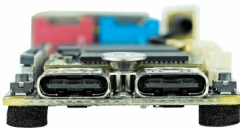
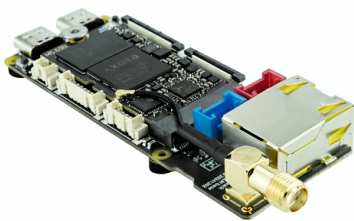


LLM630 Compute Kit

SKU:K143





Description

The **LLM630 Compute Kit** is an **AI large language model inference development platform** designed for edge computing and intelligent interaction applications. The kit's mainboard is equipped with the Axera **AX630C** SoC processor, integrating a high-efficiency **NPU** with 3.2 TOPs @ INT8 computing power, providing powerful AI inference capabilities to efficiently execute complex **vision (CV) and large language model (LLM) tasks**, meeting the needs of various intelligent application scenarios. The mainboard is also equipped with a JL2101-N040C gigabit Ethernet chip and an ESP32-C6 wireless communication chip, supporting Wi-Fi 6 @ 2.4 GHz, used as the device's **network card**, providing high-speed data transmission capabilities and achieving Wi-Fi and Ethernet **bridging** functionality. Whether through wired connections for large-scale data exchange or through wireless communication for real-time interaction with remote servers or other smart devices, this platform ensures efficient data interaction. The mainboard also integrates an SMA antenna interface to further enhance wireless signal stability and transmission distance, ensuring stable communication in complex network environments. It features built-in **4GB LPDDR4** memory (2GB for user use, 2GB dedicated to hardware acceleration) and **32GB eMMC** storage, supporting parallel loading and inference of multiple models, ensuring efficient and smooth task processing.

The **baseboard**, perfectly complementing the mainboard, significantly expands the functionality and applicability of the LLM630 Compute Kit. It integrates a **BMI270 6-axis sensor**, providing precise attitude sensing and motion detection capabilities, suitable for various dynamic applications. The built-in NS4150B Class D amplifier and **microphone and speaker interfaces** support high-quality voice input and audio output, achieving full-duplex communication mode, enhancing user interaction experience. The baseboard also features **2 HY2.0-4P interfaces** and LCD/DSI and CAM/CSI **MIPI interfaces**, facilitating the expansion of peripherals such as displays and camera modules. Additionally, the baseboard integrates an **external antenna interface** and a gigabit **Ethernet port**, providing flexible network connections and enhanced wireless performance for the device. Furthermore, the device's **user buttons** enable functions such as power on/off and mode switching, improving the device's usability and interactivity.

The baseboard's **charging chip** and reserved **battery socket** support custom battery configurations, ensuring the platform can run stably for a long time even without external power. The integrated **battery detection chip** monitors the battery status in real-time. The **microSD card slot** supports storage expansion, as well as future support for AI model update functions. **2 USB Type-C interfaces** not only support efficient data transmission but also provide **USB OTG** functionality, making device connections more flexible and ensuring high efficiency in data exchange and device connection.

The LLM630 Compute Kit supports the **StackFlow framework**, allowing developers to easily implement edge intelligent applications with just a few lines of code, quickly launching various AI tasks. The platform supports a variety of AI applications, including **visual recognition**, **speech recognition**, **text-to-speech**, and **wake word recognition**, and supports separate invocation or pipeline automatic flow, facilitating development. The platform also supports vision models like YOLOv11 DepthAnything, multi-modal large models like InternVL2.5-1B, large language models like Qwen2.5-0.5/1.5B Llama3.2-1B, and speech models like Whisper Melotts, supporting hot updates, and will continue to support the popular large models in the future, empowering intelligent recognition and analysis, ensuring the platform keeps pace with technological development and community trends.

The LLM630 Compute Kit is suitable for fields such as **security monitoring**, **smart sales**, **smart agriculture**, **smart home control**, **interactive robots**, and **education**, providing powerful computing capabilities and flexible expandability for edge intelligent applications.

Features

- Axera AX630C SoC
- 3.2TOPs @ INT8 precision computing power
- Gigabit Ethernet communication
- ESP32-C6 network card
- Display interface (DSI)
- Camera interface (CSI)
- Equipped with charging chip and battery detection chip
- Integrated microphone and speaker interfaces
- microSD
- Onboard 32GB eMMC storage and 4GB LPDDR4 memory
- Supports OTG functionality
- Equipped with SMA antenna
- 2 x USB Type-C interfaces
- User buttons
- 2 x HY2.0-4P ports
- 6-axis gyroscope
- Development platform
 - StackFlow

Includes

- 1 x LLM630 Compute Kit
- 1 x SMA 2.4 GHz Wi-Fi antenna
- 1 x Heatsink
- 4 x EVA foam foot pads

Applications

- Smart Home
- Security Monitoring
- Smart Sales
- Smart Agriculture
- Interactive Robots
- Education and Learning Platforms

| Specifications

Specification	Parameter
SoC	AX630C@Dual-core Cortex-A53, Main frequency 1.2 GHz
NPU	3.2 TOPs @ INT8 (Max 12.8 TOPs @ INT4)
RAM	4GB LPDDR4 (2GB system memory + 2GB dedicated hardware acceleration memory)
eMMC	eMMC5.1 @ 32GB
Wired Network	JL2101B-N040C @ 1GbE
Wireless Network	ESP32-C6 @ 2.4 GHz Wi-Fi
USB-UART	CH9102F @ USB to Serial Port
USB-OTG	USB 2.0 Host or Device
Antenna Interface	SMA inner hole
Audio Interface	MIC and SPK Header 5P @ 1.25mm
Display Interface	MIPI DSI 1x 2Lane MAX 1080p @ 30fps @ 1.25mm
Camera Interface	MIPI CSI 1x 4Lane MAX 4K @ 30fps @ 1.25mm
Connector Model	⑤ (Audio Interface / Audio): 1.25-5P ⑥ (Function Expansion Interface / FUNC): 1.25-8P ⑦ (Battery Power Interface / BAT): 1.25-2P
Battery Management	AW32001ECSR charging chip, BQ27220YZFR power detection chip
Battery Connector	1.25mm specification battery connector
Compatible Battery	3.7V battery
USB Ports	2 x USB Type-C ports (data transfer, OTG function)
USB Power Input	5V@2A
USB Type-C Header	PortA Header 4P @ 2.0mm (I2C) PortC Header 4P @ 2.0mm (UART)
External Storage	microSD card slot
External Function Interface	FUNC Header 8P @ 1.25mm for system wake-up, power management, external LED control, and I2C communication
Buttons	2 buttons for power on/off, user interaction, and reset functions
Sensor	BMI270 @ 6-axis
Operating Temperature	0°C ~ 40°C
Product Size	90.3 x 31.6 x 12.0mm
Package Size	133.0 x 83.0 x 17.0mm
Product Weight	23.6g
Gross Weight	68.1g

Learn

Power On/Off

When connected to USB power:

Long press the PWR/BOOT button, blue light flashes: enter download mode.

Short press the PWR/BOOT button: reset.

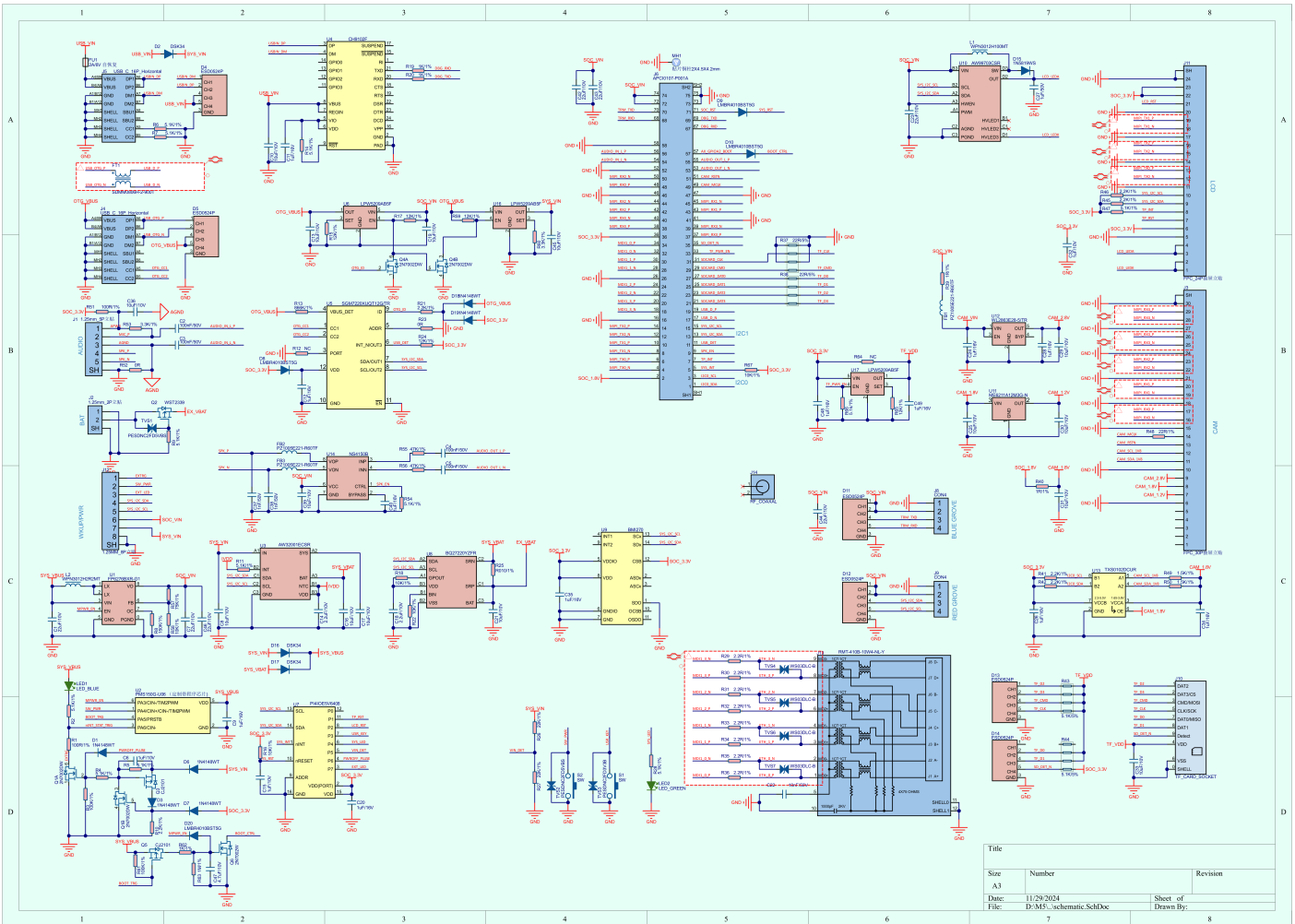
When only connected to battery:

Short press the PWR/BOOT button: power on/reset

Double-click the PWR/BOOT button: power off

Schematics

- [LLM630 Compute Kit Schematic PDF](#)



PinMap

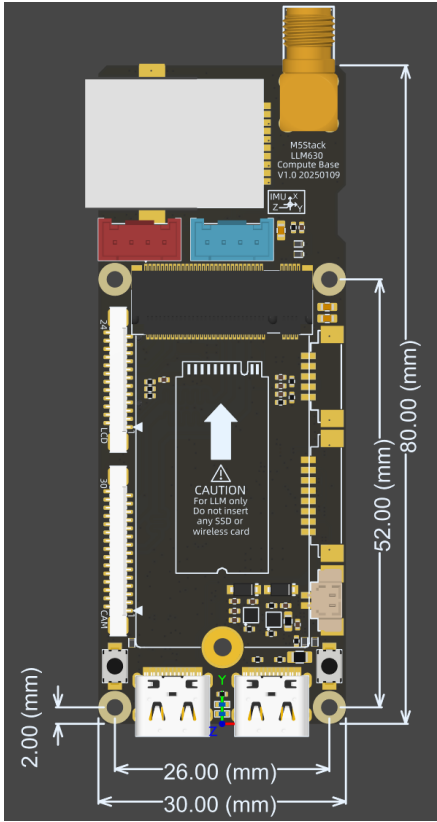
LLM630
COMPUTE KIT

M5STACK

PinMap

1			2			3		
24	GND	/	30	GND	/	GND 5V SYS_I2C_SDA SYS_I2C_SCL		
23	SOC_3.3V	/	29	MIPI_RX4_P	AX630C_RX_CD4_P	/	/	AX630C_GPIO0_A27 AX630C_GPIO0_A26
22	SOC_3.3V	/	28	MIPI_RX4_N	AX630C_RX_CD4_N			
21	LCD_RST	PI4IOE5V6408_P2	27	GND	/	4		
20	GND	/	26	MIPI_RX3_P	AX630C_RX_CD3_P	GND 5V TRM_TXD TRM_RXD		
19	MIPI_TX1_P	AX630C_GPIO2_A13	25	MIPI_RX3_N	AX630C_RX_CD3_N	/	/	AX630C_GPIO0_A30 AX630C_GPIO0_A31
18	MIPI_TX1_N	AX630C_GPIO2_A12	24	GND	/	5		
17	GND	/	23	MIPI_RX2_P	AX630C_RX_CD2_P	5	SPK_N	NS4150B_VON
16	MIPI_TX2_P	AX630C_GPIO2_A15	22	MIPI_RX2_N	AX630C_RX_CD2_N	4	SPK_P	NS4150B_VOP
15	MIPI_TX2_N	AX630C_GPIO2_A14	21	GND	/	3	AGND	AX630C_GPIO1_A5
14	GND	/	20	MIPI_RX1_P	AX630C_RX_CD1_P	2	MIC_P	AX630C_GPIO1_A4
13	MIPI_TX0_P	AX630C_GPIO2_A11	19	MIPI_RX1_N	AX630C_RX_CD1_N	1	A3V3	/
12	MIPI_TX0_N	AX630C_GPIO2_A10	18	GND	/	6		
11	GND	/	17	MIPI_RX0_P	AX630C_RX_CD0_P	8	GND	/
10	SYS_I2C_SCL	AX630C_GPIO0_A26	16	MIPI_RX0_N	AX630C_RX_CD0_N	7	5VIN	/
9	SYS_I2C_SDA	AX630C_GPIO0_A27	15	GND	/	6	5VOUT	/
8	TP_INT	AX630C_GPIO0_A2	14	CAM_MCLK	AX630C_GPIO0_A18	5	SCL	AX630C_GPIO0_A26
7	TP_RST	PI4IOE5V6408_P1	13	CAM_RSTN	AX630C_GPIO3_A1	4	SDA	AX630C_GPIO0_A27
6	SOC_3.3V	/	12	CAM_SCL_IV8	/	3	LED	PI4IOE5V6408_P7
5	GND	/	11	CAM_SDA_IV8	/	2	PWR	PMS150G_PA4
4	LCD_LEDA	AW99703CSR_D2	10	GND	/	1	TRG	PMS150G_PA6
3	LCD_LEDA	AW99703CSR_D2	9	CAM_2.8V	/	7		
2	LCD_LEDK	AW99703CSR_D1	8	CAM_1.8V	/	2	BAT+	
1	LCD_LEDK	AW99703CSR_D1	7	CAM_1.2V	/	1	BAT-	
			6	GND	/	8 9 10 11		
			5	/	/	USB to UART OTG 1GbE ANT Port		
			4	/	/			
			3	/	/			
			2	/	/			
			1	/	/			

Model Size



Structure

- LLM630 Compute Kit 3D Stp

| Datasheets

- [BMI270](#)
- [AW32001E](#)
- [NS4150B](#)
- [BQ27220YZFR](#)
- [AX630C](#)

| Softwares

Quick Start

- [LLM630 Compute Kit ADB / SSH / UART Connection Debugging](#)
- [LLM630 Compute Kit Software Package Application Update](#)
- [LLM630 Compute Kit Image Base Package Update](#)
- [LLM630 Compute Kit StackFlow API LLM Demo](#)
- [LLM630 Compute Kit Jupyter Notebook](#)

Others

- [LLM630 Compute Kit OpenAI API User Guide](#)

Development Framework

- [StackFlow](#)

Development Resources

- [AX630C Databrief](#)
- [Module LLM JSON API Documentation](#)
- [Module LLM AX630C API Documentation](#)
- [Module LLM AX620E MSP/Sample](#)
- [Module LLM Linux Kernel 4.19.125-head](#)
- [AXERA LLM Example](#)
- [AXERA CV Example](#)
- [Module LLM Large Model Compilation Guide](#)

| Video
