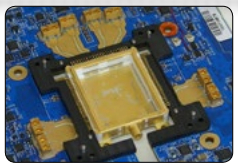
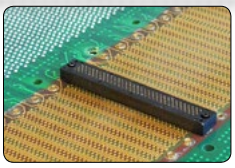
Application Case Study

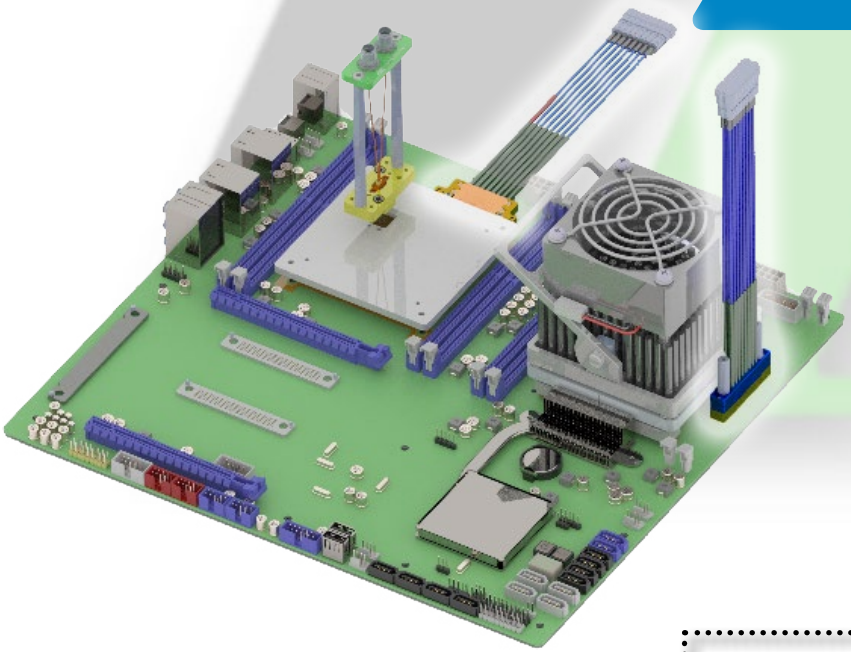
ACS #0011

Replacing SMP's with TR for 12Gsps ADC

Problems Faced During Application

Engineers working on a test team at a major IC manufacturer were developing next gen, JESD204B standard data converters, Digital to Analog (DAC) and Analog to Digital (ADC) running at 12GSPS with plans to increase speeds. Their test team used surface mount SMPs for characterizing their channels. This was accomplished by fanning out traces to SMPs on their test boards. For a typical program they would use 32 SMPs per board with more than 40 boards manufactured per program. This meant up to 1,200+ nonrecoverable SMPs were a sunk cost at the end of each program. Adhering to JESD204B, the company was looking to reduce the number of interconnects and therefore realize a smaller form factor.



The Ardent Solution

Using Ardent's TR Multicoax in Right Angle (RA) and Straight Mount (SM) configurations, the customer was able to place their high speed signals in closer proximity to their ADCs and DACs, greatly reducing necessary uniform trace lengths. Additionally, TR Multicoax saved them significant cost savings over SMPs because it was compression mount, making it 100% reclaimable for use on future programs. The compression mounting also made TR Multicoax more electrically reliable than SMPs which wore with repeated use.

Key Benefits

- JESD204B standards realized by reducing interconnects and minimizing form factor
- Shorter and uniform trace lengths to keep losses low & SI high
- Elimination of wasted soldered SMPs through use of compression mount TR Multicoax led to dramatic cost savings across boards and programs.

ARDENT CONCEPTS
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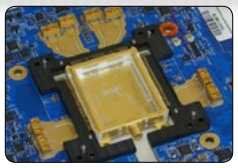
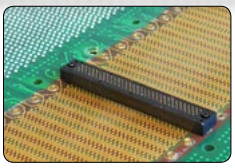
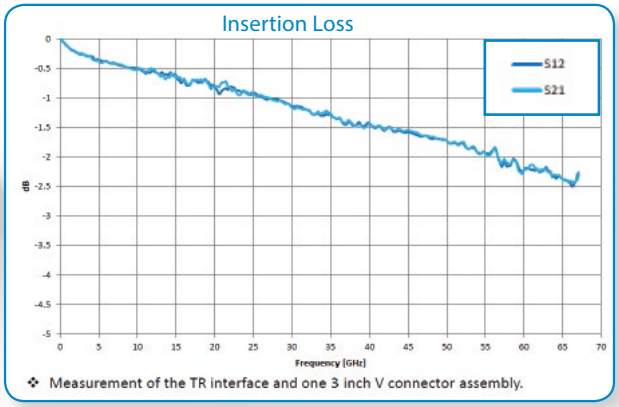




Key Performance Data

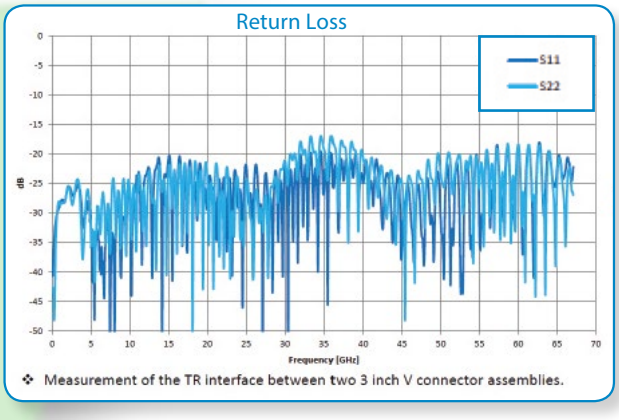
Technical Specifications	
Frequency Range	DC to 70 GHz
Return Loss[1]	-18 dB through 70 GHz
Insertion Loss[2]	-1.5 dB through 40 GHz, -3 dB through 70 GHz
Crosstalk	-70 dB through 70 GHz
Impedance[1]	50 Ω +/- 10%
Phase Matching	+/- 2 ps standard

Mechanical Specifications	
Pitch	2.54 mm
Cables	.047" diameter cables[3]
Connectors	SMA, SMK (2.92 mm), or V (1.85 mm)
Cable Length	6"/152 mm, 12"/304 mm, 24"/608 mm
Insertion Life	1,000+ mating cycles
Field Replaceable Interface	Yes
Footprint	Microstrip & Stripline compatible

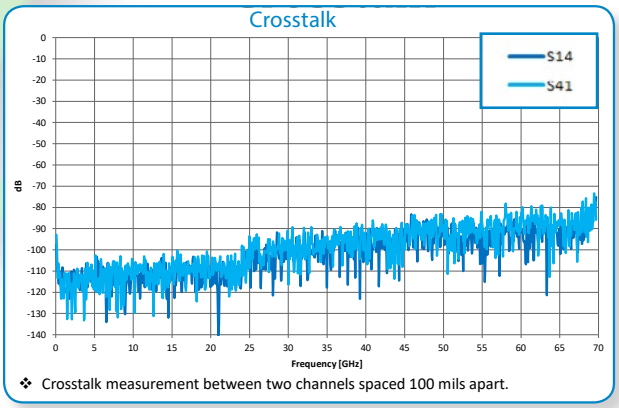
Notes: [1]Largely a function of PCB design. [2]Measurement includes 3" of cable. [3]Consult factory for additional cable options.



❖ Measurement of the TR interface and one 3 inch V connector assembly.



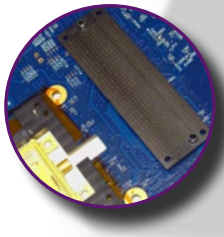
❖ Measurement of the TR interface between two 3 inch V connector assemblies.



❖ Crosstalk measurement between two channels spaced 100 mils apart.

Related Products

CA Series™ - Connectors & Interposers



- 32 Gbps+
- Area array to 0.4mm pitch
- Compression mount & solderless
- Pure vertical interface – no offset required
- Ideal for high shock and vibration/extreme temperatures applications

SK Series™ - Multi-GHz Sockets

- 40 Ghz+/32 Gbps+ performance
- Thermal management ready
- Solderless/compression mount system provides flexibility throughout design
- Quick connection of multiple signals to PCB
- Custom designed to your application

More Information

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