IoT RedBoard ESP32 Development Board Hookup Guide

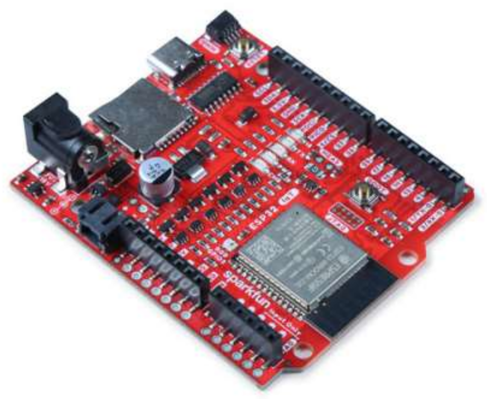
Introduction

The SparkFun IoT RedBoard is an ESP32 Development Board that includes everything but the kitchen sink! Espressif's ESP32 WROOM is a powerful WiFi and Bluetooth® MCU module that targets a wide variety of applications. At the core of this module is the ESP32-D0WDQ6 chip which is designed to be both scalable and adaptive. The IoT RedBoard can target a wide variety of applications, ranging from low-power sensor networks to the most demanding tasks, such as voice encoding, music streaming, and MP3 decoding. The IoT ReadBoard also utilizes our handy Qwiic Connect System which means no soldering or shields are required to connect it to the rest of your system!

The USB-to-serial is achieved with a USB-C connector with through hole anchoring and the ubiquitous CH340G requiring fewer driver installs. We've included 3.3V voltage translation and a Qwiic connector to the edge of the board to allow for quick and seamless connection to our ever-growing line of I^{2}C based Qwiic products. The board even includes a microSD socket if your application requires you to log and save data to a memory card.

The operating system is freeRTOS with LwIP; TLS 1.2 with hardware acceleration is built in as well. Secure (encrypted) over the air (OTA) upgrade is also supported, so that users can upgrade their products even after their release, at minimum cost and effort.

Let's dive in and see what this baby can do!



SparkFun IoT RedBoard - ESP32 Development Board
◉ WRL-19177

Product Showcase: SparkFun IoT RedBoard ESP32 Dev Board

Required Materials

To follow along with this tutorial, you will need the following materials. You may not need everything though depending on what you have. Add it to your cart, read through the guide, and adjust the cart as necessary.

IoT RedBoard ESP32 Hookup Guide Wish List SparkFun Wish List

	SparkFun IoT RedBoard - ESP32 Development Board WRL-19177
	Reversible USB A to C Cable - 0.3m CAB-15426
	SparkFun High Precision Temperature Sensor - TMP117 (Qwiic) SEN-15805
	Qwiic Cable - 100mm PRT-14427

Suggested Reading

If you aren't familiar with the following concepts, we recommend checking out these tutorials before continuing.

How to Solder: Through-Hole Soldering
This tutorial covers everything you need to know about through-hole soldering.

Serial Communication
Asynchronous serial communication concepts: packets, signal levels, baud rates, UARTs and more!

Serial Peripheral Interface (SPI)
SPI is commonly used to connect microcontrollers to peripherals such as sensors, shift registers, and SD cards.

Pulse Width Modulation
An introduction to the concept of Pulse Width Modulation.

Logic Levels
Learn the difference between 3.3V and 5V devices and logic levels.

I2C
An introduction to I2C, one of the main embedded communications protocols in use today.

Analog vs. Digital
This tutorial covers the concept of analog and digital signals, as they relate to electronics.

How to Work with Jumper Pads and PCB Traces
Handling PCB jumper pads and traces is an essential skill. Learn how to cut a PCB trace, add a solder jumper between pads to reroute connections, and repair a trace with the green wire method if a trace is damaged.

Installing Arduino IDE
A step-by-step guide to installing and testing the Arduino software on Windows, Mac, and Linux.

ESP32 Thing Plus Hookup Guide
Hookup guide for the ESP32 Thing Plus (Micro-B) using the ESP32 WROOM's WiFi/Bluetooth system-on-chip in Arduino.

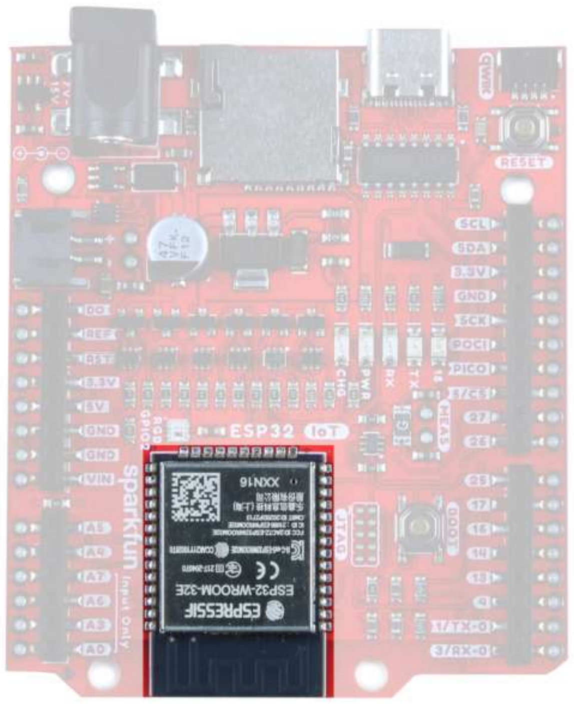
Installing Board Definitions in the Arduino IDE
How do I install a custom Arduino board/core? It's easy! This tutorial will go over how to install an Arduino board definition using the Arduino Board Manager. We will also go over manually installing third-party cores, such as the board definitions required for many of the SparkFun development boards.

Hardware Overview

Note: You can click on any image in this section to get a closer look at the details.

ESP32

At the core of the module is the ESP32-D0WD-V3 chip. The embedded chip is designed to be scalable and adaptive. There are two CPU cores that can be individually controlled, and the CPU clock frequency is adjustable from 80 MHz to 240 MHz. The chip also has a low-power coprocessor that can be used instead of the CPU to save power while performing tasks that do not require much computing power, such as monitoring of peripherals. ESP32 integrates a rich set of peripherals, including capacitive touch sensors, Hall sensors, SD card interface, Ethernet, high-speed SPI, UART, I2S and I^{2}C. Check out the datasheet for more info.

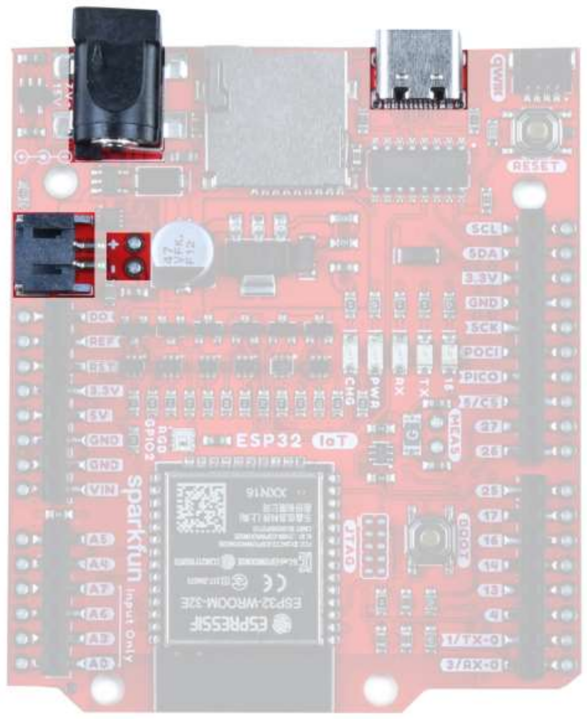


Power

There are a number of different ways to power the SparkFun ESP32 IoT Dev Board:

- USB-C
- barrel jack connector
- Lipo battery charge circuit and fuel gauge. Also show fuel gauge jumper?
- power pins broken out on the edge of the board

The easiest way (which will also allow you to program your board) is to simply plug it into your computer via USB-C. If you choose to power it via USB, the other end of the USB cable can be connected to either a **computer or a 5V (regulated)** USB wall charger. Otherwise, should you choose to use the barrel jack, any wall adapter connected to this jack should supply a **DC voltage between 7 and 15V**. You could also power the board via the header pins. Note that the GPIO pins are NOT 5V tolerant! Make sure that your voltage is regulated when applying power to the 5V or 3.3V pins, respectively.



Charge Circuit

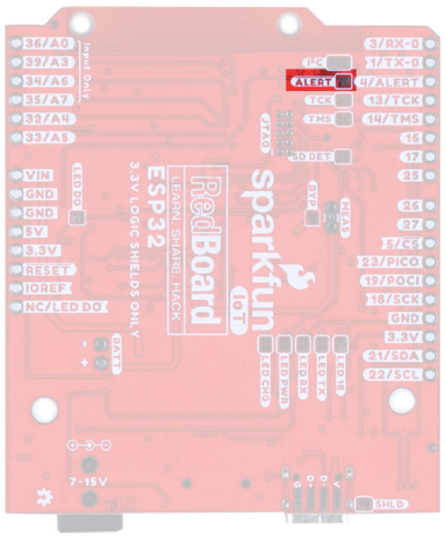
For those using a LiPo battery, note that there is a LiPo charging circuit on the board! By default, R_{PROG}=2k and I_{CHG}=500mA. To calculate the charge current, use the following equation:

$$I_{\text{CHG}} = 1000/R_{\text{PROG}}$$

Note: The only way to change the charging current is by soldering a new resistor, since the board doesn't have provided jumpers. The resistor you'd need to replace is just next to the battery connector at the edge of the board.

ALERT Jumper

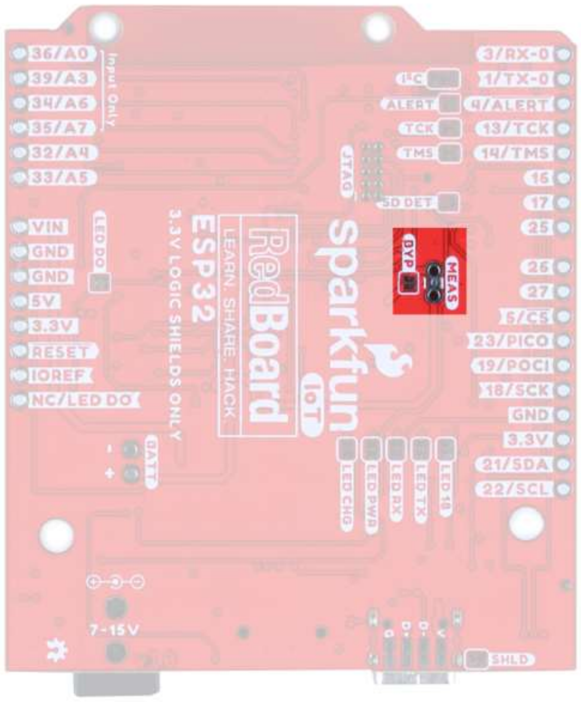
If you are powering your board with a LiPo battery, closing this jumper will enable the Battery Fuel Gauge Alert to be connected to GPIO pin 4. The I^2C address to access the battery fuel gauge is 0x36.



Current Measurement && BYP Jumper

To enable measurements and determine how long your battery might last, we've added a NC (normally closed) jumper between the two MEAS PTH pins. By cutting this jumper, the VDD trace to the module is interrupted. Soldering in a male jumper or wires into the accompanying holes will give you the ability to insert a current meter and precisely monitor how much current your application is consuming.

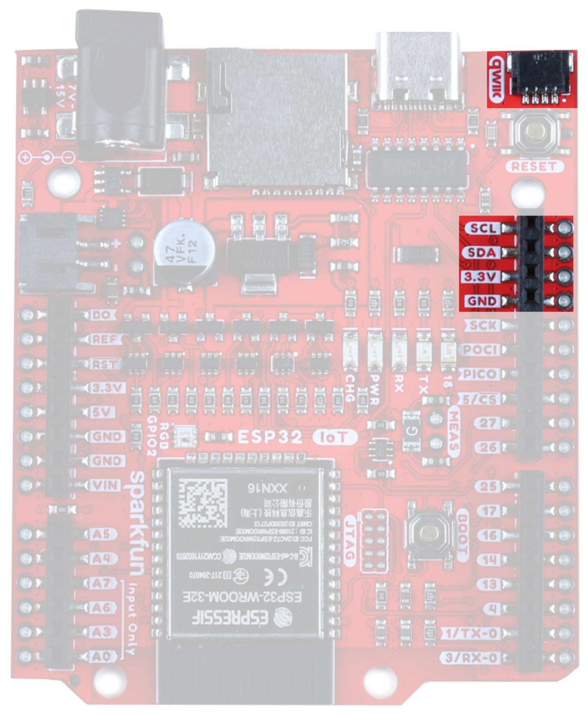
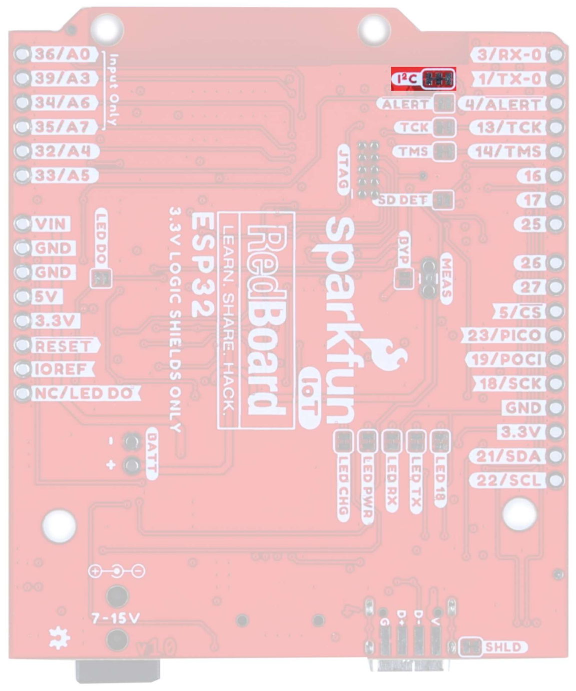
Note that we have also added a PTC fuse bypass jumper - this fuse will trip around 1.5A to protect anything from frying; if you really need more current, close the BYP jumper to bypass the fuse.



Qwiic Functionality

Our Qwiic Ecosystem makes sensors pretty much plug and play. The Qwiic connector provides power and I^{2}C connectivity simultaneously. In addition, we've broken out the I^{2}C functionality to PTH.

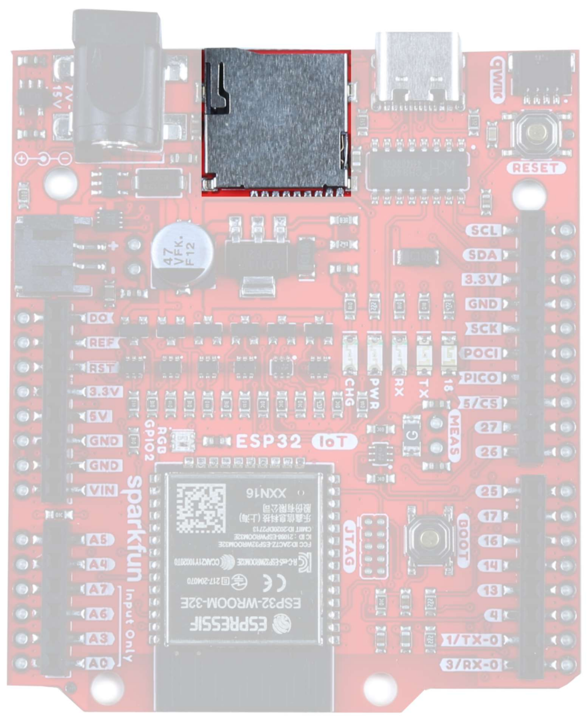
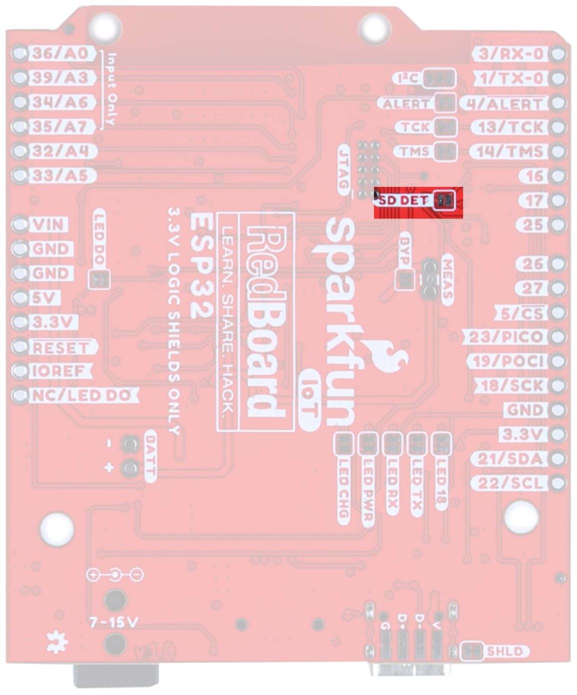
In addition, The IoT RedBoard ESP32 Development Board comes equipped with pull-up resistors on the clock and data pins. If you are daisy-chaining multiple Qwiic devices, you will want to cut this jumper; if multiple sensors are connected to the bus with the pull-up resistors enabled, the parallel equivalent resistance will create too strong of a pull-up for the bus to operate correctly. As a general rule of thumb, disable all but one pair of pull-up resistors if multiple devices are connected to the bus. To disable the pull up resistors, use an X-acto knife to cut the joint between the two jumper pads highlighted here.

	
I^{2}C Pins and Qwiic Connector	*I^{2}C Jumper*

MicroSD

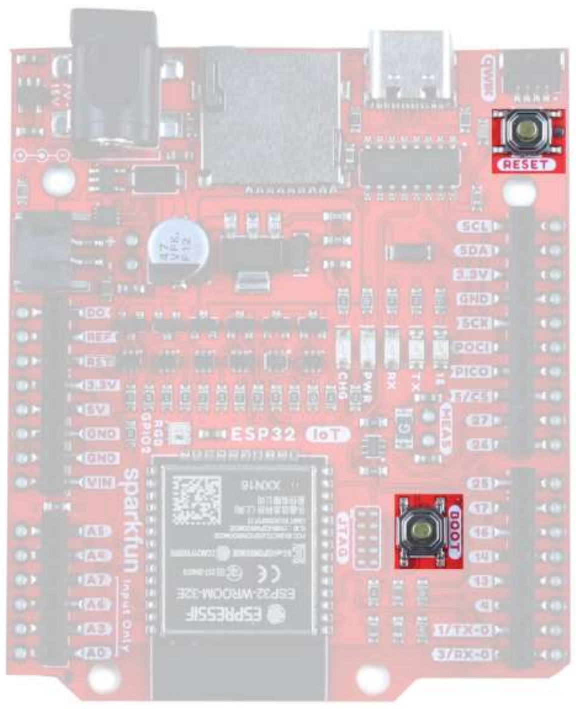
The board includes a microSD socket if your application requires you to log and save data to a memory card.

The SD card socket is able to detect whether or not an SD card has been inserted. By default, this jumper is open, but should you wish to use this functionality, close this jumper and pull the pin high. When an SD card is inserted, the pin will be pulled low and an interrupt can be triggered to notify the user.

	
MicroSD card slot	*SDDET Jumper*

Boot and Reset Buttons

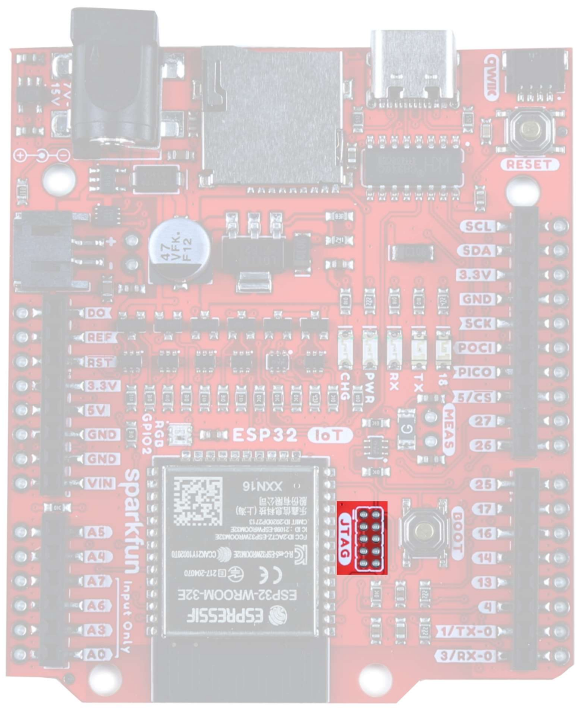
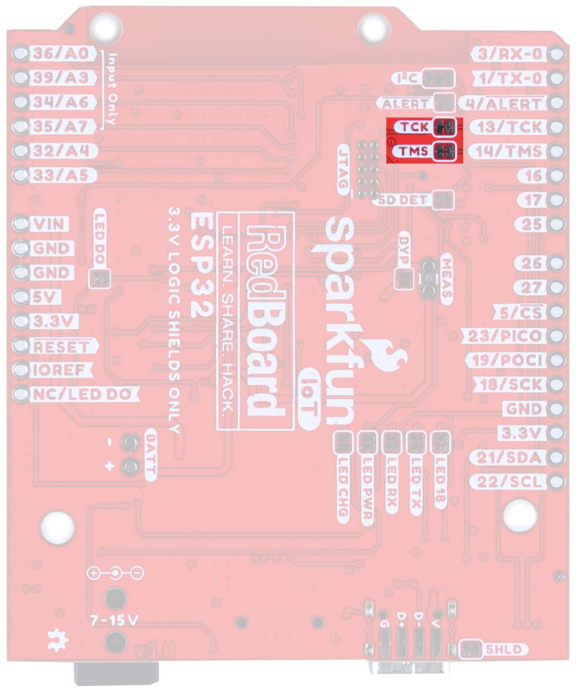
These buttons are par for the course, and pretty handy. The Reset Button allows the user to reset the program running on the ESP32 without unplugging the board. The Boot Button allows the user to manually put the board into Bootloader Mode.



JTAG

If you choose to use an external programmer, the JTAG pins highlighted here will allow you to connect.

The TMS and TCK pins (pins 13 and 14, respectively) are connected by default to the JTAG pins. Open these jumpers to disconnect these two pins from the JTAG.

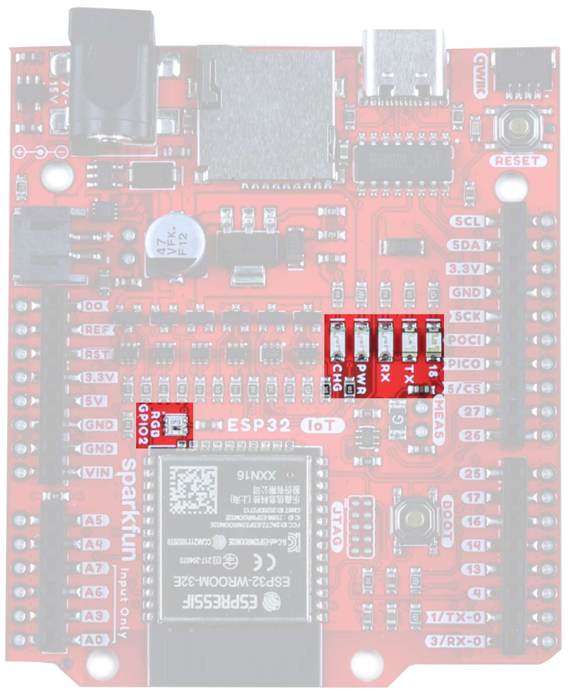
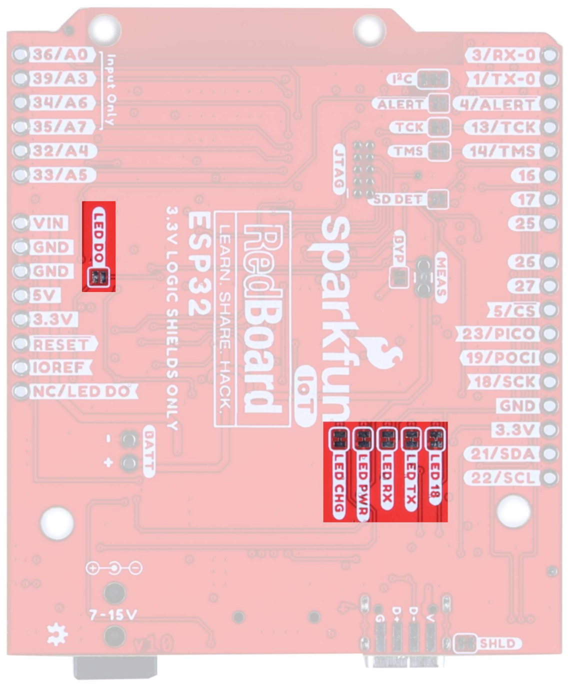
	
JTAG PTH	*TMS/TCS Jumper*

LEDs

There are a number of LEDs on this board;

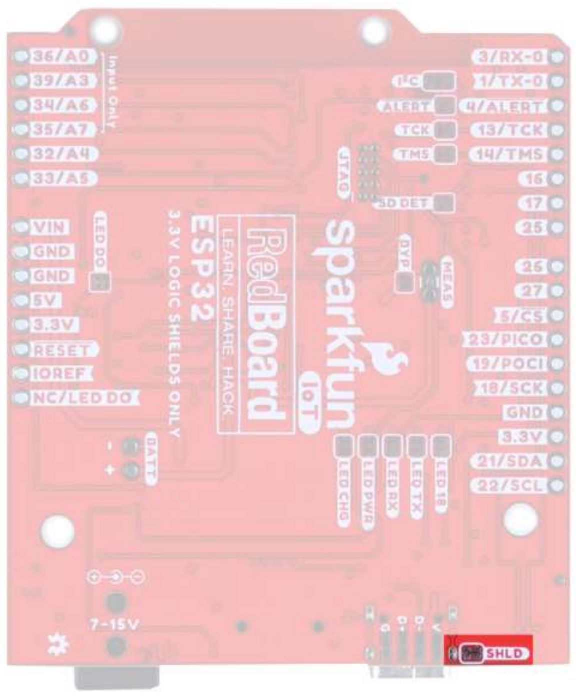
- **CHG -** This LED lights up when the attached LiPo battery is charging. Note that when no battery is connected, it is normal for this LED to flicker a bit.
- **PWR -** Got power? This sucker lights up.
- **RX/TX -** UART indicators
- **18 -** This is the general Status LED. It is connected to the SCK pin.
- **RGB GPIO2 -** WS2812 LED

The jumpers highlighted here disable the associated LEDs on the front of the board. Closing the LED DO jumper enables users to chain the output of the onboard WS2812 via the DO pin.

	
LEDs	*LED Jumpers*

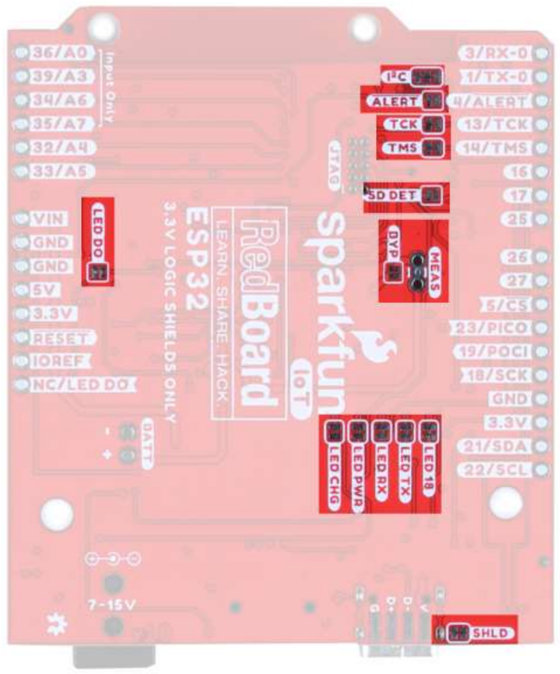
SHLD Jumper

For most applications, the single point grounding of the ESP32 IoT Board at the USB-C connector is sufficient. However, should you run into problems with EMI/EMC, we've provided a jumper that allows you to disconnect the shield from ground at this point.



Solder Jumpers

This board has fourteen solder jumpers. The table below outlines each jumper's label, function, default states, and any notes about their use.



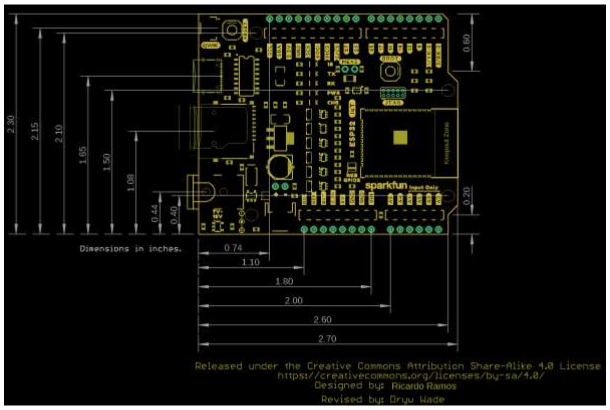
Having trouble seeing the detail in the image? Click on it for a larger view.

Label	Default State	Function	Notes
ALERT	OPEN	Battery Fuel Gauge Alert	Closing this jumper will enable the Battery Fuel Gauge Alert to be connected to GPIO pin 4. The I2C address to access the battery fuel gauge is 0x36.
SD DET	OPEN	SD Card Insertion Detection	The SD card socket is able to detect whether or not an SD card has been inserted. By default, this jumper is open, but should you wish to use this functionality, close this jumper and pull the pin high. When an SD card is inserted, the pin will be pulled low and an interrupt can be triggered to notify the user.
I^{2}C	CLOSED	Disables the pull-up resistors on the clock and data pins.	If you are daisy-chaining multiple Qwiic devices, you will want to cut this jumper; if multiple sensors are connected to the bus with the pull-up resistors enabled, the parallel equivalent resistance will create too strong of a pull-up for the bus to operate correctly. As a general rule of thumb, disable all but one pair of pull-up resistors if multiple devices are connected to the bus.
TCK/TMS	CLOSED	JTAG TMS and TCK pins	The TMS and TCK pins (pins 13 and 14, respectively) are connected by default to the JTAG pins. Open these jumpers to disconnect these two pins from the JTAG.

MEAS	CLOSED	Measures the total current consumption of the board.	Open to measure current draw of the board. Note that any current out of the 5V pin also goes through this jumper.
BYP	OPEN	PTC Fuse Bypass Jumper	This is the penny in the fuse jumper. Closing this will allow you to draw more than 1.5A of current. Only close this if you know what you're doing!
LED DO	OPEN	Jumper to allow user to chain the output of DO	Allows the user to chain the ouput of the onboard WS2812
LED 18	CLOSED	General Status LED	
LED TX	CLOSED	UART TX Line	
LED RX	CLOSED	UART RX Line	Open to disable the labeled LED. Helps reduce the total current draw.
LED PWR	CLOSED	Board Power	
CHG	CLOSED	LiPo Charge Circuit	
SHLD	CLOSED	Jumper to select USB shield grounding option.	Default connects the connector shield to ground.

Board Measurements

This board measures 2.3" by 2.7".

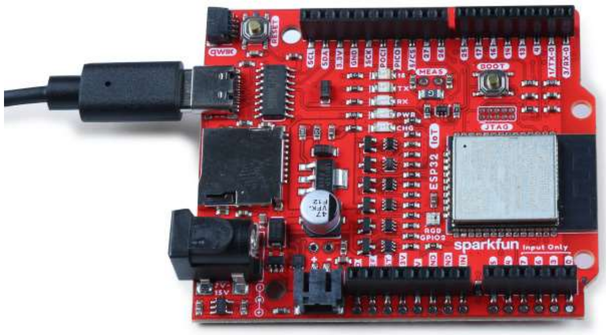


2.30
2.15
2.10
1.65
1.50
1.08
0.44
0.40
0.50
0.20
Dimensions in inches.
0.74
1.10
1.80
2.00
2.60
2.70
Released under the Creative Commons Attribution Share-Alike 4.0 License
https://creativecommons.org/licenses/by-sa/4.0/
Designed by: Ricardo Ramos
Revised by: Dryw Wade

Click the image for a closer look.

Hardware Hookup

Hardware hookup is a breeze! Grab your USB-C cable and plug it into the USB-C port! Voila!



Software Setup and Programming

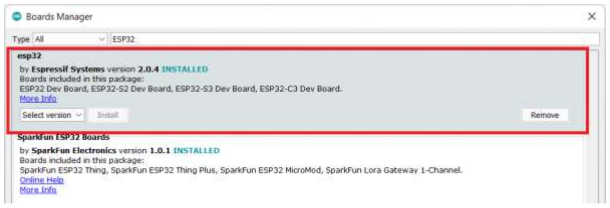
Note: Make sure you are using the latest stable version of the Arduino IDE on your desktop. If this is your first time using Arduino, please review our tutorial on installing the Arduino IDE. If you have not previously installed an Arduino library, please check out our installation guide.

Install CH340 Drivers

If you've never connected an CH340 device to your computer before, you may need to install drivers for the USB-to-serial converter. Check out our section on "How to Install CH340 Drivers" for help with the installation.

Install Board Definition

Make sure you have the latest **ESP32** board definitions installed in the Arduino IDE Boards Manager:



esp32
by **Espressif Systems** version **2.0.4** INSTALLED
Boards included in this package:
ESP32 Dev Board, ESP32-S2 Dev Board, ESP32-S3 Dev Board, ESP32-C3 Dev Board.
More Info

SparkFun ESP32 Boards
by **SparkFun Electronics** version **1.0.1** INSTALLED
Boards included in this package:
SparkFun ESP32 Thing, SparkFun ESP32 Thing Plus, SparkFun ESP32 MicroMod, SparkFun Lora Gateway 1-Channel.
Online Help
More Info

Having a hard time seeing details? Click the image for a closer look.

Note: If you are unfamiliar with installing Board Definitions in Arduino, check out the tutorial listed here:

Installing Board Definitions in the Arduino IDE

SEPTEMBER 9, 2020

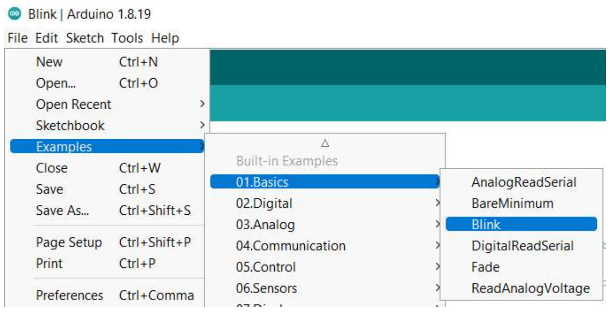
How do I install a custom Arduino board/core? It's easy! This tutorial will go over how to install an Arduino board definition using the Arduino Board Manager. We will also go over manually installing third-party cores, such as the board definitions required for many of the SparkFun development boards.

For more instructions, users can follow this tutorial on Installing Additional Cores provided by Arduino. Users will also need the `.json` file for the Espressif Arduino Core:

```
https://raw.githubusercontent.com/espressif/arduino-esp32/gh-pages/package_esp32_index.json
```

Example 1: Blink

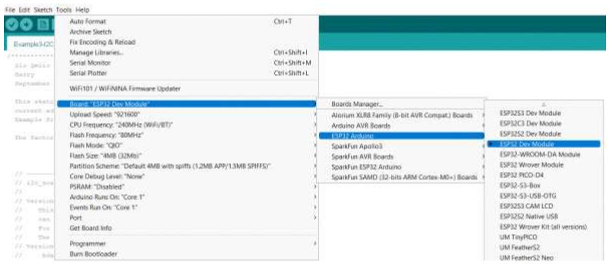
The Blink example is a great benchmark to make sure you've got everything up and running correctly. You can find the example here:



The LED pin is hard coded in this example, so you'll need to change it to pin 18. See the example code below if you need help:

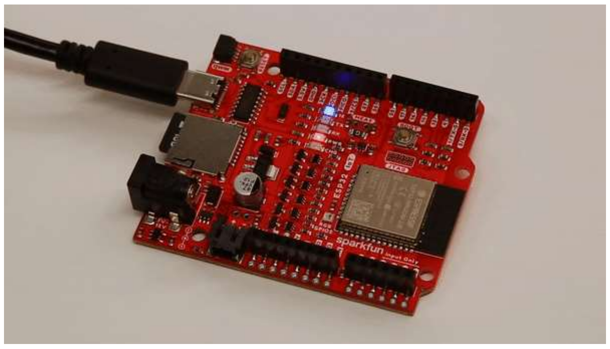
```
/*
  Blink

  Turns an LED on for one second, then off for one second, repeatedly.

  Most Arduinos have an on-board LED you can control. On the UNO, MEGA and ZERO
  it is attached to digital pin 13, on MKR1000 on pin 6. LED_BUILTIN is set to
  the correct LED pin independent of which board is used.
  If you want to know what pin the on-board LED is connected to on your Arduino
  model, check the Technical Specs of your board at:
  https://www.arduino.cc/en/Main/Products

  modified 8 May 2014
  by Scott Fitzgerald
  modified 2 Sep 2016
  by Arturo Guadalupi
  modified 8 Sep 2016
  by Colby Newman

  This example code is in the public domain.

  https://www.arduino.cc/en/Tutorial/BuiltInExamples/Blink
*/

#define LED_BUILTIN 18

// the setup function runs once when you press reset or power the board
void setup() {
  // initialize digital pin LED_BUILTIN as an output.
  pinMode(LED_BUILTIN, OUTPUT);
}

// the loop function runs over and over again forever
void loop() {
  digitalWrite(LED_BUILTIN, HIGH);   // turn the LED on (HIGH is the voltage level)
  delay(1000);                       // wait for a second
  digitalWrite(LED_BUILTIN, LOW);    // turn the LED off by making the voltage LOW
  delay(1000);                       // wait for a second
}
```

Make sure you have the correct Board Selected like so:



Board: "ESP32 Dev Module"
Upload Speed: "921600"
CPU Frequency: "240MHz (WiFi/BT)"
Flash Frequency: "80MHz"
Flash Mode: "QIO"
Flash Size: "4MB (32Mb)"
Partition Scheme: "Default 4MB with spiffs (1.2MB APP/1.5MB SPIFFS)"
Core Debug Level: "None"
PSRAM: "Disabled"
Arduino Runs On: "Core 1"
Events Run On: "Core 1"

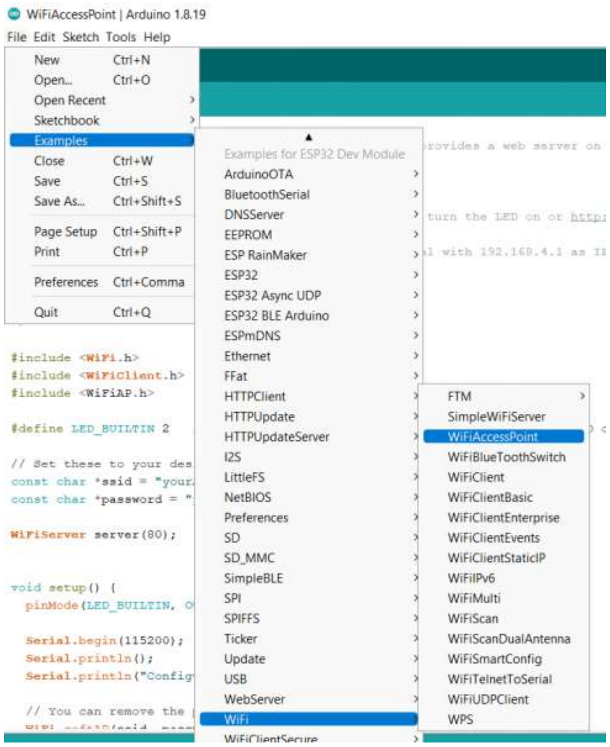
Smash that upload button and if all goes well, you'll see LED 18 blink on and off!



Example 2: Wi Fi

One of the main selling points of the ESP32 is the Wireless functionality. The Access Point example is a nice standalone demo; you connect to an AP created by the ESP32 (SSID and password are configurable), then connect to a web server running on the ESP32 (must use IP address 192.168.4.1), where the LED can be toggled on/off.

To find this example, go to **File** > **Examples**, and under "Examples for ESP32 Dev Module" you'll select **WiFi** > **WiFiAccessPoint**.



```
#include <WiFi.h>
#include <WiFiClient.h>
#include <WiFiAP.h>

#define LED_BUILTIN 2

// Set these to your des
const char *ssid = "your
const char *password = "

WiFiServer server(80);


void setup() {
  pinMode(LED_BUILTIN, O

  Serial.begin(115200);
  Serial.println();
  Serial.println("Config

  // You can remove the
```

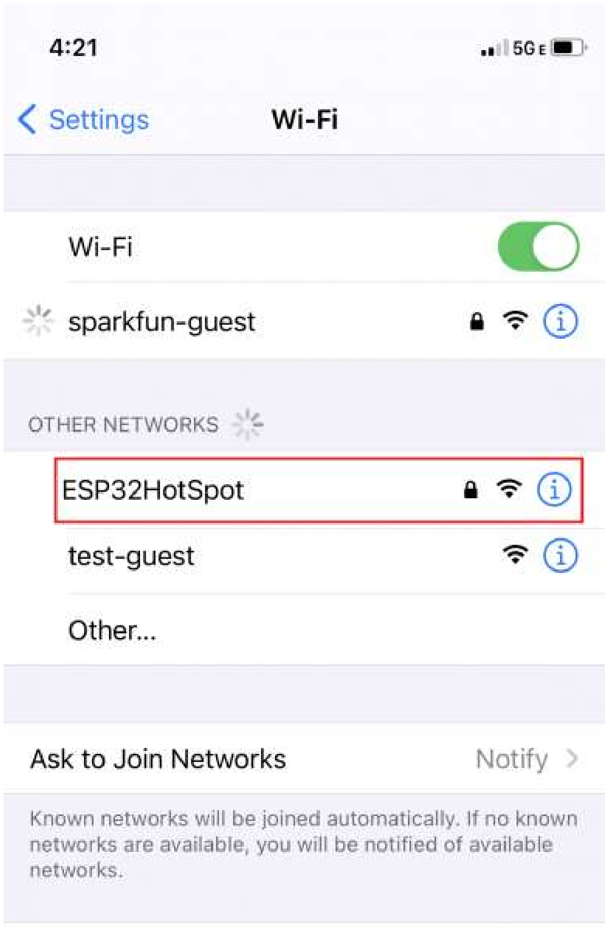
There are a few things you'll need to edit in your example. First, make sure LED_BUILTIN is set to "18". Then you'll need to update your network name and password. **MAKE SURE your password is at least 8 characters**!

```
#define LED_BUILTIN 18

// Set these to your desired credentials.
const char *ssid = "yourAP";
const char *password = "yourPassword"; //This needs to be >= eight characters long
```

Once these are updated, make sure you have the correct board and port selected, and then upload your code.

Assuming your code uploaded correctly, we can now connect to our Access Point, navigate to the webpage, and turn on and off our LED!

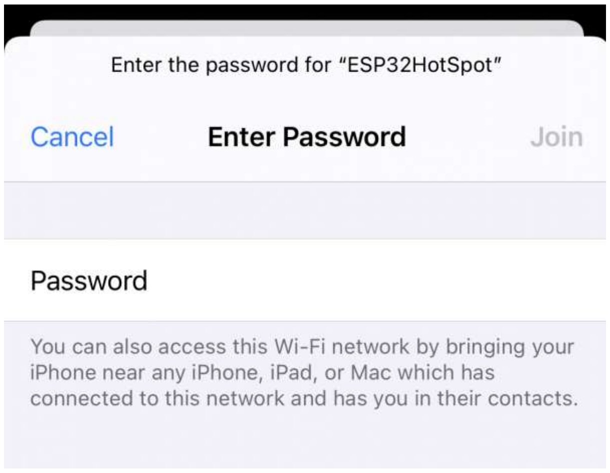
From your phone, computer, or mobile device, navigate to the WiFi networks. Choose the name of the network you created on the ESP32 - I called this the ESP32HotSpot. Connect to that network!



Known networks will be joined automatically. If no known networks are available, you will be notified of available networks.

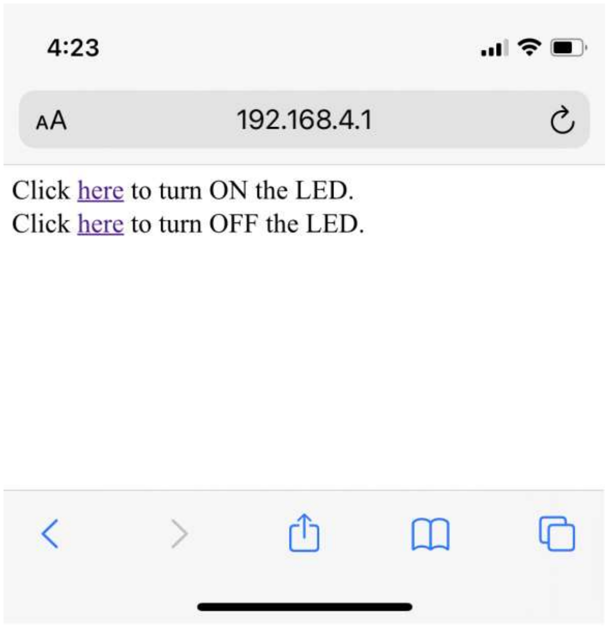
Note: If you can't find your WiFi network, make sure your password is at least eight characters long and re-upload the code.

Enter your password:



You can also access this Wi-Fi network by bringing your iPhone near any iPhone, iPad, or Mac which has connected to this network and has you in their contacts.

Navigate to 192.168.4.1 in a web browser. You should see the following:

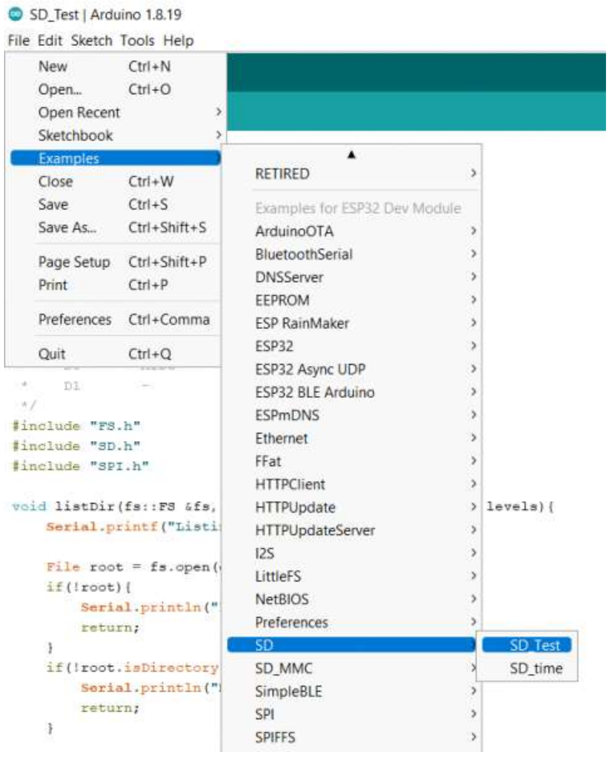

Click here to turn ON the LED.
Click here to turn OFF the LED.

Play with the links to turn LED 18 on and off!

Example 3: SD Card

This built-in example provides a pretty thorough demo of what can be done with Espressif's SD card library (reading/writing files, listing/making directories, etc). You'll need an SD card to get going here. Make sure you gently insert the SD Card into the SD Card slot!

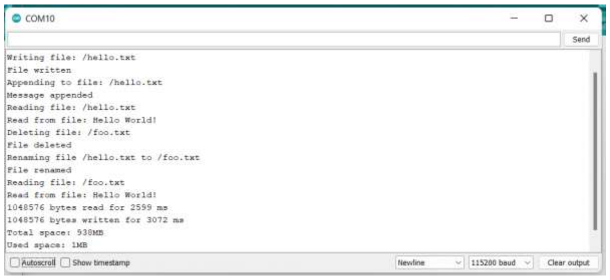
To find the code, go to **File** > **Examples**, and under "Examples for ESP32 Dev Module" you'll select **SD** > **SD_Test**.



```
 *    D1
 */
#include "FS.h"
#include "SD.h"
#include "SPI.h"

void listDir(fs::FS &fs,                              levels){
    Serial.printf("Listi

    File root = fs.open(
    if(!root){
        Serial.println("
        return;
    }
    if(!root.isDirectory
        Serial.println("
        return;
    }
```

As before, make sure you've got the correct board and port selected, and upload your code.

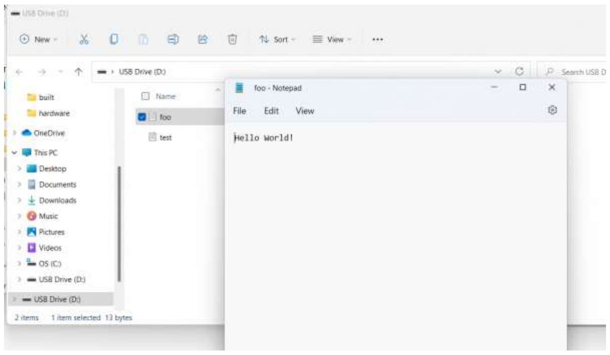
Once your code has been uploaded, you can open a Serial Monitor to see the output. You should see something like the following (you may have to hit the reset button on your board, depending on when you opened the serial monitor):



```
Writing file: /hello.txt
File written
Appending to file: /hello.txt
Message appended
Reading file: /hello.txt
Read from file: Hello World!
Deleting file: /foo.txt
File deleted
Renaming file /hello.txt to /foo.txt
File renamed
Reading file: /foo.txt
Read from file: Hello World!
1048576 bytes read for 2599 ms
1048576 bytes written for 3072 ms
Total space: 938MB
Used space: 1MB
```

Having a hard time seeing details? Click the image for a closer look.

Data will spit out to files on your SD Card. When you read the card with an SD Card Reader, you should see a couple of sample files like these!

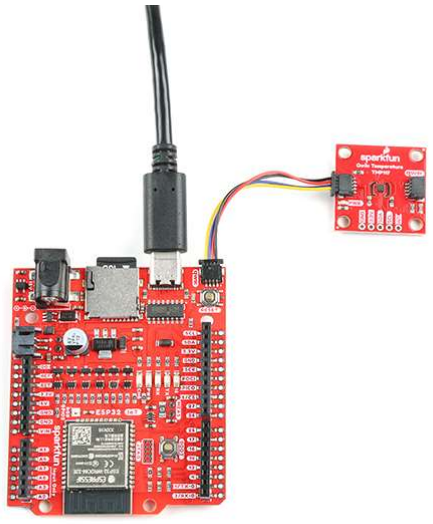


```
Hello World!
```

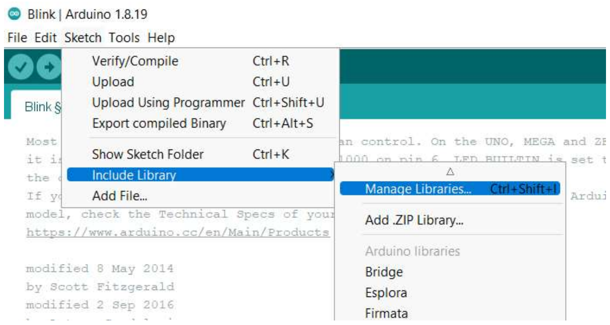
Example 4: I2C

Our Qwiic Ecosystem is a fantastic way to add plug and play functionality to your board. For this example, we're going to use the SparkFun High Precision Temperature Sensor - TMP117 (Qwiic) to do some quick (Qwiic) temperature readings.

The hookup is a breeze - simply plug one end of a Qwiic cable into the TMP117 and the other end into your IoT RedBoard ESP32!

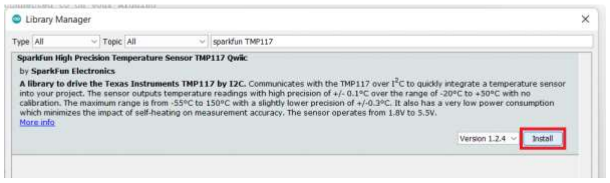


To find this example, you'll first need to install the Qwiic Library for whatever Qwiic Sensor you plan to use. For this example, go to **Sketch** > **Include Library** > **Manage Libraries** like so:


Blink | Arduino 1.8.19
File Edit Sketch Tools Help
Blink §
Verify/Compile Ctrl+R
Upload Ctrl+U
Upload Using Programmer Ctrl+Shift+U
Export compiled Binary Ctrl+Alt+S
Show Sketch Folder Ctrl+K
Include Library
Add File...
Manage Libraries... Ctrl+Shift+I
Add .ZIP Library...
Arduino libraries
Bridge
Esplora
Firmata

```
Most                                  an control. On the UNO, MEGA and ZE
it i                                  1000 on pin 6. LED_BUILTIN is set t
the
If y                                                                 Ardui
model, check the Technical Specs of your
https://www.arduino.cc/en/Main/Products

modified 8 May 2014
by Scott Fitzgerald
modified 2 Sep 2016
```

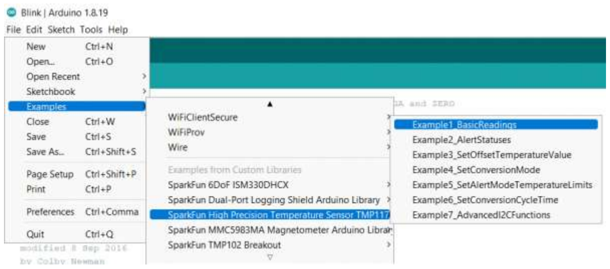
Search for **SparkFun TMP117** in the window that comes up and install the library:



SparkFun High Precision Temperature Sensor TMP117 Qwiic
by **SparkFun Electronics**
A library to drive the Texas Instruments TMP117 by I2C. Communicates with the TMP117 over I^{2}C to quickly integrate a temperature sensor into your project. The sensor outputs temperature readings with high precision of +/- 0.1°C over the range of -20°C to +50°C with no calibration. The maximum range is from -55°C to 150°C with a slightly lower precision of +/-0.3°C. It also has a very low power consumption which minimizes the impact of self-heating on measurement accuracy. The sensor operates from 1.8V to 5.5V.
More info

Having a hard time seeing details? Click the image for a closer look.

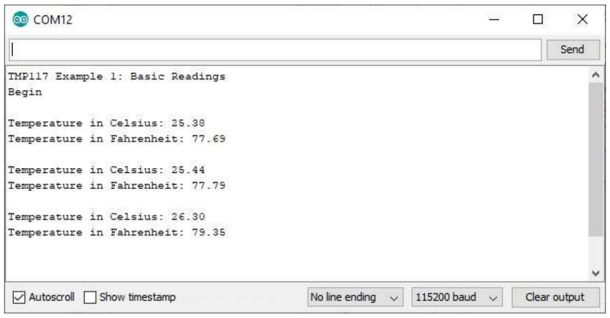
Great! Now that we have our library installed, we can run our example! Go to **File** > **Examples** > **SparkFun High Precision Temperature Sensor TMP117** > **Example1_BasicReadings**.


Blink | Arduino 1.8.19
File Edit Sketch Tools Help
New Ctrl+N
Open... Ctrl+O
Open Recent
Sketchbook
Examples
Close Ctrl+W
Save Ctrl+S
Save As... Ctrl+Shift+S
Page Setup Ctrl+Shift+P
Print Ctrl+P
Preferences Ctrl+Comma
Quit Ctrl+Q
WiFiClientSecure
WiFiProv
Wire
Examples from Custom Libraries
SparkFun 6DoF ISM330DHCX
SparkFun Dual-Port Logging Shield Arduino Library
SparkFun High Precision Temperature Sensor TMP117
SparkFun MMC5983MA Magnetometer Arduino Library
SparkFun TMP102 Breakout
Example1_BasicReadings
Example2_AlertStatuses
Example3_SetOffsetTemperatureValue
Example4_SetConversionMode
Example5_SetAlertModeTemperatureLimits
Example6_SetConversionCycleTime
Example7_AdvancedI2CFunctions

Select the correct board and port, as always, and hit that upload button!

This particular example will check to see if the TMP117 measured and averaged the temperature readings. If there is data ready, the TMP117 will notify us from the configuration register. When ready, we'll read the temperature registers and output it out to the Arduino serial monitor.

Open the serial monitor at **115200** baud to start reading the temperature readings. You should see something like the output below.



```
TMP117 Example 1: Basic Readings
Begin

Temperature in Celsius: 25.38
Temperature in Fahrenheit: 77.69

Temperature in Celsius: 25.44
Temperature in Fahrenheit: 77.79

Temperature in Celsius: 26.30
Temperature in Fahrenheit: 79.35
```

Try heating the sensor with your finger or lightly breathe some air across the sensor to watch the temperature values change! The third reading from the output shows the temperature rising after placing my finger on the temperature sensor. Remember, the sensor is taking a few readings and averaging them together before we are able see the output. Make sure to be patient with the output.

Troubleshooting

Need help?

If your product is not working as you expected or you need technical assistance or information, head on over to the SparkFun Technical Assistance page for some initial troubleshooting.

If you don't find what you need there, the SparkFun Forums are a great place to find and ask for help. If this is your first visit, you'll need to create a Forum Account to search product forums and post questions.

Resources and Going Further

Now that you've successfully got your SparkFun IoT RedBoard ESP32 Development Board up and running, it's time to incorporate it into your own project!

For more information, check out the resources below:

- Schematic
- Eagle Files
- Board Dimensions
- GitHub Hardware Repo

- How to Install CH340C Drivers
- Arduino Buying Guide
- Arduino IDE Download
- Qwiic Info Page
- Compare SparkFun RedBoards

Need some inspiration for your next project? Check out some of these related tutorials:

IoT Power Relay

Using the ESP32 to make a web-configured timed relay.

Programming the SparkFun Edge with Arduino

Running low-power machine learning examples on the SparkFun Edge can now be done using the familiar Arduino IDE. In this follow-up to the initial Edge tutorial, we'll look at how to get three examples up and running without the need to learn an entirely new SDK.

SparkFun QwiicBus Hookup Guide

Build a long-range, noise-isolated I2C bus with the SparkFun QwiicBus Kit featuring the QwiicBus EndPoint and MidPoint following this Hookup Guide.

MicroMod mikroBUS™ Carrier Board Hookup Guide

This carrier board takes advantage of the MicroMod, Qwiic, and the mikroBUS™ ecosystems and allows users to take advantage of the growing number of 7 MicroMod processor boards, 83 Qwiic (add-on) boards, and +1100 drop-in Click boards™, which equates to +51M different board combinations. Click to learn more.