**Race condition analysis in PNP SPI driver:-**

1. Slave/ Tuner chip transmits data to SOC by generating an interrupt to SOC. After getting interrupt, SPI master of SOC activates CS and enables clock for data to be read from slave.
2. Slave cannot activate IRQ, when CS is active.

Slave must wait until CS is clear.

1. Slave releases IRQ after CS is released.

Note - Because the host do not know how much size the host should read when reading Rx data, the host can first read the 12 bytes header, get the data length in the DATA LEN field of header, and then read the data length and checksum (4 bytes).

1. Race condition: -

Master activates CS to transmit data, as no IRQ in that moment.

Similarly, at the same time as CS was not active, slave activates IRQ.

Race condition between IRQ and CS must be solved on both sides.

Slave generates IRQ when CS is released.

Master tries to send data, as no IRQ.

1. Command/Response packet size analysis: -

In WWR software, the size of a command / response / notification message is currently not fixed. However, in case of the actual data cannot be transferred within a single message, it can be segmented into several messages. The maximum transferable message size is 65024(2032\* 32) bytes.

So, large messages can be transmitted into 32 segments with segment number from 0 to 31.

Command / Response / Notification Message configuration: -



By Prasad:-

master sends how much :  
- fixed, variable  
- if master size is more than header; then what about read data and rest of data ?  
- if master size is less than header; then what about rest of header ?

last two points are for rest condition

* I should try to know, what happens if partial data is read from Tuner chip.