Modifications to Constant Latency MII Encoding and Ordered Sets Onto 8N/(8N+1) encoder

17 September 2024

AXONNE

Changes to PCS

- This presentation states the changes to the adopted sections in Lo_3dg_01_0724.pdf

AXONNE

Current Status from July 2024 Meeting

Mr. Lo offered Motion #2 for consideration by the task force. Link to presentation referenced in Mr. Lo's motion.

https://www.ieee802.org/3/dg/public/May_2024/Lo_3dg_01a_0724.pdf.

Motion #2 Adopt:

• Sequence ordered set of the MII according to Lo_3dg_01a_0724.pdf, page 3.

• The nibble combining at the input of the 8N/(8N+1) encoder, and byte splitting rules at the output of the 8N/(8N+1) decoder according to Lo_3dg_01a_0724.pdf, page 10, 11, 12, 15 and page 9 for ordered sets.

• The 100BASE-T1L 8N/(8N+1) encoder/decoder with modifications according to Lo_3dg_01a_0724.pdf, pages 13, 14

M = William Lo

S = Bob Voss

Technical (>/= 75%)

Motion approved without objection.

Lo_3dg_01_0724.pdf Page 9

- Deprecated and no longer used

Rule Summary – TX MII to Encoder Input

- Replace table in Lo_3dg_01_0724.pdf Page 10 with table and notes below

TX MII	Current Alignment State	Next Alignment State	Data presented at the input of the encoder.
Start of packet at even nibble		Even/Odd	Group even nibble + odd nibbles to byte
Start of packet at odd nibble		Even/Odd	Group idle, data, to Cs symbol
End of packet grouping is data + idle		Even/Odd	Group data + idle to one of the 16 CD symbols
Start of sequence ordered set at even nibble	Even/Odd	Even/Odd	Convert two sequence ordered set nibbles to sequence ordered set symbol
Start of sequence ordered set at odd nibble, previous even nibble is data	Even/Odd	Odd/Even	Group data + idle to one of the 16 CD symbols
Start of sequence ordered set at odd nibble	Odd/Even	Odd/Even	Convert to sequence ordered set symbol
Start of sequence ordered set at odd nibble, previous even nibble is non-sequence ordered set control	Even/Odd	Odd/Even	Convert as non-sequence ordered set control symbol
Odd nibble is idle	Odd/Even	Even/Odd	Do not output anything

- Transition to even/odd to odd/even the odd nibble is processed twice
- Transition to odd/even to even/odd the even nibble is processed twice

Rule Summary – Byte Grouping

- Add following notes to Lo_3dg_01_0724.pdf Page 11. The table is still valid.

- If current alignment state is even/odd then the first nibble is even and the second nibble is odd

- If current alignment state is odd/even then the first nibble is odd and the second nibble is even

AXONNE

Rule Summary – Decoder Output to RX MII

- Replace table in Lo_3dg_01_0724.pdf Page 12 with:

Output of decoder	RX MII
Cs	Output 2 nibbles - idle, 0x55
CD	Output 2 nibbles - data, idle
Data	Output 2 nibbles - data, data
Control	Output 2 nibbles - Control, Control

Lo_3dg_01_0724.pdf Page 14

- Remove the Co code in 2 lines and replace with reserved

Control code correspondence to Nibbles

- Replace table Lo_3dg_01_0724.pdf Page 15 with:

Control Code	Nibble Equivalent
Sequence	O, O
Transmit Error Propagation	E, E
Normal Inter-Frame	Idle or Idle
Start of Frame with leading idle	Idle, 0x5
Assert Low Power Idle	L, L

THANK YOU