

# Issues in wireless communication (802.11) between two Cypress modules

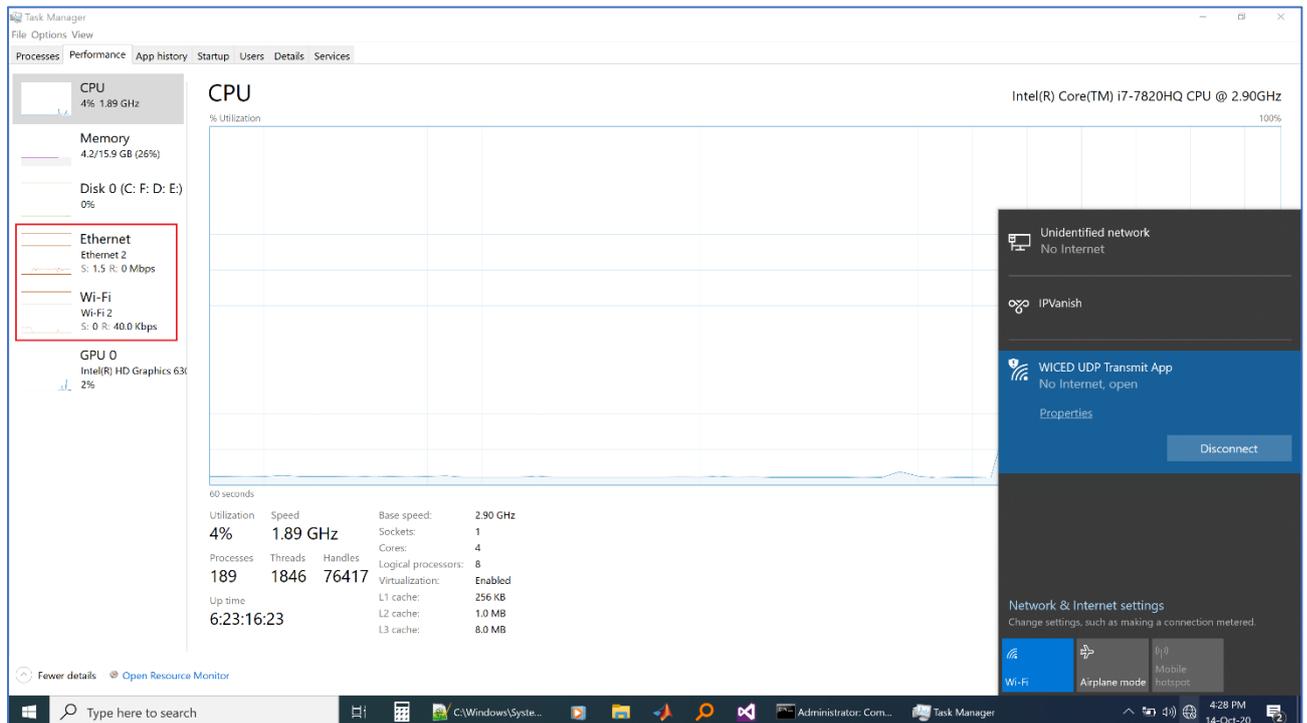
## Configuration overview:

- Two CYPRESS CYW954907 modules available.
- One is programmed for data reception over Ethernet and transmission over WIFI.
- Another one is programmed for data reception over WIFI and data transmission over Ethernet.

## Case 1:

### Data reception over Ethernet:

- Kit 1 is configured with 192.168.1.21 (WICED UDP Transmit App) and laptop is configured with 192.168.1.31. The protocol being used is UDP and port being used is 50007.
- The laptop generates data and sends it to the CYPRESS module via Ethernet cable. The speed in this case is around 800 kbps. The same is shown in the screenshot below (marked inside the red box).



### Data transmission over WIFI:

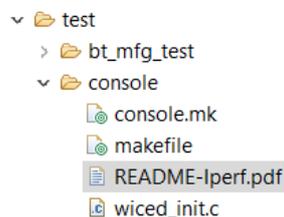
- The kit is programmed to broadcast the received data (192.168.1.255) as it is over UDP protocol on port number 50007.
- Laptop is then connected to the WIFI (WICED UDP Transmit App). The network parameters were checked for the connectivity. The same is shown in the screenshot above.
- The link was shown to have available bandwidth of 72 Mbps of which only 0.07% is being utilized. The same is shown in the image below.

## Data reception over WIFI and transmission over Ethernet:

- Another board was configured with IP address 192.168.1.22 and programmed to receive the UDP data over port number 50007.
- This data is passed over Ethernet to a system with IP 192.168.1.32.
- Upon checking the network parameters, the data reception was about 40-60 kbps only.
- **Query:** where can be the issue in achieving the required data rate from transmission module?

## Case 2:

- To debug the issue, the second board was configured with *test.console* and commands were run as guided in README-lperf.pdf.



- Screenshot below shows the outcome.

```
> join "WICED UDP Transmit App" open 50007 192.168.1.21 255.255.255.0 192.168.1.22
Joining : WICED UDP Transmit App
Successfully joined : WICED UDP Transmit App
IPv4 network ready IP: 192.168.1.21
Setting IPv6 link-local address
IPv6 network ready IP: FE80:0000:0000:0000:8E45:00FF:FED6:3C90
> ping 192.168.1.21
PING 192.168.1.21
Ping Reply 0ms
--- 192.168.1.21 ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 0/0.0/0/0 ms
> start_ap "WICED UDP TRANSMIT APP" open DUMMY_KEY 1
Open without any encryption
OK to proceed? [y or n]
y
IPv4 network ready IP: 192.168.0.1
Setting IPv6 link-local address
IPv6 network ready IP: FE80:0000:0000:0000:8C45:00FF:FED6:3C90
```

```
> iperf -c 192.168.1.21 -u -p 50007 -t 60 -i 10
-----
Client connecting to 192.168.1.21, UDP port 50007
Sending 1470 byte datagrams
UDP buffer size: 7.81 KByte (default)
-----
[ 0]  0.0-10.0 sec  1.25 MBytes  1.05 Mbits/sec
[ 0] 10.0-20.0 sec  1.25 MBytes  1.05 Mbits/sec
[ 0] 20.0-30.0 sec  1.25 MBytes  1.05 Mbits/sec
[ 0] 30.0-40.0 sec  1.25 MBytes  1.05 Mbits/sec
[ 0] 40.0-50.0 sec  1.25 MBytes  1.05 Mbits/sec
[ 0] 50.0-60.0 sec  1.25 MBytes  1.05 Mbits/sec
[ 0]  0.0-60.0 sec  7.50 MBytes  1.05 Mbits/sec
[ 0] Sent 5352 datagrams
```

- As shown in the screenshot, the data rate is also about 1.05 Mbps.