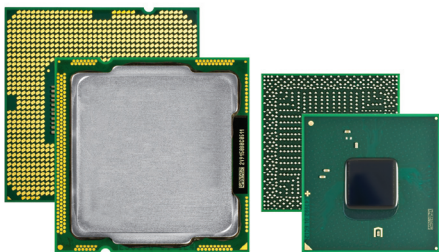


# Intel® Core™ i7-860 and Core™ i5-750 Processors for Embedded Computing



## Product Overview

Based on 45nm process technology, Intel® Core™ i7-860<sup>Δ</sup> and Core™ i5-750<sup>Δ</sup> processors feature quad-core processing and Intel® Turbo Boost Technology<sup>1</sup> to meet the needs of compute-intensive embedded applications. The Intel Core i7-860 processor also features Intel® Hyper-Threading Technology<sup>2</sup> which enables simultaneous multi-threading within each processor core.

When paired with the Intel® Q57 chipset, these platforms provide outstanding performance for a variety of market segments, including retail, digital signage, digital security surveillance, gaming, medical, communications and industrial automation and control.

The dual-channel integrated memory controller supports high-speed data transfer, providing lower memory latency in a two-chip solution, with board real estate savings over previous three-chip platforms. Developers can create one board design and scale their product line with a variety of processors using the same socket. While incorporating advanced technology, these processors remain software-compatible with previous IA-32 processors. Additionally, Intel provides an extensive ecosystem of development support focused on the embedded market.

## Product Highlights

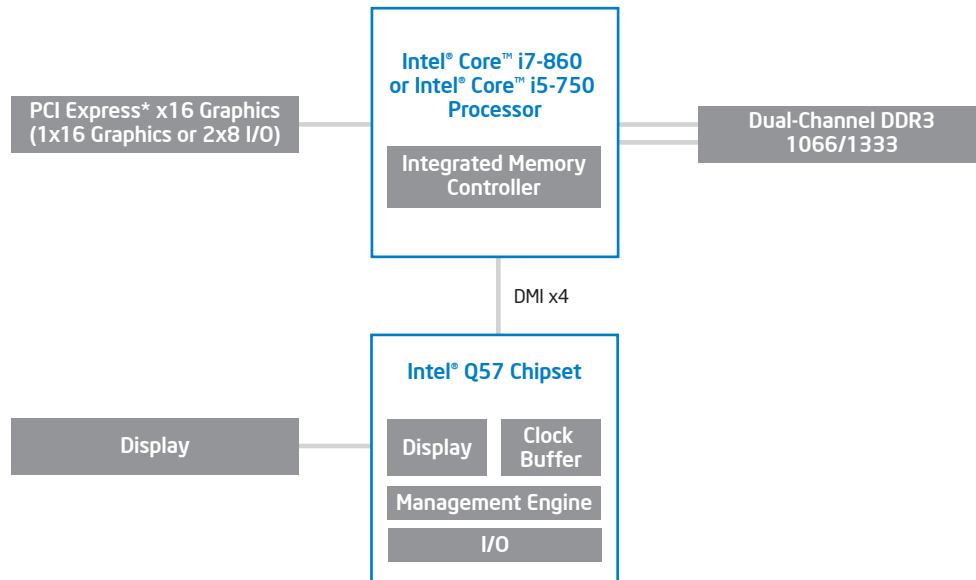
**Innovative Integration:** An integrated high-speed, 1333 MHz dual-channel DDR3 memory controller and flexible x16 PCI Express\* 2.0 controller are integrated with the processor.

**Intel® Turbo Boost Technology:** Applications take advantage of higher speed execution on demand by using available processor thermal headroom to let the individual processor cores run at a higher frequency.

**Intel® Hyper-Threading Technology:** Simultaneous multi-threading boosts performance for parallel, multi-threaded applications. It delivers two processing threads per physical core for a total of eight threads, significantly enhancing computational throughput and multi-tasking capabilities (Intel Core i7-860 processor only).

**Intel® Intelligent Power Technology<sup>3</sup>:** Reduces idle power consumption through architectural improvements such as integrated power gates and automated low-power states.

**Intel® vPro™ Technology:** Delivers unprecedented hardware support for vital security and management functions with Intel® Virtualization Technology<sup>4</sup>, Intel® Active Management Technology<sup>5</sup>, and Intel® Trusted Execution Technology<sup>6</sup> (Intel Core i7-860 processor only).



## Software Overview

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

### OPERATING SYSTEM

Vista\* SP2  
 Windows Server\* 2003/2008  
 Windows\* 7  
 Windows 7 Embedded  
 Microsoft Windows\* XP SP3  
 Microsoft Windows Embedded Standard (XPe)  
 Microsoft Windows Embedded POSReady (WEPOS)  
 Red Hat Enterprise Linux\* 4.6  
 Red Hat Enterprise Linux\* 5.1  
 Fedora Core\* 10  
 SUSE SLE\* 11  
 Wind River Linux\* 3.0  
 Wind River VxWorks\* 6.8

### CONTACT

Intel provides drivers<sup>7</sup>  
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 Intel provides drivers<sup>7</sup>  
 Red Hat  
 Red Hat  
 Red Hat  
 Novell  
 Wind River  
 Wind River

### BIOS

American Megatrends  
 Insyde Software  
 Phoenix Technologies

## Platform Features and Benefits

FEATURES	BENEFITS
Supports key embedded platform requirements	<b>Ideal for compute-intensive embedded applications.</b>
Extended life cycle product support	Protects system investment by enabling extended product availability for embedded customers.
Embedded ecosystem support	Along with a strong ecosystem of hardware and software vendors, including members of the Intel® Embedded Alliance ( <a href="http://intel.com/go/eca">intel.com/go/eca</a> ), Intel helps to cost-effectively meet development challenges and speed time-to-market.
Intelligent performance	<b>Delivers optimum efficiency by adapting performance to embedded application needs.</b>
Intel® Turbo Boost Technology <sup>1</sup>	Boosts performance for specific workloads by increasing processor frequency.
Intel® QuickPath Technology	Delivers bandwidth improvement for data-intensive applications.
Intel® Hyper-Threading Technology <sup>2</sup> (i7-860 only)	Enables simultaneous multi-threading within each processor core, up to two threads per core, or up to eight threads per processor; reduces computational latency, making optimal use of every clock cycle.
Intel® Advanced Smart Cache	Large on-die shared Last Level Cache reduces latency to data, improving performance and power efficiency.
Intel® Intelligent Power Technology <sup>3</sup>	<b>Automated energy-efficiency capabilities reduce power consumption.</b>
Integrated power gates	Reduces idle processor cores to near zero power when not in use to help conserve power and lower operating costs.
Automated low-power states	Adjusts system power consumption based on real-time processor loads.
Intel® vPro™ Technology	<b>Remote management, flexible virtualization and enhanced security enable solutions that are reliable, trusted, and cost-effective.</b>
Intel® Active Management Technology <sup>5</sup> 6.0 (Intel® AMT) (i7-860 only)	The latest remote management and maintenance capabilities enable IT professionals to query, fix, and protect networked embedded devices, even when they're powered off, not responding or have software issues. As part of Intel vPro technology, Intel AMT helps perform remote asset tracking and checks the presence of management agents virtually anytime. Also, devices can be remotely turned on/off to reduce energy consumption during non-peak operating times.
Intel® Virtualization Technology <sup>4</sup>	Speeds the 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 <sup>6</sup> (i7-860 only)	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® Core™ i7-860 and Core™ i5-750 Processors for Embedded Computing

PROCESSOR NUMBER <sup>A</sup>	CORES/ THREADS	CORE FREQUENCY (GHz)				LAST LEVEL CACHE	THERMAL DESIGN POWER	PACKAGE	
		BASE FREQUENCY	1 CORE TURBO	2 CORE TURBO	3 CORE TURBO				4 CORE TURBO
Intel® Core™ i7-860	4/8	2.80	3.46	3.33	N/A	2.93	8 MB	95 W	LGA1156
Intel® Core™ i5-750	4/4	2.66	3.20	3.20	N/A	2.80	8 MB	95 W	LGA1156

PROCESSOR NUMBER <sup>A</sup>	INTEL® vPRO™ TECHNOLOGY				
	INTEL® TURBO BOOST TECHNOLOGY	INTEL® HYPER- THREADING TECHNOLOGY	INTEL® VIRTUALIZATION TECHNOLOGY	INTEL® ACTIVE MANAGEMENT TECHNOLOGY 6.0	INTEL® TRUSTED EXECUTION TECHNOLOGY
Intel® Core™ i7-860	▪	▪	▪	▪	▪
Intel® Core™ i5-750	▪		▪		

## Intel in Embedded and Communications: [intel.com/embedded](http://intel.com/embedded)

<sup>A</sup> 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](http://www.intel.com/products/processor_number) <[http://www.intel.com/products/processor\\_number](http://www.intel.com/products/processor_number)> for details.

<sup>1</sup> Intel® Turbo Boost Technology requires a Platform with a processor with Intel Turbo Boost Technology capability. Intel Turbo Boost Technology performance varies depending on hardware, software and overall system configuration. Check with your platform manufacturer on whether your system delivers Intel Turbo Boost Technology. For more information, see [www.intel.com/technology/turboboost](http://www.intel.com/technology/turboboost).

<sup>2</sup> Hyper-Threading Technology requires a computer system with a processor supporting Hyper-Threading Technology and an HT Technology enabled chipset, BIOS and operating system. Performance will vary depending on the specific hardware and software you use. See [www.intel.com/info/hyperthreading/](http://www.intel.com/info/hyperthreading/) for more information including details on which processors support HT Technology.

<sup>3</sup> Intel® Intelligent Power Technology requires a computer system with an enabled Intel® processor, chipset, BIOS and for some features, an operating system enabled for it. Functionality or other benefits may vary depending on hardware implementation and may require a BIOS and/or operating system update. Please check with your system vendor for details.

<sup>4</sup> Intel® Virtualization Technology requires a computer system with an enabled Intel® processor, BIOS, virtual machine monitor (VMM) and, for some uses, certain computer system software enabled for it. Functionality, performance or other benefits will vary depending on hardware and software configurations and may require a BIOS update. Software applications may not be compatible with all operating systems. Please check with your application vendor.

<sup>5</sup> Intel® Active Management Technology requires the computer system to have an Intel® AMT-enabled chipset, network hardware and software, as well as connection with a power source and a corporate network connection. Setup requires configuration by the purchaser and may require scripting with the management console or further integration into existing security frameworks to enable certain functionality. It may also require modifications of implementation of new business processes. With regard to notebooks, Intel AMT may not be available or certain capabilities may be limited over a host OS-based VPN or when connecting wirelessly, on battery power, sleeping, hibernating or powered off. For more information, see [www.intel.com/technology/platform-technology/intel-amt/](http://www.intel.com/technology/platform-technology/intel-amt/).

<sup>6</sup> 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). The MLE could consist of a virtual machine monitor, an OS or an application. In addition, Intel TXT requires the system to contain a TPM v1.2, as defined by the Trusted Computing Group and specific software for some uses. For more information, see <http://www.intel.com/technology/security>.

<sup>7</sup> Drivers available at: [downloadcenter.intel.com](http://downloadcenter.intel.com) (enter chipset name).

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