MCX C Series Microcontrollers
Entry-level, cost effective with low power energy-saving peripherals

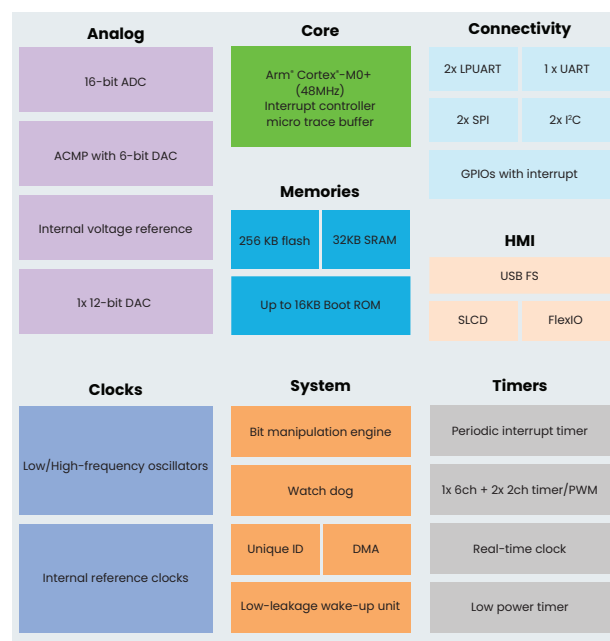The MCX C Series MCUs, powered by Arm® Cortex®-M0+ up to 48 MHz, offer entry-level, cost-effective solutions with USB and segment LCD options for general-purpose use cases. The MCX C Series extends the classical IPs within NXP MCUs, providing flexible and scalable memory and packages. The MCX C04x family features 32KB Flash, 2KB SRAM, and 8KB Boot ROM, with peripherals including a 12-bit ADC, comparator, and multiple channel timer/PWM modules. Its enhanced low-power architecture boasts a static power consumption as low as 2.2 µA, with a 7.5 µs wake-up time for full retention, and the lowest static mode down to 77 nA in deep sleep. The MCX C14x/24x/44x families feature up to 256KB Flash, up to 32KB SRAM, and 16KB Boot ROM. They are optimized for cost-sensitive and battery-powered applications requiring low-power USB connectivity and segment LCD. With FlexIO to support standard and customized serial peripheral emulation, these families achieve an optimized low-power mode down to 54 µA/MHz in very low-power run mode and 1.96 µA in deep sleep mode (RAM + RTC retained).

Highlighted Features

- USB FS 2.0 device without requiring an external crystal
- Segment LCD supporting up to 24x8 or 28x4 segments
- Embedded ROM with boot loader for flexible program upgrade
- 80-bit unique identification number per chip
- Advanced flash security
- COP Software watchdog
- SWD debug interface and Micro Trace Buffer
- Voltage range: 1.71 to 3.6 V
- Temperature range : -40 to 125ºC(Tj)

Target applications

- Small to medium appliances
- Home Security and Surveillance
- Smart Lighting
- Smart Power socket
- DC Fans

MCX C14x/24x/44x Family block diagram

Analog	Core	Connectivity	
16-bit ADC	Arm® Cortex®-M0+ (48MHz) Interrupt controller micro trace buffer	2x LPUART	1 x UART
ACMP with 6-bit DAC		2x SPI	2x I²C
Internal voltage reference	**Memories**	GPIOs with interrupt	
1x 12-bit DAC	256 KB flash / 32KB SRAM	**HMI**	
	Up to 16KB Boot ROM	USB FS	
		SLCD	FlexIO

Clocks	System		Timers
Low/High-frequency oscillators	Bit manipulation engine		Periodic interrupt timer
	Watch dog		1x 6ch + 2x 2ch timer/PWM
Internal reference clocks	Unique ID	DMA	Real-time clock
	Low-leakage wake-up unit		Low power timer

Developer experience

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.
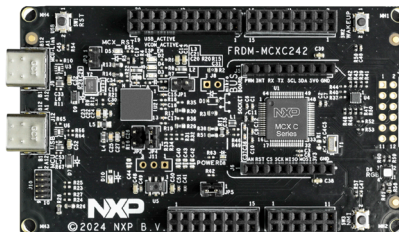
Hardware Platforms

For quick prototyping, we offer our low-cost, compact and scalable FRDM development boards.
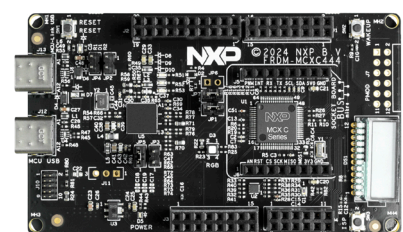
Developers have easy access to additional tools like our [Expansion Board Hub](#) for add-on boards and the [Application Code Hub](#) for software examples through the MCUXpresso Developer Experience.
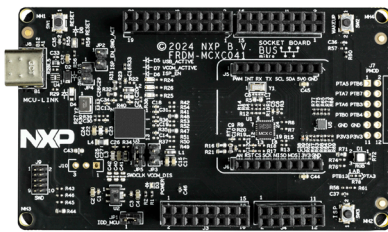
FRDM-MCXC041 FRDM Board

FRDM-MCXC242 FRDM Board

FRDM-MCXC444 FRDM Board

MCX C04x/C14x/24x/44x MCU Options

Part Number	Flash (KB)	SRAM (KB)	GPIOs	USB	LCD	Package
MCXC041VFG	32	2	14	–	–	16QFN
MCXC041VFK	32	2	22	–	–	24QFN
MCXC141VFM	32	8	28	–	–	32QFN
MCXC141VLH	32	8	54	–	–	64LQFP
MCXC142VFM	64	16	28	–	–	32QFN
MCXC143VFM	128	16	28	–	–	32QFN
MCXC143VFT	128	16	40	–	–	48QFN
MCXC144VFM	256	32	28	–	–	32QFN
MCXC144VFT	256	32	40	–	–	48QFN
MCXC242VLH	64	16	51	Y	–	64LQFP
MCXC242VFM	64	16	24	Y	–	32QFN
MCXC243VFT	128	16	36	Y	–	48QFN
MCXC244VFM	256	32	23	Y	–	32QFN
MCXC244VFT	256	32	36	Y	–	48QFN
MCXC443VMP	128	16	50	Y	Y	64BGA
MCXC443VLH	128	16	50	Y	Y	64LQFP
MCXC444VMP	256	32	50	Y	Y	64BGA
MCXC444VLH	256	32	50	Y	Y	64LQFP
FRDM-MCXC041	MCX C041 FRDM Development Board					QFN24
FRDM-MCXC242	MCX C242 FRDM Development Board					LQFP64
FRDM-MCXC444	MCX C444 FRDM Development Board					LQFP64

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