

Millipacs High speed product presentation

Date rate upgrade up to 25Gbps

June 2019

Amphenol Information Communications
and Commercial Products

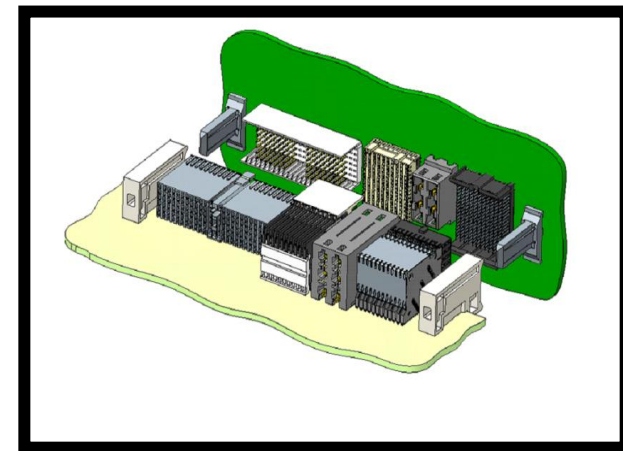
 **FCi Basics**

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Millipacs Backplane USP

Most preferred Backplane connector system

- Why 2mm HM is popular
 - Price point, Standards, Range, Multiple suppliers
- Range
 - Largest range contact lengths for header
 - Selective loaded contacts for Receptacle
 - Customized versions & product extensions
 - Cost effective & Engineering capability
- Competitive service levels
 - Lowest price point & Short lead times
- Signal Integrity & Transition to higher speed
 - Industry leading performance up to 10Gbps & upgrade to higher speed (25G) and with mating compatibility
 - Used side by side with higher speed hardmetric connectors like Palladin, Examax, Airmax, XCede HD,



Standard Millipacs features

5 row or 8 row system with 2 addl. rows for shielding

Hard Metric

–2.0 mm pitch

Scalable

–Size - modular without loss of Contact Positions

–Density - 5 + 2 or 8 + 2 Row system

Header

– 5 & 8 Row Vertical and 5 Row Right Angle

–Broadest contact length configurations

Receptacle

–5 & 8 Row Right Angle and 5 Row Vertical

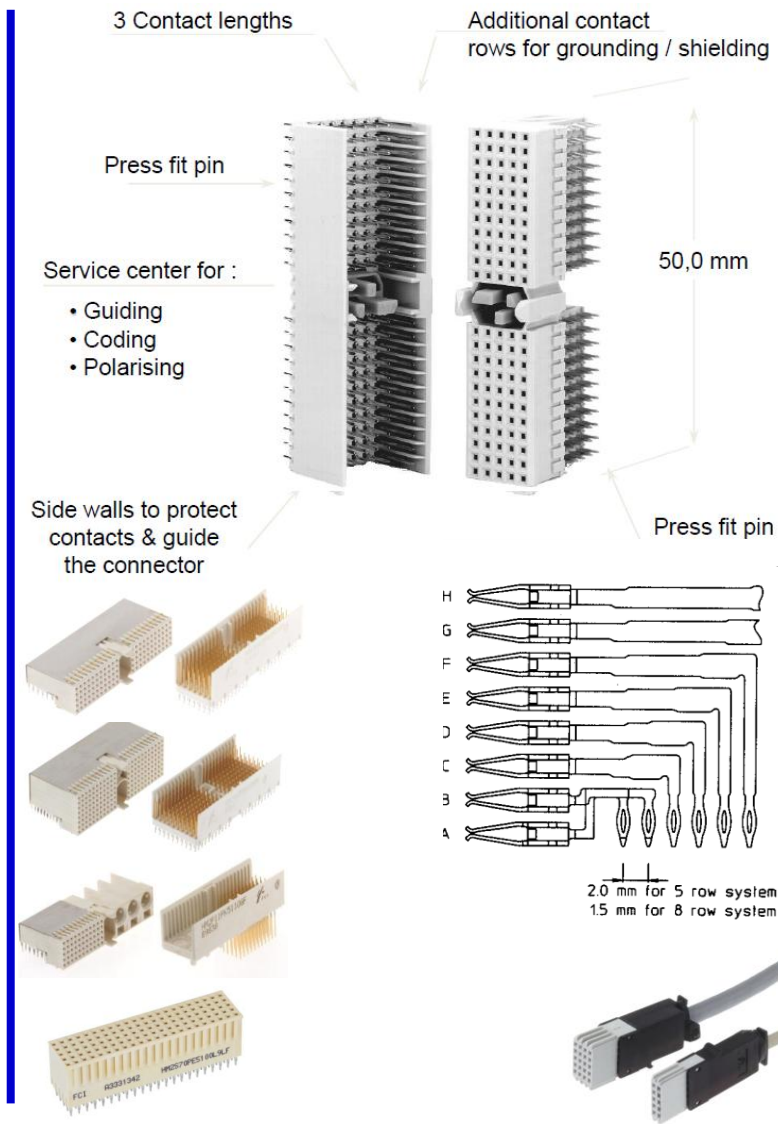
–Selective loading of contacts option

Accessories

– Guiding, Polarizing & Hybrid

Performance

–IEC, Telecordia, Compact PCI, UL/ CSA



Millipacs standard version

With suitable pinning recommendation, 3-5Gbps is possible

Broad side coupling recommendation

(S= Signal & G- Ground)

f																									
e	G	G	S	S	G	G	S	S	G	G	S	S	G	G	S	S	G	G	S	S	G	G	S	S	G
d	S	S	G	G	S	S	G	G	S	S	G	G	S	S	G	G	S	S	G	G	S	S	G	G	LS
c	G	G	S	S	G	G	S	S	G	G	S	S	G	G	S	S	G	G	S	S	G	G	S	S	G
b	S	S	G	G	S	S	G	G	S	S	G	G	S	S	G	G	S	S	G	G	S	S	G	G	LS
a	G	G	S	S	G	G	S	S	G	G	S	S	G	G	S	S	G	G	S	S	G	G	S	S	G
z																									
AB Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

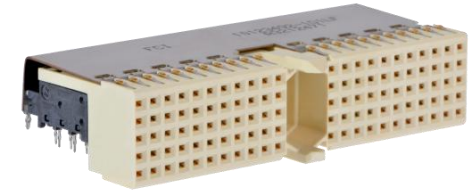
Edge side coupling or vertical column wise pinning recommendation

f																									
e	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S
d	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S
c	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
b	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S
a	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S
z																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

Millipacs HS 5 Row RA Receptacle

10Gbps, broad side coupling & mating compatibility to standard header

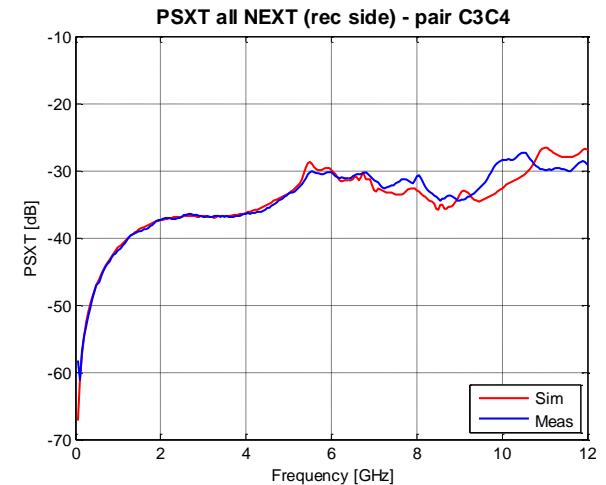
- Product : 2 mm hardmetric 5 row RA receptacle (RAR) for data rate up to **10Gbps (IEEE 803.2ap)** with **Mating** compatibility to standard **IEC 61076-4-101** series 2mm Hardmetric vertical header (VH)



- Features :-
 - Delivers low cross talk performance at high frequencies
 - Broad side coupling or row wise pinning**
 - Reduced skew within pairs
 - Retains same outer board space as that of standard Millipacs Receptacle. Retains the existing backplane architecture and header
 - Dual beam tulip contact, equalized signal path and contact reliability
 - Top and bottom shielding option
 - Small pressfit compliant section, staggered pins and short tail post for enhanced SI performances
 - Low cross talk, delivers -30db @5Ghz frequency
 - Range : Type A – 22 column, 24 DP, Type AB – 25 column, 30 DP & Type C – 11 column , 12 DP

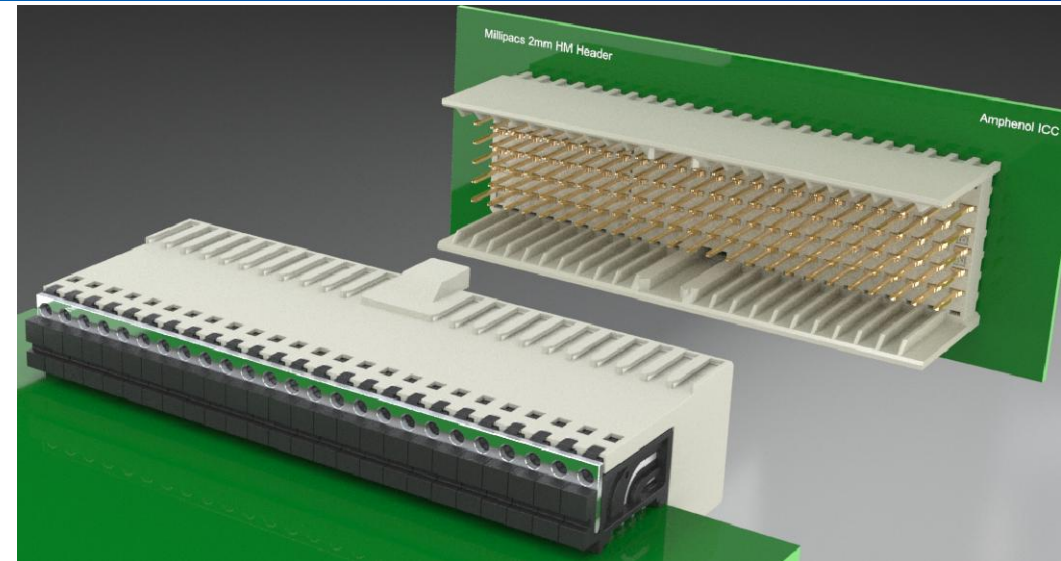
Typical pinning recommendation

f	1	1	1	1	1	1	1	1	1	1	1
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



Vertical column /Edge side coupling

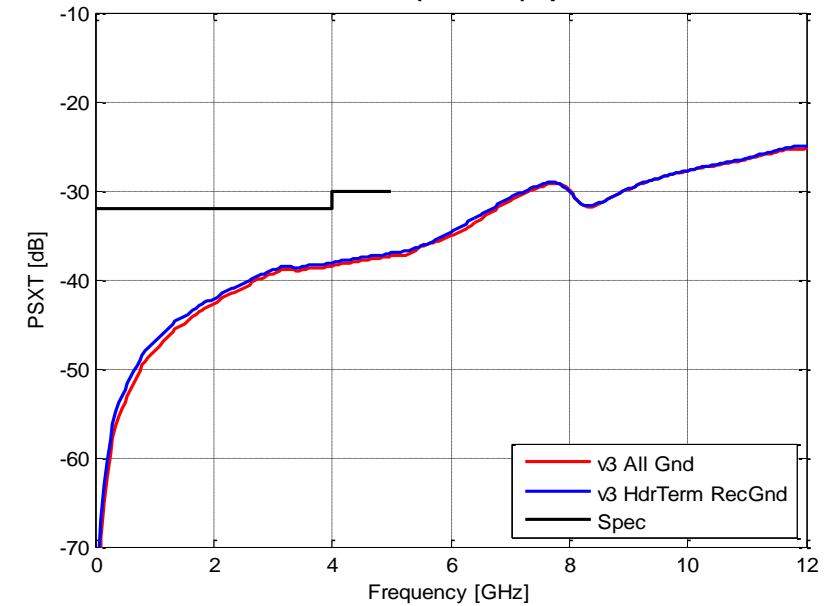
- Product : 2 mm hardmetric RA receptacle for data rate up to **12.5Gbps** with **Mating** compatibility to standard 2mm Hardmetric vertical header
- Features :-
 - Very low cross talk, delivers -35db @6Ghz frequency
 - **Edge side coupling or vertical column wise pinning**
 - Two beam Tulip contact
 - Small pressfit compliant section
 - 5 row Type AB, 26DP / 50mm length, other versions available on request
 - Retains same outer board space as that of standard Millipacs Receptacle
 - Retains the existing backplane architecture and header



Vertical column /Edge side coupling

f																									
e	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	
d	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	
c	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
b	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	
a	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	
z																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

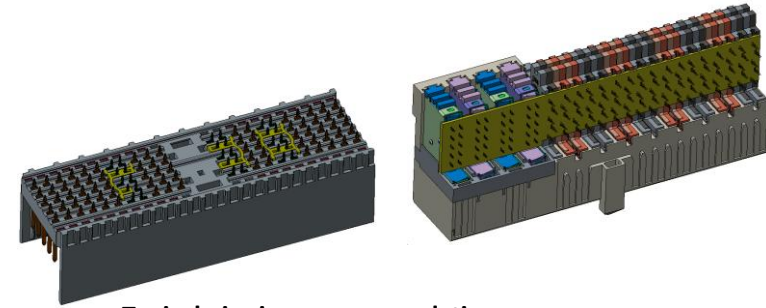
PSXT all FEXT (rec side) - pair A1B1



- S = High speed DP
- G = Ground
- LS = Low speed signals

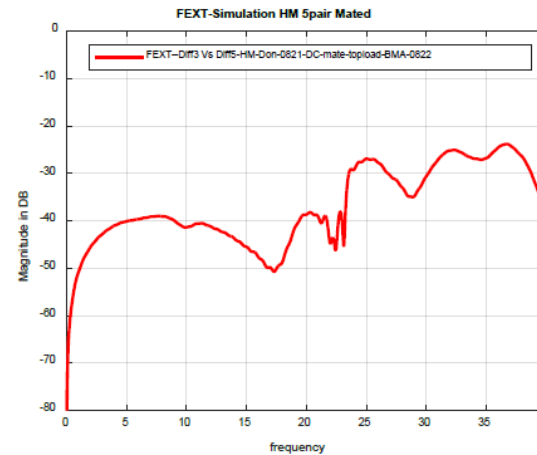
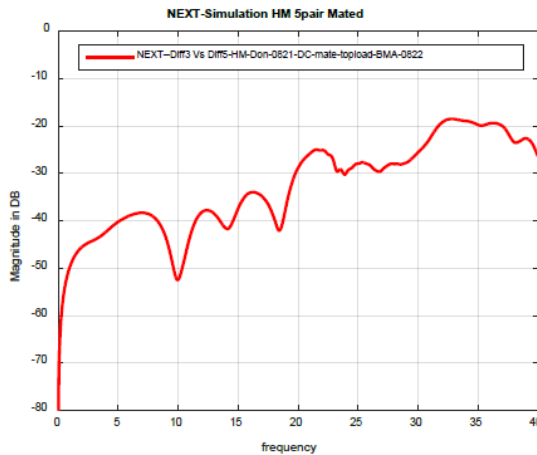
Broad side coupling & mating compatibility

- Product : 2 mm hardmetric Vertical header and RA receptacle for data rate up of **25Gbps**
- Key Features :-
 - 25Gbps data rate, very low low cross talk
 - Broad side coupling or Horizontal row wise pin out
 - Mates with both standard Millipacs and 10G Millipacs versions
 - Retains same outer board space as that of standard product.
 - Retains the existing backplane architecture
 - Two beam Tulip contact for Receptacle
 - Balanced differential pairs. Upto 30DP / 50mm length



Typical pinning recommendation

f	1	1	1	1	1	1	1	1	1	1	
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






High speed Technical Summary

Upgrade options for Millipacs® High Speed

- Offers the most cost-effective upgrade. Retains the backplane header, only the daughter card receptacle need to be changed.

Product Overview

Millipacs 10G RAR (Broadside coupling)	Millipacs 12.5G RAR (Edge-coupling)	Millipacs 25G VH & RAR Type AB & A
		
<ul style="list-style-type: none"> 10Gb/s, backwards-compatible with 1st gen 2mm HM Differential pairs are broadside-coupled (the left and right contacts) While upgrading, change only daughter card RAR. Backplane and header can be retained PTH : 0.40mm dia 	<ul style="list-style-type: none"> 12.5Gb/s, backwards-compatible with 1st gen 2mm HM Differential pairs are edge-coupled (the above and below contacts) PTH : 0.40mm dia 	<ul style="list-style-type: none"> 25Gb/s with low cross talk at high frequencies Differential pairs are broadside-coupled (the left and right contacts) Backwards-compatible with 1st gen 2mm HM as well as the 10G version PTH : <ul style="list-style-type: none"> 0.31mm dia (25G) 0.36mm dia (low speed)

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Thank You