Intel® Core™ i7-3820QM Processor (8M Cache, up to 3.70 GHz)

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

ORDERING / SSPECS / STEPPINGS

Specifications

Essentials	
Status	Launched
Launch Date	Q2'12
Processor Number	i7-3820QM
# of Cores	4
# of Threads	8
Clock Speed	2.7 GHz
Max Turbo Frequency	3.7 GHz
Intel® Smart Cache	8 MB
Bus/Core Ratio	27
DMI	5 GT/s
Instruction Set	64-bit
Instruction Set Extensions	AVX
Embedded Options Available	No
Lithography	22 nm
Max TDP	45 W
Recommended Customer Price	
Datasheet Url	Link

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

Graphics Specifications	
Processor Graphics	Intel® HD Graphics 4000
Graphics Base Frequency	650 MHz
Graphics Max Dynamic Frequency	1.25 GHz
Graphics Output	eDP/DP /HDMI/SDVO/CRT
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	Yes
# of Displays Supported	3

Expansion Options	
PCI Express Revision	3.0
PCI Express Configurations	1x16, 2x8, 1x8 2x4
# of PCI Express Ports	1

Package Specifications	
Max CPU Configuration	1
$T_{JUNCTION}$	105 C
Package Size	37.5 x 37.5mm (rPGA988B); 31.0 x 24.0mm (BGA1224)
Graphics and IMC Lithography	22 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
Intel® VT-x with Extended Page Tables (EPT)	Yes

COMPARE PRODUCTS
- Add to Compare
- Compare Now (0)

QUICK LINKS
- Products formerly Ivy Bridge
- Download Datasheet
- Search Distributors

ADDITIONAL INFORMATION
PCN/MDDS INFORMATION
SR0MK
919643: PCN | MDDS
SR0MJ
919642: PCN | MDDS

"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.

"Intel classifications" consist of Export Control Classification Numbers (ECCN) and Harmonized Tariff Schedule (HTS) numbers. Any use made of Intel classifications are without recourse to Intel and shall not be construed as a representation or warranty regarding the proper ECCN or HTS. Your company may be the exporter of record, and as such, your company is responsible for determining the correct classification of any item at the time of export.

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.

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.

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.

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.

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.

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.

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

All information provided is subject to change at any time, without notice. Intel may make changes to manufacturing life cycle, specifications, and product descriptions at any time, without notice. The information herein is provided "as-is" and Intel does not make any representations or warranties whatsoever regarding accuracy of the information, nor on the product features, availability, functionality, or compatibility of the products listed. Please contact system vendor for more information on specific products or systems.

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.

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.