Exercise 21: Bluetooth Interface

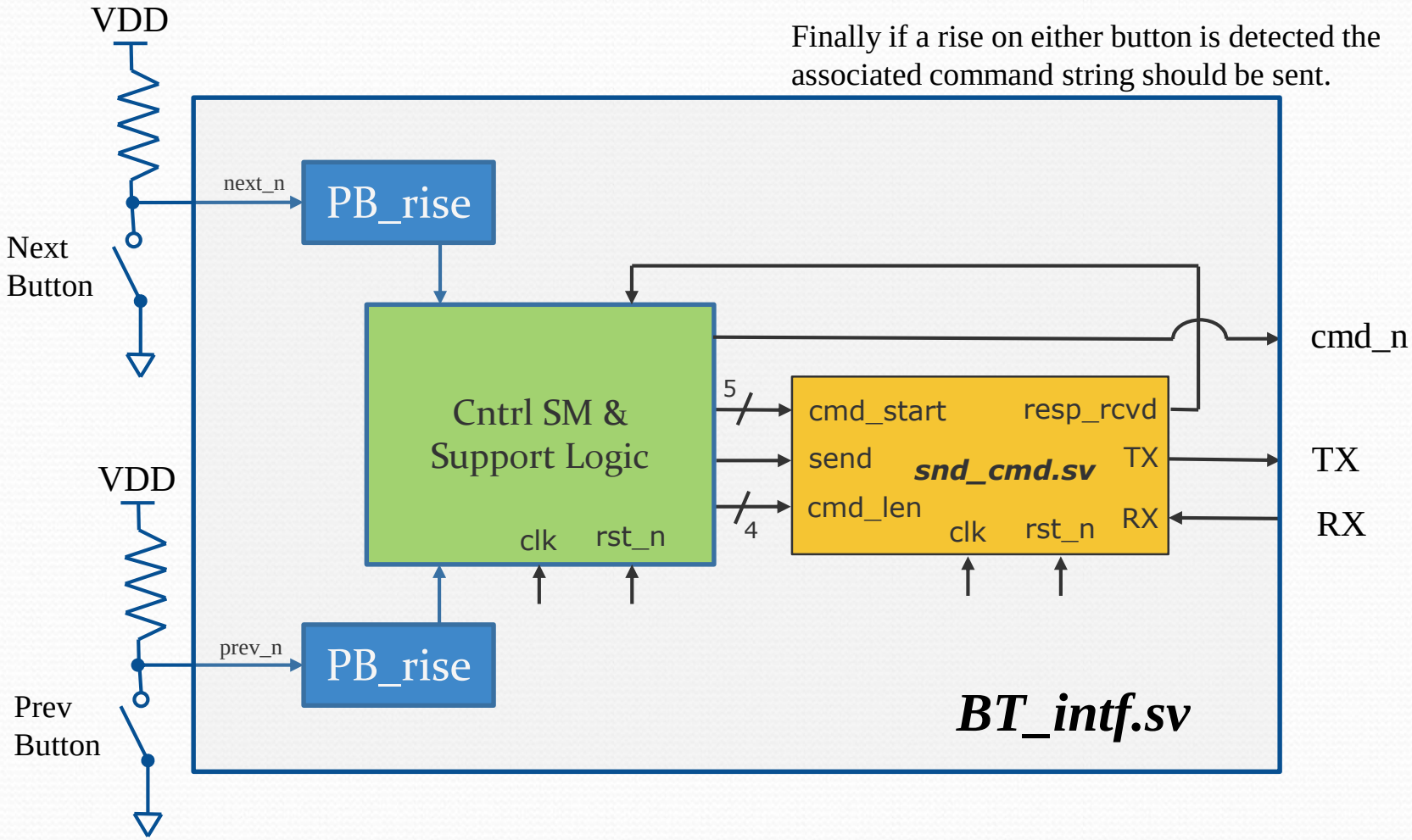
- In HW4 you built **snd_cmd.sv**. That was capable of sending commands strings (via UART) to the RN-52 Bluetooth module
- The command first two strings are related to initialzing the module, and you tested these during HW4.
- The next two command strings are related to skipping to next or repeating previous tracks.
- The initialization strings (what you did in HW4) should always be sent right after reset. The Next and Prev strings should be sent in response to button pushes (actually releases) on the device.

Exercise 21: Bluetooth Interface

After reset **cmd_n** is held high until a 17-bit timer expires. Then **cmd_n** is lowered. The lowering of **cmd_n** will produce a response from the RN-52.

Next the two initialization commands should be sent with a wait for a response for each one.

Finally if a rise on either button is detected the associated command string should be sent.

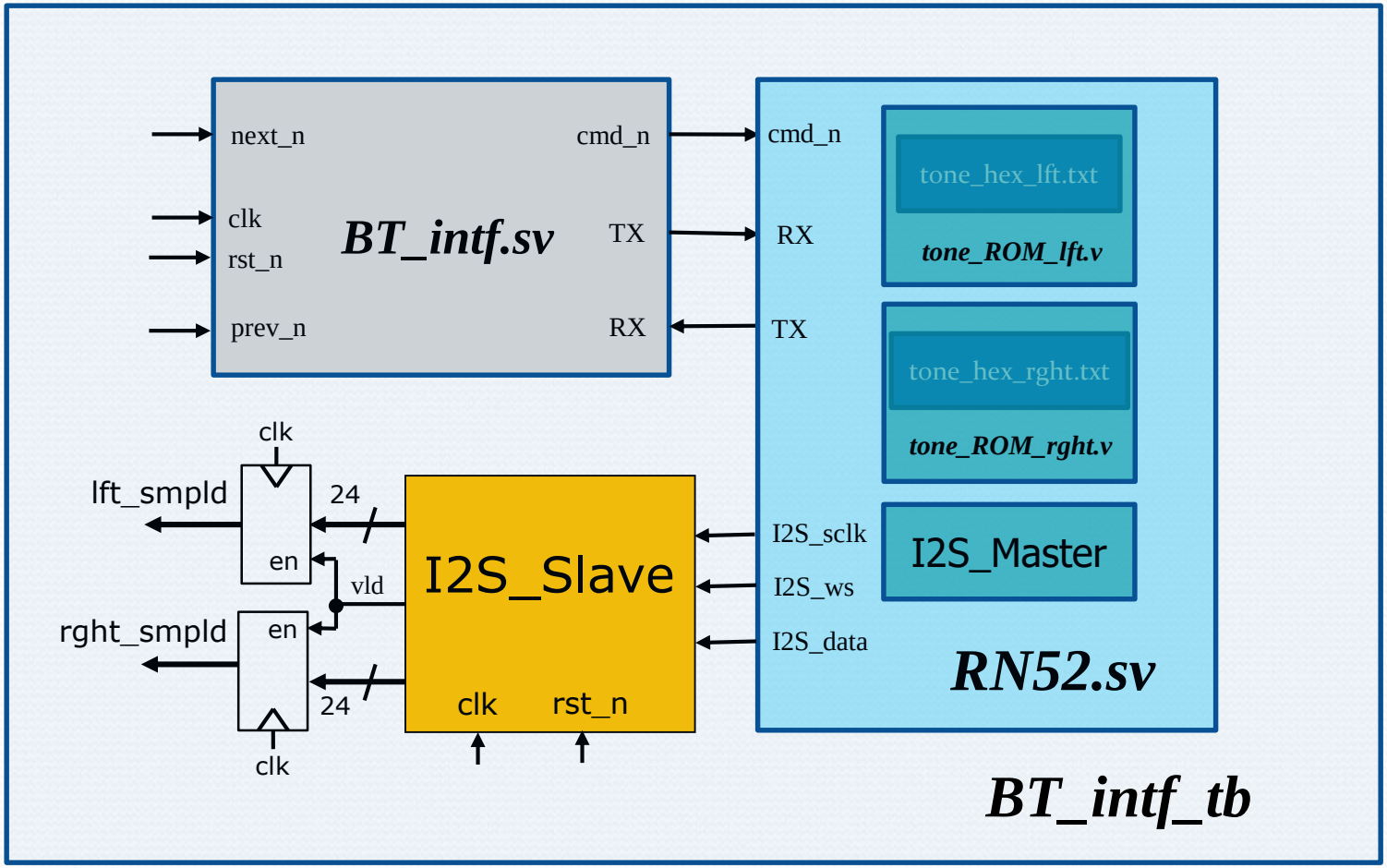


Exercise 21: Bluetooth Interface

Start Addr:	Length:	String	Description:
5'b00000	6	S|,01\r	Tells RN-52 to output audio in I2S format
5'b00110	10	SN,ECE551\r	Sets the advertising name of the BT service. Change this to a 6-byte string of your choice.
5'b10000	4	AT+\r	Advance to next track
5'b10100	4	AT-\r	Repeat previous track

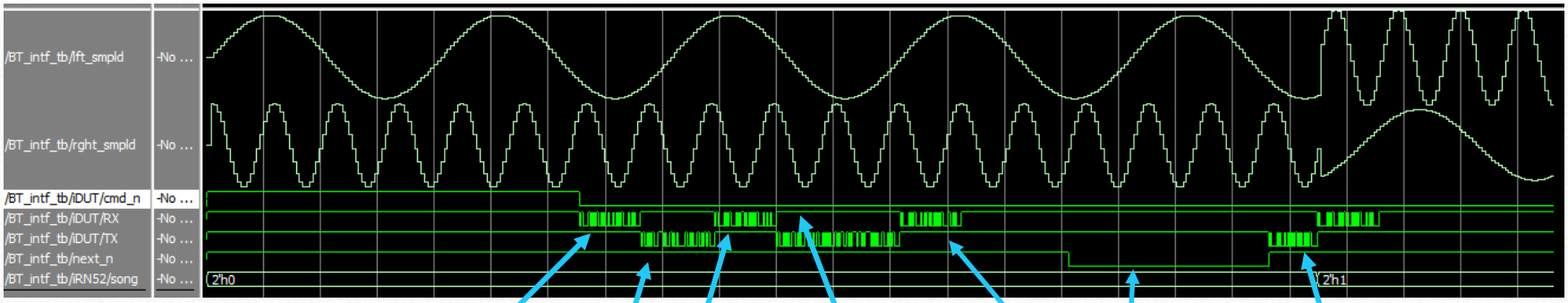
I would like you to change the advertised name from ECE551 to any 6-byte string that represents your team. This will make it easier for us to verify we are running your code at demo time. Don't change the length of the string from 6. You modify **cmd_hex.txt** to do this.

Exercise 21: Bluetooth Interface (testing it)



Download the .zip file that has RN52.sv and all its sub files. Combine it with your **BT_intf** and **I2S_Slave** and the sampling logic shown. There are 4 "songs" in **RN52.sv**

Exercise 21: Bluetooth Interface (testing it)



Response from RN-52 due to lowering **cmd_n**

1st initialization command "S|,01" being sent to RN-52

Response from RN-52 for 1st initialization command

2nd initialization cmd (the one you change to 6 chars of your choice) being sent

Response from RN-52 for 2nd init cmd

Press and release of **next_n** button

BT_intf sends the "AT+" command to skip to next track

RN-52 model simply switches left and right channel when it moves from song 0 to song 1.