

# i.MX Family Comparison Table

Freescale's i.MX family of applications processors is designed for use in smartphones, portable media players, portable navigation devices, video surveillance, point-of-sale systems, bar code scanners, and many other consumer, industrial, medical and general

purpose embedded applications. Based on ARM® core technology, the i.MX family is engineered with Smart Speed™ technology to deliver power performance while minimizing power consumption. Extensive integration helps to reduce your design time significantly.

	i.MXS	i.MXL	i.MX21S	i.MX21	i.MX27	i.MX31L	i.MX31
CPU	ARM920T™	ARM920T	ARM926EJ-S™	ARM926EJ-S	ARM926EJ-S	ARM1136JF-S™	ARM1136JF-S
Speed (CPU/System)	100 MHz/96 MHz	150 MHz—200 MHz/96 MHz	266 MHz—350 MHz/133 MHz	266 MHz—350 MHz/133 MHz	266 MHz—400 MHz/133 MHz	532 MHz—665 MHz/133 MHz	532 MHz—665 MHz/133 MHz
I-Cache/D-Cache	16 KB/16 KB	16 KB/16 KB	16 KB/16 KB	16 KB/16 KB	16 KB/16 KB	16 KB/16 KB + Unified 128 KB L2	16 KB/16 KB + Unified 128 KB L2
Floating Point						Vector Floating Point Unit	Vector Floating Point Unit
Direct Memory Access (DMA)	11 Channels	11 Channels	16 Channels	16 Channels	16 Channels	32 Channels	32 Channels
Smart Speed™ Switch			6 x 4	6 x 4	6 x 3	6 x 5	6 x 5
Embedded SRAM			6 KB	6 KB	45 KB	16 KB	16 KB
Double Data Rate Memory					Yes	Yes	Yes
Flash Boot	NOR	NOR	NAND or NOR	NAND or NOR	NAND or NOR	NAND or NOR	NAND or NOR
Multiplier-Accumulator (MAC), Discrete Cosine Transformation/Inverse Discrete Cosine Transformation (DCT/IDCT) Hardware Accelerator		Yes	ARM MAC	ARM MAC	ARM MAC	ARM Dual MAC	ARM Dual MAC
Video Acceleration		DCT/IDCT Hardware Accelerator		MPEG4 CIF 30 fps Encode and Decode	H.264, MPEG-4, H.263 HW encoder and decoder; 30 fps D1 resolution half duplex, 24 fps VGA resolution full duplex	MPEG4 VGA 30 fps Encode	MPEG4 VGA 30 fps Encode
Image Pre- and Post-Processor				Color Space Conversion, De-Block, De-Ring, Resize	Color Space Conversion, De-Block, De-Ring, Resize	Color Space Conversion, De-Block, De-Ring, Rotate	Color Space Conversion, De-Block, De-Ring, Rotate
2-D/3-D Graphics		2-D/3-D Graphics Through Software		2-D/3-D Graphics with External Accelerator (Bus Master Interface Connection)			Integrated 2-D/3-D Processing Unit with OpenGL® Support, Vector Floating Point Unit
Security					Hardware accelerator	Hardware Accelerator	Hardware Accelerator
Liquid Crystal Display Controller (LCDC) Display Size=Typical	Super Twisted Neumatic (STN), Color STN (CSTN), Thin Film Transistor (TFT) 320 x 240	STN, CSTN, TFT 320 x 240	Standard and Smart 640 x 480	Standard and Smart 640 x 480	Standard & Smart 720 x 480	Smart, Serial and Parallel Panels, TV Out, 2 Simultaneous Displays 800 x 600	Smart, Serial and Parallel Panels, TV out, 2 Simultaneous Displays 800 x 600
Camera Interface		CCIR601		CCIR656	CCIR656	CCIR656	CCIR656
Universal Asynchronous Receiver/Transmitter (UART)	2	2	3	4	6	5	5
IrDA	Serial Infrared (SIR)	SIR	SIR, Medium Infrared (MIR), Fast Infrared (FIR)	SIR, MIR, FIR	SIR	SIR, MIR, FIR	SIR, MIR, FIR
Serial Peripheral Interface (SPI)	1, 1 Configurable SPI (CSPI)	1, 1 CSPI	2 CSPI	3 CSPI	3 CSPI	3 CSPI	3 CSPI
Synchronous Serial Interface Inter-Integrated Circuit Sound (SSI/I²S)	1	1	2	2	2	2	2
Inter-Integrated Circuit (I²C)	1	1	1	1	2	1	1
Single-Wire Interface			Yes	Yes	Yes	Yes	Yes
Wi-Fi® Support	Host Interface Through PCMCIA	Host Interface Through PCMCIA	Host Interface Through SDIO or PCMCIA	Host Interface Through SDIO or PCMCIA	Host Interface through SDIO, CF or USB	Host Interface Through SDIO	Host Interface Through SDIO
Universal Serial Bus (USB)	Device	Device	Full-Speed On-The-Go and 1 Full-Speed Host	Full-Speed On-The-Go and 1 Full-Speed Host	High-Speed On-The-Go, High-Speed Host and Full-Speed Host	High-Speed On-The-Go, High-Speed Host and Full-Speed Host	High-Speed On-The-Go, High-Speed Host and Full-Speed Host
Ethernet					Yes		
Multimedia Card/Secure Digital (MMC/SD) Controller		1	2	2	3	2	2
PCMCIA/Compact Flash			Yes	Yes	Yes	Yes	Yes
Memory Stick® Controller					Yes	2 Pro	2 Pro
Hard Disk Drive Interface	via EIM (Memory Bus)	via EIM (Memory Bus)	via PCMCIA	via PCMCIA	Advanced Technology Attachment-6 (ATA-6)	Advanced Technology Attachment-6 (ATA-6)	ATA-6
Smart Card Interface Module (SIM)						1	1
Timer	2	2	3	3	6	3	3
Watchdog Timer	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Real-Time Clock	1	1	1	1	1	1	1
Pulse Width Modulation (PWM)	1	1	1	1	1	1	1
Package	225 MAPB GA 13 x 13 mm 0.8 mm pitch	225/256 MAPBGA 13 x 13 mm/14 x 14 mm 0.8 mm pitch	289 MAPBGA 14 x 14 mm, 0.65 mm pitch 17 x 17 mm, 0.8 mm pitch	289 MAPBGA 14 x 14 mm, 0.65 mm pitch 17 x 17 mm, 0.8 mm pitch	404 MAPBGA 17 X 17 mm, 0.65 mm pitch	457 MAPBGA 14 x 14 mm 0.5 mm pitch	457 MAPBGA 14 x 14 mm 0.5 mm pitch
Process Technology	180 nm	180 nm	130 nm	130 nm	90 nm	90 nm	90 nm

Please note:  
The product data sheet is your best source for the most current and detailed technical data on the i.MX processor you prefer. To download the product's data sheet, visit our Web site at [www.freescale.com/imx](http://www.freescale.com/imx).

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