PCI Express® Gen 5 DirectAttached™ Cable Riser

FLEXIBLE CABLE RISER WITH 32GT/S NRZ DIFFERENTIAL SIGNALING FOR NEXT-GENERATION SYSTEMS

PCIe® DirectAttached™ cable riser solution supports up to PCIe® 5.0 data rate of 32Gb/s, which can reduce signal loss by replacing high speed PCIe® trace on Multi-layer mother board with high speed cable directly.

Amphenol's PCIe® DirectAttached™ cable riser solution with PCIe® DirectAttaced™ CEM connector on one end of the cable allows the flexibility of a different connection on the other end of the cable, accommodating different PCB form factors such as MCIO, Multi-trak™, SlimSAS™, EDSFF, OCP NIC 3.0, Gen Z, or Backplane connectors.

Ideal for use in high-speed computing Datacenter server systems, GPU cards, Riser cards and accelerator cards, this revolutionary solution of using cable to replace legacy PCIe® riser cards provides cost-savings and space-savings by eliminating the need for the motherboard PCB and riser card PCBs. It also provides shorter manufacturing production lead-times as riser card PCBA can be done in parallel with cable soldering process.

TARGET MARKETS

To support a suite of applications, Amphenol has developed three options for DirectAttached™ Cable riser solutions:

1. One-Piece solution: Integrated Press-fit Power+SB (Sideband) pin block with high-speed signal housing
2. Two-Piece solution: Separate Power+SB pin block from high-speed signal housing, Power+SB pin block can be either Press-fit or PIP options
3. Fully Cable Out solution: Power+SB Pin be directly attached to cable

One-piece and two-piece solutions are footprint compatible

Amphenol tooled Gen 5 DirectAttached™ Cable Riser, configuration, X8 and X16 are available, and the mating interface is backward compatible with Gen 4/3/2/1.

- Backward mating adhering to standard PCIe® interface but the footprint is different from standard PCIe® CEM
- Wide range of positions available, X8 and X16 tooled
- Flexible selection with a variety of form factors for one cable end

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FEATURES	BENEFITS
▪ Support X8, and X16 standard links as per PCI-SIG CEM specification	▪ Provides excellent performance and additional options for extreme bandwidth application
▪ Backward mating following PCIe® CEM standard	▪ Outperform Gen 5 specification, but also backward mating compatible to Gen 1/2/3/4 specification
▪ High-speed pins directly attach to high-speed cable	▪ Eliminate PCB trace signal loss
▪ Cost-saving solution for the whole system	▪ Provides PCB cost-savings on motherboard and riser cards ▪ Provides shorter lead-time on cable assemblies
▪ Flexible supply chain for customer	▪ Soldering can be done in parallel with riser PCBA process
▪ Low-halogen material	▪ Meets next-generation requirements
▪ RoHS compliant	▪ Meets environmental, health and safety requirements

TECHNICAL INFORMATION

MATERIAL

- Contact Base Metal: Copper Alloy
- Contact Area Finish: Gold over Nickel
- Solder Area Finish: Tin over Nickel
- Housing Material: High-temperature thermoplastic (UL94V-0) for reflow soldering or thermoplastic (UL94V-0) for wave soldering. Color: Black or off-white
- Metal Board Locks: Copper Alloy
- Board Locks Finish: Tin over Nickel
- Raw Cable: Ag plated copper conductors with foam insulation covered by conductive foil

ELECTRICAL PERFORMANCE

- Contact Resistance: 30mΩ max. initially with 10mΩ max. change after environmental exposures
- Current Rating: 1.1A min. per pin for the 8 power pins and 8 nearest ground pins
- Signal Integrity Summary

MECHANICAL PERFORMANCE

- Durability Rating: 50 cycles min. for DirectAttached™ CEM end
- PCB Insertion Force: 1.15N max. per contact pair
- PCB Removal Force: 0.15N min. per contact pair

PACKAGING

- PE bag

APPROVALS & CERTIFICATION

- CSA

ENVIRONMENTAL

- EIA-364-1000.01. The test groups/sequences and durations are derived from the following requirements:
- Durability (mating/unmating) rating of 50 cycles
- Field Temperature: 65°C
- Field Life: Seven years
- Temperature Life (preconditioning): 92 hours at 105°C
- Temperature Life: 168 hours at 105°C
- Mixed Flowing Gas: 10 days

SPECIFICATIONS

- Industry
  - PCI Express® Card Electromechanical Specification
  - PCI Express® Module Electromechanical Specification
  - For more information on the applicable PCI-SIG specifications, visit www.pcisig.com.
- Amphenol
  - GS-12-1406 PCI Express® group of connectors

TARGET MARKETS/APPLICATIONS

Desktop PCs

Datacenter
Servers
Storage
Supercomputers
Workstations
Networking and Accelerators

SI PERFORMANCE

SI simulation performance meet @ 32GT/s

Description	Performance	Solution	Power+SB termination	Part Number Series
PCIe® Gen 5 DA CEM x16 to 2*MCIO X8	32GT/s	1Pcs Solution	Press-fit	CBL03008XS
PCIe® Gen 5 DA CEM X16 to 1*MCIO x8	32GT/s	1Pcs Solution	Press-fit	CBL03006XG
PCIe® Gen 5 DA CEM X16 to 2*MCIO x8 + Sideband	32GT/s	1Pcs Solution	Press-fit	CBL03005XS
PCIe® Gen 5 DA CEM X8 to 1*MCIO x8	32GT/s	1Pcs Solution	Press-fit	CBL03018XC
PCIe® Gen 5 DA CEM X16 to 2*SLIMSAS x8	32GT/s	1Pcs Solution	Press-fit	CBL03012XG
PCIe® Gen 5 DA CEM X16 to 2*Multi-Trak™ x8	32GT/s	1Pcs Solution	Press-fit	CBL03003XS
PCIe® Gen 5 DA CEM X16 to 2*MCIO x8 + Sideband	32GT/s	2Pcs Solution	Press-fit	CBL03102XH
PCIe® Gen 5 DA CEM X16 to 2*MCIO x8 + Sideband	32GT/s	2Pcs Solution	Through-hole	CBL03104XG
PCIe® Gen 5 DA CEM X16 to 2*MCIO x8, Fully cable out	32GT/s	1Pcs Solution	N/A	CBL03201XB

* denotes base part number. Please contact Amphenol for complete part numbers

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