DEBIX SOM A

DEBIX SOM A i.MX 8M Plus Core Board

Overview:

DEBIX SOM A is the first System on Module product of the DEBIX series. As with the DEBIX Model A SBC, it is based on NXP i.MX 8M Plus CPU with a 2.3 TOPS NPU, which brings us the same powerful system performance. This core board design has some notable benefits, such as design reutilization, reduction of development time of the carrier boards, and flexible integration into various embedded systems.

Main Features:

· **Industrial-grade performance:** Designed for demanding applications in Industry 4.0, IoT, smart cities, and multimedia.

· **Comprehensive software support:** Includes Yocto-L6.1.22_2.2.0, Ubuntu 22.04, Debian 12, Windows 10 IoT Enterprise, Android, OpenWRT and FreeRTOS operating systems, along with basic software for fast and direct applications.

· **Real-time control:** Cortex-M7 core for real-time responsiveness, supported by robust control networks like CAN FD and dual Gigabit Ethernets (one with TSN capability).

· **Advanced vision system:** Dual Image Signal Processors (ISPs) and dual camera inputs for efficient image processing and analysis.

· **Advanced Multimedia:** 1080p60 video encode/decode (H.265/H.264), 3D/2D graphics acceleration, and multiple audio/voice functionalities.
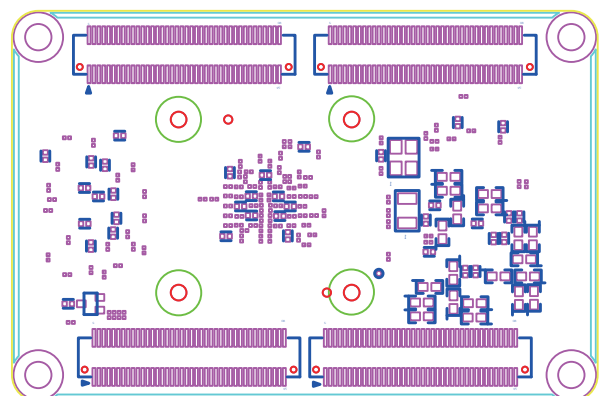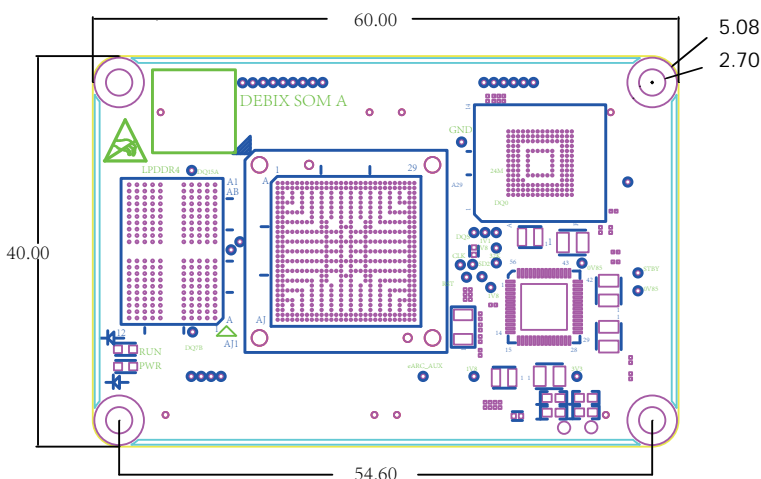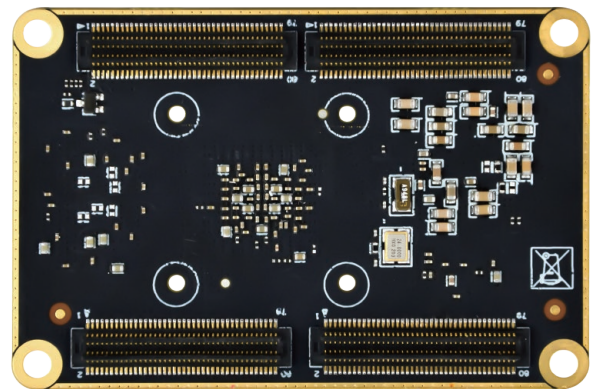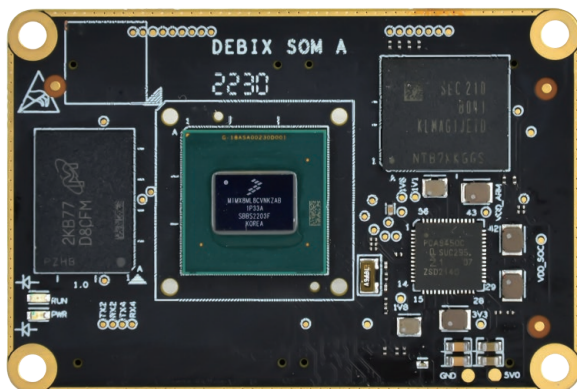
Specification:

System	
CPU	NXP i.MX 8M Plus (default), 4 x Cortex-A53, comes with an integrated neural processing unit (NPU) that delivers up to 2.3 TOPS. Industrial grade CPU runs at 1.6GHz, and commercial grade CPU runs at up to 1.8GHz. (i.MX 8M Plus series CPU optional)
Memory	2GB LPDDR4 (1GB/4GB optional, while 8GB is optional when operating temp. is -20°C to 70°C)
Flash	Onboard 16GB eMMC (8GB/32GB/64GB/128GB/256GB optional)
OS	Ubuntu22.04, Yocto-L6.1.22_2.2.0, Debian 12, Windows 10 IoT Enterprise (also supports Android, OpenWRT, FreeeRTOS) Note: 4GB and 8GB LPDDR4 supports Windows 10 IoT Enterprise, recommend 8GB version.
I/O Interfaces	
Gigabit Ethernet	2 x Gigabit Ethernet controller, one of them supports Time Sensitive Networking (TSN)
Display	1 x HDMI 2.0a, support 3840 x 2160@30Hz, 1920 x 1080@120Hz, 1920 x 1080@ 60Hz 1 x LVDS, support 4-lane and 8-lane 1 x MIPI DSI, support 2560 x 1080@60Hz
Camera	2 x MIPI CSI
Audio	Up to 6 x SAI (synchronous audio interface), HiFi4 DSP, 1 x SPDIF IN, 1 x SPDIF OUT (Note: 1 x SAI with 8 TX and 8 RX lanes, 1 x SAI with 4 TX and 4 RX lanes, 2 x SAI with 2 TX and 2 RX lanes, 2 x SAI with 1 TX and 1RX lane, all SAIs support I2S and AC97)
USB	2 x USB 3.0, configurable as device or host
UART	Up to 4 x UART
I2C	Up to 6 x I2C, I2C2~I2C6 are exposed to the connectors (2 of the five I2Cs are multiplexed as SD1). I2C1 is not allowed to be configured.
SDIO	2 x SDIO
SPI	Up to 3 x ECSPI
PCIe	1 x PCIe Gen3 1-lane
CAN	2 x CAN
GPIO	13 x GPIO for default, other functional pins can be configured as GPIO through software
Power Supply	
Power Input	3.5V~5V/2A
Operating Temperature	
Temp. Range	-20°C~70°C for default, -40°C~85°C optional
Mechanical	
Connector	4 x 2*40pin/0.5mm pitch board-to-board connector (PN: BB51024A-R80-40-32), matching sockets of various heights
Dimension	60mm(L) x 40mm(W) x 5.6mm(H)
Gross Weight	23g (±0.5g)
Net Weight	11g (±0.5g)

Product Version:

DEBIX SOM A standard version, see the table below for details.

Version	CPU	NPU	VPU	ISP	HiFi 4
DEBIX SOM A Standard	**NXP i.MX 8M Plus**	1	1	1	1
DEBIX SOM A Lite	**NXP i.MX 8M Plus Quad Lite**	N/A	N/A	N/A	N/A

Certificates:

Ordering Codes:

RAM LPDDR4	eMMC Storage	PN (-20℃~70℃)		PN (-40℃~85℃)	
		SOM A	SOM A Lite	SOM A	SOM A Lite
1GB DDR	8GB	SOM A-D1E8	SOM A Lite-D1E8	SOM A-I-D1E8	SOM A Lite-I-D1E8
	16GB	SOM A-D1E16	SOM A Lite-D1E16	SOM A-I-D1E16	SOM A Lite-I-D1E16
	32GB	SOM A-D1E32	SOM A Lite-D1E32	SOM A-I-D1E32	SOM A Lite-I-D1E32
	64GB	SOM A-D1E64	SOM A Lite-D1E64	SOM A-I-D1E64	SOM A Lite-I-D1E64
2GB DDR	8GB	SOM A-D2E8	SOM A Lite-D2E8	SOM A-I-D2E8	SOM A Lite-I-D2E8
	16GB	SOM A-D2E16	SOM A Lite-D2E16	SOM A-I-D2E16	SOM A Lite-I-D2E16
	32GB	SOM A-D2E32	SOM A Lite-D2E32	SOM A-I-D2E32	SOM A Lite-I-D2E32
	64GB	SOM A-D2E64	SOM A Lite-D2E64	SOM A-I-D2E64	SOM A Lite-I-D2E64
4GB DDR	8GB	SOM A-D4E8	SOM A Lite-D4E8	SOM A-I-D4E8	SOM A Lite-I-D4E8
	16GB	SOM A-D4E16	SOM A Lite-D4E16	SOM A-I-D4E16	SOM A Lite-I-D4E16
	32GB	SOM A-D4E32	SOM A Lite-D4E32	SOM A-I-D4E32	SOM A Lite-I-D4E32
	64GB	SOM A-D4E64	SOM A Lite-D4E64	SOM A-I-D4E64	SOM A Lite-I-D4E64
8GB DDR	8GB	SOM A-D8E8	SOM A Lite-D8E8		
	16GB	SOM A-D8E16	SOM A Lite-D8E16		
	32GB	SOM A-D8E32	SOM A Lite-D8E32		
	64GB	SOM A-D8E64	SOM A Lite-D8E64		

Compatible with DEBIX's Accessories:

Product	Model
SOM A I/O Board	BMB-08
Camera Adapter Board	EMB-AS-08
DEBIX Camera Module	Camera 200A
	Camera 500A
	Camera 1300A
DEBIX Display Screen	DEBIX TD050A
	DEBIX TD070A
	DEBIX TD101A
	DEBIX TD050H
	DEBIX TD070H
	DEBIX TD101H

Safety Instruction and Warnings:

General:

• Avoid exposure to water, moisture, and conductive surfaces while operating.
• Handle with care to avoid mechanical or electrical damage to the circuit board and connectors.
• Only handle the board by the edges when powered on to minimize the risk of electrostatic discharge damage.

Power:

• Only use the product with a DEBIX SOM A and a 12V/2A DC external power supply that complies with relevant regulations and standards for your country.

Environment:

• Operate in a well-ventilated environment, even if using a case.
• Place on a stable, flat, non-conductive surface and avoid contact with conductive items.

Connections:

• Use peripherals that comply with relevant standards for the country of use and ensure proper insulation and operation.

Additional notes:

• This summary is not exhaustive, please refer to the full User Manual for details.

• If you are unsure about any aspect of safety or operation, consult a qualified professional.

Contact Us:

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