CC32xx UDP Socket Application

Overview

A CC3200 device can communicate over network using standard communication protocols such as TCP and UDP. This can be accomplished without even using a Real Time Operating System (RTOS).



Note: This wiki page is only applicable for CC3200-SDK v0.5.2 and upward releases. For documentation on older SDKs' examples, refer corresponding file in <cc3200-sdk-installation-location>\cc3200-sdk\docs\examples\

Application details

This particular application illustrates how this device can be used as a client or server for UDP communication. Developers/users can refer the function or re-use them while writing new application. The device will connect to an AP (access point), with SSID for AP stored as a macro in the application. Initially, the application implements a UDP client and sends 1000 UDP packets to a socket address, port number and ip address specified as macros. Zero will be the expected return code.

A different return code would mean that socket error has occurred.

Default setting is defined as in following MACROs, which can be changed either in source code or at runtime.

```
'#define SSID_NAME "cc3200demo"

#define IP_ADDR 0xc0a80167

#define PORT_NUM 5001

#define UDP_PACKET_COUNT 1000 '
```

Source Files briefly explained

- main.c main file calls simplelink APIs to connect to the network, create socket and use it to communicate over UDP by acting as a UDP client or server.
- pinmux.c pinmux file to mux the device to configure UART peripheral
- startup_ccs.c CCS specific vector table implementation for interrupts.
- startup_ewarm.c IAR workbench specific vector table implementation for interrupts.

Code flow

Connection

```
void main()
{
.
.
.
.
// staring simplelink
sl_Start(NULL, NULL, InitCallback);
.
.
```

```
.

// Connecting to WLAN AP - Set with static parameters defined at the top

// After this call we will be connected and have IP address
sl_WlanConnect(SSID_NAME, strlen(SSID_NAME), 0, &secParams, 0);

/* following calls depend on user's input at runtime */

// Before proceeding, please make sure to have a server waiting on PORT_NUM
BsdUdpClient(PORT_NUM);

// After calling this function, you can start sending data to CC3200 IP

// address on PORT_NUM
BsdUdpServer(PORT_NUM);

.
.
.
.
```

Check Device acquired IP-address

UDP Client

```
int BsdUdpClient(unsigned short usPort)
{
.
.
.
.
//Open a socket with standard parameters
iSockID = sl_Socket(SL_AF_INET, SL_SOCK_DGRAM, 0);
if( iSockID < 0 )
{
// error</pre>
```

```
return -1;
//Send packet using the sl_Send API call
iStatus = sl_SendTo(iSockID, g_cBsdBuf, sTestBufLen, 0, &sAddr, iAddrSize);
if( iStatus <= 0 )
{
// error
sl_Close(iSockID);
return -1;
/*********************
* Put a break point here to check if device has
* sent the specified no. of UDP packets
******************
//Close the socket
sl_Close(iSockID);
return 0;
}
```

Sending the UDP Packets is a simple three step process

- 1. Open the socket
- 2. Send the packets
- 3. Close the socket

UDP Server

```
int BsdUdpServer(unsigned short usPort)
{
.
.
.
.
iSockID = sl_Socket(SL_AF_INET, SL_SOCK_STREAM, 0);
if(iSockID < 0)
{
// error
return -1;
}
.
.
iStatus = sl_Bind(iSockID, (SlSockAddr_t *)&sLocalAddr, iAddrSize);</pre>
```

Steps for receiving UDP Packets as a UDP server are as follows

- 1. Open the socket
- 2. Create a UDP server
- 3. receive packets
- 4. Close the socket

Usage

• Setup a serial communication application (HyperTerminal/TeraTerm). For detail info visit Terminal setup

Note: Disable PC anti-virus while running iperf.

On the host PC. The settings are:

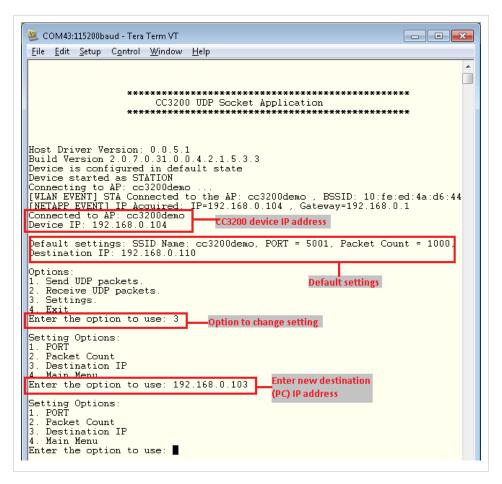
- Port: Enumerated COM port (CC3200LP Dual port)

- Baud rate: 115200

- Data: 8 bit- Parity: None- Stop: 1 bit

- Flow control: None

- Run this application (udp_socket) from IAR/CCS or Flash the bin file to device.
- Connect a PC to same AP over which device has connected.
- Get the ip address of the PC and fill this value for IP_ADDR macro or change the setting as specified in snapshot-



- Change the other setting (port, SSID name, packet count) as per requirement.
- Choose the options
 - 1: Send UDP packets
 - 2: Receive UDP packets

after selecting above options run **iperf** command on PC command prompt as given in TeraTerm/HyperTerminal screen.

• Observe the execution flow to understand the working.

Limitations/Known Issues

None.

Article Sources and Contributors

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