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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	Active
Core Processor	i3-2330E
Number of Cores/Bus Width	2 Core, 64-Bit
Speed	2.2GHz
Co-Processors/DSP	-
RAM Controllers	-
Graphics Acceleration	Yes
Display & Interface Controllers	-
Ethernet	-
SATA	-
USB	-
Voltage - I/O	-
Operating Temperature	-
Security Features	-
Package / Case	988-PGA Module
Supplier Device Package	988-PGA (37.5x37.5)
Purchase URL	https://www.e-xfl.com/product-detail/advantech/96mpi3m-2-2-3m9t

Intel® Core™ i3-2330E Processor (3M Cache, 2.20 GHz)

SPECIFICATIONS

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

COMPATIBLE PRODUCTS

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Specifications

Essentials	
Status	Launched
Launch Date	Q2'11
Processor Number	i3-2330E
# of Cores	2
# of Threads	4
Clock Speed	2.2 GHz
Intel® Smart Cache	3 MB
DMI	5 GT/s
Instruction Set	64-bit
Instruction Set Extensions	AVX
Embedded Options Available	Yes
Lithography	32 nm
Max TDP	35 W
Memory Specifications	
Max Memory Size (dependent on memory type)	16 GB
Memory Types	DDR3-1066/1333
# of Memory Channels	2
Max Memory Bandwidth	21.3 GB/s
ECC Memory Supported	No
Graphics Specifications	
Processor Graphics	Intel® HD Graphics 3000
Graphics Base Frequency	650 MHz
Graphics Max Dynamic Frequency	1.05 GHz
Graphics Output	eDP/DP /HDMI/SDVO/CRT
Intel® Quick Sync Video	Yes
Intel® InTru™ 3D Technology,	Yes
Intel® Wireless Display	Yes
Intel® Flexible Display Interface (Intel® FDI)	Yes
Intel® Clear Video HD Technology	Yes
Dual Display Capable	Yes

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ADDITIONAL INFORMATION

PCN/MDDS INFORMATION

SR02V
910245: PCN | MDDS

Expansion Options	
PCI Express Revision	2.0
PCI Express Configurations	1x16 1x4, 2x8 1x4, 1x8 3x4

Package Specifications	
$T_{JUNCTION}$	100 C
Package Size	37.5mm x 37.5mm (rPGA988)
Graphics and IMC Lithography	32 nm
Sockets Supported	FCPGA988
Halogen Free Options Available	Yes

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

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.

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.

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.

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.

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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.

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Halogen Free implies the following:

Bromine and/or chlorine in materials that may be used during processing, but do not remain within the final product are not included in this definition. The halogens fluorine (F), iodine (I), and astatine (At) are not restricted by this standard.

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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.

Advanced Technologies	
Intel® Turbo Boost Technology	No
Intel® vPro Technology	No
Intel® Hyper-Threading Technology	Yes
Intel® Virtualization Technology (VT-x)	Yes
Intel® Virtualization Technology for Directed I/O (VT-d)	No
Intel® Trusted Execution Technology	No
AES New Instructions	No
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

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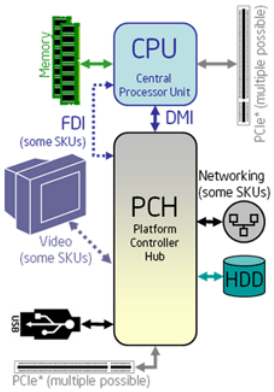

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All

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Retired and Discontinued

ORDERING AND SPEC INFORMATION

Ordering and Spec Information

Intel® Core™ i3-2330E Processor (3M Cache, 2.20 GHz) FC-PGA10, Tray

Socket	Step	Step TDP	Ordering Code	Spec Code	Halogen Free	VT-x
FCPGA988	D2	35 W	FF8062700849000	SR02V	Yes	Yes

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