W5500 Ethernet Shield v1.0 sku: 103030021

The W5500 Ethernet Shield v1.0 可以为您的项目提供互联网连接。W5500 使用户能够通过使用单芯片(其中有 TCP/IP stack, 10 / 100 Ethernet MAC 和 PHY embedded)来实现应用中的互联网连接。The W5500 Ethernet Shield v1.0 还具有两个 Grove 连接器和一个 microSD 卡插槽，用于支持需求在 Grove 传感器中存储大量数据的项目。 RJ45 端口（以太网线缆连接到的位置）足够低使得您可以使用更多的 shield。

产品特性

- 支持固线式 TCP/IP 协议 : TCP, UDP, ICMP, IPv4, ARP, IGMP, PPPoE
- 同时支持 8 个独立插座
- 支持掉电模式
- 支持通过 UDP 唤醒 LAN
- 支持高速串行外设接口 (SPI 模式 0, 3)
- 用于 TX/RX 缓冲器内部 32K 的字节内存
- 10BaseT/100BaseTX 以太网 PHY 嵌入式
- 支持自协商(全双工和半双工，10 和 100* based)
- 不支持 IP 分段
- 3.3V 操作，具有 5V I/O 信号容差
- LED 输出 (全/半双工,Link,速度,有效)
- Micro-SD 卡插槽
- 用于 I2C 和 UART 的 Grove 连接器

兼容性

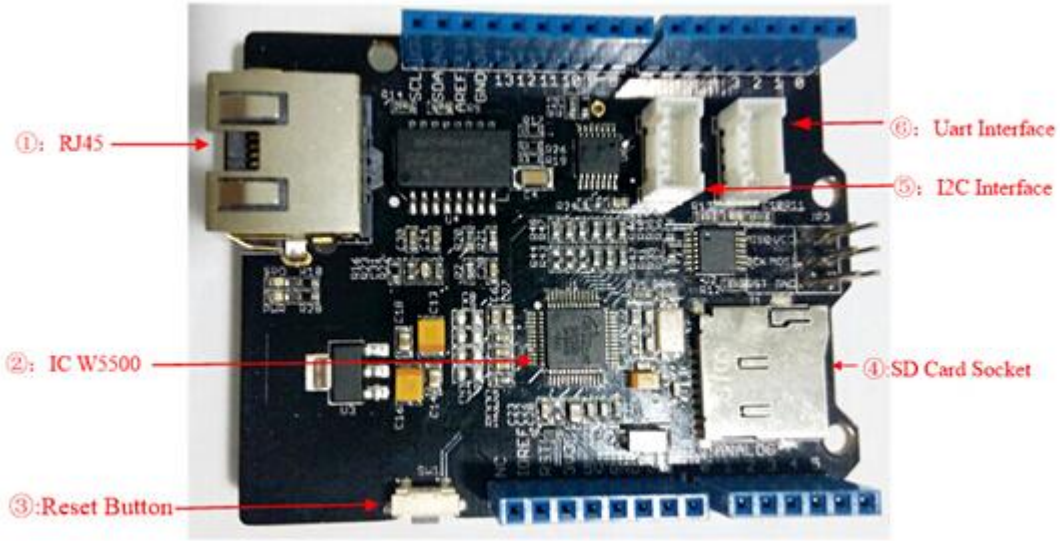
我们已经生产了大量扩展板，可以使您的平台板更加强大，但是并不是每个扩展板都与所有平台板兼容，我们在这里使用表格来说明扩展板和平台板之间的兼容性。

!!!note 请注意，“不推荐”意味着它可能与平台板兼容，但需要额外的工作，如跳线或重写代码。 如果您有兴趣发掘更多信息，欢迎与 techsupport@seeed.cc. 联系。

点击查看全图

	Arduino Uno Seeeduino v4.2	Arduino Mega Seeeduino Mega	Zero(m0) LoraWan	Arduino Leonardo Seeeduino Lite	Arduino 101	Arduino Due 3.3v	Intel Edison 5v	Linkit One
2.8'' TFT Touch Shield V2.0	bmp nonsupport	bmp nonsupport	Not recommended	bmp nonsupport	Not recommended	Not recommended	Not recommended	Not recommended
Base Shield V2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Camera Shield	Only Pin234567	Hardware Serial OK	Not recommended	Not recommended	Yes	Hardware Serial OK	No	No
EL Shield	Yes	Yes	No	Yes	No	No	No	No
Energy Shield	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
GPRS Shield	Not recommended	Not recommended	Yes	Yes	Yes	Not recommended	Yes	No need
Motor Shield V2.0	Yes	Stepper motor only	No	Yes	Stepper motor only	Stepper motor only	No	No
Music Shield V2.0	Yes	Yes	Not recommended	Yes	Yes	Yes	Yes	Yes
NFC Shield V2.0	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Protoshield Kit for Arduino	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RS232 Shield	Yes	Yes	No	Yes	No	No	No	No
Relay Shield V3.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SD Card Shield V4.0	Yes	Yes	Not recommended	Yes	Yes	Yes	No	No
Seeed BLE Shield V1	Yes	Not recommended	Not recommended	Yes	No need	Not recommended	Not recommended	No need
W5500 Ethernet Shield	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wifi Shield(Fi250) V1.1	Not recommended	Not recommended	Not recommended	Yes	Yes	Not recommended	No need	No need
Wifi Shield V2	Yes	Not recommended	Not recommended	Yes	Yes	Not recommended	No need	No need
XBee Shield V2	Yes	Not recommended	Not recommended	Yes	Yes	Not recommended	Not recommended	Not recommended

硬件概述



硬件配置

1. RJ45: 以太网端口;
2. IC W5500: 固线 TCP/IP 以太网控制器;
3. Reset Button: 重置 Ethernet shield ;
4. SD Card Socket: 支持 FAT16 或 FAT32 中的 Micro SD卡; 最大存储空间为 2GB。
5. I2C 接口
6. UART 接口

Arduino上的引脚用途

1. D4： SD card 芯片选择
2. D10： W5200 芯片选择

3. D11： SPI MOSI
4. D12： SPI MISO
5. D13： SPI SCK

Note

W5500 和 SD 卡都通过 SPI 总线与 Arduino 进行通信。 引脚 **10** 和引脚 **4** 是用于 W5500 和 SD 插槽的芯片选择引脚。它们不能用作通用 I/O 口。

使用方法

我们将向您展示一个例子。该示例可以将数据上传到网页，并将传感器数据存储到 SD 卡。

软件部分

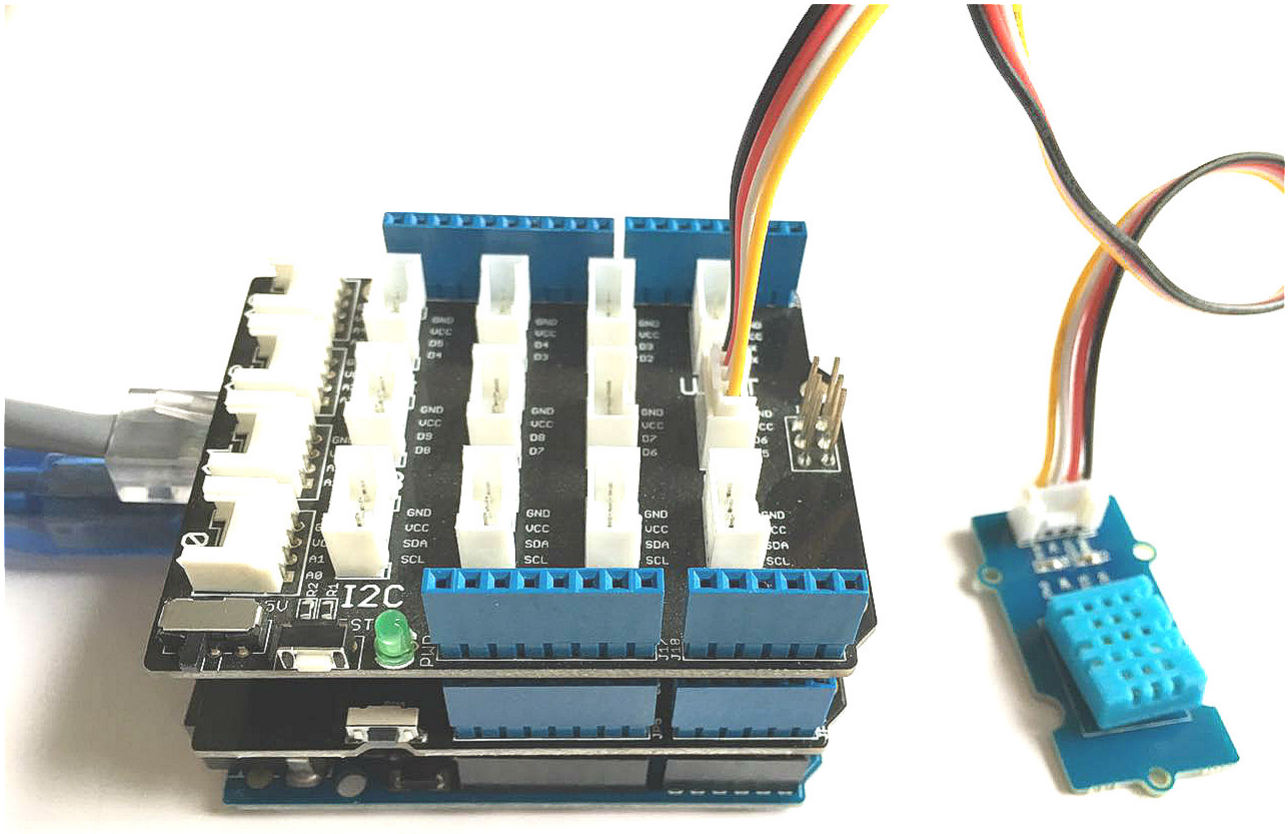
零件表：

名称	功能	数量
W5500 Ethernet Shield	提供以太网连接	1
Seeeduino V4.2	控制器	1
Grove-Temp&Humi Sensor	传感器	1
Base Shield V2	Base Shield	1
Micro SD Card	存储数据	1

步骤：

1. 在Arduino上安装 W5500 Ethernet Shield v1.0，在 Ethernet Shield 上安装 Base Shield V2，并将 Grove-Temp&Humi 传感器连接到 Base Shield **D5** Grove 端口，并附上SD卡。
2. 使用标准以太网线缆 Ethernet shield 连接到网络;

3. 通过 USB 线缆将 Arduino 连接到 PC;



软件部分

- 请按 怎样安装Arduino库 中的步骤来安装库文件。
- 点击下面的按钮以下载 SD 和 W5500 Ethernet Shield 库。

Download SD Library

Download W5500 Ethernet Shield V1.0 Library Library

- 下载完成后将库安装到 Arduino IDE 中。
- 将以下代码复制到 Arduino IDE 中，然后上传 :

```
//This sketch uses W5500 Ethernet Shield,Seeeduino V4.2,Grove-Temp&Humi,
//Base Shield V2 Sensor and Micro SD Card to design a temperature and humidity
collection station.
//attach the temperature and humidity sensor to base shield D5 grove port.
//It publishes the temperature and humidity data to webpage
//and refresh every 5 seconds, store the data into SD card datalog.txt file.

#include <SD.h>
```

```
#include <SPI.h>
#include <Ethernet.h>
#include <dht11.h>
dht11 DHT;
#define DHT11_PIN 5
const int chipSelect = 4;

// Please update IP address according to your local network
#if defined(WIZ550io_WITH_MACADDRESS) // Use assigned MAC address of WIZ550io
;
#else
byte mac[] = {0xDE, 0xAD, 0xBE, 0xEF, 0xFE, 0xED};
#endif
IPAddress ip(192,168,0,177);

// Initialize the Ethernet server library
// with the IP address and port you want to use
// (port 80 is default for HTTP):
EthernetServer server(80);

void setup() {
 // Open serial communications and wait for port to open:
  Serial.begin(9600);
   while (!Serial) {
    ; // wait for serial port to connect. Needed for Leonardo only
  }

  // start the Ethernet connection and the server:
#if defined(WIZ550io_WITH_MACADDRESS)
  Ethernet.begin(ip);
#else
  Ethernet.begin(mac, ip);
#endif
  server.begin();
  Serial.print("server is at ");
  Serial.println(Ethernet.localIP());

  //initializing the SD card
  Serial.print("Initializing SD card...");

  // see if the card is present and can be initialized:
  if (!SD.begin(chipSelect)) {
    Serial.println("Card failed, or not present");
    // don't do anything more:
    return;
  }
  Serial.println("card initialized.");
}


void loop() {
  // listen for incoming clients
  EthernetClient client = server.available();
  if (client) {
```

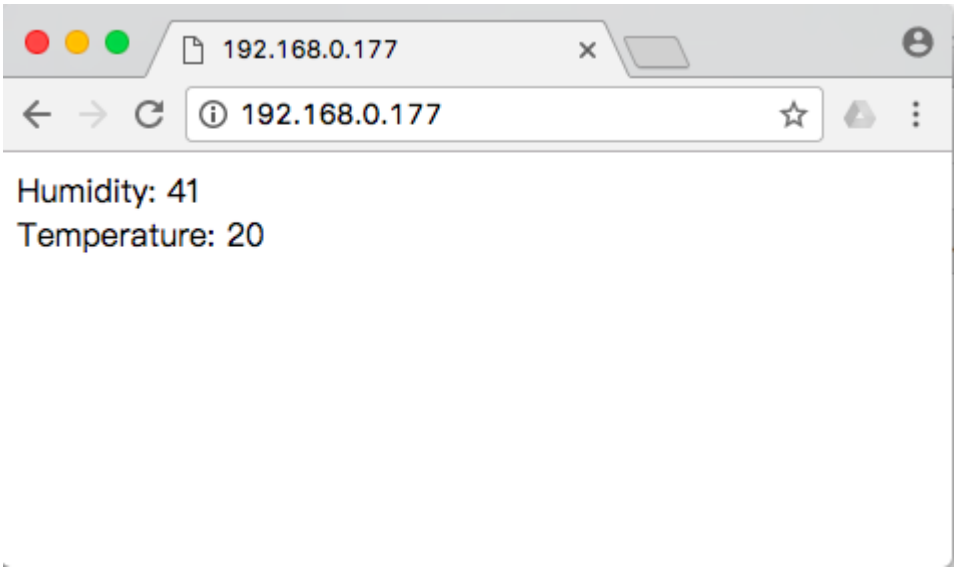
```
    Serial.println("new client");
    // an http request ends with a blank line
    boolean currentLineIsBlank = true;
    while (client.connected()) {
      if (client.available()) {
        char c = client.read();
        Serial.write(c);
        // if you've gotten to the end of the line (received a newline
        // character) and the line is blank, the http request has ended,
        // so you can send a reply
        if (c == '\n' && currentLineIsBlank) {
          // send a standard http response header
          client.println("HTTP/1.1 200 OK");
          client.println("Content-Type: text/html");
          client.println("Connection: close");  // the connection will be closed
after completion of the response
          client.println("Refresh: 5");  // refresh the page automatically every 5
sec
          client.println();
          client.println("<!DOCTYPE HTML>");
          client.println("<html>");

          // output the value of input pin on web
          int chk;
          chk = DHT.read(DHT11_PIN);    // READ DATA
          client.print("Humidity: ");
          client.print(DHT.humidity);
          client.println("<br />");
          client.print("Temperature: ");
          client.print(DHT.temperature);

          //write value of input pin into SD card
          // make a string for assembling the data to log:
          String dataString = "";
          // read the humidity and temperature and append to the string:
          dataString = String(DHT.humidity) + String(DHT.temperature);
          // open the file. note that only one file can be open at a time,
          // so you have to close this one before opening another.
          File dataFile = SD.open("datalog.txt", FILE_WRITE);
          // if the file is available, write to it:
          if (dataFile) {
          dataFile.println(dataString);
          dataFile.close();
          // print to the serial port too:
          Serial.println(dataString);
          }
          // if the file isn't open, pop up an error:
          else {
          Serial.println("error opening datalog.txt");
          }
          break;
        }
        if (c == '\n') {
          // you're starting a new line
```

```
            currentLineIsBlank = true;
          }
          else if (c != '\r') {
            // you've gotten a character on the current line
            currentLineIsBlank = false;
          }
        }
      }
      // give the web browser time to receive the data
      delay(1);
      // close the connection:
      client.stop();
      Serial.println("client disconnected");
    }
  }
```

结果展示

现在我们来看看结果。

1. 把您的 SD 卡放入电脑，您会看到一些温、湿度的信息。
2. 此外，我们可以从网络上查看信息。



可见使用是很容易的，您也试试吧。

资源下载

- **[Eagle文件]**W5500 Ethernet Shield in Eagle format
- **[原理图PDF]**W5500 Ethernet Shield Schematic in PDF format
- **[PCB图PDF]**W5500 Ethernet Shield PCB in PDF format
- **[库文件]**W5500 Ethernet Shield Library
- **[芯片数据手册]**W5500 Ethernet Shield Datasheet.pdf