

Challenges of Testing Assemblies with Backdrilling at In-Circuit Test

CHALLENGE

As backdrilling becomes more prevalent in order to enhance signal integrity of high speed nets common to these product types, traditional means of probing are not possible. Therefore, we must replace existing methods of test which require physical access to assemblies with a test method that doesn't require using the traditional pogo probe approach to gain test access.

SOLUTION

Create a test strategy that doesn't require traditional test access:

- Develop a boundary scan test strategy to test the high speed signals
- Develop a boundary scan test strategy to test Nets that have no access
- Design loopback boards to complete the high speed lanes
- Design loopback boards that allow boundary scan pins to communicate
- Design breakout boards in cases that a boundary scan test can't be developed
- Integrate the various custom loopback boards into an in-circuit fixture using pneumatics
- Debug the boundary scan and custom loopbacks boards on an in-circuit test system

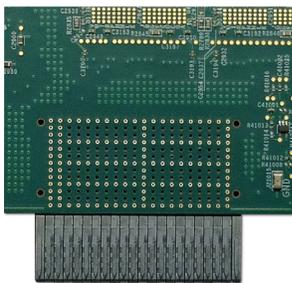


Fig 1. Missing copper in an assembly due to backdrilling — unable to be accessed by traditional pogo fixture.



Fig 2. From left to right, two different breakout board types followed by three different loopback schemes.

BENEFITS

As a result, customers are able to test a large portion of an assembly that would otherwise not be tested — or only tested at a later test step in the process, such as functional test. Customers are able to test and catch a defect on an assembly earlier in the test process and benefit from a less costly repair effort as diagnostics are much more precise during this stage.

CASE STUDY

CUSTOMER

Our customers are providing solutions in the 10GB, 40GB, and 100GB+ range of networking products. Similar requirements are supported in high server and data management products as well.

KEY PRODUCTS USED

- Proprietary Tools developed by Solution Sources Programming Inc.
- Benchtop Boundary Scan Development System
- Agilent or Teradyne In-Circuit Test System
- Test Fixture with Pneumatic insertion capability

Solution Sources Programming is a global test and measurement provider specializing in designing and implementing turnkey test solutions tailored to customers' needs throughout the product life cycle.

For more information on how Solution Sources can help you, contact us at 408-487-0270 or visit us at www.ssprog.com.