

3dj COM config sheet status report – July 2024

Kent Lusted, Intel Corporation,
IEEE P802.3dj Task Force COM Track Chair

Background

- First priority was getting COM revised with the proposed reference receiver architectural direction and implementation details
 - Done
 - COM 4.6 is available with sufficient stability and features to enable analysis by the Task Force
- Effort switching to COM configuration definitions
- Before the completion of 3dj D1.0 comment resolution, there were too many unknown COM parameter values to provide “reference” config sheets
 - Consensus on values was unknown

Recent Progress

- 3dj D1.0 comment resolution adopted many key COM parameter values
- July 2024 Plenary contributions and straw polls show strong consensus forming on values for remaining electrical interfaces

CR/KR COM Parameters

- Strong progress on selecting key COM parameter values for CR/KR

- Base set: Y: 72, N: 2

- Consensus forming around remaining key parameters

Proposal – CR and KR (1/2)

- For 200G/lane CR and KR, set the COM parameter values as follows:
 - $\text{Eta}_0 = 1\text{E-}8$
 - # pre-cursor RXFFE taps (d_w) = 6
 - # RXFFE taps
 - Number of fixed-position taps (N_{fix}) = 15 ($d_w + 1 + 8$ fixed-position post-cursor taps)
 - Number of floating tap groups (N_g) = TBD
 - Number of taps per floating tap group (N_f) = TBD
 - Highest allowed tap index (N_{max}) = TBD
- Use MLSD per Annex 178A.1.11
 - Specified MLSD implementation allowance (Q) = TBD
- Set COM = 3dB

Note: In 178A.1.8.1, "The total number of taps in the feed-forward filter, N_w , is $N_{\text{fix}} + N_g \cdot N_f$ " (D1.0 P656 L11) and this seems to include the precursor taps d_w (e.g., based on Figure 178A-8).

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https://www.ieee802.org/3/dj/public/24_07/lusted_3dj_06b_2407.pdf

Straw Poll #TF-4

I would support putting the following COM parameter values for CR and KR into the P802.3dj draft specification:

- Number of floating tap groups (N_g) = 2
- Number of taps per floating tap group (N_f) = 4
- Highest allowed tap index (N_{max}) = 80

(choose one)

Results (all): Y: 63, N: 4, NMI: 17, A: 19

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C2C COM params

- Values were proposed for D1.0 but not adopted due to time limitations
- More investigation continued and new analysis shown
- Strong support for the AUI C2C COM parameters

Proposed Changes to COM Parameter Values

Param	Value	Units
$z_p^{(1)}$	12, 45	mm
$z_p^{(1)}$	4, 12	mm

Param	D1.1	Proposed	Units
η_0	TBD	1e-8	V ² /GHz
d_w	TBD	5	
N_{fix}	TBD	14	
N_g	TBD	2	
N_f	TBD	4	
N_{max}	TBD	50	
$w(d_w + 2)$	min	-0.7	-1
	max	0.7	1

No change proposed to $w(1 \leq j \leq d_w)$, $w(d_w + 2 < j \leq N_{fix})$, $w(N_{fix} < j \leq N_{max})$.

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https://www.ieee802.org/3/dj/public/24_07/heck_3dj_01a_2407.pdf

Straw Poll #E-4

I would support the proposed COM parameter values per heck_3dj_01a_2407, slide 13

And with editor note: "The RX FFE tap values limits were chosen based upon no reliance upon the TX FFE taps. Further work is required to determine how the equalization effect is distributed between the RX FFE and the TX FFE taps to account for some reasonable implementation choices."

(choose one)

Results (all): Y: 27 , N: 7 , A: 14

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https://www.ieee802.org/3/dj/public/24_07/motions_3dj_2407.pdf

Config Sheet Status

Electrical Interface or PHY	Link	Notes
AUI C2M	Mellitz 3dj COM 01a 240625	Based on 3dj D1.0 comment resolution final responses from CRG
AUI C2C	Heck 3dj COM 01a 240730	Based on contribution heck_3dj_01a_2407 (Not yet resolved via CRG)
CR	Lit 3dj COM 01a 240730	Based on contribution lit_3dj_01a_2407 (Not yet resolved via CRG)
KR	Lit 3dj COM 01a 240730	Based on contribution lit_3dj_01a_2407 (Not yet resolved via CRG)

Summary

- Further updates to COM configuration sheets is expected in the coming month as the 3dj draft specification stabilizes
- Anticipate “formal release” of COM configuration sheets in the D1.2 timeframe
- Please send questions or issues to Rich and Kent
 - Better yet, use the IEEE P802.3dj electrical track email reflector

Thanks!