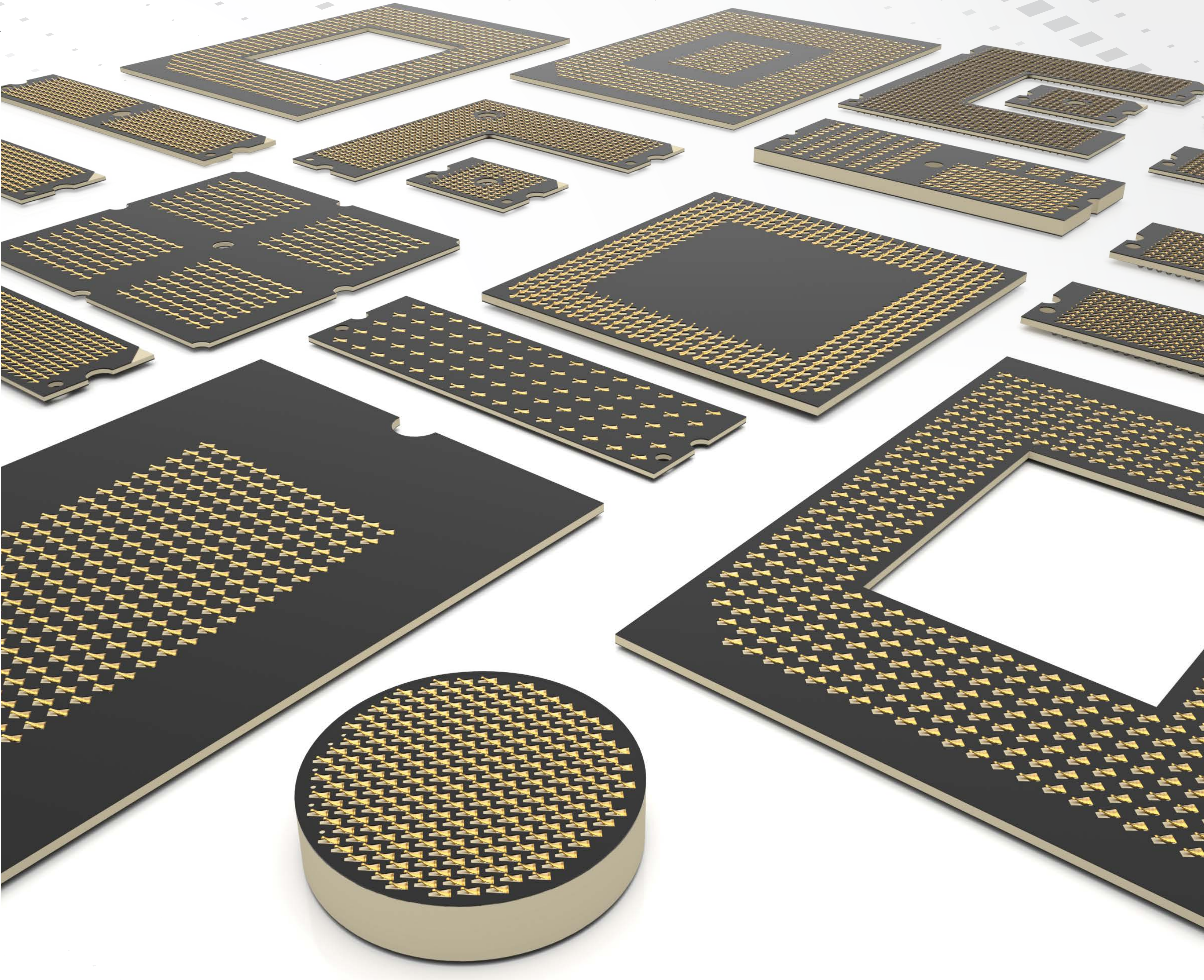


Z-RAY® INTERPOSER

APPLICATION DESIGN GUIDE

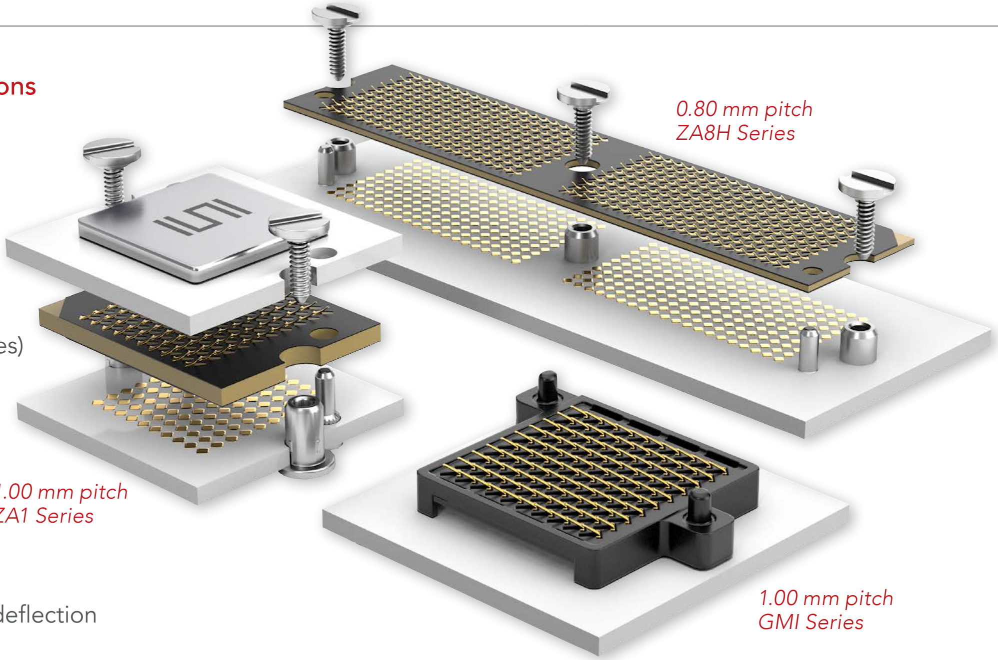
Z-RAY® HIGH-SPEED COMPRESSION INTERPOSERS

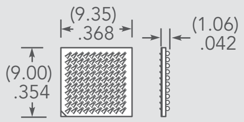
HIGH-DENSITY • ULTRA-LOW PROFILE • HIGHLY CUSTOMIZABLE

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.

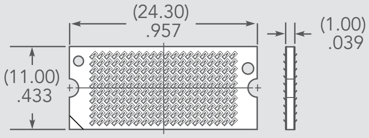
Board-to-Board & IC-to-Board Applications

- 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)





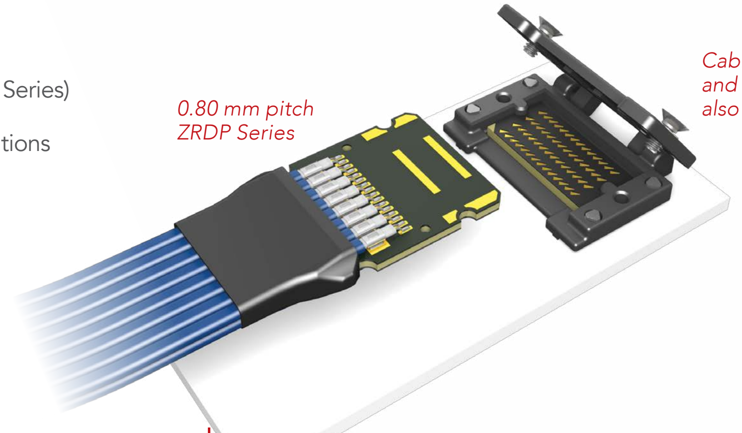
ZA8 Series
10x10 Single Compression
with Solder Balls (Actual Size)



ZA1 Series
20x10 Dual Compression (Actual Size)

Cable-to-Board Applications

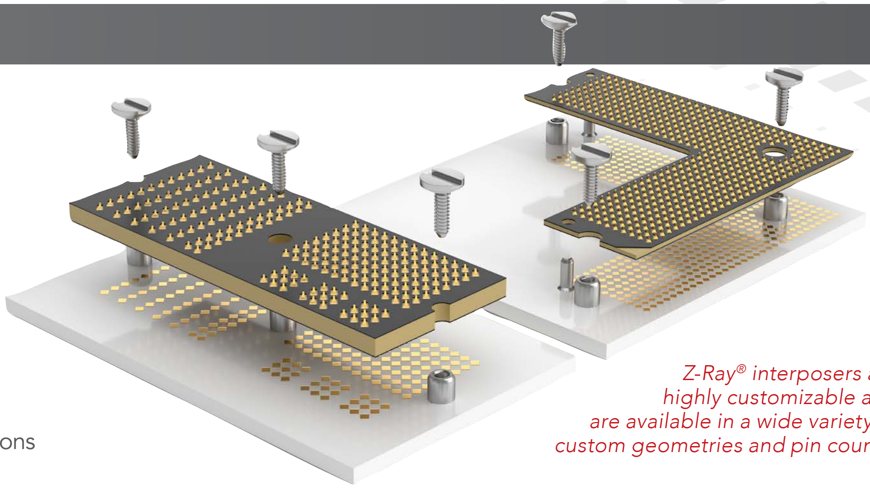
- Ultra-low profile Z-Ray® Cable Assembly (ZRDP Series)
  - Designed for high-speed, micro pitch applications
  - Up to 16 signal pairs on 0.80 mm pitch
  - 100 ohm differential pair signal routing
  - 34 AWG twinax ribbon cable



www.**samtec**.com/**zray** | **zray@samtec.com**

Ultimate Design Flexibility

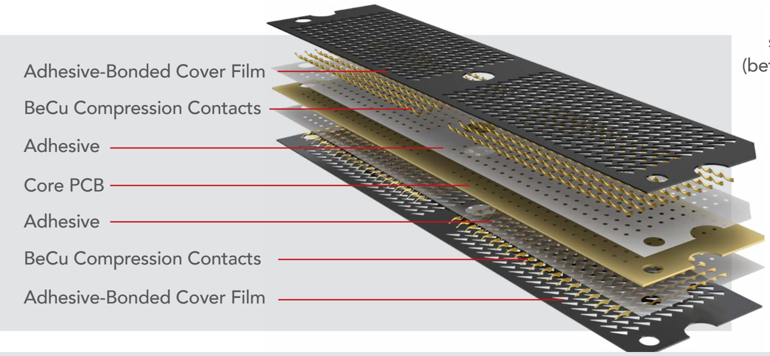
- Configurations for any application, complete with detailed footprints
- Customer-specific stack heights, pin counts, insulator shapes and plating thicknesses
- Customizable in X-Y-Z axes
- Quick-turn customization with minimal NRE and tooling charges
- Various compression and alignment configurations

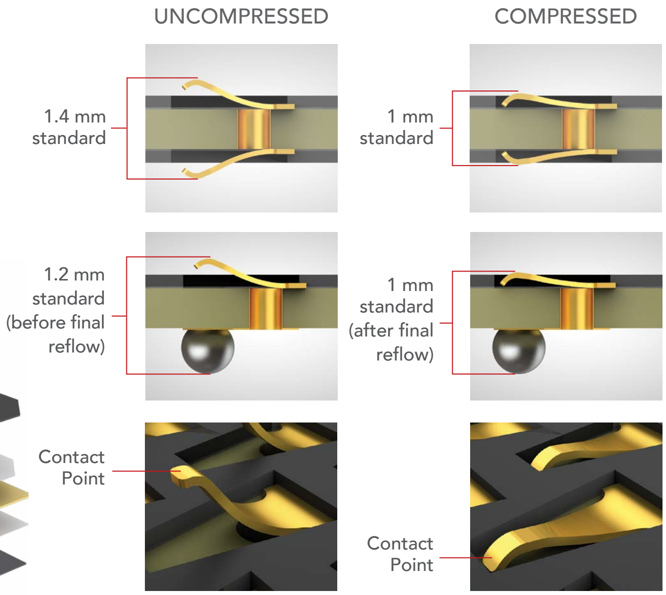


Z-Ray® interposers are highly customizable and are available in a wide variety of custom geometries and pin counts.

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

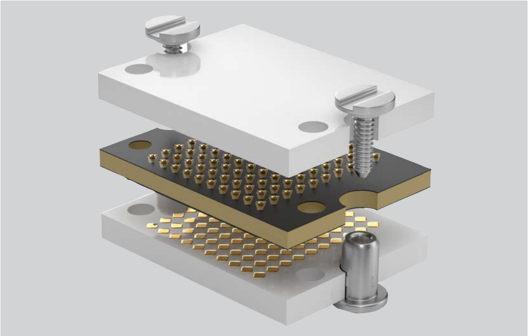
		Single Compression w/ Solder Balls		Dual Compression		
Series		ZA8	ZA1	ZA8	ZA1	ZA8H
Pitch		0.80 mm	1.00 mm	0.80 mm	1.00 mm	0.80 mm
Max Row		25	20	50	58	50
Max Column		25	20	50	58	50
Thickness	Kapton Core	N/A	N/A	0.33	0.33	0.33 mm
	FR4 Core	1.00 to 3 mm	1.00 to 3 mm	0.5 to 3 mm	0.5 to 3 mm	N/A
Thickness Tolerance	Kapton Core	N/A	N/A	±5%	±5%	±5%
	FR4 Core	±10%	±10%	±10%	±10%	N/A
Deflection / Normal Force per Pin		0.20 mm / 30g				
Operating Temperature		-55 ˚C to +105 ˚C (Single Cycle only above 85 ˚C)				

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.

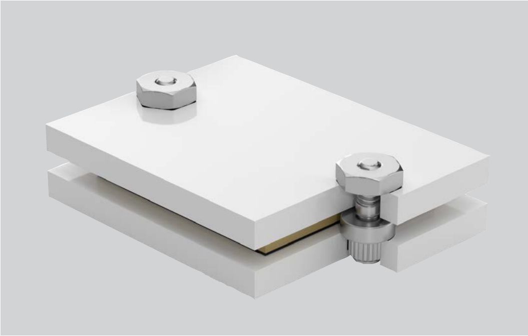
ZHSI Series for Dual Compression Interposers

- 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



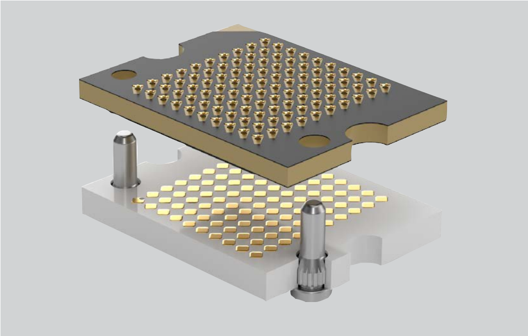
ZSO Series for Single-Compression Solder Ball Interposers

- 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



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