Cl **00** *SC* **0** *P* *L* # 494

Park, Sungkwon Hanyang University an

Comment Type **T** *Comment Status* **D** *Very Late*

Currently, the PLCA in the IEEE P802.3cg 10SPE standard gives equal opportunity to all nodes. However, this may be fair in terms of equity, but it is inefficient if there are nodes that will not transmit data. It needs to be fixed with a new PLCA transmission opportunity cycle.

SuggestedRemedy

The technology we will be proposing can be applied within the IEEE P802.3cg standard by approaching only from a design point of view within the OSI layer 1 (Such as circuit design using FPGA programming). When 10SPE is fist applied to the vehicle, the node with the highest priority will be the brake and airbag control related node. However, unlike traditional CAN protocol, there is no way to manage priority in Ethernet. In order to make the automotive Ethernet into priority issues like CAN, the existing PLCA cycle shall be transformed into a way to give higher priority to higher priority nodes. We have the idea of changing the number of transmission opportunity slots in one cycle according to the number of nodes existing in one network and rearranging high priority nodes accordingly. Our idea is only an alternative to addressing priority issues within the OSI layer 1.

1. The prerequisite is to assign PHY IDs in order of priority.
2. If N nodes are present in the network, the objective of this proposal is to build up N-1 transmission opportunity cycles in advance so that higher priority nodes are allocated more transmission opportunities.

For example:

The sum of the number of transmission opportunities of PHY #0 and PHY #1 in the proposed technology is S.
The number of PHY = N
When N = 3, S = 5 * N - 11 (+1) = 5 * N - 10 = 5
When N > 4, S = (5 * N-11) times
In conclusion, S = 5 for N = 3 and S = (5 * N-11) for N > 4.

The sum of the number of transmission opportunities of PHY #0 and PHY #1 in the existing PLCA is S.
When N > 2, S = 2 * (N - 1) times
lim (5 * N - 11) / 2 * (N - 1) = 2.5

That is, PHY #0 and PHY #1 have transmission opportunities of about 2.5 times as much as those of the existing PLCA method.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Task Force to discuss. Presentation anticipated.

Cl **00** *SC* **0** *P* *L* # 493

Park, Sungkwon Hanyang University an

Comment Type **T** *Comment Status* **D** *Very Late*

Comment #573' suggested a priority application method that includes up to OSI layer 2 in addition to the OSI layer 1. However, since IEEE 802.3cg is a layer 1-based standard, the solution also needs to be limited to OSI layer 1.

SuggestedRemedy

We suggest that PLCA priority issues discussed in 'Comment #573' can be solved by limiting to OSI layer 1. The technology we propose is as follows. When there is a transmission opportunity allocated to each node in the existing PLCA transmission cycle, each node may have an idle time slot according to the MAC layer transmission state before data transmission. However, in our proposed technique, this IDLE time slot is forcibly allocated for each transmission opportunity of each PHY. The specific PHY (PHY with high priority) uses a kind of EEE signal because PHY needs to inform the network of the critical data transfer request (we will use LPI signaling). For this purpose, any one PHY with high priority must have EEE capability, and the PHY must be able to transmit its own LPI signal.

To do this, several flows of the state diagram of existing standard documents need to be modified. The PHY that has received the LPI Signaling has an existing transmission opportunity, yields the transmission opportunity to the PHY having the higher priority, waits until the transmission is completed, and acquires the transmission opportunity again (In Figure 148-4 PLCA Control state diagram of 802.3cg/D2.1). Figure 148-5 PLCA Data state diagram also needs to be revised as described above.

Our proposed technique uses EEE Signaling in OSI layer 1, so there is no need for additional instance, and only flow for priority transmission is added to the state diagram. However, a node having a priority order can be preset in the system design, and can have the transmission right only in the corresponding node. Considering a node that generates safety-related data such as a brake or an airbag, two priority nodes may be sufficient.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Task Force to discuss. Presentation anticipated.

Cl **22** *SC* **22** *P* **29** *L* **1** # 497
Kim, Yong NIO

Comment Type **T** *Comment Status* **X** *Very Late*

The proposed changes to this clause are at odds with the approved CRD.
Compatibility says "As a PHY amendment to IEEE
Std 802.3, the proposed project will use MII, and follow the existing format and structure ..." When we voted for this CRD, it exactly that. Use [existing] MII. It does not say the project will change MII to fit its needs. If in absurdity that is what was meant, then the whole "compatibility" criteria would be meaningless and irrevent.

Comment #658 from WG ballot is related to this comment but not the same.

SuggestedRemedy

All 802.3cg PHYs should operate with MII as defined as-is meaning that they work with MII prior to any technical changes proposed in CL22 of the 802.3cg draft. And reflect any downstream changes to the PICS table.

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.2.2.4** *P* **29** *L* **14** # 498
Kim, Yong NIO

Comment Type **T** *Comment Status* **X** *Very Late*

The text deleted "Other values…shall.. upon the PHY" and re-inserted after the new 3rd and 4th paragraph, changing the entire meaning of what is covered by the "Other values of …shall. upon the PHY". And changing the conformance condition.

SuggestedRemedy

Reverse the change and all 802.3cg PHYs should operate with MII as defined prior to any changes proposed by 802.3cg draft. And reflect any downstream changes to the PICS table.

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.2.2.4** *P* **29** *L* **33** # 499
Kim, Yong NIO

Comment Type **T** *Comment Status* **X** *Very Late*

The table 22-1 changes existing MII that is bound by CRD compatibility.

SuggestedRemedy

Reverse the change and all 802.3cg PHYs should operate with MII as defined prior to any changes proposed by 802.3cg draft. And reflect any downstream changes to the PICS table.

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.2.2.5** *P* **29** *L* **46** # 500
Kim, Yong NIO

Comment Type **T** *Comment Status* **X** *Very Late*

The text change meaningfully changes the interface behavior, where TX_EN is deasserted, TX_ER state was *specified* to be don't care, and with this change the interface cares the state of TXER and TXD when TX_EN is deasserted. This is clearly an interface definition change, and violates the use of MII as compatibiltiy interface.

SuggestedRemedy

Reverse the change and all 802.3cg PHYs should operate with MII as defined prior to any changes proposed by 802.3cg draft. And reflect any downstream changes to the PICS table.

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.2.2.8** *P* **30** *L* **5** # 501
Kim, Yong NIO

Comment Type **T** *Comment Status* **X** *Very Late*

The text change meaningfully changes the interface behavior, where RX_EN is deasserted, RX_ER state was *specified* to be don't care, and with this change the interface cares the state of RX_ER and RXD when RX_EN is deasserted. This is clearly an interface definition change, and violates the use of MII as compatibiltiy interface.

SuggestedRemedy

Reverse the change and all 802.3cg PHYs should operate with MII as defined prior to any changes proposed by 802.3cg draft. And reflect any downstream changes to the PICS table.

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.2.2.8** *P* **30** *L* **18** # 502

Kim, Yong NIO

Comment Type **T** *Comment Status* **X** *Very Late*

The table 22-2 changes existing MII that is bound by CRD compatibility.

SuggestedRemedy

Reverse the change and all 802.3cg PHYs should operate with MII as defined prior to any changes proposed by 802.3cg draft. And reflect any downstream changes to the PICS table.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.3** *P* **177** *L* **1** # 496

Axer, Philip NXP

Comment Type **T** *Comment Status* **D** *Very Late*

Clause 147.3.7.2 conflicts with state FALSE_CARRIER. The optional PLCA COMMIT detection states that COMMIT is recognized when two sucessive SYNC 5b symboles where decoded. The RX PCS statemachine will be in FALSE_CARRIER (transition is WAIT_SYNC->SYNCING->FALSE_CARRIER) this is obfuscaded. It is unclear if this is intended or by accident.

SuggestedRemedy

If intended set COMMIT in FALSE_CARRIER state to mention that COMMIT is signaled if plca_en=1

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Commenter's interpretation seems to be incorrect as SYNCING->FALSE_CARRIER transition happens when received symbol is neither SSD, nor SYNC, thus a sequence of SYNC symbols would keep the PCS RX FSM in SYNCING state, which is exactly what is intended

Cl **147** *SC* **147.3.3** *P* **177** *L* **1** # 495

Axer, Philip NXP

Comment Type **T** *Comment Status* **D** *Very Late*

The PCS RX state machine does not decode BEACON/COMMIT message or suggests when they are expected as valid on the wire. This leaves room in interpretation when these commands are accepted and how they interfere with other states.

SuggestedRemedy

Specifically set rx_cmd analogously to tx_cmd in the PCS RX state machine which is passed to the MII.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Commenter has not provided sufficient details for the resolution, therefore commenter has been requested to do so to be able to consider this comment on the floor.