

gr-gsm - Feature #3423

Receiver: hard-coded GSM 05.02 channel configuration

07/26/2018 08:15 PM - fixeria

Status: Stalled	Start date: 07/27/2018
Priority: Normal	Due date:
Assignee: ptrkrysik	% Done: 20%
Category:	
Target version:	
Spec Reference:	
Description Unlike OsmoTRX , it's impossible to configure the desired channel configuration. Please see GSM 05.02, section 6.4 "Permitted channel combinations". In order to reduce the recourse consumption, it makes sense to implement some API, which would allow both initial and dynamic timeslot configuration...	

History

#1 - 07/27/2018 08:24 PM - ptrkrysik

Just a note that in my opinion we more need to be able to configure what is configuration of burst types in given timeslot. We don't need to inform it what exact logical channel types are bound to given timeslot.

#2 - 07/28/2018 10:51 AM - fixeria

Well, I think e.g. this 'FCCH+SCH+CCCH+BCCH' combination clearly defines which types of bursts we would expect on a given timeslot...

This is already implemented in [OsmoTRX](#), have a look:

<https://git.osmocom.org/osmo-trx/tree/Transceiver52M/Transceiver.h#n131>
<https://git.osmocom.org/osmo-trx/tree/Transceiver52M/Transceiver.cpp#n411>

Also, trxcon is capable to send 'SETSLOT <TS> <TYPE>' command, which AFAIR contains exactly a channel combination number...

#3 - 07/28/2018 10:53 AM - fixeria

For sure, we may also implement an advanced channel combination option, which would allow to specify required burst types manually, e.g. 'sb,fb,nb'...

#4 - 07/28/2018 11:04 AM - ptrkrysik

In my opinion all the receiver should care is if it should expect in a given timeslot:

- normal burst
- normal burst or dummy burst,
- normal burst or nothing,
- FCCH,
- SCH.

We can use the combinations as a set of predefined configurations of burst types, but I wouldn't limit the receiver to those.

#5 - 01/19/2019 12:27 PM - fixeria

- *Tracker changed from Bug to Feature*
- *Status changed from New to Stalled*
- *% Done changed from 0 to 20*

Initial work can be found in a separate branch: https://git.osmocom.org/gr-gsm/log/?h=fixeria/mf_config

As it turns out, indicating a channel combination alone is not enough, because unlike the BTS, we don't need to detect and demodulate bursts on all logical channels of a given timeslot configuration. So, I am not sure if the current API is exactly what we need, it's too low level...

A possible solution is to define the most useful channel combinations from GSM 05.02 in Receiver, either as it's done in `trxcon` and `osmo-bts`, or as it's done in the firmware of `OsmocomBB`:

https://git.osmocom.org/osmocom-bb/tree/src/host/trxcon/sched_mframe.c
https://git.osmocom.org/osmocom-bb/tree/src/target/firmware/layer1/mframe_sched.c

and introduce a new TRXC command, that will be used to activate or deactivate particular logical channels, e.g.:

```
SETLCHAN <TS> <LCHAN> <STATE>

SETLCHAN 0 FCCH 1
SETLCHAN 0 SCH 1
SETLCHAN 0 CCCH 1

SETLCHAN 1 TRXC_SACCH4_3 0
SETLCHAN 1 TRXC_SDCCH4_3 1
```

#6 - 02/06/2019 09:56 AM - ptrkrysik

Receiver is a low level creature and it will have low level interface. The entity that controls it will know about combinations that make sense in current GSM networks.

However current API needs extension with ability to tell when (for which frame number) change should take place.

#7 - 02/06/2019 10:00 AM - fixeria

Ok, I am agree with you. There is no need to overload the Receiver with GSM 05.02 channel combinations, we can offload this to `grgsm_trx` or even to `trxcon`. Please see my initial (hackish and draft) attempt: https://git.osmocom.org/gr-gsm/log/?h=fixeria/mf_config.