

Lynx™ QD Product Family

September, 2020

Dave Spencer

Product Marketing Manager

Amphenol Information Communications
and Commercial Products

MeZanine
Products

Amphenol ICC

Agenda

- What You Need To Know
 - Product Overview and Update
 - Value Proposition
 - What's Next?



MeZanine
Products

Amphenol
ICC

Lynx™ QD
THE QUAD DIFFERENTIAL SOLUTION

Optimized for differential pair signaling, Lynx™ QD sets a new standard for density and flexibility. This innovative interconnect solution supports data rates of 56 Gb/s PAM4 and provides a 4 row differential signaling structure, into a compact 2 row footprint.

- Optimized for differential pair signaling
- Multiple Form Factors; Right Angle, Coplanar & Vertical Stacker
- 0.9mm pitch
- 56 Gb/s PAM4
- Vertical stack heights: 4mm-15mm

Coplanar

TARGET MARKETS

FEATURES

- Supports 56Gb/s PAM4, PCI Gen 5
- 4 row differential connector in compact 2 row footprint
- Available in multiple form factors
 - Right Angle, Coplanar, Vertical Stacker
 - Toolled in 20, 40, 60 and 80 Positions
 - Stack heights from 4mm-15mm
- Integrated Shielding Design

BENEFITS

- Conforms to current standards with future roadmap
- Optimized for differential pair signaling
- Provides fast time-to-market
- Multiple design options for developers
- Flexible, customizable routing for differential, single ended and power requirements
- Provides robust mechanical strength and sustained signal integrity

www.amphenol-icc.com

Amphenol Information Communications and Commercial Products

Lynx QD Product Overview

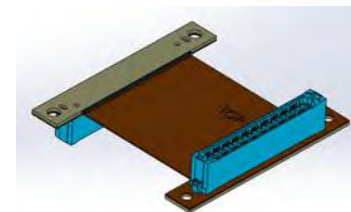
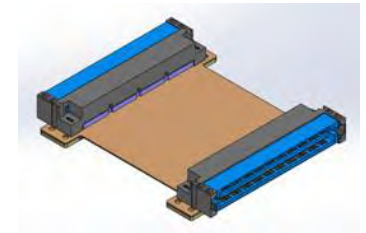
Product Release Status



Currently Released		12 Position	20 Position	40 Position	60 Position	80 Position
Coplanar						
Right Angle						
Mezzanine/Stacker (Receptacle Only)						

■ Release 2.0: Planned for Q4'20

- Vertical stacker plugs
 - Stack heights: 4mm – 10mm
 - 15mm height is in development
 - 20, 40, 60, 80 differential pair position modules
- Flex options – Available Now!



Product Overview

Features and Benefits



Features	Benefits
<p>Signal integrity</p> <ul style="list-style-type: none">• 56G PAM4 (28G NRZ) capable• PCIe Gen 5.0 compliant	<ul style="list-style-type: none">• Connector impedance tuned for 92 Ohms• Low cross talk less than -40dB at 20 GHz• Optimized for differential signaling• Provides upgrade path for future system design
<p>Available in multiple form factors:</p> <ul style="list-style-type: none">• Coplanar, Right Angle, Vertical stacker• High density/Compact footprint• Full product family offering• Compact form factor	<ul style="list-style-type: none">• 12 to 80 differential pairs, 36 to 240 conductors• Stack heights from 4mm to 10mm (15mm in development)• Configurable length• Differential pair or Open Pin Field solution• Low profile design allows for improved airflow in the system
<p>Mechanical robustness</p> <ul style="list-style-type: none">• Large mechanical alignment features• Integrated guide posts• PCB alignment posts and clips	<ul style="list-style-type: none">• Guarantees proper alignment and mating• Allows for multi-up connector configurations• Allows for connector stability during reflow
<p>PCB</p> <ul style="list-style-type: none">• Large routing channels• Small footprint area• Same footprint across entire product family	<ul style="list-style-type: none">• Allows for routing out of connector from one side<ul style="list-style-type: none">• 2 signal layers• Reduces PCB layers• Smaller footprint increases allowable area for other components

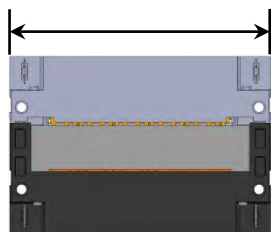
Product Overview

Mechanicals

Coplanar

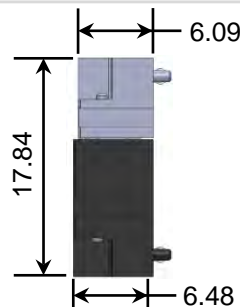


X dimension



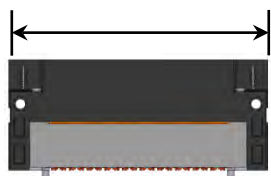
DP	X
20	26.41
40	44.41
60	62.41
80	80.41

Y/Z dimensions

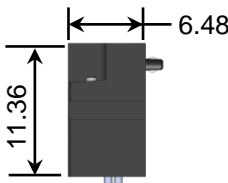


- 4-Row 0.90mm pitch, 20 to 80 diff. pairs
- Integrated guidance features
- Normal force
 - 25g per pin EOL

Right angle

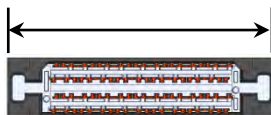


DP	X
20	26.41
40	44.41
60	62.41
80	80.41

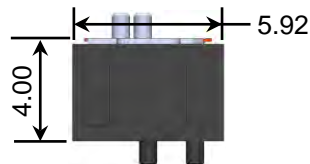


- Mating force
 - 27g per pin typical
- Mechanical wipe
 - 0.50mm

Vertical stacker



DP	X
20	26.67
40	44.67
60	62.67
80	80.67

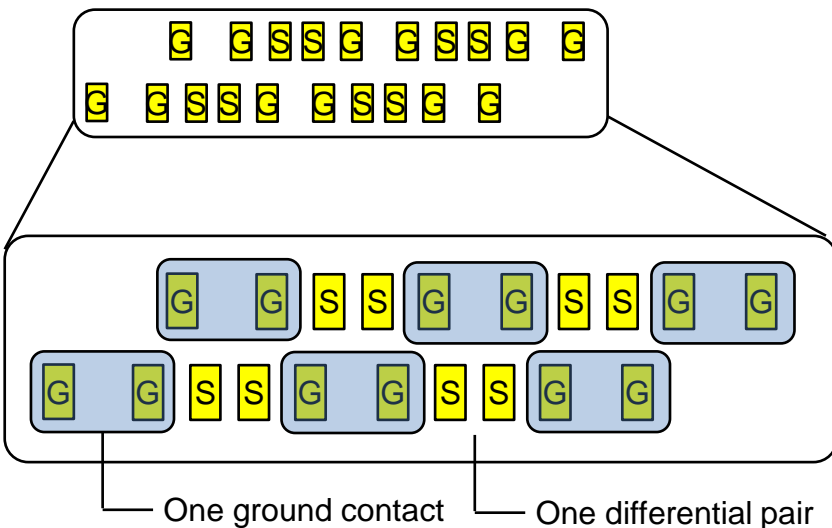
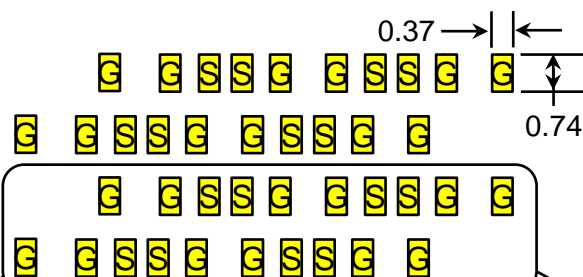
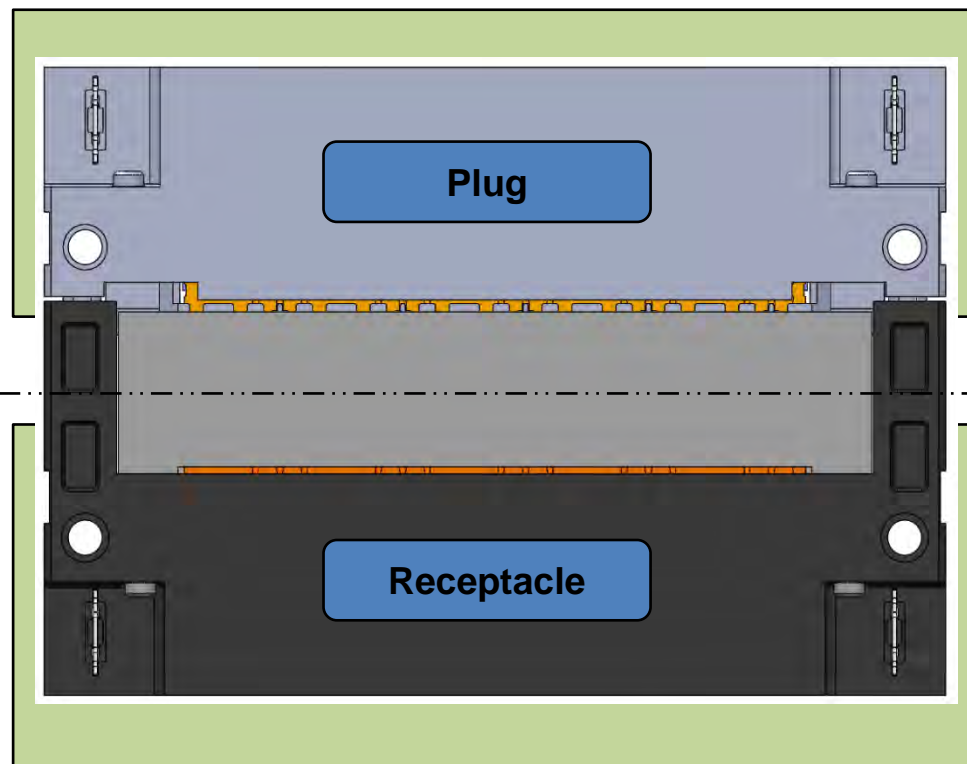
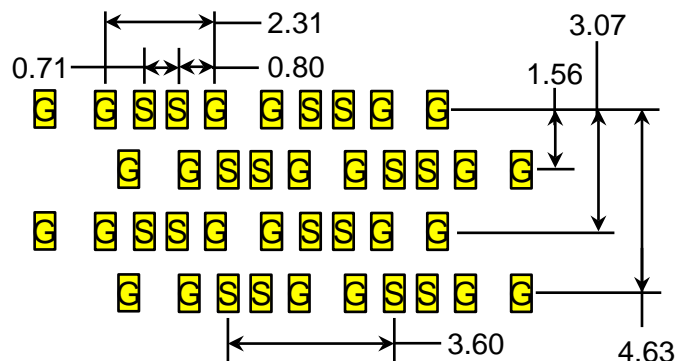


- J-Lead SMT attachment
- Multi-up connector application capable
 - Parallel or in-line
- PCB alignment and stabilizing feature

All dim's in mm

Product Overview

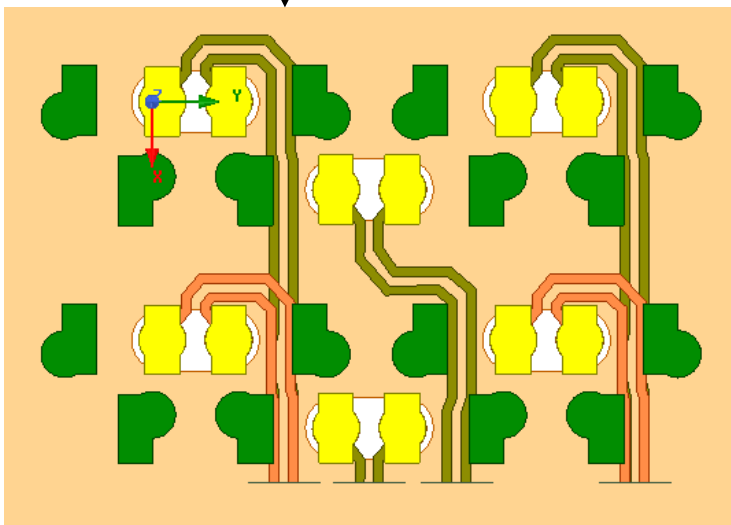
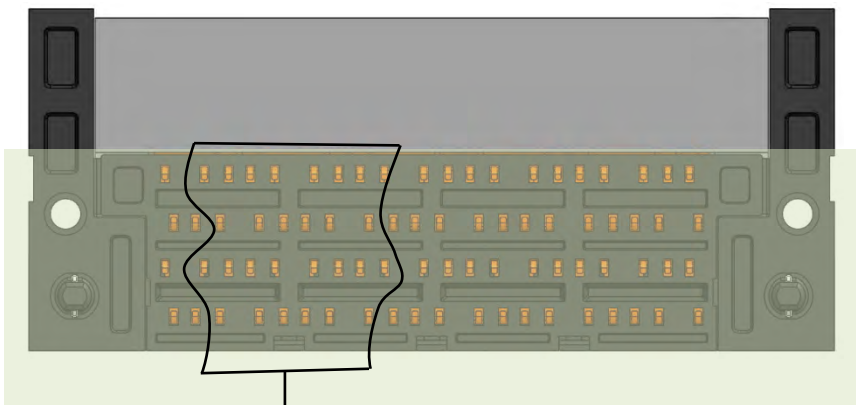
Footprint



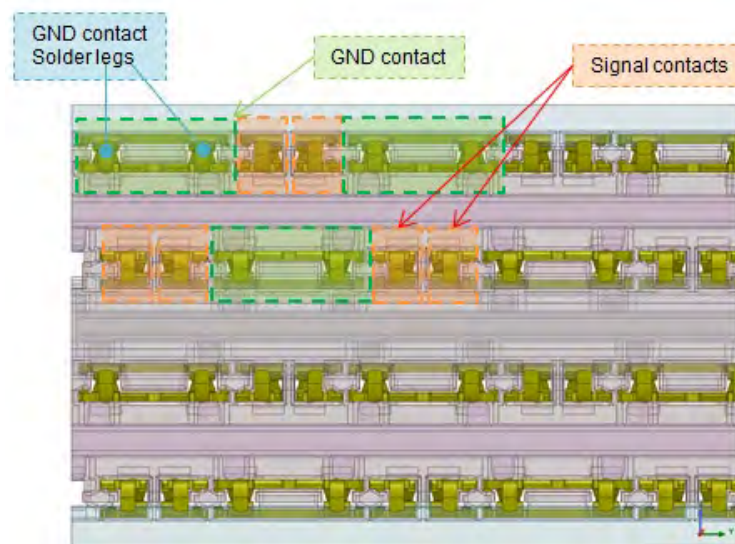
- Footprints are the same for all connectors
- All pad sizes are the same 0.37x0.74mm
- Pitch between differential pairs is 3.60mm
- All ground contacts can be commoned

Product Overview

Routing



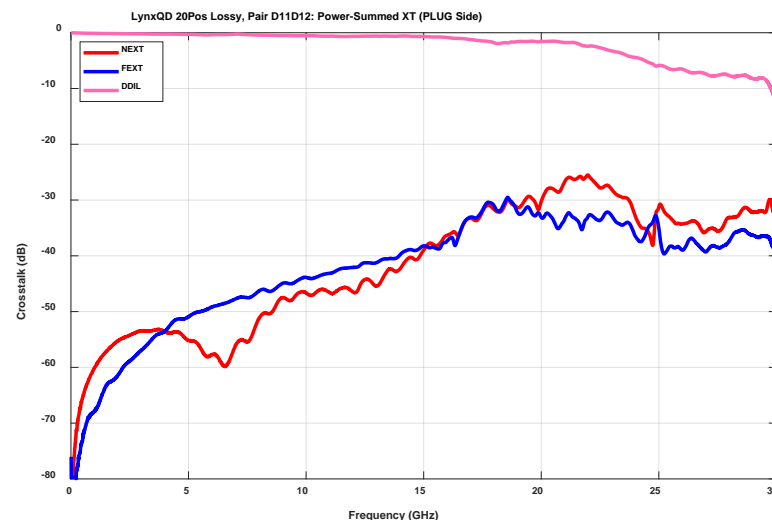
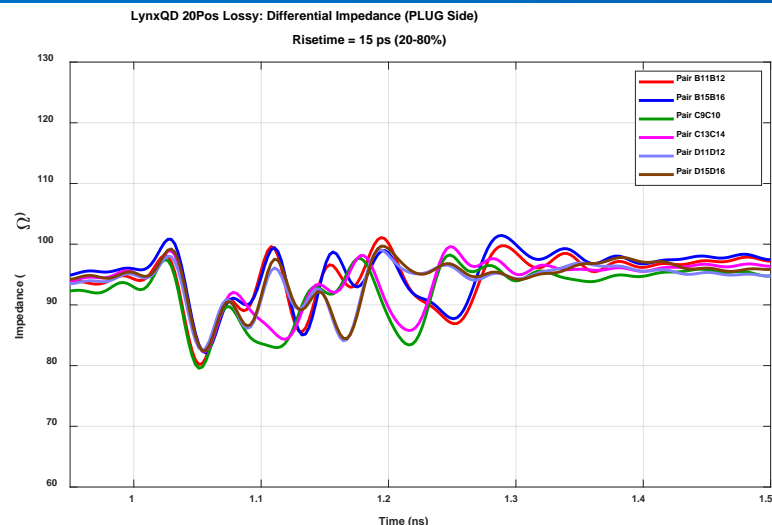
- Coplanar and right angle connectors can route out of connector on 2 layers
- Vertical stacker can route out of connector on 1 layer
 - Route out of connector from both sides



- Wide ground blades provide new routing options

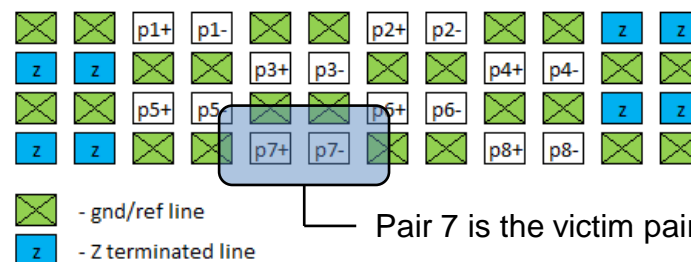
Product Overview

Signal integrity - Coplanar



- 56G PAM 4 and PCIe Gen 5 performance
- Power sum cross talk below -40dB out to 15 GHz
- IL-PSNEXT margin 35 dB at 16 GHz
- IL-PSFEXT margin 35 dB at 16 GHz
- 92 Ohm impedance
- Current rating 1.5A per pin

Signal integrity pin out



- Pair 7 is the victim
- 5 aggressors

Value Proposition

Lynx QD – The Quad Differential Solution

■ Key Features

- Supports 56 Gb/s PAM4, PCIe Gen5 compliant
- Flexibility to meet current and future needs
- Available in 20, 40 60 and 80 diff pair position modules
- Configurable for diff pair signaling or open pin field

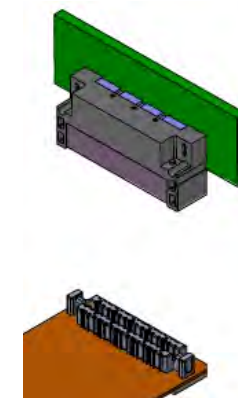
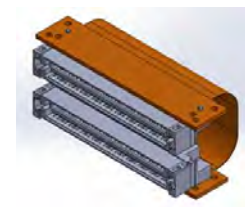
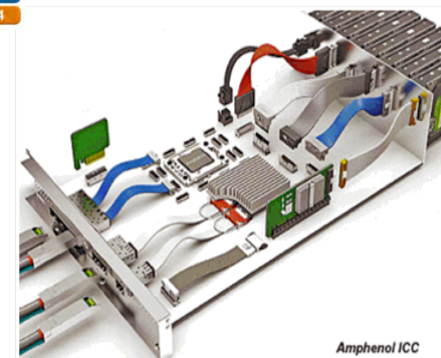
■ Key Benefits:

- High speed, high density in multiple form factors
- Lynx QD is the “Problem Solver” – ideal for many applications
- Paired with our Custom Assembly/Integration capability
- Built for quick-turn Design Wins



■ Amphenol Value Add:

- Lynx QD interconnects with flexible circuit
- Connector/cable assemblies & Near Chip
- We have a dedicated Team to design custom solutions

56
Gbps
PAM4



■ What's next:

New Additions	Description
Vertical Stacker Plugs 4mm – 10mm	4mm to 10mm 20, 40, 60 and 80 position modules
15mm Stack Height	Expands Stacker portfolio up to 15mm
Lynx QD in Distribution	 

■ Implementation:

- Stacker, 4mm -10mm: Q/4/2020
- 15mm: In Development – 2021 Release
- Stocking Distributors: August 2020

Questions?

Contact:

Dave Spencer

Product Marketing Manager | Mezzanine Products

T: 717.938.7446

E: dspencer@interconsystems.com

Visit our website at: <https://www.amphenol-icc.com/product-series/lynx-qd.html>