Z-RAY® HIGH-SPEED COMPRESSION INTERPOSERS

HIGH-DENSITY • ULTRA-LOW PROFILE • HIGHLY CUSTOMIZABLE

As a high-speed, high-density connector, Z-Ray® provides the ultimate in design flexibility, from custom heights to full custom geometries. As an interposer, Z-Ray® is a cost-saving removable interface between the IC package and main board. Z-Ray® is ideal for the demands of military /defense, aerospace and R&D applications including radar, radio, navigation and sensors.

Board-to-Board & IC-to-Board Applications

- Dual compression contacts or single compression with solder balls
- BeCu micro-formed contacts
- 0.80 mm or 1.00 mm pitch arrays
- Performance up to 14 Gbps (ZA8/ZA1 Series) and 56 Gbps NRZ (ZA8H Series) with a migration path to 100 Gbps
- 0.33 mm height for shortest signal path (ZA8H Series)
- Low profile 1 mm body height (ZA8/ZA1)
- Low 30 g normal force with .008” contact deflection
- Up to 1,000 cycles, with alternate contact design for up to 3,000 cycles also available (tested to 85 °C)
- Up to 400 I/Os standard with custom capabilities to 3,000+ I/Os
- Also Available: 1.00 mm pitch system with up to 300 I/Os, 1.27 mm standard body height, and up to 56 Gbps performance (GMI Series)

Cable-to-Board Applications

- Ultra-low profile Z-Ray® Cable Assembly (ZRDP Series)
  - Designed for high-speed, micro pitch applications
  - Up to 16 signal pairs on 0.80 mm pitch
  - 100 ohm differential pair signal routing
  - 34 AWG twinax ribbon cable

www.samtec.com/zray | zray@samtec.com
**Ultimate Design Flexibility**

- Configurations for any application, complete with detailed footprints
- Customer-specific stack heights, pin counts, insulator shapes and plating thicknesses
- Customizable in X-Y-Z axes
- Quick-turn customization with minimal NRE and tooling charges
- Various compression and alignment configurations

**Interposer Design & Construction**

- One-piece design assembled into rugged low profile FR4 substrate under high pressure and temperature
- Interposers are built standard with a 1 mm board-to-board thickness
- Contacts are designed using BeCu foils that have been formed into the "beam" structure

**PERFORMANCE SPECIFICATIONS**

<table>
<thead>
<tr>
<th></th>
<th>Single Compression w/ Solder Balls</th>
<th>Dual Compression</th>
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<tbody>
<tr>
<td><strong>Series</strong></td>
<td><strong>ZA8</strong></td>
<td><strong>ZA1</strong></td>
</tr>
<tr>
<td><strong>Pitch</strong></td>
<td>0.80 mm</td>
<td>1.00 mm</td>
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<tr>
<td><strong>Max Row</strong></td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td><strong>Max Column</strong></td>
<td>25</td>
<td>20</td>
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<tr>
<td><strong>Thickness</strong></td>
<td><strong>Kapton Core</strong></td>
<td><strong>N/A</strong></td>
</tr>
<tr>
<td><strong>Thickness Tolerance</strong></td>
<td><strong>Kapton Core</strong></td>
<td><strong>N/A</strong></td>
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<tr>
<td><strong>Deflection / Normal Force per Pin</strong></td>
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<tr>
<td><strong>Operating Temperature</strong></td>
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Z-RAY® COMPRESSION HARDWARE SYSTEMS

Engineered to provide precise alignment, compression and retention of dual compression (LGA) or single compression with solder balls (BGA) Z-Ray® Interposers, these hardware systems are ultra-low profile and designed to reduce risk of damage to the interposer.

ZHSI Series for Dual Compression Interposers
- Provides alignment and ensures proper contact retention
- Prevents over compression of contacts on interposer
- Eliminates the need for additional fasteners
- Accommodates .062” and .093” PCB thicknesses
- Press-fit design
- 4 in-oz maximum torque on the screw head

ZSO Series for Single-Compression Solder Ball Interposers
- Provides alignment
- Prevents over compression of solder ball joints on interposer
- Ensures proper contact retention and board spacing
- Press-fit design
- 1 mm board stack height
- For additional stack heights contact Samtec

ZD Series for Dual Compression Interposers
- Press-in hardware provides proper PCB to interposer alignment
- Micro 1 mm diameter
- Use industry standard hardware to secure and compress interposer
- 3.7 mm, 5.3 mm and 5.7 mm lengths available for varying mated heights