

PRODUCT GUIDE

Apr 2024

Chip

IOP (Internet Offload Processor)

iEthernet (Ethernet Controller)

Module

Serial to Ethernet Module

Network Module

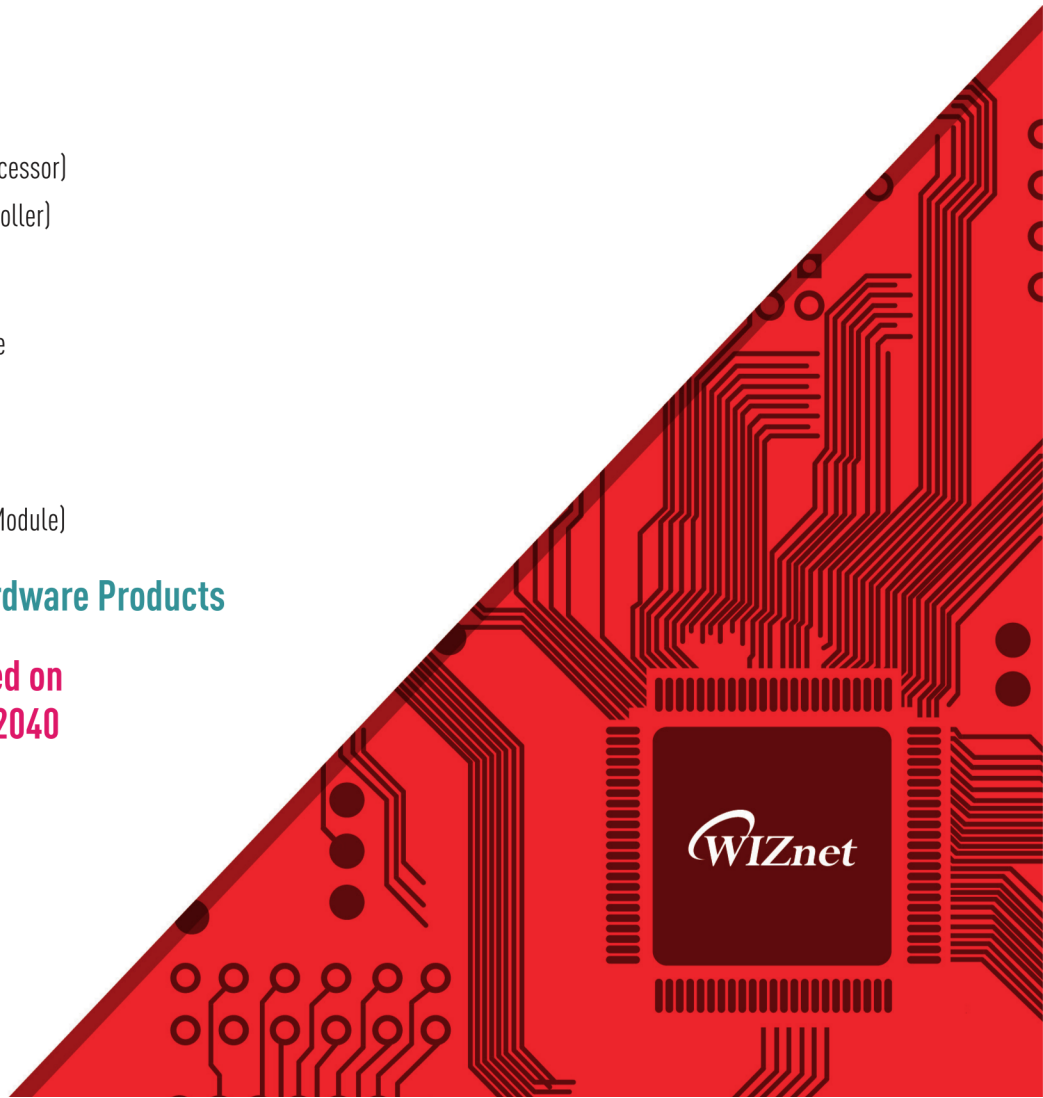
Wireless

WizFi (Embedded Wi-Fi Module)

Open-Source Hardware Products

Eval Boards based on
Raspberry Pi RP2040

WIZnet TOE

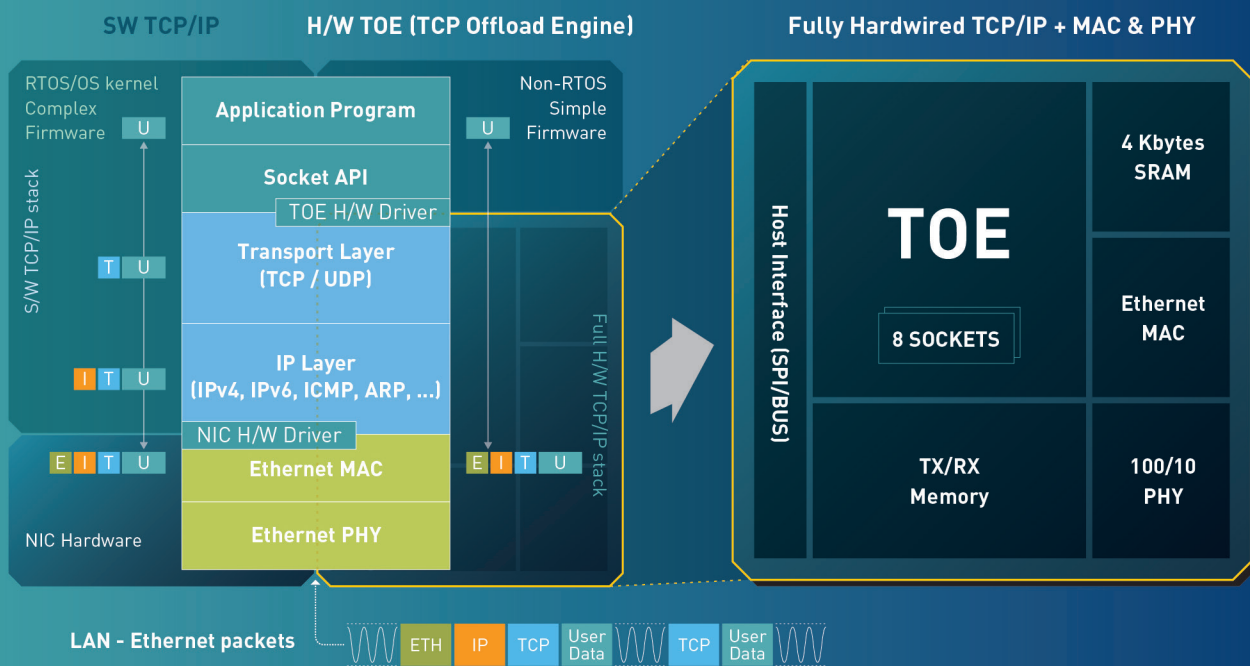


WIZnet TOE(TCP/IP Offload Ethernet) :

Transforming Network Performance

Why choose WIZnet TOE?

Our technology reflects our commitment to delivering innovative solutions that meet your evolving needs.



Trust in WIZnet for

Reliability : Built to last and stand the test of time.

Performance : Ensuring smooth and efficient functionality

Future-Proofing : We're shaping the future of connectivity so you can stay ahead.

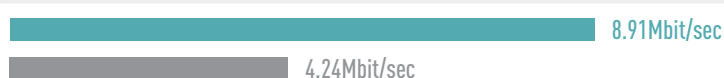
Advantages of TCP/IP Offload Ethernet

The TCP Offload Ethernet (TOE) streamlines network data processing, enhancing efficiency and alleviating the strain on the CPU. The below graph compares the iPerf performance of TOE with LWIP, the most widely used software stack, highlighting TOE's superior capabilities

W6100

TOE

LWIP



* Tested on RP2040, 10Mbps network bandwidth

ioMCU

internet offload MCU

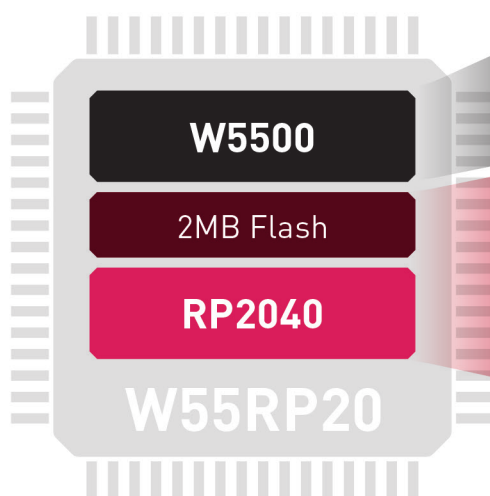
Tandem surfing ioMCU combines
network accelerator TOE and Microcontroller



W55RP20

On-Chip TLS
Custom-made: Serial to Ethernet

SiP



TOE

Ethernet

TCP

UDP

Pre-Programmed & Custom Service

Modbus

Serial

CoAP

TLS

WebServer

Cloud

HTTP(S)

MQTT(S)

OTA



Raspberry Pi
Design Partner



Chip

IOP (Internet Offload Processor)

W7500P



W7500

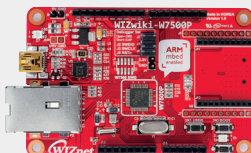


Embedded Core	ARM Cortex-M0, TCP/IP, Ethernet MAC, PHY	ARM Cortex-M0, TCP/IP, Ethernet MAC
Flash	128KB	128KB
SRAM	16KB	16KB
Tx/Rx Buffer	32KB (available for SRAM)	32KB (available for SRAM)
Socket #	8	8
Network Performance	Up to 25Mbps	Up to 25Mbps
Operation Temp (°C)	0 ~ 80	-40 ~ 85
Package	64TQFP : 7 x 7 (mm)	64TQFP : 7 x 7 (mm)

WIZwiki-W7500P

WIZwiki-W7500

Evaluation Board



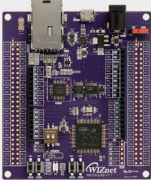
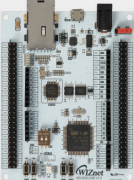
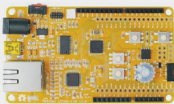
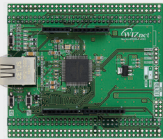
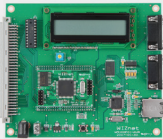
Pre-Programmed Chip

S2E Firmware
10/100 Ethernet
MAC/PHY

Available as Pre-programmed Chip: W7500(P)-S2E

- Ready to use with built-in Serial-to-Ethernet firmware
- Includes a unique MAC address
- Firmware customization service provided

iEthernet (Ethernet Controller)

	W6100	W5100S	W5500	W5300	W5100
					
Embedded Core	TCP, IPv4/IPv6, MAC, PHY	TCP/IPv4, MAC, PHY	TCP/IP, MAC, PHY	TCP/IP, MAC, PHY	TCP/IP, MAC, PHY
Host I/F	Fast SPI, 8bit BUS	Fast SPI, 8bit BUS	Fast SPI	8/16bit BUS, SPI	8bit BUS, SPI
Tx/Rx Buffer	32KB	16KB	32KB	128KB	16KB
Socket #	8	4	8	8	4
Process	0.11μm	0.11μm	0.13μm	0.18μm	0.18μm
Network Performance	Up to 25Mbps	Up to 25Mbps	Up to 15Mbps	Up to 80Mbps	Up to 25Mbps
Low Power & WoL	Yes	Yes	Yes	No	No
Auto-MDIX	Yes	Yes	No	Yes	Yes
Operation Temp (°C)	-40 ~ 85	-40 ~ 85	-40 ~ 85	-40 ~ 85	-40 ~ 85
Package	48LQFP, 48QFN	48LQFP, 48QFN	48LQFP : 7 x 7 (mm)	100LQFP : 14 x 14 (mm)	80LQFP : 10 x 10 (mm)
	W6100-EVB	W5100S-EVB	W5500-EVB	W5300-TOE-Shield	W5100E01-AVR
Evaluation Board					

Main Features

- Hardware network engine immune to attacks like flooding, spoofing, and injection, ensuring network security.
- Integrated support for essential TCP/IP protocols: TCP, UDP, ICMP, IPv4, ARP, IGMP, PPPoE.
- User-friendly interface, offering simple and memory-like control.
- Ensures stable, high-performance network and data communication.
- Operates at 3.3 V with tolerance for 5V I/O signals.

Module

Serial to Ethernet Module

	WIZ750SR	WIZ750SR-100	WIZ750SR-105	WIZ750SR-110	WIZ750SR-120	WIZ750SR-125	WIZ550S2E
							
MCU	W7500P	W7500	W7500	W7500	W7500	W7500	Cortex-M0
Ethernet IC	W7500P (Internal PHY)	IP101GRI (PHY)	IP101GRI (PHY)	IP101GRI (PHY)	IP101GRI (PHY)	IP101GRI (PHY)	W5500
Serial Interface	UART (3.3V)	UART (3.3V)	UART (3.3V)	RS232C	UART (3.3V)	RS232C	UART (3.3V)
Ethernet Interface	RJ45	Pin Header	RJ45	RJ45	Pin Header	RJ45	RJ45
Serial Interface Number	1	1	1	1	2	2	1
Pin Header	Two 1 x 6, 2 x 6, 1 x 2	Two 1 x 12	2 x 6	N/A	Two 1 x 14	N/A	Two 1 x 9
Pin Pitch	2.54mm	2mm	2mm	N/A	2mm	N/A	2.54mm
DB-9	No	No	No	Yes	No	Yes	No
Operation Voltage	3.3V	3.3V	3.3V	5V	3.3V	5V	3.3V
Max. Power Consumption	95mA(RS-422/485)	90mA	90mA	95mA	90mA	95mA	179mA
Operation Temp [°C]	0 ~ 70	-40 ~ 85	-40 ~ 85	-40 ~ 85	-40 ~ 85	-40 ~ 85	0 ~ 80
Dimension (mm)	48 x 30 x 18	50 x 30 x 12	40 x 62 x 17	75 x 50 x 17	50 x 30 x 9	60 x 89 x 18	55 x 30 x 23.49
Evaluation Board	WIZ750SR-EVB TTL/RS-232 Type RS-422/485 Type	WIZ750SR-100-EVB	WIZ750SR-105-EVB	N/A	WIZ750SR-120-EVB	N/A	WIZ550S2E-EVB

Main Features of Serial-to-Ethernet Modules

- Firmware and hardware resources are publicly accessible on GitHub.
- Customization services for both hardware and firmware are offered.
- A range of configuration tools is available to enhance user experience.

W7500S2E-R1



W5500S2E-Z1



W5500S2E-S1



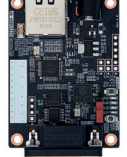
WIZ500SR-RP



WIZ505SR-RP



WIZ510SR-RP



MCU	W7500	STM32F103	STM32F103	RP2040	RP2040	RP2040
Ethernet IC	W7500 + IP101GRI	W5500	W5500	W5100S	W5100S	W5100S
Serial Interface	TTL	TTL	TTL	UART (3.3V)	UART (3.3V)	RS232C
Ethernet Interface	RJ45	TTL	TTL	Pin Header	RJ45	RJ45
Serial Interface Number	1	1	1	1	1	1
Pin Header	1 x 11, 1 x 12	1 x 11, 1 x 12	3 x 7	1 x 12, 2 x 12	2 x 7	N/A
Pin Pitch	2.54mm	2.54mm	2.54mm	2mm	2.54mm	N/A
DB-9	No	No	No	No	No	Yes
Operation Voltage	3.3V	5V	3.3V	3.3V	3.3V	5V
Max. Power Consumption	220mA	350mA	350mA	120mA	125mA	130mA
Operation Temp [°C]	-40 ~ 85	-40 ~ 85	-40 ~ 85	-20 ~ 85	-20 ~ 85	-20 ~ 85
Dimension (mm)	44.45 x 31.75 x 23.00	44.45 x 31.75 x 15.75	34.00 x 24.00 x 12.40	30 x 50 x 12	40 x 62 x 18	75 x 45 x 18
Evaluation Board	WIZSE breakboard	WIZSE breakboard	WIZSE breakboard	WIZ500SR-RP-EVB WIZ505SR-RP-EVB	WIZ505SR-RP-EVB	N/A



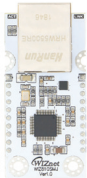
Introducing Secure Networking with WIZ5xxSR-RP series



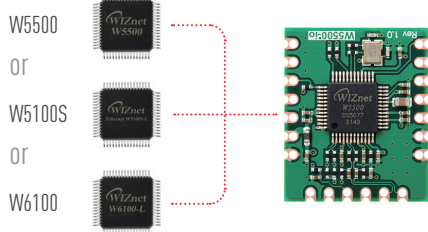
- First to Support SSL/TLS: Ensures secure data transmission for high-security applications.
- High Performance: Ideal for IoT and industrial applications.
- Easy Integration: Simplifies the addition of secure networking to existing products.

Network Module

- Plug-in Internet Offload module with iEthernet chip & Mag Jack
- Usable without h/w design for iEthernet chip, transformer and RJ-45

	WIZ810Sio	WIZ810SMJ	WIZ850io	WIZ550io	WIZ830MJ	WIZ810MJ	WIZ610io	WIZ610MJ
								
Embedded Block	W5100S, MagJack	W5100S, MagJack	W5500, MagJack	W5500, MagJack	W5300, MagJack	W5100, MagJack	W6100	W6100
Host Interface	SPI	8bit Indirect Bus, SPI	SPI	8/16 bit Bus	8bit Bus, SPI	SPI	SPI	SPI, 8bit bus
HW Socket	4	4	8	8	8	4	8	8
Auto MDIX	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Ethernet Interface	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45
Pin Header	Two 1 x 6	Two 1 x 10	Two 1 x 6	1 x 8, 1 x 6	Two 2 x 14	N/A	Two 1 x 6	Two 1 x 6
Pin Pitch	2.54mm	2.54mm	2.54mm	2.54mm	2.54mm	2.54mm	2.54mm	2.54mm
MAC Address	No	No	No	Yes	No	No	No	No
Operation Temp [°C]	-40 ~ 85	-40 ~ 85	-40 ~ 85	-40 ~ 85	-40 ~ 85	-40 ~ 85	-40 ~ 85	-40 ~ 85
Dimension (mm)	23 x 25 x 18	55.5 x 25 x 23.5	23 x 25 x 18	54 x 26 x 24	53.3 x 34 x 19.5	52 x 25 x 21	23 x 25 x 23.5	25 x 52 x 23

W5100S/W5500/W6100-io Modules



Surface mountable Internet Offload modules

- Hardwired TCP/IP offered in 3 variants, designed with W5500, W5100S or W6100
- Host interface: SPI
- Pin headers: Two 1 x 7 (2.54mm), One 1 x 6 (2.54mm)
- Compact size (only 20 x 24 x 3 mm)
- Industrial temperature grade: -40 ~ 85

Eval Boards running on Raspberry Pi MCU

EVB-Pico Family boards Improved with PoE upgrade

EVB-Pico Board features:

- Identical pinout with Raspberry Pi Pico / Pico W
- Available in W5500 or W5100S versions
- PoE enabled via add-on Module

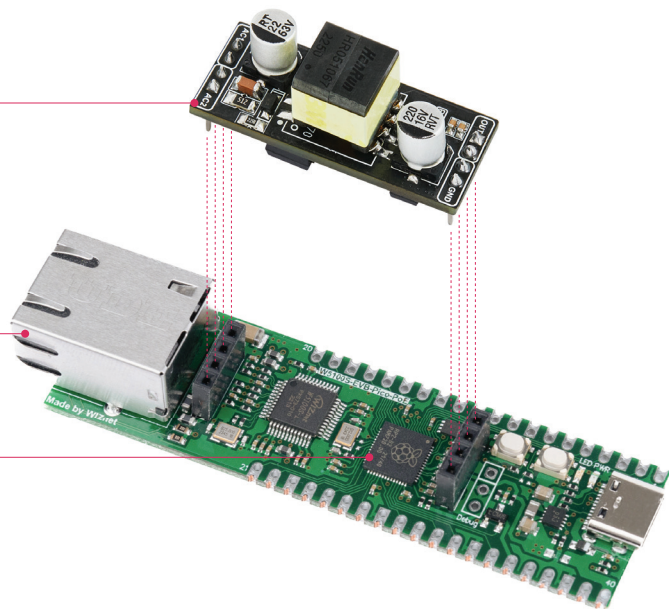
PoE Module features:

- Available in isolated version
- Wide input voltage range 40Vdc ~ 60Vdc
- IEEE 802.3af compliant

PoE Module P1
8W, 5V, 1.6A
isolation

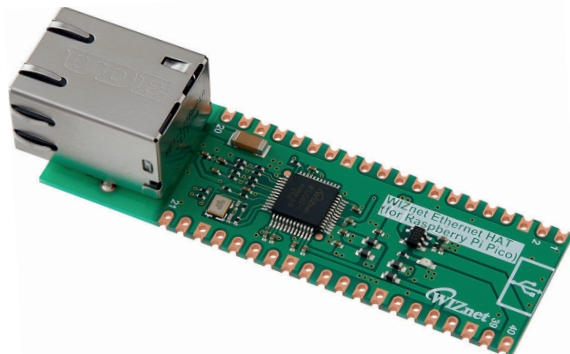
RJ45

RP2040



Every Pico's Ethernet Match: One HAT, Limitless Connections!

- Compatible with Raspberry Pi Pico / Pico W
- Built-in W5100S & RJ45 port
- Supports both 3.3V & 5V



Open-Source Hardware Products

Surf5 – New evaluation board for W7500

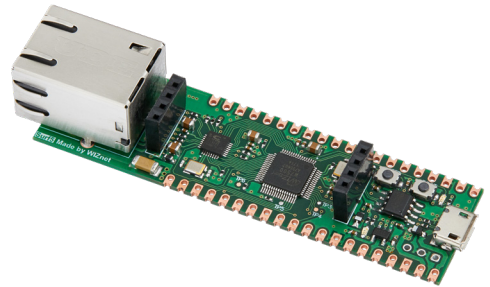
Identical pinout with Raspberry Pi Pico / Pico W

PoE enabled via add-on Module

Serial-to-Ethernet functionality supported

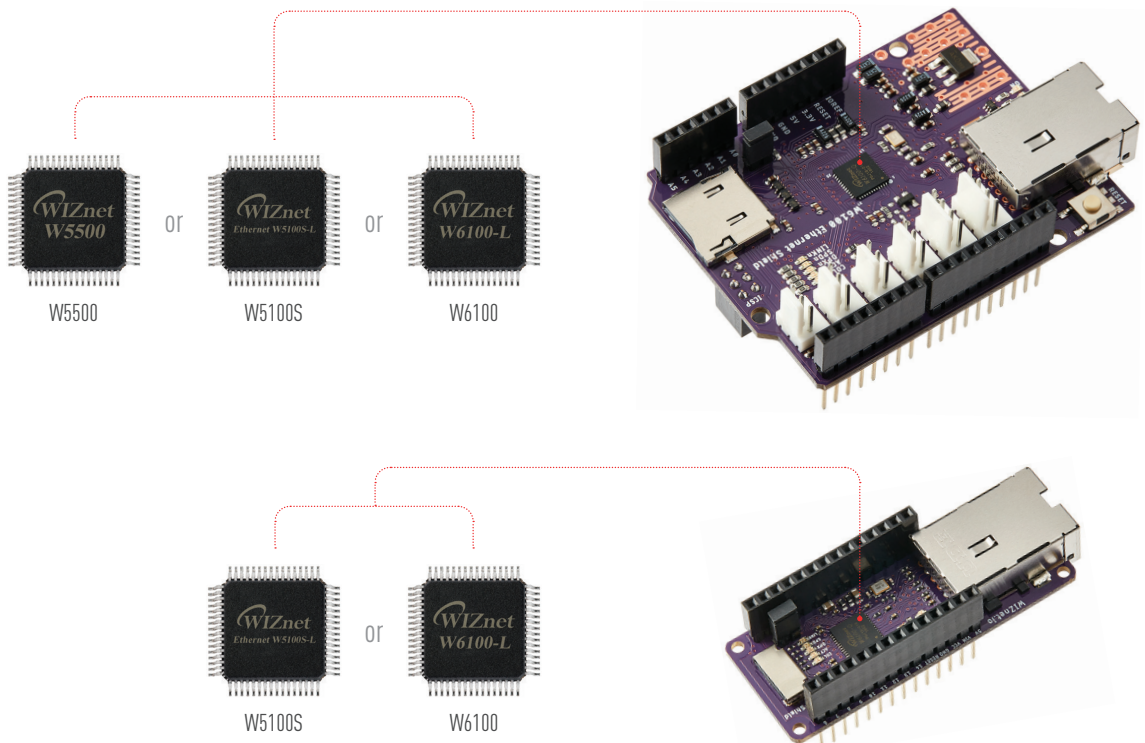
W7500 features:

- 48MHz ARM Cortex-M0
- Hardwired TCP/IP core with 8 sockets
- Comprehensive peripherals including ADC, DMA and communication interfaces



Ethernet Shields For Arduino Classic & MKR Family

- Available in various options: with W5500, W5100S or W6100
- Compatible with both Arduino and ARM Mbed platforms
- RJ45 port included, 3.3V & 5V support



Wireless

WizFi Module (Embedded Wi-Fi Module)

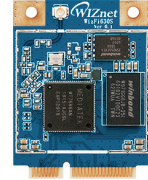
WizFi360-PA



WizFi360-CON



WizFi630S



Operation Mode	Station(Client), Soft AP	Station(Client), Soft AP	AP/Client/Router mode
Wireless Standard	802.11b/g/n, 2.4Ghz	802.11b/g/n, 2.4Ghz	802.11b/g/n, 2.4Ghz
Interface	UART, SPI, GPIO, ADC	UART, SPI, GPIO, ADC	2x UART, 3x PHY, 1x eMMC, GPIO, I2C, I2S, USB Host
Package	SMD Type	SMD Type	Mini-PCIe type
Antenna Type	PCB Antenna	UFL Antenna connector	UFL Antenna connector
Power Consumption	Receive=100 ~ 110mA (11b/g/n), Transmit=230mA(11b), 210mA(11g & 11b), Peak=TBD(230mA)		TBD
Configuration	AT Command	AT Command	Web, SSH, Serial console
Output Power	802.11b : 19dBm, 802.11g : 13.5dBm, 802.11n : 12dBm		TBD
Booting Time	Under 100ms	Under 100ms	30 ~ 50sec
Operation Temp [°C]	-40 ~ 85	-40 ~ 85	-25 ~ 80
Dimension (mm)	24 x 16 x 3	17 x 16 x 3	43 x 33
Certification	KCC, CE, FCC, TELEC	KCC, CE, FCC, TELEC	CE, FCC, KC, RoHS
Evaluation Board	WizFi360-EVB-Shield, WizFi360-EVB-Mini, WizFi360-EVB-Pico		WizFi630S-EVB

WizFi360, official Wi-Fi Shield on Arm Open-CMSIS-Pack and Keil Studio Cloud

Overview

The WizFi360 is a low-cost and low-power consumption industrial-grade WiFi module. It is compatible with IEEE802.11 b/g/n standard and supports SoftAP, Station and SoftAP+Station modes.

Documentation

Data sheet, technical reference, quick start guide:
docs.wiznet.io

Usage

All IoT example projects require the following switch settings:

- SW1: all ON. ▪ SW3: all OFF.
- SW2: all OFF. ▪ SW4: OFF.

Connect these jumpers for serial communication:

- D0: JP3 and JP2 P2 ▪ D1: JP2 and JP1



WizFi360
EVB-Shield



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security.wiznet.de
IT-Security, Consulting and Development

At WIZnet Germany GmbH, we also offer development services and consulting with a strong focus on IT Security.
Please visit our homepage for details:
<https://security.wiznet.de>

security.WIZnet.de

Customer Service
Telephone: +49-6239-80988-0
Fax: +49-6239-80988-99
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Dear valuable visitor,
welcome to our online shop. Please take a look around and discover the latest products from WIZnet - the hardwired TCP/IP provider.

Surf5 contest: Samples shipment started

Due to the Embedded World 2024, the shipment of the samples for the contest has been delayed. The samples for all customers in the European region were shipped today and should arrive within the next few days. Please contact us if you do not receive your shipment.

April 2024: Surf5 contest

Innovate with Surf5 & PoE Modules

Surf5

Design Contest

Free Giveaway!

Submit your project idea
Get FREE Surf5 & PoE module,
worth 15\$

- Surf5 : W7500 MCU with ARM Cortex-M0, TCP/IP core in one!
- WIZPoE-P1 : IEEE802.3af, Mode A/B, 8W power, isolation

COMPLETE FOR \$ 6,000 IN PRIZES

The modules for all participants from Europe will be shipped from our office in Germany. Please note we are not able to ship in week 15/2024 due to the Embedded World exhibition in Nürnberg. Contact us via email in case you have any questions.

January 2024: Embedded World ahead! (09.04. - 11.04.2024)

The Embedded World 2024 is ahead. We will have a booth in hall 2 at stand 202.

WIZMag: ioMCU special

Surf5 contest

WIZMag: TOE Special

WIZMag: Pico Special

<http://shop.WIZnet.eu>

WIZnet Germany GmbH

Kirchgasse 5 - 67259 Kleinniedesheim

sales@wiznet.de ☎ +49 6239 80988 0