



# All New 2010 Intel® Core™ vPro™ Processors and Microsoft® Office 2010: Transform Multitasking into Intelligent Performance that is Better for Business

Over the past decade, the way people use technology to conduct business has shifted dramatically. The rapid growth of the Internet allows people to collaborate like never before. Sophisticated business tools running on powerful processors allow decision makers to analyze information in ways unheard of a decade ago. Employees want to be able to find information among the mountains of data being generated in today's business environment, and they want to be able to do it from anywhere.

These shifts present technical decision makers with a considerable challenge: how can I support a mobile workforce while giving users the power necessary to access and manipulate the data they need? The all new 2010 Intel® Core™ vPro™ Processors can increase the performance of Microsoft® Office 2010, letting Office applications take advantage of hardware features such as Intel® Hyper-Threading Technology and Intel® Turbo Boost Technology. Specifically, Microsoft Excel® 2010 can benefit from these technologies to speed up complex calculations.

IT managers also face increasing pressure to comply with complex governmental regulations. These regulations require affected companies to implement tighter controls over data and workflows, while maintaining solid security over critical information. Microsoft Office 2010 is a tool in the IT manager's arsenal for tackling difficult governmental and corporate compliance. New security features that are enhanced by all new 2010 Intel Core vPro Processors make Microsoft Office 2010 one of the safest versions of Microsoft Office to date.

The all new 2010 Intel Core vPro Processors also help ease deployment and upgrades of Microsoft Office 2010. A question often posed by IT managers is this: how can I deploy new technology with as little disruption as possible? Intel Core vPro Processors can mitigate migration headaches using out-of-band configuration and management tools. When Intel vPro technology is used with the Microsoft Desktop deployment process, IT managers can upgrade client computers to both Microsoft Windows® 7 and Microsoft Office 2010 outside of business hours, with the ability to remotely power laptops and desktops on and off.



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## Today’s Business Challenges

IT managers face numerous challenges in today’s business climate. For example, how do you empower employees so that they can work faster, reduce technology overhead costs, and protect critical data from unauthorized intrusion, while complying with a myriad of government regulations? The all new 2010 Intel® Core™ vPro™ Processors running Microsoft® Windows® 7 Enterprise and Microsoft Office 2010 provide a flexible platform to meet the complex demands of today’s IT environment.

The all new 2010 Intel Core vPro Processors let IT managers deploy and manage Office 2010 in ways that reduce costs and lessen the impact on end-user productivity. They also benefit users by allowing them to run Office 2010 applications faster and more reliably with industry-leading processor and memory technologies.

## Introducing the All New 2010 Intel Core vPro Processors

The all new 2010 Intel® Core™ vPro™ Processor family delivers cost-cutting efficiency and maximum productivity with the intelligence of hardware-assisted security and manageability features. These processors employ Intel® Core™ microarchitecture on revolutionary 32nm and 45nm die processes that benefit from the atomic and electrical advantages of hafnium-based high-k metal gates. Intel’s latest 32nm process technology, available on Intel® Core™ i5 vPro™ processors and Intel® Core™ i7 vPro™ processors, delivers improved performance with second generation high-k metal gate transistors. Intel Core microarchitecture also speeds computing by using a number of advanced technologies, including Intel® Turbo Boost Technology, Intel® Hyper-Threading Technology, Intel® QuickPath Technology, Intel® Wide Dynamic Execution, Intel® Advanced Smart Cache, Intel® Smart Memory Access, and Intel® Advanced Digital Media Boost. These are described in Table 1.

Intel Core Microarchitecture	Description
Intel® Turbo Boost Technology	Intel Turbo Boost Technology delivers performance on demand, which allows processors to operate above their rated frequencies to speed specific workloads and then drop back down to reduce power consumption during low utilization periods.
Intel® Hyper-Threading Technology	Intel Hyper-Threading Technology provides higher performance for applications designed for parallel, multi-threaded execution. This is done by presenting two logical cores for each physical core, which allows two threads per core to execute simultaneously. This reduces computational latency and makes optimal use of every cycle.
Intel® QuickPath Technology	Intel QuickPath Technology integrates a memory controller in each microprocessor, and connects processors and other components with a new high-speed interconnect. It speeds traffic between processors and I/O controllers for bandwidth-intensive applications.
Intel® Wide Dynamic Execution	Intel Wide Dynamic Execution delivers more instructions per clock cycle. Fewer clock cycles means that less power is required to complete a task, which reduces execution times and increases energy efficiency.
Intel® Advanced Smart Cache	Intel Advanced Smart Cache is optimized cache that improves cache performance by sharing the high performance Level 2 (L2) cache between multiple cores. This increases the probability that each execution core can access data from the faster and more efficient L2 cache, so each core can dynamically use up to 100 percent of L2 cache while obtaining data from the cache at higher throughput rates than those of Intel’s previous generation Smart Cache.
Intel® Smart Memory Access	Intel Smart Memory Access optimizes data bandwidth to the memory subsystem, which improves system performance. This is done by minimizing apparent memory latency. A new feature called memory disambiguation enables the execution cores to speculatively load data for instructions that are about to execute before all of the previously stored instructions are executed. This increases the efficiency of out-of-order processing and improves performance across a wide range of applications.
Intel® Advanced Digital Media Boost	Intel Advanced Digital Media Boost delivers superior performance and energy efficiency to a broad range of applications, including video encoding, graphics, 3-D imaging, and high-performance line-of-business applications when Streaming SIMD Extension (SSE, SSE2, SSE3, and SSE4) instructions are executed.

Table 1: Intel Core Microarchitecture Technologies



## Benefits of Running Office 2010 on the All New 2010 Intel Core vPro Processors

Microsoft Office 2010 running on the all new 2010 Intel Core vPro Processors provides a number of benefits to IT managers:

- 32-bit and 64-bit support
- Reduced deployment headaches
- Improved security
- Better regulatory compliance
- Wider patch management coverage
- Better performance for Office 2010 end users

These benefits combine to ease IT professionals' jobs, decrease interruptions to user productivity, enhance system reliability and stability, and reduce the risk of data loss or downtime due to attack or malicious code. This, in turn, lowers total cost of ownership and increases return on investment.

## First 64-bit Version of Microsoft Office Available

Microsoft Office 2010 is the first version of Office available in both 32- and 64-bit versions. Office 2010 64-bit can use more virtual and physical memory, which increases the file size that the applications can handle. For example, Microsoft Excel® 2010 users can create spreadsheets larger than 2 GB.

IT managers can lower their support costs by standardizing on 64-bit Microsoft Windows 7 and Office 2010. Multiple versions of operating systems and applications leads to complexity, ultimately driving up support costs. A common platform and application suite makes it simpler for front-line IT support personnel to support end-users. Complexity is reduced and IT support responsiveness increases.

For those organizations that do not need the added benefits of 64-bit Office, 32-bit Office is available, and offers wider compatibility with 32-bit add-ins.

## Reduced Deployment Headaches

The all new 2010 Intel Core vPro Processors help you deploy Office 2010. Technologies such as Microsoft System Center Configuration Manager, Microsoft Office Deployment Kit, and Microsoft Application Virtualization can be used in conjunction with Intel vPro technology to enable in-band, out-of-band, and flexible virtualized deployment scenarios.

Organizations upgrading to Office 2010 should also consider deploying Microsoft Windows 7. For Windows 7, Microsoft provides several tools to simplify OS deployment:

- The Deployment Image Servicing and Management (DISM) tool gives IT administrators a unified tool for creating and modifying Windows 7 image files offline, including both WIM and Virtual Hard Disk (VHD) images.
- Dynamic Driver Provisioning offers the option of centrally storing hardware drivers separate from OS images, which simplifies the initial deployment to a broad hardware base, and allows new hardware to be introduced without having to update existing OS images.
- The User State Migration Tool (USMT) also has additional features and improvements that simplify Windows 7 deployment and reduce the impact to end users.

Combined, these tools give IT managers the ability to reduce deployment conflicts and end-user interruptions, which makes deployment as fast and efficient as possible.

### Out-of-Band Deployment with Intel vPro Technology Remote Power-On

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



**“The all new 2010 Intel Core vPro Processors let IT managers deploy and manage Office 2010 in ways that reduce costs and lessen the impact on end-user productivity.”**

The process for deploying Windows 7 is similar. IT administrators use the Microsoft Desktop deployment tools to create an OS deployment image, and then create an advertisement in System Center Configuration Manager 2007 that communicates the OS deployment and user data migration instructions to client PCs. The PCs power up, pull down the deployment image and user data migration instructions from the network, and install Windows 7. IT administrators can then use out-of-band management tools to troubleshoot any issues that may have occurred. The PC can then be turned off to conserve energy.

### **In-Band Deployment to Offsite Users**

The all new 2010 Intel Core vPro Processors also enable simplified deployment to offsite users with high speed Internet connections. Today's organizations have users located all over the globe, with many organizations' field personnel located at a few strategic locations. Remote support of these users is of paramount importance.

In a common scenario, users connect to the organization's network through a VPN. Once connected, IT administrators can deploy Office 2010 and Windows 7 using a deployment technology such as Microsoft System Center Configuration Manager 2007, or they can connect directly to the computers using KVM Remote Control, a component of Core vPro Processors. The KVM Remote Control displays the user's PC desktop, which allows IT administrators to interact with the PC as if they were sitting at the computer. The IT administrators can then install Office 2010 from a distribution point on the organization's managed network. KVM Remote Control also allows IT administrators to remotely troubleshoot any problems that may arise during the migration.

### **Flexible Deployment with Microsoft App-V**

Today Microsoft offers a broad set of virtualization technologies with integrated management across the whole desktop experience. These solutions can help you deliver on cost savings and other benefits such as flexibility and agility. Application Virtualization (App-V) can be a deployment option for organizations that want the benefits of Microsoft Office 2010, but still rely on line of business applications that are dependent on older Office versions. This can reduce IT costs by simplifying application management lifecycle and significantly reducing regression and application interoperability testing.

Microsoft App-V allows IT administrators to deploy Microsoft Office 2010 to clients on demand. With App-V, Office 2010 can be streamed in real time to any client with access to the virtual application server. No client-side installation of Office 2010 is required, which gives IT administrators a smooth deployment option with little disruption to users.

Microsoft App-V also gives IT a migration path for organizations that still rely on applications built on older versions of Microsoft Office. App-V applications are isolated from each other and from applications installed directly on the client PC, allowing different versions of Office to run side-by-side. This gives IT the option of maintaining line of business applications dependent on older versions of Office, while giving users the advantages of using Office 2010.

### **Improved Security Foundation and Reduced Support Costs**

Strong encryption is vital to protect mission-critical business data, but encryption overhead can slow computing tasks. The all new 2010 Intel Core vPro Processors speed up encryption through Intel's new Intel AES-NI instructions. These instructions enable fast and secure data encryption and decryption, using the Advanced Encryption Standard (AES).

AES is the United States government standard for symmetric encryption, and it is used in a large variety of applications where speed and security are crucial. Intel's architecture introduces six instructions that offer full hardware support for AES. Four of them support high performance data encryption and decryption, and the other two instructions support the AES key expansion procedure. Windows 7 takes advantage of this new feature, providing users with fast, secure encryption performance that will not impede productivity.

PCs equipped with 2010 Intel Core vPro Processors also reduce security incident support costs. Older PCs require more maintenance and suffer from a higher number of security incidents than newer PCs. New PCs equipped with all new 2010 Intel Core vPro Processors decrease security incidents up to 53% over 4-year-old PCs,<sup>1</sup> leading to a reduction in the overall total cost of ownership.

## Microsoft Office 2010 Helps Enable Regulatory Compliance

Organizations face increasing pressure to comply with governmental regulations. Regulations such as the Health Insurance Portability and Accountability Act (HIPAA), the Sarbanes-Oxley Act of 2002, and others require companies covered by the respective Acts to install tighter controls over their data and workflows. For example, the Sarbanes-Oxley Act requires affected companies to audit all actions taken on a financial document. Microsoft Office 2010, when combined with Microsoft SharePoint® Server 2010 and Microsoft Exchange 2010, enables better regulatory and corporate governance compliance.

Using Microsoft Office 2010 and SharePoint Server 2010, organizations can create customized auditable workflows that allow them to verify that modifications to documents are fully tracked. Microsoft SharePoint allows IT administrators the capability to audit key events, such as user access, and to document content changes. Microsoft SharePoint stores audit log events that can later be analyzed and reported using Excel 2010.

Workflows can also help ensure that users complete tasks in the correct order, and that those workflows are transparent to other users. Auditable procedures are enforced as well as captured, ensuring regulatory compliance.

Email is another key area that can fall under the umbrella of regulatory compliance. For example, HIPAA requires that email recipients be notified that they are receiving messages regarding benefits. This notification can come in the form of a banner that is automatically placed in the email by a pre-defined policy chosen by the sender. Senders can use IT administrator-created email classifications to communicate policies; the recipients are subject to these policies when communicating by email. For example, classifications can be defined for attorney/client privilege and benefits communications. Policies can contain additional features such as digital signing and/or encryption.

Custom workflows, auditable procedures, and data retention mandated by governmental regulations require a solid, fast, and flexible platform to perform well. The all new 2010 Intel Core vPro Processors enhance both the end-user and IT administrator experience, enabling organizations to comply with regulations while easing the compliance burdens on IT and end-users.

## Protection Technology Provides Better Attack Resilience through Layered Defenses

The Protected View sandbox security, File Block, and Office File Validation of Office 2010 protect users from malicious files without getting in the way of productivity.



Figure 1: Microsoft Office 2010 Layered Defenses

Protected View allows users to open potentially risky files without harming their computers. Most Microsoft Office exploits focus on older, binary Office file formats that pre-dated Microsoft's newer, more secure XML formats. Office 2007 allowed users to open files using Microsoft Office Isolated Converter Environment, which converted older binary files to the newer XML format and then back to the binary file format before opening it, hopefully removing harmful code. This process was slow and cumbersome, and did not always maintain the document layout. Protected View in Office 2010 opens the file in a read-only "sandboxed" instance of the application, without the need to convert the file. The "sandbox" confines the file, isolating it from the rest of the PC and preventing malicious files from damaging the user's computer.

File Block is a feature first introduced in Microsoft Office 2007 that allows IT administrators to define classes of files that should not be opened by end users. In Office 2007, these files simply could not be opened. Using policies defined by IT administrators, Office 2010 now allows users to open blocked files in Protected View, which is more convenient yet protects users against malicious attacks.

Office File Validation is a new feature of Microsoft Office 2010 that validates older Microsoft Office files to ensure that they conform to the documented binary file format before being

opened in an Office application. If Office File Validation determines files are potentially malicious, it will either block them or allow them to be opened in Protected View.

## Intel vPro Technology Enables Wider Patch Management Coverage

Intel vPro technology helps IT reduce costs while extending patch management coverage. Software updates often require the users to close their work and either restart their applications or reboot their PCs. Intel vPro technology allows IT administrators to push out updates to PCs after business hours, even if those PCs are powered down. This helps IT keep Microsoft Office 2010 up to date without interrupting users.

Alpheon\* Corporation, one of the leading managed services providers in North America, met resistance from some customers over weekly patch and update windows. As a result, updates were applied based on need, rather than through planned deployments. With Intel Core vPro technology, Alpheon no longer has to rely on end-users to reboot weekly in order to receive necessary updates. IT administrators can now push out patches and fix missing updates overnight, which reduces the impact on users during normal business hours. This has reduced customer downtime and resulted in fewer interruptions.<sup>2</sup>

**“Alpheon Corporation reduced customer interruptions while increasing patch management coverage using Intel vPro Technology.”**

## Better Performance for the Microsoft Office 2010 User

Microsoft Office 2010, when combined with all new 2010 Intel Core vPro Processors, provides several performance-related benefits to users:

- Support for multiple cores, Hyper-Threading, and graphics enhancements
- Enhanced collaboration tools
- Powerful business intelligence tools
- Streamlined communications
- Faster encryption
- Faster multitasking

## Improve the Response Time of Advanced Features in Office 2010

Microsoft Office 2010 takes advantage of multiple cores and Intel Hyper-Threading Technology in the all new 2010 Intel Core vPro Processors. Intel Hyper-Threading Technology allows each processor core to work on two tasks at the same time, for better performance when working in multiple Office 2010 applications. Combined, these technologies allow users to get more done in less time.

Real Image Media Technologies\*,<sup>3</sup> a company that provides end-to-end digital cinema technology solutions for cinema houses, realized a significant performance gain with Intel Core i7 processors with Intel Hyper-Threading.

Real Image's QubeMaster Xpress\* is a software solution that imports digital images and audio and encodes them into various media formats. Using PCs<sup>4</sup> equipped with Intel Core i7 processors with Intel Hyper-Threading enabled, Real Image realized a 37.5 percent increase in speed over an Intel Core 2 Quad processor based PC when converting a 29MB Quicktime movie file into a Digital Cinema Package (DCP). QubeMaster Xpress was able to take advantage of the multi-core and Intel Hyper-Threading capabilities in Intel Core i7 processors to maximize performance.

### Improved Calculation and Visualization Times in Microsoft Excel 2010

From the simplest spreadsheet to complex multi-workbook models, Excel's calculation speed is extremely important to users. That speed is optimized on a PC powered by the all new 2010 Intel Core vPro Processors. New multi-threaded calculation features in Excel 2010 take advantage of multiple cores and threads in these processors to quickly determine which formulas can be calculated concurrently, and then calculate those formulas simultaneously on multiple processors, improving Excel's overall calculation performance. Excel 2010 can take advantage of as many processors and cores as are available on a PC.

All new 2010 Intel Core vPro Processors also accelerate Slicers, a new feature of Excel 2010. Slicers are visual controls that allow a user to quickly filter data. The Slicer acts like a report filter, so it can be linked to PivotTables, PivotCharts, or CUBE functions to create interactive reports and dashboards. Slicers can be used to manipulate data from multiple large datasets, and then be integrated in a graphically-intensive report. All new 2010 Intel Core vPro Processors give spreadsheet users the processing and graphics power to manipulate large datasets and then create visually striking reports.

Sparklines, another new feature of Excel 2010, also benefits from the processing and graphics capabilities of the all new 2010 Intel Core vPro Processors. Sparklines are small, succinct graphics embedded into cells in close proximity to the data they represent. For example, suppose a sales manager has a spreadsheet that contains monthly sales data for multiple product categories. The data is broken down into a column for total monthly sales, multiple columns for each day's sales, and rows that list the sales numbers for each product line. The sales manager would like to look at the sales trends for each product throughout the month to determine when sales were strongest. The manager can insert Sparklines next to each product category to show the sales trends throughout the month, and even format each Sparkline to pinpoint when the highest sales occurred.

From creating simple Sparklines to generating multidimensional charts, all new 2010 Intel Core vPro Processors help users efficiently manipulate and represent their data to help them make clearer, more informed decisions.

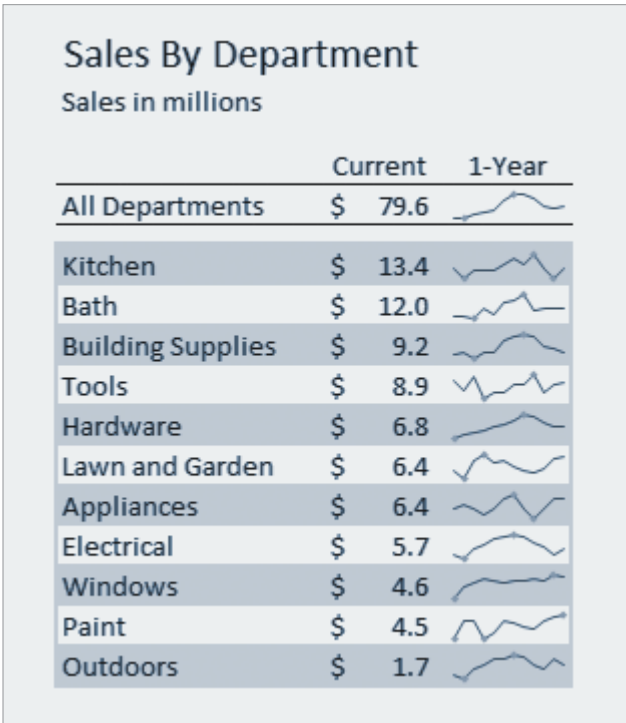


Figure 2: Sparklines in Excel 2010

### Faster Document Indexing

Finding the right file when you need it can be a challenge in today's document-centric workplace where thousands of files are stored in distributed or centralized locations. Windows 7 Search takes advantage of multiple cores and threads in Intel Core vPro Processors to quickly index Microsoft Office 2010 documents, whether they are stored locally on a PC, an external hard drive, or a network file share. Users can quickly find documents using Windows 7 Search's advanced tools, rather than wading through local folders and network file shares to find the information they need.

### Easier Navigation with the New Microsoft Word® 2010 Navigation Pane

The intuitive Navigation Pane in Word 2010 gives users a better visual experience navigating within their documents. Previous generations of Microsoft Word featured the Document Map, Thumbnail Pane, search functionality, and the Object Browser. The Navigation Pane combines and improves the functionality of these features into a new interface, which gives users greater control over how they navigate and rearrange their content.

## Faster Performance for Creating Visually Rich Content

Intel HD graphics and Intel Core vPro Processors provide the power for users to fluidly create and manage their rich Microsoft PowerPoint® content. PowerPoint 2010 introduces the ability to embed, trim, 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 unleash their creativity in new and imaginative ways.

## Better Email Management with Microsoft Outlook® 2010

Outlook 2010 provides a new tool to manage large numbers of emails by viewing messages in Conversation View. Users typically view email in their Inboxes in chronological order, making conversation threads difficult to track. A single email thread between individuals may span dozens of emails sent and received over a period of weeks. Conversation View allows users to combine conversation-related messages into manageable groups. A single click on a conversation item shows the content of the latest email in a thread, which allows the user to expand the thread to see the older messages that make up a conversation, including emails in the user's Sent Items folder. For users who prefer the traditional view for daily email reading, but sometimes need to see all messages in a thread, it's quick and easy to switch back and forth between the two views.

## Enhanced Collaboration Tools

Office Web Apps are online companions to Word, Excel, PowerPoint, and Microsoft OneNote® that leverage the flexibility of cloud deployment by enabling people to work more effectively from virtually any location or device. This extends the Office experience by giving users access to documents when they're away from their primary PCs.

Office 2010 also enables web-based collaboration, allowing multiple people to edit documents, such as Excel Web App spreadsheets and Word Web App documents, simultaneously in real time. Users can conduct brainstorming sessions, update critical spreadsheets, and build reports or requests for proposal without needing to be in the same location.

## Powerful Business Intelligence Tools

All new 2010 Intel Core vPro Processors also enhance the performance of PowerPivot, a new product for Microsoft Excel 2010 and Microsoft SharePoint 2010. PowerPivot is a collection of services and applications that provides the means to create sophisticated business intelligence solutions in Excel that are easily managed by end-users. This gives users the self-service ability to create Excel models that contain large, multidimensional datasets without the need of IT assistance. This improves organizations by providing business insights to all employees, leading to better, faster, more relevant decisions.

PowerPivot consists of two components: PowerPivot for SharePoint 2010, and PowerPivot for Excel 2010. PowerPivot for SharePoint extends SharePoint 2010 and Excel Services, adding server-side processing, collaboration, and document management support. PowerPivot for Excel 2010 removes the one million row limit for worksheets and provides rapid calculations by taking advantage of multiple cores to extend Excel workbooks so that they can contain large amounts of data. Using Excel 2010 and the PowerPivot 2010 add-in, users create data sources inside worksheets that integrate data from multiple, disparate sources such as corporate databases and data stored locally on their PCs. For example, a sales analysis and forecasting model may need to draw data from multiple, international sales offices, each with its own sales database. That data may then need to be combined with web-based data from an industry analyst that demonstrates industry trends. Furthermore, users may need to combine this amalgam of data with local sales forecasts stored on their PCs. PowerPivot allows Excel 2010 users to combine all of this data and build relationships in order to analyze the data as if it all came from one source. The data is maintained within the workbook, which means that users do not have to manage external data connections. If a user publishes, moves, or copies the workbook, all of the data goes with it. PowerPivot users can then take advantage of all the new features in Excel 2010, such as Slicers and Sparklines, to gain new insights into their data.

With PowerPivot for SharePoint 2010, multiple users can share PowerPivot workbooks and offload data analysis from the client to the SharePoint 2010 server. When a user opens a PowerPivot workbook from a SharePoint 2010 library, the Analysis Services processes the PowerPivot data inside the workbook separately, while Excel Services renders the presentation layer. Users can view workbooks in a browser window or in an Excel 2010 desktop application with the PowerPivot add-in.

## Streamlined Communications

Users and IT professionals struggle to manage communications from multiple sources, such as email, instant messaging, and voicemail. Yet while these tools are indispensable, they typically don't work well together. For example, to make a simple phone call, users must switch from the applications they're using to their Outlook address books, look up a contact's number, and then dial the number manually on their phones. The goal of Microsoft Unified Communications is to streamline communications using Microsoft Exchange and Microsoft Office Communications Server, combined with industry standard client applications such as Microsoft Outlook 2010.

Microsoft Unified Communications manages multiple forms of communications, such as email and voicemail. When you have hundreds, thousands, or tens of thousands of users relying on your systems for their communications needs, it is imperative to have powerful processing power on your desktops and laptops to provide users with the best experience possible. All new 2010 Intel Core vPro Processors on your users' PCs give them the power to manage their personal communications simply and elegantly.

## Faster Encryption

New processor enhancements<sup>5</sup> supported by Windows 7 Enterprise Crypto APIs accelerate and protect encryption operations, allowing users to secure their data without slowing them down. When encryption is used, IT managers can be confident that sensitive organizational documents created in Microsoft Office 2010 are secured with strong encryption, especially on devices such as laptops that are more prone to theft or loss.

## Faster Multitasking

Intel has a solid track record of making fast, reliable processors. The latest generation of processors builds upon Intel's experience and innovation by providing even faster multitasking when compared to 3-year-old PCs.<sup>6</sup> In today's business environment, users are constantly switching between tasks. One user may be linking data in an Excel 2010 spreadsheet with a chart in a media-rich PowerPoint 2010 presentation, while another user may be responding to emails in Outlook 2010 while recalculating a complex spreadsheet. PCs equipped with all new 2010 Intel Core vPro Processors allow users to keep up with the rapid pace of business.

## Summary

Microsoft Office 2010 takes advantage of the all new 2010 Intel Core vPro Processors, giving users the power to cut through mountains of data and elegantly express their ideas. IT managers can also reduce their costs while increasing coverage in key areas.

## Benefits for End Users

- Support for Intel's multiple cores and Intel Hyper-Threading give users of Excel 2010 and PowerPivot the speed and power they need to combine data and visually represent their analyses in new and more effective ways.
- Windows 7 Search provides fast indexing of Office 2010 documents over multiple locations, helping users quickly find the right information when they need it.
- New document visualization tools help users navigate Word 2010 documents.
- Improved graphics support from Intel HD graphics provides Office 2010 users the ability to effortlessly embed, modify, and export video from within PowerPoint.
- New organizational tools in Outlook 2010 help users reduce the amount of clutter in their Inboxes.
- Enhanced collaboration tools allow users to work as a team by modifying documents simultaneously.
- Integration with Microsoft Unified Communications streamlines various forms of communications, including email, instant messaging, and telephony.
- When combined with Windows 7, Intel's new encryption features secure users' data without compromising speed.
- Faster multitasking allows users to do more in less time, increasing productivity.

## Benefits for IT

- With 64-bit support, managers can simplify their operating systems and application portfolios while giving users the added benefits of 64-bit computing, such as the ability to access more memory.
- When combined with deployment tools such as Microsoft System Center Configuration Manager 2007, Intel vPro Technology eases deployment headaches by providing IT administrators the ability to deploy Office 2010 and Windows 7 to users' PCs outside of business hours, even if the PCs are turned off.
- Microsoft App-V gives IT administrators additional migration options and the ability to run Office 2010 and applications dependent on older versions of Office side-by-side.
- Security features such as Protected View, File Block, and Office File Validation, protect users from malicious files without sacrificing productivity.
- Deploying patches and updates outside of business hours results in wider patch management coverage.
- Flexible tools and integrated support for managed, auditable workflows translates into better regulatory compliance.

Running Microsoft Office 2010 on the all new 2010 Intel Core vPro Processors helps you achieve your business goals while giving IT the tools they need to succeed. Your end users will be able to work in a way that's faster and more intuitive, whether they're on the road or in the office. IT will benefit from a set of secure, integrated tools that will help you grow your business instead of your budget.

## Resources, Links, and Footnotes

**For more information about all new 2010 Intel Core vPro Processors for business, visit**

<http://www.intel.com/business/index.htm>

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

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

- <sup>1</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 Europe representing 15 different industries and projections based on a Model Company developed by Wipro Technologies. 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>2</sup> "Strong Managed Services Processes + Advanced Tools = Competitive Advantage," available at <http://msp.intel.com/assets/321238-002US.pdf>
- <sup>3</sup> "Digital Cinema Speeds to the Next Level of Multi-Core Performance," available at <http://software.intel.com/en-us/articles/case-study-real-image-media/>
- <sup>4</sup> Configuration of the PCs used: Intel® Core™ i7 processor based PC (CPU: Intel® Core™ i7 processor with 2.93 GHz, Socket: 1, Cores: 4, Hyper-Threading: 2 hardware threads per Core™ (8 threads), Memory: 2 GB, Graphics Card: ATI 6800 PCIExpress Card). Intel® Core™ 2 Quad processor based PC (CPU: Core™ 2 Quad processor with 3.0 GHz, Socket: 1, Cores: 4, Hyper-Threading: N/A, Memory: 2GB, Graphics Card: ATI 6800 PCIExpress Card)
- <sup>5</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>6</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 (3MB Cache, 2.4 GHz), with Intel® Turbo Boost Technology and Intel® Hyper-Threading Technology on pre-production Intel® Ibex Peak HM55, Dual-channel Micron\* 4GB (2x2GB) DDR3-1066 7-7-7-20 with Intel® Graphics Media Accelerator HD graphics, Hitachi\* 320GB HDD, Intel® Matrix Storage Manager 8.9.0.1023 (BIOS, Intel® INF and Graphics: pre-production, lmoncompliant with VRD 11.1 requirements), Microsoft® Windows® 7 Ultimate 64-bit RTM. Intel® Core™2 Duo processor T5500 (2MB Cache, 1.66 GHz, 667 MHz FSB) in Lenovo\* Thinkpad\* T60 laptop, Mobile Intel® 945GM Express Chipset, Micron\* PC5300 DDR2 667 2x1GB 5-5-5-15 memory, Intel® GMA 950 graphics 224MB Dynamic video memory technology, Hitachi\* Travelstar\* HTS721010G9SA00 SATA 100GB 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 830MB. (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 (4MB Cache, 3.20 GHz) on pre-production Intel® Ibex Peak P55, Dual-channel DS Micron\* 4GB (2x2GB) 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, lmon compliant with VRD 11.1 requirements), Microsoft® Windows® 7 Ultimate 64-bit RTM Intel® Core™2 Duo Processor E6400 (2M Cache, 2.13 GHz, 1066 MHz FSB) on Intel® DQ45CB, Dual channel DS Micron\* 2GB (2x1GB) DDR2-800 5-5-5-18 with Integrated Intel® GMA 3000 onboard graphics subsystem, Seagate\* 320GB 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 10MP photos and 75 which are 6MP photos. The photos are in jpeg format. The total size of all the photos is about 830MB.



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