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Intel Atom® x5-E3940 Processor

2M Cache, up to 1.80 GHz

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Essentials

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Product Collection	Intel® Atom™ Processor X Series
Code Name	Products formerly Apollo Lake
Vertical Segment	Embedded
Processor Number	E3940
Status	Launched
Launch Date ❓	Q4'16
Lithography ❓	14 nm
Use Conditions ❓	Industrial Extended Temp, Embedded Broad Market Extended Temp
Recommended Customer Price ❓	

Performance

# of Cores ?	4
# of Threads ?	4
Processor Base Frequency ?	1.60 GHz
Burst Frequency ?	1.80 GHz
Cache ?	2 MB L2
TDP ?	9.5 W

Supplemental Information

Embedded Options Available ?	Yes
Additional Information URL	View now

Memory Specifications

Max Memory Size (dependent on memory type) ?	8 GB
Memory Types ?	DDR3L (ECC and Non ECC) up to 1866 MT/s; LPDDR4 up to 2133 MT/s
Max # of Memory Channels ?	4
Max Memory Bandwidth ?	34.1 GB/s
Physical Address Extensions ?	40-bit
ECC Memory Supported ‡ ?	Yes

Processor Graphics

Processor Graphics ‡ ?	Intel® HD Graphics 500
Graphics Base Frequency ?	400 MHz
Graphics Burst Frequency	600 MHz
Graphics Video Max Memory ?	2 GB
Graphics Output ?	eDP/DP/HDMI/MIPI-DSI
Execution Units ?	12
4K Support ?	Yes, at 60Hz
Max Resolution (HDMI 1.4)‡ ?	3840x2160 @30Hz
Max Resolution (DP)‡ ?	4096x2160 @60Hz
Max Resolution (eDP - Integrated Flat Panel)‡ ?	3840x2160 @ 60Hz
DirectX* Support ?	Yes
OpenGL* Support ?	Yes
Intel® Quick Sync Video ?	Yes
Intel® InTru™ 3D Technology ?	No
Intel® Clear Video HD Technology ?	Yes
Intel® Clear Video Technology ?	Yes
# of Displays Supported ‡	3
Device ID	0x5A85

Expansion Options

PCI Express Revision ?	2.0
PCI Express Configurations ‡ ?	x4,x2,x1
Max # of PCI Express Lanes ?	6

I/O Specifications

# of USB Ports	8
USB Revision ?	2.0/3.0
Total # of SATA Ports ?	2
Integrated LAN ?	No
General Purpose IO	Yes
UART	Yes
Max # of SATA 6.0 Gb/s Ports	2

Package Specifications

Sockets Supported ?	FCBGA1296
Max CPU Configuration	1
T_{CASE} ?	100°C
$T_{JUNCTION}$?	110°C
Operating Temperature Range	-40°C to 85°C
Package Size	24mm x 31mm
Low Halogen Options Available	No

Advanced Technologies

Intel® Turbo Boost Technology ‡ ?	No
Intel® vPro™ Platform Eligibility ‡ ?	No
Secure Boot ?	Yes
Intel® Hyper-Threading Technology ‡ ?	No
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® 64 ‡ ?	Yes
Instruction Set ?	64-bit
Idle States ?	Yes
Enhanced Intel SpeedStep® Technology ?	Yes
Thermal Monitoring Technologies ?	Yes
Intel® HD Audio Technology ?	Yes
Intel® Identity Protection Technology ‡ ?	Yes
Intel® Rapid Storage Technology ?	No
Intel® Smart Connect Technology ?	No
Intel® Stable Image Platform Program (SIPP) ?	No

Intel® Smart Response Technology ❓	No
Intel® Virtualization Technology for Itanium (VT-i) ❓	No

Security & Reliability

Intel® AES New Instructions ❓	Yes
Secure Key ❓	Yes
Intel® Trusted Execution Technology ‡ ❓	No
Execute Disable Bit ‡ ❓	Yes
Anti-Theft Technology ❓	No
Intel® OS Guard	No

More support options for Intel Atom® x5-E3940 Processor (2M Cache, up to 1.80 GHz)

Product Support	Downloads and Software	Support Community	Warranty and Replacement

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

‡ 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.

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

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

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.

Intel® Smart Response Technology requires a select Intel® Core™ processor, an enabled chipset, Intel® Rapid Storage Technology software, and a properly configured hybrid drive (HDD + small SSD). Depending on system configuration, your results may vary. Contact your system manufacturer for more information.

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.

Check http://ipt.intel.com/ for systems that support Intel® Identity Protection Technology (Intel® IPT).

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

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.

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.

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