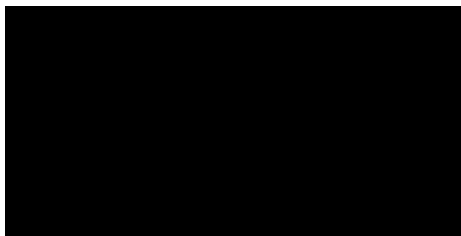


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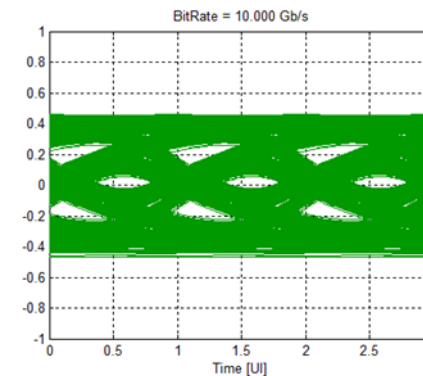
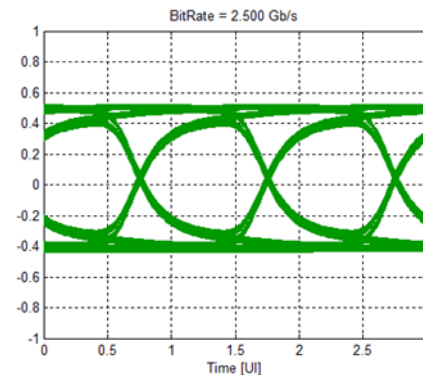
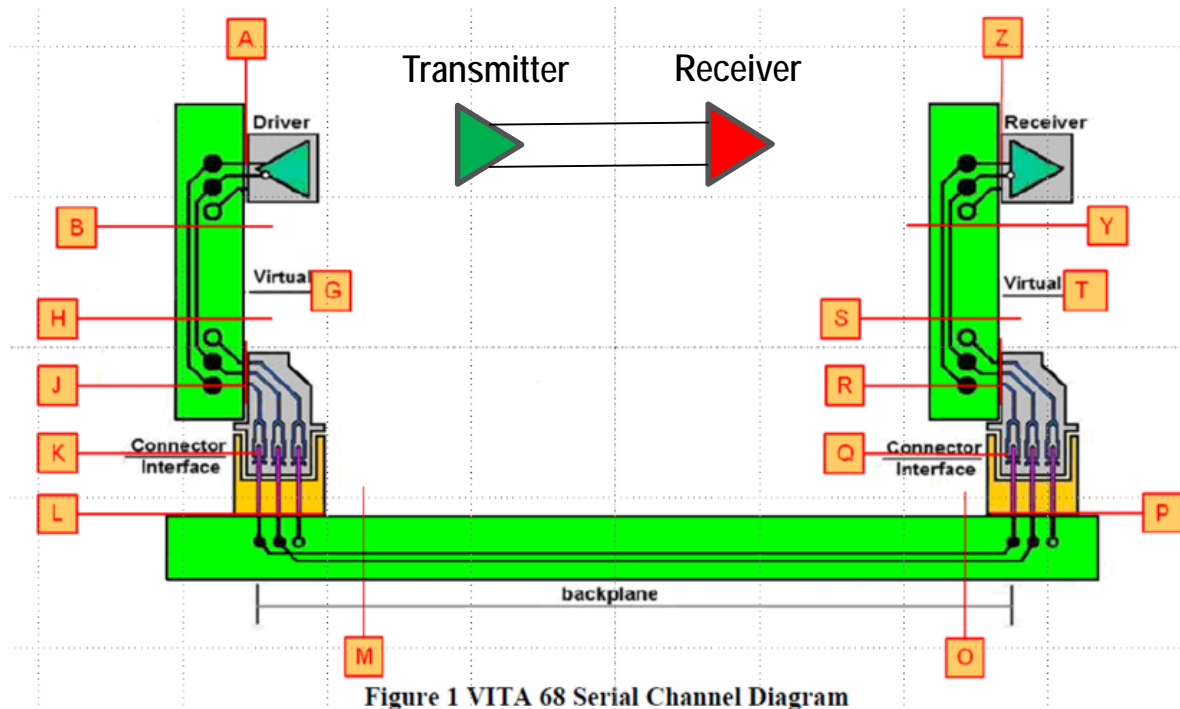
Defense Solutions Division



# High Speed VPX Signal Integrity (A "Big Deal")

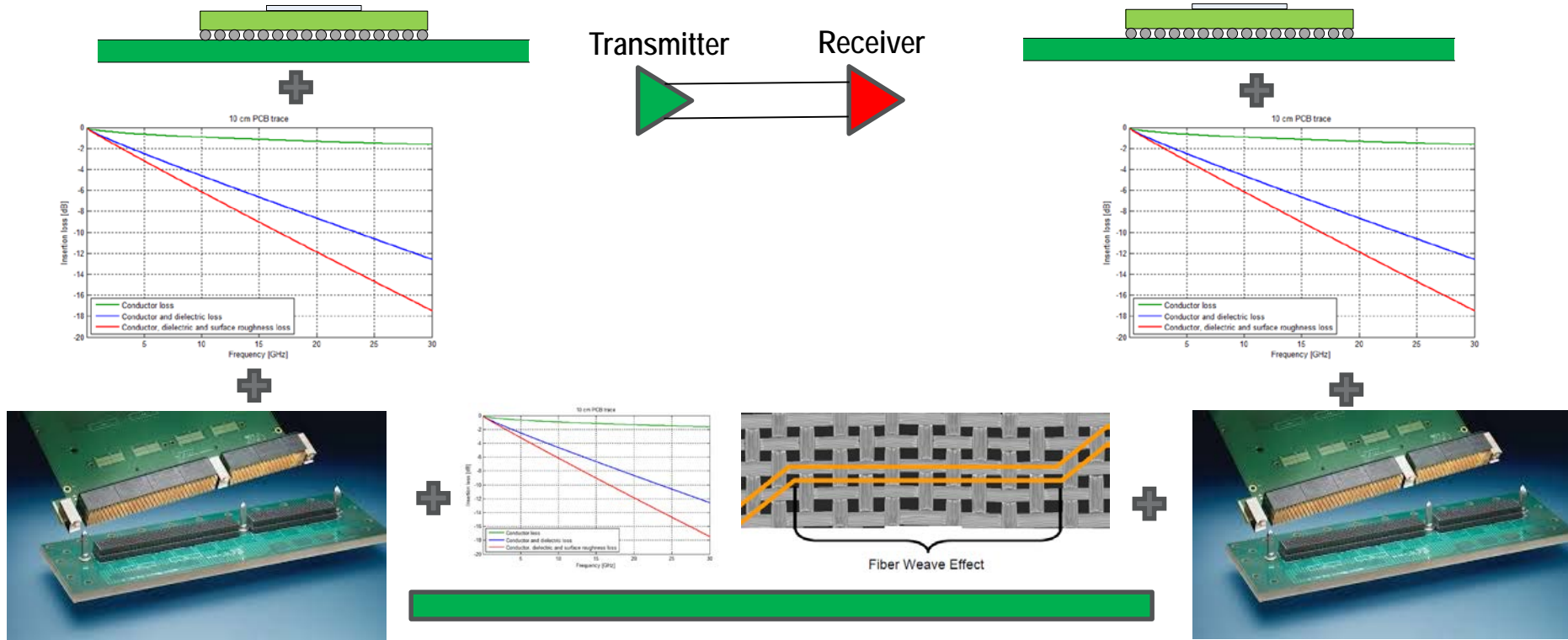


# Signal Integrity (SI)



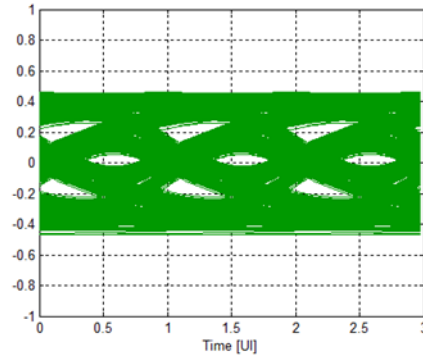
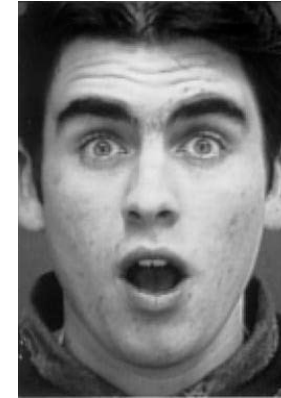
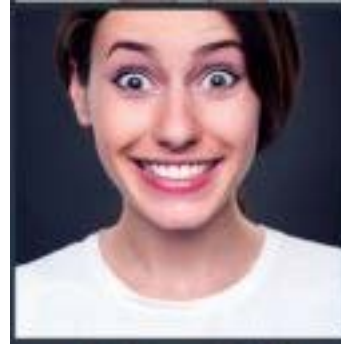
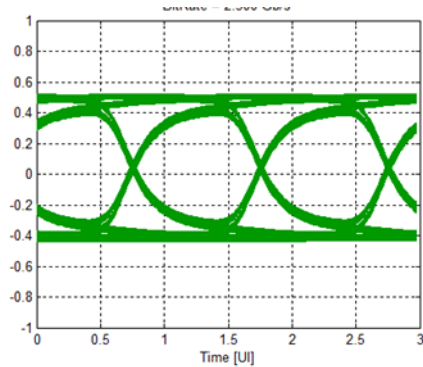
*What's the Big Deal?*

# Signal Integrity (SI)



*What's the Big Deal?*

# Signal Integrity - Good vs Bad





Courtesy: TE Connectivity



## Gen 1 Serial Fabrics, 2.5 – 3.125 Gbaud



Courtesy: TE Connectivity



## Gen 2 Serial Fabrics, 5.0 – 6.25 Gbaud



Courtesy: TE Connectivity



## Gen 3 Serial Fabrics, 8.0 – 10.3 Gbaud

PCI EXPRESS®  
4.0



Courtesy: TE Connectivity



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WRIGHT** FABRIC 64™

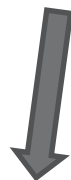
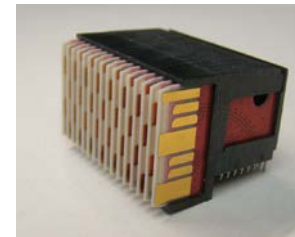


## Gen 4 Serial Fabrics, 16 Gbaud





25.8 Gbaud



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FABRIC 100™

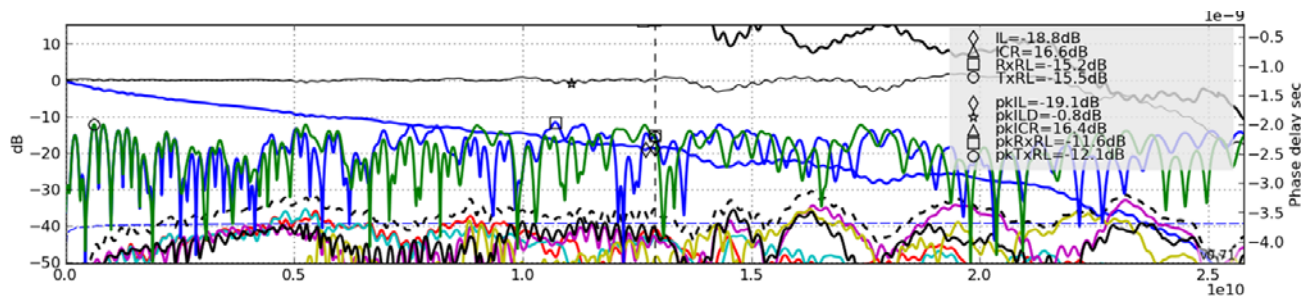
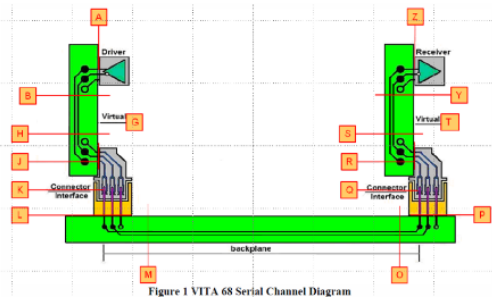
Courtesy: TE Connectivity

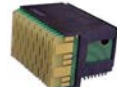



## Gen 5 Capability with Standard & New VPX

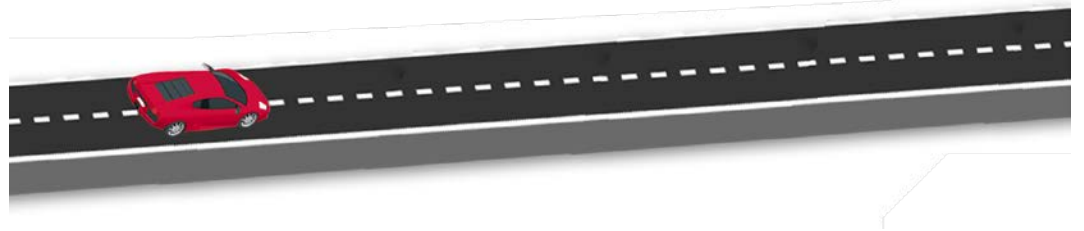
- Real-world trace geometries (e.g. <5 mils width on Modules, <7 mils on Backplane)
- Real-world via lengths and stub lengths
- Differential pair weave skew (e.g. 15 ps total channel)
- Off-nominal impedances for Modules and Backplane
- Determine worst-case differential pair (e.g. BC vs AB)
- Cross-talk for all nearby NEXT and FEXT aggressors
- Add 0.5 dB margin for model differences
- Run COM causality correction to check for causality issues
- Include RS-FEC (error correction) in COM simulations

# VPX Gen 5 (Fabric100™) Channel Operating Margin (COM)



System/ Connector	Module Trace	Backplane Trace	COM Results (Case 1 – 12mm)	COM Results (Case 2 – 30mm)	CW COM Requirement
 12/14-slot 3U VPX (RT2-R)	6.0"	13"/0.006"	4.225 dB	3.781 dB	>3.5 dB
	6.0"	9"/0.005"	4.985 dB	4.558 dB	>3.5 dB
 16-slot 6U VPX 2.0 (RT3)	6.0"	15"/0.005"	4.214 dB	3.538 dB	>3.5 dB
	6.0"	15"/0.006"	4.816 dB	3.912 dB	>3.5 dB
	6.0"	14"/0.006"	4.897 dB	4.249 dB	>3.5 dB

# What's (the) next (big thing)?



# The End

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*For more info contact: Ivan Straznicky  
ivan.straznicky@curtisswright.com*

**Q&A**

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