



QT22 SCAN *Sign*

BOUNDARY SCAN & ANALOG SIGNATURE TESTER



KEY FEATURES

- » Best Solution for today's high tech / high density boards with ASICs and no documentation
- » Analog Signature and Boundary Scan combination
- » QSM Analog Signature using Learn & Compare Technique for Boards with documentation
- » Automatic "Best fit Curve" for QSM VI Signature Analysis for increased fault coverage
- » IEEE Standard 1149.1 Compatible Boundary Scan Test Technique
- » Boundary Scan Auto learn feature to create net list for boards with no documentation
- » Learn & compare facility for both QSM VI and Boundary Scan
- » UUT Interface through Manual Probe / Clips and XYZ Multi Test Head Probers
- » USB Interface port for PC / Laptop and with TestDirector 6 (TD6) Test Software Package.



ScanSign – Unique Test Solution for Today's PCB's Technology

Today's PCBs are complex in nature and with more of proprietary devices. In most cases, the schematics and internal functional details are unavailable for third party maintenance personnel. As a result diagnosing PCB faults using conventional test instruments such as multi-meter or oscilloscope, which are normally found in repair shops, becomes a difficult task. Test Program development for Automatic Fault Diagnosis using even high end ATE systems become impossible task.

QT-22's QSM VI can detect a change in Boards/devices pin characteristics due to a damage caused by external forces such as lightening, Static discharge, Short circuit / over loads and value change in discrete components. In QSM-VI Signature test method, the KGB's VI traces can be learnt and stored for future reference. The system uses probe & reference for comparison of each node (or) through Optional Internal MUX adaptor for Clips and edge connectors and interfaces to an automated Robotic arm with multiple probes for high density board probing without a bed of nail fixture.

Best Fit Curve:

Qmax has developed an advanced algorithm based Automatic "Best Fit Curve", which selects the Voltage, Source impedance and frequency of the VI stimulus signal depending upon the test node and its characteristics. For example a test node had a diode, resistor and capacitor in parallel, the system learns a VI Curve using high voltage to detect the presence of diodes / Zenors, a low voltage typically 100mV to learn the resistance characteristic with a suitable source impedance, usually source impedance equal to that of the test node's resistance value and another trace with higher frequency to detect the presence of reactance such as capacitor / inductor. Thus the system learn 3 traces with different set of Voltage, Source impedance and Frequency, This will help to detect even if any one of the component is missing or value changed.

Another test technique which is gaining popularity is IEEE 1149.1 Boundary Scan Test Technique. As most of the devices of today's technology comply with IEEE 1149 Boundary Scan, it becomes possible to test most ASIC devices, BGA packages and high density devices even though no data sheet or internal functionality is unknown. **QT-22** offer this test technique which can be used for Scan chain detection, Device code read, user code read, interconnection between devices (solder check), integrity of the board & device and edge connectors using a simple 4 wire JTAG interface.

Analog Module for QSM VI:

The analog module has maximum of 2 channels with 14 bit accuracy and 25MHZ sampling rate. They can be used as QSM VI channels within a voltage range of +/-13V with source impedance ranging from 10 Ohms to 100K Ohms limiting current to +/-100mA Maximum. Using two of these analog channels, QSM VI test is carried out for any pin combination.

JTAG Controller for Boundary Scan:

Apart from QSM VI Module, QT22 has also the Boundary Scan Test Compatibility. The system has in built JTAG Controller with IEEE Standards 1149.1 to carry out the BS functionality. This involves testing of boundary scan devices using the test access port (TAP) controller (TDI, TDO, TMS, TCK and TRST-optional), provided in the Device under Target.

QT22 SOFTWARE PLATFORM:

Qmax TestDirector6 (TD6) software, which runs under windows 7 professional edition, consists of TD6 Interactive work station for instant test of a PCB. TD6 test sequencer (TPS development studio) for sequencing various tests for a board functional test, TD6 test station for operator level use of the test program set.

TD6 – INTERACTIVE

These tests can be performed on any PCB instantly using clips / probes along with Learn & Compare technique.

- » QSM VI tests
- » Boundary scan tests

TD6 – TEST SEQUENCER

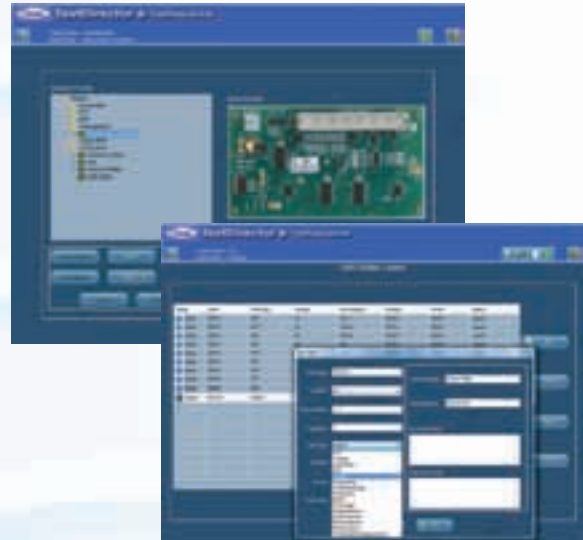
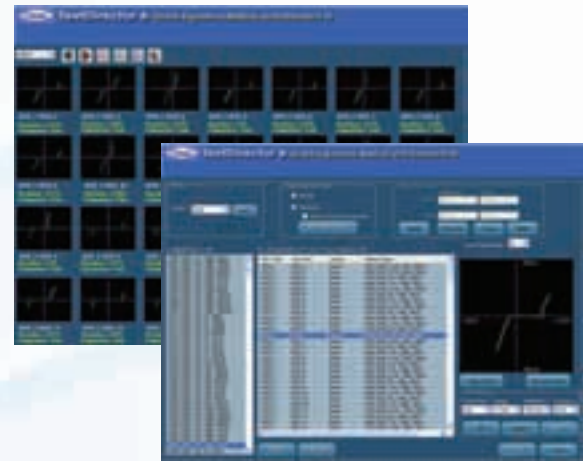
This software package Sequences Test Flow and Guides the user through the entire Test procedure and generates detailed error logs.

- » For generating test program set for PCB under test
- » Stability checks to confirm the test results
- » Features include, guided probe tracking, fault tree, PCB layout / PCB image/ schematic image for paperless repair
- » A typical test sequence for a board may contain the following tests
 - ❖ QSM VI tests with best fit curve feature.
 - ❖ Integrated boundary scan test for BS devices such as ID code read, user code read and interconnect test.
 - ❖ Testing of non BS devices and logic devices through JTAG pins of BS devices.

TD6 – TEST STATION

TD6 Test station is operator level software with password protection along with statistical data/error log and soft operator console. Test parameters /limits cannot be changed here

- » Master board selection from database
- » High quality graphical view and non- graphical view of the unit under test
- » Auto run and manual run options for multiple tests, with stop-on fail comments
- » View board repair history
- » Test board and log errors
- » Clearly mark failed, suspected and tolerates failure components
- » Test board and repeat process until the board pass
- » Create histogram /PIE charts for MIS



QT22 – TECHNICAL FEATURES & SPECIFICATIONS:

HARDWARE:

a. MAIN CONTROLLER :

- ❖ USB 2.0 based Interface with User PC.
- ❖ The System has 2K X 60 Bit RAM for Instruction Register.
- ❖ Basic Timing Unit is Programmable from 100 ns to 655uS in steps of 100ns.
- ❖ Time Duration is Programmable Up to 256 Units.
- ❖ Test Vector Memory Depth up to 56K.

b. ANALOG VI MODULE:

Two independent Analog VI Channels can be used as QSM Probe and reference leads to Learn & Compare VI Characteristics.

- ❖ Analog Channels up to 2 Maximum and along with GND output for additional reference.
- ❖ Analog Sampling Rate is 25 MHz.
- ❖ Generates VI Test frequency from DC to 100 KHz.
- ❖ Memory behind each Channel is 56K X 24(Drive & Receive).
- ❖ Module has 5 different programmable voltage ranges as +/- 1V, +/-3V, +/- 6V, +/- 13V.
- ❖ Drive Pattern Sine / Triangle / Rectangle / Ramp / DC and User Definable. Fully User Programmable VI traces drive patterns.
- ❖ Selectable 15 Source Impedances are 10E, 20E, 50E, 100E, 200E, 500E, 1KE, 2KE, 5KE, 10KE, 20KE, 50KE, 100KE, 200KE, 500KE and Open.
- ❖ 14 Bit resolution of DAC /ADC to provide very accurate results.

c. BS Controller:

- ❖ Single JTAG port.
- ❖ Speed up to 15 MHz.
- ❖ IEEE 1149.1 Standards compatible.

SYSTEM GENERAL SPECIFICATIONS:

Power Requirement	: 110V/230V, 50/60Hz, 750W
Physical Dimension	: 257mm (W) X 102mm (H) X 331mm (D)
Weight (Approx.)	: 8 Kgs

SYSTEM REQUIREMENTS:

Controller	Intel core i5 or higher
OS	Windows 7 Pro
RAM	Min 4 GB
Hard disk	200GB or Higher
Interface	USB 2.0 (min. of 4 USB ports)
User control	Keyboard / Mouse

QT22 - SYSTEM ACCESSORIES:

QSM Probes	- 1set.
J-TAG -5 wire connector for Boundary Scan test	- 1No.

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— where standards are set; not matched.

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