BQ comment 130 & BZ comment 159 – THP bypass control and status registers:

Implement new registers 7.64, MultiGBASE-T AN control 2 and 7.65 MultiGBASE-T AN status 2, and allocate bits 4, 3, 2, 1 for 2.5GBASE-T, 5GBASE-T, 25GBASE-T, and 40GBASE-T THP bypass request (7.64 for LD and 7.65 for LP status), as shown. This will implement the following register map. Detailed change instructions for the resolution of comments BQ 130 and BZ 159 are shown following the register map.

Register 7.32: AN control 1 register		
7.32.15	MASTER-SLAVE manual config enable	
7.32.14	MASTER-SLAVE config value	
7.32.13	Port type	
7.32.12	10GBASE-T ability	
7.32.11	40GBASE-T ability	
7.32.10	25GBASE-T ability	Allocated in 25G draft
7.32.9	25GBASE-T Fast retrain ability	Allocated in 25G draft
7.32.8	5GBASE-T ability	
7.32.7	2.5GBASE-T ability	
7.32.6	5GBASE-T Fast retrain ability	
7.32.5	2.5GBASE-T Fast retrain ability	
7.32.4	Reserved	Cleared for use
7.32.3	40GBASE-T Fast retrain ability	
7.32.2	10GBASE-T LD PMA training reset request	
7.32.1	10GBASE-T Fast retrain ability	
7.32.0	10GBASE-T LD loop timing ability	
Register 7.33: AN status 1 register		
7.33.15	MASTER-SLAVE configuration fault	
7.33.14	MASTER-SLAVE configuration resolution	
7.33.13	Local receiver status	
7.33.12	Remote receiver status	
7.33.11	Link partner 10GBASE-T capability	
7.33.10	LP loop timing ability	
7.33.9	10GBASE-T LP PMA training reset request	
7.33.8	Link partner 40GBASE-T capability	
7.33.7	Link partner 25GBASE-T capability	Allocated in 25G draft
7.33.6	Link partner 5GBASE-T capability	
7.33.5	Link partner 2.5GBASE-T capability	
7.33.4	Link partner 5GBASE-T Fast retrain ability	"Link partner" not in current 802.3bz draft
7.33.3	Link Partner 2.5GBASE-T Fast retrain ability	"Link partner" not in current 802.3bz draft
7.33.2	25GBASE-T Fast retrain ability	Ed note in 25G draft
7.33.1	10GBASE-T Fast retrain ability	
7.33.0	40GBASE-T Fast retrain ability	

Register 7.64: AN control 2 register

7.64.15:4	Reserved	Value always 0
7.64.3	2.5GBASE-T THP Bypass Request	W. Lo comment 802.3bz
7.64.2	5GBASE-T THP Bypass Request	W. Lo comment 802.3bz
7.64.1	25GBASE-T THP Bypass Request	Holding spot for 25G
7.64.0	40GBASE-T THP Bypass Request	W. Lo comment 802.3bq

Register 7.65: AN status 2 register

7.65.15:4	Reserved	Value always 0
7.65.3	2.5GBASE-T Link Partner THP Bypass Request	W. Lo comment 802.3bz
7.65.2	5GBASE-T Link Partner THP Bypass Request	W. Lo comment 802.3bz
7.65.1	25GBASE-T Link Partner THP Bypass Request	Holding spot for 25G
7.65.0	40GBASE-T Link Partner THP Bypass Request	W. Lo comment 802.3bq

DETAILED INSTRUCTIONS FOR RESOLVING COMMENTS IS BELOW:
All changes marked are for both, unless indicated

PROPOSE ACCEPT IN PRINCIPLE

BQ: Page 46 lines 45, 46 Table 45-200 (BZ: Page 47 line 46)
Add editor's note:
Editor's note (to be removed prior to publication) both IEEE 802.3bq and IEEE 802.3bz are modifying Table 45-200 and adding new registers 7.64 and 7.65 at 45.2.7.14c and 45.2.7.14d. 802.3bz also adds registers 7.62 and 7.63 at 45.2.7.14a & 45.2.7.14b. Whichever amendment goes to sponsor ballot first will carry the new registers at 7.64 and 7.65, as well as 45.2.7.14c and 45.2.7.14d

Change "MultiGBASE-T AN control" to "MultiGBASE-T AN control 1"
Change "MultiGBASE-T AN status" to "MultiGBASE-T AN status 1"
Add 7.64, MultiGBASE-T AN control 2, subclause 45.2.7.14c
Add 7.65, MultiGBASE-T AN status 2, subclause 45.2.7.14d

Change clauses 45.2.7.10 and 45.2.7.11:
Apply the heading changes, change name in text and table headings in clauses 45.2.7.10 and 45.2.7.11, respectively to "MultiGBASE-T AN control 1 register" and "MultiGBASE-T AN status 1 register". (editor to implement these changes, this is not the editing instruction)

FOR BQ ONLY: ADD EDITOR'S NOTE AFTER 45.2.7.14, before edits:
Editor's note (to be removed prior to publication) – IEEE P802.3bz is adding clauses 45.2.7.14a and 45.2.7.14b after 45.2.7.14, these clauses follow those added by IEEE P802.3bz.

----(for both BQ & BZ) ---

Editor's Note (to be removed prior to publication): Both IEEE 802.3bq and IEEE 802.3bz add Table 45-211c to add register 7.64 MultiGBASE-T AN control 2 register. Whichever amendment goes to sponsor ballot first will carry the new table, as well as 45.2.7.14c, the other will insert rows and change reserved rows each inserts its respective subclauses.

After 45.2.7.14, insert new clauses for MultiGBASE-T AN control 2 register as follows:

45.2.7.14c MultiGBASE-T AN control 2 (Register 7.64)
Register 7.64 is a continuation of register 7.32. The assignment of bits in the multiGBASE-T AN control 2 register is shown in Table 45-211c. The default values of each bit of the MultiGBASE-T AN control register 2 should be chosen so that the initial state of the devices upon power up or reset is a normal operational state without management intervention.

Insert Table 45-211c as shown:
(note to editor implementing this: ROWS FOR 2.5G/5G are BZ ONLY, ROWS FOR 25G/40G ARE BQ ONLY)
Table 45-211c MultiGBASE-T AN control 2 register

7.64.15:4	Reserved	Value always 0	RO
7.64.3	2.5GBASE-T THP Bypass Request	0 = Local device requests link partner not to reset THP during fast retrain 1 = Local device requests link partner to initially reset THP during fast retrain	R/W
7.64.2	5GBASE-T THP Bypass Request	0 = Local device requests link partner not to reset THP during fast retrain 1 = Local device requests link partner to initially reset THP during fast retrain	R/W
7.64.1	25GBASE-T THP Bypass Request	0 = Local device requests link partner not to reset THP during fast retrain 1 = Local device requests link partner to initially reset THP during fast retrain	R/W
7.64.0	40GBASE-T THP Bypass Request	0 = Local device requests link partner not to reset THP during fast retrain 1 = Local device requests link partner to initially reset THP during fast retrain	R/W

(BZ ONLY) Insert new clauses as shown:
45.2.7.14c.1 2.5GBASE-T THP Bypass Request
Bit 7.64.3 is valid only if 7.32.5 is set to one advertising fast retrain ability, and is used to request the link partner whether to initially reset the THP during fast retrain. If bit 7.64.3 is set to zero the local device requests link partner not to reset THP during fast retrain. If bit 7.64.3 is set to one the local device requests link partner to initially reset THP during fast retrain.

45.2.7.14c.2 5GBASE-T THP Bypass Request
Bit 7.64.2 is valid only if 7.32.6 is set to one advertising fast retrain ability, and is used to request the link partner whether to initially reset the THP during fast retrain. If bit 7.64.2 is set to zero

the local device requests link partner not to reset THP during fast retrain. If bit 7.64.2 is set to one the local device requests link partner to initially reset THP during fast retrain.
---END BZ ONLY---

(BQ ONLY) Insert Editor's note as shown:
Editor's Note (to be removed prior to publication): IEEE P802.3bz is inserting two new bits for 2.5GBASE-T and 5GBASE-T THP Bypass Request above the bits for 25GBASE-T.

45.2.7.14c.3 25GBASE-T THP Bypass Request
Bit 7.64.1 is valid only if 7.32.9 is set to one advertising fast retrain ability, and is used to request the link partner whether to initially reset the THP during fast retrain. If bit 7.64.1 is set to zero the local device requests link partner not to reset THP during fast retrain. If bit 7.64.1 is set to one the local device requests link partner to initially reset THP during fast retrain.

45.2.7.14c.4 40GBASE-T THP Bypass Request
Bit 7.64.0 is valid only if 7.32.3 is set to one advertising fast retrain ability, and is used to request the link partner whether to initially reset the THP during fast retrain. THP Bypass Request is exchanged during link training, see 113.4.2.5.10. If bit 7.64.0 is set to zero the local device requests link partner not to reset THP during fast retrain. If bit 7.64.0 is set to one the local device requests link partner to initially reset THP during fast retrain.

---- END BQ ONLY ---

(BOTH BQ & BZ)
Editor's Note (to be removed prior to publication): Both IEEE 802.3bq and IEEE 802.3bz add Table 45-211d to add register 7.65 MultiGBASE-T AN status 2 register. Whichever amendment goes to sponsor ballot first will carry the new table, as well as 45.2.7.14d, the other will insert rows and change reserved rows, each inserts its respective subclauses.

Insert new clauses for MultiGBASE-T AN status 2 register as follows:
45.2.7.14d MultiGBASE-T AN status 2 (Register 7.65)
Register 7.64 is a continuation of register 7.33. The assignment of bits in the MultiGBASE-T AN status 2 register is shown in Table 45-211d. All the bits in the MultiGBASE-T AN status 2 register are read only; a write shall have no effect.

Insert Table 45-211d – MultiGBASE-T AN status 2 register

7.65.15:4	Reserved	Value always 0	RO
7.65.3	2.5GBASE-T Link Partner THP Bypass Request	0 = Link partner requests local device not to reset THP during fast retrain 1 = Link Partner requests local device to initially reset THP during fast retrain	RO
7.65.2	5GBASE-T Link Partner THP Bypass Request	0 = Link partner requests local device not to reset THP during fast retrain 1 = Link Partner requests local device to initially reset THP during fast retrain	RO

7.65.1	25GBASE-T Link Partner THP Bypass Request	0 = Link partner requests local device not to reset THP during fast retrain 1 = Link Partner requests local device to initially reset THP during fast retrain	RO
7.65.0	40GBASE-T Link Partner THP Bypass Request	0 = Link partner requests local device not to reset THP during fast retrain 1 = Link Partner requests local device to initially reset THP during fast retrain	RO

---BZ ONLY ---
45.2.7.14d.1 2.5GBASE-T Link Partner THP Bypass Request
Bit 7.65.3 is valid only if 7.33.3 is set to one indicating that the link partner has fast retrain ability. THP Bypass Request is exchanged during link training, see 113.4.2.5.10. Bit 7.65.3 is updated after link is established. When read as a zero, the link partner requests local device not to reset THP during fast retrain. When read as a one, the link Partner requests local device to initially reset THP during fast retrain.

45.2.7.14d.2 5GBASE-T Link Partner THP Bypass Request
Bit 7.65.2 is valid only if 7.33.4 is set to one indicating that the link partner has fast retrain ability. THP Bypass Request is exchanged during link training, see 113.4.2.5.10. Bit 7.65.2 is updated after link is established. When read as a zero, the link partner requests local device not to reset THP during fast retrain. When read as a one, the link Partner requests local device to initially reset THP during fast retrain.

--- END BZ ONLY ---
----- BQ ONLY ---
insert two new clauses as shown:

45.2.7.14d.3 25GBASE-T Link Partner THP Bypass Request
Bit 7.65.1 is valid only if 7.33.2 is set to one indicating that the link partner has fast retrain ability. THP Bypass Request is exchanged during link training, see 113.4.2.5.10. Bit 7.65.1 is updated after link is established. When read as a zero, the link partner requests local device not to reset THP during fast retrain. When read as a one, the link Partner requests local device to initially reset THP during fast retrain.

45.2.7.14d.4 40GBASE-T Link Partner THP Bypass Request
Bit 7.65.0 is valid only if 7.33.0 is set to one indicating that the link partner has fast retrain ability. THP Bypass Request is exchanged during link training, see 113.4.2.5.10. Bit 7.65.0 is updated after link is established. When read as a zero, the link partner requests local device not to reset THP during fast retrain. When read as a one, the link Partner requests local device to initially reset THP during fast retrain.
---- END ----