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

Preproduction
This page contains information on a preproduction product. Specifications and information herein are subject to change without notice. For additional information contact support or your sales representative. i.MX 93 family pre-production samples and evaluation kits for a 14x14mm Automotive package (along with technical support) are available for early access customers through a paid program. For more info, please contact Beta.iMX@nxp.com for more details.

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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.

Register to join our upcoming launch sessions during the Embedded Vision Summit and on Hackster.io.
## i.MX 93 Processors Family Block Diagram

### System Clock
- Oscillator
- PLLs

### Main CPU
- **2x Arm® Cortex®-A55**
  - 32 kB I-cache
  - 64 kB L2 Cache
  - NEON
  - 256 kB L3 Cache (ECC)

### External DRAM
- X16 LPDDR4/LPDDR4X (Inline ECC)

### System Control
- **Low Power Real Time Domain**
  - 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, I²C
  - CAN-FD
  - 2-lane I²S TDM Tx/Rx
  - 8-ch PDM Mic Input
  - MQS

### Flex Domain
- **Cypto**
- **Tamper Detection**
- **Secure Clock**
- **Secure Boot**
- **eFuse Key Storage**
- **Random Number**

### ML and Multimedia
- **5-lane I²S TDM Tx/Rx, SPDIF**
- **8 bsp Parallel YUV/RGB Camera**
- **24 bsp 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, I²C**
- **CAN-FD**
- **FlexIO x2**
- **ADC (4-channel, 12-bit)**
- **2x Gigabit Ethernet (1 w/TSN)**
- **2x USB 2.0**

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

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

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