



**M** **E G - A r r a y**  
**C o n n e c t o r**  
**S y s t e m**

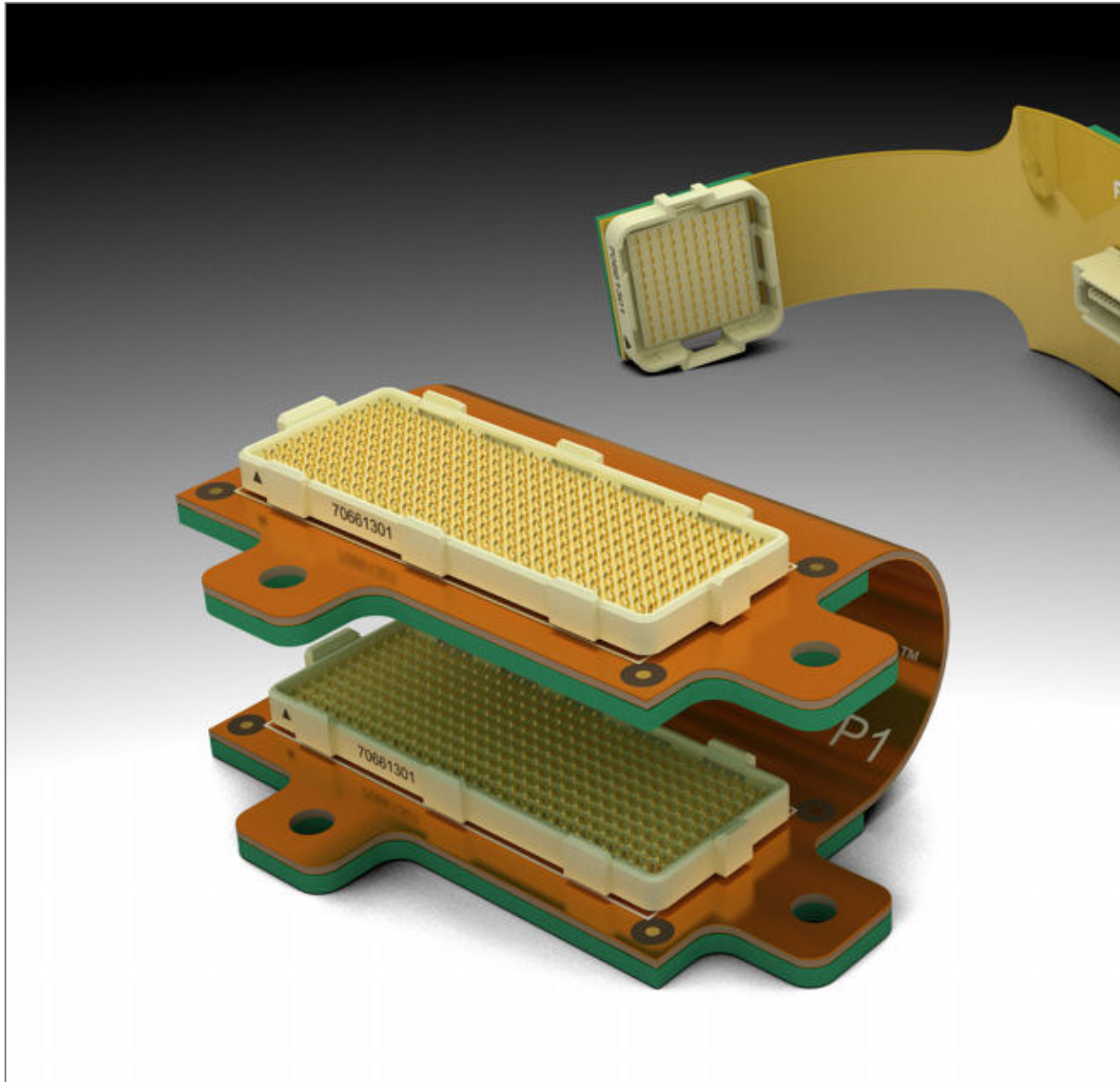
A thick red arrow originates from the right side of the 'M' and points horizontally towards the right, ending just before the FCI logo.

*David Hansen*  
*Product Manager*  
*December 2011*

# MEG-Array<sup>®</sup> Connector System



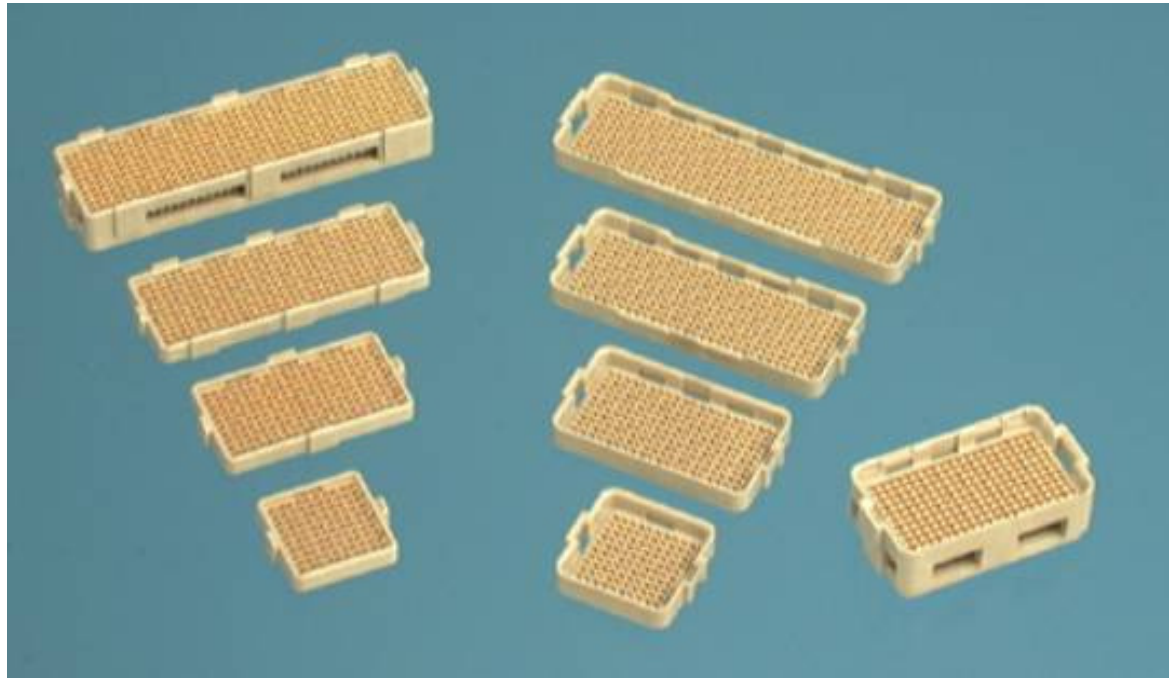
MEZ Select<sup>™</sup>



# MEG-Array<sup>®</sup> Connector System



MEZ Select™

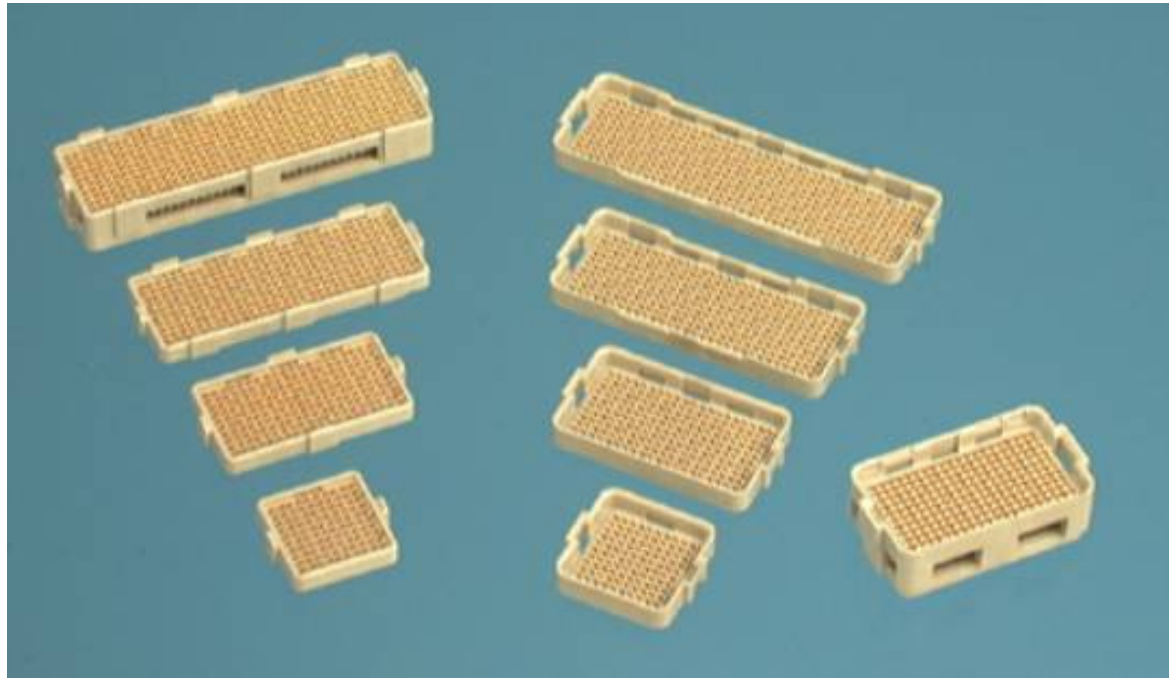


- Description and Benefits
- Perfect Applications
- FCI BGA Technology Benefits
- Summary

# MEG-Array<sup>®</sup> Connector System



MEZ Select™



## ***High Speed, High Density, High Circuit Count Mezzanine***

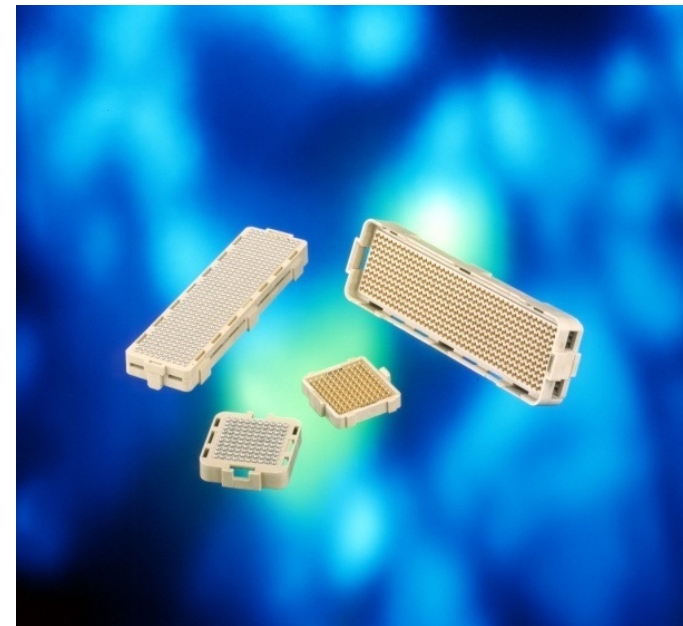
- Ball Grid Array (BGA) Attachment
- 1.27mm X 1.27mm Array Grid Pitch
- 81, 100, 200, 240, 300, 400 & 528 Positions
- PCB Stack Heights of 4mm To 14mm

# MEG-Array<sup>®</sup> Connector System



MEZ Select™

- Bandwidth Of 5Ghz (10Gb/s) for Differential Pairs
- Low heights may enable up to 25 Gb/s in some applications
- Demonstrated Solder Joint Reliability Greater Than 22 Years (IPC-9701)
- Meets reliability per Telcordia GR-1217-CORE



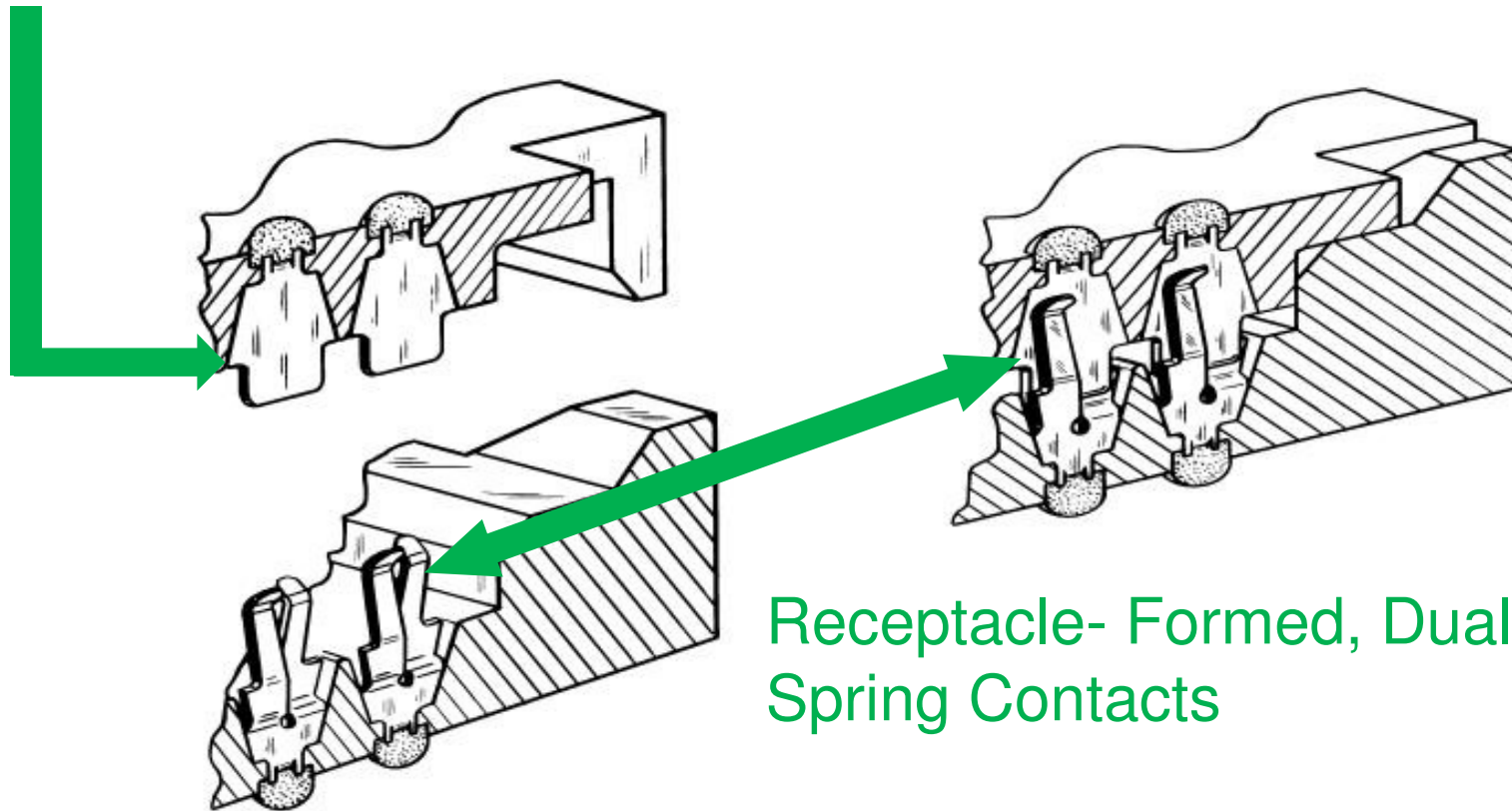
# MEG-Array<sup>®</sup> Connector System



MEZ Select™

- Redundant Contact Structure enhances durability and reliability

## Plug- Smooth Coined Contact Surfaces On Plug Blade



Receptacle- Formed, Dual-Beam Spring Contacts

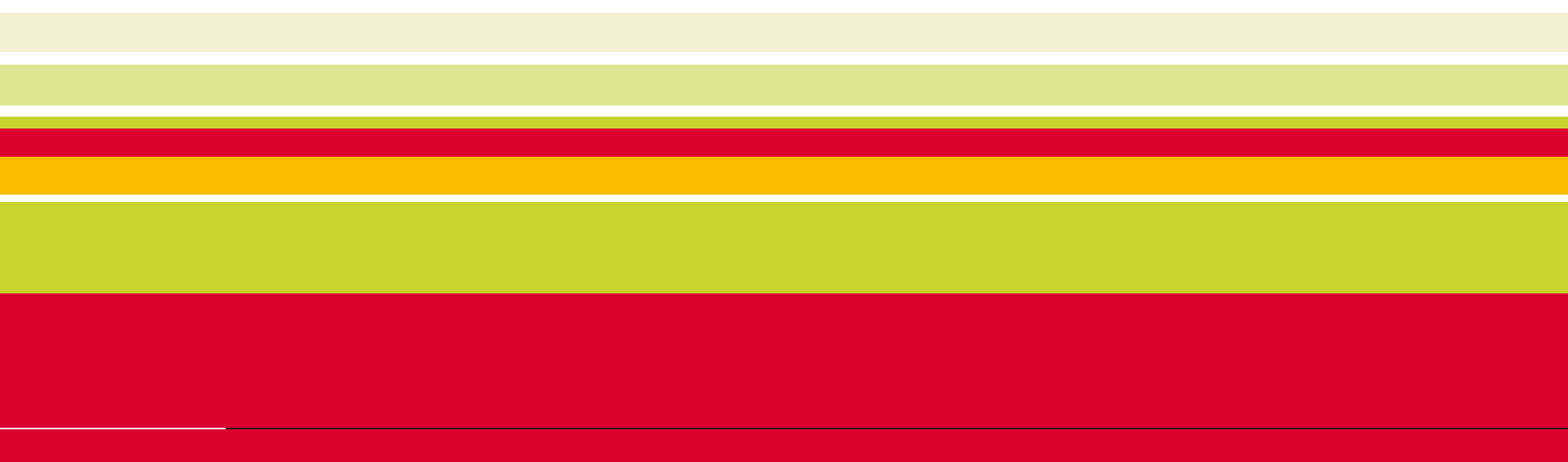
# MEG-Array<sup>®</sup> Connector System



<b>MEZ Select™</b>		<b>Total Mated Height</b>					
<b>Size</b>	<b>Type</b>	<b>4mm</b>	<b>6mm (5.5mm for 300 pos)</b>	<b>8mm</b>	<b>10mm</b>	<b>12mm (11.5mm for 300 pos)</b>	<b>14mm</b>
<b>81 position 9x9</b>	<b>Plug</b>	55714 0mm					
	<b>Receptacle</b>	55715 4mm					
<b>100 position 10x10</b>	<b>Plug</b>	84512 0mm					
	<b>Receptacle</b>	84513 4mm					
<b>200 position 10x20</b>	<b>Plug</b>	84516 0mm	84516 0mm	84516 0mm	84530 6mm	84530 6mm	84530 6mm
	<b>Receptacle</b>	84517 4mm	55724 6mm	84535 8mm	84517 4mm	55724 6mm	84535 8mm
<b>300 position 10x30</b>	<b>Plug</b>	84500 0mm	84500 0mm	84500 0mm	84578 6mm	84578 6mm	84578 6mm
	<b>Receptacle</b>	84501 4mm	84502 5.5mm (5.5mm stack)	84553 8mm	84501 4mm	84502 5.5mm (11.5mm stack)	84553 8mm
<b>400 position 10x40</b>	<b>Plug</b>	84740 0mm	84740 0mm	84740 0mm	84520 6mm	84520 6mm	84520 6mm
	<b>Receptacle</b>	74221 4mm	74388 6mm	74390 8mm	74221 4mm	74388 6mm	74390 8mm
<b>240 position 8x30</b>	<b>Plug</b>	74213 0mm	74213 0mm				
	<b>Receptacle</b>	74217 4mm	55755 6mm				
<b>528 position 12x44</b>	<b>Plug</b>		10022671 0mm				
	<b>Receptacle</b>		10026846 6mm				



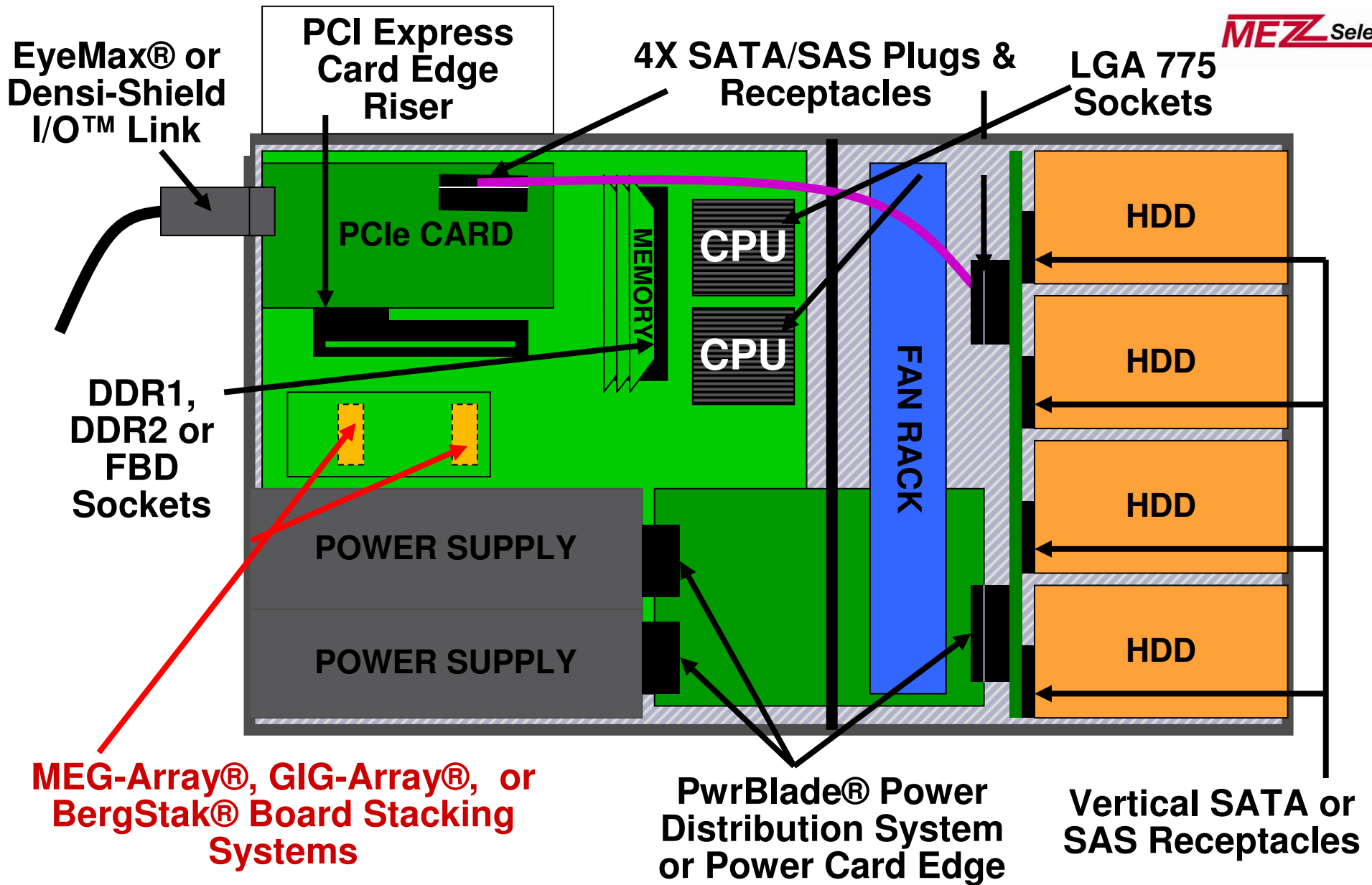
# Perfect Applications



# Servers & Storage (1U & 3U Rack Server)



MEZ Select™



# Switching & Transmission



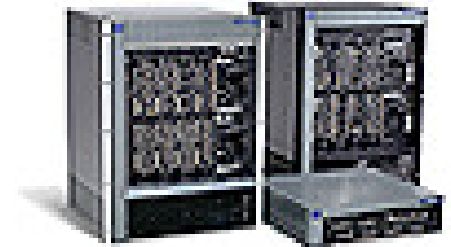
MEZ Select™



**Switches**

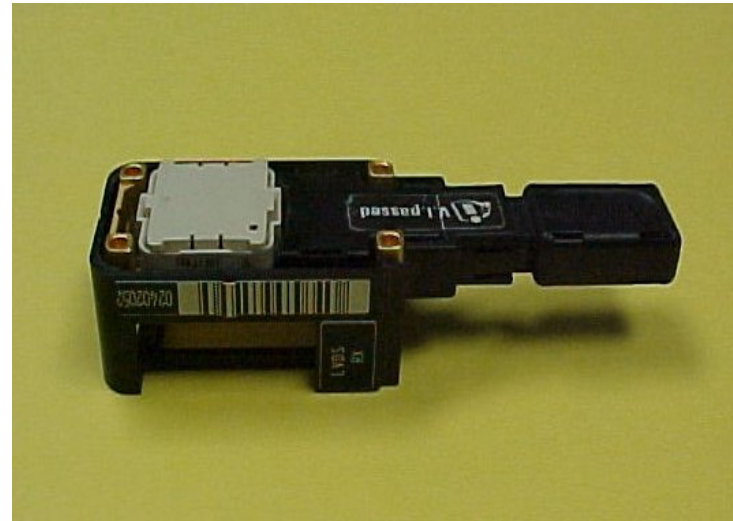


**Transmission**



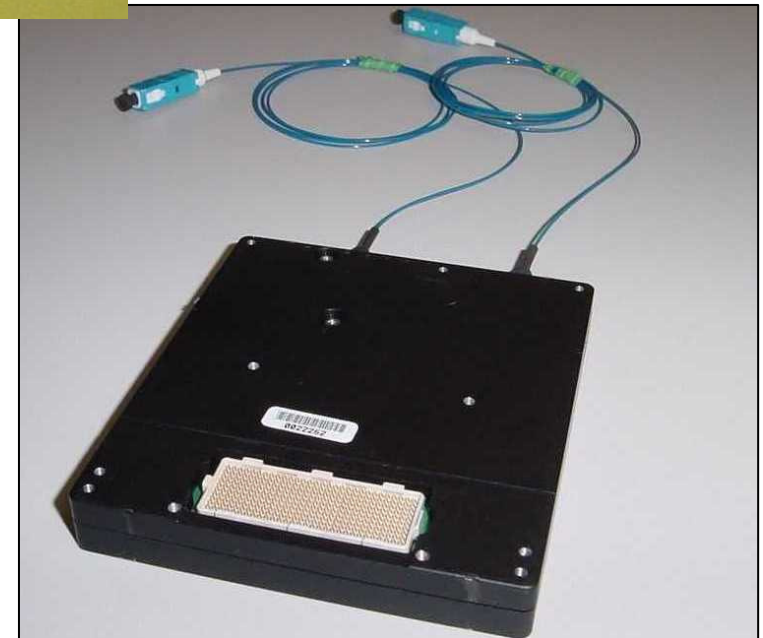
**Routers**

## Optical Transceivers

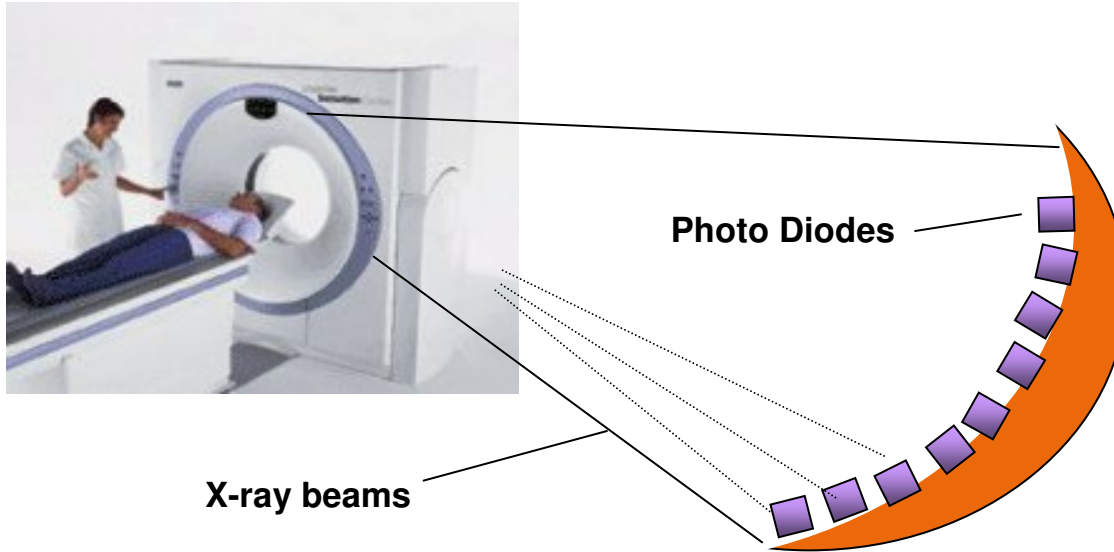


## Optical Transponders

## Access



## High End Medical Imaging



## Analytical - ECG

- High-End medical imaging
- CT Scan
- ECG
- MRI
- CardioVascular X-Ray
- Radiation Oncology





**MEZ** Select™



# ***FCI BGA Technology***

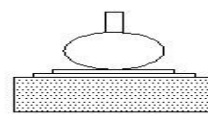
*Performance and Business Benefits*

# BGA Benefits

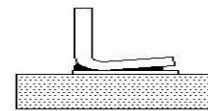


MEZ Select™

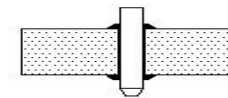
- Lower assembly costs than press-fit terminations
  - Standard SMT soldering for low cost PCB assembly
- Short signal path optimizes signal integrity performance
- Simplified board routing reduces complexity and costs
- Problem eliminated- Press-fit constraints on via
- Design Freedom- Can mount on PCB opposite other surface-mount components



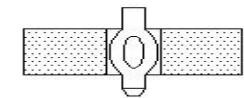
BGA



SMT



PTH

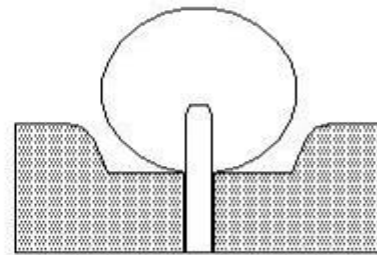


Press Fit

# FCI's Ball Grid Array Design (BGA)

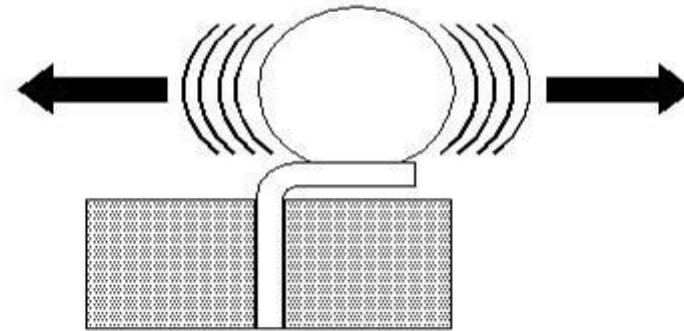


MEZ Select™



**FCI's Patented Design**

- Perfect "Ball True Position" in the X, Y, and Z direction
- Solid Pin-to-Ball connection

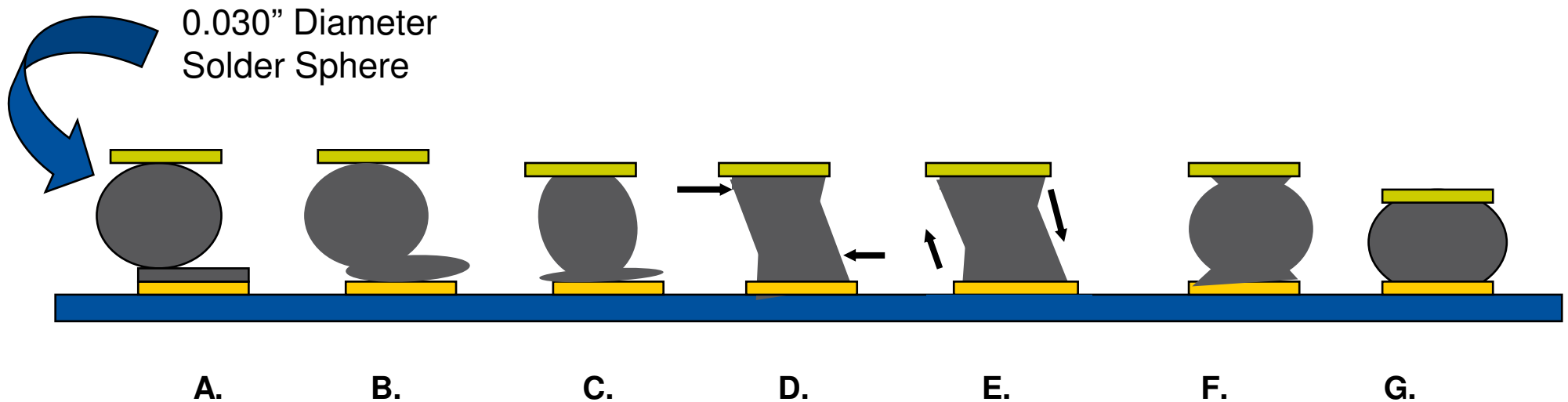


**Alternative Designs**

- No 'guidance' for ball position in X and Y direction
- Doubtful Pin-to-Ball connection

# Self-Centering in X and Y Directions

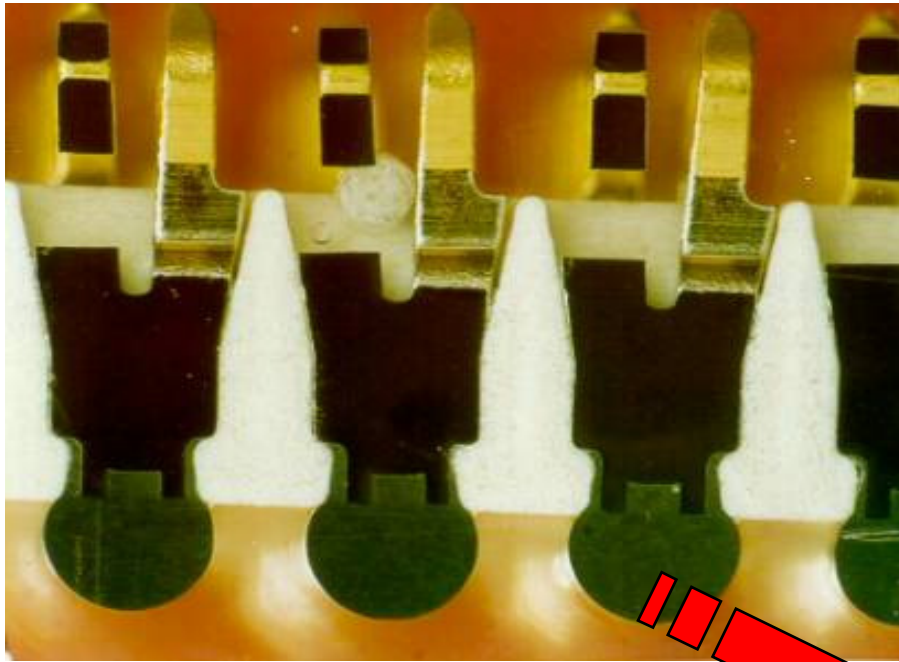
- Surface tension promotes self-centering of the connector during re-flow even with >50% of the BGA solder sphere on the PCB pad
- Corrects many placement errors
- Permits multi-connector usage



# Self-Leveling in Z Direction

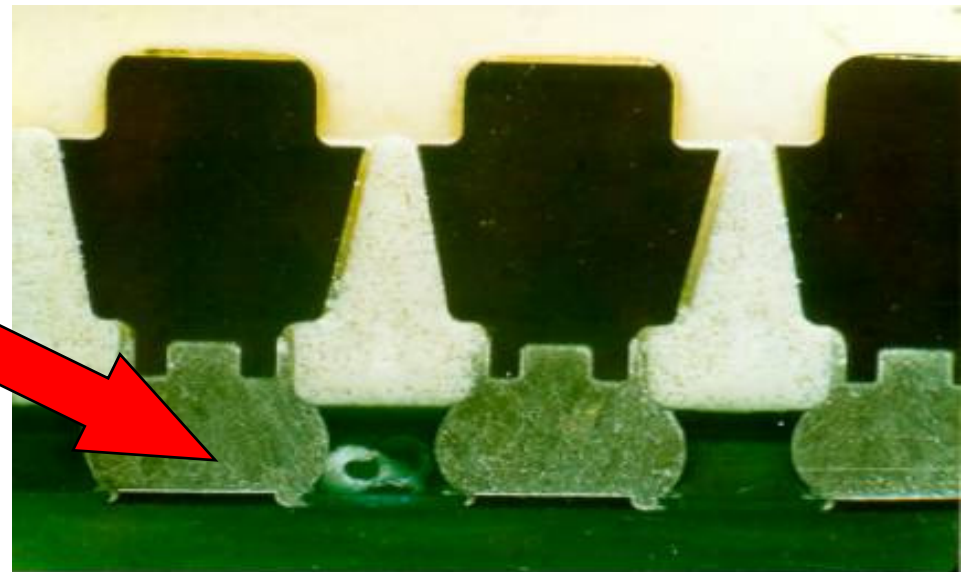


MEZ Select™



***Cross section prior to soldering***

- Solder spheres collapse upon reflow for vertical self-leveling
- Compensates for warpage or mis-match



***Cross section after soldering***

- FCI 100%-verifies BGA co-planarity of every MEG-Array Connector
- Solder Joint Reliability – Meg-Array's BGA Solder Joint Reliability per IPC-9701 exceeds 22 years life
- Additional Reliability Testing At The PCB Interface
  - Passed 1000 Thermal Cycles -40C To +85C
  - Passed 1000 Thermal Cycles -25C To +100C  
(Tested by an independent lab)

- In-Process Inspection & Quality Controls
  - Verification Of Terminal And BGA Presence
  - 100% Laser Inspection – Co-planarity
  - Verification Of Terminal Placement

- **High Speed, High Density, High Circuit Count Mezzanine**
- Safe- high volume, high quality production and usage since 1996 from FCI, the BGA connector expert and patent-holder
- 10 Gb/s + Electrical Performance
- Meets OIF CEI-28G-SR (Short Reach Interface specification) (4mm stack height)
- Connectors Provide 2-Points Of Contact for Reliability
- Demonstrated > 22 Years Life (IPC-9701) Solder Joint Reliability

# MEG-Array Product Support



<b>Datasheet</b>	<b>950554-007</b>
<b>Application Specification</b>	<b>GS-20-033</b>
<b>Product Specification</b>	<b>GS-12-100</b>
<b>High-Speed Performance Data</b>	<b>950554-008</b>
<b>Sample Kit</b>	<b>950554-010</b>
<b>SPICE Files – Web Site</b>	
<b>Drawings – Web Site</b>	
<b>3D Models (ProE &amp; IGES) – Web Site</b>	

**[www.fciconnect.com/megarray](http://www.fciconnect.com/megarray)**



***THANK YOU***

