

SPECIFICATIONS

MAIN SEQUENCER / CONTROLLER :

- ✧ System based on highly programmable dedicated test vector processor.
- ✧ USB 2.0 Interface between the main sequencer and user PC.
- ✧ The system has 1K X 60 Bit RAM for instruction register.
- ✧ Basic timing unit programmable from 10ns to 655µs in steps of 10ns
- ✧ Time duration is programmable up to 256.
- ✧ Test vector depth up to 64K.

DIGITAL MODULE (Programmable Palette):

- ✧ Minimum of 32 Channels expandable up to 64.
- ✧ Digital drive speed up to 15 MHz.
- ✧ Data rate programmable from 40 ns to 160 ms in steps of 10ns.
- ✧ Drive level up to +12V / -12V programmable, 40mV steps.
- ✧ Sense level up to +12V / -12V programmable, 40 mV steps.
- ✧ Memory behind each pin 64 X 4Kbits.
- ✧ High current Pin driver and the current range is ±650mA functional and In-Circuit operations.
- ✧ Pin driver is capable of driving all three states of Hi, Low & Tri-State.
- ✧ Flying channels up to 4 Nos for guarding purpose.

DIGITAL MODULE (Fixed TTL Palette)(Optional):

- ✧ No. of Channels per Card 64 fixed not expandable.
- ✧ Digital drive speed up to 10MHz.
- ✧ Data Rate Programmable from 40 ns to 160 ms in steps of 10ns.
- ✧ Fixed Drive Level of 0V – 5V.
- ✧ Fixed Sense Level of 0.8V – 2V.
- ✧ Memory behind each Pin 64 X 4Kbits.
- ✧ Pin-driver is capable of driving all three states of High, Low & Tri-State.

ANALOG MODULE:

Analog module can be used for mixed signal and analog test. Three independent analog channels can be multiplexed to any of the 64 test channels + 4 flying channels.

- ✧ Maximum of 3 channels.
- ✧ Analog sampling rate is 25 MS/sec.
- ✧ Generates output frequency up to 100 KHz.
- ✧ Memory behind each pin 64 K X 24 (Drive & Receive)
- ✧ Module has 4 different programmable voltage ranges as ±1V, ±3V, ±6V, ±13V
- ✧ Dynamic Drive / Receive current maximum up to ±130 mA / per channel at maximum voltage range.
- ✧ Drive pattern Sine / Triangular / Rectangle / Ramp / DC & user definable.
- ✧ Multiple user programmable source impedance ranges.
- ✧ 12 bit resolution of DAC / ADC to provide very accurate results.

BOUNDARY SCAN (Test Technique Module):

Built in Integrated JTAG port on the front panel of equipment along with Digital Channels for Boundary Scan Testing and coverage of Non Boundary Scan Devices through Virtual Test pins (BS pins) and ATE Digital channels.

- ✧ Single JTAG Chain.
- ✧ Compatible with IEEE 1149.1 Standards.
- ✧ Nominal JTAG Clock frequency is 1 MHz and it can be programmable up to maximum of 10 MHz.

UUT POWER SUPPLY:

- ✧ Fixed SMPS power supplies are integrated for UUT testing.
- ✧ System has 5 Fixed Volt in Volt / Current ranges of +3.3V@8A, +5V@8A, -5V@8A, +12V@6A, -12V@6A.

GENERAL SYSTEM SPECIFICATIONS:

Controller : Minimum – Core-i3 Processor, 4 GB RAM, 500 GB HDD, 4-USB Slots, Keyboard, Mouse, Monitor. System should be compatible with Windows7 or later OS based.

: In-built Computer (Optional)

System Power : Single Φ AC 110V-60Hz / 230V-50Hz (Max. 1 KVA)

Operating Temp. : 35°C ± 3°C

Dimensions : 4U Cabinet 470(W) X 385(D) X 230(H).

Weight : Approx. 12 Kgs.

TEST INTERFACE

In-Circuit Walking Clips

DIP Clips – Top access & Bottom access

PLCC Clips

SOIC Clips

TO5 Package

TO9 Package

Russian Device Clips

JTAG – 5 wire simple connector for Boundary Scan tests

Out-Circuit

DIP 40 & 64

SMD - SOP/TSOP/PQFP/SOIC/SOJ/PLCC

Customised

Card edge / Bed of Nails / Automated XYZ Prober (Optional)

(For details of Standard / Optional accessories contact Qmax representatives)

CircuitWizard409



Features

- ❖ The system is complete with instruments like DMM, Oscilloscope, Short Locator & Programmable Power Supply.
- ❖ In-Circuit Functional Test Library (Digital/ Analog/Mixed Signal) of >33K devices with Russian Device Library as optional
- ❖ QSM VI Signature method for testing ASICs/Hybrids & Discretes
- ❖ Test logic families: TTL/CMOS/ECL/EIA/LSI/Linear/Memory & more
- ❖ In-circuit IC identify feature for house coded ICs and ICs with their number erased.
- ❖ Automatic internal pull-up / pull-down for open collector & open emitter devices
- ❖ Functional testing can be done without need for learning from known good board or circuit diagram, using Digital Simulators & Analog evaluation software.
- ❖ On-Line Simulation makes accurate testing of sequential devices possible even when their Reset pins are disabled in In-Circuit conditions.
- ❖ Unique “Best-Fit-Curve” algorithm enhances the fault coverage.
- ❖ Board Learn/Compare mode increases board recovery rate
- ❖ Built-in Resistance, Capacitance & Voltage measurement capability
- ❖ Powerful logic waveform display window for failure confirmation
- ❖ CircuitTracer for schematic generation/reverse engineering applications (Optional)
- ❖ IDTE software for easy Device Test Program Generation (Optional)

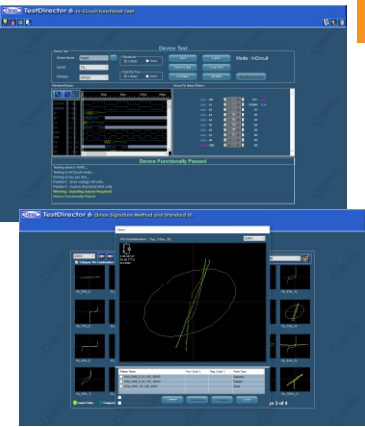
Accessories shown may not be the part of equipment supplied by Qmax. Qmax reserves the right to change the specifications without prior notice. All trademarks are acknowledged.

CircuitWizard409

CircuitWizard409 is designed as a affordable Digital, Analog & Mixed Signal Functional Test System, to cater the needs of PCB test and repair depots, keeping in mind the changing PCB technology & the challenges in testing them. It can effectively test Digital, Analog and Mixed Technology ICs in In- Circuit, as wired condition and gives clear PASS-FAIL results. Hybrids, ASICs and house-coded ICs can be checked using QSM signature method.

It is a combinational mixed signal test system with the addition of Integrated Boundary Scan Test for the latest generation chips. It also incorporates an advanced QSM VI with auto “Best Fit Curve” algorithm to enhance the fault coverage. Optional IDTE software makes new device test program generation easy with graphical user interface .

CAPABILITIES OF CircuitWizard WITH TESTDIRECTOR SOFTWARE



IN-CIRCUIT FUNCTIONAL TEST

- » Functional Test facility for testing individual ICs in In-Circuit or Out-of-Circuit.
- » Pin Status Check & In-built DRC (Design Rule Checker).
- » IEEE Standard VHDL language in behavioral description of the function of the chip in its library.
- » Device programming for SSI / MSI in Qmax Device Description Language (QDDL).
- » PythonTD Test language for Analog / Mixed signal device stimulus and output evaluation.
- » Auto compensation is extended for all digital devices (not limiting to SSI / MSI) and thus LSI / VLSI chips can be tested in its In-Circuit configuration without the need to learn from a known good board.
- » Unified Library of 33K+ devices & devices test comprehensives report for validation of Library Test programs developed by a user.
- » Identify “Unknown” devices using advanced foot print match algorithm & covers SSI / MSI / LSI devices.

USER DEFINED QSM VI STIMULUS

- » Standard and user defined wave pattern as stimulus for VI Trace and thus not limiting the VI trace to simple sine wave alone.
- » User defined wave pattern can be any mathematical wave shape such as sine / triangle / square / step / ramp or even arbitrary patterns as desired by user & can be stored in the Library for possible re-use.
- » The frequency is fully programmable up to as fast as 100KHz as a result of CircuitWizard's vast time base selection capability.
- » “Best Fit Curve”- an unique feature, where the best drive pattern is automatically suggested to the user for the characteristics of the UUT to increase the fault coverage.
- » Advanced algorithms suggests the failing pin within a device with % probability.
- » Use of Step wave is useful in analyzing transient response of node.
- » Frequency Sweep generation to trace the frequency response of a node.
- » Incorporates interactive mode as well as learn & compare.
- » Fixed Reference, any pin to any pin or user combination.
- » Learn net-list from the clip status links option.

TEST SEQUENCER

- » For Sequencing of multiple tests with conditional branching, messaging, user prompting, external trigger & external handshake.
- » Board level test using combinational of isolated device test (ICFT), QSM VI, Measurements, Card Edge Functional Test, Integrated Card Edge + Boundary Scan Test* all in one test program.
- » Full graphical TPS development using JPEG image of the PCB under test, tagging devices & pins.
- » Adding tests to the devices cluster with just a right click of the mouse. Learn, verify and test options using mouse click on the device location.

*Boundary Scan Software need to be purchased for enabling this facility.

CARD EDGE FUNCTIONAL TEST

- » User can develop test program for complex boards with ASICs and BGAs, where no functional data are available.
- » User can generate the test vectors using the graphical waveform editor or Python TD test vector generator, where the primary I/O pins can be either physical edge pin/In-Circuit pin or a JTAG Virtual Boundary Scan Pin.
- » User can either learn the expected output from a known good board or define the expected output using graphical waveform editor or simulate the expected output using VHDL Simulation or the Python TD test language with mask / tolerance editing facilities.
- » Automatic Guided Probe Back Tracking for fault isolation up to node level.
- » Graphical waveform editor and Python TD supports Digital / Analog and Mixed Signal I/Os.
- » The Test program developed can be used for a device /cluster or a complete PCB.
- » In case of cluster or whole board, user needs to input the netlist of the circuit, assign input/output pins for tester channel for automatic generation of guided probe back tracking of internal nodes.

MEASUREMENT FUNCTIONS & OTHER UTILITIES

- » Resistance / Inductance / Capacitance / Voltage Measurements.
- » Diode Measurements.
- » Frequency Measurements.
- » 3 Channel-Digital Oscilloscope with Programmable Load.
- » 3 Channel Function Generator.

INTEGRATED DEVICE TEST ENVIRONMENT — IDTE (Optional) CIRCUITTRACER (Optional) BOARD LEVEL SIMULATION & FAULT COVERAGE (Optional)

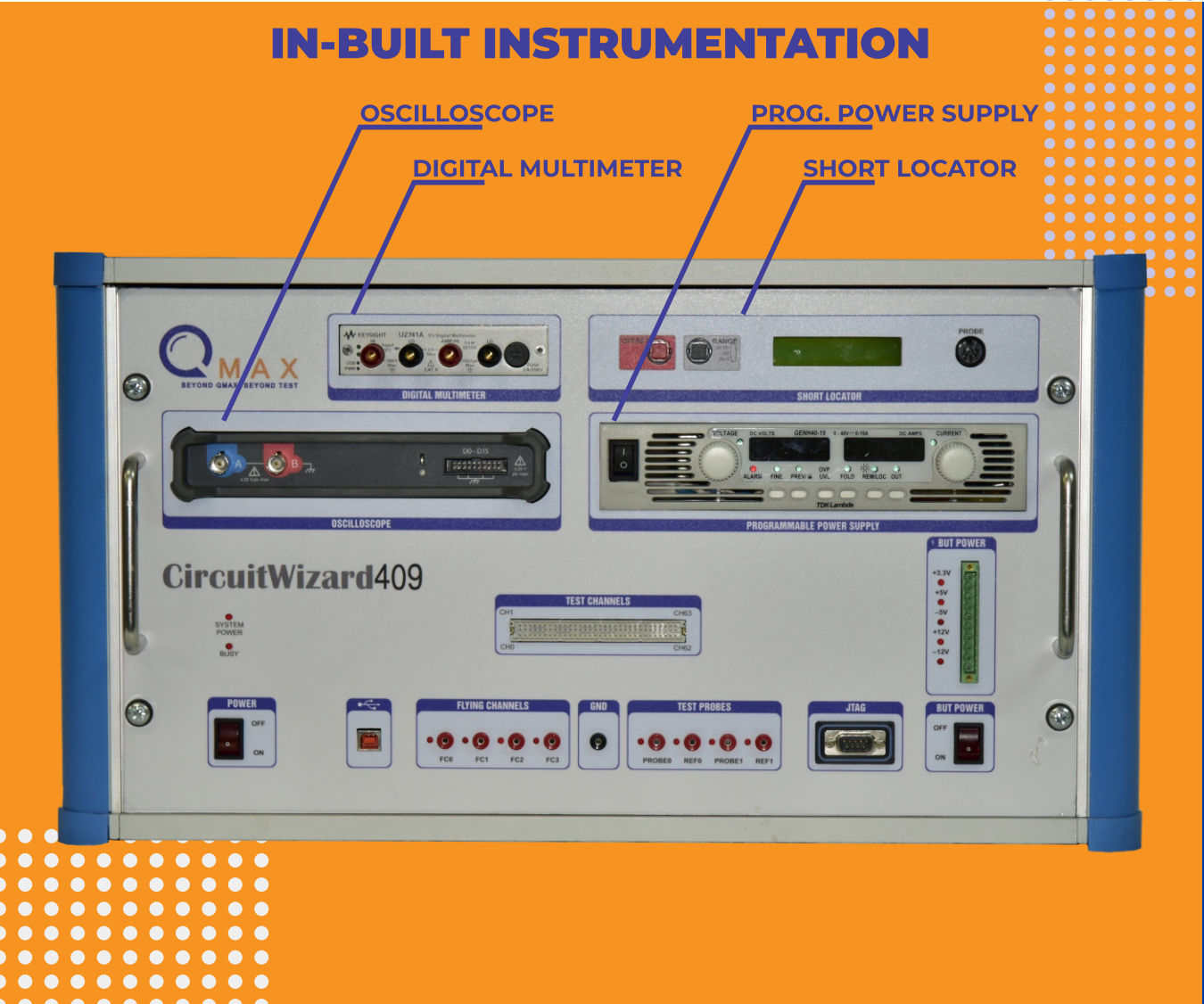
BOUNDARY SCAN TEST

- » The system meets IEEE 1149.1 standards.
- » Boundary Scan uses simple 5-wire connector (JTAG) to interface to the PCB under test, eliminating the need for test pin contact (Virtual Test Pin Test Concept).
- » Using Boundary Scan Software package and vendor supplied BSD Files, ID Code Read, User Code Read, Integrity Test and Interconnect Test can be performed.
- » Learn and compare option for interconnect test, where no netlist is available.
- » Functional Test for BS devices and Non-Boundary Scan Devices.
- » Integrated Card Edge and Boundary Scan Test for Interconnect Test and Board Functional Test.

TESTSTATION

- » Programs developed in TestDirector6 TestSequencer can be exported to Test-Station.
- » Test only function and no program /data /tolerance can be modified.
- » Auto run mode / Manual run mode with options for stop on first failure, details on failure and graphical mode of testing.
- » User defined Error Log reporting, Failure analysis, statistics and data log.
- » Optional Remote Monitoring of Yield and statistics.

IN-BUILT INSTRUMENTATION



DIGITAL MULTIMETER

- DMM with 5.5 digit resolution and interfaced through Hi-Speed USB
- Wide measurement range, Voltage : 100 millivolts (DC/AC) up to 300 V DC and 250V AC, Current : (DC/AC) from 10 mA to 2A, Resistance (2 Wire & 4 Wire measurements) from 100 Ohms to 100 Megaohms

OSCILLOSCOPE

- 200 MHz analog bandwidth with 1 GS/s real-time sampling / 512 MS buffer memory and In-built Arbitrary waveform generator
- USB 3.0 connected and powered and Supports Windows, Linux and Mac software
- Math channels and filters : Features such as addition and inversion, or open the equation editor to create complex functions involving filters (lowpass, highpass, bandpass and bandstop filters), trigonometry, exponentials, logarithms, statistics, integrals and derivatives.

PROGRAMMABLE POWER SUPPLY

- Maximum output 40V /19A - 760 W Power
- Last-Setting memory and front panel lock out simplifies test design and requires no battery backup.
- Built-in RS-232 / RS-485 gives maximum system flexibility along with 0-5V and 0-10V, selectable analog programming.
- Ideally suited for automated test and measurement applications

PCB SHORTS LOCATOR

- Unique 4 Wire resistance measurement method to locate exact location of PCB short .The instrument can find out the shorted components, PCB track shorts and power rail shorts.
- Offset mode to digitally offset residual resistance of a shorted component so that milli ohm values can be accurately measured
- Applied voltage is clamped to less than 200 millivolts so that semi-conductor devices are not turned on.
- Modulated audio frequency tone to help the user to move the probe towards the short