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# ZIPLINE™ HIGH-DENSITY, HIGH-PERFORMANCE CONNECTOR SYSTEM

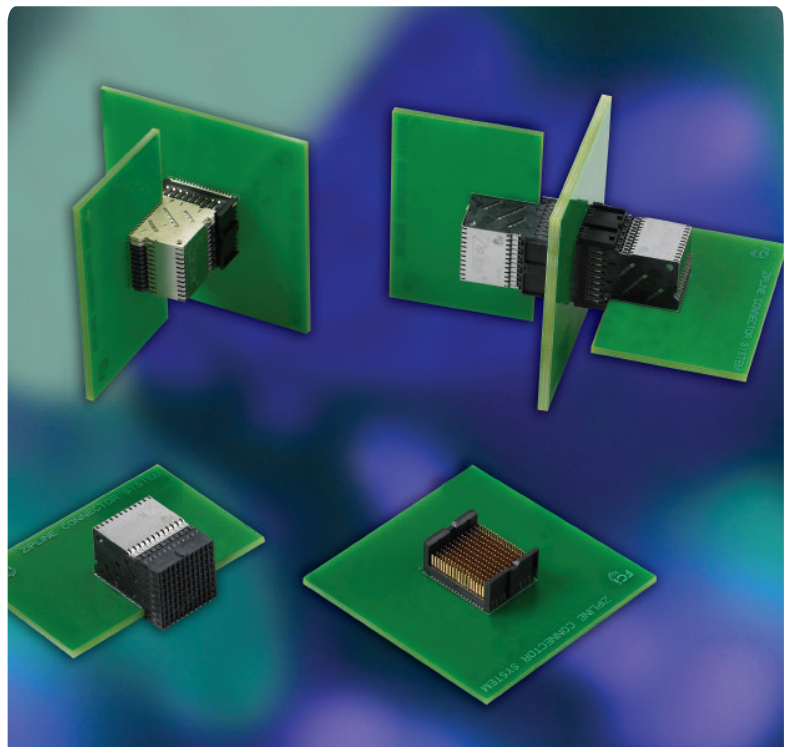
## DESCRIPTION

The ZipLine™ connector system addresses customer demand for maximum signal density – a paramount requirement for future equipment platforms – at data rates up to 12.5 Gb/s.

The initial ZipLine signal modules with 1.8mm column pitch support backplane and orthogonal midplane applications. A module with 72 differential pairs – consisting of 12 insert-molded leadframe assemblies (IMLAs), each supporting 6 high-speed differential signal pairs – provides the maximum density available by delivering 84.6 differential pairs per inch of card edge. Allowing a minimum 1-inch card slot pitch, the compact module dimensions help system designers address mechanical and thermal concerns. The 6-pair ZipLine signal IMLAs can also be configured on 1.5mm column pitch to provide more than 100 signal pairs per inch of card edge for even more backplane signal density.

The connector system leverages FCI proven AirMax VS® technology, similar signal integrity performance, power and guide modules and Hard Metric (HM) equipment design practice. ZipLine connectors use AirMax VS edge-coupling technology to deliver low insertion loss and crosstalk without using costly and space-consuming metal shields. Data rates can scale up to 12.5 Gb/s without requiring the redesign of a basic platform.

In addition to offering superior signal density and electrical performance, the versatile ZipLine design allows for mixed differential (orthogonal or backplane), single-ended or power pin assignments within a connector. Another unique feature is a special power wafer, with up to 36A capacity, which can be integrated in a 6-pair ZipLine module.



## FEATURES & BENEFITS

- Supports backplane and orthogonal midplane applications
- 6-pair modules with IMLAs on 1.8mm column pitch deliver 84.6 differential pairs per inch of card edge while allowing a minimum 1-inch card slot pitch
- 6-pair modules can also be configured on 1.5mm column pitch to provide >100 pairs per inch for even more density
- 3-pair configuration is under development to enable use on 15mm card slot pitch
- Provides maximum signal density available at data rates up to 12.5 Gb/s
- Use AirMax VS® edge-coupling technology to deliver low insertion loss and crosstalk
- Allows for mixed differential (orthogonal or backplane), single-ended or power pin assignments within a connector
- A special power wafer, with up to 36A capacity, can be integrated within a 6-pair module
- Compatible with Hard Metric equipment practice

## TARGET MARKETS / APPLICATIONS

- Communications
  - Routers
  - Switches
  - Networking
  - Access
  - Transport
- Data
  - Servers
  - Storage Systems
- Industrial
  - Medical
  - Test & Measurement

## ZIPLINE™ HIGH-DENSITY, HIGH-PERFORMANCE CONNECTOR SYSTEM



## TECHNICAL INFORMATION

## MATERIALS

- Contacts: Copper alloy
- Plating:
  - Performance-based plating at separable interface (Telcordia GR-1217 CORE Central Office)
  - Tin-lead or tin over nickel on press-fit tails
- Housings: High-temperature thermoplastic, UL 94V-0
- IMLA organizer: Stainless steel

## MECHANICAL PERFORMANCE

- Mating force: 0.45N maximum per contact
- Unmating force: 0.15N minimum per contact
- Press-fit insertion force: 25N maximum per tail

## ENVIRONMENTAL

- Telcordia GR-1217-CORE, Central Office qualification pending

## SPECIFICATIONS

- Product specification: GS-12-452
- Application specification: GS-20-094

## APPROVALS AND CERTIFICATIONS

- UL and CSA approvals pending

## ELECTRICAL PERFORMANCE

- Backplane connectors
  - Differential impedance:  $100 \pm 10\Omega$  @ 60 ps (20-80%) risetime
  - Differential insertion loss
    - < 1.0 dB through 6.25 Gb/s (3.125 GHz)
    - < 2.5 dB through 12.5 Gb/s (6.25 GHz)
  - NEXT: 3.25% @ 60 ps (20-80%) risetime
  - FEXT: 2.5% @ 60 ps (20-80%) risetime
  - In-pair skew:  $\leq 4$  ps
- Orthogonal midplane connectors
  - Differential impedance:  $100 \pm 15\Omega$  @ 60 ps (20-80%) risetime
  - Differential insertion loss
    - < 2.0 dB through 6.25 Gb/s (3.125 GHz)
    - < 4.0 dB through 12.5 Gb/s (6.25 GHz)
  - NEXT
    - < -30 dB through 6.25 Gb/s (3.125 GHz)
    - < -25 dB through 12.5 Gb/s (6.25 GHz)
  - FEXT
    - < -30 dB through 6.25 Gb/s (3.125 GHz)
    - < -25 dB through 12.5 Gb/s (6.25 GHz)
- Contact resistance
  - Signal contact:  $\leq 130$  m $\Omega$  initial
  - Power contact:  $\leq 4$  m $\Omega$  initial
- Current rating (with  $\leq 30^\circ\text{C}$  temperature rise above ambient):
  - Signal contact: 0.25A/contact with all contacts powered
  - 6-contact power wafer: 6A/contact (36A/wafer) with single wafer powered, 4.5A/contact (27A/wafer) with 2 adjacent wafers powered, 2.25A/contact (13.5A/wafer) with 12 adjacent wafers powered

## PART NUMBERS

Part Number	Description
10076197-101LF	6 pairs/column x 12 columns (72 differential pairs) vertical backplane header
10076209-101LF	6 pairs/column x 12 columns (72 differential pairs) right-angle receptacle
10076222-101LF	6 pairs/column x 12 columns (72 differential pairs) orthogonal midplane header
10084164-101LF	1 power wafer + 6 pairs/column x 11 columns (66 differential pairs) right-angle receptacle
10084164-102LF	2 power wafers + 6 pairs/column x 10 columns (60 differential pairs) right-angle receptacle
10084166-101LF	1 power wafer + 6 pairs/column x 11 columns (66 differential pairs) vertical backplane header
10084166-103LF	2 power wafers + 6 pairs/column x 10 columns (60 differential pairs) vertical backplane header

Use web link [www.fci.com/zipline](http://www.fci.com/zipline) to obtain product drawings and additional technical information or contact us at [zipline@fci.com](mailto:zipline@fci.com).