Increase Fault Coverage

Teradyne's TestStation Framescan tool suite detect faults on component packages and connector pins using vectorless test techniques. Framescan tools detect faults by applying a stimulus signal to a node on a printed circuit board and then by using advanced amplification and noise-filtering hardware and software algorithms to measure the voltage coupled to a capacitive plate positioned in close proximity to the component package or connector being tested.

The Framescan software automatically learns the voltages for each pin on a known good board and sets appropriate thresholds so that during production testing, any pins that fall above or below the learned voltage thresholds are reported as faulty.

TESTSTATION

FEATURES

- Automated learn process feature
- Advanced Framescan FX hardwarre
- Boundary scan stimulus option supports reduced access testing

BENEFITS

- Fast & simple test program development
- Accurate pin level diagnostics
- High pin fault coverage
- Extend testability to pins with limited access
- Simple test program development
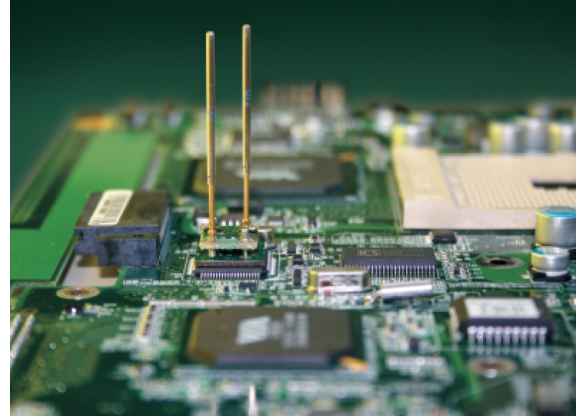
Simplify Test Program Development

The test methods used by Framescan tools are referred to as "vectorless test" techniques because they do not require the test developer to create complex digital test vectors in order to detect faulty device pins. Traditionally, in-circuit testers power up the PCB and apply a set of digital test vectors that drive the inputs and sense the outputs to verify the digital components are functional and the pins are properly attached. This is highly effective because it quickly verifies that the correct device was placed on the board, it was properly oriented, it is functioning properly, and none of the device signal pins are open.

However, it is more difficult for test developers to spend time and resources developing in-circuit test vectors for components on their boards because of the increasing complexity of today's digital components and the tight time-to-market constraints under which most major PCB manufacturers operate. Most test developers simply do not have the time to learn the internal workings of a complex component and write the test vectors that will properly exercise the device, so they rely on vectorless test methods like Framescan.

Teradyne's Framescan vectorless test techniques are popular with programmers because they are fast to implement, provide precise pin diagnostics, and do not require the creation of complicated test vectors. Although digital test vectors execute faster, provide higher fault coverage (because they test the functionality of the device), and do not require extra test fixture hardware - vectorless test methods have the advantage that they are faster to implement, can detect faults on unpopulated sockets and connector pins, and can also be used to detect mis-oriented polarized capacitors.
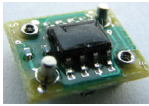
TERADYNE

FRAMESCAN TOOL SUITE

FRAMESCAN SENSOR PLATE

A capacitive sensor plate that is attached to the ICT fixture and is installed so that it is in very close proximity to the component or connector pins under test. Teradyne sells kits of various size sensor plates, but most ICT fixture manufacturers have a stock of sensor plates which they will cut to size to match the dimensions of the particular component or connector that is being tested.

FRAMESCAN FX AMPLIFIER

A high gain, low noise amplifier that is attached to the top of the Framescan Sensor Plate. It picks up and amplifies the Framescan stimulus signals that are applied to the device pins during the Framescan tests. The amplifier is connected by some probes and wire to the Framescan FX Multiplexer/Selector board.

FRAMESCAN FX MULTIPLEXER / SELECTOR BOARD

A board, installed in the ICT fixture, that conditions the signals received by the Framescan FX Amplifiers and routes them to the tester's voltmeter instrument. This board requires three separate voltages to power-up (+5V and +/-15V) – which can be conveniently supplied by the TestStation's Fixed Power Supply option or by an externally provided power supply.
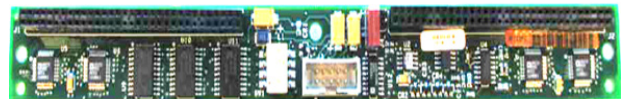
ANALOG FRAMESCAN LICENSE

A software license that enables the TestStation Run-Time Software to execute the Analog Framescan tool (see separate data sheet for details about the Analog Framescan tool). Analog Framescan is an unpowered test technique that uses an AC sine wave generated by the tester's analog instrumentation to provide the Framescan stimulus signal. The Analog Framescan technique requires that the tester have physical probe access to the pins that are to be tested.

POWERED FRAMESCAN LICENSE

A software license that enables the TestStation Run-Time Software to execute Powered Framescan tests (see separate data sheet for details about the Powered Framescan tool). Powered Framescan is a powered test technique that uses digital waveforms generated by boundary scan devices on the board to provide the stimulus signals. Because the Powered Framescan tool uses boundary scan devices to generate the stimulus signals, it can detect faults on device pins even when the tester does not have physical access to the net.

TESTSTATION SOFTWARE

The Analog Framescan techniques require TestStation software version 5.8.0 or greater, the Powered Framescan techniques requires an UltraPin based TestStation running software version 6.4.0 or greater.

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