

 **ELECTRONICS**

# CONNECTOR OVERVIEW

## FCI: SETTING THE STANDARD FOR CONNECTORS

With 14,000 employees in 30 countries and sales of 1.1 billion euros in 2011, FCI is a global manufacturer of connectors for various markets such as automotive, telecommunications infrastructure, consumer and industrial Electronics.

# ELECTRONICS

FCI ELECTRONICS is a key supplier to companies that manufacture computing, networking, telecommunications, and personal communications equipment ranging from servers and storage devices to base stations and switches to cellular telephones, personal computers and cashless payment systems.

FCI is the leading innovator in the design, development and high volume manufacturer of Ball Grid Array (BGA) connectors for dense mezzanine board packaging operating at extremely high signal rates. FCI provides low profile miniature connectors for Flex Flexible Circuits and Flex Print Circuits. FCI is also a world leader in providing cost-effective and innovative backplane, board-to-board, and I/O interconnect solutions that satisfy increasingly-demanding performance requirements in the converging Datacom and Telecom markets.



## HOW TO USE THIS BROCHURE

Welcome to the Product Overview brochure for FCI ELECTRONICS. In this brochure, you will find an overview of each of our major product lines accompanied by a list of some of the most commonly used parts within that connector family. Using those references you can go directly to FCI's home page on the internet, enter the part number and see full data sheets and drawings for that part. We also indicate the link to the landing page in our interactive catalog where you can obtain more information for these and other part numbers within each connector family.

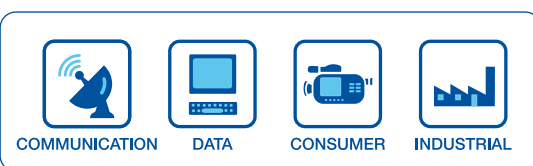


[www.fciconnect.com/electronics](http://www.fciconnect.com/electronics)

Enter the part reference in FCI web site

Or go directly to the landing page

Use icon to find application



View data sheet and drawings online



FCI Electronics also has micro sites available that offer more direct access to specific products and all technical related product details like: customer drawings, technical specifications, 3D-models, mating half information and more:

- [www.fciconnect.com/backplane](http://www.fciconnect.com/backplane)
- [www.fciconnect.com/basics](http://www.fciconnect.com/basics)
- [www.fciconnect.com/boardwiresystems](http://www.fciconnect.com/boardwiresystems)
- [www.fciconnect.com/cableassembly](http://www.fciconnect.com/cableassembly)
- [www.fciconnect.com/flex](http://www.fciconnect.com/flex)
- [www.fciconnect.com/highspeed](http://www.fciconnect.com/highspeed)
- [www.fciconnect.com/hsio](http://www.fciconnect.com/hsio)
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- [www.fciconnect.com/powersolutions](http://www.fciconnect.com/powersolutions)
- [www.fciconnect.com/storageinterface](http://www.fciconnect.com/storageinterface)
- [www.fciconnect.com/terminalblocks](http://www.fciconnect.com/terminalblocks)



## BACKPLANE CONNECTORS



|                    |   |   |   |   |   |    |
|--------------------|---|---|---|---|---|----|
| <b>New product</b> | ▶ <b>AIRMAX VSe® HIGH SPEED BACKPLANE CONNECTORS</b>    | ● | ● | ● | ● | 6  |
|                    | ▶ <b>AIRMAX VS® HIGH SPEED BACKPLANE CONNECTORS</b>     | ● | ● | ● | ● | 7  |
|                    | FOR STORAGE BRIDGE BAY MIDPLANE INTERFACE               | ● | ● | ● | ● | 9  |
|                    | 85 Ω CONNECTORS FOR INTEL® QPI LINKS                    | ● | ● | ● | ● | 10 |
| <b>New product</b> | FOR SERVER SYSTEM INFRASTRUCTURE (SSI)                  | ● | ● | ● | ● | 11 |
|                    | HIGH-SPEED CONNECTORS FOR COMPACTPCI® SERIAL            | ● | ● | ● | ● | 12 |
| <b>New product</b> | ▶ <b>XCEDE®</b>   |   |   |   |   |    |
|                    | HIGH-SPEED BACKPLANE SYSTEM                             | ● | ● | ● | ● | 13 |
|                    | ▶ <b>ZIPLINE®</b>                                       |   |   |   |   |    |
|                    | HIGH-SPEED, HIGH-DENSITY CONNECTOR SYSTEM               | ● | ● | ● | ● | 14 |
| <b>New product</b> | ▶ <b>CROSSBOW™ ORTHOGONAL MIDPLANE CONNECTOR SYSTEM</b> | ● | ● | ● | ● | 15 |
|                    | ▶ <b>METRAL® 1000, 2000, 4000</b>                       |   |   |   |   |    |
|                    | HIGH SPEED BACKPLANE CONNECTORS                         | ● | ● | ● | ● | 16 |
|                    | ▶ <b>METRAL®</b>  |   |   |   |   |    |
|                    | 2 MM MODULAR INTERCONNECT SYSTEM                        | ● | ● | ● | ● | 17 |
|                    | ▶ <b>MILLIPACS®</b>                                     |   |   |   |   |    |
|                    | HARD METRIC 2 MM CONNECTORS                             | ● | ● | ● | ● | 18 |
|                    | ▶ <b>DIN 41612</b>                                      | ● | ● | ● | ● | 20 |

## POWER CONNECTORS / POWER CABLE ASSEMBLIES



|                    |   |   |   |   |   |    |
|--------------------|---|---|---|---|---|----|
|                    | ▶ <b>PWRBLADE®</b>                                    |   |   |   |   |    |
|                    | AC/DC POWER DISTRIBUTION CONNECTOR SYSTEM             | ● | ● | ● | ● | 22 |
| <b>New product</b> | ▶ <b>PWRBLADE+™</b>                                   |   |   |   |   |    |
|                    | AC/DC POWER DISTRIBUTION CONNECTOR SYSTEM             | ● | ● | ● | ● | 24 |
| <b>New product</b> | ▶ <b>HIGH POWER CARD EDGE (HPCE®)</b>                 |   |   |   |   |    |
|                    | NEXT GENERATION POWER CARD EDGE CONNECTOR             | ● | ● | ● | ● | 25 |
|                    | ▶ <b>POWER CARD EDGE</b>                              |   |   |   |   |    |
|                    | LOW PROFILE AC/DC POWER DISTRIBUTION CONNECTOR SYSTEM | ● | ● | ● | ● | 26 |
|                    | ▶ <b>HCI®</b>   |   |   |   |   |    |
|                    | AC/DC HIGH POWER DISTRIBUTION CONNECTOR SYSTEM        | ● | ● | ● | ● | 27 |
|                    | ▶ <b>HARD METRIC HIGH POWER CONNECTORS</b>            | ● | ● | ● | ● | 28 |
|                    | ▶ <b>METRAL® POWER CONNECTORS</b>                     | ● | ● | ● | ● | 29 |
|                    | ▶ <b>METRAL® HIGH POWER CONNECTORS</b>                | ● | ● | ● | ● | 30 |
|                    | ▶ <b>HCI® HIGH POWER</b>                              |   |   |   |   |    |
|                    | HIGH POWER BACKPLANE/MIDPLANE CONNECTOR SYSTEM        | ● | ● | ● | ● | 31 |
|                    | ▶ <b>PWR PROFILE+™</b>                                |   |   |   |   |    |
|                    | LOW PROFILE I/O CABLE ASSEMBLIES                      | ● | ● | ● | ● | 32 |
|                    | ▶ <b>PWRBLADE®</b>                                    |   |   |   |   |    |
|                    | CABLE ASSEMBLIES                                      | ● | ● | ● | ● | 33 |
|                    | ▶ <b>PWR TWINBLADE™</b>                               |   |   |   |   |    |
|                    | I/O CABLE ASSEMBLIES                                  | ● | ● | ● | ● | 34 |
|                    | ▶ <b>POWER DISTRIBUTION SOLUTIONS</b>                 |   |   |   |   |    |
|                    | INCLUDING BUS BARS, CONNECTORS, CABLES, PCBS          | ● | ● | ● | ● | 35 |
|                    | ▶ <b>SOFIX® POWER CABLE ASSEMBLIES</b>                | ● | ● | ● | ● | 37 |
|                    | PART OF THE METRAL® BACKPLANE CONNECTOR FAMILY        |   |   |   |   |    |

## TERMINAL BLOCKS

|                    |                          |   |   |   |   |    |
|--------------------|--------------------------|---|---|---|---|----|
| <b>New product</b> | ▶ <b>TERMINAL BLOCKS</b> | ● | ● | ● | ● | 38 |
|--------------------|--------------------------|---|---|---|---|----|

## BOARD-TO-BOARD / WIRE-TO-BOARD CONNECTORS



|                    |  |   |   |   |   |    |
|--------------------|--|---|---|---|---|----|
|                    | ▶ <b>MEG-ARRAY®</b>                              |   |   |   |   |    |
|                    | HIGH SPEED MEZZANINE CONNECTORS                  | ● | ● | ● | ● | 40 |
|                    | ▶ <b>GIG-ARRAY®</b>                              |   |   |   |   |    |
|                    | HIGH SPEED MEZZANINE CONNECTORS                  | ● | ● | ● | ● | 42 |
| <b>New product</b> | ▶ <b>TWINMEZZ®</b>                               |   |   |   |   |    |
|                    | HIGH SPEED MEZZANINE CONNECTORS                  | ● | ● | ● | ● | 43 |
|                    | ▶ <b>BERGSTAK® 0.8 MM</b>                        |   |   |   |   |    |
|                    | FINE PITCH, MEZZANINE CONNECTORS                 | ● | ● | ● | ● | 45 |
|                    | ▶ <b>CONAN® 1.0 MM</b>                           |   |   |   |   |    |
|                    | FINE PITCH, MEZZANINE CONNECTORS                 | ● | ● | ● | ● | 46 |
|                    | ▶ <b>RIB-CAGE™ 1.27 MM</b>                       |   |   |   |   |    |
|                    | MEZZANINE CONNECTORS                             | ● | ● | ● | ● | 47 |
| <b>New product</b> | ▶ <b>MEZZOSTAK™ 0.5 MM HERMAPHRODITIC</b>        |   |   |   |   |    |
|                    | FINE PITCH, MEZZANINE CONNECTORS                 | ● | ● | ● | ● | 48 |
|                    | ▶ <b>1.27MM SPACING BOARD TO-BOARD CONNECTOR</b> |   |   |   |   |    |
|                    | PHEC SERIES                                      | ● | ● | ● | ● | 49 |
|                    | ▶ <b>FLOATING BOARD-TO-BOARD</b>                 |   |   |   |   |    |
|                    | BTFW SERIES                                      | ● | ● | ● | ● | 50 |
|                    | ▶ <b>FFC - FPC CONNECTORS</b>                    | ● | ● | ● | ● | 51 |





|                    |  |   |   |   |   |    |
|--------------------|--|---|---|---|---|----|
| <b>New product</b> | <b>WIRE-TO-BOARD</b><br>1.25 MM .....                                      | ● | ● | ● | ● | 53 |
|                    | <b>BERGSTIK® / DUBOX™ / QUICKIE® / PV™</b><br>2.54 MM MODULAR SYSTEM ..... | ● | ● | ● | ● | 54 |
| <b>New product</b> | <b>MINITEK™</b><br>1.27 MM MODULAR SYSTEM .....                            | ● | ● | ● | ● | 56 |
|                    | <b>MINITEK™</b><br>2 MM MODULAR SYSTEM .....                               | ● | ● | ● | ● | 57 |
|                    | <b>CARD EDGE CONNECTORS</b><br>FOR SFP, XFP AND XENPAK APPLICATIONS .....  | ● | ● | ● | ● | 58 |
|                    | <b>CARD EDGE CONNECTORS</b><br>FOR MICROTCA™ APPLICATIONS .....            | ● | ● | ● | ● | 59 |
|                    | <b>CARD EDGE CONNECTORS</b><br>FOR PCI EXPRESS® TECHNOLOGY .....           | ● | ● | ● | ● | 60 |

## STORAGE INTERFACE CONNECTORS



|                    |  |   |   |   |   |    |
|--------------------|--|---|---|---|---|----|
| <b>New product</b> | <b>SAS</b><br>SERIAL ATTACHED SCSI .....                                       | ● | ● | ● | ● | 61 |
|                    | <b>SCA-2 CONNECTOR SYSTEM</b> .....  | ● | ● | ● | ● | 63 |
|                    | <b>SATA</b><br>SERIAL ATA I/O .....  | ● | ● | ● | ● | 65 |
|                    | <b>eSATA CONNECTORS</b> .....  | ● | ● | ● | ● | 67 |
|                    | <b>MICRO SATA CONNECTORS</b> .....   | ● | ● | ● | ● | 68 |
|                    | <b>SLIMLINE SATA CONNECTORS</b> .....  | ● | ● | ● | ● | 69 |
|                    | <b>IVDR CONNECTORS</b><br>INFORMATION VERSATILE DISK FOR REMOVABLE USAGE ..... | ● | ● | ● | ● | 70 |

## INPUT/OUTPUT CONNECTORS / CABLE ASSEMBLIES



|                    |  |   |   |   |   |    |
|--------------------|--|---|---|---|---|----|
| <b>New product</b> | <b>SCFF OPTICAL TRANSCEIVERS</b> .....   | ● | ● | ● | ● | 71 |
|                    | <b>SFP+ OPTICAL TRANSCEIVERS</b> .....   | ● | ● | ● | ● | 72 |
|                    | <b>40 Gbit/s QSFP - QSFP AOC CABLES</b> .....  | ● | ● | ● | ● | 73 |
|                    | <b>120 Gbit/s CXP - CXP AOC CABLES</b> .....   | ● | ● | ● | ● | 74 |
|                    | <b>120 Gbit/s CXP - 3xQSFP AOC CABLES</b> .....  | ● | ● | ● | ● | 75 |
|                    | <b>MINI MULTILANE EXTERNAL</b><br>MINI SAS OR MINI SATA 4X LINKS CABLE ASSEMBLIES .....              | ● | ● | ● | ● | 76 |
| <b>New product</b> | <b>MINI-SAS HD</b><br>CONNECTORS AND CABLE ASSEMBLIES<br>NEXT GENERATION SAS STORAGE INTERFACE ..... | ● | ● | ● | ● | 77 |
|                    | <b>SFP+ COPPER CABLE ASSEMBLIES</b><br>FOR ETHERNET AND FIBER CHANNEL APPLICATIONS .....             | ● | ● | ● | ● | 78 |
|                    | <b>QSFP COPPER CABLE ASSEMBLIES</b><br>FOR 40GB/S AGGREGATE BANDWIDTH APPLICATIONS .....             | ● | ● | ● | ● | 79 |
|                    | <b>DENSISHIELD™ I/O SYSTEM</b> .....   | ● | ● | ● | ● | 80 |
|                    | <b>METRAL® HDXS</b><br>HIGH SPEED FRONT I/O INTERCONNECTION SYSTEM .....                             | ● | ● | ● | ● | 81 |
|                    | <b>METRAL® CABLE CONNECTORS</b><br>CABLE CONNECTORS FOR METRAL AND IEC 2MM PCB HEADERS .....         | ● | ● | ● | ● | 82 |
|                    | <b>SOFIX®</b><br>FRONT I/O INTERCONNECTION SYSTEM .....  | ● | ● | ● | ● | 83 |
|                    | <b>LOW PROFILE SUBSCRIBER INTERFACE</b><br>SIGNAL & POWER FOR DSL SUBSCRIBER ACCOUNTS .....          | ● | ● | ● | ● | 84 |
| <b>New product</b> | <b>MICRO-USB CONNECTOR</b> .....   | ● | ● | ● | ● | 85 |
|                    | <b>USB</b><br>UNIVERSAL SERIAL BUS .....   | ● | ● | ● | ● | 86 |
|                    | <b>HDMI</b><br>HIGH DEFINITION MULTIMEDIA INTERFACE .....  | ● | ● | ● | ● | 87 |
|                    | <b>MODULAR JACKS</b> .....   | ● | ● | ● | ● | 88 |
|                    | <b>D-SUBMINIATURE</b><br>PCB APPLICATIONS .....  | ● | ● | ● | ● | 90 |
|                    | <b>D-SUBMINIATURE</b><br>CABLE APPLICATIONS .....  | ● | ● | ● | ● | 91 |
|                    | <b>LATCH-N-LOK™</b><br>I/O CONNECTOR SYSTEM .....  | ● | ● | ● | ● | 92 |

## CARD SYSTEMS



|  |   |   |   |   |   |    |
|--|---|---|---|---|---|----|
|  | <b>DDR2 MEMORY MODULE SOCKETS</b> .....                                     | ● | ● | ● | ● | 93 |
|  | <b>DDR3 MEMORY MODULE SOCKETS</b> .....                                     | ● | ● | ● | ● | 94 |
|  | <b>SMART CARD CONNECTORS</b> .....  | ● | ● | ● | ● | 95 |
|  | <b>PC CARD HEADERS</b> .....  | ● | ● | ● | ● | 97 |
|  | <b>EXPRESSCARD™ SYSTEMS</b><br>EXPRESSCARD HOST AND MODULE CONNECTORS ..... | ● | ● | ● | ● | 99 |

# AIRMAX VSe<sup>®</sup> HIGH SPEED BACKPLANE CONNECTORS

Enable High Speed Differential Signaling at up to 25 Gb/s

*New product*

## FEATURES & BENEFITS

- ▶ Provides AirMax<sup>®</sup> system migration path for up to 25 Gb/s per differential pair
- ▶ FCI technologies for a shield-less design with no metallic plates and closely edge-coupled differential pairs combined with innovative design improvements yield low loss and crosstalk
- ▶ Fully backwards mating-compatible interfaces to existing AirMax VS<sup>®</sup> connectors with minimal changes to connector PCB footprints
- ▶ Maintains pin assignment flexibility of AirMax VS open pin field design
- ▶ Connectors with 3, 4 or 5 signal pairs/column will enable backplane or coplanar applications
- ▶ Available power and guide modules complement signal connector offering
- ▶ Compatible with Hard Metric equipment design practice



## APPLICATIONS

- ▶ Communications
  - Switches
  - Routers
  - Access (xDSL, CMTS)
  - Optical Transport / Transmission
  - Wireless Base Stations
- ▶ Data
  - Servers
  - Storage Systems
- ▶ Industrial
- ▶ Medical
- ▶ Test & Measurement

| Main Products   | Part References |
|---|-----------------|
| Right-Angle Receptacle: 3 Pairs/column x 6 columns (18 differential pairs) on 2mm column pitch                              | 10115910        |
| Right-Angle Receptacle: 4 Pairs/column x 10 columns (40 differential pairs) on 2mm column pitch                             | 10115911        |
| Right-Angle Receptacle for Orthogonal Midplane:<br>4 Pairs/column x 4 columns (16 differential pairs) on 4.2mm column pitch | 10115642        |
| Right-Angle Receptacle: 5 Pairs/column x 10 columns (50 differential pairs) on 2mm column pitch                             | 10115913        |
| Right-Angle Header: 3 Pairs/column x 6 columns (18 differential pairs) on 2mm column pitch                                  | 10119886        |
| Right-Angle Header: 4 Pairs/column x 10 columns (40 differential pairs) on 2mm column pitch                                 | 10120001        |
| Right-Angle Header: 5 Pairs/column x 10 columns (50 differential pairs) on 2mm column pitch                                 | 10120009        |

More comprehensive technical information and part number listings can be found online.

Further information can be found at:  
[www.fciconnect.com/highspeed](http://www.fciconnect.com/highspeed)



# AIRMAX VS®

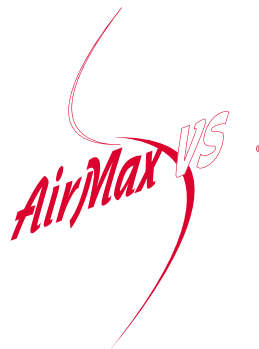
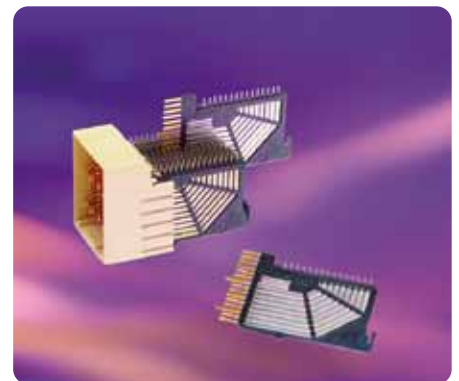
## HIGH SPEED BACKPLANE CONNECTORS

### FEATURES & BENEFITS

- ▶ A full set of building blocks for Vertical Header or Vertical receptacle on backplane, co-planar, mezzanine, and cable-to-board applications in Hard Metric building practices
- ▶ Uses air dielectric between adjacent conductors to deliver low insertion loss and crosstalk
- ▶ High-speed serial data rates that can scale from 2.5Gb/s to beyond 12.5Gb/s without requiring a redesign of the basic platform
- ▶ Opposed dual-beam receptacle
- ▶ Contact structure provides high reliability
- ▶ Contains no interleaving shields reducing connector weight, cost, and PCB routing complexity
- ▶ Available with Power and guide accessories
- ▶ "Eye of the Needle" (EON)-compliant tail for press-fit PCB termination
- ▶ Lead-free and RoHS-compatible

### APPLICATIONS

- Data**
- ▶ Servers
  - ▶ Storage systems
- Communications**
- ▶ IP routers
  - ▶ IP Switches & gateways
  - ▶ ATM switches
  - ▶ IP PBX's
  - ▶ Enterprise routers
  - ▶ 3G Base stations
  - ▶ ATCA® Zone 3
- Industrial**
- ▶ Medical
  - ▶ Test & measurement



### AIRMAX VS® QUICK SELECTOR GUIDE

|   | # Contacts per module | # Differential pairs per module | Nominal Plug In Unit pitch [mm] | Contact pitch (columns) | Header Drawing Number | Receptacle Drawing Number | Impedance [Ω] |     |
|---|-----------------------|---------------------------------|---------------------------------|-------------------------|-----------------------|---------------------------|---------------|-----|
| <b>APPLICATION: BACK PANEL, GENDER: RIGHT ANGLE HEADER, VERTICAL RECEPTACLE</b> |                       |                                 |                                 |                         |                       |                           |               |     |
| <b>"5 pair"</b>   | 150                   | 50                              | 25                              | 2 mm                    | 10025613              | 10016527                  | 10016537      | 100 |
|   | 150                   | 50                              | 25                              | 3 mm                    | 10037324              | 10037323                  | 10035146      | 100 |
|   | 150                   | 50                              | 25                              | 2 mm                    | 10097311              |                           | 10099767      | 85  |
|   | 150                   | 50                              | 25                              | 3 mm                    | 10087771              |                           | 10099768      | 85  |
|   | 120                   | 40                              | 25                              | 3 mm                    | 10064489              | 10064488                  | 10064493      | 100 |
|   | 120                   | 40                              | 25                              | 2 mm                    | 10041460              | 10041746                  | 10040993      | 100 |
| <b>"4 pair"</b>   | 120                   | 40                              | 20                              | 2 mm                    | 10028436              | 10029391                  | 10028264      | 100 |
|   | 120                   | 40                              | 20                              | 3 mm                    | 10035515              | 10035514                  | 10035465      | 100 |
|   | 96                    | 32                              | 20                              | 2 mm                    | 10052838              | 10052837                  | 10052842      | 100 |
|   | 72                    | 24                              | 20                              | 2 mm                    | 10052825              | 10052824                  | 10052829      | 100 |
| <b>"3 pair"</b>   | 90                    | 30                              | 17                              | 2 mm                    | 10034249              | 10034264                  | 10034251      | 100 |
|   | 72                    | 24                              | 17                              | 2 mm                    | 10045267              | 10045266                  | 10045271      | 100 |
|   | 54                    | 18                              | 17                              | 2 mm                    | 10039851              | 10040862                  | 10043546      | 100 |
|   | 54                    | 18                              | 17                              | 2 mm                    | 10097256              |                           | 10096461      | 85  |



Further information can be found at:  
[www.fciconnect.com/airmax](http://www.fciconnect.com/airmax)  
[www.fciconnect.com/highspeed](http://www.fciconnect.com/highspeed)

## AIRMAX VS® QUICK SELECTOR GUIDE

|   | # Contacts<br>per module  | # Differential<br>pairs<br>per module | Nominal Plug<br>In Unit pitch<br>[mm] | Contact pitch<br>(columns) | Header<br>Drawing<br>Number | Receptacle<br>Drawing<br>Number | Impedance<br>[Ω] |
|---|---|---------------------------------------|---------------------------------------|----------------------------|-----------------------------|---------------------------------|------------------|
| <b>APPLICATION: BACK PANEL, GENDER: RIGHT ANGLE RECEPTACLE, VERTICAL HEADER</b> |   |                                       |                                       |                            |                             |                                 |                  |
| "5 pair"  | 150   | 50                                    | 25                                    | 2 mm                       | 10056098                    | 10034475                        | 100              |
|   | 150   | 50                                    | 25                                    | 3 mm                       | 10056427                    | 10057041                        | 100              |
|   | 120   | 40                                    | 25                                    | 2 mm                       | 10055140                    | 10045548                        | 100              |
|   | 150   | 50                                    | 25                                    | 2 mm                       | 10095500                    | 10095504                        | 85 *             |
|   | 150   | 50                                    | 25                                    | 3 mm                       | 10073377                    | 10095505                        | 85 *             |
| "4 pair"  | 120   | 40                                    | 20                                    | 2 mm                       | 10056100                    | 10035754                        | 100              |
|   | 120   | 40                                    | 20                                    | 3 mm                       | 10056430                    | 10045722                        | 100              |
|   | 96  | 32                                    | 20                                    | 3 mm                       | 10056429                    | 10076645                        | 100              |
|   | 96  | 32                                    | 20                                    | 2 mm                       | 10055307                    | 10060905                        | 100              |
| "3 pair"  | 90  | 30                                    | 17                                    | 2 mm                       | 10056103                    | 10056335                        | 100              |
|   | 54  | 18                                    | 17                                    | 2 mm                       | 10056101                    | 10053656                        | 100              |
| <b>APPLICATION: COPLANAR, RIGHT ANGLE RECEPTACLE TO RIGHT ANGLE HEADER</b>      |   |                                       |                                       |                            |                             |                                 |                  |
| "5 pair"  | 150   | 50                                    | 25                                    | 2 mm                       | 10025613 10016527           | 10034475                        | 100              |
|   | 150   | 50                                    | 25                                    | 3 mm                       | 10037324 10037323           | 10057041                        | 100              |
|   | 120   | 40                                    | 25                                    | 2 mm                       | 10041460 10041746           | 10045548                        | 100              |
|   | 150   | 50                                    | 25                                    | 2 mm                       | 10097311                    | 10095504                        | 85 *             |
|   | 150   | 50                                    | 25                                    | 3 mm                       | 10087771                    | 10095505                        | 85 *             |
| "4 pair"  | 120   | 40                                    | 20                                    | 2 mm                       | 10028436 10029391           | 10035754                        | 100              |
|   | 120   | 40                                    | 20                                    | 3 mm                       | 10035515 10035514           | 10045722                        | 100              |
|   | 96  | 32                                    | 20                                    | 2 mm                       | 10052838 10052837           | 10060905                        | 100              |
| "3 pair"  | 90  | 30                                    | 17                                    | 2 mm                       | 10034249 10034264           | 10056335                        | 100              |
|   | 72  | 24                                    | 17                                    | 2 mm                       | 10052838 10052837           | 10077323                        | 100              |
|   | 54  | 18                                    | 17                                    | 2 mm                       | 10039851 10040862           | 10053656                        | 100              |
|   | <b>APPLICATION: MEZZANINE, VERTICAL RECEPTACLE TO VERTICAL HEADER</b> |                                       |                                       |                            |                             |                                 |                  |
| "5 pair"  | 150   | 50                                    | 12.5                                  | 2 mm                       | 10056098                    | 10016537                        | 100              |
|   | 150   | 50                                    | 26                                    | 2 mm                       | 10056246                    | 10016537                        | 100              |
|   | 150   | 50                                    | 12.5                                  | 3 mm                       | 10056427                    | 10035146                        | 100              |
|   | 150   | 50                                    | 26                                    | 3 mm                       | 10059957                    | 10035146                        | 100              |
|   | 120   | 32                                    | 12.5                                  | 2 mm                       | 10055140                    | 10040993                        | 100              |
|   | 150   | 50                                    | 12.5                                  | 2 mm                       | 10095500                    | 10099767                        | 85 *             |
|   | 150   | 50                                    | 12.5                                  | 3 mm                       | 10073377                    | 10099768                        | 85 *             |
|   | "4 pair"  | 120                                   | 40                                    | 12.5                       | 2 mm                        | 10056100                        | 10028264         |
| 120   |   | 40                                    | 12.5                                  | 3 mm                       | 10056430                    | 10035465                        | 100              |
| 96  |   | 32                                    | 12.5                                  | 3 mm                       | 10056429                    | -                               | 100              |
| "3 pair"  | 90  | 30                                    | 12.5                                  | 2 mm                       | 10056103                    | 10034251                        | 100              |
|   | 54  | 18                                    | 12.5                                  | 2 mm                       | 10056101                    | 10043546                        | 100              |
| <b>APPLICATION: FRONT IO AND REAR PLUG UP</b>                                   |   |                                       |                                       |                            |                             |                                 |                  |
| "4 pair"  | 120   | 40                                    | 25                                    | 2 mm                       | 10041268 vertical           | na                              | 100              |
|   | 120   | 40                                    | 25                                    | 2 mm                       | 10041398 right angle        | na                              | 100              |
|   | 96  | 32                                    | 25                                    | 2 mm                       | 10061399 right angle        | na                              | 100              |
|   | 72  | 24                                    | 25                                    | 3 mm                       | 10062319 right angle        | na                              | 100              |
| <b>APPLICATION: ORTHOGONAL</b>  |   |                                       |                                       |                            |                             |                                 |                  |
| "5 pair"  | 48  | 16                                    | 20                                    | 4.2 mm                     | 10073718                    | 10074050                        | 100              |

Telcordia® is a registered trademark of Telcordia®.

Further information can be found at:  
[www.fciconnect.com/airmax](http://www.fciconnect.com/airmax)  
[www.fciconnect.com/highspeed](http://www.fciconnect.com/highspeed)





# AIRMAX VS<sup>®</sup> HIGH-SPEED CONNECTORS FOR STORAGE BRIDGE BAY MIDPLANE INTERFACE

## FEATURES

- ▶ Innovative shield-less design and air dielectric between adjacent conductors deliver low insertion loss and crosstalk
- ▶ High-speed serial data rates can scale from 2.5 Gb/s to 12.5 Gb/s without requiring redesign of a basic platform
- ▶ Opposed dual-beam receptacle contact structure provides high reliability
- ▶ Contains no interleaving shields reducing connector weight, cost and PCB routing complexity
- ▶ Compact 2x2 power connectors provide capacity for up to 20A/contact
- ▶ Rugged guide modules offer ESD grounding option
- ▶ Keyed guide modules differentiate between 2 Gb/s and 4 Gb/s Fibre Channel and 3 Gb/s SAS signal profiles
- ▶ Low-profile design helps facilitate airflow through canister for cooling
- ▶ Compatible with Hard Metric design practice



## APPLICATIONS

- ▶ Data Storage
  - Low and midrange storage systems conforming to the Storage Bridge Bay (SBB) Specification, Version 1.0 or 2.0
  - Storage enclosures with up to 48 drives
- 2 Gb/s and 4 Gb/s Fibre Channel or 3 Gb/s SAS signal profiles
- Controllers conforming to the SBB Specification, Version 1.0 or 2.0
- JBOD, RAID, ISCSI SAN, FC SAN, NAS, IB, VTL
- Canister power profiles up to 200w

## PART NUMBERS

| 3 Gb/s SAS Signal Profile               | Module Description | SBB Midplane       | SBB Canister / Controller Card  |
|---|--------------------|--------------------|---|
| AirMax VS 3-pair, 6 IMLA signal modules | M1-M3, M5, M7-M13  | 10043546-101LF     | 10039851-101LF  |
| AirMax VS guide module                  | M4                 | 10037911-102LF     | 10037912-104LF (with ESD contact) or 10037812-114LF (without ESD contact) |
| AirMax VS power module                  | M6                 | 10028916-4555P00LF | 10028917-001LF (14.7mm above PCB) or 10073379-001LF (11.5mm above PCB)    |

| 2 Gb/s or 4 Gb/s Fibre Channel Signal Profile | Module Description | SBB Midplane        | SBB Canister / Controller Card  |
|---|--------------------|---------------------|---|
| AirMax VS 3-pair 6 IMLA signal modules        | M1-M3, M5, M7-M13  | 10043546-101LF      | 10039851-101LF  |
| AirMax VS guide module                        | M4                 | 10037911-102LF      | 10037912-102LF (with ESD contact) or 10037812-112LF (without ESD contact) |
| AirMax VS power module                        | M6                 | 10028916-4555 P00LF | 10028917-001LF (14.7mm above PCB) or 10073379-001LF (11.5mm above PCB)    |

Further information can be found at:

[www.fcicconnect.com/airmax](http://www.fcicconnect.com/airmax)  
[www.fcicconnect.com/highspeed](http://www.fcicconnect.com/highspeed)



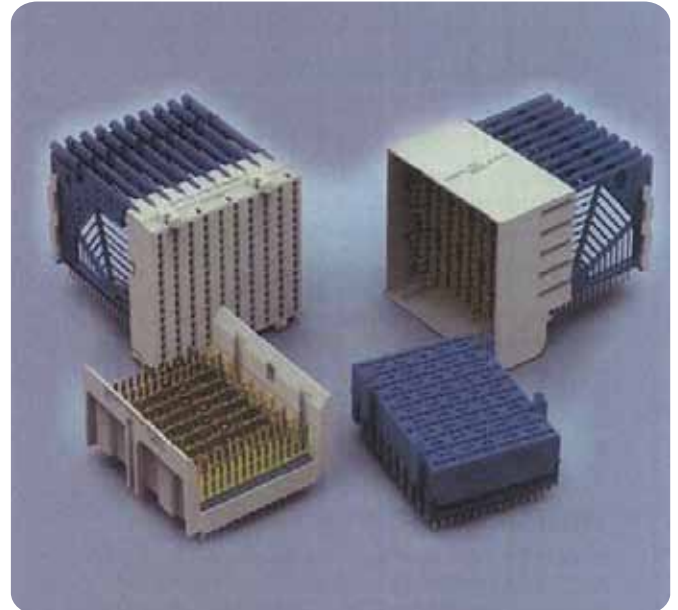
# AIRMAX VS<sup>®</sup> 85Ω CONNECTOR SYSTEM ENABLES INTEL<sup>®</sup> QUICK PATH INTERCONNECT (INTEL<sup>®</sup> QPI) LINKS

## FEATURES

- ▶ Tested and fully compliant with Intel<sup>®</sup> QPI connector specifications
- ▶ Support increased QPI link speeds of 6.4 Gb/s and >8 Gb/s
- ▶ Right-angle and vertical receptacles and headers support backplane and coplanar connections
- ▶ Backwards-compatibility to 100Ω mating interfaces provides a smooth transition to new designs
- ▶ Available with 2mm or 3mm column spacing
- ▶ Complementary power connectors and guide modules complete range
- ▶ Compatible with Hard Metric design practice
- ▶ Halogen-free products aid efforts to minimize the use of environmentally sensitive materials in the electronics industry

## APPLICATIONS

- ▶ Data
  - Servers
  - External Storage Systems
  - Intel<sup>®</sup> QPI links



## PART NUMBERS

| Application | Column Pitch | Configuration   | Header Type | Right-Angle Header | Vertical Receptacle |
|-------------|--------------|---|-------------|--------------------|---------------------|
| Backplane   | 2mm          | 5 pairs/column<br>x 10 columns<br>(50 differential pairs) | 4-wall      | 10097311-101LF *   | 10099767-101LF      |
| Backplane   | 3mm          | 5 pairs/column<br>x 10 columns<br>(50 differential pairs) | 4-wall      | 10087771-101LF *   | 10099768-101LF      |
| Backplane   | 2mm          | 3 pars/column<br>x 6 columns<br>(18 differential pairs)   | 4-wall      | 10097256-101LF *   | 10096461-101LF      |

| Application | Column Pitch | Configuration   | Header Type | Vertical Header    | Right-Angle Receptacle |
|-------------|--------------|---|-------------|--------------------|------------------------|
| Backplane   | 2mm          | 5 pairs/column<br>x 10 columns<br>(50 differential pairs) | 2-wall      | 10095500-1050011LF | 10095504-101LF         |
| Backplane   | 3mm          | 5 pairs/column<br>x 10 columns<br>(50 differential pairs) | 2-wall      | 10073377-1050011LF | 10095505-101LF         |

| Application | Column Pitch | Configuration   | Header Type | Right-Angle Header | Right-Angle Receptacle |
|-------------|--------------|---|-------------|--------------------|------------------------|
| Coplanar    | 2mm          | 5 pairs/column<br>x 10 columns<br>(50 differential pairs) | 4-wall      | 10097311-101LF *   | 10095504-101LF         |
| Coplanar    | 3mm          | 5 pairs/column<br>x 10 columns<br>(50 differential pairs) | 4-wall      | 10087771-101LF *   | 10095505-101LF         |

Product drawings, specifications and additional technical information are available at [www.fciconnect.com/airmax](http://www.fciconnect.com/airmax)  
Note: contact FCI at [airmax@fci.com](mailto:airmax@fci.com) for additional information on these part numbers.

Further information can be found at:  
[www.fciconnect.com/airmax](http://www.fciconnect.com/airmax)  
[www.fciconnect.com/highspeed](http://www.fciconnect.com/highspeed)

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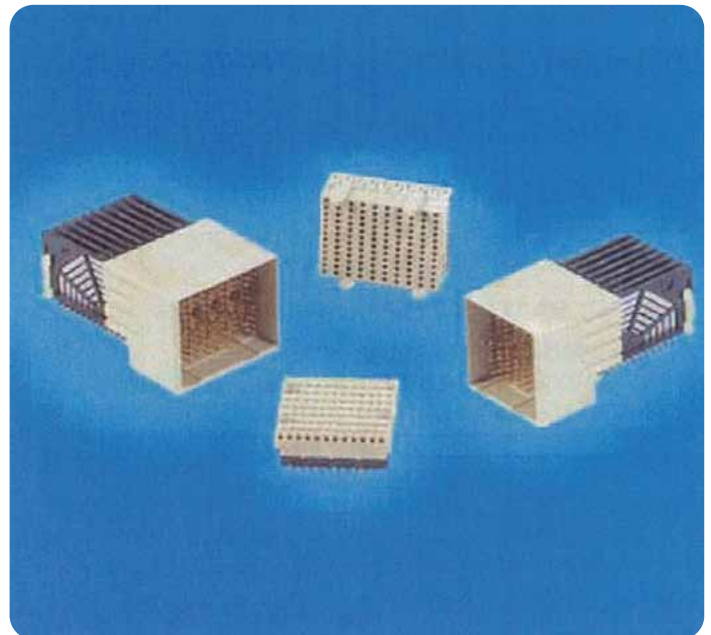
# AIRMAX VS<sup>®</sup> HIGH-SPEED CONNECTORS FOR SERVER SYSTEM INFRASTRUCTURE (SSI) MODULAR BLADE SERVER PLATFORMS

## FEATURES

- ▶ SSI Modular Blade Specifications ensure compatibility and interoperability among compliant modules and midplanes
- ▶ AirMax VS<sup>®</sup> 96-position signal modules enable high-speed connections between the Compute Blade and Mezzanine modules and midplane
- ▶ AirMax VS<sup>®</sup> 120-position signal modules enable connections between the Chassis Management Module and midplane
- ▶ Signal connectors deliver low insertion loss and crosstalk
- ▶ High-speed serial data rates can scale to 12.5 Gb/s
- ▶ Opposed dual-beam receptacle contact structure provides high reliability
- ▶ Rugged guide modules assure proper alignment
- ▶ Compatible with hard metric design practice

## APPLICATIONS

- ▶ Server System Infrastructure (SSI) Modular Blade Server Platforms
  - Compute Blade Module
  - Mezzanine Module
  - Chassis Management Module (CMM)
  - Midplane
  - Chassis



## PART NUMBERS

| Compute Blade and Midplane interface   | Compute Blade                    | Midplane                         |
|--|----------------------------------|----------------------------------|
| AirMax VS <sup>®</sup> 2mm, 4-pair, 96-position signal module                              | 10084604-111LF                   | 10084605-101LF                   |
| Airmax VS <sup>®</sup> 2mm, 4-pair, 96-position signal module (2nd optional signal module) | 10084604-111LF                   | 10084605-101LF                   |
| AirMax VS <sup>®</sup> guide module without ESD clip                                       | 10084609-111LF                   | 10084610-101LF                   |
| AirMax VS <sup>®</sup> 2x2 power module  | 10084603-001LF                   | 10084602-4554P00LF               |
| Mezzanine and Midplane Interface   | Compute Blade                    | Midplane                         |
| Airmax VS <sup>®</sup> 2mm, 4-pair, 96-position signal module                              | 10084604-111LF                   | 10084605-101LF                   |
| Chassis Management Module (CMM) and Midplane Interface                                     | CMM                              | Midplane                         |
| Airmax VS <sup>®</sup> 2mm, 4-pair, 120-position signal module                             | 10084600-111LF                   | 10084601-101LF                   |
| Airmax VS <sup>®</sup> 2mm, 4-pair, 120-position signal module                             | 10084600-111LF                   | 10084601-101LF                   |
| Airmax VS <sup>®</sup> guide module without ESD clip                                       | 10084609-111LF                   | 10084610-101LF                   |
| Compute Blade and Mezzanine Interface  | Compute Blade (receptacle)       | Mezzanine (plug)                 |
| BergStak <sup>®</sup> 0.8mm, 120-position, 16mm connector                                  | 61082-123402LF or 61082-123400LF | 61083-124402LF or 61083-124400LF |
| BergStak <sup>®</sup> 0.8mm, 80-position, 16mm connector (optional expansion connector)    | 61082-083402LF or 61082-083400LF | 61083-084402LF or 61083-084400LF |

Use web links [www.fciconnect.com/airmax](http://www.fciconnect.com/airmax) or [www.fciconnect.com/bergstak](http://www.fciconnect.com/bergstak) to obtain product drawings, models, specifications and additional technical information.

Product names are trademarks of their respective owners



Further information can be found at:  
[www.fciconnect.com/airmax](http://www.fciconnect.com/airmax)  
[www.fciconnect.com/highspeed](http://www.fciconnect.com/highspeed)

# AIRMAX VS® HIGH-SPEED CONNECTORS for CompactPCI® Serial

*New  
product*

## FEATURES & BENEFITS

- ▶ Meet the mechanical and electrical requirements of the CompactPCI Serial Specification
- ▶ FCI technologies for shield-less design with no metallic plates and closely coupled differential pairs deliver low loss and crosstalk
- ▶ Support PCI Express, SATA/SAS, USB 2.0/3.0 and 10 Gigabit Ethernet high-speed serial interfaces
- ▶ Signal density of up to 184 pin pairs (on 3U) with serial data rates up to 12.5 Gb/s.
- ▶ Opposed dual-beam receptacle contact structure provides high reliability
- ▶ Open pin field design provides flexibility to use pins for differential or single-ended signals, ground or power
- ▶ Compatible with Hard Metric equipment design practice
- ▶ Halogen free products aid efforts to minimize the use of environmentally sensitive materials in the electronics electronics industry
- ▶ Lead-Free and RoHS compliant



## APPLICATIONS

- ▶ Industrial computing and storage systems
- ▶ Industrial automation, control and monitoring equipment
- ▶ Data acquisition equipment
- ▶ Instrumentation
- ▶ Simulation and test equipment
- ▶ Surveillance systems
- ▶ Medical equipment
- ▶ High speed / high bandwidth data communication applications

## FCI AirMax VS® connectors required for the CompactPCI® Serial Specification

### FRONT DAUGHTER CARD CONNECTORS (Right-Angle Headers)

| COLUMNS | WALLS | PART NUMBER    |
|---------|-------|----------------|
| 6       | 4     | 10052825-101LF |
| 6       | 4     | 10052825-101LF |
| 8       | 2     | 10052837-101LF |
| 8       | 2     | 10052837-101LF |
| 8       | 2     | 10052837-101LF |
| 6       | 2     | 10052824-101LF |
| 8       | 4     | 10052838-101LF |

### MIDPLANE FRONT SIDE CONNECTORS (Vertical Receptacles)

| PART NUMBER    |
|----------------|
| 10052829-101LF |
| 10052829-101LF |
| 10052842-101LF |
| 10052842-101LF |
| 10052842-101LF |
| 10052842-101LF |
| 10052829-101LF |
| 10052842-101LF |

### MIDPLANE REAR SIDE CONNECTORS (Vertical Headers)

| COLUMNS | WALLS | PART NUMBER    |
|---------|-------|----------------|
| 6       | 2     | 10114761-101LF |
| 8       | 2     | 10114760-101LF |
| 8       | 2     | 10114760-101LF |
| 6       | 2     | 10114761-101LF |

### REAR DAUGHTER CARD CONNECTORS (Right-Angle Receptacles)

| PART NUMBER    |
|----------------|
| 10114633-101LF |
| 10060905-101LF |
| 10060905-101LF |
| 10114633-101LF |

Further information can be found at:  
[www.fciconnect.com/cpciserial](http://www.fciconnect.com/cpciserial)  
[www.fciconnect.com/airmax](http://www.fciconnect.com/airmax)  
[www.fciconnect.com/highspeed](http://www.fciconnect.com/highspeed)



# XCEDE® HIGH-SPEED BACKPLANE CONNECTOR SYSTEM

*New product*

## FEATURES & BENEFITS

- ▶ High-speed backplane system designed for 25 Gb/s
- ▶ Use of engineering materials in the shield aids in reduction of crosstalk resonances
- ▶ 1.85mm column pitch offers high linear signal density
  - Configurations with 6 differential pairs/column fit 36 mm card slot pitch and provide 82.4 pairs/inch
  - 4 pairs/column fit 25 mm slot pitch with 54.9 pairs/inch
  - 2 pairs/column fit 15 mm slot pitch with 27.5 pairs/inch
- ▶ Two ground vias between differential pairs allow elongated antipads to further improve impedance
- ▶ Optional short compliant pin permits deeper backdrilling and dual diameter vias to enhance return loss performance
- ▶ Wide ground contacts feature a stiffening rib and are advanced well ahead of signals for exceptional robustness and signal pin protection
- ▶ Intermateable, electrically and mechanically interchangeable licensed second source to Amphenol TCS



## MAIN PRODUCTS

## PART REFERENCES

|                        |                 |          |
|------------------------|-----------------|----------|
| Right-angle receptacle | 4 pair 4 column | 10091844 |
|                        | 4 pair 6 column | 10091799 |
|                        | 4 pair 8 column | 10091812 |
|                        | 6 pair 4 column | 10105004 |
|                        | 6 pair 6 column | 10105007 |
|                        | 6 pair 8 column | 10105010 |
| Vertical header        | 2 pair 4 column | 10114868 |
|                        | 2 pair 6 column | 10113947 |
|                        | 2 pair 8 column | 10113949 |
|                        | 4 pair 4 column | 10091836 |
|                        | 4 pair 6 column | 10091767 |
|                        | 4 pair 8 column | 10091777 |
|                        | 6 pair 4 column | 10114508 |
|                        | 6 pair 6 column | 10104997 |
|                        | 6 pair 8 column | 10104999 |

## APPLICATIONS

### Communications

- ▶ Routers
- ▶ Switches
- ▶ Networking
- ▶ Access
- ▶ Transport
- ▶ Wireless

### Data

- ▶ Servers
- ▶ Storage Systems

### Industrial

- ▶ Industrial
- ▶ Medical
- ▶ Test & Measurement

XCede® is a registered trademark of Amphenol Corporation



Further information can be found at:  
[www.fciconnect.com/xcede](http://www.fciconnect.com/xcede)  
[www.fciconnect.com/highspeed](http://www.fciconnect.com/highspeed)

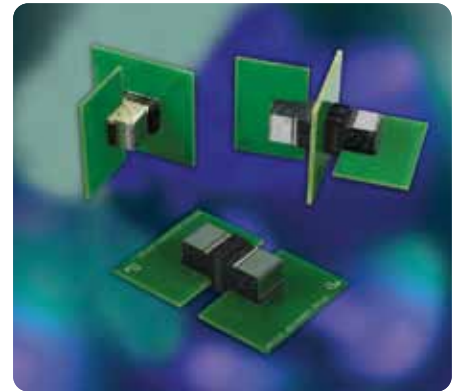


# ZIPLINE®

## HIGH-SPEED, HIGH-DENSITY CONNECTOR SYSTEM

### FEATURES & BENEFITS

- ▶ Supports backplane, coplanar, and orthogonal midplane applications
- ▶ 6-pair modules with IMLAs on 1.8 mm column pitch deliver 84.6 differential pairs per inch of card edge while allowing a minimum 1-inch card slot pitch
- ▶ Provides maximum signal density available at data rates up to 12.5 Gb/s
- ▶ Use FCI Technologies for shield-less design with no metallic plates and closely coupled differential pairs to deliver low insertion loss and crosstalk
- ▶ Allows for mixed differential, 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



### PART REFERENCES

### MAIN PRODUCTS

|                |  |
|----------------|--|
| 10076197-101LF | 6 pairs/column x 12 columns (72 differential pairs)<br>vertical 2 wall header  |
| 10080638-101LF | 6 pairs/column x 12 columns (72 differential pairs)<br>vertical 4 wall header  |
| 10076222-101LF | 6 pairs/column x 12 columns (72 differential pairs)<br>orthogonal midplane 2 wall header                                     |
| 10080640-101LF | 6 pairs/column x 12 columns (72 differential pairs)<br>orthogonal midplane 4 wall header                                     |
| 10084160-101LF | 6 pairs/column x 16 columns ( 72 orthogonal<br>pass-through pairs + 24 backplane pairs)<br>orthogonal midplane 2 wall header |
| 10076209-101LF | 6 pairs/column x 12 columns (72 differential pairs)<br>right angle receptacle  |
| 10084186-101LF | 6 pairs/column x 16 columns (96 differential pairs)<br>vertical 2 wall header  |
| 10084155-101LF | 6 pairs/column x 16 columns (72 differential pairs)<br>right angle receptacle  |
| 10084166-101LF | 1 power wafer + 6 pairs/column x11 columns<br>66 differential pairs) vertical 2 wall header                                  |
| 10084164-102LF | 1 power wafer + 6 pairs/column x11 columns<br>66 differential pairs) right angle header                                      |
| 10077555-101LF | 6 pairs/column x 12 columns (72 differential pairs)<br>right angle header  |

### APPLICATIONS

#### Communications

- ▶ Routers
- ▶ Switches
- ▶ Networking
- ▶ Access
- ▶ Transport

#### Data

- ▶ Servers
- ▶ Storage Systems

#### Industrial

- ▶ Medical
- ▶ Test & Measurement



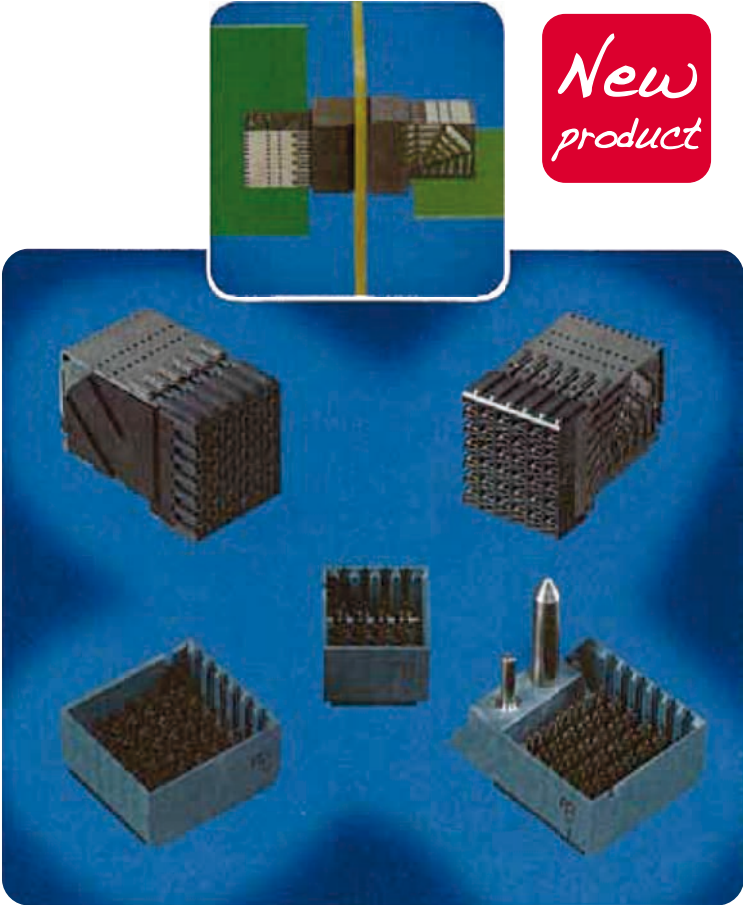
Further information can be found at:  
[www.fciconnect.com/zipline](http://www.fciconnect.com/zipline)  
[www.fciconnect.com/highspeed](http://www.fciconnect.com/highspeed)



# CROSSBOW™ ORTHOGONAL MIDPLANE CONNECTOR SYSTEM

## FEATURES & BENEFITS

- ▶ Capable of high-speed differential signaling at up to 20 Gb/s
- ▶ Optimized for orthogonal midplane architectures
- ▶ 6x6 midplane headers provide 36 crossover pairs
  - Available with or without polarization and guidance features
- ▶ 4x4 midplane headers provide 16 crossover pairs
  - Without polanzation and guide features
- ▶ Daughter card receptacle connectors are available as individual modules or as a mono-block assembly with modules and support components attached to a stainless steel organizer
- ▶ Two press-fit "Eye-Of-Needle" options are available for receptacles. Standard drill size is .0180" dia. Micro drill size is .0160" dia
- ▶ Intermateable, electrically and mechanically interchangeable second source to Amphenol TCS



## APPLICATIONS

- ▶ Communications
  - Switches
  - Routers
- ▶ Data
  - Servers
  - Storage Systems

## PART NUMBERS

Lead-free part numbers are listed, Crossbow products are also available with tin-lead plating.

| Main Products                        | Polarizing Key | Part References |
|--------------------------------------|----------------|-----------------|
| 6x6 vertical header with right guide | position C     | 10089485-1C03LF |
| 6x6 vertical header with right guide | position E     | 10089485-1E03LF |
| 6x6 vertical header                  | no key         | 10089480-1003LF |
| 6x6 vertical header with right guide | no key         | 10089514-1001LF |
| 4x4 vertical header                  | no key         | 10089463-1001LF |
| 4x4 daughter card receptacle         | no key         | 10089500-1001LF |

Crossbow™ is a trademark of Amphenol Corporation

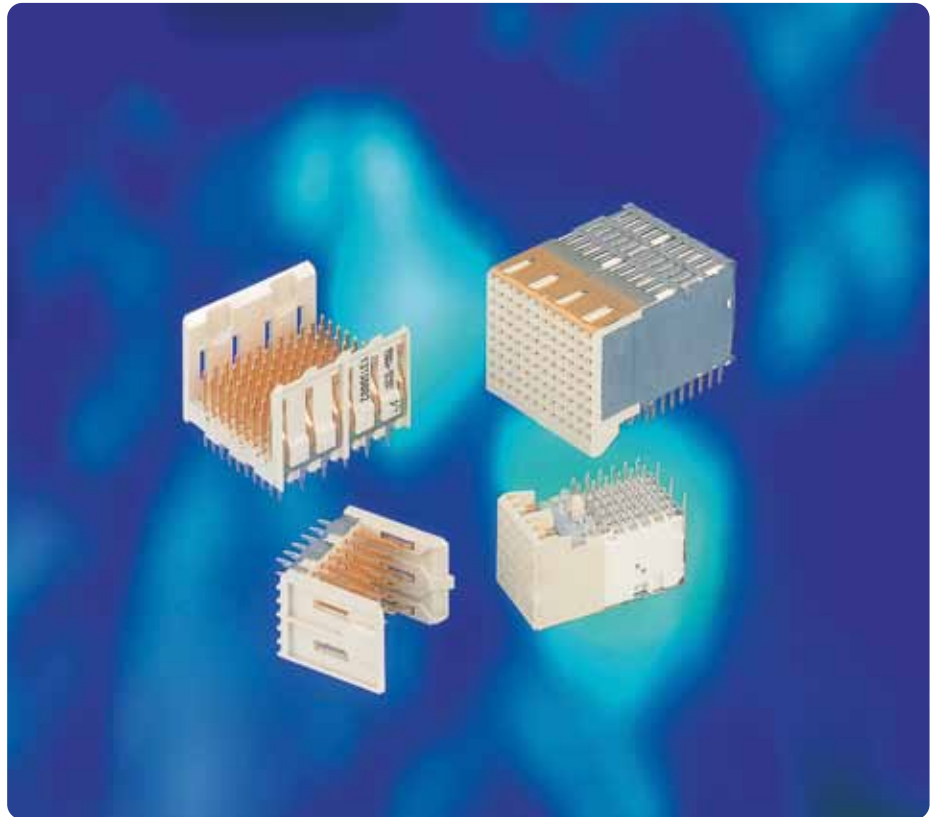


# METRAL<sup>®</sup> 1000, 2000, 4000

## HIGH SPEED BACKPLANE CONNECTORS

### FEATURES & BENEFITS

- ▶ IEC 61076-4-104 / Telcordia\* GR-1217-CORE
- ▶ Optimized Signal Integrity performance for 5 Gb/sec and more
- ▶ Part of the Metral<sup>®</sup> system to allow performance and cost efficiency
- ▶ 2 mm square pitch for efficient straight vertical and horizontal routing



|                 | 1000 Header | 2000 Header | 4000 Header |
|-----------------|-------------|-------------|-------------|
| 1000 Receptacle | 622 Mb/s    | 1.25 Gb/s   | 2.5 Gb/s    |
| 4000 Receptacle | 1.25 Gb/s   | 2.5 Gb/s    | 5 Gb/s      |

| MAIN PRODUCTS |             | PART REFERENCES |       |
|---------------|-------------|-----------------|-------|
|               |             | 5 row           | 8 row |
| Metral 1000   | Header      | 84817           | 74983 |
|               | Receptacle  | 84688           | 74981 |
| Metral 2000   | Header      | 74977           | 74978 |
|               | Receptacle  | 84688           | 74981 |
| Metral 4000   | Header      | 55003           | 55004 |
|               | Receptacle  | 52057           |       |
| Shrouds       | Metral 1000 | 73993           | 74993 |
|               | Metral 2000 | 84621           | 84625 |

### APPLICATIONS

#### Communications

- ▶ Routers
- ▶ Switches
- ▶ Networking
- ▶ Access
- ▶ Transport

#### Data

- ▶ Servers
- ▶ Storage Systems

#### Industrial

- ▶ Medical
- ▶ Test & Measurement

\*Telcordia<sup>®</sup> is a registered trademark of Telcordia<sup>®</sup>.

Further information can be found at:  
[www.fciconnect.com/metral](http://www.fciconnect.com/metral)  
[www.fciconnect.com/highspeed](http://www.fciconnect.com/highspeed)  
[www.fciconnect.com/backplane](http://www.fciconnect.com/backplane)



# METRAL®

## 2 MM MODULAR INTERCONNECT SYSTEM

### FEATURES & BENEFITS

**Low-cost application solutions:**

- ▶ Press-Fit termination for backplanes
- ▶ Pin-in-Paste terminations for daughter-cards

**Scalability and flexibility:**

- ▶ Mix low and high speed signal modules
- ▶ Mix signal and power modules

**Power Distribution solutions:**

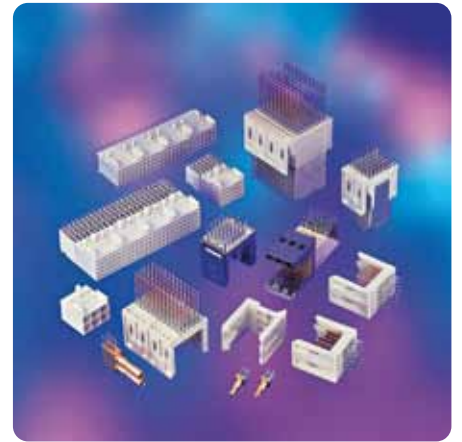
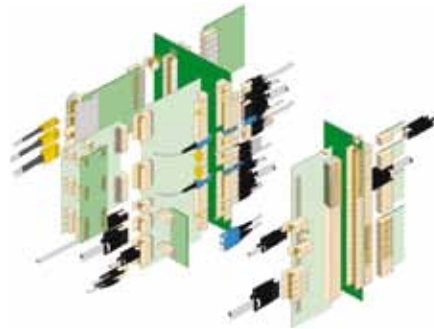
- ▶ Ranging from 3 amps up to 60 amps
- ▶ Straight or inverse solutions

**Complete I/O solutions:**

- ▶ Rear-plug-up or front I/O
- ▶ Shielded or non-shielded
- ▶ Speeds from 2 Mb/s up to 5 Gb/s
- ▶ Designed in accordance with IEC 61076-4-104, performance according Telcordia® GR-1217-CORE

### APPLICATIONS

- ▶ Transmission & switching equipment for data & telecommunications, medical equipment.



|                                | MAIN PRODUCTS     |                   | PART REFERENCES   |             |
|--------------------------------|-------------------|-------------------|-------------------|-------------|
|                                | 4-row Signal      | 4-row Power       | 5-row Signal      | 5-row Power |
| <b>Headers</b>                 |                   |                   |                   |             |
| Press-Fit                      | 70232             | 70236             | 89006             | 89099       |
| <b>Right angle Receptacles</b> |                   |                   |                   |             |
| Pin-in-Paste                   |                   | 72651             |                   | 63793       |
| Solder                         | 89035             | 89039             | 85863             | 85876       |
| Press-Fit                      | HM1F41FDP000H6LF  |                   | HM1F51FDPOOOH6LF  |             |
|                                | 88945             | 88949             | 89047             | 89096       |
| <b>Straight Receptacles</b>    |                   |                   |                   |             |
| Press-Fit                      | 85757             |                   | 85761             |             |
| <b>Right angle Headers</b>     |                   |                   |                   |             |
| Pin-in-Paste                   | 58361-101LF       | Contact FCI       | HM1L51LFP000H6PLF | Contact FCI |
| Solder                         | HM1L41LAP000H6PLF |                   | HM1L51LAP000H6PLF |             |
| Press-Fit                      | HM1L41LDP000H6PLF | HM1K41LDPOOOH6PLF | HM1L51LDP000H6PLF |             |
| <b>Cable Connectors</b>        |                   |                   |                   |             |
| IDC                            | 72476 / 72477     |                   | 72478 / 72479     |             |



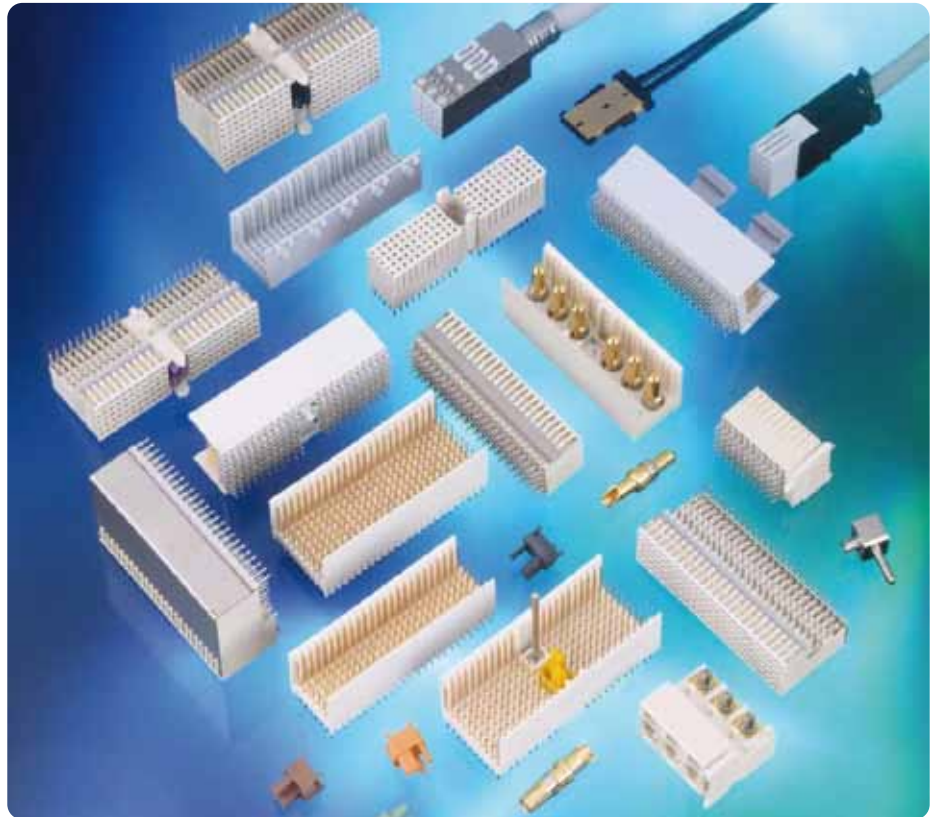
Further information can be found at:  
[www.fciconnect.com/metral](http://www.fciconnect.com/metral)  
[www.fciconnect.com/backplane](http://www.fciconnect.com/backplane)



## MILLIPACS® HARD METRIC 2 MM CONNECTORS

### FEATURES & BENEFITS

- ▶ Millipacs® is a 2.00 mm modular board to board or cable to board Interconnection system in Hard Metric configuration, designed in accordance with IEC 917 and IEC 61076 - 4 - 101
- ▶ Fits DIN 43356 and IEEE1301 Hard Metric Equipment Practice
- ▶ UL and CSA recognized
- ▶ Qualified by Bellcore as defined by GR-1217-CORE
- ▶ Versions meetings requirements of CompactPCI specifications
- ▶ 5+2 row and 8+2 row high density connectors
- ▶ Popular Versions include Vertical & Right Angle Headers, Vertical & Right Angle Receptacles, Cable Connectors
- ▶ Special versions include Vertical Receptacle with increased stack heights for Mezzanine applications, Right Angle Header with Latch Locking option for cable connector mating, Mating Header & Receptacle with offset polarization.
- ▶ Accessories with functionalities: Keying, Guiding, Power and Coax inserts, Shielding & Shrouds
- ▶ Headers with Staggered contacts with differential mating lengths
- ▶ Terminations with Standard EON pressfit. Also Pin-in-Paste (PIP) Version for Header & Receptacle and Pin-in-Paste (PIP) for Header.



### APPLICATIONS

- ▶ Switches
- ▶ Base stations
- ▶ Embedded computers
- ▶ Medical testing
- ▶ PLC's & all applications requiring high density connectors



**MAIN PRODUCTS**

**PART REFERENCES**

| No. of signal rows | Type | Header Series | Pin orientation | Receptacle Series | Pin orientation | Max No. of signal pins | Mounting style |
|--------------------|------|---------------|-----------------|-------------------|-----------------|------------------------|----------------|
| 5                  | A    | HM2P07P       | Vertical        | HM2R01P /HM2R10P  | Right Angle     | 110                    | Press-fit      |
|                    |      | HM2J07PE      | Right Angle     | HM2S01P /HM2S10P  | Vertical        | 110                    | Press-fit      |
|                    | B    | HM2P08P       | Vertical        | HM2R02P           | Right Angle     | 125                    | Press-fit      |
|                    |      | HM2J08PE      | Right Angle     | HM2S02P           | Vertical        | 125                    | Press-fit      |
| B22                |      | HM2P70P       | Vertical        | HM2R70P           | Right Angle     | 110                    | Press-fit      |
|                    |      | HM2J70P       | Right Angle     | HM2S70P           | Vertical        | 110                    | Press-fit      |
| B19                |      | HM2P71P       | Vertical        | HM2R71P           | Right Angle     | 95                     | Press-fit      |
|                    |      | HM2J71P       | Right Angle     | HM2S71P           | Vertical        | 95                     | Press-fit      |
| AB                 |      | HM2P65P       | Vertical        | HM2R65P           | Right Angle     | 125                    | Press-fit      |
|                    |      | HM2J65PE      | Right Angle     | HM2R65P           | Right Angle     | 125                    | Press-fit      |
| AB22               |      | HM2P66P       | Vertical        | HM2R66P           | Right Angle     | 110                    | Press-fit      |
| AB19               |      | HM2P67P       | Vertical        | HM2R67P           | Right Angle     | 95                     | Press-fit      |
| C                  |      | HM2P09P       | Vertical        | HM2R03P /HM2R30P  | Right Angle     | 55                     | Press-fit      |
|                    |      | HM2J09P       | Right Angle     | HM2S30P           | Vertical        | 55                     | Press-fit      |
| CR                 |      | HM2P80P       | Vertical        | HM2R20P           | Right Angle     | 55                     | Press-fit      |
| L                  |      | HM2A30P       | Vertical        | HM2E30P           | Right Angle     | 6 Spl.                 | Press-fit      |
| M                  |      | HM2P11P       | Vertical        | HM2R05P           | Right Angle     | 3 Spl.+ 55             | Press-fit      |
| N                  |      | HM2A32P       | Vertical        | HM2E32P           | Right Angle     | 3 Spl.                 | Press-fit      |
| 8                  | D    | HM2P87P       | Vertical        | HM2R87P /HM2R81P  | Right Angle     | 176                    | Press-fit      |
|                    | DE   | HM2P95P       | Vertical        | HM2R95P           | Right Angle     | 200                    | Press-fit      |
|                    | E    | HM2P88P       | Vertical        | HM2R88P           | Right Angle     | 200                    | Press-fit      |
|                    | F    | HM2P89P       | Vertical        | HM2R89P /HM2R83P  | Right Angle     | 88                     | Press-fit      |
| 5                  | A    | HM2P40S       | Vertical        |                   |                 | 110                    | PIP            |
|                    | C    | HM2P09S       | Vertical        |                   |                 | 55                     | PIP            |
|                    | M    | HM2P11S       | Vertical        |                   |                 | 3 Spl.+ 55             | PIP            |

**MAIN PRODUCTS**

**PART REFERENCES**

| Other Options     | Features  | Application                                  | Series                          |
|-------------------|---|--|---------------------------------|
| Cable Connectors  | Non shielded/Shielded                             | Input/Output                                 | HM2C---                         |
| Coding Devices    | Plug and Receptacle with pre defined RAL colours  | Prevent incorrect insertion                  | HM2DK---                        |
| Power Contacts    | High Precision Pin and Socket contacts            | Hybrid, Power, Coax for increased durability | RM.....(Pin) / RC.....(Sockets) |
| Millipacs Shrouds | 5 row and 8 row available                         | Rear-Plug-up                                 | HM2H---                         |
| Bottom Shield     | Pre-assembled shields for Right Angle Receptacles | Shielding                                    | HM2LS---                        |
| Guiding Pins      | Stackable, Different Pin lengths                  | Guiding & Premating                          | HM2G....                        |



Further information can be found at:  
[www.fciconnect.com/millipacs](http://www.fciconnect.com/millipacs)  
[www.fciconnect.com/backplane](http://www.fciconnect.com/backplane)

# DIN 41612

## FEATURES & BENEFITS

- ▶ Standardized per DIN 41612
- ▶ Full interconnect system
  - BTB and I/O solutions
  - Signal and power
- ▶ Low cost application solutions
  - Press-fit termination, receptacle and header
  - IDC cable termination

## APPLICATIONS

- ▶ Switching & transmission
- ▶ Radio base stations
- ▶ PBX's



*DIN standard and reversed signal*



*DIN Style F, H & F24/H7*



*DIN IDC*

### STANDARD SIGNAL

### PART REFERENCES

| Style                         | No. rows | pos. | Termination     |                          |
|-------------------------------|----------|------|-----------------|--------------------------|
| Style B right angle header    | 2 row    | 64   | solder-to-board | 8609 264 51 13 XXX XX LF |
| Style B/2 right angle header  | 2 row    | 32   | solder-to-board | 8609 232 53 13 XXX XX LF |
| Style C right angle header    | 3 row    | 96   | solder-to-board | 8609 396 71 13 XXX XX LF |
|                               |          |      | press-fit       | 8609 396 71 94 XXX XX LF |
| Style C/2 right angle header  | 3 row    | 48   | solder-to-board | 8609 348 73 13 XXX XX LF |
| Style B straight receptacle   | 2 row    | 64   | solder-to-board | 8609 264 61 14 XXX XX LF |
| Style B/2 straight receptacle | 2 row    | 32   | solder-to-board | 8609 232 63 14 XXX XX LF |
| Style C straight receptacle   | 3 row    | 96   | solder-to-board | 8609 396 81 14 XXX XX LF |
|                               |          |      | press-fit       | 8609 396 81 94 XXX XX LF |
| Style C/2 straight receptacle | 3 row    | 48   | solder-to-board | 8609 348 83 14 XXX XX LF |

Further information can be found at:  
[www.fciconnect.com/din41612](http://www.fciconnect.com/din41612)  
[www.fciconnect.com/backplane](http://www.fciconnect.com/backplane)



## REVERSED SIGNAL

## PART REFERENCES

| Style                            | No. rows | pos. | Termination     |                          |
|----------------------------------|----------|------|-----------------|--------------------------|
| Style R straight header          | 3 row    | 96   | solder-to-board | 8609 396 78 14 XXX XX LF |
|                                  |          |      | press-fit       | 8609 396 78 94 XXX XX LF |
| Style R/2 straight header        | 3 row    | 48   | solder-to-board | 8609 348 76 14 XXX XX LF |
| Style R right angle receptacle   | 3 row    | 96   | solder-to-board | 8609 396 88 13 XXX XX LF |
|                                  |          |      | press-fit       | 8609 396 88 94 XXX XX LF |
| Style R/2 right angle receptacle | 3 row    | 48   | solder-to-board | 8609 348 86 13 XXX XX LF |

## POWER

## PART REFERENCES

| Style                            | No. rows | pos.   | Termination   |                          |
|----------------------------------|----------|--------|---------------|--------------------------|
| Style F right angle header       | 3 row    | 48     | medium - 5.5A | 5159 009 48 63 94 XXX LF |
| Style F straight receptacle      | 3 row    | 48     | medium - 5.5A | 5159 909 48 11 94 111LF  |
| Style H right angle header       | 3 row    | 48     | high - 15A    | 5159 029 15 23 XXX LF    |
| Style H straight receptacle      | 3 row    | 48     | high - 15A    | 5159 029 15 19 XXX LF    |
| Style F24/H7 right angle header  | 3 row    | 24 / 7 | medium/high   | 5159 002 31 23 54 XXX LF |
| Style F24/H7 straight receptacle | 3 row    | 24 / 7 | medium/high   | 5159 002 31 11 93 XXX LF |

## IDC

## PART REFERENCES

| Style               | No. rows | pos. | Termination |                         |
|---------------------|----------|------|-------------|-------------------------|
| IDC cable connector | 3 row    | 96   | IDC         | BPS 8B 96 FLD XXX XX LF |
|                     |          | 21   | IDC         | BPS 8B 21 FLD XXX XX LF |
|                     |          | 9    | IDC         | BPS 8B 09 FLD XXX XX LF |



Further information can be found at:  
[www.fciconnect.com/din41612](http://www.fciconnect.com/din41612)  
[www.fciconnect.com/backplane](http://www.fciconnect.com/backplane)

# PWRBLADE®

## AC/DC POWER DISTRIBUTION CONNECTOR SYSTEM

### FEATURES & BENEFITS

- 48A/individual power contact;  
30A/contact for 10 adjacent contacts  
at 30°C temperature rise in still air
- 60A/contact using UL test guidelines
- SSI-compliant connector interface for  
pluggable power supplies & power  
distribution applications
- Provides power contacts for power  
distribution and signal contacts for  
power control
- Number and placement of power and  
signal contacts are highly configurable  
for custom power needs
- Power contact spacing options exist  
for AC (300V max), DC (200V max) or  
high-density power (at same voltage)
- Meets applicable UL current  
interruption criteria for hot plug  
applications
- Rugged, molded-in guides enable  
blind mating
- Up to 3 levels of sequential contact  
including a short detect pin for hot  
swap applications
- Existing tooling capabilities  
accommodate up to 20 power  
contacts and 148 signal contacts in a  
single molded housing
- Solder or press-fit tail options are  
available for termination flexibility
- Board retention devices are provided  
to secure connectors during wave  
solder process
- AC cable port option (cable pass-  
through) as well as direct attach to  
busbars for power distribution are  
available
- Lead free plating is available for RoHS  
compliance



### APPLICATIONS

- AC/DC pluggable power supplies in  
data, telecom & datacom/networking
- Server System Infrastructure (SSI)-  
compliant server systems
- Industrial PCs
- Industrial controls & instrumentation

#### MAIN PRODUCTS

#### PART REFERENCES

|   |                    |
|---|--------------------|
| Power+Signal+Power Right Angle Header     | 51720-1XXXXXXXXXLF |
| Power+Signal+Power Vertical Header        | 51700-1XXXXXXXXXLF |
| Power+Signal+Power Right Angle Receptacle | 51760-1XXXXXXXXXLF |
| Power+Signal+Power Vertical Receptacle    | 51740-1XXXXXXXXXLF |



**TYPICAL PRODUCTS**

**PART REFERENCES**

**SERVER SYSTEM INFRASTRUCTURE (SSI STANDARD)**

**Distributed Power Supply (1 Power + 24 Signal + 1 Power Configuration)**

|              |                               |             |
|--------------|-------------------------------|-------------|
| Server       | Right Angle Receptacle        | 51416-001LF |
|              | Vertical Press-Fit Receptacle | 51666-001LF |
| Power Supply | Right Angle Header            | 51415-001LF |
|              | Vertical Header               | 51952-001LF |
|              | Vertical Press-Fit Header     | 51952-002LF |

**High-End Power Supply (24 Signal + 12 Power Configuration)**

|              |                               |               |
|--------------|-------------------------------|---------------|
| Server       | Vertical Receptacle           | 51261-XX001LF |
|              | Vertical Press-Fit Receptacle | 51617-XX002LF |
| Power Supply | Right Angle Header            | 51219-XX002LF |

**Mid-Range Power Supply (5 Power + 24 Signal + 6 Power Configuration)**

|              |                               |               |
|--------------|-------------------------------|---------------|
| Server       | Right Angle Receptacle        | 51625-XX001LF |
|              | Vertical Press-Fit Receptacle | 51667-XX001LF |
| Power Supply | Right Angle Header            | 51624-XX001LF |
|              | Vertical Header               | 51860-001LF   |
|              | Vertical Press-Fit Header     | 51860-002LF   |

**AC CABLE PORT RIGHT ANGLE RECEPTACLE**

|                          |              |
|--------------------------|--------------|
| Cable+Power+Signal+Power | 51894-YYYYLF |
| Cable+Signal+Power       | 51921-YYYYLF |
| Cable+Power+Signal       | 51923-YYYYLF |

**AC CABLE PORT VERTICAL RECEPTACLE**

|                          |                           |
|--------------------------|---------------------------|
| Cable+Power+Signal+Power | 51897-YYYYLF              |
| Cable                    | 51897-YYYYLF              |
| Cable+Signal+Power       | 51897-YYYYLF/51927-YYYYLF |
| Cable+Power+Signal       | 51929-YYYYLF              |

*Note: The XX and YYY utilized in the part numbers above are placeholders for certain product specific criteria. Reference the product drawings to obtain detailed dimensions and complete part numbers. For non-SSI applications other configurations are available upon request. Please contact your local FCI representative.*



**Further information can be found at:**  
[www.fciconnect.com/pwrblade](http://www.fciconnect.com/pwrblade)  
[www.fciconnect.com/powersolutions](http://www.fciconnect.com/powersolutions)



# PWRBLADE+™

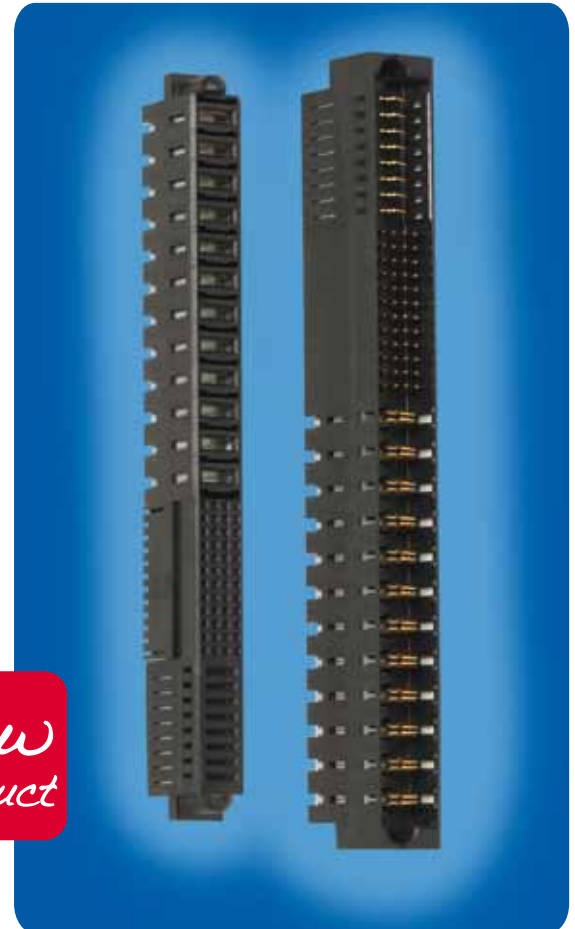
## AC/DC POWER DISTRIBUTION CONNECTOR SYSTEM

### FEATURES & BENEFITS

- High power contact option (up to 75A/contact; 30°C temperature rise in still air) for cost-effective power delivery in 1U and 2U power supplies or power distribution applications
- Low power contact option (up to 49A/contact; 30°C temperature rise in still air) for applications with multiple voltages and lower power requirements
- Highly vented housing design maximizes heat dissipation for effective system cooling
- Half-bullet guides offer a reduced connector footprint
- Housing material is halogen-free for next generation environmental requirements
- Large operating temperature range (-40°C to +125°C) for extreme environments
- Right angle and co-planar options are available with both power contacts for power distribution and signal contacts for power control
- Number and placement of power and signal contacts are highly configurable for custom power needs
- Solder or press-fit tails are available for termination flexibility
- Compatible with lead-free processing temperatures

### APPLICATIONS

- AC/DC pluggable power supplies in data, telecom & datacom/networking equipment
- Industrial PCs
- Industrial controls & instrumentation
- Medical



New  
product

### MAIN PRODUCTS

### PART REFERENCES

|                                  |                    |
|----------------------------------|--------------------|
| 2P+16S+2P Right Angle Header     | 10106124-4004001LF |
| 2P+16S+2P Right Angle Receptacle | 10106126-4004001LF |
| 10HDP+32S Right Angle Header     | 10106132-A008001LF |
| 10HDP+32S Vertical Receptacle    | 10106139-A008001LF |



# High Power Card Edge (HPCE®) Next Generation Power Card Edge Connector

## FEATURES & BENEFITS

- ▶ Current rating to 9A/power contact beam (with multiple power contacts fully energized) without exceeding a 30°C temperature rise in still air
- ▶ Low profile height (2.8 mm for straddle mount; 7.50 mm for right angle) maximizes airflow for effective system cooling
- ▶ One-piece assembly enables cost-effective power delivery for 1U and 2U power supplies or power distribution applications
- ▶ Highly vented housing design maximizes heat dissipation
- ▶ Vertical, right angle and straddle mount options are available with both power contacts for power distribution and signal contacts for power control
- ▶ Number and placement of power and signal contacts are highly configurable for custom power needs
- ▶ Polarized housing option ensures proper mating board orientation
- ▶ Plastic housing features and mounting ear options are available for polarization to the host PCB as well as to secure the connector during the wave solder process
- ▶ Robust design includes touch-proof safety features that are ULVIEC 60950 compliant
- ▶ Solder or press-fit tails are available on the vertical option for termination flexibility
- ▶ Compatible with lead-free processing temperatures

*New  
product*



### MAIN PRODUCTS

### PART REFERENCES

| VERTICAL SOLUTION       |  | Orientation Key | Part number                |                |
|-------------------------|--|-----------------|----------------------------|----------------|
| 56 P + 12 S             |  | No              | 10088418-002LF             |                |
| RIGHT ANGLE SOLUTION    |  | Hold down       | Orientation Key            | Part number    |
| 56 P + 12 S             |  | No              | No                         | 10096926-002LF |
| 56 P + 12 S             |  | Yes             | No                         | 10096926-004LF |
| STRADDLE MOUNT SOLUTION |  | Mounting ears   | Front Rear Orientation Key | Part number    |
| 36 P + 24 S             |  | Yes             | No                         | 10107844-002LF |

## APPLICATIONS

- ▶ AC/DC pluggable power supplies in data, telecom & datacom/networking equipment
- ▶ Industrial PCs
- ▶ Industrial controls & instrumentation
- ▶ Medical



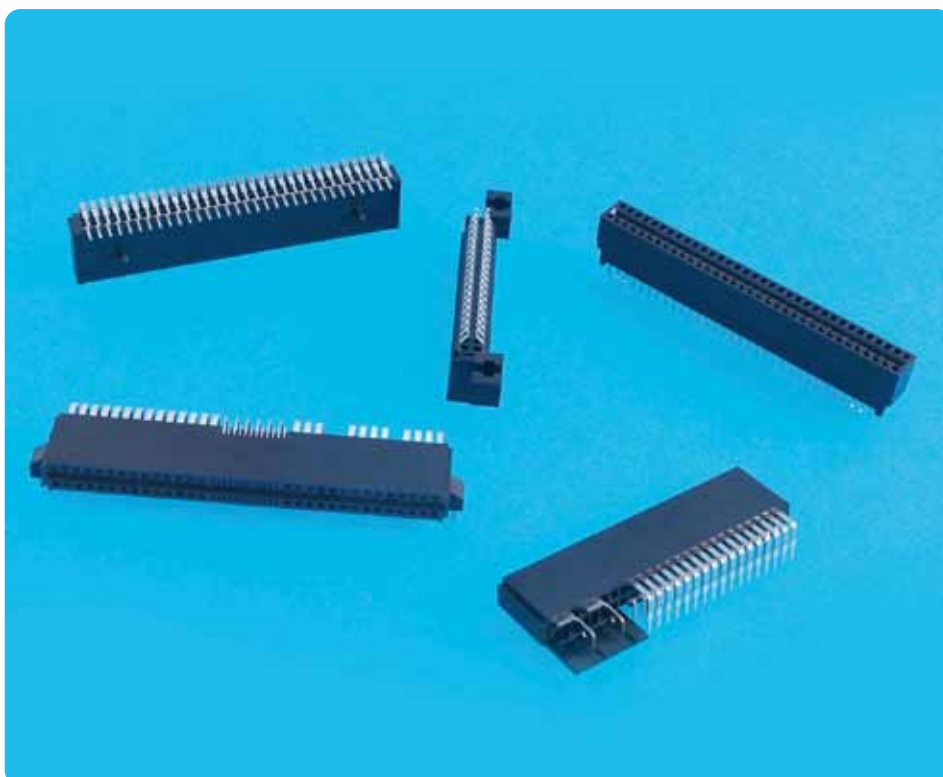
Further information can be found at:  
[www.fciconnect.com/hpce](http://www.fciconnect.com/hpce)  
[www.fciconnect.com/powersolutions](http://www.fciconnect.com/powersolutions)

# POWER CARD EDGE

## LOW PROFILE AC/DC POWER DISTRIBUTION CONNECTOR SYSTEM

### FEATURES & BENEFITS

- 7A/contact for multiple contacts at 30°C temperature rise in still air
- One-piece card edge design enables cost-effective power delivery for 1U and 2U power supplies or power distribution applications
- Low-profile design maximizes airflow for system cooling
- Right angle option is available with both power contacts for power distribution and signal contacts for power control
- Integrated power and signal design simplifies board assembly
- Right angle product range includes version with molded posts or metal fork locks for board retention
- Straddle-mount connectors feature mounting ears for secure PCB attachment
- Optional AC cable port is available for a cable pass-through solution
- Lead free plating is available for RoHS compliance



### MAIN PRODUCTS

### PART REFERENCES

#### Right Angle Solutions

|   |          |
|---|----------|
| 10P + 24S + 10P   |          |
| 14P + 24S + 14P   |          |
| 20P + 24S + 20P   | 10028886 |
| 28P + 24S + 28P   |          |
| 2x14, 2x17, 2x22, 2x25, 2x28, 2x29,<br>2x31, 2x32 power | 10035388 |
| 2x32 power w/ housing stand-offs                        | 10053363 |

#### Vertical Solutions

|                                     |          |
|-------------------------------------|----------|
| 2x19, 2x31, 2x32, 2x35 power        | 10046971 |
| 2x8 power w/ mounting ears          | 10046972 |
| 2x19, 2x31 power w/ press-fit tails | 10075664 |

#### Straddle-Mount Solutions

|                  |          |
|------------------|----------|
| 2x19, 2x23 power | 10034908 |
|------------------|----------|

### APPLICATIONS

- AC/DC pluggable power supplies in data, telecom & datacom/networking
- Industrial PCs
- Industrial controls & instrumentation
- Medical

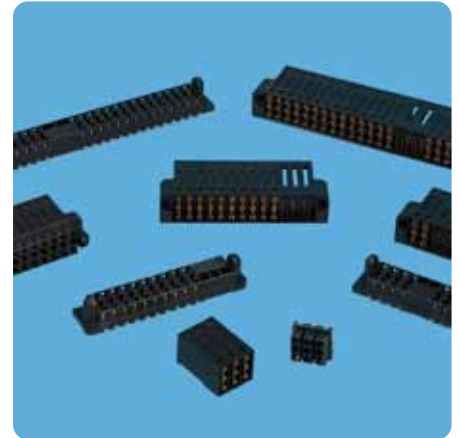




# AC/DC HIGH POWER DISTRIBUTION CONNECTOR SYSTEM

## FEATURES & BENEFITS

- Up to 135A/ power contact without exceeding a 30°C temperature rise in still air
- 95A/contact using UL test guidelines
- For high-wattage or high current density needs in power supplies & power distribution applications
- Provides power contacts for power distribution and signal contacts for power control
- Number and placement of power and signal contacts are highly configurable for custom power needs
- Power contact spacing options exist for AC (400V max) and DC (250V max) power
- Highly vented housing design maximizes airflow effects around and through the connector system
- Rugged, molded-in guides enable blind mating
- Connector housing does not overhang the board edge so the board-to-board spacing can be adjusted if needed
- Up to 3 levels of sequential contact including a short detect pin for hot swap applications
- Two and three position modules are available for use alongside the ZipLine®, AirMax VS® or Millipacs® Hard Metric-compatible connector series
- UL/CSA and TUV approved
- Board retention devices are provided to secure connectors during wave solder process
- AC cable port option (cable pass-through) as well as direct attach to busbars for power distribution are available
- Lead free plating is available for RoHS compliance



### MAIN PRODUCTS

### PART REFERENCES

|                                    |                |
|------------------------------------|----------------|
| 2DC+16S+4DC Right Angle Header     | 10074864-003LF |
| 2DC+16S+4DC Vertical Receptacle    | 10074866-001LF |
| 20S+8DC Right Angle Header         | 10078546-001LF |
| 20S+8DC Vertical Receptacle        | 10078548-001LF |
| 10DC+24S Right Angle Header        | 10065864-003LF |
| 10DC+24S Vertical Receptacle       | 10065127-001LF |
| 11DC+24S Right Angle Header        | 10082091-003LF |
| 11DC+24S Vertical Receptacle       | 10082093-001LF |
| 7DC+24S+4DC Right Angle Header     | 10082722-001LF |
| 7DC+24S+4DC Right Angle Receptacle | 10082724-001LF |
| 14DC+24S+14DC Right Angle Header   | 10084757-001LF |
| 14DC+24S+14DC Vertical Receptacle  | 10084759-001LF |

### APPLICATIONS

- AC/DC pluggable power supplies in data, telecom & datacom/networking
- Industrial PCs
- Industrial controls & instrumentation
- Medical

Custom configurations are readily available upon request. Please contact your local FCI representative.



Further information can be found at:  
[www.fciconnect.com/hci](http://www.fciconnect.com/hci)  
[www.fciconnect.com/powersolutions](http://www.fciconnect.com/powersolutions)

# HARD METRIC HIGH POWER CONNECTORS

## FEATURES & BENEFITS

- Current rating to 80 amps for 1x2 or 2x2 modules
- Hard Metric (HM) Equipment Practice
- Layout compatible with AirMax VS® and Millipacs® connector series
- 1x2, 2x2 or 2x3 contact configurations for backplane applications
- Standard-profile 1x2 and 2x2 right-angle modules extend 14.7 mm above the PCB
- Lower-profile 2x2 and 2x3 modules stand only 11.5 mm above board
- Options for first-mate/last-break sequencing, 2 mating lengths available
- Protected Backplane connector UL 60950 Compliant (Finger Probe)
- Options for 1x2 or 2x2 Co-planar applications
- Press-fit termination
- Compatible with lead-free processing temperatures

## APPLICATIONS

- Data**
- Servers
  - Storage Devices
  - Computing Platforms
- Communications**
- Switches
  - Routers
  - Internet Equipment
- Medical**
- Instrumentation**



## MAIN PRODUCTS

## PART REFERENCES

|                              | NUMBER OF CONTACTS | CONTACT ARRAY | HEIGHT ABOVE PCB | PART NUMBERS           |                    |
|------------------------------|--------------------|---------------|------------------|------------------------|--------------------|
|                              |                    |               |                  | Vertical Receptacle    | Right-Angle Header |
| <b>Backplane Application</b> | 2                  | 1x2           | 14.7 mm          | 10028916-xxxxP00LF**   | 10028918-001LF     |
|                              | 4                  | 2x2           | 14.7 mm          | 10028916-xxxxP00LF**   | 10028917-001LF     |
|                              | 4                  | 2x2*          | 11.5 mm          | 10028916-xxxxP00LF**   | 10073379-001LF     |
|                              | 6                  | 2x3*          | 11.5 mm          | 10061290-xxxxxPLF**    | 10061289-001LF     |
|                              |                    |               |                  | Right-Angle Receptacle | Right-Angle Header |
| <b>Co-planar Application</b> | 2                  | 1x2           | 14.7 mm          | 10052620-xxxxP00LF     | 10028918-001LF     |
|                              | 4                  | 2x2           | 14.7 mm          | 10052620-xxxxP00LF     | 10028917-001LF     |
|                              | 4                  | 2x2*          | 11.5 mm          | 10052620-xxxxP00LF     | 10073379-001LF     |

Notes: \* indicates the connector set matches the above-board height of an AirMax VS 3-pair signal connector.  
 \*\* xxx and xxxxx are placeholders for contact mating length combinations. Reference the product drawings for available options.





# METRAL® POWER CONNECTORS

## FEATURES & BENEFITS

- ▶ 3 Amps per individual power contact
- ▶ Designed in accordance with IEC 61076-4-104
- ▶ Modular design offers system design flexibility
- ▶ Stackable end-to-end with other Metral modules without loss of positions
- ▶ 12 mm wide power modules are form and fit interchangeable with signal modules on the same footprint
- ▶ "Eye-of-Needle" compliant section provides gas-tight, press-fit termination
- ▶ First-Make-Last-Break options that enable sequential mating are available in the vertical header
- ▶ RoHS-compliant options aid compliance with environmental regulations

## APPLICATIONS

- ▶ Communication
- ▶ Instrumentation
- ▶ Medical



### MAIN PRODUCTS

### PART REFERENCES

|                         |           | 4 Rows (8 contacts) | 5 Rows (10 contacts) |
|-------------------------|-----------|---------------------|----------------------|
| Header, vertical        | Press-fit | 70236               | 89099                |
| Header, right-angle     | Press-fit | HM1K41              | HMIK51               |
| Receptacle, right-angle | Press-fit | 88949               | 89096                |
| Receptacle, right-angle | Solder    | 89039               | 85876                |
| Receptacle, right-angle | Solder    | 93239               | 94561                |



# METRAL® HIGH POWER CONNECTORS

## FEATURES & BENEFITS

- ▶ Available in 1 x2 or 2x2 contact configurations
- ▶ Rated for up to 80 Amps current for a single module
- ▶ Voltage Rating: 150V
- ▶ Receptacle connectors can be provided with two contact lengths to enable first-mate/last-break sequencing
- ▶ Protected backpanel receptacle connector is UL 60950 (Finger Probe) compliant
- ▶ Layout compatible with Metral 2mm backpanel connector family
- ▶ Press-fit termination

## APPLICATIONS

- ▶ Data
  - Switches
  - Routers
  - Internet Equipment
- ▶ Communications
  - Servers
  - Storage Devices
  - Computing Platforms
- ▶ Medical
- ▶ Instrumentation



## MAIN PRODUCTS

## PART REFERENCES

|  |               |
|--|---------------|
| Vertical receptacle, 8.0mm mating length   | 10009536-001  |
| Vertical receptacle, 6.5mm mating length   | 10009536-002  |
| Vertical receptacle, "XXXX" designates FMLB (First Mate, Last Break) loading pattern options | 10025058-XXXX |
| Right-angle header, 2x2 Contacts   | 10009542-001  |
| Right-angle header, 1x2 Contacts   | 10009556-001  |



# HCI® HIGH POWER HIGH POWER BACKPLANE/MIDPLANE CONNECTOR SYSTEM

## FEATURES & BENEFITS

- ▶ Current rating to 113A/ contact without exceeding a 30°C temperature rise in still air
- ▶ Design is compliant with the Hard Metric (HM) Equipment Practice and compatible with the ZipLine™, AirMax VS® and Millipacs® connector series
- ▶ Connector housing does not overhang the board edge so the board-to-board spacing can be adjusted if needed
- ▶ Two- and three-position modules support backplane or midplane applications
- ▶ The two-position module with integrated center guide can eliminate the need for separate guidance
- ▶ Housing walls surround the power contacts to ensure that adjacent contacts cannot short together
- ▶ Two contact mating length options provide capability for sequentially mating power and ground contacts
- ▶ Protected backplane/midplane receptacle is UL 60950 compliant (Test Finger & Test Probe)
- ▶ Press-fit termination is available for thicker, higher-layer-count boards
- ▶ Compatible with lead-free processing temperatures



## MAIN PRODUCTS

## PART REFERENCES

|  |                |
|--|----------------|
| 1x2 Right Angle Header w/o Integrated Guide  | 10078770-001LF |
| 1x2 Vertical Receptacle w/o Integrated Guide | 10078768-001LF |
| 1x2 Right Angle Header w/ Integrated Guide   | 10087937-001LF |
| 1x2 Vertical Receptacle w/ Integrated Guide  | 10087939-001LF |
| 1x3 Right Angle Header                       | 10078904-001LF |
| 1x3 Vertical Receptacle                      | 10078902-001LF |

## APPLICATIONS

- ▶ Data - servers & storage enclosures
- ▶ Telecommunications
- ▶ Datacom/networking
- ▶ Industrial controls & instrumentation
- ▶ Medical

Note: For right angle headers with one first mate/last break contact, please use the -002LF dash number option per the applicable product drawing.



Further information can be found at:  
[www.fciconnect.com/hcihighpower](http://www.fciconnect.com/hcihighpower)  
[www.fciconnect.com/powersolutions](http://www.fciconnect.com/powersolutions)

**Power  
Solutions**™

# PWR PROFILE+™

## LOW PROFILE I/O CABLE ASSEMBLIES

### FEATURES & BENEFITS

- ▶ Current rating to 37A/contact for two contacts without exceeding a 30°C temperature rise in still air
- ▶ Compact design is ideal for limited space applications
- ▶ Low 8.38mm profile height maximizes airflow for system cooling
- ▶ Vented cable housing design maximizes heat dissipation
- ▶ Two signal contacts are available for presence detection or power control
- ▶ Integrated latching system minimizes connector/cable footprint
- ▶ Robust design includes touch-proof safety features that are IEC 60950 compliant
- ▶ Polarized housing design ensures proper mating
- ▶ Compatible with lead-free processing temperatures



### MAIN PRODUCTS

Right Angle Board Mount Header  
w/ Grounding Shield

Cable Receptacle Assembly 1P+2S+1P  
Receptacle-6mm<sup>2</sup> Wire, 1m Cable  
Length & Jumpered Signal Contacts

### PART REFERENCES

10089872-101LF

10105849-40100DYLF

### APPLICATIONS

- ▶ Power I/O & distribution in data, telecom & datacom/networking
- ▶ Uninterruptible power supplies (UPS)
- ▶ Battery & power strip monitoring
- ▶ Industrial controls & instrumentation
- ▶ Medical

Please contact your local FCI representative for applicable receptacle cable assembly part number information.



# PWRBLADE® CABLE ASSEMBLIES

## FEATURES & BENEFITS

- 48A/individual power contact; 30A/contact for 10 adjacent contacts at 30°C temperature rise in still air
- Right angle board connector enables front I/O applications
- Vertical board connector enables power distribution to mid-board components
- Panel-mount option or squeeze-to-release latches are available to accommodate various system configurations
- Supports multiple wire sizes including 8 - 14 AWG wire for power contacts and 22 - 26 AWG for signal contacts
- Power contact spacing options exist for AC (300V max) or DC (200V max) power
- Provides power contacts for power distribution and signal contacts for power control
- Number and placement of power and signal contacts are highly configurable for custom power needs
- Rugged, molded-in guides on panel-mount version enable blind mating
- Polarized housing design ensures proper mating
- Up to 3 levels of sequential contact including a short detect pin for hot swap applications
- Lead free plating is available for RoHS compliance



## APPLICATIONS

- Power I/O & distribution in data, telecom & datacom/networking
- Uninterruptible power supplies (UPS)
- Industrial controls & instrumentation
- Medical

| MAIN PRODUCTS  | PART REFERENCES    |
|--|--------------------|
| 2P Right Angle Board Mount Header  | 51939-198LF        |
| 2P Cable Receptacle w/ Squeeze-To-Release Latches (8 AWG wire; 1 m cable length) | 10080594-1AD0078LF |
| 24S+6P Right Angle Board Mount Header  | 51721-10002406AALF |
| 24S+6P Cable Receptacle For Panel-Mount (10 AWG wire; 1 m cable length)          | 10080591-HAB0023LF |

Additional custom cable assemblies are readily available upon request. Please contact your local FCI representative.



Further information can be found at:  
[www.fciconnect.com/cableassembly](http://www.fciconnect.com/cableassembly)  
[www.fciconnect.com/powersolutions](http://www.fciconnect.com/powersolutions)



# PWR TWINBLADE® I/O CABLE ASSEMBLIES

## FEATURES & BENEFITS

- Up to 100A/twin contact for two conductors at 30°C temperature rise in still air
- Right angle board connector enables front I/O applications
- Straight and right angle cable exit options facilitate routing flexibility
- Supports multiple wire sizes including 10 mm<sup>2</sup>, 16 mm<sup>2</sup> or 25 mm<sup>2</sup> wire as well as 2 x 6 mm<sup>2</sup> wires
- Rated up to 300V DC for higher voltage applications
- Robust connector design includes touch-proof safety features
- Integrated latching system minimizes connector/cable footprint
- Polarized housing design ensures proper mating
- Four coding options allow keying to block insertion of incorrect cables
- Lead free plating is available for RoHS compliance



### MAIN PRODUCTS

### PART REFERENCES

|   |                    |
|---|--------------------|
| Right Angle Board Mount Header  | 51939-219LF        |
| Right Angle Exit Cable Receptacle Assembly<br>(10 mm <sup>2</sup> wire; 1 m cable length) | 10080068-4FEL100LF |
| Right Angle Exit Cable Receptacle Assembly<br>(16 mm <sup>2</sup> wire; 1 m cable length) | 10080068-4GEL100LF |
| Right Angle Exit Cable Receptacle Assembly<br>(25 mm <sup>2</sup> wire; 1 m cable length) | 10080068-4HEL100LF |
| Straight Exit Cable Receptacle Assembly<br>(16 mm <sup>2</sup> wire; 1 m cable length)    | 10080068-2GEL100LF |

## APPLICATIONS

- Power I/O & distribution in data, telecom & datacom/networking
- Uninterruptible power supplies (UPS)
- Industrial controls & instrumentation

Additional custom cable assemblies are available upon request. Please contact your local FCI representative.



# POWER DISTRIBUTION SOLUTIONS

Integrated systems including bus bars, connectors, cables, PCBs, and other components

## FEATURES & BENEFITS

- ▶ Broad range of power connector solutions includes high current density and low contact resistance products, touch-proof designs, low-profile solutions and options with integrated signal contacts for power control
- ▶ Customized designs integrate connectors and other components such as PCBs, breakers, switches, capacitors and cables
- ▶ Low inductance, distributed capacitance and low resistance minimize impedance, voltage drop and noise
- ▶ Integration of a bus bar can replace thick copper traces and reduce board layers
- ▶ Improved thermal characteristics compared to cables
- ▶ More efficient utilization of cabinet space and less complexity compared to wire harnesses
- ▶ Simplified designs can reduce component count and cost fast, error-free and cost-effective installation and lower field service costs
- ▶ Improved quality results from predictable and repeatable electrical performance
- ▶ Design capability includes analysis of current flow, thermal characteristics, voltage drop and inductance to ensure maximum efficiency



## APPLICATIONS

Communications

- ▶ Wireless base stations
- ▶ Switches
- ▶ Routers

Data

- ▶ Servers
- ▶ Supercomputers
- ▶ Storage Systems

Industrial

- ▶ Power supplies
- ▶ Medical scanners
- ▶ Electrical cabinets (switchgear)



Further information can be found at:  
[www.fciconnect.com/powersolutions](http://www.fciconnect.com/powersolutions)  
[www.fciconnect.com/powerdistribution](http://www.fciconnect.com/powerdistribution)

## POWER DISTRIBUTION SOLUTIONS

Integrated systems including bus bars, connectors, cables, PCBs, and other components

### COST EFFECTIVE

- Fewer conductors can feed a common voltage to multiple outputs optimizing use of available cabinet space
- Can replace thick copper traces and can reduce backplane or board layers
- Reduction in overall component count and cost
- Enables quick and easy installation into a cabinet
- Eliminates complicated wiring and can eliminate wiring installation errors
- Enables quick and easy system maintenance and field service

### ELECTRICAL PROPERTIES

- High current density - 5A / mm<sup>2</sup> - well suited for fuse racks, power distribution assemblies (PDAs) or power distribution units (PDUs)
- Clean power distribution enabled by high capacitance and low inductance
- High voltage distribution - up to 4 kV - with low resistance and low voltage drop
- Multiple voltages accommodated by laminated designs
- Wide range of standard insulating films and coatings are available
- Predictable, repeatable performance

### THERMAL MANAGEMENT ADVANTAGES

- Wide thin copper sheet dissipates heat more efficiently than round cable
- Lower profile increases airflow compared to power harnesses and cables
- Greater power density can often be achieved with less temperature rise compared to cable

### APPLICATIONS



- Server application uses PwrBlade® connectors as the interface to pluggable AC/DC power supplies and a bus bar to distribute power within the rack unit

- Power distribution unit for a wireless base station distributes power to a bank of circuit breakers

- Server application includes PwrBlade® connectors as the interface to AC/DC power supplies, power management components, and a bus bar for power distribution

### MECHANICAL PROPERTIES

- Capability for customized profiles and shapes for efficient use of cabinet space and PCB surface
- Can be formed to fit in small areas or in corners where bend radius complicates use of cables
- Requires less space than a wire harness
- Integrates functional components related to power distribution such as breakers, switches, capacitors, connectors, PCBs and cables
- Wide variety of available connection methods, including power interconnect solutions with increased current density and lower contact resistance, touch-proof designs, low-profile solutions, and connector systems offering capability to integrate signal contacts for power control or sensing
  - Commonly-used power supply interconnects, such as PwrBlade®, HCl®, or HPCETv power card edge connectors
  - Soldered or ultrasonically welded cables with lugs or power I/O connectors, such as Pwr Twin Blade™, PwrBlade®, and Pwr Profile+™ cable connectors
  - Clinch studs/nuts, blades, holes/bolts, other terminals
  - Transfer PCBs
- Provides stable structure for additional components
- Neat, attractive appearance



# SOFIX® POWER CABLE ASSEMBLIES

## Part of the Metral® Backplane Connector Family

### FEATURES & BENEFITS

- ▶ Unique EMC properties
- ▶ 10 Amps per power contact
- ▶ According to IEC 60950 and UL 1950
- ▶ Hot pluggable
- ▶ Robust design
- ▶ 15mm slot pitch
- ▶ RoHS-compliant design



### MAIN PRODUCTS

### PART REFERENCES

|                                       |             |
|---------------------------------------|-------------|
| Header Right Angle with 15 Amp filter | 72846-204LF |
| Cable connector kit                   | 72846-201LF |

### APPLICATIONS

- ▶ Communication
- ▶ Instrumentation
- ▶ Medical
- ▶ Hazardous environments

Contact your local FCI sales representative for cable assemblies.



Further information can be found at:  
[www.fciconnect.com/powersolutions](http://www.fciconnect.com/powersolutions)



# TERMINAL BLOCKS

*New  
product*

## FEATURES & BENEFITS

- ▶ Robust and solid design
- ▶ Modular system, 2 up to 24 positions
- ▶ End-to-end stackable & screw-lock flange option
- ▶ Pitch-sizes:  
3.50/3.81/5.00/5.08/6.35/7.62/9.52/10.16mm
- ▶ High performance rising-cage-clamp-contact system and spring-contact system
- ▶ Signal and power  
(current rating: 8A up to 55A)
- ▶ Standard green color  
(optional: black, blue & grey)
- ▶ Text/number printing option  
(on request)
- ▶ RoHS compatible
- ▶ Durability: 200 cycles
- ▶ Flammability UL94V-0
- ▶   recognized and IEC /  /  approved



### MAIN PRODUCTS

### PART REFERENCES

|                  |                                    |                       |
|------------------|------------------------------------|-----------------------|
| Pluggable        | Pitch 3.50 / 3.81 / 5.00 / 5.08 MM |                       |
|                  | Key on entry side                  | 20020 008             |
|                  | Key on back side                   | 20020 010             |
|                  | Contact up side                    | 20020 004 / 20020 006 |
|                  | Front screw                        | 20020 013             |
|                  | Straight                           | 20020 107             |
|                  | Right angle                        | 20020 110             |
| Pluggable Power  | Pitch 7.62 / 10.16 MM              |                       |
|                  | Contact down side                  | 20020 516 / 20020 520 |
|                  | Right angle                        | 20020 618 / 20020 624 |
| Pluggable Spring | Pitch 3.50 / 3.81 / 5.00 / 5.08 MM |                       |
|                  | Spring contact, down side          | 20020 038 / 20020 039 |
|                  | Spring contact, down side flange   | 20020 036 / 20020 035 |
| Fixed            | Pitch 3.50 / 3.81 / 5.00 / 5.08 MM | 20020 327 / 20020 316 |
|                  | Horizontal wire inlet              | 20020 325 / 20020 328 |
|                  | 2 level horizontal wire inlet      | 20020 326 / 20020 329 |
|                  | Vertical wire inlet                | 20020 300 / 20020 315 |
| Fixed Power      | Pitch 6.35 / 7.62 / 9.52 MM        |                       |
|                  | Horizontal wire inlet              | 20020 705             |
| Fixed Spring     | Pitch 3.81 / 5.00 / 5.08 MM        |                       |
|                  | Spring vertical wire inlet         | 20020 302             |
|                  | Spring horizontal wire inlet       | 20020 303             |

### APPLICATIONS

- ▶ Embedded control units
- ▶ Measurement equipment
- ▶ Medical instrumentation
- ▶ Power supplies
- ▶ Security
- ▶ HVAC
- ▶ Lighting
- ▶ Communication








# MEG-ARRAY®

## HIGH SPEED, HIGH DENSITY MEZZANINE CONNECTORS

### FEATURES & BENEFITS

- Flexible ground distribution sustains high speed signal integrity up to 28 Gb/s
- 1.27mm x 1.27mm array saves space and optimizes trace routing
- Proven BGA termination supports standard, low cost SMT assembly
- Wide range of sizes and stack heights
- Online signal integrity reports and S-parameter models support high speed designs and performance
- Natural physics of BGA provides precise self-alignment on X, Y and Z axes during PCB assembly
- Time tested reliability record; 17 Billion+ lines shipped to customer satisfaction
- Protective precious metal plating; Includes Telcordia® options per GR-1217-CORE and NPS-25298-2
- Certified 22+ year solder joint reliability
- Polarized design assures proper connector mating
- 6 PCB Stack Heights: 4mm low profile to 14mm
- 7 Connector sizes: 81 to 528 positions



### APPLICATIONS

#### Communications

- Transmission
- Access
- Switching
- Optics
- Networking

#### Data

- Servers
- Storage

#### I&I

- Industrial controls & equipment
- Analytical & diagnostic
- Medical

\*Telcordia® is a registered trademark of Telcordia®.

Further information can be found at:  
[www.fciconnect.com/megarray](http://www.fciconnect.com/megarray)  
[www.fciconnect.com/mezzselect](http://www.fciconnect.com/mezzselect)  
[www.fciconnect.com/highspeed](http://www.fciconnect.com/highspeed)

**MEZZ**Select™



MAIN PRODUCTS

PART REFERENCES

| Size                    | Type       | Total Mated Height |                         |        |         |                          |         |
|-------------------------|------------|--------------------|-------------------------|--------|---------|--------------------------|---------|
|                         |            | 4.0 mm             | 6.0 mm                  | 8.0 mm | 10.0 mm | 12.0 mm                  | 14.0 mm |
| 81 Position<br>9 x 9    | Plug       | 55714              |                         |        |         |                          |         |
|                         | Receptacle | 55715              |                         |        |         |                          |         |
| 100 Position<br>10 x 10 | Plug       | 84512              |                         |        |         |                          |         |
|                         | Receptacle | 84513              |                         |        |         |                          |         |
| 200 Position<br>10 x 20 | Plug       | 84516              | 84516                   | 84516  | 84530   | 84530                    | 84530   |
|                         | Receptacle | 84517              | 55724                   | 84535  | 84517   | 55724                    | 84535   |
| 240 Position<br>8 x 30  | Plug       | 74213              | 74213                   |        |         |                          |         |
|                         | Receptacle | 74217              | 55755                   |        |         |                          |         |
| 300 Position<br>10 x 30 | Plug       | 84500              | 84500                   | 84500  | 84578   | 84578                    | 84578   |
|                         | Receptacle | 84501              | 84502 for<br>5.5 mm BTB | 84553  | 84501   | 84502 for<br>11.5 mm BTB | 84553   |
| 400 Position<br>10 x 40 | Plug       | 84740              | 84740                   | 84740  | 84520   | 84520                    | 84520   |
|                         | Receptacle | 74221              | 74388                   | 74390  | 74221   | 74388                    | 74390   |
| 528 Position<br>12 x 44 | Plug       |                    | 10022671                |        |         |                          |         |
|                         | Receptacle |                    | 10026846                |        |         |                          |         |



**MEZZ**Select™

Further information can be found at:

[www.fciconnect.com/megarray](http://www.fciconnect.com/megarray)  
[www.fciconnect.com/mezzselect](http://www.fciconnect.com/mezzselect)  
[www.fciconnect.com/highspeed](http://www.fciconnect.com/highspeed)



# GIG-ARRAY®

## HIGH SPEED MEZZANINE CONNECTORS

### FEATURES & BENEFITS

- RoHS compliant (Lead-Free) options are available
- Optimized design for utilization in high-density, high-speed mezzanine applications
- Ball Grid Array (BGA) termination for process friendly attachment
- 1 mm x 0.65 mm BGA interface pitch optimizes routing and electrical performance
- Stack Heights available from 15 mm to 40 mm provide mezzanine design flexibility
- Connector sizes of 200 and 296 signals providing 62 signal contacts per linear cm (158 signal contacts per linear inch) allow for optimization of board space and signal requirements
- 100 Ohm differential pair matched impedance assures consistent high speed performance
- Up to 10 Gb/s differential pair performance

- Very low cross-talk (VLC) design of less than 1% allows for required signal integrity performance
- Dual beam signal contacts provide two points of contact increasing product reliability
- Polarized design assures proper mating of the connector

### APPLICATIONS

#### Communications

- Transmission
- Access
- Switching
- Optics
- Networking

#### Data

- Servers
- Storage

#### I&I

- Industrial controls & equipment



**MEZ Select™**

### MAIN PRODUCTS

### PART REFERENCES

| 200 Positions*      |                   | Plug Height** |          |          |       |       |          |
|---------------------|-------------------|---------------|----------|----------|-------|-------|----------|
|                     |                   | 10 mm         | 12 mm    | 13 mm    | 15 mm | 20 mm | 25 mm    |
| Receptacle Height** |                   | 55737         | 10026802 | 10060910 | 55738 | 55739 | 10054783 |
| Receptacle Height** | 5 mm<br>55740     | 15 mm         | 17 mm    | 18 mm    | 20 mm | 25 mm | 30 mm    |
|                     | 11 mm<br>10081497 | 21 mm         | 23 mm    | 24 mm    | 26 mm | 31 mm | 36 mm    |
|                     | 15 mm<br>10060912 | 25 mm         | 27 mm    | 28 mm    | 30 mm | 35 mm | 40 mm    |

| 296 Positions*      |                   | Plug Height** |          |          |       |       |          |
|---------------------|-------------------|---------------|----------|----------|-------|-------|----------|
|                     |                   | 10 mm         | 12 mm    | 13 mm    | 15 mm | 20 mm | 25 mm    |
| Receptacle Height** |                   | 55720         | 10026804 | 10060911 | 55700 | 55727 | 10054784 |
| Receptacle Height** | 5 mm<br>55701     | 15 mm         | 17 mm    | 18 mm    | 20 mm | 25 mm | 30 mm    |
|                     | 11 mm<br>10081496 | 21 mm         | 23 mm    | 24 mm    | 26 mm | 31 mm | 36 mm    |
|                     | 15 mm<br>10060913 | 25 mm         | 27 mm    | 28 mm    | 30 mm | 35 mm | 40 mm    |

\*Signal contacts only, ground contacts not included

\*\*Base part number listed under connector height

Further information can be found at:

[www.fciconnect.com/gigarray](http://www.fciconnect.com/gigarray)  
[www.fciconnect.com/mezzselect](http://www.fciconnect.com/mezzselect)  
[www.fciconnect.com/highspeed](http://www.fciconnect.com/highspeed)

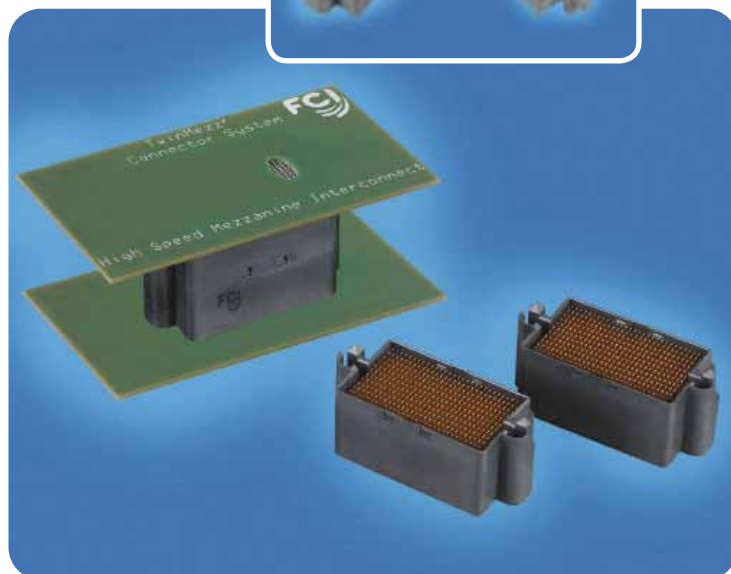
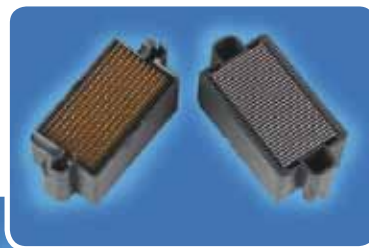


# TWINMEZZ® CONNECTOR SYSTEM

## FEATURES & BENEFITS

- 1.0 x 1.3 mm contact grid provides high signal density: 25 pairs/cm<sup>2</sup> (161 pairs/in<sup>2</sup>)
- 6 differential signal pairs per column
- Shield-less design provides the lowest possible loss
- Open pin field design with no designated grounds allows for differential, single-ended or power pin assignments in a connector
- Capability to address a range of applications
  - 200 to 800 contacts/connector
  - Stack heights from 12 mm to 38 mm
- 2.0 mm (nominal) wipe length and redundant split-beam contacts enhance reliability
- Integrated guidance compensates for ± 2.0 mm misalignment in all directions
- Optional power contacts
- Proven FCI Ball Grid Array (BGA) technology enables reliable, SMT-compatible attachment
- RoHS compliant (lead-free) options

*New product*

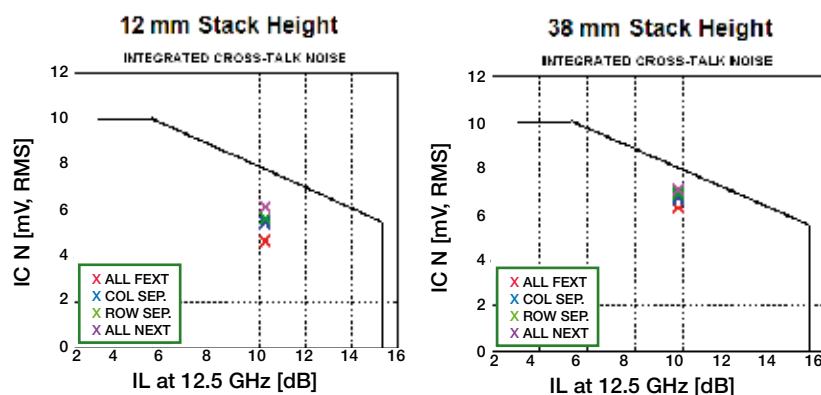


## APPLICATIONS

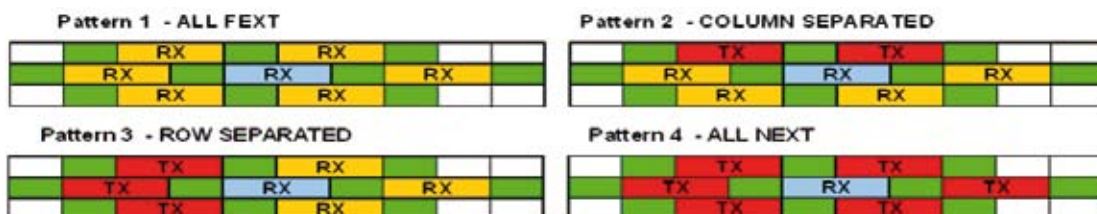
- Communications
  - Transmission
  - Access
  - Switching
  - Optics
  - Networking
- Data
  - Servers
  - Storage
- I & I
  - Industrial controls & equipment
  - Analytical & diagnostic

**MEZZ Select™**

25 Gb/s Integrated Cross-Talk Noise Charts



ICN (Integrated Cross-Talk Noise) is shown for links simulated with 150 mm of traces -> Footprint -> TwinMezz 12 / 38mm connector -> Footprint -> 150 mm of traces. (wiring patterns below)



Further information can be found at:  
[www.fciconnect.com/twinmezz](http://www.fciconnect.com/twinmezz)  
[www.fciconnect.com/mezzselect](http://www.fciconnect.com/mezzselect)







# BERGSTAK® 0.8 MM FINE PITCH, MEZZANINE CONNECTORS

## FEATURES & BENEFITS

- ▶ Vast range of heights and sizes
  - 5 mm to 16 mm stack heights
  - 40 to 200 positions
- ▶ Precision mini-contact design assures easy mating, long term performance and reliability
- ▶ Blade-on-beam contacts prevent “stubbing” and allow “peeling”
- ▶ Surface mount product design, mounting and packaging support automated assembly
- ▶ Generous lead-in angles and mate polarization provide worry free mating
- ▶ Validated inter-mating with similar competitive connectors
- ▶ Early receptacle contact point increases mating wipe and allows early engagement/late disengagement
- ▶ Tapered PCB locator pegs increase the ease and accuracy of hand assembly
- ▶ Up to 5 Gb/s high speed performance



### MAIN PRODUCTS

**BergStak® system**

|            |       |
|------------|-------|
| Receptacle | 61082 |
| Plug       | 61083 |

### PART REFERENCES

## APPLICATIONS

- ▶ Routers
- ▶ Servers
- ▶ Telecom/Datacom equipment
- ▶ Office equipment
- ▶ IP phones
- ▶ Test and measurement
- ▶ Point-of-sale terminals
- ▶ Portable industrial terminals

**MEZZ Select™**



Further information can be found at:  
[www.fciconnect.com/bergstak](http://www.fciconnect.com/bergstak)  
[www.fciconnect.com/mezzselect](http://www.fciconnect.com/mezzselect)

# CONAN® 1.0 MM FINE PITCH, MEZZANINE CONNECTORS

## FEATURES & BENEFITS

- Blade-on-beam contacts prevent “stubbing” and allow “peeling”
- High un-mating force is ideal for portable and mobile electronics
- Snap engagement contacts signal reliable mating with an audible “click”
- Surface mount product design, mounting and packaging support automated assembly
- Generous lead-in angles and mate polarization provide worry free mating
- Focused range of heights and sizes
  - 5 stack heights between 4.15 mm and 7 mm
  - 9 sizes between 9 and 69 positions



- Up to 6 Gb/s high speed performance
- Environmental plating options satisfy customer cost interests

## APPLICATIONS

- Mobile, personal and high end computing
- Servers and routers
- Office equipment
- Measuring equipment, Industrial control
- POS, Retail equipment and Motor Vehicle
- Metering and Energy
- Wireless M2M

### Conan® system

#### MAIN PRODUCTS

#### PART REFERENCES

|            |                          |
|------------|--------------------------|
| Receptacle | 91921 / 91931 / 10118744 |
| Plug       | 91901 / 91911 / 10118744 |

**MEZZ**Select™



# RIB-CAGE™ 1.27 MM MEZZANINE CONNECTORS

## FEATURES & BENEFITS

- Exclusive Rib-Cage™ multi-point receptacle contacts provide optimal reliability in high vibration and shock-prone applications
- High density 1.27 mm (.050 in.) x 1.27 mm (.050 in.) system for connecting PCBs
- Multiple stack height options
- Polarization option prevents mis-mating
- Surface mount and through-hole attachment options
- Versatile range of heights
  - 3 stack heights between 6.4 mm and 9.9 mm
  - 10 sizes between 10 and 100 positions
- Competitive commercial pricing  
Up to 5 Gb/s high speed performance



### MAIN PRODUCTS

#### Headers

Vertical Surface Mount

### PART REFERENCES

87409 / 90098 / 87849 /  
93221 / 73546 / 73547

Right Angle Through Hole

87402

#### Receptacles

Vertical, Surface Mount

87021 / 87022 / 87023 /  
87024

## APPLICATIONS

- Handheld test and diagnostic equipment
- Outdoor test and measurement devices
- Military communication equipment
- Security systems and access control
- Point-of-sale terminals
- Electronic sub-assemblies used in conjunction with fans, motors and mechanical devices
- Metering and Energy
- Wireless M2M

**MEZZ**Select™



Further information can be found at:  
[www.fciconnect.com/ribcage](http://www.fciconnect.com/ribcage)  
[www.fciconnect.com/mezzselect](http://www.fciconnect.com/mezzselect)

# MEZZOSTAK<sup>®</sup> 0.5 MM HERMAPHRODITIC FINE PITCH, MEZZANINE CONNECTORS

*New  
product*

## FEATURES & BENEFITS

- Hermaphroditic design "mates to itself"
  - Consolidates connector selection and documentation
  - Reduces Component Engineering costs
- Easy, Reliable Mating
  - Guidance "scoops" permit easy mating when mis-aligned
  - Polarization prevents mis-mating
  - Dual-point, long wipe contacts
- High un-mating force insures connection security
- Extreme operating temperature range assures reliable performance between -40 and 125 degrees C
- Precise 0.08 mm maximum SMT lead co-planarity eases attachment of connector leads to PCBs
- Footprint compatible with major competitors
- High Speeds, including PCIe@G2, supported by signal integrity reports and S-parameter models
- 0.5 mm high density contact pitch in two rows
  - 7 Stack heights: 4 mm to 7 mm (0.5 mm increments)
  - 6 Sizes: 20 to 90 positions (10 position increments)



## MAIN PRODUCTS

## PART REFERENCES

|                |                 |          |
|----------------|-----------------|----------|
| Hermaphroditic | Standard length | 10106813 |
| Connectors     | Short length    | 10106814 |

## APPLICATIONS

- Portable and mobile electronic equipment
- Medical and Instrumentation
- Point-of-Sale/Retail equipment
- Hand-held terminals
- Automatic Identification and Data Capture (AIDC)
- Sensors
- Motor-vehicle
- Military
- Communications and Networking
- Data and mass-storage
- Metering and Energy

**MEZZ** Select™





# 1.27MM SPACING BOARD-TO-BOARD CONNECTOR

## PHEC SERIES

### FEATURES & BENEFITS

- ▶ 1.27mm spacing board to board products
- ▶ PHEC has abundant pin and mating variation
- ▶ Allowed miss-alignment is 1.3mm maximum by mating guide
- ▶ It is possible to put Multi pieces connector on the same board
- ▶ Robustness housing design. No damage of housing and contact when slant mated condition
- ▶ To prevent flux moving up



### APPLICATIONS

- ▶ Industrial controls & instrumentation
- ▶ Medical
- ▶ Office equipment
- ▶ Test & Measurement
- ▶ Audio equipment
- ▶ Professional camera

#### MAIN PRODUCTS

#### PART REFERENCES

|  |                             |                  |
|--|-----------------------------|------------------|
| PLUGS  | S: Straight /R: Right angle | PHECxxP-S/R111LF |
| Number of contacts: 30,34,40,50,60,68,80,100,120 |                             |                  |
| RECEPTACLES                                      | S: Straight /R: Right angle | PHECxxR-R111LF   |
| Number of contacts: 30,34,40,50,60,68,80,100,120 |                             |                  |

**MEZ Select™**



Further information can be found at:  
[www.fciconnect.com/boardmate](http://www.fciconnect.com/boardmate)

# FLOATING BOARD-TO-BOARD BTFW SERIES

## FEATURES & BENEFITS

- 1 mm (0.039 in.) staggered contact design saves valuable board space
- Wide floating allowance absorbs mating shift between plug and receptacle, permitting self alignment of the mating connectors; and provides highly reliable mechanical performance
- Rigid entry guide design withstands rough handling such as angled insertion, preventing contact deformation; and provides vibration shock absorption
- Wide guide distance for mating assures easy handling and correct mating of the plug and receptacle, and allows blind mating
- Mounting plates on both sides of the plug and receptacle assure PCB retention
- Flat top surfaces of SMT housings allow pickup with vacuum nozzle and eliminate the need for pickup covers that must be removed after soldering



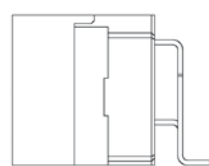
## MAIN PRODUCTS

## PART NUMBERS



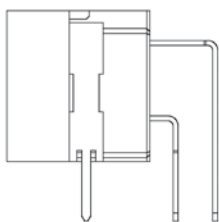
### Plug: BTFW\_\_P-3SSTAE4LF

10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30 contacts  
Vertical (Straight)  
Surface mount (SMT)  
Gold or Tin plating (Contact area)  
Tape & Reel packaging (Card Board or Plastic)  
Lead Free / RoHS compliant



### Receptacle: BTFW\_\_R-3RSTAE4LF

10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30 contacts  
Right Angle  
Surface mount (SMT)  
Gold or Tin plating (Contact area)  
Tape & Reel packaging (Card Board or Plastic)  
Lead Free / RoHS compliant



### Receptacle: BTFW\_\_R-3RDA7MLF

10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30 contacts  
Right Angle  
Dip  
Gold or Tin plating (Contact area)  
Tray packaging  
Lead Free / RoHS compliant

## APPLICATIONS

### Consumer

- Car Multimedia Device
- LCD displayer & TV
- Set top boxes
- DVD players/recorders
- D-VHS players

### Data

- Entertainment PC

### Other

- POS terminals
- Barcode scanners
- Other handheld equipment

# FFC - FPC CONNECTORS

## FEATURES & BENEFITS

- Suitable for FFC / FPC / CIC cable
- 0.20 - 0.30 - 0.40 - 0.50 - 1.00 - 1.25 - 2.54 mm pitch sizes
- Highly reliable Gas Tight High pressure (GTH) contact system
- Zero Insertion Force (ZIF) and Low Insertion Force (LIF) options
- Straight and Right-Angle versions
- Surface Mount and Through Hole



## APPLICATIONS

- LC Display to Board connections
- Interior Automotive electronics
- Membrane Switches
- DVD / HDD connection
- Mobile phone and Digital camera



FFC - FPC CONNECTORS

| PITCH  | FAMILY NAME | HEIGHT (MM)  | CONTACT LOCATION | ZIF / NON-ZIF(*) | PART REFERENCE                          |
|--------|-------------|--|------------------|------------------|---|
| 0.2mm  | XL-D        | 0,9  | Bottom           | ZIF (FF)         | 10108361                                |
| 0.3mm  | YLL-D       | 0,9  | Bottom           | ZIF (FF)         | 10061122                                |
|        | YLL-U       | 0,9  | Top              | Non-ZIF (FF)     | 10064555                                |
| 0.4mm  | SFGL        | 0,9  | Bottom           | ZIF (BF)         | 10117184                                |
| 0.5mm  | VLP         | 0,7  | Bottom           | ZIF (BF)         | 10062827                                |
|        | SFVL-D      | 0,9  | Bottom           | ZIF (BF)         | 59453                                   |
|        | SFVL-U      | 0,9  | Top              | ZIF (BF)         | 59453                                   |
|        | SFVE        | 1,2  | Top              | ZIF (FF)         | 10054365                                |
|        | VLL         | 1,2  | Bottom           | ZIF (BF)         | 10051922                                |
|        | VLH         | 1,3  | Bottom           | ZIF (BF)         | 10042867                                |
|        | VLK         | 1,3  | Bottom           | ZIF (FF)         | 10076529                                |
|        | SFV-R       | 1,8  | Top, Bottom      | ZIF (SL)         | SFVxxR                                  |
|        | OPU-D       | 2,0  | Bottom           | ZIF (SL)         | 62684                                   |
|        | OPU-U       | 2,0  | Top              | ZIF (SL)         | 62684                                   |
|        | VHC         | 2,0  | Bottom           | ZIF (FF)         | 10085901                                |
|        | SFV-S       | 4,1  | N/A              | ZIF (SL)         | 62674                                   |
|        | 1.0mm       | HFW-R  | 1,9              | Top, Bottom      | Non-ZIF                                 |
| HFW-S  |             | 5,3  | N/A              | Non-ZIF          | HFWxxS                                  |
| HLW-R  |             | 3,9  | Top              | Non-ZIF          | HLWxxR                                  |
| HLW-S  |             | 5,9  | N/A              | Non-ZIF          | HLWxxS                                  |
| SFW-R  |             | 2,7  | Top, Bottom      | ZIF (SL)         | SFWxxR                                  |
| SFW-S  |             | 5,3  | N/A              | ZIF (SL)         | SFWxxS                                  |
| SLW-R  |             | 4,0  | Bottom           | ZIF (SL)         | SLWxxR                                  |
| SLW-S  |             | 5,5  | N/A              | ZIF (SL)         | SLWxxS                                  |
| 1.25mm | HLEM-S      | 8,0  | N/A              | Non-ZIF          | HLEMxxS                                 |
|        | HLEM-R      | 5,0  | Top              | Non-ZIF          | HLEMxxR                                 |
| 2.54mm | Duflex      | Contact and Housings                                     |                  |                  | 76785/67013/66987                       |
|        | Clincher    | pre-assembled snap-shut system<br>(mates to PCB Headers) |                  |                  | 65801/67516/66226/<br>10027313/10022753 |
|        |             | Shrouded PCB headers for 2.54mm Clincher                 |                  |                  | 95735/95736                             |

(\*) ZIF (SL): Slider action  
ZIF/Non-ZIF (FF): Front side flip  
ZIF/Non-ZIF (BF): Back side flip



# WIRE-TO-BOARD

## 1.25 MM

*New  
product*

### FEATURES & BENEFITS

- ▶ Operating temperature: -40°C to +105°C
- ▶ Plating options: gold flash or tin
- ▶ Circuits: #2~#15 positions available, extension up to 20 positions
- ▶ Current rating: 1 Amp
- ▶ Polarized Mating Geometry: crimping housing is polarized to prevent mis-mating with PCB header
- ▶ Friction lock: crimping housing is equipped with friction locks to secure retention force with PCB header
- ▶ Housing meets EU Industry Safety Standard
- ▶ RoHS compliance and UL approved
- ▶ Tape and reel packaging befits pick and place of SMT production process.



### MAIN PRODUCTS

### PART REFERENCES

|         |                             |          |
|---------|-----------------------------|----------|
| Headers | Vertical , Through-mount    | 10114829 |
|         | Right angle , Through-mount | 10114831 |
|         | Vertical , SMT              | 10114828 |
|         | Right angle , SMT           | 10114830 |
| Housing |                             | 10114826 |
| Contact |                             | 10114827 |

### APPLICATIONS

- ▶ Office equipment
- ▶ Industry control
- ▶ Instrumentation/metering
- ▶ Vending POS machine
- ▶ Small motor/robot control
- ▶ Security
- ▶ Car audio and alarm system



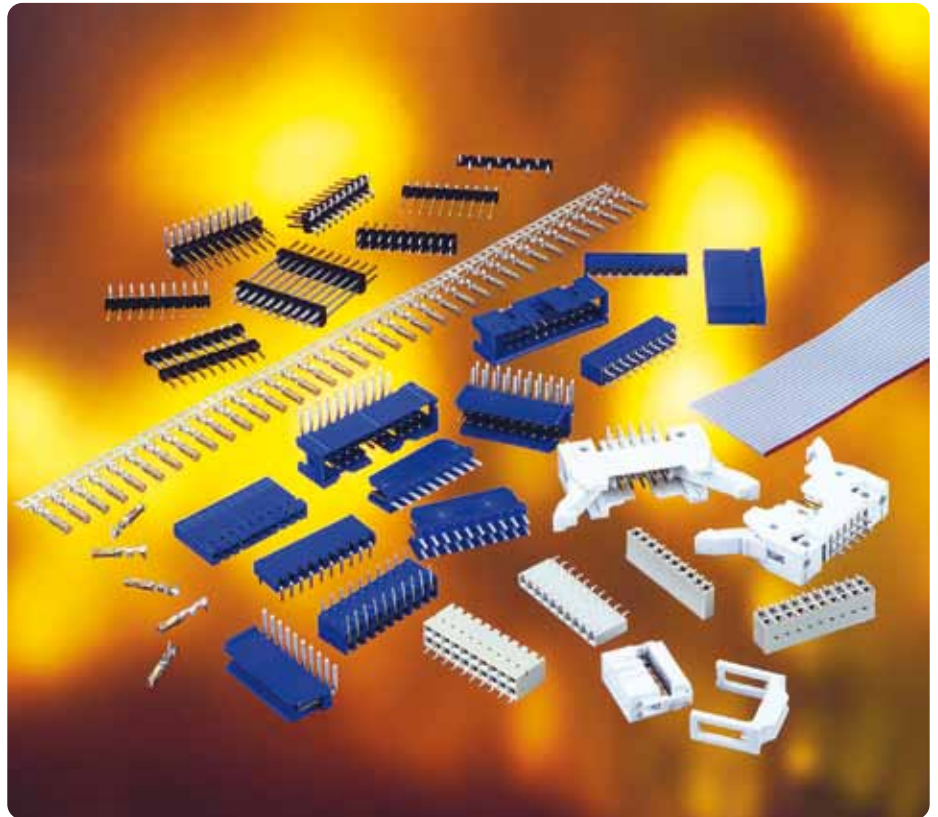
Further information can be found at:  
[www.fciconnect.com/basics](http://www.fciconnect.com/basics)



# BERGSTIK® / DUBOX™ / QUICKIE® / PV® 2.54 MM MODULAR SYSTEM

## FEATURES & BENEFITS

- Versatile 2.54 mm modular system includes board-to-board, wire-to-board and flat cable interconnects, offering complete design flexibility
- Range: 1x2 to 2x36 positions
- Selective plating is reliable and economical
- Easy part number selection at [www.fciconnect.com/basics](http://www.fciconnect.com/basics)
- Bergstik unshrouded headers available in custom configurations



## APPLICATIONS

- Electronic equipment or devices requiring a parallel, planar or perpendicular board-to-board, wire-to-board or flat cable interconnects
- Uses span industry segments (e.g. base stations, measuring equipment, industrial control)



BergStik®



Dubox™

## MAIN PRODUCTS

## PART REFERENCES

|                                       |                     |   |
|---------------------------------------|---------------------|---|
| <b>BergStik® Unshrouded Headers</b>   | Straight            | 77311 / 77313 / 95293 / 95278 / 98401 / 67997 / 68000 / 68001 / 68002 / 67996 / 68602                 |
|                                       | Right-Angle         | 77315 / 77317 / 68015 / 68020 / 68016 / 68021   |
|                                       | Stacking            | 54111 / 54121 / 54112 / 54122 / 54242   |
| <b>Dubox™ Shrouded Headers</b>        | Straight            | 76384 / 76385   |
|                                       | Right-Angle         | 76382 / 76383   |
| <b>PV® Shrouded Headers</b>           | Straight            | 69167 / 69168   |
|                                       | Right-Angle         | 78208 / 78207   |
| <b>Dubox™ PCB-Mounted Receptacles</b> | Vertical            | 91601 / 89898 / 91614 / 91615 / 91618 / 71991 / 87606 / 76341 / 76342 / 71991 / 75915 / 71920 / 89891 |
|                                       | Horizontal          | 71607 / 71609 / 89882 / 89883   |
| <b>Crimp-to-Wire Receptacles</b>      | Dubox™ contacts     | 76347 / 76357   |
|                                       | Dubox™ housings     | 65239 / 65240   |
|                                       | PV® contacts        | Master print 47212 / 75543  |
|                                       | PV® housings        | 65039 / 65043 / 65846 / 78211   |
| <b>Quickie® IDC System</b>            | IDC receptacles     | 71600 / 69830   |
|                                       | Eject latch headers | 71918 / 71922   |
|                                       | Low profile headers | 75867 / 75869 / 10056844 / 10056845 / 72454   |
| <b>Shunts</b>                         |                     | 68786 / 69145 / 63429   |

# MINITEK™

## 1.27 MM MODULAR SYSTEM

*New  
product*

### FEATURES & BENEFITS

- ▲ Fully configured modular system increases mechanical design flexibility
- ▲ Competitive compatibility provides dual-sourcing and reduces customer rise
- ▲ Simple part selection reduces design time
- ▲ Global distribution inventory assures product availability



### MAIN PRODUCTS

### PART REFERENCES

|                    |  |
|--------------------|--|
| Unshrouded headers | 20021111, 20021112, 20021121, 20021122                       |
| Shrouded Headers   | 20021211, 20021212, 20021221                                 |
| PCB Receptacles    | 20021311, 20021321, 20021323                                 |
| IDC Receptacles    | 20021444   |
| IDC Headers        | 20021511, 20021521, 20021512, 20021611, 20021612<br>20021621 |

### APPLICATIONS

- ▲ Industrial controls
- ▲ Sensors
- ▲ Security
- ▲ POS
- ▲ Automotive
- ▲ Portable medical devices
- ▲ Any board to board or cable to board connection that needs a degree of miniaturization



# MINITEK™

## 2 MM MODULAR SYSTEM

### FEATURES & BENEFITS

- Everything intermateable!
- The most complete 2 mm system ever!
  - Board-to-Board
  - Wire-to-Board
  - Flat Cable-to-Board
- 38% less board space, yet fully equivalent to 2.54 mm systems like BergStik®, Dubox™, etc.
- Lowest profile eject header
- Lowest coplanarity at 0.1 mm
- Operating temperatures as high as 125°C
- New optional active latch
- Pin-in-Paste headers
- Lowest profile strain relief



Board-to-Board



Wire-to-Board



Flat Cable-to-Board



### MAIN PRODUCTS

### PART REFERENCES

|                                  |   |
|----------------------------------|---|
| Unshrouded Headers               | 57102 / 57202 / 98423 / 10072353 / 10075024 |
| Shrouded Headers                 | 98414 / 98424 / 98464 / 10075025 / 10072354 |
| Stacking Headers                 | 59112 / 59132 / 59202                       |
| PCB receptacles (4.5 and 2.3 mm) | 55510 / 55508 / 91596 / 63453               |
| IDC receptacles                  | 89361 / 89947                               |
| CTW housings                     | 10073599 / 90311                            |
| CTW contacts                     | 77138                                       |
| Shunts                           | 86730                                       |

### APPLICATIONS

- Electronic equipment or devices requiring a parallel or perpendicular board-to-board, wire-to-board or flat cable interconnection
- Uses span industry segments, e.g. mobile base stations, measuring equipment, industrial controls, computers



Further information can be found at:  
[www.fciconnect.com/minitek](http://www.fciconnect.com/minitek)  
[www.fciconnect.com/basics](http://www.fciconnect.com/basics)



# CARD EDGE CONNECTORS FOR SFP, XFP AND XENPAK APPLICATIONS

## FEATURES & BENEFITS

- 0.8 mm pitch connectors accept 1.0 mm thick PCBs used in MSA-compliant pluggable transceiver modules
- Available 20, 30 and 70-position sizes provide interfaces for SFP, XFP, XENPAK, X2 or XPAK modules
- Surface-mount (SMT) termination
- Formed contacts provide smooth contact surfaces for improved reliability
- Alignment posts aid placement during board assembly
- SMT design and short posts enable connectors to be placed “belly-to-belly” on opposite sides of a host board
- Tape-on-reel packaging to support automated placement
- RoHS-compatible



## MAIN PRODUCTS

| MSA              | # Contacts  | PART REFERENCES<br>Part Number |
|------------------|-------------|--------------------------------|
| SFP              | 20 position | 10084423-X01LF                 |
| XFP              | 30 position | 10084423-X02LF                 |
| XENPAK, X2, XPAK | 70 position | 10084423-X03LF                 |

## APPLICATIONS

### Communications

- Switches
- Routers
- Network interface cards (NICs)
- Host bus adapters (HBAs)

### Data

- Servers
- Storage systems
- Storage controller cards



# CARD EDGE CONNECTORS FOR MICROTCA™ APPLICATIONS

## FEATURES & BENEFITS

- FCI connectors are in full compliance with the MicroTCA® standard developed within PICMG®
- Designed to enable AdvancedMC™ (AMC™) modules directly to a backplane
- 170 position card edge interface with 0.75 mm contact pitch
- Options for press-fit or surface-mount (SMT) termination
- Metal retention clips at ends of SMT connector provide additional mechanical strength after soldering
- Balanced Signal Integrity Characteristics. Very low loss and crosstalk for low voltage differential signaling at data rates up to 12.5 Gb/s per lane
- SMT footprint allows for increased flexibility in routing PCB traces with multiple widths and multiple configurations
- Telcordia UE compliant
- Lead-free and RoHS-compatible



## MAIN PRODUCTS

## PART REFERENCES

| Terminal Type       | Part Reference | Part Number     |
|---------------------|----------------|-----------------|
| Surface mount (SMT) | Without mylar  | 10058835-1000LF |
| Surface mount (SMT) | With mylar     | 10058835-1001LF |
| Surface mount (SMT) | With mylar     | 10058835-1002LF |
| Press-fit (PF)      | Without Peg    | 10058831-110LF  |
| Press-fit (PF)      | With Peg       | 10058831-111LF  |

## APPLICATIONS

### Telecommunications

- Radio Base Stations
- RF antenna units
- IP gateways

### Data Communications

- Enterprise Switches
- Customer Premises Equipment (CPE)

PICMG®, AdvancedMC™, AMC™, and MicroTCA® are trademarks of the PCI Industrial Computer Manufacturers Group.

**μTCA®**



Further information can be found at:  
[www.fciconnect.com/cardedge](http://www.fciconnect.com/cardedge)

# CARD EDGE CONNECTORS FOR PCI EXPRESS® TECHNOLOGY

## FEATURES & BENEFITS

- Base connector range offers 1, 4, 8, or 16 serial PCI Express® links to scale to different bandwidth requirements
- Each serial link supports 2.5 Gb/s (per direction) in PCI Express Gen. 1 systems and 5.0Gb/s in PCI Express Gen. 2 systems
- Options for through-hole solder, press-fit, or surface-mount termination
- Straddle-mount connectors feature mounting ears for additional mechanical support and a molded post to assure proper alignment to the host PCB
- Options for rugged stand-alone mechanisms or a x16 connector with an integrated retention arm to retain graphics cards during shipping and handling
- Larger 200, 230 (x24), and 280 position vertical connectors accept server riser cards
- ExpressModule™ versions provide an expanded lead-in window for blind-mate server applications
- RoHS-compliant connector versions are available



## MAIN PRODUCTS

## PART REFERENCES

|  |   |
|--|---|
| x1, x4, x8 or x16 suitable for wave soldering              | 10018784                                    |
| x1, x4, x8 or x16 suitable for reflow soldering            | 10018783                                    |
| x1, x4, x8 or x16 surface-mount (SMT)                      | 10061913                                    |
| x1, x4, x8 or x16 straddle-mount for extender cards        | 10025026 / 10069690                         |
| 200-position vertical, solder version                      | 10054652                                    |
| 230-position (x24) vertical, solder version                | 10063960                                    |
| 280-position vertical, solder version                      | 10027747 / 10037901/<br>10057596 / 10066356 |
| x8 vertical to mount on x16 PCB layout                     | 10036767                                    |
| x16 Integrated Type PCI Express®                           | 10083987/10085429                           |
| Graphics card retention mechanism                          | 10042618                                    |
| x1, x4, x8 or x16 ExpressModule™-type, surface-mount (SMT) | 10073228                                    |

## APPLICATIONS

### Data

- Desktop PCs
- Servers
- Workstations

### Industrial

- SHB Express backplanes per PICMG 1.3 specification

PCI Express® and ExpressModule™ are trademarks of PCI-SIG. SHB Express™ is a trademark of PICMG

# SAS

## SERIAL ATTACHED SCSI

### FEATURES & BENEFITS

- 29-position SAS receptacle and plug connectors enable the high-speed, Serial Attached SCSI (SAS) hard disk drive (HDD) interface that is replacing the SCSI
- Designed to support differential signaling of up to 6 Gb/s  
Connectors conform to SFF-8482
- Provide dual signal ports (7 contacts/port) and 15 contacts for power
- SAS receptacles also accept SATA drives
- Designed to support hot-plugging and blind-mating of HDDs
- Connector retainers provide additional mechanical strength after soldering
- RoHS-compliant and compatible with lead-free processing temperatures
- Staggered contact lengths provide sequential mating of contacts to enable hot plugging
- Molded guide posts provide angled lead-in to compensate for SAS connector misalignment, allowing the device plug and the SAS receptacle to self align during the mating process
- Most FCI SAS connectors also feature stamped retention clips that provide additional mechanical strength for robust PCB attachment
- Offers wide-base housing options on vertical backplane receptacles for even more stability
- Provides a wide range of SAS plug and receptacle connectors for enterprise applications.
- Vertical and right angle connector configurations provide options for use in servers, server or storage blades, storage backplanes, HDD carriers, and HDDs
- Options exist for through-hole solder, press fit, or surface-mount termination

*New  
product*



### APPLICATIONS

#### Data

- Servers
- Server and storage blades
- External storage systems
- HDDs
- HDD carriers

#### Communications

- Processor and storage blades
- Mezzanine cards

#### Industrial, Instrumentation & Medical

- Embedded system boards



Further information can be found at:  
[www.fciconnect.com/storageinterface](http://www.fciconnect.com/storageinterface)  
[www.fciconnect.com/SAS](http://www.fciconnect.com/SAS)

## SAS SERIAL ATTACHED SCSI

FCI's SAS connector is capable of up to 6 Gb/s.

For latest 6 Gb/s SAS product offerings, pls consult FCI team or visit [www.fci.com/SAS](http://www.fci.com/SAS)

| MAIN PRODUCTS               |                                       | PART REFERENCES                             |
|-----------------------------|---------------------------------------|---|
| Drive Device Plug           | Straddle / Non-Straddle Mount         | Contact FCI for information / customization |
| <b>Adapter Plug</b>         | Vertical SMT                          | 10031193* / 10041724*                       |
|                             | Vertical, SMT (with rivet holes)      | 10045105                                    |
|                             | Vertical, SMT, Wide Base              | 10071375                                    |
|                             | Right Angle, SMT                      | 10034524* / 10099439* / 10098678*           |
| <b>Host Receptacle</b>      | Vertical, Wide Base, Hybrid Footprint | 10036876* / 10036312                        |
|                             | Vertical, Wide Base, Thru Hole        | 10039748 / 10045665                         |
|                             | Vertical, Press Fit                   | 10031077*                                   |
|                             | Vertical, Wide Base, SMT              | 10039845* / 10076579*                       |
|                             | Vertical, SMT                         | 10031567* / 10077259*                       |
|                             | Vertical, Wide Base, Press Fit        | 10038064* / 10045782*                       |
|                             | Vertical, Thru Hole                   | 10018182*                                   |
|                             | Vertical, SMT, Extended Height        | 10038334                                    |
|                             | Vertical, SMT, Open SAS Pins          | 10036355*                                   |
|                             | Right-Angle, SMT                      | 10035202*                                   |
|                             | Right-Angle, SMT, Reversed            | 10036587*                                   |
|                             | Right-Angle, SMT, Extended Height     | 10044002                                    |
| <b>4 Lane Internal Plug</b> | Vertical, Press Fit                   | 10028542                                    |
|                             | Vertical, SMT                         | 10045646                                    |
|                             | Vertical, Thru Hole                   | 10044625                                    |
|                             | Right-Angle, Thru Hole                | 10035104                                    |

### NOTES :

- \* Product capable of 6 Gb/s data depending on customer application & design optimisation. Consult FCI Technical team for further information.



# SCA-2 CONNECTOR SYSTEM

## FEATURES & BENEFITS

- Meet requirements of SFF-8451 specification
- Options for through-hole solder, press-fit or SMT board termination
- Enhanced SMT receptacle meets requirements of SFF-8454 specification
- Enhanced version improves impedance and insertion loss profiles and reduces crosstalk
- Blade-on-beam contact design delivers high reliability
- Molded alignment and polarization features enable blind mating
- First-Mate-Last-Break (FMLB) contacts in accordance with SFF requirements
- ESD contacts provide static discharge paths to prevent damage
- High temperature plastic suitable for wave or reflow soldering
- Lead-free and RoHS-compliant versions are available
- The SCA-2 (Single Connect Attachment-2) connector system consists of device plugs and vertical receptacles that enable the hard disk drive (HDD) to backplane interface in enterprise storage systems.
- The device plug resides on the HDD, while the receptacle is attached to the backplane.
- 40-position backplane receptacles are designed to accept Fibre Channel (FC) drives, while 80-position receptacles accept SCSI drives
- The SCA-2 connector interface utilizes high-reliability, dual-row, blade-on-beam contacts spaced on 1.27mm pitch.
- Robust alignment and polarization features at the drive interface allow blind-mating.
- Dual ESD contacts provide paths for static discharge protection.
- Vertical backplane receptacles are available with 11.5mm and 17.5mm extended body heights with options for through-hole solder, press-fit, or surface-mount (SMT) board termination.
- Available SCA-2 device plugs are designed for straddle-mount board termination.



## APPLICATIONS

### Data

- Storage backplanes
- External storage systems
- Servers
- HDDs

Note: \* symbol designates enhanced SCA-2 receptacle for 4G or 8G Fibre Channel applications



Further information can be found at:  
[www.fciconnect.com/storageinterface](http://www.fciconnect.com/storageinterface)  
[www.fciconnect.com/sca2](http://www.fciconnect.com/sca2)



## SCA-2 CONNECTOR SYSTEM

| MAIN PRODUCTS           |                    |                |             |                     | PART REFERENCES       |
|-------------------------|--------------------|----------------|-------------|---------------------|-----------------------|
| HDD Interface Interface | Number of Contacts | Connector Type | Orientation | Termination Type    | Part References       |
| Fibre Channel           | 40                 | Receptacle     | Vertical    | Through-hole solder | 71781                 |
|                         | 40                 | Receptacle     | Vertical    | Press-fit           | 87567                 |
|                         | 40                 | Receptacle*    | Vertical    | Surface-mount       | 10038339 (See Note 1) |
|                         | 40                 | Receptacle*    | Vertical    | Surface-mount       | 10073037 (See Note 1) |
|                         | 40                 | Receptacle     | Vertical    | Through-hole solder | 72437                 |
|                         | 40/80              | Plug           | Right-angle | Straddle-mount      | 71292                 |
|                         | 40                 | Plug           | Vertical    | Surface-mount       | 10095045 (See Note 1) |
| SCSI                    | 20                 | Plug           | Right-angle | Straddle-mount      | 72547                 |
|                         | 80                 | Receptacle     | Vertical    | Through-hole solder | 71780                 |
|                         | 80                 | Receptacle     | Vertical    | Press-fit           | 87566                 |
|                         | 80                 | Receptacle     | Vertical    | Through-hole solder | 72436                 |
|                         | 80                 | Receptacle     | Vertical    | Press-fit           | 72442                 |

NOTES :

(1) \* symbol designates enhanced SCA-2 receptacle for 4G or 8G Fibre Channel applications



# SATA

## SERIAL ATA I/O

### FEATURES & BENEFITS

- For implementation of high-speed Serial-ATA storage interface
- Designed to support differential signaling of up to 6Gb/s
- Connectors meet requirements of Serial ATA Specification
- 22-position connectors provide 7 contacts for signal port and 15 contacts for power
- Designed to support hot-plugging and blind-mating of HDDs
- 7-position signal plugs for internal cable connections
- Connector retainers provide additional mechanical strength after soldering
- RoHS-compliant and compatible with lead-free processing temperatures
- Staggered contact lengths provide sequential mating of contacts to enable hot plugging
- Molded guide posts provide angled lead-in to compensate for connector misalignment, allowing the device plug and corresponding receptacle to self align during the mating process
- FCI offers options for through-hole solder, press fit, or surface-mount termination, allowing engineers to select the termination technique best suited to their backplane design and manufacturing process
- Most backplane connectors also feature stamped retention clips that provide additional mechanical strength for robust PCB attachment
- FCI offers a wide range of SATA plug and receptacle connector configurations
- Vertical and right angle connector configurations provide options for use in servers, server or storage blades, storage backplanes, HDD carriers, and HDDs



### APPLICATIONS

#### Data

- Notebook & Desktop PCs
- Servers
- Server and storage blades
- External storage systems
- HDDs
- HDD carriers

#### Communications

- Processor and storage blades
- Mezzanine cards

#### Industrial, Instrumentation & Medical

- Embedded system boards

#### Consumer

- Audio/video storage



Further information can be found at:  
[www.fciconnect.com/storageinterface](http://www.fciconnect.com/storageinterface)  
[www.fciconnect.com/SATA](http://www.fciconnect.com/SATA)

## SATA SERIAL ATA I/O

| MAIN PRODUCTS                  |                                  | PART REFERENCES                |
|--------------------------------|----------------------------------|--------------------------------|
| 7-Position Signal Plug, 2 Wall | Right-Angle, SMT                 | 59335                          |
|                                | Vertical, Thru Hole              | 59333 / 10028860               |
|                                | Vertical, SMT                    | 59334                          |
| 7-Position Signal Plug, 4 wall | Vertical, Thru Hole              | 10035690                       |
|                                | Vertical, SMT                    | 10035691                       |
| 7-Position Signal Plug, 3 wall | Right-Angle, SMT                 | 10035692                       |
| 22-Position Device Plug        | Right-Angle, SMT (Interposer)    | 10039651                       |
|                                | Right-Angle, SMT                 | 10101788*                      |
| 22-Position Host Receptacle    |                                  | Contact FCI for customization  |
|                                | Vertical, SMT                    | 10029065*/10042140*            |
|                                | Vertical, SMT (With Rivet Holes) | 10045103*                      |
|                                | Vertical, Thru Hole              | 10017660*                      |
|                                | Vertical, Press Fit              | 10022676*                      |
|                                | Right-Angle, SMT                 | 10029364 / 10034814 / 10031569 |

NOTES :

\* Product capable of 6Gb/s data depending on customer application & design optimisation.  
consult FCI Technical team for further information.



# eSATA CONNECTORS

## FEATURES & BENEFITS

- Compliant with eSATA requirements in Serial ATA Specification
- Up to five times faster than USB2.0 or FireWire 400 external storage solutions
- Supports Gen 1 (1.5Gb/s) and Gen 2 (3Gb/s) data rates
- Provide external data backup and protection at up to 3Gb/s data transfer rate
- High-durability design supports 2500 cycles
- RoHS-compliant and compatible with lead-free processing temperatures
- Available range includes eSATA, eSATA/USB (2-in-1), and eSATA/ USB (2-in-1) + USB combo types



### MAIN PRODUCTS

### PART REFERENCES

|       |   |          |
|-------|---|----------|
| eSATA | 2-in-1 right-angle plug, through-hole solder                            | 10074703 |
| eSATA | 2-in-1 reversed right-angle plug, through-hole solder                   | 10069848 |
| USB   | over eSATA 2-in-1 right angle combo plug, reversed, through-hole solder | 10081268 |

### APPLICATIONS

- Desktop / Notebook PC
- Set top box
- Gaming equipment
- External portable storage
- USB related applications product/ equipment



Further information can be found at:  
[www.fciconnect.com/storageinterface](http://www.fciconnect.com/storageinterface)  
[www.fciconnect.com/esata](http://www.fciconnect.com/esata)

# MICRO SATA CONNECTORS

## FEATURES & BENEFITS

- Compliant with Micro SATA requirements in Serial ATA Specification
- 16 contacts on 1.27 mm pitch: 7 for signals and 7+2 for power
- Supports Gen 1 (1.5Gb/s) and Gen 2 (3Gb/s) data rates
- High-durability design supports 500 mating cycles
- Designed to support hot-plugging and blind-mating
- Connector retainers provide additional mechanical strength after soldering
- RoHS-compliant and compatible with lead-free processing temperatures



### MAIN PRODUCTS

### PART REFERENCES

|            |                                 |          |
|------------|---------------------------------|----------|
| Micro SATA | Plug -straddle mount            | 10078287 |
| Micro SATA | Receptacle - through hole mount | 10080211 |

## APPLICATIONS

### Data

- Notebook PC
- Sub-notebook PC
- Portable storage (external drive)

### Consumer

- Set top box
- Gaming console
- Audio / Video storage





# SLIMLINE SATA CONNECTORS

## FEATURES & BENEFITS

- Compliant with Slimline SATA requirements in Serial ATA Specification
- Supports Gen 1 (1.5Gb/s) and Gen 2 (3Gb/s) data rates
- 7 contacts on 1.27 mm pitch for signals
- 6 contacts on 1 mm pitch for 5V power delivery
- High-durability design supports 500 mating cycles
- Designed to support warm-plugging and blind-mating
- Connector retainers provide additional mechanical strength after soldering
- Options for screw-attachment of plug connector
- RoHS-compliant and compatible with lead-free processing temperatures



### MAIN PRODUCTS

### PART REFERENCES

|     |   |          |
|-----|---|----------|
| SMT | right-angle plug with rounded screw-hole tabs | 10085303 |
| SMT | right-angle plug with square screw-hole tabs  | 10085304 |
| SMT | right-angle plug with solder-tab retainers    | 10085305 |

## APPLICATIONS

### Data

- Desktop PC
- Notebook PC
- Optical disk drive (ODD)

### Consumer

- Set top box
- Gaming equipment
- Optical disk drive (ODD)



Further information can be found at:  
[www.fciconnect.com/storageinterface](http://www.fciconnect.com/storageinterface)  
[www.fciconnect.com/slimlinesata](http://www.fciconnect.com/slimlinesata)

# iVDR CONNECTORS

## INFORMATION VERSATILE DISK FOR REMOVABLE USAGE

### FEATURES & BENEFITS

- Provide 26 contacts in a single row on 1.27 mm pitch
- Surface-mount design is RoHS-compliant and compatible with lead-free soldering temperatures
- Low insertion force for high durability:10,000 mating cycles
- External dimensions match standard 22-position SATA connector
- The right-angle plug provides solder tabs for added retention
- Options for right-angle or vertical receptacle provide capability to install Cartridges in either orientation to host board
- The right-angle receptacle features a fixed screw hole at each end while the vertical type features a solder tab retainer at each end



| MAIN PRODUCTS |   | PART REFERENCES |
|---------------|---|-----------------|
| SMT           | Right-angle receptacle with screw holes       | 10033998        |
| SMT           | Vertical receptacle with solder tab retainers | 10034273        |
| SMT           | Right-angle plug with holddown                | 10079510        |
| SMT           | iVDR Plug+SATA Receptacle Adapter             | 10069461        |

### APPLICATIONS

#### iVDR Plug:

- Media cartridge, internal port termination, hard disk drive, solid state drive.

#### iVDR Receptacle:

- Host application with iVDR interface, such as home recorder, Set-top box, PC, server, TV, automobile. Auto-loading mechanism at host applications.



# SCFF Optical Transceivers

*New  
product*

## FEATURES & BENEFITS

- Designed to save significant in-board real estate without sacrificing performance or linear board density
- Built to a small cubic form factor (SCFF) that is mechanically modified from the industry standard SFP+ form factor
- 11 pin electrical interface to mating on-board connector with top and bottom EMI shielding
- Complies with 2G/4G/8G FibreChannel specifications
- Digital diagnostic through 2 wire serial interface (SFP+ compatible)
- SFP+ compatible SFI high speed electrical interface
- Low power consumption at <0.6W
- Transmission of up to 150m over OM3 multi-mode fiber at 8G FC
- 0°C to +70°C operating temperature
- 850nm VCSEL laser
- Duplex LC optical interface
- SCFF is UL certified for use in Low Power Systems (LPS)



### MAIN PRODUCTS

SCFF OPTICAL TRANSCEIVER - 850nm wavelength

### PART REFERENCES

TRX08GVP2540

### APPLICATIONS

- Enterprise storage hardware, NICs, HBAs, HCAs
- Industrial
- Instrumentation
- Medical



Further information can be found at:  
[www.fciconnect.com/hsio](http://www.fciconnect.com/hsio)

# SFP+ Optical Transceivers

*New  
product*

## FEATURES & BENEFITS

- Compliant to SFP+ industry standards SFF-8431, SFF-8432 and SFF-8472
- Comply with 10G Ethernet application specifications
- Digital diagnostic through 2 wire serial interface (SFP+ compatible)
- SFP+ compatible SFI high speed electrical interface
- Low power consumption at <0.6W for SR; <0.8W for LR and LRM
- Transmission of
  - SR - up to 300m on OM3 MMF
  - LR - up to 10km on SMF
  - LRM - up to 220m on OM1 fiber
- 0°C to +70°C operating temperature
- Duplex LC optical interface
- RoHs 6/6 compliance



## MAIN PRODUCTS

## PART REFERENCES

|                                     |                |
|-------------------------------------|----------------|
| LRM TRANSCEIVER - 1310nm wavelength | TRX10GDL0610   |
| LR TRANSCEIVER - 1310nm wavelength  | TRX10GDP0310C1 |
| SR TRANSCEIVER - 850 nm wavelength  | TRX10GVP2010C1 |

## APPLICATIONS

- Network and enterprise transmission



# 40 Gbit/s QSFP - QSFP AOC Cables

*New  
product*

## FEATURES & BENEFITS

- Full duplex 4 channel 850nm parallel active optical cable
- Supports transmission data rates up to 10.3 Gbit/s per channel
- SFF-8436 QSFP+ compliant housing and hot pluggable electrical interface
- Management Interface and digital diagnostic monitoring (DDM) through I2C
- Supports Rx output pre-emphasis
- 4ch 850nm VCSEL array
- 4ch PIN photo detector array
- Helix type multi-mode optical fibre cable of up to 100m
- OFNP (Optical Fiber Non-Conductive Plenum) rated cable
- Differential AC-coupled high speed data interface
- Low power consumption of typical 0.8W per end
- Housing isolated from connector ground
- Easy to use release mechanism
- 0°C to +70°C operating temperature
- 3.3V power supply voltage
- RoHS 6/6 compliance
- Laser class 1-IEC/CDRH product



## MAIN PRODUCTS

| MAIN PRODUCTS            | PART REFERENCES  |
|--------------------------|------------------|
| AOC-QSFP-QSFP-10 meters  | ICD040GVP1630-10 |
| AOC-QSFP-QSFP-20 meters  | ICD040GVP1630-20 |
| AOC-QSFP-QSFP-50 meters  | ICD040GVP1630-50 |
| AOC-QSFP-QSFP-100 meters | ICD040GVP1630-C0 |

## APPLICATIONS

- Infiniband transmission at 4ch SDR (2.5Gbit/s), DDR(5Gbit/s) and QDR(10Gbit/s)
- Multi-channel 10Gb Ethernet transmission up to 4 channels





# 120Gbit/s CXP-CXP AOC CABLES

*New  
product*

## FEATURES

- Full Duplex 12 Channel 850nm Parallel Active Optical Cable
- Supports transmission rates up to 10.3Gbit/s per channel
- CXP-based Small Form-factor hot pluggable interface
- Supports Rx Pre-Emphasis
- EEPROM-based Serial-ID, accessible through two-wire Serial Interface
- 12ch 850nm VCSEL array
- 12ch PIN-detector array
- Helix type 24-fiber Multi-Mode Optical cable of up to 50m to allow bending in any direction.
- Fire-resistant OFNP (Optical Fiber Non-Conductive Plenum) rated cable
- Low power consumption: 2.2 Watts (typ.)
- Power class 4
- 0°C to +70°C operating temperature
- Laser Class 1 IEC/CDRH compliant
- RoHS 6/6 compliant
- Angled boot cable exit option available



## APPLICATIONS

- Infiniband transmission at 12x SDR, 12x DDR and 12x QDR
- Multi-channel 10GE transmission up to 12 channels

| MAIN PRODUCT                         | PART REFERENCE   | LENGTH    |
|--------------------------------------|------------------|-----------|
| CXP-CXP cable-straight cable exit    | ICD120GVP2410-05 | 5 meters  |
| CXP-CXP cable-straight cable exit    | ICD120GVP2410-10 | 10 meters |
| CXP-CXP cable-straight cable exit    | ICD120GVP2410-20 | 20 meters |
| CXP-CXP cable-straight cable exit    | ICD120GVP2410-50 | 50 meters |
| CXP-CXP cable-angled boot cable exit | ICD120GVP2430-10 | 10 meters |
| CXP-CXP cable-angled boot cable exit | ICD120GVP2430-20 | 20 meters |



# 120 Gbit/s CXP - 3xQSFP AOC Cables

*New  
product*

## FEATURES & BENEFITS

- Full duplex 12 channel 850nm parallel active optical cable
- Supports transmission rates up to 10.3 Gbit/s per channel
- CXP-based module at one end and QSFP-based modules at the other ends
- Hot pluggable electrical interfaces
- CXP-based module supports Rx pre-emphasis
- EEPROM-based Serial-ID, accessible through two-wire Serial Interface
- Multi-channel 850nm VCSEL array
- Multi-channel PIN-detector array
- Helix type 24-fiber Multi-Mode Optical cable of up to 50m to allow bending in any direction
- Fire-resistance OFNP (Optical Fiber Non-Conductive Plenum) rated cable
- Low power CXP-based module: 2.2 Watts (max)
- Power class 4
- 0°C to +70°C operating temperature
- Laser class 1 IEC/CDRH product
- RoHS 6/6 compliant



| DESCRIPTION      | PART REFERENCE   | LENGTH    |
|------------------|------------------|-----------|
| CXP-3xQSFP cable | ICD120GVP2420-05 | 5 meters  |
| CXP-3xQSFP cable | ICD120GVP2420-10 | 10 meters |
| CXP-3xQSFP cable | ICD120GVP2420-20 | 20 meters |
| CXP-3xQSFP cable | ICD120GVP2420-50 | 50 meters |

## APPLICATIONS

- Infiniband transmission at 12x SDR, 12x DDR and 12x QDR
- Multi-channel 10GE transmission up to 12 channels



Further information can be found at:  
[www.fciconnect.com/hsio](http://www.fciconnect.com/hsio)

# MINI MULTILANE EXTERNAL CABLE ASSEMBLIES

## FOR HIGH-SPEED SERIAL MINI SAS OR MINI SATA 4X LINKS

### FEATURES & BENEFITS

- Ruggedized 26-position cabling interconnect system is SFF- 8088 (shielded – external) and SFF-8086 compatible
- Available options support Mini SAS and Mini SATA 4x external cable requirements -SAS 2.0 & SAS 2.1
- Cable assembly paddle card design is optimized for signal integrity and mechanical performance
- Low profile “pull-to-release” latching system provides secure connection and allows stacking
- Adaptive, robust EMI Gasket and die-cast backshell assure proper EMI shielding
- Robust cable strain relief system isolates cable termination from mechanical stress
- Reduced backshell protrusion provides short cable exit
- Fully compliant with SAS and SATA defined keying options
- Controlled wire management and termination process assures consistent high-speed electrical performance
- RoHS compliant



### APPLICATIONS

#### Data

- Servers
- RAID systems
- Storage racks
- External Storage systems
- SAS/SATA HBA interfaces
- Direct-attached storage (DAS)

#### Communications

- Switches

#### Industry Standards

- SATA-IO Serial ATA (SATA) Specification
- INCITS/ANSI Serial-Attached SCSI (SAS) specifications
- SFF-8088 and SFF-8086

### MAIN PRODUCTS

### PART REFERENCES

|  |          |
|--|----------|
| Mini-Multilane SAS/SATA cable assemblies - passive           | 10084749 |
| Mini-Multilane SAS/SATA cable assemblies - passive - SAS 2.1 | 10111837 |
| Mini-Multilane 26 position connector                         | 10098870 |
| Mini-Multilane single port cage - 0° and 1°                  | 10098871 |
| Mini-Multilane 1x2 ganged port cage - 0° and 1°              | 10098872 |

Further information can be found at:

[www.fciconnect.com/minisas](http://www.fciconnect.com/minisas)  
[www.fciconnect.com/hsio](http://www.fciconnect.com/hsio)  
[www.fciconnect.com/highspeed](http://www.fciconnect.com/highspeed)



# MINI-SAS HD

## Connectors and Cable Assemblies Next generation SAS storage interface

*New  
product*

### FEATURES & BENEFITS

- IMLA based board connector insures compliance to the SAS 2.1 & proposed 3.0 electrical performance criteria
- Internal and external board connector and cable assemblies provide end-to-end application solutions
- 1X1, 1X2 and 1X4 connector/cage assemblies offer product family design flexibility
- All board connectors and configurations are fully 6G and 12G compliant allowing for use of same part numbers when system speeds increase from 6G to 12G
- Metal cages on the connector and cables provide 360° EMI shielding and replaces problematic EMC elastomeric gaskets
- Cable assemblies offered in 4x and 8x configurations
- Eye-of-the-needle connector and cage single step termination yields consistent application to the PCB
- The cable strain relief results in an axial pull force in excess of 20 lbs
- Cable latch design reduces cable insertion force and un-mating issues
- Hybrid cables (mini-SAS HD to mini-SAS) allow for backwards compatible cabling with older system hardware



| Product Description  | Signal Pairs | Part Number    |
|--|--------------|----------------|
| <b>PART NUMBERS-BOARD CONNECTORS</b>   |              |                |
| Mini-SAS HD 1 X 1 External Assembly (12 Gb/channel)  | 8 Pair       | 10112626-101LF |
| Mini-SAS HD 1 X 2 External Assembly (12 Gb/channel)  | 16 Pair      | 10112627-101LF |
| Mini-SAS HD 1 X 4 External Assembly (12 Gb/channel)  | 32 Pair      | 10112628-101LF |
| Mini-SAS HD 1 X 1 Internal Assembly (12 Gb/channel)  | 8 Pair       | 10112632-101LF |
| Mini-SAS HD 1 X 2 Internal Assembly (12 Gb/channel)  | 16 Pair      | 10112633-101LF |
| Mini-SAS HD 1 X 4 Internal Assembly (12 Gb/channel)  | 32 Pair      | 10112634-101LF |
| <b>PART NUMBERS-CABLE ASSEMBLIES</b>   |              |                |
| Mini-SAS HD to Mini-SAS HD passive cable assembly - 4x configuration - SAS 2.1 (6Gb/s) compatible  | 8 Pair       | 10112041       |
| Mini-SAS HD to Mini-SAS passive cable assembly- SAS 2.1 (6Gb/s) compatible - 4 x configuration on mini-SAS HD end and universal keying on mini-SAS end | 8 Pair       | 10117771       |
| Mini-SAS HD to Mini-SAS HD passive cable assembly - 8x configuration - SAS 2.1 (6Gb/s) compatible  | 16 Pair      | 10112359       |
| Mini-SAS HD to Mini-SAS passive cable assembly- SAS 2.1 (6Gb/s) compatible - 8x configuration on mini-SAS HD end and universal keying on mini-SAS end  | 16 Pair      | 10117947       |
| Mini-SAS HD to Mini-SAS HD passive cable assembly- proposed SAS 3.0 (12Gb/s) compatible - 4x configuration   | 8 Pair       | 10117949       |
| Mini-SAS HD to Mini-SAS HD passive cable assembly- proposed SAS 3.0 (12Gb/s) compatible - 8x configuration   | 16 Pair      | 10117950       |

### APPLICATIONS

#### Data

- Servers
- RAID systems
- Storage racks

#### External Storage Systems

- SAS/SATA HBA interfaces
- Direct-attached storage (DAS)

#### Communications

- Switches



Further information can be found at:  
[www.fciconnect.com/hsio](http://www.fciconnect.com/hsio)  
[www.fciconnect.com/minisashd](http://www.fciconnect.com/minisashd)

# SFP+ COPPER CABLE ASSEMBLIES FOR ETHERNET AND FIBER CHANNEL APPLICATIONS

## FEATURES & BENEFITS

Fully compatible with all SFP+ interfaces & mechanical backwards compatibility with SFP  
 Designed to be compliant with SFF-8431 industry standard  
 100 ohm differential impedance  
 Supports for 10Gb/s per channel transmission  
 Optimized PCB interface board to minimize crosstalk and insertion loss  
 Stamped EMI girdle to assure superior EMI shielding effectiveness  
 EEPROM for cable signature & system communications  
 30 AWG to 24 AWG cable sizes available  
 RoHS compliant



### MAIN PRODUCTS Cable Assembly

### PART REFERENCES

|  |          |
|--|----------|
| SFP+ cable assembly - passive - Leoni raw cable    | 10101497 |
| SFP+ cable assembly - passive - Standard raw cable | 10110818 |

### Mating Header & Cage

|  |          |
|--|----------|
| 20 position SFP+ connector                               | 10099099 |
| 1x1 SFP+ cage with EMI fingers                           | 10099100 |
| 1x2 ganged SFP+ cage + elastomeric gasket                | 10099101 |
| 1x4 ganged SFP+ cage – EMI fingers                       | 10099102 |
| 1x1 SFP+ cage – EMI fingers with light pipe hooks        | 10099103 |
| 1x4 SFP+ cage – elastomeric gasket with light pipe hooks | 10099104 |
| 1x1 SFP+ light pipe kit assembly (for P/N 10099103)      | 10099106 |
| 1x4 SFP+ light pipe kit assembly (for P/N 10099104)      | 10099108 |

## APPLICATIONS

### Data

- Servers
- Networked storage systems
- External storage systems
- High Performance Computing (HPC) applications
- Data Center networking

### Communications

- Switches
- Routers

### Industry Standards

- 10 Gigabit-Ethernet (10 GBASE-CU)
- Gigabit-Ethernet ( IEEE 802.3ae)
- 8G FC and 10G FCoE
- SFF-8431 & SFF-8461





# QSFP QSFP+ COPPER CABLE ASSEMBLIES FOR 40GB/S AGGREGATE BANDWIDTH APPLICATIONS

## FEATURES & BENEFITS

- Fully compatible with IEEE802.3ba and Infiniband QDR specifications
- 100 ohm differential impedance system
- Allows for 10Gb/s per channel transmission; aggregate of 40 Gb/s total bandwidth
- Optimized PCB interface board to minimize crosstalk and insertion loss
- Robust diecast covers for superior EMI shielding effectiveness
- EEPROM for cable signature & system communications
- 32 AWG to 24 AWG cable sizes available
- RoHS compliant



### MAIN PRODUCTS

|  | PART REFERENCES |
|--|-----------------|
| QSFP / QSFP+ 38 position connector     | 10099113        |
| QSFP / QSFP+ 1x1 cage with EMI fingers | 10099114        |
| QSFP / QSFP+ cage heat sink            | 10099115        |
| QSFP / QSFP+ cage heat sink clip       | 10099116        |
| QSFP+ cable assembly - passive         | 10093084        |
| QSFP cable assembly - passive          | 10115856        |

## APPLICATIONS

### Data

- Servers
- Networked storage systems
- Routers
- External storage systems
- High Performance Computing (HPC) applications
- Data Center networking

### Communications

- Switches
- Routers

### Industry Standards

- InfiniBand Trade Association (IBTA)
- IEEE802.3ba
- 40Gigabit Ethernet (40G BASE - CR4)



# DENSISHIELD™ I/O SYSTEM

## FEATURES & BENEFITS

- 8-pair connectors can be mounted side by side on 12.5 mm pitch enabling multiple I/O ports along a card edge
- Connects EMC shield to chassis panel and provides shielding to PCB level
- Low vertical profile allows use in systems having 15 mm pitch card slot spacing
- Low crosstalk between differential pairs with controlled 100-ohm impedance to match 100-ohm shielded pair cable
- Crimp ferrule system reliably terminates EMC shield of cable to connector covers
- Signal ground is isolated from EMC ground
- SMT reflow-compatible PCB connector
- Dual-beam contact system provides redundancy and long term reliability
- RoHS-compliant
- μTCA® profile compliant Header available
- Short cable strain relief area allows for tight cable routing
- Supports up to 10Gb/s per channel signal transmission



### MAIN PRODUCTS

PCB Mount Board Connector

Cable Mount Plug Kit

Cable assemblies

PCB board mount connector for single-width Micro TCA®

### PART REFERENCES

10044471

10044473

10054999

10076181

## APPLICATIONS

### Data

- Servers
- Storage systems

### Communications

- Switches
- Routers
- Base stations

### Medical

### Instrumentation

### Test equipment

Further information can be found at:

[www.fciconnect.com/densishield](http://www.fciconnect.com/densishield)  
[www.fciconnect.com/hsio](http://www.fciconnect.com/hsio)  
[www.fciconnect.com/highspeed](http://www.fciconnect.com/highspeed)



# METRAL® HDXS

## HIGH SPEED FRONT I/O INTERCONNECTION SYSTEM

### FEATURES & BENEFITS

- Complies with standard telecom building practices (IEC 60917-2-2 & IEC 60297-3)
- 24, 48 and 72 pair VDSL-2
- Resistibility to over-voltage of up to 2500V
- Robust design
- RoHS design allows for environmental friendly end application
- Die cast shells for enhanced EMI shielding performance
- Right-Angle, Press-Fit board connectors suitable for 1.6 and 2.4mm PCB thickness
- Meets Telcordia GR1217-CORE performance CO
- Insulation Displacement Technology with mechanical relief per individual wire
- Polarized design prevents mis-mating
- Integral screw hardware fastens connector to the panel preventing accidental unmating
- Available as custom cable assemblies



### MAIN PRODUCTS

#### Metral HDXS

Board Connector

Cable assembly 72 pair

Cable assembly 24 pair

### PART REFERENCES

10075388-101LF

Customized

Customized

### APPLICATIONS

#### Communications

- ADSL, VDSL, VDSL-2 networks



Further information can be found at:  
[www.fciconnect.com/metralhdxs](http://www.fciconnect.com/metralhdxs)  
[www.fciconnect.com/highspeed](http://www.fciconnect.com/highspeed)

# METRAL® CABLE CONNECTORS

## CABLE CONNECTORS FOR METRAL AND IEC 2MM PCB HEADERS

### FEATURES & BENEFITS

- Interface compatible with IEC 61076-4-104 backplane connectors
- Next generation design offers easy and fast cable assembly
- Four Row versions provide 24 or 48 contacts; Five Row versions provide 30 or 60 contacts
- Insulation displacement design offers quick termination without the need to strip conductors
- Active backshell latches securely connect assembled cable connectors to standard Metral® headers
- Different latch designs are available to satisfy ergonomic and mechanical requirements

- End-stackable cable connectors enable adjacent connectors to plug into headers without loss of positions
- Application tooling supported by FCI

### APPLICATIONS

- Applications in communications, data, and industrial electronics using IEC 61076-4-104/Metral®-compatible connector architecture



### MAIN PRODUCTS

#### Standard cable connector kits

|  |
|--|
| 4 rows x 6 = 24 positions, standard latch  |
| 4 rows x 12 = 48 positions, standard latch |
| 5 rows x 6 = 30 positions, standard latch  |
| 5 rows x 12 = 60 positions, standard latch |
| 4 rows x 6 = 24 positions, short latch     |
| 4 rows x 12 = 48 positions, short latch    |
| 5 rows x 6 = 30 positions, short latch     |

### PART REFERENCES

7247V-WXY1LF

V Number of Positions

6=4 Rows x 6 = 24 Positions

7=4 Rows x 12 = 48 Positions

8=5 Rows x 6 = 30 Positions

9=5 Rows x 12 = 60 Positions

W Plating Section

1=Gold plating on mating face

X Latch Style

1=Standard finger latch for easiest actuation

2=Short finger latch for extra large diameter cable

Y Wire / Conductor Size

1=For 26 to 24 AWG wire

2=For 30 to 28 AWG wire

### MAIN PRODUCTS

#### Right angle Metral® headers

|                            |                   |                 |
|----------------------------|-------------------|-----------------|
| 4 Rows x 6 = 24 Positions  | HM1L41LAP000H6PLF | HM1L41LDP000H6P |
| 4 Rows x 12 = 48 Positions | HM1L42LAP000H6PLF | HM1L41LDP000H6P |
| 5 Rows x 6 = 30 Positions  | HM1L51LAP000H6PLF | HM1L51LDP000H6P |
| 5 Rows x 12 = 60 Positions | HM1L52LAP000H6PLF | HM1L52LDP000H6P |

### PART REFERENCES

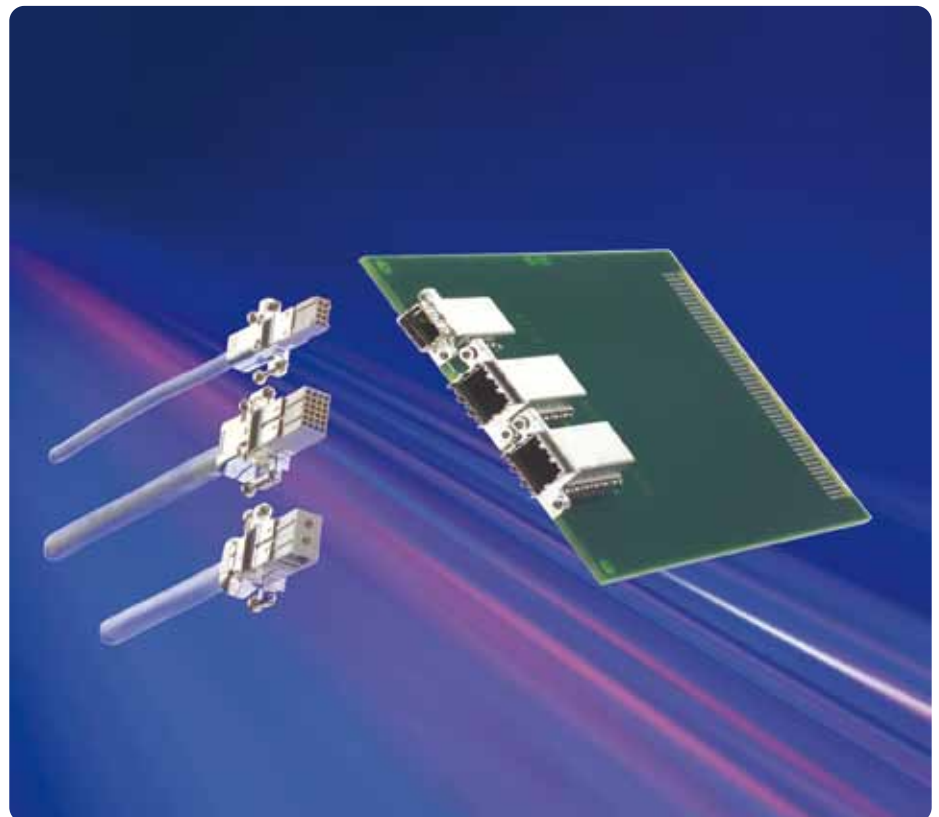


# SOFIX®

## FRONT I/O INTERCONNECTION SYSTEM

### FEATURES & BENEFITS

- Complies with standard telecom building practices (IEC 60917-2-2 & IEC 60297-3)
- Signal and power modules
- Both 10/100 BaseT and 1000 BaseT 8 position solutions
- Hot pluggable
- Robust design
- 15 mm slot pitch
- RoHS design allows for environmental friendly end application



### MAIN PRODUCTS

|            |   | PART REFERENCES  |
|------------|---|------------------|
| <b>2x4</b> | Sofix Board Connector                   | 72860            |
| <b>4x6</b> | Sofix Cable Connector Coax Twisted pair | HM1C16D2J110EBLF |

### APPLICATIONS

- Wireless
- Switching (mobile)
- Transmission (Ethernet & GbE line lines, E1/T1, 2 Mb).





# LOW PROFILE SUBSCRIBER INTERFACE SIGNAL & POWER FOR DSL SUBSCRIBER ACCOUNTS

## FEATURES & BENEFITS

- Versatile, turnkey system designed especially for subscriber connection applications
- Signal connectors have 24 contacts on 2.00 mm pitch. PCB header uses minimal space: 16 mm (depth from edge of card) x 33 mm (along edge of card) x 13 mm (height off card)
- Custom pin assignments are available to achieve very low cross-talk performance (<-55 dB) for vDSL applications
- Power connectors have 2 contacts on 2.54 mm pitch. PCB header uses minimal space: 20 mm (depth from edge of card) x 14 mm (along edge of card) x 13 mm (height off card)
- Power cable connector design employs two additional first-mate/last-break (FMLB) sacrificial contacts to prevent arcing to the primary contacts and enable "hot" mating 35 degree angled cable exits provide easy cable routing
- Dual-metal PV® power contacts and dual-beam signal contacts maximize durability and optimize reliability
- Integral screw hardware fastens connectors together to prevent accidental un-mating
- Polarized design prevents mis-mating
- Lead-free, RoHS compatible design satisfies environmental regulations
- Available from FCI in component kits or as custom cable assemblies



## APPLICATIONS

### Communications

- aDSL / vDSL access networks
- Wireless base stations

## MAIN PRODUCTS

## PART REFERENCES

|                             |                            |                               |
|-----------------------------|----------------------------|-------------------------------|
| Cable Assemblies            | Signal                     | 10076684                      |
|                             | Power: Single-ended        | 10076685                      |
|                             | Power Double-ended         | 10076686                      |
| Power Cable Connector Kit   | 1x4, 2.54 mm contact pitch | 10074342-001LF/10074342-002LF |
| Power PCB Header Connector  | 1x4, 2.54 mm contact       | 10066619-001LF                |
| Signal Cable Connector Kit  | 2x12, 2.00 mm contact      | 10073976-001LF                |
| Signal PCB Header Connector | 2x12, 2.00 mm contact      | 10069230-001LF                |



# MICRO-USB CONNECTOR

*New  
product*

## FEATURES & BENEFITS

- Size reduction:  
Approximately 60% smaller in size compared to FCI's mini -USB connector range
- Receptacle styles:  
Two interface configurations: B and AB type. Mid-mount and Reverse mounting styles
- Plug styles:  
Used for data transmission, earphone or charging applications
- High durability:  
Passive latching prevents unintentional cable release: 10,000 cycles
- RoHS compatible



### MAIN PRODUCT

### PART REFERENCES

|                                    |          |
|------------------------------------|----------|
| B Type Receptacle, Reverse         | 10103592 |
| B Type Receptacle, STD, Miot-Mount | 10103593 |
| B Type Receptacle, STD             | 10103594 |
| B Type Receptacle, Plug            | 10104109 |
| B Type Receptacle, STD             | 10104110 |
| A/B Type Receptacle, STD           | 10104111 |
| B Type Receptacle, STD, SMT        | 10118192 |
| B Type Receptacle, STD, 2 DIP Legs | 10118193 |
| B Type Receptacle, STD, 4 DIP Legs | 10118194 |

## APPLICATIONS

- Mobile phone
- PDA
- Portable music players
- Digital cameras
- Rugged handhelds
- Controller boards
- Other applications requiring high reliability Micro-USB interface connectors



Further information can be found at:  
[www.fciconnect.com/usb](http://www.fciconnect.com/usb)

# USB

## UNIVERSAL SERIAL BUS

### FEATURES & BENEFITS

- USB 2.0 compliant, speed to 480 Mb/sec
- Type A (Host) receptacles, 4 position
  - Through hole and SMT versions
  - PCB mount options: Position, orientation, hold-down.
  - Panel fixing and grounding options
  - Additional sensor contact versions
  - Double deck, 8 position version
- Type B (peripheral) receptacles, 4 position
- Mini USB receptacles, 5 position
- Plug kits for over mold cable assembly
- USB + power versions available



### MAIN PRODUCTS

### PART REFERENCES

#### Style

|                       |   |                   |
|-----------------------|---|-------------------|
| <b>A</b>              | S/D Upright, Through hole Receptacle                  | 73725             |
|                       | S/D Right angle, Through hole Receptacle              | 87520             |
|                       | D/D Right angle, Through hole Receptacle              | 72309             |
|                       | S/D Right angle, SMT Receptacle                       | 87583             |
| <b>B</b>              | S/D Right angle, Through hole Receptacle              | 61729             |
| <b>USB+POWER</b>      | S/D Right angle, Through hole Receptacle (Full range) | 55917             |
|                       | Plug Kit (Full range)                                 | 74233             |
|                       | S/D Right angle, Through hole Receptacle              | 57489             |
|                       | Plug Kit  | 57496             |
| <b>Cable Assembly</b> | Single-ended  | 10084088/10084089 |
|                       | Double-ended (USB+POWER and LNL)                      | 10089745/10089743 |
|                       |   | 10083511/10083512 |

### APPLICATIONS

- Computers, laptops, servers
- Printers, external drive units, monitors
- Digital cameras, TV's, set-top box
- Modems, keyboards, instrumentation
- Point-of-sale equipment



# HDMI

## HIGH DEFINITION MULTIMEDIA INTERFACE

### FEATURES & BENEFITS

- Choice of partial SMT/PIP or full SMT mounting style
- Right angle and straight versions
- Metal shell for better EMI shielding protection, especially for the straight version
- Excellent durability
- HDMI 1.4 compliance
- RoHS compliant
- Low impedance mismatch
- Straight version features additional grounding pins for enhanced EMI performance
- Backward compatible with DVI



### MAIN PRODUCTS

### PART REFERENCES

|  |           |
|--|-----------|
| HDMI A-Type Right angle, with or without flange receptacle | 10029449  |
| HDMI A-Type Straight receptacle                            | 10078837  |
| HDMI D-Type DIP + SMT leg receptacle                       | 100118241 |
| HDMI D-Type DIP + leg receptacle                           | 100118242 |

### APPLICATIONS

- Plasma Displays & TVs
- LCD Display & TVs
- Set-Top Boxes
- DVD Players/Recorders
- Audio/Video Receivers
- D-VHS Players
- High-Definition Monitors
- Entertainment PC
- Smart Mobile Phone



# MODULAR JACKS

## FEATURES & BENEFITS

- ▀ Right angle or straight
- ▀ Through mount or SMT
- ▀ Cat3, Cat5 performance category
- ▀ 4, 6, 8 positions, fully or selectively loaded
- ▀ Single to Stacked Multi-ports
- ▀ Shielded or non-shielded
- ▀ Inverted latch options
- ▀ Standard, raised or low profile versions
- ▀ Snap or diamond pegs options



## APPLICATIONS

### Networking

- ▀ Network servers
- ▀ Hubs
- ▀ Routers
- ▀ Ethernet switches

### Computers and Peripherals

- ▀ Laptops
- ▀ Modems

### Telecom

- ▀ PBX systems
- ▀ Fax machines
- ▀ Phone line security systems

### Office and Home Equipment

- ▀ ATM machines
- ▀ Point of sales terminals
- ▀ Vending machines
- ▀ Security systems
- ▀ Set-top boxes
- ▀ Medical analysis equipment





**MAIN PRODUCTS**

**PART REFERENCES**

| Single Port Cat3                   | Mounting Style | Positions     | Pegs       | Part Series        |               |                         |         |          |
|------------------------------------|----------------|---------------|------------|--------------------|---------------|-------------------------|---------|----------|
| <b>Right Angle</b>                 | Through Mount  | 4,6,8         | Snap       | 87180              |               |                         |         |          |
|                                    |                |               |            | 54601              |               |                         |         |          |
|                                    |                | 8,10          | Snap       | 54602              |               |                         |         |          |
|                                    |                | 8             | Snap       | 10117863           |               |                         |         |          |
|                                    |                |               |            |                    |               |                         |         |          |
|                                    | SMT            | 4             |            | 73306              |               |                         |         |          |
|                                    |                | 6             |            | 73305              |               |                         |         |          |
|                                    |                | 8             |            | 73304              |               |                         |         |          |
|                                    |                |               |            |                    |               |                         |         |          |
|                                    |                |               |            |                    |               |                         |         |          |
| <b>Straight</b>                    | Through Mount  | 4             | Snap       | 90511              |               |                         |         |          |
|                                    |                | 4             | Diamond    | 69253              |               |                         |         |          |
|                                    |                | 6             | Snap       | 90512              |               |                         |         |          |
|                                    |                | 6             | Diamond    | 69254              |               |                         |         |          |
|                                    |                | 8             | Diamond    | 69255              |               |                         |         |          |
|                                    | SMT            | 4             |            | 87543              |               |                         |         |          |
|                                    |                |               |            | 98431              |               |                         |         |          |
|                                    |                |               |            | 87545              |               |                         |         |          |
|                                    |                | 6             |            | 98432              |               |                         |         |          |
|                                    |                |               |            | 98433(Keyed)       |               |                         |         |          |
|                                    |                |               |            | 87547              |               |                         |         |          |
|                                    |                | 8             |            | 98435              |               |                         |         |          |
|                                    |                |               |            | 97549(Keyed)       |               |                         |         |          |
| <b>MultiPort Cat3</b>              | Mounting Style | Ports         | Shield/EMI | Part Series        |               |                         |         |          |
|                                    |                |               |            | 4,8                | Yes/Yes       | 94910                   |         |          |
|                                    |                |               |            | 2,4,7,8            | No/No         | 94911                   |         |          |
|                                    |                |               |            | 2, (6P + 6P)       | No/No         | 10053565                |         |          |
|                                    |                |               |            | 2                  | Yes/Yes       | 10118061                |         |          |
|                                    |                |               |            | 4                  | Yes/No        | 10118062                |         |          |
|                                    |                |               |            | 6                  | Yes/No        | 10118063                |         |          |
|                                    |                |               |            | 8                  | Yes/No        | 10118064                |         |          |
|                                    |                |               |            | 4 (10P)            | Yes/Yes       | 10118065                |         |          |
|                                    |                |               |            | 2                  | Yes/Yes       | 10118066(LED)           |         |          |
|                                    |                |               |            | 4                  | Yes/Yes       | 10118067(LED)           |         |          |
|                                    |                |               |            | 8                  | Yes/Yes       | 10118068(LED, TAB UP)   |         |          |
|                                    |                |               |            | 8                  | Yes/Yes       | 10113616(LED, TAB DOWN) |         |          |
|                                    |                |               |            | <b>Right Angle</b> | Through Mount | 3 (4P+4P+6P)            | No/No   | 92266    |
|                                    |                |               |            |                    |               | 2x1                     | Yes/No  | 10118069 |
|                                    |                |               |            |                    |               | 2x2                     | Yes/No  | 10118070 |
|                                    |                |               |            |                    |               | 2x3                     | Yes/No  | 10118071 |
|                                    |                |               |            |                    |               | 2x4                     | Yes/No  | 10118072 |
|                                    |                |               |            |                    |               | 2x4                     | Yes/Yes | 74633    |
|                                    |                |               |            |                    |               | 2x6                     | Yes/No  | 10118073 |
|                                    |                |               |            |                    |               | 2x8                     | Yes/No  | 10118074 |
| 2x1                                | Yes/Yes        | 10118075(LED) |            |                    |               |                         |         |          |
| 2x2                                | Yes/Yes        | 10118076(LED) |            |                    |               |                         |         |          |
| 2x4                                | Yes/Yes        | 10118077(LED) |            |                    |               |                         |         |          |
| 2x6                                | Yes/Yes        | 10118078(LED) |            |                    |               |                         |         |          |
| <b>Right Angle (Stacked)</b>       | Through Mount  |               |            |                    |               |                         |         |          |
|                                    |                |               |            |                    |               |                         |         |          |
|                                    |                |               |            |                    |               |                         |         |          |
|                                    |                |               |            |                    |               |                         |         |          |
| <b>Single &amp; MultiPort Cat5</b> | Mounting Style | Ports         | Shield/EMI | Part Series        |               |                         |         |          |
|                                    |                |               |            | 1,4,8(filter)      | Yes/Yes       | 95672                   |         |          |
|                                    |                |               |            | 1,4,8              | Yes/Yes       | 95678                   |         |          |
|                                    |                |               |            | 1,2,4,6,8          | No/No         | 95679                   |         |          |
| <b>Right Angle</b>                 | Through Mount  |               |            |                    |               |                         |         |          |
|                                    |                |               |            |                    |               |                         |         |          |
|                                    |                |               |            |                    |               |                         |         |          |



# D-SUBMINIATURE PCB APPLICATIONS

## FEATURES & BENEFITS

- Signal: 9 to 50 way connectors - standard density
- Signal: 15 to 78 way connectors high density
- Power: wide range of layouts from 2V2 to 36W4
- Solder to board and press-fit and Pin-in-Paste (THR) terminations available
- Dedicated website

## APPLICATIONS

- Our D-Sub connectors are suitable for every type of equipment including those in harsh environments



### MAIN PRODUCTS

### SERIES

### WEBSITE CATEGORY

#### Standard application

|        |                              |           |              |
|--------|------------------------------|-----------|--------------|
| Signal | Right angled solder-to-board | Delta D   | Std density  |
|        | Right angle press-fit        | Delta D   | Pressfit     |
|        | Right angle pin-in-paste     | Delta D   | Pin-in-Paste |
|        | Straight solder-to-board     | Delta D   | Std density  |
|        | Straight press-fit           | Delta D   | Pressfit     |
|        | Straight pin-in-paste        | Delta D   | Pin-in-Paste |
|        | High density solder-to-board | Compact D | High density |
|        | High density press-fit       | Compact D | High density |
|        | High density pin-in-paste    | Compact D | High density |

#### Less Demanding application

|  |                              |               |               |
|--|------------------------------|---------------|---------------|
|  | Right angled solder-to-board | Economy Range | Economy Range |
|  | Straight solder-to-board     | Economy Range | Economy Range |

#### Demanding application

|                    |  |           |                  |
|--------------------|--|-----------|------------------|
| Full and mix power | Straight and right angle solder-to-board and press-fit | DW series | Power Connectors |
|                    | High Power I/O PCB connectors                          | μTCA®     | μTCA Power IO    |

#### Severe environment application

|        |   |           |                  |
|--------|---|-----------|------------------|
| Signal | Right angle solder-to-board, Wire-wrap and straight solder-to-board | DP series | High Performance |
|        | Right angle solder-to-board, Wire-wrap and straight solder-to-board | DM series | High Performance |



# D-SUBMINIATURE CABLE APPLICATIONS

## FEATURES & BENEFITS

- Signal: 9 to 50 way connectors
- Power: wide range of layouts from 2V2 to 36W4
- Solder bucket, crimp and IDC available

## APPLICATIONS

- Our D-sub connectors are suitable for almost every type of equipment including those in demanding environments



### MAIN PRODUCTS

#### Standard application

|                               | SERIES      | Website Category |
|-------------------------------|-------------|------------------|
| Solder bucket                 | D series    | Cable Connectors |
| Crimp connectors and contacts | 8656 series | Cable Connectors |
| IDC flat cable connector      | 8657 series | Cable Connectors |

#### Demanding application

Full and mix power

|                                 |           |                  |
|---------------------------------|-----------|------------------|
| Solder bucket                   | DW series | Cable Connectors |
| Crimp connectors and contacts   | DW series | Cable Connectors |
| High Power I/O Cable connectors | μTCA®     | Cable Connectors |

#### Severe environment application

|               |           |                  |
|---------------|-----------|------------------|
| Solder bucket | DP series | High Performance |
| Solder bucket | DM series | High Performance |

#### Accessories

|   |             |             |
|---|-------------|-------------|
| Hoods (Plastic, metalized and metallic) | Accessories | Accessories |
| Locking devices                         | Accessories | Accessories |



Further information can be found at:  
[www.fciconnect.com/dsub](http://www.fciconnect.com/dsub)

# LATCH-N-LOK™

## I/O CONNECTOR SYSTEM

### FEATURES & BENEFITS

- Versatile cable-to-board system includes PCB headers and cable connector kits for signal, power, grounding and shielding applications.
- Supports high speed, serial data transmission
- Quick disconnect system provides positive latching with an audible “click.”
- High reliability design features FCI PV™ receptacle contacts mating to phosphor bronze .025”sq pin contacts in single and double row configurations
- Polarized housings prevent mis-mating; Keying options prevent the mating of incorrect cables
- Cable connectors accommodate a wide variety of cable diameters and wires ranging from 20AWG to 32AWG



### MAIN PRODUCTS

#### PCB Receptacle

|                          |              | PART REFERENCES   |
|--------------------------|--------------|-------------------|
| Right angle,Through hole | 1x4,1x6,1x8  | 69273/78304/69913 |
| Right angle,Through hole | 2x3,2x4,2x4  | 78097/69958/74355 |
|                          | 2x6,2x8,2x10 | 78098/69901/79610 |

#### Cable plug kits

|                    |                  |                         |
|--------------------|------------------|-------------------------|
| Enhanced shielding | 1x4,1x8,2x3,2x4  | 74901/74903/74902/98028 |
| Standard shielding | 1x4,1x6,1x8,2x3  | 91481/91482/91483/91485 |
|                    | 2x4,2x6,2x8,2x10 | 91486/91487/91488/91489 |

### APPLICATIONS

- Medical Instrumentation
- Handheld devices
- POS Equipment
- Test and Measurement
- Inventory Equipment
- USB Plus Power
- Telecommunications



# DDR2 MEMORY MODULE SOCKETS

## FEATURES & BENEFITS

- Support convenient, add-on memory expansion with standard memory module assemblies
- Connectors provide mechanical voltage keying and end latches for module retention and ejection
- DDR2 FB-DIMM connectors accept module assemblies that conform to JEDEC MO-256
- DDR2 DIMM connectors accept assemblies that conform to JEDEC MO-237
- 240-position FB-DIMM and DIMM connectors feature a low insertion-force socket design that requires less than 24 pounds force for module installation
- Available solder tail options for vertical DDR2 DIMM connectors support use on 1.58 mm (.062") or 2.36 mm (.093") thick motherboards, while press-fit options extend use to thicker motherboards
- Contact design protects against stubbing and supports high-speed serial differential signaling at data rates extending to 4.8 Gb/s for FB-DIMM
- DDR2 SO-DIMM connectors offer keying options for standard and reverse module orientation. The 200-position horizontal sockets accept modules that conform to JEDEC MO-224
- RoHS-Compliant and "Lead-free" process-compatible options are available to aid compliance with lead elimination initiatives



## APPLICATIONS

### Data

- Servers
- Workstations
- Desktop PCs
- Notebook PCs

### Communications

- Routers
- Switches
- Base Stations

### Industrial

- Embedded systems

## MAIN PRODUCTS

## PART REFERENCES

|                     |                                  |                     |
|---------------------|----------------------------------|---------------------|
| <b>240 position</b> | Vertical DDR2 DIMM               | 10005639 / 10023061 |
|                     | Vertical DDR2, press-fit         | 10034542            |
|                     | Vertical DDR2, low-profile       | 10052286            |
|                     | Vertical DDR2, SMT               | 10070983            |
|                     | DDR2 FB-DIMM                     | 10037402 / 10057443 |
| <b>200 position</b> | DDR2 SO-DIMM                     | 10033853 / 10033854 |
|                     | Enhanced Retention Force Version | 10116658 / 10117865 |
| <b>144 position</b> | 16b/32b SO-DIMM                  | 10062086            |



Further information can be found at:  
[www.fciconnect.com/ddr](http://www.fciconnect.com/ddr)



# DDR3 MEMORY MODULE SOCKETS

## FEATURES & BENEFITS

- ▶ Connector provides mechanical voltage keying and latches for modules retention and ejection
- ▶ DIMM connectors feature a low insertion-force socket design that requires less than 24 pounds force for module installation
- ▶ Available solder tall options for vertical DDR3 connectors support use on 1.58 mm (.062") or 2.36 mm (.93") thick motherboards, while press-fit options extend use to thicker motherboards
- ▶ Contact design protects against stubbling and supports high-speed serial differential signalling at data rates extending to 4.8 Gb/s for DDR3
- ▶ RoHS Compliant and "lead free" process compatible options are available to aid compliance with lead elimination initiatives
- ▶ Low Level Contact Resistance (LLCR) featured on DDR3 sockets accept RDDR3 modules
- ▶ VLP form factors provide connector heights of less than 21 mm above the board, while accepting modules with a seating height of less than 2.4 mm
- ▶ Slim latch and connector body designs facilitates optimized airflow



## APPLICATIONS

### Data

- ▶ Servers
- ▶ Workstations
- ▶ Desktop PCs
- ▶ Notebook PCs

### Communications

- ▶ Routers
- ▶ Switches
- ▶ Base Stations

### Industrial

- ▶ Embedded systems

## MAIN PRODUCTS

## PART REFERENCES

### 240-position vertical DDR3 RDIMM sockets

|                                       |                           |
|---------------------------------------|---------------------------|
| Through mount and metal clip, RDIMM   | 10081530                  |
| Through mount and plastic post, RDIMM | 10081531                  |
| Press - fit and plastic post, UDIMM   | 10087607                  |
| Press - fit and plastic post, RDIMM   | 10119101 (in development) |

### Very low profile (VLP), Press - fit

|                   |                           |
|-------------------|---------------------------|
| Low seating plane | 10076443 (in development) |
|-------------------|---------------------------|

### Very low profile (VLP), through hole

|                              |          |
|------------------------------|----------|
| Through mount and metal clip | 10079192 |
|------------------------------|----------|

### Very Low Profile (VLP), surface mount

|                                    |          |
|------------------------------------|----------|
| Surface mount with metal hold down | 10079248 |
|------------------------------------|----------|



# SMART CARD CONNECTORS

## FEATURES & BENEFITS

- ▶ Through mount, SMT or Flex mounted
- ▶ Sliding or landing contact technology
- ▶ Durability: From 10K to 200K cycles
- ▶ Vandalism-proof designs
- ▶ Suitable for friendly, harsh, portable or automotive environments
- ▶ EMV, NDS approved
- ▶ Blade or sealed switch available
- ▶ 6, 8 or 16 data contacts available
- ▶ SIM, SAM or full size card connectors available
- ▶ Smart Card Reader with customized FPC/FFC offer flexibility to solder onto the appropriate position of a PCB. The very low profile provides superior space savings, especially for Notebook PC application.
- ▶ Customization available upon request



## APPLICATIONS

### Networking

- ▶ Analog or digital set-top box
- ▶ Internet decoder
- ▶ Laptops

### Telecom

- ▶ Mobile phones
- ▶ Public phones

### Automotive

- ▶ Car radio
- ▶ GPS
- ▶ Tachograph / Tachometer

### Others

- ▶ Point of sale terminals
- ▶ Vending machines
- ▶ Access control
- ▶ Customer loyalty equipment
- ▶ E-purse
- ▶ Gas, water, electricity meters



SMART CARD CONNECTORS

| MAIN PRODUCTS                                 |                  | SERIES    |     |             |     |         |                    |         |             |        |
|---|------------------|-----------|-----|-------------|-----|---------|--------------------|---------|-------------|--------|
| Product                                       | Number of Cycles | Card Size |     | Termination |     |         | Contact Technology |         | Switch Type |        |
|   |                  | Full      | SIM | TMT         | SMT | FFC/FPC | Sliding            | Landing | Blade       | Sealed |
| Smart Card Reader<br>10010556 / 556040 Series | 10K / 25K        |           |     |             |     |         |                    |         |             |        |
| L04 Series                                    | 100K             |           |     |             |     |         |                    |         |             |        |
| L08 Series                                    | 100K             |           |     |             |     |         |                    |         |             |        |
| L26 Series High Performance                   | 10K - 100K       |           |     |             |     | + Flex  |                    |         |             |        |
| L26 Series                                    | 2.5K             |           |     |             |     |         |                    |         |             |        |
| E Series                                      | 200K             |           |     |             |     | + Flex  |                    |         |             |        |
| P Series                                      | 100K             |           |     |             |     | + Flex  |                    |         |             |        |
| C Series                                      | 100K             |           |     |             |     |         |                    |         |             |        |
| S Series                                      | 10K              |           |     |             |     |         |                    |         |             |        |

| Part Number            | Termination        | Pin | Thickness | Push-Pull Cycles  |
|------------------------|--------------------|-----|-----------|-------------------|
| 10010556-0**LF         | Customized FPC/FFC | 8   | 3.6 mm    | Without push-push |
| 10026297-00*LF         | Customized FPC     | 8   | 3.8 mm    | 10K               |
| 55640-2*20*LF/-20211LF | Customized FPC     | 8   | 3.7 mm    | 10K/25K           |



# PC CARD HEADERS

## FEATURES & BENEFITS

- ▶ Conform to PCMCIA and CardBus standards
  - CardBus PC Cards can meet high signal transmission requiring bandwidth (32 bits) and clock rate (33 MHz)
- ▶ Suitable for type I, II, III, 3.3 and 5V
  - Standard and CardBus PC Cards
  - Various stand-off options available
  - Single and double deck
- ▶ Eject and non eject mechanism available
- ▶ Through Mount, SMT In-Line, SMT
  - Staggered, Flex or patented SMT
  - Vertical Transition Board versions available
- ▶ Optional EMI metal shield cover (CardBus)



## APPLICATIONS

- ▶ Notebooks, portable PCs, industrial
- ▶ PCs, network PCs
- ▶ Set-top boxes, digital TV, home entertainment devices
- ▶ Telecom, datacom equipments (switches, routers, remote access servers)
- ▶ Machine control systems
- ▶ Test & measurement devices, medical instrumentation



## PC CARD HEADERS

| MAIN PRODUCTS |             |            |         |               | PART REFERENCES |                      |
|---------------|-------------|------------|---------|---------------|-----------------|----------------------|
| Type          | F/G         | Mounting   | Voltage | Deck          | Ejector         | Remark               |
| PCMCIA        | 61126       | T/H or SMT | 3.3V    | Single        | Yes             |                      |
|               | 95620       | T/H or SMT | 5.0V    | Single        | Yes             |                      |
|               | 84648       | T/H or SMT | 3.3V    | Single        | None            |                      |
|               | 92789       | T/H or SMT | 5.0V    | Single        | None            |                      |
|               | 92194       | T/H        | 5.0V    | Double        | Yes             |                      |
|               | 84654       | T/H        | 3.3V    | Double        | Yes             |                      |
|               | 61125/61124 | VTB        | 3.3V    | Single/Double | Yes             | Mating with 91931    |
|               | 95547       | VTB        | 5.0V    | Single        | Yes             | Mating with 91931    |
|               | 88640       | VTB        | 5.0V    | Single        | None            | Mating with 91931    |
|               | 74423       | VTB        | 3.3V    | Single        | None            | Mating with 91931    |
|               | 58431       | VTB        | 3.3V    | Single        | Yes             | Mating with 91931    |
|               | 10074998    | VTB        | 3.3V    | Single        | Yes             | Mating with 91931    |
|               | 10067972    | T/H        | 3.3V    | Single        | None            | Short Body (shield)  |
|               | 10118309    | T/H        | 3.3V    | Single        | None            | Short Body (plastic) |
|               | 10074595    | T/H        | 5.0V    | Single        | None            | Short Body (shield)  |
|               | 92150       | T/H or SMT | 5.0V    | Single        | None            | Short Body (plastic) |
|               | 87536       | T/H        | 5.0V    | Single        | None            | Short Body (plastic) |
| Card Bus I    | 71299/71240 | VTB        | 3.3V    | Single/Double | Yes             | Mating with 73277    |
|               | 72305/72306 | VTB        | 3.3V    | Single/Double | None            | Mating with 73277    |





# EXPRESSCARD™ SYSTEMS

## EXPRESSCARD HOST AND MODULE CONNECTORS

### FEATURES & BENEFITS

#### Host Connector

- Connector electrical performance is validated at the initial PCI Express data rate of 2.5 Gb/s and the anticipated second-generation speed of 5.0 Gb/s
- Simple beam-on-blade contact interface is rated for 5,000 cycles
- Single-row, in-line configuration for surface-mount solder tails to facilitate easy soldering and inspection
- Standoff options range between 0.0mm, which provides the lowest vertical profile for “thin” host systems, and 2.2mm, which provides clearance to mount PCB components between the slot and the host PCB

#### Module Connector

- Meet high-speed electrical requirements as outlined in Expresscard™ Standard
- Simple beam-on-blade contact interface is rated for up to 10,000 cycles
- Single-row, in-line solder tail configuration for easy soldering
- Longer power and ground contacts on the module connector provide fist-mate and last-disconnect in relation to signal contacts

### APPLICATIONS

- Notebooks, portable PCs, industrial PCs, network PCs
- Set-top boxes, digital TV, home entertainment devices
- Telecom, datacom equipments (switches, routers, remote access servers)
- Machine control systems
- Test & measurement devices, medical instrumentation



### MAIN PRODUCTS

|                             | PART REFERENCES   |                   |                   |                   |                   |                   |
|-----------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Host Connector P/N</b>   | 10056265-122ABTLF | 10047129-118ABTLF | 10055606-110ABTLF | 10053826-100ABTLF | 10055262-100BBTLF | 10056422-122BBTLF |
| <b>Standoff Height</b>      | 2.2 mm            | 1.8 mm            | 1.0 mm            | 0.0 mm            | 0.0 mm            | 2.2 mm            |
| <b>Mounting Type</b>        | Above             | Above             | Above             | Above             | Below             | Below             |
| <b>Module connector P/N</b> | 10030570-211317   |                   |                   |                   |                   |                   |

Note: ExpressCard™ is a registered trademark of PCMCIA



Further information can be found at  
[www.fciconnect.com/expresscard](http://www.fciconnect.com/expresscard)

For more information on FCI sales offices,  
headquarters, agents and local distributors,  
visit [www.fciconnect.com/electronics](http://www.fciconnect.com/electronics)



For more information please contact: [elxcommunications@fci.com](mailto:elxcommunications@fci.com)



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- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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