MCX C1 Family of microcontrollers

Low-cost, entry-level MCUs for industrial and IoT applications

As part of the MCX C Series, the MCX C1 family of MCUs delivers cost-effective, general-purpose MCUs with high efficiency analog and control peripherals for Industrial and IoT applications. This family of microcontrollers consists of variants featuring an Arm® Cortex® -M23 core running at up to 72 MHz and up to 64 kB embedded Flash (MCX C15, MCX C16) as well as variants featuring an Arm® Cortex® -M0+ core running at 48 MHz and up to 256 kB embedded Flash (MCX C14). Bringing low-cost, entry-level MCUs, the MCX C1 family expands accessibility while maintaining scalability and key features aligned with the MCX portfolio.

Target applications

- Hand-held devices
- Power tools
- Lighting
- Fan control
- Alarms
- Medical devices
- Electronic toys
- Ground fault circuit interrupter

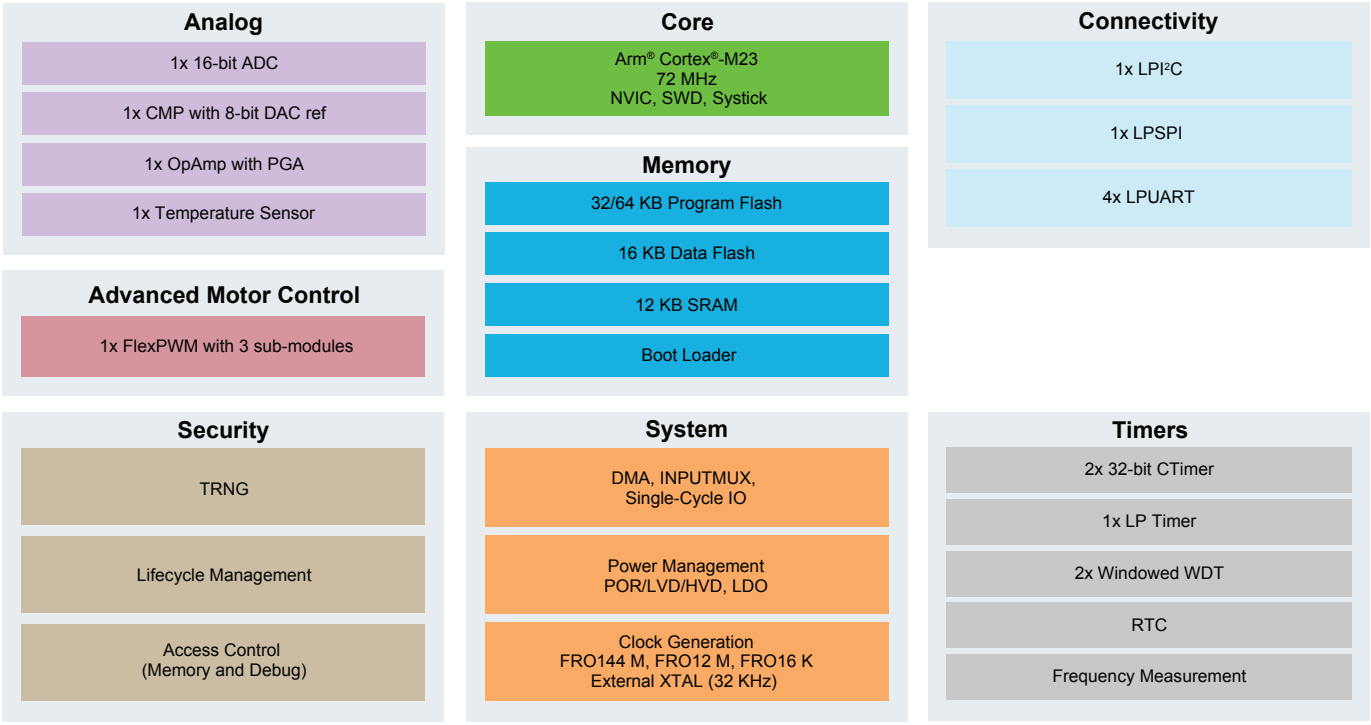
The Cortex-M23 core MCX C15 and MCX C16 MCUs bring efficient analog and control peripherals into the low-cost, entry-level MCU class. This makes advanced features—such as 16-bit ADC, comparator with DAC, and FlexPWM for motor control—accessible to cost-sensitive applications.

This entry-level 32-bit MCU series is designed as an upgrade from legacy 8-bit, 16-bit, and M0+ devices, delivering higher performance and scalability without increasing cost. Simple migration paths from the widely-used LPC800, LPC1100, and Kinetis MCUs along with pin-to-pin compatible options within the newer MCX A Series provide seamless transition within the entire NXP MCU portfolio.

Highlighted features

- Up to 72 MHz Arm Cortex-M23 Core
- Up to 64 kB Flash
- Up to 12 kB RAM
- 1x LPSPI, 1x LPI2C, up to 4x LPUART
- 1x FlexPWM
- 1x 16-bit ADC
- 1x High-speed Comparator with 8-bit DAC
- Up to 45 GPIOs
- Operating voltage: 1.7 to 3.6 V
- Temperature Range: -40 to 125 °C
- Small package options (as small as QFN16, QFN24)

MCX C15/C16 block diagram

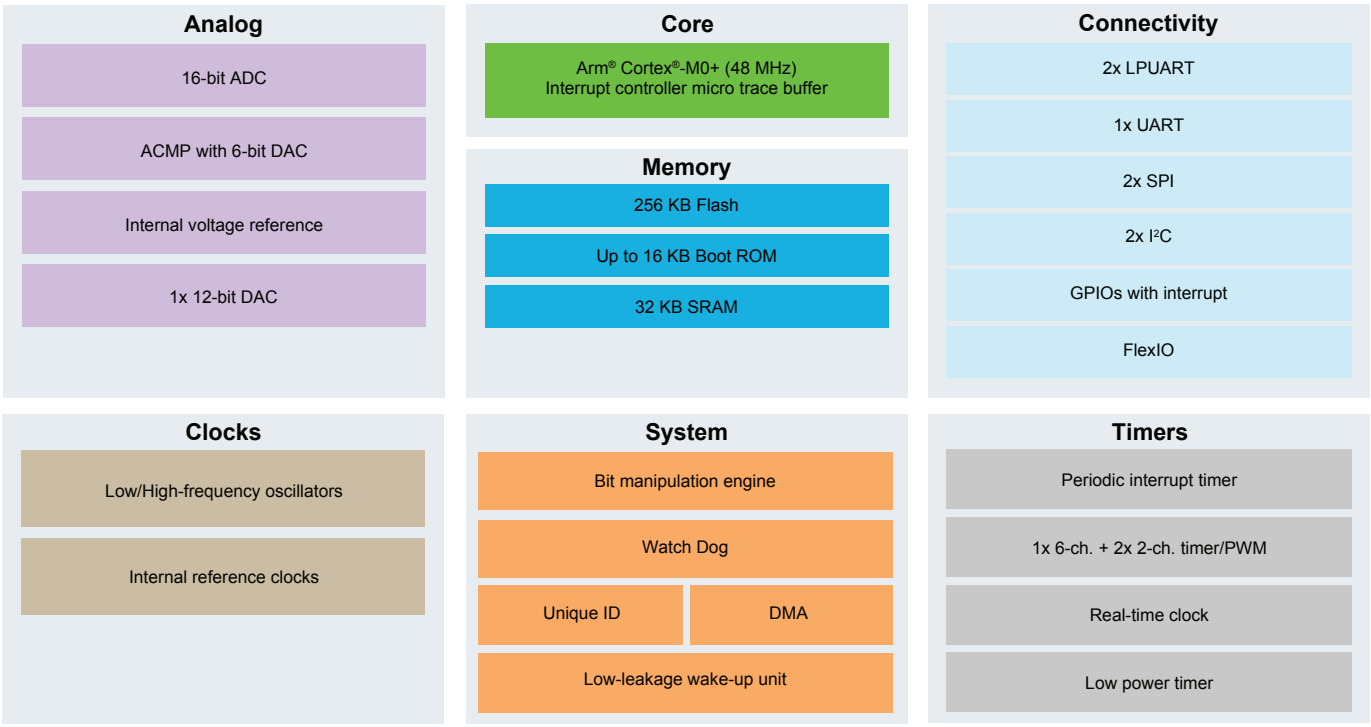


The MCX C14 MCU features a 48 MHz Arm Cortex-M0+ core, with up to 256 KB flash and 32 KB RAM. It includes LPSPI, LPI2C, and LPUART interfaces, along with FlexIO, a 16-bit ADC, 12-bit DAC, and a high-speed comparator with 6-bit DAC. With up to 40 GPIOs, a 1.7 V to 3.6 V operating range, and -40°C to 125°C temperature support, all of these features bring high-precision into the entry-level MCU class. With flexible memory options, the MCX C14 provides a dependable foundation for low-end applications to keep systems simple, efficient, and cost-optimized.

Highlighted features:

- 48 MHz Arm Cortex-M0+ Core
- Up to 256 kB Flash
- Up to 32 kB RAM
- 1x LPSPI, 1x LPI2C, 1x LPUART
- 1x FlexIO
- 1x 16-bit ADC
- 1x 12-bit DAC
- 1x High-speed Comparator with 6-bit DAC
- Up to 40 GPIOs
- Operating voltage: 1.7 to 3.6 V
- Temperature Range: -40 to 125 °C

MCX C14 block diagram



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.

MCX C14 orderable part numbers

Part number	Core speed (MHz)	Flash (kB)	SRAM (kB)	GPIOs	Package
MCXC141VFM	48	32	8	28	QFN32
MCXC141VLH	48	32	8	54	QFP64
MCXC142VFM	48	64	16	28	QFN32
MCXC143VFM(R)	48	128	32	28	QFN32
MCXC143VFT	48	128	32	40	QFN48
MCXC144VFM(R)	48	256	32	28	QFN32
MCXC144VFT	48	256	32	40	QFN48

MCX C15 orderable part numbers

Part number	Core speed (MHz)	Flash (kB)	SRAM (kB)	GPIOs	Package
MCXC151VFG	48	32	6	15	H-PQFN16
MCXC151VFK	48	32	6	23	H-PQFN24
MCXC151VFM	48	32	6	29	H-PQFN32
MCXC151VFT	48	32	6	45	H-PQFN48
MCXC151VLF	48	32	6	43	LQFP48

MCX C16 orderable part numbers

Part number	Core speed (MHz)	Flash (kB)	SRAM (kB)	GPIOs	Package
MCXC161VFG	72	32	12	15	H-PQFN16
MCXC161VFK	72	32	12	23	H-PQFN24
MCXC161VFM	72	32	12	29	H-PQFN32
MCXC161VFT	72	32	12	45	H-PQFN48
MCXC161VLF	72	32	12	43	LQFP48
MCXC162VFG	72	64	12	15	H-PQFN16
MCXC162VFK	72	64	12	23	H-PQFN24
MCXC162VFM	72	64	12	29	H-PQFN32
MCXC162VFT	72	64	12	45	H-PQFN48
MCXC162VLF	72	64	12	43	LQFP48

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