D9010SCNA / D9020SCNA

InfiniiScan Event Identification Software for Infiniium Oscilloscopes

Keysight's InfiniiScan software allows you to use an oscilloscope to identify signal integrity issues that hardware triggering is unable to find in your electronic designs. This innovative software scans through thousands of acquired waveforms per second to help you isolate signal anomalies, saving you precious troubleshooting time.

Table of Contents

Product Overview

Today's digital signals are increasingly complex. Designers of serial links and parallel busses want to quickly identify signal anomalies in their designs. Engineers have traditionally relied on hardware triggering and deep memory to capture such illusive events. However, these classic methods fall short in some key areas.

InfiniiScan uses software to overcome the limitations of hardware triggering. InfiniiScan inspects individual waveforms and lets you know where the anomalies are. InfiniiScan moves an oscilloscope a few steps closer to the ideal of a "Find Problem" button. InfiniiScan can also isolate events as narrow as 35 ps – well beyond the limitations of hardware-based approaches.

D9010SCNA is for the 9000 and S-Series oscilloscopes. D9020SCNA is for the 90000, V-Series, Z-Series, and UXR-Series Infiniium oscilloscopes.
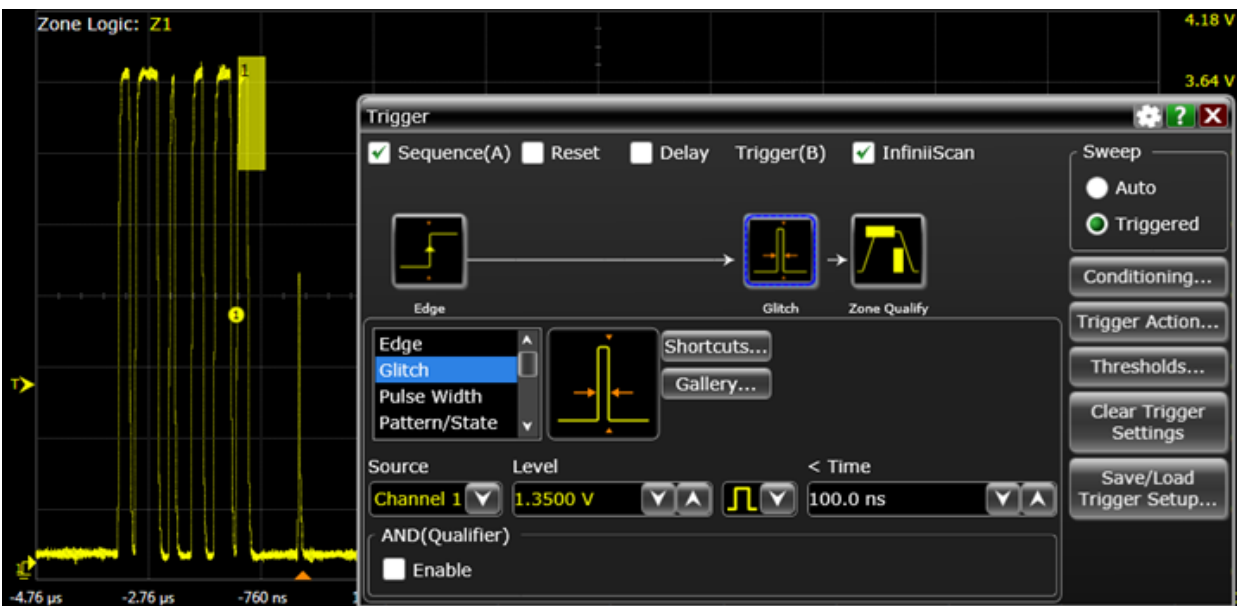

Figure 1. A hardware two stage trigger, with a third InfiniiScan stage, helps immediately isolate a glitch following a specific bit pattern.

Keysight InfiniiScan consists of two key components: InfiniiScan software finders and measurement limit testing. An added benefit is the ability to add InfiniiScan as an extra trigger stage, allowing up three-stage triggering on most Infiniium models.

Software Finders

InfiniiScan offers five special software finder modes, letting you easily identify issues without complex hardware triggers. Each one is explained below.

Measurement finder

The InfiniiScan Measurement mode is a two stage trigger that uses a hardware trigger, then lets you qualify that trigger when a measured value falls inside or outside a particular range of values. It lets you set up triggers that are not available in the oscilloscope's hardware. For example, you could use this mode to create a "duty cycle <30%, >70%" trigger.
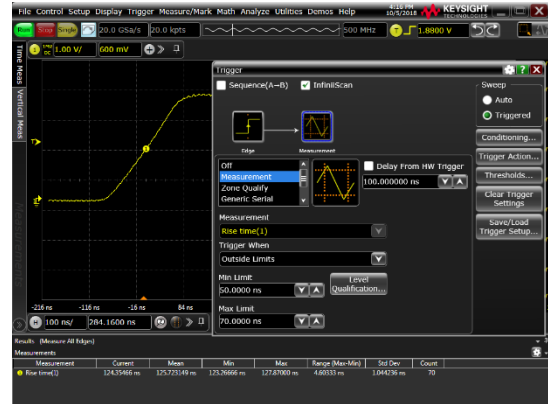

Figure 2. InfiniiScan measurement finder triggers on all edges, then only displays signals with rise times less than 50 or greater than 70 nanoseconds.

Zone qualified finder

InfiniiScan's zone qualification allows you trigger on anything you see appear on screen. Add up to eight rectangles; each one is assigned to an analog channel, given a "must intersect" or "must not intersect" mode, with user definable Boolean logic of AND or OR. This gives you utmost control over triggering on specific bit patterns or waveform shapes.

Generic serial finder

You can have the oscilloscope capture a waveform when a specified pattern of 1s and 0s is found. The generic serial mode uses a user-defined clock recovery to determine where a 1 or 0 is located. If you are working with a serial protocol that is supported with trigger and decode by Infiniium, using that trigger method will be preferable to this generic serial finder with InfiniiScan.

Figure 3. InfiniiScan zone qualification used to isolate a two bit wide runt.

Runt finder

InfiniScan's runt finder allows you to identify under-sized signal pulses to resolutions that are beyond the capability of hardware approaches by using hysteresis and threshold levels you specify. Infiniium oscilloscopes have a hardware-based runt trigger that will find events more readily, but have more limitations than this software-based approach.

Non-monotonic edge finder

The non-monotonic edge finder is a unique capability of InfiniiScan. It allows you to identify non-monotonic edges caused by signal reflections. This feature helpful for identifying poor signal terminations. There is no method for finding such an event with hardware triggering.

Measurement Limit Testing

InfiniiScan measurement limit testing counts violations against specified measurement value conditions. This feature lets you set up to five different conditions over all channels. For example, you can monitor the valid rise time window for channel 1 while monitoring the valid signal period window on channel 3. The navigation capability of measurement limit test will move the display to the exact location of any and all anomalous events that have been identified on every waveform.

- Choose up to five measurements
- Define unacceptable ranges (in range, out of range)
- Navigate to anomalous events
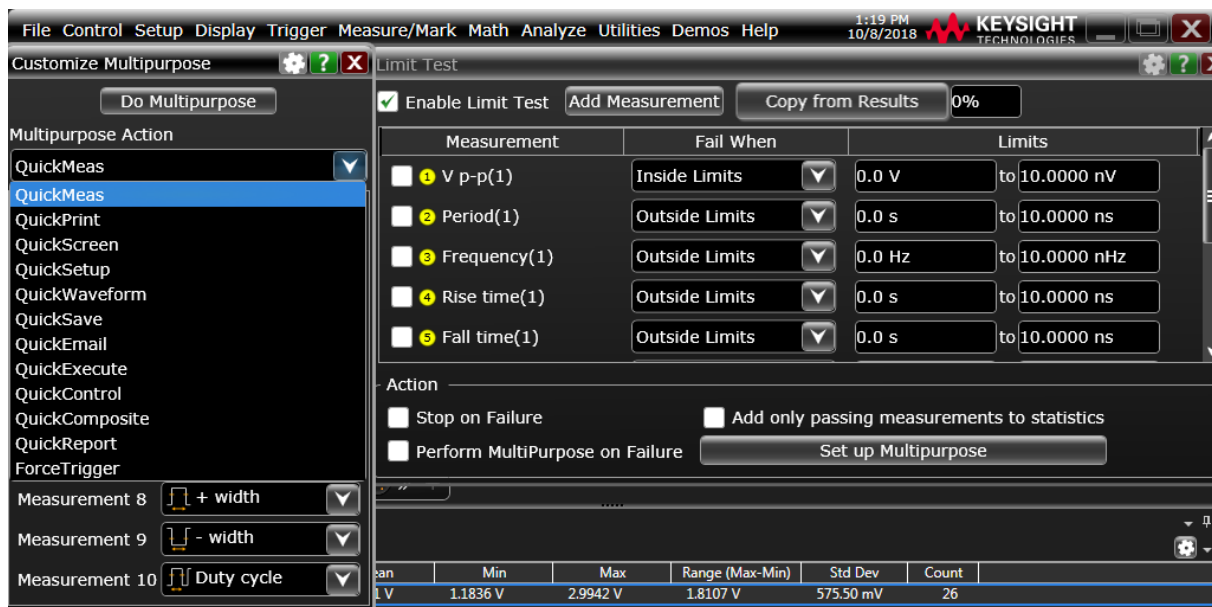- Actions on failure: stop, print, e-mail, screen shot, save setup, save waveform, measurement

Figure 4. InfiniiScan measurement limit testing window, with multipurpose action options shown within the .Set up Multipurpose dialog

Ordering information and related literature

This option is offered as perpetual or time-based (subscription) license, as described in the tables and examples below. A valid support contract is included in the pricing for the term of any time-based licenses. For perpetual license holders, a separate support contract is required to access Keysight technical support and receive software updates.

Types	Description	Pricing Formula
Node-Locked	Allows you to use the license on one specified instrument/computer	
Transportable	Allows you to use the license on one instrument or computer at a time. This license may be transferred to another instrument or computer using Keysight's online tool.	130% of node-locked
USB Portable	Allows you to move the license from one instrument/computer to another by end-user only with a certified USB dongle, which is purchased separately.	130% of node-locked
Floating	Allows you to access the license on networked instruments / computers from a server, one at a time. For concurrent access, multiple licenses may be purchased.	140% of node-locked
Perpetual	Software license can be used in perpetuity.	
Time-Based	Software license is time limited to a defined period, such as 12 months.	38% of a perpetual for a 12-month license
Support contract (for perpetual licenses)	Allows license holder access to Keysight technical support and all software upgrades.	15% of perpetual for 12 months of support

Software license and support subscription contract model number format:

R-B	<Term / Service>	P -	<License Type> -	<License / Support Contract Term>
	4 = Time Based License 5 = Perpetual 6 = Subscription		001 = Node-Locked 002 = Floating 004 = Transportable 005 = USB Portable	A = Fixed B = Floating (Single Site) D = Floating (Transportable Perpetual) E = USB F = 6 Month Term L = 12 Month Term X = 24 Month Term Y = 36 Month Term Z = 60 Month Term

Examples

Software License and Support Configuration Examples	Model Number	Perpetual License	Support Contract
Node-locked perpetual license and 12-month renewable support contract (most common) for an Infiniium S-Series	D9010SCNA	R-B5P-001-A	R-B6P-001-L
Floating 24-month license subscription for an Infiniium Z-Series	D9020SCNA	N/A	R-6BP-002-X

Benefits of flexible license types (transportable, floating, USB portable)

- Maximize the flexibility of your test assets by sharing measurement applications between your Infiniium oscilloscopes
- Save money and increase your return on test asset investments as project needs change by purchasing fewer applications per instrument
- Save time by transporting the licenses to the test bench nearest you, instead of physically moving the test equipment or DUT
- Use the same application in different time zones, departments, and/or test benches
- Keep up with your changing project needs by transporting measurement application licenses; use a simple Keysight server connection with an instrument or a PC to check-in/out licenses

Related literature

Type	Description / URL
Brochure	Infiniium S-Series (500 MHz to 8 GHz real time oscilloscope)
Brochure	Infiniium V--Series (8 GHz to 33 GHz real time oscilloscope)
Data Sheet	Infiniium UXR Series (13 GHz to 110 GHz real time oscilloscope)
Brochure	30 Things Only Infiniium Oscilloscopes Can Do

Learn more at: www.keysight.com

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

KEYSIGHT TECHNOLOGIES