

1.1 Supplemental Notes on Breadboard Selection

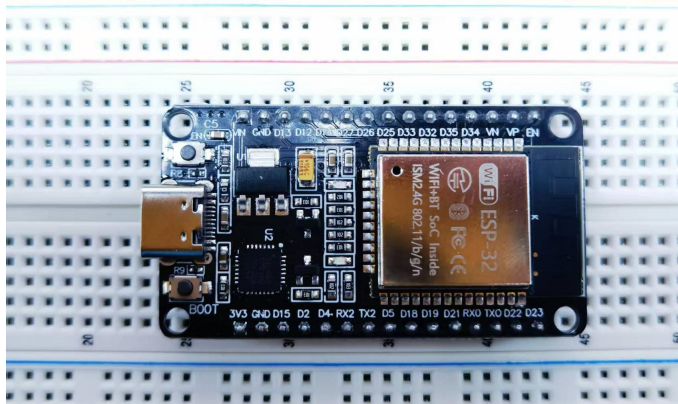
I. Criteria for Breadboard Selection

This kit adopts a combination of two 400-tie-point breadboards instead of a single 830-tie-point breadboard. For projects based on the ESP32 development board, this configuration offers significant advantages in usability, layout flexibility, and expansion capability.

(1) Why the 830-Tie-Point Breadboard Is Not Recommended

Due to its structural layout, the 830-tie-point breadboard presents limitations when used with an ESP32 development board.

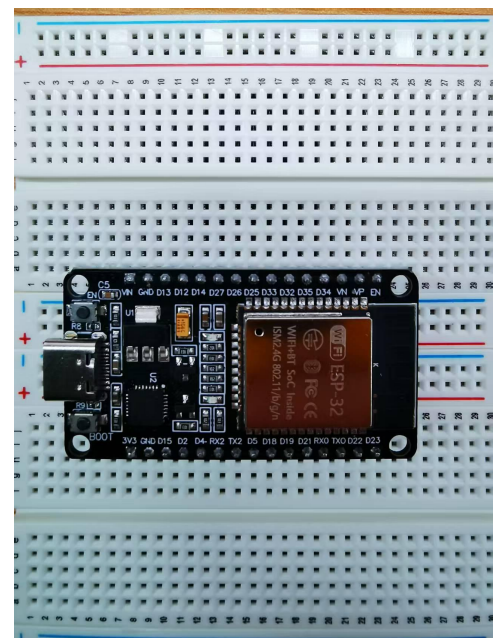
When the ESP32 is mounted vertically, its physical length occupies one side of the breadboard's I/O connection area. As a result, certain ESP32 GPIO pins become inaccessible, preventing normal wiring and causing a direct loss of corresponding functions. This limits hardware expansion and reduces practical usability.



(2) Advantages of Using Two 400-Tie-Point Breadboards

Using two 400-tie-point breadboards in combination fully resolves the above issue.

After assembly, both the left and right sides of the ESP32 have sufficient space for jumper connections, ensuring that all GPIO pins remain accessible. This configuration supports a wide range of I/O-based extensions, providing a more flexible and developer-friendly prototyping environment.



II. Method of Combining Breadboards

Breadboards include a built-in tongue-and-groove interlocking design, allowing simple and secure assembly:

1. Align the connection edges:

Position the tongue side of one breadboard against the groove side of the other.

2. Press to lock in place:

Apply gentle downward pressure from underneath to engage the interlocking structure, forming a stable combined breadboard platform.

