

# Development Kit for the 4th Generation Intel® Core™ i7-4700EQ Processor with Mobile Intel® QM87 Chipset



## Product Overview

This development kit provides superior CPU, graphics, and media performance with flexibility and enhanced security, making it ideal for a wide range of intelligent systems, including retail transaction terminals, digital signage, digital security and surveillance, gaming, industrial automation, and medical equipment.

Manufactured on industry-leading 22nm process technology with 3D Tri-Gate transistors, the 4th generation Intel® Core™ i7-4700EQ processor offers numerous advancements over the 3rd generation Intel® Core™ processors. The introduction of Intel® Advanced Vector Extensions (Intel® AVX) 2.0 delivers improved integer/matrix-based calculation abilities, while upgrades to Intel® AES New Instructions<sup>1</sup> (Intel® AES-NI) allow security algorithms to benefit from hardware acceleration for data encryption and decryption.

Next-generation Intel® graphics engines significantly improve graphics and media performance. The 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 2.0, deliver smoother visual quality, improved ability to decode and transcode simultaneous video streams, and outstanding HD media playback. Additionally, the platform supports next-generation graphics APIs, such as Microsoft DirectX\* 11.1, OpenGL\* 4.0, and OpenCL\* 1.2.

Paired with the Mobile Intel® QM87 chipset, the development kit supports dual-channel DDR3L memory at 1600 MHz (ECC enabled) and Intel® Rapid Start Technology<sup>2</sup> for increased system responsiveness and fast recovery from sleep states. It also features 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 development kit also supports Intel® vPro™ technology<sup>3</sup>, enabling intelligent security, 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.

The Intel Core i7-4700EQ processor offers quad-core capabilities with industry-leading performance and thermal design power (TDP) of 47W, configurable down to 37W. While incorporating advanced technology, it remains software-compatible with previous processors.

## Included in the Development Kit

This development kit ships as a complete system in a chassis and includes the following components:

- Development board with 4th generation Intel® Core™ i7-4700EQ processor and Mobile Intel® QM87 chipset, installed
- Mini-ITX enclosure
- 180W AC power supply
- 2x4 GB UDIMMs, DDR3, 1600 MHz, ECC (total memory included: 8 GB)
- Internal solid state drive: Intel® SSD 330 Series (60 GB, SATA 6 Gb/s, 25nm, MLC)

## INTEL® CORE™ I7-4700EQ PROCESSOR<sup>A</sup>

Base frequency/Core Turbo (Max)	2.4 GHz/3.4 GHz
Cores/Threads	4/8
Thermal Design Power	40W/37W
Intel® Smart Cache	6 MB
Package	BGA1364
Intel® Turbo Boost Technology 2.0 <sup>4</sup>	Yes
Intel® Hyper-Threading Technology <sup>5</sup>	Yes
Intel® vPro™ Technology <sup>3</sup>	Yes
Error Correcting Code	Enabled
PCI Express* Gen 3.0 with 16 lanes	1x16; 2x8; or 1x8 + 2x4 with up to three controllers
Memory Types	DDR3L 1600 (dual channel)

## MOBILE INTEL® QM87 CHIPSET

SATA ports	6 (2 to 4 SATA 6.0 Gbps)
USB ports	14 total (4 to 6 USB 3.0)
PCI Express* x1 Gen 2.0 ports	6 to 8
Intel® 1217-LM/1218-LM Gigabit Ethernet Controller	Optional
Supports Intel® vPro™ Technology <sup>3</sup>	Yes

## Software Overview

The following independent operating system and BIOS vendors provide support for these platforms. Intel strives to provide customers with a complete development environment supporting customer applications and operating systems. Any software provided in these development environments is subject to change without notice. Customers are encouraged to check for software updates at <https://www-ssl.intel.com/content/www/us/en/hardware-developers/hardware-development.html/intarch/devkits/index.htm>

### OPERATING SYSTEM

Microsoft Windows* 8	Intel provides drivers <sup>6</sup>
Microsoft Windows Embedded Standard 8	Intel provides drivers <sup>6</sup>
Microsoft Windows 7	Intel provides drivers <sup>6</sup>
Microsoft Windows Embedded Standard 7	Intel provides drivers <sup>6</sup>
Microsoft Windows XP SP3 <sup>a</sup>	Intel provides drivers <sup>6</sup>
Microsoft Windows Embedded Standard 2009 <sup>a</sup>	Intel provides drivers <sup>6</sup>
Microsoft Windows POS 2009 <sup>a</sup>	Intel provides drivers <sup>6</sup>
Linux* (Kernel 3.x)	Wind River, Red Hat, Novell
Wind River VxWorks* 6.9	Wind River
SUSE SLE* 11 SP1	Novell

### CONTACT

### BIOS

American Megatrends
Insyde Software
Phoenix Technologies
Byosoft

<sup>a</sup>Not all features are supported. Contact your local Intel representative for more information.

## Order Information

### PRODUCT NAME<sup>A</sup>

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### PRODUCT CODE

EMBHSWQM87LCDVK

Intel in Intelligent Systems: [intel.com/intelligentsystems](http://intel.com/intelligentsystems)

<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: Go to: [http://www.intel.com/products/processor\\_number](http://www.intel.com/products/processor_number).

<sup>1</sup> 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/>.

<sup>2</sup> 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.

<sup>3</sup> 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>.

<sup>4</sup> 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>

<sup>5</sup> Available on select Intel® Core™ processors. Requires an 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 <http://www.intel.com/info/hyperthreading>.

<sup>6</sup> Drivers available at: [downloadcenter.intel.com](http://downloadcenter.intel.com) (enter chipset name).

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>. INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH INTEL® PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT. EXCEPT AS PROVIDED IN INTEL'S TERMS AND CONDITIONS OF SALE FOR SUCH PRODUCTS, INTEL ASSUMES NO LIABILITY WHATSOEVER, AND INTEL DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF INTEL PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. UNLESS OTHERWISE AGREED IN WRITING BY INTEL, THE INTEL PRODUCTS ARE NOT DESIGNED NOR INTENDED FOR ANY APPLICATION IN WHICH THE FAILURE OF THE INTEL PRODUCT COULD CREATE A SITUATION WHERE PERSONAL INJURY OR DEATH MAY OCCUR.


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