Fixing A Corner Case in the Link Monitor State Diagram

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Mike Tu tum@broadcom.com
Steven Chen steven.chen@broadcom.com
Tom Souvignier tom.souvignier@broadcom.com

A Corner Case in Link Monitor State Diagram

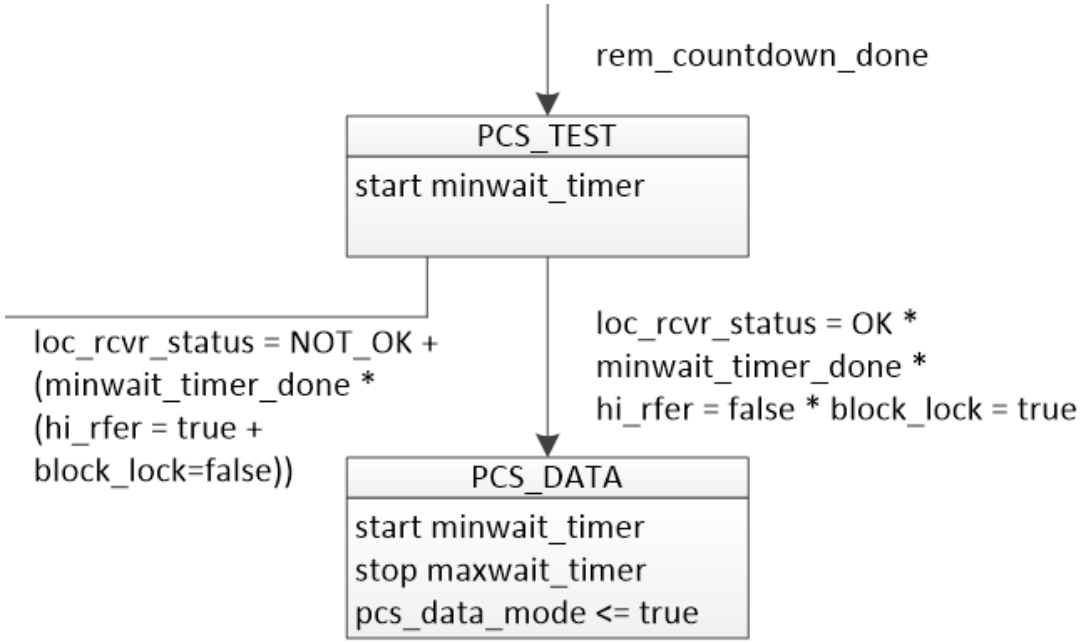


Figure 149-33 PHY Control

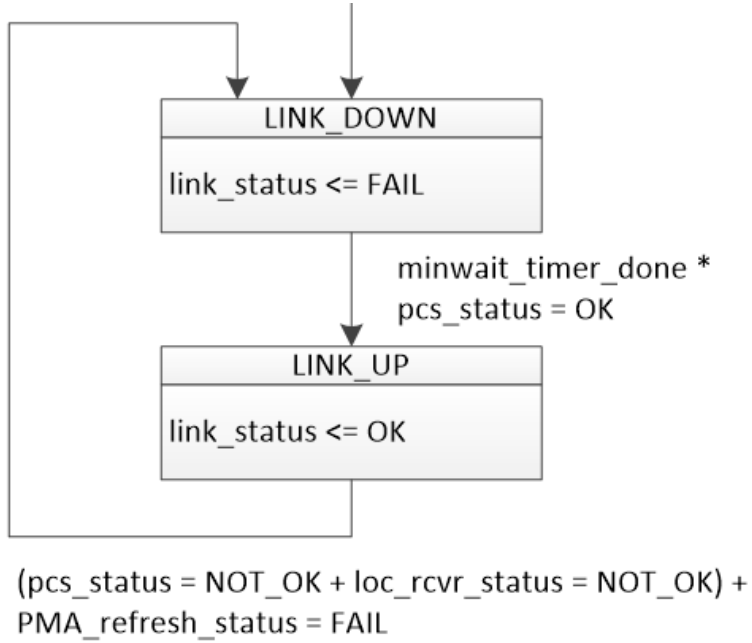


Figure 149-33 Link Monitor

- PHY Control enters from PCS_TEST into PCS_DATA
  - pcs_data_mode becomes true ➔ pcs_status becomes OK
  - minwait_timer is started
- Corner case: before minwait_timer expires, the pcs_status is lost due to loc_rcvr_status=false or hi_rfer=true
  - Link Monitor state machine never goes into LINK_UP state ➔ excessive delay to restart training

Link Monitor Corner Case – A Simple Solution

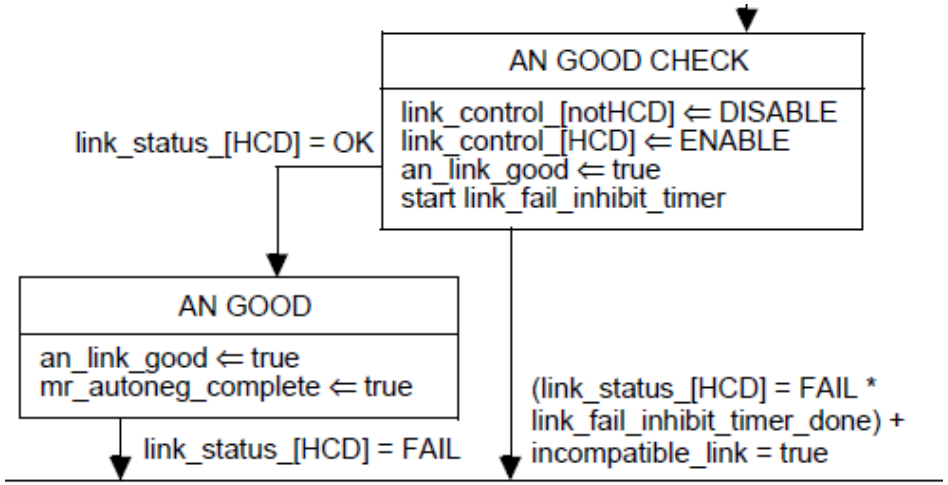
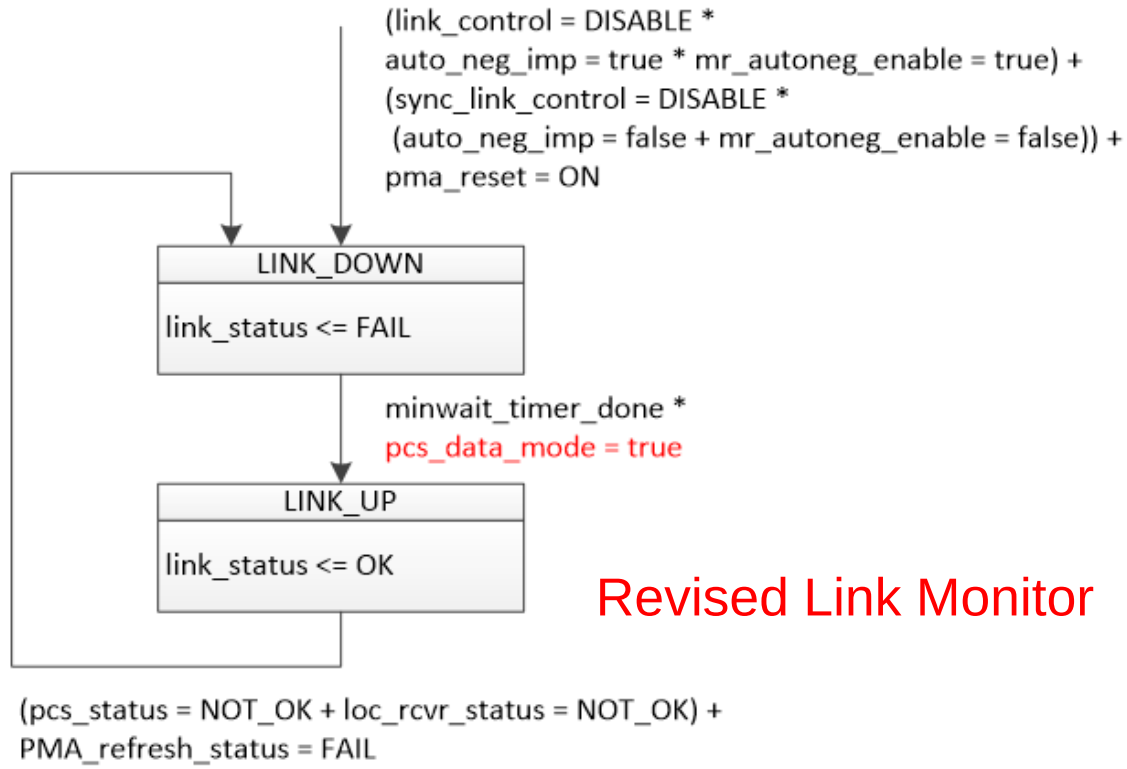


Figure 98-7: autoneg

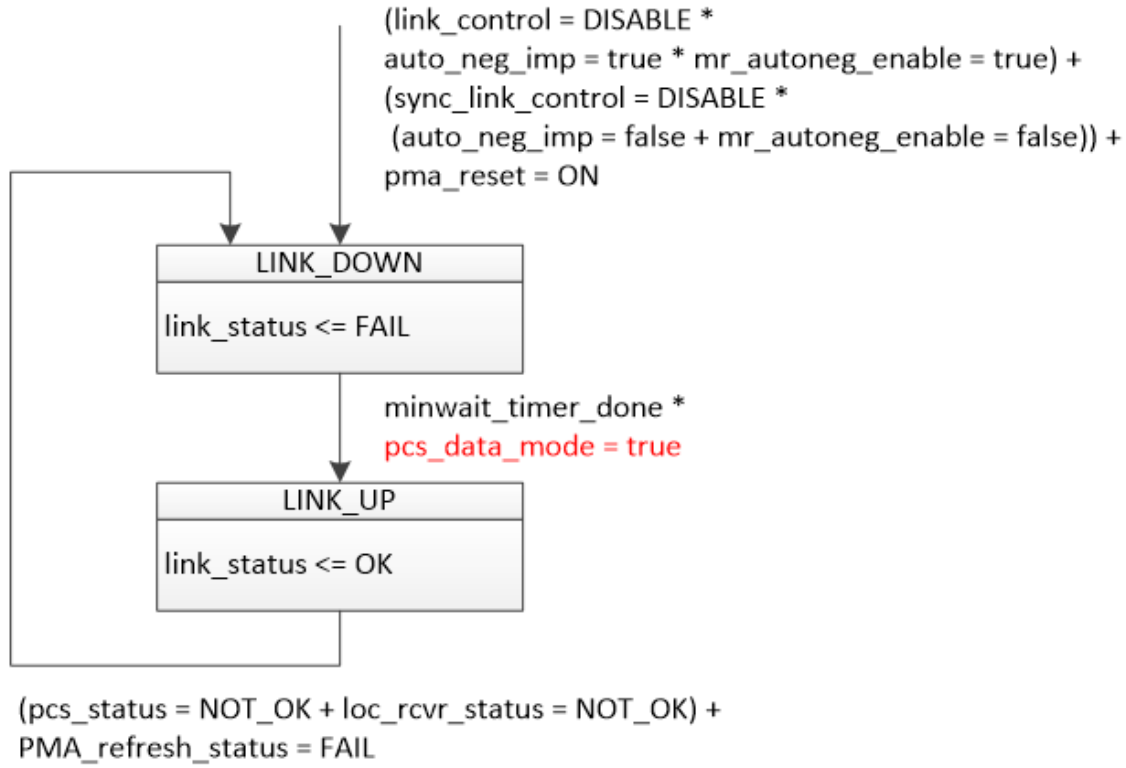


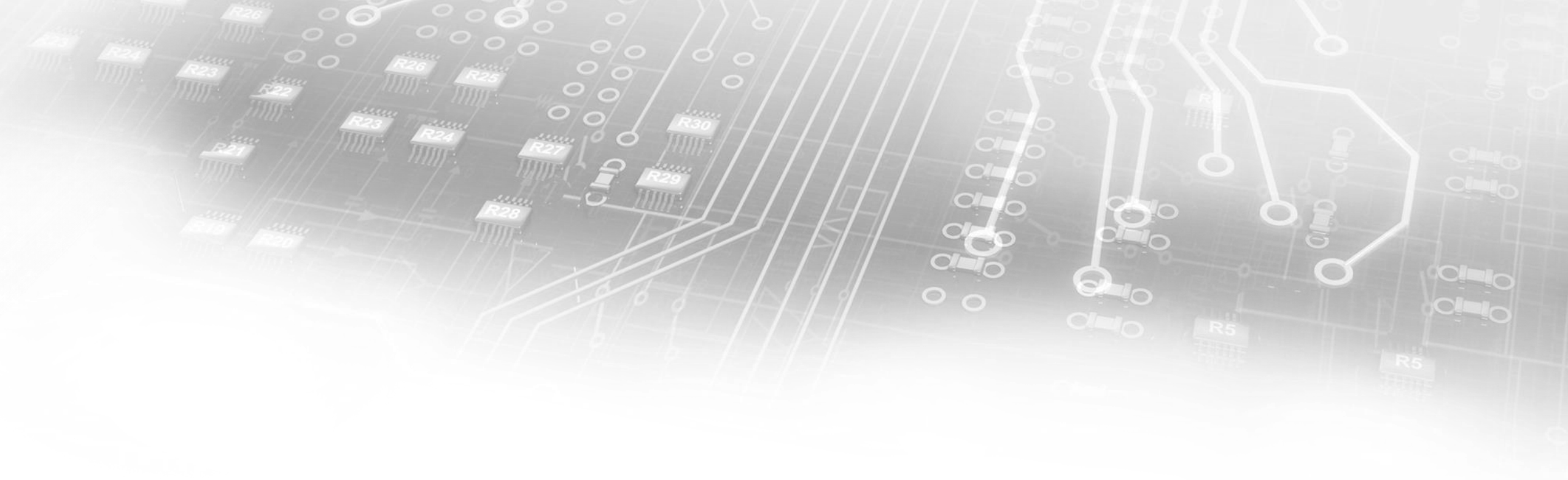
Revised Link Monitor

- In Link Monitor, enter the LINK_UP state based on “pcs_data_mode = true” instead of “pcs_status = OK”.
- This allow autoneg state machine to enter the “AN GOOD” state.
- Any problem in pcs_status or loc_rcvr_status will cause Link Monitor to go from LINK_UP into LINK_DOWN
- The autoneg state machine will then restart autoneg right away, without delays

Figure 149-34 Changes

- Page 154, Line 12, 149.4.5, Figure 149-34
- Change the transition condition from the LINK_DOWN state to the LINK_UP state:
- From
  - “minwait_timer_done * pcs_status = OK”
- To
  - “minwait_timer_done * pcs_data_mode = true”





THANK YOU