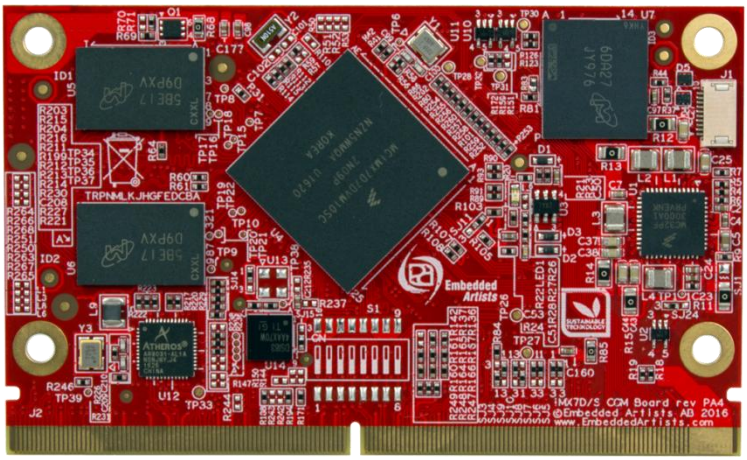
Embedded Artists'

iMX7 Dual COM Board rev A

The Art of Embedded Systems Development – **made Easy™**

Document status: Preliminary



iMX7 Dual COM Board Feature Highlights

- NXP i.MX 7Dual, dual-core ARM Cortex-A7 and Cortex-M4, 1GHz/200MHz
- High performance 2x1800+250 DMIPS
- 1 GByte DDR3L 1066 MT/s, 32-bit databus
- 4 GByte eMMC on-board Flash
- 24-bit parallel RGB and MIPI-DSI graphical output
- PCIe, USB, CAN and many more interfaces
- Low-power consumption - very power efficient
- Linux and Android BSP
- 82 x 50 mm small form factor
- Long term availability

Introduction

The **iMX7 Dual COM Board** provides a quick and easy solution for implementing a high-performance ARM dual-core Cortex-A7 / Cortex-M4 based design. The Cortex-A7 / Cortex-M4 heterogeneous architecture enables the system to run an OS like **Linux on the dual-core Cortex-A7** and a **Real-Time OS (RTOS) on the Cortex-M4**.

The i.MX 7Dual supports **2D graphical acceleration** and has dual display outputs (RGB and MIPI-DSI).
The design has a **low-power implementation** with DDR3L memories and a PMIC supporting DVFS techniques. Typical applications are graphical interface solutions, communication solutions and connected real-time systems.

Specification

Processor	Cores	NXP i.MX 7Dual dual-core ARM Cortex-A7 and Cortex-M4
	Frequency	1 GHz on Cortex-A7 200 MHz on Cortex-M4
Memory	SDRAM	1 GByte DDR3L 1066 MT/s, 32-bit databus
	NAND FLASH	4 GByte eMMC NAND Flash for OS and bootloader
	QSPI FLASH	32 MByte QSPI NOR Flash for Cortex-M4 code
Graphics output	Parallel RGB	24-bit, up to 1920 x 1080 pixels at 60 Hz
	MIPI-DSI	2 lanes, maximum bit rate of 1.5 Gbps
	LVDS	Optional via MIPI-DSI-to-LVDS brige
	Graphics Engine	PXP - PiXel processing pipeline for imagine resize, rotation, overlay and color space conversion.
Graphics input	CMOS sensor interface (camera)	Parallel, up to 24 bit
		Serial, MIPI-CSI2, 2 lanes, maximum bit rate of 1.5 Gbps
Ethernet		One 10/100/1000 Mbps Gigabit Ethernet interface based on Atheros AR8031 Ethernet PHY Second Gigabit Ethernet interface requires off-board Ethernet-PHY
I/O (all functions are not available at the same time)	PCIe	1x PCIe 2.1, 1x lane
	USB	2x USB2.0 OTG, 1x HSIC
	UART, SPI, I2C, Audio	7x UART, 4x SPI, 4x I2C, 3x I2S/SSI
	CAN	2x CAN bus 2.0B
	GPIO	Large number of GPIOs and keypad pins available
	Memory card	2x SD3.0/MMC5.0
	ADC	8ch 12-bit resolution
Other	Boot parameters	E2PROM storing board information including Ethernet MAC address and memory bus setup params.
	Watchdog	On-board watchdog functionality
	RTC	i.MX 7Dual on-chip RTC
	Power Management (PMIC)	PMIC (MMPF3000) supporting DVFS techniques for low power modes

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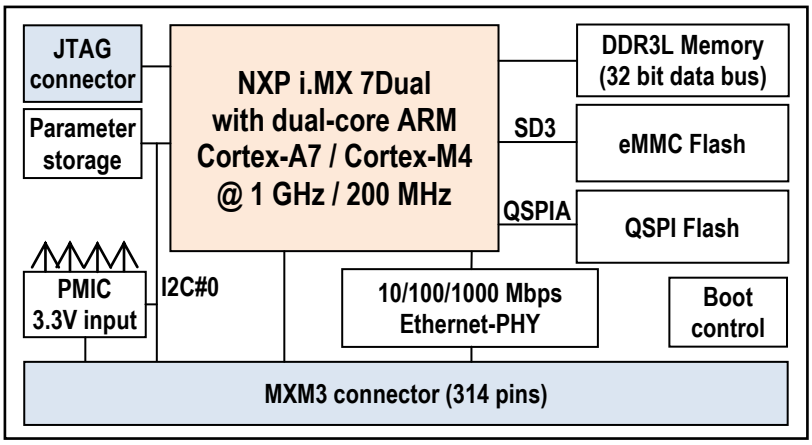
Power	Supply voltage	+3.3V
	Power consumption	TBD
Environment	Operating Temperature	0 - 70° and -20 - 85° Celsius
	Operating Humidity	5 - 90% relative humidity, non-condensing
Mechanical	Dimensions (W x H x D)	82 x 50 mm, same as SMARC form factor but different pinning for better carrier board routing
Connectors		314 pos MXM3 edge connector, 0.5 mm pitch
		10 pos 0.5 mm pitch FPC for JTAG

Block Diagram



Ordering Information

Part No.[1]	CPU	SDRAM	eMMC	QSPI	MIPI-DSI to LVDS	Supply Voltage	Operating Temperature
EAC00274	MCIMX7D7DVM10S	1 GByte DDR3L	4 GByte	32 Mbyte	No	3.3V	0 - 70° C
EAC00276	MCIMX7D5EVM10S	1 GByte DDR3L	4 GByte	32 Mbyte	No	3.3V	-20 - 85° C

[1] Standard configurations listed. Others on request.

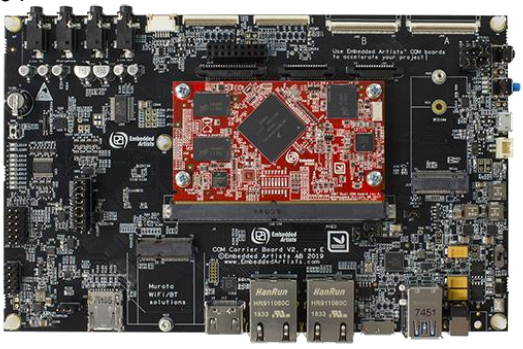
Support Highlights

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

- Professional and responsive support
- Pre-designed standard Carrier boards for integration
- 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 iMX7 Dual COM Board is supported by the ***iMX7 Dual Developer's Kit V2*** that provides a quick path to get started with development and integration work.
The kit provides reference implementations of key interfaces.
Ordering part No. **EAK00329**



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