

Platform Brief

Intel® Xeon® Processor E3-1278L v4

Intel® Xeon® Processor E3-1258L v4

Intel® DH82QM87 Platform Controller Hub

Intel® DH82HM86 Platform Controller Hub

INTEL® XEON® PROCESSOR E3 V4 SERIES PROCESSORS FOR MEDIA PROCESSING IN THE NETWORK

Transcode more HD channels per watt for very high capacity, ultra-dense video streaming platforms

“The Intel® Xeon® processor E3-1278L v4 and the Intel® Xeon® processor E3-1258L v4 integrate Intel® Iris™ Pro and Intel® HD graphics (i.e., on-processor graphics) to help minimize the CapEx and OpEx of equipment executing media processing applications.”

Network traffic is exploding, placing unprecedented demands on equipment manufacturers to increase the workload density and throughput of media processing devices. The driving force will continue to be the growing popularity of video streaming and communications applications, such as YouTube*, Hulu*, and Netflix*, especially as high-definition video becomes more prevalent and 4K content proliferates.

Product Overview

Designed to deliver an exceptionally large number of video transcoding channels per watt, two Intel® Xeon® processor SKUs are tailored for demanding media processing applications. The Intel® Xeon® processor E3-1278L v4 and the Intel® Xeon® processor E3-1258L v4 integrate Intel® Iris™ Pro and Intel® HD graphics (i.e., on-processor graphics) to help minimize the CapEx and OpEx of equipment executing media processing applications. Since the processor graphics is on-chip, it consumes less power than an add-in graphics card and delivers four to five times more media acceleration than software-only media processing.¹

In order to maximize transcoding throughput, the graphics engines on these processors can run at a higher frequency than other Intel® processors. To ensure high, long-term reliability, the maximum CPU frequency has been lowered.

Manufactured on Intel's industry-leading 14 nm process technology, these 5th generation Intel Xeon processors provide improved CPU performance, TDP as low as 47 watts.

When paired with the Mobile Intel® QM87 or Mobile Intel® HM86 chipset, these platforms support dual-channel DDR3L memory at 1600 MHz (ECC optional), and Intel® Rapid Start Technology² for increased system responsiveness and fast recovery from sleep states. They support faster connectivity and flexibility with integrated I/O technologies, such as PCI Express* Gen 2.0, SATA 6.0 Gbps, and USB 3.0 with Intel® Flex I/O.

Improved Transcoding Throughput

Featuring a new graphics engine architecture, Intel Iris Pro graphics delivers powerful media processing capabilities— without a discrete graphics card. The architecture adds a dedicated eDRAM to provide very fast caching of textures in the graphics processing unit (GPU) and increases the number of execution units by 20 percent compared to the prior generation.

With these enhancements, the Intel Xeon processor E3-1278L v4 increases the number of possible H.264 transcoded streams from 12 to 18 for about a 50 percent improvement over 4th generation Intel® Core™ processor based designs in the same thermal envelope for certain use cases.³

Many Supported Formats and APIs

Built-in visual features, including Intel® Clear Video HD technology and Intel® Quick Sync Video 2.0, enable smooth visual quality, improved ability to decode

and transcode simultaneous video streams (e.g., H.264, H.265, MPEG-2, and VC-1), and outstanding HD media playback. Additionally, the platform supports next-generation graphics APIs, such as Microsoft* DirectX* 11.2, OpenGL* 4.0, and OpenCL* 2.0.

Remote Manageability

Intel® vPro™ technology⁴ is enabled when paired with the Mobile Intel QM87 chipset and corporate firmware (5M). These platforms support out-of-band manageability, even when the system is powered off, the operating system is unresponsive, or software agents are disabled, allowing accessible, remote manageability and maintenance wherever the system is located.

Highlights

Rich Visual Experiences – New Intel® Iris™ Pro graphic and Intel HD Graphics— with Ultra HD 4K resolution support and ability to drive up to three independent displays— delivers stunning and responsive imagery for clear visualization of data.

Security – Strong, silicon-level security helps protect systems and data against hacking, malware, and attack without impacting system operation.

Manageability – With Intel vPro technology enabled, enhanced remote, out-of-band manageability helps maintain a strong security posture and efficient, resilient operation.

Power Efficiency – Intel® Intelligent Power Technology reduces idle power consumption through architecture improvements, such as integrated power gates and automated low-power states.

Flexibility – Intel Flex I/O allows developers to assign a variable number of SATA 6.0 Gbps, USB 3.0, and PCI Express 2.0 ports based on configuration needs.

Compatibility – Since the Intel® Xeon® Processor E3 V4 Series is designed to be software compatible with previous generation Intel processors, developers can more easily benefit from enhancements and features.

SOFTWARE OVERVIEW		
OPERATING SYSTEM	CONTACT	BIOS
Microsoft* Windows* 8	Intel provides drivers ⁵	American Megatrends*
Microsoft Windows Embedded Standard 8	Intel provides drivers ⁵	Insyde Software*
Microsoft Windows 7	Intel provides drivers ⁵	Phoenix Technologies*
Microsoft Windows Embedded Standard 7	Intel provides drivers ⁵	Byosoft*
Microsoft Windows XP SP3 ^a	Intel provides drivers ⁵	
Microsoft Windows Embedded Standard 2009 ^a	Intel provides drivers ⁵	
Microsoft Windows POS 2009 ^a	Intel provides drivers ⁵	
Linux* (Kernel 3.x)	Wind River*, Red Hat*, Novell*	
Wind River VxWorks* 6.9	Wind River	
SUSE SLE* 11 SP1	Novell	

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

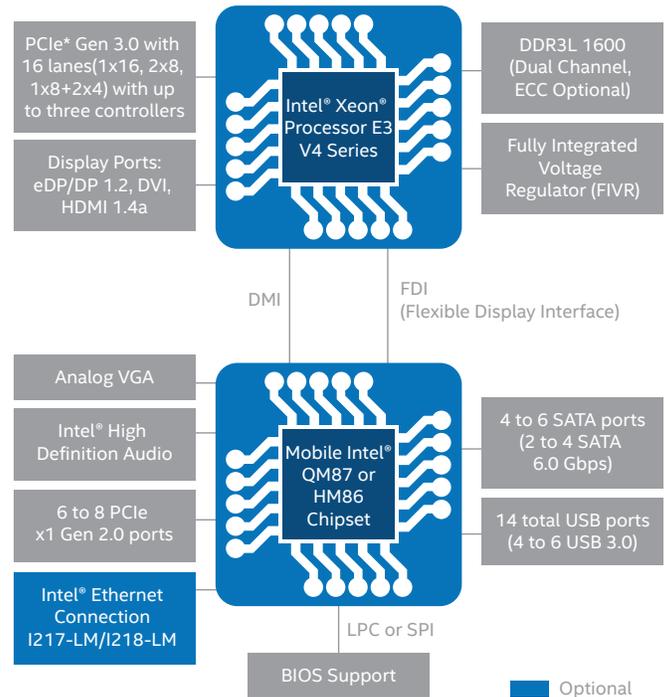


Figure 1. Media Processing Platform

5TH GENERATION INTEL® CORE™ PROCESSOR FAMILY AT A GLANCE

FEATURES	BENEFITS
Key Embedded Support	
Extended life cycle product support	<ul style="list-style-type: none"> Protects system investment by enabling extended product availability for embedded customers.
Ecosystem support	<ul style="list-style-type: none"> From modular components to market-ready systems, Intel and the hundreds of global member companies of the Intel® Intelligent Systems Alliance (intel.com/go/intelligentsystems-alliance) and Intel® Network Builders (https://networkbuilders.intel.com/) provide the performance, connectivity, manageability, and security developers need to integrate.
Built-In Visuals	
Intel® Iris™ Pro Graphics	<ul style="list-style-type: none"> Delivers exceptional transcoding throughput and HDMI* 4K support. 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	<ul style="list-style-type: none"> Fast simultaneous decode and transcode of video streams, including H.264, H.265, MPEG-2, and VC-1
Intel® Clear Video HD Technology	<ul style="list-style-type: none"> Provides visual quality and color fidelity enhancements for spectacular HD media playback for media processing platforms.
Security	
Intel® AES New Instructions (Intel® AES-NI) and Intel® Secure Key	<ul style="list-style-type: none"> Helps protect media, data, and assets from loss. Intel AES-NI accelerates data encryption/decryption and improves performance.
Intel® Platform Protection Technology with OS Guard ⁶	<ul style="list-style-type: none"> Helps detect and prevent malware.
Intel Platform Protection Technology with BIOS Guard ⁶	<ul style="list-style-type: none"> Protects Flash from modification without platform manufacturer authorization.
Performance	
Intel® Advanced Vector Extensions 2.0	<ul style="list-style-type: none"> Increases the performance of image processing workloads.
Intel® Turbo Boost Technology ² 2.0	<ul style="list-style-type: none"> Boosts performance for specific workloads by increasing processor frequency.
Intel® Hyper-Threading Technology ¹	<ul style="list-style-type: none"> Enables simultaneous multi-threading within each processor core, up to two threads per core, and reduces computational latency, making optimal use of every clock cycle.
Error Correcting Code (ECC) memory(Optional)	<ul style="list-style-type: none"> Detects multiple-bit memory errors; locates and corrects single-bit errors to keep the system up and running.
Intel® Smart Cache Technology	<ul style="list-style-type: none"> Large on-die shared Last-Level Cache reduces latency to data, improving performance and power efficiency.
Power Efficiency	
Intel® Intelligent Power Technology	<ul style="list-style-type: none"> Automated energy efficiency to reduce power consumption.
Automated low-power states	<ul style="list-style-type: none"> Adjusts system power consumption based on real-time processor loads.
Intel® Rapid Start Technology ²	<ul style="list-style-type: none"> Improves OS boot time and wakes up from deep sleep state more quickly than previous generations for better system responsiveness.
Fully Integrated Voltage Regulator	<ul style="list-style-type: none"> Simplifies power delivery by integrating legacy power delivery onto processor package/die.
Intel® vPro™ Technology3 (platforms paired with Mobile Intel® QM87 chipset)	
Intel® Active Management Technology 9.0 ²	<ul style="list-style-type: none"> 9.0 version of Intel's remote management and maintenance capabilities enables vendors to roll back firmware image and supports remote host capabilities to ease the provisioning of end devices.
Intel® Virtualization Technology ²	<ul style="list-style-type: none"> 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 ²	<ul style="list-style-type: none"> 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.

5TH GENERATION INTEL® CORE™ PROCESSORS FOR INTELLIGENT SYSTEMS

PROCESSOR NUMBER ^a	GRAPHICS ENGINE	CORES/ THREADS	CORE FREQUENCY (GHZ)		GRAPHICS FREQUENCY (MHZ)		LLC	TDP ^a	PACKAGE	INTEL® AES-NI	INTEL® AVX 2	INTEL® VPRO™ TECH./AMT	INTEL® TURBO BOOST	INTEL® HT	INTEL® VT ^{b,c}	INTEL® TXT	ECC	OS GUARD	INTEL® PTT	SECURE KEY	INTEL® IPT W/PKI	BIOS GUARD
			BASE	TURBO	BASE	TURBO																
Intel® Xeon® Processor E3-1278L v4	Intel® Iris™ Pro Graphics P6300	4/8	2.0	3.3	800	1000	Up to 6 MB	47 W	BGA 1364	•	•	•	2.0	•	x, d, EPT	•	Yes	•	•	•	•	•
Intel® Xeon® Processor E3-1258L v4	Intel® HD Graphics P5700	4/8	1.8	3.2	700	1000	Up to 6 MB	47 W	BGA 1364	•	•	•	2.0	•	x, d, EPT	•	Yes	•	•	•	•	•

^b When paired with the Mobile Intel® QM87 chipset.

^c x = Intel® Virtualization Technology (Intel® VT) for IA-32, Intel® 64 and Intel® Architecture (Intel® VT-x); d = Intel® Virtualization Technology (Intel® VT) for Directed I/O (Intel® VT-d); EPT = Intel® Virtualization Technology (Intel® VT) for IA-32, Intel® 64 and Intel® Architecture (Intel® VT-x) with Extended Page Tables.

INTEL® CHIPSETS FOR INTELLIGENT SYSTEMS

PRODUCT	PRODUCT CODE	PACKAGE	FEATURES
Intel® DH82QM87 Platform Controller Hub	DH82QM87	FCBGA 695	6 SATA ports (2 to 4 SATA 6.0 Gbps); 14 total USB ports (4 to 6 USB 3.0); 6 to 8 PCI Express* 2.0 ports; supports Intel® vPro™ technology; supports Intel® Smart Response Technology and RAIDa
Intel® DH82HM86 Platform Controller Hub	DH82HM86	FCBGA 695	6 SATA ports (2 to 4b SATA 6.0 Gbps); 12 total USB ports (2 to 4b USB 3.0); 6 to 8b PCI Express 2.0 ports; supports Intel vPro technology

^a Available with Intel® Core™ processors only.

^b Enabled with I/O Port Flexibility.

Learn more: Intel.com/mediaprocessing

^a 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 Source: <http://www.anandtech.com/show/6993/intel-iris-pro-5200-graphics-review-core-i74950hq-tested/18>.

² Intel® technologies may require enabled hardware, specific software, or services activation. Check with your system manufacturer or retailer.

³ Source: Intel testing.

⁴ Intel® technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Learn more at intel.com, or from the OEM or retailer.

⁵ Drivers available at: downloadcenter.intel.com

⁶ No computer system can be absolutely secure. Intel does not assume any liability for lost or stolen data or systems or any damages resulting from such losses.

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