



# Customer Measurement Report

## Chip-to-Module Channels

### ExaMAX<sup>®</sup> and ExaMEZZ<sup>®</sup> Connector Family

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Signal Integrity Team

October 9<sup>th</sup>, 2014

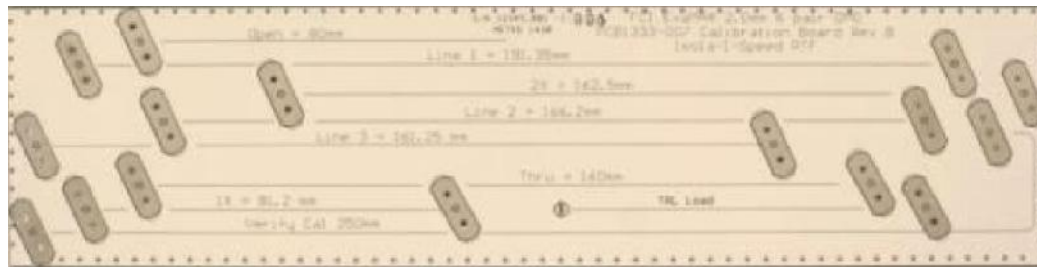
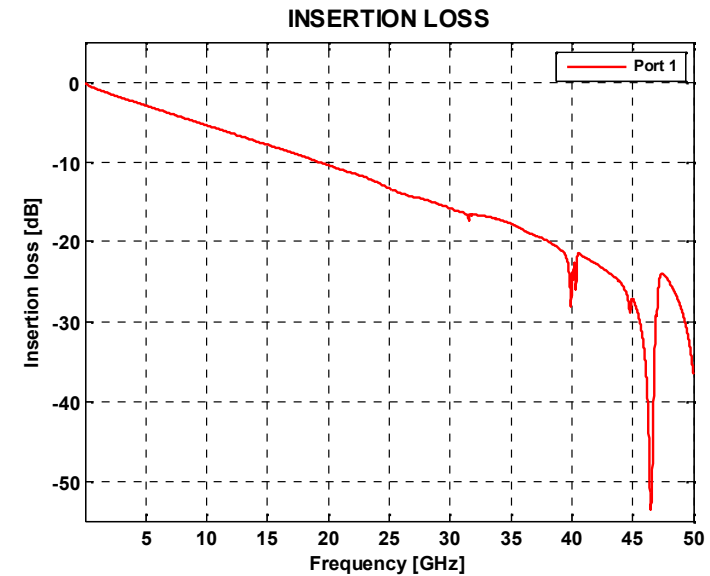
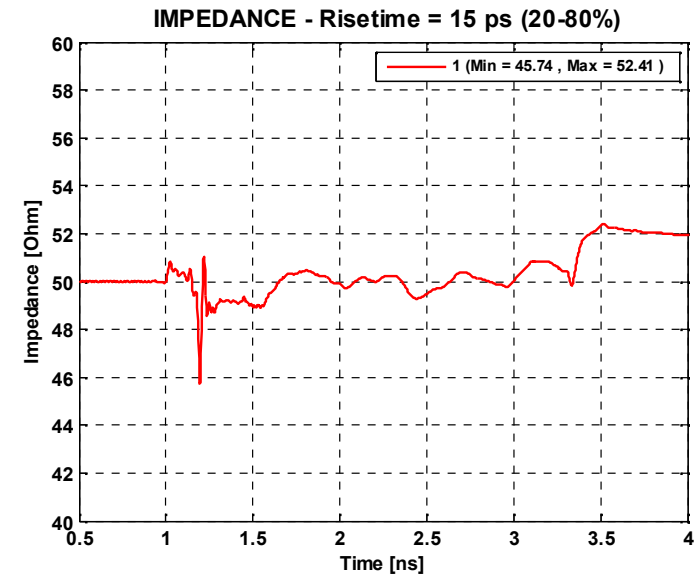
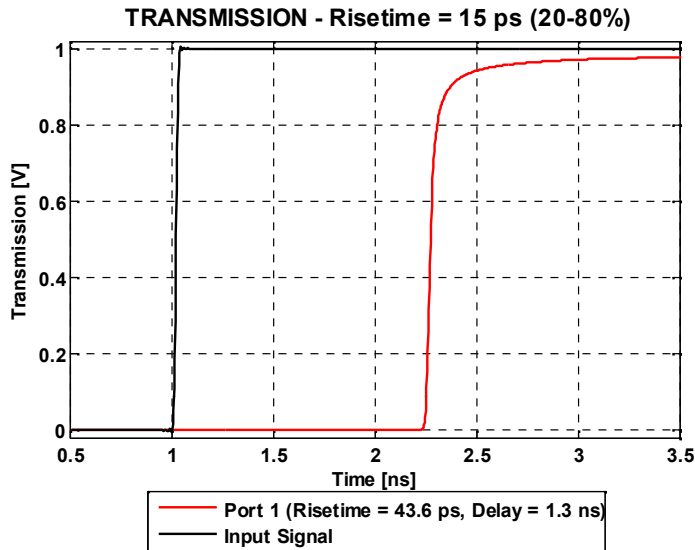


# 39mm Mezzanine on Test Boards



# Test Board Information

An input risetime of 15ps (20-80%) was used to achieve an effective risetime of 45ps (20-80%) for all Time-Domain transformations.



Calibration Test Board

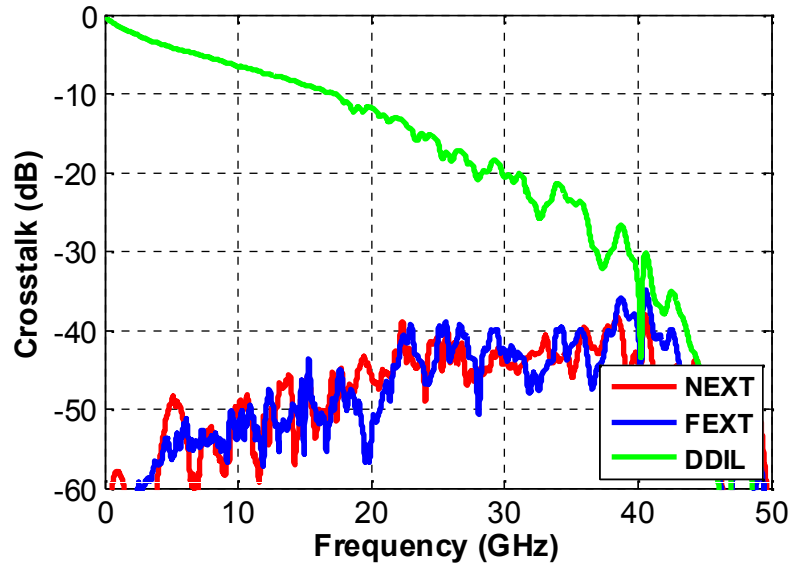




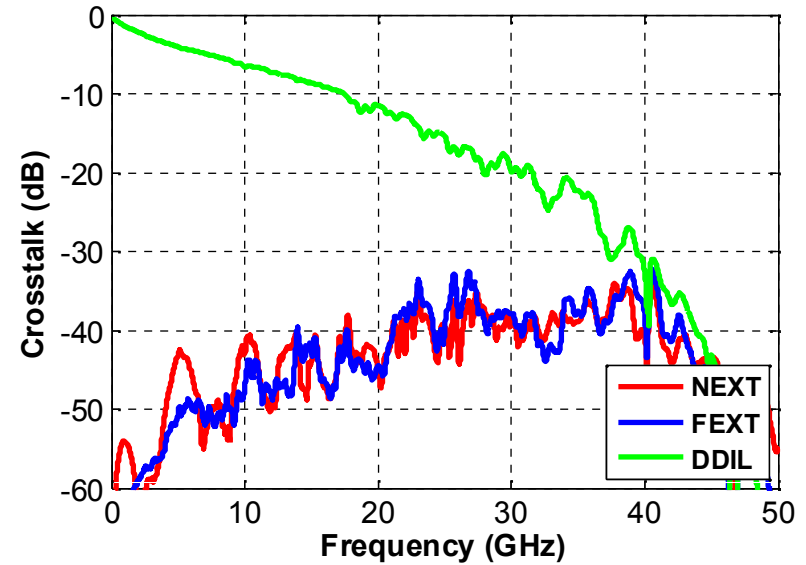
# Power-Summed Crosstalk



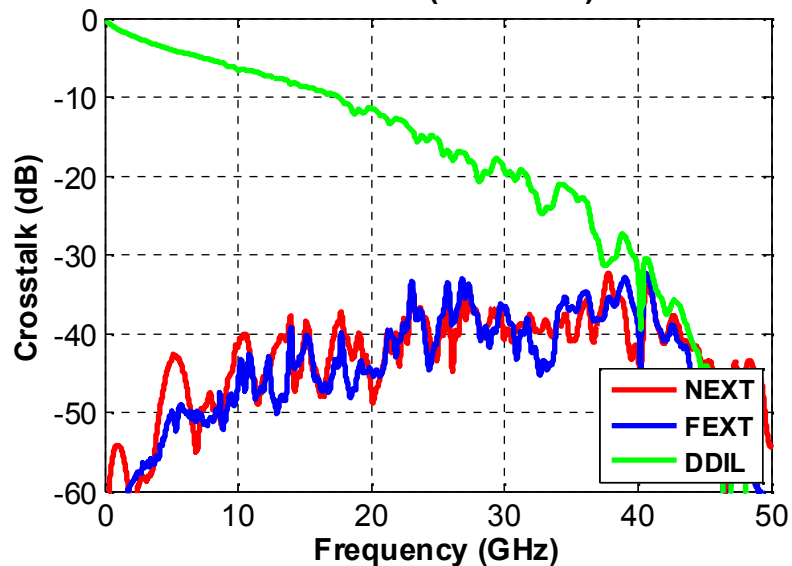
ExaMEZZ 39mm - Power-Summed Crosstalk  
Pair BC2 (Hdr Side)



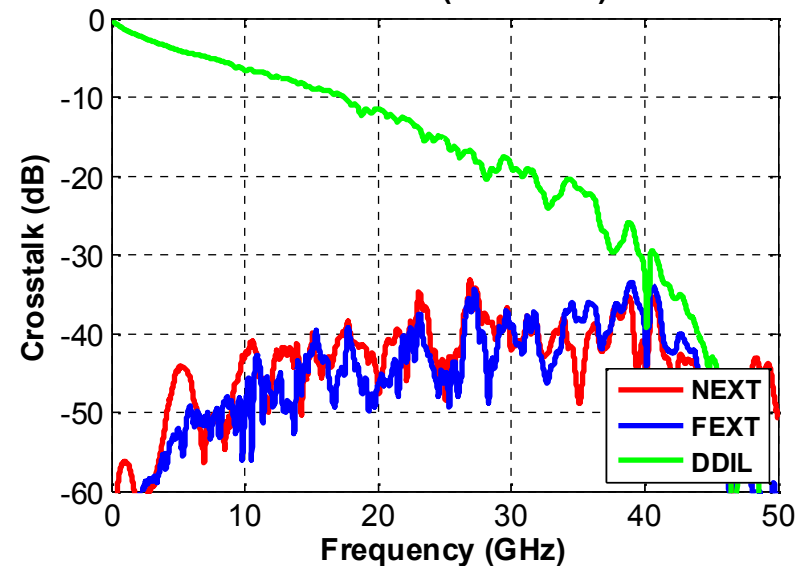
ExaMEZZ 39mm - Power-Summed Crosstalk  
Pair EF2 (Hdr Side)



ExaMEZZ 39mm - Power-Summed Crosstalk  
Pair HI2 (Hdr Side)



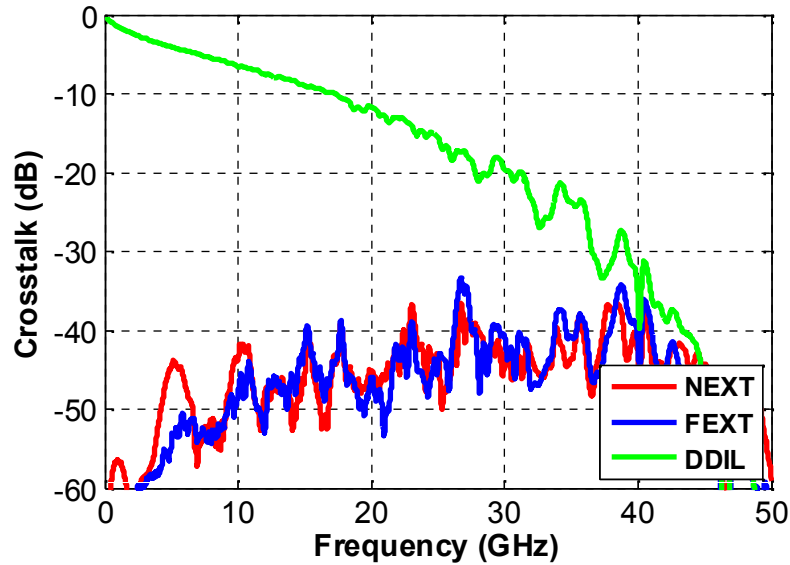
ExaMEZZ 39mm - Power-Summed Crosstalk  
Pair KL2 (Hdr Side)



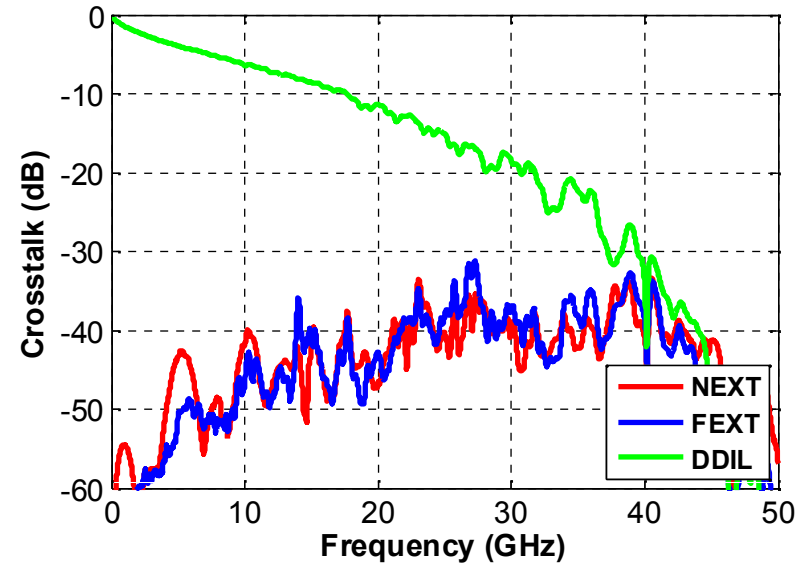
# Power-Summed Crosstalk



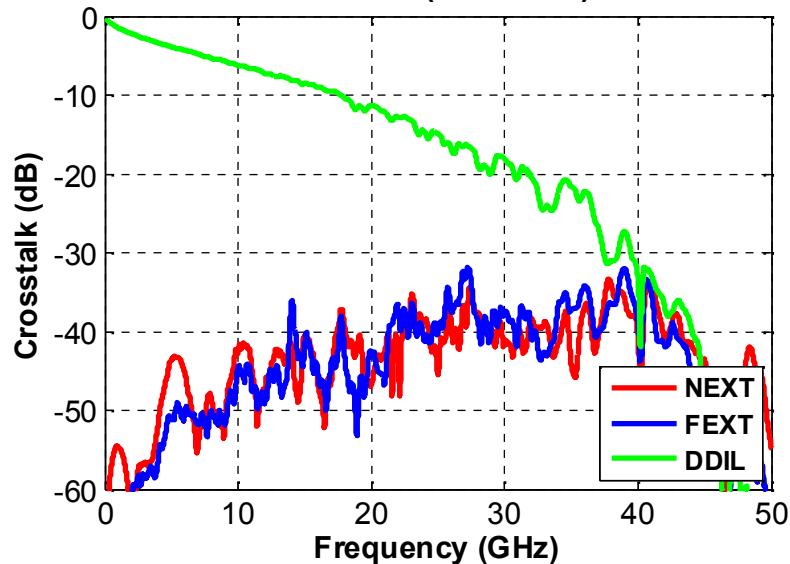
ExaMEZZ 39mm - Power-Summed Crosstalk  
Pair CD3 (Hdr Side)



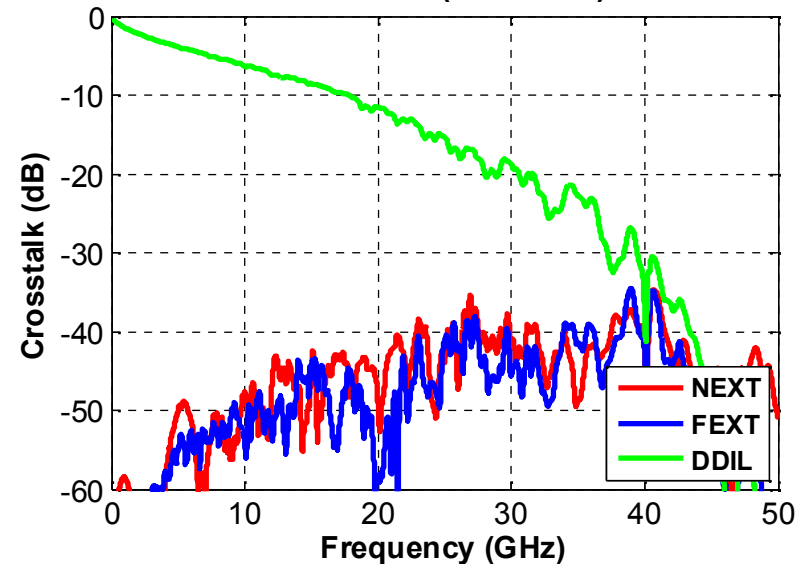
ExaMEZZ 39mm - Power-Summed Crosstalk  
Pair FG3 (Hdr Side)



ExaMEZZ 39mm - Power-Summed Crosstalk  
Pair IJ3 (Hdr Side)



ExaMEZZ 39mm - Power-Summed Crosstalk  
Pair LM3 (Hdr Side)



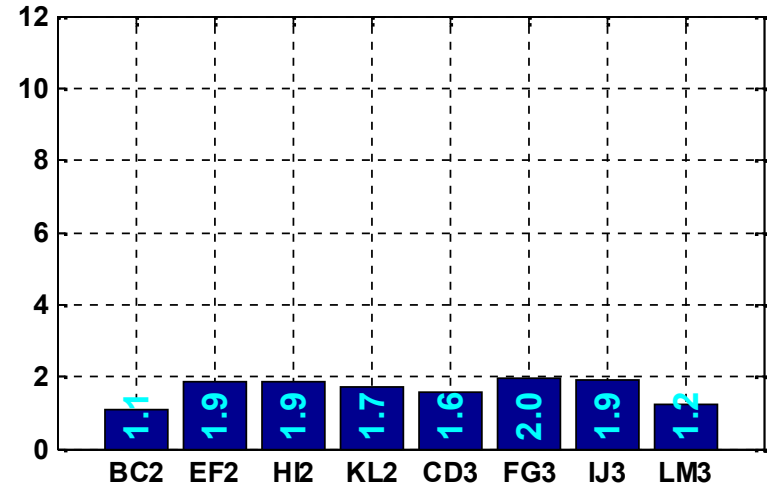
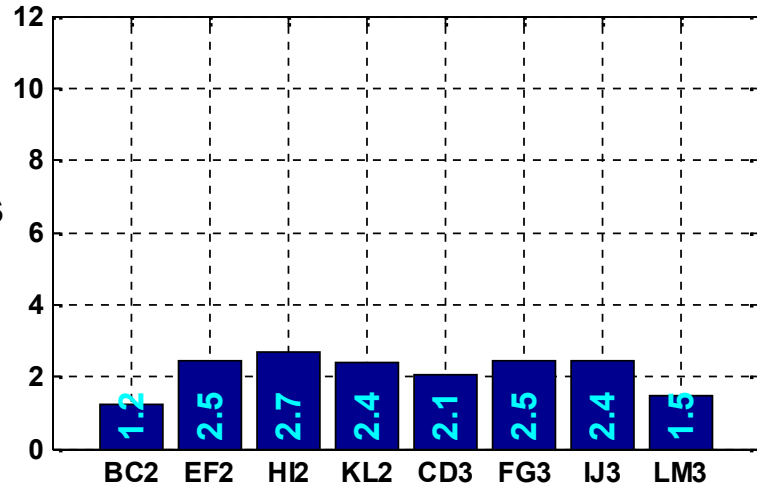


# ICN Summary

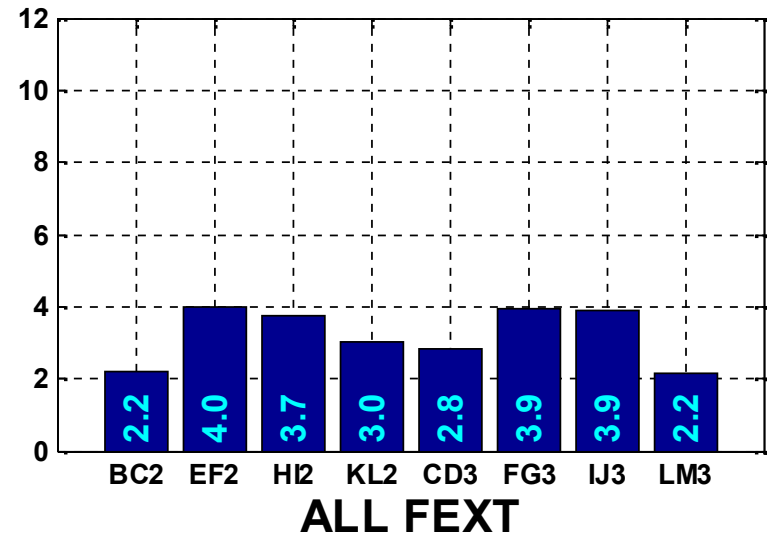
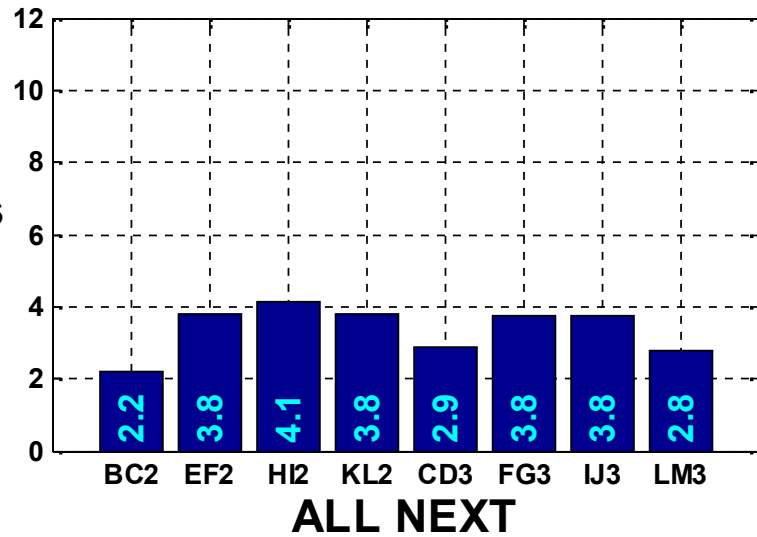


## ExaMEZZ 39mm - ICN

25 Gbps



50 Gbps





# **DMO on Test Board**

# Test Board Information



## ■ PCB1333 Rev B

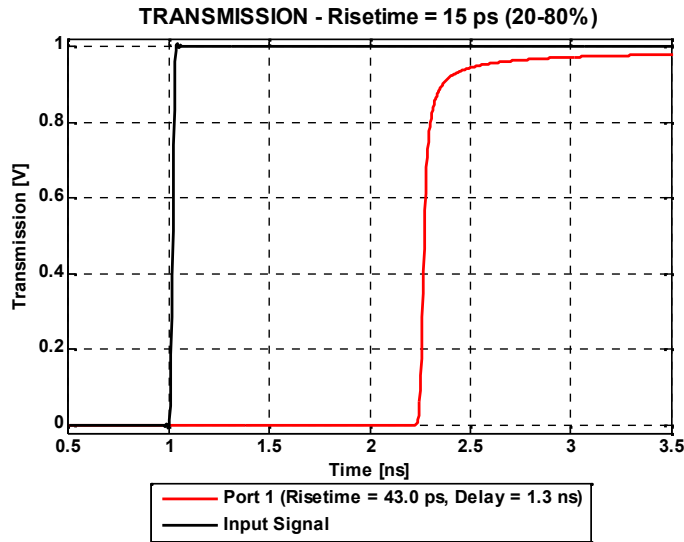
- Material
  - Isola-I-Speed RTF
- Layer Count
  - 8 layers
- Approximate thickness
  - 0.062 inches
- Trace length
  - 1X trace length = 81mm
  - 2X trace length = 162mm
- Routed layer
  - Traces routed on ly3 and ly6
- Back drilling
  - Both the SMA signal via and the ExaMAX signal via were back drilled.
- SMA connectors were used to complete this testing.

Cu #	Impedance Required	Via Struct.	Cu %	Lyr. Thick. (in)	Materials	Core Only Thick. (in)	Supplier	Resin System
1			100	1/2 oz				
2			84	1/2 oz	0.0092	0.0080	Isola	Ispeed
3	✓		44	1/2 oz	0.0071 2113		Isola	Ispeed
4			84	1/2 oz	0.0092	0.0080	Isola	Ispeed
5			86	1/2 oz	0.0072 2113		Isola	Ispeed
6	✓		42	1/2 oz	0.0092	0.0080	Isola	Ispeed
7			86	1/2 oz	0.0071 2113		Isola	Ispeed
8			100	1/2 oz	0.0092	0.0080	Isola	Ispeed

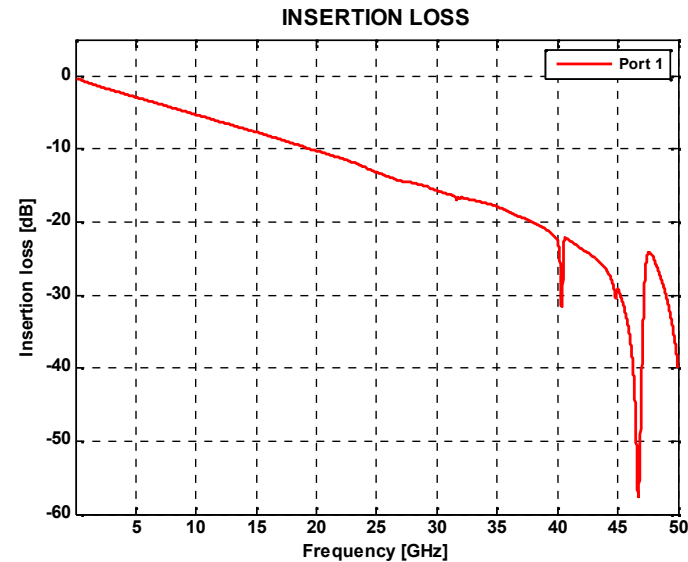
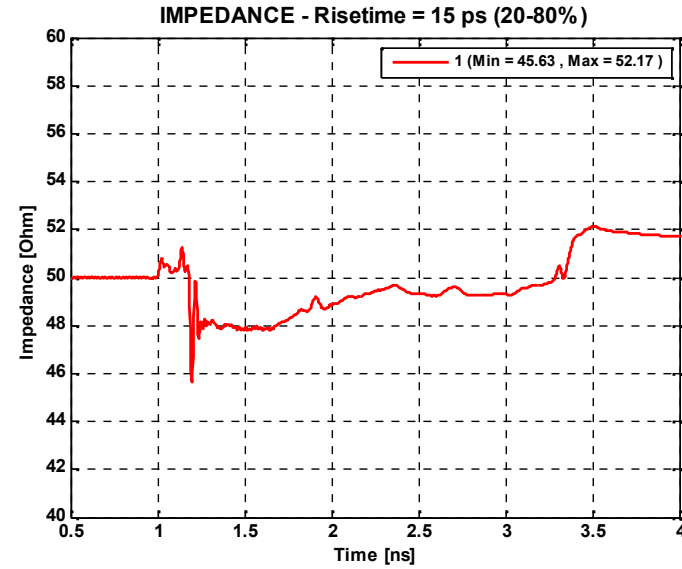
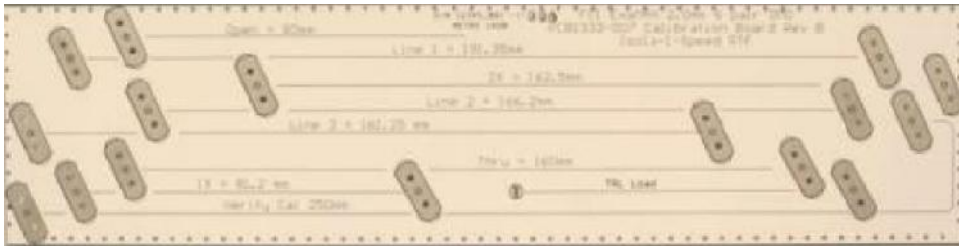
# Test Board Information

## ■ Risetime

- An input risetime of 15ps (20-80%) was used to achieve a 45ps (20-80%) effective risetime.



Transmission 2X trace length



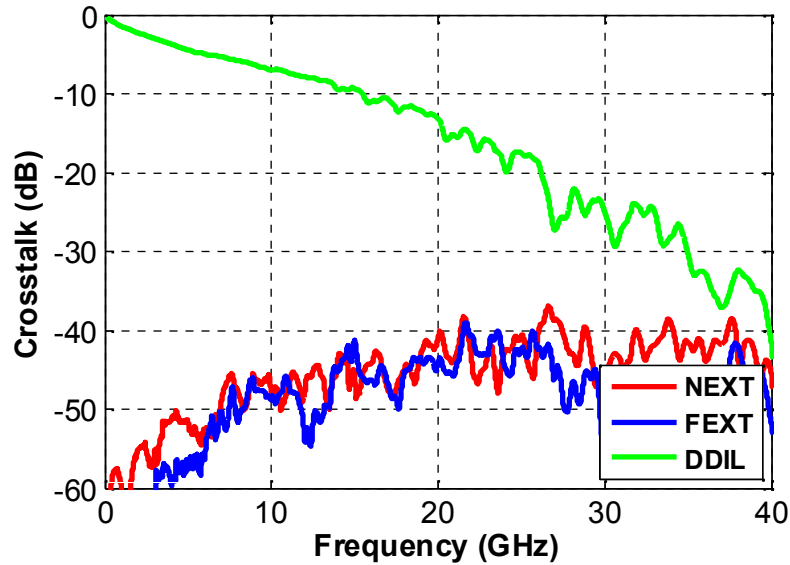




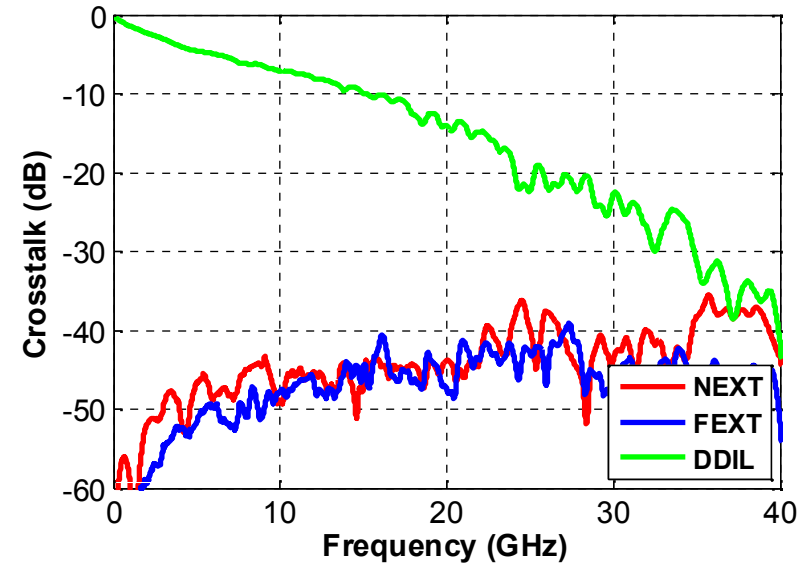
# Power-Summed Crosstalk



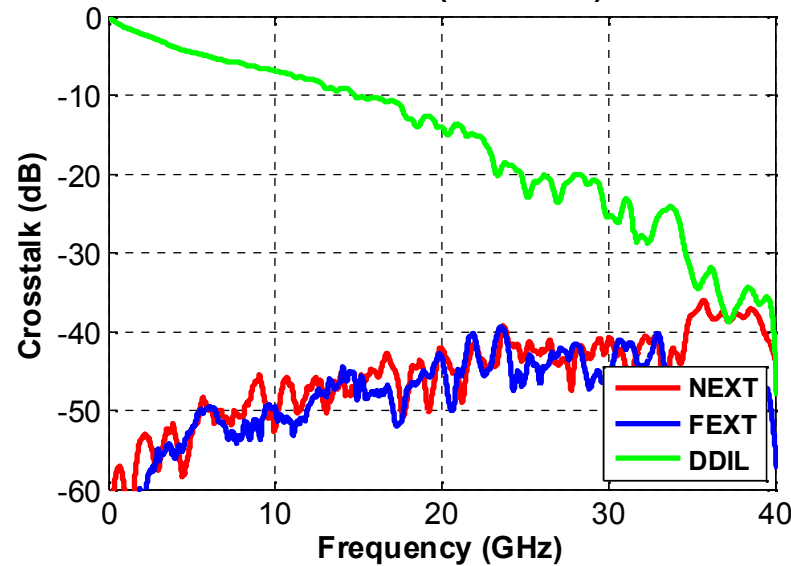
ExaMAX DMO - Power-Summed Crosstalk  
Pair HI6 (Hdr Side)



ExaMAX DMO - Power-Summed Crosstalk  
Pair IJ7 (Hdr Side)



ExaMAX DMO - Power-Summed Crosstalk  
Pair LM7 (Hdr Side)

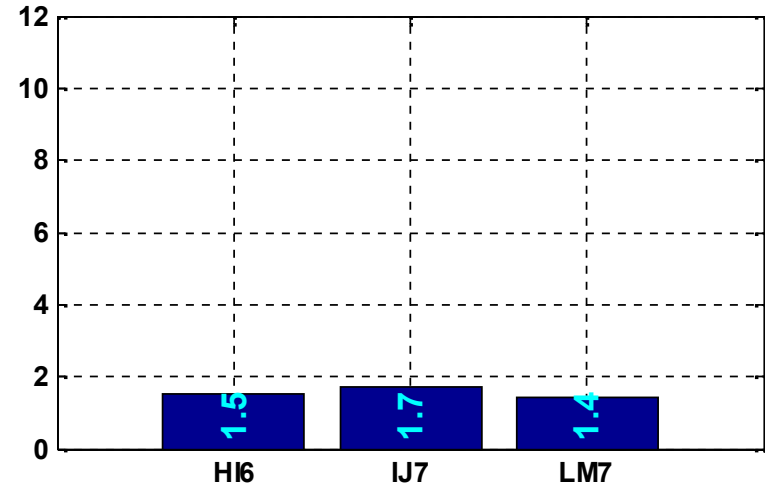
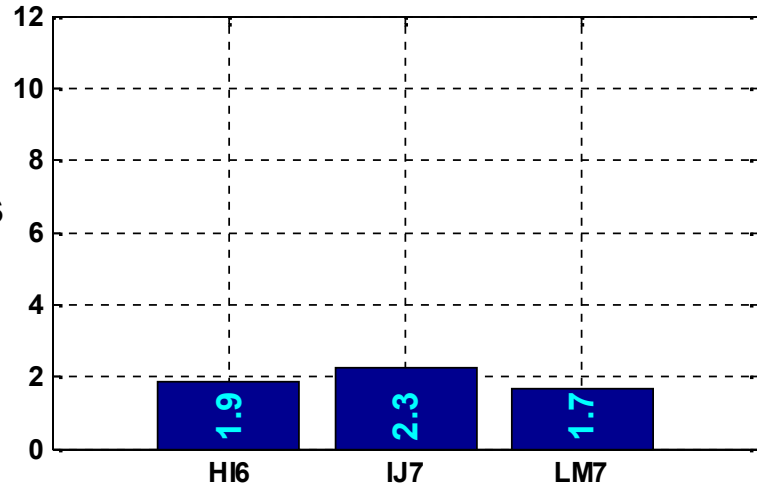


# ICN Summary

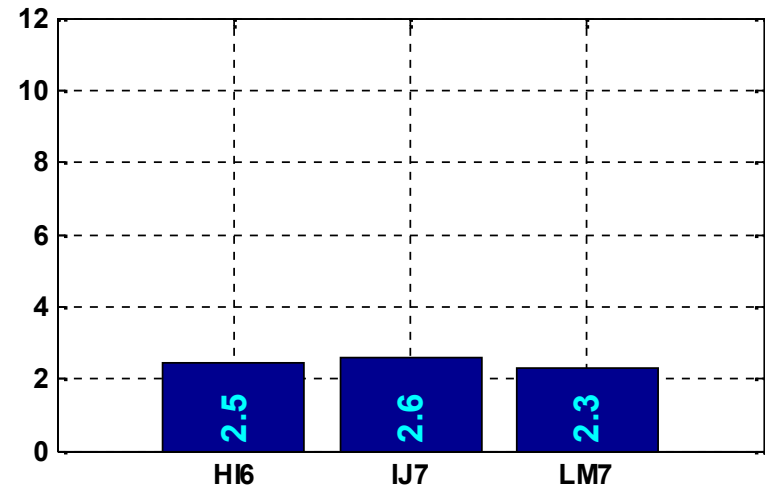
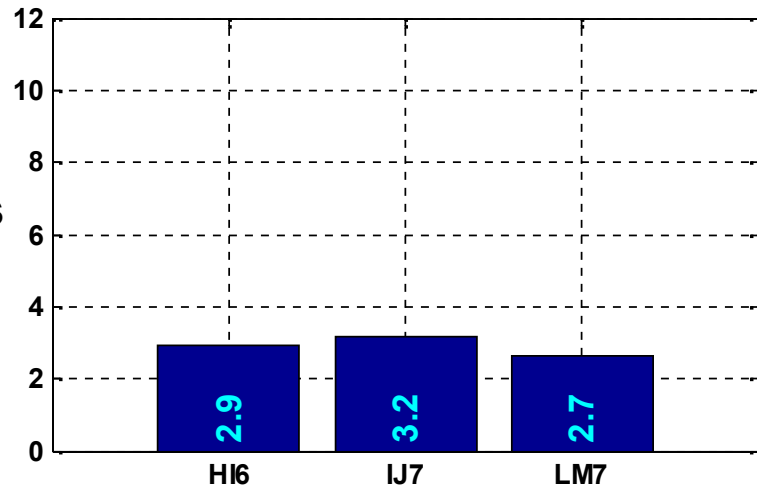


## ExaMAX DMO - ICN

25 Gbps



50 Gbps



ALL NEXT

ALL FEXT