wired PC-initiated secure communication outside corporate firewall <sup>9</sup>	AC-powered wired or wireless laptop or wired desktop			Battery-powered wired or wireless laptop		
			AWAKE, OS WORKING PROPERLY	AWAKE, BUT OS UNRESPONSIVE	ASLEEP (Sx)	AWAKE, OS WORKING PROPERLY	AWAKE, BUT OS UNRESPONSIVE	ASLEEP (Sx)
Remote power up/power cycle	IT resets PC to clean state (or powers up PC for servicing). Use power management to reduce energy costs.	YES	YES	YES <sup>b</sup>	YES	YES	YES <sup>b</sup>	N/A
Remote software update	Power up PCs during off hours for software updates. Also client-initiated scheduled wake for update.	YES	YES	YES <sup>b</sup>	YES	YES	YES <sup>b</sup>	N/A
Agent presence checking and alerting	Ensure critical applications are running, and be quickly notified when they miss a check in.	YES	YES Also available when using host OS-based VPN	YES <sup>b</sup>	N/A	YES Also available when using host OS-based VPN	YES <sup>b</sup>	N/A
System isolation and recovery	Automated or manual policy-based protection against virus outbreaks.	YES	YES	YES <sup>b</sup>	N/A	YES	YES <sup>b</sup>	N/A
Protection for data if a laptop is lost or stolen	Identify and prevent unauthorized access to encrypted data, or disable the laptop remotely or via client-side intelligence if it is lost or stolen. Upon lock-down, disable or delete encryption keys. Rapid reactivation if laptop is returned. Use encrypted drives seamlessly with Intel® vPro™ technology.	N/A	YES for laptops Also available when using host OS-based VPN	YES for laptops	N/A	YES for laptops Also available when using host OS-based VPN	YES	N/A
Remote diagnosis and repair	Diagnose and repair problems remotely via out-of-band event log, remote/redirection boot, console redirection, KVM, and preboot access to BIOS settings.	YES	YES	YES <sup>b</sup>	YES	YES	YES <sup>b</sup>	N/A
Remote hardware and/or software asset tracking	Take a hardware or software inventory regardless of OS state or power state.	YES	YES Also available when using host OS-based VPN	YES <sup>b</sup>	YES	YES	YES <sup>b</sup>	N/A
Remote configuration	Configure and provision PCs without a deskside visit.	N/A	YES	N/A	N/A	YES	N/A	N/A

<sup>1</sup>Systems using client-initiated remote access require wired LAN connectivity and might not be available in public hot spots for “click to accept” locations. For more information on PC-initiated remote access, visit, [www.intel.com/products/centrino2/vpro/index.htm](http://www.intel.com/products/centrino2/vpro/index.htm). PC-initiated remote communication is supported only in the latest laptops and desktop PCs with Intel vPro technology.

<sup>8</sup>Requires WPA or WPA2/802.11i security and Controller Link 1 for wireless operation when the user OS is down.

## Hardware-assisted virtualization enables alternate computing models

PCs with a new 2010 Intel® Core™ vPro™ processor support traditional and alternate computing models, and allow IT to optimize utilization of the system through built-in Intel® Virtualization Technology (Intel® VT).<sup>1</sup> For example, Intel VT allows IT to centralize image management, improving security and manageability. You can now create a single build with multiple OS and software configurations, and allow access to each OS based on user ID. Or stream an OS or application into a virtual container on the PC to maintain control of the build.

## Trusted launch and protected shutdown

Intel® Trusted Execution Technology (Intel® TXT)<sup>2</sup> and industry-standard Trusted Platform Module 1.2 help the PC boot software into a trusted state and also protect credentials during both orderly and disorderly shutdowns. These features enable an additional layer of security, helping protect the integrity of the virtual machine monitor and critical business data.

With enhanced isolation, greater efficiency, and lower overhead, Intel VT and Intel TXT can help you protect virtual environments against rootkit and other attacks, improve security, and minimize business risk.

## Support for legacy OS: Running Windows\* XP with Windows\* 7

Microsoft Windows 7 requires hardware-assisted virtualization, such as Intel VT in order to support a legacy OS, such as Microsoft Windows\* XP,<sup>11</sup> to run on top of the native OS. Software-based virtualization will not support such a legacy OS.<sup>11</sup> If you intend to run a legacy OS or applications, you must enable hardware-assisted virtualization on the PC.



# Smart, client-side security protects PCs from attack, loss, or theft

The all new 2010 Intel Core vPro processor family makes PC security more customizable, more automatic and more intelligent than ever.

## Secure wireless PCs inside and outside the corporate firewall

Intelligent security also gives you more control from outside the corporate firewall. A wireless laptop based on the all new 2010 Intel® Core™ vPro™ processor family can now initiate a secure connection to the IT console to alert you to critical events – such as falling out of compliance. With PC Alarm Clock, a remote PC can even wake itself – from any sleep state – then establish a secure connection to the IT console to prepare for a critical update.<sup>13</sup>

## Ensure compliance through more accurate inventories

A new Intel Core vPro processor also enables more accurate inventories to help ensure all systems are compliant with security policies. Additionally, the hardware-assisted antivirus protection of Execute Disable Bit helps protect your PCs from certain viruses that use buffer overflow attack<sup>14</sup>

- Improve your ability to inventory previously undetected software on laptop PCs by up to 47%.<sup>15</sup>
- Decrease time spent on hardware and software asset inventory for desktop PCs by up to 94%.<sup>15</sup>
- Conduct hardware and software inventory up to 94% faster than manually per PC.<sup>15</sup>

Maximize security with features like programmable defense filters that automatically guard against viruses and malicious attacks. Continuous, intelligent polling for the presence of software agents helps ensure ultimate protection from malware and attacks. Advanced security features automatically protect PCs from tampering or disabling of security software, while new AES-NI<sup>16</sup> processor instructions accelerate encryption operations. You can also remotely unlock encrypted drives requiring preboot authentication and manage data security settings even when the PC is powered off. And, the built-in manageability features of a new Intel Core vPro processor are

available in secure environments, such as 802.1x, PXE, Cisco Self-Defending Network\* (Cisco SDN\*), and Microsoft Network Access Protection\* (Microsoft NAP\*) environments.

Built into the all new Intel Core vPro processor family is Intel® Anti-Theft Technology (Intel® AT)<sup>8</sup> with PC disable, to help protect your assets and data from loss or theft both inside and outside the corporate firewall. Laptops powered by a new Intel Core vPro processor are so smart they can even disable themselves if they got lost or stolen. If the PC is recovered, it can be easily reactivated to full functionality.

**Each week, 12,000 laptops are stolen from airports.<sup>17</sup> At the same time, the cost of a stolen laptop is rising, with the average cost at more than \$49,000!<sup>18</sup>**

# Cost-saving manageability helps you realize ROI for years to come

Built-in manageability helps you reduce service costs and improve productivity, to help you realize a more rapid ROI. Now that's smart.

Remote, automated manageability features make PC upkeep easier and helps keep costs low. Manage PCs "as if you were there" with new, embedded hardware-based KVM (Keyboard Video Mouse) Remote Control.<sup>9</sup> IT can now remotely see what their users see through all states – even when the PC is outside the corporate firewall – and remotely diagnose and repair even the most complex software failures.

Save power and keep up with compliance – without a network connection – by scheduling PCs to wake from a powered-down state to run local tasks according to policy.

## Save on service costs and realize a rapid ROI<sup>15</sup>

- Reduce the need for desk-side maintenance visits by up to 56%
- Reduce average time to repair hardware up to 60%
- Reduce average time to repair software up to 50%

Select PCs with a new Intel Core vPro processor are part of the Intel® Stable Image Platform Program (Intel® SIPP);<sup>20</sup> so you can avoid unexpected changes that might force software image revisions or hardware requalifications. This helps your team more effectively plan replacement cycles and reduce the number of deployed client configurations. Plus, these PCs support next-generation standards.

Users outside the firewall can also use the new "call for help" feature to call a service provider over the Internet to manage and repair a PC, even when the OS or hard drive is not functioning. Proven hardware-assisted remote shutdown, wake-up, and update of PCs helps you reduce energy costs during off-hours. And remote configuration simplifies deployment and lets you quickly upgrade to Windows 7 overnight, saving an average of 40 minutes per machine, and minimizing disruptions to your users – without losing access to your legacy applications.<sup>19</sup>



## Rapid, positive ROI

The all new 2010 Intel® Core™ vPro™ processor family deliver rapid positive ROI. In fact, studies show that you can recoup your investment in a new Intel® Core™ i5 vPro™ processor-based laptop or desktop in as little as 9 months.<sup>3</sup>

## Save on power bills via improved remote power management

Companies are finding that the all new 2010 Intel Core vPro processor family helps reduce energy consumption, save significantly on energy costs, and improve corporate responsibility – without sacrificing manageability. A new Intel Core vPro processor lets you remotely power up PCs for off-hours maintenance and other work, so you can make better use of the power-management features of your management console. For example, a recent Siemens study concluded that, by using a new Intel Core vPro processor to provide IT services while PCs are powered-off during non-work hours for an IT infrastructure of 5,000 desktop PCs, Siemens could save 1.28 KWh per PC per day, equating to a savings of \$264,000 every year in power bills alone.<sup>3</sup>

## Impressive Performance for Wi-Fi

A new 2010 Intel® Core™ vPro™ processor delivers the power users need for wired or wireless performance. For example, laptop PCs with a new 2010 Intel Core vPro processor also include Intel® Centrino® Wireless products offering premium Wi-Fi performance with up to 8x bandwidth increase and 2x greater range.<sup>21</sup>

## Go mobile and watch your productivity rise

Global integration and flexible business models are creating a workforce that requires access to enterprise applications and data while away from their desks – today, up to 82% of employees require such access.<sup>22</sup> On average, laptop PC users are also up to 51 additional minutes more productive each day.<sup>6</sup> And, mobility isn't just about productivity, but about recruiting the best employees – of 1,400 corporate finance officers, 50% said that, after salary, telework arrangements are the best recruiting inducement.<sup>23</sup> With the potential for improved productivity and rapid ROI, laptops are even more attractive tool for today's businesses.

## Intelligent, Adaptable Performance with a new 2010 Intel Core vPro processor

For business applications, a new 2010 Intel Core vPro processor delivers even greater performance to handle the demands of upcoming applications. For example, vs. a 3-year-old PC, the new 2010 Intel® Core™ vPro™ i5 processor delivers

- More than 2x faster on business productivity applications<sup>2</sup>
- Up to 80% faster multitasking<sup>2</sup>
- Over 3.5 faster encryption of sensitive data<sup>2</sup>

# Intelligent performance, intelligent efficiency

The all new 2010 Intel Core vPro processor family is smart, adaptable, and energy-efficient – automatically delivering extra performance when users need it most while still helping to reduce power consumption.

PCs powered by a new 2010 Intel Core vPro processor are more energy efficient thanks to energy-saving features that help PCs meet ENERGY STAR<sup>10</sup> requirements. Plus with Intel® Turbo Boost Technology<sup>24</sup> and Intel® Hyper-Threading Technology<sup>25</sup> a new Intel Core vPro processor brings greater performance and greater productivity by automatically adapting to each user's unique needs.<sup>1,2</sup> How?

Intel Turbo Boost Technology in the new 2010 Intel® Core™ i5 and Core™ i7 processors intelligently allocates extra processing power to the applications that need it most – accelerating the processor clock speed by up to 20% to match the workload. Intel Hyper-Threading Technology lets each processor core work on two tasks at the same time, so users will move faster when multitasking and get more accomplished in less time.

And, Intel® HD Graphics provide superb visual performance for sharper images and richer color, all in an energy-efficient package. Now, more than ever, Intel is the best choice for smart, safe and reliable computing. When it comes to equipping your business for success today and tomorrow, the all new 2010 Intel Core vPro processor family is simply the best choice.

# With intelligence in your business PCs, costs shrink and productivity grows

The all new 2010 Intel Core vPro processor family can help cut average user downtime and reduce the average in-person IT support time.

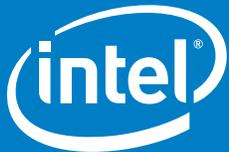
Laptop and desktop PCs powered by a new 2010 Intel Core vPro processor adapt to the needs of your business. With the intelligent security, smart manageability, and adaptable efficiency of a new 2010 Intel Core vPro processor, businesses have a superior foundation for your transition to Windows 7. With broad support from leading PC manufacturers, ISVs, and IT service providers, these laptop and desktop PCs deliver a

complete solution for a wide range of business environments, alternate computing models, and a flexible workforce. With rapid ROI, now, more than ever, Intel is the best choice for smart, safe and reliable computing.

Look for the latest innovations designed specifically for business by Intel, the micro-processor technology leader you've come to depend on.

For more information about PCs with a new Intel Core vPro processor, visit: [www.intel.com/vpro](http://www.intel.com/vpro)

Blog with the pros who have deployed Intel vPro technology: [www.intel.com/go/vproexpert](http://www.intel.com/go/vproexpert)



www.intel.com/vpro

<sup>1</sup> Intel® Active Management Technology requires the computer system to have an Intel® AMT-enabled chipset, network hardware and software, as well as connection with a power source and a corporate network connection. Setup requires configuration by the purchaser and may require scripting with the management console or further integration into existing security frameworks to enable certain functionality. It may also require modifications of implementation of new business processes. With regard to laptops, Intel AMT may not be available or certain capabilities may be limited over a host OS-based VPN or when connecting wirelessly, on battery power, sleeping, hibernating or powered off. For more information, see <http://www.intel.com/technology/platform-technology/intel-amt/>.

<sup>2</sup> Cross client claim based on lowest performance data number when comparing desktop and mobile benchmarks. Configurations and performance test as follows:

(Mobile) Comparing pre-production Intel® Core™ i5-520M processor-based laptops to theoretical installed base of Intel® Core™2 Duo processor T5500. Laptop system configurations: Intel Core i5-520M (3 MB Cache, 2.4 GHz), with Intel® Turbo Boost Technology and Intel® Hyper-Threading Technology on pre-production Intel® Ibox Peak HM55, Dual-channel Micron 4 GB (2x2 GB) DDR3-1066 7-7-7-20 with Intel® Graphics Media Accelerator HD graphics, Hitachi 320 GB HDD, Intel® Matrix Storage Manager 8.9.0.1023 (BIOS, Intel® INF and Graphics: pre-production, Imcon compliant with VRD 11.1 requirements), Microsoft Windows® 7 Ultimate 64-bit RTM. Intel Core 2 Duo processor T5500 (2 MB Cache, 1.66 GHz, 667 MHz FSB) in Lenovo Thinkpad® T60 laptop, Mobile Intel® 945GM Express Chipset, Micron PC5300 DDR2 667 2x1 GB 5-5-5-15 memory, Intel® GMA 950 graphics 224 MB Dynamic video memory technology, Hitachi Travelstar® HTS721010G9SA00 SATA 100 GB 7200RPM HDD, BIOS Lenovo 79ETD7WW 2.17, with default settings, Microsoft Windows® Vista Ultimate, Business productivity claims based on SYSmark® 2007 preview is BAPCo's latest version of the mainstream office productivity and Internet content creation benchmark tool used to characterize the performance of the business client. SYSmark 2007 preview features user-driven workloads and usage models developed by application experts. Multitasking claims based on financial calculations workload consisting of advanced spreadsheet calculation measured using Microsoft Excel® Monte Carlo Simulation plus Virus Scan. Security workload consists of Winzip® 12 decompressing an encrypted archive containing 200 photos, 125 of which are 10MP photos and 75 which are 6MP photos. The photos are in jpeg format. The total size of all the photos is about 830 MB.

(Desktop) Comparing pre-production Intel® Core™ i5-650 processor-based desktops to theoretical installed base of Intel® Core™2 Duo Processor E6400 with comparable frequency. Desktop configurations: pre-production Intel Core i5-650 processor (4 MB Cache, 3.20 GHz) on pre-production Intel® Ibox Peak P55, Dual-channel DS Micron 4 GB (2x2 GB) DDR3-1333 9-9-9-24 with Intel® Graphics Media Accelerator HD graphics @ 900 MHz, Seagate 1TB HDD, Intel® Matrix Storage Manager 8.9.1023 (BIOS, Intel® INF and Graphics: pre-production, Imcon compliant with VRD 11.1 requirements), Microsoft Windows® 7 Ultimate 64-bit RTM Intel Core 2 Duo Processor E6400 (2 MB Cache, 2.13 GHz, 1066 MHz FSB) on Intel® DQ45CB, Dual channel DS Micron 2 GB (2x1 GB) DDR2-800 5-5-5-18 with Integrated Intel® GMA 3000 onboard graphics subsystem, Seagate 320 GB HDD, (BIOS: 0059, Intel® Chipset INF: 8.4.0.1016, Graphics: 7.14.10.1329), Microsoft Windows® 7 Ultimate 64-bit RTM, Microsoft Windows® Vista Ultimate 32-bit. Business productivity and energy claims based on SYSmark® 2007 preview is BAPCo's latest version of the mainstream office productivity and Internet content creation benchmark tool used to characterize the performance of the business client. SYSmark 2007 preview features user-driven workloads and usage models developed by application experts. Multitasking claims based on financial calculations workload consists of advanced spreadsheet calculation measured using Microsoft Excel® Monte Carlo Simulation plus Virus Scan. Security workload consists of Winzip® 14 decompressing an encrypted archive containing 200 photos, 125 of which are 10 MP photos and 75 which are 6 MP photos. The photos are in jpeg format. The total size of all the photos is about 830 MB.

<sup>3</sup> "Using Total Cost of Ownership to Determine Optimal PC Refresh Lifecycles", Wipro Technologies, March 2009 ([www.wipro.com/industryresearch](http://www.wipro.com/industryresearch)). Based on a survey of 106 firms in North America and representing 15 different industries and projections based on a Model Company developed by Wipro Technologies. Computer system price data updated November 2009. Actual results may vary based on the number of use cases implemented and may not be representative of results that individual businesses may realize. For additional implementation examples refer to Intel Case Studies available at <http://communities.intel.com/openport/docs/DOC-1494>.

<sup>4</sup> Telkomsel ROI case study, <http://communities.intel.com/docs/DOC-1494>.

<sup>5</sup> Source: Major Utility District ROI case study, <http://communities.intel.com/docs/DOC-1494>.

<sup>6</sup> "Increase Productivity by Providing Laptops Beyond Road Warriors," Forrester Consulting, October 2008 ([www.Forrester.com](http://www.Forrester.com)).

<sup>7</sup> Source: University of Plymouth ROI Analysis <http://communities.intel.com/docs/DOC-2020>.

<sup>8</sup> Intel® Anti-Theft Technology – PC Protection. No computer system can provide absolute security under all conditions. Intel® Anti-Theft Technology requires the computer system to have an Intel® AT-enabled chipset, BIOS, firmware release, software, and an Intel AT-capable Service Provider/ISV application and service subscription. The detection (triggers), response (actions), and recovery mechanisms only work after the Intel® AT functionality has been activated and configured. Certain functionality may not be offered by some ISVs or service providers and 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.

<sup>9</sup> KVM Remote Control (Keyboard Video Mouse) requires the presence of integrated graphics and therefore is only available with dual-core Intel® Core™ i5 vPro™ processors and i7 vPro™ processors.

<sup>10</sup> ENERGY STAR denotes a system level energy specification, defined by the US Environmental Protection Agency, that relies upon all of the system's components, including processor, chipset, power supply, HDD, graphics controller and memory to meet the specification. For more information, see [http://www.energystar.gov/index.cfm?fuseaction=find\\_a\\_product.showProductGroup&pgw\\_code=CO](http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CO).

<sup>11</sup> Intel® Virtualization Technology requires a computer system with an enabled Intel® processor, BIOS, virtual machine monitor (VMM) and, for some uses, certain computer system 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

<sup>12</sup> No computer system can provide absolute security under all conditions. Intel® Trusted Execution Technology (Intel® TXT) requires a computer system with Intel® Virtualization Technology, an Intel TXT-enabled processor, chipset, BIOS, Authenticated Code Modules and an Intel TXT-compatible measured launched environment (MLE). The MLE could consist of a virtual machine monitor, an OS or an application. In addition, Intel TXT requires the system to contain a TPM v1.2, as defined by the Trusted Computing Group and as defined by the Trusted Computing Group and specific software for some uses. See <http://www.intel.com/technology/security/> for more information.

<sup>13</sup> Systems using Client Initiated Remote Access (CIRA) require wired LAN connectivity and may not be available in public hot spots or "click to accept" locations. For more information on CIRA visit, [www.intel.com/products/centrino2/vpro/index.htm](http://www.intel.com/products/centrino2/vpro/index.htm).

<sup>14</sup> 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.

<sup>15</sup> Results shown are from the 2007 EDS Case Studies with Intel® Centrino® Pro and the 2007 EDS case studies with Intel® vPro™ processor technology, by LeGrand and Salamaski, 3rd-party audit commissioned by Intel, of various enterprise IT environments and the 2007 Benefits of Intel Centrino Pro Processor Technology in the Enterprise, Wipro Technologies study commissioned by Intel. The EDS studies compare test environments of Intel Centrino Pro and Intel vPro processor technology equipped PCs vs. non-Intel vPro processor technology environments. Tested PCs were in multiple OS and power states to mirror a typical working environment. The Wipro study models projected ROI of deploying Intel Centrino Pro processor technology. Actual results may vary and may not be representative of the results that can be expected for smaller businesses. The study is available at [www.intel.com/vpro](http://www.intel.com/vpro), [www.eds.com](http://www.eds.com) and [www.wipro.com](http://www.wipro.com).

<sup>16</sup> AES-NI is a set of instructions that consolidates mathematical operations used in the Advanced Encryption Standard (AES) algorithm. Enabling AES-NI requires a computer system with an AESNI-enabled processor as well as non-Intel software to execute the instructions in the correct sequence. AES-NI is available on Intel® Core™ i5-600 Desktop Processor Series, Intel® Core™ i7-600 Mobile Processor Series, and Intel® Core™ i5-500 Mobile Processor Series. For further availability of AES-NI enabled processors or systems, check with your reseller or system manufacturer. For more information, see [http://softwarecommunity.intel.com/isn/downloads/intelavx/AES-Instructions-Set\\_WP.pdf](http://softwarecommunity.intel.com/isn/downloads/intelavx/AES-Instructions-Set_WP.pdf).

<sup>17</sup> Source: Ponemon Institute, April 2008.

<sup>18</sup> Source: Ponemon Institute, April 2009.

<sup>19</sup> Actual time saved depends on network traffic conditions, the amount of user data migrated, and applications, drivers, or policies downloaded during the migration process. Data collected by Intel on various desktop and mobile PCs migrated to Windows 7 under various conditions. MMS demo showing remote, wireless Windows 7 upgrade on Win XP laptops: <http://www.wimeo.com/4430604>. A shortened video is also available on SMCr: <http://smcr.intel.com/SMCRDocs/MMSvpro.avi>.

<sup>20</sup> Check with your PC vendor for availability of platforms that meet Intel® Stable Image Platform Program (Intel® SIPP) guidelines. A stable image platform is a standardized hardware configuration that IT departments can deploy into the enterprise for a set period of time, which is usually 12 months. Intel SIPP is a client program only and does not apply to servers or Intel-based handhelds and/or handsets.

<sup>21</sup> Bandwidth: Up to 8X bandwidth increase based on the theoretical maximum bandwidth enabled by 3x3 Draft-N implementations with 3 spatial streams in combination with a 3 spatial stream Access Point. 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. Range: Up to 2X greater range enabled by 3x3 802.11n implementations with 3 spatial streams. Up to 450 Mbps bandwidth based on the theoretical maximum bandwidth enabled by 3x3 802.11n implementations with 3 spatial streams in combination with a 3 spatial stream Access Point. 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.

Battery Life: References to improved battery life as measured by MobileMark™ 2005 refer to platform comparisons versus competing 802.11n WLAN solutions. Actual platform battery life savings will vary depending on your specific operating system, hardware and software configurations. Check with your PC manufacturer for details.

<sup>22</sup> Calgary Health Region ROI Case Study, <http://communities.intel.com/docs/DOC-1494>.

<sup>23</sup> "Group Touts Telecommuting's Green Benefits," Robert Half International, San Francisco Chronicle, April 22, 2008 ([www.sfgate.com](http://www.sfgate.com)).

<sup>24</sup> Intel® Turbo Boost Technology available on the Intel® Core™ i7 processor and the Intel® Core™ i5 processor only. Intel Turbo Boost Technology requires a PC with a processor with Intel Turbo Boost Technology capability. Intel Turbo Boost Technology performance varies depending on hardware, software and overall system configuration. Check with your PC manufacturer on whether your system delivers Intel Turbo Boost Technology. For more information, see <http://www.intel.com/technology/turboboost>.

<sup>25</sup> Intel® Hyper-Threading Technology (Intel® HT Technology) requires a computer system with a processor supporting Intel HT Technology and an Intel HT Technology-enabled chipset, BIOS, and operating system. Performance will vary depending on the specific hardware and software you use. The Intel® Core™ i5-750 desktop processor does not support Intel HT Technology. For more information, including details on which processors support Intel HT Technology, see <http://www.intel.com/technology/platform-technology/hyper-threading/index.htm>.

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