

i.MX RT1180: Crossover MCU with TSN Switch and EdgeLock®

i.MX-RT1180-TEST

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i.MX RT1180 Crossover MCUs are dual-core, real-time microcontrollers (MCUs) featuring an Arm® Cortex®-M7 and Arm® Cortex®M33 for high performance and real-time functionality. The i.MX RT1180 includes an integrated Gbps time-sensitive networking (TSN) switch and EtherCAT SubDevice Controller making it ideal for industrial applications.

The i.MX RT1180 CM7 operates at up to 800 MHz and the Arm Cortex-M33 up to 300 MHz with 1.5 MB on-chip RAM. The family supports multiple protocols, bridging communications between real-time Ethernet and Industry 4.0 systems. The i.MX RT1180 offers advanced security with the integrated EdgeLock® Secure Enclave.

The i.MX RT1180 family is supported by the MCUXpresso developer experience, which includes an SDK, a choice of IDEs and secure provisioning and configuration tools to enable rapid development.

i.MX RT1180 Crossover MCU Block Diagram

Secure JTAG		Main CPU Platform			Connectivity			
Occur o IAO	Arm® Cortex	Arm® Cortex®-M7 (up to 800 MHz)			2 x eMMC 5.1 / SD 3.0		ASRC	
PLL, OSC	32 KB I-cache	32	RB D-cache					
2 x eDMA		MPU	NVIC		12 x UART		8-ch. Digital Mic Input	
6 x Watchdog	Up to 51:	Up to 512KB TCM w/ ECC			8x8 Keypad		6 x I ² C	
2 x GP Timer	Secure	Secure CPU Platform			2 x I3C		6 x LPSPI	
4 x Quadrature Dec		Secure CPU Platform			2 X 13C		6 X LPSPI	
8 x QuadTimer		Arm Cortex-M33 (up to 300 MHz)			2 x FlexIO		GPIO	
4 x FlexPWM	16 KB C-cache		KB S-cache	[2 x USB2.0 OTG w/ Ph	HY .	FlexSPI Follower	
3 x LPIT	FPU 256 KB TCM w	MPU // ECC	NVIC TrustZone	1		II		
3 x LPTMR				4 x SAI			SPDIF	
6 x LPTPM	2 x FlexSPI	External Memory 2 x FlexSPI (Dual Channel QSPI) HyperRAM™ /HyperFlash™ w/OTFAD External Memory Controller 8/16/32-bit SDRAM/LPSDRAM, SRAMC, NAND/Parallel NOR Flash SRAMC controller Async 8/16bit ADMUX/Non-ADMUX SRAM			Delta-sigma Demodulator (3 x SINC filters) Network		3 x CAN-FD	
Internal Memory							ing	
Up to 1.5 MB SRAM w/ ECC ROM	SDRAM/LPSDRAM, SR				TSN End-point GMAC 4-ports TSN Switch with 1x TSN End point 2-Ports EtherCAT SubDevice*		Port 4	
Analog	SRA Asvnc 8/16bit AE						Port 3	
2 x 16b ADC 3.5Msps		Power Management					Port 2	
1 x DAC		DC-DC and LDO					Port 1	
4 x ACMP	Те	Temp Monitor					Port 0	
		EdgeL	ock® Secure Enclav	re				
	Secure Boot	cure Boot			Public/Private	Key Storage		
Trust Monitor	Secure I	Secure Debug		PKC: RSA / ECC		AES (CBC/CMAC/HMAC/GCM)		
Lifecycle	OT	OTP		TRNG		SHA2 (224/256/384/512)		

View additional information for i.MX RT1180: Crossover MCU with TSN Switch and EdgeLock®.

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