Intel® Core™ i7-4790K Processor (8M Cache, up to 4.40 GHz)

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Specifications

Essentials

Status	Launched
Launch Date	Q2'14
Processor Number	i7-4790K
Intel® Smart Cache	8 MB
DMI2	5 GT/s
# of QPI Links	0
Instruction Set	64-bit
Instruction Set Extensions	SSE4.1/4.2, AVX 2.0
Embedded Options Available	No
Lithography	22 nm
Scalability	1S Only
Thermal Solution Specification	PCG 2013D
Recommended Customer Price	
Datasheet	Link

Performance

# of Cores	4
# of Threads	8
Processor Base Frequency	4 GHz
Max Turbo Frequency	4.4 GHz
TDP	88 W

Memory Specifications

Memory Types	DDR3 and DDR3L 1333/1600 at 1.5V
Max # of Memory Channels	2
Max Memory Bandwidth	25.6 GB/s
ECC Memory Supported ‡	No

Graphics Specifications

Processor Graphics ‡	Intel® HD Graphics 4600

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PCN/MDDS Information
SR219
937297: PCN | MDDS
937428: PCN | MDDS
937429: PCN | MDDS
937433: PCN | MDDS

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Graphics Base Frequency	350 MHz
Graphics Max Dynamic Frequency	1.25 GHz
Graphics Video Max Memory	1.7 GB
Graphics Output	eDP/DP/HDMI/VGA
Execution Units	20
Max Resolution (HDMI 1.4)	3840x2160@60Hz
Max Resolution (DP)	3840x2160@60Hz
Max Resolution (VGA)	2880x1800@60Hz
DirectX* Support	11.2
OpenGL* Support	4.3
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
# of Displays Supported ‡	3
Device ID	412

Expansion Options

PCI Express Revision	3.0
PCI Express Configurations ‡	Up to 1x16, 2x8, 1x8/2x4
Max # of PCI Express Lanes	16

Package Specifications

Max CPU Configuration	1
T_{CASE}	74.04°C
Package Size	37.5mm x 37.5mm
Graphics and IMC Lithography	22nm
Sockets Supported	FCLGA1150
Low Halogen Options Available	See MDDS

Advanced Technologies

Intel® Turbo Boost Technology ‡	2.0
Intel® vPro Technology ‡	No
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
Intel® My WiFi Technology	Yes
Idle States	Yes
Enhanced Intel SpeedStep® Technology	Yes

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Thermal Monitoring Technologies	Yes
Intel® Identity Protection Technology ‡	Yes
Intel® Stable Image Platform Program (SIPP)	No

Intel® Data Protection Technology

AES New Instructions	Yes
Secure Key	Yes

Intel® Platform Protection Technology

OS Guard	Yes
Trusted Execution Technology ‡	No
Execute Disable Bit ‡	Yes
Anti-Theft Technology	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.

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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.

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