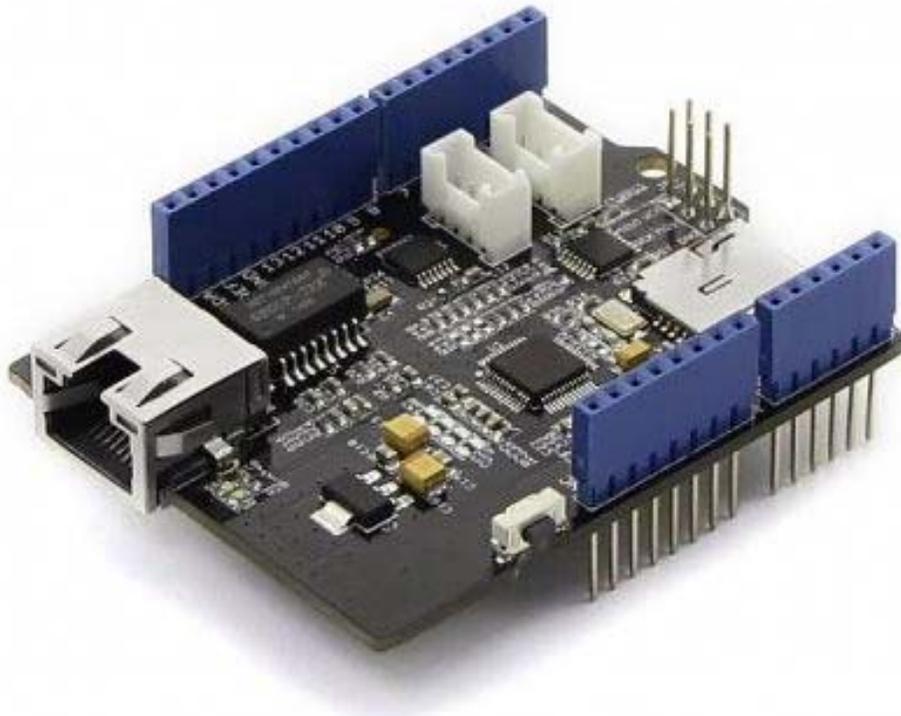




W5500 Ethernet Shield v1.0



The W5500 Ethernet Shield v1.0 can provide your projects with internet connectivity. W5500 enables users to have the Internet connectivity in their applications by using the single chip, in which TCP/IP stack, 10 / 100 Ethernet MAC and PHY embedded. The shield also has two Grove connectors and a microSD card socket to support projects which require storing large amounts of data from Grove sensor. The RJ45 port (where the Ethernet cable is connected to) is low enough to allow you to stack more shields on top of this one if needed.

Features

- Supports Hardwired TCP/IP Protocols : TCP, UDP, ICMP, IPv4, ARP, IGMP, PPPoE
- Supports 8 independent sockets simultaneously
- Supports Power down mode
- Supports Wake on LAN over UDP
- Supports High Speed Serial Peripheral Interface(SPI MODE 0, 3)
- Internal 32Kbytes Memory for TX/RX Buffers
- 10BaseT/100BaseTX Ethernet PHY embedded
- Supports Auto Negotiation (Full and half duplex, 10 and 100* based)
- Not supports IP Fragmentation
- 3.3V operation with 5V I/O signal tolerance
- LED outputs (Full/Half duplex, Link, Speed, Active)
- Micro-SD card socket
- Grove connectors for I2C and UART

Compatibility

We have produced a lot of extension boards that can make your platform board more powerful, however not every extension board is compatible with all the platform boards, here we use a table to illustrate the compatibilities between extension boards and platform boards.

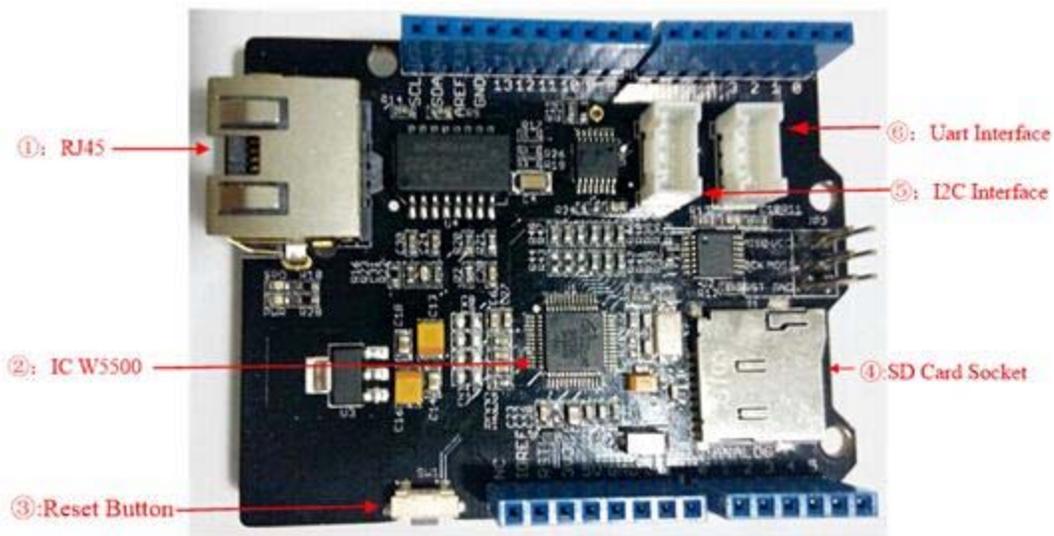
Note

Please note that "Not recommended" means that it might have chance to work with the platform board however requires extra work such as jump wires or rewriting the code. If you are interested in digging more, welcome to contact with techsupport@seeed.cc.

Click to see full

| | Arduino Uno Sceeduino v4.2 | Arduino Mega Sceeduino Mega | Zero(m0) LoraWan | Arduino Leonardo Sceeduino Lite | Arduino 101 | Arduino Due 3.3v | Intel Edison 5v | Linkit One |
|-----------------------------|-------------------------------|--------------------------------|---------------------|------------------------------------|--------------------|---------------------|--------------------|-----------------|
| 2.8" TFT Touch Shield V2.0 | bap nonsupport | bap nonsupport | Not recommended | bap 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 |
| Seed 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 |

Hardware Overview



Hardware Configuration

1. RJ45: Ethernet Port;
2. IC W5500: a hardwired TCP/IP Ethernet Controller;
3. Reset Button: Reset Ethernet shield ;
4. SD Card Socket: support Micro SD card in FAT16 or FAT32; maximum storage is 2GB.
5. I2C Interface
6. UART Interface

Pins usage on Arduino

1. D4 : SD card chip Selection
2. D10 : W5200 Chip Selection
3. D11 : SPI MOSI
4. D12 : SPI MISO
5. D13 : SPI SCK

Note

Both W5500 and SD card communicate with Arduino via SPI bus. Pin 10 and pin 4 are chip Selection pins for W5500 and SD slot. They cannot be used as general I/O.

Usage

We will show you an example. This example can upload data to webpage and store your sensor data to SD Card.

Hardware

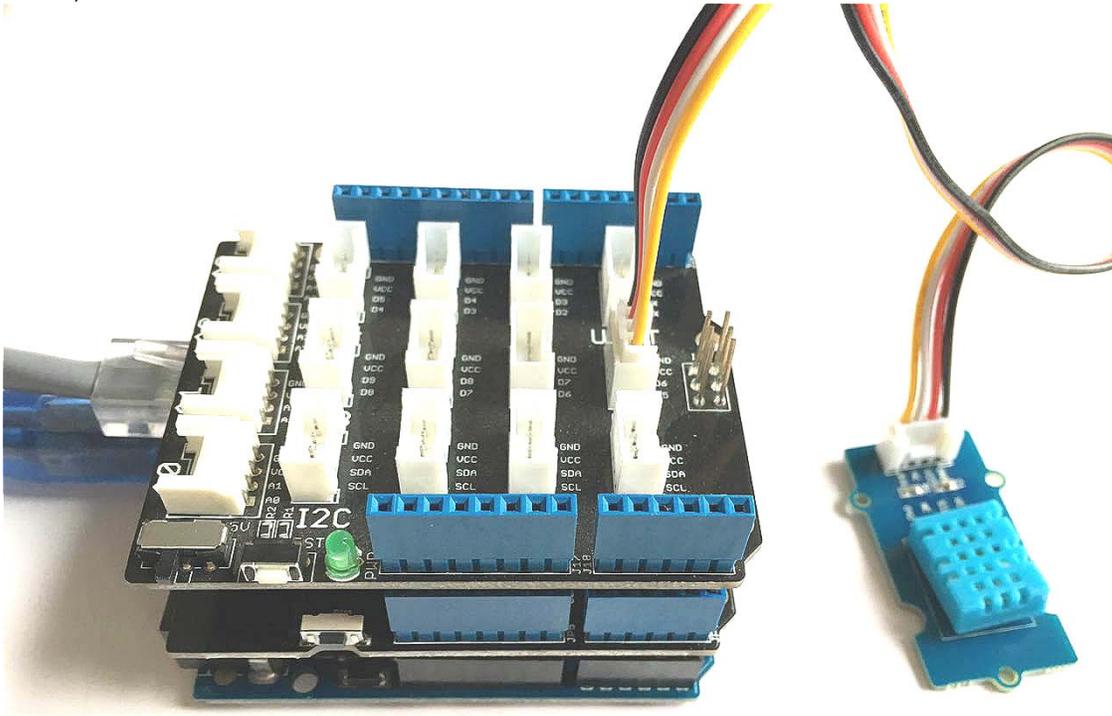
Part List:

| Name | Function | Qty |
|--|-------------------------------|-----|
| W5500 Ethernet Shield | Provide Ethernet connectivity | 1 |
| Seeeduino V4.2 | Controller | 1 |
| Grove-Temp&Humi Sensor | Sensor | 1 |
| Base Shield V2 | Base Shield | 1 |
| Micro SD Card | Store data | 1 |

Procedure:

1. Mount W5500 Ethernet Shield v1.0 on your Arduino, mount Base Shield V2 on Ethernet Shield, and connect Grove-Temp&Humi sensor to Base Shield D5 Grove port, attach the SD card.
2. Connect the Ethernet shield to network with a standard Ethernet cable;

3. Connect Arduino to PC via USB cable;



Software

- Please follow [how to install an arduino library](#) procedures to install library.
- Click on below button to download W5500 Ethernet Shield libraries.

Download W5500 Ethernet Shield V1.0 Library Library

- Install the library to your Arduino IDE when it is downloaded.
- Copy below code into sketch and then upload:

```
1//This sketch uses W5500 Ethernet Shield,Seeeduino V4.2,Grove-Temp&Humi,  
2//Base Shield V2 Sensor and Micro SD Card to design a temperature and humidity collection station.  
3//attach the temperature and humidity sensor to base shield D5 grove port.  
4//It publishes the temperature and humidity data to webpage  
5//and refresh every 5 seconds, store the data into SD card datalog.txt file.  
6  
7#include <SD.h>  
8#include <SPI.h>  
9#include <Ethernet.h>  
10#include <dht11.h>
```

```

11 dht11 DHT;
12 #define DHT11_PIN 5
13 const int chipSelect = 4;
14
15 // Please update IP address according to your local network
16 #if defined(WIZ550io_WITH_MACADDRESS) // Use assigned MAC address of WIZ550io
17 ;
18 #else
19 byte mac[] = {0xDE, 0xAD, 0xBE, 0xEF, 0xFE, 0xED};
20 #endif
21 IPAddress ip(192,168,0,177);
22
23 // Initialize the Ethernet server library
24 // with the IP address and port you want to use
25 // (port 80 is default for HTTP):
26 EthernetServer server(80);
27
28 void setup() {
29 // Open serial communications and wait for port to open:
30 Serial.begin(9600);
31 while (!Serial) {
32 ; // wait for serial port to connect. Needed for Leonardo only
33 }
34
35 // start the Ethernet connection and the server:
36 #if defined(WIZ550io_WITH_MACADDRESS)
37 Ethernet.begin(ip);
38 #else
39 Ethernet.begin(mac, ip);
40 #endif
41 server.begin();
42 Serial.print("server is at ");
43 Serial.println(Ethernet.localIP());
44
45 //initializing the SD card
46 Serial.print("Initializing SD card...");
47
48 // see if the card is present and can be initialized:
49 if (!SD.begin(chipSelect)) {
50 Serial.println("Card failed, or not present");
51 // don't do anything more:
52 return;
53 }
54 Serial.println("card initialized.");
55}
56
57
58 void loop() {
59 // listen for incoming clients
60 EthernetClient client = server.available();
61 if (client) {
62 Serial.println("new client");
63 // an http request ends with a blank line
64 boolean currentLineIsBlank = true;
65 while (client.connected()) {
66 if (client.available()) {

```

```

67 char c = client.read();
68 Serial.write(c);
69 // if you've gotten to the end of the line (received a newline
70 // character) and the line is blank, the http request has ended,
71 // so you can send a reply
72 if (c == '\n' && currentLineIsBlank) {
73     // send a standard http response header
74     client.println("HTTP/1.1 200 OK");
75     client.println("Content-Type: text/html");
76     client.println("Connection: close"); // the connection will be closed after completion of the
77 response
78     client.println("Refresh: 5"); // refresh the page automatically every 5 sec
79     client.println();
80     client.println("<!DOCTYPE HTML>");
81     client.println("<html>");
82
83     // output the value of input pin on web
84     int chk;
85     chk = DHT.read(DHT11_PIN); // READ DATA
86     client.print("Humidity: ");
87     client.print(DHT.humidity);
88     client.println("<br />");
89     client.print("Temperature: ");
90     client.print(DHT.temperature);
91
92     //write value of input pin into SD card
93     // make a string for assembling the data to log:
94     String dataString = "";
95     // read the humidity and temperature and append to the string:
96     dataString = String(DHT.humidity) + String(DHT.temperature);
97     // open the file. note that only one file can be open at a time,
98     // so you have to close this one before opening another.
99     File dataFile = SD.open("datalog.txt", FILE_WRITE);
100    // if the file is available, write to it:
101    if (dataFile) {
102        dataFile.println(dataString);
103        dataFile.close();
104        // print to the serial port too:
105        Serial.println(dataString);
106    }
107    // if the file isn't open, pop up an error:
108    else {
109        Serial.println("error opening datalog.txt");
110    }
111    break;
112 }
113 if (c == '\n') {
114     // you're starting a new line
115     currentLineIsBlank = true;
116 }
117 else if (c != '\r') {
118     // you've gotten a character on the current line
119     currentLineIsBlank = false;
120 }
121 }
122 }

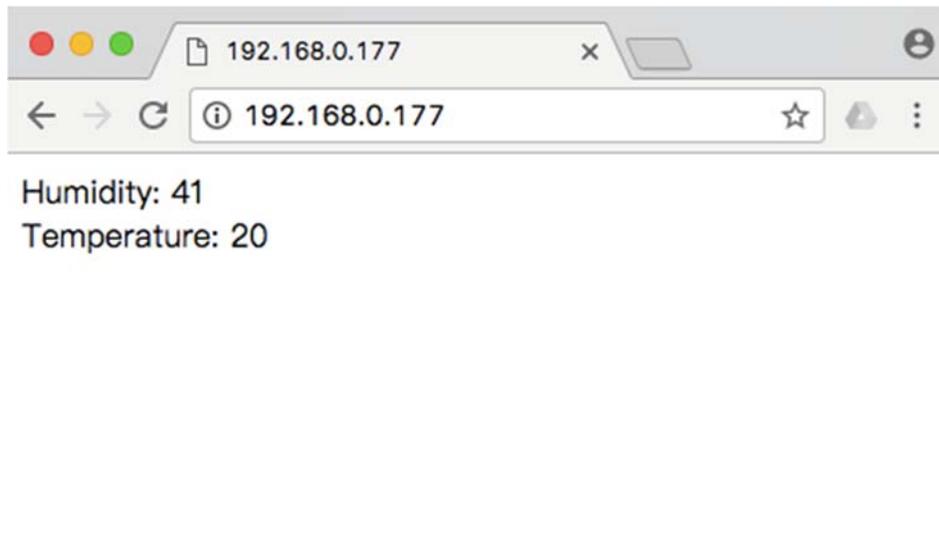
```

```
123 // give the web browser time to receive the data
124 delay(1);
125 // close the connection:
126 client.stop();
127 Serial.println("client disconnected");
128 }
}
```

Results

Now, we will show result.

1. Put your SD card into the computer, you will see some temperature and humidity information.
2. What's more, we can see information from web.



Isn't it very easy? You can begin your project.

Tech Support

Please submit any technical issue into our forum or drop mail to techsupport@seed.cc.