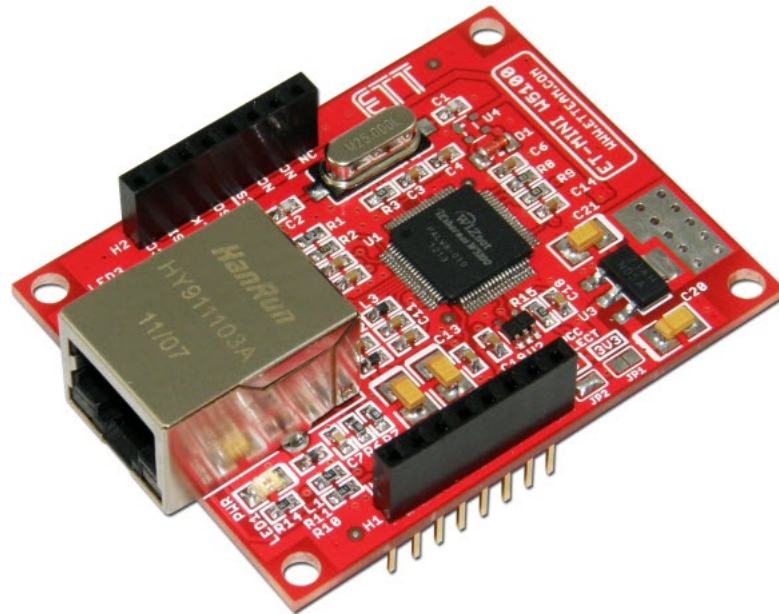


ET-MINI W5100

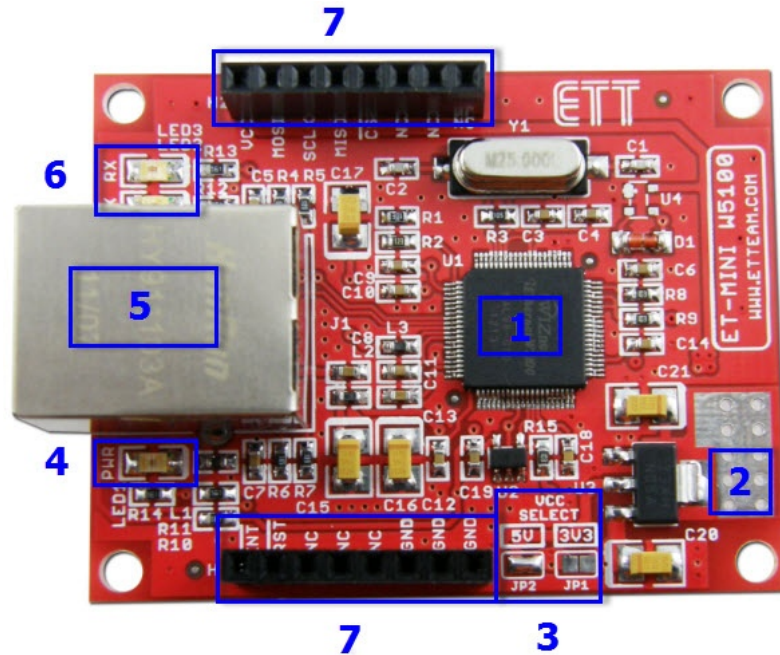


ET-MINI W5100 is Board that has been designed to be the intermediate between Microcontroller that has no any Ethernet Port and Ethernet Network. This board uses Chip Ethernet Controller No.W5100 from WIZnet Company. The strong point of this Chip number is to have Hardwired TCP/IP Stack internal chip, so it is unnecessary to write any Software TCP/IP stack from external. It is easier to use and it does not waste much resource of the connected microcontroller.

Specifications of ET-MINI W5100

- ❖ Use Chip No.W5100 from WIZnet to be IC Ethernet Controller that has Hardwired TCP/IP Stack internal chip
- ❖ Support the connection as TCP/IP Protocols TCP, UDP, ICMP, IPv4 ARP, IGMP, PPPoE, Ethernet
- ❖ Support the connection as 10BaseT/100BaseTX
- ❖ Connect with board by SPI BUS Interface
- ❖ Set Jumper to choose 3.3V and 5V Power Supply
- ❖ Can be used with Board ET-BASE AVR EASY328 directly
- ❖ PCB SIZE: 4.3 x 5.6cm.

Components of Board ET-MINI W5100



Picture 1 shows components of Board Et-MINI W5100.

1. It is Chip No.W5100 from WIZnet that is IC Ethernet Controller.
2. It is 3.3V Power Supply for board.
3. It is Jumper to choose VCC of board. For example, if using VCC 5V, it has to solder the Jumper JP2; or, if using VCC 3.3V, it has to remove lead at the position of J2 first and then solder Jumper JP1 instead (the product from company is set at VCC 5V).
4. It is LED to display the status of Power Supply of board.
5. It is Connector RJ45 to interface with LAN.
6. It is LED to display status of transmitting/receiving data; TX(transmit) and RX(receive).
7. It is Connector to interface with external board.

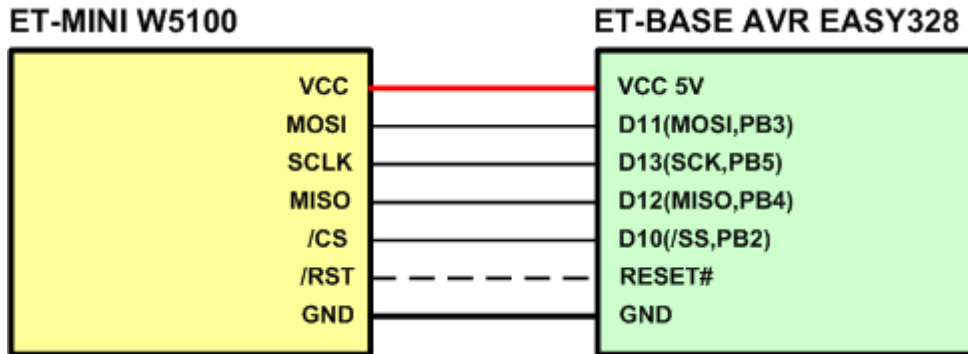
Detail of Pins on Board ET-MINI W5100

ET-MINI W5100	Signal Type	Description
VCC	POWER	This Pin Power Supply of Board that can be either 3.3V or 5V by setting Jumper.
MOSI	INPUT	It is Pin MASTER OUT SLAVE IN of SPI; this pin is interfaced with Pin MOSI of the connected Microcontroller.
SCLK	INPUT	Pin Clock of SPI
MISO	OUTPUT	IT is Pin MASTER IN SLAVE OUT of SPI; this pin is interfaced with Pin MISO of the connected Microcontroller.
/CS	INPUT	This pin is used to choose the operation of Chip W5100 and it runs by Logic 0.
NC	NC	Unused Pin
/INT	OUTPUT	It is Pin Interrupt to interface with external MCU. When it runs, it sends Logic 0 from this pin.
/RST	INPUT	This Pin resets the operation of Chip W5100 and it runs by Logic 0.

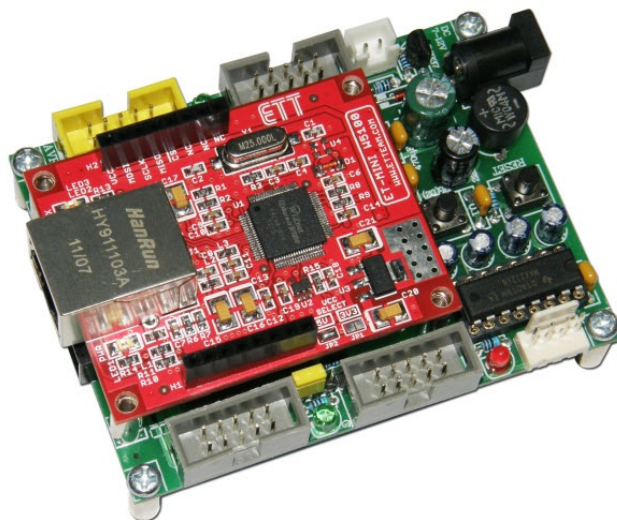
GND	POWER	Pin Ground of Board
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How to interface ET-MINI W5100 with Board ET-BASE AVR EASY328

When using Board ET-MINI W5100, it can interface Microcontroller through Pin SPI of Microcontroller. This example illustrates how to interface with Board ET-BASE AVR EASY328 as shown in the diagram in the picture 2 below. It shows how to connect 2 boards together; in this case, user can insert Board ET-MINI W5100 into the Connector of Board ET-BASE AVR EASY328 directly as shown in the picture 3.



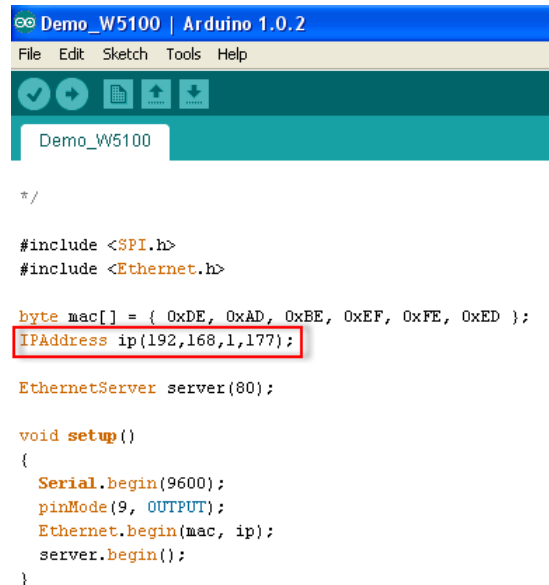
Picture 2 shows diagram of connecting Board ET-MINI W5100 with ET-BASE AVR EASY328.



Picture 3 shows how to assemble Board ET-MINI W5100 with Board ET-BASE AVR EASY328.

Example of testing WEB SERVER to control LED

1. After assembled both boards together, it provides Power Supply into Board ET-BASE AVR EASY328 and it connects Cable LAN from Board ET-MINI W5100 with user's Network. If interfacing with HUB, it needs to use Direct LAN or it uses Cross Line between computer and board.
2. Copy the example program "Demo_W5100" from CD-ROM and paste in computer.
3. Open Program Arduino and open the example program "Demo_W5100" as shown in the picture 4.



```

Demo_W5100 | Arduino 1.0.2
File Edit Sketch Tools Help

Demo_W5100

*/

#include <SPI.h>
#include <Ethernet.h>

byte mac[] = { 0xDE, 0xAD, 0xBE, 0xEF, 0xFE, 0xED };
IPAddress ip(192,168,1,177);

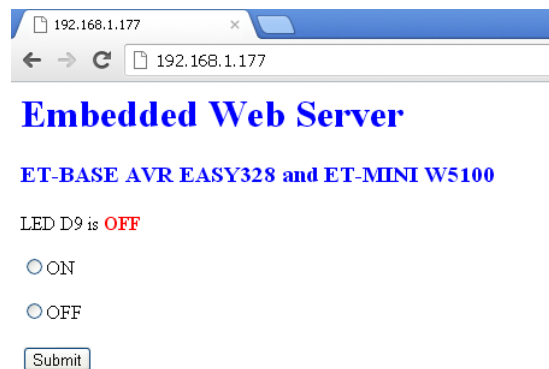
EthernetServer server(80);

void setup()
{
  Serial.begin(9600);
  pinMode(9, OUTPUT);
  Ethernet.begin(mac, ip);
  server.begin();
}

```

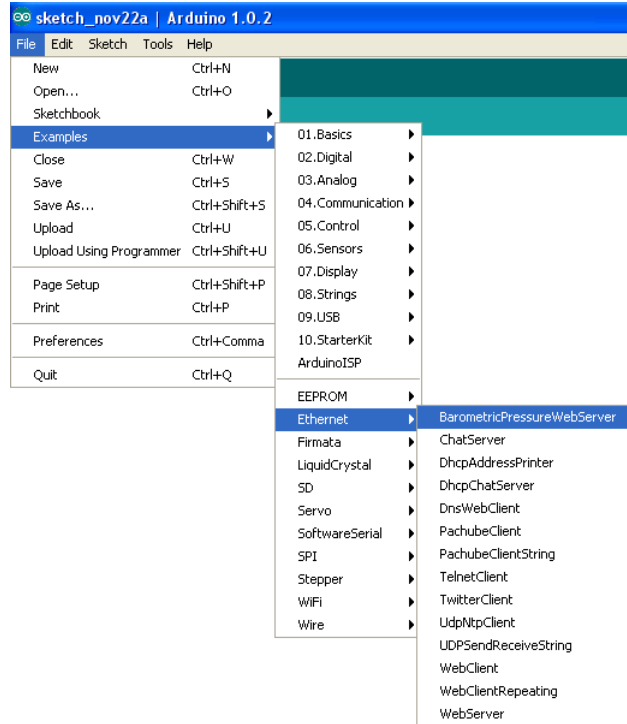
Picture 4 shows the example program "Demo_W5100".

4. Referred to the example program above, IP Address number of board is **192.168.1.177**; in this case, user can change the value as preferred.
5. Verify and Upload the program into Board ET-BASE AVR EASY328.
6. Open Program WEB Browser such as IE, Mozilla Firefox, or Google Chrome; next, type IP Address number as **192.168.1.177** in the box of **Address**, user can see web page as shown in the picture 5.



Picture 5 shows the example webpage.

7. Choose **ON** and click **Submit**, user can see LED D9 on Board ET-BASE AVR EASY328 is lit up. When choose **OFF** and click **Submit**, LED D9 is off.
8. Moreover, user can use the example that is provided with Program Arduino as shown in the picture 6.



Picture 6 shows the example program that is installed with Program Arduino.

