High-performance real-time processing with advanced connectivity, graphics and security

As embedded systems become more connected and visually sophisticated, developers need greater processing performance, advanced graphics and high-speed connectivity without sacrificing real-time responsiveness or MCU simplicity.

The i.MX RT1150 crossover MCU family combines high-performance real-time processing, flexible memory, low-power operation, advanced connectivity and hardware security in compact package options. Built around an Arm® Cortex®-M7 core running at up to 800 MHz, up to 1.5 MB of on-chip SRAM and real-time response with latency as low as 12 ns.

Select i.MX RT1150 family members add advanced graphics, display and camera capabilities for sophisticated HMI applications. The family is optimized on 28 nm FD-SOI technology and supports applications across industrial control, smart home, professional audio, healthcare, transportation and connected edge systems.

Product highlights

High-performance real-time processing

- Arm® Cortex®-M7 core running at up to 800 MHz
- Up to 1.5 MB of on-chip SRAM

Flexible memory for demanding embedded designs

- Support for Quad/Octal SPI and HyperFlash™/HyperRAM™
- SDRAM and PSRAM support
- NAND and NOR Flash interfaces
- SD/eMMC support
- Flexible on-chip memory resources for real-time application

Low-power operation

- Low dynamic power enabled by 28 nm FD-SOI technology
- Integrated DC-DC converter
- Low-power run modes at 24 MHz

Advanced graphics and HMI capabilities

Select i.MX RT1150 family members provide advanced graphics and display capabilities for embedded HMI designs, including:

- Multiple display and CMOS sensor interfaces
- MIPI® CSI and DSI interfaces
- OpenVG™ graphics acceleration running at up to 500 MHz
- 2D vector graphics acceleration

Extensive memory interface options

- Quad/Octal SPI and HyperFlash™/HyperRAM™, SDRAM, NAND/NOR Flash, SD/eMMC, PSRAM, LPSDRAM

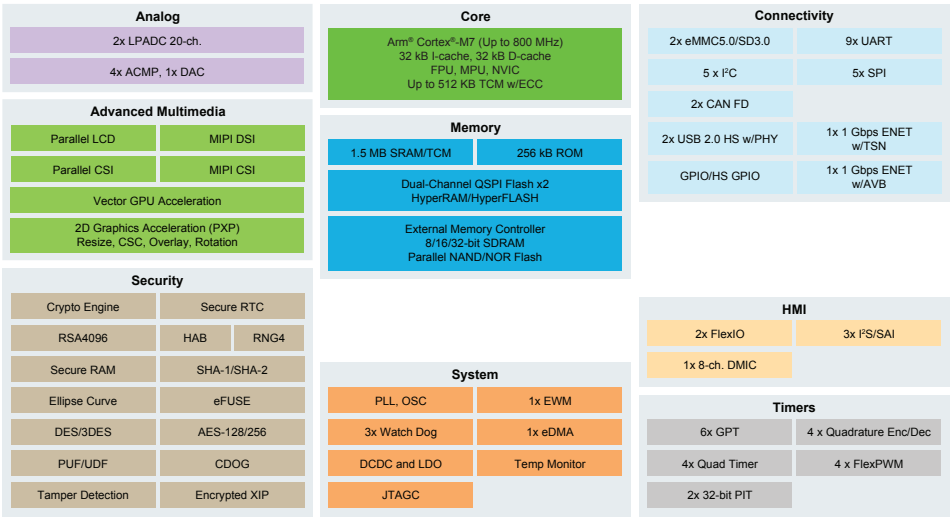
Integrated security

- Hardware Elliptic Curve Cryptography
- Hardware-protected key storage for secure boot
- AES engine for data encryption
- On-the-fly AES decryption supporting execute-in-place from Quad/Octal SPI and HyperFlash
- Part of the EdgeLock® Assurance program

Target applications

- Industrial automation and HMI
- Smart home and building automation
- Professional audio
- Healthcare and medical devices
- Transportation and e-mobility
- Smart connected devices

i.MX RT1150 block diagram



Choose the i.MX RT1150 family member that fits your design

The i.MX RT1150 family provides scalable options for high-performance real-time processing, with select devices adding advanced graphics, display and camera capabilities for HMI-focused applications.

i.MX RT1150 – Family comparison

Feature	i.MX RT1151		i.MX RT1152	
Cortex-M7	800MHz		800MHz 600MHz for Auto	
Cortex-M4	–		–	
On chip SRAM	1.5MB w/ ECC		1.5MB w/ ECC	
MIPI CSI / DSI	–		Y	
OpenVG 1.1	–		Y	
CSI / LCDIF / PXP	–		Y	
Ethernet	1x 1G AVB, 1x 1G TSN			
HAB / AES / DES	Y		Y	
CAN-FD	x2		x2	
EMV SIM	–		–	
GPIOs	137	174	137	174
Package	BGA232 10x10 Hybrid Pitch	BGA289 14x14 P0.8	BGA232 10x10 Hybrid Pitch	BGA289 14x14 P0.8
Commercial[2] 0°C to 95°C	MIMXRT1151 DHM8B	MIMXRT1151 DVM8B	MIMXRT1152 DHM8B	MIMXRT1152 DVM8B
Industrial[2] –40°C to 105°C	MIMXRT1151 CHM8B	MIMXRT1151 CVM8B	MIMXRT1152 CHM8B	MIMXRT1152 CVM8B
Extended industrial[2] –40°C to 125°C	MIMXRT1151 XHM8B	MIMXRT1151 XVM8B	MIMXRT1152 XHM8B	MIMXRT1152 XVM8B
Automotive[2] –40°C to 125°C	–	–	–	MIMXRT1152 AVM6B

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