PRODUCT BRIEF

# Intel® Xeon® Processor E3-1200 v2 Product Family

A new generation of processors for small business servers

## Get real about performance, security, and reliability

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 v2 product family can help you improve responsiveness and expand capabilities so your business can compete more effectively in today's accelerated marketplace. Based on 22nm Intel® Microarchitecture, the Intel Xeon processor E3-1200 v2 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 v2 product family-based servers also protect your valuable data against loss or corruption. Security studies have shown that 75 percent of small businesses experienced two or more cyber-attacks in a twelve-month period[1] and 50 percent have lost critical data in a similar time span[2]—so this heightened security addresses an essential need in today's connected business world.

Servers featuring the Intel Xeon processor E3-1200 v2 product family are ideal for your business, whether you are stepping up to your first server, refreshing an existing server, or deploying a dedicated server for a workgroup or remote office.

**Intel® Xeon® Processor E3-1200 v2 Product Family**

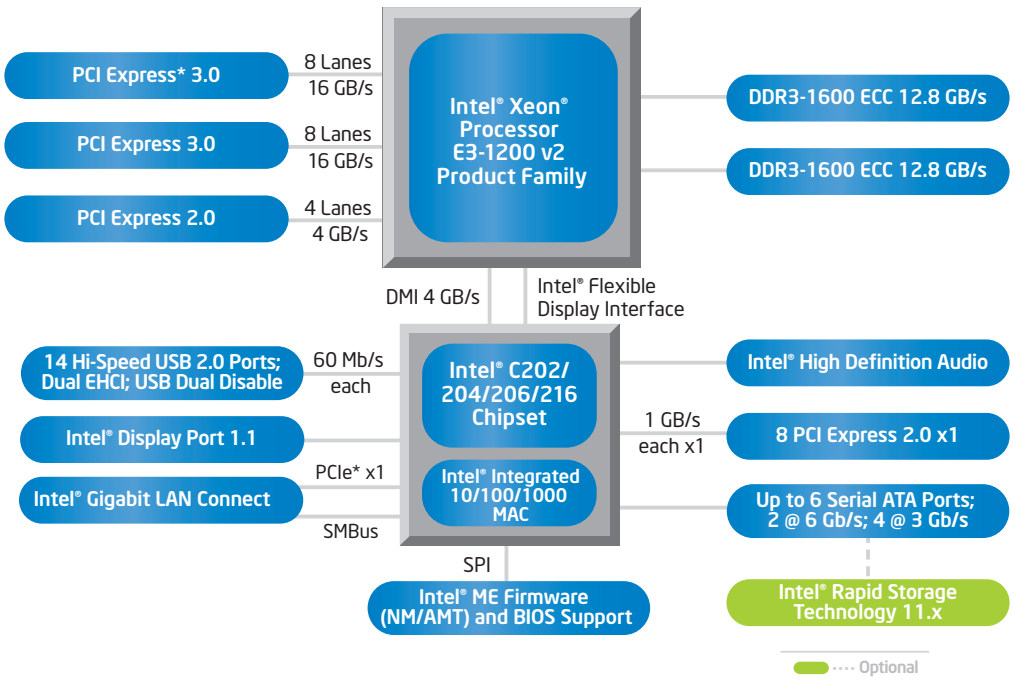
Small Business Servers

# 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. An Intel Xeon processor E3 family-based 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 v2 product family is engineered and validated to run 24/7 and allows you to protect, manage, process, and distribute your business data more effectively and reliably. 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 and effectively to ensure it is accurate, up-to-date, protected, and accessible to all authorized users anytime and from anywhere.
- **Create an in-house network** for e-mail, shared calendars, conferencing, and online document sharing to improve communication and collaboration among your employees.
- **Host a corporate web site** or improve performance and uptime for your existing web site, so you can connect more effectively with your customers and extend the reach of your business.
- **Take advantage of cloud services** to extend your IT capabilities, while keeping sensitive data and applications on-premise where you have the control you need to ensure performance, reliability, security, and compliance.




Features may vary depending on processor and chipset SKUs.

Entry-level server platforms featuring the Intel Xeon processor E3-1200 v2 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 v2 product family, you get:

## Business Protection

Advanced reliability and security features help to keep your data—and your business—safe.

- **24x7 Dependability.** Servers based on the Intel Xeon processor E3-1200 v2 product family are designed for continuous operation to keep your business up and running at all times. Business-class features, such as redundant power supplies and quiet chassis options, increase system reliability.
- **Advanced Data Protection.** ECC memory automatically detects and corrects up to 99.988 percent of memory errors[3] for improved data integrity and system uptime. This technology is standard in all Intel Xeon processor-based servers.
- **Redundant Hard Drives.** Intel® Rapid Storage Technology[4] 11.x (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 and System Security.** Intel® OS Guard, Intel® Secure Key, and Intel® Advanced Encryption Standard-New Instructions[5] (Intel® AES-NI) work together to protect your server, applications, and data from today's increasingly sophisticated attacks. You can implement pervasive encryption and other strong security protections throughout your business, while providing easy access for authorized users and maintaining rapid application response times.

## 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 up to 2.7x more performance than a three year old desktop system used as a server.[6]
- **Peak Performance When You Need it Most.** Enjoy more responsive performance when the demands on your server are highest, while reducing power consumption for lighter loads, with Intel® Turbo Boost Technology 2.0.[7]
- **Better Support for Business Growth.** Maintain performance levels as you continue to add users and applications, with dramatic improvements in memory, I/O, and storage throughput versus prior-generation servers.

## A Smart Investment

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

- **Simple and Affordable Implementation.** Advanced server features deliver high value with easy deployment and costs that are comparable to high-end desktop systems.
- **Low Operating Costs.** Energy-efficient 22nm Intel Microarchitecture includes an array of enhancements that improve performance while reducing power consumption. The Intel Xeon processor E3-1200 v2 delivers up to 32 percent more energy-efficient performance than the previous generation[8] and low-power server options can provide even greater energy savings.
- **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 increase storage performance, 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.
- **Flexible, Efficient, Low-Cost Management.** Reduce the cost and complexity of managing your server with Intel® Active Management Technology 8.0.[9] Powerful remote monitoring, software updating, diagnostics, and repair capabilities make it easy to keep your server running at peak efficiency from a centralized location—whether you rely on in-house staff or a managed service provider.

## Intel® Xeon® Processor E3-1200 v2 Product Family Overview

| Features | Benefits |
|---|---|
| Intel® Xeon® processor E3-1200 v2 product family | Server-class performance, reliability, and security at entry-level price points<br>▪ Up to 32 percent performance-per-watt improvement over previous-generation Intel® Xeon® processor-based servers[6] |
| Intel® Microarchitecture | Enhanced performance and energy-efficiency<br>▪ Industry-leading Intel® silicon technology (22nm Hi-k process technology)<br>▪ Intel® Smart Cache Technology, with up to 8 MB last-level cache |
| **Reliability and Security to Protect Your Business** | |
| Support for ECC Memory | Better data integrity and system reliability through automatic data correction<br>▪ Detects and corrects up to 99.988 percent of all memory errors[3] |
| Intel® Rapid Storage Technology[4] 11.x (Intel® RST) with E-mail Alerting | Uninterrupted operation and quick data recovery in the event of a hard drive failure<br>▪ Accelerates system performance by striping data across multiple hard drives |
| Intel® OS Guard | Improves security by strengthening malware protection<br>▪ Provides hardware-based protection for your server operating system |
| Intel® Secure Key | Enhances security and performance for a wide range of security applications<br>▪ Enables faster, higher quality cryptographic keys and certificates |
| Intel® Advanced Encryption Standards-New Instructions[5] (Intel® AES-NI) | Improve security by encrypting data—without slowing response times<br>▪ Enables pervasive use of encryption to protect sensitive data more effectively |
| Intel® Trusted Execution Technology[10] (Intel® TXT) | Protects your business by increasing security against many digital threats<br>▪ Helps to ensure the system launches into a "known good state" |
| Server OS Validation | Enhanced compatibility and reliability with leading business applications<br>▪ Tested and validated on server operating systems |
| **Responsive Performance to Grow Your Business** | |
| Intel® Turbo Boost Technology 2.0[7] | Higher performance when you need it most<br>▪ Accelerates processor and graphics performance for peak loads |
| Intel® Hyper-Threading Technology[11] (Intel® HT) | Faster performance for many demanding business applications<br>▪ Thread-level parallelism benefits multi-threaded and concurrently running applications |
| PCI Express* 3.0 Ports | Extra capacity and flexibility for storage and networking connections<br>▪ Up to double the I/O bandwidth of prior-generation PCIe 2.0[12]<br>▪ Configurable as 1x16 or 2x8 |
| SATA* 3.0 | Faster data access, system startups, and application load times<br>▪ Doubles data throughput versus prior generation for faster hard drive performance |
| Intel® Virtualization Technology[13] for IA-32 and Intel® 64[14] (Intel® VT-x) | Faster performance for core virtualization processes<br>▪ Improves application performance, live migration, provisioning, dynamic load balancing, and disaster recovery |
| Intel® Virtualization Technology[13] for Directed I/O (Intel® VT-d) | Built-in hardware support for I/O virtualization<br>▪ Improves I/O performance, increases system reliability, and provides enhanced memory protection |
| **Better Value at Lower Total Cost** | |
| Low-Power CPU Options | Match performance versus energy efficiency to maximize total value<br>▪ Choose from 77 W, 69 W, 45 W, and 17 W processor SKUs |
| Intel® Node Manager | Host more and heavier workloads per server while guarding against server overheating<br>▪ Lets you dynamically monitor and limit server power consumption |
| Intel® Active Management Technology 8.0[9] (Intel® AMT) | Flexible local and remote management for troubleshooting, repair and maintenance to increase reliability and uptime<br>▪ Secure, out-of-band access, even for failed power states or a crashed OS |

## SKU List

The Intel Xeon processor E3-1200 v2 product family is available with a range of features to match different computing demands. Advanced reliability features, Intel® Virtualization Technology[13] (Intel® VT), Intel® Trusted Execution Technology[10] (Intel® TXT) and Intel Turbo Boost Technology 2.0 are standard on all SKUs.

| Processor Number[Δ] | Number of Cores | Speed | L3 Cache | Intel® Turbo Boost Technology 2.0 | Intel® Hyper-Threading Technology | Intel® HD Graphics P4000[+] | Intel® HD Graphics 2500 | Power |
|---|---|---|---|---|---|---|---|---|
| Intel® Xeon® processor E3-1280 v2 | 4 | 3.60 GHz | 8 MB | ▪ | ▪ | | | 69 W |
| Intel® Xeon® processor E3-1275 v2 | 4 | 3.50 GHz | 8 MB | ▪ | ▪ | ▪ | | 77 W |
| Intel® Xeon® processor E3-1270 v2 | 4 | 3.50 GHz | 8 MB | ▪ | ▪ | | | 69 W |
| Intel® Xeon® processor E3-1245 v2 | 4 | 3.40 GHz | 8 MB | ▪ | ▪ | ▪ | | 77 W |
| Intel® Xeon® processor E3-1240 v2 | 4 | 3.40 GHz | 8 MB | ▪ | ▪ | | | 69 W |
| Intel® Xeon® processor E3-1230 v2 | 4 | 3.30 GHz | 8 MB | ▪ | ▪ | | | 69 W |
| Intel® Xeon® processor E3-1225 v2 | 4 | 3.20 GHz | 8 MB | ▪ | | ▪ | | 77 W |
| Intel® Xeon® processor E3-1220 v2 | 4 | 3.10 GHz | 8 MB | ▪ | | | | 69 W |
| Low-Power SKUs | | | | | | | | |
| Intel® Xeon® processor E3-1265L v2 | 4 | 2.50 GHz | 8 MB | ▪ | ▪ | | ▪ | 45 W |
| Intel® Xeon® processor E3-1220L v2 | 2 | 2.30 GHz | 3 MB | ▪ | ▪ | | | 17 W |

[+]Intel® HD Graphics P4000 requires the latest version Intel® Graphics Driver, Intel® C216 or C206 chipset, and Intel® Xeon® processor E3-1225 v2, E3-1245 v2, or E3-1275 v2, to enable workstation application optimizations. Optimized Intel HD Graphics P4000 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 8.0 | Node Manager and DCMI | PCI Express* Ports | | | USB 3.0 Ports | USB 2.0 Ports | SATA Ports | | Intel® Rapid Storage Technology | LAN | Legacy PCI Ports |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Gen 3 CPU | Gen 2 CPU | Gen 2 PCH | | | 6 Gb/s | 3 Gb/s | | | |
| Intel® C216 | ▪ | ▪ | | 16 | 4 | 8 | 4 | 10 | 2 | 4 | ▪ | Integrated MAC | 4 |
| Intel® C206 | ▪ | ▪ | | 16 | 4 | 8 | | 14 | 2 | 4 | ▪ | Integrated MAC | 4 |
| Intel® C204 | | | ▪ | 16 | 4 | 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 v2 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 v2 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 v2 product family and to see how Intel can help your small business, visit

**www.intel.com/xeone3**

[Δ] 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] Source: X. Li, K. Shen, M. Huang, and L. Chu. A memory soft error measurement on production systems. In USENIX Annual Technical Conf., 2007.

[4] Intel® Rapid Storage Technology requires the computer have an Intel RST-enabled Intel chipset, RAID controller in the BIOS enabled and the Intel Rapid Storage Technology software driver installed. Please consult your system vendor for more information.

[5] 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® Xeon® processors. 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/.

[6] Averaged normalized performance of three small- and medium-sized business workloads (e-mail, database, and web) on an Intel® Xeon® processor E3-1240v2 based server is up to 172% faster than on a Intel Core 2 Quad processor Q8400-based server based on the results of a study conducted by Principled Technologies in May 2012.

[7] Requires a system with Intel® Turbo Boost Technology capability. Intel Turbo Boost Technology 2.0 is the next generation of Turbo Boost Technology and is only available on select Intel® processors. Consult your PC manufacturer. Performance varies depending on hardware, software, and system configuration. For more information, visit http://www.intel.com/go/turbo.

[8] Claim of up to 32% better energy efficient performance based on gen to gen comparison using SPECpower_ssj*2008. Details below:

SPECpower_ssj2008 –

Baseline Configuration and Score on Benchmark: Intel® C206 chipset CRB platform with one Intel® Xeon ® Processor E3-1280(Quad-Core, 3.5GHz, 8MB L3 cache), Turbo Boost Disabled, Hyper-Threading Enabled, 8GB memory (2x 4GB DDR3-1333 UDIMM), 64GB SATA SSD, Windows Server2008R2 SP1. Java SE Runtime Environment (build 1.6.0_30-b12), Java HotSpot 64-Bit Server VM (build 20.5-b03, mixed mode). Source: Intel internal testing as of Mar 2012. Score: 2957.

New Configuration and Score on Benchmark: Intel® C206 chipset CRB platform with one Intel® Xeon® Processor E3-1280v2 (Quad-core, 3.6GHz, 8MB L3 cache, E0-stepping) , EIST Enabled, Turbo Boost Disabled, Hyper-Threading Enabled, 8GB memory (2x 4GB DDR3-1600 UDIMM), 64G 3Gb/s SATA SSD , Windows 2008 R2 SP1. Java SE Runtime Environment (build 1.6.0_30-b12), Java HotSpot 64-Bit Server VM (build 20.5-b03, mixed mode). Source: Intel internal testing as of Mar 2012. Score: 3895.

[9] 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. For more information go to http://www.intel.com/performance.

[10] 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.

[11] Requires an Intel® HT Technology enabled system, check with your PC manufacturer. Performance will vary depending on the specific hardware and software used. For more information including details on which processors support HT Technology, visit http://www.intel.com/info/hyperthreading.

[12] 8 GT/s and 128b/130b encoding in PCIe* 3.0 specification enables double the interconnect bandwidth over the PCIe* 2.0 specification. Source: http://www.pcisig.com/news_room/November_18_2010_Press_Release/

[13] 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. Processors will not operate (including 32-bit operation) without an Intel 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. Consult with your system vendor for more information.

[14] 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.

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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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