i.MX RT1160 Crossover MCU Dual-Core Arm® Cortex®-M7 and Cortex-M4
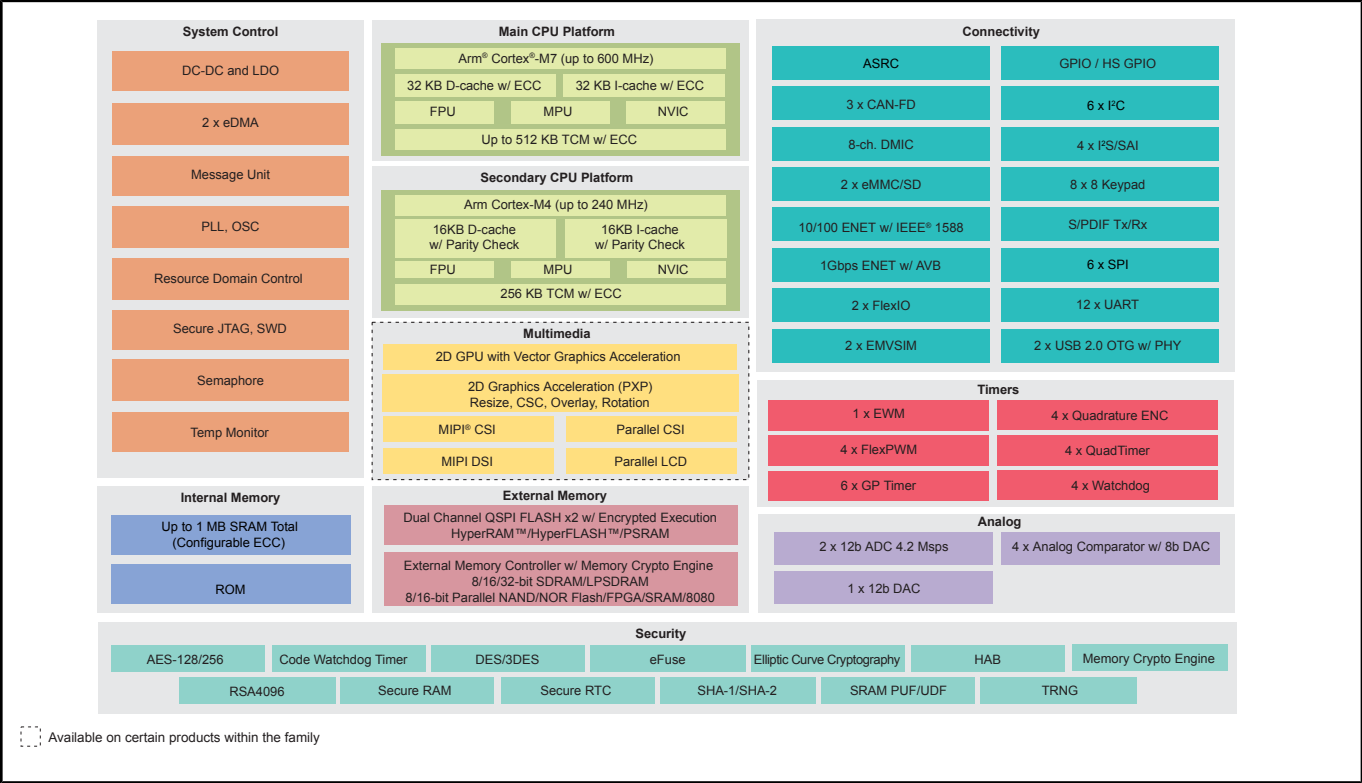
i.MX-RT1160

Last Updated: Jan 14, 2026

i.MX RT1160 Crossover MCUs are dual-core devices featuring an Arm® Cortex®-M7 and Cortex-M4 for real-time performance and high integration for Industrial and IoT applications.

The i.MX RT1160 Arm® Cortex®-M7 operates at up to 600 MHz and the Arm® Cortex®-M4 up to 240 MHz with 1 MB on-chip RAM. The family offers advanced 2D graphics, MIPI-CSI, MIPI-DSI, and various memory interfaces, a wide range of connectivity interfaces including 3x Ethernet up to Gbps with TSN/AVB, UART, SPI, I²C, USB and 3x CAN. The i.MX RT1160 provides advanced embedded security including secure boot and crypto engines.

The i.MX RT1160 family is supported by the MCUXpresso ecosystem, which includes an SDK, a choice of IDEs and secure provisioning and configuration tools to enable rapid development.

i.MX RT1160 Crossover MCU Block Diagram

System Control

- DC-DC and LDO
- 2 x eDMA
- Message Unit
- PLL, OSC
- Resource Domain Control
- Secure JTAG, SWD
- Semaphore
- Temp Monitor

Main CPU Platform

- Arm® Cortex®-M7 (up to 600 MHz)
- 32 KB D-cache w/ ECC
- 32 KB I-cache w/ ECC
- FPU
- MPU
- NVIC
- Up to 512 KB TCM w/ ECC

Secondary CPU Platform

- Arm Cortex-M4 (up to 240 MHz)
- 16KB D-cache w/ Parity Check
- 16KB I-cache w/ Parity Check
- FPU
- MPU
- NVIC
- 256 KB TCM w/ ECC

Multimedia

- 2D GPU with Vector Graphics Acceleration
- 2D Graphics Acceleration (PXP) Resize, CSC, Overlay, Rotation
- MIPI® CSI
- Parallel CSI
- MIPI DSI
- Parallel LCD

Connectivity

- ASRC
- GPIO / HS GPIO
- 3 x CAN-FD
- 6 x I²C
- 8-ch. DMIC
- 4 x I²S/SAI
- 2 x eMMC/SD
- 8 x 8 Keypad
- 10/100 ENET w/ IEEE® 1588
- S/PDIF Tx/Rx
- 1Gbps ENET w/ AVB
- 6 x SPI
- 2 x FlexIO
- 12 x UART
- 2 x EMVSIM
- 2 x USB 2.0 OTG w/ PHY

Timers

- 1 x EWM
- 4 x Quadrature ENC
- 4 x FlexPWM
- 4 x QuadTimer
- 6 x GP Timer
- 4 x Watchdog

Internal Memory

- Up to 1 MB SRAM Total (Configurable ECC)
- ROM

External Memory

- Dual Channel QSPI FLASH x2 w/ Encrypted Execution HyperRAM™/HyperFLASH™/PSRAM
- External Memory Controller w/ Memory Crypto Engine 8/16/32-bit SDRAM/LPSDRAM 8/16-bit Parallel NAND/NOR Flash/FPGA/SRAM/8080

Analog

- 2 x 12b ADC 4.2 Msps
- 4 x Analog Comparator w/ 8b DAC
- 1 x 12b DAC

Security

- AES-128/256
- Code Watchdog Timer
- DES/3DES
- eFuse
- Elliptic Curve Cryptography
- HAB
- Memory Crypto Engine
- RSA4096
- Secure RAM
- Secure RTC
- SHA-1/SHA-2
- SRAM PUF/UDF
- TRNG

⌐ Available on certain products within the family

View additional information for i.MX RT1160 Crossover MCU Dual-Core Arm® Cortex®-M7 and Cortex-M4.

Note: The information on this document is subject to change without notice.