3M™ MetPak™ HSHM Press-Fit B19 Connectors

Legacy VERSAmodule Eurocard (VME) and CompactPCI (cPCI) systems cannot support newer high speed serial I/O protocols such as PCI Express or RapidIO without a forklift upgrade to the backplane. Standards allow faster speeds, but current high speed connectors are not backward compatible with 5 row 2 mm hard metric connectors on legacy VME64x with VITA31 and PICMG 2.16 backplanes.
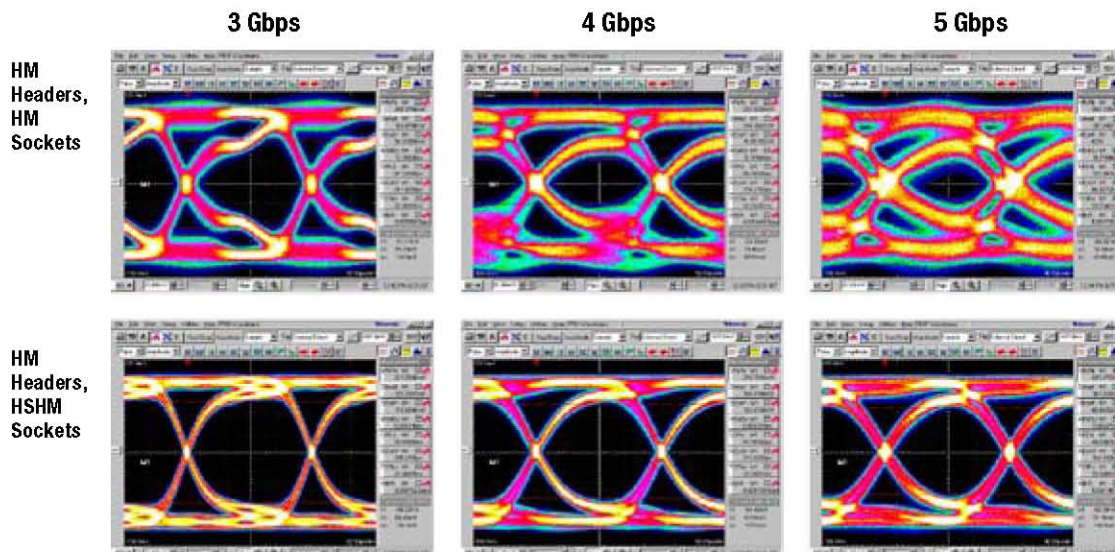
3M™ MetPak™ HSHM
Press-Fit Socket

What if you could supercharge legacy VME and cPCI backplanes to 5 Gbps without disruptive and expensive backplane redesign and a forklift chassis upgrade? 3M™ MetPak™ High Speed Hard Metric (HSHM) Press-Fit B19 Connectors are designed to resolve this problem and provide a cost-effective upgrade to higher speed. With speeds up to 5 Gbps, 3M MetPak HSHM B19 fully shielded connector mates with 2 mm 5 row cPCI / hard metric headers; connectors P0 on VME64x with VITA31 and P3 on cPCI with PICMG 2.16. Full pin-to-pin compatibility can be maintained with existing VME and cPCI backplanes. A performance improvement up to 3X can be obtained by using daughter cards with MetPak HSHM B19 sockets mated to standard 5 row 2 mm hard metric headers.

3M™ MetPak™ HSHM
Press-Fit Header

|	3 Gbps	4 Gbps	5 Gbps
HM Headers, HM Sockets			
HM Headers, HSHM Sockets			

- Typically HM connectors are not used in applications above 1 Gbps.
- HM headers mated to HSHM sockets provide tremendous improvement in eye opening and jitter up to at least 5 Gbps.

3M™ MetPak™ HSHM Press-Fit B19 Connectors provide:

- Data rates up to 5 Gbps
- Low crosstalk at high frequencies
- True signal density: 5 row 63 mated pairs per linear inch
- 50/100 ohm (single-ended / differential) impedance
- Selective shielding in rows and/or columns
- Industry standard format for hard metric (IEC 61076-4-101)
- Dual beam contact construction for high reliability

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Impedance TDR Profile
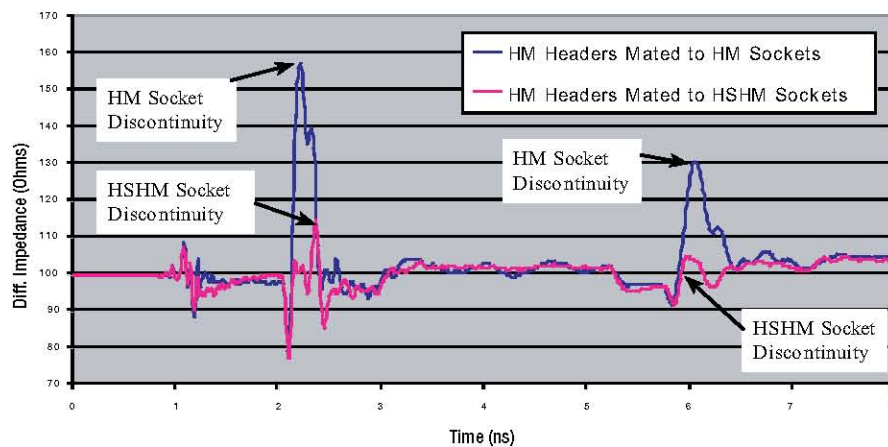
Crosstalk

NEAR END Crosstalk

Row	Aggressor Pair	Victim Pair
E	S +	S +
D	S -	S -
C	G	G
B	S +	S +
A	S -	S -

Risetime	35 ps	100 ps	200 ps	300 ps
HM-HM	5.0%	4.4%	3.5%	2.9%
HM-HSHM	3.3%	2.5%	1.7%	1.2%
Improvement	34%	43%	51%	59%

- Signal pattern assumes two differential pairs per column with middle row grounded.
- Crosstalk to neighboring pair is cut nearly in half even at rise times as fast as 100 ps.
- Crosstalk to pairs on opposite side of ground row is negligible.

Header Ordering Information (TS2220)

HSHM - H095BX - 5CPX - XXXXX (rows F and Z not loaded)

High Speed Option:
4 = Coaxial, column differential and stripline (75 Ω) applications
5 = Row differential applications

Tail Length:
1 = 4.4 mm pin and 3.5 mm shield
2 = 2 mm pin and 2 mm shield

Plating μm [μ"]:
TG30 = 0.76 [30] Min. Au Contact Area
2.54 [100] Min. SnPb Terminal Area
1.27 [50] Min. Ni All over

TR40B = 0.127 [5] Min. Hard Au Contact Area, Lubricated
1.02 [40] Min. PdNi Contact Area
0.10 [4] Min. Pd Strike Contact Area
2.54 [100] Min. SnPb Terminal Area
1.27 [50] Min. Ni all over

Socket Ordering Information (TS2221)

HSHM - S095BX - 5AP1 - XXXXX

High Speed Option:
1 = Row differential applications
4 = Coaxial and column differential applications
5 = Stripline applications (75 Ω)

Plating μm [μ"]:
TG30 = 0.76 [30] Min. Au Contact Area
2.54 [100] Min. SnPb Terminal Area
1.27 [50] Min. Ni All over

TR40B = 0.127 [5] Min. Hard Au Contact Area
1.02 [40] Min. PdNi Contact Area
0.10 [4] Min. Pd Strike Contact Area
2.54 [100] Min. SnPb Terminal Area
1.27 [50] Min. Ni all over

If you want to dramatically improve your system performance without costly and time consuming backplane redesign, 3M has the solution for you with HSHM.

3M is a trademark of 3M Company.

Important Notice

Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use.

Warranty; Limited Remedy; Limited Liability.

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