Secure, Energy-Efficient Linux Capabilities for Smart Home and Industrial Automation
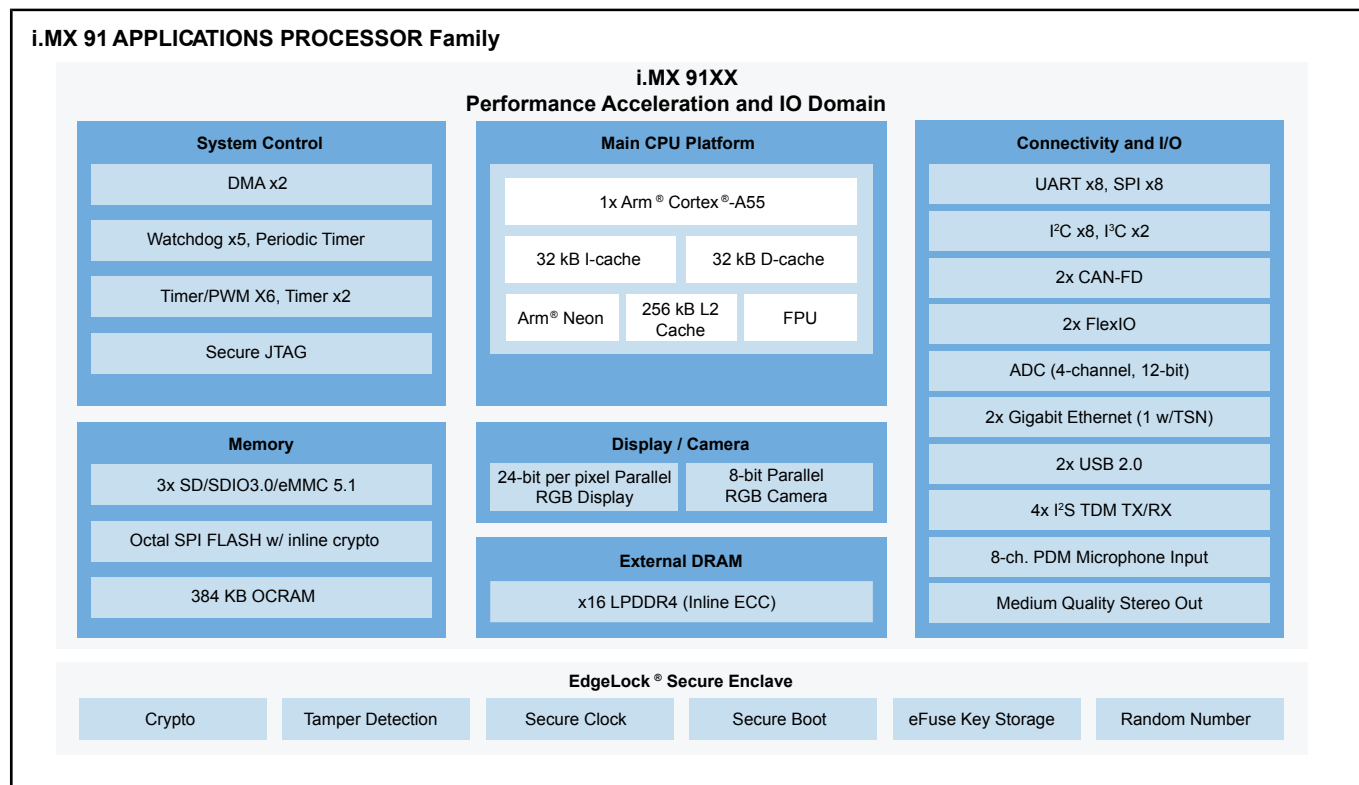
i.MX91

Active

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The i.MX 91 family of applications processors enables smart home controllers, home entertainment, connected appliances, industrial automation and medical platforms applications. Powered by an Arm® Cortex-A55, i.MX 91 MPUs integrate a single chip PMIC, PF9453, to enable the rapid creation of Linux-based IoT edge devices. Emerging protocols, such as Matter® for the smart home or the ISO 15118-20 standard for electric vehicle (EV) chargers, create inflection points for new product categories across IoT and industrial markets.

i.MX 91 Applications Processor Family Block Diagram

i.MX 91 APPLICATIONS PROCESSOR Family

i.MX 91XX
Performance Acceleration and IO Domain

System Control
- DMA x2
- Watchdog x5, Periodic Timer
- Timer/PWM X6, Timer x2
- Secure JTAG

Main CPU Platform
- 1x Arm ® Cortex ®-A55
- 32 kB I-cache
- 32 kB D-cache
- Arm® Neon
- 256 kB L2 Cache
- FPU

Connectivity and I/O
- UART x8, SPI x8
- I²C x8, I³C x2
- 2x CAN-FD
- 2x FlexIO
- ADC (4-channel, 12-bit)
- 2x Gigabit Ethernet (1 w/TSN)
- 2x USB 2.0
- 4x I²S TDM TX/RX
- 8-ch. PDM Microphone Input
- Medium Quality Stereo Out

Memory
- 3x SD/SDIO3.0/eMMC 5.1
- Octal SPI FLASH w/ inline crypto
- 384 KB OCRAM

Display / Camera
- 24-bit per pixel Parallel RGB Display
- 8-bit Parallel RGB Camera

External DRAM
- x16 LPDDR4 (Inline ECC)

EdgeLock ® Secure Enclave
| Crypto | Tamper Detection | Secure Clock | Secure Boot | eFuse Key Storage | Random Number |

View additional information for Secure, Energy-Efficient Linux Capabilities for Smart Home and Industrial Automation.

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