

Microchip TCP/IP Stack – Quick Demo

1.0 Overview

This document explains the TCP/IP demonstration setup procedure for the Explorer 16 Development Board with Ethernet PICtail™ Plus Daughter Board using Microchip TCP/IP Stack version 4.02 or similar.

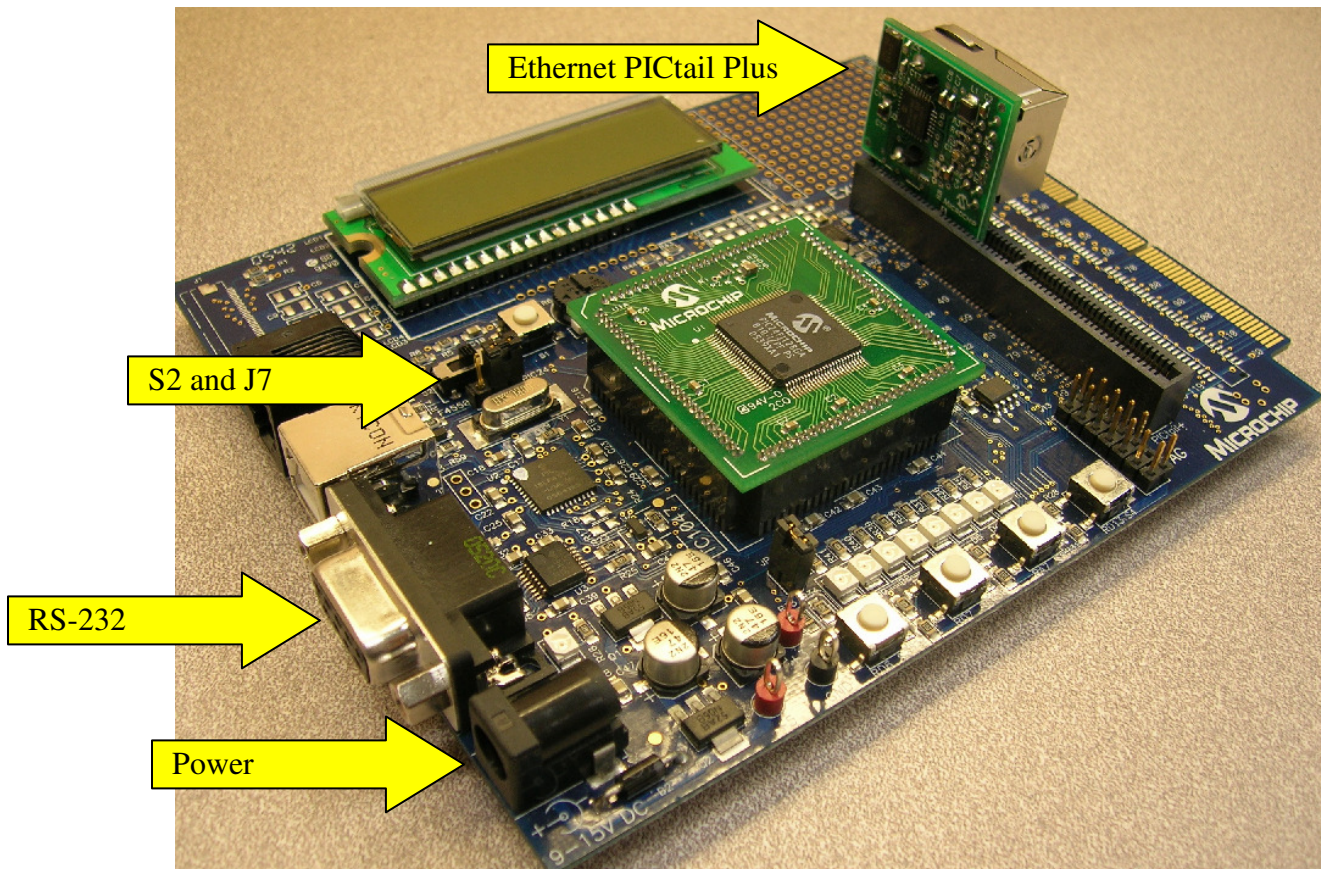
2.0 Explorer 16 Setup

2.1 Connecting Boards Together

The Ethernet PICtail Plus Daughter Board should be inserted into the top most socket of J5. The orientation of the Ethernet PICtail Plus Daughter Board should be such that the RJ-45 socket points toward the prototyping area on the Explorer 16 development board.

Check that:

- Switch **S2** selects **PIM**
- Jumper **J7** selects **PIC24**



3.0 Configure TCP/IP Stack For Your Network

- Use the [TCPIP Demo App\TCPIP Demo App-C30](#) MPLAB project.
- Change the MPLAB Processor selection and Linker Script to match your part (ex: PIC24FJ128GA010, PIC24HJ256GP610, dsPIC33FJ256GP710) and recompile.
- The project includes both a DHCP client and a DHCP server simultaneously enabled. You can connect the board to a “real” network with a DHCP server already present, or directly to your computer via a crossover Ethernet cable. You should be able to immediately access the board via it’s IP address or hostname (default: mchpboard) without having to reconfigure your PC in most cases.

3.1 Erase EEPROM contents

- If the Explorer 16 was successfully programmed and the board is executing the stack, the D3 LED (rightmost one) will blink about once per second.
- If previously the stack was run, your EEPROM (25LC256) on the Explorer 16 board may have incorrect settings. You should erase it to start over.
To erase the EEPROM:
 - Disconnect the ICD2 or REAL ICE programmer from the board
 - Press down [BUTTON0](#) (RD13/S4) and hold it down
 - Press and release the [MCLR](#) button
 - Continue holding [BUTTON0](#) for more than 4 seconds. A couple of LEDs will turn on momentarily indicating that you’ve reached 4 seconds.
 - Release [BUTTON0](#)
 - Press and release the [MCLR](#) button again
- The stack will automatically revert to the default settings, which should be correct for this demo.
- The LCD should display the board’s IP address when the Ethernet cable attached and linked up.

4.0 Upload Web Pages

MPFS Image

Compile web pages into a single MPFS image file to be uploaded. Web pages can be compiled into the project at compile time and stored in internal FLASH memory, or uploaded at run time into an external EEPROM memory. For this example, we will upload into the external EEPROM.

1. Use mpfs.exe command line utility to create one file
2. Click [Start](#) -> [Run...](#)
3. [cmd](#)

Command line:

```
cd your path\Microchip Solutions\TCPIP Demo App  
“..\Microchip\TCPIP Stack\mpfs.exe” WebPages mpfsimg.bin
```

FTP

File Transfer Protocol is an Internet standard protocol implemented in the TCP/IP library. Use it to upload the MPFS Image to the Explorer 16 board.

1. At the command prompt opened earlier, type `ftp mchpboard` and hit enter. If this does not work, (network does not support NetBIOS name service), then instead type `ftp xxx.xxx.xxx.xxx` where xxx.xxx.xxx.xxx is the IP address displayed on the Explorer 16's LCD when the Ethernet cable is connected and linked up.

FTP Utility:

```
Connected to 169.254.1.1.  
220 Ready  
User (169.254.1.1:(none)): ftp  
331 Password required  
Password: microchip  
230 Logged in  
ftp> put mpfsimg.bin  
200 ok  
150 Transferring data...  
#####  
226 Transfer Complete  
ftp: 25692 bytes sent in 0.00Seconds 25691000.00Kbytes/sec.  
ftp> quit  
221 Bye
```

5.0 View Uploaded Web Pages

1. Launch Internet Explorer, Type <http://mchpboard/> in its address box. Again, if this does not work, use the IP address displayed on the LCD.
2. Internet Explorer should download and display Microchip TCP/IP main page as follows. Experiment with the potentiometer and push buttons on the board, and buttons and links in the web browser.

