PLATFORM BRIEF
Intel® Xeon® Processor E3-1200 v3
Product Family and Intel® C226 Chipset
Intelligent Systems

Intelligent Systems

Intel® Xeon® Processor E3-1200 v3 Product Family-based Platforms for Intelligent Systems
(E3-1275 v3, E3-1225 v3, E3-1268L v3)

Ideal for Intelligent Systems—context-aware, securely managed embedded and communications devices that connect seamlessly to networks, clouds and each other.

Product Overview

Manufactured on industry-leading 22nm process technology with 3D Tri-Gate transistors, the Intel® Xeon® processor E3-1200 v3 product family delivers quad-core processing and intelligent performance capabilities, including Intel® Turbo Boost Technology[1] 2.0, and Intel® Hyper-Threading Technology[2]. Additionally, it boosts performance to integer/matrix-based calculations through Intel® Advanced Vector Extensions (Intel® AVX) 2.0 enhancements.

The Intel® Xeon® processor E3-1200 v3 family offers numerous advancements over the Intel® Xeon® processor E3-1200 v2 family. Featuring superior performance, enhanced media and graphics capabilities, and flexibility, these processors are ideal for a wide range of intelligent systems including network appliance and other communication devices, digital security surveillance applications, aerospace, and industrial control and automation equipment. With an enhanced version of Intel® AES-New Instructions[3] (Intel® AES-NI), security algorithms benefit from hardware acceleration for data encryption and decryption.

Next-generation Intel® graphics engines significantly improve graphics and media performance compared to prior-generation platforms. This platform supports up to three independent displays, enabling one system to drive multiple screens without the need for a discrete graphics card.

Built-in visual features, including Intel® Clear Video HD technology and Intel® Quick Sync Video, deliver smoother visual quality, improved ability to decode and transcode simultaneous video streams, and outstanding HD media playback. The platform also supports next-generation graphics APIs, such as Microsoft DirectX* 11.1, OpenGL* 4.0, and OpenCL* 1.2.

When paired with the Intel® C226 chipset, this platform supports Error Correcting Code (ECC) memory, providing improved data integrity and system reliability through automatic data correction. The platform also supports faster connectivity and flexibility with integrated next-generation I/O technologies such as PCI Express* Gen 2.0, SATA 6.0 Gbps, and USB 3.0 with Intel® Flex I/O.

The Intel Xeon processor E3-1200 v3 family supports dual-channel DDR3/DDR3L 1600 MHz memory at 1.5V and Intel® Rapid Start Technology[4] for increased system responsiveness and fast recovery from sleep states.

Intel® vPro™ technology[5] supports operating system-absent manageability and down-the-wire security even when the system is powered off, the operating system is unresponsive, or software agents are disabled. While incorporating advanced technology, these processors remain software-compatible with previous processors.

Platform Highlights

Intel® HD Graphics P4600: Supports enhanced, high-end media and graphics capabilities and performance.

Intel® Quick Sync Video 2.0: Significantly improves decode and transcode performance and frees up the CPU for other tasks.

Intel® Advanced Vector Extensions 2.0: Accelerates integer/matrix compute performance for signal and image processing applications.

Intel® AES New Instructions[3] (Intel® AES-NI): Improves security without slowing response times.

Intel® Intelligent Power Technology: Reduces idle power consumption through architectural improvements such as integrated power gates and automated low-power states.

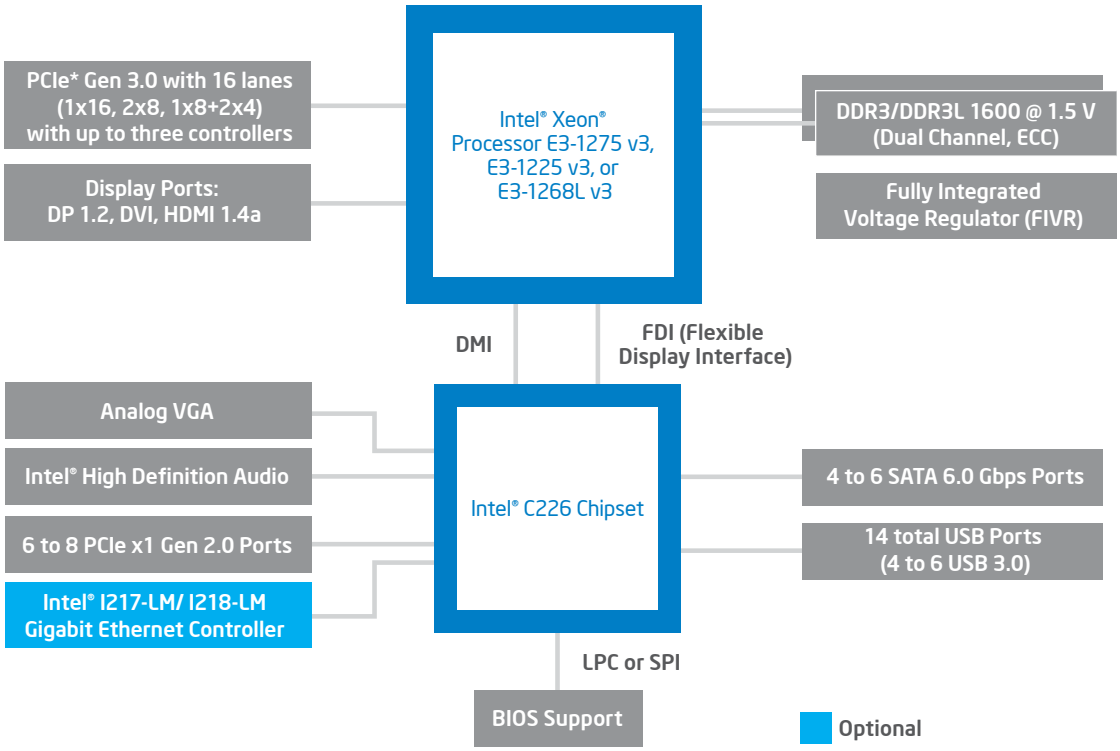
Intel® Flex I/O: Allows user to assign four to six SATA 6.0 Gbps ports, six to eight PCI Express* Gen 2.0 ports, and four to six USB 3.0 ports, based on configuration needs.

Error Correcting Code (ECC): Delivers a high level of data integrity, reliability, and system uptime.

Intel® Turbo Boost Technology[1] 2.0: Runs applications faster by using available thermal headroom to run at a higher frequency.

Intel® Hyper-Threading Technology[2]: Simultaneous multi-threading helps boost performance for parallel, multi-threaded applications.

Intel® vPro™ Technology[5]: Delivers unprecedented hardware support for vital security and management functions with Intel® Active Management Technology,[6] Intel® Virtualization Technology,[7] and Intel® Trusted Execution Technology.[8]



Software Overview

The following independent operating system and BIOS vendors provide support for these platforms.

OPERATING SYSTEM	CONTACT
Microsoft Windows* 8	Intel provides drivers[9]
Microsoft Windows Embedded Standard 8	Intel provides drivers[9]
Microsoft Windows 7	Intel provides drivers[9]
Microsoft Windows Embedded Standard 7	Intel provides drivers[9]
Microsoft Windows XP SP3[a]	Intel provides drivers[9]
Microsoft Windows Embedded Standard 2009[a]	Intel provides drivers[9]
Microsoft Windows POS 2009[a]	Intel provides drivers[9]
Microsoft Windows Server 2008 R2	Intel provides drivers[9]
Linux* (Kernel 3.x)	Wind River, Red Hat, Novell
Wind River VxWorks* 6.9	Wind River
SUSE SLE* 11 SP1	Novell

BIOS
American Megatrends
Insyde Software
Phoenix Technologies
Byosoft

[a]Not all features are supported. Contact your local Intel representative for more information.

Platform Features and Benefits

The Intel® Xeon® processor E3-1200 v3 family offers numerous advancements over the Intel® Xeon® processor E3-1200 v2 family.

FEATURES	BENEFITS
Key Embedded Support	
Extended life cycle product support	▪ Protects system investment by enabling extended product availability for embedded customers.
Ecosystem support	▪ Along with a strong ecosystem of hardware and software vendors, including members of the Intel® Intelligent Systems Alliance (intel.com/go/intelligentsystems-alliance), Intel helps to cost-effectively meet development challenges and speed time-to-market.
Built-In Visuals	
Intel® HD Graphics P4600	▪ Delivers enhanced visual experiences, including excellent 3D performance, the addition of HDMI 4K support, and enhanced color and deep color support for a broad range of intelligent systems. ▪ Provides repartitioned display architecture, allowing three independent displays and hybrid multi-monitor configurations. ▪ Integrated processor graphics help minimize power consumption while maximizing performance for decoding, encoding, and transcoding workloads with hardware acceleration of video codecs.
Intel® Quick Sync Video 2.0	▪ Improved ability to decode and transcode simultaneous video streams for intelligent systems, including medical imaging and video surveillance functions.
Intel® Clear Video HD Technology	▪ Provides visual quality and color fidelity enhancements for spectacular HD media playback for applications such as digital signs and gaming platforms.
Security	
Intel® AES New Instructions (Intel® AES-NI)[3] and Intel® Secure Key[10]	▪ Helps protect media, data and assets from loss. ▪ Intel AES-NI accelerates data encryption/decryption and improves performance.
Intel® OS Guard	▪ Helps detect and prevent malware.
Intel® Platform Protection Technology with BIOS Guard	▪ Protects Flash from modification without platform manufacturer authorization.
Performance	
Intel® Advanced Vector Extensions 2.0	▪ Accelerates integer/matrix compute performance for signal and image processing workloads of compute-intensive applications such as radar detection, hurricane command centers, ruggedized navigation systems and remote medical image processing.
Intel® Turbo Boost Technology[1] 2.0	▪ Boosts performance for specific workloads by increasing processor frequency.
Intel® Hyper-Threading Technology[2]	▪ Enables simultaneous multi-threading within each processor core, up to two threads per core; reduces computational latency, making optimal use of every clock cycle.
Error Correcting Code	▪ Detects multiple-bit memory errors; locates and corrects single-bit errors to keep a system up and running.
Intel® Smart Cache Technology	▪ Large on-die shared Last-Level Cache reduces latency to data, improving performance and power efficiency.
Power Efficiency	
Intel® Intelligent Power Technology	▪ Automated energy efficiency to reduce power consumption.
Automated low-power states	▪ Adjusts system power consumption based on real-time processor loads.
Intel® Rapid Start Technology[4]	▪ Improves OS boot time and wakes up from deep sleep state more quickly than previous generations for better system responsiveness.
Fully Integrated Voltage Regulator	▪ Simplifies power delivery by integrating legacy power delivery onto processor package/die.
Intel® vPro™ Technology[5]	
Intel® Active Management Technology 9.0[6]	▪ 9.0 version of Intel's remote management and maintenance capabilities enables vendors to roll back firmware image; remote host capabilities help ease provisioning of end devices.
Intel® Virtualization Technology[7]	▪ Speeds transfer of platform control and movement of data between the virtual machine monitor (VMM) and other platform agents (including guest OSs and I/O devices). By lowering the workload on the VMM, this technology addresses many embedded system design challenges, like migrating legacy software, increasing real-time performance, and making applications more secure.
Intel® Trusted Execution Technology[8]	▪ Protects embedded devices and virtual environments against rootkit and other system-level attacks. Using an industry-standard TPM 1.2 to store keys and other protected data, this portion of Intel® vPro™ technology boots the BIOS, operating system, and software into a "trusted" execution state, verifying the integrity of the virtual machine and protecting the platform from unauthorized access.

Intel® Xeon® Processor E3-1200 v3 Family for Intelligent Systems

PROCESSOR NUMBER[Δ]	CORES/ THREADS	CORE FREQUENCY (GHz)		INTEL® SMART CACHE	THERMAL DESIGN POWER	PACKAGE	ERROR CORRECTING CODE[a]
		BASE FREQUENCY	1 CORE TURBO (MAX)				
Intel® Xeon® Processor E3-1275 v3	4/8	3.5	3.9	8 MB	95 W	LGA1150	Yes
Intel® Xeon® Processor E3-1225 v3	4/8	3.2	3.6	8 MB	95 W	LGA1150	Yes
Intel® Xeon® Processor E3-1268L v3	4/8	2.3	3.3	8 MB	45 W	LGA1150	Yes

[a]When paired with the Intel® C226 chipset.

PROCESSOR NUMBER[Δ]	INTEL® TURBO BOOST TECHNOLOGY 2.0	INTEL® HYPER-THREADING TECHNOLOGY	INTEL® vPRO™ TECHNOLOGY		
			INTEL® VIRTUALIZATION TECHNOLOGY	INTEL® ACTIVE MANAGEMENT TECHNOLOGY 9.0	INTEL® TRUSTED EXECUTION TECHNOLOGY
Intel® Xeon® Processor E3-1275 v3	Yes	Yes	Yes	Yes	Yes
Intel® Xeon® Processor E3-1225 v3	Yes	Yes	Yes	Yes	Yes
Intel® Xeon® Processor E3-1268L v3	Yes	Yes	Yes	Yes	Yes

Intel® C226 Chipset for Intelligent Systems

PRODUCT	PRODUCT CODE	PACKAGE	FEATURES
Intel® DH82C226 Platform Controller Hub	DH82C226	FCBGA 708	Supports ECC and Intel® Active Management Technology 9.0; 4 to 6 SATA 6.0 Gbps ports; 14 total USB ports (4 to 6 USB 3.0); 6 to 8 PCI Express* x1 Gen 2.0 ports

Intel in Intelligent Systems: **intel.com/intelligentsystems**

[Δ] Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families: Go to: http://www.intel.com/products/processor_number.

[1] Requires a system with Intel® Turbo Boost Technology. Intel Turbo Boost Technology and Intel Turbo Boost Technology 2.0 are 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.

[2] Requires an Intel® Hyper-Threading Technology (Intel® HT Technology) enabled system. Consult 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 www.intel.com/content/www/us/en/architecture-and-technology/hyper-threading/hyper-threading-technology.html.

[3] 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 select Intel® 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/.

[4] Requires a select Intel® processor, Intel® software and BIOS update, and Intel® Solid-State Drive (SSD). Depending on system configuration, your results may vary. Contact your system manufacturer for more information.

[5] Intel® vPro™ Technology is sophisticated and requires setup and activation. Availability of features and results will depend upon the setup and configuration of your hardware, software and IT environment. To learn more visit: http://www.intel.com/technology/vpro.

[6] 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 and configuration. For more information, visit http://www.intel.com/technology/platform-technology/intel-amt.

[7] Intel® Virtualization Technology requires a computer system with an enabled Intel® processor, BIOS, and 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.

[8] No computer system can provide absolute security under all conditions. Intel® Trusted Execution Technology (Intel® TXT) requires a computer 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.

[9] Drivers available at: downloadcenter.intel.com (enter chipset name).

[10] No system can provide absolute security. Requires an Intel® Secure Key-enabled device and software optimized to support Intel Secure Key. Consult your system manufacturer for more information.

Performance results are based on certain tests measured on specific computer systems. Any difference in system hardware, software or configurations will affect actual performance. For more information go to http://www.intel.com/performance.

Printed in USA 0513/KSC/OCG/XX/PDF ♻ Please Recycle 328943-001US