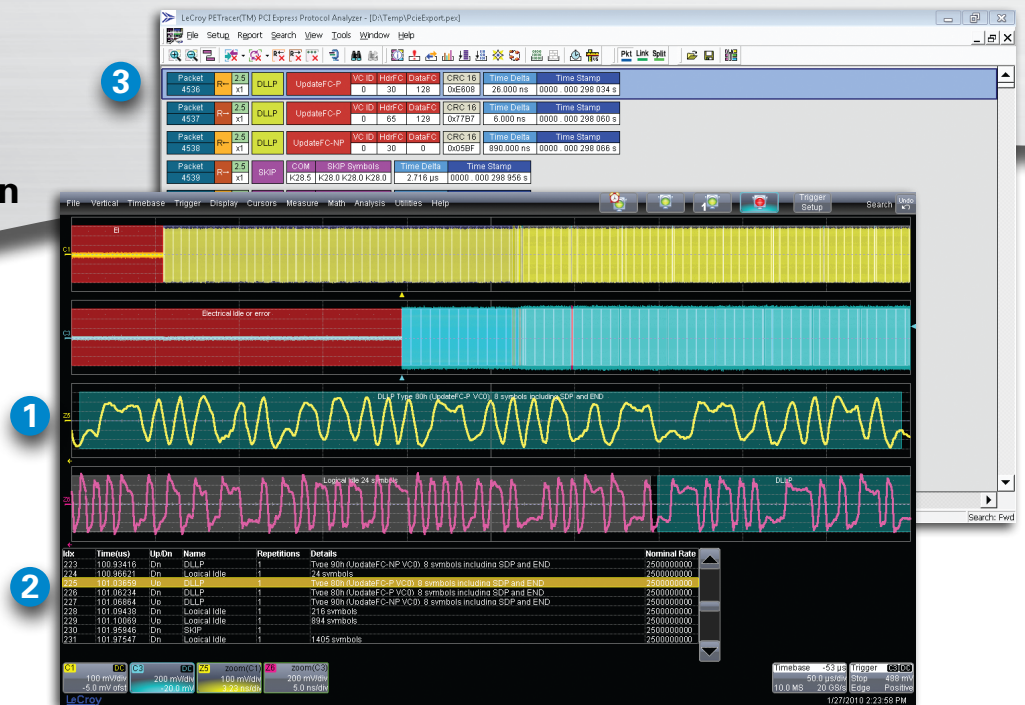


ProtoSync™

Decode Annotation and Protocol Analyzer Software Synchronization

Features and Benefits

- Simultaneous physical layer signal, data link layer decode annotation, and full transaction layer protocol/BitTracer™ views
- Simultaneous “Zooms of all information”
- Compatible with:
 - PCI Express 0a, 2.0 and 3.0
 - USB 1.x, 2.0, 3.0
 - SATA Revision 1.0, 2.0, 3.0
 - SAS Gen1, 2, 3
 - Fibre Channel 1, 2, 4, 8GFC
- Supports 1 or 4 lanes transmit or receive, or 1 lane transmit+receive
- Ideal for understanding dynamic equalization behaviors, as in PCIe and SAS
- Simplifies debug coordination between physical layer and logic layer design teams
- Provides protocol analyzer view of bus traffic independent of specialized protocol analyzer hardware



ProtoSync links physical layer waveforms (1), decode annotation and table information (2), and full transaction layer protocol analysis (3). Simply touch a decode table entry in the oscilloscope or a packet in the protocol analysis software and all views are automatically synchronized and aligned. Example shown is PCI Express Gen3.

LeCroy's ProtoSync option further leverages the supported LeCroy decode annotation options installed on the oscilloscope by providing simultaneous views of the complete protocol stack, from physical layer to transaction layer.

Debug Dynamic Equalization Issues

Dynamic equalization is a link initialization process where training sequences communicate transmitter and receiver parameters to establish a link, such as in PCI Express Gen3 and forthcoming versions of SAS. Debugging dynamic equalization is usually much easier if both analog waveforms and high level protocol packet data are available simultaneously.

Ideal for Embedded Designs

More mature standards are increasingly becoming embedded in system designs. It is usually simple to connect an oscilloscope to the embedded system, and the debug and validation system engineer is quite familiar with the operation of an oscilloscope. By providing protocol analysis views using physical layer oscilloscope captures as a source, complex problems can be more easily debugged.

Support on Multiple Oscilloscope Platforms

ProtoSync runs on LeCroy WaveRunner®, WavePro®, and WaveMaster® platforms, from 400 MHz to 45 GHz.

SIMULTANEOUS VIEWS SPEED DEBUG

Available Configurations

LeCroy's decode annotation and ProtoSync options provide you with three ways to view the protocol traffic

- **Basic link and data layer decode annotation over the physical layer waveform (PCIExpress D, USB3bus D, USB2bus D, SATAbus D, SASbus D, FCbus D options)**
- **Protocol analyzer transaction layer decode plus basic data link layer decode annotation (ProtoSync option)**
- **Protocol analyzer transaction layer, BitTracer™ logic analyzer view, plus basic data link layer decode annotation (ProtoSync-BT option, available only with PCIebus D)**

ProtoSync™ Provides Advanced Protocol Analysis Tools Simultaneous with Physical Layer Waveform Displays

The protocol analysis software provided is a viewing, analyzing, and trace printing subset of the software provided with LeCroy's PE Tracer and PE Tracer Summit (for PCI Express), LeCroy's Voyager Protocol Suite (for USB 3.0, 2.0 and 1.x), LeCroy's Sierra (for SAS, SATA, and Fibre Channel) hardware protocol analyzer product family. Therefore those already familiar with LeCroy protocol analyzers will find it easy to operate and understand, and the synchronization of the oscilloscope and protocol analyzer tools in the oscilloscope will make it easy for hardware signal integrity, systems, and software/FPGA engineers to work

together to debug complex problems. Since the software runs directly on the oscilloscope, all physical layer and protocol views are linked directly to each other at all times—simply touch a packet or a byte in the protocol analysis software and the oscilloscope will zoom to that physical layer waveform, or vice-versa.

In all cases, decoded information is completely synchronized with the physical layer waveform—touch a table entry or packet/byte in either of the software displays, and all information is automatically zoomed and synchronized so it is easy to gather maximum insight quickly.

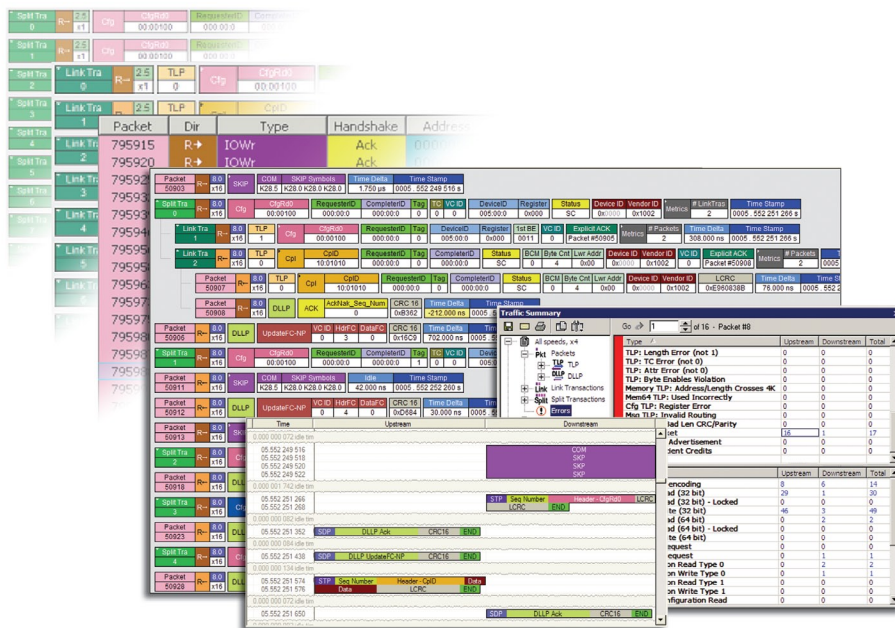
Integrated 2nd Display Provides Quickest Insight

LeCroy's Zi-EXTDISP-15 is an integrated touch screen second display that allows the most interactive and intuitive debug experience. Since both the oscilloscope and second display screens are touch friendly, it is quick and easy to navigate through the oscilloscope decode annotation or the protocol analyzer decode views.



Link and Data Layer Decode Annotation

The decode annotation options provide an intuitive, color-coded link and data layer decode overlaid on the waveform with a table display and a convenient “zoom to message” and search capability. Decode information expands as the timebase is adjusted or zoomed.

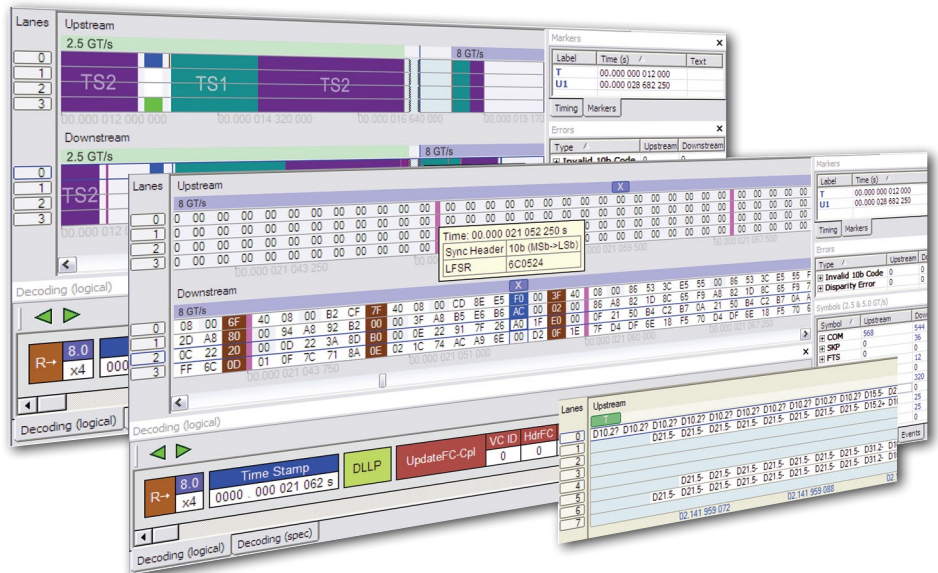


Protocol View

The protocol view is ideal for showing traffic at the logical level, and permits drill down to the byte level to see traffic across multiple lanes on a common timescale. The software allows you to easily see the low level primitives and data structures. (Note: Decode annotation options must be purchased to enable ProtoSync protocol viewing capability.)

BitTracer Logic Display

The PE Tracer Summit BitTracer view provides a physical layer traffic view, similar to a logic analyzer, combining the advantages of a protocol analyzer with those of a logic analyzer. Both BitTracer and standard Protocol view can be used simultaneously with the PCIe link layer decode annotation on a physical layer waveform for maximum insight. (ProtoSync-BT available with PCIebus D option only)



ORDERING INFORMATION

Ordering Information

Product Description Product Code

ProtoSync Protocol View Options

Decode Annotation and Protocol Analyzer Synchronization Software Option (prefix part number with WM8Zi, WPZi, WR6Zi, or WRXi for specific oscilloscopes)	ProtoSync
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ProtoSync Protocol and BitTracer Logic View Options

Decode Annotation and Protocol Analyzer + BitTracer Synchronization Software Option – works with PCI Express decode option only (prefix part number with WM8Zi, WPZi, or WR6Zi for specific oscilloscopes)	ProtoSync-BT
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Oscilloscope Accessories

Integrated 2nd Touch Screen Display (Top-mounted, Fully Integrated 15.3" WXGA with Touch Screen Display, Including all Cabling and Software) (Available with WaveMaster 8 Zi/Zi-A and WavePro 7 Zi/Zi-A only)	Zi-EXTDISP-15
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Decode Annotation Options

PCI Express Decode Annotation Option for WaveMaster 8 Zi/Zi-A	WM8Zi-PCIEbus D
PCI Express Decode Annotation Option for WavePro 7 Zi/Zi-A	WPZi-PCIEbus D
PCI Express Trigger and Decode Annotation Option for WaveRunner 6 Zi	WR6Zi-PCIEbus TD
USB 3.0 Decode Annotation Option for WaveMaster 8 Zi/Zi-A	WM8Zi-USB3bus D
USB 3.0 Decode Annotation Option for WavePro 7 Zi/Zi-A	WPZi-USB3bus D
USB 1.x/2.0 Decode Annotation Option for WaveMaster 8 Zi/Zi-A	WM8Zi-USB2bus D
USB 1.x/2.0 Decode Annotation Option for WavePro 7 Zi/Zi-A	WPZi-USB2bus D
USB 1.x/2.0 Trigger and Decode Annotation Option for WaveRunner 6 Zi	WR6Zi-USB2bus TD
USB 1.x/2.0 Decode Annotation Option for WaveRunner Xi/Xi-A	WRXi-USB2bus D

Product Description Product Code

Decode Annotation Options (cont'd)

SATA Decode Annotation Option for WaveMaster 8 Zi/Zi-A	WM8Zi-SATAbus D
SATA Decode Annotation Option for WavePro 7 Zi/Zi-A	WPZi-SATAbus D
SATA Trigger and Decode Annotation Option for WaveRunner 6 Zi	WR6Zi-SATAbus TD
SATA Decode Annotation Option for WaveRunner Xi/Xi-A	WRXi-SATAbus D
SAS Decode Annotation Option for WaveMaster 8 Zi/Zi-A	WM8Zi-SASbus D
SAS Decode Annotation Option for WavePro 7 Zi/Zi-A	WPZi-SASbus D
SAS Decode Annotation Option for WaveRunner 6 Zi	WR6Zi-SASbus D
SAS Decode Annotation Option for WaveRunner Xi/Xi-A	WRXi-SASbus D
Fibre Channel Decode Annotation Option for WaveMaster 8 Zi/Zi-A	WM8Zi-FCbus D
Fibre Channel Decode Annotation Option for WavePro 7 Zi/Zi-A	WPZi-FCbus D
Fibre Channel Decode Annotation Option for WaveRunner 6 Zi	WR6Zi-FCbus D
Fibre Channel Decode Annotation Option for WaveRunner Xi/Xi-A	WRXi-FCbus D

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



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

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