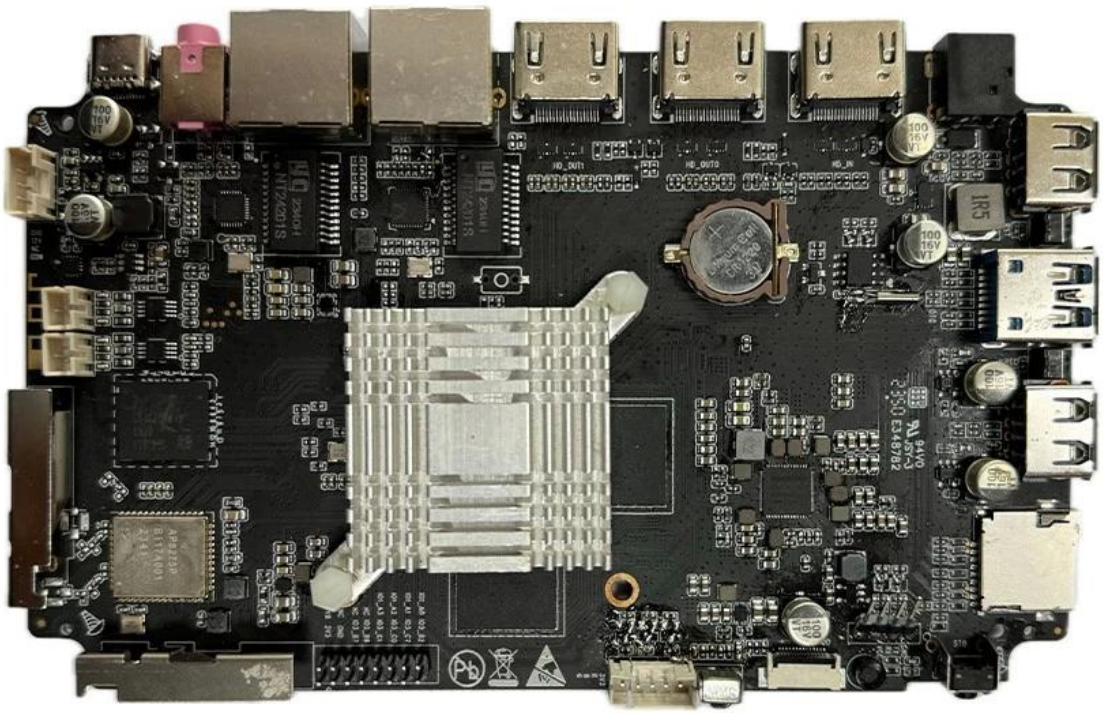
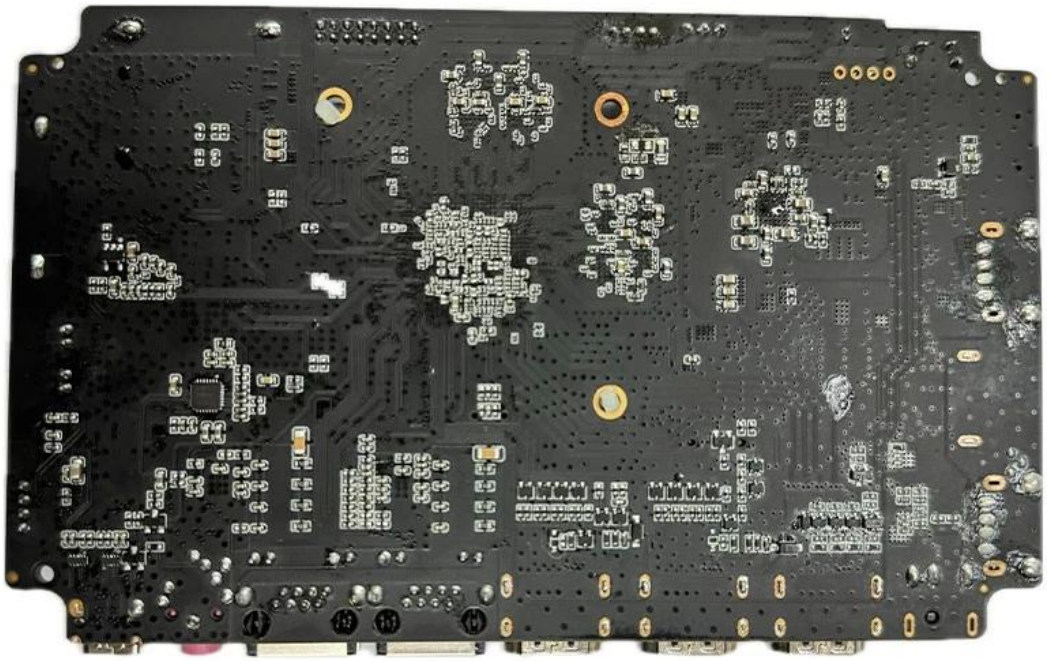
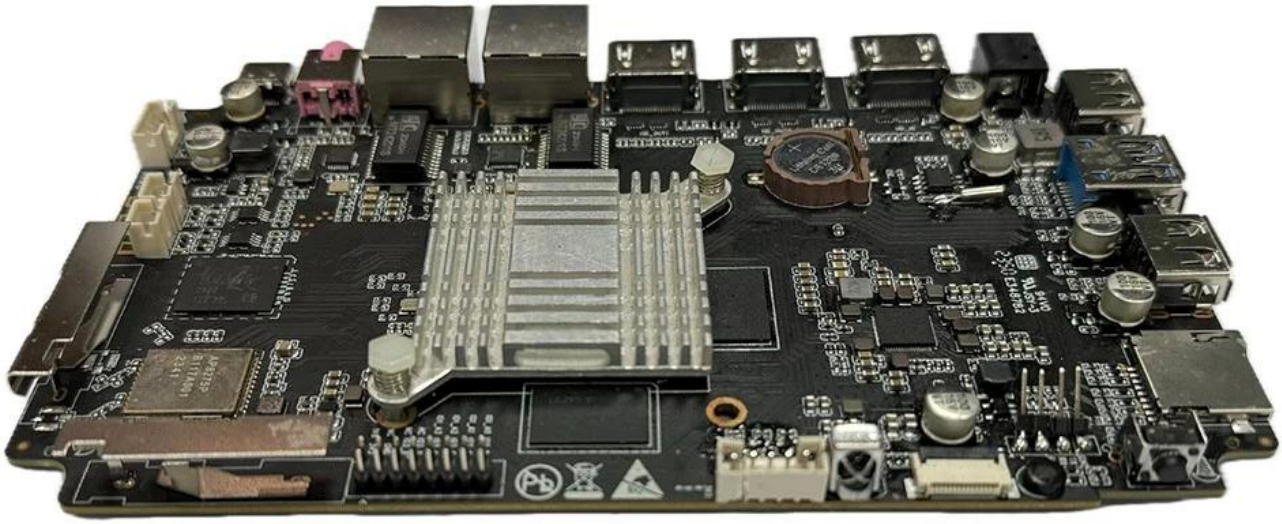
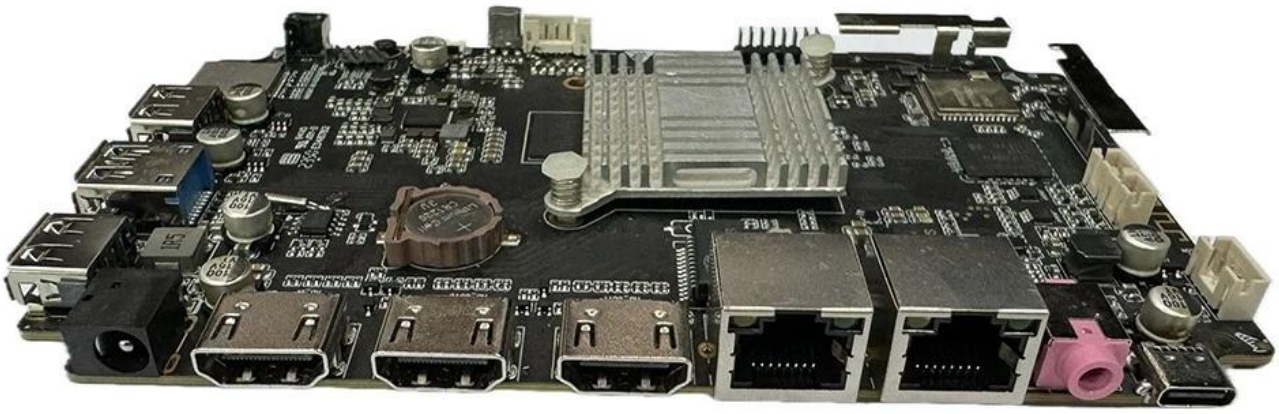
Rockchip RK3588 Octa-Core 8K □□□□□□□□□□□□□□□□□□□□ AIoT









RK3588

System Peripheral

- Clock & Reset
- PMU
- 18x PLL
- System register
- 30x Timer
- 16x PMW
- 5x Watchdog
- 2x Crypto
- SAR-ADC
- TS-ADC
- Interrupt Controller
- 3x DMAC
- 6x PVTM
- 3x Mailbox

Dual-cluster Core

Cortex-A76 Quad-Core (64K/64K L1 I/D Cache)	Cortex-A55 Quad-Core (32K/32K L1 I/D Cache)
2MB L2 Cache	512KB L2 Cache

3MB L3 Cache

MCU (Cortex-M0) x3

High Performance NPU

1MB Share Memory

Multi-Media Processor

- GPU Mali-G610 MP4 (4x256KB L2 Cache)
- 2D Graphics Engine
- Image Enhancement Processor
- Dual pipe ISP (Support camera HDR input)
- 8K Video Encoder (H265/H264...)
- 8K 10-bits Video Decoder (H265/H264/VP9...)
- JPEG Encoder/Decoder

Connectivity

- USB OTG0 3.1/2.0/TypeC
- USB OTG1 3.1/2.0/TypeC
- 2x USB Host 2.0
- SATA3/PCIe2.1/USB3Host
- 2x SATA3/PCIe2.1
- PCIe3.0 (2x2,1x4,4x1)
- PDM/Audio PWM
- 4x I2S/PCM/TDM
- 2x SPDIF(8ch)
- 10x UART
- 6x SPI
- 9x I2C
- 2x Giga-Ethernet
- SDIO 3.0
- GPIO

Multi-Media Interface

- 2x MIPI-CSI DPHY 4L/CPHY 3L 4x MIPI-CSI DPHY 2L
- 2x MIPI-DSI DPHY 4 Lane
- 2x HDMI2.1 TX/eDP1.3 4 Lane
- 2x DP1.4 4 Lane with HDCP2.3 (Combo with USB3)
- HDMI RX 2.0
- Display Controller (Support video HDR output)

External Memory Interface

- eMMC5.1
- SD3.0/MMC4.5
- LPDDR4/LPDDR4X/LPDDR5 Quad-channel x16bit

Embedded Memory

- SRAM
- ROM
- OTP

Typical Application Diagram – AIoT

□□□□□□□ AIoT □□□□ Rockchip RK3588 Octa-Core 8K

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