

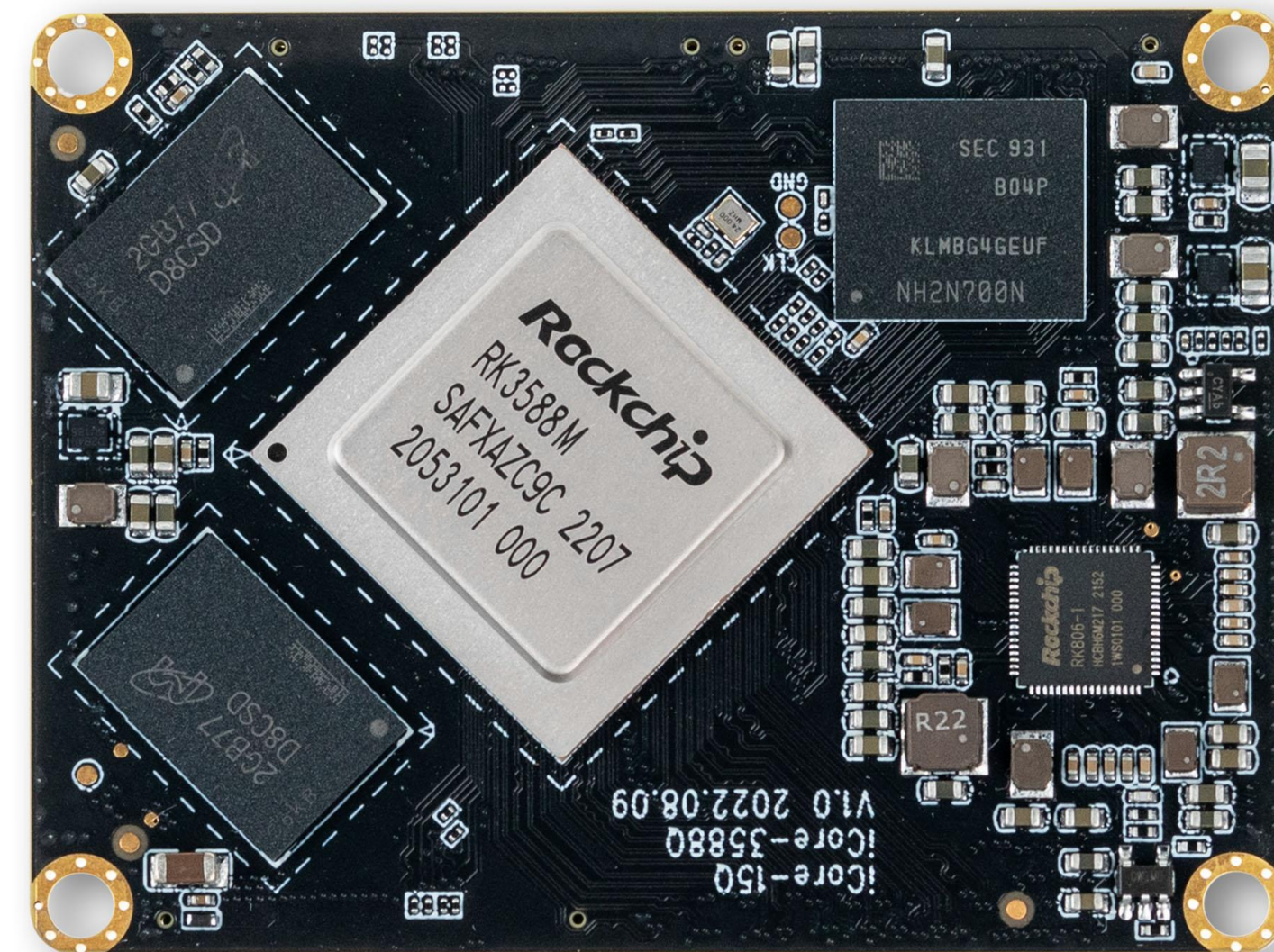


iCore-3588MQ

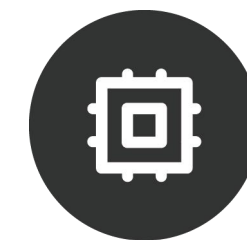
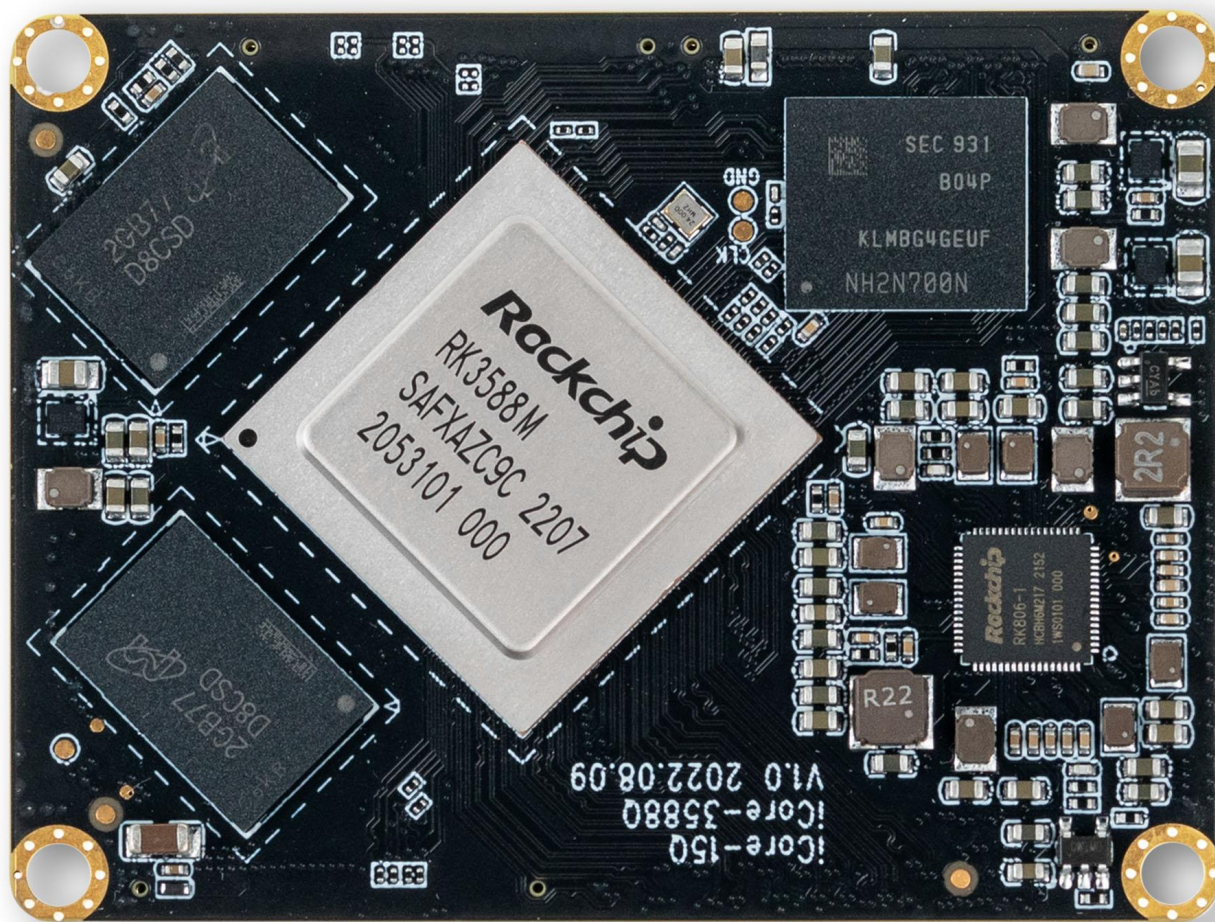
| Automotive-Grade AI Core Board

T-CHIP INTELLIGENCE TECHNOLOGY

V1.0



Product features



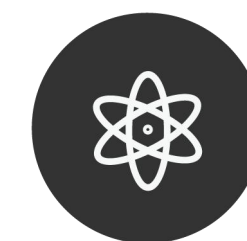
8-Core industrial processor

8-Core 64bit processor RK3588M
8nm lithography process.
up to 2.1GHz



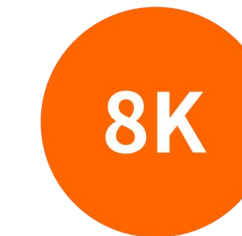
7-channel 1080P display

With HDMI 2.1/eDP/MIPI-DSI/DP1.4
video output and up to 7-channel
1080P video output,



One SoC with multiple OS,

Supports Kernel-based Virtual Machine (KVM) and Docker container technology. It can run Android, Ubuntu, Debian, Linux simultaneously and achieves "one screen for one OS" display



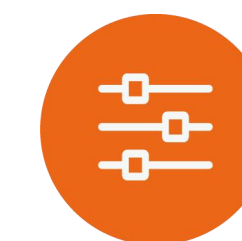
8K H.265 / 6TOPS NPU

OpenGL ES3.2/2.0, Vulkan1.1
8K@60fps H.265/VP9 Decoding
8K@30fps H.265/H.264 Encoding
6TOPS NPU computing power



16-channel camera

Up to 16-channel 1080P@30fps camera input and ADAS/DMS/BSD/APA multiple cameras assisted driving.



A variety of interfaces

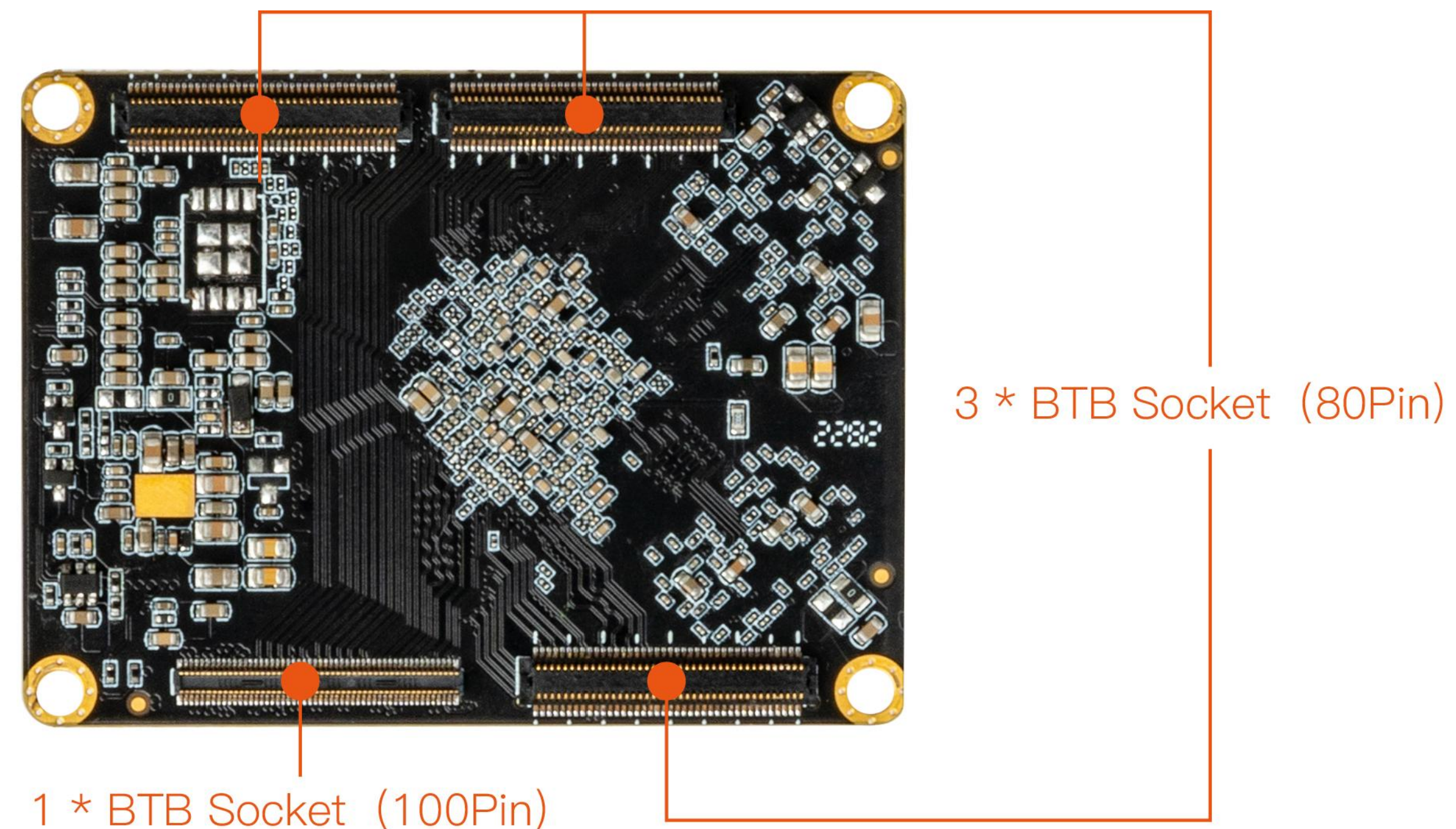
PCIE3.0、SATA3.0、I2S、I2C、CAN、UART、SDIO3.0、MIPI-CSI、MIPI-DSI、SPDIF、USB3.1、USB2.0、SPI、GPIO



Specifications

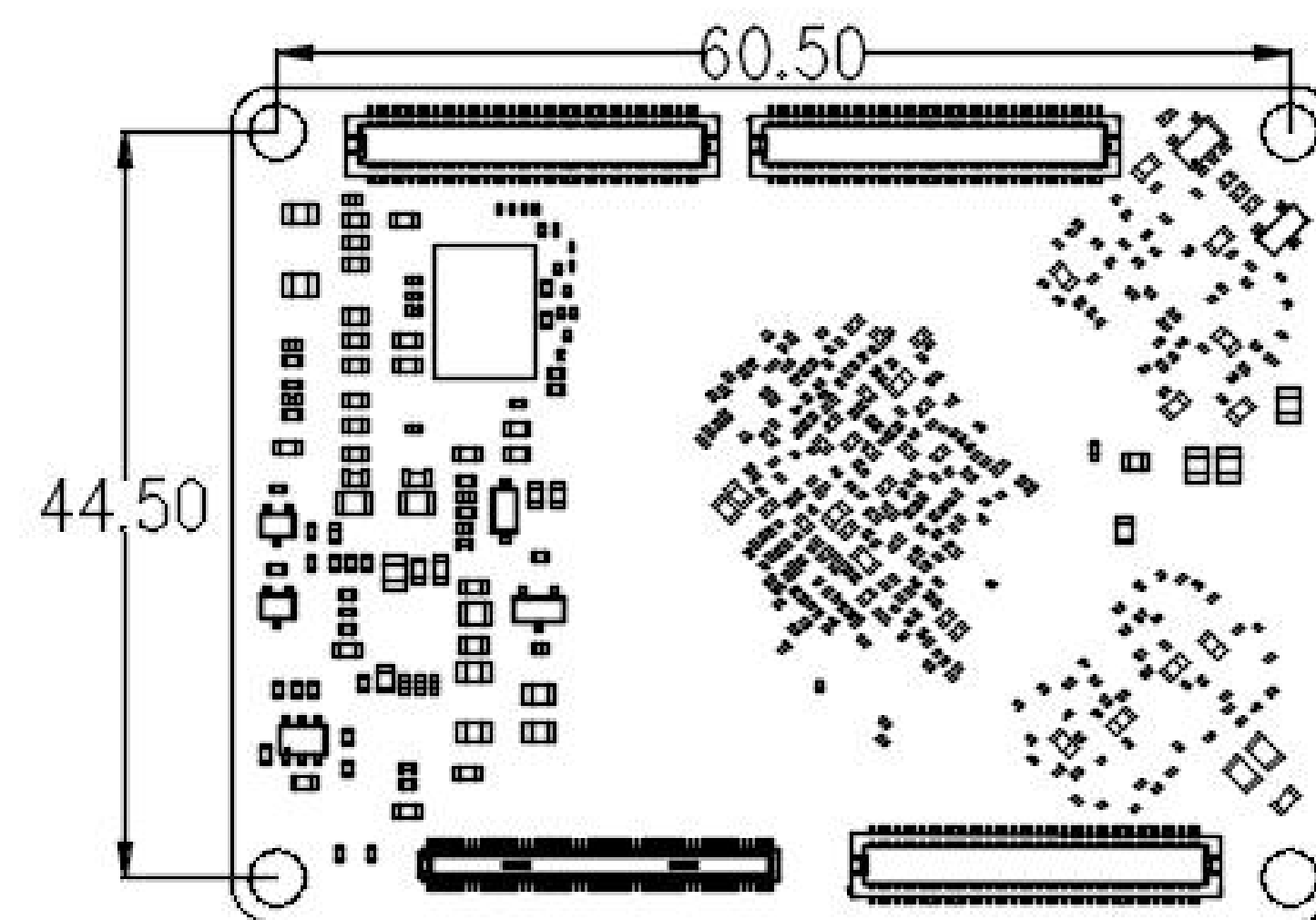
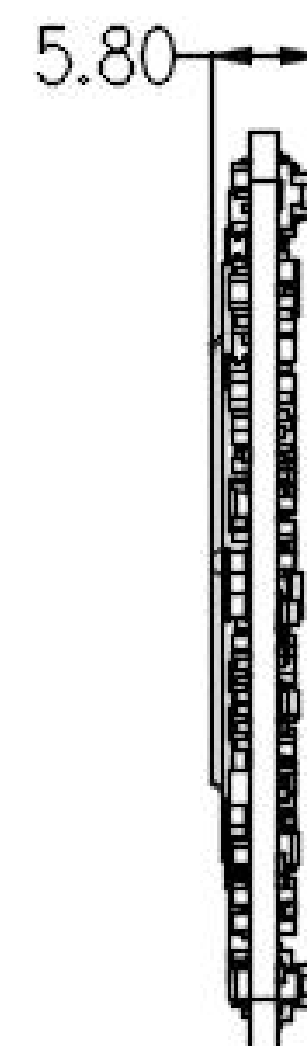
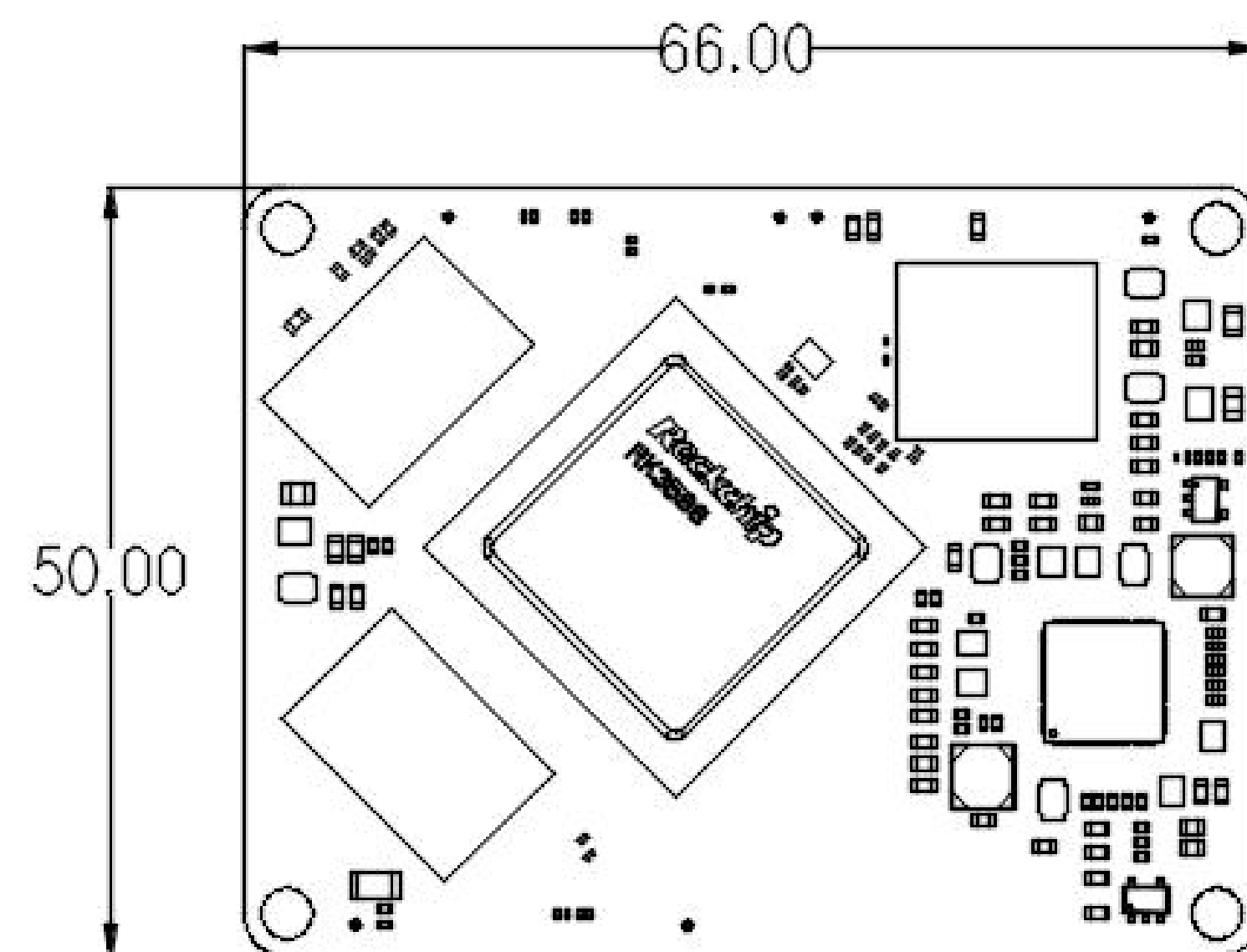
Specifications	
SOC	RK3588M
CPU	8-64bit (4×Cortex-A76+4×Cortex-A55) , 8nm lithography process, up to 2.1GHz
GPU	ARM Mali-G610 MP4 GPU, Support OpenGL ES3.2 / OpenCL 2.2 / Vulkan1.1, 450 GFLOPS
NPU	6 TOPS, Support INT4/INT8/INT16 mixed operation,Support framework switching of TensorFlow / MXNet / PyTorch / Caffe
ISP	Dual 16M ISP
VPU	Decoding: 8K@60fps H.265/VP9/AVS2、8K@30fps H.264 AVC/MVC、4K@60fps AV1、1080P@60fps MPEG-2/-1/VC-1/VP8 Encoding: 8K@30fps H.265 / H.264
RAM	4GB/8GB/16GB (up to 32GB) 64bit LPDDR4/LPDDR4x/LPDDR5
Storage	16GB/32GB/64GB/128GB eMMC
Network	Integrated PCIe3.0/GMAC/SDIO3.0/USB3.0, can be extended to multi-channel Gigabit Ethernet, WiFi6/Bluetooth and 5G/4G LTE
Video Output	2×HDMI2.1 (8K@60fps or 4K@120fps,multiplexed with eDP)、2×MIPI-DSI (4K@60fps)、2×DP1.4 (8K@30fps, multiplexed with USB3.0)、1×BT.1120 (1080P@60fps)
Video Input	1×HDMI-IN (4K@60fps), support HDCP 2.3、2×MIPI CSI (4 Lane) or 4×MIPI CSI (2 Lane) or 1×MIPI CSI (4 Lane) +2×MIPI CSI (2 Lane) 2×MIPI DC (4-lane DPHY v2.0 or 3-lane CPHY V1.1)、1×DVP camera interface (up to 150MHz data input) * Support multi-channel 8K video output and 4K video input, Up to four-screen output with different displays can be achieved.
Audio	2×8 Lane I2S、2×2 Lane I2S、2×SPDIF、2×8 Lane PDM (support multi-Mic array)、1×dual-channel digital audio codec (16-bit DAC)、1×VAD
PCIe	PCIe3.0 (2*2lanes,1*4lanes,4*1lanes) 、3*PCIE2.0(1 lanes)
SATA	3*SATA3.0
Watchdog	Support independent watchdog
USB	3*USB3.1 (Gen1) 、2*USB2.0 Host、2*USB2.0 OTG
Interface	9*I2C、10*UART、5*SPI、4*ADC 、16*PWM 、1*SDMMC、GPIO
Power	4V (voltage tolerance±5%)
OS	Android 12.0, Ubuntu Desktop and Server, Debian11 and Buildroot、RTLinux (delivering excellent real-time performance)
Dimension	66 mm*50 mm
Power Consumption	Idle: 0.04W (4.0V/10mA)、Typical: 1W (4.0V/250mA)、Max: 12W (4.0V/3000mA)
Environment	Operating Temperature: -40℃ ~ 85℃, Storage Humidity: 10% ~ 80 %

Interface description



- | | | | | |
|---------|---------|----------|----------|--------|
| PCIe3.0 | SATA3.0 | UART | CAN | SPDIF |
| SDIO3.0 | GPIO | MIPI-DSI | MIPI-CSI | USB3.1 |

Dimension





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