

Driving the convergence of applications processors and MCUs

i.MX RT Series of Crossover Processors

Combining high performance with real time functionality, the i.MX RT series of crossover processors are designed to support the next generation IoT applications with a high level of integration and security balanced with MCU-level usability at an affordable price.

THE NEW CROSSOVER PROCESSOR MARKET

As a leading supplier of both applications processors and microcontrollers (MCUs), NXP is in a unique position to introduce a new class of embedded processors driven by the growing consumer demand for enhanced user experience in their smart, secure, high performance products.

- ▶ Greater performance
- ▶ Real-time operation
- ▶ Richer Integration
- ▶ Ease-of-use

TARGET APPLICATIONS

- ▶ **Audio Subsystem**—professional microphone, guitar pedals
- ▶ **Consumer Products**—Smart appliances, cameras, LCDs
- ▶ **Home and Building Automation**—HVAC climate control, security, lighting control panels, IoT gateways
- ▶ **Industrial Computing Designs**—EBS, PLCs, factory automation, test and measurement, M2M, HMI control assembly line robotics
- ▶ **Motor Control and Power Conversion**—3D printers, thermal printers, unmanned autonomous vehicles, robotic vacuum cleaners

CROSSOVER PROCESSORS



APPLICATIONS PROCESSOR PERFORMANCE + MCU USABILITY

- ▶ **Move Fast, React Fast** with real time, low latency response
- ▶ **Create Advanced Multimedia** with advanced on-chip integration
- ▶ **Connect and Protect** with a high level of security
- ▶ **Save Time and Money** by leveraging existing MCU toolchains

PERFORMANCE HIGHLIGHTS

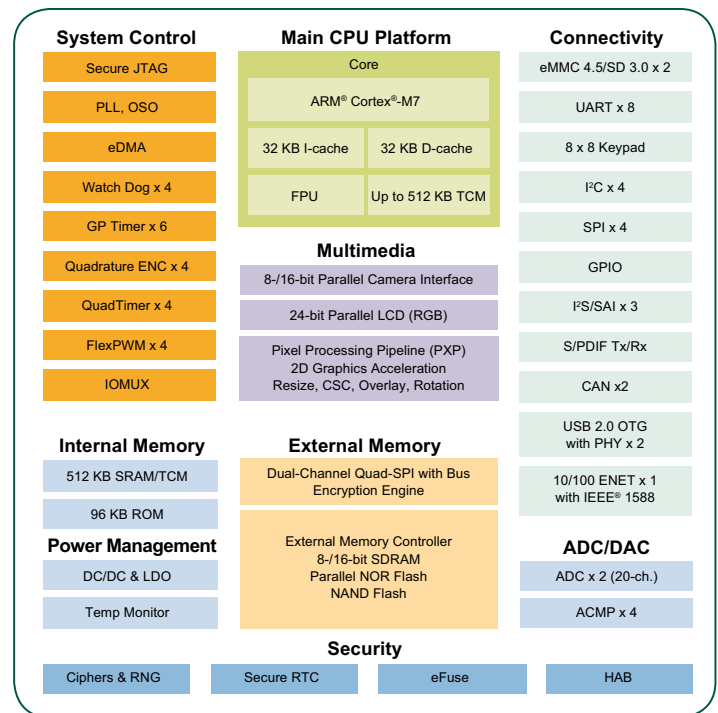
- ▶ Highest performing ARM® Cortex®-M7
 - 3015 CoreMark/1284 DMIPS @ 600 MHz
- ▶ Real-time, low-latency response
 - Up to 512KB Tightly Coupled Memory (TCM)
 - Fastest real-time response with latency as low as 20ns
- ▶ Low power Operation
 - Industry's lowest dynamic power with integrated DC-DC converter
 - Low power run modes at 24MHz

USABILITY HIGHLIGHTS

Highly Integrated

- ▶ Advanced multimedia for GUI and enhanced HMI
 - 2D graphics acceleration engine
 - Parallel camera sensor interface
 - LCD display controller (up to WVGA 800x480)
 - 3x I²S for high-performance, multichannel audio
- ▶ Extensive external memory interface options
 - NAND, eMMC, QuadSPI NOR Flash, and Parallel NOR Flash
- ▶ Wireless connectivity interface for
 - Wi-Fi®, Bluetooth®, BLE, ZigBee® and Thread™

i.MX RT1050 BLOCK DIAGRAM



Easy to Use

- ▶ MCU customers can leverage current toolchain
 - MCUXpresso, IAR, Keil
- ▶ Rapid and easy prototyping and development
 - FreeRTOS, SDK, ARM® mbed™, and the global ARM ecosystem
- ▶ Faster development using low-cost evaluation kit (EVK)
- ▶ Single voltage input simplifies power circuit design

Low BOM Cost

- ▶ 10k resale at sub \$3.00
- ▶ DC-DC converter—eliminates need for external PMIC
- ▶ Four-layer PCB design—10x10 BGA package with .65mm pitch

www.nxp.com/iMXRT

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