

DC- 40 GHz Test Sockets

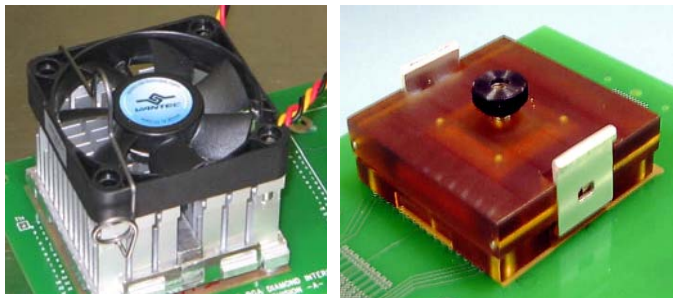
- ◆ Pin-less Interposer™ with Conductive Diamond Plated Test Pads
- ◆ 14ps Interconnect Rise Time Bandwidth
- ◆ >2000 High Pin Count BGA, QFN, QFP Devices
- ◆ Device Performance and OEM System Test Sockets
- ◆ Interposer has no Measurable Inductance or Capacitance
- ◆ 100% Tested and Guaranteed



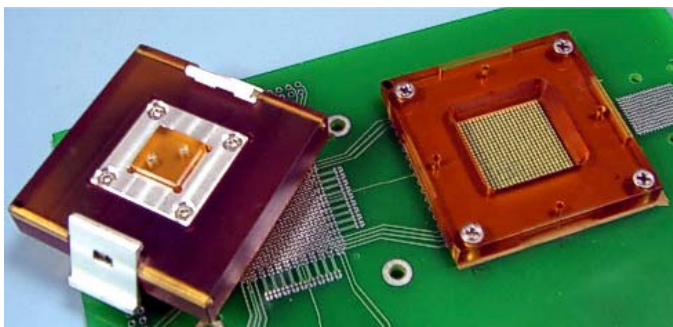
www.gigaconnections.com

"Performance as good as solder"

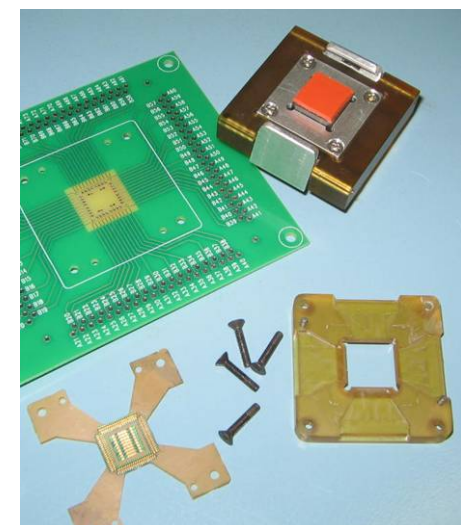
Giga Connections, Inc. integrates a *Conductive Diamond Plated (CDP) Interposer* with a one-screw test socket assembly to create a line of low cost and easy-to-assemble BGA test sockets with interconnect bandwidths beyond 40 GHz. A 672 BGA socket assembly typically requires only 2-3 inch lb torque on a single screw to achieve continuity on all balls. All socket designs can be sized to meet specific pin counts. The pin-less interposer™ typical 1% impedance interconnect discontinuity is similar to a soldered junction, such that for Gigabit applications, makes an excellent replacement for RF pogo pin or spring type and elastomer socket interposer architectures.



Complete socket assemblies shown with and without heat sink and fan. Picture on right shows one screw tightening adjustment on socket lid. Adjustment can be made by hand or set screw using a torque wrench.



The floating lid on left is held on the socket body with side clamps. The device is installed into the socket body containing the gold plated conductive diamond Pin-less interposers™ on right.



GCI 40 GHz QFN Test Socket: Picture shows QFN Gold Plated Conductive Diamond Pin-less™ Interposer and socket components. A test board is used to verify all pins make contact to guarantee socket is functional when delivered.

Money back guarantee if socket does not meet customer's satisfaction.

Interposer Specifications

Electrical Specification

- ◆ > 40 GHz bandwidth / ~14ps rise time
- ◆ No measurable inductance or capacitance
- ◆ ~1 % increase in impedance measured at 10G/bits data rate

Interconnect Technology

- ◆ 4-20 um conductive diamonds
- ◆ Surface mount connector
- ◆ 10 micro-inches of gold plated final finish
- ◆ Contact point size is 10 um; 20 mil (0.5 mm) pitch can be achieved
- ◆ RoHS compliance - lead free
- ◆ ~25 mils mechanical stack up height

Pin Density Count

- ◆ >2000

Maintenance

- ◆ Surface can be refurbished
- ◆ Clean with ultrasound bath

Reliability

- ◆ Hundreds of thousands of insertions without measurable degradation in signal integrity

Force

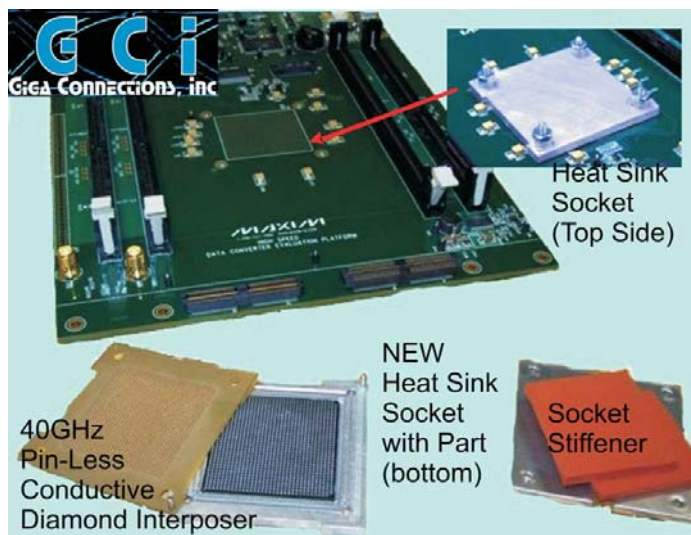
- ◆ 15 - 30 Grams force per pad required to achieve electrical continuity

Current Handling:

- ◆ ~15 amps per 10 mil (0.25 mm) diameter pad

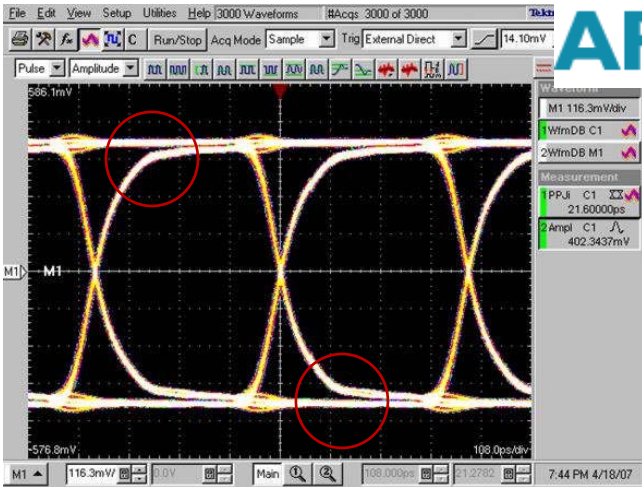
Temperature Range

- ◆ -60C to 200C for Kapton film Interposer

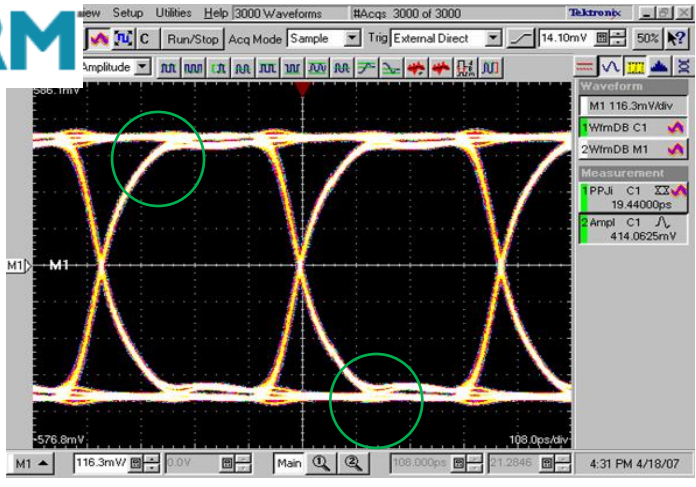


High Performance Heat Sink and Frame Sockets with conductive diamond 14ps Pin-Less Interposer™. Use this simple socket high performance socket on OEM prototypes instead of soldering the device. Reduce risk to device and test prototype boards. Saves money and development time.

ARM chose the Giga Connections, Inc. Gold Plated Conductive Diamond Interposer 40GHz Pin-Less interposer™ test sockets for their 6.25 G/bit and beyond IP device testing. Internal test showed their previous spring pogo ping sockets contributed to rise-time degradation, added 10% excessive jitter, lowered peak voltage and had pin breakage reliability problems.



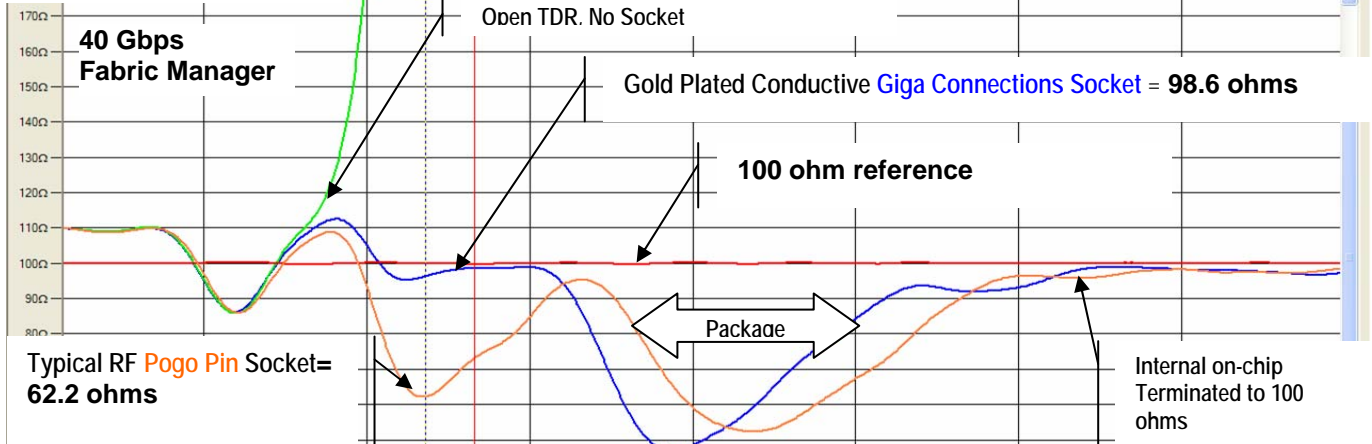
ARM



In this high performance RF pogo-pin socket the L/C loading does not allow the 100ps rise/fall times in this 6.25 G/bit eye to complete the rail to rail switching. The Red circles show the high frequency roll off of each transition.

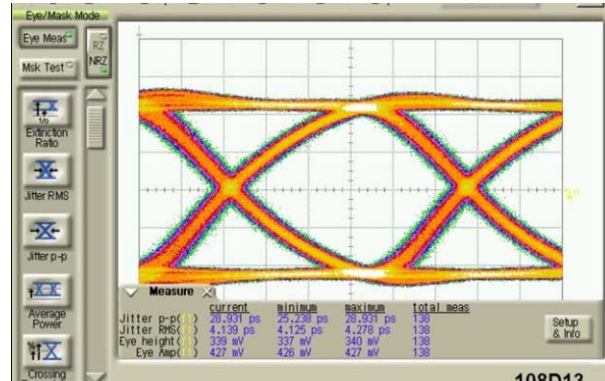
Notice in the Green Circles the complete rail to rail switching and fast 100ps rise/fall times in this 6.25 G/bit eye diagram, as measured using a Giga Connection, Inc. Conductive diamond Pin-less Interposer™ test socket.

Enigma semiconductor

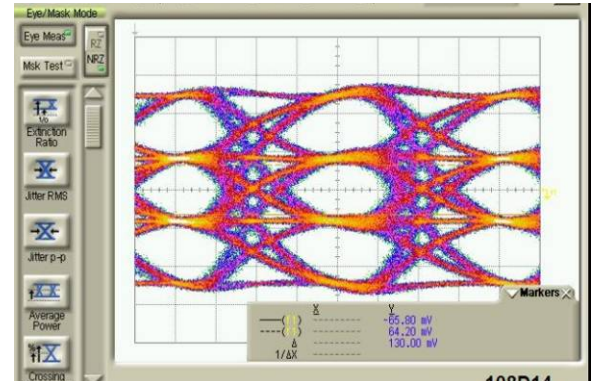


The GCI socket is a better match for the PCB and the transceiver IC onboard terminator. Most significantly, the gold plated conductive diamond test socket pin-less interposer™ shows no capacitive or inductive reactance. With a uniform impedance profile, the socket improves the interconnect system Return Loss.

Enigma Semiconductor chose the GCI socket to test their HybriCore 40 G/bps fabric manager.



Enigma's HybriCore eye diagram though GCI 40GHz socket: TX34, 6.25 Gb/s, NRZ, No Codec.



Enigma's HybriCore eye diagram though GCI 40 GHz Socket: TX34, 10 Gb/s Raw, PAM4, 16b10s Codec.