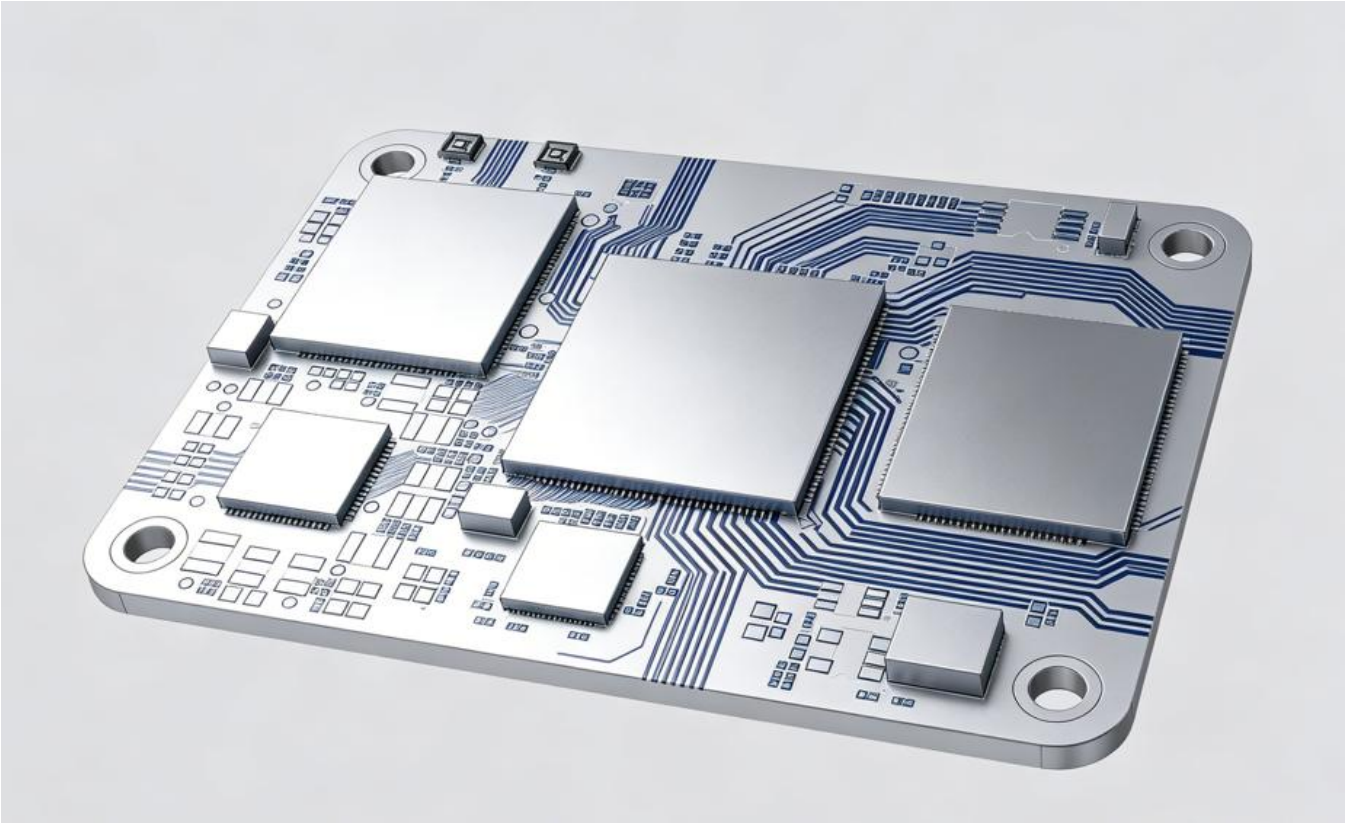
XPI-3576-CM5

Based on Rockchip RK3576, fully compatible with Raspberry Pi Compute Module 5 Pinout

Supports Android 14 / Debian 12 / Raspberry OS

Optional industrial grade (-40°C to +85°C) and commercial grade



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1. Product Overview

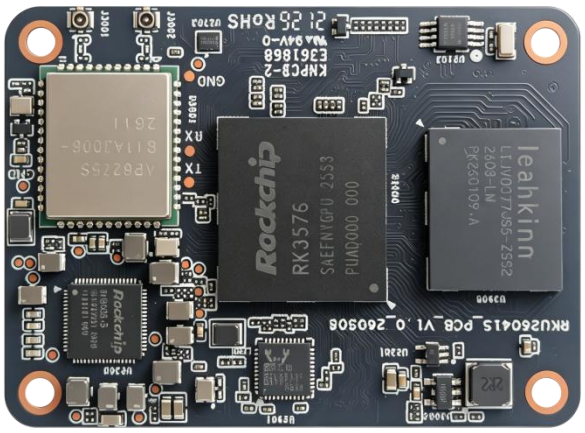
The XPI-3576-CM5 is a high-performance system-on-module (SoM) built around the Rockchip RK3576 Octa-core AIoT processor. With a compact 55mm × 40mm footprint and dual DF40C-100DS-0.4V high-density board-to-board connectors, it is **fully pin-compatible with the Raspberry Pi Compute Module 5** – enabling direct drop-in replacement or upgrade on existing CM5 carrier boards without hardware modifications.

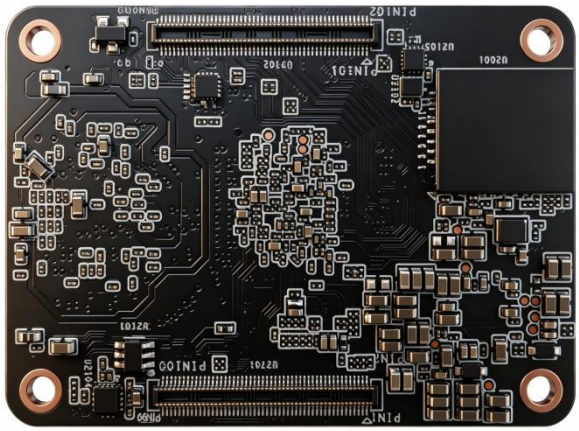
Integrating a 6 TOPS NPU, LPDDR5 memory, and Wi-Fi 6, the module is ideal for industrial control, edge AI gateways, smart displays, medical devices, in-vehicle terminals, and robotics.

Key advantages:

- ✓ 100% pin-compatible with CM5 – seamless upgrade path
- ✓ Industrial & commercial grade options
- ✓ CAN bus interface (via GPIO multiplexing) – fills the gap of Raspberry Pi
- ✓ Hardware security
- ✓ multi-OS support – rich software ecosystem

2. Product Photo





3. Core Specifications

Item	Specification
CPU	Rockchip RK3576 (4×Cortex-A72 @ 2.2GHz + 4×Cortex-A53 @ 1.8GHz)
GPU	ARM Mali-G52 MC3, supports OpenGL ES 3.2, Vulkan 1.1
NPU	6 TOPS@INT8, supports INT4/INT8/INT16/BF16/TF32
RAM	LPDDR5, 4GB (default) / upgradable to 8GB or 16GB
Storage (ROM)	eMMC 5.1, 32GB (default) / upgradable to 64GB/128GB / 0GB (Lite version)
Wireless	Wi-Fi 6 (2.4/5GHz, SDIO interface), Bluetooth 5.3
Ethernet	Gigabit Ethernet PHY with IEEE 1588 support
RTC	VBAT input for external battery
On-board EEPROM	Stores configuration parameters or boot data
Power Supply	Single +5V DC input, supports USB-PD up to 5A@5V

4. IO Interfaces

I/O interfaces（Fully CM5 Compatible）		
Interface	Qty	Description
HDMI 2.0	1	4K@60p output (2-port optional)
MIPI CSI	1	4-lane MIPI camera input
CAN	1	Implemented via GPIO multiplexing – addresses the lack of CAN on Raspberry Pi
PCIe 2.0	1	1-lane，5Gbps
USB 2.0	1	Supports OTG mode
USB 3.0	1	5Gbps
GPIO	Up to 28	1.8V / 3.3V selectable via GPIO_VREF
SDIO/eMMC	1	4-bit (exposed on CM5 Lite version)
Debug UART	1	3-pin JST-SH connector for debugging
BTB Connector	2	Model: DF40C-100DS-0.4V (recommended)

5. Software Support

OS	Version
Android	Android 14
Debian	Debian 12
Raspberry OS	Adapted

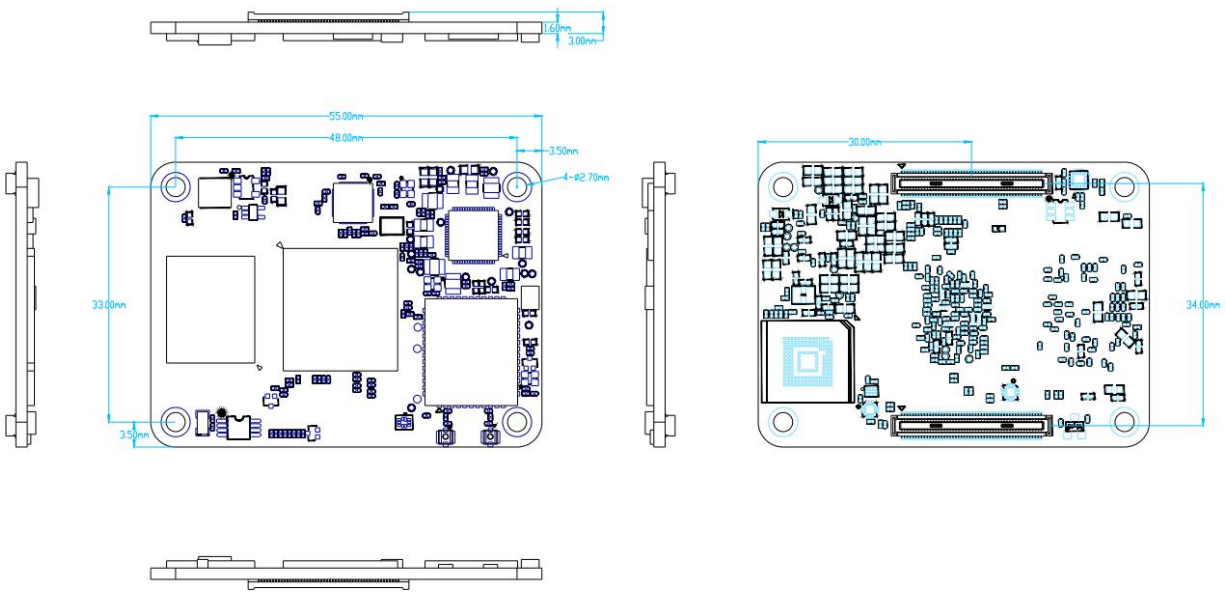
6. Electrical & Environmental Characteristics

Parameter	Commercial Grade	Industrial Grade (RK3576J)
Operating Temp.	0℃ ~ +70℃	-40℃ ~ +85℃
Storage Temp.	-20℃ ~ +85℃	-40℃ ~ +105℃
Input Voltage	4.5V ~ 5.5V DC	4.5V ~ 5.5V DC
Standby Power	< 1mA	
ESD Protection	Contact ±4kV, Air ±8kV	
EMI/EMC	Compliant with CE / FCC	

7. Mechanical Specifications

XPI-3576-CM5 Overall Dimensions

PCBA Dimensions	40mm×55mm
PCB Layers	8
PCB Thickness	1.6mm
PCB Thickness	3.0mm



Note:

All dimensions in mm

All dimensions are approximate and for reference purposes only. T

he dimensions

shown should not be used for producing production data

The dimensions are subject to part and manufacturing tolerances

8. WARNINGS

Any external power supply used with RK3576 Compute Module 5 shall comply with relevant regulations and standards applicable in the country of intended use and be a limited power source or PS2 power source per IEC 62368-1.

This product should be operated in a well-ventilated environment, and if used inside a case, the case should not be covered. Whilst in use, this product should not be contacted by conductive items.

The connection of incompatible devices to Compute Module 5 may affect compliance, result in damage to the unit, and invalidate the warranty.

All peripherals used with this product should comply with relevant standards for the country of use and be marked accordingly to ensure that safety and performance requirements are met. These articles include but are not limited to keyboards, monitors, and mice when used in conjunction with the Compute Module.

The cables and connectors of all peripherals used with this product must have adequate insulation so that relevant safety requirements are met.

9. Technical Support & Documentation

Hardware Design Guide

Pinout Mapping Table

Linux / Android BSP development package

Flashing tools and debugging manual

Official technical forum and email support