MCX A25 Enhanced Mainstream MCU Arm® Cortex® M33 with 180 MHz, Rich Serial Peripherals and Security
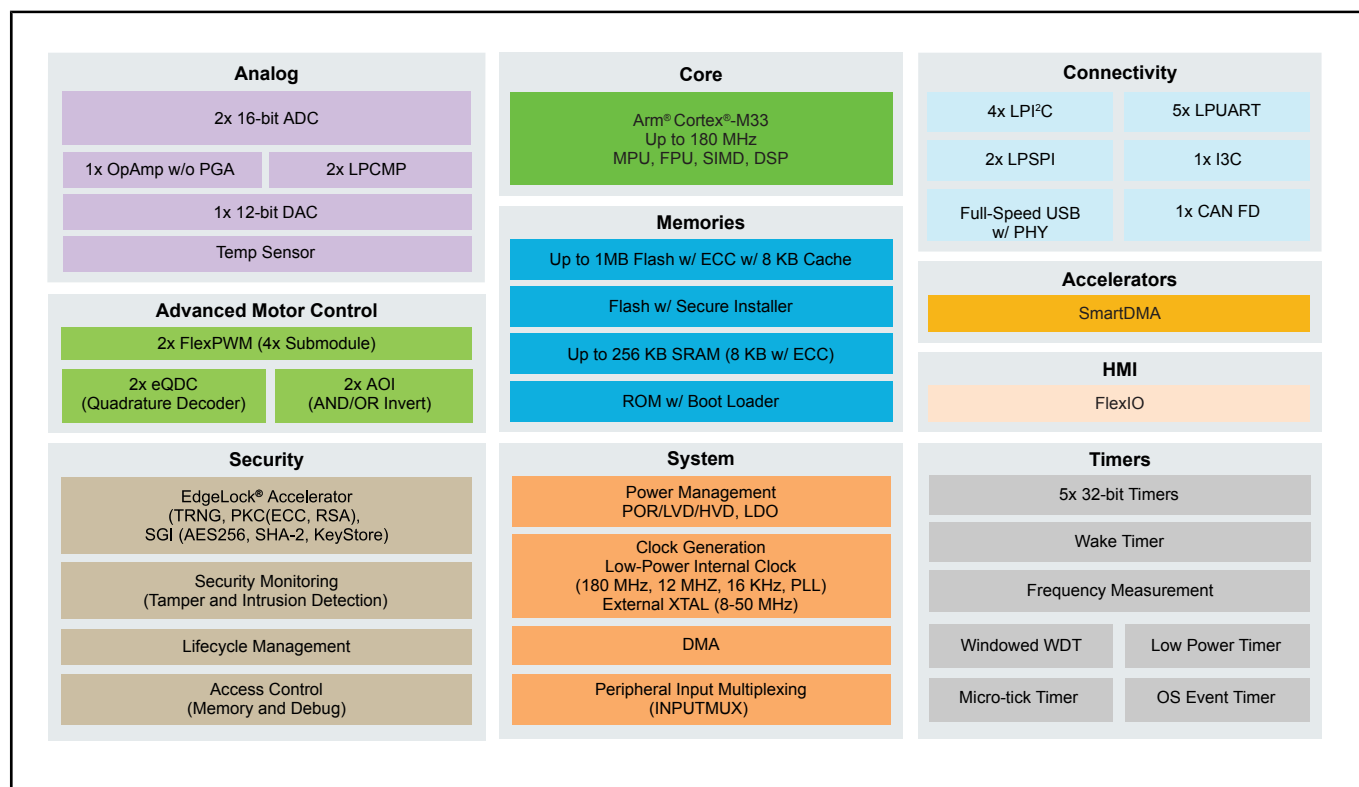
MCX-A25

Preproduction

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The MCX A25 family of microcontrollers delivers high-performance embedded processing with support for speeds up to 180 MHz, 1 MB Flash and 256 kB RAM. Designed for PC accessories and motor control applications, these MCUs offer a rich set of serial peripherals including Full-Speed USB, I3C, FlexIO, SmartDMA and advanced security features.

For motor control, MCX A25 integrates 2x FlexPWM modules, each with 4 submodules, combined with AOI and up to 2x ADCs, enabling precise and efficient control.

Developers benefit from the MCUXpresso Developer Experience, which streamlines development, enhances productivity and accelerates time to market for embedded systems.

MCX A255 A256 Block Diagram

Analog
- 2x 16-bit ADC
- 1x OpAmp w/o PGA
- 2x LPCMP
- 1x 12-bit DAC
- Temp Sensor

Advanced Motor Control
- 2x FlexPWM (4x Submodule)
- 2x eQDC (Quadrature Decoder)
- 2x AOI (AND/OR Invert)

Security
- EdgeLock® Accelerator (TRNG, PKC(ECC, RSA), SGI (AES256, SHA-2, KeyStore)
- Security Monitoring (Tamper and Intrusion Detection)
- Lifecycle Management
- Access Control (Memory and Debug)

Core
- Arm® Cortex®-M33 Up to 180 MHz MPU, FPU, SIMD, DSP

Memories
- Up to 1MB Flash w/ ECC w/ 8 KB Cache
- Flash w/ Secure Installer
- Up to 256 KB SRAM (8 KB w/ ECC)
- ROM w/ Boot Loader

System
- Power Management POR/LVD/HVD, LDO
- Clock Generation Low-Power Internal Clock (180 MHz, 12 MHZ, 16 KHz, PLL) External XTAL (8-50 MHz)
- DMA
- Peripheral Input Multiplexing (INPUTMUX)

Connectivity
- 4x LPI²C
- 5x LPUART
- 2x LPSPI
- 1x I3C
- Full-Speed USB w/ PHY
- 1x CAN FD

Accelerators
- SmartDMA

HMI
- FlexIO

Timers
- 5x 32-bit Timers
- Wake Timer
- Frequency Measurement
- Windowed WDT
- Low Power Timer
- Micro-tick Timer
- OS Event Timer

View additional information for MCX A25 Enhanced Mainstream MCU Arm® Cortex® M33 with 180 MHz, Rich Serial Peripherals and Security.

Note: The information on this document is subject to change without notice.