MCX A Series Microcontrollers

Addressing challenges engineers face while designing for the edge

MCX A14x and A15x all-purpose microcontrollers (MCUs) address a wide range of applications with scalable device options, low power and intelligent peripherals.

The MCX A14x and A15x Arm® Cortex®-M33 general purpose MCUs operate at up to 96 MHz with high levels of integration and analog. The low power cache enhances the system performance with built-in RAM self-test hardware and supporting safety applications.

They offer a wide range of low power and intelligent peripherals including Timers that generate three complementary PWM pairs with deadband insertion, 4 Msps 12b ADC with hardware windowing and averaging features.

The innovative power architecture is designed to support high utilization of I/Os and power efficiency with a simple supply circuit in a smaller footprint. Designed to support more GPIO pins for additional external connections, the MCX A allows designers to utilize a smaller package, simpler board design and lower system BOM costs.

Target Applications

- Sensing & metering
- Building control & automation
- Smart circuit breaker
- Home appliances
- USB accessories
- Compressor drive
- Smart lighting
- Hand-held devices
- Power tools
- IoT nodes

MCX A14x and A15x block diagram

System Control		CORE Platform	Interfaces	
Power Control Single V_{DD} Power Supply, POR Core LDO		Arm® Cortex®-M33 48 MHz and 96 MHz	1x LPI²C	3x LPUART
Clock Generation Unit FRO 192, FRO16K, XTAL 8-50 MHz, Clock Out	DMA0		FS USB	1x I3C
			2x LPSPI	

Memory	Timers	Motor Control Subsystem		
FLASH Up to 128 kB with 4 kB Cache	Wakeup Timer	1x QDC	1x AOI	1x FlexPWM
	3x 32 b Timers			
RAM Up to 32 kB (with 8 kB ECC)	Windowed WDT	Analog		
	LP Timer	1x 12 b ADC		
ROM Boot	Micro Tick Timer	2x ACMP		
	OS Event Timer	Temp Sensor		

Comprehensive Enablement

The MCX MCU portfolio is supported by the [MCUXpresso Developer Experience](#) to optimize, ease and help accelerate embedded system development.

The MCUXpresso suite includes tools for simple device configuration and secure programming. Developers can choose to work with multiple IDEs including MCUXpresso for VS Code, MCUXpresso IDE, IAR, or Keil.

NXP provides drivers and middleware with extensive examples and support for a range of RTOS choices, further complemented by a wide range of compatible middleware from NXP's partner ecosystem, allowing rapid development of a broad range of end applications.

Hardware Platforms

For quick prototyping, we offer our low-cost, compact and scalable FRDM development boards.

Developers have easy access to additional tools like our [Expansion Board Hub](#) for add-on boards and the [Application Code Hub](#) for software examples through the MCUXpresso Developer Experience.
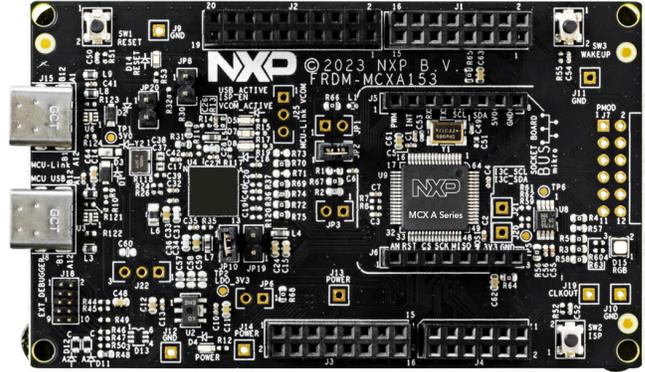
FRDM-MCXA153 FRDM Board

MCX A14x and A15x MCU Options

Part Number	Flash	SRAM	LPI2C	LPUART	LPSPI	I3C	USB FS	12b SE ADC	Comparator	Package
MCXA143VLH	128 kB	32 kB	1	3	2	1	1	1	2	LQFP64
MCXA143VFT	128 kB	32 kB	1	3	2	1	1	1	2	QFN48
MCXA143VFM	128 kB	32 kB	1	3	2	1	1	1	2	QFN32
MCXA142VLH	64 kB	16 kB	1	3	2	1	1	1	2	LQFP64
MCXA142VFT	64 kB	16 kB	1	3	2	1	1	1	2	QFN48
MCXA142VFM	64 kB	16 kB	1	3	2	1	1	1	2	QFN32
MCXA153VLH	128 kB	32 kB	1	3	2	1	1	1	2	LQFP64
MCXA153VFT	128 kB	32 kB	1	3	2	1	1	1	2	QFN48
MCXA153VFM	128 kB	32 kB	1	3	2	1	1	1	2	QFN32
MCXA152VLH	64 kB	16 kB	1	3	2	1	1	1	2	LQFP64
MCXA152VFT	64 kB	16 kB	1	3	2	1	1	1	2	QFN48
MCXA152VFM	64 kB	16 kB	1	3	2	1	1	1	2	QFN32
FRDM-MCXA153	MCX A153 FRDM Development Board									LQFP64

www.nxp.com/MCXA