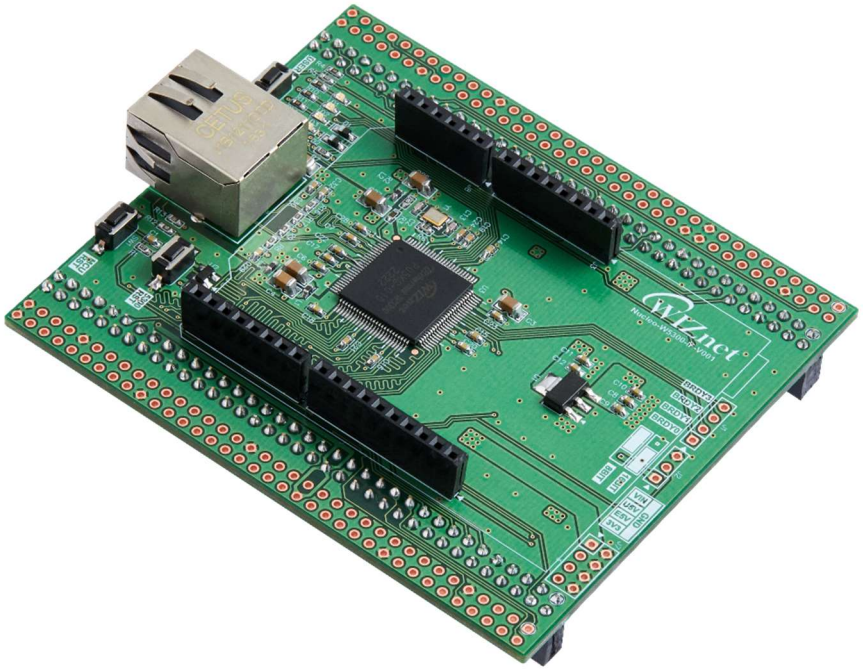
W5300 TOE Shield Datasheet

(Version 0.0.1)

2023-02-20



http://www.wiznet.io/

Features

W5300-TOE-Shield has the following specifications.

- W5300 - https://docs.wiznet.io/Product/iEthernet/W5300
- 3.3V – Available up to 800mA
- 16Bit, 8Bit communication options available
- 25 MHz Crystal Oscillator
- Ethernet compliant with IEEE-802.3-2002
- MCU, W5300, and User push-buttons
- Arduino Shield connector

Description

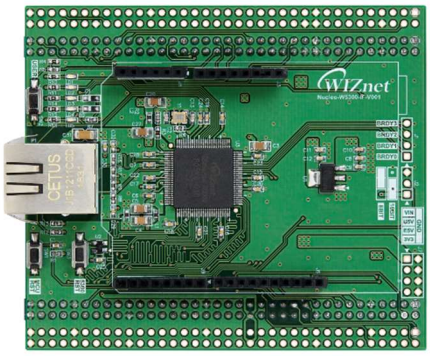
The W5300-TOE-Shield is a board that enables high-speed bus communication with the W5300 and ST's Coretex MCU. The W5300-TOE-Shield is a board that can be mounted on a Nucleo board. Individual actions cannot be performed without the Nucleo board, and only the Nucleo-F429 board is currently supported.

It also supports various shield boards in the form of Arduino Shield. However, the pinmap has changed a little in the process of using the W5300, so please refer to the pinmap below.

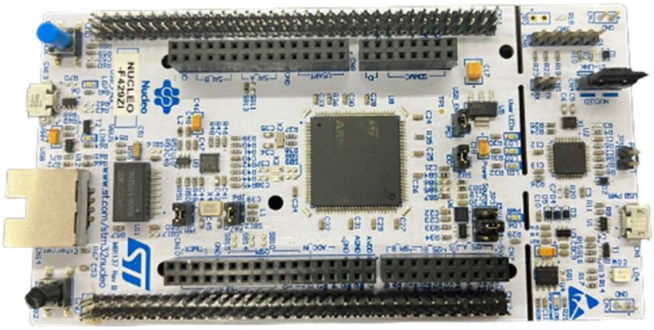
Hardware

Use it stacked on the Nucleo F429ZI board as shown in the picture below.

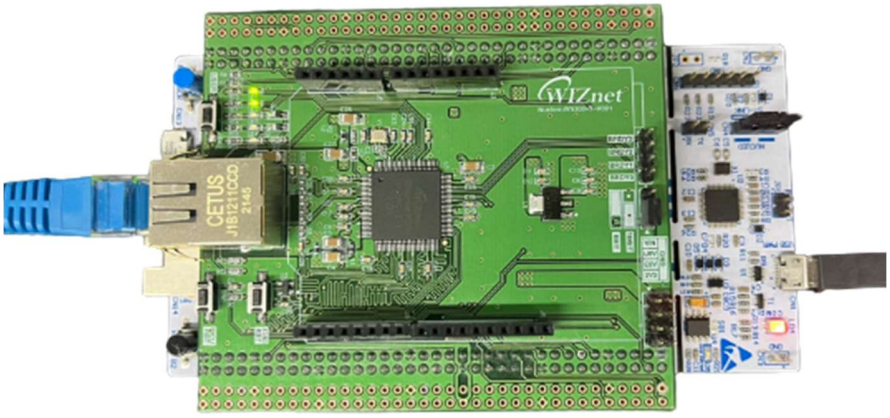
It cannot be used alone.



W5300-TOE-Shield

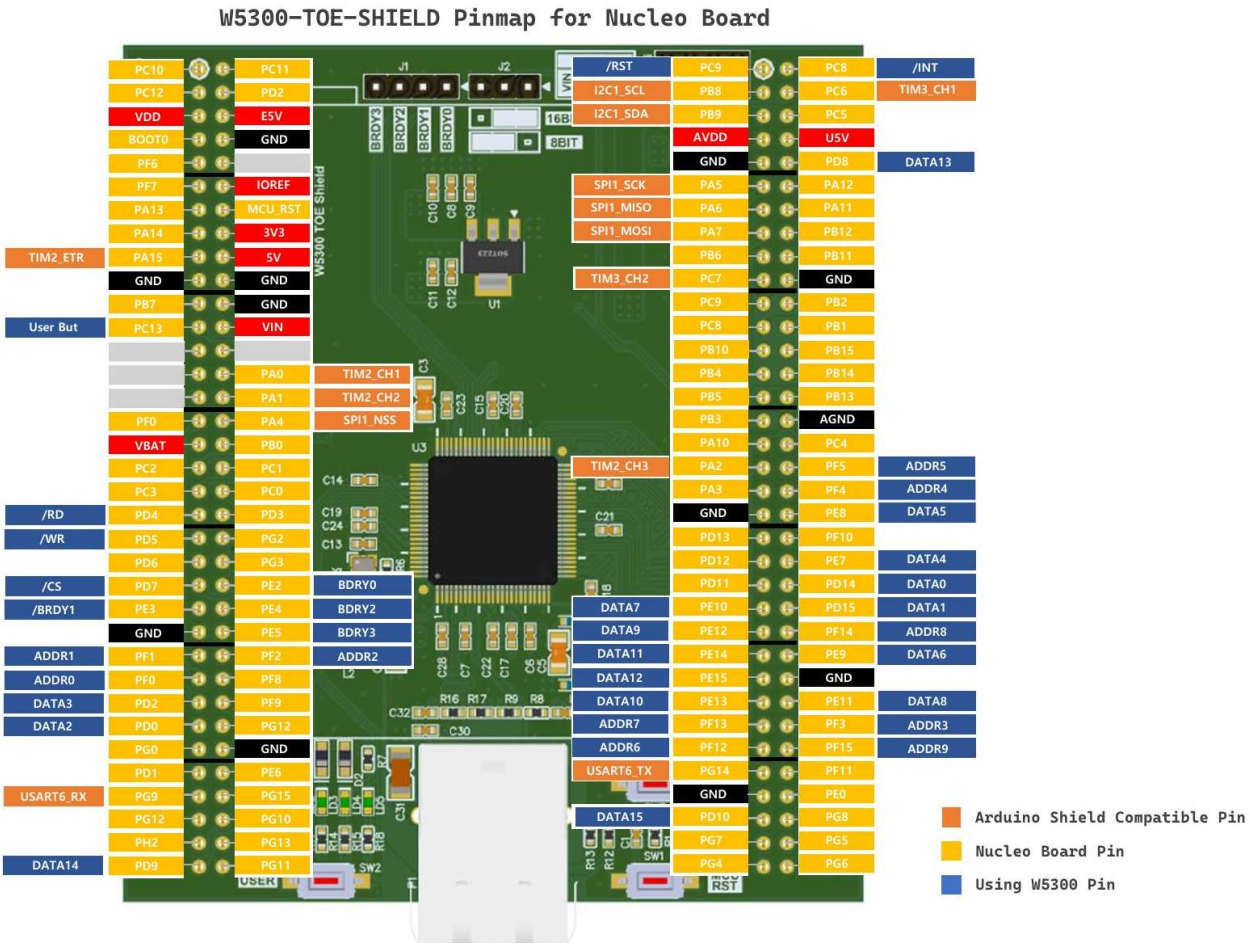


Nucleo F429ZI

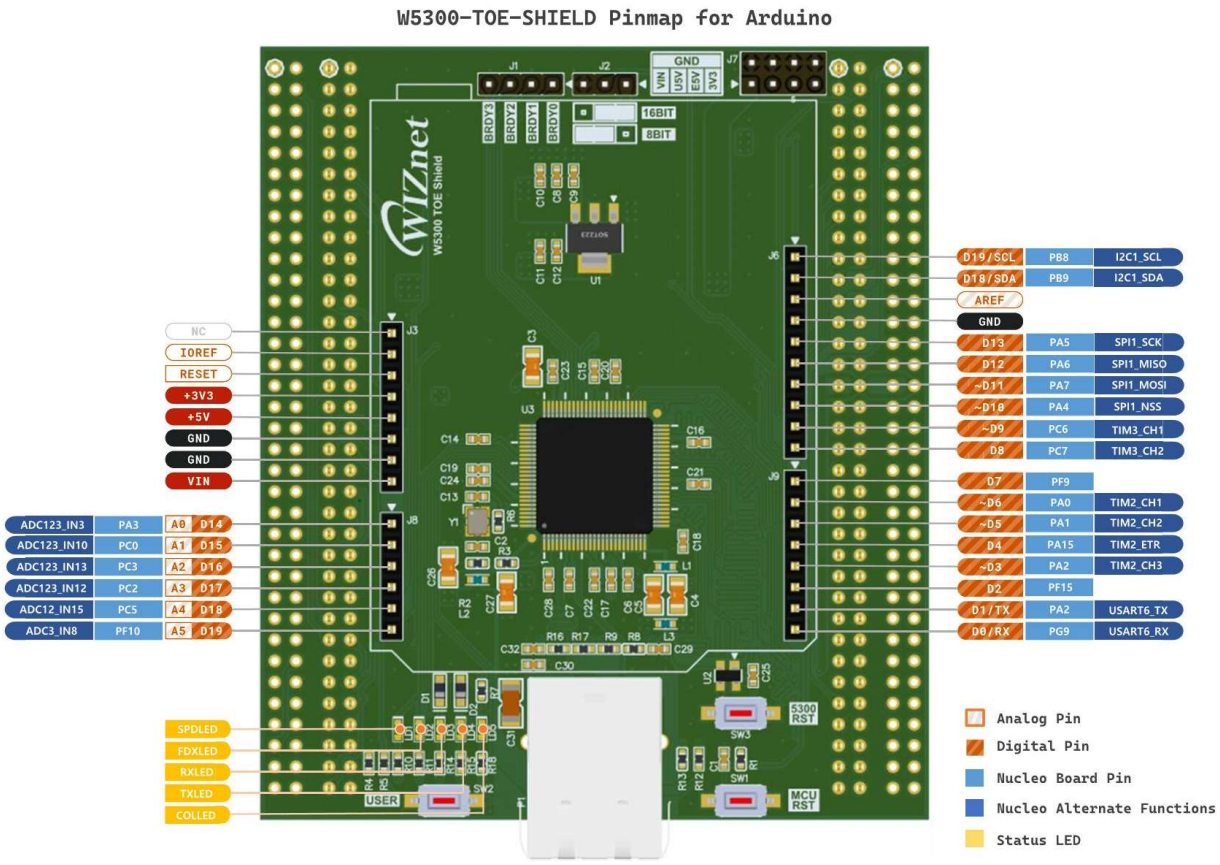


W5300-TOE-Shield + Nucleo F429ZI

Pinmap



Pinmap of the W5300-ToE-Shield connected to the Nucleo-429 board.



A pinmap of Arduino-Shield that can be mounted on the W5300-ToE-Shield.

Header Description

J4 – 35x2 Pin Header Socket

J4		Nucleo	W5300	Description
Pin	Type			
1	I/O	PC10	NC	
2	I/O	PC11	NC	
3	I/O	PC12	NC	
4	I/O	PD2	NC	
5	Power	VDD	NC	MCU Supply Power. Nucleo board datasheet reference
6	Power	E5V	NC	External power input pins. Nucleo board datasheet reference
7	Input	BOOT0	NC	
8	GND	GND	GND	
9	I/O	PF6	NC	
10	NC	NC	NC	
11	I/O	PF7	NC	
12	Power	IOREF	NC	Analog Power Input Nucleo IO Reference Setup Pin
13	I/O	PA13	NC	
14	-	MCU_RST	NC	Connection SW1
15	I/O	PA14	NC	
16	Power	3V3	3V3	Main +3.3V Power
17	I/O	PA15	NC	Connecting to Arduino D4 Nucleo Func : TIM2_ETR
18	Power	5V	5V	Main +5V Power
19	GND	GND	GND	
20	GND	GND	GND	
21	I/O	PB7	NC	
22	GND	GND	GND	

23	I/O	PC13	NC	User Button / Connecting to SW2
24	Power	VIN	NC	External power input pins. Nucleo board datasheet reference
25	NC	NC	NC	
26	NC	NC	NC	
27	NC	NC	NC	
28	Passive	PA0	NC	Connecting to Arduino D6 Nucleo Func : TIM2_CH1
29	NC	NC	NC	
30	I/O	PA1	NC	Connecting to Arduino D5 Nucleo Func : TIM2_CH2
31	I/O	PF0	NC	
32	I/O	PA4	NC	Connecting to Arduino D10 Nucleo Func : SPI1_NSS
33	Power	VBAT	NC	
34	I/O	PB0	NC	
35	I/O	PC2	NC	
36	I/O	PC1	NC	
37	I/O	PC3	NC	
38	I/O	PC0	NC	
39	Input	PD4	/RD	Connecting to W5300
40	I/O	PD3	NC	
41	Input	PD5	/WR	Connecting to W5300
42	I/O	PG2	NC	
43	I/O	PD6	NC	
44	I/O	PG3	NC	
45	Input	PD7	/CS	Connecting to W5300
46	Output	PE2	BDRY0	Connecting to W5300
47	Output	PE3	BDRY1	Connecting to W5300
48	Output	PE4	BDRY2	Connecting to W5300
49	GND	GND	GND	
50	Output	PE5	BDRY2	Connecting to W5300

51	I/O	PF1	ADDR1	Connecting to W5300
52	I/O	PF2	ADDR2	Connecting to W5300
53	I/O	PF0	ADDR0	Connecting to W5300
54	I/O	PF8	NC	
55	I/O	PD2	DATA3	Connecting to W5300
56	I/O	PF9	NC	
57	I/O	PD0	DATA2	Connecting to W5300
58	I/O	PG12	NC	
59	I/O	PG0	NC	
60	GND	GND	GND	
61	I/O	PD1	NC	
62	I/O	PE6	NC	
63	I/O	PG9	NC	Connecting to Arduino D0 Nucleo Func : USART6_RX
64	I/O	PG15	NC	
65	I/O	PG12	NC	
66	I/O	PG10	NC	
67	I/O	PH2	NC	
68	I/O	PG13	NC	
69	I/O	PD9	DATA14	Connecting to W5300
70	I/O	PG11	NC	

J3 – 8x1 Pin Header Socket

J3		Nucleo	Arduino	Description
Pin	Type			
1	NC	NC	NC	
2	Power	IOREF	IOREF	IO Voltage Level Reference Setup
3	Input	RESET	RESET	
4	Power	3V3	3V3	
5	Power	5V	5V	

6	GND	GND	GND	
7	GND	GND	GND	
8	Power	VIN	VIN	

J8 – 6x1 Pin Header Socket

J8		Nucleo	Arduino	Description
Pin	Type			
1	I/O	PA3	A0	Nucleo Func : ADC123_IN3
2	I/O	PC0	A1	Nucleo Func : ADC123_IN10
3	I/O	PC3	A2	Nucleo Func : ADC123_IN13
4	I/O	PC2	A3	Nucleo Func : ADC123_IN12
5	I/O	PC5	A4	Nucleo Func : ADC123_IN15
6	I/O	PF10	A5	Nucleo Func : ADC123_IN8

J6 – 10x1 Pin Header Socket

J6		Nucleo	Arduino	Description
Pin	Type			
1	I/O	PB8	D19	Nucleo Func : I2C1_SCL
2	I/O	PB9	D18	Nucleo Func : I2C1_SDA
3	Power	AVDD	AREF	Analog Power Reference Setup
4	GND	GND	GND	
5	I/O	PA5	D13	Nucleo Func : SPI1_SCK
6	I/O	PA6	D12	Nucleo Func : SPI1_MISO
7	I/O	PA7	D11	Nucleo Func : SPI1_MOSI
8	I/O	PA4	D10	Nucleo Func : SPI1_NSS
9	I/O	PC6	D9	Nucleo Func : TIM3_CH1
10	I/O	PC7	D8	Nucleo Func : TIM3_CH2

J6 – 8x1 Pin Header Socket

J6		Nucleo	Arduino	Description
Pin	Type			
1	I/O	PF9	D7	
2	I/O	PA0	D6	Nucleo Func : TIM2_CH1
3	I/O	PA1	D5	Nucleo Func : TIM2_CH2
4	I/O	PA15	D4	Nucleo Func : TIM2_ETR
5	I/O	PA2	D3	Nucleo Func : TIM2_CH3
6	I/O	PF15	D2	
7	I/O	PG14	D1	Nucleo Func : USART6_TX
8	I/O	PG9	D0	Nucleo Func : USART6_RX

J7 – 4x2 Pin Header Socket

J7		Description
Pin	Type	
1	VIN	Pin used to operate on an external power source. You can input up to 15V. Nucleo board datasheet reference
2	GND	Ground
3	U5V	It is set as default on the Nucleo board. Input power to the USB connector on the ST Link side of the Nuclo board. Nucleo board datasheet reference
4	GND	Ground
5	E5V	
6	GND	Ground
7	3V3	
8	GND	Ground

DC Characteristics

Sym	Parameter	Test Condition	Min	Typ	Max	Unit
V_{DD}	DC Supply voltage	Junction temperature is from -55ºC to 125ºC	3.0	3.3	3.6	V
V_{IH}	High level input voltage		2.0		5.5	V
V_{IL}	Low level input voltage		-0.5		0.5	V
V_{OH}	High level output voltage	I_{OH} = 2 ~ 16mA	2.4			V
V_{OL}	Low level output voltage	I_{OL} = -2 ~ -12mA			0.4	V
I_I	Input Current	V_{IN} = VDD			±5	uA
I_O	Output Current	V_{OUT} = V_{DD}	2		8	mA

Schematics