iMX6 Quad COM Board Feature Highlights

- NXP quad-core ARM Cortex-A9 i.MX 6Quad 1GHz
- 2 GByte DDR3L 1066 MT/s, 64-bit databus
- 4 GByte eMMC on-board Flash
- 24-bit parallel RGB, dual LVDS, HDMI, MIPI-DSI graphical output
- OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
- 10/100/1000 Gigabit Ethernet with on-board PHY
- PCIe, SATA, USB, CAN and many more interfaces
- Low-power consumption
- Linux BSP
- 82 x 50 mm small form factor
- Long term availability

Introduction

The **iMX6 Quad COM Board** provides a quick and easy solution for implementing a high-performance ARM quad-core Cortex-A9 based design. The system is ideal for running an OS like **Linux**.
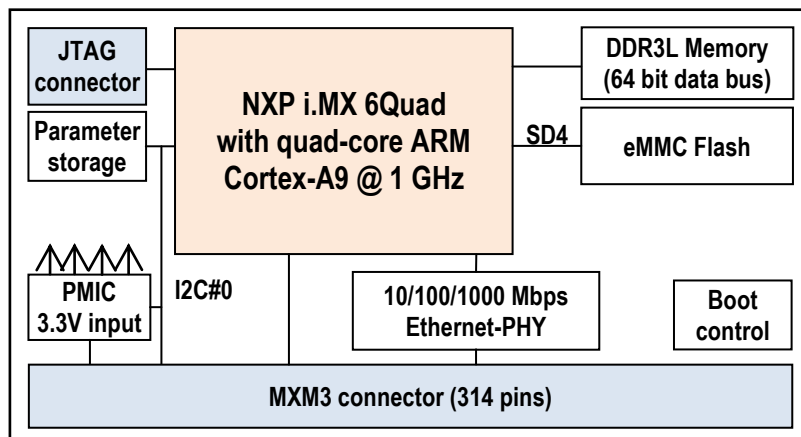
The i.MX 6Quad supports **2D/3D graphical acceleration** and has multiple display outputs (RGB, LVDS, HDMI and MIPI-DSI).
The design has a **low-power implementation** with DDR3L memories and a PMIC supporting DVFS techniques, making the board ideal for portable applications. Other typical applications are graphical interface solutions, communication solutions and connected real-time systems.

Specification

Processor	Cores	NXP quad-core ARM Cortex-A9 i.MX 6Quad
	Frequency	1 GHz on Cortex-A9
Memory	SDRAM	2 GByte DDR3L 1066 MT/s, 64-bit databus
	NAND FLASH	4 GByte eMMC NAND Flash for OS and bootloader
Graphics output	LVDS	Dual 18/24 bit, up to 85 Mpixels/sec, for example WXGA (1366 x 768 px) at 60 Hz
	Parallel RGB	24-bit, up to WXGA (1366 x 768 px) at 60 Hz
	HDMI	V1.4, up to 1920 x 1080 px
	MIPI-DSI	2 lanes
	Graphics Engines	GPU (GC2000/GC355/GC320) supporting OpenGL ES 3.0 and OpenVG 1.1 APIs Hardware video decoder: 1080p60h H.264 HP Hardware video encoder: 1080p30h H.264 BP / Dual 720p
Graphics input	CMOS sensor interface (camera)	Parallel, up to 20 bit
		Serial, MIPI-CSI2, 4 lanes
Ethernet		10/100/1000 Mbps Gigabit Ethernet interface based on Atheros AR8031 Ethernet PHY
I/O (all functions are not available at the same time)	PCIe	1x PCIe 2.0, 1x lane
	USB	1x USB2.0 OTG, 1x USB2.0 Host
	UART, SPI, I2C, Audio	5x UART, 5x SPI, 3x I2C, ESAI, 3x I2S/SSI, S/PDIF TX/RX
	CAN	2x CAN bus 2.0B
	GPIO	Up to 99 pins and 8 pins for keypad
	Memory card	3x SD/MMC 4.5
	SATA	1x SATA-II
Other	Boot parameters	E2PROM storing board information including Ethernet MAC address and memory bus setup params.
	RTC	i.MX 6Quad on-chip RTC
	Watchdog	On-board watchdog functionality
	Power Management (PMIC)	PMIC (MMPF0100) supporting DVFS techniques for low power modes

Power	Supply voltage	+3.3V
	Power consumption	TBD
Environment	Operating Temperature	0 - 70° or -40 - 85° Celsius
	Operating Humidity	5 - 90% relative humidity, non-condensing
Mechanical	Dimensions (W 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

```
┌──────────────┐   ┌────────────────────┐   ┌──────────────────────┐
│ JTAG         │   │                    │   │ DDR3L Memory         │
│ connector    │   │  NXP i.MX 6Quad    │   │ (64 bit data bus)    │
├──────────────┤   │  with quad-core ARM│   ├──────────────────────┤
│ Parameter    │   │  Cortex-A9 @ 1 GHz │SD4│ eMMC Flash           │
│ storage      │   │                    │   │                      │
└──────────────┘   └────────────────────┘   └──────────────────────┘
   ∿∿∿∿       I2C#0
┌──────────────┐   ┌────────────────────┐   ┌──────────────┐
│ PMIC         │   │ 10/100/1000 Mbps   │   │ Boot         │
│ 3.3V input   │   │ Ethernet-PHY       │   │ control      │
└──────────────┘   └────────────────────┘   └──────────────┘
┌────────────────────────────────────────────────────────────┐
│             MXM3 connector (314 pins)                        │
└────────────────────────────────────────────────────────────┘
```

Ordering Information

Part No.[1]	CPU	SDRAM	eMMC	Ethernet	Pinning	Supply Voltage	Operating Temperature
EAC00250	MCIMX6Q5EYM10AD	2 GByte DDR3L	4 GByte	1 Gbps	EACOM board spec	3.3V	0 - 70° C
EAC00257	MCIMX6Q7CVT08AD	2 GByte DDR3L	4 GByte	1 Gbps	EACOM board spec	3.3V	-40 - 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 iMX6 Quad COM Board is supported by the *iMX6 Quad Developer's Kit* that provides a quick path to get started with development and integration work.
The kit provides reference implementations of key interfaces.
Ordering part No. **EAK00251**
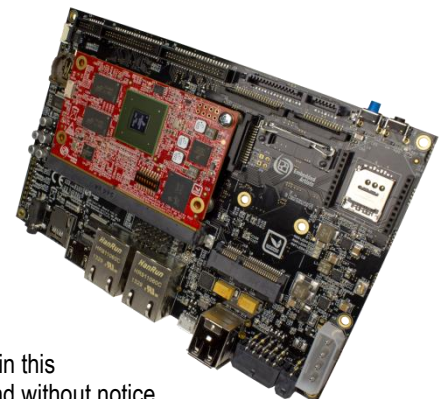
Disclaimer: Embedded Artists reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice.