28Gb/s I/O Update
IEEE ad hoc conference call

June 29, 2010

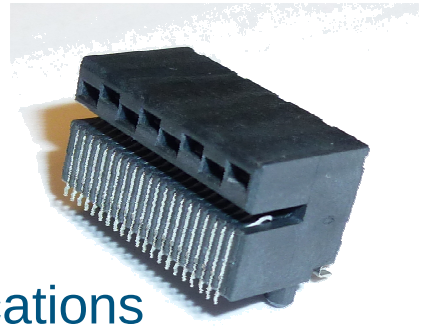
Tyco Electronics

TE Development Projects for 25-28Gb/s

Parallel Projects in process:

QSFP+ compatible solution (zQSFP+)

- New host board connector/cage assembly
- Backward compatible with QSFP+ modules and cable assys
- Enhancements to channel components being evaluated (cable plugs, copper cable construction)



New Connector Interface (code name Quattro)

- New 4X interface and contact structure
- Will meet requirements for SR and LR 4x25 applications
- Designed for 28G optimization of interface, pin assignments and routing

High Level Comparison

zQSFP+

- Excellent 28G Electrical Performance
- Has backward compatibility to QSFP modules and cables
- Re-uses the QSFP footprint, located 2.2mm further back on the host PCB
- Uses a card edge interface
- Leverages the QSFP ecosystem of modules, cables, etc.

New Connector Interface (“Quattro”)

- Excellent 28G Electrical Performance
- Optimized common mode impedance
- Optimized layout and routing of host and module PCB to enhance channel performance
- Has all high speed pairs on the top of the module PCB (eliminates vias)
- Uses a 2 piece (plug and receptacle) interface
- All eight differential pairs exit cleanly from the rear of the receptacle and the plug

Tradeoffs of various industry requests need to find consensus

Tyco Electronics and Molex will support both solutions as dual sources

Current Status

New Connector Interface (Quattro)

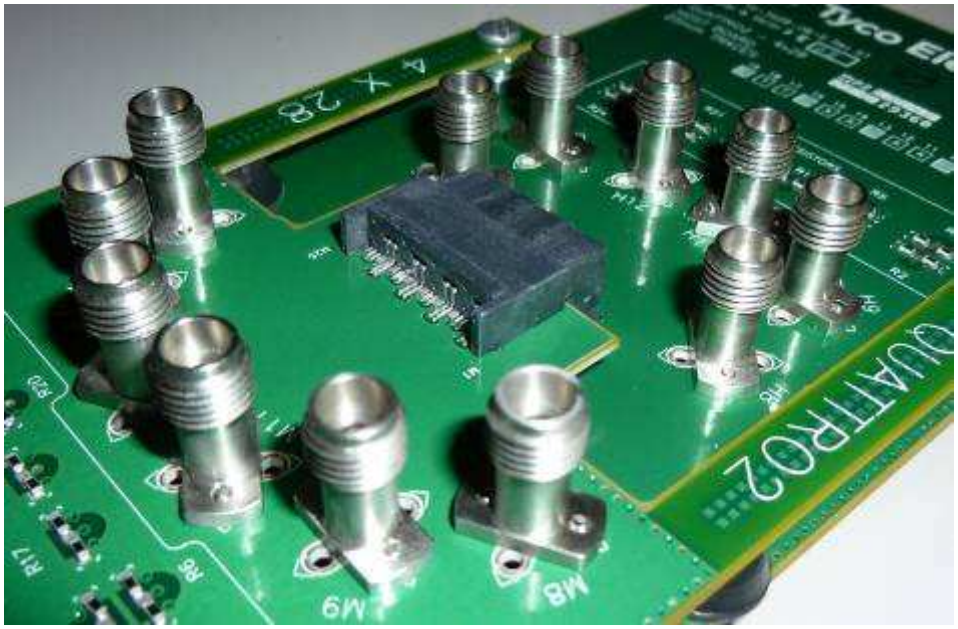
- A second generation 28Gbps concept has been developed
- Channel simulations were shared on the May 18, 2010 conference call for 100mm and 200mm channels
- Prototype connectors have been fabricated
- Key dimensions on signal contacts are not design compliant and must be re-built (ECD 06/30/2010)
- Selected measurements have been taken on the non compliant parts
- New measured data is expected to be available week of July 7, 2010

zQSFP+

- Prototypes are being made and data is expected in late July

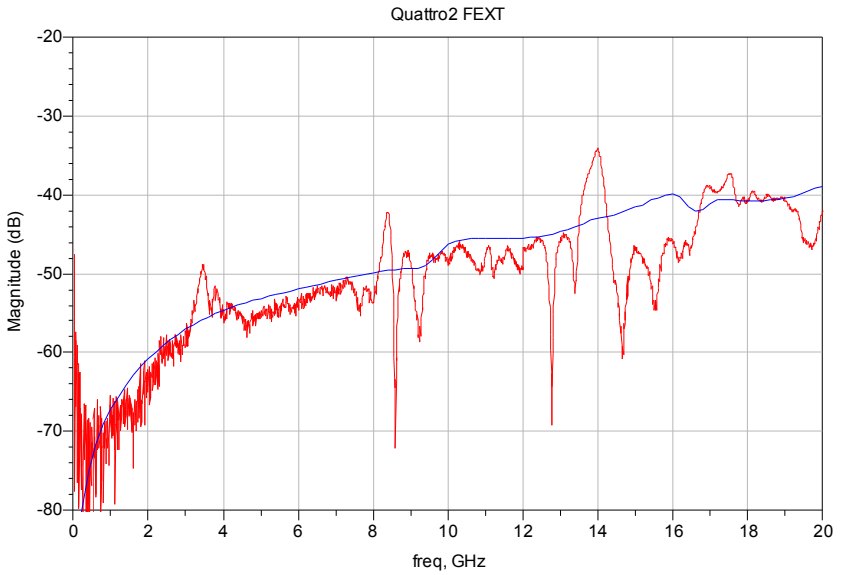
New Connector Interface (Quattro) Prototypes
Mated Plug and Receptacle Views

View from behind host board receptacle
All 8 differential pairs exit from the rear of the receptacle connector

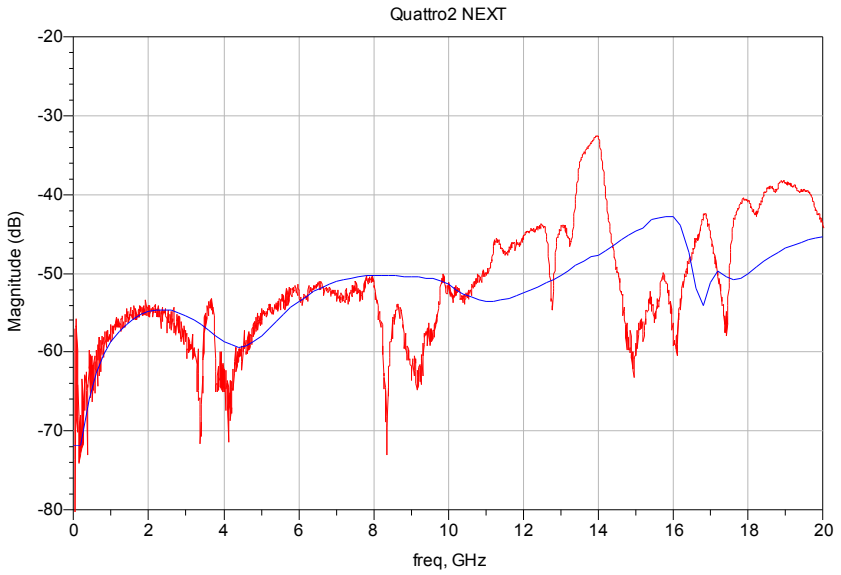


View from behind module plug
All 8 differential pairs on top of module PCB

Selected data from non-compliant New Connector Interface (Quattro)



Red – Lower to Upper Tested
Blue – Lower to Upper Modeled



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Summary

- Tyco Electronics and Molex have come together to offer the best 28G solutions to the industry
- Supporting data and simulations are being shared with the IEEE and the OIF
- Based on many customer interactions, there are trade-offs that must be considered
- Need industry consensus to determine what configuration/features are most important
- Jointly, we will deliver the best solutions to support the industry's 28G channel requirements