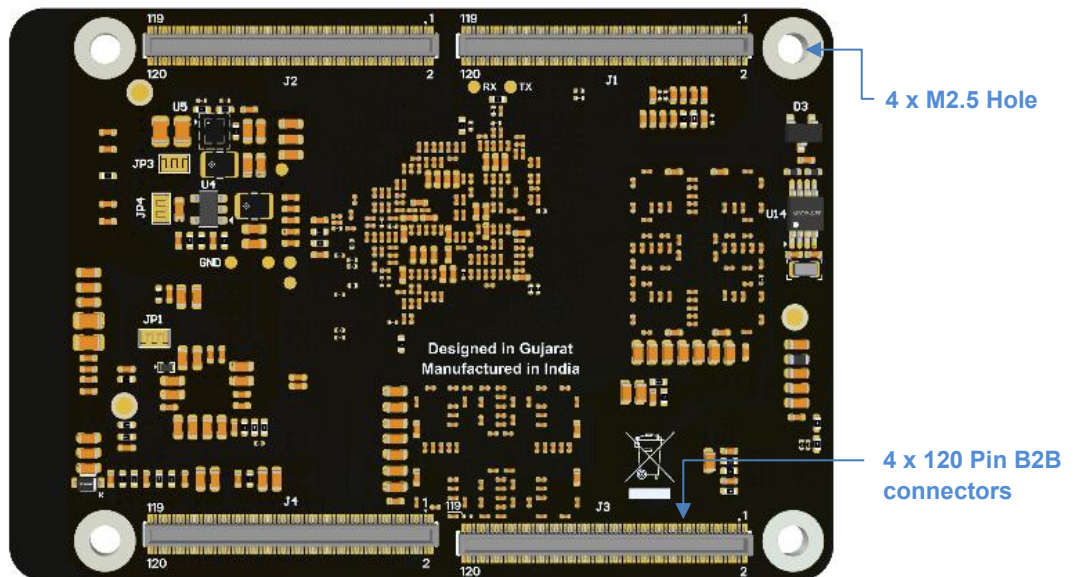
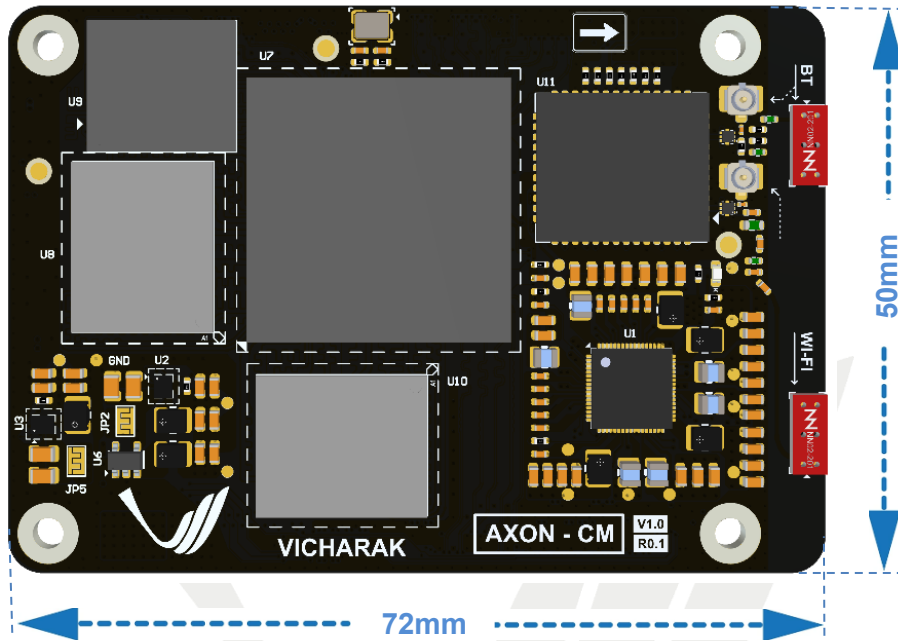




# AXON - CM Specification



## Overview

The AXON-CM is a compact, high-performance System-on-Module (SoM) based on the Rockchip RK3588 octa-core processor, featuring world's first integrated on-board Wi-Fi and Bluetooth module. Designed in a space-efficient 72 mm × 50 mm form factor with four 120-pin connectors, it delivers powerful AI computing with a 6 TOPS NPU, support for 8K video, and high-speed LPDDR5 memory. Ideal for edge AI, multimedia, and industrial applications, the AXON-CM delivers rich I/O, robust performance and advanced connectivity in a compact footprint.

## Features

- Multiple video outputs via HDMI, TYPE-C/DP, and MIPI-DSI.
- Supports 8K video decoding and encoding, compatible with MPEG-1, MPEG-2, MPEG-4, H.263, H.264, H.265, VC-1, VP9, VP8, MVC, AV1 codec formats.
- Integrated ISP 3.0 supports camera sensors up to 48MP for advanced image processing.
- 1x PCIe 3.0 4 lane and 3x PCIe 2.1 interfaces each supporting speeds up to 8 Gbps, ideal for high-speed peripheral expansion.
- Designed with 4 x 120-pin board-to-board connectors, available in multiple stack height 1.5mm, 2.0mm, 2.5mm, 3.0mm, 3.5mm, and 4.0mm, offering flexible integration options.
- 4x MIPI-CSI camera interfaces, supporting stereo and multi-camera input.
- Wide range of I/O: UART, SPI, I2C, I2S, PDM, PWM, ADC, GPIOs, and more.

## Technical Specifications

Category	Specification
<b>Processor</b>	Rockchip RK3588 4x Cortex-A76 @2.4GHz + 4x Cortex-A55 @1.8GHz
<b>GPU</b>	ARM Mali-G610 MP4
<b>NPU</b>	Up to 6 TOPS, supports INT4/8/16, FP16
<b>VPU</b>	Decoder: H.264, H.265 & VP9 up to 8K@60 fps Encoder: H.264 & H.265 up to 8K@30 fps
<b>RAM</b>	Up to 32 GB LPDDR5
<b>Storage</b>	Up to 128 GB eMMC, SD card slot, NVMe via PCIe
<b>Wireless</b>	Wi-Fi 6 & Bluetooth 5.2
<b>Display Interfaces</b>	2x HDMI TX 2.1/ eDP 1.3 up to 8K@60 fps 2x MIPI DPHY 2.0 up to 4K@60Hz 2x DP TX 1.4a, Support USB Type-C and DP Alt mode up to 8K@30Hz
<b>Camera Interfaces</b>	4x MIPI CSI DPHY RX support multiple camera input combination 1x HDMI RX 2.0 up to 4K@60Hz
<b>USB</b>	2x USB3.1 multiplexed with DP TX support USB Type-C and DP Alt 2x USB 2.0 Host
<b>Ethernet</b>	1x GMAC by RGMII / RMII 10/100/1000Mbps (Gigabit)
<b>PCIe</b>	1x PCIe 3.0 x4 lane, 2 x2, 4 x1, 1 x2+ 2 x1 supports RC and EP, up to 8Gbps; 3x PCIe2.1 can support 1 lane, up to 5Gbps

<b>SATA</b>	<b>3x</b> SATA3.0 multiplexed with PCIe 2.0
<b>AUDIO</b>	<b>4x</b> I2S 8 lanes I2S0/I2S1, 2 lanes I2S2/I2S3: supports both TX and RX, audio resolution 16~32 bits <b>2x</b> SPDIF 16-bit data storing, <b>2x</b> PDM Up to 8 channels, <b>1x</b> DSM PWM
<b>Other Interfaces</b>	UART, SPI, I2C, GPIO, CAN, PWM, SARADC
<b>Security</b>	ARMv8 Cryptography Extensions
<b>Power Input</b>	5V DC
<b>Power Output</b>	3.3V, 1.8V DC
<b>Power Consumption</b>	≤30W
<b>Operating System</b>	Linux (Ubuntu, Debian, Yocto), Android
<b>Operating Temperature</b>	0°C ~ +80°C (Industrial Grade)
<b>Package</b>	Board to board connector 4 x 120-pin, 0.4mm pitch
<b>Form Factor</b>	72mm x 50mm

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