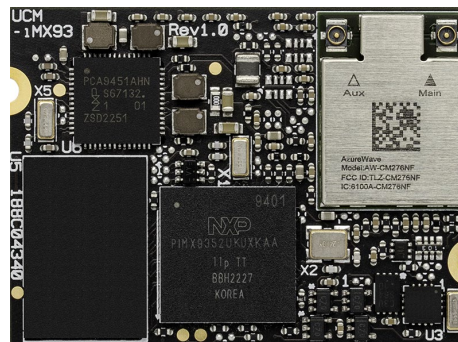


System on Module

UCM-iMX93

Datasheet v1.1



UCM-iMX93 is the very latest generation System on Module from NXP, delivered in an ultra-miniature form factor with energy flex architecture and state-of-the-art security to support energy-efficient edge computing.

i.MX93 processors offer fast and efficient basic ML inferencing along with a rich set of peripherals and high-performance application cores for automotive, industrial, and consumer IoT market segments. The i.MX93 processors are the first in the i.MX portfolio to integrate the scalable Arm® Cortex®-A55 core, bringing best-in-class performance and energy efficiency to Linux-based edge applications.

Measuring just 28 x 30 x 4mm, the UCM-iMX93 has WiFi and Bluetooth capability and offers LVDS, MIPI-DSI and MIPI-CSI interfaces, capacitive touchscreen support, extensive I/O options and a wide operating temperature range of -40°C to +85°C.

Key Features:

- Dual-core ARM Cortex-A55 CPU, 1.7GHz
- Integrated AI/ML Neural Processing Unit
- Real-time ARM Cortex-M33 co-processor, 250Mhz
- Up to 2GB LPDDR4 and 64GB eMMC
- LVDS, MIPI-DSI, MIPI-CSI
- Certified 802.11ac WiFi, BT 5.3 BLE
- GbE / RGMII, 2x USB, 2x CAN, 7x UART
- Operating temperature: -40°C to +85°C



UCM-iMX93

CPU Core, Memory & Storage

Note:

- "Option" column specifies the configuration code required to have the particular feature.
- "+" means that the feature is always available

Feature	Specification	Option
CPU	NXP i.MX9352, dual-core ARM Cortex-A55, 1.7GHz	C1700D
	NXP i.MX9331, single-core ARM Cortex-A55, 1.7GHz	C1700S
NPU	AI/ML Neural Processing Unit, up to 0.5 TOPS Arm® Ethos™ U-65 microNPU	C1700D
Real-Time Coprocessor	ARM Cortex-M33, 250Mhz	+
RAM	512MB – 2GB, LPDDR4	D
Storage	eMMC flash, 8GB – 64GB	N

Display, Camera & Audio

Display	MIPI-DSI, 4 data lanes, up to 1080p60	+
	LVDS, 4 lanes up to 1366x768 p60	+
Touchscreen	Capacitive touch-screen support through SPI and I2C interfaces	+
Camera	MIPI-CSI, 2 data lanes	+
Digital Audio	Up-to 2x I2S / SAI	+
	S/PDIF input/output	+

Network

Feature	Specification	Option
Ethernet	Gigabit Ethernet port (MAC+PHY)	+
	Primary RGMII	Not E
	Secondary RGMII	+
WiFi	Certified 802.11ac WiFi NXP 88W8997 chipset	WB
Bluetooth	Bluetooth 5.3 BLE	WB

UCM-iMX93

I/O

Feature	Specification	Option
USB	2x USB2.0 dual-role ports	+
UART	Up to 7x UART	+
CAN bus	Up to 2x CAN-FD	+
SD/SDIO	1x SD/SDIO	+
	Additional 1x SD/SDIO	Not WB
SPI	Up to 7x SPI	+
I2C	Up to 6x I2C	+
ADC	Up to 4x general-purpose ADC channels	+
PWM	Up to 6x PWM signals	+
GPIO	Up to 79x GPIO (multifunctional signals shared with other functions)	+

System Logic and Debug

RTC	Real-time Clock, powered by an external lithium battery	+
JTAG	JTAG debug interface	+

Electrical, Mechanical and Environmental Specifications

Supply Voltage	3.45V to 5.5V
Digital I/O Voltage	3.3V/1.8V
Power Consumption	0.5 – 3W depending on system load and board configuration
Dimensions	28 x 38 x 4 mm
Weight	7 grams
Connectors	2 x 100-pin, 0.4mm pitch
MTTF	> 200,000 hours
Operating Temperature (case)	Commercial: 0°C to +70°C Extended: -20° to 70° C - only with C1500D Industrial: -40° to 85° C - only with C1500D
Storage Temperature	-40°C to +85°C
Relative Humidity	10% to 90% (operation) 05% to 95% (storage)
Shock	50G / 20 ms
Vibration	20G / 0 - 600 Hz



UCM-iMX93

Block Diagram

UCM-iMX93

UCM-iMX93 Evaluation Kit

Hardware

- UCM-iMX93-C1700D-D2-N32-E-WB-TIC
- SB-UCMIMX93 carrier board
- Optional: 7" LVDS LCD with touch panel
- Optional: Quectel EG25G LTE cellular modem
- WiFi antennas and cables
- USB cable and adapter
- 12V power supply

Technical Support

- Technical support for 12 months.
- Schematics review of the customer's carrier board design.
- LCD panel compatibility verification and driver adaptation service.
- 45-day trial period. Eval Kit will be accepted for refund if the user finds the product not suitable for their needs.

Rev no.	Rev date.	Contents	Page
v1.0	20.06.23	New creation	
v1.1	29.02.24	Overview updated Power consumption added	1 3