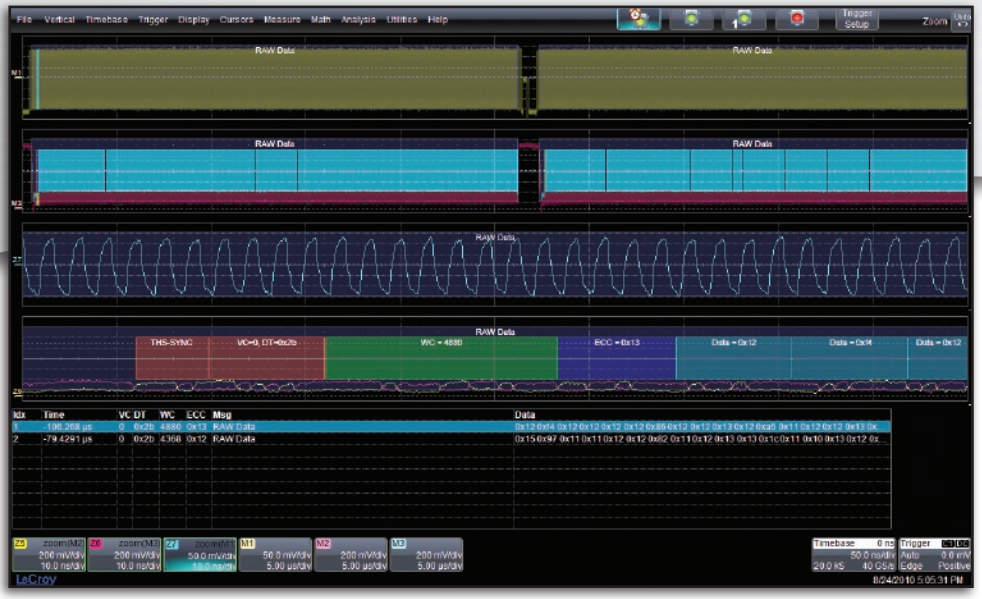
LeCroy

MIPI D-PHY Decode



Quickly decode the HS and LP data signal as well as evaluate the signal quality of the differential clock.

Key Features

- **Decodes MIPI D-PHY, CSI-2, and DSI signals**
- **Correlate analog waveforms with protocol decode on one screen**
- **Decode up to 4 differential data lanes using the CDR feature**
- **View decoded data in hexadecimal format**
- **Decode information expands as the time base is adjusted or zoomed**
- **Convenient table display with quick "Zoom to byte" capability**
- **Quick search capability for specific message packets**
- **Supports decode for LP & HS, HS only and LS only**
- **Supports single-ended and differential probing for Data and Clock**

The MIPI D-PHY decode is the ideal tool for powerful system level protocol debug as well as problem solving for signal quality issues. The D-PHY decode solution adds a unique set of tools to your oscilloscope, simplifying how you design and debug MIPI D-PHY, CSI-2 and DSI signals.

The Most Intuitive Decode

MIPI D-PHY decode uses color-coded overlays on various sections of the protocol for an easy-to-understand visual display. Depending on the time base or the amount of zoom, the decode information is condensed or expanded to better assist in understanding events during short or long acquisitions.

The Single Tool Enhances Productivity

The D-PHY decode solution concentrates all your information in one place. Viewing the application layer of D-PHY signals on top of the physical layer provides a unique view that bus analyzers cannot. A full suite of amplitude and timing measurements can be applied to debug physical layer issues that may not be apparent in a protocol view.

Complete Compliance and Debug

For a complete MIPI toolset, LeCroy offers a D-PHY compliance package as well as a decode package for DigRF 3G signals. QPHY-MIPI-DPHY provides automated compliance testing to the MIPI Alliance specification for D-PHY version 1.00.00. The DigRF 3G decode package offers a quick and powerful way to debug the DigRG 3G design challenges.

QUICK SETUP, INTUITIVE VIEW AND SEARCH

Quick and Easy Setup

Configure your MIPI D-PHY decode setup with flexibility to support any probing and lane combination. First select signal type, then data and clock probing configuration.

MIPI D-PHY D support up to 4 lanes of differential data decode utilizing an integrated CDR. Configure your decoder to support single ended or differential data as well as single ended or differential clocks.

Convenient Table Display Summarizes Results

Turn your oscilloscope into a protocol analyzer with the table display of protocol information. Custom configure the table to display the information you want, and export table data into an Excel file. Touch the message in the table and automatically zoom for detail. In all cases, the table never obscures your waveform.

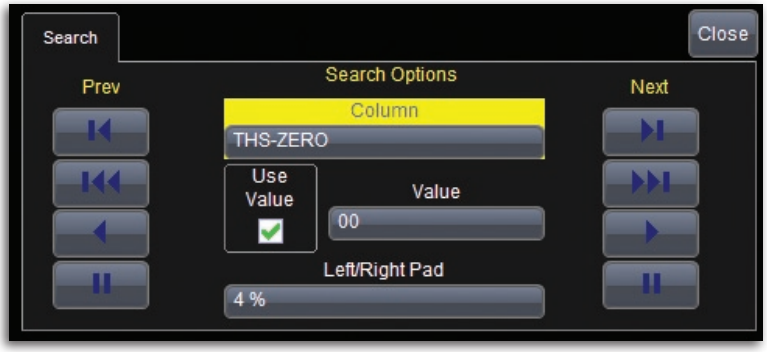
Idx	Time	VC	DT	WC	ECC	Msg
1	-199.998 µs					partial HS burst
2	-186.775 µs	0	0x2b	4368	0x12	RAW Data
3	-159.935 µs	0	0x2b	4880	0x13	RAW Data
4	-133.096 µs	0	0x2b	4368	0x13	RAW Data
5	-106.268 µs	0	0x2b	4880	0x13	RAW Data
6	-79.4291 µs	0	0x2b	4368	0x12	RAW Data
7	-52.5887 µs	0	0x2b	4880	0x12	RAW Data
8	-25.7490 µs	0	0x2b	4368	0x12	RAW Data

The table view arranges all of the data in a easy to understand format. The Table allows custom configuration to show the Time stamp, Virtual channel (VC), Data Type (DT), Word Count (WC), Error Correction Code (ECC), Message and data values for each packet.

Search and Zoom

Search through a long record of decoded data by entering any of the 28 available search criteria by entering a value or simply finding the next occurrence.

Search on:		
IDX	TLPX-CLK	DT
Time	TLP01-CLK	WC
TLPX-DATA	TCLK-PREPARE	ECC
TPL01-DATA	TCLK-ZERO	Msg
THS-Prepare	TCLK-HS	Data
THS-ZERO	TCLK-TRAIL	HSO
THS-SYNC	TCLK-REOT	HS1
THS-TRAIL	DI	Bitrate/Byte
TREOT	VC	Status
Attributes		



Quickly and easily search for a signal type of interest. Choose from 28 criteria to quickly pinpoint an area of interest, zoom in, and analyze. Use previous and next controls to find the next instance for quick and easy debug.

SPECIFICATIONS

	MIPI D-PHY Decode
Definition	
Protocol Setup	Select Data source Select Clock source
Decode Capability	
Format	Hexadecimal
Decode Setup	Threshold definition required. Default is to Percent amplitude. Select Signal Type (LP & HS, HS only, LP only). Select data source (Supports Dp & Dn, Dp only, Dn only, or differential probing configurations). Select clock source (Supports CLKp & CLKn, CLKp only, CLKn only, differential clock, or Clock Data recovery (CDR) probing configurations).
Decode Input	Any analog Channel, Memory or Math trace.
# of Decode Waveforms	**Up to 4 buses may be decoded at one time.** In addition, zooms can be displayed (with decoded information).
Location	Overlayed over DATA waveform, on Grid. (Note: Use multi-grid if there is more than one decoder ON)
Visual Aid	Color Coding for Frame, Break, Synch, ID, ID Parity, Data, CRC. Decode information is intelligently annotated based on time base setting.
Search Capability	
Pattern Search	Idx, Time, TLPX-DATA, TLP01-DATA, THS-PREPARE, THS-ZERO, THS-SYNC, THS-TRAIL, TREOT, TLPX-CLK, TLP01-CLK, TCLK-PREPARE, TCLK-ZERO, TCLK-HS, TCLK-TRAIL, TCLK-REOT, DI, VC, DT, WC, ECC, Msg, Data, HS0, HS1, Bitrate/Byte, Status, Attributes
Other	
Compatible With…	Compatible with WaveMaster® 8 Zi, WaveMaster® 8000, WavePro® 7 Zi, WavePro® 7000, WaveRunner® 6000, WaveRunner® Xi/Xi-A, WaveSurfer® Xs/Xs-A

ORDERING INFORMATION

Product Description	Product Code
D-PHY Decode Options	
D-PHY Decode Option for WavePro 7 Zi	WPZi-DPHYbus D
D-PHY Decode Option for WaveMaster 8 Zi	WM8Zi-DPHYbus D
D-PHY Decode Option for WaveSurfer Xs/Xs-A	WSXs-DPHYbus D
D-PHY Decode Option for WaveRunner Xi/Xi-A	WRXi-DPHYbus D
Additional Products	
QPHY Enabled MIPI D-PHY Software Option	QPHY-MIPI-DPHY
DigRF3G Decode Option for WaveSurfer Xs/XS-A	WSXs-DigRF3Gbus D
DigRF3G Decode Option for WaveRunner Xi/Xi-A	WRXi-DigRF3Gbus D
DigRF3G Decode Option for WavePro 7 Zi	WPZi-DigRF3Gbus D
DigRF3G Decode Option for WaveMaster 8 Zi	WM8Zi-DigRF3Gbus D
Recommended Oscilloscopes	
3.5 GHz, 20 GS/s, 4 Ch, 10 Mpts/Ch (40 GS/s and 20 Mpts/Ch in interleaved mode) with 50 Ω and 1 MΩ input	WavePro 735Zi*
4 GHz, 40 GS/s, 4 Ch, 10 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 MΩ input	WaveMaster 804Zi*

*SDA and DDA 7 Zi and 8 Zi oscilloscopes are also supported. Fully compatible with WP7Zi, WM8Zi, WRXi/Xi-A, WSXs/Xs-A, WP7000, WM8000, and WaveRunner 6000 oscilloscopes and analyzers based on these platforms. Bandwidth recommended to be equal to or greater than the D-PHY data rate, with a minimum oscilloscope sample rate requirement of 4x the data rate.

Product Description	Product Code
Recommended Accessories	
WaveLink ProLink Platform/Cable Assembly (4 – 6 GHz) (WavePro (4 GHz bandwidth or greater) or WaveMaster only)	WL-PLink
WaveLink ProBus Platform/Cable Assembly (3.5 GHz)	WL-PBus
WaveLink 3.5 GHz 2.5 Vp-p Differential Amplifier Small Tip Module	D310*
WaveLink 3.5 GHz 5 Vp-p Differential Amplifier Small Tip Module	D320*
WaveLink 6 GHz 2.5 Vp-p Differential Amplifier Small Tip Module	D610*
WaveLink 6 GHz, 5 Vp-p Differential Amplifier Small Tip Module	D620*

*For a complete probe, order a WL-PLink or WL-PBus Platform/Cable Assembly with the Probe Tip Module.

Customer Service

LeCroy oscilloscopes and probes are designed, built, and tested to ensure high reliability. In the unlikely event you experience difficulties, our digital oscilloscopes are fully warranted for three years and our probes are warranted for one year.

This warranty includes:

- No charge for return shipping
- Long-term 7-year support
- Upgrade to latest software at no charge

LeCroy
1-800-5-LeCroy
www.lecroy.com

Local sales offices are located throughout the world.
Visit our website to find the most convenient location.

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