

Supporting Material for Comment #25

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March 11, 2020



Comment #21

- Table 162-5 has a bunch of new entries that don't map to anything. Some of the existing mappings are wrong as well

Suggested Remedy feedback

- The suggested Remedy indicates that the MDIO table should be merged into a single table.
- During discussion I've had with the editorial team the feedback I have received is that all PMDs have historically had the 2 tables and this should be kept.
- The following slides provide two options for how to correct the tables following the editorial teams guidance.
 - a) Keep the two tables and correct the entries so Status variables (RO MDIO registers) are in one table and Control variables (RW MDIO registers) are in the other.
 - b) Move all the LinkTrain variable mappings to it's own table (new 3rd table)

Option A PMD control updates

- Replace Rows starting with “Initial Condition request 3” in Table 162-5 with the information on the next slide.
- Note this effectively requests that all the new rows are removed except for the modulation and precoding request rows (which are inserted into their “bank” of mapped variables)

MDIO control variable	PMA/PMD register name	Register/bit number	PMD control variable
Initial condition request 3 ^a	BASE-R PAM4 PMD training LP control, lane 3	1.1123.13:12	ic_req
Coefficient Select 3 ^a	BASE-R PAM4 PMD training LP control, lane 3	1.1123.4:2	coef_sel
Coefficient Request 3 ^a	BASE-R PAM4 PMD training LP control, lane 3	1.1123.1:0	coef_req
Modulation and Precoding Request 3 ^a	BASE-R PAM4 PMD training LD control, lane 3	1.1323.11:10	local_tp_mode
Initial condition request 2 ^a	BASE-R PAM4 PMD training LP control, lane 2	1.1122.13:12	ic_req
Coefficient Select 2 ^a	BASE-R PAM4 PMD training LP control, lane 2	1.1122.4:2	coef_sel
Coefficient Request 2 ^a	BASE-R PAM4 PMD training LP control, lane 2	1.1122.1:0	coef_req
Modulation and Precoding Request 2 ^a	BASE-R PAM4 PMD training LD control, lane 2	1.1322.11:10	local_tp_mode
Initial condition request 1 ^b	BASE-R PAM4 PMD training LP control, lane 1	1.1121.13:12	ic_req
Coefficient Select 1 ^b	BASE-R PAM4 PMD training LP control, lane 1	1.1121.4:2	coef_sel
Coefficient Request 1 ^b	BASE-R PAM4 PMD training LP control, lane 1	1.1121.1:0	coef_req
Modulation and Precoding Request 1 ^b	BASE-R PAM4 PMD training LD control, lane 1	1.1321.11:10	local_tp_mode
Initial condition request 0	BASE-R PAM4 PMD training LP control, lane 0	1.1120.13:12	ic_req
Coefficient Select 0	BASE-R PAM4 PMD training LP control, lane 0	1.1120.4:2	coef_sel
Coefficient Request 0	BASE-R PAM4 PMD training LP control, lane 0	1.1120.1:0	coef_req
Modulation and Precoding Request 0	BASE-R PAM4 PMD training LD control, lane 0	1.1320.11:10	local_tp_mode

Option A PMD status updates

- Replace Rows starting with first occurrence of “Receiver Ready” in Table 162-6 with the information on the next two slides.
- Note this effectively requests that
 - all the information for a given lane is grouped together (currently its lane 3, 2, 1, 0, 0, 1, 2, 3)
 - removes the Parity entry
 - adds lane number to the MDIO status variable column
 - provides the mapping to the proper PMD status variable

MDIO control variable	PMA/PMD register name	Register/bit number	PMD control variable
Receiver ready 3 ^a	BASE-R PAM4 PMD training LP status, lane 3	1.1223.15	remote_rx_ready
Modulation and precoding status 3 ^a	BASE-R PAM4 PMD training LP status, lane 3	1.1223.11:10	remote_tp_mode
Receiver frame lock 3 ^a	BASE-R PAM4 PMD training LP status, lane 3	1.1223.9	remote_tf_lock
Local receiver ready 3 ^a	BASE-R PAM4 PMD training LD status, lane 3	1.1423.15	local_rx_ready
Initial condition status 3 ^a	BASE-R PAM4 PMD training LD status, lane 3	1.1423.8	ic_sts
Coefficient select echo 3 ^a	BASE-R PAM4 PMD training LD status, lane 3	1.1423.5:3	k
Coefficient status 3 ^a	BASE-R PAM4 PMD training LD status, lane 3	1.1423.2:0	coef_sts
Receiver ready 3 ^a	BASE-R PAM4 PMD training LP status, lane 2	1.1222.15	remote_rx_ready
Modulation and precoding status 2 ^a	BASE-R PAM4 PMD training LP status, lane 2	1.1222.11:10	remote_tp_mode
Receiver frame lock 2 ^a	BASE-R PAM4 PMD training LP status, lane 2	1.1222.9	remote_tf_lock
Local receiver ready 2 ^a	BASE-R PAM4 PMD training LD status, lane 2	1.1422.15	local_rx_ready
Initial condition status 2 ^a	BASE-R PAM4 PMD training LD status, lane 2	1.1422.8	ic_sts
Coefficient select echo 2 ^a	BASE-R PAM4 PMD training LD status, lane 2	1.1422.5:3	k
Coefficient status 2 ^a	BASE-R PAM4 PMD training LD status, lane 2	1.1422.2:0	coef_sts

MDIO control variable	PMA/PMD register name	Register/bit number	PMD control variable
Receiver ready 1 ^b	BASE-R PAM4 PMD training LP status, lane 1	1.1221.15	remote_rx_ready
Modulation and precoding status 1 ^b	BASE-R PAM4 PMD training LP status, lane 1	1.1221.11:10	remote_tp_mode
Receiver frame lock 1 ^b	BASE-R PAM4 PMD training LP status, lane 1	1.1221.9	remote_tf_lock
Local receiver ready 1 ^b	BASE-R PAM4 PMD training LD status, lane 1	1.1421.15	local_rx_ready
Initial condition status 1 ^b	BASE-R PAM4 PMD training LD status, lane 1	1.1421.8	ic_sts
Coefficient select echo 1 ^b	BASE-R PAM4 PMD training LD status, lane 1	1.1421.5:3	k
Coefficient status 1 ^b	BASE-R PAM4 PMD training LD status, lane 1	1.1421.2:0	coef_sts
Receiver ready 1 ^b	BASE-R PAM4 PMD training LP status, lane 0	1.1220.15	remote_rx_ready
Modulation and precoding status 0	BASE-R PAM4 PMD training LP status, lane 0	1.1220.11:10	remote_tp_mode
Receiver frame lock 0	BASE-R PAM4 PMD training LP status, lane 0	1.1220.9	remote_tf_lock
Local receiver ready 0	BASE-R PAM4 PMD training LD status, lane 0	1.1420.15	local_rx_ready
Initial condition status 0	BASE-R PAM4 PMD training LD status, lane 0	1.1420.8	ic_sts
Coefficient select echo 0	BASE-R PAM4 PMD training LD status, lane 0	1.1420.5:3	k
Coefficient status 0	BASE-R PAM4 PMD training LD status, lane 0	1.1420.2:0	coef_sts

Option B

- Delete all rows beginning with Restart Training from Table 162-5
- Delete all rows beginning with Receiver Status 3 from Table 162-6
- Create new Table after Table 162-6 titled “MDIO/PMD control function mapping”
- Populate the new table with the information found on the next 2 slides.

MDIO control variable	PMA/PMD register name	Register/bit number	PMD control variable
Restart training	BASE-R PMD control	1.150.0	mr_restart_training
Training enable	BASE-R PMD control	1.150.1	mr_training_enable
Receiver status	BASE-R PMD status	1.151.0 ^a	local_trained
Frame lock	BASE-R PMD status	1.151.1 ^a	local_tf_lock
Start-up protocol status	BASE-R PMD status	1.151.2 ^a	training
Training failure	BASE-R PMD status	1.151.3 ^a	training_failure
Polynomial identifier	PMD training pattern lanes 0-3	1.1450.12:11 ^b	identifier_i
Seed	PMD training pattern lanes 0-3	1.1450.15:14 1.1450.10:0 ^b	seed_i
Initial condition request	BASE-R PAM4 PMD training LP control lanes 0-3	1.1120.13:12 ^b	ic_req
Coefficient Select	BASE-R PAM4 PMD training LP control lanes 0-3	1.1120.4:2 ^b	coef_sel
Coefficient Request	BASE-R PAM4 PMD training LP control lanes 0-3	1.1120.1:0 ^b	coef_req
Receiver ready	BASE-R PAM4 PMD training LP status, lane 0-3	1.1220.15 ^b	remote_rx_ready
Modulation and precoding status	BASE-R PAM4 PMD training LP status, lane 0-3	1.1220.11:10 ^b	remote_tp_mode
Receiver frame lock	BASE-R PAM4 PMD training LP status, lane 0-3	1.1220.9 ^b	remote_tf_lock

^a Bit reference is provided for lane 0, status for lanes 1-3 are located in the same register

^b Address reference is provide for lane 0, registers for lanes 1-3 are located at an offset from the lane 0 register

MDIO control variable	PMA/PMD register name	Register/bit number	PMD control variable
Modulation and Precoding Request	BASE-R PAM4 PMD training LD control lanes 0-3	1.1320.11:10 ^b	local_tp_mode
Local receiver ready	BASE-R PAM4 PMD training LD status, lane 0-3	1.1420.15 ^b	local_rx_ready
Initial condition status	BASE-R PAM4 PMD training LD status, lane 0-3	1.1420.8 ^b	ic_sts
Coefficient select echo	BASE-R PAM4 PMD training LD status, lane 0-3	1.1420.5:3 ^b	k
Coefficient status	BASE-R PAM4 PMD training LD status, lane 0-3	1.1420.2:0 ^b	coef_sts

Thank You





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