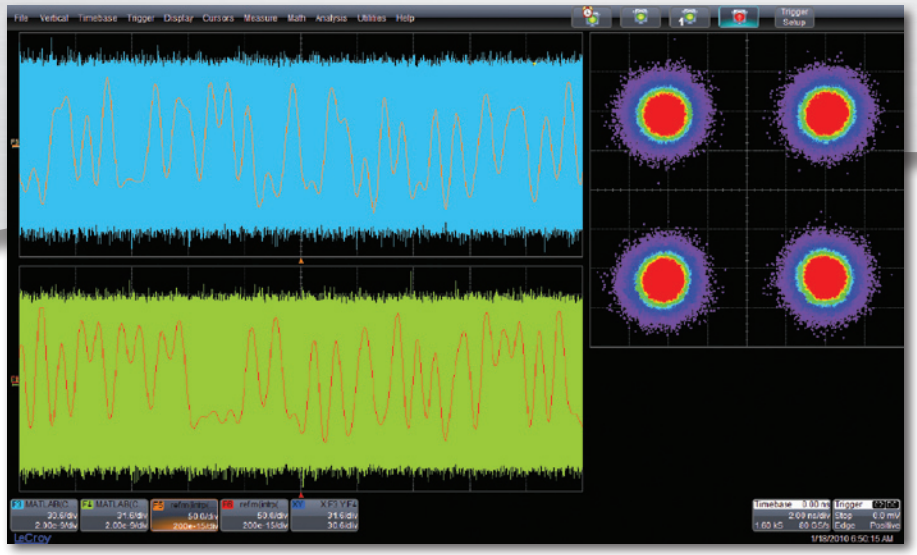
LeCroy

Zi-8CH-SYNCH

WaveMaster® 8 Zi Oscilloscope Synchronization Kit



56 Gb/s IQ modulation analysis using the Zi-8CH-SYNCH. In this example, F1 is the math differential result of the optical I+ and I-, and F2 is the differential result of the optical Q+ and Q-. Both signals have been further in-scope processed with MATLAB® (using the LeCroy XDEV option) to simulate receiver equalization.

Features and Benefits

- **Up to 30 GHz/4 channels or up to 16 GHz/8 channels**
- **Enables real-time IQ modulated signal analysis on high-speed standards up to 56 Gb/s**
- **Single display grid for all acquired channels**
- **Simple and fast setup — automatic recognition between oscilloscopes**

30 GHz, 4 Channel Oscilloscope Solution

LeCroy has extended the power of it's 30 GHz oscilloscope by providing a simple and fast method to combine two WaveMaster® 830Zi oscilloscopes and provide 4 channels at 30 GHz. This solution is ideal for measurement and analysis of 28 to 56 Gb/s IQ modulated signals where ultra-high real-time bandwidth and four channels is required, or for capture and detailed analysis of other leading edge technologies. The solution is compatible with all WaveMaster 8 Zi models, so it may be used to create 20 to 30 GHz four channel oscilloscope captures, or 4 to 16 GHz eight channel oscilloscope captures.

Simple and Fast Setup

Setup is simple — connect the Zi-8CH-SYNCH module to one of the oscilloscopes and it will then be recognized as the "Master" (control and display) oscilloscope. Then, between the "Master" and "Slave" oscilloscopes, additional trigger, synchronization, and data transfer connections are made. The "Master" then recognizes the "Slave" as soon as a "Slave" IP address is provided, and all "Slave" channels may then be displayed on the "Master" display for easy viewing and analysis using the full LeCroy deep debug and analysis toolbox.

SPECIFICATIONS AND ORDERING INFORMATION

Technical Overview of Operation

Two WaveMaster 8 Zi oscilloscopes can be synchronized to act as a single 4 channel (20 to 30 GHz) or as a single 8 channel (operation at 4 to 16 GHz) oscilloscope. In the synchronized operation, one oscilloscope will operate as the "Master" and display all acquired channels while the other oscilloscope will operate as a "Slave" and acquire data that is sent to the "Master". Data transfer is via an Ethernet crossover cable connected to the "Master" and "Slave" Ethernet ports, or through a network connection. Handshaking between oscilloscopes is automatic once the IP address of the "Slave" is defined.

Synchronization is accomplished via the Zi-8CH-SYNCH ProBus module. Plugging this module into a WaveMaster 8 Zi oscilloscope defines that oscilloscope as the "Master", and locates the user interface for common synchronized acquisition and display of channels on this oscilloscope. This module accepts an external customer trigger signal and outputs two identical trigger signals to the "Master" and "Slave" oscilloscope AUX IN inputs. These two trigger signals are generated by using a comparator with a programmable threshold and a buffer so as to accept an input signal with a relatively slow rise time and output two signals with ~100 ps rise time. The outputs are connected to the AUX IN ProBus connector on the "Master" and "Slave" oscilloscopes, and serve as the synchronizing signals to the "Master" and "Slave" oscilloscopes. In the absence of an input signal, the ProBus module can utilize a fixed frequency clock to force acquisitions for the "Master" and "Slave" scopes automatically at a predefined interval. An additional connection is made from this module to the "Slave" oscilloscope so as to provide feedback from the "Slave" to the module that a successful acquisition occurred before exporting acquired data from the "Slave" to the "Master". This ensures acquisition integrity of all captured channels. Timebase synchronization is ensured by interconnection of the oscilloscope 10 MHz clocks.

All display control of the "Master"+"Slave"acquisitions is via an additional setup dialog in the standard user interface of the "Master" oscilloscope. All channels may be turned ON or OFF from the "Master". Initial channel and oscilloscope setup (vertical, horizontal, pre-processing, etc.) is performed in the standard "Master" or "Slave" graphical user interfaces. Triggering is via Edge trigger only using the Zi-8CH-SYNCH module and the common acquisition trigger pulse defined above, or the scopes may be triggered at the predefined interval. Channel display for all channels will be on the "Master" oscilloscope grid. Descriptor boxes for each acquired channel will also be displayed on the "Master" oscilloscope. Off-line data transfer of all channels would be initiated from the "Master" oscilloscope.

LeCroy would like to acknowledge the generous assistance of Dr. Peter Winzer of Alcatel-Lucent in the initial WaveMaster 830Zi 30 GHz oscilloscope testing with 56 Gb/s IQ modulated optical signals.

Specifications

Jitter Between Channels from "Master to "Slave" Oscilloscope	
Continuous Operation	2.5 ps rms
Single Shot + Manual Correction	< 1 ps
Connector	SMA (f)
Coupling	DC
Impedance	50 Ω
Max. Input Frequency	1.5 GHz
Max. Voltage	±4 V
Min. Voltage	0.4 Vpp
Trigger Threshold Range	±4 V

Note: All specifications are subject to change.

Ordering Information

Product Description	Product Code
Oscilloscope Synchronization Kit for WaveMaster 8 Zi Oscilloscopes	Zi-8CH-SYNCH

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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