

# SIGLENT TECHNOLOGIES

The Best Value in Electronic Test & Measurement



# Product Families

- SDG1000X Series
- SDG2000X Series
- SDG6000X Series



- SDS1000X-E Series
- SDS2000X-E Series
- SDS1000DL+/CML+ Series
- SDS1000X/X+ Series



SSG3000X Series

- SDS2000X Series
- SDS2000X Plus Series
- SDS5000X Series



- SVA1000X Series
- SSA3000X Series
- SSA3000X Plus Series



- SDL1000X Series
- SDM3065X 6<sup>1/2</sup>
- SPD3000X Series



SPD1000X Series

- SHS1000 Series
- SHS800 Series



# SDS2000X Plus Positioning VS. Siglent Scope Portfolio



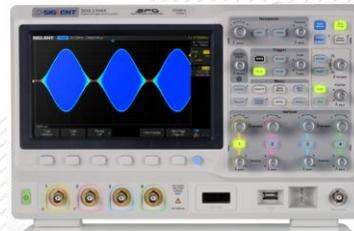
Price



**SDS1000X-E**  
100/200MHz  
1 GS/s, 2/4 Ch.  
14Mpts/2Ch



**SDS2000X-E**  
200/350MHz  
2 GS/s, 2 Ch.  
28Mpts/2Ch



**SDS2000X**  
100/200/300MHz  
2 GS/s, 2/4 Ch.  
140Mpts/2Ch



**SDS2000X Plus**  
100/200/350MHz  
2 GS/s, 2/4 Ch.  
200Mpts/2Ch

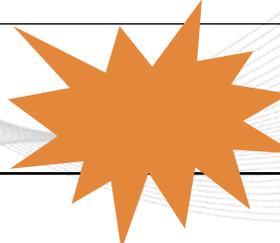


**SDS5000X**  
350/500 MHz, 1GHz  
5 GS/s, 2/4 Ch.  
250Mpts/2Ch

Functions &  
Performance

# SDS2000X Plus Main Specs

Model	Bandwidth	Channel	Sampling Rate	Memory Depth	Screen
SDS2102X Plus	100 MHz	2	2 GSa/s	200 Mpts	10.1 inch Touch Screen
SDS2104X Plus	100 MHz	4	2 GSa/s	200 Mpts	
SDS2204X Plus	200 MHz	4	2 GSa/s	200 Mpts	
SDS2354X Plus	350 MHz	4	2 GSa/s	200 Mpts	

 SDS2102X Plus can be upgraded to 350 MHz by license  
SDS2354X Plus can be upgraded to 500 MHz (Only 2 channels) by license

# SDS2000X Plus



4x Hardware Models *plus* 2x Software Models  
Bandwidth Upgradeable

**SDS2104X plus**  
4 Channel, BW 100 MHz



**SDS2000XP-4BW02**

**SDS2204X plus**  
4 Channel, BW 200 MHz



**SDS2000XP-4BW03**

**SDS2354X plus**  
4 Channel, BW 350 MHz



**SDS2000XP-4BW05**

**Software Model  
BW 500MHz**

**SDS2102X plus**  
2 Channel, BW 100 MHz



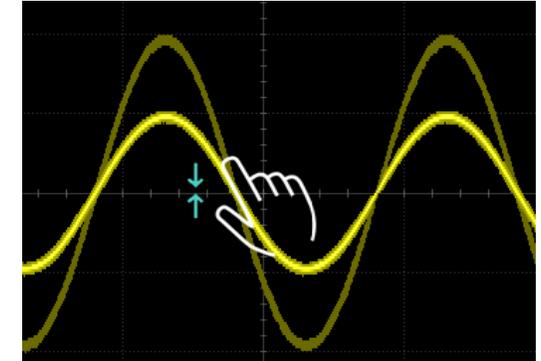
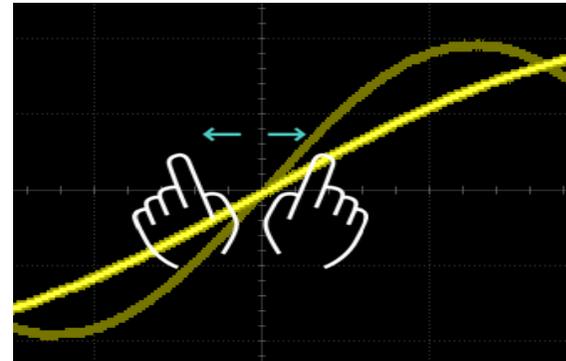
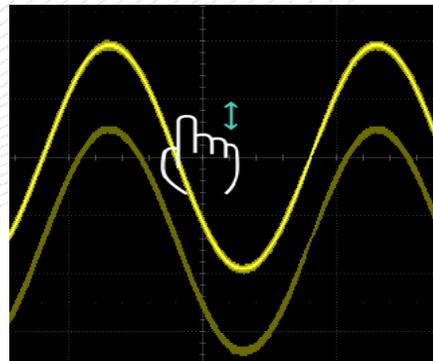
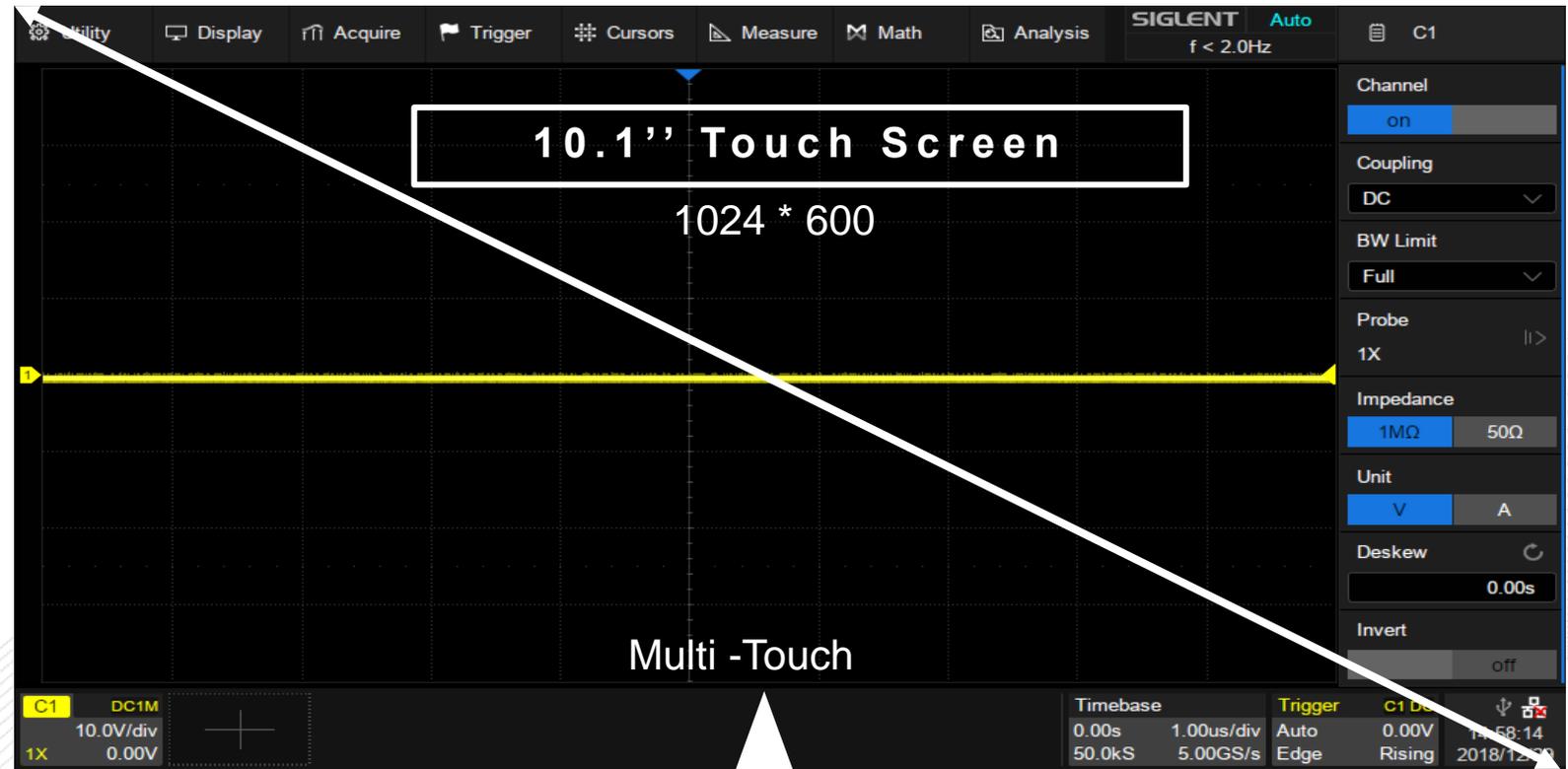
**SDS2000XP-2BW03**

**Software Model  
2 Channel, BW 350  
MHz**

# 10.1 inch Touch Screen and Advanced UI

Save time with the intuitive and easy-to-use UI first introduced with the flagship SDS5000X

- Multi-gesture control
- Pop-up keyboard and numeric pad
- Quickly input file names and parameter settings



# Zone Trigger

Quickly define trigger zones and isolate faults using the touch screen

- Traditional trigger types can take time to configure for complex trigger conditions
- With Zone Triggering, simply draw a zone and select Intersect or Not Intersect



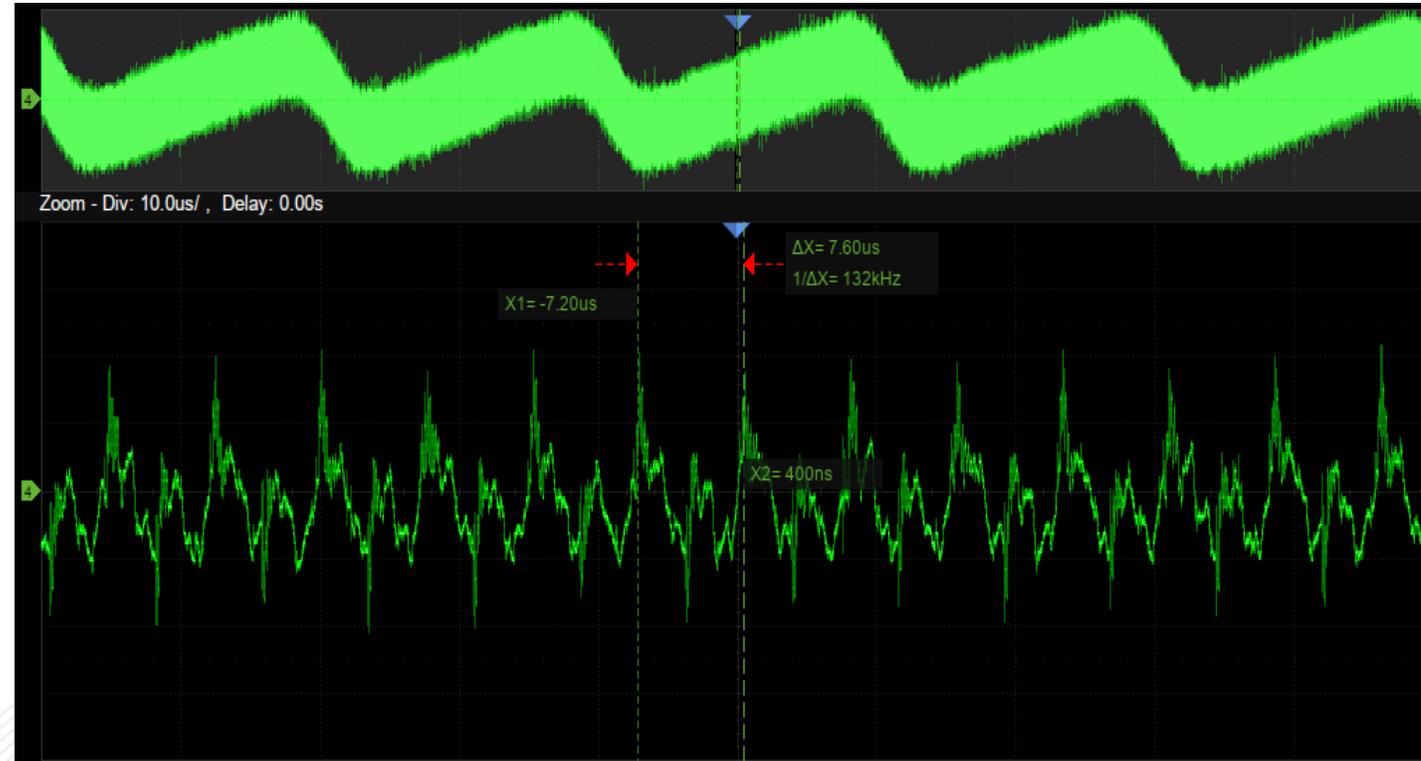
With traditional trigger type, this signal requires more than 20 steps to trigger it

# Longer Memory Depth

Capture longer waveforms without compromising the sample rate

Utilizing a hardware-based Zoom technique and record length up to 200 Mpts, users can select a slower timebase without compromising the sample rate and then quickly zoom in to focus on the area of interest.

Much longer memory depth than competitive products



Up to 10 ms/div timebase at the sampling rate of 2 GSa/s

	SDS2000X Plus	200 Mpts
Keysight MSO/DSOX2000A	1 Mpts	
Tektronix MSO/DPO2000B	1 Mpts	

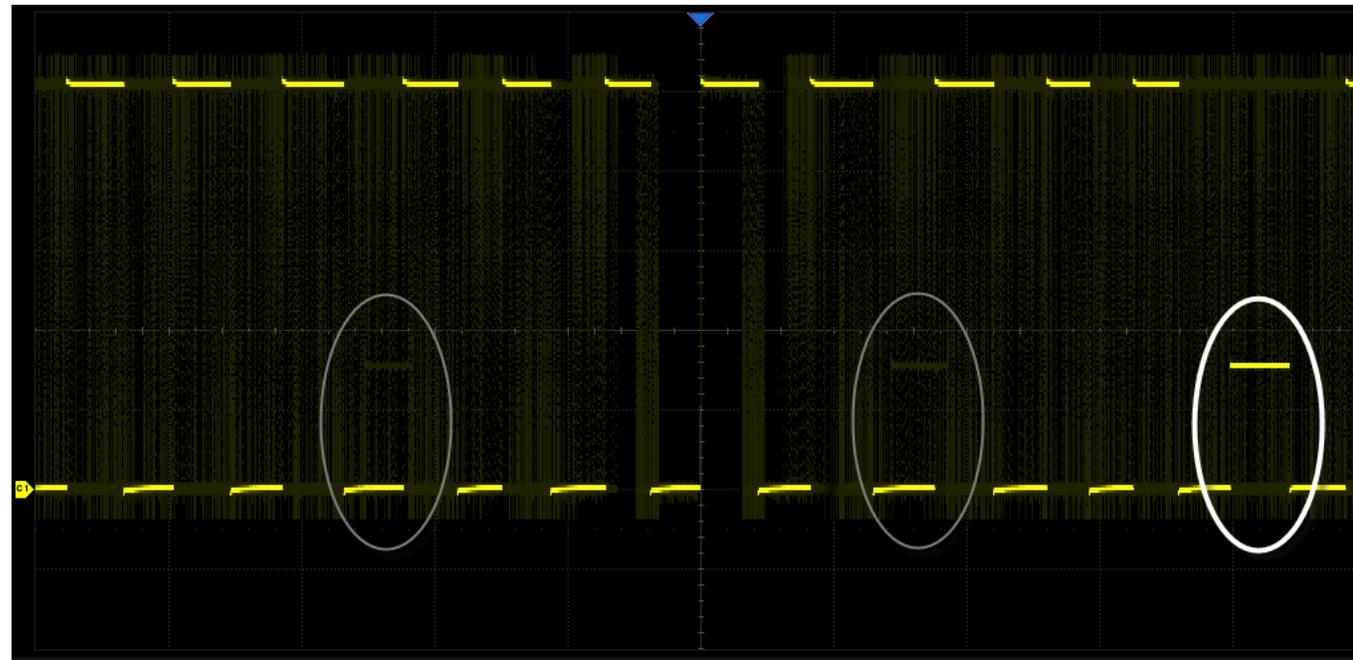
# Higher Update Rate

Capture low-probability events faster

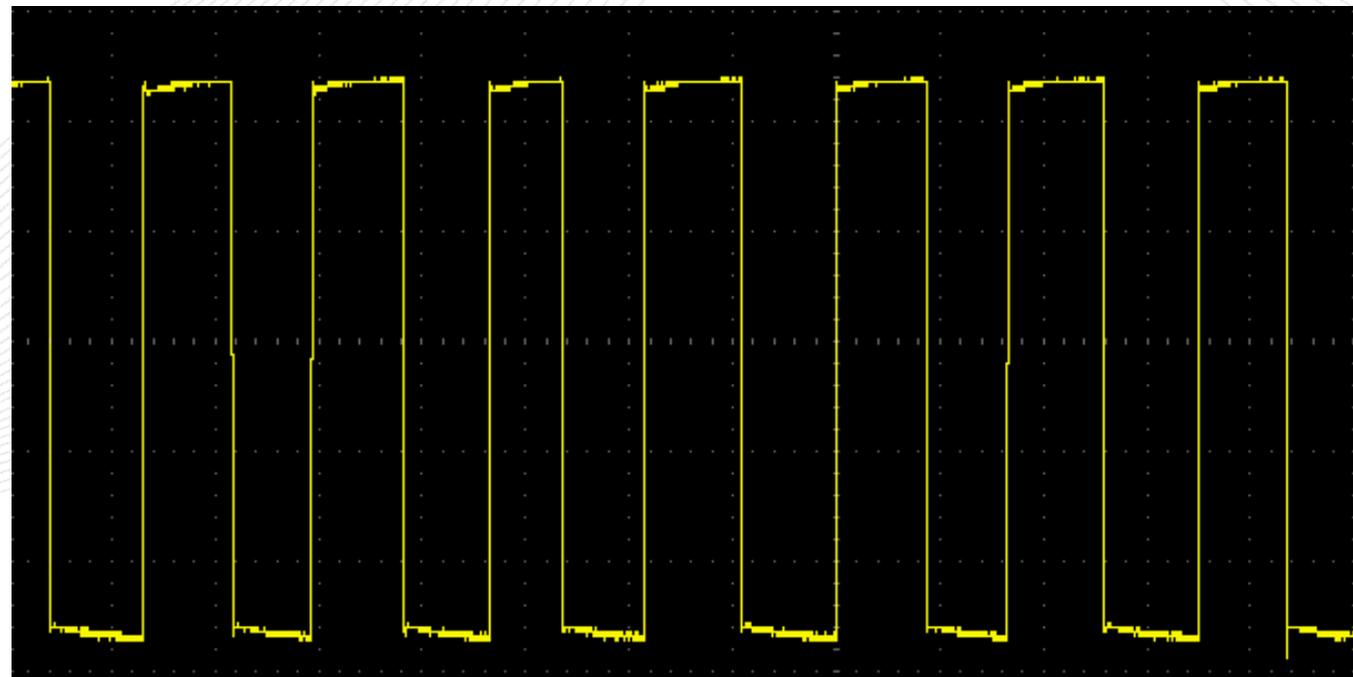


With a waveform update rate of up to 120,000 wfm/s, the oscilloscope can easily capture low-probability events. In Sequence mode the waveform capture rate can reach 500,000 wfm/s.

Much longer memory depth than competitive products



SDS2000X Plus with high sampling rate, with Persist display on.

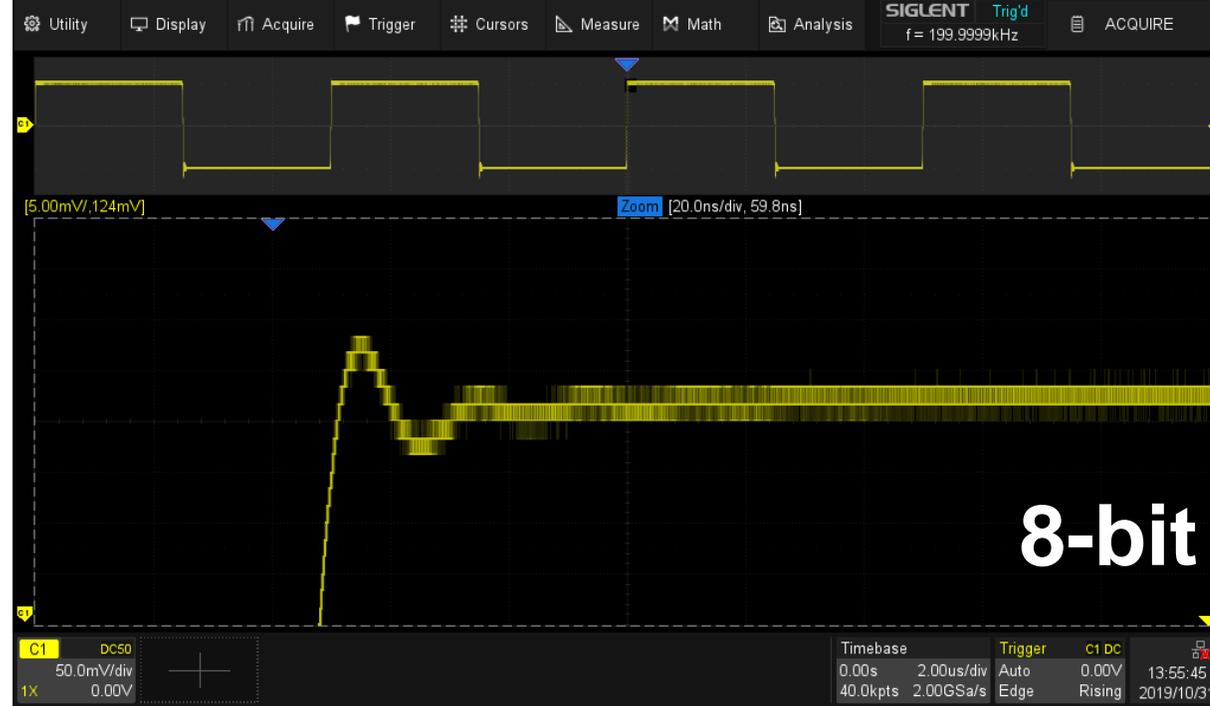


Normal DSO display the same signal, no runt signal observed.

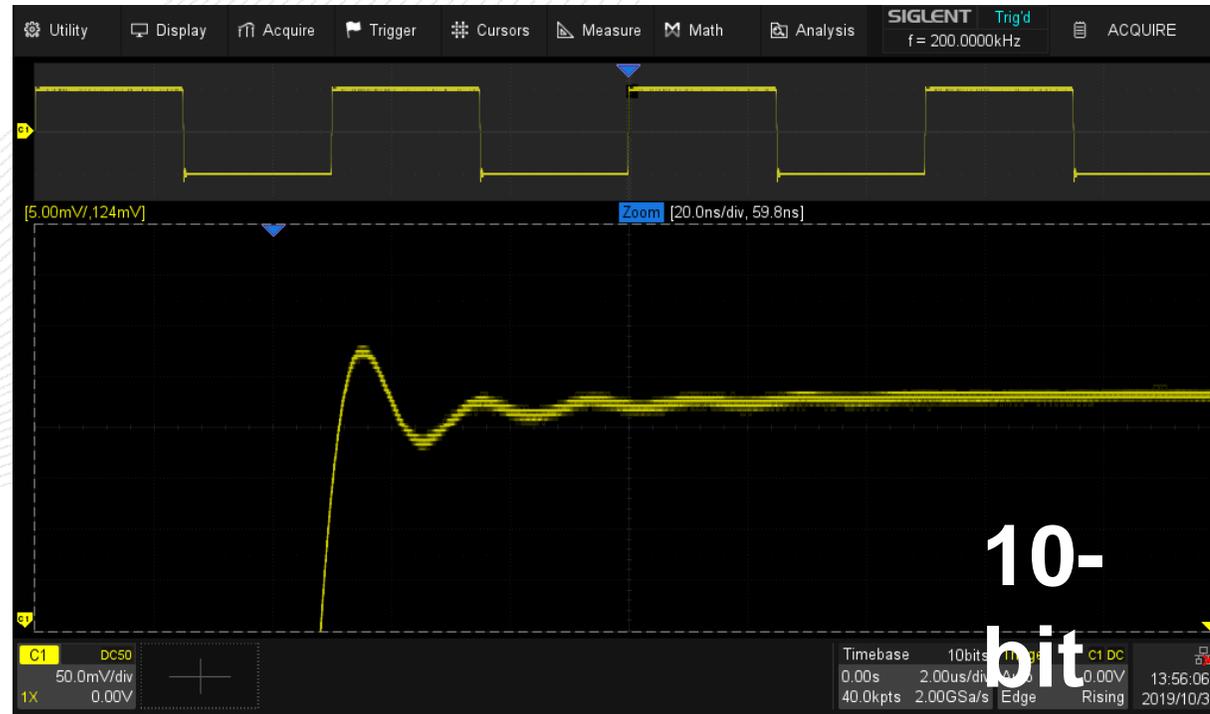
# Enhanced Resolution Mode

## Better accuracy

- 10-bit mode: More details and less noise
- Digital oversampling increases resolution
- Vertical and Horizontal Zoom
- 500 $\mu$ V / div vertical scale setting
- Tradeoffs: ERES is bandwidth limited to 100 MHz and Memory depth decreased by factor of 2



8-bit with Vertical and Horizontal Zoom



10-bit mode with Vertical and Horizontal Zoom

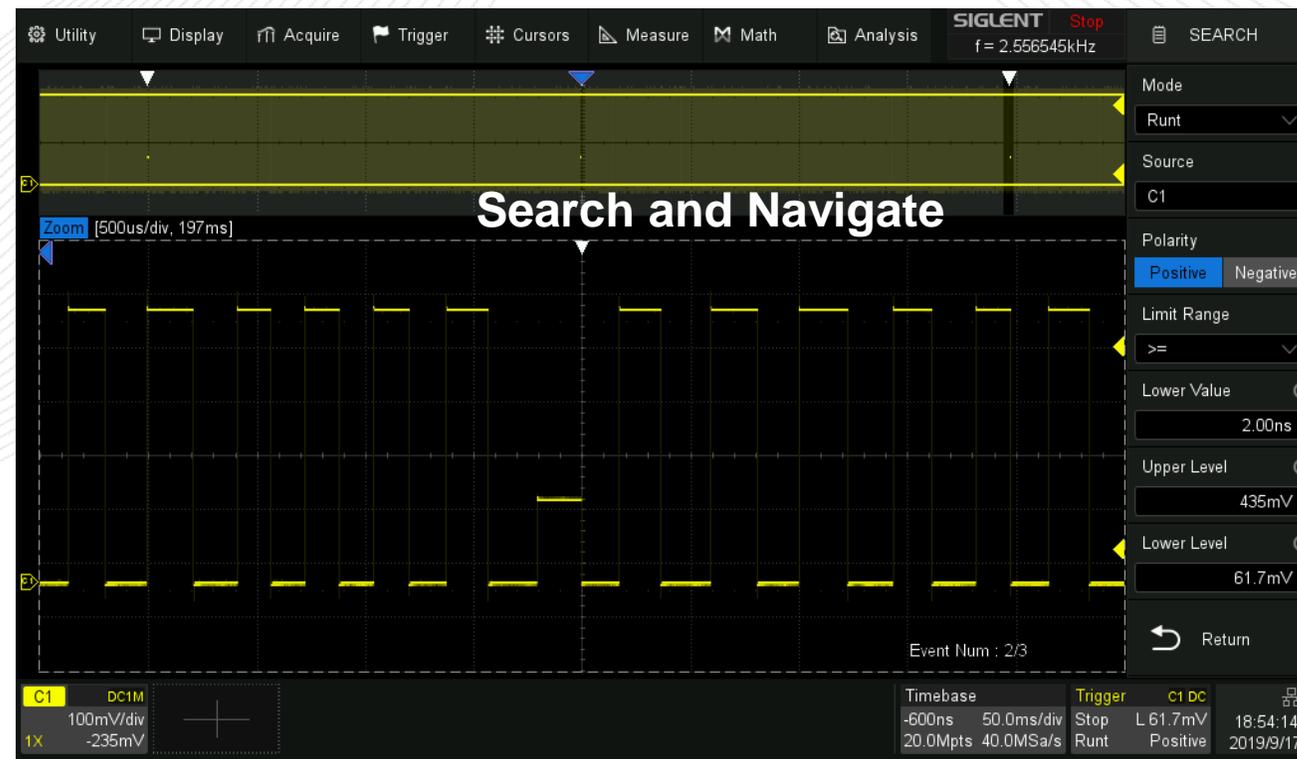
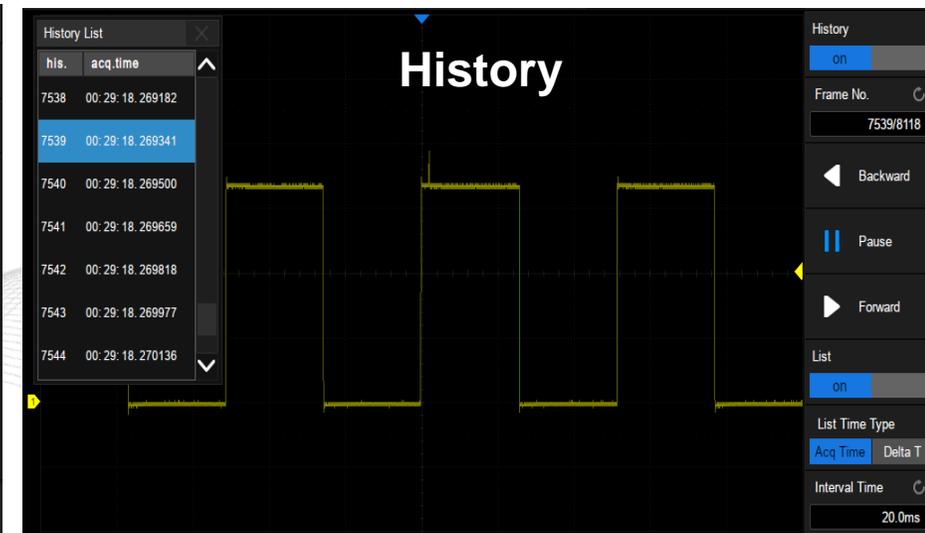
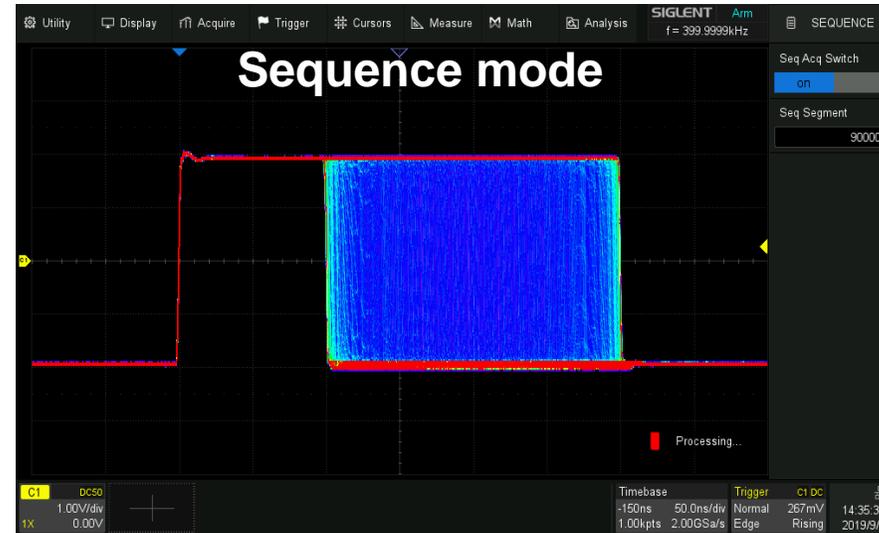
# Capture rare events easily

Save memory and play back rare events at any rate

- Segmented memory**
  - Save memory
  - Up to 90,000 segments
  - Interval between segments as small as 2  $\mu$ s.

- Background running History,**
  - Serial Decode, Zoom, and cursors measurements can be used.
  - Records up to 90,000 triggered waveforms.

- Search and Navigate**
  - Easily find events within a record and history based on user specified trigger conditions.
  - Useful in zoom view



# Advanced Math Functions

Calculate power, energy, and more using the powerful equation editor

- No differential probe? No problem. Simply use the subtract operator so simulate a differential circuit.
- Multiple kinds of operators, including derivative and integral
- Formula editor for advanced modifications of signals

Basic Operators

$+$  Addition     $-$  Subtraction     $\times$  Multiplication     $\div$  Division  
 Average    Eres

FFT     $\frac{d}{dx}$  Derivative     $\int$  Integral     $\sqrt{\quad}$  Square root

Function ✕

Basic    Arithmetic    Freq-Analysis    Algebra    **Formula Editor**

C1\*3+C2+0.1

$\leftarrow$      $\leftarrow$     Back    Clear     $\rightarrow$      $\rightarrow|$     OK

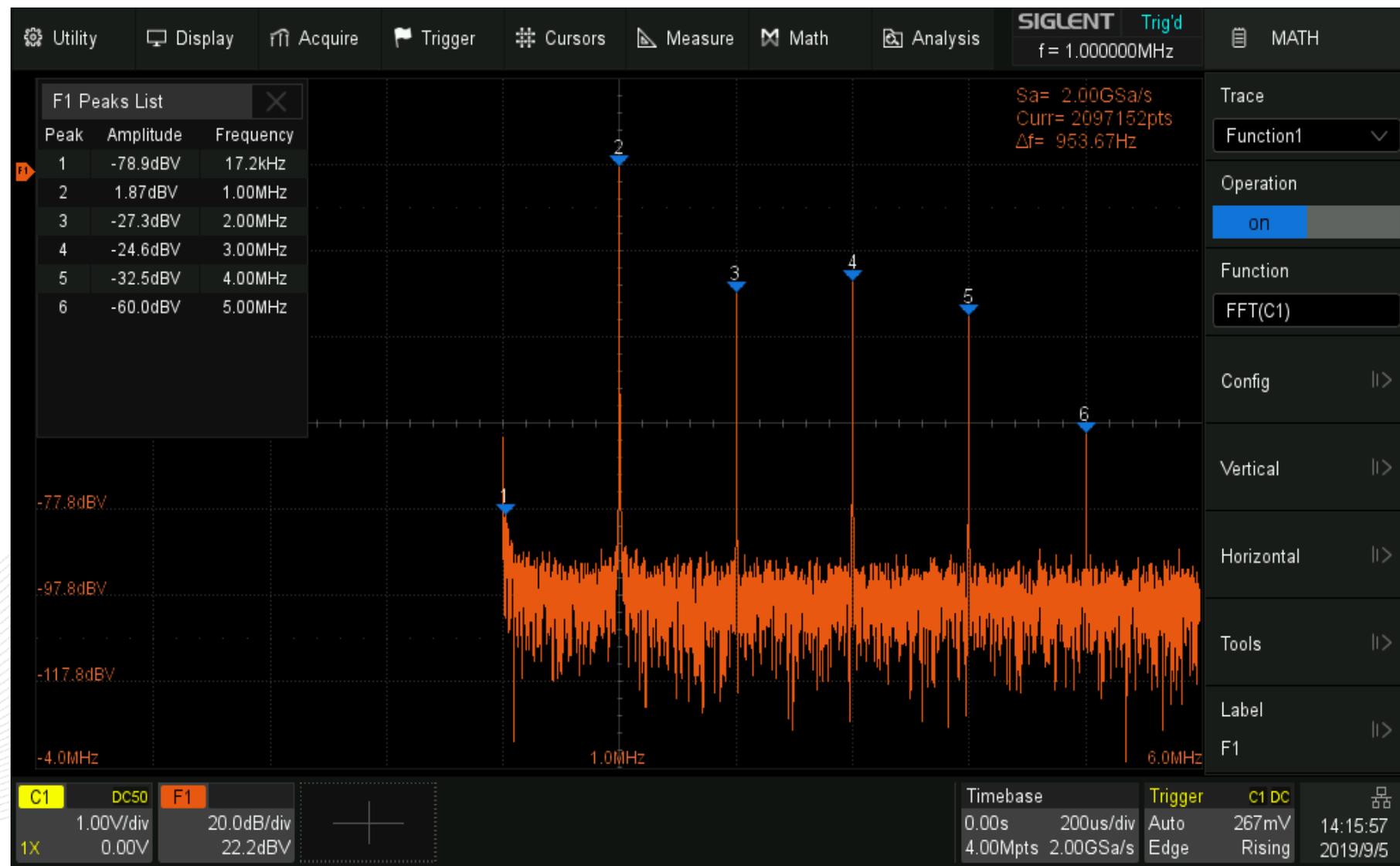
FFT	d/dt	$\int$	sqrt	C1	C2	C3	C4	$\pi$	e	(	)
Avg	Eres			Z1	Z2	Z3	Z4	7	8	9	/
				F1	F2			4	5	6	*
								1	2	3	-
								0	.		+

# Hardware

## Accelerated FFT

### High frequency resolution with fast refresh rate

- Up to 2 M FFT points provides high frequency resolution with fast refresh rate.
- A variety of window functions adapt to different spectrum measurement needs.
- Three modes (Normal, Average and Max hold) can satisfy different requirements for observing the power spectrum.
- Auto peak detection and markers are supported.



# 50+ types of measurements

High frequency resolution with fast refresh rate

- A total of 50+ different types of measurements.
- Gate Measurement
- Measurements on Math, Reference and History frames
- Statistics show up to 12 parameters simultaneously
- Histogram and Trend plot supported
- Greatly improving the test efficiency

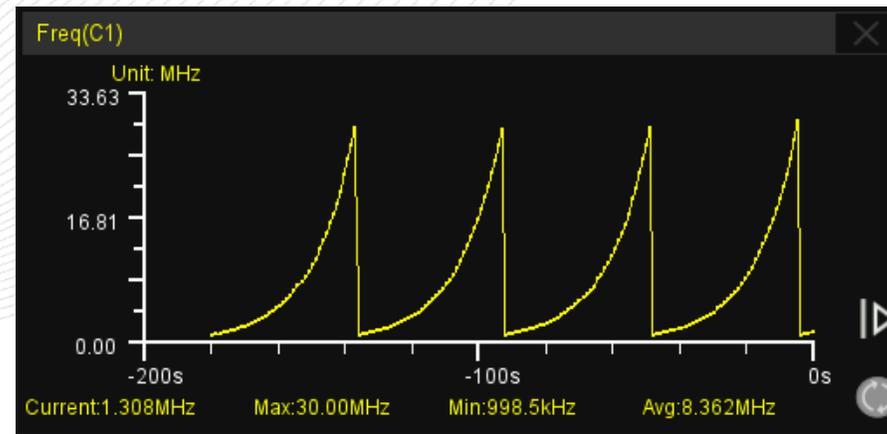
MEASURE	Value	Mean	Min	Max	Stdev
Time@max(C1)	-4.8560300ms	-2.7511038554ms	-4.8613460ms	4.1696580ms	2.6972550540ms
+Duty(C1)	50.299%	50.15532%	50.019%	50.352%	0.12252%
Time@min(C1)	-4.3435600ms	-4.3430748855ms	-4.3493080ms	-4.3347960ms	2.0692670us
-Duty(C1)	49.701%	49.84468%	49.648%	49.981%	0.12252%
10-90%Rise(C1)	299.0119us	301.3756585us	298.6070us	303.1705us	1.8170396us
Delay(C1)	-4.5789993ms	-4.5802712840ms	-4.5816721ms	-4.5778513ms	1.2019832us
20-80%Rise(C1)	207.2069us	208.5422169us	206.9231us	209.5703us	999.2185ns
80-20%Fall(C1)	207.0125us	208.5051556us	206.8478us	209.5717us	1.0010376us
90-10%Fall(C1)	299.0025us	301.3265395us	298.5668us	303.1749us	1.8134908us
-BWidth(C1)	9.4969415ms	9.5001879846ms	9.4965412ms	9.5024171ms	2.5716109us
Freq(C1)	999.978623Hz	999.99946983Hz	999.733996Hz	1.000294590kHz	71.39192mHz
-Width(C1)	496.8143us	498.4295688us	496.4160us	499.7703us	1.2265495us

Mode 2:  
Show 12 parameters simultaneously

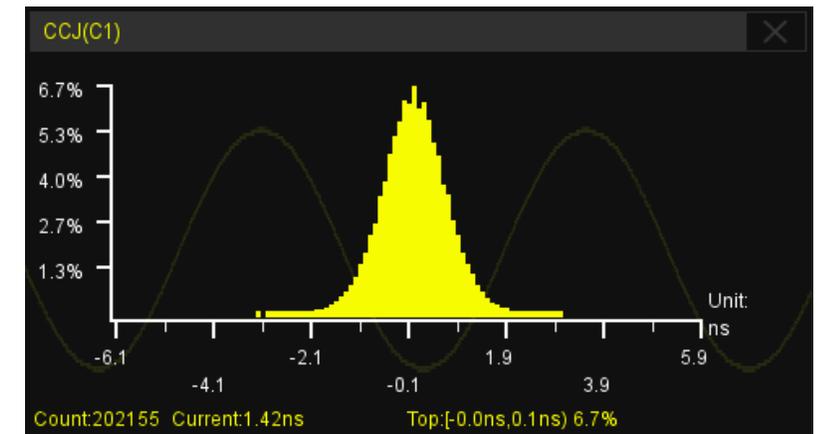
MEASURE	Pk-Pk(C4)	Period(C4)	CCJ(C4)	ROV(C4)	10-90%Rise(C4)
Value	1.0333V	1.00000us	0.00ns	1.342%	8.48ns
Mean	1.032531V	1.0000001us	0.0ps	1.57138%	8.2296ns
Min	1.0200V	999.88ns	-0.21ns	1.342%	7.79ns
Max	1.0467V	1.00013us	0.24ns	2.685%	8.76ns
Sdev	3.575mV	34.0ps	59.0ps	0.31893%	205.9ps
Count	2036	18324	16288	2036	18324

Histogram

Mode 1:  
5 parameters and Histogram



Frequency Trend of a FM signal (from 1MHz to 30MHz)

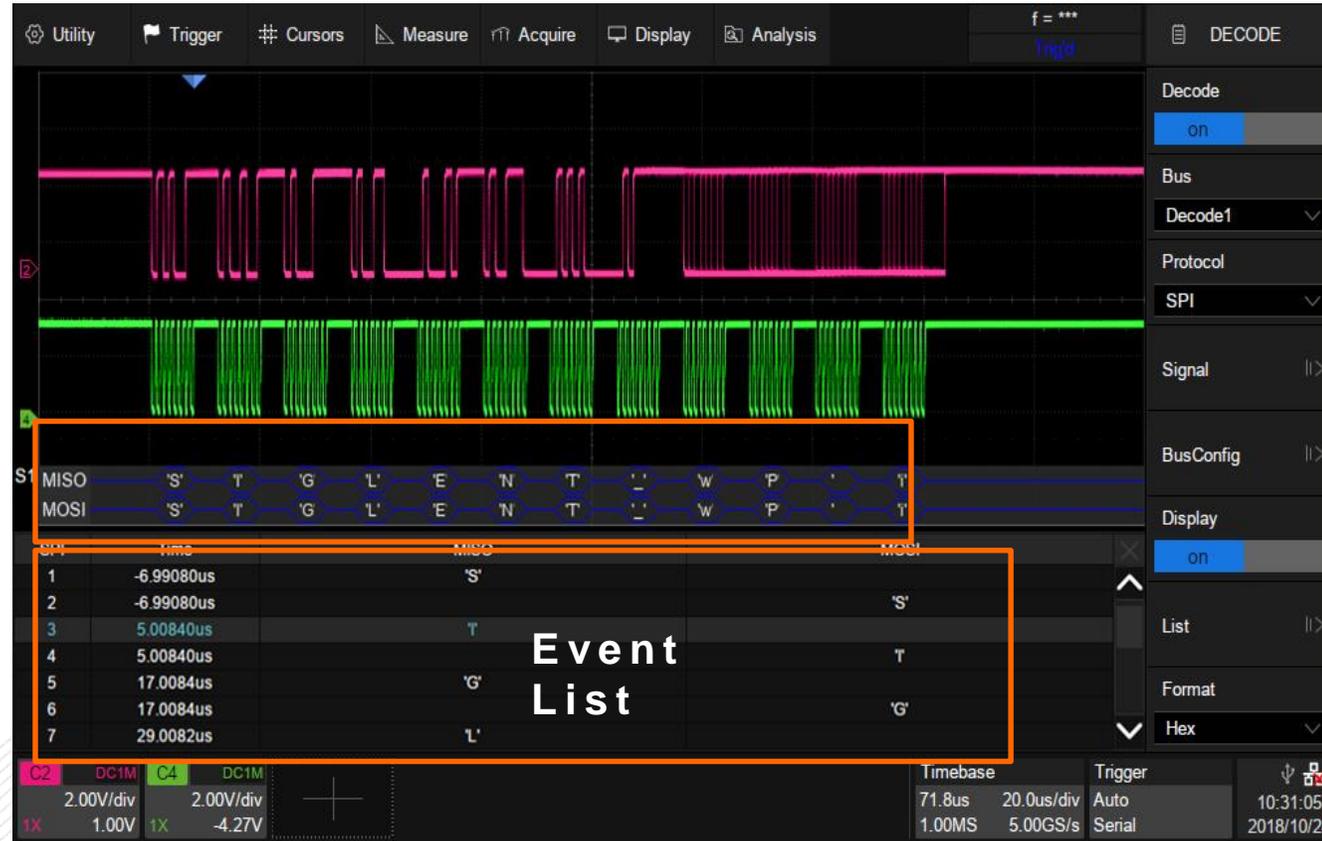


Clock Jitter Histogram (Clearly shows jitter distribution)

# Wide range of Serial Decoders

Help to debug in various industries

- Independent trigger and decoding. Increased flexibility.. Trigger and/or decode from any input source: 2/4 analog + 16 digital channels
- Export decoding event list as a CSV file type for offline analysis
- Return Format
  - Binary
  - Decimal
  - Hex
  - ASCII



## Standard included Decoding:

- I<sup>2</sup>C, SPI
- UART
- CAN, LIN

- Embedded serial trigger and analyze
- Computer serial trigger and analyze
- Automotive serial trigger and analyze

## Optional Decoding:

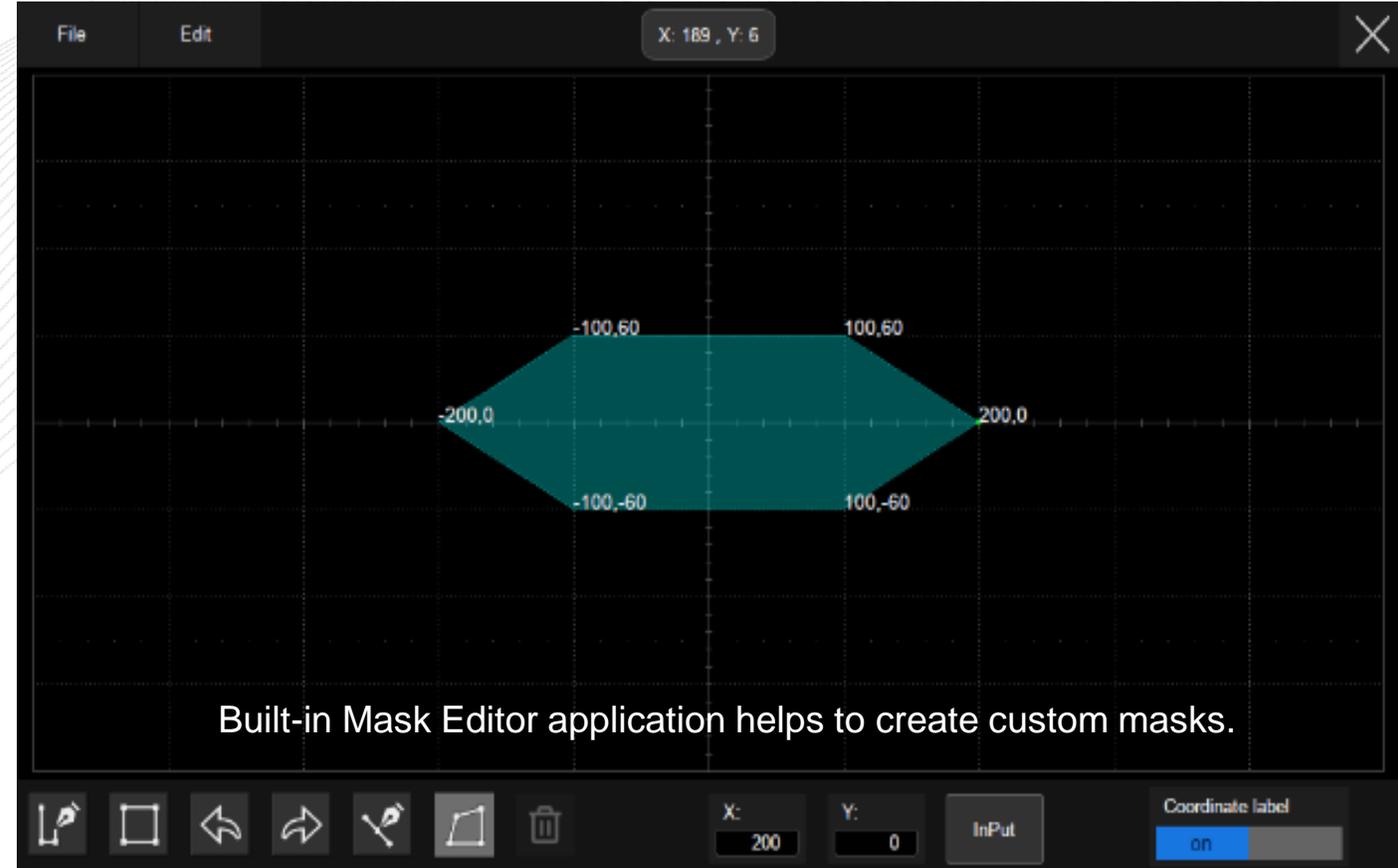
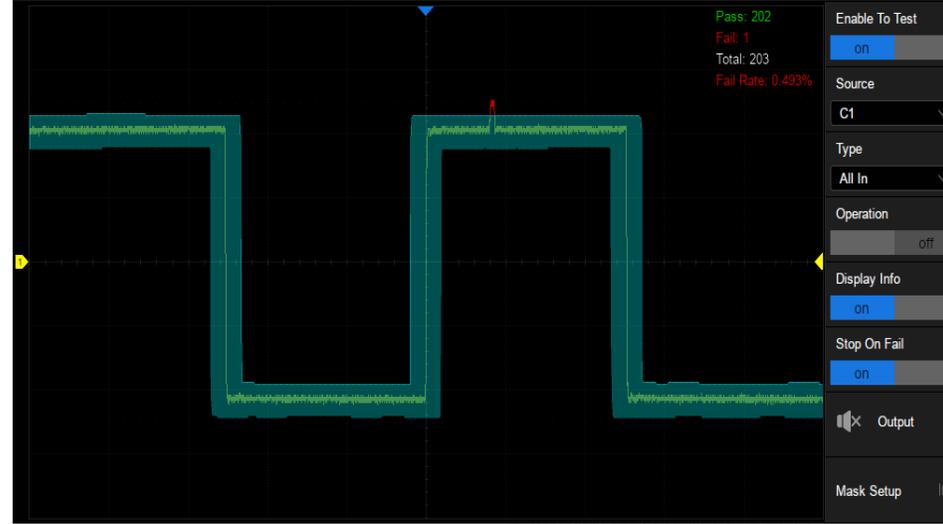
- CAN FD
- FlexRay
- I<sup>2</sup>S
- MIL-STD 1553B

- Automotive serial trigger and analyze
- Automotive serial trigger and analyze
- Audio serial trigger and analyze
- serial trigger and analyze

# Hardware-based Mask Test

## Fast Pass / Fail decisions

- Perform up to 80,000 Pass/Fail decisions each second.
- Easy to generate user defined test templates
- Failed frames automatically stored, suitable for long-term signal monitoring or automated production line testing.



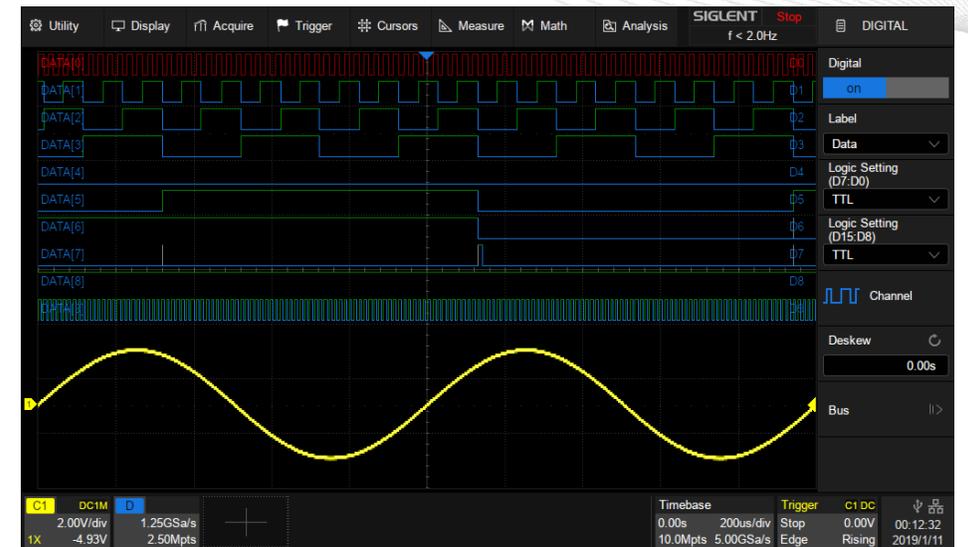
# 16 digital channels

Mixed signal oscilloscope,  
solution for both digital and  
analog problems

- View digital and analog channels on one timebase
- Full trigger and decoding on all analog and digital channels
- 16 channels; maximum waveform capture rate up to 1.25GSa/s; record length up to 62.5 Mpts
- User defined label names, channel groups, and more



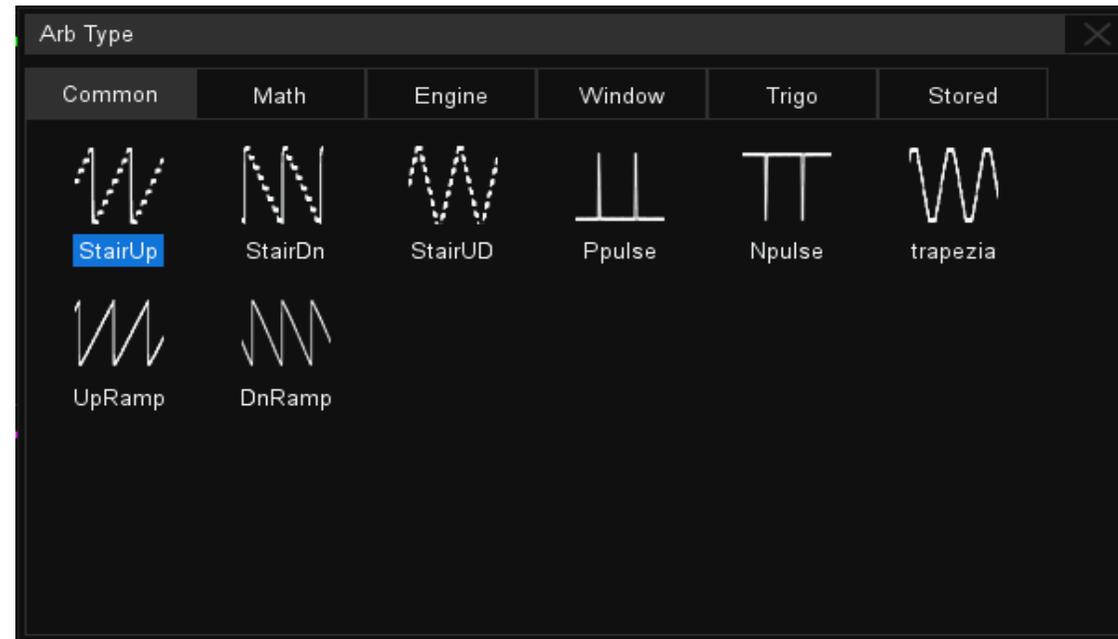
**SIGLENT**<sup>®</sup>



# Built-in 50 MHz Waveform Generator

## All-in-one Bode Plot

- Convenient Bode Plot in one box. Just activate the internal function generator.
- Up to 50 MHz,  $\pm 3$  V output
- Six basic waveforms together with multiple types of predefined waveforms
- User defined arbitrary waveforms are supported
- Six kinds of basic waveforms: Sine, Square, Ramp, Pulse, Noise, DC



Arbitrary waveform types



Output a two-tone signal  
Use SDS2000X Plus 2 Mpts  
FFT function to analyze  
frequency domain

# Power Analysis and Bode Plot

Powerful tools for power engineers



## Power Analysis (Opt.)

- Provides a full suite of power measurements and analysis
- Improving the efficiency of measurement in switching power supplies and power device designs.

## Bode Plot (Std.)

- Control the built-in waveform generator or any stand-alone SIGLENT SDG device
- Scan the amplitude and phase response over frequency
- Possible to replace expensive network analyzers in less demanding applications.



Power Analysis Function



Power Supply Control Loop Response with Bode Plot

# Web Control

Easy control on PC



## Web Control

- Supports DHCP
- No large drivers needed
- Screen shot and save data



## Complete Connectivity

- 2 x USB Host, 1 x USB Device (USBTMC)
- 1 x LAN (VXI-11/Telnet/Socket)
- 1 x Auxiliary Output (Pass/Fail and Trigger Out)



Web Control

Complete Connectivity



# Ordering Information

Model	Description	Price [net]
SDS2354X Plus	350 MHz, 4-ch, 2 GSa/s (Max.), 200 Mpts, 10.1"touch screen	2599.- €
SDS2204X Plus	200 MHz, 4-ch, 2 GSa/s (Max.), 200 Mpts, 10.1"touch screen	1899.- €
SDS2104X Plus	100 MHz, 4-ch, 2 GSa/s (Max.), 200 Mpts, 10.1"touch screen	1199.- €
SDS2102X Plus	100 MHz, 2-ch, 2 GSa/s (Max.), 200 Mpts, 10.1"touch screen	899.- €

Optional Accessories	Description	Price [€ net]
SDS2000XP-FG	Waveform generator option (software)	205.- €
SDS2000XP-16LA	16 digital channels (software)	155.- €
SPL2016	16-channel logic probe	335.- €
SDS2000XP-PA	Power Analysis (software)	239.- €
DF2001A	Power Analysis deskew fixture	219.- €
SDS2000XP-I2S	I <sup>2</sup> S trigger & decode (software)	255.- €
SDS2000XP-1553B	MIL-STD-1553B trigger & decode (software)	255.- €
SDS2000XP-FlexRay	FlexRay trigger & decode (software)	255.- €
SDS2000XP-CANFD	CAN FD trigger & decode (software)	255.- €
SDS2000XP-4BW02	100 MHz to 200 MHz bandwidth upgrade (4-ch model) (software)	1309.- €
SDS2000XP-4BW03	200 MHz to 350 MHz bandwidth upgrade (4-ch model) (software)	1309.- €
SDS2000XP-4BW05	350 MHz to 500 MHz bandwidth upgrade (4-ch model) (software)	1309.- €
SDS2000XP-2BW03	100 MHz to 350 MHz bandwidth upgrade (2-ch model) (software)	929.- €

# Thank You

The Best Value in Electronic Test & Measurement

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