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Understanding Embedded - Microprocessors

Embedded microprocessors are specialized computing chips designed to perform specific tasks within an embedded system. Unlike general-purpose microprocessors found in personal computers, embedded microprocessors are tailored for dedicated functions within larger systems, offering optimized performance, efficiency, and reliability. These microprocessors are integral to the operation of countless electronic devices, providing the computational power necessary for controlling processes, handling data, and managing communications.

Applications of Embedded - Microprocessors

Embedded microprocessors are utilized across a broad spectrum of applications, making them indispensable in

Details	
Product Status	Discontinued at Digi-Key
Core Processor	i5-3610ME
Number of Cores/Bus Width	2 Core, 64-Bit
Speed	2.7GHz
Co-Processors/DSP	-
RAM Controllers	DDR3, DDR3L
Graphics Acceleration	Yes
Display & Interface Controllers	-
Ethernet	-
SATA	-
USB	-
Voltage - I/O	-
Operating Temperature	-
Security Features	-
Package / Case	Module
Supplier Device Package	-
Purchase URL	https://www.e-xfl.com/product-detail/advantech/96mpi5-2-7-3m9t

Intel® Core™ i5-3610ME Processor (3M Cache, up to 3.30 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	i5-3610ME
# of Cores	2
# of Threads	4
Clock Speed	2.7 GHz
Max Turbo Frequency	3.3 MHz
Intel® Smart Cache	3 MB
Bus/Core Ratio	27
DMI	5 GT/s
Instruction Set	64-bit
Instruction Set Extensions	AVX
Embedded Options Available	Yes
Lithography	22nm
Max TDP	35 W
Recommended Customer Price	TRAY: $276
Description	ECC memory support only on BGA package

Memory Specifications

Max Memory Size (dependent on memory type)	32 GB
Memory Types	DDR3/DDR3L 1333/1600
# of Memory Channels	2
Max Memory Bandwidth	25.6 GB/s
ECC Memory Supported	Yes

Graphics Specifications

Processor Graphics	Intel® HD Graphics 4000
Graphics Base Frequency	650 MHz
Graphics Max Dynamic Frequency	950 MHz
Graphics Output	eDP/DP/HDMI/SDVO/CRT
Intel® Quick Sync Video	Yes
Intel® InTru™ 3D Technology	Yes
Intel® Insider™	No
Intel® Wireless Display	No
Intel® Flexible Display Interface (Intel® FDI)	Yes
Intel® Clear Video HD Technology	Yes
Intel® Clear Video Technology for MID	No

COMPARE PRODUCTS

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- Visit the Embedded Design Center >

QUICK LINKS

- Products formerly Ivy Bridge
- No Datasheet Available
- Search Distributors

ADDITIONAL INFORMATION

PCN/MDDS INFORMATION

SR0QK
920313: PCN | MDDS

SR0QJ
920312: PCN | MDDS

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	37.5mmx 37.5mm PGA
Graphics and IMC Lithography	22nm
Sockets Supported	FCBGA1023, 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	No
Intel® My WiFi Technology	Yes
4G WiMAX Wireless Technology	No
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® Virtualization Technology for Itanium (VT-i)	No
Intel® VT-x with Extended Page Tables (EPT)	Yes

"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.

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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.

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SPECIFICATIONS

ORDERING / SSPECS / STEPPINGS

All

Ordering / sSpecs / Steppings

Retired and Discontinued

ORDERING AND SPEC INFORMATION

Ordering and Spec Information

Intel® Core™ i5-3610ME Processor (3M Cache, up to 3.30 GHz) FC-PGA12F, Tray

Socket	Step	Step TDP	Ordering Code	Spec Code	VT-x	ECCN	CCATS	US HTS	RCP
FCPGA988	L1	35 W	AW8063801115901	SR0QJ	Yes	5A992C	G077159	8542310000-HYBRD	$276

Intel® Core™ i5-3610ME Processor (3M Cache, up to 3.30 GHz) FC-BGA12F, Tray

Socket	Step	Step TDP	Ordering Code	Spec Code	VT-x	ECCN	CCATS	US HTS	RCP
FCBGA1023	L1	35 W	AV8063801116102	SR0QK	Yes	5A992C	G077159	8542310000-HYBRD	$276

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