

RTI POGO PIN CONNECTOR SAVERS



Pogo Pin to Standard Connector for Multi-Board Test Fixtures

FIXTURE OVERVIEW:

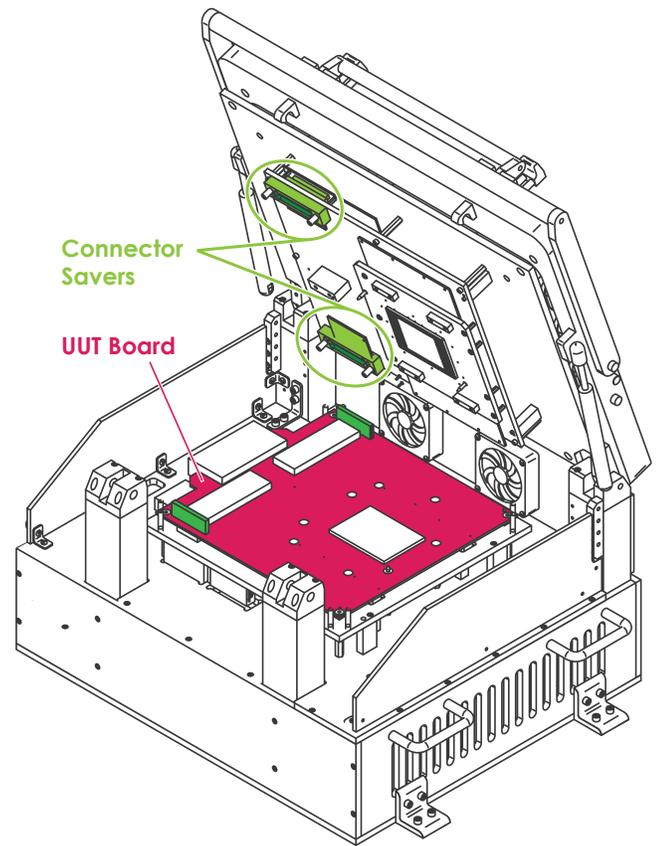
RTI specializes in developing custom solutions to meet unique testing requirements. The success of this particular solution requires the Unit Under Test (UUT) circuit board to interface with four other printed circuit boards. The UUT interfaces directly with two other circuit boards at six locations through 2,376 pogo pins and over 200lbs of contact force. The fixture's alignment is precise enough to ensure consistent, repeatable, clean contact for each of the pins and durable enough to test thousands of units.

PCB CONNECTOR SAVERS:

An unchanging CPU board connects to the UUT in two additional places using Mictor connectors. The constant act of mating and unmating a connector can cause significant wear and put physical stress on each component reducing the reliability of the connection. "Connector savers" are installed to bridge the connection between the two boards and preserve the life span of the connectors on the CPU board. It is cheaper and easier to replace a degrading connector saver than an entire circuit board. Springs with 32lbs of resistance are attached to each connector saver. These provide enough force to separate the connectors and prevent physical stress to the UUT board when the lid is opened.

LID CLOSING TECHNOLOGY:

The lid uses a vertical compression technology. Unlike a clamshell lid, a vertical compression lid closes and applies even vertical force in two stages. In the first stage, the lid is brought to a horizontal level without applying pressure to the components. In the second stage, the vertical compression lever is brought over the lid applying even downward force to each point of contact. This technique ensures that the points of contact are evenly aligned before force is applied, preventing damage to the UUT pins or hardware. The leverage produced by the vertical compression handle provides the necessary compression force with minimal human exertion.



A Few Contact Sites That Mate With Connectors on the Final Board Under Test

RTI POGO PIN CONNECTOR SAVERS (CONT)



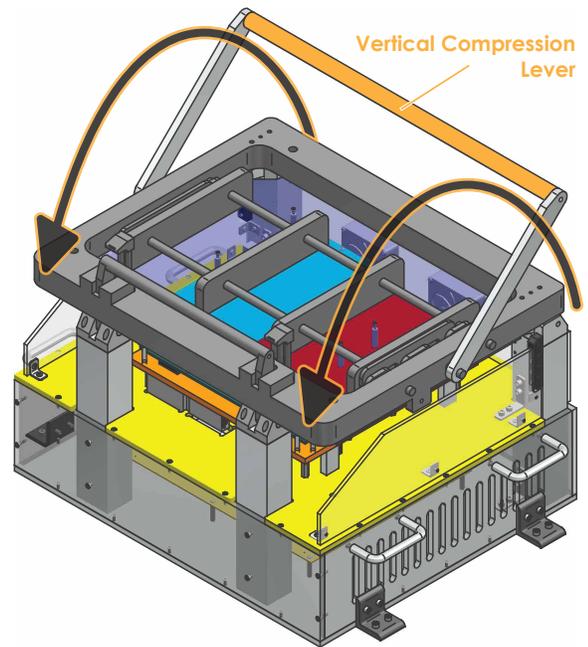
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PCB ALIGNMENT TECHNOLOGY:

In addition to vertical compression, consistent alignment of the multiple connection points is achieved through a combination of “floating” and “fixing” components. Fixing a component ensures that its position remains constant. Floating a component allows it to move freely, changing its position. During the second stage of the lid closing process, floating components are gently guided into perfect alignment and clean connections are created. Numerous alignment pins hold the UUT board within small floating tolerances to account for slight variations in the board’s manufacturing and installation.

FIXTURE CONSTRUCTION:

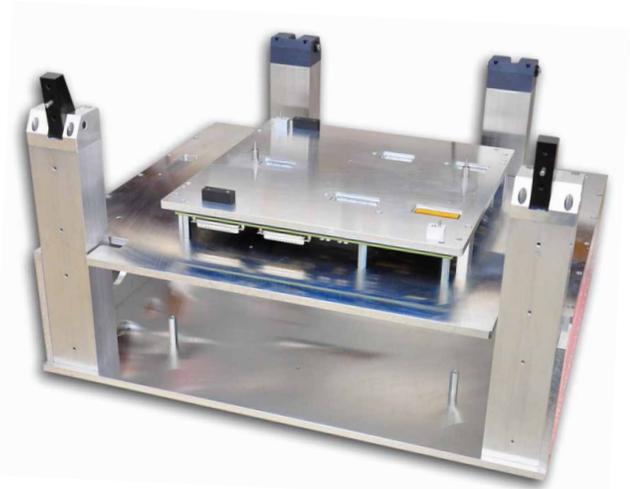
This custom solution is incredibly compact, efficient, robust and durable. Constructed primarily of aluminum, the unit is relatively light and dissipates heat quickly. Four cooling fans push 200cfm of air across the boards. A fail-safe switch connecting the CPU board and UUT is triggered during the lid closing process, preventing the system from operating if contact is broken between components. Multiple layers of circuit boards and platforms are attached to the lid and base of the fixture. The thickness of these layers is large enough to incorporate several circuit boards and precise enough to allow a closed unit to exert just enough force to make a strong connection without applying physical stress to the components.



Closed Lid Prior to Applying Compression



Layered Components in a Closed Fixture



Base Structure of Aluminium Chassis (Shown without components or lid)