

# MCX A Series Microcontrollers

## Addressing challenges engineers face while designing for the edge

MCX A1xx Series all-purpose microcontrollers (MCUs) address a wide range of applications with scalable device options, low power and intelligent peripherals.

The [MCX A1xx Series](#) 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, 3.2 Msps 16b 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



## Developer experience

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

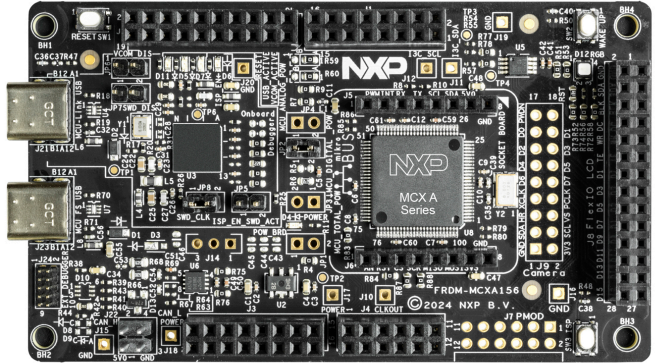
The MCUXpresso suite includes tools for simple device configuration and secure programming. Developers can choose to work with multiple IDEs including MCUXpresso for VS Code, MCUXpresso IDE, IAR, or Keil.

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

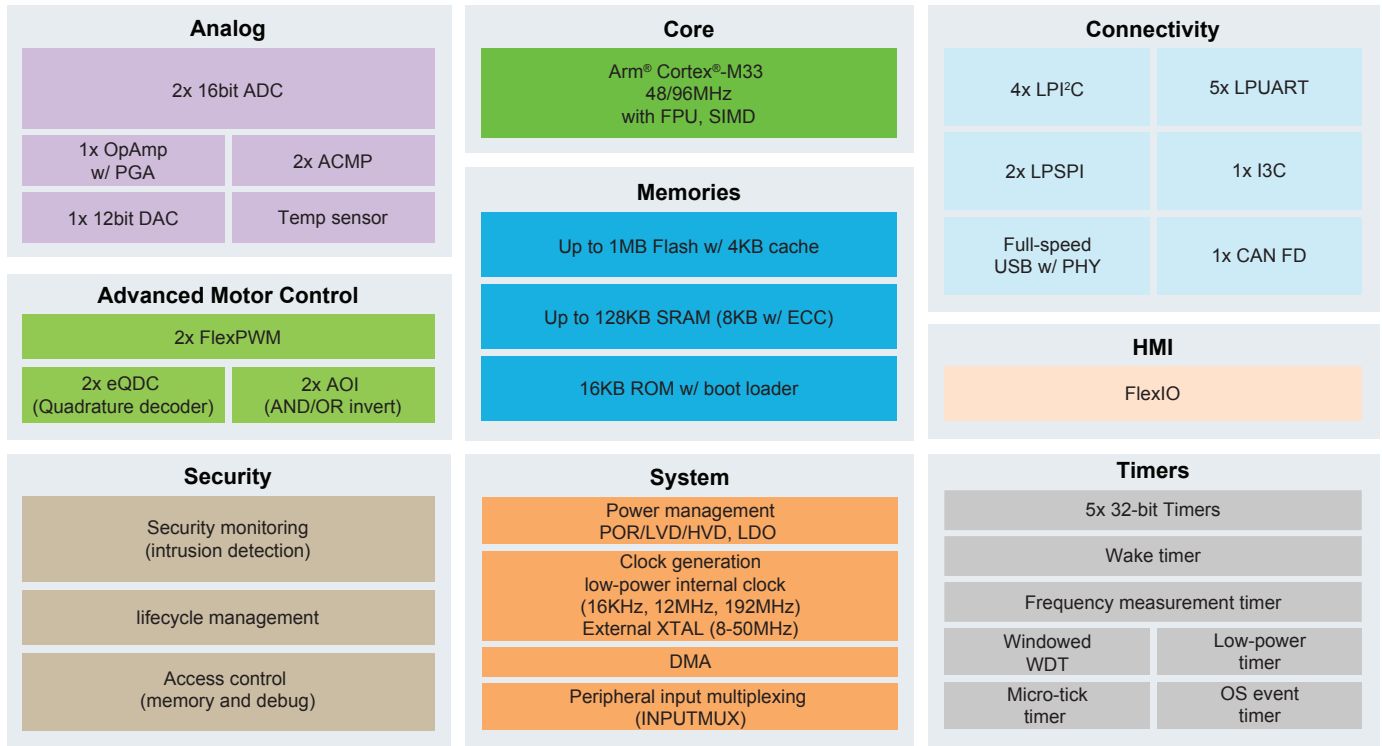
For quick prototyping, we offer our low-cost, compact and scalable FRDM development boards.

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-MCXA156 FRDM board

## MCX A1xx block diagram



## MCX A1xx MCU Options

Part Number	Frequency	Flash	SRAM	LPI2C	LPUART	LPSP1	I3C	USB FS	FlexIO	CAN	16b SE ADC	ADC Channels	12b DAC	OpAmp	FlexPWM	Comparator	GPIOs	Package
MCXA156VPJ	96 MHz	1024 KB	128 KB	4	5	2	1	1	1	1x CAN FD	2	39	1	1	2	2	82	VFBGA112
MCXA156VMP	96 MHz	1024 KB	128 KB	4	5	2	1	1	1	1x CAN FD	2	26	1	1	2	2	50	LFBGA64
MCXA156VLL	96 MHz	1024 KB	128 KB	4	5	2	1	1	1	1x CAN FD	2	39	1	1	2	2	81	LQFP100
MCXA156VLH*	96 MHz	1024 KB	128 KB	4	5	2	1	1	1	1x CAN FD	2	28	1	1	2	2	52	LQFP64
MCXA156VFT	96 MHz	1024 KB	128 KB	4	5	2	1	1	1	1x CAN FD	2	20	1	1	2	2	41	HVQFN48
MCXA155VPJ	96 MHz	512 KB	96 KB	4	5	2	1	1	1	1x CAN FD	2	39	1	1	2	2	82	VFBGA112
MCXA155VMP	96 MHz	512 KB	96 KB	4	5	2	1	1	1	1x CAN FD	2	26	1	1	2	2	50	LFBGA64
MCXA155VLL	96 MHz	512 KB	96 KB	4	5	2	1	1	1	1x CAN FD	2	39	1	1	2	2	81	LQFP100
MCXA155VLH*	96 MHz	512 KB	96 KB	4	5	2	1	1	1	1x CAN FD	2	28	1	1	2	2	52	LQFP64
MCXA155VFT	96 MHz	512 KB	96 KB	4	5	2	1	1	1	1x CAN FD	2	20	1	1	2	2	41	HVQFN48
MCXA154VPJ	96 MHz	256 KB	64 KB	4	5	2	1	1	1	1x CAN FD	2	39	1	1	2	2	82	VFBGA112
MCXA154VMP	96 MHz	256 KB	64 KB	4	5	2	1	1	1	1x CAN FD	2	26	1	1	2	2	50	LFBGA64
MCXA154VLL	96 MHz	256 KB	64 KB	4	5	2	1	1	1	1x CAN FD	2	39	1	1	2	2	81	LQFP100
MCXA154VLH*	96 MHz	256 KB	64 KB	4	5	2	1	1	1	1x CAN FD	2	28	1	1	2	2	52	LQFP64
MCXA154VFT	96 MHz	256 KB	64 KB	4	5	2	1	1	1	1x CAN FD	2	20	1	1	2	2	41	HVQFN48
MCXA153VLH	96 MHz	128 KB	32 KB	1	3	2	1	1	-	-	1	23	-	-	1	2	52	LQFP64
MCXA153VLF	96 MHz	128 KB	32 KB	1	3	2	1	1	-	-	1	15	-	-	1	2	41	LQFP48
MCXA153VFT	96 MHz	128 KB	32 KB	1	3	2	1	1	-	-	1	17	-	-	1	2	41	HVQFN48
MCXA153VFM	96 MHz	128 KB	32 KB	1	3	2	1	1	-	-	1	8	-	-	1	2	26	HVQFN32
MCXA152VLH	96 MHz	64 KB	16 KB	1	3	2	1	1	-	-	1	23	-	-	1	2	52	LQFP64
MCXA152VLF	96 MHz	64 KB	16 KB	1	3	2	1	1	-	-	1	15	-	-	1	2	41	LQFP48
MCXA152VFT	96 MHz	64 KB	16 KB	1	3	2	1	1	-	-	1	17	-	-	1	2	41	HVQFN48
MCXA152VFM	96 MHz	64 KB	16 KB	1	3	2	1	1	-	-	1	8	-	-	1	2	26	HVQFN32
MCXA146VPJ	48 MHz	1024KB	128KB	4	5	2	1	1	1	1xFlexCAN	2	39	-	-	1	2	82	VFBGA112
MCXA146VMP	48MHz	1024KB	128KB	4	5	2	1	1	1	1xFlexCAN	2	26	-	-	1	2	50	LFBGA64
MCXA146VLL	48MHz	1024KB	128KB	4	5	2	1	1	1	1xFlexCAN	2	39	-	-	1	2	81	LQFP100
MCXA146VLH*	48MHz	1024KB	128KB	4	5	2	1	1	1	1xFlexCAN	2	28	-	-	1	2	52	LQFP64
MCXA146VFT	48MHz	1024KB	128KB	4	5	2	1	1	1	1xFlexCAN	2	20	-	-	1	2	41	HVQFN48
MCXA145VPJ	48MHz	512KB	96KB	4	5	2	1	1	1	1xFlexCAN	2	39	-	-	1	2	82	VFBGA112
MCXA145VMP	48MHz	512KB	96KB	4	5	2	1	1	1	1xFlexCAN	2	26	-	-	1	2	50	LFBGA64
MCXA145VLL	48MHz	512KB	96KB	4	5	2	1	1	1	1xFlexCAN	2	39	-	-	1	2	81	LQFP100
MCXA145VLH*	48MHz	512KB	96KB	4	5	2	1	1	1	1xFlexCAN	2	28	-	-	1	2	52	LQFP64
MCXA145VFT	48MHz	512KB	96KB	4	5	2	1	1	1	1xFlexCAN	2	20	-	-	1	2	41	HVQFN48
MCXA144VPJ	48MHz	256KB	64KB	4	5	2	1	1	1	1xFlexCAN	2	39	-	-	1	2	82	VFBGA112
MCXA144VMP	48MHz	256KB	64KB	4	5	2	1	1	1	1xFlexCAN	2	26	-	-	1	2	50	LFBGA64
MCXA144VLL	48MHz	256KB	64KB	4	5	2	1	1	1	1xFlexCAN	2	39	-	-	1	2	81	LQFP100
MCXA144VLH*	48MHz	256KB	64KB	4	5	2	1	1	1	1xFlexCAN	2	28	-	-	1	2	52	LQFP64
MCXA144VFT	48MHz	256KB	64KB	4	5	2	1	1	1	1xFlexCAN	2	20	-	-	1	2	41	HVQFN48
MCXA143VLH	48MHz	128 KB	32 KB	1	3	2	1	1	-	-	1	23	-	-	1	2	52	LQFP64
MCXA143VLF	48MHz	128 KB	32 KB	1	3	2	1	1	-	-	1	15	-	-	1	2	41	LQFP48
MCXA143VFT	48MHz	128 KB	32 KB	1	3	2	1	1	-	-	1	17	-	-	1	2	41	HVQFN48
MCXA143VFM	48MHz	128 KB	32 KB	1	3	2	1	1	-	-	1	8	-	-	1	2	26	HVQFN32
MCXA142VLH	48MHz	64 KB	16 KB	1	3	2	1	1	-	-	1	23	-	-	1	2	52	LQFP64
MCXA142VLF	48MHz	64 KB	16 KB	1	3	2	1	1	-	-	1	15	-	-	1	2	41	LQFP48
MCXA142VFT	48MHz	64 KB	16 KB	1	3	2	1	1	-	-	1	17	-	-	1	2	41	HVQFN48
MCXA142VFM	48MHz	64 KB	16 KB	1	3	2	1	1	-	-	1	8	-	-	1	2	26	HVQFN32
MCXA133VLF	96MHz	128 KB	32 KB	1	3	2	1	-	-	-	1	15	-	-	1	2	44	LQFP48
MCXA133VFT	96MHz	128 KB	32 KB	1	3	2	1	-	-	-	1	17	-	-	1	2	44	HVQFN48
MCXA133VFM	96MHz	128 KB	32 KB	1	3	2	1	-	-	-	1	9	-	-	1	2	29	HVQFN32
MCXA132VLF	96MHz	64 KB	16 KB	1	3	2	1	-	-	-	1	15	-	-	1	2	44	LQFP48
MCXA132VFT	96MHz	64 KB	16 KB	1	3	2	1	-	-	-	1	17	-	-	1	2	44	HVQFN48
MCXA132VFM	96MHz	64 KB	16 KB	1	3	2	1	-	-	-	1	9	-	-	1	2	29	HVQFN32
FRDM-MCXA156	MCX A156 FRDM Development Board																	LQFP100
FRDM-MCXA153	MCX A153 FRDM Development Board																	LQFP64

\*: Part is planned to launch in Q2 2025

[www.nxp.com/MCXA](http://www.nxp.com/MCXA)

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Document Number: MCXAFS REV 3