



# Intel® Core™ vPro™ Processors and Microsoft® Office 2010

## The Essential Platform for Business Productivity

In today's fast-paced business environment, workers often have to do more with less—and do it fast.

Economic realities force employees to do the work of two or even three people, as businesses struggle to wring every drop of value from their existing investments to stay competitive. Employees rely on their PCs to work as hard—and as fast—as they do.

Additionally, mobile workers are quickly becoming the norm. According to recent data from IDC, the worldwide population of mobile workers will surpass 1 billion this year, and a full 75 percent of the U.S. workforce—119.7 million workers—are expected to be mobile by the year 2013.<sup>1</sup> Mobile workers need their operating systems and applications to start quickly; they need remote connectivity that is secure; and they need their systems to be reliable.

Intel and Microsoft understand the needs of today's businesses; together, they provide powerful tools that boost business productivity.



## Intel® Core™ vPro™ Processors Accelerate Windows® 7 and Microsoft® Office 2010

The technologies featured in Intel® Core™ vPro™ processors, such as Intel Turbo Boost technology, Intel Advanced Digital Media Boost, and Intel Hyper-Threading (HT) technology, enhance the performance of the Windows® 7 operating system and Office 2010. Office 2010 delivers a wealth of server and service capabilities, including business intelligence, collaboration, and content management. Intel processors support these features with a faster, more secure, and more dependable hardware platform that can help businesses save time and cut costs.

### Improved Performance for Users of Microsoft® Office 2010

The newest Microsoft software running on Intel Core vPro processors provides measureable benefits and real value to both the IT staff and the users they support. Users can run Office 2010 applications faster and more reliably with Intel's industry-leading processor and memory technologies.

From accountants to engineers, the calculation speed of Microsoft® Office Excel 2010 is extremely important to users, whether they are using the simplest spreadsheet or complex multi-workbook models. That speed is optimized on a PC powered by Intel Core vPro processors.

Excel 2010 takes advantage of the multiple cores and threads in Intel Core vPro processors to quickly determine which formulas can be calculated concurrently, and then calculates those formulas simultaneously on multiple processors and cores; this dramatically improves calculation speed. In fact, Excel 2010 makes complex financial calculations up to 3.5 times faster than Excel 2007.<sup>2</sup> Excel 2010 takes advantage of as many processors and cores as are available on the PC, fully utilizing multicore processors.

Most users today constantly switch between tasks while system tasks such as virus scans, disk defragmentation, and data backup processes are running. One user may link data in an Excel 2010 spreadsheet with a chart in a media-rich Microsoft® Office PowerPoint 2010 presentation. Another may respond to email in Microsoft® Office Outlook 2010 while recalculating figures in a complex spreadsheet. Intel HT technology in PCs equipped with Intel Core vPro processors help these users to keep up with the rapid pace of business.

Also boosting performance is the Intel Solid State Drive (SSD), which can take a PC to a new level of responsiveness. Users running Office 2010 from an Intel SSD experience a performance increase of up to 56 percent compared to conventional hard disks.<sup>3</sup> Users can turn on their computers, open applications, and save files much more quickly, increasing their efficiency and productivity. Also, users save power and can stay mobile longer with Intel SSD, an important benefit for those who travel frequently and cannot count on a readily available power source.

Users who rely on applications that are floating point-intensive can benefit from Intel Advanced Vector Extensions (AVX), a new 256-bit instruction set extension. The wider vectors, new extensible syntax, and rich functionality provided by Intel AVX help users to better manage data and applications such as image, audio/video processing, scientific simulation, financial analytics, and 3D modeling and analysis.

Intel HD graphics and Intel Core vPro processors provide the power for users to fluidly create and manage their PowerPoint 2010 content. PowerPoint 2010 introduces the ability to embed, edit, and export videos. It also provides the ability to apply 3D effects, animation, and other special effects. Combined with Intel HD graphics, PowerPoint users can create in new ways. There is no need for an extra add-in graphics card; full graphics and media support is built-in. Intel HD graphics provide superb visual performance for sharper images, richer color, and lifelike video and audio—and provide full support for Windows 7.

### Improved Security

Along with these performance benefits, Windows 7 and Office 2010 running on Intel Core vPro processors also provide security benefits that both IT administrators and users can appreciate.

New processor enhancements supported by the Windows 7 Enterprise CryptoAPI accelerate and protect encryption operations, helping users to secure their data without slowing them down. With strong encryption, IT administrators can be confident that sensitive organizational documents created in Office 2010 are secured, especially on devices such as laptops that are more prone to theft or loss.

Office 2010 files are protected using the new Intel Advanced Encryption Standard (AES) New Instructions (AES-NI), which are supported by the Windows 7 Enterprise CryptoAPI. The instructions were designed to implement some of the complex and performance-intensive steps of the AES algorithm. The use of hardware accelerates the execution of the AES algorithms, which protect network traffic, personal data, and the corporate

IT infrastructure. In fact, AES-NI can accelerate the performance of an implementation of AES by 3 to 10 times more than a software-only implementation.<sup>4</sup>

## Better Deployment, Compliance, and Application Management for IT

Intel Core vPro processors help IT administrators to deploy and manage Office 2010 in ways that reduce costs and lessen the impact on user productivity.

For example, Intel Core vPro processors help IT administrators deploy Office 2010. Technologies such as Microsoft® System Center Configuration Manager, Microsoft Office 2010 Deployment Kit, and Microsoft Application Virtualization can be used with Intel Core vPro technology to enable in-band, out-of-band, and flexible virtualized deployment scenarios, freeing administrators to perform other support tasks.

Intel Core vPro technology integration in System Center Configuration Manager 2007 helps IT administrators to efficiently deploy Office 2010 and Windows 7 to user PCs outside of business hours. For Office 2010, administrators use the Office Customization Tool to create a setup customization file, plus an installation package and distribution point for Office 2010. Administrators then create an advertisement in System Center Configuration Manager 2007 that communicates the deployment to a collection of PCs. The PCs are turned on, and Office 2010 is deployed. When the Office 2010 deployment is finished, administrators can then use the out-of-band management console to troubleshoot any issues that might have occurred during the deployment. Finally, administrators can turn off PCs remotely to conserve energy.



Intel Core vPro technology also helps IT administrators to deploy updates to PCs after business hours, even if those PCs are turned off. This helps IT departments to keep Office 2010 updated without interrupting users.

Finally, Intel Core vPro technology can help simplify and speed IT support tasks. Intel Active Management Technology (AMT) enables IT administrators to connect to their managed computers remotely, and now out-of-band keyboard, video, and mouse (KVM) support shows administrators entire remote desktops and, with the users' permission, allows them to control it.

## Conclusion

Now is a smart time to refresh desktop and laptop PCs with Intel Core vPro processors running Windows 7 and Office 2010. From enhancing performance to streamlining IT tasks, this combination boosts business productivity. Users can work more intuitively and more quickly, whether on the road or in the office. And the IT staff benefits from a set of secure, integrated tools that help grow the business, not the budget.

## Resources and Links

### For more information about Intel Core vPro processors for business, visit

[http://www.intel.com/itcenter/products/core/core\\_vpro/index.htm](http://www.intel.com/itcenter/products/core/core_vpro/index.htm).

### For more information about Microsoft Office 2010, visit

<http://www.microsoft.com/office/2010/en/default.aspx>.

1. <http://www.idc.com/getdoc.jsp?containerId=prUS22214110>
2. Microsoft Excel Black-Scholes Monte Carlo Simulation. The Black-Scholes model is used to calculate a theoretical call and put price using the five key determinants of an option's price: stock price, strike price, volatility, time to expiration, and short-term (risk free) interest rate. The workload is execution of approximately 300,000 iterations of Monte Carlo simulation using the Black-Scholes basic option pricing formula in Microsoft Excel 2007. In addition, the workload uses Excel lookup functions to compare the put price from the model with the historical market price for 50,000 rows to understand the convergence.
3. As measured by PCMark\* Vantage\*. Performance tests and ratings measured using a Toshiba\* A305-S6916 laptop with 80 GB 2.5" Intel® X25-M SATA Solid-State Disk and 320GB Hitachi\* SATA Hard Disk Drive. Tests reflect approximate performance of Intel® products as measured by those tests. Any difference in system hardware, software, or configuration may affect actual performance. Buyers should consult other sources of information to evaluate performance of systems or components they are considering purchasing. For more information on performance tests and performance of Intel products, visit <http://www.intel.com/performance>.
4. <http://software.intel.com/en-us/articles/intel-advanced-encryption-standard-instructions-aes-ni/>

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Hyper-Threading Technology (HT Technology) requires a computer system with a processor supporting HT Technology and an HT Technology-enabled chipset, BIOS, and operating system. Performance varies depending on the specific hardware and software you use. For more information, including details on which processors support HT Technology, see <http://www.intel.com/technology/platform-technology/hyper-threading/index.htm>.

64-bit computing on Intel® architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers, and applications enabled for Intel® 64 architecture. Performance varies depending on your hardware and software configurations. Consult with your system vendor for more information.

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>.

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