WIZnet

PRODUCT GUIDE

www.wiznet.co.kr
www.wiznettechnology.com
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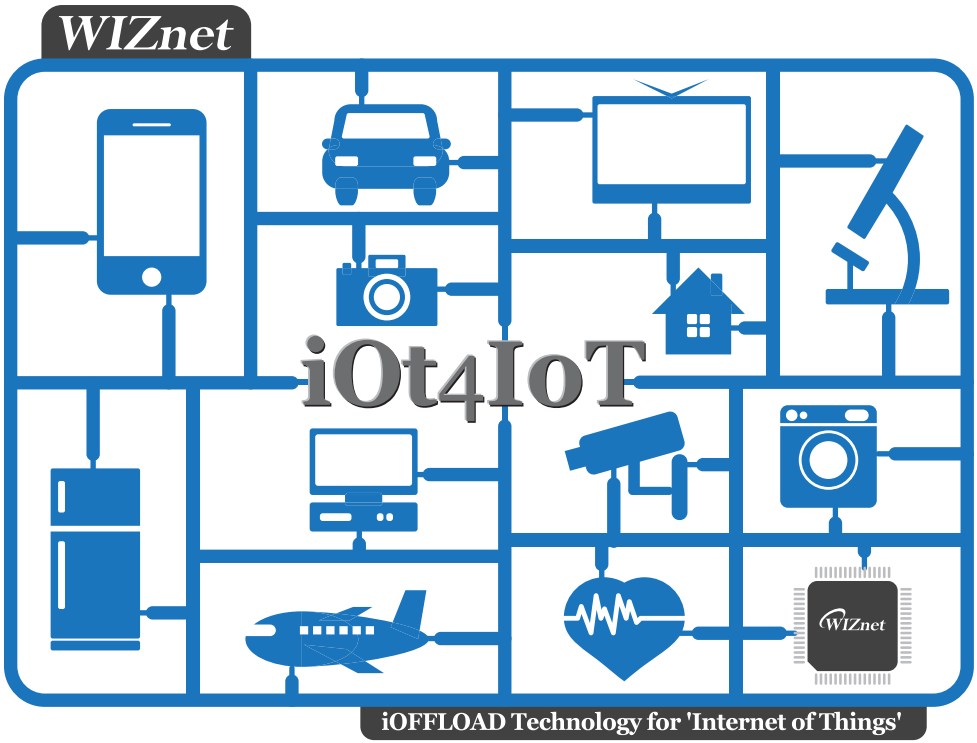


Main Applications

Smart Energy

- Smart Meter/AMR
- Smart Plug
- Energy Management
- Energy Sensor

Security

- Access Control
- Network Camera
- DVR

Automotive

- Digital Tachograph
- Electric Car
- Car Diagnostic Tool

Digital Consumer

- Digital Settop Box & IPTV
- Internet Radio
- Digital Information Display
- Digital Photo Frame

Industrial

- Factory Automation
- Building Automation
- Medical Devices
- Traffic Control

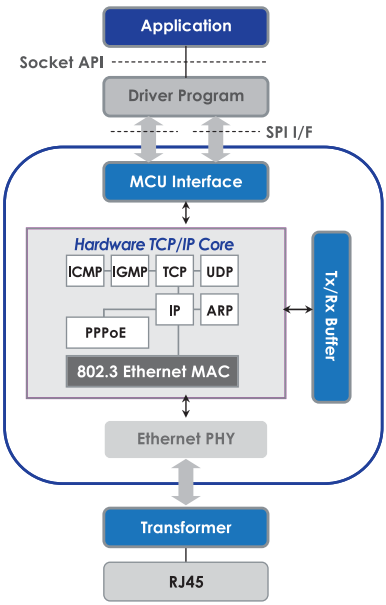
POS

- Card Reader
- POS Mini Printer
- Barcode Scanner
- Bill Count Machine

Table of Contents

Chip

iEthernet W5200
: Fast SPI Ethernet Controller



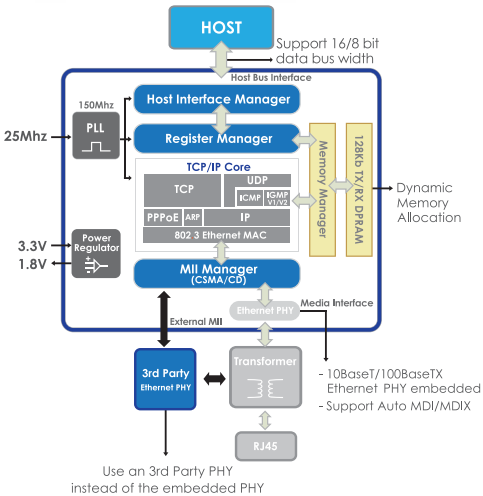
- Supports High Speed Serial Peripheral Interface (SPI Mode 0,3)
- Hardwired TCP/IP Protocols : TCP, UDP, ICMP, IPv4, ARP, IGMPv2, PPPoE, Ethernet
- 10 Base T/ 100Base TX Ethernet PHY Embedded
- Supports Auto Negotiation (Full & Half Duplex)
- Supports Auto MDI/MDIX
- Supports ADSL Connection (with PPPoE Protocol& PAP/CHAP Authentication Mode)
- Supports 8 Independent Hardware Sockets
- Internal 32 Kbyte Memory for TCP/IP Packet processing
- Supports Power Down Mode
- Supports Wake-On LAN
- 3.3V Operation with 5V Tolerant IO
- 48 Pin QFN Package

Category	Description
MCU	STM32F103C8 (Cortex-M3 Core)
TCP/IP Core	W5200
USB to Serial Converter	FT232RQ with USB mini type connector
MAG Jack	BS-RB10005 (Transformer + RJ-45 Connector)
LED	User LED : 2 EA Serial Status LED : 2EA Power LED : 1EA
Button	Reset Switch : 1EA Program Enable Switch : 1EA
Expansion Port	MCU Port Expansion : in 2.54mm Pitch 40pin Header
Size	28mm x 52mm

W5200E01-M3
: Evaluation Board for W5200

iEthernet W5300

: High Performance Ethernet Controller



- High Network Performance : Max 80Mbps (by DMA)
- Hardwired TCP/IP Protocols : TCP, UDP, ICMP, IPv4, ARP, IGMPv2, PPPoE, Ethernet
- Supports 8 Independent Hardware Sockets
- Supports Hybrid TCP/IP Stack (Software and Hardware TCP/IP stack)
- Internal 128Kbytes Memory for TCP/IP Packet Processing
- Supports Flexible Memory Allocation
- Embedded 10/100 Ethernet PHY (Supports External PHY Interface)
- Supports Auto Negotiation (Full / Half Duplex)
- Supports Auto MDI/MDIX
- Supports Network Indicator LEDs (TX, RX, Full/Half Duplex, Collision, Link, Speed)
- Supports 16/8 bit Data Bus Width
- Supports 2 BUS Interface (Direct and Indirect Address Mode)
- 3.3V Operation with 5V I/O Signal Tolerance
- 100LQFP 14x14 Lead-Free Package

W5300E01-ARM

: Evaluation Board for W5300

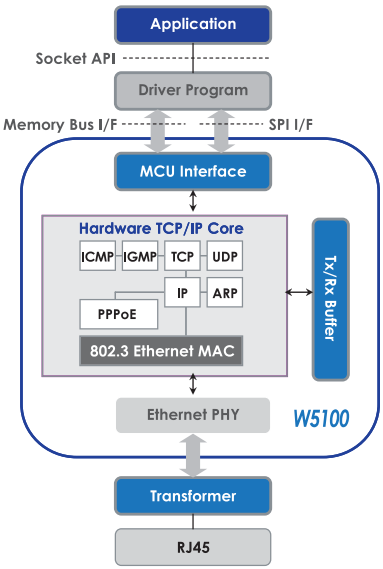
Category	Description
MCU	200MHz Samsung S3C2410A ARM RISC Processor
RAM/ROM	SDRAM 64MB / NAND Flash 64MB
Interface	RS-232C 1 Port & USB Host 1 Port
WIZ830MJ	W5300 + 1 port RJ-45(Integrated Transformer)
LCD	16 Characters x 2 Line Character LCD Part (C-LCD Option)
LED	2 LEDs for Debugging
Button	2 Tact Switches for Debugging
JTAG	On Board JTAG Connector
Module Connector	56pin (28pin x 2) 2.54mm Pitch Pin- Header Socket
Extension Part	120pin (40pin x 3) 2.54mm Pitch Pin-Header Port
Power	DC 5V / 2A Adaptor

Chip

iEthernet W5100

: Hardwired TCP/IP Ethernet Controller

- Hardwired TCP/IP Protocols :
  TCP, UDP, ICMP, IPv4, ARP, IGMPv2, PPPoE, Ethernet
- Embedded 10/100 Ethernet PHY
- Supports Auto Negotiation (Full / Half Duplex)
- Supports Auto MDI/MDIX
- Supports 4 Independent Hardware Sockets
- Internal 16Kbytes Memory for TCP/IP Packet Processing
- Supports 2 BUS Interface (Direct and Indirect Address Mode) & Serial Peripheral Interface (SPI Mode 0)
- 0.18μm CMOS Technology
- 3.3V operation with 5V I/O Signal Tolerance
- 80 LQFP 10x10 Lead-Free



Category		Specification
Base Board	UART	2 x RS232 Serial Port
	Display	16 x 2 Text LCD
	PAL	Address Decoder
	TCP/IP	W5100 (PHY Embedded)
	RJ-45 Connector	RB1-125BAG1A, Transformer Integrated (1:1)
PM-A1	MCU	ATMEGA 128 (128K Flash & 4K EEPROM)
	Clock	8MHz Crystal
		SRAM (32K Bytes)

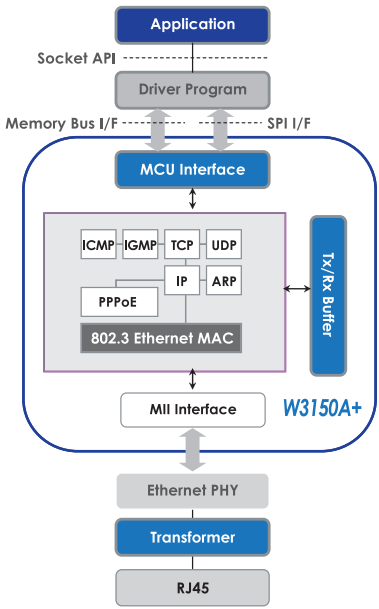
W5100E01-AVR

: Evaluation Board for W5100

iEthernet W3150A+

: Hardwired TCP/IP Ethernet Controller

- Hardwired TCP/IP Protocols :
  TCP, UDP, ICMP, IPv4, ARP, IGMPv2, PPPoE, Ethernet
- ADSL Connection
  (Supporting PPPoE with PAP/CHAP Authentication Mode)
- Supports 4 Independent Hardware Sockets
- Standard MII Interface for Ethernet PHY chip
- Supports 10BaseT/100BaseTX
- Supports full-duplex mode
- Internal 16Kbytes Memory for TCP/IP packet processing
- Supports 2 BUS Interface (Direct and Indirect Address Mode)
  & Serial Peripheral Interface (SPI Mode 0)
- 0.18μm CMOS Technology
- 3.3V Operation with 5V I/O Signal Tolerance
- 64 LQFP 10x10 Lead-Free Package



Category		Specification
Base Board	UART	RS232 Serial Port
	Display	Text LCD (Gray 16 x 2)
PM-PIC24	MCU	ATMEGA 128 (128KB Flash / 4KB EEPROM)
	Clock	8MHz Crystal
	External Memory	SRAM (32KB)
NM7010B+	TCP/IP	W3150A+
	PHY	IP101A-LF (Ethernet PHY)
	RJ-45 Connector	RB1-125BAG1A

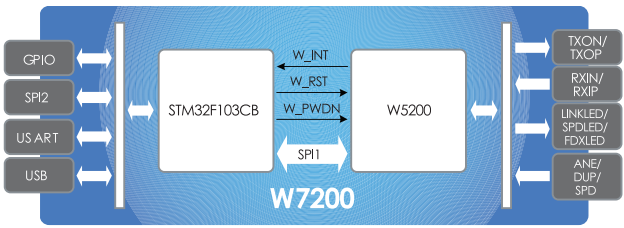
EVB-B1+

: Evaluation Board for W3150A+

Chip

iMCU™ W7200

: ARM32bit Cortex M3 with Hardwired TCP/IP, MAC & PHY



ARM 32-bit Cortex-M3

- 72MHz Maximum Frequency (1.25 DMIPS/MHz)
- 20KBytes Data Memory (RAM)
- 128KBytes Code Memory
- Low Power : Support Sleep, Stop and Standby Modes
- Three 16-bit Timers, each with up to 4 IC/OC/PWM or Pulse Counter and Quadrature (incremental) Encoder input
- 2 Watchdog Timers (Independent and Window)
- SysTick Timer 24-bit Down Counter
- Full-Duplex UART
- Programmable Watchdog Timer
- CRC Calculation Unit, 96-bit Unique ID
- GPIO, SPI, USART and USB Interfaces

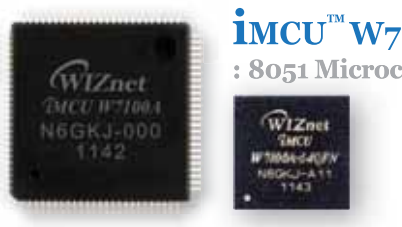
Hardwired TCP/IP

- Supports Power Down Mode for Saving Power Consumption
- Hardwired TCP/IP Protocols : TCP, UDP, ICMP, IPv4 ARP, IGMP, PPPoE, Ethernet
- Auto Negotiation (Full and half duplex)
- Auto MDI/MDIX
- Supports ADSL Connection with PPPoE Protocol & PAP/CHAP Authentication Mode
- Supports 8 Independent Hardware Sockets
- 32Kbytes Memory for TCP/IP Packet Processing
- Network Status LED Outputs (TX, RX, Full/Half Duplex, Collision, Link, and Speed)
- Not Supports IP Fragmentation
- 10BaseT/100BaseTX Ethernet PHY Embedded

iMCU™ 7200EVB

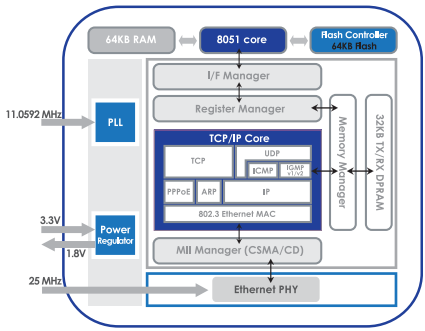
: Evaluation Board for W7200

Item	Description	Remark
MCU	W7200 (STM32F103CB + W5200)	
USB-to-Serial Converter	On board USB-to-UART interface IC, USB bus power	FT232RQ
Ethernet	On board RJ-45 which is integrated transformer	-
LED	User LED 2Ea Serial Status LED 2Ea	-
Button	Reset Switch 1Ea Program Enable Switch 1Ea	-
Expansion Port	MCU port expansion	2.54mm Pitch
PCB	28mm * 52mm Size	-



iMCU™ W7100A

: 8051 Microcontroller with Hardwired TCP/IP, MAC & PHY



- Fully Software Compatible with Industrial Standard 8051
- Pipelined Architecture 4~5 Times Faster than a Standard 8051
- 2 Data Pointers for Fast Memory Block Processing
- Internal 2K Byte Boot ROM
- Internal 64K Bytes Embedded Program
- FLASH Memory
- Internal 255 Bytes Embedded Data FLASH
- Internal 64K Bytes SRAM
- External 11.0592 MHz Operation Frequency for Internal PLL
- Interrupt Controller : 2 Priority Levels / 4 External Interrupt Sources / 1Watch Dog Interrupt
- 19 I/O Ports
- Three Timers/Counters
- Full Duplex UART
- Programmable Watchdog Timer
- DoCD & Trade Compatible Debugger
- Fully Hardwired TCP/IP Core
- 8 independent Hardware TCP/IP Socket
- Supports Hybrid TCP/IP Stack
- Internal 32K Bytes Memory for TCP/IP Packet Processig
- 10BaseT/100Base TX Ethernet MAC/PHY Embedded
- Auto Negotiation (Full / Half Duplex)
- Auto MDI/MDIX
- 3.3V Operation with 5V Tolerant I/O
- 100 LQFP 13x13 / 64QFN 10x10 Lead Free Package

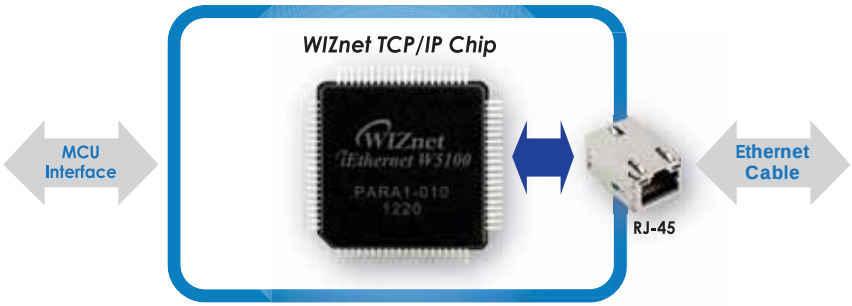
iMCU™ 7100EVB

: Evaluation Board for W7100A

Category	Description
MCU	iMCU W7100A
Serial	On Board RS-232C 1 Port with DB9 Connector
Ethernet	On Board RJ-45 (Integrated Transformer)
LCD	16 Characters * 2 Line Character LCD
LED	User Debugging LED 3 EA/ Network Status LED 8EA
Button	Reset Switch
Debugger	On Board Debugger Socket
Expansion Port	MCU Port expansion and Dummy Hole
Power	DC 5V / 2A Adaptor
PCB Size	120mm x 80mm

Module

Network Module



Models	WIZ810MJ	WIZ812MJ	WIZ830MJ
TCP/IP Chip	W5100	W5100	W5300
Dimension (W x H x D)	52 x 25 x 21	55.5 x 25 x 23.5	53.3 x 34 x 19.5
Connector Type	2mm pitch 14x2 header	2.54mm pitch 10 x 2 header	2.54mm pitch 2 x 14 header pin
PCB Through Hole	N/A	Four PCB Through Hole (ø3.00mm)	Two PCB Through Hole (ø3.00mm)
MAG Jack	BS-RB10005 (Transformer integrated)		
Input Voltage	3.3V Internal Operation and 5V Tolerant I/Os		
Power Consumption	10/100 Base T : Max 185mA (3.3V)		
Temperature	Operation / Storage : -40℃ ~ 85℃		

WIZ810MJ

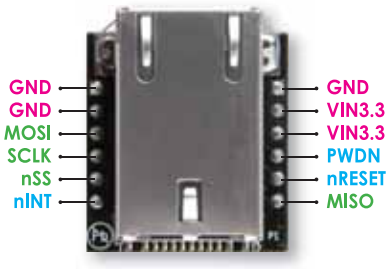
WIZ812MJ

WIZ830MJ

ioModule (Internet Offload Module)

WIZ820io

WIZ820io Pin Map



- Plug-in Typed Internet Offload Module Having W5200 & Mag Jack
- Usable without H/W Design for W5200, Transformer and RJ-45
- Breadboard Friendly
- Fast Evaluation for W5200 and MCU in The Target Board
- Supports 8 Independent Hardware sockets
- Supports High Speed SPI Interface
- Supports Power Down Mode and Wake-on LAN Function
- Very Small Form Factor (PCB Size : 23mm x 25mm)

Specifications	Description
TCP / IP Chip	W5200
PHY	Embedded in W5200
Interface	10/100 Base-T Ethernet (Auto Detect)
Protocol	TCP, UDP, IP, ARP, ICMP, IGMP, PPPoE, MAC
PCB Size	23.0mm x 25.0 mm
Connector Type	2.54mm Pitch 1x6 Pin Header (2 Row)
Input Voltage	3.3V Internal Operation, 5V Tolerant I/O
Temperature	Operation / Storage: -40 ~ +85℃
Power Consumption	10/100 Base-T max. 120mA (3.3V)

Module

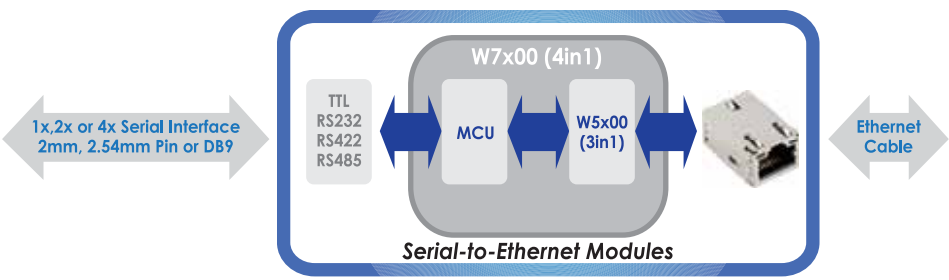
Serial to Ethernet Gateway Module

		WIZ100SR	WIZ105SR	WIZ110SR	WIZ107SR
MCU		8051			W7100A
TCP/IP, PHY		W5100			
MAG Jack		N/A	RB1-125BAG1A		BS-RB10005
Serial	Port#	1	1	1	1
	Signals	TXD, RXD, RTS, CTS, GND			
	Speed	Up to 230Kbps			
	RS 232 Tranceiver	N/A	N/A	Yes	Optional (UART, TTL)
Pin Header Type		2 x 12 2mm pin header	2mm Pitch 12 pins	DB9	2.54mm Pitch 12 pins
Input Voltage		3.3V	3.3V	DC5V	3.3V
Max. Power Consumption		200mA	200mA	220mA	250mA
Dimension (mm)		50 x 30 x 12	40 x 62 x 17	75 x 45	30 x 45

WIZ100SR WIZ105SR WIZ110SR WIZ107SR

- Various Hardware Typed Serial to Ethernet Modules
- Simple & Quick Network Implementation
- Supports Firmware Customization for Various Serial Devices
- High Stability and Reliability by Using WIZnet Fully-Hardwired TCP/IP
- Provides Easy and User-Friendly Configuration Program
- Supports Serial Command for On-Site Configuration w/o PC
- 10/100 Mbps Ethernet & Max.230Kbps Serial Interface
- WIZ VSP (Virtual Serial Port) Supported
- RoHS Compliant

WIZ108SR	WIZ120SR	WIZ125SR	WIZ140SR	WIZ145SR
W7100A	ARM Cortex M3			
	W5100		W5300	
BS-RB10005	N/A	RB1-125BAG1A	N/A	RB1-125BAG1A
1	2	2	4	4
RS485:TXRD+TRXD- RS422:TXD+,TXD-, RXD+, RXD-	TXD, RXD, RTS, CTS, GND			
Upto 230kbps				
RS 422/485	N/A	N/A	Yes	Yes
2.54mm Pitch 12 pins	1x14 2mm Pin header X 2	2 port DB9 connectors	1x14 2.54mm Pin header 2x14 2.54mm Pin header	
3.3V	3.3V	5V	3.3V	3.3V
250mA	300mA	220mA	250mA	250mA
30 x 45	50 x 30 x 8.85	60 x 85	48 x 35 x 16	48 x 61 x 24



Module

Wi-Fi Module

WizFi210 / WizFi220 – Compact, Ultra-low Power Embedded Wi-Fi Module

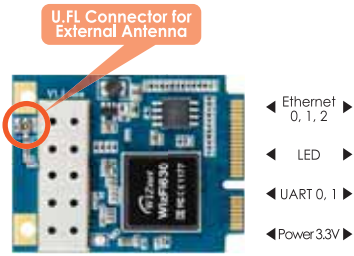
WizFi210 / WizFi220 Module

- Supports Wi-Fi Connectivity Via Serial Host Interface (UART or SPI)
- Quick Booting Time : less than 20msec
- Ultra Low Power Through Dynamic Power Management (34μA at the standby mode)
- Complies with IEEE802.11b at the speed up to 11Mbps
- Security : WEP, WPA, WPA2-PSK, Enterprise, (EAP-FAST, EAP-TLS, EAP-TTLS, PEAP)
- Limited AP : Supports Direct Wi-Fi Connection from PC, Labtop, Smart Phone and Etc.
- Operation Temperature : -40 ~85℃
- Compact Size : 32 x 23.5 x 2.9 (mm)
- CE, FCC, KCC Certified

Specifications	Description
Wireless Standard	IEEE 802.11b
Supported Data Rate	11, 5.5, 2, 1Mbps (802.11b)
Modulation	DSSS and CCK
RF Operating Frequency	2.4~2.487GHz
Antenna Options	Chip Antenna and U.FL connector for external antenna
Power Consumption	WizFi210 : Standby=34μA/ Receive=125mA / Transmit=135mA WizFi220 : Standby=34μA / Receive=125mA / Transmit=295mA
RF Output Power	8dBm±1dB (WizFi210) / 17dBm±1.5dB (WizFi220)
Security Protocols	WEP, WPA/WPA2-PSK, Enterprise (EAP-FAST, EAP-TLS, EAP-TTLS, PEAP)
I/O Interface	UART, SPI, I2C, ADC, WAKE, ALARM, GPIOs, PWM, JTAG
Power Source	3.3V

WizFi630 – High Performance 802.11b/g/n AP Module

- Complies with IEEE802.11 b/g/n
- Physical Link Rate Up to 150Mbps (Effective Rate : 90Mbps)
- Operation Mode : Wi-Fi Router, AP, AP-Client, Client, AD-HOC
- Supports 3 Ethernet Ports
- Supports 2 UARTs
- Security : 64/128bit, WPA/WPA2-PSK, TKIP, AES and 802.1x
- Easy Configuration : Built-in Web Server, Serial Command, Windows Utility
- Size : 33 x 43 x 4.5 (mm)
- CE. FCC, KCC Certified



WIZ610wi – 802.11b/g AP Module

- Complies with IEEE802.11b/g
- Operation Mode : AP, Gateway, Client
- Supports 1 UART for Serial to Wi-Fi
- Supports MII for Ethernet to Wi-Fi
- Max. 25Mbps Effective Data Streaming
- Easy Configuration : Built-in Web Server, Wizard Program, Serial Comman

Specifications	WIZ610wi	WIZ630wi
Wireless Standard	IEEE802.11b/g	IEE802.11b/g/n
Frequency Range	2.412 ~ 2.462GHz (US & Canada) / 2.412 ~ 2.472 (Europe) / 2.412 ~ 2.482 (Japan)	2.400 ~ 2.483GHz(USA) 2.400 ~ 2.483GHz(Europe) 2.400 ~ 2.497GHz(Japan) 2.400 ~ 2.483GHz (China)
Output Power	802.11b : 16dBm@11Mbps / 802.11g : 14dBm@54Mbps	802.11b: 17dBm@11Mbps 802.11g: 14dBm @54Mbps 802.11n: 14dBm@150Mbps/72Mbps
Receive Sensitivity	65dBm@11Mbps 802.11g-76dBm@54Mbps	802.11b: -89dBm@11Mbps 802.11g: -74dBm @54Mbps 802.11n(40MHz): -66dBm@150Mbps 802.11n(20MHz): -70dBm@72Mbps
Data Rates	Max.54Mbps (Max 24Mbps Effective Data Streaming)	Max.150Mbps (Max 90Mbps Effective Data Streaming)
Security	SSL, WEP 64.128bit WPA/WPA2 PSK/AES /TKIP, 802.1x (Radius)	WEP 64/128bit WPA/WPA2-PSK AES/TKIP 802.1x(Radius)
Dimension (mm)	32 x 39 x 9	33 X 43 X 4.5
Interface	UART, MII, U.FL (Wireless)	UART(2), PHY(3), U.FL (Wireless)

External Device Server

WIZ1000 (Serial to Ethernet)

- Easy to Connect with Serial Device
- Adding Network Function Simply and Quickly
- Provides Firmware Customization
- High System Stability and Reliability by using W5100 Chip
- Supports PPPoE Connection
- Supports Serial Configuration with Simple and Easy Command
- Supports Password for the Security
- Easy and Powerful Configuration Tool Program
- Telnet Com Port Option (RFC2217) Compliant
- 10/100 Ethernet Interface and Max 230Kbps Serial Interface
- RoHS Compliant
- CE, FCC and KCC Certified
- Supports WIZ VSP (Virtual Serial Port)

WIZ6000 (Serial to Wi-Fi)

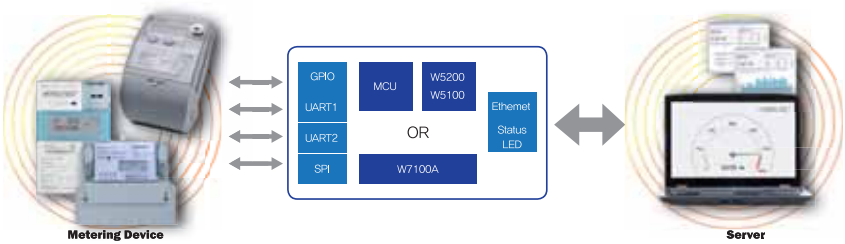
- Supports IEEE802.11b/g Wireless Networking
- Communication Mode :
- Serial to WLAN, Access Point, Gateway, Client
- Ethernet to Wireless Bridging
- Strong Security with 64/128 bit WEP, WPA, WPA2(AES), SSL
- Interface : Ethernet, UART, External Dipole Antenna
- Ready to Use Serial to Wireless Application
- Max. 25Mbps Effective Data Streaming
- RoHS Compliant
- CE, FCC and KCC certificated
- Supports WIZ VSP (Virtual Serial Port)

Application References

Smart Meter in Europe

WIZnet's Internet chip and module are getting popular among smart meter manufacturers in Europe. WIZnet started to supply the Serial to Ethernet Gateway module to a Germany company in 2009. Since then, more than 10 companies have been developing and manufacturing metering devices by adopting WIZnet as the Internet connectivity solution.
In Europe, the Internet function is basically required at the end device of metering system. The following figure shows the block diagram of the meter device in which WIZnet chip is applied for the Ethernet function. In the smart meter system, WIZnet works and provides

- Serial to Ethernet Function
- TCP Client : Metering Data Transferring to the Server
- TCP Server : Local Monitoring
- Serial Commands and Configuration Tool Program for Easy Configuration
- Support DNS, HTTP, TCP, UDP protocols
- Micro SD for Data Logging
- Customization



WIZnet's Hardwired TCP/IP, the world-unique technology enables you to implement the most stable Internet with the quickest and easiest way.
It is the main reason that WIZnet is being adopted by smart meter developers in Europe.
WIZnet provides WIZ-SM10 module that has been specially designed for smart meter application.
By interfacing to existing metering devices through GPIO, UART, SPI and etc, customer can simply implement the Ethernet connectivity.

Application References

HD PVR with W5300

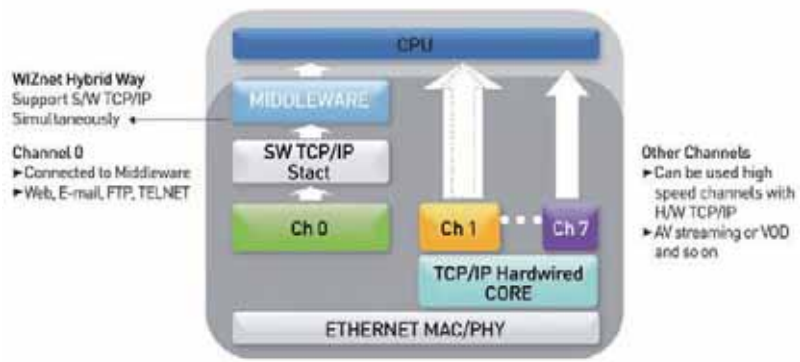
HDT (Hyundai Digital Technology) is a Korean STB company who mainly develops and produces digital satellite, digital cable, PVR, IPTV and etc.

In January of 2009, HDT started their HD PVR hardware design. In their new design, they have used STi7101 by STMicronics as their main processor. The Ethernet controller of this new product is used to communicate with a middleware and add some Internet services. WIZnet's W5300 was adopted for the Ethernet functions.

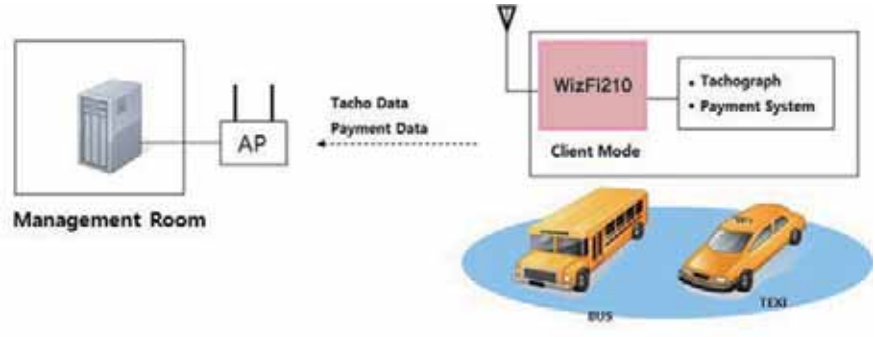
STi7101 already includes the integrated MAC and MII/RMII interface. Therefore, the network can be implemented just by adding an external PHY chip. In HDT's point of view, the W5300's additional MAC overlaps the onboard MAC in STi7101. However, the main reason why HDT chose WIZnet's solution is the network performance. With the software TCP/IP stack, resource is shared between the CPU and networking. When there is a large amount of data to be processed by the network, the CPU overhead is increased, and it degrades the overall system stability.

The Hybrid architecture of W5300 was used to connect to the middleware which is operated in the upper layer of WIZnet. Basically, W5300 provides 8 sockets to process Ethernet data through TCP/IP hardwired core. However, if we configure the first channel (socket #0) as Mac-Raw mode, the socket #0 operates as like MAC/PHY chips. With this architecture, the STB can utilize the hardware stack for application use while leaving the software stack for middleware use.

W5300



Wi-Fi Module in Digital Tacho meter



Application : Public Vehicle System

Background : In order to reduce traffic accidents and upgrade the driving efficiency, Korean government legislated to equip the public vehicles with digital tachograph system. Digital tachographs is that records are saved to a smart card and are transmitted to the server through wireless network. Digital tachos record not only payment data but also driver activity such as driving time, other work, rests and breaks in the card. Digital tachgraph's legal purpose is to find the systematic solution to upgrade traffic safety by analyzing the data collected by the tachograph.

Solution : WizFi210

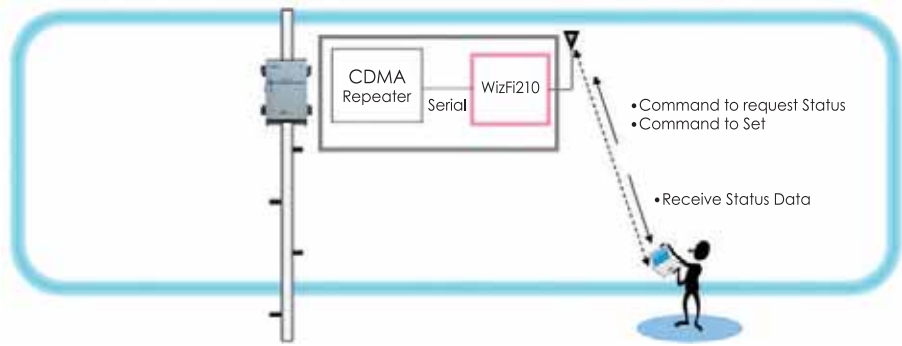
WizFi210 provides serial to wireless connectivity for the tacho graph to transmit the data saved in the smart card. In the tachograph, WizFi210 operates as client mode and establishes wireless networking by automatically connecting to the access point. The tacho data is transmitted to WizFi210 through serial interface.

WizFi210 converts the serial data into TCP/IP and sends to the server through wireless network.

WizFi210

Application References

CDMA Repeater Management



Application : CDMA Repeater Management

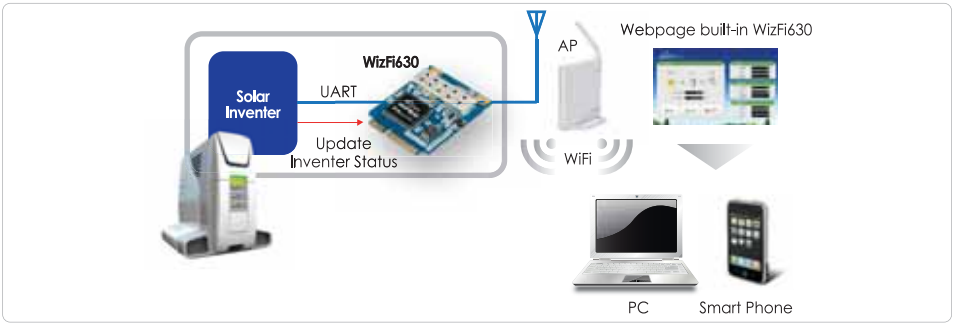
Background : For easy and convenient management of CDMA repeaters, our wireless solution was adopted. Repeater equipments were mostly installed on tall poles or pylon. In order to manage or upgrade the equipment, the worker must climb up to the pole. However, the workers safety is a concern since various accidents have occurred in the past.

WizFi210

Solution : By using WizFi210, the worker can conveniently manage the equipments without risking his/her safety. In the repeater, WizFi210 is operated in "serial to WLAN" mode. The CDMA repeater can be managed wirelessly by using a Laptop.

Customer : WizFi210 has been adopted by SK Telecom as a wireless standard for their repeaters.
SK Telecom (www.sktelecom.com) is one of the biggest telecommunication company in Korea.
In order to provide a better quality of mobile phone services, they are installing repeater systems all over the country. WizFi210 satisfies SK Telecom's requirements including RF output power,serial to WLAN functions, network parameter customization.
WizFi210 has passed the temperature and humidity reliability tests.

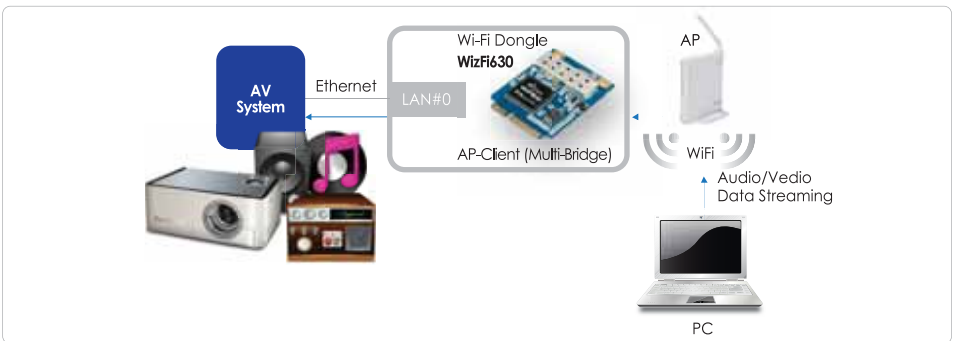
Solar Inverter Management System



Customer : V Company in Korea (End Customer in Australia)
Application : Solar Inverter
WizFi630 Operation Mode : Serial to Wi-Fi & Client Mode

Solar Inverter transmits the updated value of inverter status to WizFi630 through UART. WizFi630 converts the serial data to TCP/IP and displays them in the web page. Using built-in Web Server of WizFi630, we provided the customized web page for the device monitoring.

Wi-Fi Audio/Video Streaming System



Customer : A Company in Korea (End Customer in Japan & Germany)
Application : Audio Video System
WizFi630 Operation Mode : AP-Client

For the Multimedia data streaming through Wi-Fi network, the customer has developed a dongle system with WizFi630. The AP-Client enables the easy configuration of local networking by combining Ethernet and Wi-Fi ports.

Application References

WIZnet Design Contest Winners

Net Butler

The innovative Net Butler is a multifunction design used to control, monitor, and automatically maintain a home network. Built around an iMCU7100EVB evaluation board, the design has several functions : it serves as a DNS proxy with a domain name block list and an activity log display; it tracks and reports on connected network devices; it operates as a web server for viewing system activity and configuration settings; it enables you to easily manage a Wi-Fi network via push buttons, a webpage, or a timer; and it downloads and displays up-to-date weather information.
Each task can be individually enabled or disabled, and most of them have several configuration settings. The system includes a bootloader for downloading new code over the network, so adding new functions is a straight forward process.
Richard Wotiz United States | First Place in 2010 iMCU Design Contest

Green Solution to Basement Humidity Control

Humidity control is essential in residential and industrial buildings alike. This handy humidity control system calculates water vapor pressure from temperature and humidity readings. When the design detects that the outside air is drier than the air indoors, it triggers a ventilation system as opposed to a dehumidifier.
A W7100 enables a user to monitor and control the moisture removal process via any PC with a standard Web browser. File data is stored on a memory stick so it can be transferred easily to a PC.
David Penrose United States | Second Place in 2010 iMCU Design Contest

m7100os : A Network Operating System

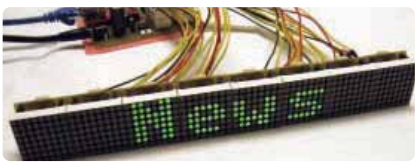
The m7100os is an original network operating system for the W7100. It can run several simultaneous tasks and enhances the W7100 TCP/IP core interface by allowing it to be reentrant, which simplifies programming.
For debugging, the operating system also has a kernel-based monitor/debugger that can check on different tasks and their registers, modify memory, and start the program.
Naubert Aparicio United States / Third Place in 2010 iMCU Design Contest

Drip Irrigation Controller

The irrigation timer with advanced planning (ITAP) is a truly next -generation irrigation con-trol system.
Featuring a WIZnet WIZ810MJ network module and an Atmel ATmega168, the innovative controller provides user interaction through a standard web browser. As a result, the system doesn't have a keyboard or an LCD. The single-controller unit can manage up to eight zones. No software installation is required. Its functionality is split between the browser-based user interface and the hardware-based web serv-er, data model, and control logic

Thomas Bereiter Italy | First Place in 2007 iEthernet Design Contest

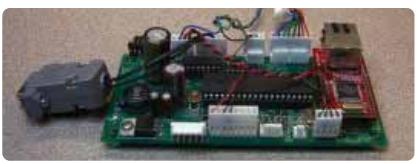
LED News Ticker



The handy LED News Ticker brings the news to you by displaying up-to-date headlines in a scrolling format.
The system features a main board and eight slave boards attached to dot-matrix LED displays.
The main board features a Microchip Technology PIC 18F2525 microcontroller connected to a WIZnet WIZ810MJ Ethernet module, which uses the W5100 to provide an easy-to-use interface to the Internet. The LED News Ticker requires no interaction to operate. Once powered up, the device immediately connects to the Internet and downloads news updates every 15 minutes.

James Blackwell U.S. | Second Place in 2007 iEthernet Design Contest

DMX Portal



The well-designed DMX Portal is an affordable DMX lighting controller. You can use the novel system to remotely control up to 512 channels through an IP-based network or directly interface them to embedded systems with a serial connection. It was designed to be perfectly suited for designers who want to off-load DMX management and refreshes from the main system controller. It's also useful for distributed lighting systems where low-cost Ethernet wiring is more practical than expensive RS-485 wiring. The prototype includes an external EEPROM for scene storage and a Microchip Technology PIC18F4620 microprocessor. A WIZnet WIZ810MJ evaluation board is connected to the SPI on the PIC development board.

Matt Ernst U.S. | Third Place in 2007 iEthernet Design Contest

WIZnet Open Hardware Projects

Microchip TWIZW5200

: W5200 Ethernet PICtail™ (Plus) Board

MICROCHIP PREMIER THIRD-PARTY PARTNER

WIZnet's W5200 Ethernet PICtail™ (Plus) board provides 10/100Mbps, half/full duplex Ethernet connectivity by onboard WIZnet W5200 Ethernet controller, which has hardwired TCP/IP processing engine.
The board has both PICtail™ headers and PICtail™ Plus side-edge connectors designed to be plugged into the Explorer 16 (DM240001), PIC32 I/O Expansion Board (DM320002), PICDEM.net 2 (DM163024), PIC18 Explorer (DM183032), and other supported development boards.
The board has fast SPI interface, 2K EEPROM with EUI-48™ Node Identity (MAC address) and RJ-45 connector. It also provides Auto-negotiation, Auto-MDI/MDIX, Power-Down Mode and Wake-on-LAN functionalities.
WIZnet's W5200 Ethernet PICtail™ (Plus) board supports both Microchip software TCP/IP Stack and WIZnet hardwired TCP/IP Stack simultaneously on PIC18, PIC24, dsPIC and PIC32 platforms. The Hardwired TCP/IP Stack especially fits well for Simple Internet connectivity for PICs with small program memory size like PIC16.

Features

- WIZnet W5200 Fast SPI Ethernet Controller with Hardwired TCP/IP stack
- Magnetic RJ-45 Connector
- Microchip 2K SPI Bus Serial EEPROM with EUI-48™ Node Identity
- Supports Auto-negotiation, Auto-MDIX, 10Base-T/100Base-TX
- PICtail™ and PICtail™ Plus Daughter Board connection interface
- Compatible with Many Boards with PICtail™ and PICtail™ Plus Interfaces, Including Explorer 16 Development Board, Various PICDEM™ Boards.

For more detail, please visit **www.wiznet.co.kr/microchip**
You can purchase the TWIZW5200 board at the MicrochipDIRECT (*www.microchipdirect.com*)

WIZnet Shield for Arduino

WizFi Shield

WizFi Shield supports wireless connection. It adds Wi-Fi communication capabilities to any Arduino. Instead of using UART, we used SPI to interface WizFi210 with existing Arduino board.

WIZnet Ethernet Shield

WIZnet Ethernet Shield allows an Arduino board to connect to the Internet. WIZnet W5200 provides a hardwired TCP/IP protocol stack enabling your application to communicate by TCP or UDP.

- Micro-SD Card Slot for Storing Data
- On Board W5200
- 10/100 Mbps, Full/Half Auto Negotiation, Auto MDI/MDIX
- Indication LEDs
  - Power : indicates that the board and shield are powered
  - LINK : indicates the presence of a network link
  - Duplex : Indicates the presence of a network link
  - Speed : indicates the presence of a 100 Mbps network connection
  - 2 Debug LED

WIZnet opens all hardware & software source materials of WIZnet WiFi & Ethernet shields.
(not produce and supply the products). Please contact to sales@wiznet.co.kr for more detail.

WIZnet Open Hardware Projects

WIZnet in YouTube

- **Internet Meter : an introduction to the Arduino Ethernet Shield**
  This video is about Arduino Ethernet shield (in which W5100 is embedded) and PHP code for using physical panel meters to display Googld Reader unread counts and Gmail unread counts.

- **Web Controlled LED**
  This is a video using the Arduino and the Ethernet shield to control LED light using a web browser.

- **Arduino with Ethernet Shield and PHP Server= Automation**
  Home automation set up : Successfully activating the Arduino with an Ethernet Shield.

- **Arduino Ethernet Shield on a MEGA 2560 board**
  The analog value from a pot is read on input A0 by the board. It is sent first on a LAN to be ready by a browser and finally through the Internet.

- **TROBOT 2.0 – Velocity Test**
  The TROBOT 2.0 is a compact six-axis robot powered by small RC-style servo motors. A W7100 evaluation kit acts as a servo controller interface between the robot and a PC running ABB's Robot Studio.

- **Integrating W5100, WIZ811MJ with Atmel AVR Microcontroller**
  We are going to build the embedded web server using the Wiznet 811MJ network module which is based on WIZnet well know W5100 TCP/IP hardwired chip that include the Ethernet controller physical layer(PHY).

- **Parallax Propeller and WIZnet W5100 = Spinneret Web Server!**
  Your favorite Prop chip on board a nice compact Parallax board with WIZnet's W5100 Ethernet controller, Micro SD storage, real time clock, and backup capacito.

Open Hardware Partners

Arduino
www.arduino.cc

Arduino Ethernet Shield

Freetronix
www.freetronics.com

Ethernet Hardware
(W5100)

Parallax
www.parallax.com

Spinneret Web Server
(W5100)

Freetronix
www.freetronics.com

Ethernet Shield with
PoE (W5100)

Leaflabs
www.leaflabs.com

Maple:Wizzin through the
Ether…net (WIZ820io)

DF Robot
www.dfrobot.com

Ethernet Shield
(W5100)

Ben's Hobby Corner
www.benshobbycorner.nl

WiFi Shield V2.1 for
Arduino

DF Robot
www.dfrobot.com

WiFi Shield V2.1
(Wizfi210)

Gravitech
www.gravitech.us

Ethernet with Micro SD
for Arduino Nano

Seeed Studio
www.seeedstudio.com

WIZnet Ethernet Shield
(W5100)

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