

N8811A I²S Protocol Triggering and Decode for Infiniium Series Oscilloscopes

Find and debug intermittent errors and signal integrity problems faster

Features:

- I²S serial bus triggering
- I²S software-based protocol decoding
- User-selectable signal alignment selections
- Support for Time Division Multiplex (TDM)

I²S (Inter-IC Sound or Integrated Interchip Sound) is an electrical serial bus interface standard used for connecting digital audio devices together such as compact disc, digital audio tape, digital sound processors and digital TV sound. Traditional methods of debugging serial buses, such as I²S, include the visual technique of manual bit counting. This method is not only tedious but is also prone to critical errors and inaccuracies compared to using professional software.

Keysight Technologies, Inc. serial bus applications for Infiniium oscilloscopes not only offer powerful triggering but also provide unique software-accelerated decoding to help you accurately debug audio designs with the I²S bus. With the N8811A I²S protocol triggering and decode application, you can now easily find and decode these errors and signal integrity problems with confidence.





Figure 1. Decoding a TDM I²S signal. In this example, 16-bit data (yellow trace) was sent through four channels.

Through the I²S protocol triggering and decode application for Infiniium oscilloscopes, you can view your decode results easily in a lister display format.

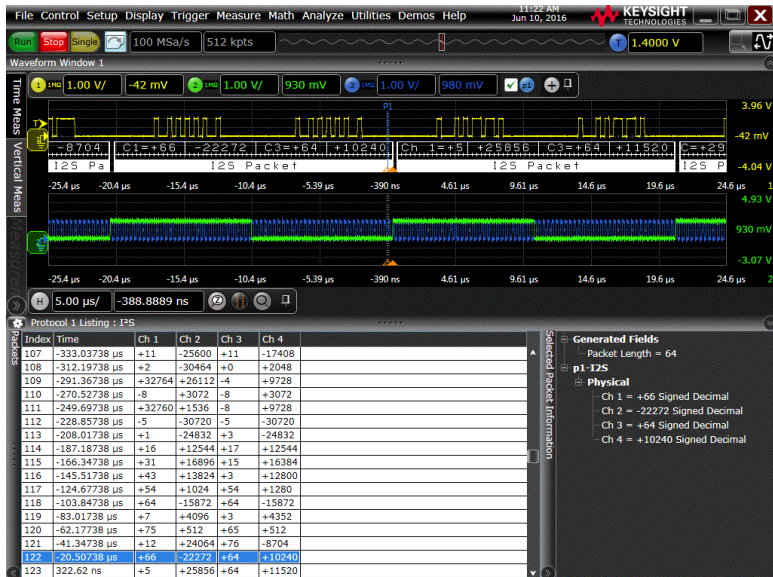


Figure 2. TDM I²S signal in split-screen format.

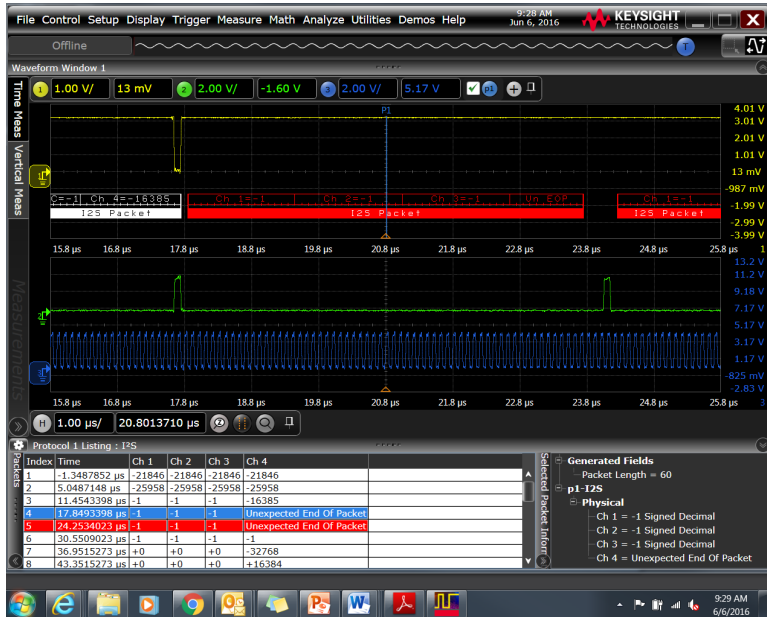


Figure 3. TDM I²S signal with an unexpected end of packet error. The I²S protocol triggering and decode application for Infiniium allows you to easily search for an error through the Trigger On Search and Stop On Trigger options.

Flexibility, with confidence

With triggering audio channel support for audio left, audio right, standard I²S and TDM, the N8811A I²S protocol triggering and decode software's flexibility is unparalleled. In addition to the breadth of alignment options, you can quickly and easily customize the transmitter and receiver word size, word select, clock edge direction and decoded base.

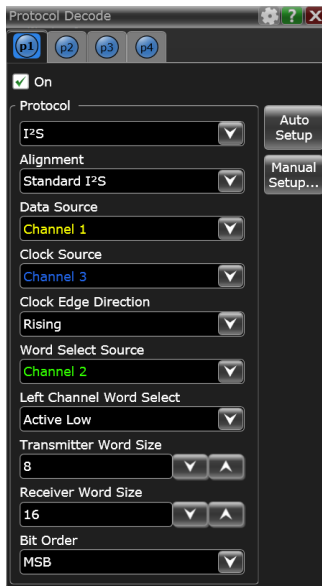


Figure 4. The protocol decode dialogue box has a breadth of options. Use auto setup to decode immediately or manual setup to customize even more.

Hassle-free results

Set up your scope to show I²S protocol decode in less than 30 seconds. The I²S Protocol Triggering and Decode for Infiniium enables you to interpret results effortlessly by displaying both a readable table and a color-coded waveform. Use the pattern search menu to painlessly search for packets or errors while data is being captured and decoded. Use “trigger on search” to display only captured data that matches your search specification and “stop on trigger” to stop capturing data after the first packet search specification is found.

Performance Characteristics

I ² S protocols supported	Standard I ² S, left-justified, right-justified, TDM
I ² S source	Analog channels 1, 2, 3 or 4
	Digital channels D0-D15 (on MSO models)
	Waveform memories
Configuration options	Transmitted/Received word size (4 to 32)
	Alignment – Standard I ² S, left-justified, right-justified, or TDM
	Word select/Frame sync edge direction – Rising or falling
	Clock edge direction – Rising or falling
	Display base – Hex, signed decimal, or binary
Triggering	I ² S protocol triggering
	Errors
	<ul style="list-style-type: none">• Transmitted word size error• Any error
Autoset	I ² S packet
	<ul style="list-style-type: none">• = (Equal to entered data value)• ≠ (Not equal to entered data value)• < (Less than entered data value)• > (Greater than entered data value)• >< (Within range of entered data values)• <> (Out of range of entered data values)• Increasing value that crosses armed (<=) and trigger (>=) entered data values• Decreasing value that crosses armed (>=) and trigger (<=) entered data values
Autoset	Automatically configures oscilloscope for proper I ² S decode and protocol triggering

Ordering Information

Application	License type		Infiniium 9000 Series	Infiniium S-Series	Infiniium 9000A Series	Infiniium V-Series	Infiniium Z-Series
I ² S protocol	Fixed	Factory-installed	Not available	N8811A-1FP	DSO90000-095	N8811A-1FP	N8811A-1FP
		User-installed			N8811A-1FP		
	Floating	Transportable			N8811A-1TP		
		Server-based			N5435A-105		

Notes:

- Requires software 5.60 and above.
- Hardware-based serial triggering for S-Series only.

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