Universal Synaptics Intermittent Fault Detection (IFD)

Sample Test Process Guide

Introduction

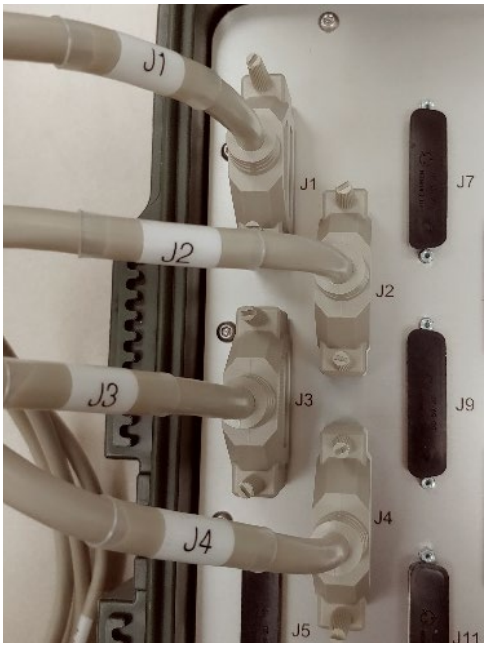
Testing with the Universal Synaptics Intermittent Fault Detector (IFD), whether using the Portable Intermittent Fault Detector (PIFD) or the Intermittent Fault Detection & Isolation System (IFDIS), has three stages:

- Stage 1 includes adapting to the desired Unit Under Test (UUT) that is desired to be tested. The adapter is designed to make an electrical connection to the end points of all the paths that need to be tested. These end points are typically in the form of connector contacts.
- Stage 2 leverages the built-in AutoMap application on the IFD to discover the true as-wired configuration of the connected unit, in essence building the Unit Under Test (UUT) Test Program Set (TPS) automatically and without error. This "map" is leveraged in Stage 3 to complete the suite of tests.
- Stage 3 begins the full test sequence starting with a scanning continuity test to evaluate all the expected connection paths. Next, the system performs a scanning shorts test to look for unexpected connections in the unit. After the electrical paths have been verified for hard faults, intermittence testing begins. During this period of testing the IFD is no longer scanning but is actively monitoring all the electrical paths simultaneously and continuously for momentary discontinuities as short as 50 nanoseconds. Detected events are displayed in real-time on the fault isolation graphic and results listing so they can be isolated and taken to root cause visually in the next step of the process called Fault Isolation. These test results are then compiled into a report that can be leveraged to conduct the actual repairs. Once repairs are completed, it is recommended to retest to quality assure the accuracy or repair(s) and confirm that the UUT is intermittent free.

Connecting the Interface

An Interface Test Adapter (ITA) can have one or more sections which each have one d-sub end that connects to the IFD and various other possibilities of opposite gender connectors, whether a cannon plug or other potential connections that plug into to the UUT(s).

In this example, J1 through J4 of the ITA connect to matching jacks J1 through J4 on the IFD.



P1 through P4 connect to each of the 4 cannon plugs of the UUT, in this example simple extension cables. The order is not critical the first time as the IFD will discover the connections using AutoMap. If the same setup will be reused, make note of how the connections were made to allow the same connections the next time.

Testing

1. Sign into Advanced Technician and run AutoMap with the custom prepared map. The resulting revision will be used for testing in the next step.
2. Sign out of Advanced Technician and select the new map and start the testing process.
3. Wait for the continuity and shorts test to complete; intermittence testing begins automatically.
4. Carefully flex or tap as you move down the cables and wires while monitoring the IFD for events.
5. When events occur attempt to isolate their position in the cable
6. When intermittence testing is complete further isolation can be performed using the DMM during Fault Isolation leveraging the on-board DMM.
7. When testing is complete the reports will be automatically generated and saved to the folder on the desktop of the IFD.