Intel® Xeon® Processor E5-2428L v2 (20M Cache, 1.80 GHz)

Specifications

- Essentials

Status	Launched
Launch Date	Q1'14
Processor Number	E5-2428LV2
Intel® Smart Cache	20 MB
Intel® QPI Speed	7.2 GT/s
# of QPI Links	1
Instruction Set	64-bit
Instruction Set Extensions	AVX
Embedded Options Available	Yes
Lithography	22 nm
Scalability	2S Only
VID Voltage Range	0.65-1.30V
Recommended Customer Price	TRAY: $1013.00
Conflict Free	Yes
Datasheet	Link

- Performance

# of Cores	8
# of Threads	16
Processor Base Frequency	1.8 GHz
Max Turbo Frequency	2.3 GHz
TDP	60 W

- Memory Specifications

Max Memory Size (dependent on memory type)	384 GB
Memory Types	DDR3 800/1066/1333/1600
Max # of Memory Channels	3
Max Memory Bandwidth	38.4 GB/s
Physical Address Extensions	46-bit
ECC Memory Supported ‡	Yes

- Expansion Options

PCI Express Revision	3.0

PCI Express Configurations ‡	x4, x8, x16
Max # of PCI Express Lanes	24

- Package Specifications

Max CPU Configuration	2
T_{CASE}	89.2°C
Package Size	45mm x 42.5mm
Sockets Supported	FCLGA1356
Low Halogen Options Available	See MDDS

- Advanced Technologies

Intel® Turbo Boost Technology ‡	2.0
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	No
Intel® 64 ‡	Yes
Idle States	Yes
Enhanced Intel SpeedStep® Technology	Yes
Intel® Demand Based Switching	Yes
Thermal Monitoring Technologies	Yes
Intel® Flex Memory Access	No
Intel® Identity Protection Technology ‡	No

- Intel® Data Protection Technology

Intel® AES New Instructions	Yes
Secure Key	Yes

- Intel® Platform Protection Technology

OS Guard	Yes
Trusted Execution Technology ‡	Yes
Execute Disable Bit ‡	Yes

Ordering and Spec Information

Trade Compliance Information

ECCN	CCATS	US HTS
5A992C	G077159	8542310000-HYBRD

Ordering and Spec Information

Spec Code	Ordering Code	Step	RCP
Intel® Xeon® Processor E5-2428L v2 (20M Cache, 1.80 GHz) FC-LGA12A, Tray			
SR1A4	CM8063401293902	M1	$1013.00

Download Drivers

BIOS Implementation Test Suite (BITS)
This download installs version build 2073 of the BIOS Implementation Test Suite (BITS).
Version: Build 2073 (Latest) **Date:** 2/2/2016
Operating Systems: OS Independent

Intel® Processor Diagnostic Tool
This download installs the Intel® Processor Diagnostic Tool release 3.0.0.25, which is compatible with multiprocessor systems.
Version: 3.0.0.25 (Latest) **Date:** 1/25/2016
Operating Systems: Linux*, Windows 7*, Windows Server 2008 R2*, 5 more

Linux* Processor Microcode Data File
The microcode data file contains the latest microcode definitions for all Intel® Processors. Intel periodically releases these microcode updates.
Version: 20150121 (Previously Released) **Date:** 1/21/2015
Operating Systems: Turbolinux*, Red Hat Desktop 3 Update 4*, Red Hat Desktop Linux 3*, 90 more

Linux* Processor Microcode Data File
The microcode data file 20150107 for Linux* contains the latest microcode definitions for all Intel® Processors. Intel periodically releases these microcode updates.
Version: 20150107 (Previously Released) **Date:** 1/7/2015
Operating Systems: Turbolinux*, Red Hat Desktop 3 Update 4*, Red Hat Desktop Linux 3*, 88 more

Linux* Processor Microcode Data File
The microcode data file 20140913 for Linux* contains the latest microcode definitions for all Intel® Processors. Intel periodically releases these microcode updates.
Version: 20140913 (Previously Released) **Date:** 9/15/2014
Operating Systems: Red Hat Desktop 3 Update 4*, Red Hat Desktop Linux 3*, Red Hat Enterprise Linux 2.1*, 81 more

Linux* Processor Microcode Data File
The microcode data file 20140624 for Linux* contains the latest microcode definitions for all Intel® Processors. Intel periodically releases these microcode updates.
Version: 20140624 (Previously Released) **Date:** 6/24/2014
Operating Systems: Linux*

Linux* Processor Microcode Data File
The microcode data file 20140430 for Linux* contains the latest microcode definitions for all Intel® Processors. Intel periodically releases these microcode updates.
Version: 20140430 (Previously Released) **Date:** 4/30/2014
Operating Systems: Linux*

Linux* Processor Microcode Data File
The microcode data file 20140122 for Linux* contains the latest microcode definitions for all Intel® Processors. Intel periodically releases these microcode updates.
Version: 20140122 (Previously Released) **Date:** 1/22/2014
Operating Systems: Turbolinux*, Red Hat Desktop 3 Update 4*, Red Hat Desktop Linux 3*, 79 more

Linux* Processor Microcode Data File
The microcode data file 20130906 for Linux* contains the latest microcode definitions for all Intel® Processors. Intel periodically releases these microcode updates.

Version: 20130906 (Previously Released) **Date:** 9/6/2013
Operating Systems: Turbolinux*, Red Hat Desktop 3 Update 4*, Red Hat Desktop Linux 3*, 79 more

Linux* Processor Microcode Data File
The microcode data file 20130808 for Linux* contains the latest microcode definitions for all Intel® Processors. Intel periodically releases these microcode updates.
Version: 20130808 (Previously Released) **Date:** 8/14/2013
Operating Systems: Turbolinux*, Red Hat Desktop 3 Update 4*, Red Hat Desktop Linux 3*, 79 more

Linux* Processor Microcode Data File
The microcode data file 20130222 for Linux* contains the latest microcode definitions for all Intel® Processors. Intel periodically releases these microcode updates.
Version: 20130222 (Previously Released) **Date:** 2/25/2013
Operating Systems: Turbolinux*, Red Hat Desktop 3 Update 4*, Red Hat Desktop Linux 3*, 74 more

Linux* Processor Microcode Data File
The microcode data file 20120606-v2 for Linux* contains the latest microcode definitions for all Intel® Processors. Intel periodically releases these microcode updates.
Version: 20120606-v2 (Previously Released) **Date:** 10/1/2012
Operating Systems: Turbolinux*, Red Hat Desktop 3 Update 4*, Red Hat Desktop Linux 3*, 72 more

Linux* Processor Microcode Data File
The microcode data file 20120606 for Linux* contains the latest microcode definitions for all Intel® Processors. Intel periodically releases these microcode updates.
Version: 20120606 (Previously Released) **Date:** 6/6/2012
Operating Systems: Turbolinux*, Red Hat Desktop 3 Update 4*, Red Hat Desktop Linux 3*, 72 more

Display Drivers for Intel® Core™ Processors on 64-bit Windows 7* and Windows Embedded Standard 7*
This download installs version 15.22.54.64.2622 of the display drivers for Intel® Core™ Processors for Windows* 7, 64-bit and Windows Embedded Standard 7.
Version: 15.22.54.64.2622 (Previously Released) **Date:** 1/1/2012
Operating Systems: Windows 7, 64-bit*, Windows Embedded Standard 7*

Linux* Processor Microcode Data File
The microcode data file 20111110 for Linux* contains the latest microcode definitions for all Intel® Processors. Intel periodically releases these microcode updates.
Version: 20111110 (Previously Released) **Date:** 12/12/2011
Operating Systems: Turbolinux*, Red Hat Desktop 3 Update 4*, Red Hat Desktop Linux 3*, 70 more

Linux* Processor Microcode Data File
The microcode data file 20110915 for Linux* contains the latest microcode definitions for all Intel® Processors.
Version: 20110915 (Previously Released) **Date:** 9/13/2011
Operating Systems: Turbolinux*, Red Hat Desktop 3 Update 4*, Red Hat Desktop Linux 3*, 70 more

Linux* Processor Microcode Data File
The microcode data file 20110428 for Linux* contains the latest microcode definitions for all Intel® Processors.
Version: 20110428 (Previously Released) **Date:** 4/24/2011
Operating Systems: Turbolinux*, Red Hat Desktop 3 Update 4*, Red Hat Desktop Linux 3*, 70 more

Linux* Processor Microcode Data File
The microcode data file 20101123 for Linux* contains the latest microcode definitions for all Intel® Processors.
Version: 20101123 (Previously Released) **Date:** 11/20/2010
Operating Systems: Turbolinux*, Red Hat Desktop 3 Update 4*, Red Hat Desktop Linux 3*, 70 more

Linux* Processor Microcode Data File
The microcode data file 20100914 for Linux* contains the latest microcode definitions for all Intel® Processors.

Version: 20100914 (Previously Released) **Date:** 9/11/2010
Operating Systems: Turbolinux*, Red Hat Desktop 3 Update 4*, Red Hat Desktop Linux 3*, 70 more

Linux* Processor Microcode Data File

The microcode data file 201000826 for Linux* contains the latest microcode definitions for all Intel® Processors.
Version: 201000826 (Previously Released) **Date:** 8/21/2010
Operating Systems: Turbolinux*, Red Hat Desktop 3 Update 4*, Red Hat Desktop Linux 3*, 70 more

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 Price (“RCP”) is pricing guidance for Intel products. Prices are for direct Intel customers, typically represent 1,000-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.

Send us your feedback!