

# DENSISHIELD® HOST I/O SYSTEM

## High-Speed Cable Assemblies and Connectors

### OVERVIEW

FCI's DensiShield® I/O system is designed to support the transmission of high-speed, serial differential signals, while taking customers equipment packaging requirements into consideration. Combining high density, mechanical robustness, and ease of PCB assembly with excellent shielding and signal integrity performance means that system designers no longer have to compromise.

The DensiShield® connector is built around a wafer system employing a differential pair construction where each pair is shielded from the adjacent pair and the adjacent wafer. The 8-pair connector is ideally suited for 4 bi-directional channels working at >2.5Gb/s, similar to Infiniband or XAUI links, but can also perform at much higher data rates.

The DensiShield® connector's design for long engagement and low profile not only allows for more compact cable routing in systems, when compared to other high speed cabling systems, but it is also capable of being used in dense system designs whose board-to-board spacing is as low as 15mm.

The connector can also be configured to handle low-speed signals and power and is also available in selectively-loaded versions, thereby allowing system designers to benefit from the density and robustness offered by this connector system in I/O applications that do not require high-speed signaling.



### FEATURES & BENEFITS

- 8-pair connectors can be mounted side by side on 12.5mm pitch enabling multiple I/O ports along a card edge
- Robust strain relief with short cable exit enables close spacing between chassis panel and cabinet door or wall
- Low vertical profile allows use in systems having 15mm pitch card slot spacing
- Low crosstalk between differential pairs with controlled 100Ω impedance to match 100Ω shielded pair cable
- Crimp ferrule system reliably terminates EMC shield of cable to connector covers
- Robust EMC shield to chassis panel termination with shielding down to PCB level
- Signal ground is isolated from EMC ground
- SMT reflow-compatible PCB connector
- Dual-beam contact system provides redundancy and long term reliability
- RoHS-compliant

### TARGET MARKETS/APPLICATIONS

- Communications
  - Switches
  - Routers
  - Base stations
- Data
  - Servers
  - Storage systems
  - Base stations
- Industrial
- Medical
- Test equipment



## TECHNICAL INFORMATION

### MATERIALS

- Contact: Copper alloy
- Insulators: High-temperature thermoplastic
- Shells: Die-cast zinc and copper alloy strip, tin plated
- Ground springs: Stainless steel
- Lock screw: Stainless steel
- Cable: LSZH (Low Smoke Zero Halogen) fully-shielded, 8 differential pairs

### ELECTRICAL PERFORMANCE

- Differential impedance:  $100 \pm 10 \Omega$  at 100ps (20–80%)
- Insertion loss:
  - Connector: <1.0dB at 0–3GHz  
<1.5dB at 3–5GHz
  - Cable: 10dB max. at 1.25GHz
- Near-end multi-line crosstalk: < 1.5% at 50ps (20–80%)
- Within pair skew: 10ps per meter
- Pair-to-pair skew: 50ps per meter
- Withstanding voltage: 750V DC
- Current rating: 0.5A per contact

### ENVIRONMENTAL

- Operating temperature:  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- RoHS compliant
- Withstands  $260^{\circ}\text{C}$  lead-free soldering temperature

### MECHANICAL PERFORMANCE

- Durability: 200 mating cycles
- Mating force: 50 N max.
- Cable strain relief: 50 N min. (depends on cable used)
- Side load resistance: 75 N min.

### SPECIFICATIONS

- Product specification: GS-12-314
- PCB connector application specification: GS-20-048
- Cable connector application specification: GS-20-047

## PART NUMBERS

Product Type	Description	Base Part Number
PCB-mount header	standard profile, with low-speed and high-speed wafer options	10044471
PCB-mount header	for single-width MicroTCA™ slot	10076181
Cable assembly	with slotted thumbscrew or Torx T-5 locking screw	10054999

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