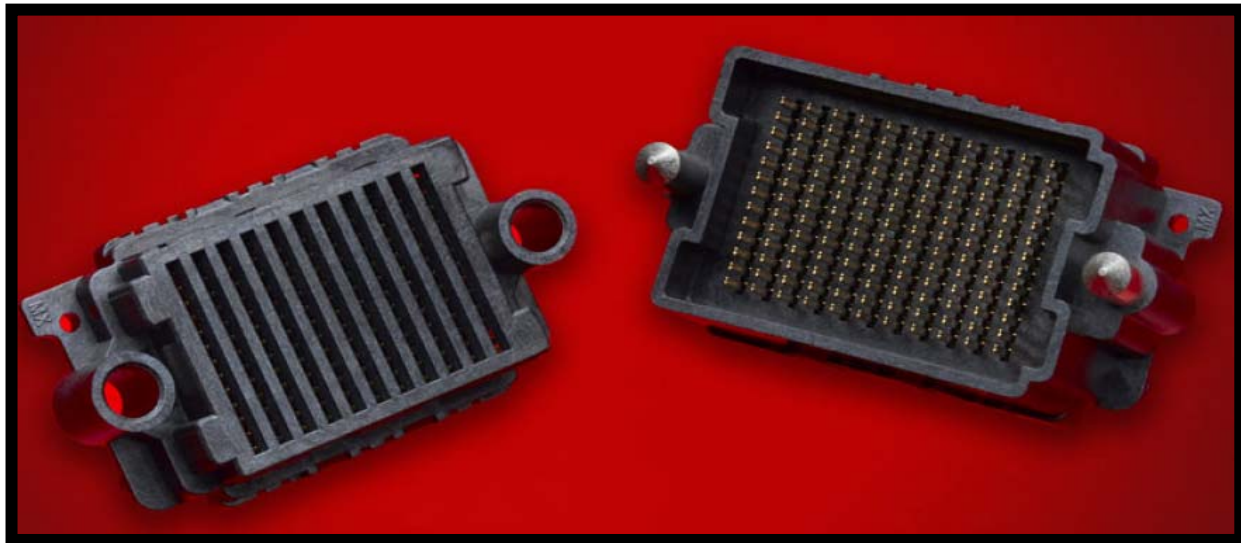




PRELIMINARY INTERMATEABILITY SPECIFICATION

PRODUCT INTERMATEABILITY SPECIFICATION FOR Molex and Samtec HD Mezz™ HIGH DENSITY MEZZANINE INTERCONNECT SYSTEM



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DOCUMENT NUMBER: PS-45802-002	CREATED / REVISED BY: R.Hodge	CHECKED BY: J. Comerchi	APPROVED BY: J. Comerchi



PRELIMINARY INTERMATEABILITY SPECIFICATION

Introduction

Molex and Samtec have entered a cross licensing agreement for HD Mezz™, a high density mezzanine interconnect system. This collaborative agreement requires that both companies provide product that has similar performance and is intermateable. Comparable mechanical performance has been established by dimension verification of the design and materials utilized in manufacturing. The data in this report will support the electrical and mechanical intermateability between Molex and Samtec for HD Mezz™.

In order to ensure future product derivatives of HD Mezz™ are intermateable, both organizations will conduct regular design reviews. Molex and Samtec are cooperating on a technical level to ensure a dual sourcing strategy can be supported for our end customers. The premise for our licensing agreement is to fulfill the industry needs for assurance of supply, repeatable manufacturing processes, and reliability of the mating interface.

This report provides empirical Signal Integrity data depicting that both the Molex and Samtec HD Mezz™ product families are intermateable, and the separable interface is compatible.

1.0 SCOPE

This specification defines intermateability SI performance requirements and test methods for the following Molex products listed below with their licensed counterparts from Samtec. Both the receptacle and plug will have some level of intermateability verification:

HD Mezz™ Receptacle Connector
HD Mezz™ Plug Connector

The HD Mezz™ high density mezzanine interconnect system consists of various height Receptacle Connectors and Plug Connectors. These connectors are two-piece surface mount devices which connect two parallel printed circuit boards combined to create the required stack height. There are 13 circuits per wafer.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAMES

HD Mezz™ (High Density Mezzanine)

2.2 DIMENSIONS, MATERIALS, PLATINGS, AND MARKINGS

Refer to the appropriate sales drawings for information on dimensions, materials, platings, and markings.

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3.0 PERFORMANCE

3.1 ELECTRICAL PERFORMANCE

ITEM	TEST CONDITION	REQUIREMENT
CONTACT RESISTANCE (LOW LEVEL)	Mated, 100mA max, 20mV per EIA-364-TP-23	13.5 milliohm Nom. 10 milliohm max change (28mm Stack Height)
CAPACITANCE	Test per EIA-364-30, All lines switching with one victim bit	Not to exceed 1.0 picofarad (28mm Stack Height)
CHARACTERISTIC IMPEDANCE- Differential	Test at 50ps Trise (10-90%) using a GSSGSSGSSGSSG pinout repeated in every wafer	100+/-10% ohms – Diff (28mm Stack Height)
CHARACTERISTIC IMPEDANCE - Single-Ended	Test at 50ps Trise (10-90%) using a GSGSGSGSGSGSG pinout alternated with SGSGSGSGSGSGS in the next wafer	69 Ohm Max (28mm Stack Height)
CROSSTALK	Test at 100ps RT (10-90%) using same pinouts as for impedance testing; a victim surrounded by all available aggressors; computed as sum of peaks from each aggressor	Differential: 4.6% Near-End, 1.9% Far-End Single-ended: 10.2% Near-End, 7.4% Far-End (28mm Stack Height)
PROPAGATION DELAY	Measurement made on the same line used for Impedance testing	28mm stack height– 133 ps
DIFFERENTIAL INSERTION LOSS (-3dB)	Mated Connectors Only (not including SMA launches, including 0.5" of PCB trace and SMT attach and vias)	6.5 GHz (28mm Stack Height)

Note: Signal Integrity testing done with “0.5” of differential stripline PCB traces (0.5 oz copper weight, 6 mil width, 6 mil spacing in Rogers 4350B laminate, optimized for 100 Ohm differential impedance).

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4.0 MECHANICAL PERFORMANCE

ITEM	TEST CONDITION	REQUIREMENT
MATING FORCE	Mate receptacle and plug connector assemblies per EIA-364-TP-13	0.5N per signal pin (nominal), 1.0 N/ ckt. max
UNMATING FORCE	Unmate receptacle and plug connector assemblies per EIA-364-TP-13	0.25N per signal pin (nominal), 0.5 N/ckt. max
DURABILITY	100 cycles mated and unmated per EIA-364-TP-09	10 milliohm max change in LLCR

TEST SEQUENCE

5.1. Test Plan, 299ckt as baseline

GROUP 1 Durability (Subsets A, B, C, & D) 5 each	GROUP 2 Signal Integrity (Subsets A, B, C, & D) 2 each	GROUP 3 Function (Subsets A, B, C, & D) 2 each
Visual Exam	Visual Exam	Visual Exam
Mate/Unmate Forces	Capacitance	Dimensional
LLCR	Characteristic Impedance	Mated by hand
Durability (100 cycles)	Crosstalk	Circuit Continuity
LLCR	Propagation Delay	Unmated by hand
Mate/Unmate Forces	Differential Insertion Loss (-3dB)	Visual Exam

Notes:

1. LLCR = Low Level Contact Resistance

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6 Test Subsets

- 6.2 **Test A** - Molex plug to Samtec receptacle
- 6.3 **Test B** - Molex receptacle to Samtec plug
- 6.4 **Test C** - Molex plug to Molex receptacle
- 6.5 **Test D** - Samtec plug to Samtec receptacle*

*data provided by Samtec

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Conclusion

Molex and Samtec are intermateable and interchangeable allowing dual sourcing strategies to be supported for our customer base. For any questions, please contact Molex or Samtec.

Revision History

- 1: 6/19/2007 Draft – KO
- 2: 7/23/2007 Update- RH
- 3: 8/20/2007 Update RH

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