



Gold Dot Connection Systems



CPE Italia Group

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Gold Dot™

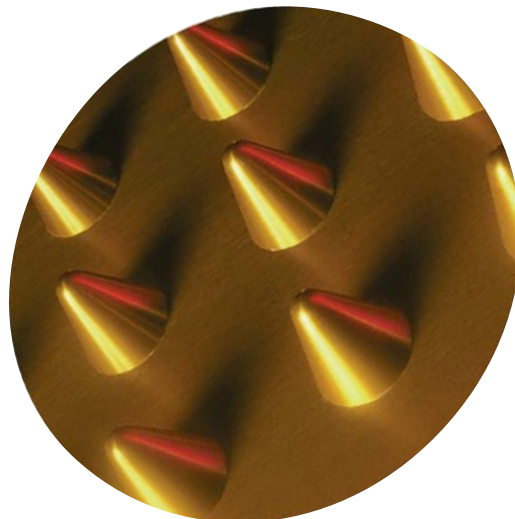
speed, density and reliability

The solution for emerging interconnect requirements of speed and high reliability. If your design goals include an interconnection application requiring up to 200 contacts per linear inch at speeds of 2.5 GHz or higher, or board stacking height restrictions down to 0.8mm, Gold Dot can help meet your needs.

The Gold Dot flexible printed circuit is the principle building block for a superior connection system. Two unique features of this interconnect system are:

- 1) precisely controlled additive circuit traces for signal integrity
- 2) shaped planar contacts for high contact integrity.

Gold Dot has millions of circuits in the field supporting high performance environments. With more than 25 years of demonstrated experience as a major supplier of flex-based connection systems, we provide value through our technology, product performance, quality, reliability and services.



The Gold Dot Connection System

Product Features

- **High Speed**
Superior impedance control leads to excellent signal integrity at 2.5 GHz speeds
- **High Density**
Hundreds of signals per square inch save PCB space
- **Solderless**
Simple compression contacts require no soldering for high reliability
- **Durability**
High strength contacts can survive up to thousands of matings and dematings
- **Versatility**
Directly intermates with plated through-hole on printed circuit boards
- **Achieved Telcordia Compliance**
Telcordia (Bellcore GR-1217-CORE) compliant for telecom and harsh environment applications

Shaped Contacts

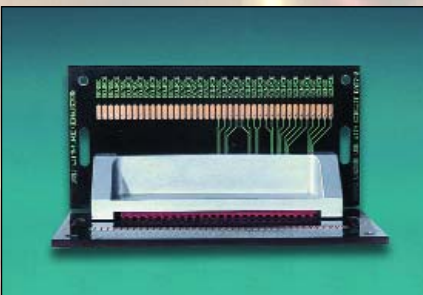
The Gold Dot contact is a shaped copper bump, created in 3D with signal traces for robustness and precision. The bump is then plated with gold or other precious metals. The gold dots are aligned and compressed against simple contact pads on the PCB to create the interconnect.

The Flex

Extreme signal speed and affordable customization are made possible by Delphi Connection Systems' bumped flex manufacturing process. Precise, additively-plated flex circuit traces carry signals to the shaped Gold Dot contacts with exceptional fidelity.

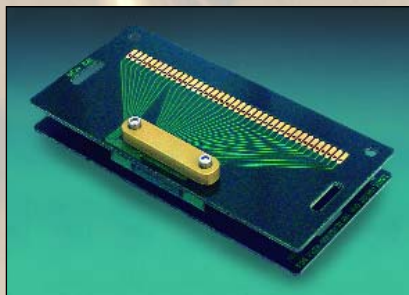
Backplane

Right angle interconnects between two PCBs



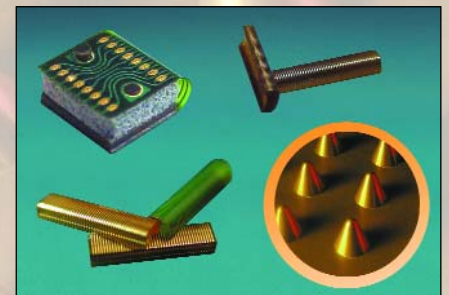
Mezzanine

Connects PCBs that are stacked



Mini Mezzanine

Low profile, compression-based, z-axis connector



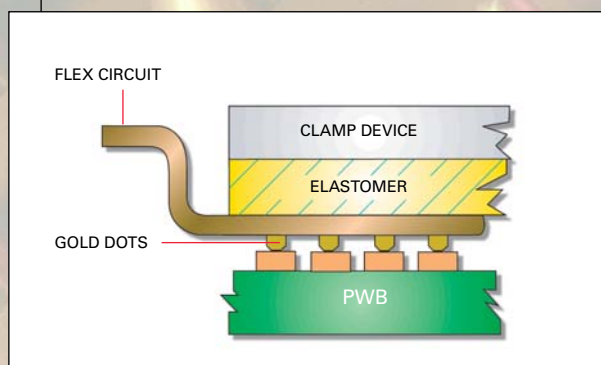


The Clamp

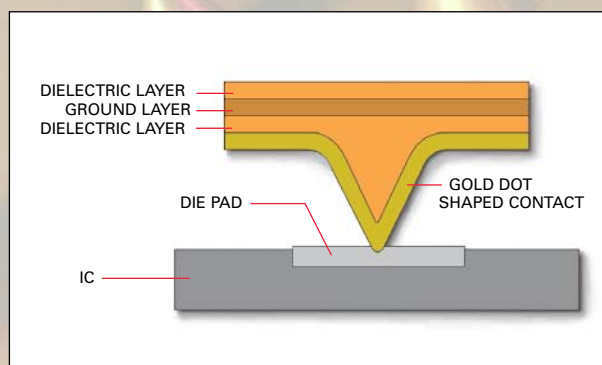
Alignment and compression are provided by the clamping hardware. Reliable electrical connections are made by pressuring the Gold Dot flex with compliant, heat-resistant elastomer that conforms to irregularities and maintains contact forces for thousands of hours. Uses only highly stable elastomers with low compression set to help ensure that the force applied stays on the dots.

Typical Performance Characteristics	
Rated Current per Dot	1 amp max.*
Dielectric Strength	500 - 700 VAC
Insulation Resistance	500 VDS
Contact Resistance	< 10 mΩ
Characteristic Impedance	50Ω ±10% (single ended) 100Ω ±10% (differential)
Operating Frequency	Up to 10 Gbits/sec.
Cross Talk	< 5% @ 62.5 ps T _r , within differential pair < .5% @ 62.5 ps T _r , pair to pair
Capacitance	< 3 pF/in
Contact Force	40 to 50 grams per contact
Vibration	10 G max. peak, 10 to 500 Hz
Mechanical Shock	30 G, 294 m/s ² peak acceleration, 11 ms duration
Operating Temperature	-40°C to +125°C (or higher) continuous
Mating Surface	Immersion gold, hard gold, solder

* At room temperatures on selected lines



Cross-sectional view of a typical Gold Dot



High Speed, High Density, Wide Range of Applications



Computers and Peripherals

- Desktops and workstations
- Mainframes
- High speed modems
- Printers, fax machines, copiers and scanners

Telecommunications

- Cellular phones
- Network switches and routers
- Communication devices
- Other portable electronics

Instrumentation-Emulation-Testing

- Up to 10,000 board-to-board controlled impedance lines
- Backplane interconnection
- MCM, PCB testing
- MR head processing, disk drive test interface
- Flexible and rugged for portable applications

Satellites

- Power generation and signal distribution
- Satellite antennas and solar arrays

Semiconductors

- Known Good Die test substrate
- BGA/LGA/IC interconnect socket
- Burn-in test substrates
- Interposer between die and test socket

Military

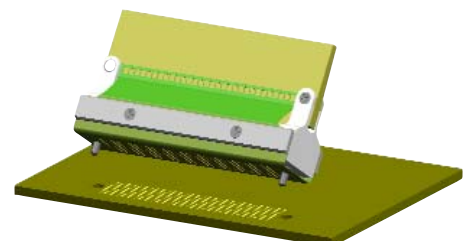
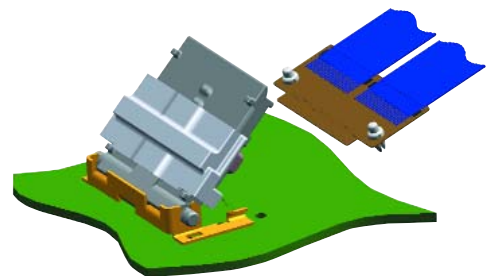
- Avionics
- Weapon systems
- Missile umbilical connections
- Military communication equipment

Automotive

- Engine control computers
- Instrumentation
- Emulation

Custom Designs

CPE offers a wide range of Gold Dot based custom flexible interconnect solutions. These customized solutions provide rugged connector and circuit construction, compliant pressure contacts, high reliability in harsh environments, high signal density and a solderless, pressure interconnection.





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