[ESP32](https://www.espressif.com/sites/default/files/documentation/esp32_technical_reference_manual_en.pdf)  
[Pinout Reference](https://randomnerdtutorials.com/esp32-pinout-reference-gpios/)

[Pin Function Spreadsheet](https://github.com/SensorsIot/ESP32-Deep-Sleep/raw/master/ESP32.xlsx)

22 x I/O + 4 x input only = 26 usable pins

GPIO\_34 - GPIO\_39 have no internal pullup / pulldown.

The ESP32 chip has the following strapping pins:

* GPIO 0
* GPIO 2
* GPIO 4
* GPIO 5 (must be HIGH during boot)
* GPIO 12 (must be LOW during boot)
* GPIO 15 (must be HIGH during boot)

(Not including GPIO6 to GPIO11 which are used by the internal FLASH and are not useable)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Name** | **Type** | **GPIO** | **Mode** | **Function** |  | **Note** |
| 25 | IO00 | I/O | GPIO00 |  |  | RTC | Boot mode |
| 35 | TXD0 | I/O | GPIO01 | UART-0 | USB\_TXD |  | program / debug |
| 24 | IO02 | I/O | GPIO02 |  | Key-In-0 | RTC | 10K Pulldown |
| 34 | RXD0 | I/O | GPIO03 | UART-0 | USB \_RXD |  | program / debug |
| 26 | IO04 | I/O | GPIO04 |  | Key-In-1 | RTC | 10K Pulldown |
| 29 | IO05 | I/O | GPIO05 |  | SD\_CS |  |  |
| 20 | SCK/CLK\* | I/O | GPIO06 |  | Flash |  | Do not use! |
| 21 | SDO/SD0\* | I/O | GPIO07 |  | Flash |  | Do not use! |
| 22 | SDI/SD1\* | I/O | GPIO08 |  | Flash |  | Do not use! |
| 17 | SHD/SD2\* | I/O | GPIO09 |  | Flash |  | Do not use! |
| 18 | SWP/SD3\* | I/O | GPIO10 |  | Flash |  | Do not use! |
| 19 | SCS/CMD\* | I/O | GPIO11 |  | Flash |  | Do not use! |
| 14 | IO12 | I/O | GPIO12 |  | Key-In-2 | RTC | 10K Pulldown |
| 16 | IO13 | I/O | GPIO13 |  | Key-Out-0 | RTC |  |
| 13 | IO14 | I/O | GPIO14 |  | Key-Out-1 | RTC |  |
| 23 | IO15 | I/O | GPIO15 |  | Key-Out-2 | RTC |  |
| 27 | IO16 | I/O | GPIO16 |  | Key-Out-3 |  |  |
| 28 | IO17 | I/O | GPIO17 |  | Key-Out-4 |  |  |
| 30 | IO18 | I/O | GPIO18 | SPI-0 | Key-Out-5 |  |  |
| 31 | IO19 | I/O | GPIO19 | SPI-0 | POWER\_EN |  | 1M Pulldown (Remove 1M pullup on MAX board) |
| 33 | IO21 | I/O | GPIO21 | I2C-0 | SPI\_MOSI |  |  |
| 36 | IO22 | I/O | GPIO22 | I2C-0 | SPI\_MISO |  |  |
| 37 | IO23 | I/O | GPIO23 | SPI-0 | SPI\_SCK |  |  |
| 10 | IO25 | I/O | GPIO25 |  | I2S-DATA | RTC |  |
| 11 | IO26 | I/O | GPIO26 |  | I2S-WS | RTC | LRC |
| 12 | IO27 | I/O | GPIO27 |  | I2S-BCK | RTC |  |
| 8 | IO32 | I/O | GPIO32 |  | Key-In-3 | RTC | 10K Pulldown |
| 9 | IO33 | I/O | GPIO33 |  | Key-In-4 | RTC | 10K Pulldown |
| 6 | IO34 | I | GPIO34 |  | Key-In-5 | RTC | 10K Pulldown |
| 7 | IO35 | I | GPIO35 |  | Key-In-6 | RTC | 10K Pulldown |
| 4 | SENSOR\_VP | I | GPIO36 |  | Key-In-7 | RTC | 10K Pulldown |
| 5 | SENSOR\_VN | I | GPIO39 |  | Key-In-8 | RTC | 10K Pulldown |
|  |  |  |  |  |  |  |  |
| 1 | GND | P |  |  |  |  |  |
| 2 | 3V3 | P |  |  |  |  |  |
| 3 | EN | I |  |  |  |  |  |
| 15 | GND | P |  |  |  |  |  |
| 32 | NC |  |  |  |  |  |  |
| 38 | GND | P |  |  |  |  |  |
| 39 | GND | P |  |  |  |  |  |