AMP_Valid and PCS_Lane TBDs

IEEE P802.3bs 400 Gb/s Ethernet Task Force

Mark Gustlin - Xilinx

Introduction

- There are several TBDs around the amp_valid and pcs_lane variables
- This contribution aims to fill in those TBDs
- Locking performance is shown in wangz_01_1215_logic.pdf
  - Is very robust

802.3bs Current Draft

amp_valid

Boolean variable that is set to true if the received 120-bit block is a valid alignment marker pay-load. The alignment marker payload, mapped to an PCS lane according to the process described in 119.2.4.4, consists of 120 known bits. The bits are compared on a TBD basis. If TBD, the candidate block is considered a valid alignment marker payload.

pcs_lane

A variable that holds the PCS lane number (0 to 15) received on lane *x* of the PMA service inter-face when amps_lock<*x*>=true. The PCS lane number is determined by the alignment marker payloads based on the mapping defined in 119.2.4.4. The 56 bits that are in the positions of the unique bits in the received alignment marker payload are compared to the expected values for a given payload position and FEC lane on a TBD basis. If no more than TBD nibbles in the candidate block fail to match the corresponding known nibbles for any payload position on a given PCS lane, then the PCS lane number is assigned accordingly.

802.3bj

amp_valid

Boolean variable that is set to true if the received 64-bit block is a valid alignment marker payload. The alignment marker payload, mapped to an FEC lane according to the process described in 91.5.2.6, consists of 48 known bits and 16 variable bits (the BIP3 or CD3 field and its complement BIP7 or CD7, see 82.2.7). The bits of the candidate block that are in the positions of the known bits in the alignment marker payload are compared on a nibble-wise basis (12 comparisons). If no more than 3 nibbles in the candidate block fail to match the corresponding known nibbles in the alignment marker payload, the candidate block is considered a valid alignment marker payload. For the normal mode of operation, each FEC lane compares the candidate block to the alignment marker payload for PCS lane 0.

fec_lane

A variable that holds the FEC lane number (0 to 3) received on lane *x* of the PMA service interface when amps_lock<*x*>=true. The FEC lane number is determined by the alignment marker payloads in the 2nd, 3rd, or 4th positions of the sequence based on the mapping defined in 91.5.2.6. The 48 bits that are in the positions of the known bits in the received alignment marker payload are compared to the expected values for a given payload position and FEC lane on a nibble-wise basis (12 comparisons). If no more than 3 nibbles in the candidate block fail to match the corresponding known nibbles for any payload position on a given FEC lane, then the FEC lane number is assigned accordingly.

Proposed Text

amp_valid

Boolean variable that is set to true if the received ~~120-bit~~ block is a valid alignment marker payload. The alignment marker payload, mapped to a PCS lane according to the process described in 119.2.4.4, consists of 96 known bits. The 48 bits of the common marker portion are compared on a nibble-wise basis (12 comparisons). If 9 or more nibbles in the candidate block match the corresponding known nibbles in the common portion of the alignment marker payload, the candidate block is considered a valid alignment marker payload.

pcs_lane

A variable that holds the PCS lane number (0 to 15) received on lane *x* of the PMA service interface when amps_lock<*x*>=true. The PCS lane number is determined by the alignment marker payloads based on the mapping defined in 119.2.4.4. The 48 bits that are in the positions of the unique marker bits in the received alignment marker payload are compared to the expected values for a given payload position and PCS lane on a nibble-wise basis (12 comparisons). If 9 or more nibbles in the candidate block match the corresponding known nibbles for any payload position on a given PCS lane, then the PCS lane number is assigned accordingly.

Thanks!