i.MX 93 Applications Processor Family – Arm® Cortex®-A55, ML Acceleration, Power Efficient MPU
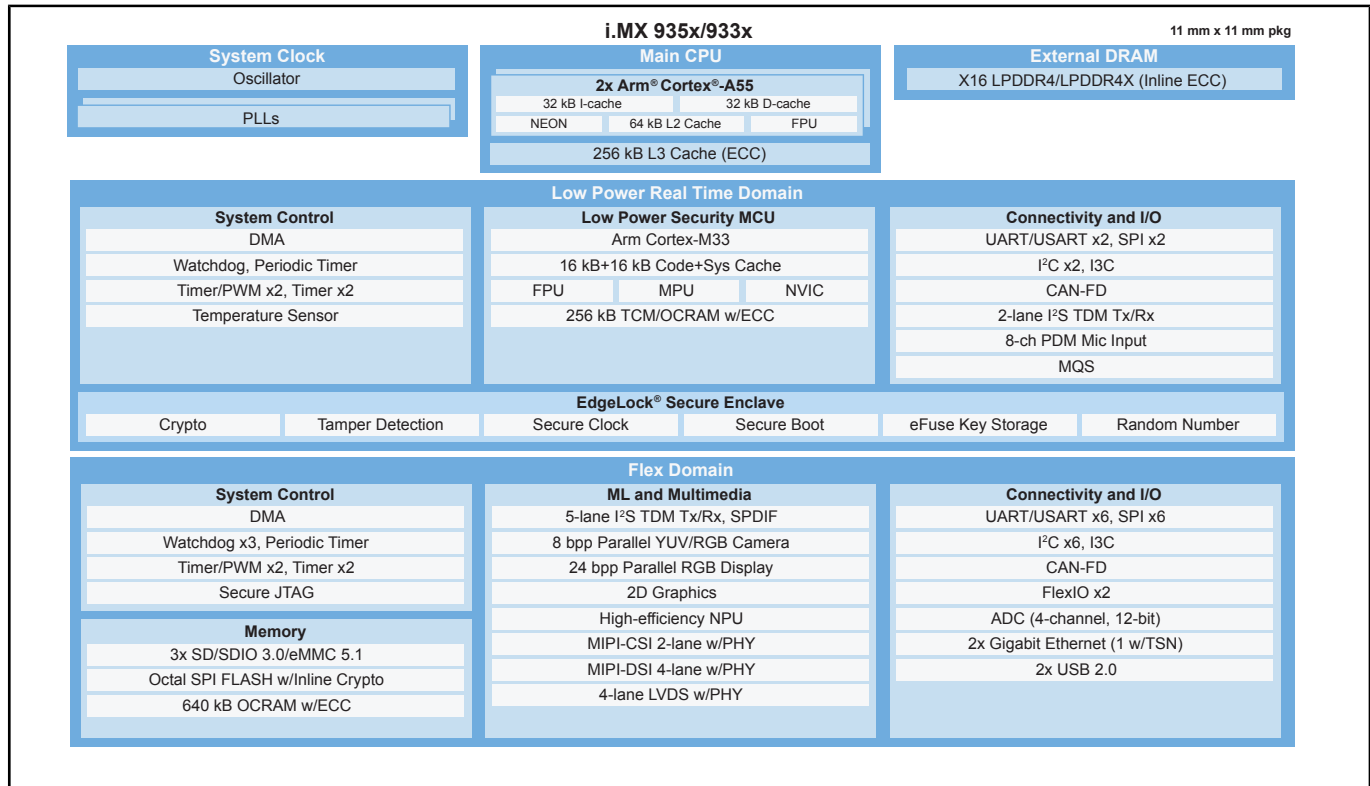
i.MX93

Last Updated: May 6, 2024

i.MX 93 applications processors deliver efficient machine learning (ML) acceleration and advanced security with integrated EdgeLock® secure enclave to support energy-efficient edge computing.

The i.MX 93 applications processors are the first in the i.MX portfolio to integrate the scalable Arm Cortex-A55 core, bringing performance and energy efficiency to Linux®-based edge applications and the Arm Ethos™-U65 microNPU, enabling developers to create more capable, cost-effective and energy-efficient ML applications.

Optimizing performance and power efficiency for Industrial, IoT and automotive devices, i.MX 93 processors are built with NXP's innovative Energy Flex architecture. The SoCs offer a rich set of peripherals targeting automotive, industrial and consumer IoT market segments.

Part of the EdgeVerse™ portfolio of intelligent edge solutions, the i.MX 93 family will be offered in commercial, industrial, extended industrial and automotive level qualification and backed by NXP's product longevity program.

i.MX 93 Processors Family Block Diagram

i.MX 935x/933x

11 mm x 11 mm pkg

System Clock
- Oscillator
- PLLs

Main CPU
2x Arm® Cortex®-A55

32 kB I-cache		32 kB D-cache
NEON	64 kB L2 Cache	FPU

256 kB L3 Cache (ECC)

External DRAM
X16 LPDDR4/LPDDR4X (Inline ECC)

Low Power Real Time Domain

System Control
- DMA
- Watchdog, Periodic Timer
- Timer/PWM x2, Timer x2
- Temperature Sensor

Low Power Security MCU
- Arm Cortex-M33
- 16 kB+16 kB Code+Sys Cache

FPU	MPU	NVIC

256 kB TCM/OCRAM w/ECC

Connectivity and I/O
- UART/USART x2, SPI x2
- I²C x2, I3C
- CAN-FD
- 2-lane I²S TDM Tx/Rx
- 8-ch PDM Mic Input
- MQS

EdgeLock® Secure Enclave

Crypto	Tamper Detection	Secure Clock	Secure Boot	eFuse Key Storage	Random Number

Flex Domain

System Control
- DMA
- Watchdog x3, Periodic Timer
- Timer/PWM x2, Timer x2
- Secure JTAG

Memory
- 3x SD/SDIO 3.0/eMMC 5.1
- Octal SPI FLASH w/Inline Crypto
- 640 kB OCRAM w/ECC

ML and Multimedia
- 5-lane I²S TDM Tx/Rx, SPDIF
- 8 bpp Parallel YUV/RGB Camera
- 24 bpp Parallel RGB Display
- 2D Graphics
- High-efficiency NPU
- MIPI-CSI 2-lane w/PHY
- MIPI-DSI 4-lane w/PHY
- 4-lane LVDS w/PHY

Connectivity and I/O
- UART/USART x6, SPI x6
- I²C x6, I3C
- CAN-FD
- FlexIO x2
- ADC (4-channel, 12-bit)
- 2x Gigabit Ethernet (1 w/TSN)
- 2x USB 2.0

View additional information for i.MX 93 Applications Processor Family – Arm® Cortex®-A55, ML Acceleration, Power Efficient MPU.

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

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