



Delivering industry-leading signal integrity and density while providing a scalable price and performance path for future data-rate enhancements, the Impel™ system of backplane connectors and customized cable assemblies offers OEMs the option for equipment to operate at today's data rates and costs

Leading the datacom computing markets with high data-rate and high-density solutions, the Impel™ Backplane Interconnect System provides a scalable price-for-performance solution enabling customers to secure a high-speed 25 and 40 Gbps footprint.

Molex continues to lead development in the backplane and cable assembly market through innovative connector products. Customers are currently designing new high-end system architectures that will require data-rate improvements. The Impel™ Backplane Interconnect System provides the footprint and interface that will enable customers to migrate to faster data rates (40 Gbps), without completely re-designing their architecture or replacing hardware already placed in the data-center, while meeting the mechanical density requirements being driven by the industry.

Market and Applications



High-End Servers



Telecommunication Applications

- Hubs, switches, routers
- Central office, cellular infrastructure and multi-platform service, (DSL, Cable Data)

Data Networking Equipment

- Servers
- Storage systems

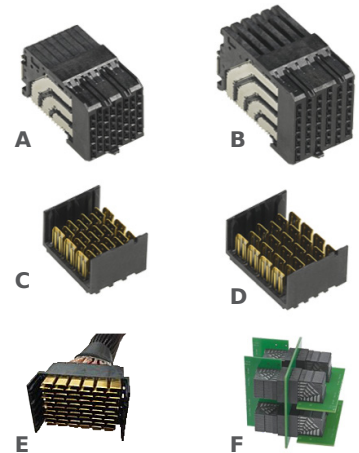
Industrial Equipment

Military/Aerospace Equipment

Impel™ Backplane Interconnect System

Custom Cable Assemblies

- 171500** 6-Pair Impel™ Orthogonal Daughtercard
- 171495** 6-Pair Impel™ Orthogonal Backplane Headers
- 171740** 6-Pair Impel™ Orthogonal Direct Right-Angle Male, (OD RAM)
- 171335** 3-Pair 1.90mm Backplane Header Assembly
- 171990** 3-Pair 1.90mm Daughtercard Receptacle
- 171325** 4-Pair 3.00mm Backplane Header Quad-Route
- 171329** 4-Pair 3.00mm Daughtercard Receptacle Quad-Route
- 171395** 6-Pair 1.90mm Backplane Header
- 171400** 6-Pair 1.90mm Daughtercard Receptacle



Impel™ Backplane Connector System

- A. 3-Pair Daughtercard Receptacle (Series 171340)
- B. 4-Pair Daughtercard Receptacle (Series 171330)
- C. 3-Pair Backplane Headers (Series 171335)
- D. 4-Pair Backplane Headers (Series 171325)
- E. Impel™ Backplane Custom Cable Assembly
- F. Impel™ Orthogonal Mid-Plane Connector System

Designed for a direct connection of PCBs in an orthogonal orientation	Improves airflow and reduces board-space constraints compared to backplane and midplane connector systems. Simplifies component management for contract manufacturers and designers
Shorter line cards and switch-module signal paths versus typical routed backplane connections	Allows for overall robust signal channels
Two compliant-pin attach options and 18 to 72 differential pairs per orthogonal node	Provide customers ultimate flexibility to optimize their designs for superior mechanical and electrical performance
Molex patent-pending Impel™ connector technology with tightly coupled differential-pair structure	Provides optimal signal integrity and mechanical isolation through the connector system
Compact, compliant-pin backplane and daughtercard connectors with data rates scalable from 25 to 40 Gbps	Enable backward and forward compatibility with various high-end system architectures.
Multiple pitch options available: 1.90mm pitch broad-edge-coupled; 2.35mm pitch orthogonal; 3.00mm pitch quad-route	Delivers superior density and electrical performance, low cross-talk, low insertion loss and minimal performance variations across all channels and frequencies to 20 GHz. Offers printed-circuit-board designers the flexibility to quad route the signal traces (two pairs per layer) reducing the PCB layer count
92 Ohms nominal impedance	Enables customers to minimize impedance discontinuities
Optimized wafer structure	Enables connector packaging flexibility. Provides 1.90 and 3.00mm column-to-column pitch configurations allowing for PCB layer-count maximization
Enhanced 0.36mm plated-through-hole diameter	Meets manufacturing aspect ratio while providing improved electrical performance
Skew-less design	Eliminates the need for compensating connector skew on PCB routing
Staggered header-pin interface	Provides robust mechanical isolation from the signal pins. Mitigates the concern for bent pins in the field. Provides first-mate-last-break capabilities
Constructed with copper alloy and LCP	Enables repeatable and reliable part-to-part performance parity versus competitors' housings with additives, which can result in performance inconsistencies
IEEE 10GBASE-KR and Optical Internetworking Forum (OIF) Stat Eye Compliant Channel Performance	Demonstrates end-to-end channel performance compliance
Custom cable assemblies available	Provides a full channel solution for all Impel headers and receptacles; provides design flexibility per application specifications



Specifications

Reference Information

Packaging: Tray

UL File No.: E28179

Mates with: Numerous options,
see pages 10 and 12 reference
Ordering Information Charts

Designed In: Millimeters

RoHS: Yes

Halogen Free: Yes

Electrical

Voltage —

Daughtercard Receptacle (max.):
150VAC RMS

Cable Assembly (max.): 30VAC RMS

Current (max.): 0.75A

Contact Resistance (max.): 100mA; 20mV

Dielectric Withstanding Voltage:

Headers/Receptacles: 500V AC

Cable Assembly: 300VDC

Insulation Resistance —

Daughtercard Receptacle: 500V

Mechanical

Insertion Force to PCB:

Backplane Header — 26.69N

Daughtercard Receptacle — 17.80N

Mating Force:

60g per signal; 80g per shield

Unmating Force (min.): 15g

Durability (min.): 200 cycles

SPECIFICATIONS

Physical

Housing: LCP

Contact: Copper Alloy

Plating:

Contact Area — 30 μ

Compliant Pin Area — select Matte Tin

Underplating — Nickel

PCB Thickness (min.): 1.00mm

Operating Temperature: -40 to +105°C

**Impel™ Backplane
Interconnect
System**

Cable Solutions

Order No.	Comments
Custom	All Impel™ Backplane Interconnect Cable Solutions are custom configurable; for more detailed information and pricing contact Molex customer service: 1 800-78MOLEX (1 800 786-6539)

Backplane Header

Order No.	Pitch (mm)	Pin Length (mm)	Plated Through-Hole Diameter (mm)	Number of Columns	Number of Pairs	Guide
171335-1805	1.90	5.50	0.46	8	3	No
171335-1807		4.90	0.36			
171335-1808						
171325-1605	3.00	5.50	0.46	6	4	
171395-1105	1.90		0.46	10	6	
171395-1107		4.90				
171395-1108		5.50	0.46			
171395-1605				16		
171395-1607		4.90	0.36			
171395-5605		5.50				

Daughtercard Receptacle

Order No.	Pitch (mm)	Number of Columns	Number of Pairs	Guide
171340-1038	1.90	8	3	No
171330-1036	3.00	6	4	
171400-1020	1.90	10	6	
171400-1026		16		
171400-3020		10		
171400-3026		16		
171400-5020		10		
171400-5026		16		
				Right

Orthogonal Daughtercard Assemblies

Order No.	Pitch (mm)	Pin Length (mm)	Plated Through-Hole Diameter (mm)	Guide
171500-1022	2.35	1.30	n/a	No
171500-3022				Left
171500-5022				Right

Orthogonal Backplane Header

Order No.	Pitch (mm)	Pin Length (mm)	Plated Through-Hole Diameter (mm)	Guide
171495-0227	1.85/2.35	4.90	0.36	No
171495-1226		4.50		
171495-1227		4.90		
171495-3207				

Orthogonal Direct Right-Angle Male (OD RAM)

Order No.	Pitch (mm)	Pin Length (mm)	Plated Through-Hole Diameter (mm)	Guide
171740-1208	2.35	n/a	n/a	No