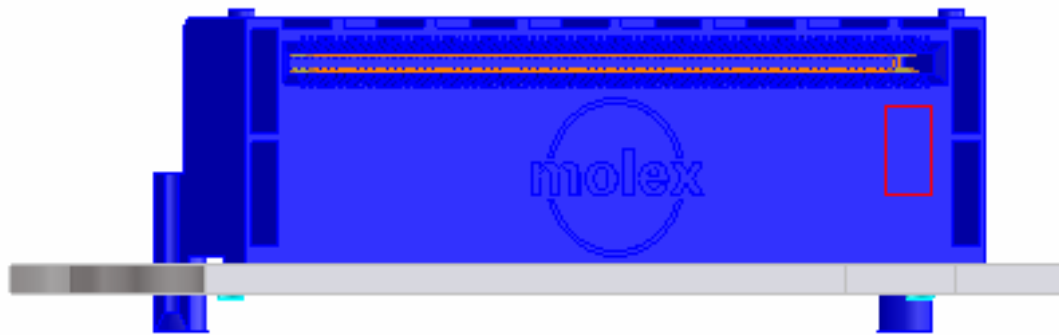




# PRELIMINARY PRODUCT SPECIFICATION

## PRODUCT SPECIFICATION FOR ADVANCED MEZZANINE CONNECTOR (AMC) INTERCONNECT SYSTEM



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# PRELIMINARY PRODUCT SPECIFICATION

## 1.0 SCOPE

This specification defines the performance requirements and test methods for the following products listed by series numbers:

- \* 75800 AMC B+ Receptacle Connector
- \* 75791 AMC B+ Tall Receptacle Connector
- \* 75908 AMC B+ Receptacle Connector, without mounting pegs

The Advanced Mezzanine Connector (AMC) interconnect system consists of a 170 circuit Receptacle Connector. The Molex AMC Connector conforms to the PICMG Advanced Mezzanine Connector AMC.0 Specification. The Molex AMC is a "Z-pluggable" compliant pin mounted connector. The AMC connector is design is built upon insert-molded technology for the control of the high-speed electrical characteristics required. The compliant pin is based on Molex's Backplane connector family for proven reliability.

## 2.0 PRODUCT DESCRIPTION

### 2.1 PRODUCT NAMES

AMC (Advanced Mezzanine Connector)

### 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

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

### 2.3 SAFETY AGENCY APPROVALS

UL File Number: TBD CSA File Number: TBD

## 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Refer to the appropriate sales drawings and other sections of this specification for the necessary referenced documents and specifications.

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# PRELIMINARY PRODUCT SPECIFICATION

## 4.0 RATINGS

### 4.1 CURRENT

Power Contact: 1 Amp

### 4.2 VOLTAGE

All Contacts: 250VAC

**4.3 OPERATING TEMPERATURE RANGE:** -40°C to +105°C

**4.4 CHARACTERISTIC IMPEDANCE:** 100 Ohms - differential signal pairs

**4.5 DIGITAL BANDWIDTH:** Differential signal pairs - 12.5 Gbit/s

### 4.6 PRODUCT PERFORMANCE:

Refer to the PICMG Advanced Mezzanine Card AMC.0 Specification for additional testing conditions and requirements.

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# PRELIMINARY PRODUCT SPECIFICATION

## 5.0 PERFORMANCE

### 5.1 ELECTRICAL PERFORMANCE

ITEM	TEST CONDITION	REQUIREMENT
CONTACT RESISTANCE (LOW LEVEL)	Mated, 100mA max, 20mV per EIA-364-TP-23	60 mohms maximum 15 mohms maximum change
INSULATION RESISTANCE	Mated card with test voltage of 500 VDC per IEC 60512-2, Test 3a	10 Mohms minimum
DIELECTRIC WITHSTANDING VOLTAGE	Mated card with test voltage of 80 Vrms	No breakdown or flashover
CURRENT CARRYING	All contacts energized Derating Curve = 80% Per IEC60512-3, Test 5b Power/Ground = 1.0 Amp Diff. Pairs = 0.1 Amp General Lines = 0.3 Amp	Temperature in connector not to exceed 100 deg C
DIFFERENTIAL IMPEDANCE	Test at 30ps maximum RT (10-90%) per IEC 60512-23 Test 23d	100 ohms+/-5 ohms average 100 ohms+/-10ohms max.
DIFFERENTIAL RETURN LOSS	Adjacent Lines terminated per IEC 60512-25-5 Test 23e, Method A	20dB @ 5 GHZ 13 dB @ 8 GHZ 8 dB @ 18 GHZ
DIFFERENTIAL ATTENUATION	Adjacent Lines terminated per IEC 60512-25-5, Test 25b	1dB @ 8 GHZ 2 dB @ 12 GHZ 4 dB @ 18 GHZ

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DIFFERENTIAL PAIR CROSSTALK	100ps max RT (10-90%), Adjacent Lines terminated per IEC 60512-25, Test 25a, Method A	Less than 2% of signal swing
PROPAGATION DELAY	Measurement includes traces and pads	2ps maximum within differential pair 7+/-3ps average between Basic and Extended side on B+ configuration

## 5.2 MECHANICAL PERFORMANCE

ITEM	TEST CONDITION	REQUIREMENT
MECHANICAL OPERATION	200 Cycles, mated and unmated per IEC 60512-5 Test 9a	No damage which would impair operation
DURABILITY	100 Cycles, mated and unmated per EIA -364, Test 09	15 milliohm max change in LLCR
MATING FORCE	Mate Connector with nominal AMC module PCB per IEC 60512-7, Test 13a	100N maximum
UNMATING FORCE	Unmate Connector with nominal AMC module PCB per IEC 60512-7, Test 13a	65N maximum
GAUGE RETENTION FORCE	Thickness-1.44+/-0.01mm Weight - 15 grams per IEC 512-8, Test 16e	Connector retains specified gauge

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VIBRATION (SINUSOIDAL)	Mated, 10-500Hz, 50m/s <sup>2</sup> , 3 axis, 8 sweeps/direction per EIA-361-28C, Cond. II	No disturbance greater than 1 microsecond
MECHANICAL SHOCK	Mated, 300m/s <sup>2</sup> , 11ms, 3 axis, per EIA-364-27, Cond. 1	No disturbance greater than 1 microsecond
NORMAL FORCE/ SPRING RATE	Apply perpendicular force to terminal at rate of 25+/-6mm per minute	Signal: 0.5N (50 g) min Spring Rate: 10 g/mil deflection (nominal)
CONNECTOR RETENTION ON CARRIER BOARD	Apply 200N force, 20mm away to front and back of AMC connector per IEC 60512-8, Test 8a	No damage that would impair normal operation
COMPLIANT PIN REMOUNTING OPERATION	Mount and remount 3 different connectors in same PCB hole pattern	AMC Carrier Board pcb vias are not damaged, 15 milliohm change max

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# PRELIMINARY PRODUCT SPECIFICATION

## 5.3 ENVIRONMENTAL PERFORMANCE

ITEM	TEST CONDITION	REQUIREMENT
THERMAL SHOCK	Mated, 5 cycles from -55°C to 85°C, 30 minute dwell per EIA-364-35C	15 milliohm max change in LLCR
TEMPERATURE LIFE	Mated, +105°C for 1000 hours per EIA-364-17, Cond. 4	15 milliohm max change in LLCR
CYCLIC HUMIDITY	Mated, 50 cycles, 500 hours, from +25°C to +65°C per EIA-364-TP-31B, Method III	10 milliohm max change in LLCR
DUST	Unmated connectors plus Module PCBs Dust concentration of 300g/m <sup>3</sup> Per EIA-364-91	15 milliohm max change in LLCR
MIXED FLOWING GAS	10 days unmated, 10 days mated, per EIA-364-TP-65A, Class IIIA with disturbance	15 milliohm max change in LLCR
STEADY STATE HUMIDITY	60 VDC, 40 deg C @ 93% R.H for 10 days	None

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# PRELIMINARY PRODUCT SPECIFICATION

## 6.0 TEST SEQUENCE

### 6.1 PICMG Advanced Mezzanine Card AMC.0 Test Plan

35 connectors are required for Test Plan. Refer to the Advanced Mezzanine Card AMC.0 Specification for the allocation per test groups. The AMC test plan is based on the Telecordia GR-1217 (Bellcore) test plan and qualification.

LLCR = Low Level Contact Resistance

GROUP P	GROUP A	GROUP B	GROUP C	GROUP D	GROUP E
Visual Exam	Mechanical Operation	Durability (100 cycles)	Durability (100 cycles)	Temperature Life	Durability (100 cycles)
Gauge Retention Force	LLCR	LLCR	LLCR	LLCR	Steady State Humidity
Mate/Unmate Forces	Temperature Life	Dust	Dust	Current Carrying	Differential Impedance
LLCR	LLCR	LLCR	LLCR	Connector Retention	Differential Pair Crosstalk
Insulation Resistance	MFG (10 days Unmated)	Vibration	Thermal Shock	Mate/Unmate Forces	Differential Attenuation
Dielectric Withstand Voltage	LLCR After 5th & 10th days	LLCR	LLCR	Visual Exam	Differential Return Loss
	MFG (10 days Mated)	Shock	Cyclic Humidity		
	LLCR After 15th & 20th day	LLCR	LLCR		
	Mechanical Operation	Durability (100 cycles)	Insulation Resistance		
	Visual Exam	LLCR	Dielectric Withstand Voltage		
	Compliant Pin Remounting	Mate/Unmate Forces	Visual Exam		
		Visual Exam			

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# PRELIMINARY PRODUCT SPECIFICATION

## 6.2 COMPLIANT PIN PERFORMANCE

### 6.2.1 Insertion Force for various Plating Types (Typical)

COMPONENT	Immersion Sn (Max)	Immersion Ag (Max)	Bare Cu/OSP (Max)
AMC Signal/Ground and Power Pins	8 lbs	8 lbs	8 lbs

### 6.2.2 Retention Force for various Plating Types (Typical)

COMPONENT	Immersion Sn (Min)	Immersion Ag (Min)	Bare Cu/OSP (Min)
AMC Signal/Ground and Power Pins	1.5 lbs	1.5 lbs	1.1 lbs

Note: Insertion and retention values are as expected when tested in the plated through holes drilled and plated as described in Section 6.3. Plating surface finish and PCB materials will impact actual values.

Radial hole deformation: 1.5 mils maximum      Axial hole deformation: 1.0 mils maximum

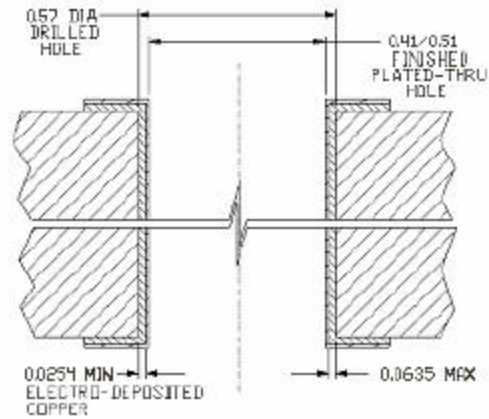
## 6.3 Printed Circuit Board Specifications

Recommended Signal/Ground and Power Hole Size: 0.57 mm (#74 Drill)

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