45 mm

42 mm   actual size

iMX RT1064 uCOM Board Feature Highlights

- NXP i.MX RT1064 ARM Cortex-M7, up to 600 MHz
- On-chip 4 MByte QSPI Flash
- 32 MByte SDRAM, 16-bit databus
- On-board 100/10Mbps Ethernet-Phy
- Parallel RGB graphical output
- Low-power consumption - very power efficient
- **Multiple Wi-Fi solutions available**
  Optional Murata 1XK Wi-Fi/BT module supporting
  Wi-Fi 4, 802.11 a/b/g/n and Bluetooth 5.2 BR/EDR/LE
- Optional on-board QSPI Flash
- 42 x 45 mm small form factor
- Long term availability

Introduction

The **iMX RT1064 uCOM Board** provides a quick and easy solution for implementing a high-performance ARM Cortex-M7 based design. The i.MX RT1064 is the highest performing Cortex-M7 with Real Time Operation and an applications processor level of functionality, delivering 3020 CoreMark/1284 DMIPS @ 600 MHz. It has very low dynamic power consumption, enabled by integrated DC-DC converter and efficient power gating - as low as 110uA/MHz.

The i.MX RT1064 supports **2D graphical acceleration** and has a parallel RGB display interface, up to 1366 x 768px resolution. It also has high security enabled by AES-128, HAB and On-the-fly QSPI Flash Decryption.

Rapid and easy development with support from major microcontroller tool chains. The BSP contains a FreeRTOS port. Typical applications are graphical interface solutions for home, building and industrial control, communication solutions and connected real-time systems.

Specification

Processor	Core / MCU	ARM Cortex-M7 / NXP i.MX RT1064
	Frequency	600 MHz / 528MHz (commercial/industrial temp range)
Memory	On-chip SRAM	1 MByte (512 KByte FlexRAM, can be used as Tightly Coupled Memory and 512 KByte OCRAM)
	SDRAM	32 MByte, 16-bit databus
	FLASH	On-chip 4 MByte QSPI
Graphics output	Parallel RGB	Up to 24-bit, up to 1366 x 768 pixels (16-bits available when Ethernet-Phy is mounted)
	Graphics Engine	PXP - PiXel Processing pipeline for imagine resize, rotation, overlay and color space conversion.
Graphics input	CMOS sensor interface (camera)	Parallel, up to 8 input bits available (up to 16 input bits available in special mounting option without on-board Ethernet-Phy).
Wi-Fi/BT		Optional Murata LBEE5CJ1XK (1XK) Wi-Fi/BT module based on NXP IW416 chipset, supporting Wi-Fi 4, 802.11 a/b/g/n and BT/BLE 5.2, SDIO interface
Ethernet		On-board 100/10 Mbps Ethernet-Phy. Second Ethernet interface is also possible and requires external Ethernet-PHY on carrier board (this will use the pins for the parallel RGB interface)
I/O (all functions are not available at the same time)	QSPI	Optional on-board QSPI flash, can also be located on carrier board
	USB	2x FS USB2.0 OTG
	UART, SPI, I2C, Audio	8x UART, 4x SPI, 4x I2C, 3x SAI, S/PDIF
	CAN	2x CAN bus 2.0B
	GPIO, FlexIO	Large number of GPIOs and keypad pins available, 2x FlexIO blocks
	Memory card	2x SD3.0, One used for optional on-board Wi-Fi/BT module
	ADC and Analogue	16ch 12-bit resolution, 4x comparators
Other	Watchdog	On-board watchdog functionality
	RTC	On-chip iMX RT1064
	Power Management	On-chip iMX RT1064 power management

Power	Accelerators	Encryption engine co-processor, True random number generator
	Supply voltage	4 to 5.0V input. On-board 3.3V/2A supply generated for external use on carrier board
	Power consumption	See datasheet for details. Typically much less than 1 Watt.
Environment	Operating Temperature	0 - 70° or -40 - 85° Celsius
	Operating Humidity	5 - 90% relative humidity, non-condensing
Mechanical	Dimensions (W x H x D)	42 x 45 x 5 mm, EAuCOM form factor
Connectors		2x Hirose DF40C-100 connectors, 0.4 mm pitch
		Optional u.fl. antenna connector if Wi-Fi/BT module mounted

Note that all interfaces may not be available simultaneously due to I/O multiplexing limitations.

Block Diagram
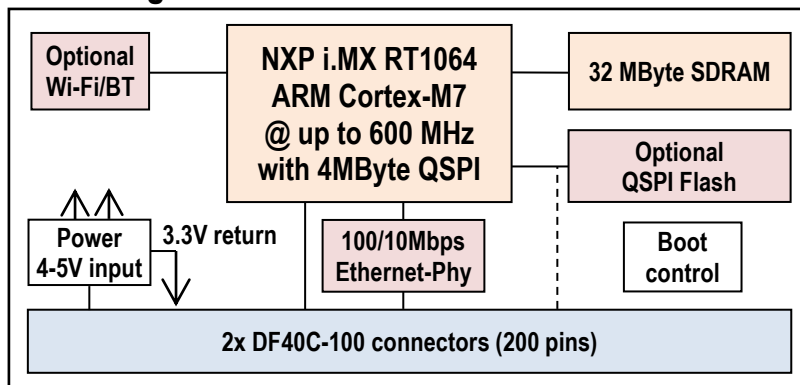
Ordering Information

Part No.[1]	CPU	Core Frequency	SDRAM	Wi-Fi/BT	Ethernet Phy	External QSPI	Operating Temperature
EAC00404	MIMXRT1064CVL5	528 MHz max	32 MByte	No	Yes	No	-40 - 85 °C

[1] Standard configurations listed. Others on request. All configurations may not be stocked.

Support Highlights

Embedded Artists is a reliable and competent partner
- we help you become successful!

- Professional and responsive support
- Carrier boards with reference implementations
- Custom Carrier board design
- Customization
  - Different pinning, supply voltage, memory sizes, etc
  - Single Board Computer (SBC) solutions
- Display solutions
- Mechanical solutions
- Schematic review of customer carrier board designs
- Driver and application development

Development Kit

The iMX RT1064 uCOM Board are supported by the
iMX RT1064 uCOM Developer's Kit that provides a quick
path to get started with development and integration work.
The kits provide reference implementations of key interfaces.

Disclaimer: Embedded Artists reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice.

Embedded Artists AB
Rundelsgatan 14
SE-211 36 Malmö
Sweden

Phone: +46 (0)40-611 00 93
https://www.embeddedartists.com