# SFD/SMD-Cx DETECTION

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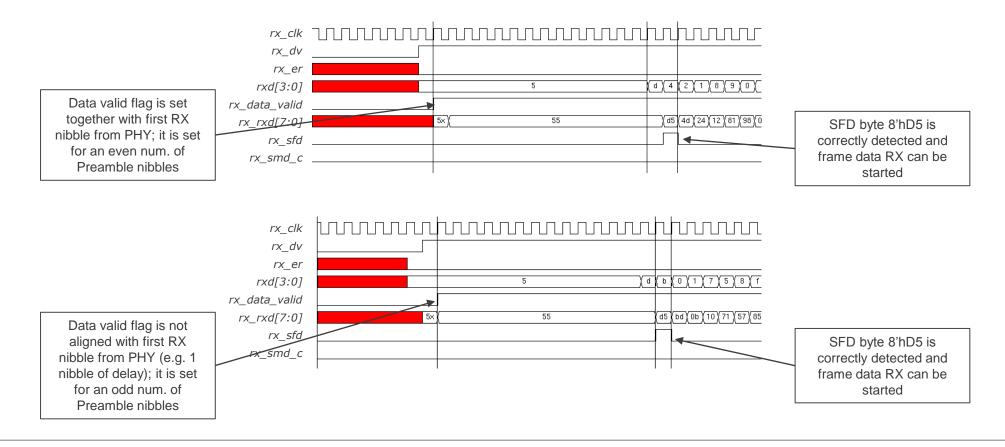
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## **BEHAVIOR ACCORDING TO 802.3-2012**

Usually MII implementation do not count the received preamble nibbles it just try to recognize the SFD filed 0x5D

 The interface is able to identify SFD byte 8'hD5 at each new nibble received from PHY interface once the data valid is set to 1'b1

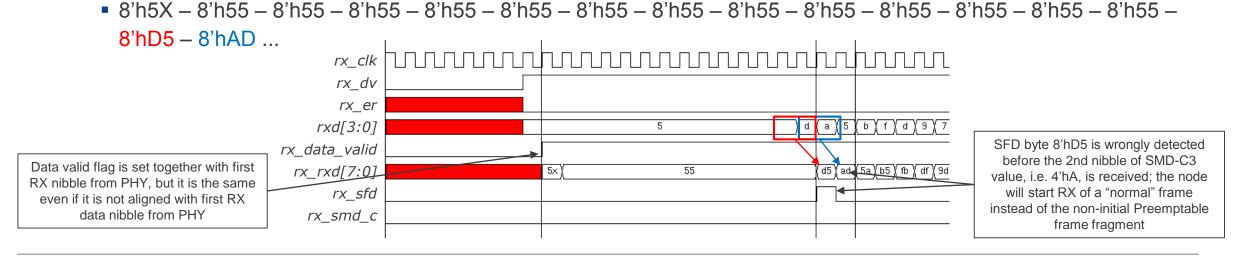
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## **ISSUE FOUND WITH 802.3br DF2.3**

In case of reception of non-initial Preemptable frame fragment starting with SMD-C3 value 8'hAD we found an issue related to SMD-C3 byte detection itself; in case of nibble-based RX MII interfaces

- RGMII not investigated, but in 100Mbit mode same problem expected
- With the logic able to identify incoming bytes at each new nibble received from PHY interface once the data valid is set to 1'b1, we have detection of unexpected SFD byte 8'hD5 before completion of byte 8'hAD
- This is due to the sequence of nibbles coming from PHY interface, which is the following:
  - 4'h5 4'hD 4'hA …
- This sequence of nibbles is internally of a MAC considered as the following sequence of bytes:



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### **PROPOSAL**

The problem occurred due to the encoding of the "D" in the byte of the SMD-C3 as consequent a continuation fragment with SMD-C3 will never be transferred, as the frame is interpreted as express frame with 0x5D

The misinterpretation of the SFD will result to invalid FCS (mCRC)

The problem will not occur with the other encoding values like SMD-S0, SMD-S2, SMD-C1 etc.

Therefore our proposal would be to change the encoding value of SMD-C3 different than 0x?D



# APPENDIX





#### **SMD VALUES**

#### Table 99-1-SMD values

mPacket type	Notation	Frame count	Encoding
verify packet	SMD-V	—	0x07
respond packet	SMD-R	_	0x19
express packet	SMD-E	_	0xD5
preemptable packet start	SMD-S0	0	0xE6
	SMD-S1	1	0x4C
	SMD-S2	2	0x7F
	SMD-S3	3	0xB3
continuation fragment	SMD-C0	0	0x61
	SMD-C1	1	0x52
	SMD-C2	2	0x9E
	SMD-C3	3	0xAD

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