

# Millipacs® 2mm Hard Metric Connector Selector Guide

Millipacs® product family offers 2mm modular Board-to-Board and Cable-to-Board backplane connector solutions. Millipacs® product range include low speed and high speed (10Gb/s) signal connectors, cable, power and hybrid connectors, CompactPCI® and accessories.

# ▶ MILLIPACS® BACKPLANE CONNECTORS

Millipacs® is a 2mm modular, Board-to-Board and Cable-to-Board Interconnection system in Hard Metric (HM) configuration designed in accordance with IEC 917, IEC 61076-4-101 and Telcordia GR-1217-CORE standards.

Millipacs® series 2mm HM connector is one of the most popular backplane connector system and offers attractive propositions for all market segments due to the cost-effectiveness, user flexibility, standardization and availability of its broad range. Millipacs® connector system is extensively used for chassis-based packaging in Communications, Data, Medical and Industrial & Instrumentation market segments. Millipacs® product family addresses a range of system architectures including backplane, coplanar, cabled backplane and mezzanine applications. Types of connector include Vertical Header, Right Angle Receptacle, Right Angle Header, Vertical Receptacle and Cable Receptacle. Millipacs® is the prime choice among all backplane connectors for signal applications up to 3Gb/s data rate.

FCI also offers Millipacs® High Speed (HS) series 2mm HM 5 row Right Angle Receptacle suitable for data rate up to 10Gb/s. It has mating compatibility with standard IEC 61076-4-101 series 2mm HM Vertical Header. The Millipacs® HS Receptacle and 2mm HM Vertical Header mating combination delivers low cross talk performance at higher frequencies.

## TECHNICAL INFORMATION

### MATERIALS

- VH Housing
  - Thermoplastic UL94V-0 for standard press-fit
  - High Temperature Polymer for Pin-in-Paste terminations and Millipacs® high speed
- RAH, VR and RAR Housings
  - High Temperature Polymer
- Contact: Copper Alloy
- Operating Temperature: -55°C to +125°C

### ELECTRICAL PERFORMANCE

- Current Rating: 1.5A at 20°C; 1.0A at 70°C
- Contact Resistance: 20mΩ max.; 25mΩ max. for Millipacs® high speed
- Insulation Resistance: 10,000MΩ min.
- Voltage: 750Vrms

### MECHANICAL PERFORMANCE

- Mating Force: 0.75N max. per contact; 0.50N max. per contact for Millipacs® high speed
- Withdrawal Force: 0.15N min. per contact
- Hertz Stress: 200 Kpsi min.
- Misalignment: Longitudinal ±2.0 mm; Transversal ±2.5 mm
- Inclination: ±2.0°

### SPECIFICATIONS FOR MILLIPACS® STANDARD

- Product Specification: GS-12-203
- Application Specifications
  - VH: GS-20-034
  - RAH, VR and RAR: GS-20-022

### SPECIFICATIONS FOR MILLIPACS® HIGH SPEED

- Product Specification: GS-12-1044
- Application Specifications: GS-20-22

### APPROVALS AND CERTIFICATIONS

- IEC 917, IEC 61076-4-101
- DIN 43356 and IEEE 1301 Hard Metric Practice
- Telcordia GR-1217-CORE standards
- UL and CSA recognized

### PACKAGING

- Tray packaging for standard versions
- Tape and reel packaging for Pin-in-Paste headers

Legend:  
VH: Vertical Header  
RAH: Right Angle Header  
VR: Vertical Receptacle  
RAR: Right Angle Receptacle

## ▶ 5 ROW SIGNAL – STANDARD

Millipacs® 5 row signal-standard				Vertical Header (VH)		Shroud	Right Angle Receptacle (RAR)	
				Shielded	Non-Shielded		Top Shielded	Non-Shielded
	Type A	module length 50 mm 110 pos service center	press-fit	HM2P07PD5111N9LF	HM2P07PD5110N9LF	HM2H07P1LF	HM2R01PA5108N9LF	HM2R01PA5100N9LF
			rear-plug-up	HM2P07PK5111GFLF	HM2P07PK5110GFLF			
	Type B	module length 50 mm 125 pos no service center	press-fit	HM2P08PD5111N9LF	HM2P08PD5110N9LF	HM2H08P1LF	HM2R02PA5108N9LF	HM2R02PA5100N9LF
			rear-plug-up	HM2P08PK5111GFLF	HM2P08PK5110GFLF			
	Type AB	module length 50 mm 125 pos guiding pegs	press-fit	HM2P65PD5111N9LF	HM2P65PD5110N9LF	HM2H65P1LF	HM2R65PA5108N9LF	HM2R65PA5100N9LF
			rear-plug-up	HM2P65PK5111GFLF	HM2P65PK5110GFLF			
	Type C	module length 25 mm 55 pos service center-left	press-fit	HM2P09PD5111N9LF	HM2P09PD5110N9LF	HM2H09P1LF	HM2R03PA5108N9LF	HM2R03PA5100N9LF
			rear-plug-up	HM2P09PK5111GFLF	HM2P09PK5110GFLF			
	Type CR	module length 25 mm 55 pos service center-right	press-fit	HM2P80PD5111N9LF	HM2P80PD5110N9LF	HM2H80P1LF	HM2R20PA5108N9LF	HM2R20PA5100N9LF
			rear-plug-up	HM2P80PK5111GFLF	HM2P80PK5110GFLF			

## ▶ 5 ROW SIGNAL – HIGH SPEED 10GB/S NEW

Millipacs® 5 row signal-high speed		Right Angle Receptacle (RAR)	Other Features
	Type A	10127112-101LF	<ul style="list-style-type: none"> <li>Suitable for data rate up to 10Gb/s according to IEEE 803.2ap</li> <li>Mating compatibility to the IEC 61076-4-101 series 2mm hard metric (HM2) backplane header</li> <li>Row-wise or horizontal pinning or broad side coupling</li> <li>Staggered PCB terminals ensures low crosstalk performances at high frequencies</li> <li>Same outer physical dimensions (except pcb terminal footprint) to IEC 61076-4-101 compliant 2mm hard metric receptacle</li> </ul>
	Type AB	10127156-101LF	
	Type C	10127169-101LF	

### TYPICAL PINNING RECOMMENDATION

f	0	0	0	0	0	0	0	0	0	0	0
e	G	G	S	S	G	G	S	S	G	G	LS
d	S	S	G	G	S	S	G	G	S	S	G
c	G	G	S	S	G	G	S	S	G	G	LS
b	S	S	G	G	S	S	G	G	S	S	G
a	G	G	S	S	G	G	S	S	G	G	LS
z											
Type C	1	2	3	4	5	6	7	8	9	10	11

Legend:

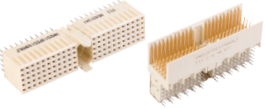
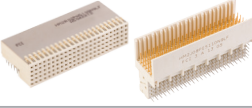
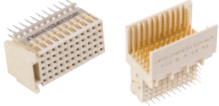
S – High Speed signal pins

LS – Low Speed signal pins




G – Ground pins

For custom pinning configuration requirement, please contact our FCI sales representatives.

## ▶ 5 ROW SIGNAL – REVERSED

Millipacs® 5 row signal-reversed			Right Angle Header (RAH)		Vertical Receptacle (VR)	
			Top Shielded	Non-Shielded	Shielded	Non-Shielded
	Type A	module length 50 mm 110 pos service center	HM2J07PE5118N9LF	HM2J07PE5110N9LF	HM2S10PE5101N9LF	HM2S10PE5100N9LF
	Type B	module length 50 mm 125 pos no service center	HM2J08PE5118N9LF	HM2J08PE5110N9LF	HM2S02PE5101N9LF	HM2S02PE5100N9LF
	Type C	module length 25 mm 55 pos service center-left	HM2J09PE5118N9LF	HM2J09PE5110N9LF	HM2S30PE5101N9LF	HM2S30PE5100N9LF

## ▶ 5 ROW SIGNAL – PIN-IN-PASTE

Millipacs® 5 row Pin-in Paste			Vertical Header (VH)
			Shielded
	Type A	with 110 signal contacts	HM2P40SZ5111N9LF
	Type C	with 55 signal contacts	HM2P09SZ5111N9LF
	Type M	with 55 signal contacts and 3 power/coax option	HM2P11SZ5011N9LF


## ▶ 8 ROW SIGNAL – STANDARD



Millipacs® 8 row signal-standard				Vertical Header (VH)		Shroud	Right Angle Receptacle (RAR)	
				Shielded	Non-Shielded		Top Shielded	Non-Shielded
	Type D	module length 50 mm 176 pos service center	press-fit	HM2P87PD8111N9LF	HM2P87PD8110N9LF	HM2H87P1LF	HM2R87PA8108N9LF	HM2R87PA8100N9LF
			rear-plug-up	HM2P87PK8111GFLF	HM2P87PK8110GFLF			
	Type DE	module length 50 mm 200 pos guiding pegs	press-fit	HM2P95PD8111N9LF	HM2P95PD8110N9LF	HM2H95P1LF	HM2R95PA8108N9LF	HM2R95PA8100N9LF
			rear-plug-up	HM2P95PK8111GFLF	HM2P95PK8110GFLF			
	Type E	module length 50 mm 200 pos no service center	press-fit	HM2P88PD8111N9LF	HM2P88PD8110N9LF	HM2H88P1LF	HM2R88PA8101N9LF	HM2R88PA8100N9LF
			rear-plug-up	HM2P88PK8111GFLF	HM2P88PK8110GFLF			
	Type F	module length 25 mm 88 pos service center-left	press-fit	HM2P89PD8111N9LF	HM2P89PD8110N9LF	HM2H89P1LF	HM2R89PA8108N9LF	HM2R89PA8100N9LF
			rear-plug-up	HM2P89PK8111GFLF	HM2P89PK8110GFLF			

## ▶ SIGNAL & POWER


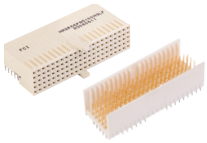
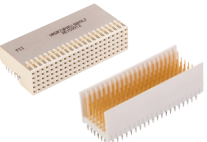
Signal & Power			Vertical Header (VH)	Right Angle Receptacle (RAR)
	Type L	module length 50 mm 6 power positions service center	HM2A30PG5000LF	HM2E30PH5000LF
	Type N	module length 25 mm 3 power positions service center	HM2A32PG5000LF	HM2E32PH5000LF
	Type M	module length 50 mm 3 power + 55 signal positions service center + location pegs	HM2P11PD5111N9LF	HM2R05PA5108N9LF

## ▶ CABLE CONNECTORS

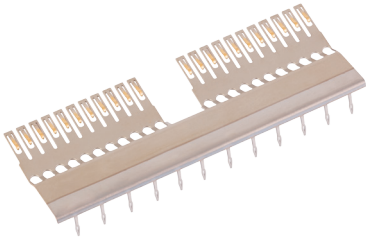
LF – Low Frequency			26AWG	30AWG – 28AWG
	Non-Shielded	2 x 5 positions	HM2C06D2C010N9LF	HM2C06D0C010N9LF
		4 x 5 positions	HM2C01D2C010N9LF	HM2C01D0C010N9LF
	Shielded	2 x 5 positions	HM2C09D2C021L9LF	HM2C09D0C021L9LF
		4 x 5 positions	HM2C10D2C021L9LF	HM2C10D0C021L9LF
		6 x 5 positions	HM2C11D2C021L9LF	HM2C11D0C021L9LF
		8 x 5 positions	HM2C12D2C021L9LF	HM2C12D0C021L9LF


Rear plug-up accessories			
	Cable-to-Board Shroud	5 x 5 positions	HM2H04P1LF
		5 x 25 positions	HM2H05P1LF
	Locking Key		HM2LK1LF

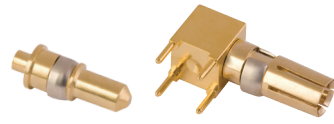
## ▶ 5 ROW – COMPACTPCI®

Millipacs® 5 row– CompactPCI®				Vertical Header (VH)		Shroud	Right Angle Receptacle (RAR)	
				Shielded	Non-Shielded		Top Shielded	Non-Shielded
	Type AB19	module length 38 mm 95 pos guiding pegs	press-fit	HM2P67PD5111N9LF	HM2P67PD5110N9LF	HM2H67P1LF	HM2R67PA5108N9LF	HM2R67PA5100N9LF
			rear-plug-up	HM2P67PK5111GFLF	HM2P67PK5110GFLF			
	Type AB22	module length 44 mm 110 pos guidng pegs	press-fit	HM2P66PD5111N9LF	HM2P66PD5110N9LF	HM2H66P1LF	HM2R66PA5108N9LF	HM2R66PA5100N9LF
			rear-plug-up	HM2P66PK5111GFLF	HM2P66PK5110GFLF			
	Type B22	module length 44 mm 110 pos no service center	press-fit	HM2P70PD5111N9LF	HM2P70PD5110N9LF	HM2H70P1LF	HM2R70PA5108N9LF	HM2R70PA5100N9LF
			rear-plug-up	HM2P70PK5111GFLF	HM2P70PK5110GFLF			

## ▶ ACCESSORIES

Bottom Shield	Connector Type		Part Number
		Type AB19	CompactPCI®
Type AB22		CompactPCI®	HM2LS67ALF
Type B22		CompactPCI®	HM2LS70ALF
Type A		Millipacs	HM2LS22ALF
Type AB		Millipacs	HM2LS22ALF
Type C		Millipacs	HM2LS11ALF
Type CR		Millipacs	HM2LS11ALF
Type D		Millipacs	HM2LS22A8LF
Type DE		Millipacs	HM2LS25A8LF
Type E		Millipacs	HM2LS25A8LF
Type F		Millipacs	HM2LS11A8LF
Type M		Millipacs	HM2LS11ALF

Coding Devices	Color	Plug	Receptacle
	cadmium–yellow	HM2DK3456PLF	HM2DK1278RLF
	brilliant–blue	HM2DK1567PLF	HM2DK2348RLF
	reseda–green	HM2DK2578PLF	HM2DK1346RLF
	strawberry–red	HM2DK1248PLF	HM2DK3567RLF

Power Contacts	Connector Type	Pin Contact	Socket Contact
	Dipsolder Power Contacts (10A max. current)	RM12PIE54ERPLF	RC12PIE52ERPLF



For more information, please contact:  
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