

Comments #148, #150 PLCA / D-PLCA Variable Ranges



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#150 PLCA Node Count definition

30.16.1.1.3 aPLCANodeCount

Change text of BEHAVIOUR DEFINED AS section of 30.16.1.1.3 as shown:

This value is assigned to define the number of nodes getting a transmit opportunity before a new BEACON is generated. When D-PLCA is enabled, writes to this attribute are ignored. This parameter maps to the local_nodeID variable in 148.4.4.2. Valid range is ~~0~~¹ to 255, inclusive. The default value is 8.;

148.4.4.2 PLCA Control variables

plca_node_count

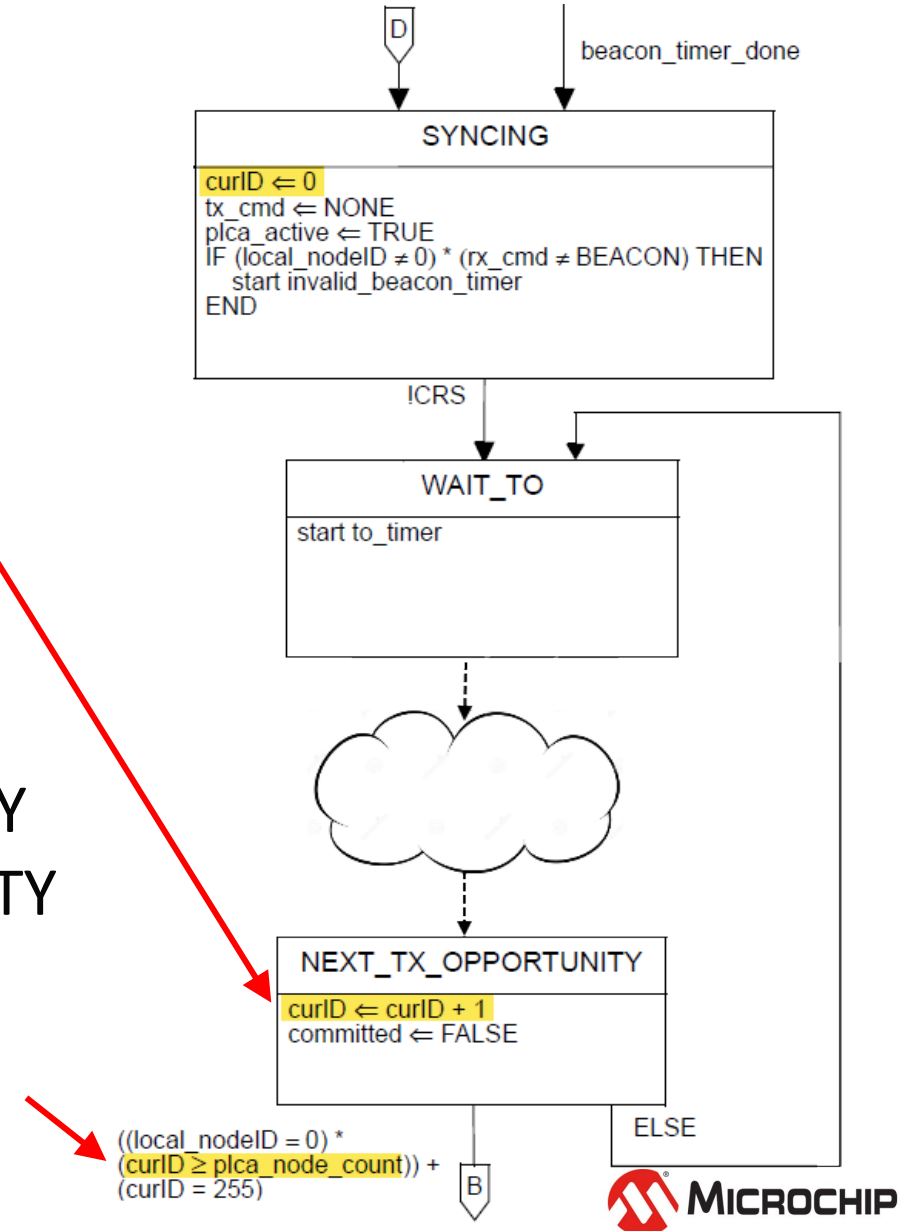
Maximum number of PLCA nodes on the mixing segment receiving transmit opportunities before the node with local_nodeID = 0 generates a new BEACON, reflecting the value of aPLCANodeCount. This parameter is meaningful only for the node with local_nodeID = 0; otherwise, it is ignored. ¹

Values: integer number from ~~0~~¹ to 255

- **As defined, a PLCA cycle with zero Transmit Opportunities makes no sense!**

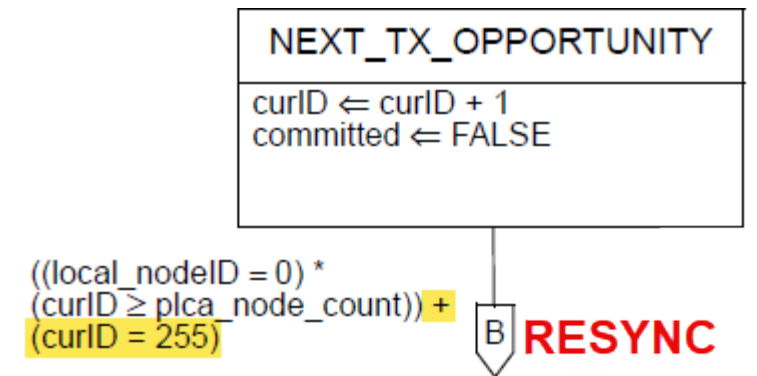
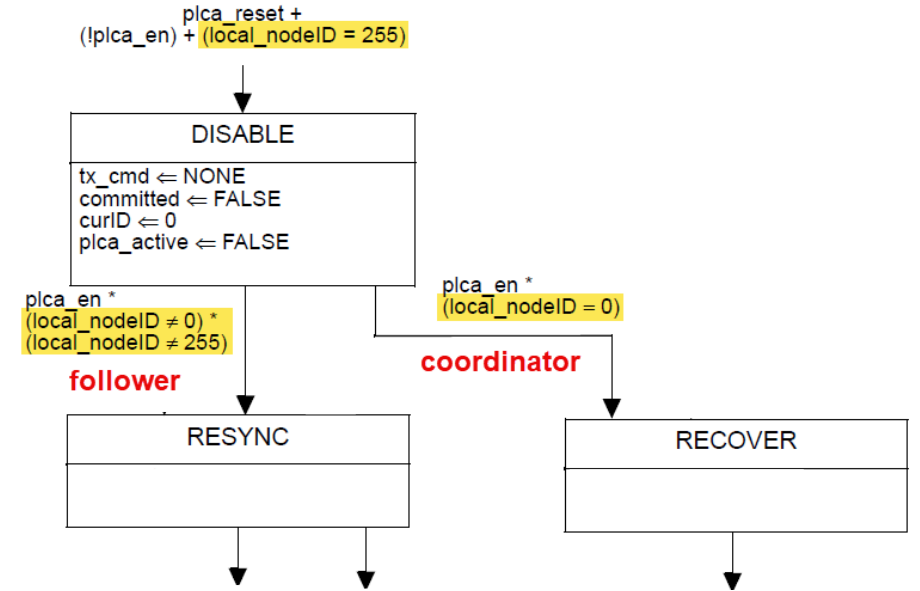
#150 PLCA Node Count definition

- **Setting aPLCANodeCount and plca_node_count to 0 results in one transmit opportunity, curID=0 or TO 0**
 - Do not exit until curID increments by 1
- **When Node Count is set to 255 Transmit Opportunities, TO 0 – TO 254, curID will range:**
 - from 0 to 254 on **entry** to NEXT_TX_OPPORTUNITY
 - from 1 to 255 on **exit** from NEXT_TX_OPPORTUNITY
 - Exit to RESYNC when $\text{curID} \geq \text{plca_node_count}$
 - Else, to WAIT_TO for next transmit opportunity



How many TO? Nodes?

- There are only 255 TO, identified as TO 0 through TO 254
 - This accommodates up to 255 nodes
- Can there be a TO of 255?
 - No. Assigning a node as localID=255 disables PLCA with global transition
- When curID is incremented to 255 in NEXT_TX_OPPORTUNITY, transition to RESYNC (not shown) to send to BEACON.



#148 DPLCA Variable Definitions in 148.4.7.2

txop_claim_table

255

This variable contains the claim state of the ~~256~~ transmit opportunities IDs. The claim state of each ID can be:

NONE, meaning that the transmit opportunity ID is available to be returned by the PICK_FREE_TXOP function.

SOFT, meaning the ID is currently claimed by a node transmission that did not include a COMMIT indication.

HARD, meaning the ID is currently claimed by a node transmission that included a COMMIT indication at the beginning or at the end of the carrier event.

The transmit opportunity table is maintained by the D-PLCA aging state diagram defined in Figure 148–9. 255

Values: Array of ~~256~~ elements, each having a value of NONE, SOFT or HARD.

CLEAR_TXOP_TABLE

This function takes as an argument either the txop_claim_table or the txop_claim_table_new variable. When invoked, it sets all of the ~~256~~ elements of the specified table to the NONE claim state. 255

#148 DPLCA Variable Definitions in 148.4.7.2

HARD_CLAIMING

²⁵⁴ This function takes as parameter “ID”, a transmit opportunity integer number in the range of 0 to ~~255~~. It returns the result of the following boolean expression:

$dplca_txop_end * (dplca_txop_claim = HARD) * (dplca_txop_id = ID)$

SOFT_CLAIMING

²⁵⁴ This function takes as parameter “ID”, a transmit opportunity integer number in the range of 0 to ~~255~~. It returns the result of the following boolean expression:

$dplca_txop_end * (dplca_txop_claim = SOFT) * (dplca_txop_id = ID)$

Thank You

Questions?

#148 DPLCA Variable Definitions in 148.4.7.2

Editing instructions

P54 L39 (txop_claim_table)

Change: "...claim state of the 256 transmit opportunities IDs."

To: "...claim state of the 255 transmit opportunity IDs."

P54 L51 (txop_claim_table)

Change: "Array of 256 elements..."

To: "Array of 255 elements..."

P55 L14 (CLEAR_TXOP_TABLE)

Change: "...all of the 256 elements..."

To: "...all of the 255 elements..."

P55 L19 (HARD_CLAIMING)

Change: "...range of 0 to 255..."

To: "...range of 0 to 254..."

P55 L40 (SOFT_CLAIMING)

Change: "...range of 0 to 255..."

To: "...range of 0 to 254..."

#150 PLCA Node Count definition

- **Editing instructions**

P47 L3 (dplca_txop_node_count)

Change: "Values: integer from 0 to 255"

To: "Values: integer from **1** to 255"

P25 L40 (30.16.1.1.3 aPLCANodeCount)

Change: "Valid range is 0 to 255, inclusive."

To: "Valid range is **1** to 255, inclusive."

Add entry for plca_node_count variable from 802.3-2022 Clause 148.4.4.2, and

Change: "Values: integer number from 0 to 255"

To: "Values: integer number from **1** to 255"