

MCX C Series Microcontrollers

Entry-level, cost effective with low power energy-saving peripherals

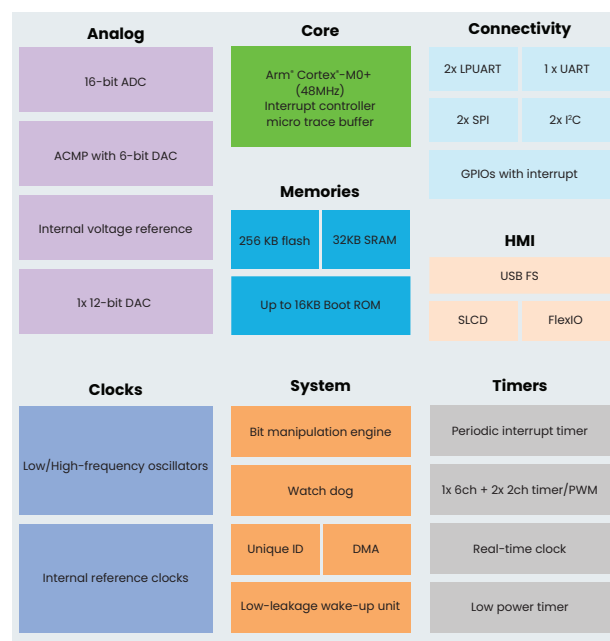
The [MCX C Series](#) MCUs, powered by Arm® Cortex®-M0+ up to 48 MHz, offer entry-level, cost-effective solutions with USB and segment LCD options for general-purpose use cases. The MCX C Series extends the classical IPs within NXP MCUs, providing flexible and scalable memory and packages. The MCX C04x 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 $\mu\text{A}/\text{MHz}$ in very low-power run mode and 1.96 μA in deep sleep mode (RAM + RTC retained).



Target applications

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

MCX C14x/24x/44x Family block diagram



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 125°C(Tj)

Developer experience

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

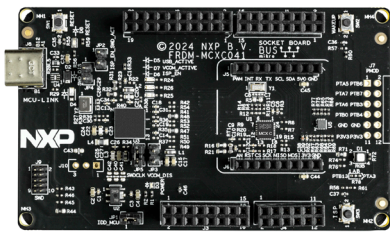
The MCUXpresso suite includes tools for simple device configuration and secure programming. Developers can choose to work with multiple IDEs including MCUXpresso for VS Code, MCUXpresso IDE, IAR, or Keil.

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.

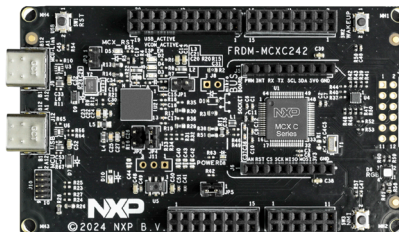
Hardware Platforms

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

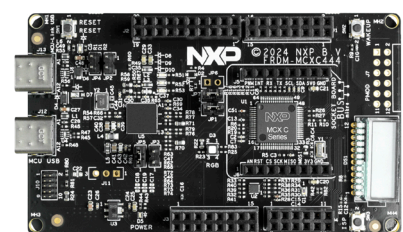
Developers have easy access to additional tools like our [Expansion Board Hub](#) for add-on boards and the [Application Code Hub](#) for software examples through the MCUXpresso Developer Experience.



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 |

www.nxp.com/MCXC

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