SECURE CONNECTIONS
FOR A SMARTER WORLD

FACT SHEET
MCX N SERIES

MCX N SERIES MICROCONTROLLERS

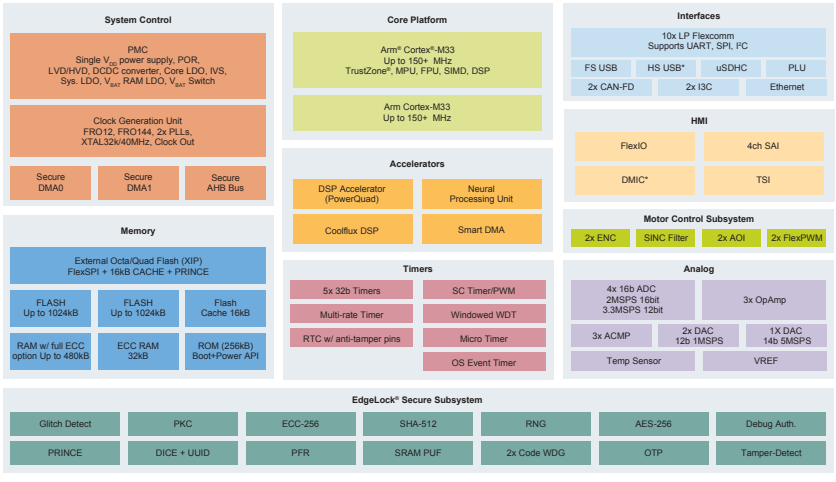
The MCX N Series of Industrial and IoT (IIoT) MCUs feature dual Arm® Cortex®-M33 cores operating up to 150 MHz.This series features our eIQ® Neutron Neural Processing Unit (NPU) for machine learning (ML) acceleration. The eIQ Neutron NPU delivers up to 42x faster ML inference performance compared to a CPU core alone when running typical ML models. This higher performance can be used in spending less time awake and reducing overall power consumption. The low power cache enhances system performance and the dual bank Flash and full ECC RAM support system safety providing an extra layer of protection and assurance.

Our N Series security features the EdgeLock® Secure Enclave, Core Profile and a secured boot and crypto accelerators to meet demanding requirements for over-the-air transactions. The on-the-fly encrypt and decrypt for external serial Flash/PSRAM is connected via the FlexSPI to ensure code and externally stored data is protected.

TARGET APPLICATIONS

- Power & Energy
- Factory Automation
- Building Control
- Medical Equipment
- Control & Security
- Smart Appliances
- Home Entertainment
- Health & Fitness
- Industrial/Consumer HMI
- Hand-held Devices
- Power Tools

MCX N94x BLOCK DIAGRAM



* peripherals on MCX N947 VFBGA184 package only

HIGH INTEGRATION AND MEMORY EXPANSION

The multicore design improves system performance and reduces power consumption by enabling smart, efficient distribution of workloads to the analog and digital peripherals. The MCU N series offers a combination of analog integration (operational amplifier, precision reference supply for ADC and DAC), low power consumption and motor control PWMs.

With multiple connectivity options including Ethernet, CAN 2.0, CAN FD, USB HS, FS (Device/Host) and FlexComm interfaces (configurable as either SPI/I2C/UART), these devices feature versatile integration for demanding application needs. The FlexSPI with 16KB Cache support on-the-fly Encrypt/Decrypt enables applications to expand the on-chip memory, support various boot options and execute directly from external serial memories.

DEVELOPER EXPERIENCE

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

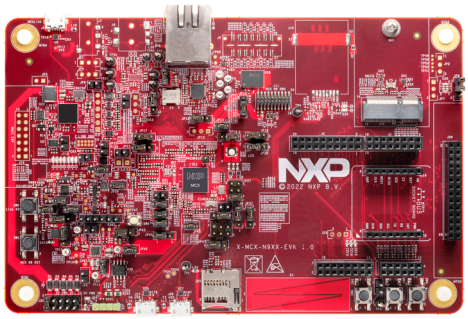
The MCUXpresso suite includes tools for simple device configuration and secure programming. Developers can choose to work with multiple IDEs including MCUXpresso for VS Code, MCUXpresso IDE, IAR, or Keil.

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.

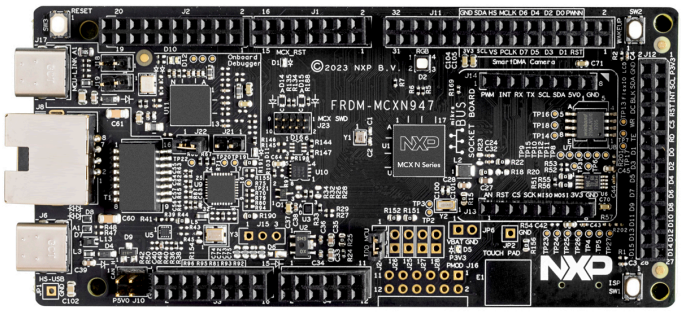
The MCX MCU portfolio is also supported by eIQ ML SW development environment and eIQ Toolkit for developing or converting ML models to run efficiently on the MCX CPU and eIQ Neutron NPU.

HARDWARE PLATFORMS

For quick prototyping platforms, we offer both our low-cost, compact and scalable FRDM development boards and a full-featured EVK. 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 N9xx EVK



FRDM-MCXN947

MCX N9XX AND N5XX MCU OPTIONS

Family	Flash	SRAM	CoolFlux DSP	USB HS	DAC	Op Amp	Flexcomm	CAN-FD	Packages
N94x	2 MB	416 KB w ECC	Yes	Only for N947	2x 12b + 1x 14b	3	10	2	LQFP100, VFBGA184
N54x	2 MB	512 KB	No	Yes	1x 12b	-	10	1	LQFP100, VFBGA184
MCX-N5xx-EVK									EVK has VFBGA184
MCX-N9xx-EVK									EVK has VFBGA184
FRDM-MCXN947									FRDM has VFBGA184

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