



Self-Service Business Intelligence with Intel Processor and Microsoft PowerPivot

SOLUTION BRIEF

Today's organizations seek business intelligence information to drive efficient decision-making, better problem solving, and faster innovation to stay competitive. As more users across your organization require the ability to transform massive quantities of data into meaningful information rapidly, PCs need unmatched computational power and security for rich analysis right on the desktop or laptop. Server systems need to deliver a level of performance that enables insight and answers within seconds from data stored in both internal and external locations. IW Producers also want to share findings with others and facilitate efficient collaboration.

Give Your Data Meaning with PowerPivot

Microsoft® SQL Server® PowerPivot is a data analysis tool set that helps you take advantage of familiar Excel tools and features to get the answers you need, gain deeper insight into any business activities, and compress your decision cycles. PowerPivot gives Information Worker (IW) Producers the power to create complex workbooks, facilitates sharing and collaboration with colleagues in a Microsoft SharePoint Server® 2010 environment, and enables IT organizations to increase operational efficiencies through Microsoft SQL Server® 2008 R2-based management tools (see Figure 1).

- **Microsoft® SQL Server® PowerPivot for Microsoft® Excel® 2010** is a free downloadable data analysis tool that enables IW Producers to go beyond the native row limitations in Microsoft® Excel® 2010 and analyze millions of rows of data retrieved from internal and external databases, create interactive reports, and share them with others using SharePoint Server 2010.
- **Microsoft® SQL Server® PowerPivot for Microsoft® SharePoint Server® 2010** is a SQL Server 2008 R2 service that adds PowerPivot data processing to a SharePoint farm, much as Excel Services adds calculations and rendering to workbooks published to a SharePoint site. PowerPivot for SharePoint includes Excel and other services, infrastructure, dashboards, Web parts, content types, and library templates needed for users to securely share PowerPivot workbooks and reports.
- **Analysis Services for PowerPivot**, provided through VertiPaq on the PC and server, is a powerful in-memory data storage and processing mode that enables rapid processing of very large amounts of data. The high performance is accomplished through columnar storage and data compression.



Make the Most of Multi-Core PC processors

To enable the benefits of PowerPivot, PCs need unmatched computational power and security for IW producers to conduct rich analysis right on the desktop or laptop. The all new 2010 Intel® Core™ vPro™ processor offers a client platform with cost-saving, efficient maintenance features for producers of self-service BI who need faster performance, more in-depth data analysis, and higher levels of security for increased productivity with PowerPivot for Excel.

- **Intelligent Performance for Business Intelligence:** Speed time to actionable insight and improve productivity for PowerPivot users with impressive performance and faster application launch and file loading. PCs powered by a 2010 Intel® Core™ i5 vPro™ processor run business productivity applications up to 80 percent faster than a three-year-old PC. In addition, Intel® Turbo Boost Technology in the 2010 Intel Core i5 and Core i7 processors intelligently allocates extra processing power to match the workload—accelerating the processor clock by up to 20 percent. In other words, these new processors automatically deliver extra performance when you need it most. PCs powered by Intel Core i5 vPro processors also deliver up to two times faster multi-tasking performance than a three-year-old PC.
- **Smart, Client-side Security to Protect Data:** Maximize security for PowerPivot users by automatically guarding against viruses and malicious attacks, protecting against tampering or disabling of security software, and accelerate encryption operations. New PCs with Intel Core vPro processors can help PowerPivot users be more secure by avoiding the 53 percent increase in security incidences seen in four-year-old PCs. Credentials can be embedded in the hardware and Microsoft System Center Configuration Manager SP2 enables network

traffic on all new 2010 Intel Core vPro processor-based PCs to authenticate itself.

- **Cost-saving Manageability for Greater Productivity:** All new 2010 Intel Core vPro processors simplify management tasks, so you can be more productive while keeping costs down—up to 50 percent lower PC maintenance costs. Intel Core vPro technology makes it easy to deploy and manage PowerPivot for Excel with a secure, encrypted power-up capability that enables you to push updates down the wire quickly and efficiently. You can also remotely repair and secure PCs regardless of power state or location, improve support for remote workers with “Call for Help” to IT to manage and repair a PC even outside the firewall, and use hardware-assisted remote shutdown, wake-up, and update of PCs.

Deliver and Succeed with BI

To enable insight and answers within seconds from data stored in both internal and external repositories, server systems need to deliver a high level of performance. The Intel® Xeon® processor 7500 and 5600 series offer scalable, secure, cost-effective means for industry-standard servers to accommodate increasing demands on PowerPivot for SharePoint services as PowerPivot workbooks become integral to enterprise workflows and decision-making. IW Producers can publish PowerPivot workbooks to SharePoint Server 2010, and IW Consumers can then access the published workbook applications through their Web browser, with almost the same performance and features as the Excel client.

- **Intelligent Performance for BI Services:** With massive memory bandwidth plus up to 50 percent more cores and cache, Intel Xeon processor 7500 and 5600 series deliver faster performance for self-service BI analytics and greater throughput and responsiveness for multi-threaded SQL Server 2008 R2-based applications accessed via PowerPivot. Intel® QuickPath Technology and an integrated memory controller speed traffic between processors and I/O controllers and reduce latency, providing up to 4.4x the bandwidth of previous generation processors. The scalable BI platform enables your end users to gather, analyze, and share reports—even using millions of rows—in a highly secure and compliant way while providing an authoritative version of data.
- **Secure Data, Reliable Access:** The Intel Xeon processor 5600 series helps keep data and services secure and available for PowerPivot users. Windows Hardware Error Architecture

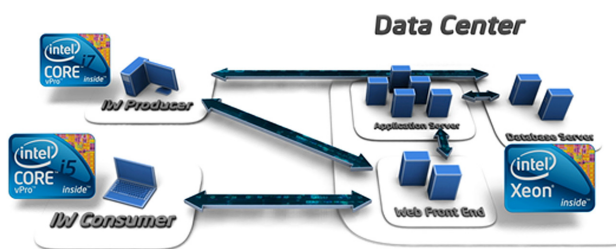


Figure 1. PowerPivot Overview: PowerPivot is an add-in for both Microsoft Excel 2010 and Microsoft SharePoint Server 2010.

(WHEA) in Windows Server 2008 R2 offers robust failure reporting, rich diagnostics and faster recovery times to further improve server availability. Intel Xeon 5600 series processors built on Next-Generation Intel Microarchitecture (codenamed Nehalem) are designed for reliability, with features including Enhanced Memory ECC, Memory Sparing, Memory Mirroring, and Memory CRC that work in conjunction with the Windows Server 2008 R2 operating system to enable high levels of uptime for business services.

Intel Processors with Microsoft PowerPivot takes the self-service BI capabilities of Excel to an unprecedented level:

- Run business productivity applications up to 80 percent faster
 - Reduce PC maintenance cost by up to 50 percent
 - Deliver up to 15x performance per server over 2-socket single-core servers
 - Enable up to a 15:1 server consolidation ratio
 - Lower energy costs up to 95 percent
 - Achieve up to 2.4x better virtualization performance
-
- Virtualization to Optimize Utilization, Availability and ROI: Windows Server 2008® R2 Hyper-V™ and the Intel Xeon processor 5600 series offer enhanced virtualization security, and lower data center costs for PowerPivot infrastructure in a virtualized environment, with up to 2.4x better virtualization performance than previous generation processors. Gain outstanding virtualization headroom in a 2-socket platform: up to 15:1 consolidation ratios when refreshing servers based on single-core processors. Intel® Trusted Execution Technology (Intel® TXT) also provides hardware-assisted protection against software attacks at operating system and VMM launch and to enhance security and flexibility through the creation of trusted pools of server and VM resources.

Drive a Mission-critical BI Platform

It is common for user-generated workbooks to evolve into mission-critical business applications for BI and for demands to outgrow existing datacenter resources. With the same Next-Generation Intel Microarchitecture and Intel® Virtualization Technology (Intel® VT) as the Intel Xeon processor 5600 series, plus more capacity and mission-critical reliability, availability and serviceability (RAS) features, servers based on the Intel Xeon processor 7500 series help drive PowerPivot analytics faster, scale them farther, and achieve mission-critical availability.

Servers based on the Intel Xeon processor 7500 series also help IT deliver more computing power and performance for PowerPivot users without increasing footprint or power demands. Scaling from 2 to 256 sockets, with 8 times the memory bandwidth of the prior generation, and with more than 20 new advanced reliability features, the Intel Xeon processor 7500 series is uniquely architected for data-demanding and mission-critical applications, such as BI, and for large-scale virtualization to lower costs while supporting expanding PowerPivot usage and data demands.

Get Started Today

PowerPivot delivers unmatched computational power directly within the application users already know—Microsoft Excel. Provide a high-performing, scalable and cost-efficient end-to-end platform for PowerPivot with desktop and laptop PCs based on the all new 2010 Intel Core vPro processors and intelligent server platforms based on the latest Intel Xeon processors. Download PowerPivot for Excel and PowerPivot for SharePoint today to give your users the ability to achieve deeper business insight and shorter decision cycles.

To learn more about the latest Intel Xeon processors, visit www.intel.com/xeon.

To learn about the 2010 Intel Core vPro processor, visit www.intel.com/vpro.

For more about Microsoft PowerPivot, visit www.powerpivot.com.

¹ 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, Imom 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, Imom 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.

² Stream_MP Triad benchmark results comparing 2S Intel® Xeon® Processor E5472 (12M Cache, 3.00 GHz, 1600 MHz FSB), 16 GB memory (8x2 GB FB DDR-800)-based server platform to 2S Intel® Xeon® processor X5680 (12M Cache, 3.33 GHz, 6.4 GT/s Intel® QPI)-based server platform, 24GB memory (12x4GB DDR3-1333). Source: Intel measurements SSG TR#942 and TR#1071 as of 12 February 2010.

³ Claim: "Up to 15:1 server consolidation" Disclaimer: Intel consolidation based on replacing 15 four-year-old single-core Intel® Xeon® processor 3.8 GHz with 2M cache based servers with one new Intel Xeon processor X5670 based server while maintaining performance as measured by SPECjbb2005* business operations per second. Performance tests and ratings are measured using specific computer systems and/or components and reflect the approximate performance of Intel products as measured by those tests. Any difference in system hardware or software design or configuration may affect actual performance. Buyers should consult other sources of information to evaluate the performance of systems or components they are considering purchasing. For more information, visit www.intel.com/performance/server.

- Baseline platform: Intel server platform with two 64-bit Intel Xeon Processor 3.80GHz with 2M L2 Cache, 800 FSB, 8x1GB DDR2-400 memory, 1 hard drive, 1 power supply, Microsoft® Windows® Server 2003 Ent. SP1, Oracle® JRockit® build P27.4.0-windows-x86_64 run with 2 JVM instances
- New platform: Intel server platform with two six-core Intel® Xeon® processor X5670, 2.93 GHz, 12MB L3 cache, 6.4QPI, 12 GB memory (6x2GB DDR3-1333), 1 hard drive, 1 power supply, Microsoft Windows Server 2008 64 bit SP2, Oracle® JRockit® build P28.0.0-29 run with 2 JVM instances

⁴ 8.2x memory bandwidth claim based on February 2010 Intel internal measurement using internal memory bandwidth workload on comparable 4S Intel® Xeon® processor X7560 and 4S Intel® Xeon® processor X7460 servers.