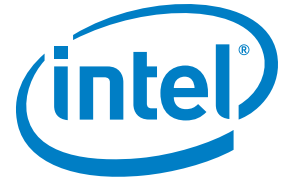


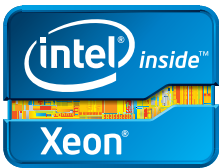
Product Brief

Intel® Xeon® Processor
E3-1200 Product Family
Small Business Servers



Intel® Xeon® Processor E3-1200 Product Family

A new generation of processors for small business servers



Servers based on the Intel® Xeon® processor E3-1200 product family give you smarter control of the things that matter to your business

In an on-demand world, businesses of every size must be responsive. So ask yourself: Can you and your employees access the programs and files you need – anywhere and at any time? Can you expand your IT systems simply and cost-effectively to support more users, new applications, and growing storage needs? Is your business protected against catastrophic data loss and security breaches? If not, it's time to consider stepping up to a real server.

Servers based on the Intel® Xeon® processor E3-1200 product family can help small businesses improve responsiveness and expand capabilities so they can compete more effectively in today's accelerated business world. Based on 32nm Intel® Microarchitecture, the Intel Xeon processor E3-1200 product family is designed with innovative features that adapt server performance to the needs of your business, so you enjoy faster application response times with reduced energy consumption. Intel Xeon processor E3-1200 product family-based servers also protect your valuable data against loss or corruption – a critical advantage given that 75 percent of small businesses experienced two or more cyber attacks in the twelve-month period ending in May of 2010,¹ and 50 percent of small businesses have lost critical data within the last year.²

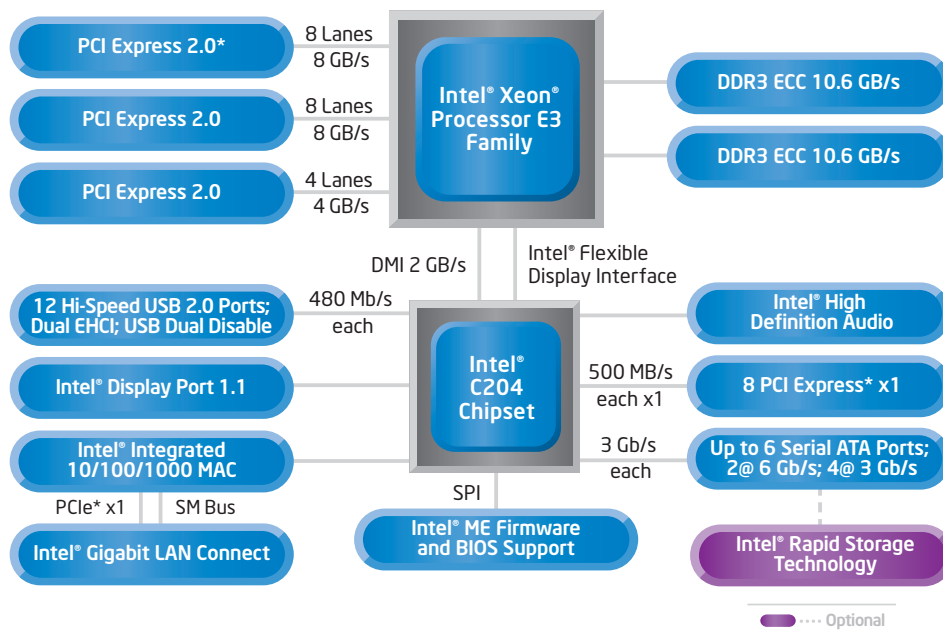
Servers featuring the Intel Xeon processor E3-1200 product family are ideal for small businesses stepping up to their first server, companies requiring a dedicated server for a workgroup, and organizations that need a server to support multiple clients.

The Ideal Entry-level Server

Intel Xeon processor-based servers are a smart investment. They can be used for secure data storage, file sharing, print and web services, and collaborative applications – all capabilities that can make your business more efficient and responsive. A server protects your business-critical information and operations, and enables you to operate more effectively with existing resources. The right server can give you a strategic advantage, helping you increase sales and improve margins by providing faster access to information and improving workflows throughout your business.

Compared to a desktop computer, a server based on the Intel Xeon processor E3-1200 product family is engineered and validated to run 24/7 and allows you to protect, manage, process, and distribute your business data more effectively. It provides you with up to 5.9x performance gain versus 4-year-old desktop-based servers on business applications.³ It also delivers higher reliability than a desktop computer, especially in comparison with older PCs, which experience about 1.2 times more downtime.⁴ With the performance and capacity of an Intel Xeon processor-based server, you can:

- **Establish a centralized database** for your customer, product, and financial information. You'll be able to manage vital data more efficiently, protect it with backup and security software, and provide each employee with access to the information they need anytime and from anywhere.
- **Create an in-house network** for e-mail, shared calendars, and conferencing to improve communication and collaboration among your employees, customers, partners, and suppliers. (Research indicates that 38 percent of small businesses are considering web conferencing and collaboration technologies to improve business efficiency.⁵)
- **Launch a corporate Web site** to connect more effectively with your customers and extend the reach of your business.
- **Implement social networking** to engage your customers, increase loyalty, and gain market share (more than 40 percent of small businesses are already using some form of social networking⁵).



Features may vary depending on processor and chipset SKUs.



Entry-level server platforms featuring the Intel Xeon processor E3-1200 product family are ideal for value-conscious companies looking for their first server or a replacement for an older server. Built with advanced security features, these platforms are designed to deliver 24/7 dependability and improved business productivity with industry-leading performance. They are easy to set up and manage, and have features that provide trouble-free operation and help ensure that your operational needs are met at every stage of your business growth. With servers based on the Intel Xeon processor E3-1200 product family, you get:

Business Responsiveness

Enjoy faster and more reliable access to information and collaborative tools.

- **High Performance for Critical Business Applications.** Support more employees and faster response times with 33 percent better performance than previous-generation Intel® Xeon® processor-based servers on the applications that matter most to your business⁶
- **Peak performance when you need it most.** Intel® Turbo Boost Technology 2.0⁷ delivers peak performance when application loads are heaviest and reduces power consumption for lighter loads.

A Smart Investment

Get the performance, capacity, and reliability your business needs, at prices you can afford.

- **Simple and Affordable Implementation.** “Real Server” features deliver high value with easy deployment and costs that are comparable to high-end desktop systems.
- **Low Operating Costs.** Energy-efficient 32nm Intel Microarchitecture includes an array of enhancements that improve performance while reducing power consumption. The Intel Xeon processor E3-1200 is up to 6.5x more energy-efficient versus 4-year-old desktop-based servers on business applications⁸ Plus there are low-power SKU offerings for additional energy savings versus desktop systems.
- **Simple, Cost-effective Growth.** Expandable storage options make it easy to support increasing storage requirements as your business grows and technologies evolve. You can also use RAID (redundant array of independent disks) technology to protect your valuable data and perform cost-effective data backups.

- **Flexible and Reliable Computing.** Intel Xeon processor-based servers are engineered and validated to operate with server operating systems. This helps to improve reliability and interoperability with critical business applications, so you can add and upgrade applications with greater confidence.

Business Protection

Protect your data and your business with advanced reliability and security features.

- **24x7 Dependability.** Servers based on the Intel Xeon processor E3-1200 product family are designed for continuous operation to keep your business up and running at all times.
- **Advanced Data Protection.** Error Correcting Code (ECC) memory helps to prevent the kind of “system glitches” that were responsible for 36 percent of data breaches in 2009⁹ (ECC memory automatically detects and corrects up to 99.988 percent of memory errors for improved data integrity and system uptime. This technology is not available in desktop computers, but is supported in all Intel Xeon processor-based servers.)
- **Redundant Hard Drives.** Intel® Rapid Storage Technology (Intel® RST) protects your valuable business data by seamlessly storing copies on one or more additional hard drives, so a hard drive failure doesn't cause data loss or system downtime.
- **Advanced data security.** Intel® Advanced Encryption Standards-New Instructions¹⁰ (Intel® AES-NI) speeds up performance for data encryption and decryption, so you can implement strong data security throughout your business while maintaining rapid application response times. Security shouldn't be a luxury reserved only for larger corporations.

Intel® Xeon® Processor E3-1200 Product Family Overview

Features

Benefits

Intel® Xeon® processor E3-1200 product family	<p>Faster performance and greater reliability for business applications</p> <ul style="list-style-type: none"> Up to 42 percent performance improvement over previous-generation Intel® Xeon® processor-based servers on database applications¹¹ Server-class features at entry-level price points
Intel® Microarchitecture	<p>Enhanced performance and energy-efficiency</p> <ul style="list-style-type: none"> Industry-leading Intel® silicon technology (32nm Hi-k process technology) Large on-die cache (up to 8 MB L3) Reduced transistor gate leakage
Support for ECC Memory	<p>Better data integrity and system reliability through automatic data correction</p> <ul style="list-style-type: none"> Detects and corrects up to 99.988 percent of all memory errors
SATA 6G	<p>Faster data access, system startups, and application load times</p> <ul style="list-style-type: none"> Better support for high-speed solid state drives (SSDs) due to faster HDD cache transfers
Low-Power CPU Options	<p>Match performance versus energy efficiency to maximize total value</p> <ul style="list-style-type: none"> Low-power 20W and 45W processor SKUs available Ideal for small form factor or energy-constrained platform designs
Intel® Turbo Boost Technology 2.0 ⁷	<p>Higher performance when you need it most</p> <ul style="list-style-type: none"> Accelerates processor or graphics performance for peak loads Quicker transitions to and from processor sleep states improves energy efficiency
Server OS Validation	<p>Enhanced compatibility and reliability with leading business applications</p> <ul style="list-style-type: none"> Tested and validated on server operating systems
Intel® Active Management Technology ¹² (Intel® AMT)	<p>Flexible management for simpler maintenance and more reliable operation</p> <ul style="list-style-type: none"> Local and remote management for in-house or outsourced IT Out-of-Band access enables remote management, even for failed power states or a crashed OS
PCI Express* 2.0 Ports	<p>Extra capacity and flexibility for storage and networking connections</p> <ul style="list-style-type: none"> Additional 4 PCI Express* 2.0 ports (versus desktop)
Intel® Rapid Storage Technology (Intel® RST) with E-mail Alerting	<p>Uninterrupted operation and no data loss in the event of a hard drive failure</p> <ul style="list-style-type: none"> Accelerates system performance by striping data across hard drives New E-mail Alerting capability enables rapid service response
Intel® Hyper-Threading Technology ¹³ (Intel® HT)	<p>Faster performance for many demanding business applications</p> <ul style="list-style-type: none"> Thread-level parallelism uses processing resources more efficiently Benefits most multi-threaded and concurrently running applications
Intel® Trusted Execution Technology ¹⁴ (Intel® TXT)	<p>Protects your business by increasing security against certain digital threats</p> <ul style="list-style-type: none"> Prevents malware insertion during system boot Helps to ensure the system launches into a "known good state"
Intel® Virtualization Technology for Directed I/O (Intel® VT-d)	<p>Enables fast network/storage communications in a virtualized environment</p> <ul style="list-style-type: none"> Comprehensive hardware assists for I/O-device virtualization Near-native I/O performance with improved security and reliability
Intel® Advanced Vector Extensions (Intel® AVX)	<p>Faster performance for many scientific and analytic applications</p> <ul style="list-style-type: none"> Up to 46 percent performance boost on floating-point intensive workloads¹⁵
Intel® Advanced Encryption Standards-New Instructions ¹⁰ (Intel® AES-NI)	<p>Improve data security without slowing response times</p> <ul style="list-style-type: none"> Accelerates data encryption/decryption by up to 58 percent versus previous-generation servers¹⁶

SKU List

The Intel Xeon processor E3-1200 product family is available with a range of features to match different computing demands. Advanced reliability features, Intel® Virtualization Technology¹⁷ (Intel® VT) including Intel® Flex-Migration Assist and Intel® Trusted Execution Technology,¹⁴ (Intel® TXT) and Intel Turbo Boost Technology 2.0 are standard on all SKUs.

In selecting a processor for your server, consider each of the following:

- **Number of Cores.** More cores enable better multitasking, which is important if your server will run multiple applications (including background tasks, such as data backups and virus scans).
- **Speed.** Higher clock speeds provide better performance so your server can support more simultaneous Outlook* accounts, handle more web requests, and serve more users.

- **Cache Size.** A larger cache size helps to improve the speed and efficiency of data access, and will improve the user experience for most applications.
- **Intel® Hyper-Threading Technology¹³ (Intel® HT).** Increases processor throughput and improves overall performance on threaded software by enabling multiple threads to run on each core.

Processor Number ^A	Number of Cores	Speed	L3 Cache	Intel® Turbo Boost Technology 2.0	Intel® Hyper-Threading Technology	Intel® HD Graphics P3000 ^B	Intel® HD Graphics 2000	Power
Intel® Xeon® Processor E3-1280	4	3.50 GHz	8 MB	▪	▪			95 W
Intel® Xeon® Processor E3-1275	4	3.40 GHz	8 MB	▪	▪	▪		95 W
Intel® Xeon® Processor E3-1270	4	3.40 GHz	8 MB	▪	▪			80 W
Intel® Xeon® Processor E3-1260L	4	2.40 GHz	8 MB	▪	▪		▪	45 W
Intel® Xeon® Processor E3-1245	4	3.30 GHz	8 MB	▪	▪	▪		95 W
Intel® Xeon® Processor E3-1240	4	3.30 GHz	8 MB	▪	▪			80 W
Intel® Xeon® Processor E3-1235	4	3.20 GHz	8 MB	▪	▪	▪		95 W
Intel® Xeon® Processor E3-1230	4	3.20 GHz	8 MB	▪	▪			80 W
Intel® Xeon® Processor E3-1220L	2	2.20 GHz	3 MB	▪	▪			20 W
Intel® Xeon® Processor E3-1225	4	3.10 GHz	6 MB	▪		▪		95 W
Intel® Xeon® Processor E3-1220	4	3.10 GHz	8 MB	▪				80 W

^AIntel® HD Graphics P3000 requires Intel Graphics Driver with latest version of Intel Graphics driver, Intel® C206 chipset and Intel® Xeon Processors E3-12x5 to enable workstation application optimizations. Optimized Intel HD Graphics P3000 only available on select models of the Intel® Xeon® processor E3 family. To learn more about Intel® Xeon® processors for workstations, visit www.intel.com/go/workstation.

Intel C200 Series Chipset

Chipset	Intel® HD Graphics	Intel® AMT 7.0	Node Manager and DCMI	PCI Express* 2.0 Ports		USB 2.0 Ports	SATA Ports		Intel® Rapid Storage Technology	LAN	Legacy PCI Ports
				CPU	PCH		6 Gb/s	3 Gb/s			
Intel® C206	▪	▪		20	8	14	2	4	▪	Integrated MAC	4
Intel® C204			▪	20	8	12	2	4	▪	Integrated MAC	4
Intel® C202				16	8	12		6	▪	Integrated MAC	4



The Right Technology for Your Small Business

With more than 20 years in the server industry, Intel delivers reliable, cost-effective, and flexible technologies for businesses of all sizes. Servers based on the Intel Xeon processor E3-1200 product family are affordable to own and operate, with advanced system management features that keep installation and maintenance costs to a minimum. In addition, Intel Xeon processor-based server technology is built using industry standards, so you have more freedom to choose among a wide range of hardware vendors and from thousands of off-the-shelf business software products.

With built-in 24/7 dependability and advanced security features that help you avoid costly business interruptions and potentially catastrophic security breaches, server solutions based on the Intel Xeon processor E3-1200 product family are a smart investment to protect and power your business today – and in the future.

Learn More

For more information on the Intel Xeon processor E3-1200 product family and to see how Intel can help your small business, visit www.intel.com/products/server/processor/xeonE3/index.htm
www.intel.com/products/server/chipsets/C200/C200-overview.htm
www.intel.com/itcenter/products/xeon/e3/index.htm

Disclaimers

- ¹ Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See www.intel.com/products/processor_number for details.
- ¹ Symantec, "2010 SMB Information Protection Survey," http://www.symantec.com/content/en/us/about/media/pdfs/SMB_ProtectionSurvey_2010.pdf?om_ext_cid=biz_socmed_twitter_2010Jun_worldwide_SMB.
- ² Symantec, http://www.symantec.com/business/solutions/article.jsp?aid=20090428_global_study_identifies_smb_security_gap
- ³ Claim of 5.9x better performance on business applications is based on the results of a performance study conducted by Principled Technologies comparing a 1S server based on the Intel® Xeon® processor E3-1240 to a 1S server based on an Intel® Core™2 Duo Processor E6400 on three SMB workloads: e-mail, database, and web. The averaged normalized performance of the three workloads on the server based on the Intel® Xeon® processor E3-1280 is 5.9x better than the desktop-based server. Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For the full report, including configuration details, please visit http://www.principledtechnologies.com/clients/reports/Intel/E3-1240_SMB_Performance.pdf. For more information go to <http://www.intel.com/performance>
- ⁴ A 3-year-old or older PC experiences 1.2 times more downtime than current systems. Source: Techaisle. "Global Business Economic Impact Study," February, 2009.
- ⁵ TechAisle: "SMB Perspectives: Empower Me," October, 2009.
- ⁶ Claim of 33% better performance on business applications is based on the results of a performance study conducted by Principled Technologies comparing a 1S server based on the Intel® Xeon® processor E3-1240 to a 1S server based on the prior generation X3450 on three SMB workloads: e-mail, database, and web. The averaged normalized performance of the three workloads on the server based on the Intel® Xeon® processor E3-1280 is 33% better than the prior generation server. Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For the full report, including configuration details, please visit http://www.principledtechnologies.com/clients/reports/Intel/E3-1240_SMB_Performance.pdf. For more information go to <http://www.intel.com/performance>
- ⁷ Requires a system with Intel® Turbo Boost Technology capability. Consult your PC manufacturer. Performance varies depending on hardware, software and system configuration. For more information, visit <http://www.intel.com/technology/turboboost>.
- ⁸ Claim of 6.5x better energy efficiency on business applications is based on the results of a performance/watt study conducted by Principled Technologies comparing a 1S server based on the Intel® Xeon® processor E3-1240 to a 1S server based on an Intel® Core™2 Duo Processor E6400 on three SMB workloads: e-mail, database, and web. The averaged normalized performance/watt of the three workloads on the server based on the Intel® Xeon® processor E3-1280 is 6.5x better than the desktop-based server. Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For the full report, including configuration details, please visit http://www.principledtechnologies.com/clients/reports/Intel/E3-1240_SMB_Performance.pdf. For more information go to <http://www.intel.com/performance>
- ⁹ Ponemon Institute: "2010 Global Cost of Data Breach," April, 2010.
- ¹⁰ Intel® AES-NI requires a computer system with an AES-NI 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 availability, consult your reseller or system manufacturer. For more information, see <http://software.intel.com/en-us/articles/intel-advanced-encryption-standard-instructions-aes-ni/>.
- ¹¹ Claim of 42% performance improvement on database applications is based on the results of a performance study conducted by Principled Technologies comparing a 1S server based on the Intel® Xeon® processor E3-1240 to a 1S server based on the prior generation X3450 on three SMB workloads: e-mail, database, and web. The normalized performance of the database workload on the server based on the Intel® Xeon® processor E3-1280 is 42% better than the prior generation server. Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For the full report, including configuration details, please visit http://www.principledtechnologies.com/clients/reports/Intel/E3-1240_SMB_Performance.pdf. For more information go to <http://www.intel.com/performance>.
- ¹² Requires activation and a system with a corporate network connection, an Intel® AMT-enabled chipset, network hardware and software. For notebooks, Intel AMT may be unavailable or limited over a host OS-based VPN, when connecting wirelessly, on battery power, sleeping, hibernating or powered off. Results dependent upon hardware, setup & configuration. For more information, visit <http://www.intel.com/technology/platform-technology/intel-amt>.
- ¹³ Requires an Intel® HT Technology enabled system, check with your PC manufacturer. Performance will vary depending on the specific hardware and software used. Not available on Intel® Core™ i5-750. For more information including details on which processors support HT Technology, visit <http://www.intel.com/info/hyperthreading>.
- ¹⁴ 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). Intel TXT also requires the system to contain a TPM v1.s. For more information, visit <http://www.intel.com/technology/security>.
- ¹⁵ Claim of 46% performance boost on floating-point intensive workloads is based on the results of Intel internal measurements as of January 2011. Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. System configurations and scores for floating point performance claims:
- Intel® S3420GP board with one Intel® Xeon® Processor X3480 (Quad-Core, 3.06 GHz, 8 MB L3 cache), EIST Enabled, Turbo Boost Enabled, Hyper-Threading enable, C6 enabled, 16 GB memory (4x 4 GB DDR3-1333 REG ECC), 160 GB SATA 7200RPM HDD, SuSE® Linux Enterprise Server 11 for x86_64. Estimated SPECfp*_base2006 score is 39.1.
 - Intel® C206 chipset with one Intel® Xeon® Processor E3-1280 (Quad-Core, 3.5 GHz, 8 MB L3 cache), EIST Enabled, Turbo Boost enabled, Hyper-Threading enable, C6 enabled, 16 GB memory (4x 4 GB DDR3-1333 Unbuffered ECC), 160 GB SATA 7200RPM HDD, SuSE® Linux Enterprise Server 11(kernel 2.6.35.10) for x86_64. Estimated SPECfp*_base2006 score is 57.2.
- For more information go to <http://www.intel.com/performance>
- ¹⁶ Claim of 58% better performance on disk encryption/decryption is based on Intel internal measurements as of January 2011. Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. System configurations and results:
- Intel® S3420GP board with one Intel® Xeon® Processor X3480 (Quad-Core, 3.06 GHz, 8 MB L3 cache), 4 GB memory (2 x 2 GB DDR3-1333), ST31000528AS ATA Device 1 TB HDD (for OS), 32 GB SSD (for encryption), Microsoft Windows® 7 Professional 64 bit on NTFS. Average time to encrypt disk (based on 3 runs): 14 minutes 57 seconds.
 - Intel® C206 chipset with one Intel® Xeon® Processor E3-1280 (Quad-Core, 3.5 GHz, 8 MB L3 cache), 4 GB memory (2 x 2 GB DDR3-1066), ST3160815AS ATA Device 160 GB HDD (for OS), 32 GB SSD (for encryption), Microsoft Windows® 7 Professional 64 bit on NTFS. Average time to encrypt disk (based on 3 runs): 9 minutes 24.67 seconds.
- For more information go to <http://www.intel.com/performance>
- ¹⁷ Intel® Virtualization Technology requires a computer system with an enabled Intel® processor, BIOS, virtual machine monitor (VMM). Functionality, performance or other benefits will vary depending on hardware and software configurations. Software applications may not be compatible with all operating systems. Consult your PC manufacturer. For more information, visit <http://www.intel.com/go/virtualization>.

To learn more, visit <http://www.intel.com/products/server/processor/xeonE3/index.htm>

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

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 on performance tests and on the performance of Intel products, visit www.intel.com/performance/resources/limits.htm or call (U.S.) 1-800-628-8686 or 1-916-356-3104.

All dates and products specified are for planning purposes only and are subject to change without notice.

Relative performance for each benchmark is calculated by taking the actual benchmark result for the first platform tested and assigning it a value of 1.0 as a baseline. Relative performance for the remaining platforms tested was calculated by dividing the actual benchmark result for the baseline platform into each of the specific benchmark results of each of the other platforms and assigning them a relative performance number that correlates with the performance improvements reported.

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