



Quick Start Guide
IMX95LPD5EVK-19CM

i.MX 95 Family of Applications Processors Evaluation Kit Quick Start Guide



About the i.MX 95 EVK

This quick start guide for the i.MX 95 Evaluation Kit (EVK) explains how to set up and begin developing with the i.MX 95 applications processor and associated accessories. The i.MX 95 applications processor is ideal for machine learning, vision, advanced multimedia, industrial and IoT applications. With its integrated eIQ® Neutron Neural Processing Unit (NPU), the i.MX 95 processor adds intelligence to designs for devices in smart homes, smart cities, smart factories and automotive displays.

Specifications

Compute card

- i.MX 95 applications processor with:
 - 6x Arm® Cortex®-A55
 - 1x Arm Cortex-M33
 - 1x Arm Cortex-M7
 - eIQ® Neutron NPU
- LPDDR5 32-bit 16GB
- eMMC 5.1, 64GB
- Power management ICs (PF09, PF5301, PF5302)
- Power measurement ADC

Base board

- MicroSD 3.0 card slot
- Octal SPI Nor flash 1Gb
- One USB 2.0 A connector

- One USB 2.0/3.0 C connector
- One USB 2.0 C for Debug
- M.2 Key-E for Wi-Fi/BT
- Two MIPI-CSI connector
- Two CAN port
- Eight channels for ADC
- I²C Expansion connector
- One 10Gbps Ethernet (TSN)
- One 1Gbps Ethernet (TSN)
- One ENET B2B connector
- Multiple display interface:
 - 1x MIPI-DSI connector (muxed on MIPI-CSI connector)
 - 2x 4 data lane LVDS connector
- Audio codec support
- PDM MIC array support
- One PCIe x8 slot for audio
- One PCIe x4 slot

Get to know the iMX95LPD5EVK-19CM

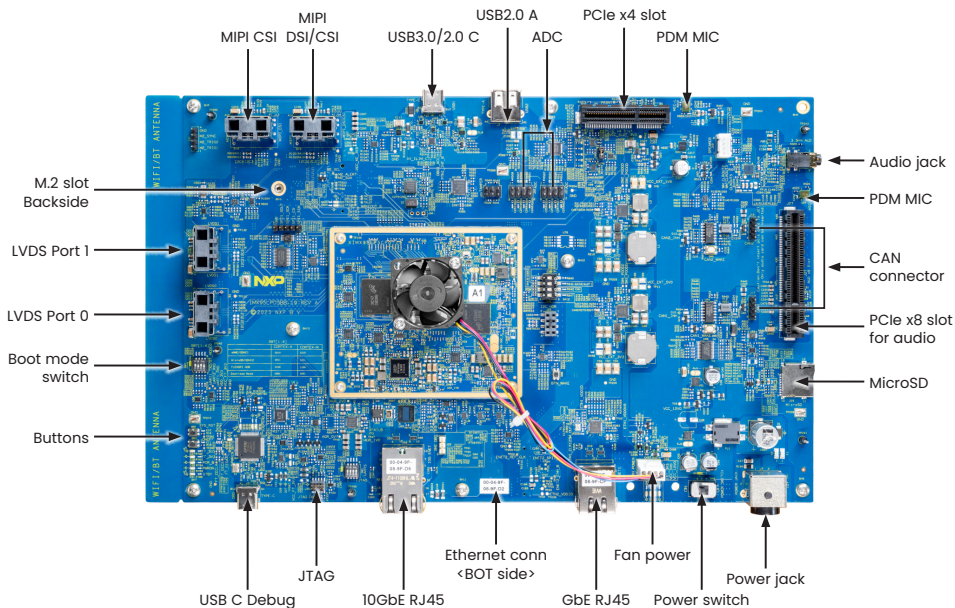


Figure 1: Top view IMX95LPD5EVK-19CM board

Get to know the iMX95LPD5EVK-19CM continued

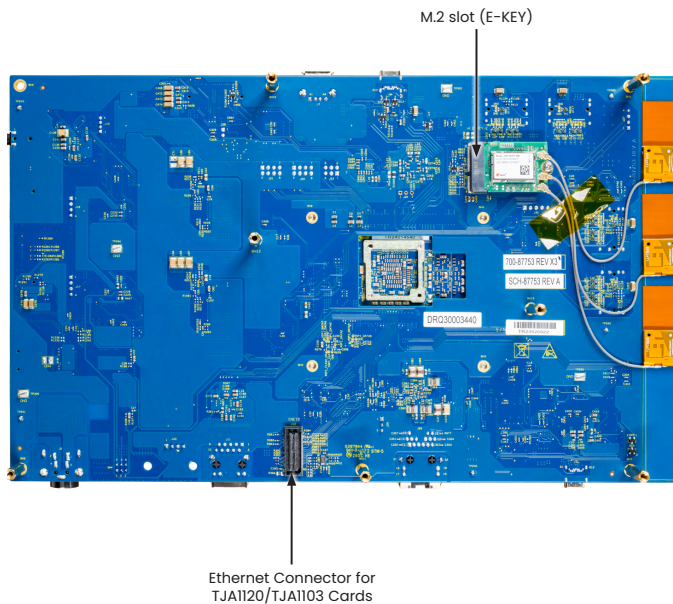


Figure 2: Back view iMX95LPD5EVK-19CM board

Getting started

1. Unpack the kit

The IMX95LPD5EVK-19CM is shipped with the items listed in Table 1.

Table 1: Kit contents	
Item	Description
iMX95LPD5EVK-19CM	i.MX 95 19X19 EVK board (SOM+BB)
Power supply	AC/DC adapter, 12v / 13.33A, 160W
USB type-c cable	2x USB cable, USB 3.0 A/M to type c cable, 1M
M.2 module	PN: M2-JODY-W3777; Wi-Fi 6 / BT 5.3
Software	Linux BSP image programmed in eMMC
Documentation	Quick Start Guide

Getting started continued

2. Prepare accessories

The following items in Table 2 are recommended to run the IMX95LPD5EVK-19CM.

Table 2: Customer-supplied accessories

Item	Description
IMX-AUD-IO	iMX 8 Series legacy general auto audio card with PCIe x8 connector
IMX-MIPI-HDMI	MIPI-DSI to HDMI adapter board
MX9-DSI-OLED	MIPI to OLED convert board and OLED panel (6.39", 1080 x 2340)
IMX95-OS08A20	MIPI-CSI camera (OS08A20) wo/ ISP, 8MP 3840 x 2160, 4K30fps
MX95MBCAM10001	Cameras serializer modules (OX03C10 2MP sensor+ Maxim Serializer)
MX95MBDESER01	Maxim Quad De-serializer Board convert board, support up to 4x MX95MBCAM10001 modules
MX95MBDES10001	Camera serializer module (OX03C10 2MP sensor+ Maxim Serializer) and deserializer converted board
IMX-DSI-SDSB	MIPI-DSI to GMSL (serializer) + GMSL to LVDS (deserializer) board, support up to 2x MIPI-DSI through MINI-SAS connector
RPi-CAM-MiniSAS	AR0144 with external ISP, AP1302 Camera module + Convert Board
IMX-LVDS-HDMI	LVDS to HDMI adapter board

Getting started continued

3. Download software and tools

Installation software and documentation are available at

www.nxp.com/imx95. The following are available on the website:

Table 3: Software and tools

Item	Description
Documentation	• Schematics, layout and Gerber files • Quick Start Guide • Hardware Design Guide • i.MX 95 EVK Board User Manual
Software development	• Android BSPs • Linux BSPs
Demo Images	Copy of the latest Linux and Android images that are available to program on to the eMMC. i.MX 95 EVK software can be found at nxp.com/imxsw.

Setting up the system

The following will describe how to run the pre-loaded Linux image on the IMX95LPD5EVK-19CM (i.MX 95).

1 Confirm boot switches

The boot switches should be set to boot from “**eMMC**”, **SW7** [1-4] (Figure 3: i.MX 95 EVK connection points) are used for boot, See table below:

BOOT device	SW7 [1-4]
eMMC/uSDHC1	1010

Note: 1 = ON 0 = OFF

2 Connect USB debug cable

Connect the UART cable into the port **J31** (Figure 3). Connect the other end of the cable to a PC acting as a host terminal. UART connections will appear on the PC,

this will be used as A55 and M33 core system debugging.

Open the terminal window (i.e., Hyper Terminal or Tera Term), choose the right COM port number and apply the following configuration.

- Baud rate: **115200bps**
- Data bits: **8**
- Parity: **None**
- Stop bits: **1**

3 Connect to an HDMI display

Connect an IMX-MIPI-HDMI board with **J14** MINI-SAS connector through cable and then connect other side to a HDMI display through an HDMI cable.

4 Connect mouse

Connect the mouse to the USB A port connector **J7** through USB C OTG cable.

Step-by-step instructions continued

5 Connect power supply

Connect the AC/DC power adapter to **J5**, then power up the board by **SW4** switch.

6 Board boot up

As the board boots up, you will see penguins appear in the upper left-hand corner of the monitor, and then you will see the Linux terminal icon on the top left and timer on right top corner. Congratulations, the i.MX 95 EVK is ready to use!

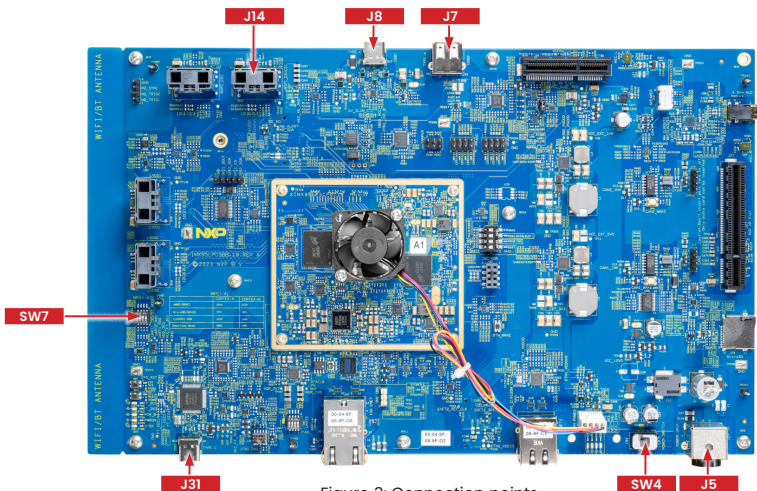


Figure 3: Connection points

Additional information

Boot switches

SW7[1-4] is the boot configuration switch, the default boot device is eMMC/USDHC1, as shown in Table 4. If you want to try other boot devices, you need to change the boot switches to corresponding values as listed in Table 4.

Table 4: Boot device settings

Boot mode	SW7-1	SW7-2	SW7-3	SW7-4
Serial downloader	1	0	0	1
USDHC1 8-bit eMMC 5.1	1	0	1	0
USDHC2 4-bit SD3.0	1	0	1	1
FlexSPI serial NOR	1	1	0	0
FlexSPI serial NAND	1	1	0	1

Note: 1 = ON 0 = OFF

Additional information continued

Do more with accessory boards

IMX-LVDS-HDMI

LVDS to HDMI adaptor card (mini SAS)



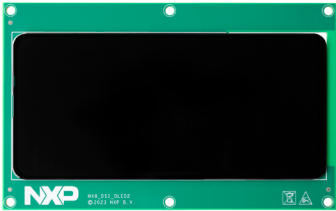
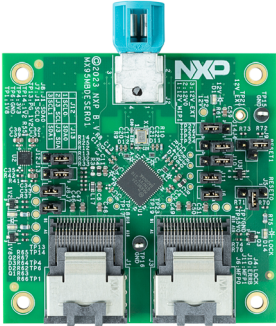
IMX-MIPI-HDMI

MIPI DSI output to HDMI adapter board



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Additional information continued

MX9-DSI-OLED MIPI to OLED convert board+Panel (USMP_A064_1080x2340)	MX95MBCAM10001 OX03C10 2MP sensor+ Maxim Serializer
 A green printed circuit board (PCB) with a large black rectangular area in the center, which is the OLED display. The board has several mounting holes and a small NXP logo at the bottom left. Text on the board includes "MX9-DSI-OLED" and "©2022 NXP B.V."	 A black, cube-shaped camera module with a lens in the center and a small black component at the bottom.
IMX95-OS08A20 4K-MIPI-CMOS-CAMERA-MODULE	MX95MBDES10001 Maxim Quad De-serializer Board convert board, support up to 4x MX95MBCAM10001 modules
 A green PCB with a black camera lens mounted on it. The lens has "CUT MP" printed on it. The board has several mounting holes and a small NXP logo.	 A green PCB with various electronic components, including a large black chip in the center, several capacitors, and two large connectors at the bottom. The board has a blue component at the top and a small NXP logo.

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