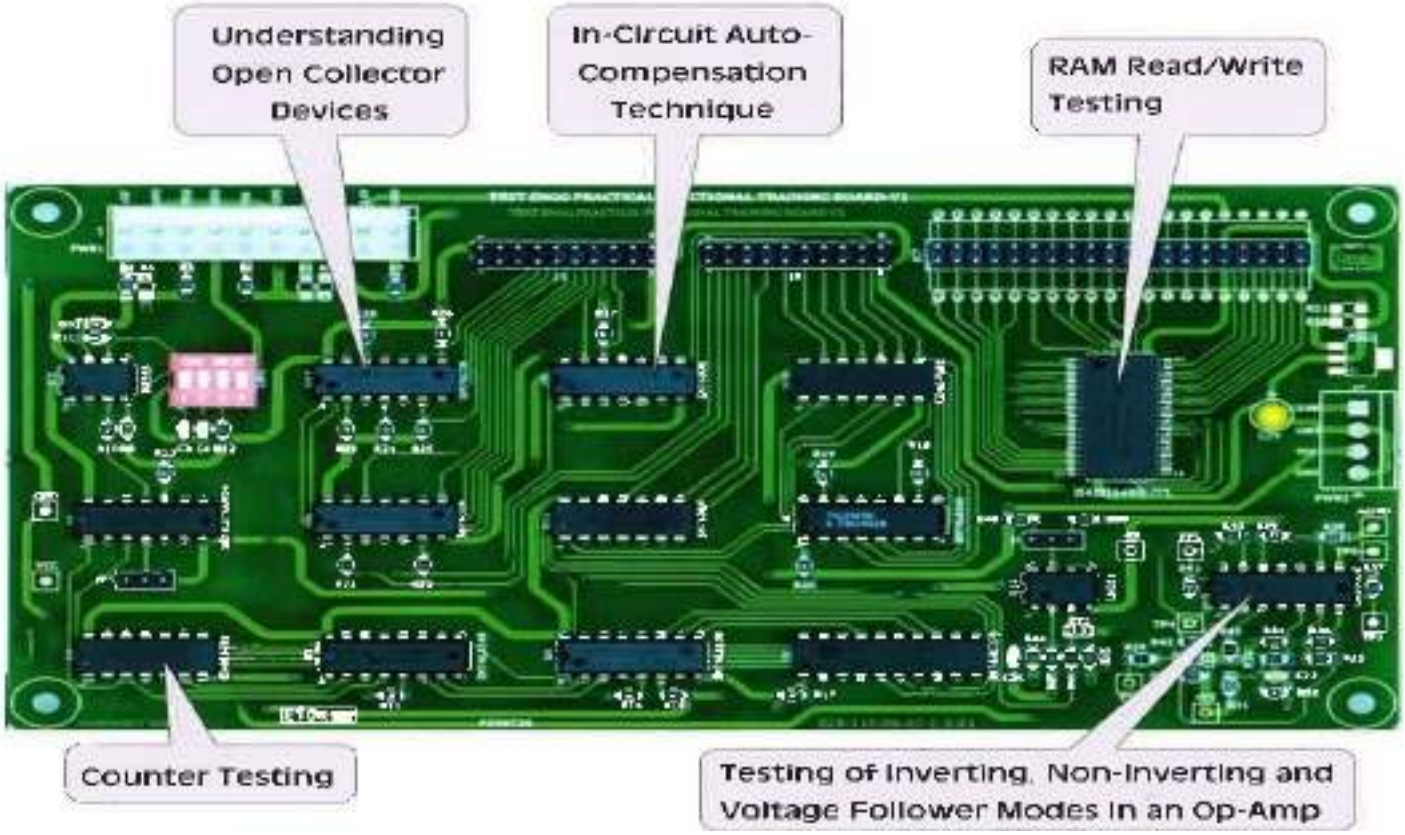
In-circuit Functional Tester Trainer System

Brief Description

To educate & Train students to test and identify the fault in a PCB by performing Power – on functional tests of digital devices (SSI/MSI/LSI) and analog devices in both out - circuit and in – circuit conditions. Portable ICFT Trainer Test system is designed as an In-circuit Trainer system for Educational Training Purpose for training the electronics and instrumentation engineering students.

QT 65 In-Circuit Functional Tester Trainer System useful in testing SSI/MSI devices in digital and Analog and mixed signal devices including linear devices on board. The QT 65 In-Circuit Functional Tester Trainer System has Unit Under Test (UUT) /Board Under Test(BUT) power supply with Voltage / Current Ranges: +3.3V@5A, +5V@5A. Which is useful in testing SSI/MSI devices in digital and Analog and mixed signal devices including linear devices on board.



These experiments cover the concepts of in-circuit Functional Test (ICFT) methods using Automated Test Equipment's (ATE), in Digital & Analog circuits. Students will learn to create the device models on integrated Device Test Environment (IDTE) and validate the real time simulated vectors using Training kit. It covers the fundamental of in-circuit Functional Test using ATE, in this students come know the various test methods of ICFT as given below. Device functionally Pass, Device Conditionally Pass, Device not fully Tested, Auto Compensation Technique, Variable Test Speed, Pin Status Indicator (Float, Links, Voltage & Impedance, Input Level error, Output Level error, and much more by understanding the ICFT concepts, students will increase their debugging skills.

Technical Specifications/features Of

In-Circuit Functional Tester Trainer System (QT-65)

QT 65 In-Circuit Functional Tester Trainer System is a test system which can perform various power on functional test of digital devices (SSI/MSI/LSI) and analog devices in the out-circuit conditions. The System hardware has 1K X 60 Bit RAM for Instruction Register .Unified Library of vast number of devices to effectively test device in in-circuit as well as out of circuit conditions. The system hardware has a test vector Depth is 16K In-Circuit Functional Test is basic testing technique with basic timing unit programmable from from 10 ns to 655uS in steps of 10ns and time duration is programmable upto 256 deployed in testing active components in board by driving inputs then to compare the outputs with that of a verified one. This technique is used in our circuit as well as in circuit testing of components in board. Both digital and analog devices on board can be tested and the testing techniques can be illustrated with the help of software provided. Graphical view of test vectors enables the trainers to explain the testing -

-phenomenon in a device testing with the logic levels. Easy to use graphical user interface with windows OS leads the trainees to use effectively. Vast library of devices to test is useful to practice more and gain a better knowledge with the device data sheets presented. In digital electronics three-state, tri-state, or 3-state logic allows an output port to assume a high impedance state, effectively removing the output from the circuit . The pin-driver present in the outport port of ICFT has the capabilities of driving the states of High, Low and Tri stages . The ICFT hardware main sequence controller system can be interfaced through USB port with external User PC/System.

Digital Module of ICFT Trainer Test System

The digital module comes with maximum 32 channels with 10 Mhz digital drive speed and can be Programmable from 40 ns to 160 ms in steps of 10ns.The memory behind each pin comes 16 X 4Kbits and Drive Level +5V / 0V Fixed and Sense Level up to +2.0V / 0.8V & 3.5V / 1.5V Selectable. The digital module comes with Current Range

+/-400mA for In-Circuit operations with a Flying channel for guarding purpose.

Analog Module of ICFT Trainer Test System

The analog system comes with maximum 3 channel (multiplexed to any of the 32 test channel) with sampling rate of 25 Mhz, with 100 Khz output frequency for testing analog devices. The system comes with 16K X 24 memory

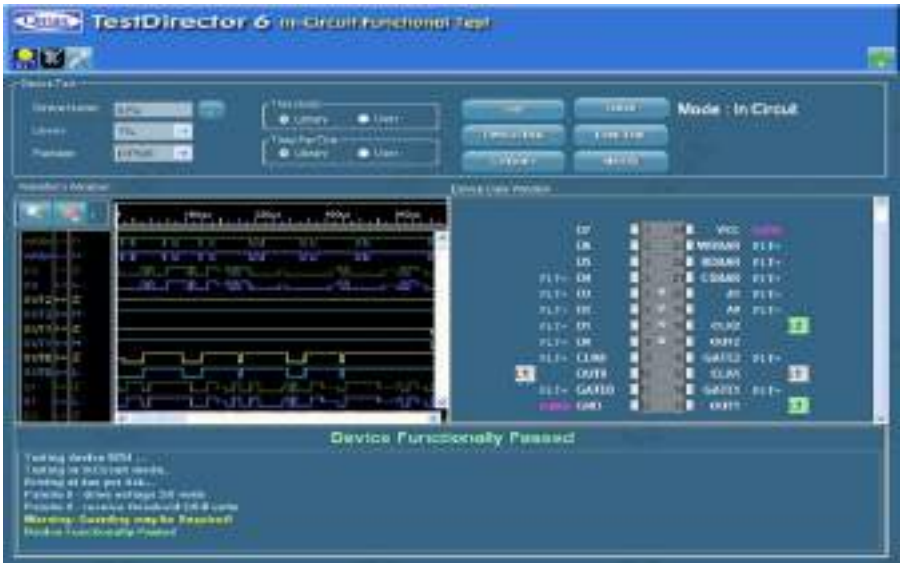
behind each pin with 4 different programmable voltage ranges as +/- 1V, +/-3V, +/- 6V, +/- 13V. The system has

12 Bit resolution of DAC /ADC .The systems comes with Drive Pattern such as Sine ,Triangular,Rectangle,Ramp,

DC and user can also define any combination ,with Source Impedances 50Ω, 1kΩ, 10kΩ and Open .

Test Directory 6

TestDirector6 is Qmax's Suite of Test Software for its newest generation of testers. It offers powerful and user-friendly tools to complement the proven hardware from Qmax products supporting PCB Test. Its modular design with graphical user interface allows the user to quickly develop and debug test applications. In-Circuit / Out-Circuit Functional Testing of TTL and CMOS Devices can be done using this software. In this software the device library for ICFT Tester trainer system is available.



Desktop System Configurations (if asked by customer/end user) may be supplied with Portable Based ICFT Trainer system :Intel core i7 PC loaded with Windows 10 OS alongwith 22 Inch Monitor,

Hard Disk: 500 GB RAM: 4 GB alongwith Wireless keyboard and mouse

Basic Electrical Power Supply Requirements at customer site to run QT65:

Power Supply: System Power: Single Phase AC of 110V-60Hz / 230V-50 HZ (Maximum of 0.5 KVA)

System Operating Temperature:35°C +/- 5°C

Accessories supplied along with Standard In-Circuit Functional Tester Trainer System

In-Circuit Test Clips for 8 / 14/ 16 / 20 and 28 Pins ,DIL Test Clips with cabling ,OCFT Test ZIF

Adapter & Cables. Board under Test (BUT) power cable –01, Training Board for learning-01 No.

Factory : Qmax Test Equipments Pvt Ltd,#6, Elcot Avenue, I.T Highway,Sholinganallur,Chennai - 600119