



i.MX RT SERIES OF CROSSOVER MCUs

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USHERING IN THE GHZ MCU ERA

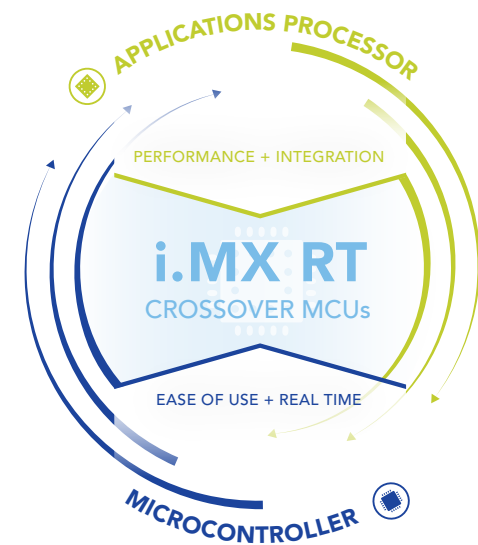
NXP's crossover processors and MCUs marry the simplicity of MCUs with the complexity of applications processors into a hybrid device designed to address the growing consumer demand for enhanced user experiences in smart and secure high-performance products. Included in this class of products is the i.MX RT series of crossover MCUs that combines unprecedented performance with reliability and high levels of integration and security to propel industrial, IoT and automotive applications.

PORTFOLIO HIGHLIGHTS

- Variety of high performing Arm® Cortex®-M and DSP cores
- Hardware accelerators (PXP, 2D GPU, PowerQuad DSP coprocessor)
- Large, low-latency on-chip SRAM memory
- Low-power operation
 - Low dynamic power with integrated DC-DC converter
 - Low-power quiescent power modes
- Highly integrated with advanced multimedia for GUI and enhanced HMI
- Extensive memory interface options, including Quad/Octal SPI and HyperFlash™/HyperRAM™, SDRAM, NAND Flash, NOR Flash, SD/eMMC
- Security
 - Hardware protected keys for secure boot
 - AES engine for data encryption
 - On-the-fly decryption for execute-in-place (XIP) from Quad/Octal SPI/HyperFlash
 - Hardware elliptic curve cryptography
 - Cryptography hardware coprocessor

TARGET APPLICATIONS

-  [Audio subsystems](#)
-  [Automotive graphic applications and electronic controllers](#)
-  [Consumer products](#)
-  [Home and building automation](#)
-  [Industrial computing designs](#)
-  [ML-based edge applications](#)
-  [Motor control and power conversion](#)
-  [Personal devices](#)
-  [Personal health and fitness](#)
-  [Voice-enabled IoT devices](#)



MEMORY EXPANSION WITH i.MX RT MCUS

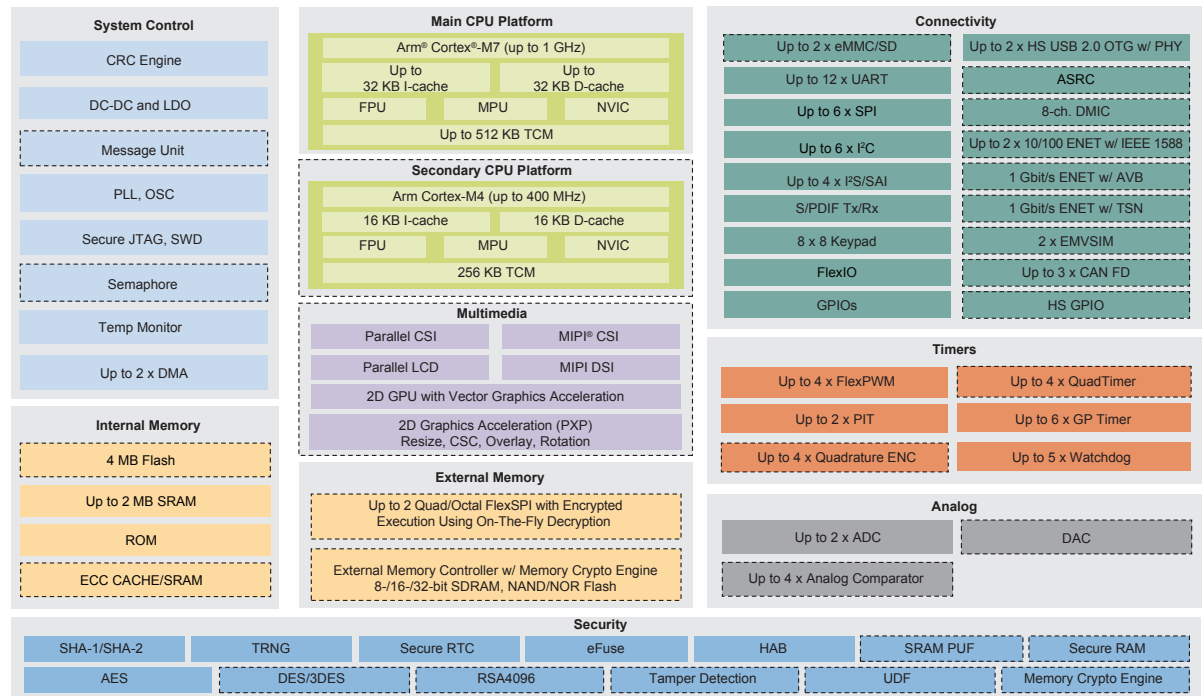
i.MX RT crossover MCUs shed the burden of on-chip flash, which helps reduce the cost and helps enable higher frequency operation for increased performance. In turn, it helps you boost capabilities, increase efficiency and add more features. The i.MX RT FlexSPI interface provides memory expansion for external memories such as serial flash/PSRAM, quad or octal data lines. This memory expansion offers increased design flexibility and helps to ensure a high level of performance and security. The i.MX RT series integrates high densities of SRAM, which is further configured within the crossover design architecture to function as TCM with “zero-wait” single-cycle access to dramatically increase system performance. This key design feature helps enable the crossover processor’s effective performance to be better than the traditional MCU counterpart.

NEXT-GENERATION HMI DESIGN

The i.MX RT1000 portfolio includes scalable solutions for HMI applications with features such as parallel camera interface, dedicated LCD controllers and the PXP for 2D graphics acceleration. The PXP is a high-performance pixel processor for operations such as color-space conversion, alpha blending and rotation. It also supports traditional pixel/frame processing paths for still-image and video processing applications.

For more advanced HMI designs, the i.MX RT1160, i.MX RT1170 and i.MX RT500 devices offer additional features, including MIPI CSI, MIPI DSI and a 2D GPU with vector graphics acceleration. Additionally, NXP has partnered with several third parties to deliver embedded graphics software as part of the MCUXpresso SDK.

i.MX RT1000 AND i.MX RT1100 CROSSOVER MCU_s BLOCK DIAGRAM



Available on certain product families

ADVANCED SECURITY

Secure development with the i.MX RT leverages years of experience gained from its applications processor lineage. The ROM firmware on the devices, as well as the tools used in the development and manufacturing processes, have been used and tested. With the i.MX RT and its associated software and tools for secure boot, the foundation for meeting today’s security requirements can be achieved.

LOW POWER DESIGN

The i.MX RT series is optimized for achieving the lowest possible power consumption at the required performance levels. Specifically, the i.MX RT600 and i.MX RT500 offer various reduced power modes and use various low power design techniques to enable long battery life in both active and sleep modes.

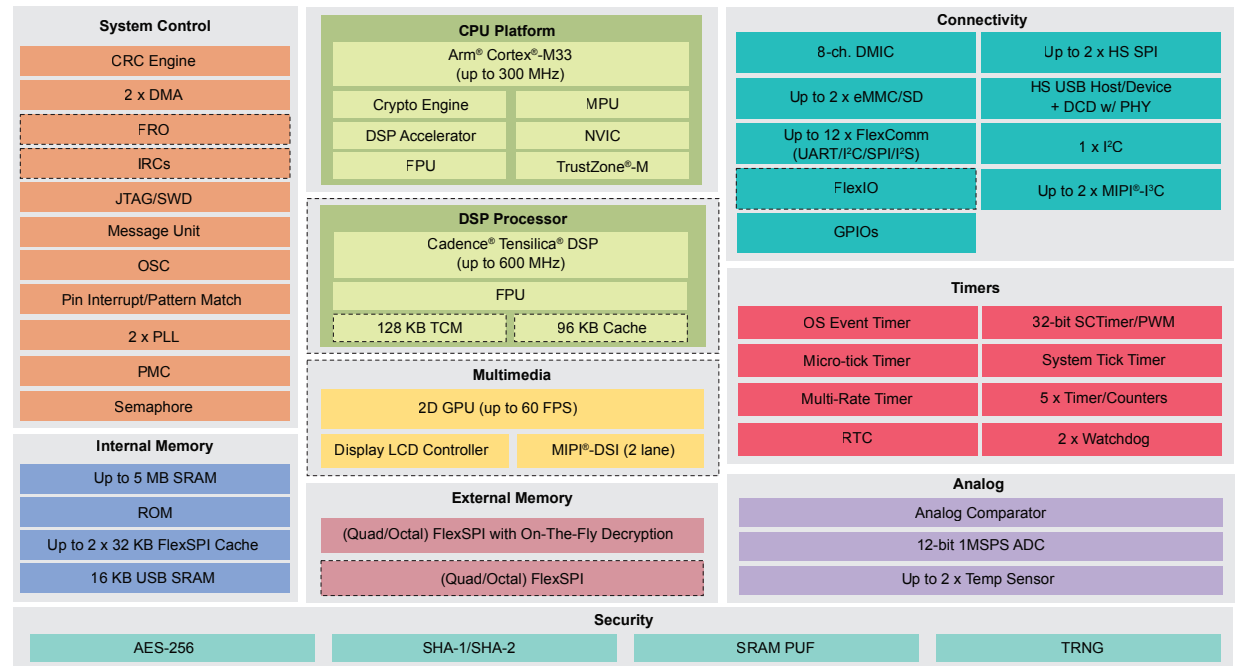
MAXIMUM FLEXIBILITY WITH FlexIO

FlexIO is a highly configurable module providing a wide range of functionality, including emulation of a variety of communication protocols such as UART, I²C, SPI and I²S. This means that you have the flexibility in your design to add more of the peripherals you need. Additionally, the FlexIO module consists of a flexible 16-bit timer with support for a variety of trigger, reset, enable and disable conditions.

MCU + DSP = UNLIMITED CAPABILITIES

Take advantage of the integrated DSP technology and enhance your design with audio features, voice capabilities and sensor processing, all while maintaining low power consumption with the i.MX RT600 and i.MX RT500 MCUs. The Cadence® Tensilica® HiFi 4 and Fusion DSPs provide the right level of high-performance audio digital signal processing power and include algorithm-specific operations for a fully programmable approach that provides maximum flexibility. All Cadence Tensilica DSPs support multiple existing and developing standards, as well as specific algorithms.

i.MX RT500 AND i.MX RT600 CROSSOVER MCUs BLOCK DIAGRAM



Available on certain product families

i.MX RT1000 MCU FAMILIES | STANDARD KEY FEATURES

i.MX RT1000 MCUs are NXP's first generation crossover MCUs, which combine high performance and integration with ease of use and real-time functionality. The i.MX RT1000 MCUs run on the Arm Cortex-M7 cores up to 600 MHz.

Feature	i.MX RT1010	i.MX RT1015	i.MX RT1020	i.MX RT1024	i.MX RT1040	i.MX RT1050	i.MX RT1060	i.MX RT1064
Core/Speed	Arm Cortex-M7 @ 500 MHz	Cortex-M7 @ 500 MHz	Cortex-M7 @ 500 MHz	Cortex-M7 @ 500 MHz	Cortex-M7 @ 600 MHz	Cortex-M7 @ 600 MHz	Cortex-M7 @ 600 MHz	Cortex-M7 @ 600 MHz
Cache	16 KB-I, 8 KB-D	16 KB-I, 16 KB-D	16 KB-I, 16 KB-D	16 KB-I, 16 KB-D	32 KB-I, 32 KB-D	32 KB-I, 32 KB-D	32 KB-I, 32 KB-D	32 KB-I, 32 KB-D
TCM	Up to 128 KB	Up to 128 KB	Up to 256 KB	Up to 256 KB	Up to 512 KB	Up to 512 KB	Up to 512 KB	Up to 512 KB
On-chip RAM	128 KB	128 KB	256 KB	256 KB	512 KB	512 KB	1 MB	1 MB
On-chip flash	-	-	-	4 MB	-	-	-	4 MB
External memory	-	-	8-/16-bit interface for SDRAM, SRAM, NOR, NAND	8-/16-bit interface for SDRAM, SRAM, NOR, NAND	8-/16-bit interface for SDRAM, SRAM, NOR, NAND	8-/16-bit interface for SDRAM, SRAM, NOR, NAND	8-/16-bit interface for SDRAM, SRAM, NOR, NAND	8-/16-bit interface for SDRAM, SRAM, NOR, NAND
Quad/Octal SPI/HyperBus™	Dual-channel/8-bit	Dual-channel/8-bit	Dual-channel/8-bit	Up to 2 x dual-channel/8-bit	Up to 2 x dual-channel/8-bit	Dual-channel/8-bit	Up to 2 x dual-channel/8-bit	Up to 2 x dual-channel/8-bit
SDIO	-	-	SD 3.0/eMMC 4.5 x 2	SD 3.0/eMMC 4.5 x 2	SD 3.0/eMMC 4.5 x 2	SD 3.0/eMMC 4.5 x 2	SD 3.0/eMMC 4.5 x 2	SD 3.0/eMMC 4.5 x 2
Ethernet	-	-	10/100 Mbit/s x 1 w/ IEEE 1588	10/100 Mbit/s x 1 w/ IEEE 1588	10/100 Mbit/s x 2 w/ IEEE 1588	10/100 Mbit/s x 1 w/ IEEE 1588	10/100 Mbit/s x 2 w/ IEEE 1588	10/100 Mbit/s x 2 w/ IEEE 1588
USB with PHY	OTG, HS/FS x 1	OTG, HS/FS x 1	OTG, HS/FS x 1	OTG, HS/FS x 1	OTG, HS/FS x 1	OTG, HS/FS x 2	OTG, HS/FS x 2	OTG, HS/FS x 2
CAN	-	-	FlexCAN x 2	FlexCAN x 2	FlexCAN x 2 + CAN FD x 1	FlexCAN x 2	FlexCAN x 2 + CAN FD x 1	FlexCAN x 2 + CAN FD x 1
Graphics	-	-	-	-	PxP for 2D acceleration	PxP for 2D acceleration	PxP for 2D acceleration	PxP for 2D acceleration
CSI	-	-	-	-	-	8-/10-/16-bit parallel	8-/10-/16-bit parallel	8-/10-/16-bit parallel
LCD	-	-	-	-	8-/16-/18-/24-bit parallel	8-/16-/18-/24-bit parallel	8-/16-/18-/24-bit parallel	8-/16-/18-/24-bit parallel
Security	TRNG, AES-128, SHA, Secure Boot, Boot, OTFAD	TRNG, AES-128, SHA, Secure Boot, BEE	TRNG, AES-128, SHA, Secure Boot, BEE	TRNG, AES-128, SHA, Secure Boot, BEE	TRNG, AES-128, SHA, Secure Boot, BEE	TRNG, AES-128, SHA, Secure Boot, BEE	TRNG, AES-128, SHA, Secure Boot, BEE	TRNG, AES-128, SHA, Secure Boot, BEE
UART/SPI/I²C/FlexIO	4/2/2/1	4/2/2/1	8/4/4/1	8/4/4/1	8/4/4/3	8/4/4/2	8/4/4/3	8/4/4/3
I²S/SPDIF	2/1	3/1	3/1	3/1	3/1	3/1	3/1	3/1
ADC	1M sample/s x 1	1M sample/s x 1	1M sample/s x 2	1M sample/s x 2	1M sample/s x 2	1M sample/s x 2	1M sample/s x 2	1M sample/s x 2
Analog Comparator	-	-	4	4	4	4	4	4
FlexPWM/quad timer/quad ENC	1/0/0	1/1/1	2/2/2	2/2/2	4/4/4	4/4/4	4/4/4	4/4/4
GPT/PIT/WDOG	2/1/4	2/1/4	2/1/4	2/1/4	2/1/4	2/1/4	2/1/4	2/1/4
Package	80 LQFP	100 LQFP	100 LQFP, 144 LQFP	144 LQFP	169 BGA	196 BGA	225 BGA, 196 BGA	196 BGA
Temperature (T_j)	Commercial: 0 °C to 95 °C Industrial: -40 °C to 105 °C	Commercial: 0 °C to 95 °C Industrial: -40 °C to 105 °C	Commercial: 0 °C to 95 °C Industrial: -40 °C to 105 °C	Commercial: 0 °C to 95 °C Industrial: -40 °C to 105 °C	Commercial: 0 °C to 95 °C Extended Industrial: -40 °C to 125 °C	Commercial: 0 °C to 95 °C Industrial: -40 °C to 105 °C	Commercial: 0 °C to 95 °C Industrial: -40 °C to 105 °C Extended Industrial: -40 °C to 125 °C	Commercial: 0 °C to 95 °C Industrial: -40 °C to 105 °C

i.MX RT1100 MCU FAMILIES | STANDARD KEY FEATURES

The i.MX RT1170 MCU family is setting speed records at 1GHz. This ground-breaking family combines superior computing power and multiple media capabilities with ease of use and real-time functionality. The dual core i.MX RT1170 runs on the Arm® Cortex®-M7 core at 1 GHz and Cortex-M4 core at 400 MHz. The dual core i.MX RT1160 runs on the Cortex-M7 core at 600 MHz and Cortex-M4 core at 240MHz. Both product families provide advanced security in addition to support over a wide temperature range making it ideal for several markets.

Feature	i.MX RT1170	i.MX RT1160
Core/Speed	Arm Cortex-M7 @ 1 GHz, Cortex-M4 @ 400 MHz	Cortex-M7 @ 600 MHz, Cortex-M4 @ 240 MHz
Cache	32 KB-I, 32 KB-D	32 KB-I, 32 KB-D
TCM	Up to 512 KB for M7, 256 KB for M4	Up to 512 KB
On-chip RAM	2 MB	1 MB
On-chip flash	-	-
External memory	8-/16-/32-bit interface for SDRAM, SRAM, NOR, NAND	8-/16-/32-bit interface for SDRAM, SRAM, NOR, NAND
Quad/Octal SPI/HyperBus™	1 x dual-channel/8-bit 1 x dual-channel/ 16-bit	1 x dual-channel/8-bit 1 x dual-channel/ 16-bit
SDIO	SD 3.0/eMMC 5.0 x 2	SD 3.0/eMMC 5.0 x 2
Ethernet	1 Gbit/s w/ AVB + 1Gbit/s w/ TSN + 10/100 Mbit/s w/ IEEE 1588	1 Gbit/s w/ AVB + 10/100 Mbit/s w/ IEEE 1588
USB with PHY	OTG, HS/FS x 2	OTG, HS/FS x 2
CAN	CAN FD x 3	CAN FD x 3
Graphics	PxP for 2D acceleration, 2D GPU with vector graphics acceleration	PxP for 2D acceleration, 2D GPU with vector graphics acceleration
Camera interface	8-/10-/16- bit parallel, 2-lane MIPI CSI	8-/10-/16- bit parallel, 2-lane MIPI CSI
LCD	8-/16-/18-/24-bit parallel, 2-lane MIPI DSI	8-/16-/18-/24-bit parallel, 2-lane MIPI DSI
Security	TRNG, AES-128/256, SHA1/SHA2, Secure Boot, RSA4096, DES/3DES, Tamper Detection PUF, UDF, Secure RAM, Elliptic Curve Cryptography	TRNG, AES-128/256, SHA1/SHA2, Secure Boot, RSA4096, DES/3DES, Tamper Detection PUF, UDF, Secure RAM, Elliptic Curve Cryptography
UART/SPI/I ² C/FlexIO	12/6/6/2	12/6/6/2
I ² S/SPDIF	4/1	4/1
ADC	4.2M sample/s x 2	4.2M sample/s x 2
Analog Comparator/DAC	4/1	4/1
FlexPWM/quad timer/quad ENC	4/4/4	4/4/4
GPT/PIT/WDOG	6/2/6	6/2/6
Package	289 BGA	289 BGA
Temperature (T _j)	Commercial: 0 °C to 95 °C Industrial: -40 °C to 105 °C Automotive -40 °C to 125 °C	Commercial: 0 °C to 95 °C Industrial: -40 °C to 105 °C Extended Industrial: -40 °C to 125 °C

i.MX RT600 and i.MX RT500 MCU FAMILIES | STANDARD KEY FEATURES

The i.MX RT500 and i.MX RT600 families of secure and embedded crossover MCUs pair a high-performance DSP core with the real-time functionality of an Arm Cortex-M33 core to help unlock the potential of IoT edge applications.

Feature	i.MX RT500	i.MX RT600
Core/Speed	Arm Cortex-M33 @ 275 MHz + Cadence® Tensilica® Fusion F1 DSP* @ 275 MHz	Arm Cortex-M33 @ 300 MHz + Cadence Tensilica HiFi 4 DSP @ 600 MHz
Cache	2 x 32 KB (FlexSPI)	32 KB (FlexSPI), 96 KB (DSP)
SRAM	Up to 5 MB	4.5 MB
Quad/Octal SPI HyperBus	2 x dual-channel, on-the-fly decryption (on 1 x FlexSPI)	1 x dual-channel, on-the-fly decryption
SDIO	2 x eMMC 5.0/SD 3.0	2 x eMMC 5.0/SD 3.0
USB with PHY	1 x HS/FS	1 x HS/FS
Graphics*	2D GPU with vector graphics acceleration	-
CSI	8/10/16-bit parallel (FlexIO)	-
LCD	8/10/16/18/24-bit parallel (FlexIO) + LCD Interface + MIPI DSI	-
Security	AES-256, SHA1/SHA2, secure boot, SRAM PUF, TRNG, cryptography hardware coprocessor attached to Cortex-M33 CPU	AES-256, SHA1/SHA2, secure boot, SRAM PUF, TRNG, cryptography hardware coprocessor attached to Cortex-M33 CPU
FlexComm	Up to 17 x FlexComm (14x config. as I ² C/UART/SPI/I ² S + 2 x HS SPI + 1 x I ² C)	Up to 10 x FlexComm (8 x config. as I ² C/UART/SPI/I ² S + 1 x HS SPI + 1 x I ² C)
FlexIO/HS SPI/I²C/I³C	1/2/1/2	0/1/1/1
ADC	1M sample/s	1M sample/s
Analog Comparator	1	1
PWM	10 GP/PWM outputs + 8 GP inputs	10 GP/PWM outputs + 8 GP inputs
DMIC	8 channels w/ decimators and voice activation detect	8 channels w/ decimators and voice activation detect
GPT/SCT/WDOG	5/1/2	5/1/2
GPIOs	Up to 136	Up to 147
Packages	249 FOWLP (Q1 2021), 141 CSP (Q2 2021)	249 FOWLP, 176 BGA, 114 CSP
Temperature (T_j)	Commercial: -20 °C to 70 °C	Commercial: -20 °C to 85 °C

*Product variants without integrated DSP and/or graphics are also available.

GET STARTED NOW

Take advantage of the robust enablement to reduce development effort and speed time-to-market with a comprehensive offering of software and development tools.

NXP's [MCUXpresso software and tools](#) offer comprehensive development solutions designed to optimize, ease and accelerate embedded system development of applications based on Cortex-M core devices, including Kinetis® and LPC microcontrollers, and i.MX RT crossover MCUs.

The i.MX RT evaluation kits (EVKs) help you take your design to the next level by reducing complexity and accelerating time to market. You can also enjoy the ability to expand upon this feature-rich EVK with compatible Arduino™ hardware shields.

- Toolchains
 - MCUXpresso software and tools
 - IAR Embedded Workbench® IDE
 - Keil® IDE
 - Cadence Tensilica Xplorer IDE
- Software
 - MCUXpresso SDK with Amazon FreeRTOS™
 - Cadence Tensilica Xplorer SDK
 - Zephyr® operating system (OS)
 - Arm Mbed™ OS and the global Arm ecosystem
 - NXP® eIQ™ machine learning software
 - TensorFlow Lite inference engine
 - Arm CMSIS-NN kernels
 - Glow neural network compiler



Libraries and Codecs

Libraries and codecs are distributed and licensed for customer production use on specific NXP devices.

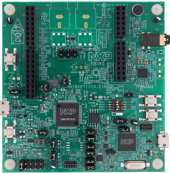
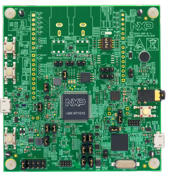






The following libraries and codecs are provided complimentary:

- Xtensa Audio Framework (XAF)
- NatureDSP Library
- CMSIS DSP Library (Arm Cortex-M33)
- RPMsg Lite
- AAC decoder
- MP3 decoder
- Opus codec (encoder/decoder)
- Synchronous and asynchronous sample rate converters
- SBC decoder
- SBC encoder
- Ogg/Vorbis decoder (i.MX RT600 only)

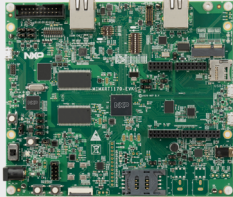
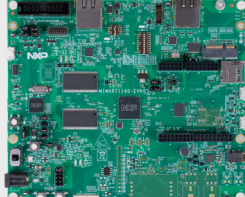
i.MX RT1000 AND i.MX RT1100 EVALUATION KIT FEATURES

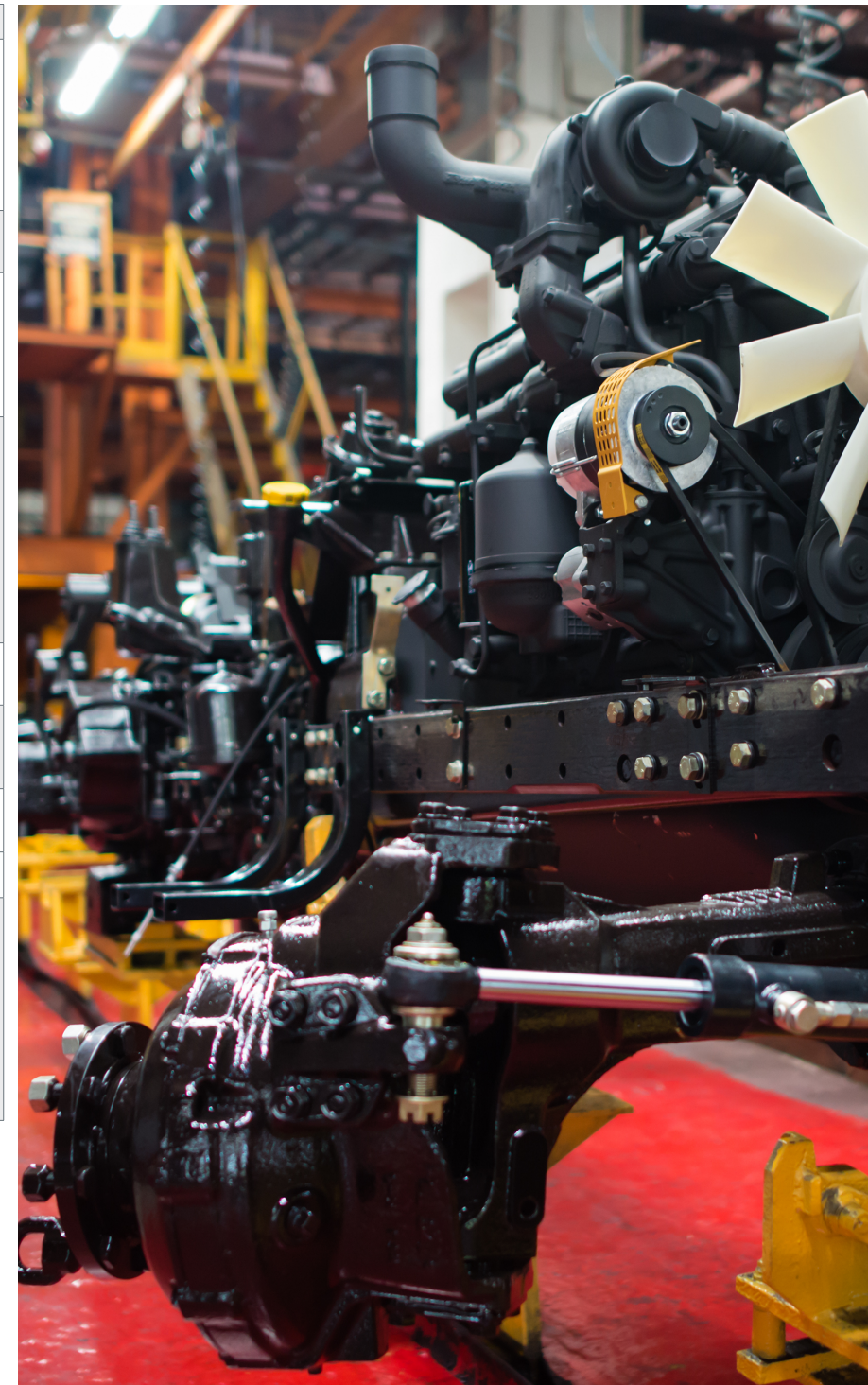
i.MX RT1010, i.MX RT1015, i.MX RT1020 and i.MX RT1024 EVKs are two-layer through-hole PCBs enabled with a six-axis e-compass sensor, multiple audio features and debug options.

i.MX RT1040, i.MX RT1050, i.MX RT1060 and i.MX RT1064 EVKs are four-layer through-hole PCBs that also offer additional features, including camera and LCD support.

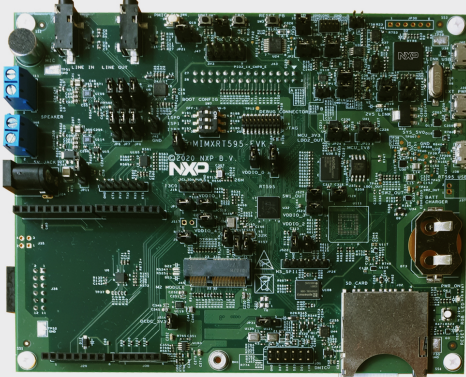
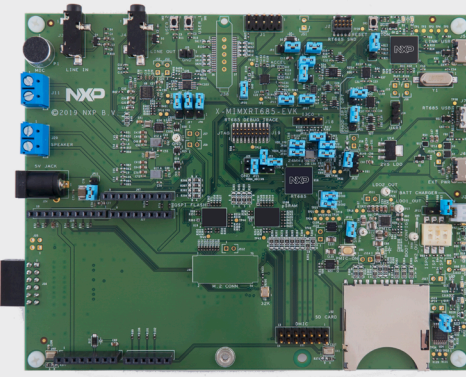
EVK	i.MX RT1010	i.MX RT1015	i.MX RT1020	i.MX RT1024	i.MX RT1040	i.MX RT1050	i.MX RT1060	i.MX RT1064
Processor	• MIMXRT1011DAE5A	• MIMXRT1015DAF5A	• MIMXRT1021DAG5A	• MIMXRT1024DAG5A	• MIMXRT1042XJM5B	• MIMXRT1052DVL6B	• MIMXRT1062DVL6A/B	• MIMXRT1064DVL6A
Memory	• 128 Mbit QSPI flash	• 128 Mbit QSPI flash	• 256 Mbit SDRAM memory • 64 Mbit QSPI Flash • TF socket for SD card	• 256 Mbit SDRAM memory • 64 Mbit QSPI Flash • TF socket for SD card	• 256 Mbit SDRAM memory • 64 Mbit QSPI Flash • TF socket for SD card	• 256 Mbit SDRAM memory • 512 Mbit HyperFlash™ • 64 Mbit QSPI flash • TF socket for SD card	• 256 Mbit SDRAM memory • 512 Mbit HyperFlash • 64 Mbit QSPI flash • TF socket for SD card	• 256 Mbit SDRAM memory • 512 Mbit HyperFlash • 64 Mbit QSPI flash • TF socket for SD card
Display	N/A	N/A	N/A	N/A	• Parallel LCD connector	• Parallel LCD connector • Camera connector	• Parallel LCD connector • Camera sensor module	• Parallel LCD connector • Camera sensor module
Audio	• Audio codec • 4-pole audio headphone jack • External speaker connection • Microphone	• Audio codec • 4-pole audio headphone jack • External speaker connection • Microphone	• Audio codec • 4-pole audio headphone jack • External speaker connection • Microphone	• Audio codec • 4-pole audio headphone jack • External speaker connection • Microphone	• Audio codec • 4-pole audio headphone jack • External speaker connection • Microphone	• Audio codec • 4-pole audio headphone jack • External speaker connection • Microphone • SPDIF connector	• Audio codec • 4-pole audio headphone jack • External speaker connection • Microphone • SPDIF connector • Audio extension support	• Audio codec • 4-pole audio headphone jack • External speaker connection • Microphone • SPDIF connector
Connectivity	• Micro USB OTG connector • Arduino interface	• Micro USB OTG connector • Arduino interface	• Micro USB host connector • Micro USB OTG connector • Ethernet (10/100T) connector • CAN transceivers • Arduino interface	• Micro USB host connector • Micro USB OTG connector • Ethernet (10/100T) connector • CAN transceivers • Arduino interface	• Micro USB OTG connector • Ethernet (10/100T) connector • CAN transceivers • Arduino interface	• Micro USB host connector • Micro USB OTG connector • Ethernet (10/100T) connector • CAN transceivers • Arduino interface	• Micro USB host connector • Micro USB OTG connector • Ethernet (10/100T) connector • CAN transceivers • Arduino interface • M.2 interface • MFI interface	• Micro USB host connector • Micro USB OTG connector • Ethernet (10/100T) connector • CAN transceivers • Arduino interface
Debug	• JTAG connector • Onboard DAP-link debugger	• JTAG connector • Onboard DAP-link debugger	• JTAG connector • Onboard DAP-link debugger	• JTAG connector • Onboard DAP-link debugger	• JTAG connector • Onboard DAP-link debugger	• JTAG connector • Onboard DAP-link debugger	• JTAG connector • Onboard DAP-link debugger	• JTAG connector • Onboard DAP-link debugger
Sensor	• 6-axis e-compass sensor • NXP FXOS8700CQ	• 6-axis e-compass sensor • NXP FXOS8700CQ	• 6-axis e-compass sensor • NXP FXOS8700CQ	• 6-axis e-compass sensor • NXP FXOS8700CQ	• 3-axis accelerometer sensor • NXP FXLS8974CFR3	• 6-axis e-compass sensor • NXP FXOS8700CQ	• 6-axis e-compass sensor • NXP FXOS8700CQ	• 6-axis e-compass sensor • NXP FXOS8700CQ
Part Number	MIMXRT1010-EVK	MIMXRT1015-EVK	MIMXRT1020-EVK	MIMXRT1024-EVK	MIMXRT1040-EVK	IMXRT1050-EVKB	MIMXRT1060-EVK, MIMXRT1060-EVKB	MIMXRT1064-EVK
Camera Sensor	N/A	N/A	N/A	N/A	N/A	N/A	MT9M114 image sensor (included w/ MIMXRT1062DVL6A only)	MT9M114 image sensor (included)
Display	N/A	N/A	N/A	N/A	RK043FN66HS-CTG/ RK043FN02H-CT 4.3" (purchase separately)	RK043FN02H-CT 4.3" (purchase separately)	RK043FN02H-CT 4.3" (purchase separately)	RK043FN02H-CT 4.3" (purchase separately)
Board Image	 i.MX RT1010	 i.MX RT1015	 i.MX RT1020	 i.MX RT1024	 i.MX RT1040	 i.MX RT1050	 i.MX RT1060	 i.MX RT1064

i.MX RT1100 EVALUATION KIT FEATURES

Processor	<ul style="list-style-type: none"> • MIMXRT1176DVMAA 	<ul style="list-style-type: none"> • MIMXRT1166DVM6A
Memory	<ul style="list-style-type: none"> • 512 Mbit SDRAM memory • 512 Mbit Octal flash • 128 Mbit QSPI flash • 2 Gbit Raw NAND flash • 64 Mbit LPSPFI flash • TF socket for SD card 	<ul style="list-style-type: none"> • 512 Mbit SDRAM memory • 512 Mbit Octal flash • 128 Mbit QSPI flash • TF socket for SD card
Graphics	<ul style="list-style-type: none"> • MIPI LCD connector • MIPI camera sensor connector 	<ul style="list-style-type: none"> • MIPI LCD connector • MIPI camera sensor connector
Audio	<ul style="list-style-type: none"> • Audio codec • 4-pole audio headphone jack • External speaker connection • Microphone (analog and digital) • SPDIF connector 	<ul style="list-style-type: none"> • Audio codec • 4-pole audio headphone jack • External speaker connection • Microphone (analog and digital)
Connectivity	<ul style="list-style-type: none"> • 2 x Micro USB OTG connectors • Ethernet (10/100/1000M) connector • Ethernet (10/100M) connector • M.2 connector • CAN transceivers • Arduino® interface • FRDM motor control interface • SIM card slot 	<ul style="list-style-type: none"> • 2 x Micro USB OTG connectors • Ethernet (10/100/1000M) connector • Ethernet (10/100M) connector • M.2 connector • CAN transceivers • Arduino® interface • FRDM motor control interface
Debug	<ul style="list-style-type: none"> • JTAG connector • Onboard DAP-Link debugger 	<ul style="list-style-type: none"> • JTAG connector • Onboard DAP-Link debugger
Sensor	<ul style="list-style-type: none"> • 6-Axis ecompass (3-Axis magnetometer, 3-Axis accelerometer) sensor FXOS8700CQ • Camera sensor OV5640 MIPI camera module 	<ul style="list-style-type: none"> • 6-Axis ecompass (3-Axis magnetometer, 3-Axis accelerometer) sensor FXOS8700CQ • Camera sensor OV5640 MIPI camera module
Ordering Information	<ul style="list-style-type: none"> • MIMXRT1170-EVK • RK055HDMIPI4M (5.5" 720p display) 	<ul style="list-style-type: none"> • MIMXRT1160-EVK • RK055HDMIPI4M (5.5" 720p display)
Power	<ul style="list-style-type: none"> • 5V/3A power adaptor 	<ul style="list-style-type: none"> • 5V/3A power adaptor
Board Image		



i.MX RT500 and i.MX RT600 EVALUATION KIT FEATURES

Features	i.MX RT500 EVK	i.MX RT600 EVK
Part Number	MIMXRT595-EVK	MIMXRT685-EVK
Processor	MIMXRT595SFFOC	MIMXRT685SFVKB
Memory	<ul style="list-style-type: none"> 64 MB Macronix Octal SPI Flash 8 MB PSRAM 16 GB SanDisk eMMC 	<ul style="list-style-type: none"> 64 MB Macronix Octal SPI Flash 8 MB PSRAM
Display	MIPI-DSI connector	N/A
Audio	<ul style="list-style-type: none"> DMIC header Dual Knowles SPH0641IM4H digital microphone Stereo audio codec with audio line in/out Dual Class-D amplifiers with speaker connectors 	<ul style="list-style-type: none"> DMIC header Dual Knowles SPH0641IM4H digital microphone Stereo audio codec with audio line in/out Dual Class-D amplifiers with speaker connectors
Connectivity	<ul style="list-style-type: none"> HS/FX USB port with micro-A/B connector SD card slot Arduino and PMOD expansion connectors 	<ul style="list-style-type: none"> HS/FX USB port with micro-A/B connector SD card slot Arduino and PMOD expansion connectors
Debug	<ul style="list-style-type: none"> 10-pin and 20-pin JTAG/SWD connectors On-board debug probe, with VCOM and CMSIS-DAP or J-link firmware options 	<ul style="list-style-type: none"> 10-pin and 20-pin JTAG/SWD connectors On-board debug probe, with VCOM and CMSIS-DAP or J-link firmware options
Sensor	<ul style="list-style-type: none"> 6-axis e-compass sensor NXP FXOS8700CQ 	<ul style="list-style-type: none"> 6-axis e-compass sensor NXP FXOS8700CQ
Display	<ul style="list-style-type: none"> RK055HDMIPI4M* (MIPI I/F) - 5.5", 720 x 1280 G1120B0MIPI* (MIPI I/F) -1.2", 390 x 390 MIKROE-2406** (FlexIO I/F) - 5", 800 x 480, capacitive touch 	N/A
Board Image		

* Purchased separately from NXP

** Purchased separately from third party

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