



## Maximize next-generation high-speed system performance and density with the Impact™ Plus 85-Ohm Backplane Connector System, supporting PCIe Gen 3 and Intel QPI protocols and for data rates up to 25 Gbps

The Impact™ Plus 85-Ohm Backplane Connector System leverages the field-proven Impact mating interface and compliant-pin technologies, providing customers flexibility to optimize their designs for superior mechanical and electrical performance.

The Impact™ Plus 85-Ohm Backplane Connector System is available in 3- through 6-pair configurations in conventional, coplanar and mezzanine configurations.

### Features and Benefits

85-Ohm impedance design	Supports PCIe Generation (Gen) 3.0 and Intel QuickPath Interconnect (QPI) requirements for next-generation I/O and memory signaling
Common-ground structure enables enhanced “Plus” signal integrity	Reduces low-frequency resonances and improves far-end crosstalk (FEXT) and insertion loss deviation (ILD)
Data rates scalable up to 25 Gbps	Support future system performance upgrades
Differential-pair density up to 80 pairs per linear inch (when using 6-pair configurations)	Supports high bandwidth needs while minimizing board and system real estate usage
Broad-edge-coupled, differential-pair system	Superior density, low cross-talk, low insertion loss and minimal performance variation across all high-speed channels
IEEE 10GBASE-KR and Optical Internetworking Forum (OIF) Stat Eye Compliant channel performance	Ensures end-to-end reliability
Inline staggered interface	Reduces mating forces
Bifurcated contact beams on the daughtercard connector	Two points of contact for long-term reliability
Easy-to-manage compliant-pin PC tails on 1.90 by 1.35mm grid	Reduces PCB routing complexity and cots
Same density and footprint as Impact™ 100-Ohm Backplane Connector System	Provides design flexibility by leveraging common footprint across the Impact™ product line. Keyed and polarized 85-Ohm will not mate with 100-Ohm

## Impact™ Plus 85-Ohm Backplane Connector System

### Backplane Headers (Vertical)

- 170525** 3-Pair
- 170335** 4-Pair
- 170475** 5-Pair
- 170535** 6-Pair

### Coplanar Headers (Right-Angle)

- 170510** 3-Pair
- 76495** 4-Pair

### Daughtercard Receptacles (Right-Angle)

- 170530** 3-Pair
- 170340** 4-Pair
- 170480** 5-Pair
- 170540** 6-Pair

### Orthogonal Headers (Vertical)

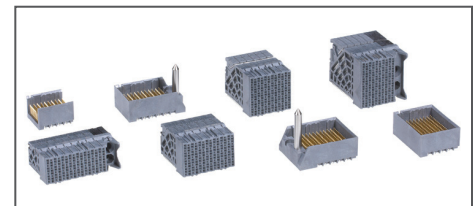
- 171415** 6-Pair

### Orthogonal Receptacles (Right-Angle)

- 171420** 6-Pair

### Mezzanine Receptacles (Vertical)

- 170390** 4-Pair



Impact™ Plus 85-Ohm Product Family 3- through 6-Pair Configurations



## Specifications

### Reference Information

Packaging: Tray  
UL File No.: E28179  
Mates With:  
    Numerous options, reference  
    Ordering Information Charts  
Designed In: Millimeters  
RoHS: Yes  
Halogen Free: Yes

### Electrical

Voltage (max.): 30V AC max.  
Current (max.): 0.75A per pin  
Contact Resistance:  
    mated, 100mA max.  
Dielectric Withstanding Voltage:  
    unmated, 500V AC  
Insulation Resistance:  
    1,000 Megohms min.

### Mechanical

Contact Retention to Housing:  
    3.56N per compliant pin average min.  
Insertion Force to PCB:  
    Backplane: 26.70N  
    Daughter card: 17.80N  
Mating Force: 40g max.  
Unmating Force: 15g per pin min.  
Durability (min.):  
    200 cycles (mating cycles max.)

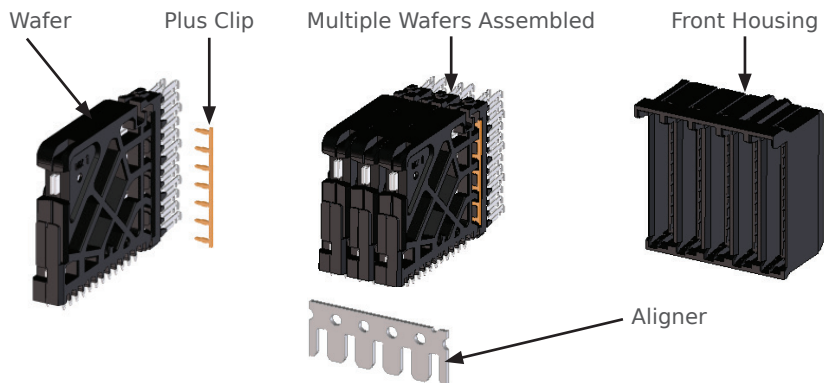
### Physical

Housing:  
    Liquid Crystal Polymer, UL 94V-0  
Contact:  
    High Performance Copper (Cu) Alloy  
Plating:  
    Contact Area — 0.76 $\mu$ m (30 $\mu$ "")  
    Gold (Au) min.  
    Solder Tail Area — Tin (Sn) or  
    Tin/Lead (Sn/Pb)  
    Underplating — Nickel (Ni)  
PCB Thickness: 1.60mm typical  
Operating Temperature:  
    -55 to +85 $^{\circ}$ C max.

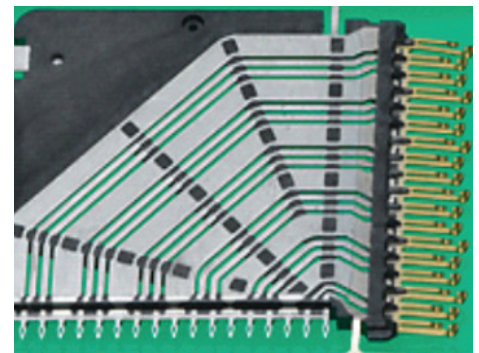
## Impact™ Plus 85-Ohm Backplane Connector System

## Additional Product Features


Plus Clip feature enables improved electrical performance




The Impact™ Plus 85-Ohm Backplane Connector System inherently provides customers with Plus technology with the use of a common ground clip in the daughtercard. Electrical characteristics and performance are improved by reducing Insertion Loss Deviation (ILD) and cross-talk performance is improved by enabling use of longer channels.



### Plus 85-Ohm Daughtercard - Right Angle Receptacle


	Part Number and Description	Column Sizes
	170530-ABCD = 3 pair	8, 10, 16
	170340-ABCD = 4 pair	8, 10, 12, 14, 16
	170480-ABCD = 5 pair	10, 12, 16
	170540-ABCD = 6 pair	10, 16
A - Module Type	B - Guided Key Position	CD - Module Size (PTH)
1 = Unguided (Lead-Free)	0 = No Keying	06 = 6 Column (PTH = 0.46)
3 = Guide Left (Lead-Free)	1 = A	36 = 6 Column (PTH = 0.39)
5 = Guide Right (Lead-Free)	2 = B	08 = 8 Column (PTH = 0.46)
	3 = C	38 = 8 Column (PTH = 0.39)
	4 = D	10 = 10 Column (PTH = 0.46)
	5 = E	20 = 10 Column (PTH = 0.39)
	6 = F	12 = 12 Column (PTH = 0.46)
	7 = G	22 = 12 Column (PTH = 0.39)
	8 = H	14 = 14 Column (PTH = 0.46)
		24 = 14 Column (PTH = 0.39)
		16 = 16 Column (PTH = 0.46)
		26 = 16 Column (PTH = 0.39)

### Plus 85-Ohm Backplane - Vertical Header


	Part Number and Description		Column Sizes
	170525-ABCD = 3 pair		8, 10, 16
	170335-ABCD = 4 pair		8, 10, 16
	170475-ABCD = 5 pair		10, 12, 16
	170535-ABCD = 6 pair		10, 16
A - Module Type	B - Module Size	C - Unguided Wall Options or Guided Key Position	D - Mating Pin Length (PTH)
1 = Unguided (Lead-Free)	8 = 8 Column	0 = Open ends or no keying	3 = 4.50mm (PTH = 0.46)
3 = Guide Left, Open Right (Lead-Free)	1 = 10 Column	1 = Left end wall or A	4 = 4.90mm (PTH = 0.46)
5 = Guide Right, Open Left (Lead-Free)	2 = 12 Column	2 = Dual end wall or B	5 = 5.50mm (PTH = 0.46)
7 = Guide Left, End Wall Right (Lead-Free)	6 = 16 Column	3 = Right end wall or C	6 = 4.50mm (PTH = 0.39)
9 = Guide Right, End Wall Left (Lead-Free)	4 = 14 Column	4 = D	7 = 4.90mm (PTH = 0.39)
		5 = E	8 = 5.50mm (PTH = 0.39)
		6 = F	
		7 = G	
		8 = H	

Note: Custom header pin layouts using standard pin lengths fall under separate series numbers. Contact Molex for details.


### Plus 85-Ohm Coplanar- Right Angle Header (RAM)

	<b>Part Number and Description</b>		<b>Column Sizes</b>
	170510-ABCD = 3 pair		8, 10, 12, 14, 16
	76495-ABCD = 4 pair		
<b>A - Module Type</b>	<b>B - Module Size</b>	<b>C - Unguided Wall Options or Guided Key Position</b>	<b>D - Mating Pin Length (PTH)</b>
1 = Unguided (Lead-Free)	8 = 8 Column	0 = Open ends or no keying	7 = 4.90mm (PTH = 0.39)
3 = Guide Left, Open Right (Lead-Free)	1 = 10 Column	1 = Left end wall or A	8 = 5.50mm (PTH = 0.39)
5 = Guide Right, Open Left (Lead-Free)	2 = 12 Column	2 = Dual end wall or B	
7 = Guide Left, End Wall Right (Lead-Free)	6 = 16 Column	3 = Right end wall or C	
9 = Guide Right, End Wall Left (Lead-Free)	7 = 14 Column	4 = D	
		5 = E	
		6 = F	
		7 = G	
		8 = H	


### Plus 85-Ohm Mezzanine Vertical Receptacle

	<b>Part Number and Description</b>		<b>Column Sizes</b>
	170390-ABCD = 4 pair		6, 8, 10, 12, 14, 16
<b>A - Module Type</b>	<b>B - Guided Key Position</b>	<b>C - Stack Height</b>	<b>D - Module Size (PTH)</b>
1 = Unguided (Lead-Free)	0 = No Keying	0 = 18mm	8 = 8 Column (PTH = 0.39)
3 = Guide Left (Lead-Free)	1 = A	2 = 25mm	0 = 10 Column (PTH = 0.39)
5 = Guide Right (Lead-Free)	2 = B	3 = 37mm	2 = 12 Column (PTH = 0.39)
	3 = C		7 = 14 Column (PTH = 0.39)
	4 = D		6 = 16 Column (PTH = 0.39)
	5 = E		
	6 = F		
	7 = G		
	8 = H		

### Plus 85-Ohm Orthogonal - Mid Plane Header

	<b>Part Number and Description</b>		<b>Column Sizes</b>
	171415-ABCD = 6 pair		10, 12
<b>A - Module Type</b>	<b>B - Module Size</b>	<b>C - Unguided Wall Options or Guided Key Position</b>	<b>D - Mating Pin Length (PTH)</b>
1 = Unguided (Lead-Free)	1 = 10 Column	0 = Open ends	4 = 4.90mm (PTH = 0.46)
3 = Guide Left (Lead-Free)	2 = 12 Column	2 = Dual end wall	5 = 5.50mm (PTH = 0.46)
5 = Guide Right (Lead-Free)			7 = 4.90mm (PTH = 0.39)
7 = Guide Left Endwall (Lead-Free)			8 = 5.50mm (PTH = 0.39)
9 = Guide Right Endwall (Lead-Free)			

### Plus 85-Ohm Orthogonal Daughtercard - Right Angle Receptacle

	<b>Part Number and Description</b>		<b>Column Sizes</b>
	171420-ABCD = 6 pair		10, 12
<b>A - Module Type</b>	<b>B - Guided Key Position</b>	<b>C/D - Module Size (PTH)</b>	
1 = Unguided (Lead-Free)	0 = No Keying	10 = 10 Column (PTH = 0.46)	
3 = Guide Left (Lead-Free)		20 = 10 Column (PTH = 0.39)	
5 = Guide Right (Lead-Free)		12 = 12 Column (PTH = 0.46)	
		22 = 12 Column (PTH = 0.39)	

## Applications

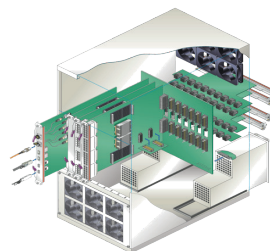
Data and computing equipment

- Servers
- Storage

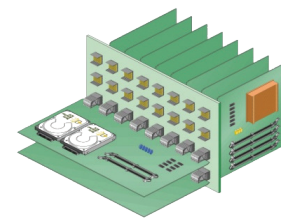
Telecommunication and networking equipment

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

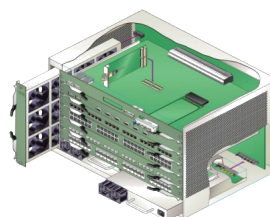
Test and measurement equipment



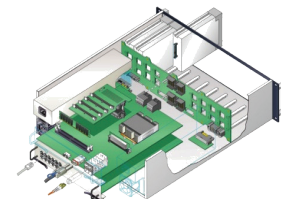
Data Networking



Server Platforms



Telecom Infrastructure



Storage Appliance

**Conventional (Right-Angle to Vertical) Headers and Receptacles**

Number of Pairs	Guide	Header Series No.	Molex Sales Drawing	Receptacle Series No.	Molex Sales Drawing
3	Unguided	<a href="#">170525</a>	SD-170525-0001	<a href="#">170530</a>	SD-170530-0001
	Left		SD-170525-0002		SD-170530-0002
	Right		SD-170525-0003		SD-170530-0004
4	Unguided	<a href="#">170335</a>	SD-170335-0001	<a href="#">170340</a>	SD-170340-0001
	Left		SD-170335-0002		SD-170340-0002
	Right		SD-170335-0003		SD-170340-0004
5	Unguided	<a href="#">170475</a>	SD-170475-0001	<a href="#">170480</a>	SD-170480-0001
	Left		SD-170475-0002		SD-170480-0002
	Right		SD-170475-0003		SD-170480-0004
6	Unguided	<a href="#">170535</a>	SD-170535-0001	<a href="#">170540</a>	SD-170540-0001
	Left		SD-170535-0002		SD-170540-0002
	Right		SD-170535-0003		SD-170540-0004

Note: Mating header and receptacle information is provided in the same row

**Orthogonal (Right-Angle to Vertical) Headers and Receptacles**

Number of Pairs	Guide (Header   Receptacle)	Header Series No.	Molex Sales Drawing	Receptacle Series No.	Molex Sales Drawing
6	Unguided	<a href="#">171415</a>	SD-171415-001	<a href="#">171420</a>	SD-171420-0001
	Left   Right		SD-171415-002		SD-171420-0002
	Right   Left		SD-171415-003		SD-171420-0003

Note: Mating header and receptacle information is provided in the same row

**Coplanar (Right-Angle to Right-Angle) Headers and Receptacles**

Number of Pairs	Guide (Header   Receptacle)	Header Series No.	Molex Sales Drawing	Receptacle Series No.	Molex Sales Drawing
3	Unguided	<a href="#">170510</a>	SD-170510-001	<a href="#">170530</a>	SD-170530-0001
	Left   Right		SD-170510-002		SD-170530-0004
	Right   Left		SD-170510-003		SD-170530-0002
4	Unguided	<a href="#">76495</a>	SD-76495-001	<a href="#">170340</a>	SD-170340-0001
	Left   Right		SD-76495-002		SD-170340-0004
	Right   Left		SD-76495-003		SD-170340-0002

Note: Mating header and receptacle information is provided in the same row Right-angle male headers mate to opposite guide right-angle female headers; for example: right guide header (Series 76495) mates to left guide receptacle (Series 170340)

**Mezzanine (Right-Angle to Vertical) Headers and Receptacles**

Number of Pairs	Stack Height	Guide	Header Series No.	Molex Sales Drawing	Receptacle Series No.	Molex Sales Drawing
4	18	Unguided	<a href="#">170335</a>	SD-170335-0001	<a href="#">170390</a>	SD-170390-0118
		Left		SD-170335-0002		SD-170390-0218
		Right		SD-170335-0003		SD-170390-0418
	25	Unguided		SD-170335-0001		SD-170390-0125
		Left		SD-170335-0002		SD-170390-0225
		Right		SD-170335-0003		SD-170390-0425
	37	Unguided		SD-170335-0001		SD-170390-0137
		Left		SD-170335-0002		SD-170390-0237
		Right		SD-170335-0003		SD-170390-0437

Note: Mating header and receptacle information is provided in the same row