Intel® Core™ i7-2820QM Processor (8M Cache, 2.30 GHz)

SPECIFICATIONS

All
Essentials
Memory Specifications
Graphics Specifications
Expansion Options
Package Specifications
Advanced Technologies

COMPATIBLE PRODUCTS

BLOCK DIAGRAMS

ORDERING / SSPECS / STEPPINGS

Specifications

Essentials

Status	Launched
Launch Date	Q1'11
Processor Number	i7-2820QM
# of Cores	4
# of Threads	8
Clock Speed	2.3 GHz
Max Turbo Frequency	3.4 GHz
Intel® Smart Cache	8 MB
Bus/Core Ratio	23
DMI	5 GT/s
Instruction Set	64-bit
Instruction Set Extensions	AVX
Embedded Options Available	No
Lithography	32 nm
Max TDP	45 W
Recommended Customer Price	

Memory Specifications

	32 GB
Max Memory Size (dependent on memory type)	DDR3-1066/1333/1600
Memory Types	2
# of Memory Channels	25.6 GB/s
Max Memory Bandwidth	No
ECC Memory Supported	

Graphics Specifications

	Intel® HD Graphics 3000
Processor Graphics	650 MHz
Graphics Base Frequency	1.3 GHz
Graphics Max Dynamic Frequency	eDP/DP/HDMI/SDVO/CRT
Graphics Output	Yes
Intel® Quick Sync Video	Yes
Intel® InTru™ 3D Technology	Yes
Intel® Insider™	Yes
Intel® Wireless Display	Yes
Intel® Flexible Display Interface (Intel® FDI)	Yes
Intel® Clear Video HD Technology	Yes
Dual Display Capable	No
Expansion Options	Processor License Required

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- Products formerly Sandy Bridge
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ADDITIONAL INFORMATION

SEARCH DISTRIBUTORS >

AV8062700834912

FF8062700834709

PCN/MDDS INFORMATION

PCI Express Revision		2.0
PCI Express Configurations		1x16, 2x8, 1x8+2x4
# of PCI Express Ports		1
Package Specifications		
Max CPU Configuration		1
$T_{JUNCTION}$		100 C
Package Size		37.5mm x 37.5 (rPGA998); 31.0mm x 24.0mm (BGA1224)
Graphics and IMC Lithography		32 nm
Sockets Supported		FCBGA1224, FCPGA988
Low Halogen Options Available		See MDDS
Advanced Technologies		
Intel® Turbo Boost Technology		2.0
Intel® vPro Technology		Yes
Intel® Hyper-Threading Technology		Yes
Intel® Virtualization Technology (VT-x)		Yes
Intel® Virtualization Technology for Directed I/O (VT-d)		Yes
Intel® Trusted Execution Technology		Yes
AES New Instructions		Yes
Intel® 64		Yes
Intel® Anti-Theft Technology		Yes
Intel® My WiFi Technology		Yes
4G WiMAX Wireless Technology		Yes
Idle States		Yes
Enhanced Intel SpeedStep® Technology		Yes
Intel® Demand Based Switching		No
Thermal Monitoring Technologies		Yes
Intel® Fast Memory Access		Yes
Intel® Flex Memory Access		Yes
Execute Disable Bit		Yes

*Trademarks

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

The Recommended Customer Price ("RCP") is pricing guidance for Intel products. Prices are for direct Intel customers 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. 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.

Enabling Execute Disable Bit functionality requires a PC with a processor with Execute Disable Bit capability and a supporting operating system. Check with your PC manufacturer on whether your system delivers Execute Disable Bit functionality.

64-bit computing on Intel® architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. Consult with your system vendor for more information.

Hyper-Threading Technology (HT Technology) requires a computer system with an Intel® processor supporting HT 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/products/ht/hyperthreading_more.htm for more information including details on which processors support HT Technology.

Intel® Virtualization Technology requires a computer system with a processor, chipset, BIOS, virtual machine monitor (VMM) and for some uses, certain platform software, enabled for it. Functionality, performance or other benefit will vary depending on hardware and software configurations. Intel Virtualization Technology-enabled VMM applications are currently in development.

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/products/processor_number for details.

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

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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.

Max Turbo Frequency refers to the maximum single-core frequency that can be achieved with Intel® Turbo Boost Technology, which requires a PC 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 PC manufacturer on whether your system delivers Intel Turbo Boost Technology. See www.intel.com/technology/turboboost/ for more information.

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.