APPLICATION SPECIFICATION
iPass Plus HD – External Connector

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iPass Plus HD – External Connector

1.0 SCOPE

This specification covers the 0.75mm centerline iPass+ HD (High Density) Single Port Connector for applying and removing the connector to the pc board. The connector is a single one port connector with two card slot openings and is also available in a 1X2 and 1X4 configurations. Twenty-four differential pairs are assigned per port. The connector has 36 contacts per port of which 24 can be assigned to signals and 12 are for ground terminals. The connector is a right angle press-fit compliant mount connector with 0.37mm finished vias for the compliant signal pins.

The connector has compliant pin contacts for mechanical retention to the pc board. The connector provides electromagnetic interference (EMI) suppression with ground fingers that contact the panel and an outer elastomeric EMI gasket that contacts the mating plug. The connector assembly is designed to be inserted through a standard bezel after being seated onto the pc board.
See Figure 1 below.

Disclaimer: Molex does not guarantee the performance of the final product to the information provided in this document. All information in this report is considered Molex proprietary and confidential. This guide is not intended as a substitute for engineering analysis.

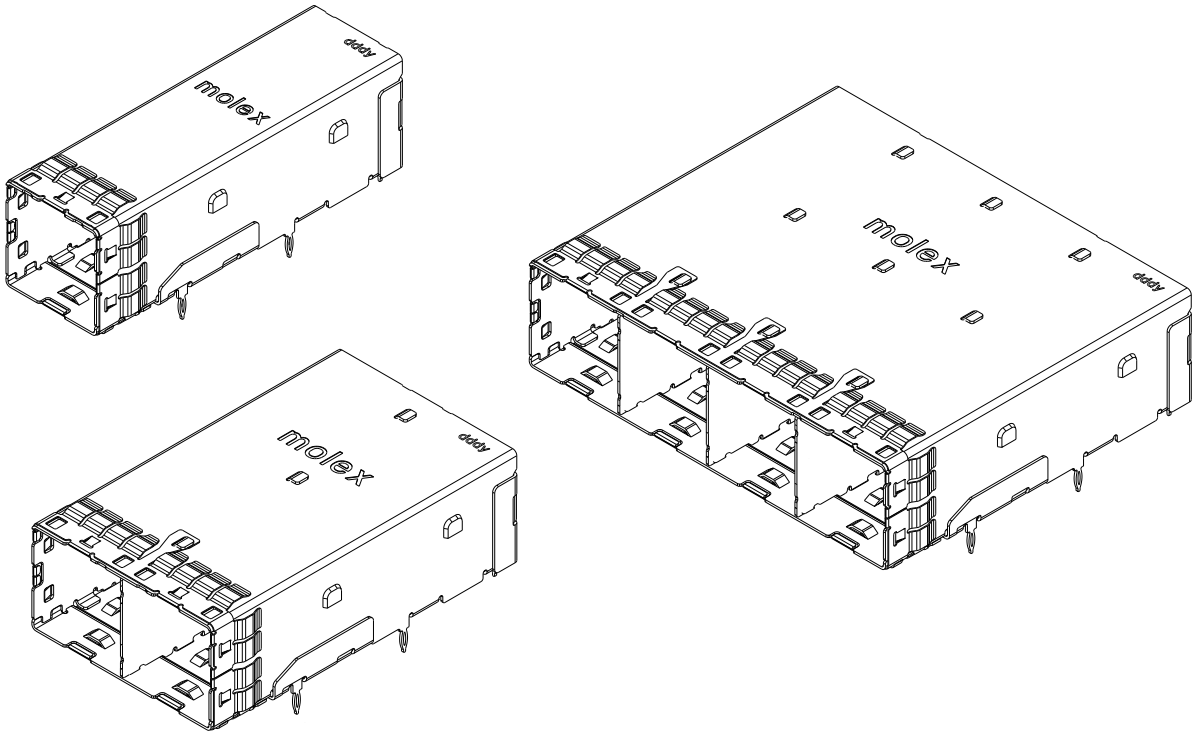


Figure 1

2.0 PRODUCT DESCRIPTION

The connector consists of housing with double 18-position receptacle ports and with compliant pin contacts on 0.75 centerline spacing. Each port has a card entry slot that accepts a 1.0±0.1mm thick integrated circuit card housed in the mating plug.

3.0 REFERENCE DOCUMENTS

Refer to the appropriate customer sales drawing for product part numbers.
Refer to PS-76866-001 for the connector product spec.
Refer to AS-76866-002 for the SI Routing Guidelines
Refer to EE-76866-002 for Electrical Model

4.0 PROCEDURE

4.1 GENERAL REQUIREMENTS

4.1.1 Limitations The connectors are designed to operate in a temperature range of –40° to 80°C [-40° to 176° F].

4.1.2 Material The connector housing and wafers (parts that hold the terminal contacts) are made of molded thermoplastic, UL 94-V-0.
All terminal contacts in the connector are made of a high performance alloy under-plated with overall nickel, plated with tin/lead or tin at the leads and plated with gold at the interface area.
The cage assembly is made of a nickel silver alloy.

4.1.3 Storage Prolonged exposure to ultraviolet light may deteriorate the chemical composition used in the connector material.

4.1.4 Shelf Life The connector assembly should remain in the shipping container until ready for use to prevent deformation to the contact leads, compliant pins and mounting posts. The connector assemblies should be used on a first in, first out basis to avoid storage contamination that could adversely affect performance.

4.1.5 Chemical Exposure Do not store connector assemblies near any chemicals listed below as they may cause stress corrosion cracking in the terminal contacts or mounting posts.

Alkalies	Ammonia	Citrates	Phosphates Citrates	Sulfur Compounds
Amines	Carbonates	Nitrites	Sulfur Nitrites	Tartrates

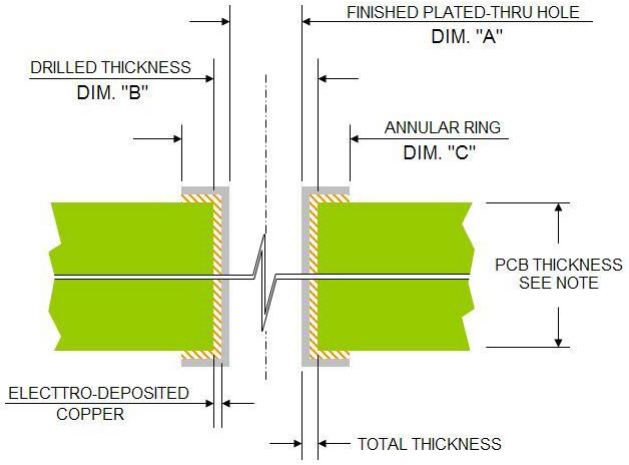
5.0 PC BOARD REQUIREMENTS

5.1 MATERIAL THICKNESS
The pc board material shall be glass epoxy (FR-4 or G-10). The recommended minimum pc board thickness shall be 1.57 mm.

5.2 TOLERANCE
Maximum allowable bow of the pc board shall be 0.08 mm over the length of the connector assembly.

5.3 HOLE DIMENSIONS
The holes for the connector assembly must be plated through to dimensions specified in Figure 2.

Recommended Hole Dimensions



DIM. "A" MM / (INCH)	DIM. "B" MM / (INCH) - # DRILL	DIM. "C" MM / (INCH)
1.05+/-0.05 (.0413+/-.002)	1.181 (.0465) - # 56	1.40 (.055)
0.81+/-0.05 (.032+/-.002)	0.711 (.028) - # 70	1.16 (.046)
0.57+/-0.05 (.022+/-.002)	0.66 (.026) - # 71	0.91 (.036)
0.46+/-0.05 (.0181+/-.002)	0.572 (.022) - # 74	0.81 (.032)
0.37+/-0.05 (.0146+/-.002)	0.457 (.018) - # 77	0.72 (.028)

Note: Refer to appropriate sales drawing for recommended PCB holes and PCB thickness

PLATING DETAIL FOR COMPLIANT PIN HOLES
Figure 2

5.4 LAYOUT

The holes for the connector assembly must be precisely located to ensure proper placement and optimum performance of the connector assembly. Refer to the applicable Sales Drawing for the recommended hole pattern, dimensions, and tolerances.

6.0 ASSEMBLY PLACEMENT INSTRUCTIONS

The following requirements also apply to the connector assemblies used for rework purposes.

CAUTION *Connector assemblies should be handled by the overall cage to avoid deformation, contamination, or damage to the terminal pin contacts, and the panel ground springs.*

6.1 Registration

The compliant pin contacts must be aligned with matching holes in the pc board simultaneously to prevent any twisting or bending of the pin contacts.

6.2 Seating

Using proper seating force and seating height is essential to interconnection performance. The force used to seat the connector assembly must be applied evenly to prevent deformation or other damage to the pin contacts. The force required to seat the connector assembly onto the pc board can be calculated by:

Amount of compliant pin contacts x 18.0 N [4.05 lbs] (Force per Compliant Pin Contact = Seating Force

CAUTION *Over-driving of the connector assembly will deform parts critical to the quality of the connector. Maximum force occurs prior to the connector assembly bottoming on the pc board.*

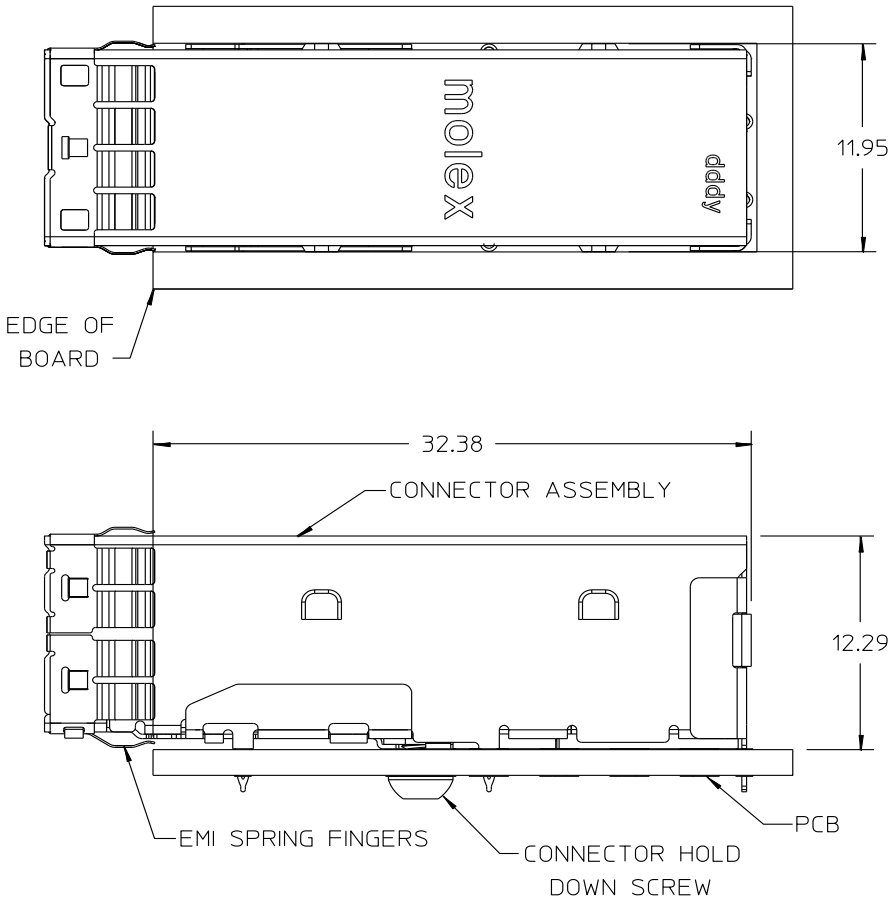
The *shut height* of the seating application tool must be specifically set for proper seating of the connector assembly. The shut height can be calculated by:

> Seating Height (Connector Assembly Seated) + Height of Seating Tool (loaded onto Connector Assembly) + Combined Thickness of PC Board and PC Board Support Fixture = Shut Height (Ram Down)

The seating height, measured from the top of the cage assembly (not including the front half of the cage assembly that overhangs the pc board, is given in Figure 4.

The connector assembly must be seated on the pc board not exceeding the dimensions shown in Figure 4. The gap between the top surface of the PCB and the cage stand off / bottom of receptacle to be 0.00 to 0.08 mm.

CAUTION Side supports may be required on application tool to constrain part from any side movement. Side movement will collapse/bend pins. Side movement can be seen as insertion force increases toward maximum (minimum hole size and silver plating).



Connector Assembly
Figure 4

6.3 Mechanical Attachment

Mounting Hardware – M2 x 0.4 x (L) button head screw is required for mechanically attaching the connector assembly to the PCB. The screw(s) are to be torqued to 0.17 N-m (1.5 lb-in) maximum. **CAUTION** Do not over torque.

Note: Mounting hardware is not supplied by Molex

The following chart identifies recommended screw thread lengths for standard PCB thicknesses:

Standard PCB Thickness* mm / (inch)	**Thread Length** (L)
1.57±0.15 / (.062±.006)	3.0±0.20 mm
2.36±0.23 / (.093±.009)	4.0±0.20 mm
3.18±0.31 / (.125±.012)	5.0±0.20 mm

*Tolerances based on 10% of PCB thickness

For non-standard PCB thicknesses the following formula is suggested for calculating thread lengths:

PCB Thickness + 1.80mm Max (1.00mm Min) = (L)

Metric screw lengths are supplied in 0.5 mm increments. The calculated thread length can be rounded to the nearest 0.5 mm increment providing it does not exceed the sum of the tolerance limits of the thread length formula.

6.4 Repair and Rework

Damaged or defective connector assemblies must be removed and replaced.

If repair or rework to the pc board requires normal soldering (not reflow or wave) after the connector assembly has been seated onto the pc board, the following must apply:

If after soldering, removal of fluxes, residues and activators are necessary. Consult with the supplier of the solder and flux for recommended cleaning solvents. Cleaners must be free of dissolved flux and other contaminants. Even when removing a “no clean” solder paste residue; it is imperative that the connector contact interface be kept clean of flux and residue (since it acts as an insulator).

DANGER *Consideration must be given to toxicity and other safety requirements recommended by the solvent manufacture. Refer to the manufacture’s Material Safety Data Sheet (MSDS) for characteristics and handling of cleaners. Trichloroethylene and Methylene Chloride is not recommended because of harmful occupational and environmental effects.*

7.0 VISUAL AIDS

The Illustrations below show the typical application of the connector assembly. The illustrations should be used by production personal to ensure a correctly applied product. Applications, which DO NOT appear correct, should be inspected using the information in the preceding pages of this specification and in the instructional material shipped with the product or tooling.
Refer to Figure 5a and 5b.

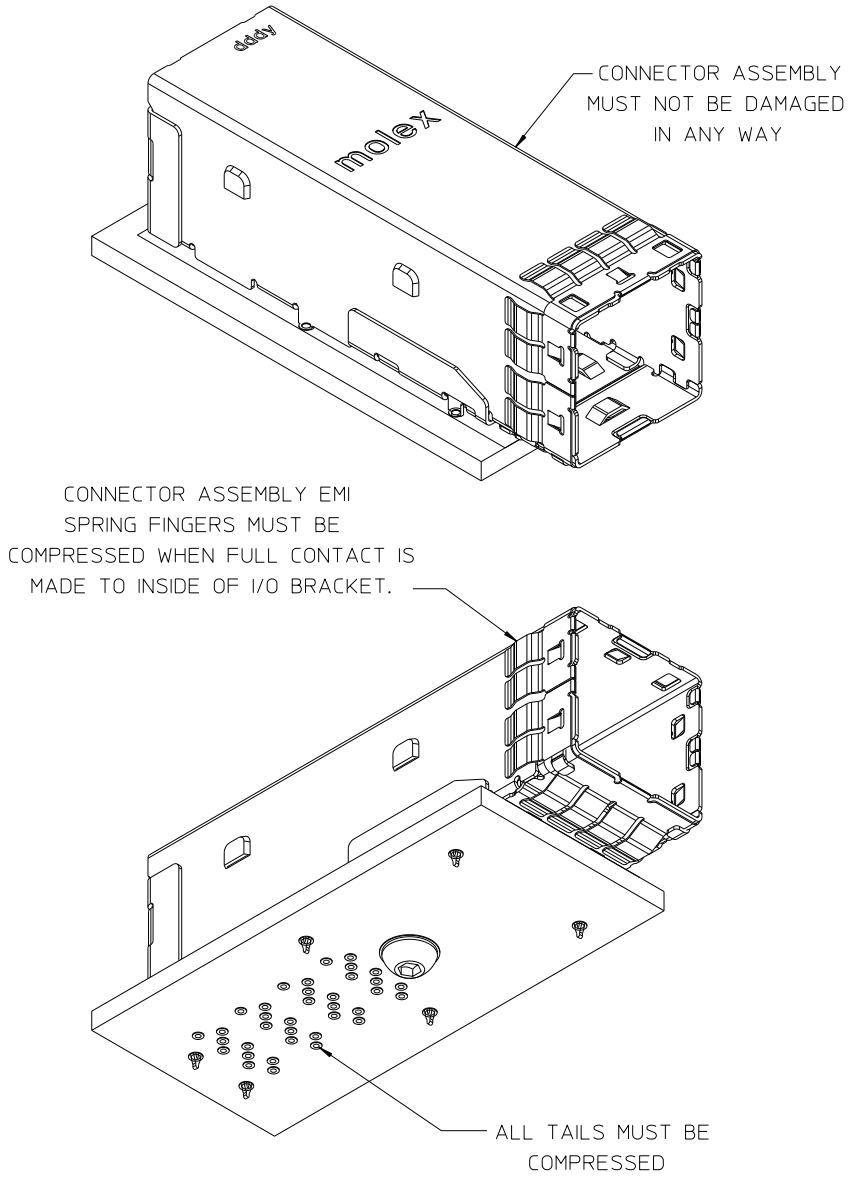
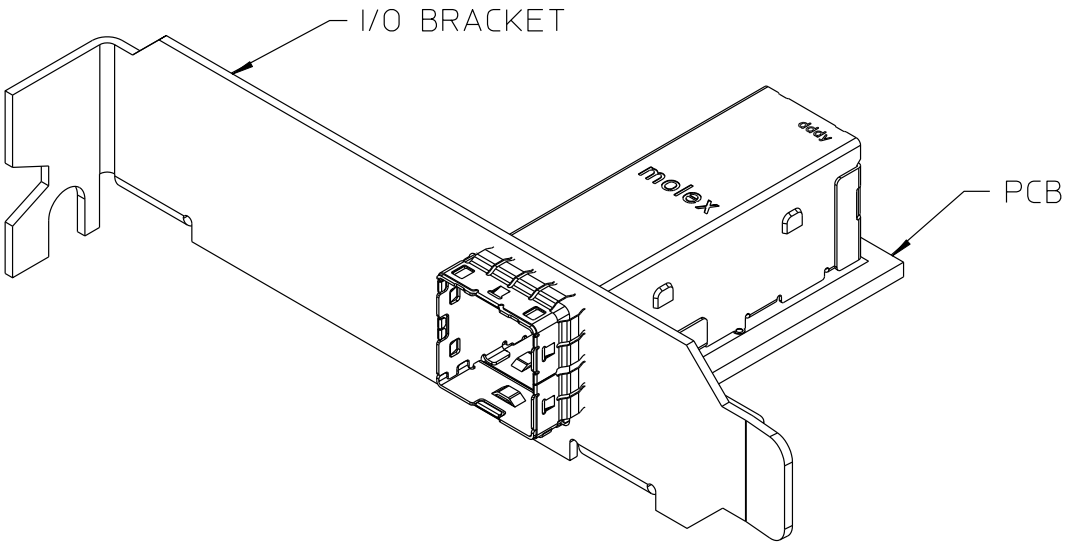
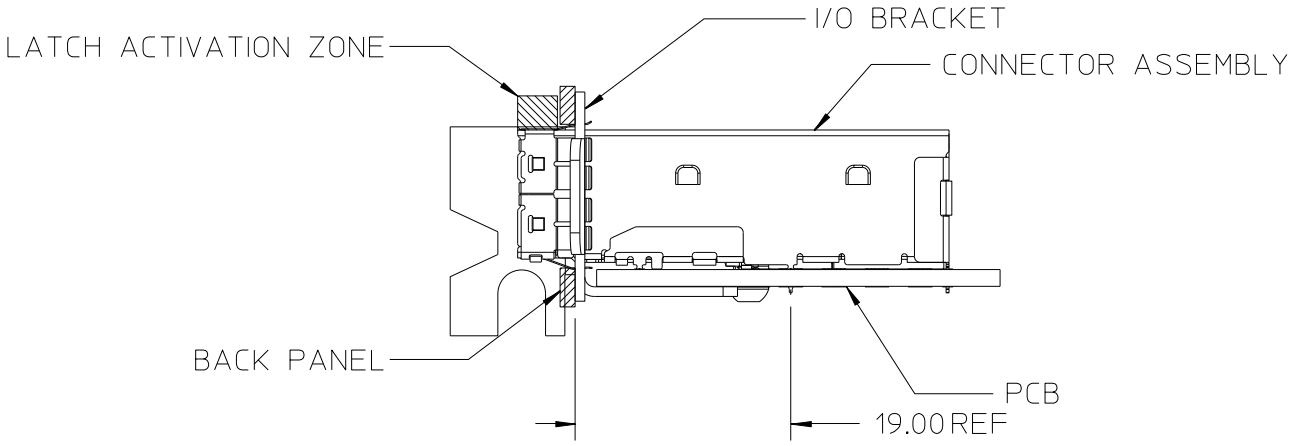


Figure 5a





ASSEMBLED VIEW

Figure 5b