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W5500 Ethernet Shield

Overview

- **ARM mbed compatible** operation
- **Arduino Pin-compatible**
- Ethernet (W5500 Hardwired TCP/IP chip)

W5500 Ethernet shield is designed using the WIZnet W5500 chip. Please click the link for the further information about W5500. It supports both 3.3V & 5V. This Ethernet Shield is compatible with Arduino and ARM mbed Platform.

Available Board List

- ARM mbed Board
  - ARM mbed Platform : ARM mbed platform Site
  - FRDM-KL25Z : Freescale
  - NXP LPC800-MAX : NXP
- Arduino Board
  - Arduino board (e.g. the Uno, Mega, Due)
  - Arduino Leonardo
- Arduino-compatible Board
  - Seeeduino v3.0 : Based on Arduino Duemilanove

Getting Started

- You need to update Arduino IDE to use W5500 Ethernet shield(**Required**)
- Check the below.
  - Getting Started

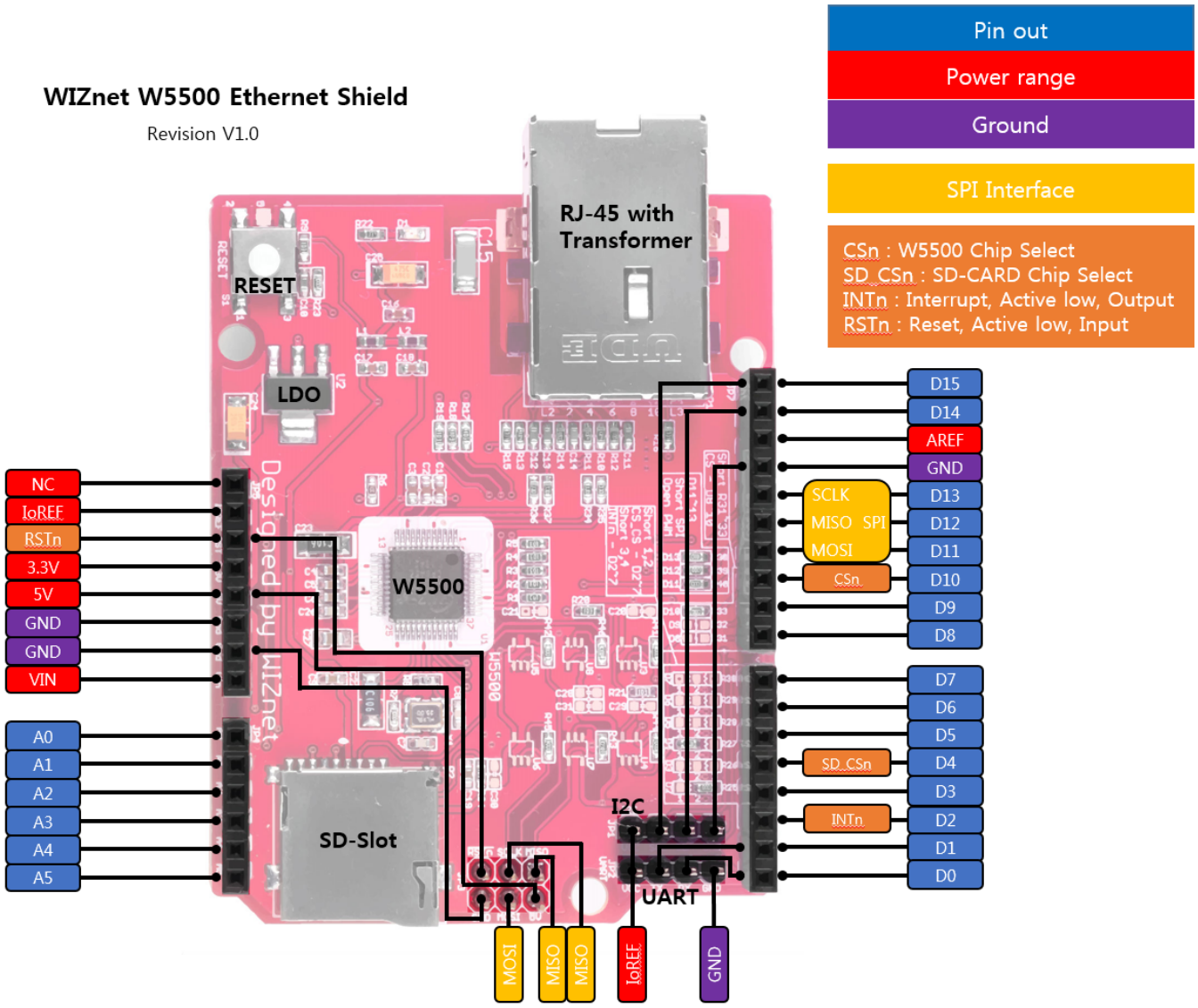
Language

- Korean Ver

- Japanese Ver

Feature

- Support 3.3V / 5V
- High Speed Ethernet controller W5500 chip
- SPI interface
- Internal 32Kbytes Tx/Rx buffer
- 10/100 Ethernet PHY embedded
- Support Auto Negotiation (Full / Half duplex, 10 / 100-based)
- Hardwired TCP/IP Protocols : TCP, UDP, ICMP, IPv4, ARP, IGMP, PPPoE
- User Selectable GPIO pin
- Support SD-card slot for storage
- Support I2C, UART interface

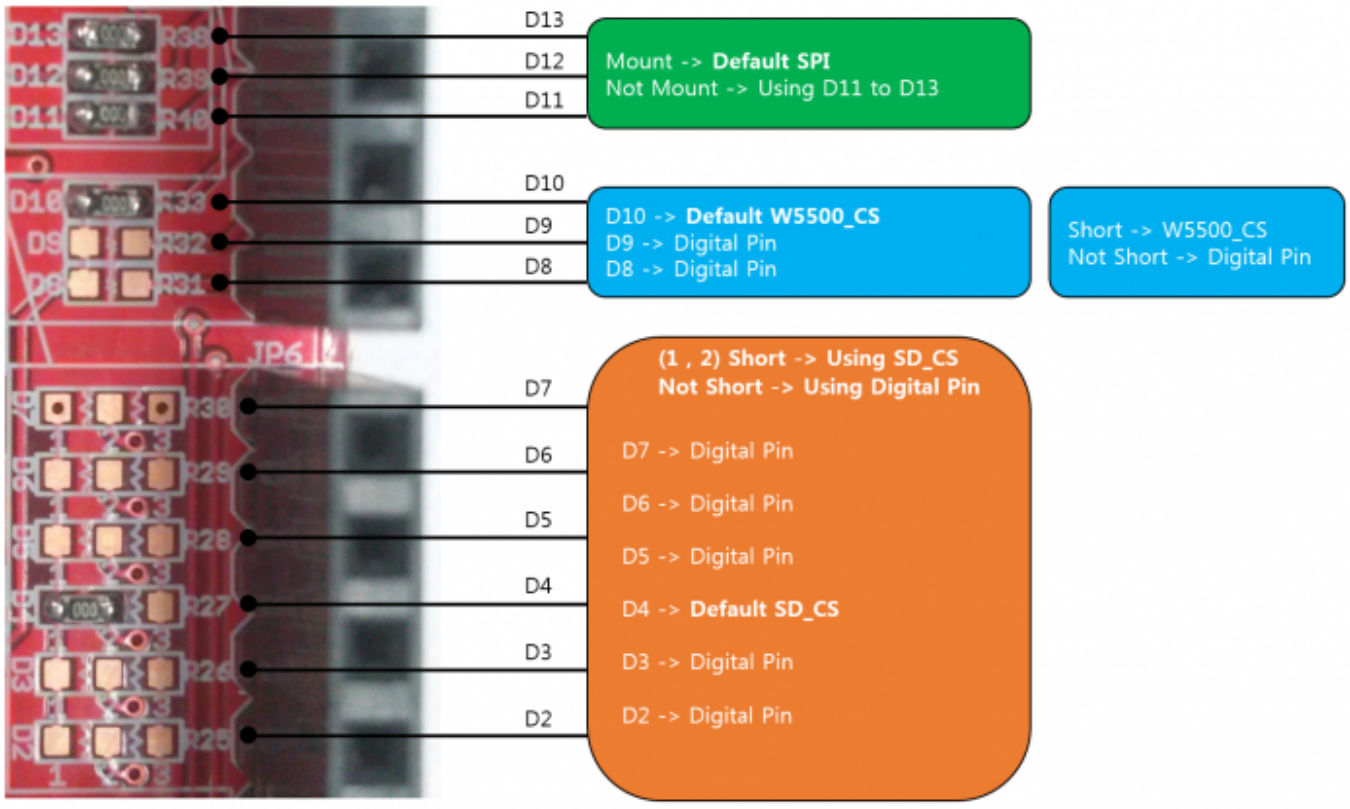


Hardware Configuration

- RJ-45 with Transformer : Ethernet Port
- W5500 : a Hardwired TCP/IP Ethernet Controller
- RESET : Reset Ethernet shield and Arduino when pressed

- SD-Slot : support Micro SD card in FAT16 or FAT32 ; (Please read 'Caution' below)
- I2C : I2C interface
- UART : UART interface

Pins usage on Arduino & ARM mbed



W5500 Ethernet shield has several configurable GPIOs

- When you operate it with other modules, you may need to change 'Chip Select' pin to a different one.
- W5500 INTn pin is linked to D2 (2,3 Short). So, if you need INTn pin. You soldering to 0R Resistor to Dx pin

Caution) When the user uses 5V Platform, we cannot confirm a stable operation of SD-CARD. Therefore, though 5V Platform is safe to use after going through enough tests, it is highly recommended to mount buffer & 100nF Capacitor for a secure operation.

SPI Operation & Timing Diagram

SPI Operation

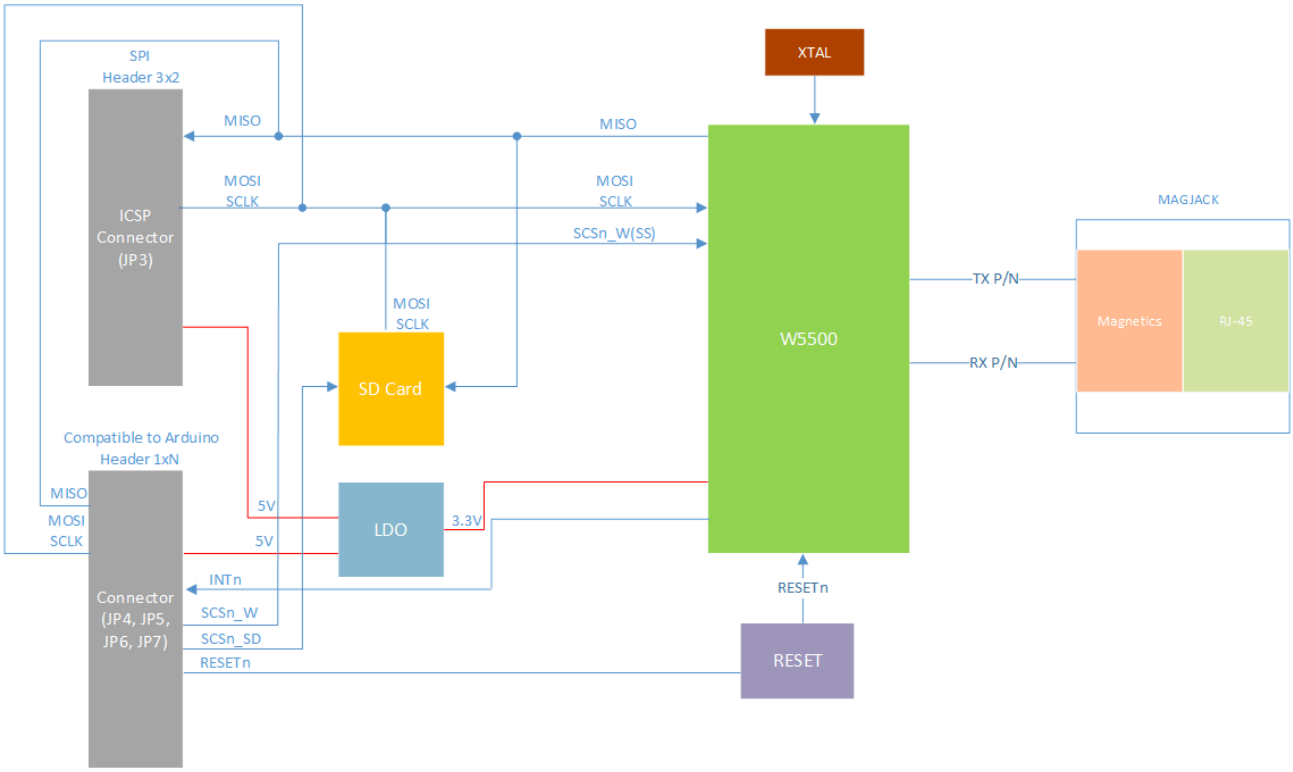
There is a W5500 inside W5500 Ethernet shield. Therefore SPI operation & Timing Diagram of Ethernet shield follows one of W5500. For more information about W5500 chip please also refer to the chip's datasheet:

- W5500 Datasheet v1.0.6 - English
- W5500 Datasheet v1.0.6 - Korean

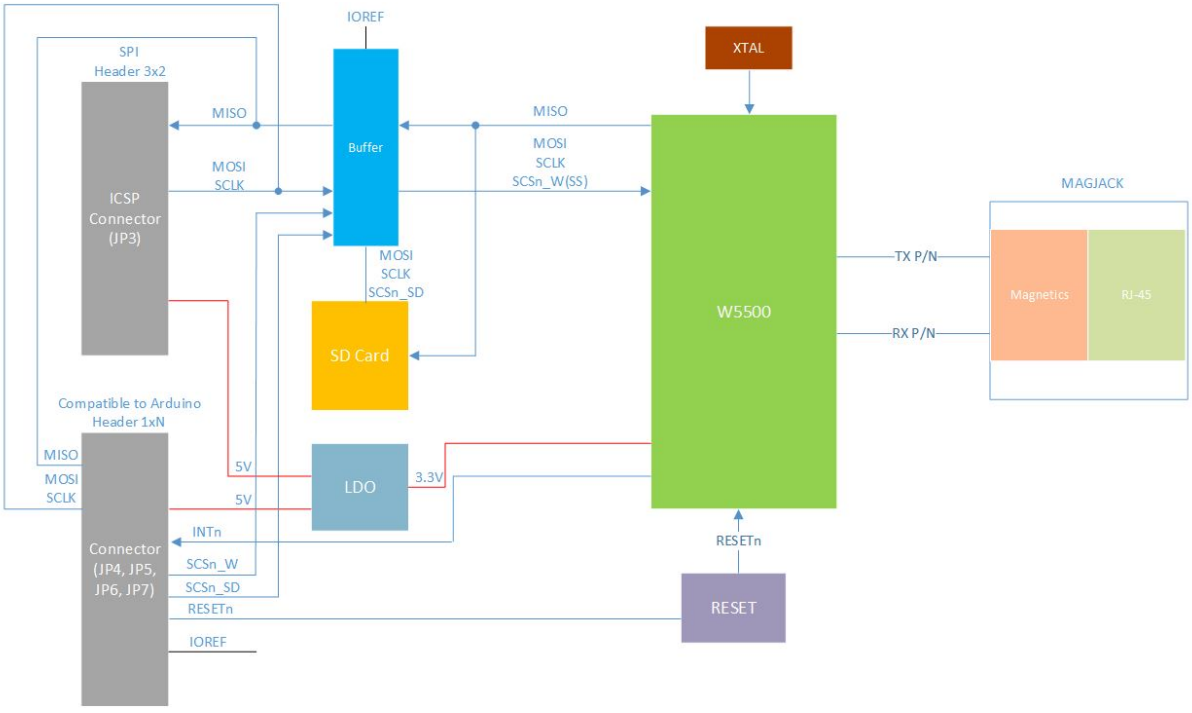
Technical Reference

Block Diagram

- Not buffer



- Using buffer



Rev 1.0 Schematic

- W5500 Ethernet shield Rev1.0 Schematic(Eagle CAD with PCB file)

- W5500 Ethernet shield Rev1.0 Schematic(PDF)

Rev 1.1 Schematic

- W5500 Ethernet shield Rev1.1 Schematic(Eagle CAD with PCB file
- W5500 Ethernet shield Rev1.1 Schematic(PDF)

Rev 1.01_Customize Schematic

- **Do you want to develop new this product? Please look at the Rev 1.01_Customize circuit**
- Rev 1.01 removed the buffer ICs from Rev 1.0 circuit
- Because, Buffer IC was limited delay speed.
- Arduino compatible INT(R25) remove

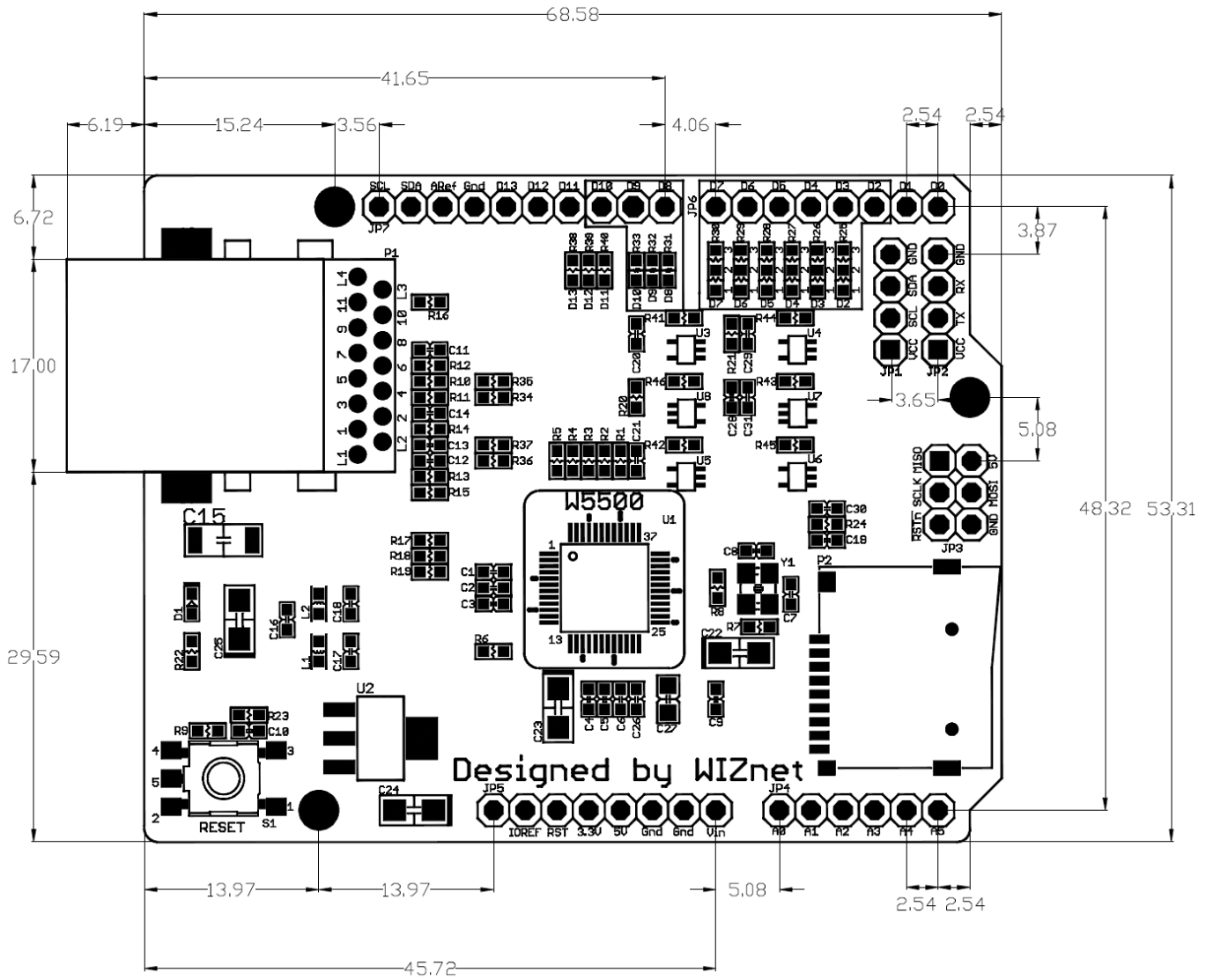
- W5500 Ethernet shield Rev1.01 Schematic

Part list

- W5500 Ethernet shield Rev1.0 Part list

Dimension

- **The board size of the W5500 Ethernet shield Rev1.1 is the same as Rev1.0.**
- W5500 Ethernet shield Rev1.0/1.1 Dimension



Etc.

Using WIZnet Ethernet Library for ioshield-A

- http://wizwiki.net/wiki/doku.php?id=osh:ioshield-a:updatelib

Examples

- http://wizwiki.net/wiki/doku.php?id=osh:ioshield-a:testtwitter

Ethernet Library

- https://github.com/Wiznet/WIZ_Ethernet_Library

See Also

WizWiki Forum : WIZnet Forum for Technical support and Project shared

WIZ550io and ioShield-A for Arduino : Releated Products

Where to Buy

From:
http://wizwiki.net/wiki/ -

Document Wiki

Permanent link:
http://wizwiki.net/wiki/doku.php/osh:w5500_ethernet_shield:start

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