5. Installation and introduction of shell and active radiator

The Raspberry Pi 5 offers two official cooling options for higher workloads. Both of the available official accessories are actively managed by the Raspberry Pi firmware, and the fans will react accordingly based on changes in the Pi's temperature. details as follows:

·When the temperature is below 50°C, the fan will remain stationary (0% speed).

·When the temperature reaches 50°C, the fan will start running at low speed (30% speed).

·When the temperature reaches 60°C, the fan speed will increase to medium level (50% speed).

·When the temperature reaches 67.5°C, the fan will run at high speed (70% speed).

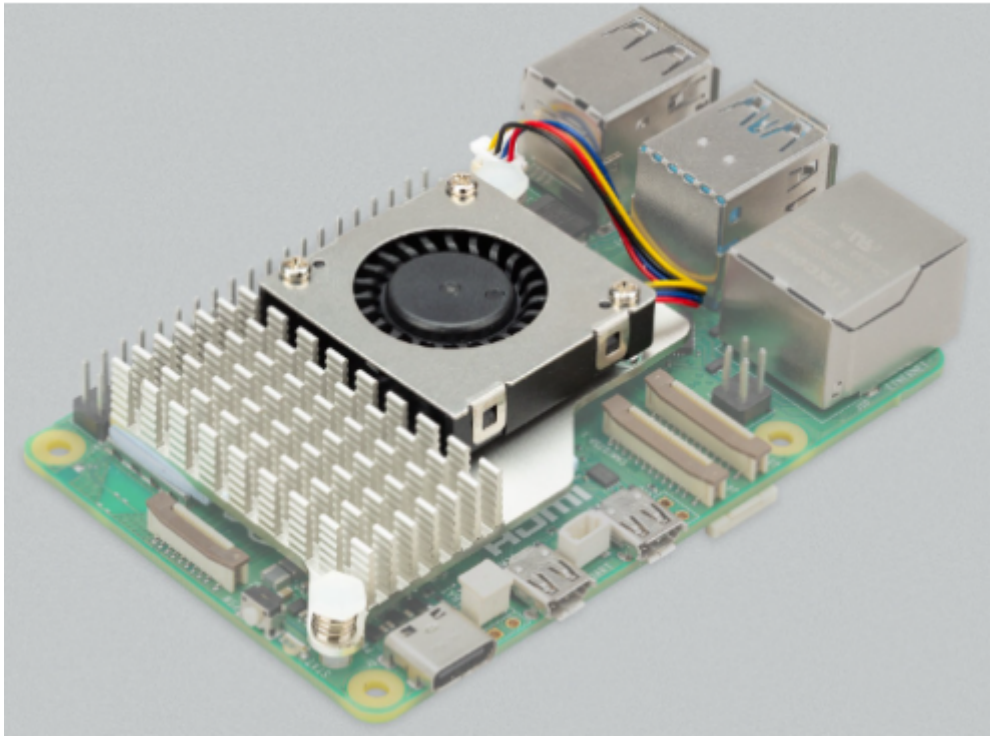
·When the temperature reaches 75°C, the fan will run at full speed (100% speed).

At the same time, when the temperature drops to 5°C below each threshold, the fan speed also decreases accordingly. This design ensures the stable operation of Raspberry Pi 5 when handling higher workloads, while avoiding potential risks caused by overheating.

4.1 Raspberry Pi 5 official protective case (ABS)

The official Raspberry Pi 5 accessories include an integrated fan. The integrated 2.79 (max) CFM fan uses a hydrodynamic bearing design, resulting in low noise and long service life.

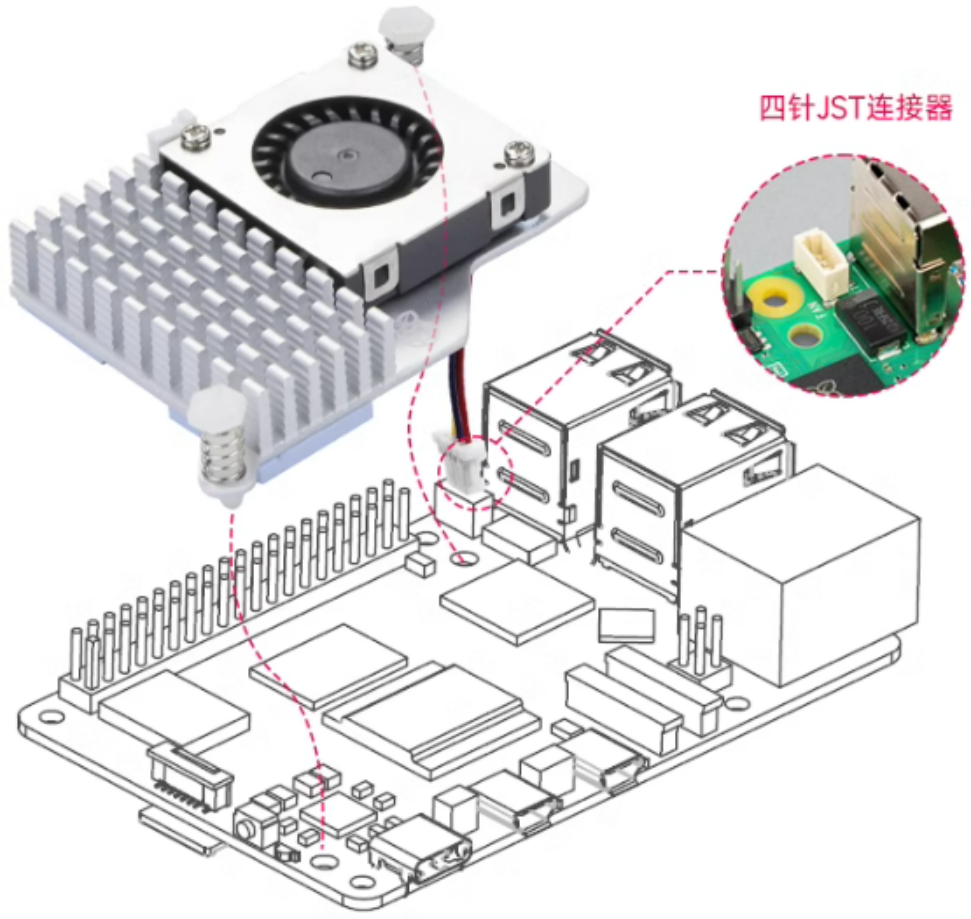
Air enters through a 360° slot under the lid, then blows over the heat sink attached to the BCM2712, and finally exits through the connector holes and vents on the base.



4.2 Official active radiator

The active radiator is a single-piece anodized aluminum radiator equipped with an integrated fan. The heatsink is pre-coated with a thermal pad for enhanced heat transfer and attaches directly to the Raspberry Pi 5 motherboard using spring-loaded push pins that connect to the same 4-pin JST connector as the case fan.

Installation method is as follows:

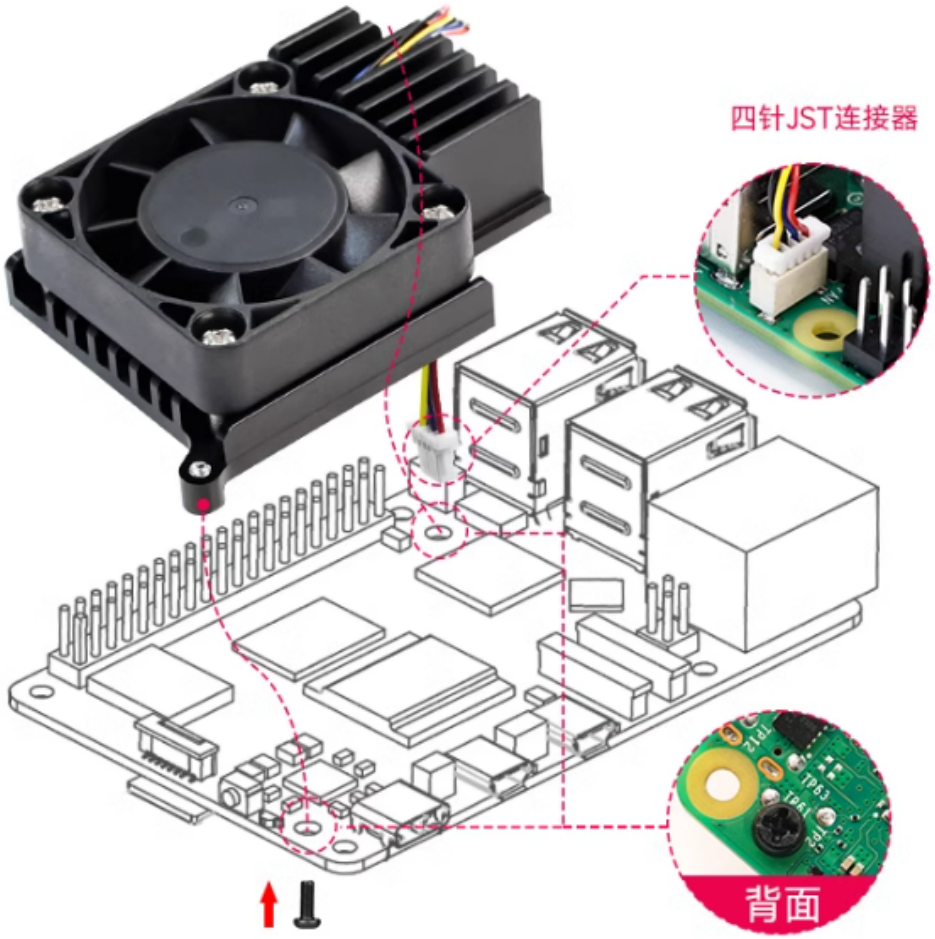


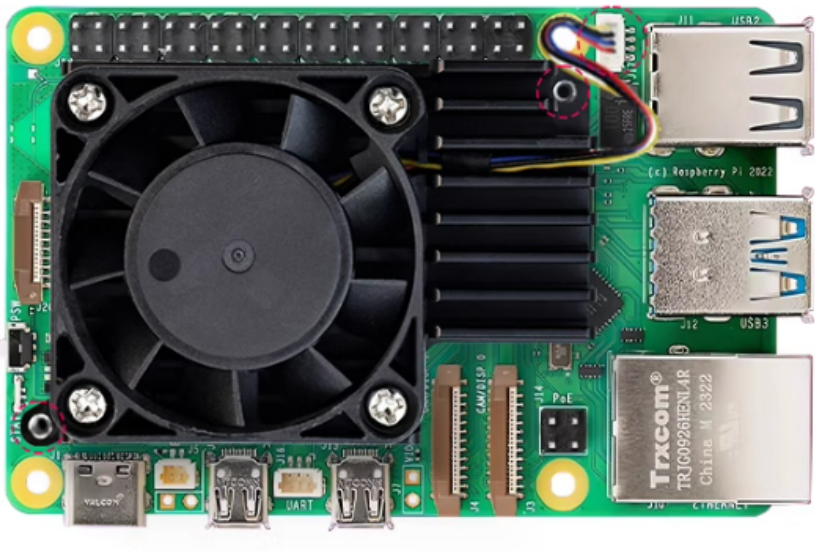
主动散热风扇引脚说明			
1	+5V	2	脉宽调制
3	GND	4	TACHOMETER 简称

4.3 Yabo active radiator

Cool Pi50 is an active cooling solution specially designed by Yabo Intelligence for Raspberry Pi 5. It combines an aluminum heat sink with an air groove fin design and a temperature-controlled PWM speed fan to suck in cold air from the top. An airflow impact is formed, and the air passes through the bottom air groove-type fins, taking away heat and accelerating cooling, ensuring that the Raspberry Pi 5 can still maintain an appropriate operating temperature under high load conditions while avoiding high-temperature frequency reduction. Actual measured heat dissipation The performance is better than the official radiator, especially suitable for overclocking players.

Installation method is as follows:



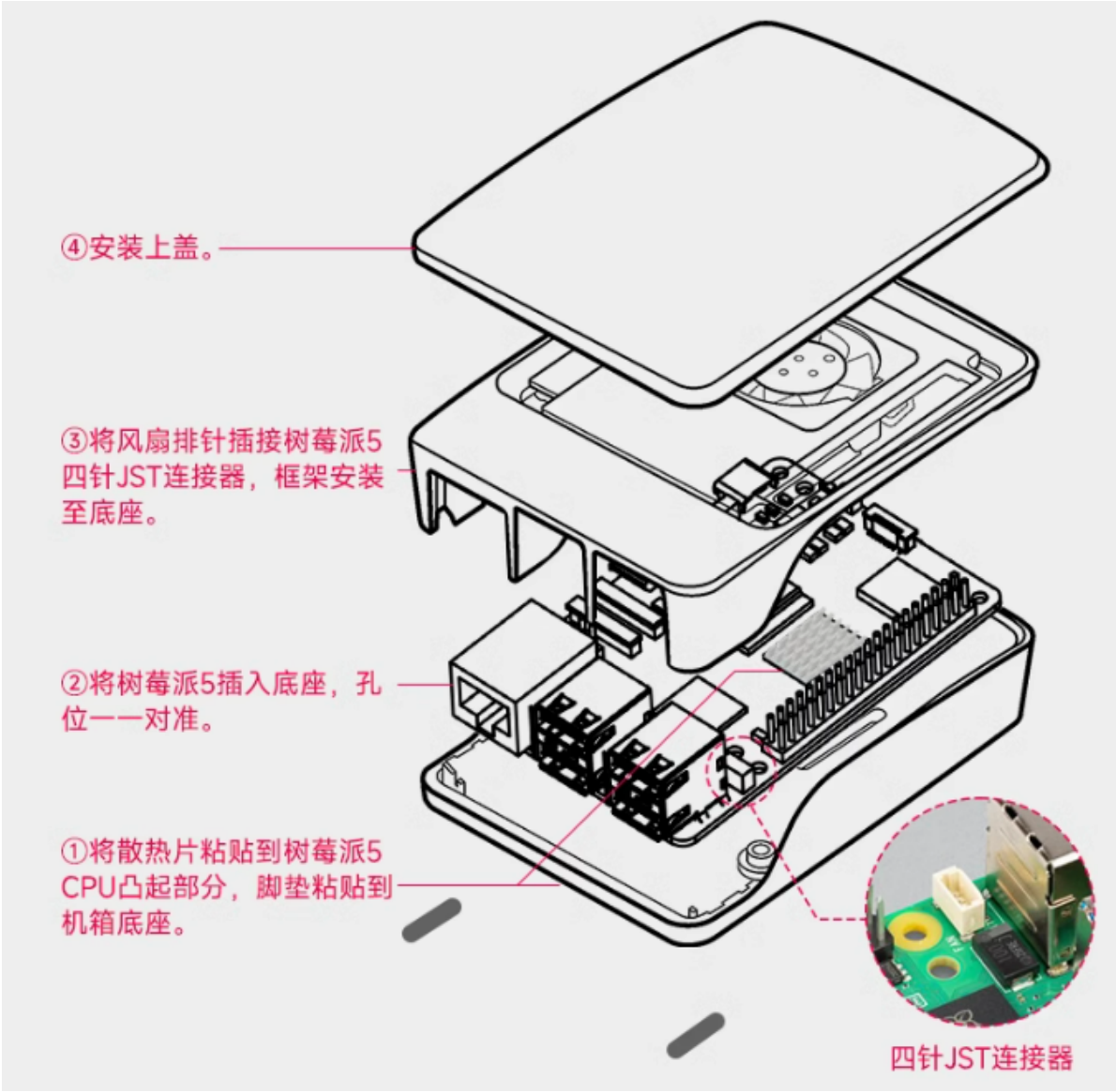


线序说明			
红	+ 极	蓝	PWM
黑	- 极	黄	FG

4.4 official original shell

The official original shell of Raspberry Pi 5 adopts classic red and white colors. It integrates a PWM speed-adjustable fan and active temperature control for heat dissipation, which ensures that Raspberry Pi 5 can still maintain a suitable operating temperature under high load conditions while avoiding high temperature drops. frequency phenomenon.

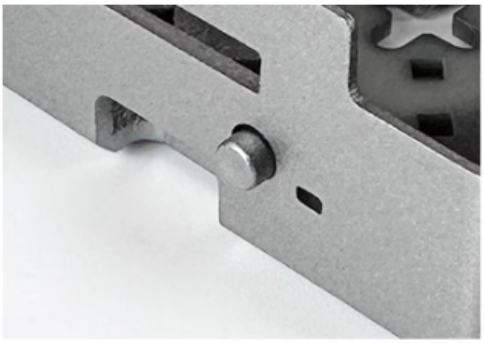
Installation method:



4.5 silver shadow shell

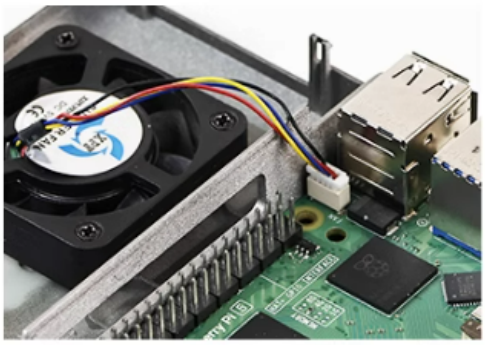
The Raspberry Pi 5-Silver Shadow case is specially designed for the Raspberry Pi 5. It can effectively protect the motherboard from external collisions. The quick-release design makes installation easier. At the same time, it is equipped with a PWM fan for active temperature control and heat dissipation, which can efficiently dissipate heat while maintaining low-noise operation. The heat dissipation performance is better than the official Raspberry Pi 5 case.

Installation method is as follows:



①安装按键

②安装树莓派至外壳底座，使用螺丝固定



③风扇连接树莓派5四针JST连接器

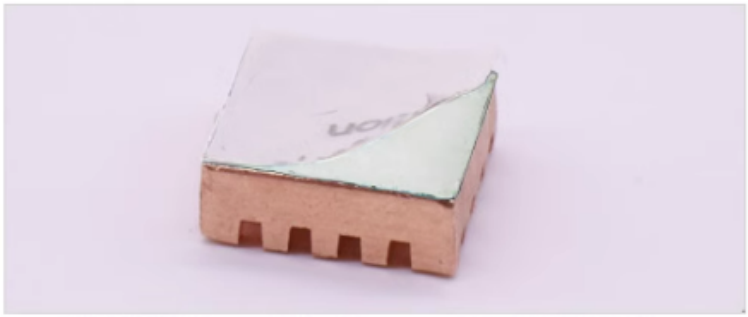
④卡紧上盖

线序说明			
红	+ 极	蓝	PWM
黑	- 极	黄	FG

4.6 pure copper heat sink

The high-performance CPU of Raspberry Pi 5 brings greater heat dissipation. We do not recommend using only a heat sink for heat dissipation, because when the CPU is working under high load, the temperature of the heat sink will also rise to 85°. When using a fan for cooling, adding a heat sink can cool the CPU by 2-6° under the same test conditions. Using a heat sink can enhance the cooling effect of the cooling fan.

Installation method is as follows:



撕掉散热片导热背胶，即可粘贴在树莓派上