



EIT and Channel Simulation Results

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Channels vs. Nominal Sims vs. D2.3 KR Recommendations

Channel	FA	IL	ILD	RL	ICRf	log10(BER)	Veye(%)
Tyco Case 1	X	X	-	-	-	-15.0	8
Tyco Case 2	X	X	-	-	-	-13.8	5
Tyco Case 3	X	X	-	-	-	-11.7	-1
Tyco Case 4	-	-	-	-	-	-14.6	8
Tyco Case 5	-	-	-	-	-	-15.1	9
Tyco Case 6	-	X	X	-	-	-6.6	-26
Tyco Case 7	-	-	-	-	-	-12.8	2
Molex Inthru2	X	-	-	-	X	-8.6	-13
Molex Inthru3	X	-	-	-	X	-5.4	-28
Molex Inthru4	X	X	-	-	X	-6.3	-25
Molex Inthru5	X	-	-	-	X	-9.3	-10
Molex Outthru2	-	-	-	-	-	-12.5	2
Molex Outthru3	-	-	-	-	X	-8.4	-16
Molex Outthru4	-	-	-	-	X	-8.8	-14
Molex Outthru5	-	-	-	-	-	-13.5	5
Intel B12	-	-	-	-	-	-16.7	12
Intel B1	-	-	X	-	-	-16.6	12
Intel B20	-	-	-	-	-	-16.5	12
Intel M1	-	-	X	-	-	-15.4	9
Intel M20	-	-	-	-	-	-16.3	12
Intel T12	X	X	X	-	X	-4.4	-52
Intel T1	-	X	X	-	-	-0.3	-69
Intel T20	X	X	X	-	X	-4.0	-26

EIT Simulation Results

- Simulation conditions outlined in email on reflector

- Tyco Case 7: BER = $1e-12$
- Avago m_82_ripple_90: BER = $7e-10$
- Avago m_68_ripple_98: BER = $8e-9$

- ITTC20dB_returnloss

- Sinusoidal interferer for $1e-12$: 16mVpp
 - 47ps rise time, 800mVpp
 - Transmitter is 50ohm ideal driver
- Broadband noise
 - Assumed a first order pole with 3dB at 6GHz
 - $1e-13$ -140.7dBm/Hz 3.9mV RMS
 - $1e-12$ -140.1dBm/Hz 4.2mV RMS
 - $1e-11$ -139.4dBm/Hz 4.55mV RMS

Channels vs. Worst Case Sims vs. D2.3 KR Recommendations

Channel	FA	IL	ILD	RL	ICRf	log10(BER)	Veye(%)
Tyco Case 1	X	X	-	-	-	-5.8	-33
Tyco Case 2	X	X	-	-	-	-5.1	-34
Tyco Case 3	X	X	-	-	-	-0.3	-31
Tyco Case 4	-	-	-	-	-	-6.6	-26
Tyco Case 5	-	-	-	-	-	-8.5	-15
Tyco Case 6	-	X	X	-	-	-0.3	-61
Tyco Case 7	-	-	-	-	-	-8.0	-18
Molex Inthru2	X	-	-	-	X	-0.3	-48
Molex Inthru3	X	-	-	-	X	-0.3	-90
Molex Inthru4	X	X	-	-	X	-0.3	-88
Molex Inthru5	X	-	-	-	X	-0.3	-45
Molex Outthru2	-	-	-	-	-	-4.3	-36
Molex Outthru3	-	-	-	-	X	-0.3	-91
Molex Outthru4	-	-	-	-	X	-0.3	-88
Molex Outthru5	-	-	-	-	-	-5.2	-40
Intel B12	-	-	-	-	-	-8.1	-17
Intel B1	-	-	X	-	-	-9.4	-10
Intel B20	-	-	-	-	-	-7.0	-24
Intel M1	-	-	X	-	-	-9.1	-12
Intel M20	-	-	-	-	-	-7.0	-23
Intel T12	X	X	X	-	X	-0.3	-124
Intel T1	-	X	X	-	-	-0.3	-128
Intel T20	X	X	X	-	X	-0.3	-61

Worst Case Sim Analysis

- These backplanes can't support 10G KR with worst case aggressor transmitters
- Ran simulations across backplanes with varying XTLK conditions
 - Rise time (30, 37, 47) ps
 - Amplitude (800, 900, 1000, 1200) mV
 - TXFIR (same as Thru, [-0.125, 0.75, -0.125], [0 1 0])
 - Thru channel is always 47ps rise time, 800mVpp
- Results so far indicate that significant contributors to performance loss are
 - 1200mVpp vs 1000mVpp
 - TXFIR [-0.125 0.75 -0.125] vs [0 1 0]
- Constrain transmitter amplitude to (800-1000)mVpp?
- Constrain “minimum” TX equalizer to be [-0.125, 0.75, -0.125]?

Channels vs. D2.3

KX4 Recommendations

Channel	FA	IL	ILD	RL	ICRf
Tyco Case 1	X	X	-	-	-
Tyco Case 2	X	X	-	-	-
Tyco Case 3	X	X	-	-	-
Tyco Case 4	-	-	-	-	-
Tyco Case 5	-	-	-	-	-
Tyco Case 6	-	-	-	-	-
Tyco Case 7	-	-	-	-	-
Molex Inthru2	X	-	-	-	X
Molex Inthru3	X	-	-	-	X
Molex Inthru4	X	-	-	-	X
Molex Inthru5	X	-	-	-	X
Molex Outthru2	X	-	-	-	-
Molex Outthru3	X	-	-	-	-
Molex Outthru4	X	-	-	-	-
Molex Outthru5	X	-	-	-	-
Intel B12	-	-	-	-	-
Intel B1	-	-	-	-	-
Intel B20	-	-	-	-	-
Intel M1	-	-	-	-	-
Intel M20	-	-	-	-	-
Intel T12	-	-	X	-	-
Intel T1	-	-	-	-	-
Intel T20	-	-	-	-	-

Channels vs. CX4 Limits

Channel	IL	RL	NEXT	MDN	ELF	MDELF	ICRf
Tyco Case 1	-	-	-	-	-	-	-
Tyco Case 2	-	-	-	-	-	-	-
Tyco Case 3	-	-	-	-	-	-	-
Tyco Case 4	-	-	-	-	-	-	-
Tyco Case 5	-	-	X	X	-	-	-
Tyco Case 6	-	-	-	-	-	-	-
Tyco Case 7	-	-	-	-	-	-	-
Molex Inthru2	-	X	-	-	-	-	-
Molex Inthru3	-	X	-	-	-	-	-
Molex Inthru4	-	X	-	-	-	-	-
Molex Inthru5	-	X	-	-	-	-	-
Molex Outthru2	-	X	-	-	X	X	-
Molex Outthru3	-	X	-	-	X	X	X
Molex Outthru4	-	X	-	-	X	X	X
Molex Outthru5	-	X	-	-	X	X	-
Intel B12	-	-	-	-	-	-	-
Intel B1	-	X	X	-	-	-	-
Intel B20	-	-	-	-	-	-	-
Intel M1	-	X	X	X	-	-	-
Intel M20	-	X	X	X	-	-	-
Intel T12	-	X	-	-	-	-	-
Intel T1	-	X	X	-	-	-	-
Intel T20	-	X	-	-	-	-	-

Channels vs. D2.3 KX Recommendations

Channel	FA	IL	ILD	RL	ICRf
Tyco Case 1	X	-	-	-	-
Tyco Case 2	X	-	-	-	-
Tyco Case 3	X	X	-	-	-
Tyco Case 4	-	-	-	-	-
Tyco Case 5	-	-	-	-	-
Tyco Case 6	-	-	-	-	-
Tyco Case 7	-	-	-	-	-
Molex Inthru2	-	-	-	-	-
Molex Inthru3	-	-	-	-	X
Molex Inthru4	-	-	-	-	X
Molex Inthru5	-	-	-	-	-
Molex Outthru2	-	-	-	-	-
Molex Outthru3	-	-	-	-	X
Molex Outthru4	-	-	-	-	X
Molex Outthru5	-	-	-	-	-
Intel B12	-	-	-	-	-
Intel B1	-	-	-	-	-
Intel B20	-	-	-	-	-
Intel M1	-	-	-	-	-
Intel M20	-	-	-	-	-
Intel T12	-	-	-	-	-
Intel T1	-	-	-	-	-
Intel T20	-	-	-	-	-

Summary

Channel	KR	KX4	CX4	KX	KR Sim	
					Nom	WC
Tyco Case 1	X	X	-	X	-	X
Tyco Case 2	X	X	-	X	-	X
Tyco Case 3	X	X	-	X	-	X
Tyco Case 4	-	-	-	-	-	X
Tyco Case 5	-	-	X	-	-	X
Tyco Case 6	X	-	-	-	X	X
Tyco Case 7	-	-	-	-	-	X
Molex Inthru2	X	X	X	-	-	X
Molex Inthru3	X	X	X	X	X	X
Molex Inthru4	X	X	X	X	X	X
Molex Inthru5	X	X	X	-	-	X
Molex Outthru2	-	X	X	-	-	X
Molex Outthru3	X	X	X	X	X	X
Molex Outthru4	X	X	X	X	X	X
Molex Outthru5	-	-	X	-	-	X
Intel B12	-	-	-	-	-	X
Intel B1	X	-	X	-	-	X
Intel B20	-	-	-	-	-	X
Intel M1	X	-	X	-	-	X
Intel M20	-	-	X	-	-	X
Intel T12	X	X	X	-	X	X
Intel T1	X	-	X	-	X	X
Intel T20	X	-	X	-	X	X