# MCX E Series

Reliability and safety focused MCUs with up to 5.5V supply

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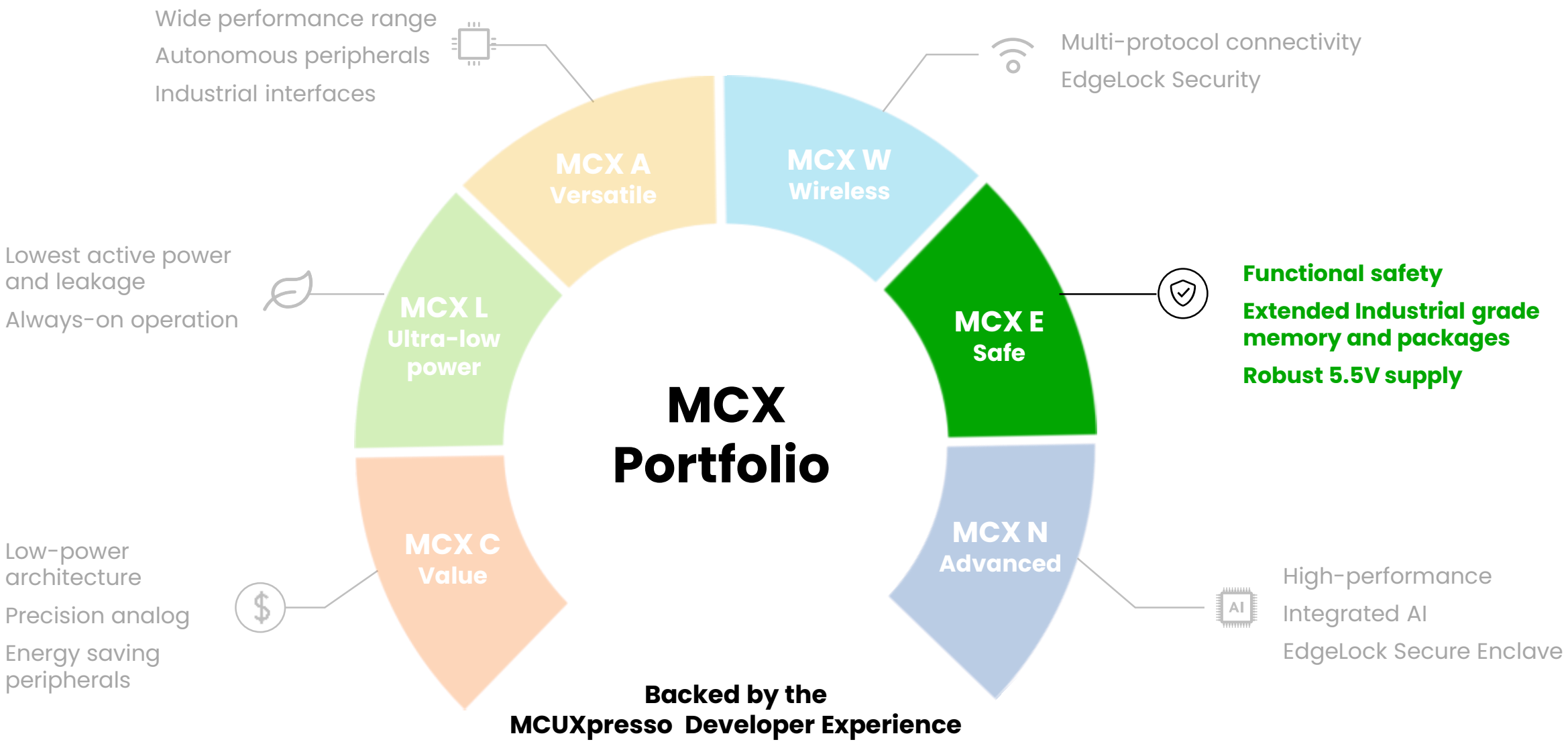
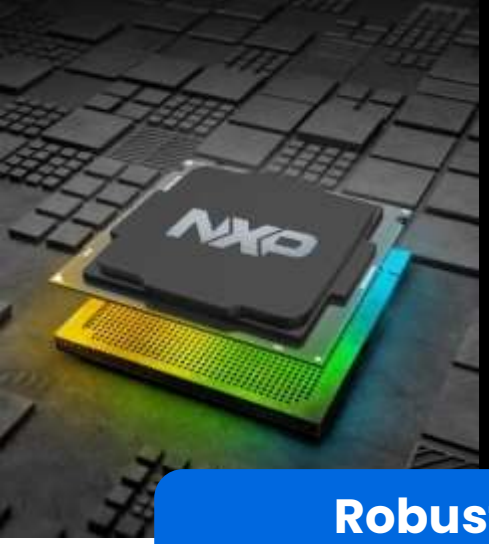
# MCX MCU portfolio






# MCX E series overview

Availability
- H1 2025 : Engineering Samples
- H2 2025 : Mass Production

## Robust
- Up to 5.5V supply
- Extended temperature mission profile
- Various LQFP package options

## Reliable
- Large set of peripherals allows for high redundancy
- Up to 6x CAN FD and Ethernet with TSN

## Safe
- Program flow monitor
- Full data integrity
- Clock, power and temperature monitoring

## Secure
- EdgeLock® Security essential and advanced
- Security certification up to SESIP level 3

Security certification
- SESIP level 3
- IEC 62443 compliant

Functional Safety certification target
- IEC 60730 Class B
- IEC 61508 SIL 3 systematic capability

# MCX E series target applications

## Safe Appliances

- HVAC
- Heat pumps
- Boilers
- Heaters
- Power tools

## Motor control

- Factory conveyor diverter
- Industrial automation
- Robots / drones
- Electric bike powertrains
- Unmanned vehicles
- Hydraulic system control unit

## Energy Storage

- Home energy storage
- Industrial power storage
- Mobile energy storage
- Distributed battery systems

# MCX E24 series highlights

10 15+ Product Longevity

## Functional safety

- Program flow monitoring
- Storage interference protection
- Clock and power monitoring
- Data integrity on flash, SRAM, registers
- Error reporting
- IEC 60730-B

## Security

- Security subsystem for secure boot and secure key storage
- Cryptographic acceleration

## Scalable

- Up to 112MHz Arm® Cortex®-M4
- From 512kB to 2MB Flash
- From 64 kB to 256kB SRAM
- External memory with QSPI

## Networking interface

- Up to 3x CAN FD
- IEEE1588 100 Mbps ETH

**MCX E24**

**112 MHz**
**Arm® Cortex®-M4F**

## Robust operation

- 2.7-5.5V voltage operation
- Standard Industrial mission profile

## Mixed signals & Analog

- High speed 12 bit ADC, ACMP
- Sound SAI
- Low power $I^2C$, UART, SPI
- FlexPWM, low power timers

## Packages

- From LQFP 48 (7x7) to LQFP 144 (20x20)

## Extend battery life

- Multiple power modes
- Adaptive low power

# MCX E31 series highlights

10 15+ Product Longevity

## Functional safety

- Program flow monitoring
- Temp, Supply and clock monitoring
- Data integrity on flash, SRAM, registers
- Error reporting
- Redundant peripherals, watchdogs
- Latent Fault detection (LBIST)
- IEC 61508 HW integrity SIL 2
- Systematic Capability SIL 3

## Networking interface

- Up to 6x CAN FD
- 10/100Mbps Ethernet with TSN

## Mixed signals & analog

- High speed 12bit ADC, ACMP
- Increased number of SAI, Low Power I2C, UART, SPI
- LCU, low power timers

## Security

- EdgeLock® Secure Enclave for Arm PSA 2
- Secure boot, secure key storage
- Symm and Asym crypto acceleration

**MCX E31**

**160 MHz**
**Arm® Cortex®-M7**

## Packages

- LQFP 48
- HDQFP 100 and 172 (High Density)

## Scalable

- Up to 160MHz Arm Cortex-M7
- From 512kB to 4MB Flash
- From 112 kB to 512kB SRAM
- External memory with QSPI

## Robust operation

- Power conversion & motor control accelerators
- 2.97-5.5V operation
- Extended industrial mission profile

## Extend battery life

- Simplified power modes
- Adaptive low power

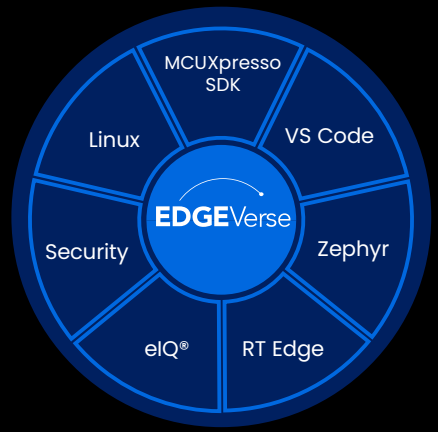
# FRDM to innovate

## Open-source developer ecosystem

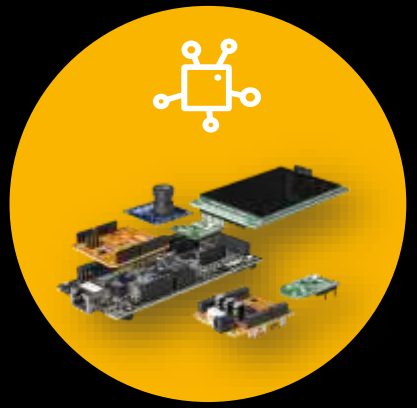
- Comprehensive software and tools for rapid development
- Modular, quick-start FRDM & expansion boards with open design files and schematics
- Access 140+ code snippets and tutorials through our Application Code Hub

**Ease development for reduced time to market**

**Software tools**




**Modular hardware**



**Application Code Hub**

# Summary

**Certified for industrial IEC 61508**

**Industrial reliability**

**Advanced Security**

**Supported by the FRDM ecosystem**

www.nxp.com/MCXE

www.nxp.com/MCUXpresso

www.nxp.com/FRDM