

RSB-6410

NXP ARM® Cortex®-A9 i.MX6 Dual/Quad Mini-ITX Motherboard



Features

- NXP ARM® Cortex®-A9 i.MX6 Dual/Quad 1GHz high performance processor
- On board DDR3 1066MHz 1GB/2GB memory and 8GB EMMC NAND flash
- Supports Triple Display: VGA/HDMI/LVDS
- Supports 1 x PCIe, 1 x mini-PCIe, 5 x serial ports, 6 x USB, 1 x M.2 socket, 18 x GPIO, 1 x CAN
- Low power consumption, fanless design
- Supports Linux and Android BSP

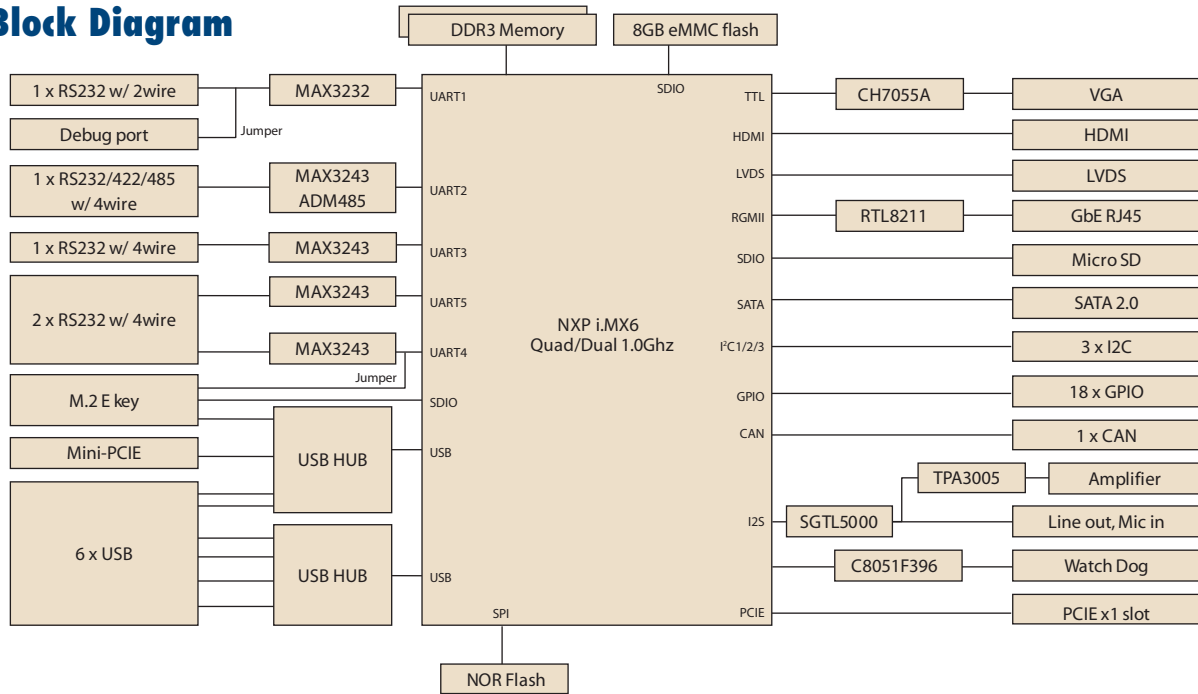
Introduction

RSB-6410 is the world's first RISC-based Mini-ITX motherboard computer which integrates an NXP i.MX6D/Q Cortex-A9 1.0GHz high performance processor. This embedded motherboard provides the ideal solution for industrial applications such as machine control and self-service machine systems that require high performance graphic interfaces, multiple I/O and networking connectivity but with low power consumption.

Specifications

Processor	CPU (40nm)	NXP i.MX 6D	NXP i.MX 6Q	
	Core Number	2	4	
	Max Speed	1.0 GHz	1.0 GHz	
	L2 Cache	1MB	1MB	
	PCI	-	-	
Expansion Slot	Mini-PCIe	1 (USB signal only)		
	M.2	1 (E-Key)		
	PCIe	1		
	Technology	Single channel DDR3 1066MHz SDRAM on board		
Memory	Max. Capacity	1G	2G	
	Flash	8GB EMMC NAND Flash for O.S & 4MB SPI NOR Flash for ADV loader		
	Controller	NXP i.MX6 integrated hardware accelerators		
Graphics	VGA	1920 x 1080		
	LVDS	1 x 24bit dual channel LVDS with up to 1920x1080 resolution, 2 x 24bit single channel LVDS with up to 1366x768 resolution (option)		
	HDMI	1920 x 1080		
	Triple Display	Extended Mode: HDMI + LVDS, VGA+HDMI, VGA+LVDS, VGA+HDMI+LVDS (by application) Clone Mode: HDMI + LVDS, VGA+HDMI, VGA+LVDS, 2 single channel LVDS		
Ethernet	Chipset	NXP i.MX6 integrated RMII		
	Speed	1x 10/100/1000 Mbps		
SATA	Max Data Transfer Rate	300 MB/s (SATA 2.0)		
	Channel	1		
EIDE	Mode	None		
	Channel	None		
SSD	CFast CompactFlash	-		
Rear I/O	CRT	1		
	HDMI	1		
	Ethernet	1		
	USB	6 (USB2.0 HOST)		
	Audio	1 Line out, 1 Mic, 1 Amplifier (6W)		
	Serial	2 (1 of RS-232 w/ 4wire, 1 of RS-232/422/485 w/ 4wire)		
	KB/MS	-		
	DC jack	1 (2.5 mm)		
	Internal Connector	LVDS & Inverter	1/1	
		eDP	-	
USB		-		
Serial		3 (2 x 4 wire RS232, 1 x 2 wire RS232/debug port by jumper), only com5 supply 5V/12V		
IDE		None		
FC		3		
CAN		1		
SATA		1 (SATA 2.0)		
SATA PWR Connector		1		
SD		1		
Watchdog Timer	Output	System reset		
	Interval	time out : 0.1-6553.5s, power on/off 4s		
Power	Power Type	Single voltage 12V DC input; 1 x External DC jack; 1 x Internal 4-pin (2x2) power connector; Supports AT/ATX mode		
	Typical Power Consumption	8W (system burning)		
Operating System	Android	Android4.4.2@ Kernel V3.0.35/Android6.0@kernel V4.1.15		
	Linux	Yocto1.7, Kernel V3.14.28/Yocto2.1@Kernel V4.1.15		
Environment	Operating	Non-Operating		
	Temperature	0 ~ 60 °C (32 ~ 140 °F) / -40 ~ 85 °C (-40 ~ 185 °F)		
Physical Characteristics	Dimensions	170 mm x 170 mm (6.69" x 6.69")		

Block Diagram



Ordering Information

Part No.	CPU	Memory	eMMC	HDMI	VGA	LVDS	LAN	Serial Port	SATA	USB	SD	CAN bus	Operating Temperature
RSB-6410CD-PNA1E	i.MX6D	1G	8G	1	1	1	1	4xRS232, 1xRS422/485/232	1	6	1	1	0 ~ 60 °C
RSB-6410CQ-VNA1E	i.MX6Q	2G	8G	1	1	1	1	4xRS232, 1xRS422/485/232	1	6	1	1	0 ~ 60 °C

Packing List

Part Number	Description	Quantity
96966410000/10	RSB-6410 mother board	1
1700021565-11	Debug cable	1
1700025732-01	RS232 1-to-2 cable	1
1960074075T000	IO Port bracket	1

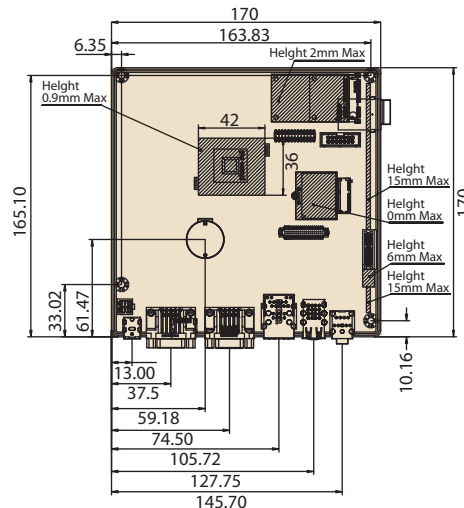
Optional Accessories

Part Number	Description	Quantity
96PSA-A36W12R1-3	ADP 100-240V 36W 12V C6 DC PLUG 90°	1
1700001524	Power Cord 3P UL 10A 125 V 180 cm	1
1700019146	Power Cord CCC 3P 10A 250V 183cm	1
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83cm	1
170203183C	Power Cord 3P Europe 183cm	1
1700026610-01	GPIO cable, A cable D-SUB 9P(F)/2*11P-2.0 20CM	1
1700023575-01	Can cable, A cable D-SUB 9P(M)/1*4P-2.0 20cm	1
IDK-1107WR-40WVA1E	7" LED PANEL 2.5A/3A 250V 1.83cm400N with 4WR touch, 800 x 480 (G)	1
1700025779-01	LVDS cable for IDK-1107WR	1
1700025767-01	LCD backlight cable for IDK-1107WR	1
SQF-MSDM1-8G-21C	SQF MICRO SD C10 MLC 8G (-25~85°C)	1
968AD00018	Wifi BT module AW-NB136NF	1
1750002842	Wireless Antenna R-AN2450-5701RS R/P SM	2
1750007965-01	Antenna Cable R/P SMA (M) to MHF4, 300mm	2
968AD00479*	4G module LTE Cat 4 for China	1
1750006264	Antenna cable SMA(F)/MHF 15cm	1
1750007990-01	Antenna 4G/LTE full band L=11 cm 50 Ohm	1
PCIE-1602C-AE	2-port RS-232/422/485 PCIE Comm. Card w/Iso	1
96NIC-1G-PE-IN	INTEL NIC 10/100/1000M PCIEx1 DESKTOP(G) 82574	1

* Please contact us to get suitable cellular module for your region.

Dimensions

Unit: mm



Embedded Linux Support and Design-in Services

Hardware Certified Ubuntu and Yocto with Eco Partner Services

Linux is the most popular embedded OS for transportation, outdoor services, factory automation, and mission critical applications. Its open source and kernel reliability features ease security updates, and make it particularly adaptable to new AI and Edge computing technology. Advantech has cooperated with Canonical and other software partners to provide hardware certified Ubuntu image and Yocto BSP as Linux offerings. The Advantech, Embedded Linux, and Android Alliance (ELAA) delivers local software services and consultation.



Features

<p>Certified OS and BSP</p> <ul style="list-style-type: none"> Platform compatibility tests Preloaded functional driver and software stacks 	<p>Licensed Services</p> <ul style="list-style-type: none"> License authorized Canonical delivers 10-years of bug fixes and security updates In-house bundled service 	<p>Numerous AI and Edge Resources</p> <ul style="list-style-type: none"> Containerized technology for service provision and deployment AI resources from Caffe, TensorFlow, and mxnet 	<p>Local Partner Alliance</p> <ul style="list-style-type: none"> Embedded Linux and Android Alliance (ELAA)
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WISE-DeviceOn

Massive IoT Device Management Utility

IoT deployment and management typically involves numerous disparate devices installed on multiple sites. These devices require effective monitoring, managing, and tracking. Advantech's easy-to-use WISE-DeviceOn interface enables users to remotely monitor device health, troubleshoot problems, and send software/firmware updates over-the-air (OTA). In sum, DeviceOn empowers quick real-time responsiveness to emerging problems.



Features

Comprehensive Management	Remote Access	Efficient Operations
<ul style="list-style-type: none">• Devices status• Peripherals/firmware• Open for extension	<ul style="list-style-type: none">• Real-time monitoring• Remote controls• Troubleshooting	<ul style="list-style-type: none">• Zero-touch on-boarding• OTA updates• Batch control

Product Highlights



SOM-6883

High-performance 11th Gen Intel[®] COMe Type 6 Module



MIO-5375

Compact 11th Gen Intel[®] Outdoor Focused 3.5" SBC



EPC-B5587

10th Gen Intel[®] Xeon[®] based Edge server



EPC-R3220

Arm based IoT Edge Gateway