



# Test mode definition for BER test in GEPOF PHY

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# Agenda

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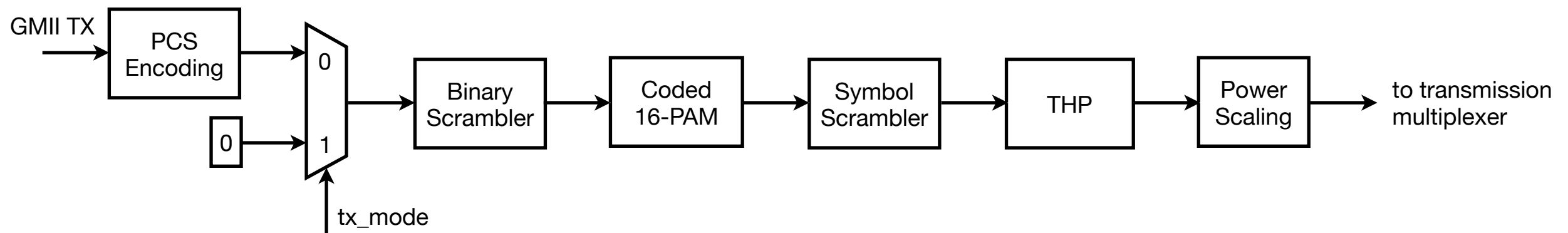
- Background and objectives
- Test mode definition for BER measurement

# Background & Objectives



- In 802.3bv TF interim meeting of January 2015, the FEC and modulation schemes proposed in [1] were adopted for the baseline together with the transmission structure defined in [2]
- This presentation define a test mode by which the PHY is configured in an special mode of transmission that is suitable for Bit Error Rate measurement by link partner
- This test mode, as those that have to be defined for PMA and PMD testing, will be configurable from the management interface (e.g. clause 45 registers)
- The PHY shall can be instructed to enter the transmitter in this test mode independently of the transmission operation mode of the link partner, by using management interface

# Test mode for BER test definition



- The PHY instructed to operate in this mode will configure the PCS TX function to take as input to binary scrambler an all zeroes bit stream, in such a way the link partner will be able to easily count the bit errors by simple addition of the bits with value 1 at the output the binary scrambler
- The PHY shall be configured in BER test mode with `tx_mode = 1`
- `tx_mode` control variable shall be announced in `PHD.TX.NEXT.MODE` field one frame before it take effect on PCS TX function (see [4])
- The PCS RX function of the link partner shall be able to be dynamically reconfigured per block basis, according to the information received in `PHD.TX.NEXT.MODE` in the previous PHD
- The `tx_mode` changes will be synchronized with the start of a transmission block, both for announcement and to take effect
- The management registers associated to BER test mode and attached to PCS RX function of the link partner shall be reset always the `PHD.TX.NEXT.MODE` to 1 from any other value
- LPI assertion from GMII shall be ignored in any test operation mode
- If PHY is instructed for entering in any test mode of operation while a LPI transition has been initiated, the PHY shall indicate wake-up to the link partner immediately before configuring the PCS for test mode, the later always synchronized with the beginning of a transmission block

# References



- [1] *Rubén Pérez-Aranda, et al., “High spectrally efficient coded 16-PAM scheme for GEPOF based on MLCC and BCH”, IEEE 802.3bv TF, Interim Meeting, January 2014*
- [2] *Rubén Pérez-Aranda, “Transmission scheme for GEPOF”, IEEE 802.3bv TF, Interim Meeting, January 2014*
- [3] *Rubén Pérez-Aranda, et al., “64b/65b PCS encoding for GEPOF”, IEEE 802.3bv TF, Plenary Meeting, March 2014*
- [4] *Rubén Pérez-Aranda, et al., “Physical Header Data content for PCS encoding, PHY control and OAM implementation in GEPOF”, IEEE 802.3bv TF, Plenary Meeting, March 2014*



# Questions?