



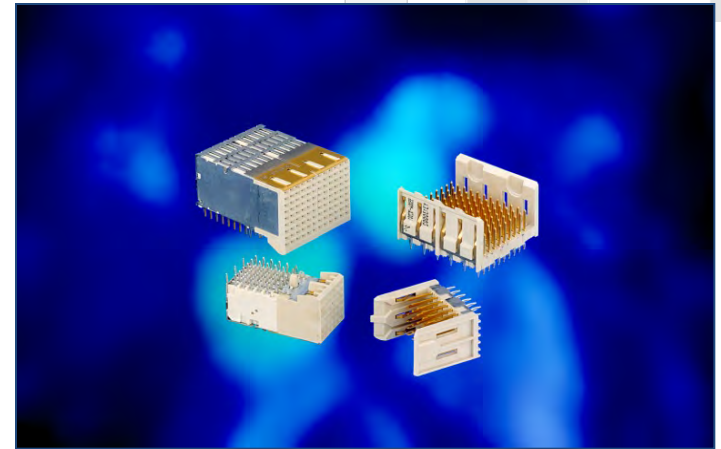
Metral® High Speed Product Presentation



Metral® HS Product Overview



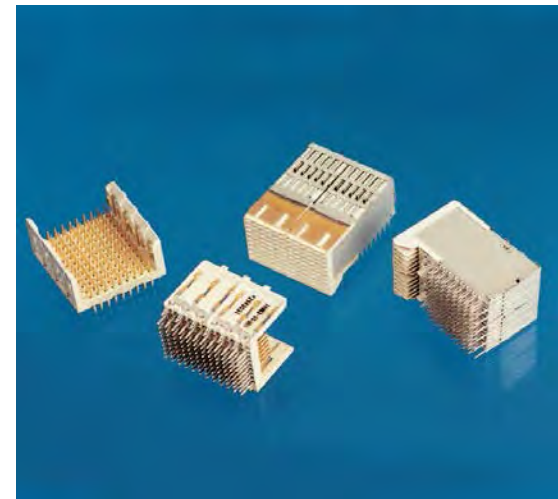
- Metral® HS is a 2mm Pitch High Speed connector designed for speeds up to 6.25 Gbits with application in the communications and data segment
- First development of a second generation of connectors to address the requirements of greater density coupled with improved crosstalk and higher bandwidth performance
- Layout compatible and end-to-end stackable with the standard 4- and 5-row Metral® product.
- With its unique strip-line construction, the signal density per inch can be as high as 63 per inch. Customers can tailor their application requirements to the Metral® module size and performance they require, resulting in custom packaging solutions yielding the highest performance at the lowest cost
- FCI is market leader for Metral® HS series and offer the most complete range in the industry



Metral® HS Standard Product Offering



- Range 5x6 and 8x12 configurations
- 1000 series header and receptacle
- 2000 series header
- 4000 series header and receptacle
- Single module or up to 4 multiple modules
- Termination
 - Press-Fit for all versions
 - PIP for 1000 series receptacle



Features and Benefits



Higher speed performance within Metral[®] series

- Reduced crosstalk
- Less than 1 db insertion loss through a mated pair @6.25 Gb/s
- Shielded strip-line transmission structure in both header and receptacle
- Contact geometry optimized for 100 ohm differential pairs
- Small press-fit diameter for better routing & low via capacitance
- Performance in accordance with Telcordia CO
- Dual Beam receptacle contacts

Flexibility

- Used adjacent to the standard metral products
- End to End stackable
- Board Assembly with standard Press-fit tooling
- Single Pin repairable
- Three of Metral[®] HS series receptacles are plug-compatible

Metral® HS 1000 Series



Product

- Improved signal performance when routed in either a single-ended or a differential pair configuration
- Stackable end-to-end with and similar to other FCI Metral® Products

Range

- Right-angle receptacles and Vertical headers
- 5 Row x 6 positions & 8 row x12 positions with shrouds for mid-plane applications.
- Two, three and four-module mono-blocks for the 5-row connector are available

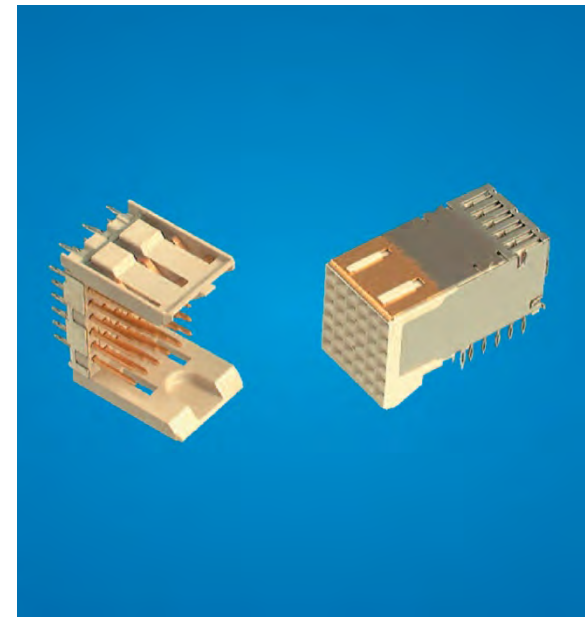
Feature

- Unique strip-line structure in the receptacle and outer ground shields in the header. Apart from these features, the connectors are similar to the FCI Standard Metral® Connector.

Metral® HS 1000 Series – Features and Benefits



- Fully shielded strip-line transmission structure
- Less than 5% multi-line active NEXT @ 200 ps rise time in differential applications
- Stackable end-to-end with other FCI Metral® Products
- All contacts can be used for signals since the grounds are built into the receptacle strip-line and header shield structure
- Available in 5 and 8-row configurations
- Press-fit headers and receptacles for easy applications
- Receptacles also available with PIP termination
- Dual-beam receptacle contacts
- Customized select header loading patterns available
- Rear plug up options
- 200 mating cycles
- Board assembly with standard press-fit tooling
- Repairable
- Eye of needle pressfit for header terminal
- RoHs compliant



Metral® HS 2000 Series



Product

- Improved signal performance when routed in either a single-ended or a differential pair configuration
- Stackable end-to-end with and similar to other FCI Metral® Products

Feature

- Strip-line structure
- Dedicated ground rows - 3rd in 5 Row Connector and 3rd & 5th in 8 row connector
- Two-module mono-blocks for the 5-row connector are available

Range

- Vertical header
- 5 Row x 6 position and 8 Row x 12 position for mid plane applications

Metral® HS 2000 Series – Features and Benefits

- A shielded strip-line transmission structure in the vertical header
- Dedicated ground rows improve Signal Integrity performance
- Less than 2.5% multi-line active NEXT @ 200 ps rise time in differential applications
- Stackable end-to-end with other FCI Metral® products
- Available in 5- and 8-row configurations
- Eye of the needle Press-fit termination for easy application
- Customized select header loading patterns available
- Rear plug up options
- 200 mating cycles
- Board assembly with standard press-fit tooling
- Single pin repairable
- Lead-free RoHs compliant



Metral® HS 4000 Series



Product

- FCI's Metral® 4000 offer enhanced signal performance upto 6.25Gb/s
- Stackable end to end to other FCI Metral® & Metral® HS series connectors

Feature

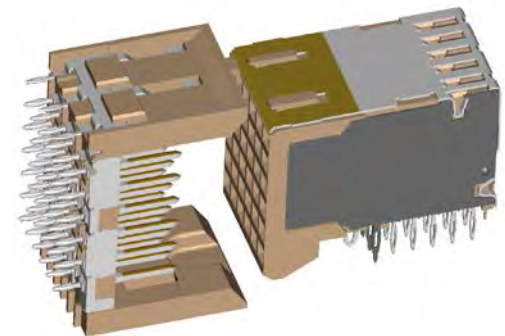
- Unique strip-line structure in both the receptacle and header
- Compared to Metral® 1000 and 2000, Metral® 4000 has a modified right angle receptacle contact geometry optimized for 100ohm differential signals yielding better impedance match and lower insertion loss.
- Metral® 4000 headers and receptacles also use a new press fit pin designed for 0.6mm drilled holes. This results in additional width for trace routing and lower capacitance of the via holes

Range

- Right Angle Receptacle & Vertical Header
- 5 Row x 6 position
- Dedicated ground row - 3rd row

Metral® HS 4000 Series – Features and Benefits

- A shielded strip-line transmission structure in both the vertical header and right angle receptacle
- Contact geometry optimized for 100ohm differential pairs
- Small press-fit diameter for better routing and lower via capacitance
- Less than 1.0dB insertion loss through a mated pair at 6.25Gb/sec
- Reduced crosstalk compared to the FCI Standard Metral® Connector System
- Less than 5.0% multi-line active NEXT @ 100 pS rise time in differential applications
- Stackable end-to-end with other FCI Metral® products
- Contact density: 5 row; 25 pairs/inch, 10 pairs/cm
- Press-fit headers and receptacles for easy application
- Dual-beam receptacle contacts
- Customized select header loading patterns available
- 200 mating cycles
- Board assembly with standard press-fit tooling
- Repairable
- Lead-free RoHs compliant versions are available

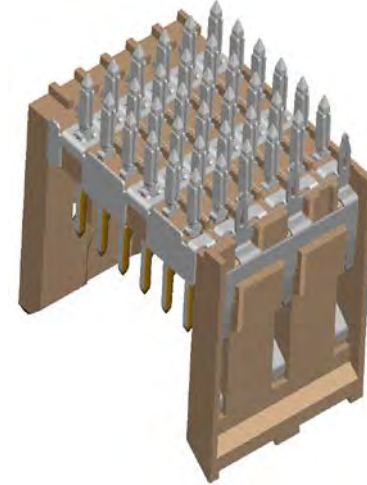


Metral® HS Header Key Feature



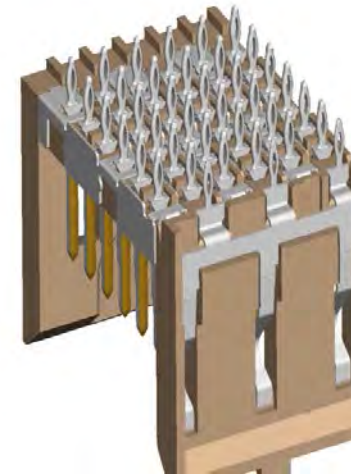
Metral® 1000 / 2000

- EON press-fit
- 0.8-mm drilled hole



Metral® 4000

- Mini Eye-of-needle press-fit
- 0.6-mm drilled hole



Metral® HS Receptacle Key Feature

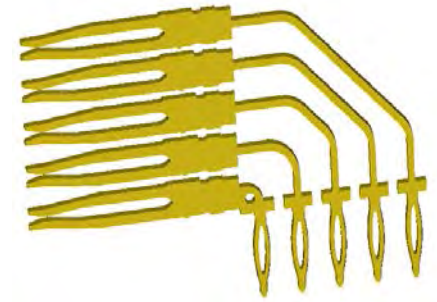


Metral® 1000

- Eye-of-needle press-fit
- 0.8-mm drilled hole
- Accommodates up to 8.0-mm pin lengths in all rows

Metral® 4000

- Smaller eye-of-needle press-fit
- 0.6-mm drilled hole
- Optimized contact geometry
- Accommodates up to 6.5-mm pin lengths in signal rows and up to 8.0-mm pin lengths in ground rows



Metral[®] HS Signal Speed Recommendation



	1000 Header	2000 Header	4000 Header
1000 Receptacle	622 Mb/s	1.25 Gb/s	2.5 Gb/s
4000 Receptacle	2.5 Gb/s	3.125Gb/s	6.25 Gb/s

Offers Customers flexibility

- Metral[®] High Speed products are intermateable
- Right combination can be chosen depending on the requirement
- Loading the backpanel with Metral 4K headers and with suitable pinning allows future upgrades up to 10Gbps

Target Applications



- Markets are driving the growing need for connectors with improved performance, high density & high bandwidth. FCI is offering most complete range of Metral[®] HS connectors which find extensive applications in various segments

- Telecom
 - ATM Hardware, Switches, Transmission, Digital Cross Connect, Echo Canceller, xDSL

- Data-Com
 - Bridges, Hubs, Routers, Concentrators

- Data Processing
 - Workstations, Work station servers, File servers, Hard disk arrays

- Instrumentation
 - Medical Analyzers, Controls, Security, Plant Process Analyzers

Product Information – Metral® High Speed



Documentation available on the FCI web site

- Product specification
- Product drawings
- Product data sheets
- 3-D mechanical models
- Electrical / signal integrity test report
- Application specification

Product selector

- Easy to use product selection tool



Thank You

