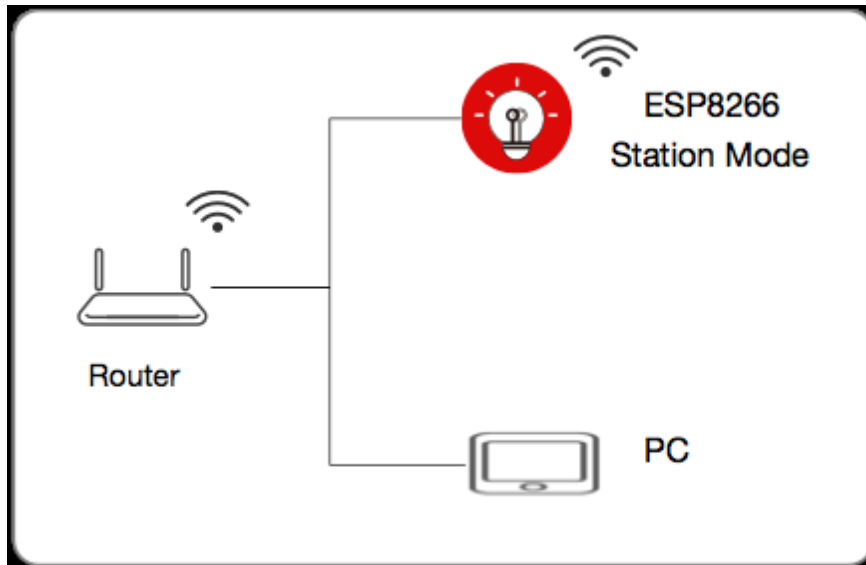# Microsemi Creative board -- WiFi click Ping test.

Architecture:

ESP8266(Wifi3 Click) runs in Station mode. The architecture of the ping test demonstration is shown in below figure

System requirement:

Hardware detail:

- Microsemi Creative Board.
- Wifi3 Click board
- USB cable
- Wifi router
- Laptop with Wifi

Software Requirement.
- Soft Processor (For example, CoreRISCV_AXI4)
- AHB Bus (Matrix)
- SRAM
- APB Bus
- CoreUARTapb
Tools:
- FlashPro tool.
- SoftConsole 5.1

Hardware connection:

- Connect Wifi3 Click board to mikroBUS connector present in Microsemi PolarFire Creative board. Microsemi Creative board and Wifi Click board communicate over UART terminal.
- Connect the Microsemi creative board to the PC through Micro USB cable. User should make sure that UART driver is installed on PC.
- Connect the Laptop to the Wifi router. After loading the demo example project user should able to perform ping operation.
- Also make sure that the SoftConsole tool latest version is installed on your PC.

Testing Procedure: Setting WiFi Click to Station Mode for Ping Test

1. Load the PingTest.stp file into Microsemi Creative board using FlashProTool chain.

   User should download the FlashPro tool chain from the Microsemi websites.
   Link to Microsemi FlashPro tool chain webpage.
   https://www.microsemi.com/products/fpga-soc/design-resources/programming/flashpro#software

   Please refer below FlashPro User Guide which explain in detail how to use Microsemi FlashPro tool. https://coredocs.s3.amazonaws.com/Libero/11_8_1/Tool/flashpro_ug.pdf

2. Connect the Laptop or PC to the WiFi router. Suppose the SSID of the target router is "Microsemi_Guest" and no password.

3. Power on the Microsemi Creative board, Wifi Click board will also power up.
   Wifi click board start sending firmware installation detail through UART terminal at the 74880 baud rate. Wifi Click board will send these detail till it's get ready. After the Wifi Click board is ready, it will set the baud rate to 115200. In example project we are waiting 5 seconds to send the AT commands.

4. Compile and load the Ping test demo example project in Microsemi Creative board using Microsemi SoftConsole tool. And connect Wifi Click to the same router.
   The Ping test demo example project will send AT command to Wifi Click board and the command execution information will be displayed on UART terminal. The demo example project also displays the assigned IP on UART terminal. (Snapshot for reference.)

```
syi
Ping Example Project.

RESET SUCCESSFUL.

RFPOWER command successful.

CWMODE_CUR command successful.

CIPMUX command successful.

AT+CIPSERVER=1,8080

OK
TCP server command successful.


AT+CWJAP_CUR="Microsemi_Guest",
WIFI CONNECTED
WIFI GOT IP

OK
CWJAP_CUR command successful.

AT+CWJAP_CUR?
+CWJAP_CUR:"Microsemi_Guest","d8:c7:c8:4d:bc:62",6,-63

OK
CWJAP_CUR command successful.


AT+CIFSR
+CIFSR:STAIP,"192.168.200.197"
+CIFSR:STAMAC,"5c:cf:7f:1c:ca:b0"

OK
CIFSR command successful.
```

Note:
The Ping test demo example project is configured to connect Microsemi guest router. User should change the below parameter present in main.c file according to the Wifi Router setting.

    const char SSID[] = "Microsemi_Guest";
    const char password[] = "";

5. Running command prompt on the PC again, and input the command shown below to ping Wifi Click Station (IP address is 192.168.200.197 in this case) as shows above in UART snapshot.

6. The result of ping test is as shown below:

```
C:\Users\nitin.deshpande>ping 192.168.200.197 -tcls

Pinging 192.168.200.197 with 32 bytes of data:
Reply from 192.168.200.197: bytes=32 time=58ms TTL=255
Reply from 192.168.200.197: bytes=32 time=77ms TTL=255
Reply from 192.168.200.197: bytes=32 time=167ms TTL=255
Reply from 192.168.200.197: bytes=32 time=237ms TTL=255
Reply from 192.168.200.197: bytes=32 time=4ms TTL=255
Reply from 192.168.200.197: bytes=32 time=3ms TTL=255
Reply from 192.168.200.197: bytes=32 time=4ms TTL=255
Reply from 192.168.200.197: bytes=32 time=4ms TTL=255
Reply from 192.168.200.197: bytes=32 time=8ms TTL=255
Reply from 192.168.200.197: bytes=32 time=5ms TTL=255
Reply from 192.168.200.197: bytes=32 time=4ms TTL=255
Reply from 192.168.200.197: bytes=32 time=79ms TTL=255
Reply from 192.168.200.197: bytes=32 time=4ms TTL=255
Reply from 192.168.200.197: bytes=32 time=5ms TTL=255
Reply from 192.168.200.197: bytes=32 time=7ms TTL=255
Reply from 192.168.200.197: bytes=32 time=3ms TTL=255
Reply from 192.168.200.197: bytes=32 time=4ms TTL=255
Reply from 192.168.200.197: bytes=32 time=4ms TTL=255
Reply from 192.168.200.197: bytes=32 time=5ms TTL=255
Reply from 192.168.200.197: bytes=32 time=4ms TTL=255
Reply from 192.168.200.197: bytes=32 time=4ms TTL=255
Reply from 192.168.200.197: bytes=32 time=70ms TTL=255
```

UART Log:

```
 α
  zï≤█ ▐©â[÷ ▐?k█ ▐©ö&osΣïot¢k└┴tº>ϒck[ÿ♀ï[ù┊μΥ┘ ▐¦k¢ ▐┌>c┘ùÿ┝)δÿ┴
 PolarFire WiFi3 Click Ping Example Project.
AT+RST

OK
 RESET command successful.
 AT+RFPOWER=50

OK
 RFPOWER command successful.
 AT+CWMODE_CUR=1

OK
 CWMODE_CUR command successful.
 AT+CIPMUX=1

OK
 CIPMUX command successful.
 AT+CWJAP_CUR="Connectify-me","fewepom4"
WIFI CONNECTED
WIFI GOT IP

OK
 CWJAP_CUR command successful.

AT+CWJAP_CUR?
+CWJAP_CUR:"Connectify-me","86:ef:18:9d:2c:77",6,-33

OK
 CWJAP_CUR? command successful.


AT+CIFSR
+CIFSR:STAIP,"192.168.137.102"
+CIFSR:STAMAC,"5c:cf:7f:1c:ca:b0"

OK
 CIFSR command successful.


AT+CIPMUX=0

OK
 AT+CIPMUX ok.


AT+CIPSTART="UDP","192.168.137.1",61773,6000,0
CONNECT

OK
 create udp client ok.




*******************************************************************
************* PolarFire WiFi3 Click UDP Example Project ************
*******************************************************************
  Press '1' to send data.
Microsemi Hyderabad
```