

Equations

IEEE P802.3bs 400 Gb/s Ethernet Task Force

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Introduction

- The numbering of bits for the FEC codewords is reversed from standard IEEE custom. The current description follows the precedence established by 802.3bj (msb first in the codeword numbering).
- But then the numbering is reversed with a reversing function. This has led to confusion.
- Simplify this numbering, remove the reversal and stick with the precedence of 802.3bj without the reversal. This is also consistent with the proposed bit ordering diagram.
- This addresses comment #69

Proposed Changes

Change from (line38 page 99):

For all $i=0$ to 513, $tx_prefec_A<5139:0>$ and $tx_prefec_B<5139:0>$ shall be constructed as follows:

$$tx_prefec_A<(9+10i):(0+10i)> = tx_temp<(9+20i):(0+20i)>$$
$$tx_prefec_B<(9+10i):(0+10i)> = tx_temp<(19+20i):(10+20i)>$$

To this:

$m_A<513:0>$ and $m_B<513:0>$ shall be constructed as follows:

For all $j=0$ to 513

$$m_A<513-j> = tx_temp<20j+9:20j+0>$$
$$m_B<513-j> = tx_temp<20j+19:20j+10>$$

Remove this reversal (line 31 page 100):

For all $j=0$ to 5439, variable $tx_postfec0<5439:0>$ and $tx_postfec1<5439:0>$ shall be constructed as follows:

$$tx_postfec0<j> = c<5439-j>$$
$$tx_postfec1<j> = c<5439-j>$$

Proposed Changes Continued

Change this (line 5 page 102):

For all $k=0$ to 67

For all $j=0$ to 7

For all $i=0$ to 9

if even(k)

$tx_out\langle 160k+20j+i \rangle = tx_postfec0\langle 80k+10j+i \rangle$

$tx_out\langle 160k+20j+i+10 \rangle = tx_postfec1\langle 80k+10j+i \rangle$

else

$tx_out\langle 160k+20j+i \rangle = tx_postfec1\langle 80k+10j+i \rangle$

$tx_out\langle 160k+20j+i+10 \rangle = tx_postfec0\langle 80k+10j+i \rangle$

To this:

For all $k=0$ to 67

For all $j=0$ to 7

if even(k)

$tx_out\langle 16k+2j \rangle = c_A\langle 543-8k-j \rangle$

$tx_out\langle 16k+2j+1 \rangle = c_B\langle 543-8k-j \rangle$

else

$tx_out\langle 16k+2j \rangle = c_B\langle 543-8k-j \rangle$

$tx_out\langle 16k+2j+1 \rangle = c_A\langle 543-8k-j \rangle$

Make appropriate text changes around this description with editorial license

Thanks!