

OsmocomBB - Feature #3558

trxcon/scheduler: implement CBCH support

09/16/2018 02:09 PM - fixeria

Status: Resolved	Start date: 09/16/2018
Priority: High	Due date:
Assignee: fixeria	% Done: 100%
Category: trxcon	
Target version: Improvement of the higher layers of OsmocomBB	
Resolution:	Spec Reference:
Description	
Initial work can be found in https://git.osmocom.org/osmocom-bb/log/?h=laforge/cbch	
Related issues:	
Related to OsmoBTS - Bug #1617: osmo-bts-trx doesn't support CBCH	Stalled 02/23/2016

History

#1 - 09/17/2018 08:24 PM - fixeria

- Related to Bug #1617: osmo-bts-trx doesn't support CBCH added

#2 - 09/29/2018 11:47 AM - fixeria

Initial attempt to extend L1CTL with CBCH was already done in 2013, please see:

<http://lists.osmocom.org/pipermail/baseband-devel/2013-January/003833.html>

I think (ab)using L1CTL_DM_EST_REQ message is a bad idea. The L23 applications should be able to receive CBCH messages without switching to a dedicated mode, i.e. while being in IDLE mode.

#3 - 10/01/2018 07:51 PM - fixeria

- Status changed from New to In Progress

- % Done changed from 0 to 80

I just implemented CBCH support for both Capypso and trxcon PHYs, please see:

<https://gerrit.osmocom.org/11178/> trxcon/sched_lchan_desc.c: fix wrong chan_nr for PDCH
<https://gerrit.osmocom.org/11179/> trxcon/l1ctl.c: properly handle indicated CCCH mode
<https://gerrit.osmocom.org/11180/> firmware/layer1: inform about unhandled scheduler tasks
<https://gerrit.osmocom.org/11181/> firmware/layer1: add scheduler tasks for CBCH
<https://gerrit.osmocom.org/11182/> trxcon/scheduler: add CCCH/SDCCH mframe layouts with CBCH
<https://gerrit.osmocom.org/11183/> l1ctl_proto.h: extend cch_mode enum with CBCH

Please note that the L23 applications are unable to handle CBCH messages properly, because we are using Osmocom specific cbits to "identify" them. But for TTCN-3 there should be no difference ;)

In short, sending L1CTL_FBSB_REQ or L1CTL_CCCH_MODE_REQ with CCCH_MODE_COMBINED_CBCH would enable CBCH decoding tasks for both PHYs in idle mode (i.e. there is no need to switch PHY to dedicated mode). This is actual for SDCCH/4+CBCH only!

In order to test CBCH on SDCCH/8, one would need to send regular L1CTL_DM_EST_REQ. The problem is that decoded CBCH messages would arrive with cbits != 0xc8, because

the L1 code still needs to be modified in order to distinguish CBCH on SDCCH/8.

#4 - 10/01/2018 09:57 PM - fixeria

- *Status changed from In Progress to Feedback*

- *% Done changed from 80 to 90*

Ok, I've finally decided to split CBCH into two separate logical channels. This is required because we need to distinguish between CBCH on SDCCH/4 (C0/TS0) and CBCH on SDCCH/8 (CX/TS0).

Also, activating CBCH on SDCCH/4 by default makes much more sense than on SDCCH/8, because in the second case it can be a hopping channel (unlike SDCCH/4), so we would get garbage...

The problem is that decoded CBCH messages would arrive with cbits != 0xc8, because the L1 code still needs to be modified in order to distinguish CBCH on SDCCH/8.

This should have been fixed in the latest patch set.

#5 - 10/03/2018 09:10 AM - fixeria

- *Status changed from Feedback to Resolved*

- *% Done changed from 90 to 100*

Merged. Please re-open if something wouldn't work.