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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	ARM926EJ-S
Number of Cores/Bus Width	1 Core, 32-Bit
Speed	454MHz
Co-Processors/DSP	Data; DCP
RAM Controllers	LVDDR, LVDDR2, DDR2
Graphics Acceleration	No
Display & Interface Controllers	Keypad
Ethernet	10/100Mbps (1)
SATA	-
USB	USB 2.0 + PHY (2)
Voltage - I/O	1.8V, 3.3V
Operating Temperature	-20°C ~ 70°C (TA)
Security Features	Boot Security, Cryptography, Hardware ID
Package / Case	289-LFBGA
Supplier Device Package	289-MAPBGA (14x14)
Purchase URL	<a href="https://www.e-xfl.com/pro/item?MUrl=&amp;PartUrl=mcimx280dvm4b">https://www.e-xfl.com/pro/item?MUrl=&amp;PartUrl=mcimx280dvm4b</a>



Consumer and Industrial Markets

# i.MX28 Family of Applications Processors

## Intelligent integration, unmatched

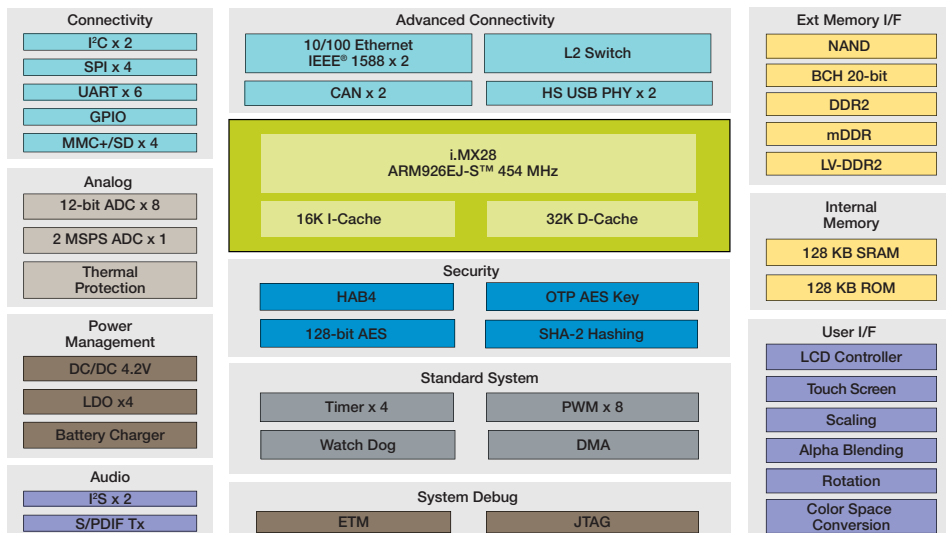
### Target Applications

- Digital picture frames
- Human-machine interface for appliances, building control, factory automation, printers and security panels
- Industrial control
- Media gateways/accessories
- Portable medical
- Smart energy gateways/meters

### Overview

The i.MX28 family of multimedia applications processors is part of Freescale's ARM9™ product portfolio. The i.MX28 family integrates display, power management and connectivity features unmatched in ARM9-based devices, reducing system cost and complexity for cost-sensitive applications. With optimized performance and power consumption, the i.MX28 is an ideal fit for battery-operated or fanless portable equipment. Additionally, the LCD controller with touch screen capability makes it possible to design creative and intuitive user interfaces required by many applications. The i.MX28 family reaches new levels of integration in ARM9 devices and provides the enablement needed to help design differentiated industrial, automotive and consumer products in less time.

### i.MX28 Family



## Industrial Needs

Like the rest of the i.MX portfolio, the i.MX28 family provides key environmental differentiators for the industrial market. These include 3.3V I/O support, a 0.8 mm pitch package to reduce PCB and manufacturing costs, extended temperature coverage for harsh environments, industrial qualification for extended reliability, a formal long product supply guarantee to support product life spans and a strong ecosystem, including module manufacturers, software integrators and development tools.

## Development Tools

The i.MX28 evaluation kit (EVK) is another product in our “Price, Performance and Personality” series offering developers a cost-effective platform to develop, debug and demonstrate the personality of their next great product without compromising performance. An optional display module using a 4.3” WVGA TFT LCD is also offered.

Keeping with Freescale’s comprehensive software suites, the i.MX28 EVK comes with Linux® and Windows® Embedded CE 6.0 BSPs, as well as audio and video codecs at no extra cost. This complete software package reduces development complexity and reduces time to market.

## i.MX Features and Benefits

Product Features	Solution Benefits
<ul style="list-style-type: none"> <li>454 MHz ARM926EJ-STM core with 16 KB/32 KB I and D Cache</li> <li>PMU to power the device and drive external components, supports Li-Ion batteries and direct connection to 5V supplies</li> <li>Dual IEEE® 1588 10/100 Ethernet with RMI support and L2 switch</li> <li>Dual CAN interfaces</li> <li>NAND support—SLC/MLC and eMMC 4.4 (managed NAND)</li> <li>Hardware BCH (up to 20-bit correction)</li> <li>200 MHz 16-bit DDR2, LV-DDR2, mDDR external memory support</li> <li>Dual High-Speed USB with PHY</li> <li>Up to eight general purpose 12-bit ADC channels and single 2 Msps ADC channel</li> <li>Temperature sensor for thermal protection</li> <li>Multiple connectivity ports (UARTs, SSP, SDIO, SPI, I<sup>2</sup>C, I<sup>2</sup>S)</li> <li>Family of products supporting various feature sets</li> </ul>	<ul style="list-style-type: none"> <li>Industrial-strength integration                             <ul style="list-style-type: none"> <li>Reduces system cost and complexity and provides greater flexibility in system design</li> <li>Industry-leading power management eliminates external components</li> <li>High level of peripheral integration, including display, connectivity, real-time control, security and networking</li> </ul> </li> <li>Industrial qualification and product longevity                             <ul style="list-style-type: none"> <li>Supports the full life of the product in the field</li> <li>Part of the Freescale Product Longevity Program—15 years</li> </ul> </li> <li>Comprehensive enablement                             <ul style="list-style-type: none"> <li>Linux and Windows Embedded CE BSPs: Reuse software across i.MX platforms</li> <li>Multimedia codecs: Proven codecs enable faster time to market</li> <li>Complete software solution at no cost</li> </ul> </li> <li>Optimized performance and power consumption                             <ul style="list-style-type: none"> <li>Increased battery life for portable equipment</li> <li>Improved energy efficiency for wall powered or fanless systems</li> </ul> </li> </ul>

## Ordering Information

Part Number	Temp Ranges	Packages
MCIMX287DVM4B	-40°C to +85°C (Industrial)	289 BGA, 14 x 14 mm, .8 mm
MCIMX286DVM4B MCIMX286CVM4B	-20°C to +70°C (Consumer) -40°C to +85°C (Industrial)	289 BGA, 14 x 14 mm, .8 mm
MCIMX283DVM4B MCIMX283CVM4B	-20°C to +70°C (Consumer) -40°C to +85°C (Industrial)	289 BGA, 14 x 14 mm, .8 mm
MCIMX280DVM4B MCIMX280CVM4B	-20°C to +70°C (Consumer) -40°C to +85°C (Industrial)	289 BGA, 14 x 14 mm, .8 mm

## Family Comparison

Feature	i.MX280	i.MX283	i.MX286	i.MX287
LCD	-	Y	Y	Y
Ethernet	x1	x1	x1	x2
L2 Switch	-	-	-	Y
CAN	-	-	x2	x2
SDIO*	x4	x4	x4	x4
SPI*	x4	x4	x4	x4
S/PDIF Tx	-	-	Y	Y

\* Represents maximum available. Some pins are shared with other interfaces

For more information, visit [freescale.com/iMX28](http://freescale.com/iMX28) or [freescale.com/iMX28EVK](http://freescale.com/iMX28EVK)

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