



Intel® Core™ i7-7820EQ Processor

8M Cache, up to 3.70 GHz

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Specifications

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Essentials

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Code Name [Products formerly Kaby Lake](#)

Processor Number [i7-7820EQ](#)

Status [Launched](#) Launch Date [?](#) [Q1'17](#)

Lithography [?](#) [14 nm](#) Recommended Customer Price [?](#)

Performance

of Cores [?](#) [Q](#) [4](#)

of Threads [?](#) [Q](#) [8](#)

Processor Base Frequency [?](#) [3.00 GHz](#)

Max Turbo Frequency [?](#) [3.70 GHz](#)

Cache [?](#) [Q](#) [8 MB](#)

TDP [?](#) [Q](#) [45 W](#)

Configurable TDP-down [?](#) [35 W](#)

Supplemental Information

Embedded Options Available [?](#) [Q](#) [Yes](#)

Datasheet [View now](#)

Conflict Free [?](#) [Yes](#)

[Learn how Intel is pursuing conflict-free technology.](#)



Memory Specifications

Max Memory Size (dependent on memory type) [?](#) [64 GB](#)

Memory Types [?](#) [DDR3L-1600, DDR4-2133](#)

Max # of Memory Channels [?](#) [2](#)

Max Memory Bandwidth [?](#) [34.1 GB/s](#)

ECC Memory Supported [†] [?](#) [Q](#) [No](#)


Graphics Specifications

Processor Graphics ‡ ? 🔍	Intel® HD Graphics 630	Graphics Base Frequency ?	350.00 MHz	
Graphics Max Dynamic Frequency ?	1.00 GHz	Graphics Video Max Memory ?	64 GB	
Graphics Output ?	eDP/DP/HDMI/DVI	4K Support ?	Yes, at 60Hz	
Max Resolution (HDMI 1.4)‡ ?	4096x2304@30Hz	Max Resolution (DP)‡ ?	4096x2304@60Hz	
Max Resolution (eDP - Integrated Flat Panel)‡ ?	4096x2304@60Hz	Max Resolution (VGA)‡ ?	N/A	
OpenGL* Support ?		4.4	DirectX* Support ?	12
Intel® InTru™ 3D Technology ?	Yes	Intel® Quick Sync Video ? 🔍	Yes	
		Intel® Clear Video HD Technology ?	Yes	
# of Displays Supported ‡	3	Device ID	0x591B	









Expansion Options

PCI Express Revision ?	3.0	PCI Express Configurations [‡] ?	1x16,2x8,1x8+2x4
Max # of PCI Express Lanes ?	16		

Package Specifications

Sockets Supported ? 	FCBGA1440	Max CPU Configuration	1
T _{JUNCTION} ?	100°C	Package Size	42mm x 28mm
		Low Halogen Options Available	See MDDS

Advanced Technologies

Intel® Turbo Boost Technology [‡] ? 	2.0	Intel® vPro Technology [‡] ? 	Yes
Secure Boot ?	Yes	Intel® Hyper-Threading Technology [‡] ? 	Yes
Intel® Virtualization Technology (VT-x) [‡] ?	Yes	Intel® Virtualization Technology for Directed I/O (VT-d) [‡] ? 	Yes
Intel® VT-x with Extended Page Tables (EPT) [‡] ? 	Yes	Intel® TSX-NI ?	Yes
		Intel® 64 [‡] ? 	Yes
Instruction Set ? 	64-bit	Instruction Set Extensions ?	AVX, SSE4.1, SSE4.2
Idle States ?	Yes	Enhanced Intel SpeedStep® Technology ? 	Yes

Intel® Data Protection Technology

Intel® AES New Instructions ? ?

Yes

Intel® Software Guard Extensions (Intel® SGX) ?

Yes

Intel® Memory Protection Extensions (Intel® MPX) ?

Yes

Intel® Platform Protection Technology

Trusted Execution Technology ‡ ? ?

Yes

Execute Disable Bit ‡ ?

Yes

OS Guard

Yes

Intel® Device Protection Technology with Boot Guard ?

Yes

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Refer to Datasheet for formal definitions of product properties and features.

"Announced" SKUs are not yet available. Please refer to the Launch Date for market availability.

Some products can support AES New Instructions with a Processor Configuration update, in particular, i7-2630QM/i7-2635QM, i7-2670QM/i7-2675QM, i5-2430M/i5-2435M, i5-2410M/i5-2415M. Please contact OEM for the BIOS that includes the latest Processor configuration update.

‡ This feature may not be available on all computing systems. Please check with the system vendor to determine if your system delivers this feature, or reference the system specifications (motherboard, processor, chipset, power supply, HDD, graphics controller, memory, BIOS, drivers, virtual machine monitor-VMM, platform software, and/or operating system) for feature compatibility. Functionality, performance, and other benefits of this feature may vary depending on system configuration.

"Conflict free" and "conflict-free" means "DRC conflict free", which is defined by the U.S. Securities and Exchange Commission rules to mean products that do not contain conflict minerals (tin, tantalum, tungsten and/or gold) that directly or indirectly finance or benefit armed groups in the Democratic Republic of the Congo (DRC) or adjoining countries. Intel also uses the term "conflict-free" in a broader sense to refer to suppliers, supply chains, smelters and refiners whose sources of conflict minerals do not finance conflict in the DRC or adjoining countries. Intel processors manufactured before January 1, 2013 are not confirmed conflict free. The conflict free designation refers only to product manufactured after that date. For Intel Boxed Processors, the conflict free designation refers to the processor only, not to any additional included accessories, such as heatsinks/coolers.

See <http://www.intel.com/content/www/us/en/architecture-and-technology/hyper-threading/hyper-threading-technology.html?wapkw=hyper+threading> for more information including details on which processors support Intel® HT Technology.

Max Turbo Frequency refers to the maximum single-core processor frequency that can be achieved with Intel® Turbo Boost Technology. See www.intel.com/technology/turboboost/ for more information.

The Recommended Customer –unit purchase quantities, and are subject to change without notice. Taxes and shipping, etc. not included. Prices may vary for other package types and shipment quantities, and special promotional arrangements may apply. If sold in bulk, price represents individual unit. Listing of these RCP does not constitute a formal pricing offer from Intel. Please work with your appropriate Intel representative to obtain a formal price quotation.

System and Maximum TDP is based on worst case scenarios. Actual TDP may be lower if not all I/Os for chipsets are used.

Low Halogen: Applies only to brominated and chlorinated flame retardants (BFRs/CFRs) and PVC in the final product. Intel components as well as purchased components on the finished assembly meet JS-709 requirements, and the PCB / substrate meet IEC 61249-2-21 requirements. The replacement of halogenated flame retardants and/or PVC may not be better for the environment.

For benchmarking data see <http://www.intel.com/performance>.

Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See <http://www.intel.com/content/www/us/en/processors/processor-numbers.html> for details.

Processors that support 64-bit computing on Intel® architecture require an Intel 64 architecture-enabled BIOS.

More support options for Intel® Core™ i7-7820EQ Processor (8M Cache, up to 3.70 GHz)





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