

## i.MX RT1170: 1 GHz Crossover MCU with Arm® Cortex® Cores

## i.MX-RT1170

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i.MX RT1170 Crossover MCUs are dual-core devices featuring an Arm® Cortex®-M7 and Arm® Cortex®-M4 for real-time microcontroller (MCU) performance and high integration for automotive, industrial and IoT applications.

The i.MX RT1170 Arm® Cortex®-M7 operates at up to 1 GHz and the Arm® Cortex®-M4 up to 400 MHz with 2 MB on-chip RAM. The real-time microcontroller (MCU) family offers various memory interfaces and a wide range of connectivity interfaces including 3x Ethernet up to Gbps with TSN/AVB, UART, SPI, I²C, USB and 3x CAN FD. The i.MX RT1170 provides advanced embedded security including secure boot and crypto engines.

The i.MX RT1170 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 RT1170 Crossover MCU Block Diagram

System Control	Main CPU Platform			Connectivity				
DC-DC and LDO	Arm® Cortex®-M7 (up to 1 GHz)			ASRC		GPIO		
BO-BO dila EBO		32 KB I-cache w/ ECC		3 x CAN-FD			HS GPIO	
2 x eDMA	FPU MPU Up to 512 KB TC	NVIC		8-ch. DMIC			6 x I <sup>2</sup> C	
				2 x eMMC/SD		4 100/041		
Message Unit	Secondary CPU Platform			2 X elviivic/SD		4 x I²S/SAI		
	Arm Cortex-M4 (up to 400 MHz)			2 x EMVSIM		8 x 8 Keypad		
PLL, OSC	16KB D-cache 16KB I-cache w/ Parity Check w/ Parity Check			10/100 ENET w/ IEEE® 1588		S/PDIF Tx/Rx		
Resource Domain Control	FPU MPU NVIC			1Gbps ENET w/ AVB		6 x SPI		
O ITAO OMB	256 KB TCM w/ ECC			1Gbps ENET w/ TSN		12 x UART		
Secure JTAG, SWD	Multimedia  2D GPU with Vector Graphics Acceleration			2 x FlexIO		2 x USB 2.0 OTG w/ PHY		
Semaphore	2D Graphics Acceleration (PXP) Resize, CSC, Overlay, Rotation			Timers				
				1 x EWM		4 x Quadrature ENC		
Temp Monitor	MIPI® CSI	MIPI Parallel CSI  MIPI DSI  Parallel LCD		4 x FlexPWM		4 x QuadTimer		
	MIPI DSI							
Internal Memory	External Mer	External Memory		6 x GP Timer		4 x Watchdog		
Up to 2MB SRAM Total	Dual Channel QSPI FLASH x2 w/ Encrypted Execution HyperRAM™/HyperFLASH™/PSRAM				Ana	nalog		
(Configurable ECC)				2 x 12b ADC 4.2	Msps	ps 4 x Analog Comparator w/ 8b DAC		
ROM	External Memory Controller w/ Memory Crypto Engine 8/16/32-bit SDRAM/LPSDRAM 8/16-bit Parallel NAND/NOR Flash/FPGA/SRAM/8080			1 x 12b DAC				
		Security						
AES-128/256 Code Watchdo	og Timer DES/3DES	eFuse	Ellipt	tic Curve Cryptography	HAE	3	Memory Crypto Engine	
RSA4096 Secure R	AM Secure RTC	SHA-1/SHA-2	SRAM PUF/UDF		Tamper De	etection	TRNG	
on certain products within the family								

View additional information for i.MX RT1170: 1 GHz Crossover MCU with Arm® Cortex® Cores.

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