

Industrial Core Boards Specification

Model:SOM-iMX95-OSM

REVISION HISTORY					
Version	Date	Board ID	Page	Descriptive	
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CONTENTS

1. Product Introduction	1
2. Product Pictures	1
3. Hardware Block Diagram.....	2
4. Hardware Parameters	3
5. Electrical Characteristics	3
5.1 Working Environment	4
5.2 Power Consumption Parameters (SOC)	4
6. Mechanical Dimensions	4
7. Precautions For Use	6

1. Product Introduction

The SOM-iMX95-OSM is based on NXP i.MX95 delivers safe, secure, power efficient edge computing for use in aerospace, automotive edge, commercial IoT, industrial, medical and network platforms. Equipped with a 64-bit 6x Arm® Cortex-A55 multicore complex, as well as an ARM Cortex-M7 and an ARM Cortex-M33 real-time kernel, and NXP eIQ® Neutron Neural Processing Unit, the SOM- iMX95-OSM is ideal for applications such as industrial control, data gateway and edge computing. industrial control, Industrial human machine interface (HMI), data gateway, edge computing and other application scenarios.

- 64-bit 6 core ARM Cortex-A55 processor with ARM Cortex-M7 and ARM Cortex-M33 real-time core
- NXP eIQ® Neutron Neural Processing Unit
- References OSM-L standard pinout IO, LGA package, 45 x 45 mm size saves more valuable space
- 4GB RAM, 32GB eMMC flash memory
- Support dual Gigabit network interface
- Provides other interfaces such as I2C UART SPI SDIO3.0 USB2.0 PWM I2S, etc.
- Support Linux Yocto system, stable and reliable performance.
- Industrial standard design, 7X24 hours long time stable operation.

2. Product Pictures

The following images are for reference only:

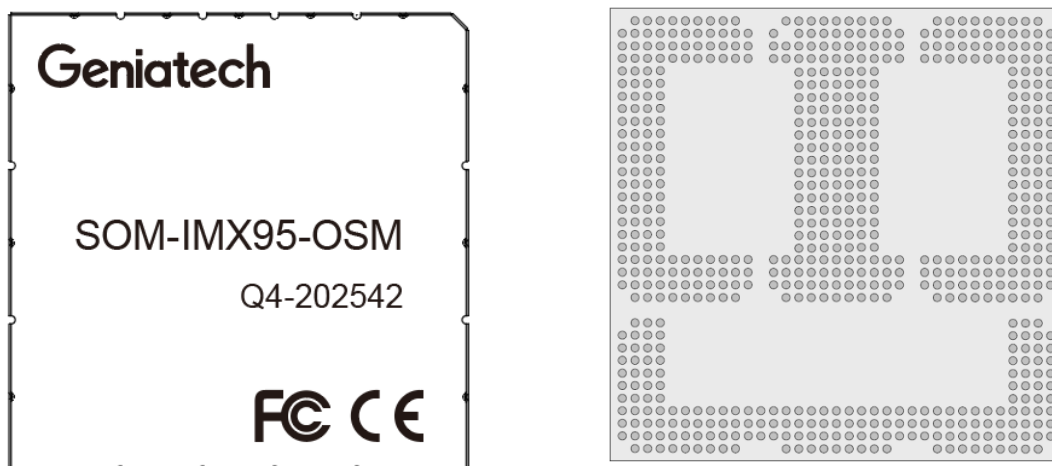


Figure 1 Core board front and back view

3. Hardware Block Diagram

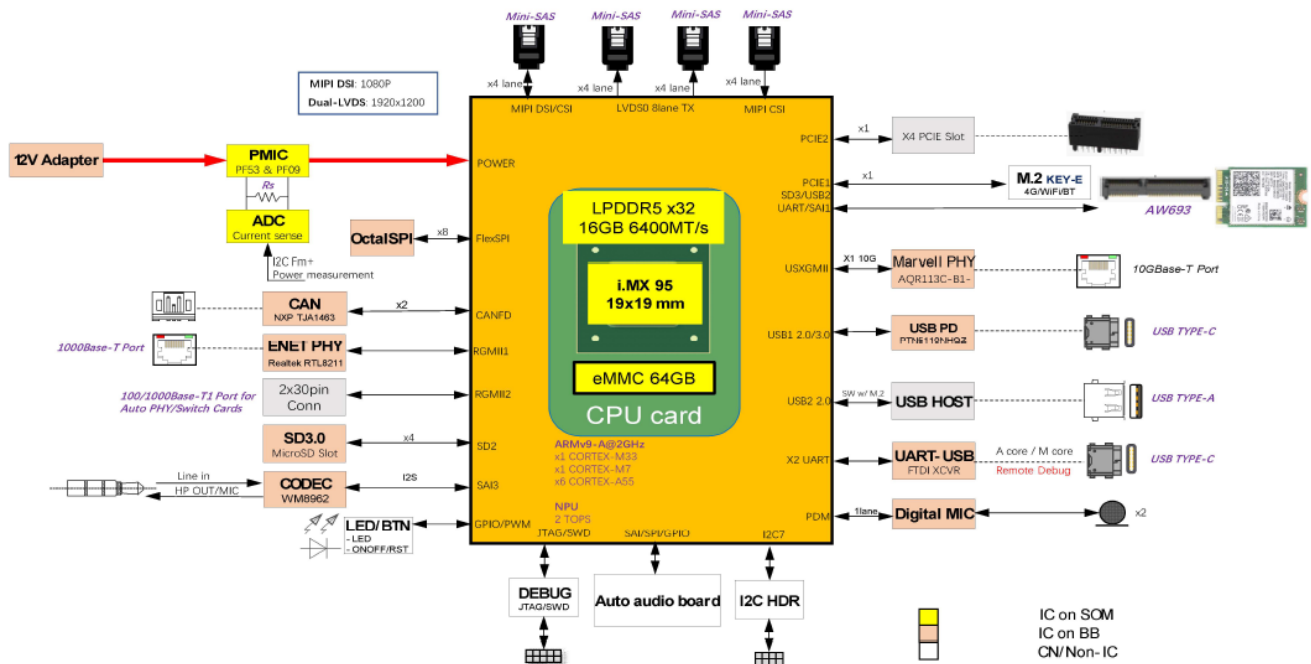


Figure 2 Core board hardware block diagram

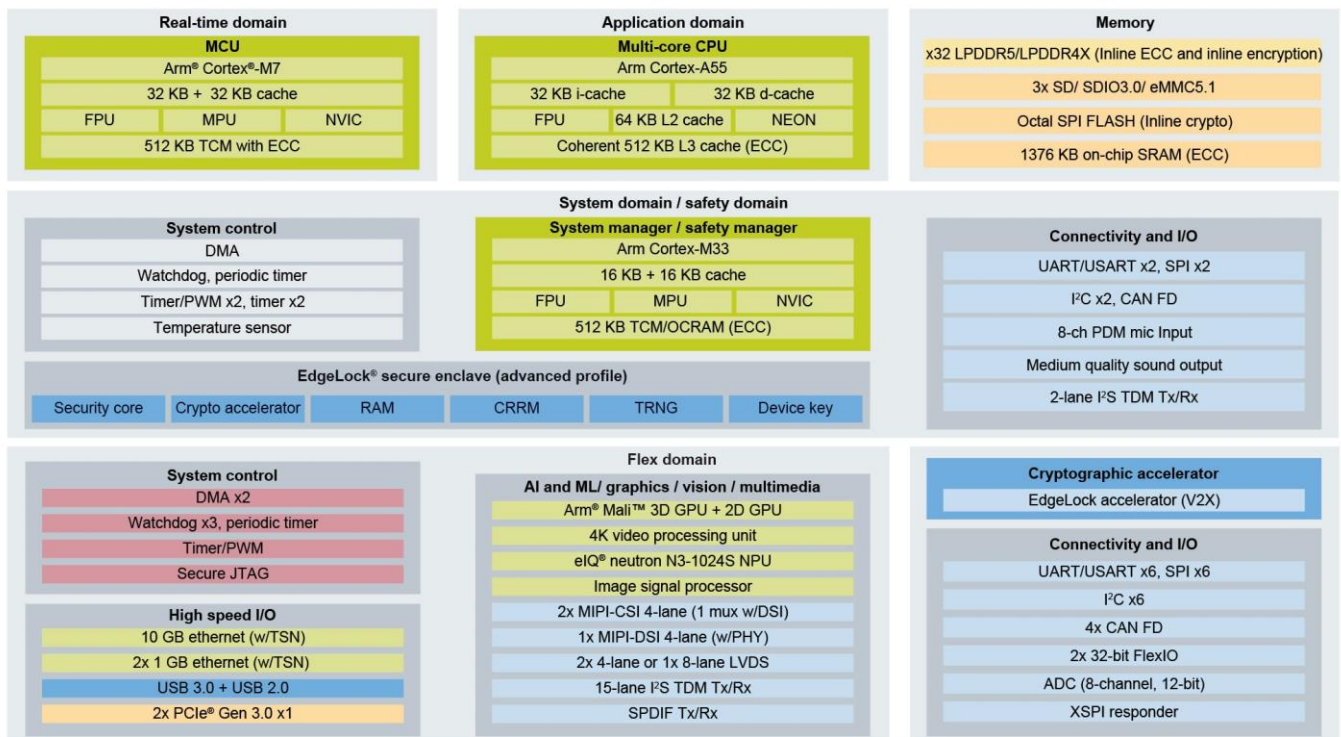


Figure 3 i.MX95 processor architecture diagram

4. Hardware Parameters

Processor	Chip model	NXP i.MX95	
	CPU	6 Core ARM Cortex-A55 + ARM Cotex-M7 + ARM Cotex-M33	
	NPU	NXP eIQ® Neutron Neural Processing Unit	
Storage	RAM	4GB(LPDDR5)	
	ROM	32GB (optional 64G/128G) eMMC	
Hardware Source	MIPI CSI	1	One 4-lane MIPI CSI-2 camera input
	MIPI DSI	1	One 4-lane MIPI DSI display with data supplied by the LCDIF
	USB	2	USB 2.0 controllers and PHYs interfaces
	Ethernet	2	Two Gigabit Ethernet controller with support for TSN in addition to IEEE, Ethernet AVB, and IEEE 1588
	SD	1	Supports 1-bit / 4-bit SD bus Channel 0 supports SDHI / e-MMC (boot supported) Channel 1 supports SDHI Compliant with SD 3.0 Supports default, high-speed, UHS-I/SDR50, SDR104 transfer modes supported
	CAN	1	One Controller Area Network (FlexCAN) modules, each optionally supporting flexible data-rate (FD)
	SPI	2	Supports master and slave modes
	UART	3	Supports hardware or software flow control;
	I2C	3	
	PWM	2	
	Watchdog	1	Watchdog Timer;
	PCIe	2	
	Audio	2	Three SAI interfaces
	GPIO	24	
Package		LGA package, OSM 1.1 standard	
Size		45mm × 45mm	
Power supply		5V	

Note: Some of the pin resources have a multiplexing relationship

5. Electrical Characteristics

5.1 Working Environment

Environmental parameters	Minimum	Typical	Maximum
Operating temperature	-40°C	/	85°C
Storage temperature	-50°C	/	90°C
Operating humidity	10% (no condensation)	/	90% (no condensation)
Storage humidity	5% (no condensation)	/	95% (no condensation)
Operating voltage	/	5.0V	/

5.2 Power Consumption Parameters (SOC)

Operating state	Voltage Typical	Current Typical	Power Consumption Typical
Free state	5.0V	0.68A	3.4W
Fully loaded state	5.0V	0.88A	4.4W

Note: Power consumption is measured based on the evaluation board. The test data is related to specific application scenarios and is for reference only.

Free state: the system starts up, the evaluation board is not connected to other external modules, and the program is not executed.

Fully loaded state: the system is booted, the evaluation board is not connected to other external modules, and the DDR pressure read/write test program is running, the resource utilization of the two ARM Cortex-A53 cores is about 100%.

6. Mechanical Dimensions

The main hardware-related parameters of the core board are shown below for reference only.

PCB Size	45mm*45mm
PCB Layers	10 层
PCB Board Thickness	1.2mm
Maximum component height	3.0mm
Weights	17.0g

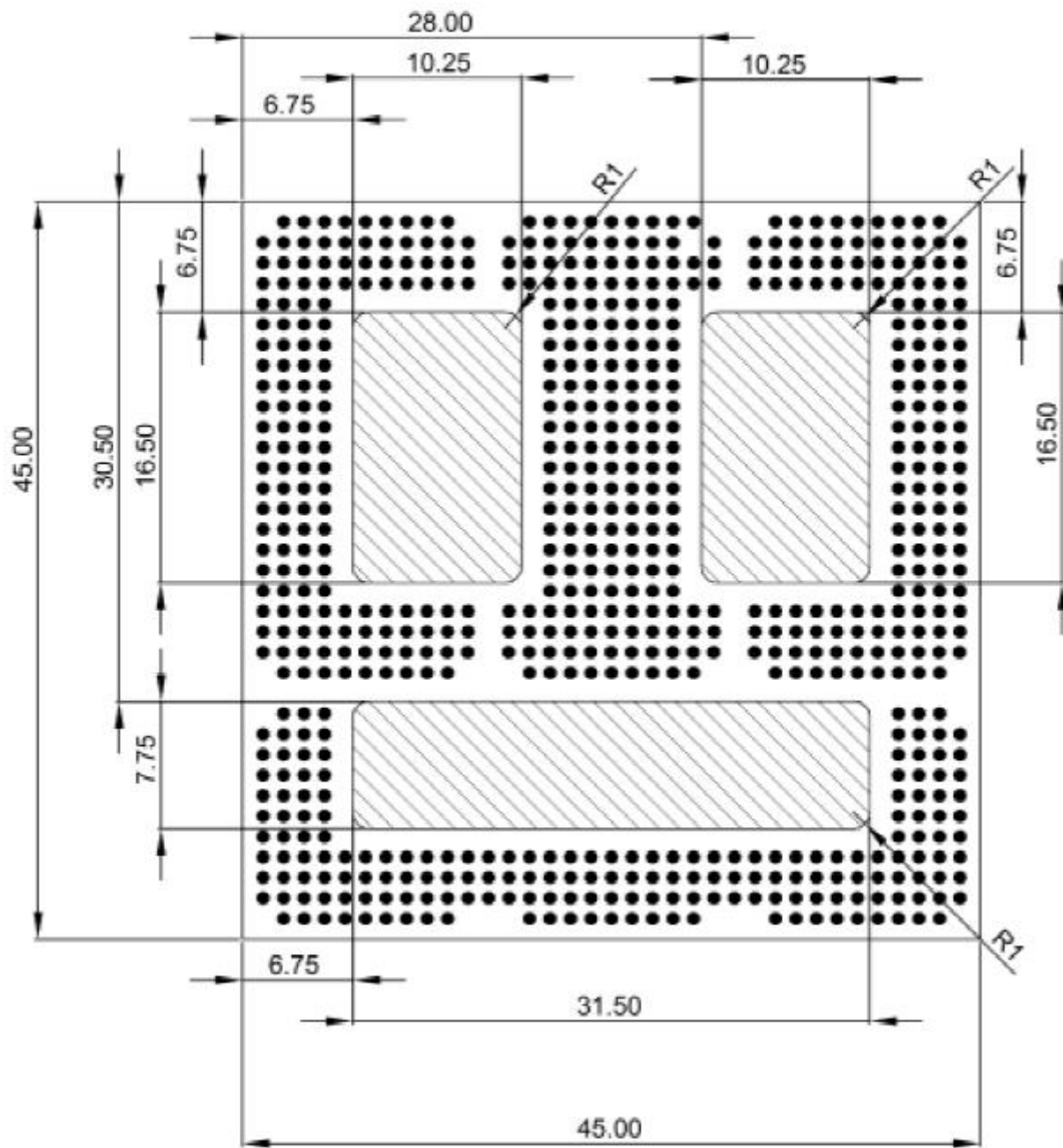


Figure 4 Core board mechanical dimensions

Maximum component height: the height difference between the highest component level of the core board and the level of the PCB front side. The highest component of the core board is the shield cover.

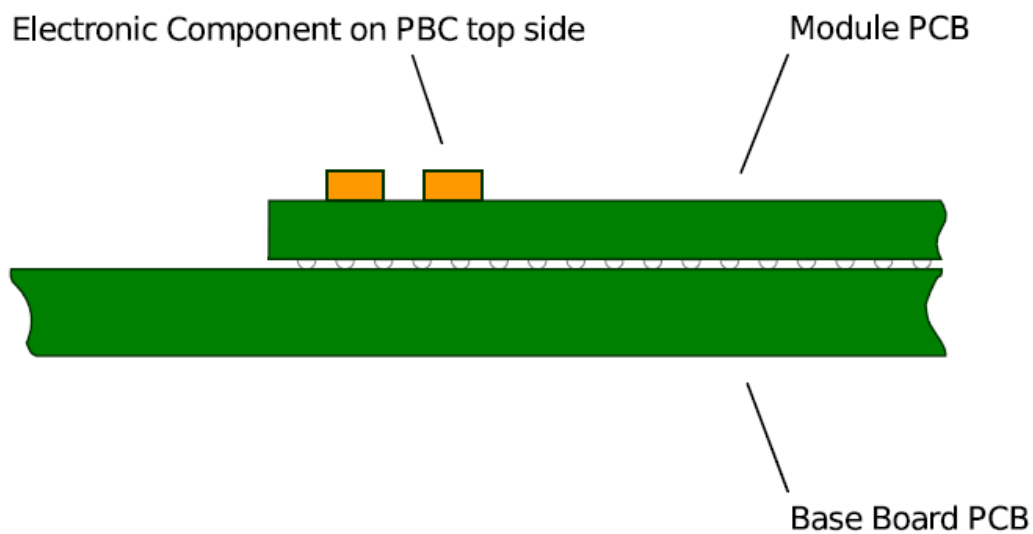


Figure 5 Schematic diagram of the highest devices on the core board

7. Precautions For Use

1. Do not squeeze, bend, or disassemble the board.
2. Keep circuit boards away from static electricity.
3. Do not allow water or other liquids to come into contact with the board
4. Clean the board with a soft, dry towel or brush.
5. Do not use long connection cables, which may affect performance and image quality