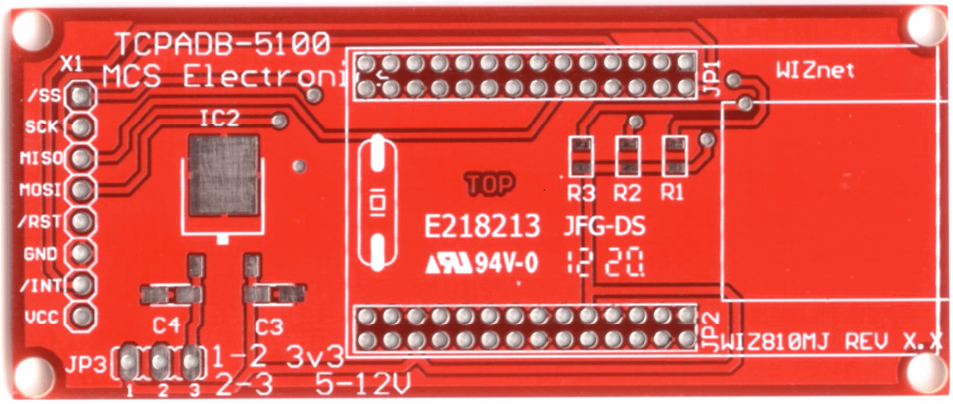
TCPADB5100

The TCPADB5100 adapter board is intended to be used with the Wiznet WIZ810MJ Ethernet module. This module uses the W5100 Ethernet chip. The WIZ810MJ module can be used in bus and SPI mode. I2C mode is not supported by the W5100.

The TCPADB5100 adapter board will put the WIZ810MJ into SPI mode. It has an optional voltage stabilizer and all the pins are reduced to the necessary pins which are available on a pin header. You can use this PCB on a breadboard.



The WIZ810MJ module can be purchased in the MCS Electronics webshop.
The TCPADB5100 is sold a bare board without parts.
The parts can be purchased as an option.

Assembly Instructions

- Start by identifying the parts
- Solder the SMD resistors on the top of the PCB. R1,R2 and R3 are all 10K ohm
- Solder the capacitors C3 and C4. These capacitors have polarity and the white bar marks the positive side.
- Solder IC2, the LF33CDT. This is the voltage stabilizer.
- Solder the jumper pin JP3
- Solder the X1 connector. Take care that this connector is solder on the top of the PCB. Have a look at the image.
- Chose your voltage depending on your processor circuit. If your external circuit is 3V3 you need to put the jumper on pin 1-2. This will not use the voltage converter.
  If your circuit is using 5V, you need to put the jumper on 2-3.
- Solder the module

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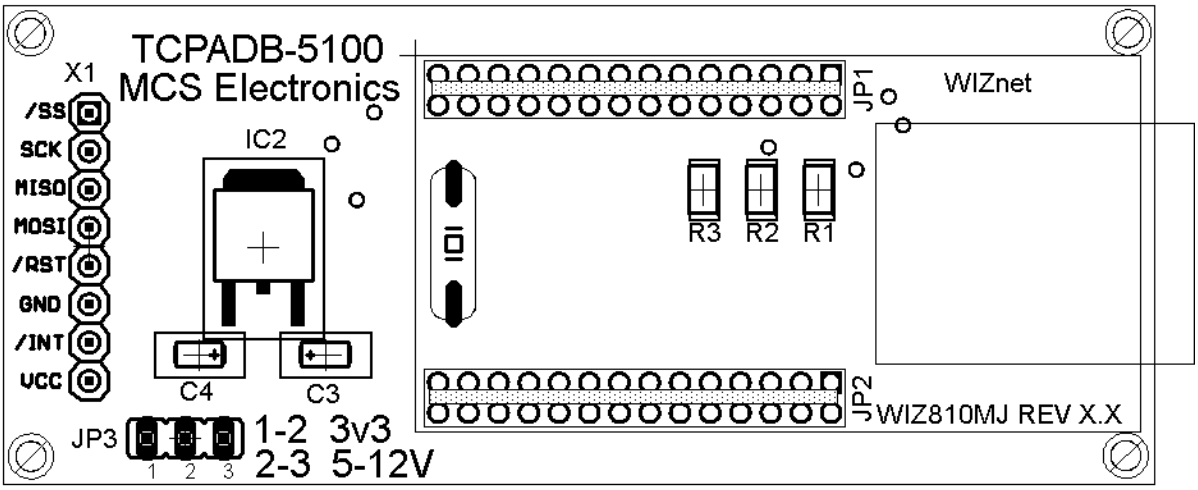
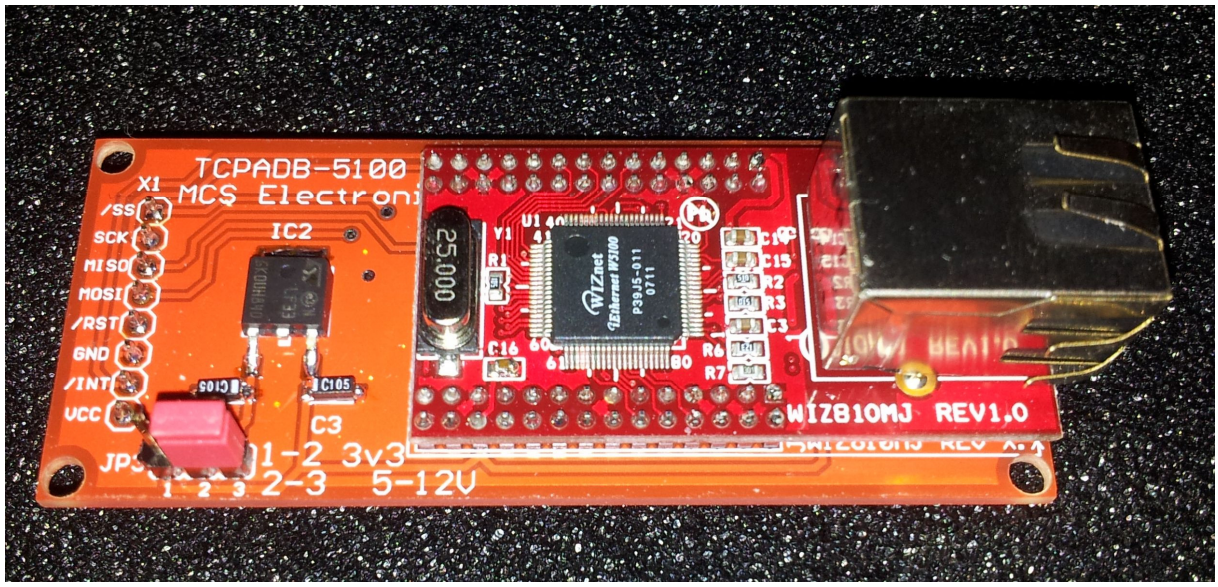


Part List

Part	Value
R1,R2,R3	SMD 0805 resistor 10K
C3,C4	1uF/16V tantalum SMD-B
IC2	LF33CDT, 3v3 voltage stabilizer
JP3	3 pin, pin header + jumper, 2.54 mm
X1	8 pin, pin header, 2.54 mm



Connection

The TCPADB5100 brings the following pins to the X1 connector

Pin 1 (square pad)	/SS. Slave select of SPI. Active low.
Pin 2	SCK. Clock of SPI.
Pin 3	MISO. Master Input Slave Output of SPI
Pin 4	MOSI. Master Output Slave Input of SPI
Pin 5	/RST. Reset, active low.
Pin 6	GND. Ground
Pin 7	/INT. Interrupt. Active low.
Pin 8	VCC. 3v3 when jumper is put on 1-2. 5V when jumper is put in 2-3.

The circuit with a sample connection for an ATMEGA8 you can find at the last page. The /INT, interrupt pin is optional. The module can be used in interrupt or polled mode. The interrupt mode requires that you connect a processor INT pin to the /INT pin of the TCPADB5100.

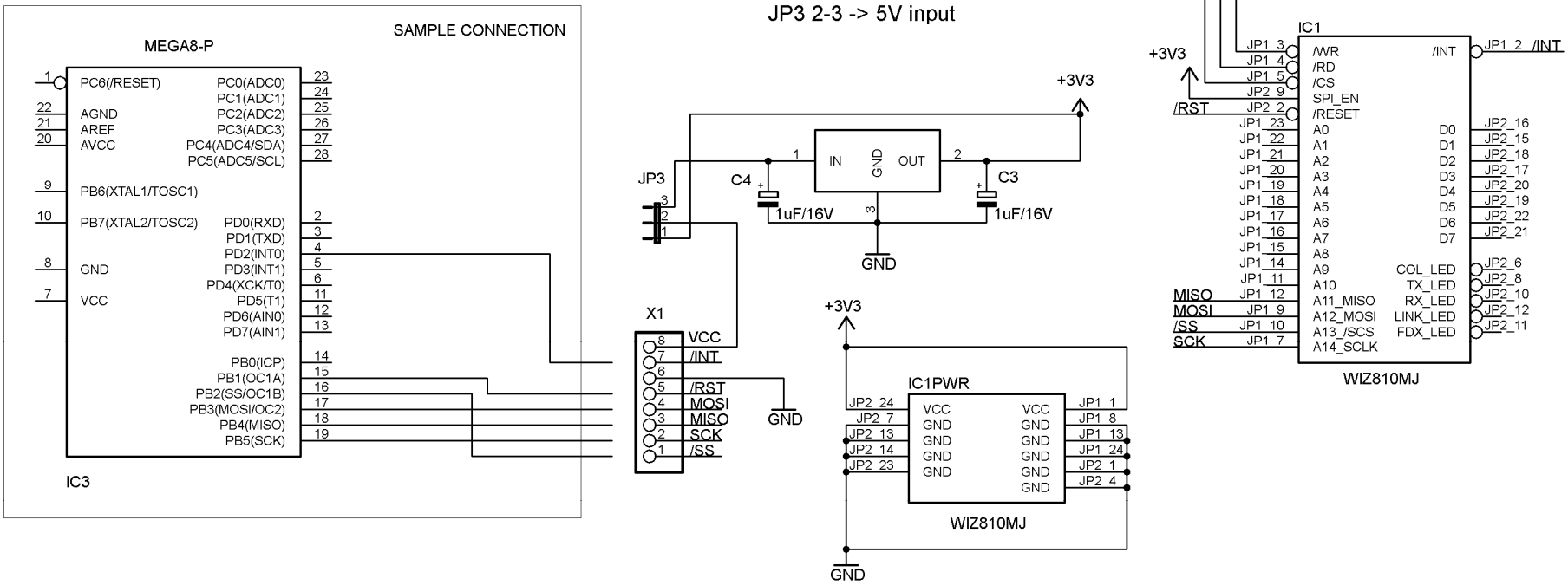
The /RST, reset pin can be connected with the reset of the processor. But you can also use a processor pin to control the reset of the module. For a production device we would recommend this.

Sample Code

The are many samples on the MCS forum. And some of them you can find in the Samples Folder of BASCOM-AVR. A simple SNTP sample is shown below.

```
'-----------------------------------------------------------------------------------------
'name                      : sntp_SPI.bas   RFC 2030
'copyright                 : (c) 1995-2012, MCS Electronics
'purpose                   : test SNTP() function
'micro                     : Mega88
'suited for demo           : yes
'commercial addon needed   : no
'-----------------------------------------------------------------------------------------
$regfile = "m88def.dat"                                     ' specify the used micro
$crystal = 8000000                                          ' used crystal frequency
$baud = 19200                                               ' use baud rate
$hwstack = 80                                               ' default use 32 for the hardware
stack
$swstack = 128                                              ' default use 10 for the SW stack
$framesize = 80                                             ' default use 40 for the frame
space
$lib "datetime.lbx"                                         'this example uses date time
routines

Print "Init TCP"          ' display a message
Enable Interrupts         ' before we use config tcpip , we need to enable the interrupts
Config Tcpip = Int1 , Mac = 12.128.12.34.56.78 , Ip = 192.168.1.70 , Submask = 255.255.255.0 ,
Gateway = 192.168.1.1 , Localport = 1000 , Tx = $55 , Rx = $55 ,  Chip = W5100 , Spi = 1
Print "Init done"

Dim Ip As Long                                              ' IP number of time server
Dim Idx As Byte                                             ' socket number
Dim Lsntp As Long                                           ' long SNTP time

Print "SNTP demo"

'assign the IP number of a SNTP server
Ip = Maketcp(64.90.182.55 )             'assign IP num NIST time.nist.gov  port 37
Print "Connecting to : " ; Ip2str(ip)


'we will use Dutch format
Config Date = Dmy , Separator = -

'we need to get a socket first
'note that for UDP we specify sock_dgram
Idx = Getsocket(idx , Sock_dgram , 5000 , 0)    ' get socket for UDP mode, specify port 5000
Print "Socket " ; Idx ; " " ; Idx

'UDP is a connection less protocol which means that you can not listen, connect or can get the
status
'You can just use send and receive the same way as for TCP/IP.
'But since there is no connection protocol, you need to specify the destination IP address and
port
'So compare to TCP/IP you send exactly the same, but with the addition of the IP and PORT
'The SNTP uses port 37 which is fixed in the tcp asm code

Do

   Waitms 5000

  Lsntp = Sntp(idx , Ip)' get time from SNTP server   'in case of a problem the variable is 0
  Print Date(lsntp) ; Spc(3) ; Time(lsntp)
Loop
```

All BASCOM-AVR TCP/IP commands are supported. You need BASCOM-AVR version 2075 which includes the W5100 library.



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