YeaCreate-ESP32-P4-BODY PeripheralBoard Specification Book-v0.1

Motherboard model：	YeaCreate-ESP32-P4-BODY V0.2
Board functions：	ESP32-P4-BODY Motherboard
Security level：	public

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Directory

1Introduction

Enchuang is committed to smart home solutions, creating a smarter and more convenient life for people. As an innovator in embedded application technology, Enchuang continuously drives innovation in home interconnection and smart interconnection solutions.

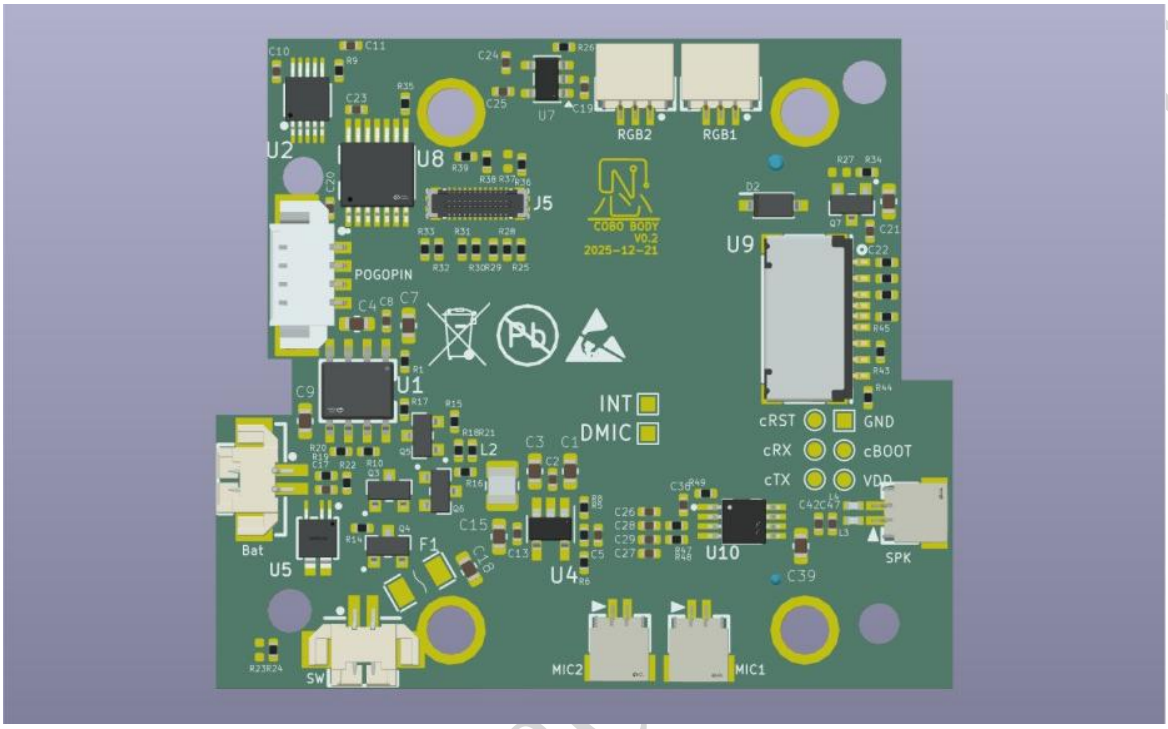
The YeaCreate-ESP32-P4-BODY peripheral board serves as a functional extension and application platform for the YeaCreate-ESP32-P4- CORE core board. It connects stably to the core board via an LGA interface, providing complete power management, peripheral access, and interface support for the system. The peripheral board can integrate display interfaces, audio input/output, TF card storage, USB, and various communication and control interfaces according to application requirements, enabling the core board to achieve richer functional combinations while maintaining centralized computing and wireless capabilities.

Equipped with the high-performance computing and multimedia processing capabilities of the YeaCreate-ESP32-P4- CORE , the peripheral board can be flexibly adapted to application scenarios such as AI interaction, IoT terminals, human-machine interfaces, and intelligent control. The modular peripheral board design reduces system development and maintenance costs, supports various assembly and customization solutions, and facilitates rapid product iteration and large-scale deployment.

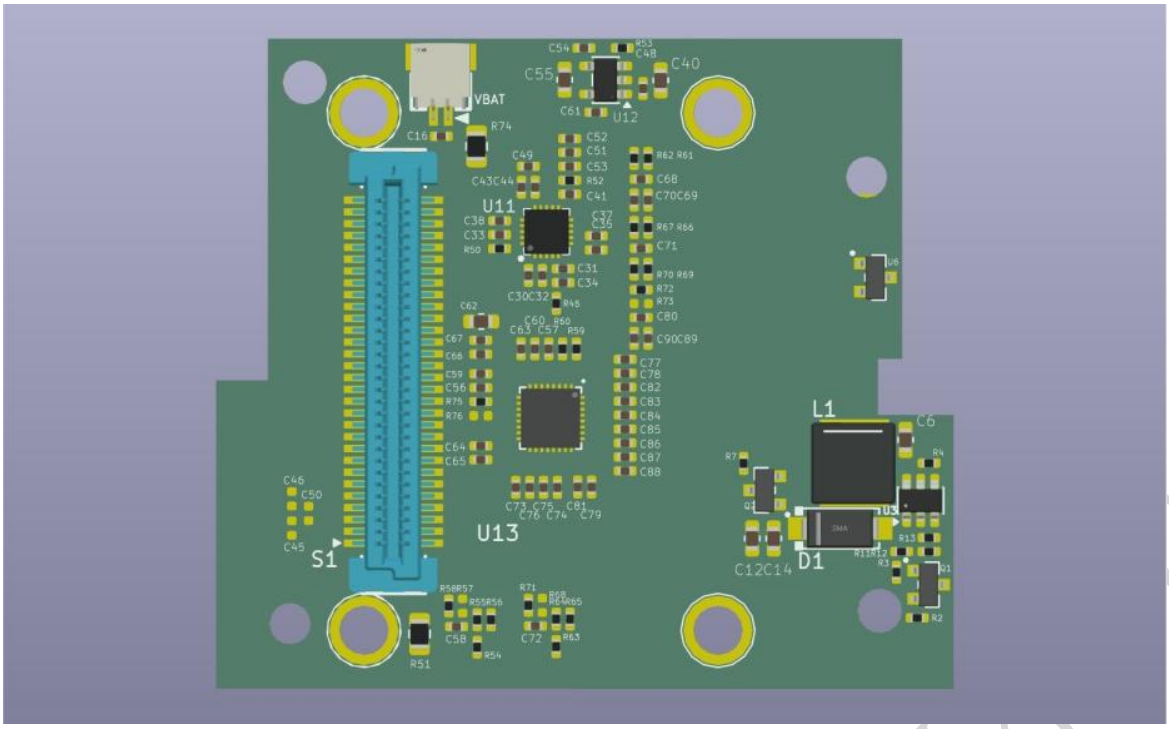
Unless otherwise stated, the specifications that the product conforms to are described in this document.

2Appearance and Dimensions

2.1The appearance drawing is as follows:：



Front View (Figure 1)



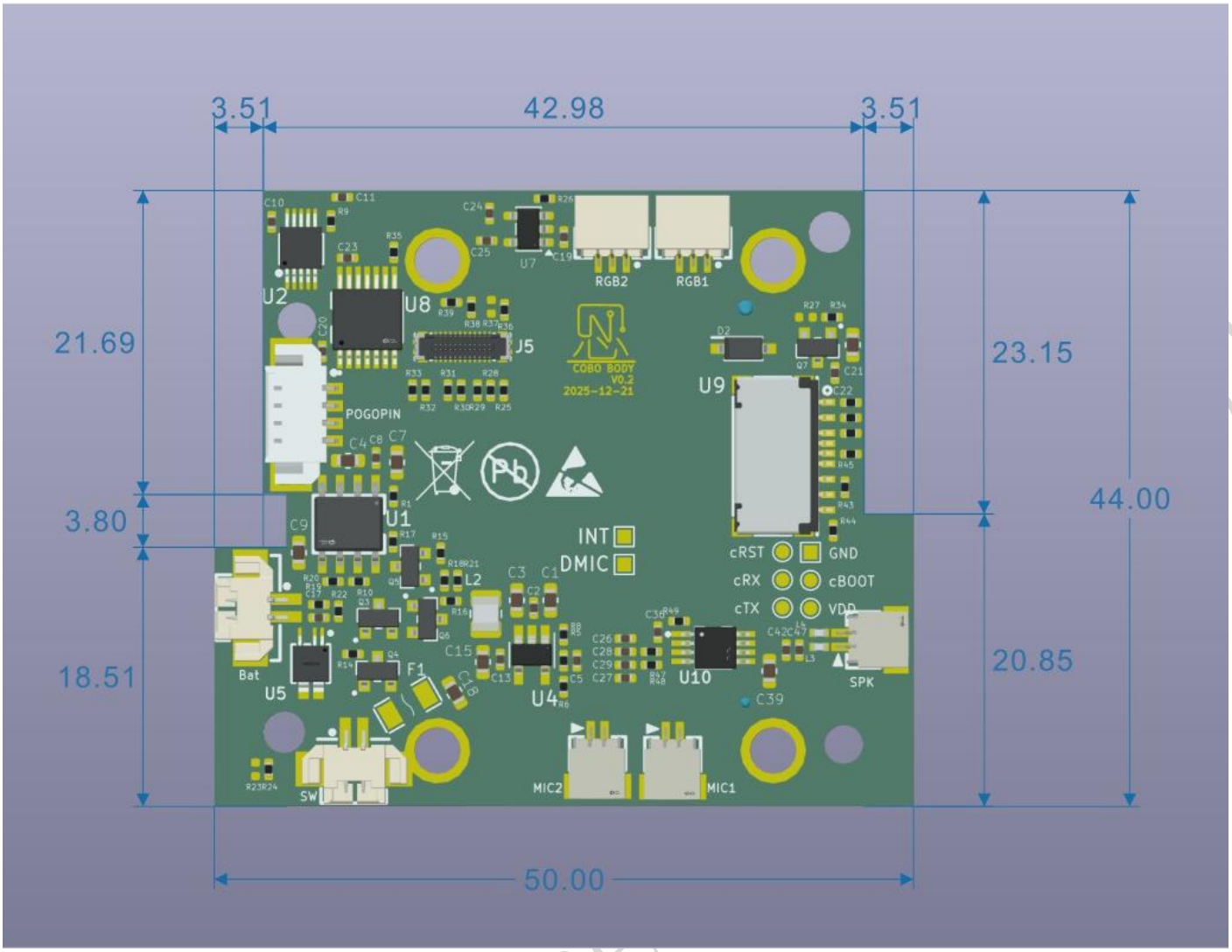
Back side (Figure 2)

2.2Dimensions

Width: 50mm

Length: 44mm

Tolerance: ±0.5mm



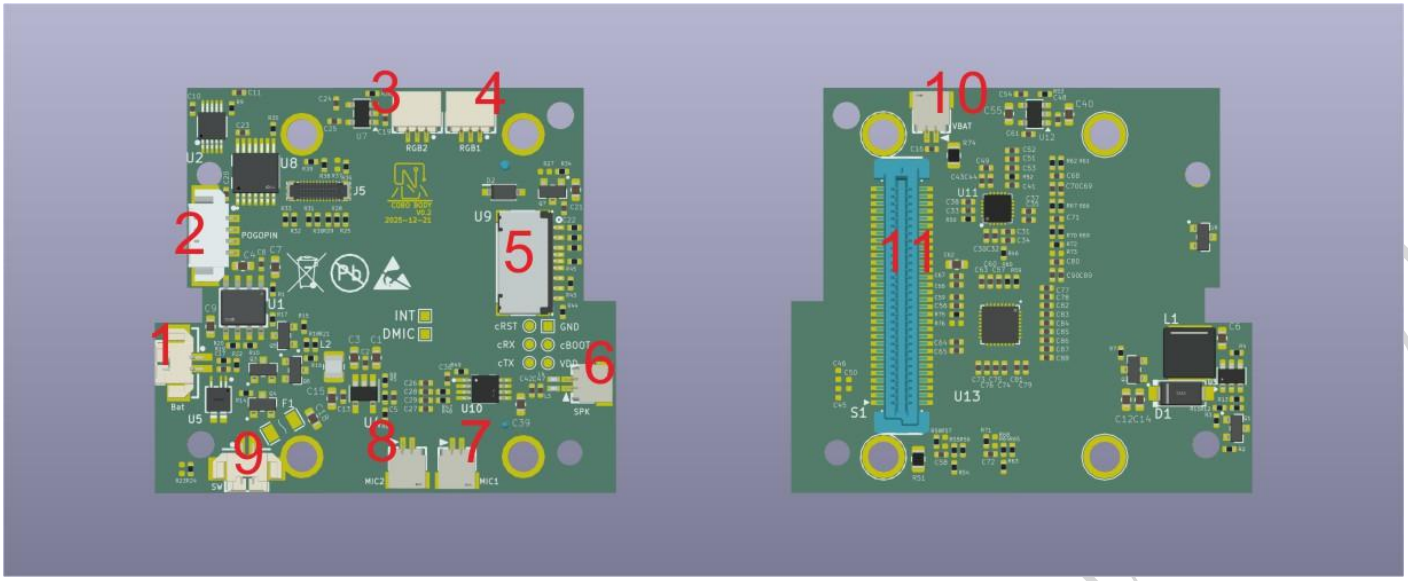
(Figure 3)

3Application Guide

This chapter mainly introduces the usage of the outer perimeter plate, including:

- Function
- back

3.1Functions



(Figure 4)

Table 3.1 Function List

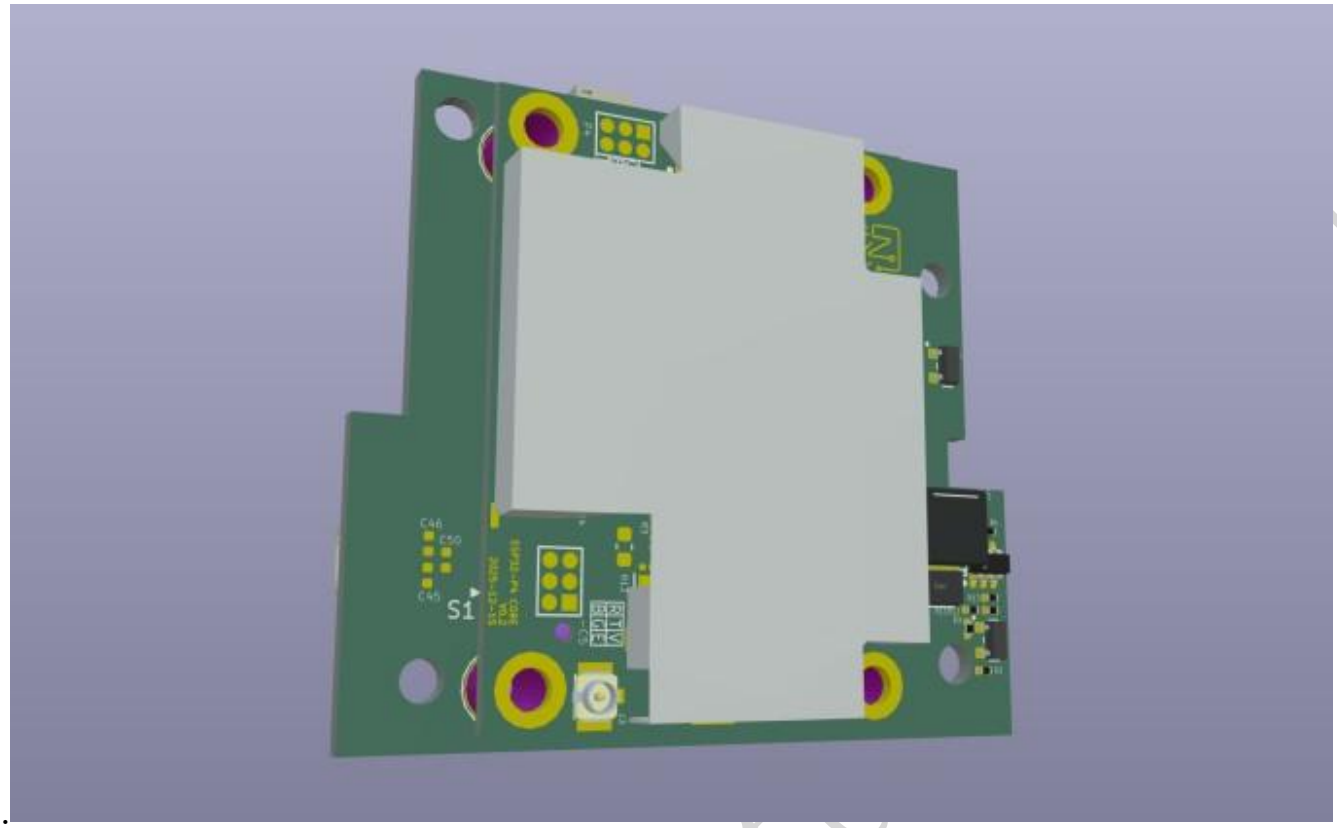
serial number	describe
1	Lithium battery interface
2	POGOPIN interface
3、4	RGB LED Interface
5	TF card interface
6	Speaker Interface
7、8	microphone jack
9	Power switch interface
10	Button battery interface
11	60-pin motherboard connector

This peripheral board provides comprehensive power, storage, display, and audio expansion capabilities for the main control system, making it suitable for various embedded and intelligent applications. Onboard lithium battery and coin cell battery interfaces support both main and backup power supplies for the device. Combined with a power switch interface , it enables safe and convenient power management. The POGOPIN interface allows for quick connection, debugging, and charging, improving overall assembly and maintenance efficiency.

In terms of interaction and display, the peripheral board provides an RGB LED interface for status indication and ambient display; it also supports a TF card interface for data storage, log recording, or multimedia file expansion. For audio functionality, it integrates a speaker interface and a microphone interface , supporting voice playback, voice capture, and human-computer voice interaction applications ; the microphone array can detect the direction of sound .

In addition, the peripheral board is connected to the core main control board through a 40-pin motherboard interface , realizing unified expansion and management of power, communication and various peripheral signals, providing the system with good scalability and compatibility, and is suitable for AI terminals, smart homes, voice interaction devices and prototype development and other scenarios.

3.2 Outer Panel Matching



（图 5）

The system adopts a modular design approach with a core board and peripheral boards . The YeaCreate-ESP32-P4-CORE serves as the core computing unit, reliably connecting to the peripheral boards via an LGA interface. The peripheral boards are primarily responsible for power management, interface expansion, and functional peripheral integration, and can be customized and combined according to different application scenarios.

While maintaining the versatility of the core board, the peripheral boards can be flexibly expanded to include display, audio, storage, communication, and various sensor interfaces, giving the entire solution greater scalability and adaptability in terms of functional configuration, assembly methods, and product form. This makes it suitable for the rapid development and mass production deployment of AI, IoT, and embedded applications.