LeCroy

WaveMaster® 8 Zi-A Series

4 GHz – 45 GHz

World's Highest Bandwidth Real-time Oscilloscope

Highest Performance 4 Channel Oscilloscopes

Superior Serial Data Analysis



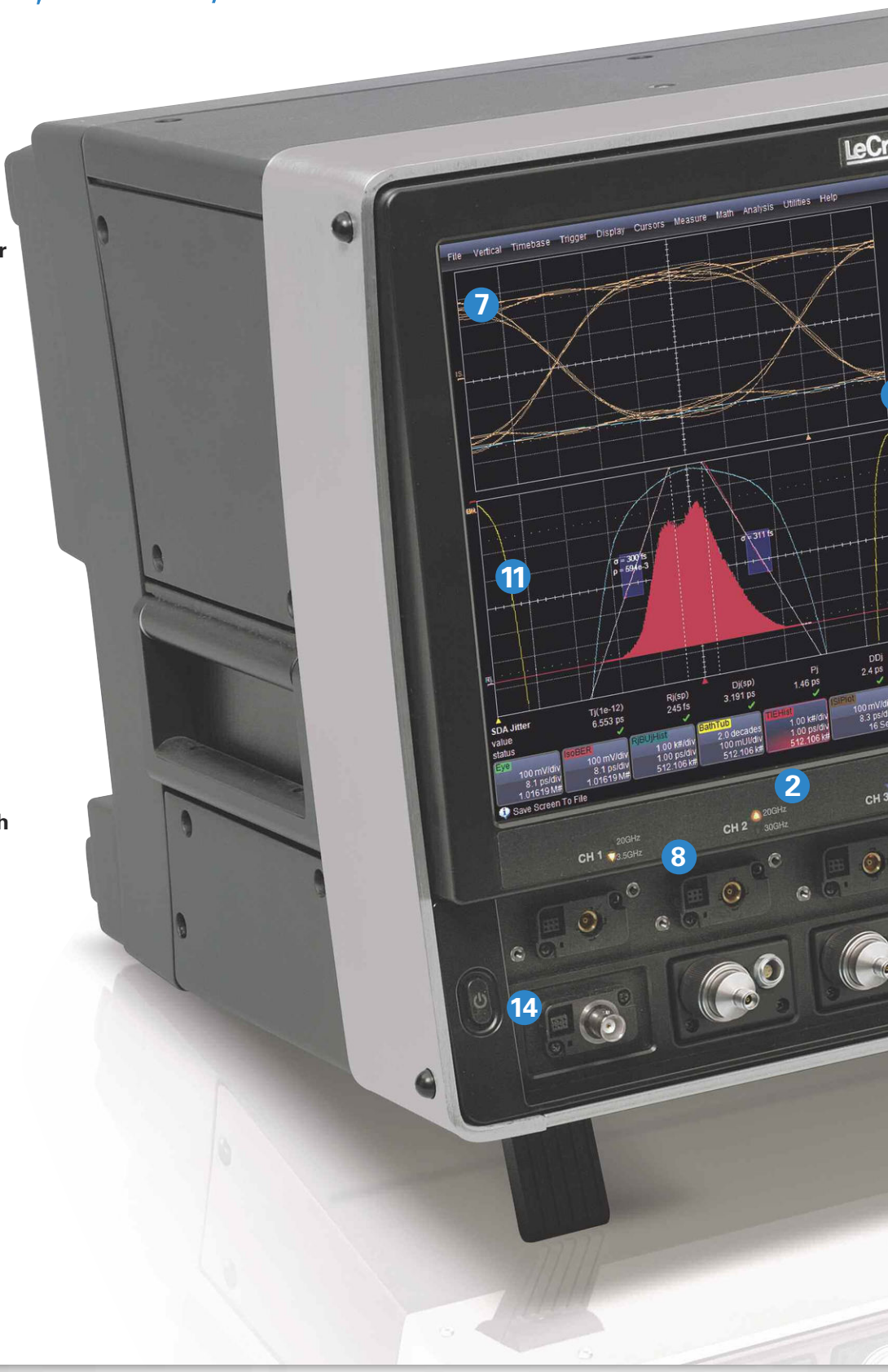
HIGHEST BANDWIDTH AND SUPERIOR PERFORMANCE

45 GHz Bandwidth, 120 GS/s

World's Highest Bandwidth Real-time Oscilloscopes with Superior Performance

WaveMaster 8 Zi-A combines the highest bandwidth (45 GHz) and sample rate (120 GS/s) with superior signal fidelity performance and 20 GHz on all four input channels. Availability of models from 4 to 45 GHz with complete bandwidth upgradability throughout the entire product range makes it easy and affordable to stay current with emerging high-speed technologies and serial data standards.

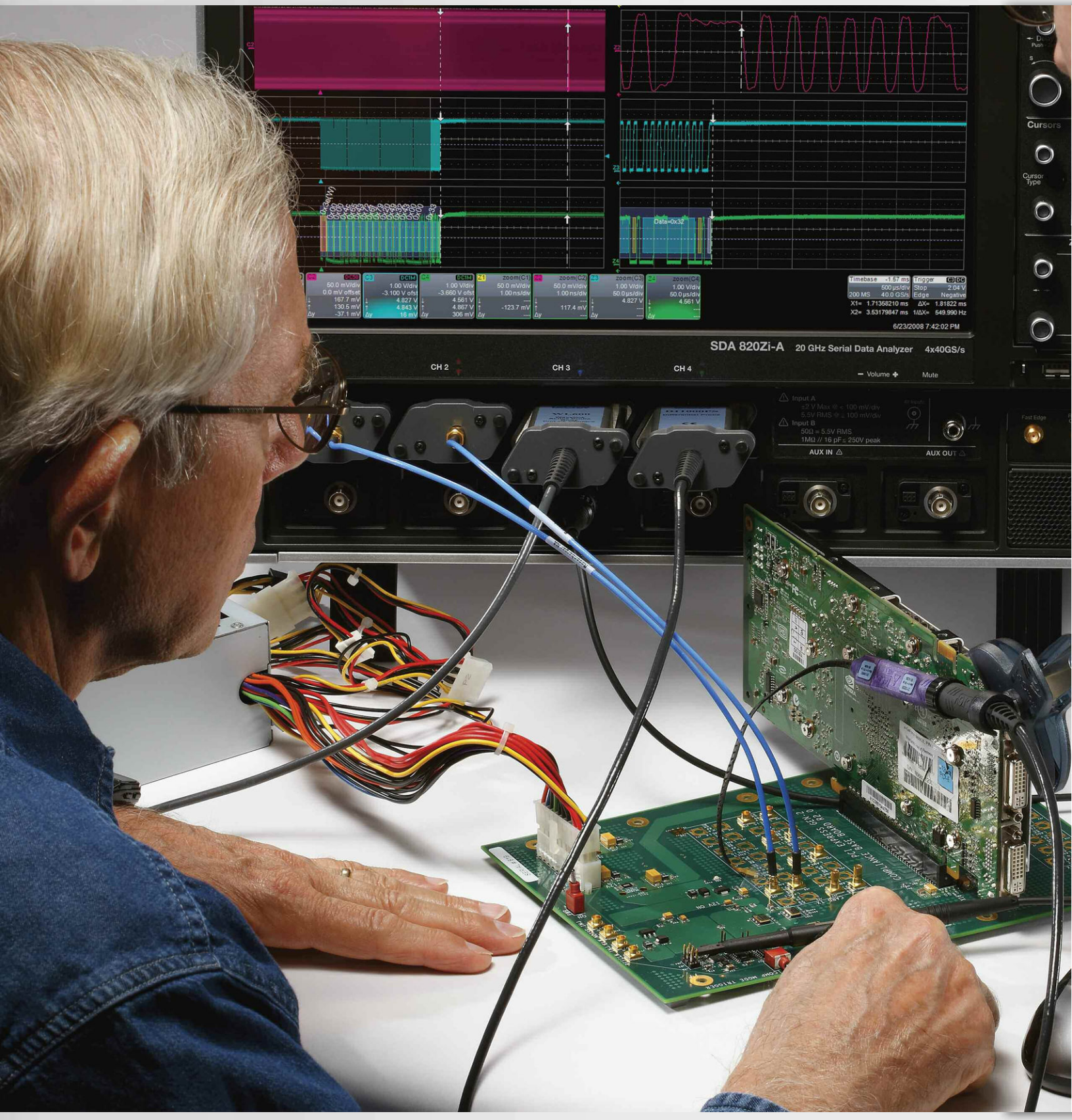
The X-Stream™ II architecture maximizes speed in all aspects—10–100 times faster analysis processing on maximum record lengths, instantaneous instrument responsiveness, and 20 times faster off-line data transfer. Combined with LeCroy's flexible and deep analysis toolbox, the WaveMaster 8 Zi-A Series provides superior performance for the debugging, validation, compliance testing, and analysis of electronic designs.





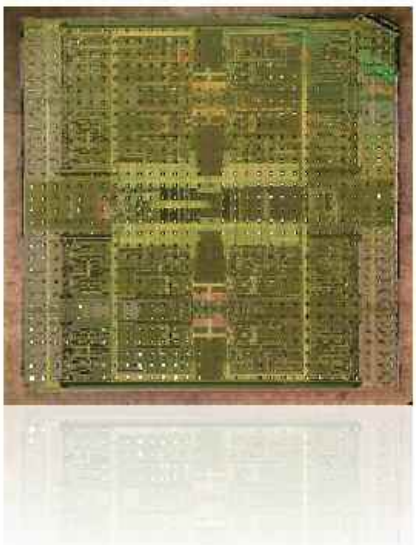
1. Industry leading performance—45 GHz bandwidth, 120 GS/s sample rate, 768 Mpts of analysis memory
2. Exceptional 20 GHz (4 input channels) and 30 GHz (2 input channels) signal fidelity performance
3. Widest bandwidth upgrade range (4–45 GHz) provides best investment leverage
4. Lowest Jitter Noise Floor (125 fs_{rms}) and highly stable over long acquisitions
5. Second generation chipsets provide 25% better noise performance
6. 15.3" widescreen (16x9) high resolution WXGA color touch screen display—25% larger than 12.1" displays
7. X-Stream II streaming architecture—10–100 times faster analysis and better responsiveness than other oscilloscopes
8. Superior probe + oscilloscope performance
9. Superior serial data analysis with SDA II software—more capability to decompose and analyze jitter and determine root cause quickly
10. Eye Doctor™ II Advanced Signal Integrity Tools improve signal integrity measurements with real-time de-embedding and emulation capabilities on full record lengths
11. Deepest toolbox with more measurements, more math, more power
12. 325 MB/s data transfer rate from oscilloscope to PC with LeCroy Serial Interface Bus (LSIB) option
13. Largest selection of serial triggers and decoders—more than 14—available to provide a total system view
14. 50 Ω and 1 MΩ inputs with both ProBus and ProLink probe interfaces on all models provide support for every probe manufactured by LeCroy without requiring external adapters or probe amplifiers.

LEADING PERFORMANCE, INNOVATIVE TECHNOLOGY



World's Fastest Single-Chip ADC

Monolithic, custom-designed Silicon Germanium (SiGe) 40 GS/s Analog-to-Digital Converter (ADC) is the world's fastest single-chip ADC.



Highest Bandwidth, Upgradeable Superior Signal Fidelity

World's Highest Bandwidth Real-time Oscilloscope—45 GHz!

LeCroy has again broken bandwidth barriers by utilizing widely adopted and proven SiGe processes, custom 2nd generation ASIC designs, and 6th generation Digital Bandwidth Interleave (DBI) technology to achieve unprecedented real-time oscilloscope performance:

- 45 GHz
- 120 GS/s
- 768 Mpts/Ch Analysis Memory

20 GHz four channel performance is provided on all models from 20 to 45 GHz. In all cases, signal fidelity is pristine with exceptional rise time, step response, total and random jitter noise floor, and electrical noise performance. High effective number of bits (ENOB) over the complete operating frequency range, especially in the crucial mid-band, ensures the most noise-free display of signals.

Best Upgradeability and Investment Protection

By utilizing the same platform for all models from 4 to 45 GHz, we help you best protect your investment and give you future flexibility. Additionally, 8 Zi-A oscilloscope acquisition systems may be synchronized with the Zi-8CH-SYNCH accessory to double the number of acquisition channels for complex debug or very high bandwidth multi-channel analysis.

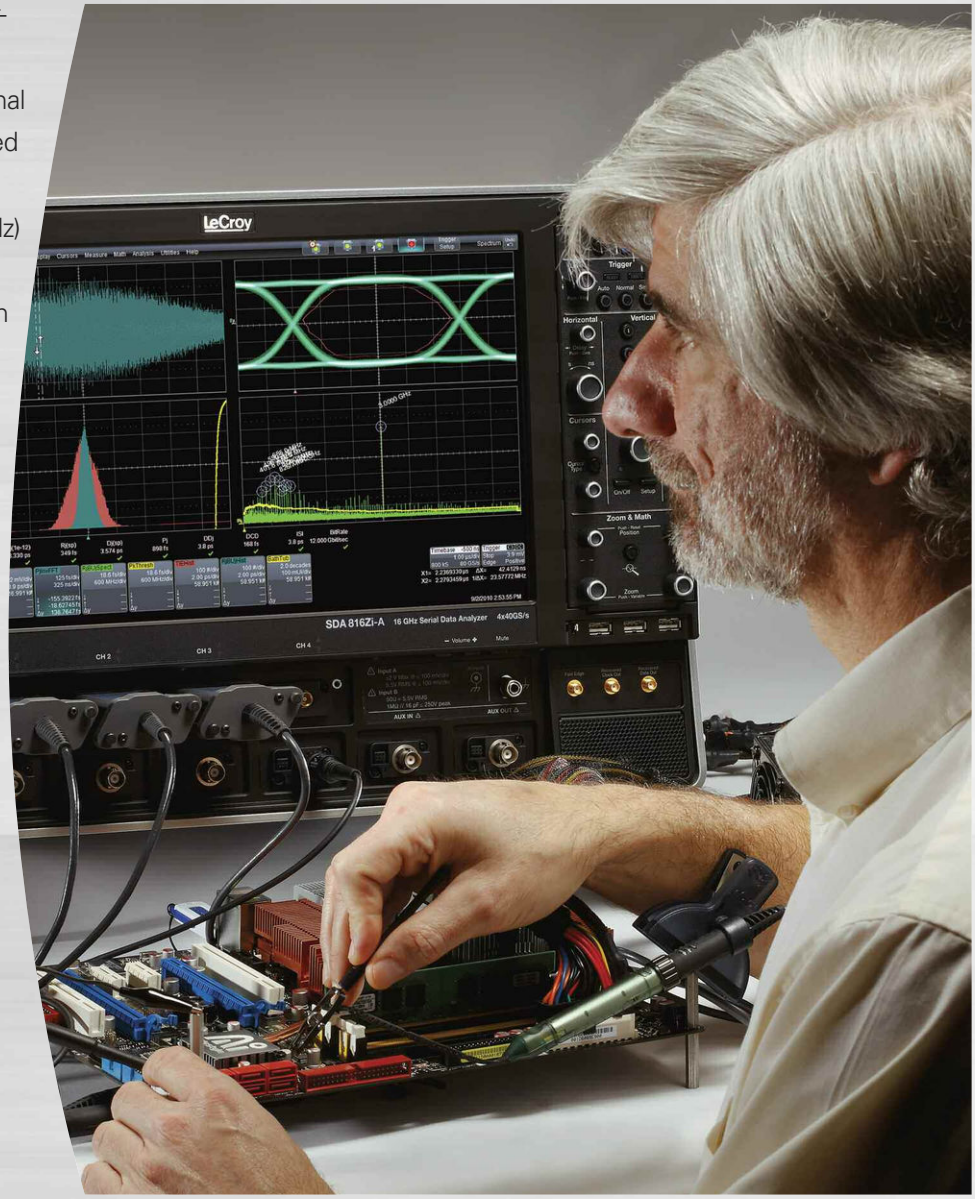
Superior Serial Data Analysis

SDA II Serial Data Analysis Software provides the highest confidence for serial data testing. Eye diagram analysis is 100x faster than other oscilloscopes, and is further enhanced with more and superior analysis and debug tools. Furthermore, all serial data analysis, even when using LeCroy's Eye Doctor™ II Advanced Signal Integrity Tools, can be done on full record lengths so as to better understand low frequency problems and behaviors in serial data systems. Unique jitter decomposition methodologies are provided to better understand crosstalk problems.

THE BEST HIGH BANDWIDTH INVESTMENT

Superior High Bandwidth Performance

As memory and sample rate can be interleaved, so can bandwidth. Using high-performance technologies and digital signal processing (DSP), LeCroy uses high-speed SiGe analog components comfortably within their rated bandwidth range (20+ GHz) while providing additional bandwidth on one or two channels using 6th generation Digital Bandwidth Interleaving (DBI). This approach provides 4 channels at 20 GHz, 2 channels at 30 GHz, and 1 channel at 45 GHz, with better signal fidelity compared to "stretching" of components beyond their rated bandwidth. It also best leverages proven technologies with known and high reliability to minimize up-front purchase costs.



Learn More

http://www.lecroy.com/dl/864

http://www.lecroy.com/dl/2943

http://www.lecroy.com/dl/2960

Proven SiGe Components Ensure High Performance

Silicon Germanium (SiGe) is the most widely adopted and deployed semiconductor fabrication process with many years of commercial deployment.

Additionally, it has none of the thermal conductivity, reliability, yield, cost, and other concerns that captive, in-house processes must contend with.

Lowest Jitter Noise Floor and Highest Timebase Stability

An exceptionally accurate and stable timebase is incorporated for the best possible jitter measurement accuracy—jitter noise floor is as low as 125 fs_{rms}. LeCroy provides highly stable measurements at full (768 Mpts) record lengths, simplifying debug of low frequency events.

Widest Bandwidth Upgrade Range: 4–45 GHz



WaveMaster 820Zi-A

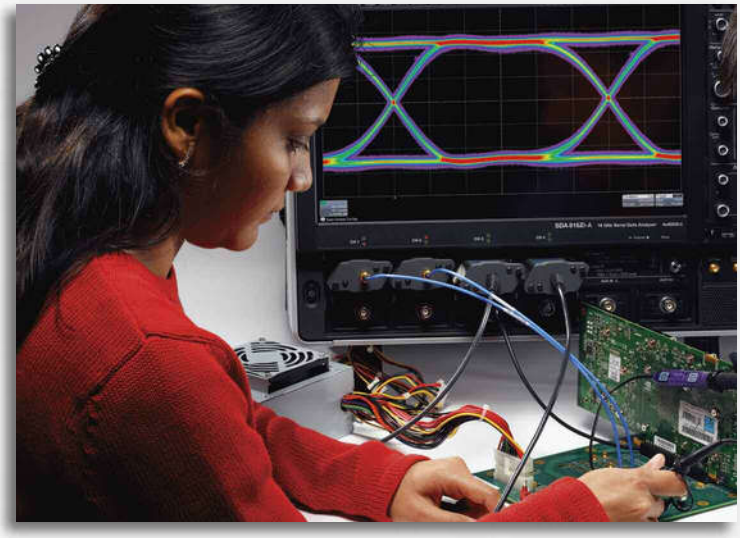
SDA 845Zi-A



All WaveMaster 8 Zi-A oscilloscopes are implemented with a single hardware platform. To extend bandwidth beyond 20 GHz, LeCroy has leveraged DBI technology to minimize initial costs—the module that doubles the bandwidth slides into a separate slot in the WaveMaster 8 Zi-A platform.

Best Investment Protection

From the perspective of bandwidth, sample rate, processing speed, responsiveness, display size, and range of capability, the WaveMaster 8 Zi-A platform is clearly superior and will remain so for many years to come. With the widest bandwidth upgrade range, an engineer who is working on current generation technologies today can confidently know that WaveMaster 8 Zi-A will support the next generations of technology several years from now.



World's Fastest Single-chip ADC

The monolithic 40 GS/s ADC is the fastest single-chip ADC. Compared to other approaches that use multiple ADC chips per channel, or single-chip ADCs with more than 100 interleaved converters, the LeCroy approach is a simpler, more elegant solution for maintaining proper timing, phasing, and offset between the on-chip ADCs. The result is vastly improved spurious free dynamic range (SFDR) compared to other oscilloscopes in its class.

High-speed Memory

Custom high-speed memory chips on multiple memory plug-in cards achieve up to 256 Mpts/Ch (or up to 768 Mpts/Ch interleaved with some models and options). X-Stream II architecture ensures fast and complete processing of full record lengths with no limitations on analysis memory.

X-STREAM II FAST ANALYSIS AND RESPONSIVENESS



Deep Insight for Analysis

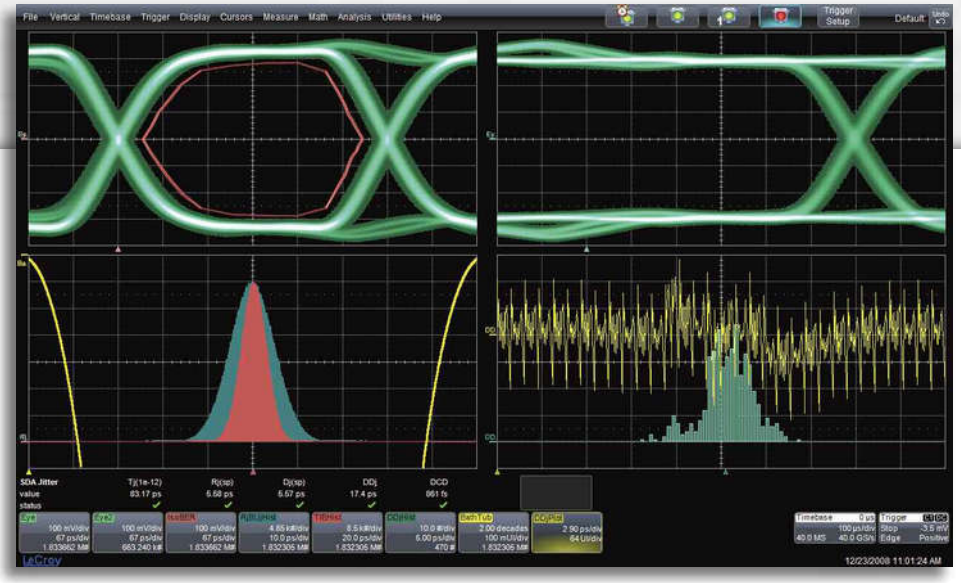
An oscilloscope's operating performance is as important as its electrical performance. The best operating performance comes from a design that seamlessly integrates the operating system, the hardware processor and the waveform processing method. Each component is important but only the LeCroy's X-Stream II waveform processing method unleashes amazing speed performance and no compromise in responsiveness. The result is a drastic reduction in calculation time which, when paired with LeCroy's deep measurement and analysis toolbox, allows an engineer to generate deep insight about their design.

LeCroy—The Analysis Memory Leader

LeCroy has found a way to make long acquisition memory seamless and pain free to use. The WaveMaster 8 Zi-A Series' proprietary X-Stream II architecture supports capturing, zooming, measuring and analyzing multiple waveforms at up to 768 Mpts deep. WaveMaster 8 Zi-A's proprietary architecture design is augmented with an Intel® Core™ 2 Quad processor (12 GHz effective clock rate), high-speed serial data buses, Windows® 7 64-bit OS and 8 GB of RAM. What you experience is processing speed 10–100x faster compared to other oscilloscopes in this class.

Instantaneous Responsiveness

With WaveMaster 8 Zi-A oscilloscopes you will experience remarkable responsiveness. Acquiring and manipulating the longest record lengths and performing the most complex WaveShape Analysis are all easily handled at the same time, unlike competitive oscilloscopes that become painfully slow to respond when long memory is applied. Bottom line: oscilloscopes no longer need to carry a penalty for operating with long memory.



WaveMaster 8 Zi-A excels at performing complex calculations on long waveforms, enabling users to gain waveform insight with confidence. Here, a 40 Mpts PCIe Gen1 waveform acquisition is acquired and fully analyzed in a matter of seconds—nearly 100x faster than competitive oscilloscopes.

Fast Off-line Data Transfer

When the application calls for post-processing data off-line, an optional LeCroy Serial Interface Bus (LSIB) high-speed 325 MB/s option provides data transfer 20–100x faster than any other test instrument. For remote control, WaveMaster 8 Zi-A is Class C compliant with the LXI standard, the latest industry standard for Ethernet remote control operation. WaveMaster 8 Zi-A supports standard LXI features such as a LAN interface, VXI11 Discovery, a web server and IVI-C & IVI-COM drivers.

X-Stream II Architecture

Optimized for Fast Throughput

X-Stream II architecture enables high throughput of data—even when the oscilloscope is performing multiple 100 Mpts (or larger) waveforms. X-Stream II uses variable waveform segment lengths to enable all processing intensive calculations to take place in fast CPU cache memory, thus improving calculation speed and efficiency. The result—10–100x faster processing compared to other oscilloscopes.

Learn More

http://www.lecroy.com/dl/5213

Optimized for Long Memory

X-Stream II has no analysis memory length restrictions, regardless of analysis type, since the variable waveform segment length can always be limited to a size that can fit in CPU cache memory. Other oscilloscopes with conventional architectures cannot make this claim, and often have limitations on analysis memory of 5–20% the length of their acquisition memory under the best conditions.

Optimized for Responsiveness

By dynamically allocating buffers to maximize memory availability, the WaveMaster 8 Zi-A Series embodies the fastest front panel responsiveness. Oscilloscopes from other manufacturers can suffer from annoying delays during simple zoom operations, but not WaveMaster 8 Zi-A.

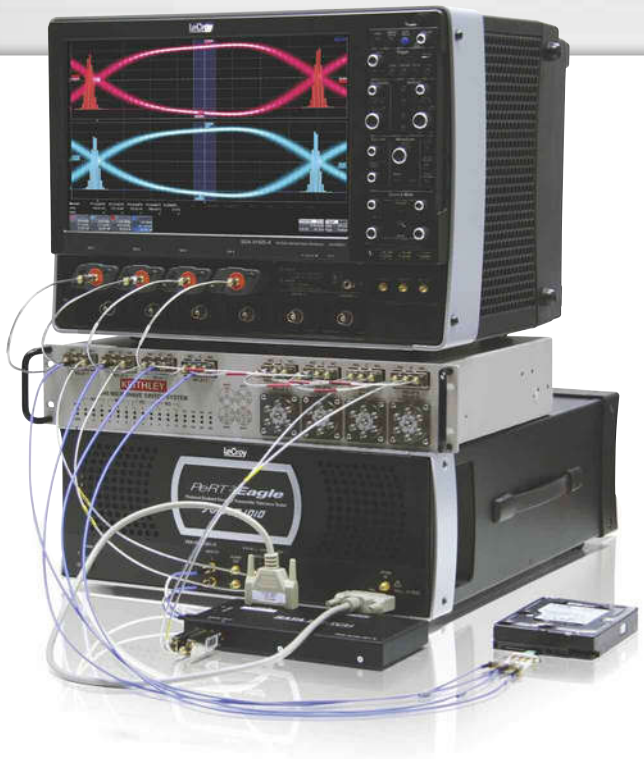
Learn More

http://www.lecroy.com/dl/5214

SERIAL DATA PHYSICAL LAYER COMPLIANCE TESTING

Compliance Testing Key Features

- **Full support for Transmitter, Receiver and Signal Integrity testing**
- **Transmitter Testing (SDA 8 Zi-A Serial Data Analyzer)**
  - **QualiPHY Compliance Test Packages simplify test and reporting**
  - **Connection Diagrams ensure the proper testing configuration**
  - **Report Generation includes all of the testing values and the appropriate limits**
  - **Stimulate the DUT for transmitter testing using the PeRT^3**
- **Receiver Testing (PeRT^3)**
  - **BER Generator & Detector**
  - **Multichannel Operations**
  - **Protocol Support**
  - **Jitter Tolerance Testing**
  - **Integrated Pattern Generator**
  - **Protocol Level Error Detection**
  - **Stress Injection Capable**
  - **SSC Support**
  - **Pre-emphasis**
  - **Input Sensitivity Testing**
- **Impedance Testing (SPARQ)**
  - **SPARQ satisfies numerous transmitter, receiver, cable and fixture compliance testing requirements for standards such as:**
    - **SATA**
    - **USB**
    - **PCI Express**
    - **HDMI**
    - **SAS**
    - **Fibre Channel**
    - **DisplayPort**



The combination of the SDA 8 Zi-A Serial Data Analyzer, the PeRT^3 and the SPARQ provides the most comprehensive solution for serial data compliance testing. These three pieces of equipment enable a full suite of physical layer compliance testing and debugging ability that will guarantee the best signal integrity for your serial data signals.

Transmitter Compliance Testing

The addition of a QualiPHY software option to the SDA 8 Zi-A oscilloscope constitutes the ideal instrument for physical layer compliance testing. QualiPHY reduces the time and effort needed to perform compliance testing on a wide array of high-speed serial buses by automating the process with connection diagrams and a comprehensive report of results including screen-shots. QualiPHY uses all of the powerful oscilloscope features to perform the compliance test quickly and easily.

Receiver Testing

The Protocol Enabled Receiver Transmitter Tolerance Tester (PeRT^3) fills the space between physical layer test and protocol layer test, providing a new, more intelligent capability for performance testing of receivers and transmitters. Designed to meet the test needs of engineers working with serial data transceivers and other high-speed serial data communication systems, the LeCroy PeRT^3 test system is not just a new instrument; it's an entirely new instrument class.

Complete End-to-End Testing

When using the SDA 8 Zi-A oscilloscope for transmitter only testing, the user is still required to stimulate the product under test to output the required test patterns. Likewise, when using the PeRT^3 for receiver only

testing, the specifications require the user to calibrate the jitter output sources prior to performing the receiver test. When combining the SDA 8 Zi-A oscilloscope with the PeRT^3, not only can each of these needs be met, but all of the testing can be automated and included in a single test report.

Automated Compliance Testing for the Following Standards:

- 10/100/1000 BaseT ENET
- USB 2.0
- MIPI D-PHY
- DDR2 / DDR3
- PCI Express
- DisplayPort
- SAS
- HDMI
- UWB
- SATA
- USB 3.0

By utilizing the power of the SDA 8 Zi-A, the PeRT^3 and the SPARQ, the most comprehensive serial data testing can be performed with unparalleled simplicity. Transmitters, receivers, cables and fixtures can all be characterized to ensure compliance.

Signal Integrity Testing

The SPARQ Signal Integrity Network Analyzer performs a wide range of compliance tests, including: Impedance, Return Loss, Impedance Imbalance, Insertion Loss, Crosstalk (Near- and Far-end), Differential-to-common-mode conversion, Common-to-differential-mode conversion, Intra-pair Skew and Voltage Transfer functions. All measurements can be made in differential-mode, common-mode or single-ended, as applicable.

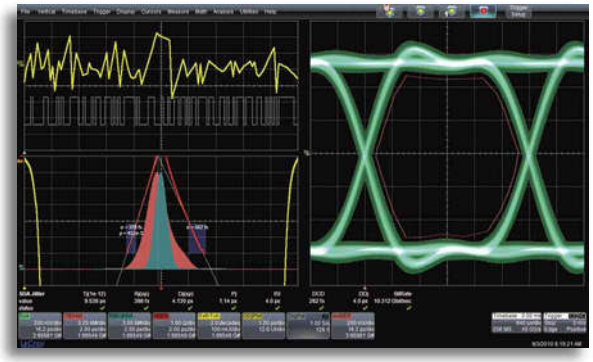
Data Rate Configuration Chart

Standard	Bit Rate	Minimum Bandwidth	Recommended Oscilloscope
PCI Express Gen1	2.5 Gb/s	6 GHz	SDA 808Zi-A or Above
ExpressCard	2.5 Gb/s	8 GHz	SDA 808Zi-A or Above
InfiniBand	2.5 Gb/s	8 GHz	SDA 808Zi-A or Above
Serial Rapid I/O	2.5 Gb/s	8 GHz	SDA 808Zi-A or Above
DisplayPort 1.1	2.7 Gb/s	8 GHz	SDA 808Zi-A or Above
HyperTransport 2.0	2.8 Gb/s	8 GHz	SDA 808Zi-A or Above
SAS Gen1	3 Gb/s	8 GHz	SDA 808Zi-A or Above
Serial Rapid I/O	3.125 Gb/s	8 GHz	SDA 808Zi-A or Above
SGMII	3.125 Gb/s	8 GHz	SDA 808Zi-A or Above
XAUI	3.125 Gb/s	8 GHz	SDA 808Zi-A or Above
FB-DIMM	3.2 Gb/s	8 GHz	SDA 808Zi-A or Above
FireWire	3.2 Gb/s	8 GHz	SDA 808Zi-A or Above
HDMI 1.4	3.4 Gb/s	8 GHz	SDA 813Zi-A or Above
FB-DIMM	4 Gb/s	10 GHz	SDA 813Zi-A or Above
SATA Gen2	3 Gb/s	10 GHz	SDA 808Zi-A or Above
Fibre Channel 4GFC	4.25 Gb/s	13 GHz	SDA 813Zi-A or Above
Serial Rapid I/O	4.25 Gb/s	13 GHz	SDA 813Zi-A or Above
InfiniBand	5 Gb/s	13 GHz	SDA 813Zi-A or Above
PCI Express Gen2	5 Gb/s	13 GHz	SDA 813Zi-A or Above
Serial Rapid I/O	5 Gb/s	13 GHz	SDA 813Zi-A or Above
HyperTransport 3.0	5.2 Gb/s	13 GHz	SDA 813Zi-A or Above
FB-DIMM	4.8 Gb/s	13 GHz	SDA 813Zi-A or Above
USB 3.0	5 Gb/s	13 GHz	SDA 813Zi-A or Above
DisplayPort 1.2	5.4 Gb/s	16 GHz	SDA 816Zi-A or Above
GDDR5	6 Gb/s	16 GHz	SDA 816Zi-A or Above
SAS Gen2	6 Gb/s	16 GHz	SDA 816Zi-A or Above
SATA Gen3	6 Gb/s	16 GHz	SDA 816Zi-A or Above
Serial Rapid I/O	6.25 Gb/s	16 GHz	SDA 816Zi-A or Above
FB-DIMM	6.4 Gb/s	16 GHz	SDA 816Zi-A or Above
HyperTransport 3.1	6.4 Gb/s	16 GHz	SDA 816Zi-A or Above
QPI (Quick Path Interconnect)	6.4 Gb/s	16 GHz	SDA 816Zi-A or Above
FB-DIMM	8 Gb/s	20 GHz	SDA 820Zi-A or Above
PCI Express Gen3	8 Gb/s	20 GHz	SDA 820Zi-A or Above
General	10 Gb/s	25 GHz	SDA 825Zi-A or Above
Serial Rapid I/O	10 Gb/s	25 GHz	SDA 825Zi-A or Above
10 GbE	10.3125 Gb/s	25 GHz	SDA 830Zi-A or Above
General	12 Gb/s	30 GHz	SDA 830Zi-A or Above
General	17–25 Gb/s	30 GHz	SDA 830Zi-A or Above



The SPARQ can perform all serial data compliance tests currently made with TDR or VNA instruments -- only easier.

SDA II – ADVANCED TOOLS TO ISOLATE AND ANALYZE

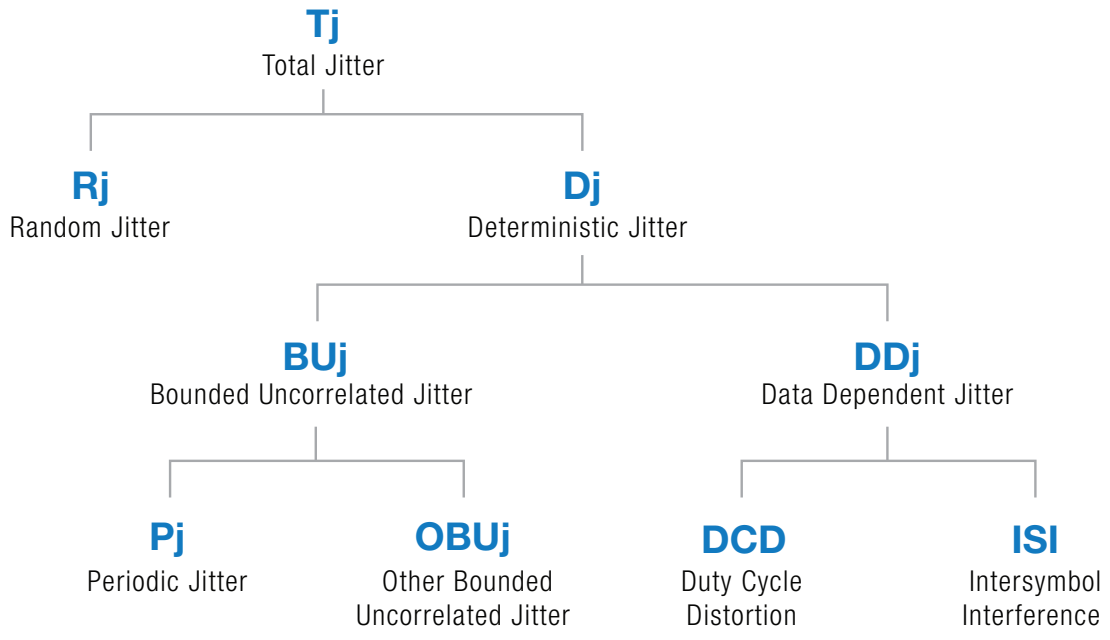


Fastest Way to Gain Insight into Your Serial Data Signals

Unleash the power of serial data analysis for understanding and characterizing your design, proving compliance and understanding why a device or host fails compliance. The X-Stream II Architecture provides fast updates and creates eye diagrams 100 times faster than other instruments. Combined with up to 768 Mpts record lengths and more complete jitter decomposition tools, SDA II provides the fastest and most complete understanding of why serial data fails a compliance test. Whether debugging eye pattern or other compliance test failures, the SDA 8 Zi-A Series rapidly isolates the source of the problem in your design. Advanced jitter decomposition methodologies and tools provide more information about root cause. Tj Analysis, RjBUj Analysis and DDj Analysis is made simple with the deepest toolset dedicated to providing the highest level of insight into your serial data signals.

Jitter Decomposition

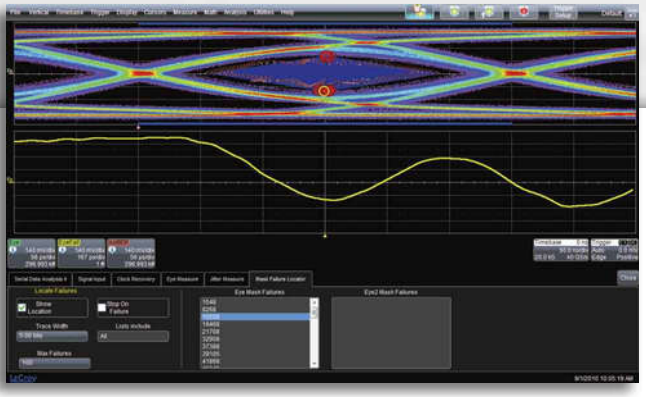
SDA II's toolset allows you to drill down for the deepest levels of insight

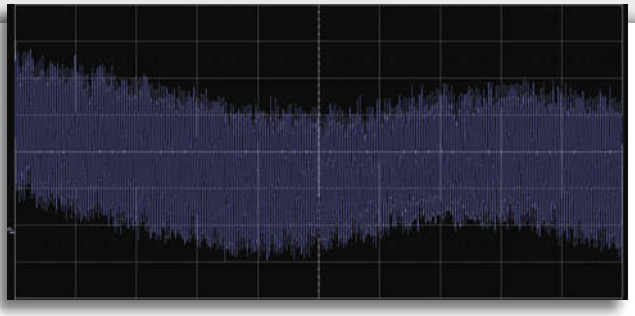




Two Jitter Methodologies

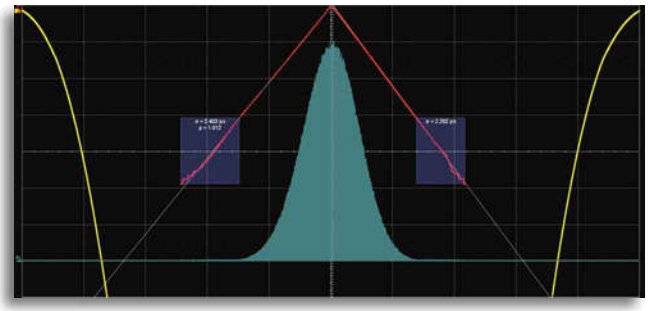
The SDA II analysis package is the only tool to utilize both the industry standard spectral method and the NQ-Scale method for jitter analysis. Despite the fact that it is the industry standard, the spectral method has known limitations. For example, the spectral method makes the assumption that anything that does not appear as a peak in the spectrum is Rj. This is not always the case, and in these cases the spectral method will return incorrect results. The NQ-Scale method consistenly yields correct results even in the cases where the spectral method fails to do so.

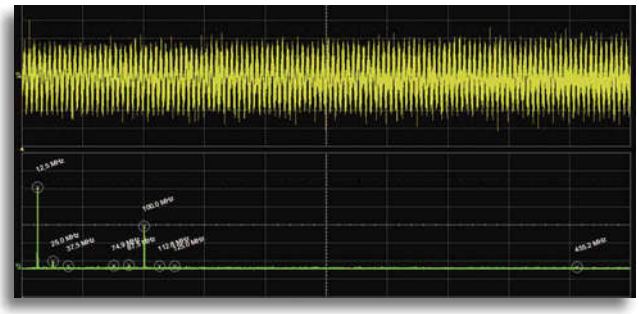




Tj Analysis

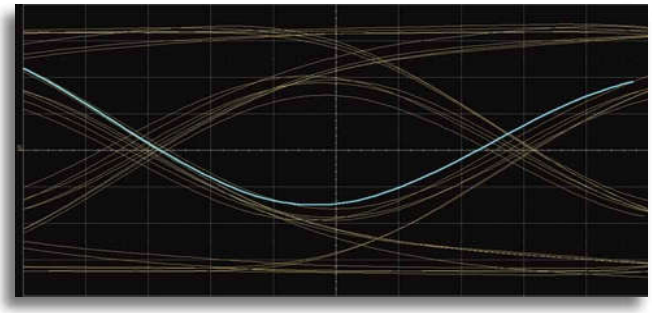
The SDA II analysis package has the deepest toolset for total jitter analysis. Unique tools such as IsoBER, Mask Violation Locator and PLL Track allow you to gain unparalleled insight into your serial data signal.

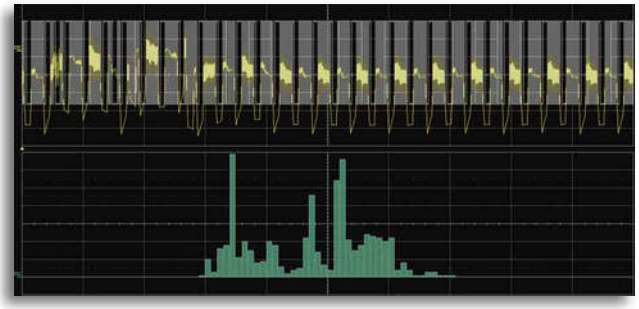




RjBUj Analysis

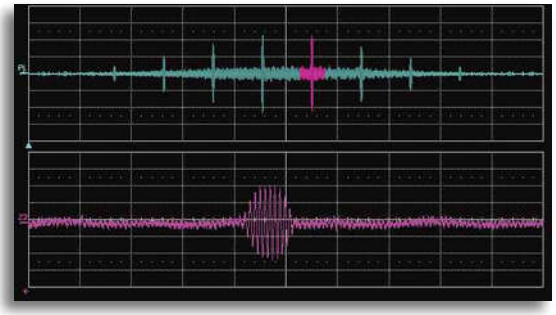
The SDA II analysis package first finds and removes Data Dependent Jitter (DDJ) from the serial data signal. This allows dedicated tools for RjBUj analysis (RjBUj Track, RjBUj Spectrum, RjBUj Histogram) to provide a view into the causes of jitter that are not distorted by the effects of DDj. These tools allow you to drill down directly to the source of your jitter problems that are caused by either random jitter (Rj) or Bounded Uncorrelated Jitter (BUj).





DDj Analysis

By first finding and removing the Data Dependent Jitter (DDj) from the serial data signal, SDA II enables DDj analysis to be performed on your serial data signal. The DDj Plot (with Digital Pattern Overlay), DDj Histogram and ISI Plot are dedicated tools for DDj Analysis that allow you to get to the root cause of jitter problems caused by Data Dependent Jitter.

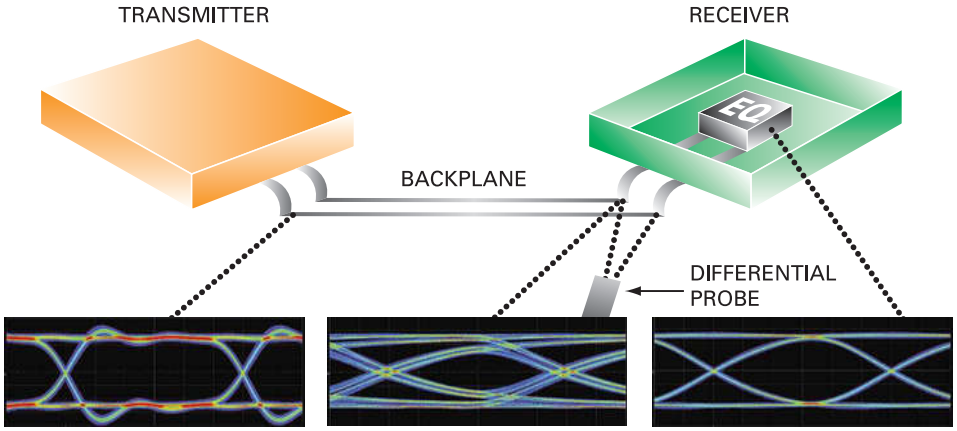


Pj Analysis

A unique feature of the SDA II analysis software is the Pj Inverse FFT function. The tools gives you a new view into your periodic jitter by performing the inverse FFT of only the peaks in the spectrum. This allows you to view your periodic jitter in the time domain which can add additional insight into your jitter problems.

EYE DOCTOR II ADVANCED SIGNAL INTEGRITY TOOLS

As signal speeds and data rates have increased to beyond 5 Gb/s while propagation mediums have remained unchanged, engineers have faced new signal integrity challenges, among these, increased attenuation in the frequencies of interest. These effects were small enough to ignore at lower bit rates, but now these effects must be accounted for to avoid unacceptable intrusion into the design margin or completely unusable measurement results.



Serial data signal probed at the transmitter output shows acceptable response

Losses in the serial data channel affect the signal integrity. This effect can be de-embedded or emulated

The receiver usually applies equalization to "open" the eye. This equalization can be modeled to show how the signal appears to the receiver after equalization is applied

Adding/Removing Pre- or De-emphasis

Transmitter designers sometimes employ the use of emphasis to pre-compensate for these effects. Eye Doctor II can remove de-emphasis or pre-emphasis from a signal measured at the transmitter output. This is useful when attempting to measure the jitter on such a signal in order to remove the DDj introduced by the de-emphasis. Eye Doctor II can also add de-emphasis or pre-emphasis to quantify the compensation necessary for specific serial data channels.

Cable/Fixture/Serial Data Channel De-embedding

In many typical high frequency measurement situations, engineers desire to connect as directly to their signal as possible and avoid the use of probes. However, even high quality test fixtures, channels, and cables have a negative impact on signal quality that increases with higher signal frequency. If the test fixture, channel, or cable can be electrically quantified in terms of S-parameters using LeCroy's SPARQ or another type of network analyzer, then their electrical impact can be removed from the measurement result. The measurement result is then unaltered by the test setup, and the ability to further measure, apply math, or post-process this true measurement using additional tools, such as parameters, math functions, jitter tracks, histograms, eye diagrams, etc. is available.

Serial Data Channel Response Emulation

Most commonly, a design engineer will perform their serial data measurement at the output of the transmitter. However, the engineer may also be interested in referring their measurement to the far side of a particular serial data channel. To accomplish this they could either use a physical channel and make their measurement after the channel or they can use channel emulation to see what their serial data signal would look like if it had been transmitted through the channel. This is particularly useful for some compliance testing.

Receiver Equalization

Finally, the serial data receiver often incorporates equalization to compensate for losses associated with the serial data channel. Losses from the channel can cause the eye to be completely closed at the input of the receiver. Even though a receiver that utilizes equalization would be able to properly decode this signal, the oscilloscope jitter analysis software will not be able to recover a clock from the signal and will not be able to perform any jitter analysis. For this reason, the oscilloscope emulates the different equalizers the engineer's receiver could be using and thus provides the ability to view the eye diagram and jitter performance on the signal as it is actually seen by the specific receiver.

Learn More

http://www.lecroy.com/dl/1023

http://www.lecroy.com/vid/M0T6WEC0JYQ

http://www.lecroy.com/dl/1216

http://www.lecroy.com/dl/1136

SPARQ SIGNAL INTEGRITY NETWORK ANALYZER



The SPARQ signal integrity network analyzers connect directly to the device under test (DUT) and to PC-based software through a single USB connection for quick, multi-port S-parameter measurements.

SPARQ is the ideal instrument for characterizing multi-port devices common in signal integrity applications at a fraction of the cost of traditional methods. It is ideal for:

- **Development of measurement-based simulation models**
- **Design validation**
- **Compliance testing**
- **High-performance TDR**
- **PCB testing**
- **Portable measurement requirements**

High-bandwidth, Multi-port S-parameters for the Masses

S-parameter measurements are most often produced by the vector network analyzer (VNA), a difficult instrument that is beyond many budgets. SPARQ is very affordable and simplifies measurements, making S-parameters accessible to all.

PC-based, Small and Portable

Traditional instruments that produce S-parameters are large and fundamentally stationary. The SPARQ, in contrast, is small and weighs less than 20 lbs. It connects to any standard PC through a USB 2.0 interface, allowing SPARQ to run where computing power is easily upgraded.

S-parameters, Quick

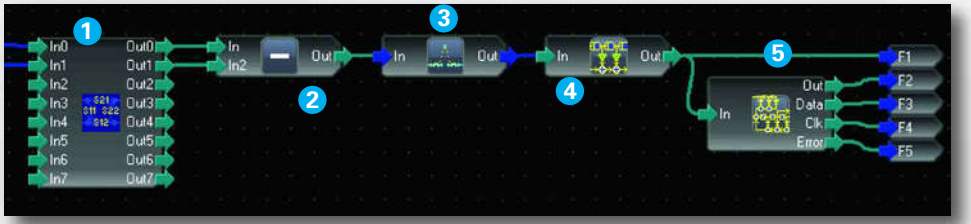
VNA measurements begin with the unpleasant and complex task of calibration. This involves multiple connections that can produce misleading results due to operator error. The SPARQ provides calibrated measurements with a single connection to the DUT and offers simple setup choices. Start and complete the entire measurement with a single button press.

Internal Calibration

SPARQ takes a revolutionary approach to calibration by building in calibration standards. This enables measurements to be made without multiple connection steps and removes the need for additional electronic calibration (ECAL) modules. Calibration proceeds quickly without user intervention, so one can calibrate often without resorting to the use of out-of-date saved calibrations.

Eye Doctor II's Advanced Capabilities

Through the use of Eye Doctor II's advanced capabilities the user can flexibly arrange components to allow any combination of de-embedding or emulation for Virtual Probing™ of any point in the test circuit not otherwise accessible; increase measurement accuracy through the use of a more advanced transmitter and receiver termination model that incorporates customer-specific characteristics; simulate cross-talk with more than one channel; specify multiple outputs and much more.

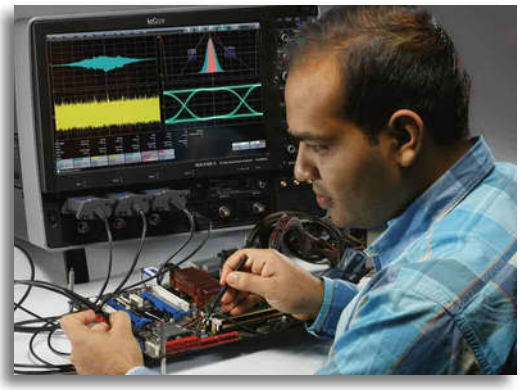


1. Virtual Probe 2. Difference 3. Interpolate 4. Tapped Delay Line Filter 5. Equalized Receiver

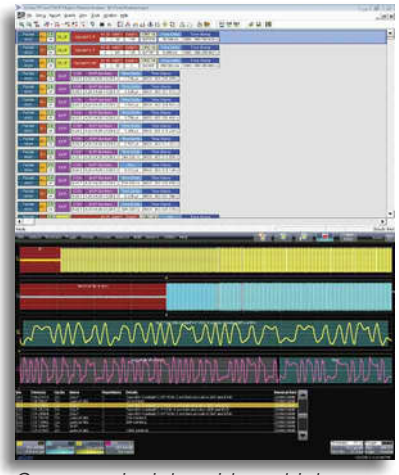
MOST COMPLETE DEBUG SOLUTION FROM 4–45 GHz

Complete System Debug

Understanding the relationships between different signals is vital to fast debug. Only WaveMaster 8 Zi-A combines the best of general purpose oscilloscopes (low-speed serial triggers and decoders, mixed signal capability, high impedance probing) to allow easy correlation between low-speed (serial data control words, power supply noise, or parallel data transmissions) and high speed events.



Capture 5 ms (100 Mpts) of low-speed and high-speed waveforms. Decode low and high speed serial data signals.Easily zoom, and validate timing relationships between signals.



Get more insight with multiple views of your serial data transmissions.

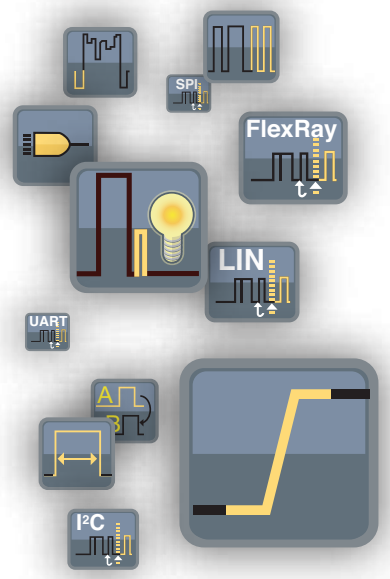
Serial Decode—A Whole New Meaning to Insight

Over 19 different protocols are supported with serial decoders (many with hardware protocol triggers as well). Use ProtoSync with PCIe, USB, SATA, SAS, and Fibre Channel to get a dual-display view of both oscilloscope-generated decode annotations and protocol analyzer software views. Search on protocol data in a table and export table data to an Excel file.

Learn More http://www.lecroy.com/dl/3005

More Trigger Capability Isolates More Problems More Quickly

15 GHz Edge trigger, 10 different SMART triggers, four-stage Cascade™ triggering, Measurement trigger, and TriggerScan™ are all standard and allow you to isolate the problem quickly and begin to focus on the cause. A high-speed serial trigger enables triggering on up to 3.125 Gb/s serial patterns of up to 80-bits in length. A full range of protocol serial triggers (I^2C, SPI, UART, RS-232, Audio (I^2S, LJ, RJ, TDM), CAN, LIN, FlexRay, MIL-STD-1553 and many others) are also available.



Search and Scan to Understand

Search a captured waveform for hundreds of different measurement parameters or other conditions using WaveScan. Set complex conditions, view search results on the waveform and in a table, and quickly zoom and jump to an entry. "Scan" for events that can't be triggered in hardware.

Freedom from Probing Limitations

High bandwidth differential probes (up to 25 GHz), single-ended active probes, current probes, high-voltage, and mixed signals all connect to the WaveMaster 8 Zi-A oscilloscope and give you a total system view. All WaveMaster 8 Zi-A oscilloscopes contain selectable 50 Ω and 1 MΩ input capability and can be used with any LeCroy probe—passive or active—without requiring external adapters or power supplies.

Fully Integrated Mixed Signal Oscilloscope (4+36) Option

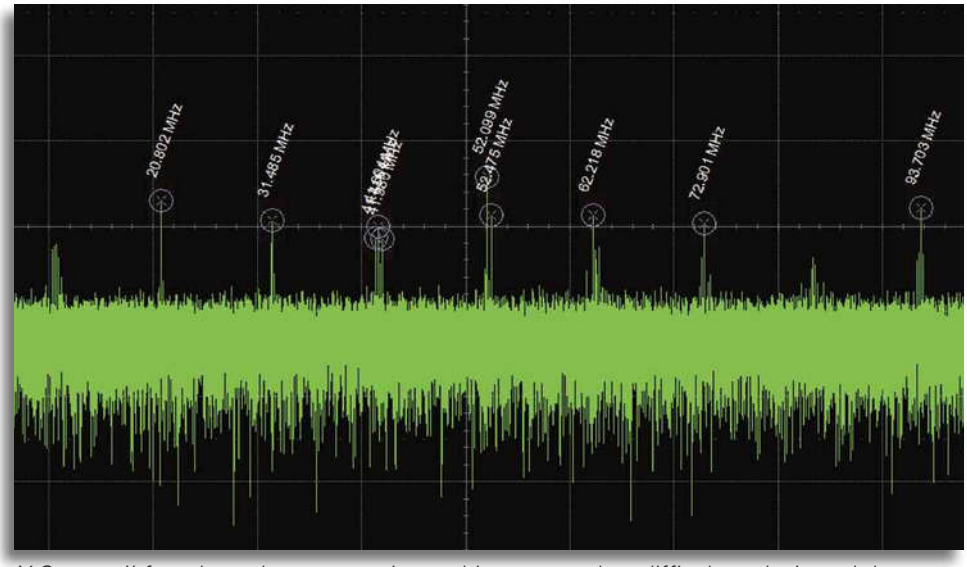
Add Mixed Signal Oscilloscope (MSO) operation using the MS Series mixed signal options to acquire up to 36 digital lines time-correlated with analog waveforms and completely integrated with the scope operation. In addition to acquiring digital lines, they are also helpful for monitoring low-speed signals, such as serial data clock, data, and chip select signals, thus preserving the analog channels for higher speed requirements.



DEEP INSIGHT CLARIFIES COMPLEX SIGNALS

All Oscilloscope Tools are not Created Equal

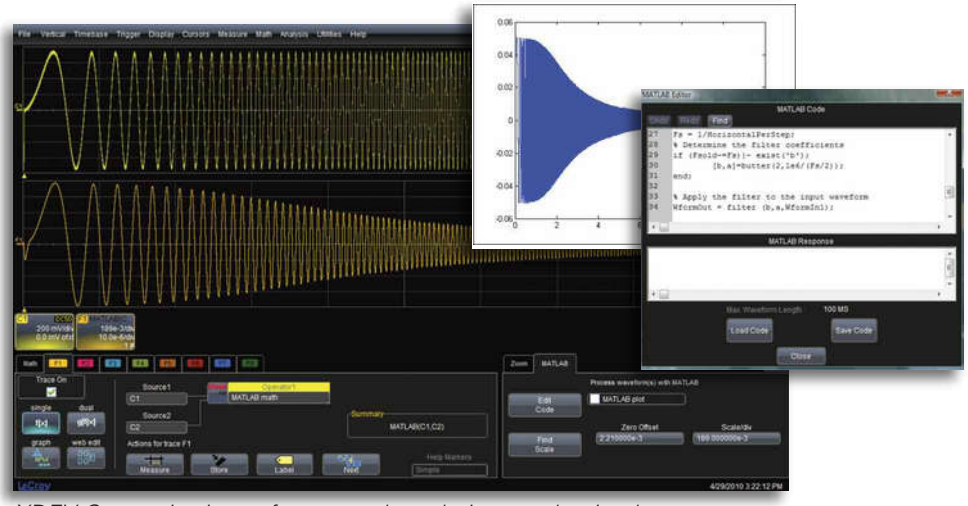
WaveMaster 8 Zi-A has the deepest toolbox of any oscilloscope, providing more measure, math, graphing, statistical, and other tools, and more ways to leverage the tools to get the answer faster. While many other oscilloscopes provide similar looking tools, LeCroy allows the most flexibility in applying the tools to any waveform.



X-Stream II fast throughput streaming architecture makes difficult analysis and deep insight possible. Above, an FFT is applied to a 50 Mpts waveform to determine root cause failure. The high frequency resolution this provides enables deep insight into signal pathologies.

Customized Tools

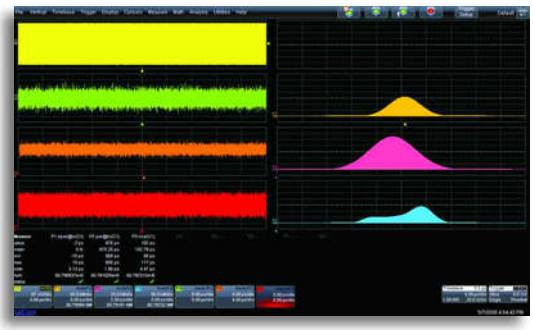
Only LeCroy completely integrates third party programs into the scope's processing stream by allowing you to create and deploy a new measurement or math algorithm directly into the oscilloscope environment and display the result on the oscilloscope in real-time! There is no need to run a separate program, or ever leave the oscilloscope window. Use C/C++, MATLAB, Excel, JScript (JAVA), and Visual Basic to create your own customized math functions, measurement parameters, or other control algorithms.



XDEV Customization software package being used to implement a 1 MHz Butterworth filter using MATLAB®.

Graphical Track, Trend, and Histogram Views

Track plots measurement values on the Y-axis and time on the X-axis to display a measurement change time-correlated to the original channel acquisition—perfect for intuitive understanding of behaviors in frequency modulated (FM) or pulse width modulated (PWM) circuits and jitter measurements, including modulation or spikes. Histograms provide a visual distribution representation of a large sample of measurements, allowing faster insight. Trends are ideal for plotting slow changes in measurement values.



Capture a single clock channel (yellow) and display Track graphs and Histograms simultaneously of multiple jitter parameters.

APPLICATION SPECIFIC SOLUTIONS

In addition to the general purpose WaveShape Analysis tools, application specific solutions are available for Serial Data Compliance, Embedded Design, Digital Design, and Automotive. These packages extend the LeCroy standard measurement and analysis capabilities and expand your oscilloscope's utility as your needs change.

Data Transfer Speeds up to 325 MB/s

LeCroy's Serial Interface Bus (LSIB) option enables direct connection to the PCI Express® x4 high-speed data bus in the oscilloscope to enable data transfer rates up to 325 MB/s—20–100x faster than other methods. All that is required is installation of an optional LSIB card in the oscilloscope and the corresponding host board (card) for desktop (laptop) PC in the remote computer. Data transfer is easily enabled through a supplied application program interface (API).



Double The Display Area

The integrated second touchscreen display (Zi-EXTDISP-15) is ideal for debug as it allows many simultaneous views.

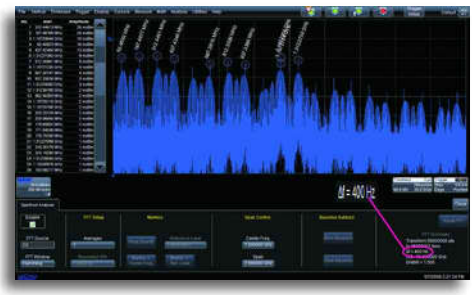
Synchronize Two Oscilloscopes (Zi-8CH-SYNCH)

Quickly and easily combine two oscilloscope acquisition systems into one with captured waveformson a single display for intuitive debug and analysis. Up to 8 channels at 20 GHz, 4 channels at 30 GHz, or 2 channels at 45 GHz may be captured using the Zi-8CH-SYNCH and two 8 Zi-A scopes.



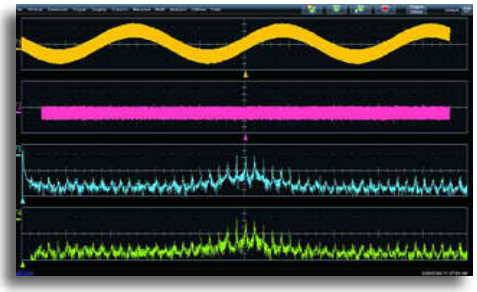
ProtoSync Solutions

ProtoSync links physical layer waveforms, data link layer decode annotation and table information, and full transaction layer protocol analysis together. By simply touching a decode table entry in the oscilloscope software or a packet in the protocol analysis software, all views are automatically synchronized and aligned for quick and easy debug. ProtoSync supports PCIe Gen1/2/3, USB2/3, SATA, SAS, and Fibre Channel.



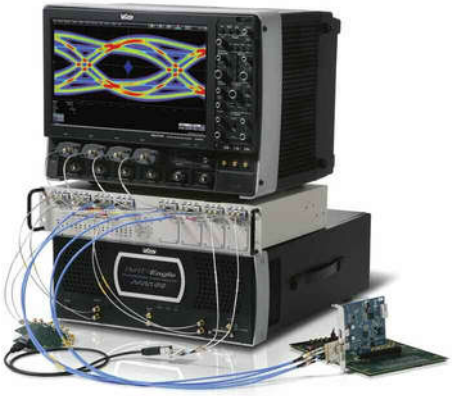
Spectrum Analyzer Analysis Package (WM8Zi-SPECTRUM)

SPECTRUM converts the controls of your oscilloscope to those of a spectrum analyzer. Adjust the frequency span, resolution and center frequency. Apply filtering to your signal and watch the frequency signature change in real time. A unique peak search labels spectral components and presents frequency and level in a table. Touch any line to move to that peak.



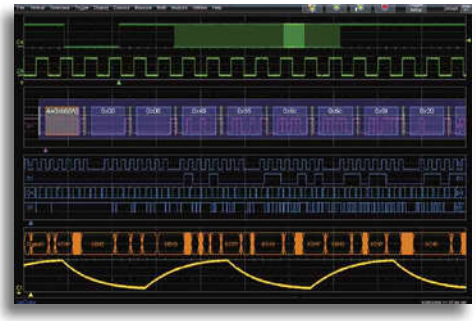
Digital Filter Software Package (WM8Zi-DFP2)

Create and apply a variety of FIR and IIR digital filters to your capture waveforms or processed traces.



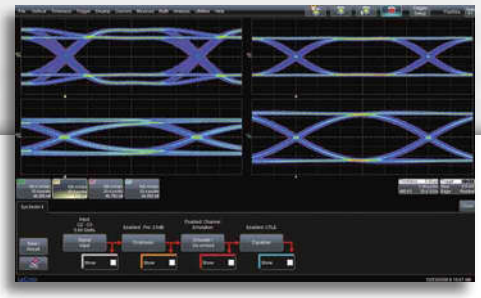
Serial Data Compliance Test Solutions

QualiPHY serial data compliance packages provide easy to use step-by-step instructions for a broad set of serial data standards. With fast automated performance, illustrated instructions and comprehensive reporting capability, QualiPHY packages are the best solution for compliance testing. For standards not supported with QualiPHY compliance packages, jitter and eye diagram test toolsets are generally included in the SDA 8 Zi-A models.



Mixed Signal Oscilloscope Option (MS-250/MS-500)

The Mixed Signal options allow the WaveMaster 8 Zi-A to convert to a mixed signal oscilloscope with up to 36 digital channels with 2 GS/s digital sample rate and 50 Mpts/Ch.



Eye Doctor II—Advanced Signal Integrity Tools (WM8Zi-EYEDRII)

Eye Doctor II Signal Integrity Tools provide the ability to add precision to signal integrity measurements by allowing subtraction of fixture effects and emulation of emphasis, serial data channels and provide for receiver equalization. Advanced modes for true virtual probing are also provided.

Learn More

http://www.lecroy.com/dl/1023

http://www.lecroy.com/vid/M0T6WEC0JYQ

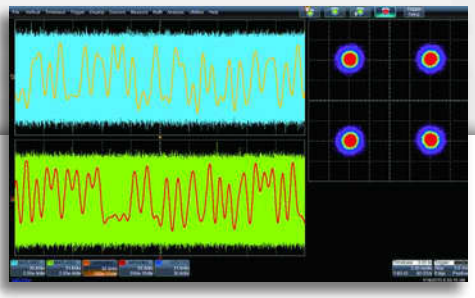
http://www.lecroy.com/dl/1216

http://www.lecroy.com/dl/1136



Serial Data Trigger/Decode and PROTObus MAG Serial Debug Toolkit

More than 19 trigger and decode options provide powerful conditional serial data protocol triggering, intuitive color-coded decode overlays, and a table summary with search and zoom capabilities. Additionally, PROTObus MAG (measure, analysis, graph) Serial Debug Toolkit provides the ability to quickly validate and analyze serial data cause-effect relationships and plot digitally encoded data as an analog waveform.



Optical Coherent Modulation Analysis

For Optical Coherent Modulation analysis at 112 Gb/s (28 GBaud) or higher, LeCroy's 8 Zi-A oscilloscopes are the ideal digital acquisition system. 20 GHz four channel models (820Zi-A) with upgrade paths to 30 or 45 GHz and scope synchronization (Zi-8CH-SYNCH) options are an economical and versatile solution for 28 GBaud testing. For > 28 GBaud testing, LeCroy provides a variety of bandwidth and channel count solutions at 30 to 45 GHz. Consult LeCroy for more details.

Learn More

http://www.lecroy.com/dl/1314

http://www.lecroy.com/dl/3005

HIGH BANDWIDTH PROBING SOLUTIONS

Ultra-wideband Architecture for Superior Signal Fidelity

LeCroy's WaveLink® high bandwidth differential probes utilize advanced differential traveling wave (distributed) amplifier architecture to achieve superior high frequency analog broadband performance.

Highest Bandwidth (25 GHz) Solder-In Lead

Up to 25 GHz Solder-In performance with system (probe + oscilloscope) rise times equal to that of the oscilloscope alone.

Ultra-compact Positioner (Browser) Tip

The most compact positioner tip browser with bandwidth up to 22 GHz makes probing in confined areas easy.

Superior Probe Impedance Minimizes Circuit Loading

Circuit and signal loading is reduced by more than 50% with WaveLink high bandwidth probes compared to



D2505-PS 25 GHz probe system with Solder-In lead and browser positioner tip.

competitive probes. In the mid-band frequency range, the difference is even more apparent.

Superior Signal Fidelity and Lowest Noise

WaveLink has exceptional noise performance. In fact, the combination of the probe and the oscilloscope results in measurement performance that is nearly identical to that of a cable input.

	D1305, D1305-PS	D1605, D1605-PS	D2005, D2005-PS	D2505, D2505-PS
Bandwidth	**Dxx05-SI and Dxx05-PT Tips** 13 GHz	**Dxx05-SI and Dxx05-PT Tips** 16 GHz	**Dxx05-SI and Dxx05-PT Tips** 20 GHz	**Dxx05-SI Lead** 25 GHz **Dxx05-PT Tip** 22 GHz typical 20 GHz guaranteed
Rise Time (10–90%)	**Dxx05-SI and Dxx05-PT Tips** 32.5 ps (typical)	**Dxx05-SI and Dxx05-PT Tips** 28 ps (typical)	**Dxx05-SI and Dxx05-PT Tips** 20 ps (typical)	**Dxx05-SI Lead** 17.5 ps (typical) **Dxx05-PT Tip** 19 ps (typical)
Rise Time (20–80%)	**Dxx05-SI and Dxx05-PT Tips** 24.5 ps (typical)	**Dxx05-SI and Dxx05-PT Tips** 21 ps (typical)	**Dxx05-SI and Dxx05-PT Tips** 15 ps (typical)	**Dxx05-SI Lead** 13 ps (typical) **Dxx05-PT Tip** 14 ps (typical)
Noise (Probe)	< 14 nV/√Hz ($1.6\ mV_{rms}$) (typical)	< 14 nV/√Hz ($1.8\ mV_{rms}$) (typical)	< 18 nV/√Hz ($2.5\ mV_{rms}$) (typical)	< 18 nV/√Hz ($2.8\ mV_{rms}$) (typical)
Input Dynamic Range	$1.6\ V_{pk\text{-}pk}$, ±800 mV (nominal)			
Input Common Mode Voltage Range	±4 V (nominal)			
Input Offset Voltage Range	±2.5 V Differential (nominal)			
Impedance (mid-band, typical)	**Dxx05-SI Lead:** 300 Ω at 6 GHz, 525 Ω at 13 GHz, 600 Ω at 16 GHz, 300 Ω at 20 GHz, 120 Ω at 25 GHz **Dxx05-PT Tip:** 160 Ω at 6 GHz, 450 Ω at 13 GHz, 240 Ω at 16 GHz, 210 Ω at 20 GHz			

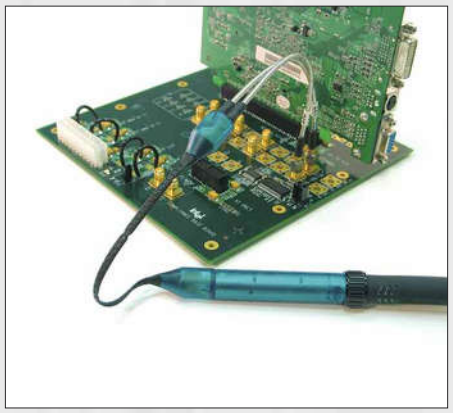


The DA18000 Differential Amplifier

The DA18000 Differential Amplifier is a very high bandwidth DC coupled differential amplifier with a true 100 Ω balanced input. It features high common-mode rejection and low noise. The amplifier has unity gain, to maximize the signal to noise performance when used with the lower amplitude signal voltages common in higher data rate systems.

D13000PS/D11000PS Differential Probe Systems

The D13000PS/D11000PS provides both direct Solder-In and cabled SMA-connector interconnect lead assemblies. The D13000PS also provides SMP cables for additional cabling options.



BROAD RANGE OF PROBING SOLUTIONS

WaveMaster 8 Zi-A oscilloscope support a broad range of probes for a variety of applications.

ZS Series High Impedance Active Probes

- 1 GHz (ZS1000) and 1.5 GHz (ZS1500) bandwidths
- High Impedance (0.9 pF, 1 MΩ)
- Extensive standard and available probe tip and ground connection accessories
- ±12 Vdc offset (ZS1500)
- LeCroy ProBus system



High-Voltage Differential Probes

- 20 MHz and 100 MHz bandwidth
- 1,000 V_{rms} common mode voltage
- 1,400 V_{peak} differential voltage
- EN 61010 CAT III
- 80 dB CMRR at 50/60 Hz
- LeCroy ProBus system



High-Voltage Passive Probes

- Suitable for safe, accurate high-voltage measurements
- 1.2 kV to 20 kV
- Works with any 1 MΩ input oscilloscope



AP031

- Lowest priced differential probe
- 15 MHz bandwidth
- 700 V maximum input voltage
- Works with any 1 MΩ input oscilloscope



Current Probes

- Range of probes from 30 A_{rms} (50 A_{peak}) to 500 A_{rms} (700 A_{peak})
- 2 MHz to 100 MHz bandwidths
- Small form factor accommodates large conductors with small jaw size
- LeCroy ProBus system



WaveLink Differential Probes

- 4 and 6 GHz models
- Excellent noise performance
- ±4 V offset
- ±3 V common mode control
- Solder-In, Browser, Quick Connect, Square Pin, Positioner Tip and HiTemp Cables



ZD Series Differential Probes

- 200 MHz, 500 MHz, 1 GHz and 1.5 GHz bandwidths
- Wide range of probing accessories
- LeCroy ProBus system



SPECIFICATIONS

Vertical System	WaveMaster 804Zi-A (SDA)	WaveMaster 806Zi-A (SDA)	WaveMaster 808Zi-A (SDA)	WaveMaster 813Zi-A (SDA)	WaveMaster 816Zi-A (SDA)	WaveMaster 820Zi-A (SDA, DDA)
Analog Bandwidth @ 50 Ω (-3 dB) (ProLink Input)	4 GHz (≥ 10 mV/div)	6 GHz (≥ 10 mV/div)	8 GHz (≥ 10 mV/div)	13 GHz (≥ 10 mV/div)	16 GHz (≥ 10 mV/div)	20 GHz (≥ 10 mV/div)
Analog Bandwidth @ 50 Ω (-3 dB) (ProBus Input)	3.5 GHz (≥ 10 mV/div)	3.5 GHz (≥ 10 mV/div)	3.5 GHz (≥ 10 mV/div)	3.5 GHz (≥ 10 mV/div)	3.5 GHz (≥ 10 mV/div)	3.5 GHz (≥ 10 mV/div)
Analog Bandwidth @ 1 MΩ (-3 dB) (ProBus Input)	500 MHz (typical, ≥ 2 mV/div)					
Rise Time (10-90%, 50 Ω)	95 ps (test limit, flatness mode)	63 ps (test limit, flatness mode)	49 ps (test limit, flatness mode)	32.5 ps (test limit, flatness mode)	28.5 ps (test limit, flatness mode)	22 ps (test limit, flatness mode)
Rise Time (20-80%, 50 Ω)	71 ps (flatness mode)	47 ps (flatness mode)	37 ps (flatness mode)	24.5 ps (flatness mode)	21.5 ps (flatness mode)	16.5 ps (flatness mode)
Input Channels	4 (Any combination of ProLink and ProBus inputs)					
Bandwidth Limiters	20 MHz, 200 MHz, 1 GHz	20 MHz, 200 MHz, 1 GHz, 4 GHz	20 MHz, 200 MHz, 1 GHz, 4 GHz, 6 GHz	20 MHz, 200 MHz, 1 GHz, 4 GHz, 6 GHz, 8 GHz	20 MHz, 200 MHz, 1 GHz, 4 GHz, 6 GHz, 8 GHz, 13 GHz	20 MHz, 200 MHz, 1 GHz, 4 GHz, 6 GHz, 8 GHz, 13 GHz, 16 GHz
Input Impedance	**ProLink Inputs:** 50 Ω ±2% for ≤ 100 mV/div, 50 Ω ±3% for > 100 mV/div **ProBus Inputs:** 50 Ω ±2% or 1 MΩ ‖ 16 pF, 10 MΩ ‖ 11 pF					
Input Coupling	**ProLink Inputs:** 50 Ω: DC, GND **ProBus Inputs:** 1 MΩ: AC, DC, GND; 50 Ω: DC, GND					
Maximum Input Voltage	**50 Ω (ProLink):** ±2 V max. @ ≤ 100 mV/div, 5.5 V_{rms} @ > 100 mV/div **50 Ω (ProBus):** ±5 V max., 3.5 V_{rms} **1 MΩ (ProBus):** 250 V max. (peak AC: < 10 kHz + DC)					
Channel-Channel Isolation	**DC to 10 GHz:** 50 dB (> 315:1) **10 to 15 GHz:** 46 dB (> 200:1) **15 to 20 GHz:** 40 dB (> 100:1) (For any two ProLink input channels, same or different v/div settings, typical)					

SPECIFICATIONS

Vertical System	WaveMaster 825Zi-A (SDA)	WaveMaster 830Zi-A (SDA, DDA)	WaveMaster 845Zi-A (SDA)
Analog Bandwidth @ 50 Ω (-3 dB) (2.4/2.92 mm input)	25 GHz	30 GHz	45 GHz
Analog Bandwidth @ 50 Ω (-3 dB) (ProLink Input)	20 GHz (≥ 10 mV/div)	20 GHz (≥ 10 mV/div)	20 GHZ (≥ 10 mV/div)
Analog Bandwidth @ 50 Ω (-3 dB) (ProBus Input)	3.5 GHz (≥ 10 mV/div)	3.5 GHz (≥ 10 mV/div)	3.5 GHz (≥ 10 mV/div)
Analog Bandwidth @ 1 MΩ (-3 dB) (ProBus Input)	500 MHz (typical, ≥ 2 mV/div)		
Rise Time (10-90%, 50 Ω)	17.5 ps (test limit, flatness mode)	15.5 ps (test limit, flatness mode)	10.5 ps (test limit, flatness mode)
Rise Time (20-80%, 50 Ω)	13 ps (flatness mode)	11.5 ps (flatness mode)	8.0 ps (flatness mode)
Input Channels	4 (Any combination of 20 GHz ProLink inputs or 3.5 GHz ProBus inputs), 3 (1 @ full BW, 2 with ProLink or ProBus input), or 2 (@ full BW)		4 (Any combination of 20 GHz ProLink inputs or 3.5 GHz ProBus inputs), 3 (1 @ 30 GHz, 2 with either ProLink or ProBus input), 2 at 30 GHz, 1 at 45 GHz
Bandwidth Limiters	For ≤ **20 GHz Mode:** 20 MHz, 200 MHz, 1 GHz, 4 GHz, 6 GHz, 8 GHz, 13 GHz, 16 GHz For > **20 GHz Mode:** 20 GHz	For ≤ **20 GHz Mode:** 20 MHz, 200 MHz, 1 GHz, 4 GHz, 6 GHz, 8 GHz, 13 GHz, 16 GHz For > **20 GHz Mode:** 20 GHz, 25 GHz	For ≤ **20 GHz Mode:** 20 MHz, 200 MHz, 1 GHz, 4 GHz, 6 GHz, 8 GHz, 13 GHz, 16 GHz For **25 and 30 GHz Mode:** 20 GHz, 25 GHz, 30 GHz For **45 GHz Mode:** none
Input Impedance	**2.92 mm Inputs:** 50 Ω ±2% for ≤ 79 mV/div, 50 Ω ±3% for > 79 mV/div **ProLink Inputs:** 50 Ω ±2% for ≤ 100 mV/div, 50 Ω ±3% for > 100 mV/div **ProBus Inputs:** 50 Ω ±2% or 1 MΩ || 16 pF, 10 MΩ || 11 pF with supplied Probe		**2.4/2.92 mm Inputs:** 50 Ω ±2% for ≤ 79 mV/div, 50 Ω ±3% for > 79 mV/div **ProLink Inputs:** 50 Ω ±2% for ≤ 100 mV/div, 50 Ω ±3% for > 100 mV/div **ProBus Inputs:** 50 Ω ±2% or 1 MΩ || 16pF, 10 MΩ || 11 pF with supplied Probe
Input Coupling	**2.92 mm Inputs:** 50 Ω: DC, GND **ProLink Inputs:** 50 Ω: DC, GND **ProBus Inputs:** 1 MΩ: AC, DC, GND; 50 Ω: DC, GND		**2.4/2.92 mm Inputs:** 50 Ω: DC, GND **ProLink Inputs:** 50 Ω: DC, GND **ProBus Inputs:** 1 MΩ: AC, DC, 50 Ω: DC, GND
Maximum Input Voltage	**2.92 mm Inputs:** ±2 Vmax @ ≤ 100mV/div, 5.5 V_{rms} @ > 100mV/div **50 Ω (ProLink):** ±2 Vmax @ ≤ 100mV/div, 5.5 V_{rms} @ > 100mV/div **50 Ω (ProBus):** ±5 Vmax, 3.5 V_{rms} **1 MΩ (ProBus):** 250 Vmax (peak AC: < 10 kHz + DC)		**2.4/2.92 mm Inputs:** ±2 Vmax @ ≤ 100mV/div, 5.5 V_{rms} @ > 100mV/div **50 Ω (ProLink):** ±2 Vmax @ ≤ 100mV/div, 5.5 V_{rms} @ > 100mV/div **50 Ω (ProBus):** ±5 Vmax, 3.5 V_{rms} **1 MΩ (ProBus):** 250 Vmax (peak AC: < 10 kHz + DC)
Channel-Channel Isolation	**DC to 10 GHz:** 50 dB (> 315:1) **10 to 15 GHz:** 46 dB (> 200:1) **15 to 20 GHz:** 40 dB (> 100:1) **20 GHz to Max BW:** 30 dB (> 32:1) (For any two ProLink or 2.92 mm input channels, same or different v/div settings, typical)		

SPECIFICATIONS

Vertical System (con't)	WaveMaster 804Zi-A (SDA)	WaveMaster 806Zi-A (SDA)	WaveMaster 808Zi-A (SDA)	WaveMaster 813Zi-A (SDA)	WaveMaster 816Zi-A (SDA)	WaveMaster 820Zi-A (SDA, DDA)
Vertical Resolution	8-bits up to 11-bits with enhanced resolution (ERES)					
Sensitivity	**50 Ω (ProLink):** 2 mV–1 V/div, fully variable (2–9.9 mV/div via zoom) **50 Ω (ProBus):** 2 mV–1 V/div, fully variable **1 MΩ (ProBus):** 2 mV–10 V/div, fully variable					
DC Vertical Gain Accuracy (Gain Component of DC Accuracy)	±1% F.S. (typical), offset at 0 V; ±1.5% F.S. (test limit), offset at 0 V					
Offset Range	**50 Ω (ProLink):** ±500 mV @ 2–100 mV/div ±4 V @ > 100 mV/div–1 V/div **50 Ω (ProBus):** ±750 mV @ 2–100 mV/div ±4 V @ > 100 mV/div–1 V/div **1 MΩ:** ±1V @ 2–140 mV/div ±10 V @ 142 mV–1.40 V/div ±100 V @ 1.42 V–10 V/div					
DC Vertical Offset Accuracy	±(1.5% of offset setting + 1 mV) (test limit)					

Horizontal System

Timebases	Internal timebase common to 4 input channels					
Time/Division Range	20 ps/div–128 s/div **Real-time Mode:** 20 ps/div–64 s/div; **RIS Mode:** 20 ps/div–10 ns/div, user selectable at ≤ 10ns/div; **Roll Mode:** 100 ms/div up to 128 s/div, user selectable at ≥ 100 ms/div and ≤ 5 MS/s), depending on memory length					
Clock Accuracy	< 1 ppm + (aging of 0.5 ppm/yr from last calibration)					
Time Interval Accuracy	< 0.06 / SRS + (clock accuracy* Reading) (rms)					
Jitter Noise Floor	For Acq. Length ≤ 10 µs: 550 fs_{rms} (TIE, typical) For Acq. Length > 10 µs: 600 fs_{rms} (TIE, typical)	For Acq. Length ≤ 10 µs: 425 fs_{rms} (TIE, typical) For Acq. Length > 10 µs: 475 fs_{rms} (TIE, typical)	For Acq. Length ≤ 10 µs: 375 fs_{rms} (TIE, typical) For Acq. Length > 10 µs: 425 fs_{rms} (TIE, typical)	For Acq. Length ≤ 10 µs: 265 fs_{rms} (TIE, typical) For Acq. Length > 10 µs: 315 fs_{rms} (TIE, typical)	For Acq. Length ≤ 10 µs: 240 fs_{rms} (TIE, typical) For Acq. Length > 10 µs: 290 fs_{rms} (TIE, typical)	For Acq. Length ≤ 10 µs: 190 fs_{rms} (TIE, typical) For Acq. Length > 10 µs: 240 fs_{rms} (TIE, typical)
Trigger and Interpolator Jitter	< 0.1 ps_{rms} (typical, software assisted), 2 ps_{rms} (typical, hardware)					
Channel-Channel Deskew Range	±9 x time/div. setting or 25 ns max. (whichever is larger), each channel					
External Timebase Reference (Input)	10 MHz; 50 Ω impedance, applied at the rear input					
External Timebase Reference (Output)	10 MHz; 50 Ω impedance, output at the rear					
Single-Shot Sample Rate/Ch	40 GS/s on 4 Ch (80 GS/s on 2 Ch using optional WM8Zi-2X80GS External Interleaving Device)					
Random Interleaved Sampling (RIS)	200 GS/s for repetitive signals (20 ps/div to 10 ns/div)					

SPECIFICATIONS

Vertical System (con't)	WaveMaster 825Zi-A (SDA)	WaveMaster 830Zi-A (SDA, DDA)	WaveMaster 845Zi-A (SDA)
Vertical Resolution	8-bits up to 11-bits with enhanced resolution (ERES)		
Sensitivity	**50 Ω (2.92 mm):** 10 mV–500 mV/div, fully variable **50 Ω (ProLink):** 2 mV–1 V/div, fully variable (2–9.9 mV/div via zoom) **50 Ω (ProBus):** 2 mV–1 V/div, fully variable **1 MΩ (ProBus):** 2 mV–10 V/div, fully variable		**50 Ω (2.4/2.92 mm):** 10 mV–500 mV/div, fully variable **50 Ω (ProLink):** 2 mV–1 V/div, fully variable (2–9.9 mV/div via zoom) **50 Ω (ProBus):** 2 mV–1 V/div, fully variable **1 MΩ (ProBus):** 2 mV–10 V/div, fully variable
DC Vertical Gain Accuracy (Gain Component of DC Accuracy)	±1% F.S. (typical), offset at 0 V; ±1.5% F.S. (test limit), offset at 0 V		
Offset Range	**50 Ω (2.92 mm):** ±500 mV @ 2–79 mV/div ±4 V @ 80 mV/div–500 mV/div **50 Ω (ProLink):** ±500 mV @ 2–100 mV/div ±4 V @ >100 mV/div–1 V/div **50 Ω (ProBus):** ±750 mV @ 2–100 mV/div ±4 V @ >100 mV/div–1 V/div **1 MΩ:** ±1 V @ 2–128 mV/div ±10 V @ 130 mV–1.28 V/div ±100 V @ 1.3 V–10 V/div		**50 Ω (2.4/2.92 mm):** ±500 mV @ 2–79 mV/div ±4 V @ 80 mV/div–500 mV/div **50 Ω (ProLink):** ±500 mV @ 2–100 mV/div ±4 V @ >100 mV/div–1 V/div **50 Ω (ProBus):** ±750 mV @ 2–100 mV/div ±4 V @ > 100 mV/div–1 V/div **1 MΩ:** ±1V @ 2–128 mV/div ±10 V @ 130 mV–1.28 V/div ±100 V @ 1.3 V–10 V/div
DC Vertical Offset Accuracy	±(1.5% of offset setting + 1 mV) (test limit)		

Horizontal System

Time bases	Internal timebase common to 4 input channels		
Time/Division Range	**For ≥ 25 GHz Mode:** Real-time Mode: 20 ps/div–6.4 ms/div, depending on memory length **For ≤ 20 GHz Mode:** (Real-time Mode: 20 ps/div–64 s/div; RIS Mode: 20 ps/div–10 ns/div, user selectable at ≤10 ns/div; Roll Mode: 100 ms/div up up to 128 s/div, user selectable at ≥ 100 ms/div and ≤ 5 MS/s), depending on memory length		
Clock Accuracy	< 1 ppm + (aging of 0.5 ppm/yr from last calibration)		
Time Interval Accuracy	< 0.06 / SRS + (clock accuracy* Reading) (rms)		
Jitter Noise Floor	For Acq. Length ≤ 10 µs: 165 fs_{rms} (TIE, typical) For Acq. Length > 10 µs: 215 fs_{rms} (TIE, typical)	For Acq. Length ≤ 10 µs: 140 fs_{rms} (TIE, typical) For Acq. Length > 10 µs: 190 fs_{rms} (TIE, typical)	For Acq. Length ≤ 10 µs: 125 fs_{rms} (TIE, typical) For Acq. Length > 10 µs: 175 fs_{rms} (TIE, typical)
Trigger and Interpolator Jitter	< 0.1 ps_{rms} (typical, software assisted), 2 ps_{rms} (typical, hardware)		
Channel-Channel Deskew Range	±9 x time/div. setting or 25 ns max. (whichever is larger), each channel		
External Timebase Reference (Input)	10 MHz; 50 Ω impedance, applied at the rear input		
External Timebase Reference (Output)	10 MHz; 50 Ω impedance, output at the rear		
Single-Shot Sample Rate/Ch	40 GS/s on 4 Ch (80 GS/s on 2 Ch when operated in ≥ 25 GHz Mode)		40 GS/s on 4 Ch (80 GS/s on 2 Ch when operated in ≥ 25 GHz Mode), 120 GS/s on 1 Ch when operated
Random Interleaved Sampling (RIS)	For ≥ **25 GHz Mode:** Not applicable For < **25 GHz Mode:** 200 GS/s for repetitive signals (20 ps/div to 10 ns/div)		

SPECIFICATIONS

Acquistion System	WaveMaster 804Zi-A (SDA)	WaveMaster 806Zi-A (SDA)	WaveMaster 808Zi-A (SDA)	WaveMaster 813Zi-A (SDA)	WaveMaster 816Zi-A (SDA)	WaveMaster 820Zi-A (SDA, DDA)
Maximum Trigger Rate	1,000,000 waveforms/second (in Sequence Mode, up to 4 channels)					
Intersegment Time	1 µs					
Maximum Acquisition Memory Points/Ch (4 Ch / 2 Ch)						
Standard Memory (4 Ch/2 Ch/1 Ch)	20M / 20M / 20M (32M / 32M / 32M) 2000					
Memory Options 4 Ch/2 Ch/1 Ch (Number of Segments)	**S-32 Option:** 32M / 32M / 32M (7,500) **M-64 Option**: 64M / 64M / 64M (15,000) **L-128 Option:** 128M / 128M / 128M (15,000) **VL-256 Option:** 256M / 256M / 256M (15,000) Note: On all memory options, WM8Zi-2X80GS External Interleaving Device permits 80 GS/s on 1 or 2 Ch with twice the memory)					

Acquisition Processing

Averaging	Summed averaging to 1 million sweeps continuous averaging to 1 million sweeps
Enhanced Resolution (ERES)	From 8.5 to 11 bits vertical resolution
Envelope (Extrema)	Envelope, floor, or roof for up to 1 million sweeps
Interpolation	Linear or Sin x/x

Triggering System

Modes	Normal, Auto, Single, and Stop					
Sources	Any input channel, Aux, Aux/10, Line, or Fast Edge. Slope and level unique to each source (except line trigger)					
Coupling Mode	DC, AC, HFRej, LFRej					
Pre-trigger Delay	0–100% of memory size (adjustable in 1% increments of 100 ns)					
Post-trigger Delay	0–10,000 divisions in real time mode, limited at slower time/div settings or in roll mode					
Hold-off by Time or Events	From 2 ns up to 20 s or from 1 to 99,999,999 events					
Internal Trigger Range	±4.1 div from center					
Trigger Sensitivity with Edge Trigger (Ch 1–4) 2.92 mm Inputs	Not Applicable					
Trigger Sensitivity with Edge Trigger (Ch 1–4) ProBus Inputs	2 div @ < 3.5 GHz 1.5 div @ < 1.75 GHz 1.0 div @ < 200 MHz (for DC, coupling, ≥ 10 mV/div, 50 Ω)					
Trigger Sensitivity with Edge Trigger (Ch 1–4) ProLink Inputs	2 div @ < 4 GHz 1.5 div @ < 3 GHz 1.0 div @ < 200 MHz (for DC, coupling, ≥ 10 mV/div, 50 Ω)	2 div @ < 6 GHz 1.5 div @ < 3 GHz 1.0 div @ < 200 MHz (for DC, coupling, ≥ 10 mV/div, 50 Ω)	2 div @ < 8 GHz 1.5 div @ < 3 GHz 1.0 div @ < 200 MHz (for DC, coupling, ≥ 10 mV/div, 50 Ω)	3 div @ < 13 GHz 1.5 div @ < 3 GHz 1.0 div @ < 200 MHz (for DC, coupling, ≥ 10 mV/div, 50 Ω)	3 div @ < 15 GHz 1.5 div @ < 3 GHz 1.0 div @ < 200 MHz (for DC, coupling, ≥ 10 mV/div, 50 Ω)	3 div @ < 15 GHz 1.5 div @ < 3 GHz 1.0 div @ < 200 MHz (for DC, coupling, ≥ 10 mV/div, 50 Ω)
External Trigger Sensitivity (Edge Trigger)	2 div @ < 1 GHz 1.5 div @ < 500 MHz 1.0 div @ < 200 MHz (for DC, coupling)					

SPECIFICATIONS

Acquisition System	WaveMaster 825Zi-A (SDA)	WaveMaster 830Zi-A (SDA, DDA)	WaveMaster 845Zi-A (SDA)
Maximum Trigger Rate	1,000,000 waveforms/second (in Sequence Mode, up to 4 channels)		
Intersegment Time	1 µs		
Maximum Acquisition Memory Points/Ch (4 Ch / 2 Ch)			
Standard Memory (4 Ch/2 Ch/1 Ch)	40M / 40M / 40M (64M / 64M / 64M) (1000)		
Memory Options 4 Ch/2 Ch/1 Ch (Number of Segments)	**S-32 Option:** 64M / 64M / 64M (3,500) **M-64 Option:** 128M / 128M / 128M (7,500) **L-128 Option:** 256M / 256M / 256M (15,000) **VL-256 Option:** 512M / 512M / 512M (15,000) Note: In ≤ 20 GHz Modes, reference memory specification for WaveMaster 820Zi-A.		**S-32 Option:** 96M / 96M / 96M (3,500) **M-64 Option**: 192M / 192M / 192M (7,500) **L-128 Option:** 384M / 384M / 384M (15,000) **VL-256 Option:** 768M / 768M / 768M (15,000) Note: In ≤ 30 GHz or ≤ 20 GHz Modes, reference memory specification for WaveMaster 830Zi-A and 820Zi-A respectively.

Acquisition Processing

Averaging	Summed averaging to 1 million sweeps continuous averaging to 1 million sweeps
Enhanced Resolution (ERES)	From 8.5 to 11-bits vertical resolution
Envelope (Extrema)	Envelope, floor, or roof for up to 1 million sweeps
Interpolation	Linear or Sin x/x

Triggering System

Modes	Normal, Auto, Single, and Stop
Sources	Any input channel, Aux, Aux/10, Line, or Fast Edge. Slope and level unique to each source (except line trigger)
Coupling Mode	DC, AC, HFRej, LFRej
Pre-trigger Delay	0–100% of memory size (adjustable in 1% increments of 100 ns)
Post-trigger Delay	0–10,000 divisions in real time mode, limited at slower time/div settings or in roll mode
Hold-off by Time or Events	From 2 ns up to 20 s or from 1 to 99,999,999 events
Internal Trigger Range	±4.1 div from center
Trigger Sensitivity with Edge Trigger (Ch 1–4) 2.92 mm Inputs	3 div @ < 15 GHz 1.5 div @ < 3 GHz
Trigger Sensitivity with Edge Trigger (Ch 1–4) ProBus Inputs	2 div @ < 3.5 GHz 1.5 div @ < 1.75 GHz 1.0 div @ < 200 MHz (for DC, coupling, ≥ 10 mV/div, 50 Ω)
Trigger Sensitivity with Edge Trigger (Ch 1–4) ProLink Inputs	3 div @ < 15 GHz 1.5 div @ < 3 GHz 1.0 div @ < 200 MHz (for DC, coupling, ≥ 10 mV/div, 50 Ω)
External Trigger Sensitivity (Edge Trigger)	2 div @ < 1 GHz 1.5 div @ < 500 MHz 1.0 div @ < 200 MHz (for DC, coupling)

SPECIFICATIONS

Triggering System (con't)	WaveMaster 804Zi-A (SDA)	WaveMaster 806Zi-A (SDA)	WaveMaster 808Zi-A (SDA)	WaveMaster 813Zi-A (SDA)	WaveMaster 816Zi-A (SDA)	WaveMaster 820Zi-A (SDA, DDA)
Max. Trigger Frequency, SMART Trigger	2.0 GHz @ ≥ 10 mV/div (minimum triggerable width 200 ps)					
External Trigger Input Range	Aux (±0.4 V); Aux/10 (±4 V)					

Basic Triggers

Edge	Triggers when signal meets slope (positive, negative, or either) and level condition
Window	Triggers when signal exits a window defined by adjustable thresholds
TV-Composite Video	Triggers NTSC or PAL with selectable line and field HDTV (720p, 1080i, 1080p) with selectable frame rate (50 or 60 Hz) and Line or CUSTOM with selectable Fields (1–8), Lines (up to 2000), Frame Rates (25, 30, 50, or 60 Hz), Interlacing (1:1, 2:1, 4:1, 8:1), or Synch Pulse Slope (Positive or Negative).

SMART Triggers™

State or Edge Qualified	Triggers on any input source only if a defined state or edge occurred on another input source. Holdoff between sources is selectable by time or events
Qualified First	In Sequence acquisition mode, triggers repeatably on event B only if a defined pattern, state, or edge (event A) is satisfied in the first segment of the acquisition. Holdoff between sources is selectable by time or events.
Dropout	Triggers if signal drops out for longer than selected time between 1 ns and 20 s
Pattern	Logic combination (AND, NAND, OR, NOR) of 5 inputs (4 channels and external trigger input). Each source can be high, low, or don't care. The High and Low level can be selected independently. Triggers at start or end of the pattern.

SMART Triggers with Exclusion Technology

Glitch	Triggers on positive or negative glitches with widths selectable as low as 200 ps to 20 s, or on intermittent faults
Width (Signal or Pattern)	Triggers on positive, negative, or both widths with widths selectable as low as 200 ps to 20 s, or on intermittent faults
Interval (Signal or Pattern)	Triggers on intervals selectable between 1 ns and 20 s
Timeout (State/Edge Qualified)	Triggers on any source if a given state (or transition edge) has occurred on another source. Holdoff between sources is 1 ns to 20 s, or 1 to 99,999,999 events
Runt	Trigger on positive or negative runts defined by two voltage limits and two time limits. Select between 1 ns and 20 ns
Slew Rate	Trigger on edge rates. Select limits for dV, dt, and slope. Select edge limits between 1 ns and 20 ns
Exclusion Triggering	Trigger on intermittent faults by specifying the expected behavior and triggering when that condition is not met

Cascade (Sequence) Triggering

Capability	Arm on "A" event, then Trigger on "B" event. Or Arm on "A" event, then Qualify on "B" event, and Trigger on "C" event. Or Arm on "A" event, then Qualify on "B" then "C" event, and Trigger on "D" event
Types	A, B, C, or D event: Edge, Glitch, Width, Window, Dropout, Interval, Runt, Slew Rate, or Pattern (analog)
Holdoff	Holdoff between A and B, B and C, C and D, are all selectable by time or number of events
Reset	Reset between A and B, B and C, C and D, are all selectable in time or number of events

High-speed Serial Protocol Triggering (Option WM8Zi-HSPT, standard on SDA Models)

Data Rates	100 Mb/s–2.7 Gb/s, 3.0, 3.125 Gb/s
Pattern Length	80-bits, NRZ or 8b/10b
Clock and Data Outputs	400 mV_{p-p} (typical) AC coupled
Clock Recovery Jitter	2 ps rms + 0.3% Unit Interval rms for PRBS data patterns with 50% transition density (typical)
Hardware Clock Recovery Loop BW	PLL Loop BW = Fbaud/5500, 100 Mb/s to 2.488 Gb/s (typical)

Color Waveform Display

Type	Color 15.3" flat panel TFT-Active Matrix LCD with high resolution touch screen
Resolution	WXGA; 1280 x 768 pixels.
Number of Traces	Display a maximum of 8 traces. Simultaneously display channel, zoom, memory and math traces
Grid Styles	Auto, Single, Dual, Quad, Octal, X-Y, Single+X-Y, Dual+X-Y
Waveform Representation	Sample dots joined, or sample dots only

SPECIFICATIONS

Triggering System (con't)	WaveMaster 825Zi-A (SDA)	WaveMaster 830Zi-A (SDA, DDA)	WaveMaster 845Zi-A (SDA)
Max. Trigger Frequency, SMART Trigger	2.0 GHz @ ≥ 10 mV/div (minimum triggerable width 200 ps)		
External Trigger Input Range	Aux (±0.4 V); Aux/10 (±4 V)		

Basic Triggers

Edge	Triggers when signal meets slope (positive, negative, or either) and level condition
Window	Triggers when signal exits a window defined by adjustable thresholds
TV-Composite Video	Triggers NTSC or PAL with selectable line and field HDTV (720p, 1080i, 1080p) with selectable frame rate (50 or 60 Hz) and Line or CUSTOM with selectable Fields (1–8), Lines (up to 2000), Frame Rates (25, 30, 50, or 60 Hz), Interlacing (1:1, 2:1, 4:1, 8:1), or Synch Pulse Slope (Positive or Negative).

SMART Triggers™

State or Edge Qualified	Triggers on any input source only if a defined state or edge occurred on another input source. Holdoff between sources is selectable by time or events
Qualified First	In Sequence acquisition mode, triggers repeatably on event B only if a defined pattern, state, or edge (event A) is satisfied in the first segment of the acquisition. Holdoff between sources is selectable by time or events.
Dropout	Triggers if signal drops out for longer than selected time between 1 ns and 20 s
Pattern	Logic combination (AND, NAND, OR, NOR) of 5 inputs (4 channels and external trigger input). Each source can be high, low, or don't care. The High and Low level can be selected independently. Triggers at start or end of the pattern.

SMART Triggers with Exclusion Technology

Glitch	Triggers on positive or negative glitches with widths selectable as low as 200 ps to 20 s, or on intermittent faults
Width (Signal or Pattern)	Triggers on positive, negative, or both widths with widths selectable as low as 200 ps to 20 s, or on intermittent faults
Interval (Signal or Pattern)	Triggers on intervals selectable between 1 ns and 20 s
Timeout (State/Edge Qualified)	Triggers on any source if a given state (or transition edge) has occurred on another source. Holdoff between sources is 1 ns to 20 s, or 1 to 99,999,999 events
Runt	Trigger on positive or negative runts defined by two voltage limits and two time limits. Select between 1 ns and 20 ns
Slew Rate	Trigger on edge rates. Select limits for dV, dt, and slope. Select edge limits between 1 ns and 20 ns
Exclusion Triggering	Trigger on intermittent faults by specifying the expected behavior and triggering when that condition is not met

Cascade (Sequence) Triggering

Capability	Arm on "A" event, then Trigger on "B" event. Or Arm on "A" event, then Qualify on "B" event, and Trigger on "C" event. Or Arm on "A" event, then Qualify on "B" then "C" event, and Trigger on "D" event
Types	A, B, C, or D event: Edge, Glitch, Width, Window, Dropout, Interval, Runt, Slew Rate, or Pattern (analog)
Holdoff	Holdoff between A and B, B and C, C and D, are all selectable by time or number of events
Reset	Reset between A and B, B and C, C and D, are all selectable in time or number of events

High-speed Serial Protocol Triggering (Option WM8Zi-HSPT, standard on SDA Models)

Data Rates	100 Mb/s–2.7 Gb/s, 3.0, 3.125 Gb/s
Pattern Length	80-bits, NRZ or 8b/10b
Clock and Data Outputs	400 mV_{p-p} (typical) AC coupled
Clock Recovery Jitter	2 ps rms + 0.3% Unit Interval rms for PRBS data patterns with 50% transition density (typical)
Hardware Clock Recovery Loop BW	PLL Loop BW = Fbaud/5500, 100 Mb/s to 2.488 Gb/s (typical)

Color Waveform Display

Type	Color 15.3" flat panel TFT-Active Matrix LCD with high resolution touch screen
Resolution	WXGA; 1280 x 768 pixels.
Number of Traces	Display a maximum of 8 traces. Simultaneously display channel, zoom, memory and math traces
Grid Styles	Auto, Single, Dual, Quad, Octal, X-Y, Single+X-Y, Dual+X-Y
Waveform Representation	Sample dots joined, or sample dots only

SPECIFICATIONS

Processor/CPU	WaveMaster 804Zi-A (SDA)	WaveMaster 806Zi-A (SDA)	WaveMaster 808Zi-A (SDA)	WaveMaster 813Zi-A (SDA)	WaveMaster 816Zi-A (SDA)	WaveMaster 820Zi-A (SDA, DDA)
Type	Intel® Core™ 2 Quad, 3 GHz (or better)					
Processor Memory	8 GB standard					
Operating System	Microsoft Windows 7 Professional Edition (64-bit)					
Oscilloscope Operating Software						
Real Time Clock	Date and time displayed with waveform an in hardcopy files. SNTP support to synchronize to precision internal clocks					

Interface

Remote Control	Via Windows Automation, or via LeCroy Remote Command Set
Network Communication Standard	VXI-11 or VICP, LXI Class C (v1.2) Compliant
GPIB Port (Optional)	Supports IEEE – 488.2
LSIB Port (Optional)	Supports PCIe Gen1 x4 protocol with LeCroy supplied API
Ethernet Port	Supports 10/100/1000BaseT Ethernet interface (RJ45 port)
USB Ports	Minimum 6 total (incl. 3 front panel) USB 2.0 ports support Windows compatible devices
External Monitor Port	15-pin D-Type WXGA compatible to support customer-supplied external monitor. DVI connector to support LeCroy Zi-EXTDISP-15 additional touch screen display accessory. Includes support for extended desktop operation with optional LeCroy or other second monitor
Serial Port	Not Available
Peripheral Bus	LeCroy LBUS standard

Power Requirements

Voltage	100–240 VAC ±10% at 45–66 Hz, 100–120 VAC ±10% at 380–420 Hz, Automatic AC Voltage Selection, Installation Category II
Max. Power Consumption	975 W / 975 VA

Environmental

Temperature (Operating)	+5 °C to +40 °C including CD-RW/DVD-ROM drive
Temperature (Non-Operating)	–20 °C to +60 °C
Humidity (Operating)	5% to 80% relative humidity (non-condensing) up to +31 °C. Upper limit derates to 50% relative humidity (non-condensing) at +40 °C
Humidity (Non-Operating)	5% to 95% relative humidity (non-condensing) as tested per MIL-PRF-28800F
Altitude (Operating)	Up to 10,000 ft. (3048 m) at or below +25 °C
Random Vibration (Operating)	0.5 g_{rms} 5 Hz to 500 Hz, 15 minutes in each of three orthogonal axes
Random Vibration (Non-Operating)	2.4 g_{rms} 5 Hz to 500 Hz, 15 minutes in each of three orthogonal axes
Functional Shock	20 g_{peak}, half sine, 11 ms pulse, 3 shocks (positive and negative) in each of three orthogonal axes, 18 shocks total

Physical Dimensions

Dimensions (HWD)	14" H x 18.4" W x 16" D (355 x 467 x 406 mm) height excludes feet
Weight	51.5 lbs. (23.4 kg)
Shipping Weight	70 lbs. (31.8 kg)

Certifications

CE Compliant, UL and cUL listed. Conforms to EN 61326-1, EN 61010-1, UL 61010-1 2nd edition, and CSA C22.2 No. 61010-1-04

Warranty and Service

3-year warranty calibration recommended annually.
Optional service programs include extended warranty, upgrades, and calibration services.

SPECIFICATIONS

Processor/CPU	WaveMaster 825Zi-A (SDA)	WaveMaster 830Zi-A (SDA, DDA)	WaveMaster 845Zi-A (SDA)
Type	Intel® Core™ 2 Quad, 3 GHz (or better)		
Processor Memory	8 GB standard		
Operating System	Microsoft Windows® 7 Professional Edition (64-bit)		
Oscilloscope Operating Software			
Real Time Clock	Date and time displayed with waveform an in hardcopy files. SNTP support to synchronize to precision internal clocks		

Interface

Remote Control	Via Windows Automation, or via LeCroy Remote Command Set		
Network Communication Standard	VXI-11 or VICP, LXI Class C (v1.2) Compliant		
GPIB Port (Optional)	Supports IEEE – 488.2		
LSIB Port (Optional)	Supports PCIe Gen1 x4 protocol with LeCroy supplied API		
Ethernet Port	Supports 10/100/1000BaseT Ethernet interface (RJ45 port)		
USB Ports	Minimum 6 total (incl. 3 front panel) USB 2.0 ports support Windows compatible devices		
External Monitor Port	15-pin D-Type WXGA compatible to support customer-supplied external monitor. DVI connector to support LeCroy Zi-EXTDISP-15 additional touch screen display accessory. Includes support for extended desktop operation with optional LeCroy or other second monitor		
Serial Port	Not Available		
Peripheral Bus	LeCroy LBUS standard		

Power Requirements

Voltage	100–240 VAC ±10% at 45–66 Hz, 100–120 VAC ±10% at 380–420 Hz, Automatic AC Voltage Selection, Installation Category II		
Max. Power Consumption	1025 W / 1025 VA		

Environmental

Temperature (Operating)	+5 °C to +40 °C including CD-RW/DVD-ROM drive		
Temperature (Non-Operating)	–20 °C to +60 °C		
Humidity (Operating)	5% to 80% relative humidity (non-condensing) up to +31 °C. Upper limit derates to 50% relative humidity (non-condensing) at +40 °C		
Humidity (Non-Operating)	5% to 95% relative humidity (non-condensing) as tested per MIL-PRF-28800F		
Altitude (Operating)	Up to 10,000 ft. (3048 m) at or below +25 °C		
Random Vibration (Operating)	0.5 g_{rms} 5 Hz to 500 Hz, 15 minutes in each of three orthogonal axes		
Random Vibration (Non-Operating)	2.4 g_{rms} 5 Hz to 500 Hz, 15 minutes in each of three orthogonal axes		
Functional Shock	20 g_{peak}, half sine, 11 ms pulse, 3 shocks (positive and negative) in each of three orthogonal axes, 18 shocks total		

Physical Dimension

Dimensions (HWD)	14" H x 18.4" W x 16" D (355 x 467 x 406 mm) height excludes feet		
Weight		58 lbs. (26.4 kg)	60 lbs. (27.2 kg)
Shipping Weight		76.0 lbs. (34.5 kg)	78 lbs. (35.5 kg)

Certifications

	CE Compliant, UL and cUL listed. Conforms to EN61326-1, EN 61010-1, UL 61010-1 2nd edition, and CSA C22.2 No. 61010-1-04		

Warranty and Service

	3-year warranty calibration recommended annually. Optional service programs include extended warranty, upgrades, and calibration services.		

SPECIFICATIONS

Standard

Math Tools

Display up to 8 math function traces (F1–F8). The easy-to-use graphical interface simplifies setup of up to two operations on each function trace, and function traces can be chained together to perform math-on-math.

absolute value
average (summed)
average (continuous)
correlation (two waveforms)
derivative
deskew (resample)
difference (–)
enhanced resolution (to 11-bits vertical)
envelope
exp (base e)
exp (base 10)
fft (power spectrum, magnitude, phase, up to 128 Mpts)
floor
integral
interpolate (cubic, quadratic, sinx/x)
invert (negate)
log (base e)
log (base 10)
product (x)
ratio (/)
reciprocal
rescale (with units)
roof
(sinx)/x
sparse
square
square root
sum (+)
zoom (identity)

Measure Tools

Display any 12 parameters together with statistics, including their average, high, low, and standard deviations. Histicons provide a fast, dynamic view of parameters and wave shape characteristics. Parameter Math allows addition, subtraction, multiplication, or division of two different parameters.

amplitude
area
base
cycles
data
delay
Δ delay
duty cycle
duration
falltime (90–10%, 80–20%, @ level)
frequency
first
last
level @ x
maximum
mean
median
minimum
narrow band phase
narrow band power
number of points
+overshoot
–overshoot
peak-to-peak
period
risetime (10–90%, 20–80%, @ level)
rms
std. deviation
top
width
median
phase
time @ minimum (min.)
time @ maximum (max.)
Δ time @ level
Δ time @ level from trigger
x@ max.
x@ min.

Pass/Fail Testing

Simultaneously test multiple parameters against selectable parameter limits or pre-defined masks. Pass or fail conditions can initiate actions including document to local or networked files, e-mail the image of the failure, save waveforms, send a pulse out at the front panel auxiliary BNC output, or (with the GPIB option) send a GPIB SRQ.

Standard

Jitter and Timing Analysis

This package provides jitter timing and analysis using time, frequency, and statistical views for common timing parameters, and also includes other useful tools. Includes:

- "Track" graphs of all parameters, no limitation of number
  - Cycle-Cycle Jitter
  - N-Cycle
  - N-Cycle with start selection
  - Frequency@level
  - Period@level
  - Half Period
  - Width@level
  - Time Interval Error@level
  - Setup
  - Hold
  - Skew
  - Duty Cycle@level
  - Duty Cycle Error
- Edge@lv parameter (counts edges)
- Histograms expanded with 19 histogram parameters and up to 2 billion events
- Trend (datalog) of up to 1 million events
- Track graphs of all parameters
- Persistence histogram, persistence trace (mean, range, sigma)

Software Options

SDA II Serial Data Analysis Software (WM8Zi-SDAII)
(Standard on SDA 8 Zi-A and DDA 8 Zi-A)

Total Jitter

A complete toolset is provided to measure total jitter. Eye Diagrams with millions of UI are quickly calculated from up to 512 Mpts records, and advanced tools may be used on the Eye Diagram to aid analysis. Complete TIE and Total Jitter (Tj) parameters and analysis functions are provided.

- Time Interval Error (TIE) Measurement Parameter, Histogram, Spectrum and Jitter Track
- Total Jitter (Tj) Measurement Parameter, Histogram, Spectrum
- Eye Diagram Display (sliced)
- Eye Diagram IsoBER (lines of constant Bit Error Rate)
- Eye Diagram Mask Violation Locator
- Eye Diagram Measurement Parameters
  - Eye Height
  - One Level
  - Zero Level
  - Eye Amplitude
  - Eye Width
  - Eye Crossing
  - Avg. Power
  - Extinction Ratio
  - Mask hits
  - Mask out
  - Bit Error Rate
  - Slice Width (setting)
- Q-Fit Tail Representation
- Bathtub Curve
- Cumulative Density Function (CDF)
- PLL Track

Software Options

Jitter Decomposition Models
Two jitter decomposition methods are provided and simultaneously calculated to provide maximum measurement confidence. Q-Scale, CDF, Bathtub Curve, and all jitter decomposition measurement parameters can be displayed using either method.

- Spectral Method
- NQ-Scale Method

Random Jitter (Rj) and Non-Data Dependent Jitter (Rj+BUj)
- Random Jitter (Rj) Measurement Parameter
- Rj+BUj Histogram
- Rj+BUj Spectrum
- Rj+BUj Track

Deterministic Jitter (Dj)
- Deterministic Jitter (Dj) Measurement Parameter

Data Dependent Jitter (DDj)
- Data Dependent Jitter (DDj) Measurement Parameter
- DDj Histogram
- DDj Plot (by Pattern or N-bit Sequence)

Clock and Clock-Data Timing Jitter Analysis Package (WM8Zi-JITKIT)

Provides convenient setup and four views of jitter (statistical, time, spectrum, and overlaid) for a variety of horizontal, amplitude, and timing parameters. Direct display of jitter measurement values. Supports multiple simultaneous views with fast selection of multiple parameter measurements for fast and easy validation.

Cable De-embedding (WM8Zi-CBL-DE-EMBED) (Standard on SDA 8 Zi-A and DDA 8 Zi-A)

Removes cable effects from your measurements. Simply enter the S-parameters or attenuation data of the cable(s) then all of the functionality of the SDA 8 Zi can be utilized with cable effects de-embedded.

8b/10b Decode (WM8Zi-8B10B D) (Standard on SDA 8 Zi-A and DDA 8 Zi-A)

Intuitive, color-coded serial decode with powerful search capability enables captured waveforms to be searched for user-defined sequences of symbols. Multi-lane analysis decodes up to four simultaneously captured lanes.

Serial Data Mask (SDM) (WM8Zi-SDM)

Create eye diagrams using a comprehensive list of standard eye pattern masks, or create a user-defined mask. Mask violations are clearly marked on the display for easy analysis.

Electrical Telecom Pulse Mask Test (WM8Zi-ET-PMT) (Standard on SDA 8 Zi-A and DDA 8 Zi-A)

Performs automated compliance mask tests on a wide range of electrical telecom standards.

Spectrum Analyzer Mode (WM8Zi-SPECTRUM)

This package provides a new capability to navigate waveforms in the frequency domain using spectrum analyzer type controls.

FFT capability added to include:

- Power averaging
- Power density
- Real and imaginary components
- Frequency domain parameters
- FFT on up to 128 Mpts

Software Options

Disk Drive Measurements Package (WM8Zi-DDM2) (Standard on DDA 8 Zi-A)

This package provides disk drive parameter measurements and related mathematical functions for performing disk drive WaveShape Analysis.

- Disk Drive Parameters are as follows:

amplitude assymetry
local base
local baseline separation
local maximum
local minimum
local number
local peak-peak
local time between events
local time between peaks
local time between troughs
local time at minimum
local time at maximum
local time peak-trough
local time over threshold
local time trough-peak
local time under threshold
narrow band phase
narrow band power
overwrite
pulse width 50
pulse width 50–
pulse width 50+
resolution
track average amplitude
track average amplitude–
track average amplitude+
auto-correlation s/n
non-linear transition shift

ORDERING INFORMATION

Product Description	Product Code
WaveMaster 8 Zi-A Series Oscilloscopes	
4 GHz, 40 GS/s, 4 Ch, 20 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input	WaveMaster 804Zi-A
6 GHz, 40 GS/s, 4 Ch, 20 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input	WaveMaster 806Zi-A
8 GHz, 40 GS/s, 4 Ch, 20 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input	WaveMaster 808Zi-A
13 GHz, 40 GS/s, 4 Ch, 20 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input	WaveMaster 813Zi-A
16 GHz, 40 GS/s, 4 Ch, 20 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input	WaveMaster 816Zi-A
20 GHz, 40 GS/s, 4 Ch, 20 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input	WaveMaster 820Zi-A
25 GHz, 80 GS/s, 2 Ch, 40 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input (20 GHz, 40 GS/s, 4 Ch, 20 Mpts/Ch)	WaveMaster 825Zi-A
30 GHz, 80 GS/s, 2 Ch, 40 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input (20 GHz, 40 GS/s, 4 Ch, 20 Mpts/Ch)	WaveMaster 830Zi-A
45 GHz, 120 GS/s, 1 Ch, 60 Mpts/Ch WaveMaster with 15.3" WXGA Color Display. 50 Ω and 1 Ω Input (30 GHz, 80 GS/s, 2 Ch, 40 Mpts/Ch; 20 GHz, 40 GS/s, 4 Ch, 20 Mpts/Ch)	WaveMaster 845Zi-A
SDA 8 Zi-A Series Serial Data Analyzers	
4 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input	SDA 804Zi-A
6 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input	SDA 806Zi-A
8 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input	SDA 808Zi-A
13 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input	SDA 813Zi-A
16 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input	SDA 816Zi-A
20 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input	SDA 820Zi-A
25 GHz, 80 GS/s, 2 Ch, 64 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input (20 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch)	SDA 825Zi-A
30 GHz, 80 GS/s, 2 Ch, 64 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input (20 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch)	SDA 830Zi-A
45 GHz, 120 GS/s, 1 Ch, 96 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input (30 GHz, 80 GS/s, 2 Ch, 64 Mpts/Ch; 20 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch)	SDA 845Zi-A
DDA 8 Zi-A Series Oscilloscopes	
20 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch DDA with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input	DDA 820Zi-A
30 GHz, 80 GS/s, 2 Ch, 64 Mpts/Ch DDA with 15.3" WXGA Color Display. 50 Ω and 1 MΩ Input (20 GHz, 40 GS/s, 4 Ch, 32 Mpts/Ch)	DDA 830Zi-A
Included with Standard Configuration	
÷10, 500 MHz Passive Probe (Qty. 4 on 4–20 GHz units, Qty. 2 on 25–45 GHz units))	
ProLink to SMA Adapter: 4 each (for 4–8 GHz units)	LPA-SMA-A
ProLink to K/2.92 mm Adapter: 4 each (for 13–45 GHz units)	LPA-K-A
Optical 3-button Wheel Mouse, USB 2.0	
Protective Front Cover	
Printed Getting Started Manual	
Anti-virus Software (Trial Version)	
Microsoft Windows 7 License	
Commercial NIST Traceable Calibration with Certificate	
Power Cable for the Destination Country	
3-year Warranty	

Product Description	Product Code
Memory and Sample Rate Options	
80 GS/s on 2 Ch Sampling Rate Option for WaveMaster 8 Zi-A (not available for 825Zi-A, 830Zi-A, or 845Zi-A). Includes two separate external interleaving devices with storage case	WM8Zi-2X80GS
20 Mpts/Ch Standard Memory for WaveMaster 8 Zi-A. Includes 8 GB of RAM	WM8Zi-STD
32 Mpts/Ch Standard Memory for SDA 8 Zi-A Includes 8 GB of RAM	SDA8Zi-STD
32 Mpts/Ch Memory Option for WaveMaster 8 Zi-A	WM8Zi-S-32
64 Mpts/Ch Memory Option for WaveMaster 8 Zi-A	WM8Zi-M-64
64 Mpts/Ch Memory Option for SDA 8 Zi-A	SDA8Zi-M-64
64 Mpts/Ch Memory Option for DDA 8 Zi-A	DDA8Zi-M-64
128 Mpts/Ch Memory Option for WaveMaster 8 Zi-A	WM8Zi-L-128
128 Mpts/Ch Memory Option for SDA 8 Zi-A	SDA8Zi-L-128
128 Mpts/Ch Memory Option for DDA 8 Zi-A	DDA8Zi-L-128
256 Mpts/Ch Memory Option for WaveMaster 8 Zi-A	WM8Zi-VL-256
256 Mpts/Ch Memory Option for SDA 8 Zi-A	SDA8Zi-VL-256
256 Mpts/Ch Memory Option for DDA 8 Zi-A	DDA8Zi-VL-256
CPU, Computer and Other Hardware Options	
Upgrade from Standard Size Hard Drive to 500 GB Hard Drive	WM8Zi-500GB-HD
Additional 160 GB Hard Drive. Includes Windows® 7 OS, LeCroy Oscilloscope Software and Critical Scope Operational File Duplicates	WM8Zi-160GB-RHD-02
Additional 500 GB Hard Drive. Includes Windows 7 OS, LeCroy Oscilloscope Software and Critical Scope Operational File Duplicates	WM8Zi-500GB-RHD-02
GPIB Option for LeCroy Oscilloscope. Half-height Card	GPIB-2
Oscilloscope Synchronization Kit	Zi-8CH-SYNCH
Serial Data Options and Accessories	
SDA II Serial Data Analysis Option	WM8Zi-SDAII
100 Mb/s to 3.125 Gb/s High-speed Serial Pattern Trigger Option for WaveMaster 8 Zi/Zi-A Oscilloscopes and Disk Drive Analyzers (Standard on SDA 8 Zi-A)	WM8Zi-HSPT
Eye Doctor II Advanced Signal Integrity Tools	WM8Zi-EYEDRII
Cable De-embed Option	WM8Zi-CBL-DE-EMBED
QualiPHY Enabled LPDDR2 Software Option	QPHY-LPDDR2
QualiPHY Enabled DDR2 Software Option	QPHY-DDR2
QualiPHY Enabled DDR3 Software Option	QPHY-DDR3
QualiPHY Enabled DisplayPort Software Option	QPHY-DisplayPort
QualiPHY Enabled Ethernet 10/100/1000BT Software Option	QPHY-ENET*
QualiPHY Enabled HDMI Software Option	QPHY-HDMI†
QualiPHY Enabled MIPI D-PHY Software Option	QPHY-MIPI-DPHY
QualiPHY Enabled PCIe Gen1 Software Option	QPHY-PCIe
QualiPHY Enabled PCIe 3.0 Software Option	QPHY-PCIe3
QualiPHY Enabled SATA Software Option	QPHY-SATA-TSG-RSG
QualiPHY Enabled SAS-2 Software Option	QPHY-SAS2
QualiPHY Enabled USB 2.0 Software Option	QPHY-USB‡
QualiPHY Enabled SuperSpeed USB Transmitter/ Receiver Compliance Software Option	QPHY-USB3-Tx-Rx
QualiPHY Enabled WiMedia UWB Software Option	QPHY-UWB
PROTObus MAG Serial Debug Toolkit	WM8Zi-PROTObus MAG
Decode Annotation and Protocol Analyzer Synchronization Software Option	WM8Zi-ProtoSync
Decode Annotation and Protocol Analyzer + BitTracer Synchronization Software Option	WM8Zi-ProtoSync-BT

* TF-ENET-B required. † TF-HDMI-3.3V-QUADPAK required. ‡TF-USB-B required.

ORDERING INFORMATION

Serial Data Options and Accessories (cont'd)

Product Description	Product Code
8b/10b Decode Decode Annotation Option	WM8Zi-8B10B D
PCI Express Decode Annotation Option	WM8Zi-PCIEbus D
USB 3.0 Decode Annotation Option	WM8Zi-USB3bus D
USB 2.0 Decode Annotation Option	WM8Zi-USB2bus D
SATA Decode Annotation Option	WM8Zi-SATAbus D
SAS Decode Annotation Option	WM8Zi-SASbus D
Fibre Channel Decode Annotation Option	WM8Zi-FCbus D
D-PHY Decode Option	WM8Zi-DPHYbus D
DigRF 3G Decode Option	WM8Zi-DigRF3Gbus D
DigRF v4 Decode Option	WM8Zi-DIGRFv4bus D
Audiobus Trigger and Decode Option for I²S, LJ, RJ, and TDM	WM8Zi-Audiobus TD
Audiobus Trigger, Decode, and Graph Option for I²S, LJ, RJ, and TDM	WM8Zi-Audiobus TDG
I²C Bus Trigger and Decode Option	WM8Zi-I2Cbus TD
SPI Bus Trigger and Decode Option	WM8Zi-SPIbus TD
LIN Trigger and Decode Option	WM8Zi-LINbus TD
UART and RS-232 Trigger and Decode Option	WM8Zi-UART-RS232bus TD
FlexRay Trigger and Decode Option	WM8Zi-FlexRaybus TD
FlexRay Trigger, Decode, and Physical Layer Test Option	WM8Zi-FlexRaybus TDP
CANbus TD Trigger and Decode Option	WM8Zi-CANbus TD
CANbus TDM Trigger, Decode and Measure/Graph Option	WM8Zi-CANbus TDM
MIL-STD-1553 Trigger and Decode Option	WM8Zi-1553 TD
ARINC 429 Symbolic Decode Option	WM8Zi-ARINC429bus DSymbolic

PCI Express, SuperSpeed USB (USB 3.0) and SATA Complete Hardware/Software Test Solutions are available. Consult Factory.

High-speed Digitizer Output

High-speed PCIe Gen1 x4 Digitizer Output	LSIB-1
PCI Express x1 Host Interface Board for Desktop PC	LSIB-HOSTBOARD
PCI Express x1 Express Card Host Interface for Laptop Express Card Slot	LSIB-HOSTCARD
PCI Express x4 3-meter Cable with x4 Cable Connectors Included	LSIB-CABLE-3M
PCI Express x4 7-meter Cable with x4 Cable Connectors Included	LSIB-CABLE-7M

Mixed Signal Testing Options

500 MHz, 2 GS/s, 18 Ch, 50 Mpts/Ch Mixed Signal Oscilloscope Option	MS-500
250 MHz, 1 GS/s, 36 Ch, 25 Mpts/Ch (500 MHz, 18 Ch, 2 GS/s, 50 Mpts/Ch Interleaved) Mixed Signal Oscilloscope Option	MS-500-36
250 MHz, 1 GS/s, 18 Ch, 10 Mpts/Ch Mixed Signal Oscilloscope Option	MS-250

General Purpose and Application Specific Software Options

Eye Doctor II Advanced Signal Integrity Tools	WM8Zi-EYEDRII
Spectrum Analyzer and Advanced FFT Option	WM8Zi-SPECTRUM
Digital Filter Software Package	WM8Zi-DFP2
Serial Data Mask Software Package	WM8Zi-SDM
Disk Drive Measurements Software Package	WM8Zi-DDM2
Disk Drive Analyzer Software Package	WM8Zi-DDA
Advanced Optical Recording Measurement Package	WM8Zi-AORM
Electrical Telecom Mask Test Software Package	WM8Zi-ET-PMT
EMC Pulse Parameter Software Package	WM8Zi-EMC
Power Measure Analysis Software Package	WM8Zi-PMA2
Clock Jitter Analysis with Four Views Software Package	WM8Zi-JITKIT

General Accessories

Product Description	Product Code
Integrated 2nd Touch Screen Display (Top-mounted, Fully Integrated 15.3" WXGA with Touch Screen Display, Including all Cabling and Software)	Zi-EXTDISP-15
Keyboard, USB	KYBD-1
Probe Deskew and Calibration Test Fixture	TF-DSQ
Hard Carrying Case	WM8Zi-HARDCASE
Soft Carrying Case	WM8Zi-SOFTCASE
Rackmount Accessory for WM8Zi	WM8Zi-RACKMOUNT
ProLink to SMA Adapter	LPA-SMA-A
Kit of ProLink to SMA Adapters	LPA-SMA-KIT-A
ProLink to K/2.92 mm Adapter	LPA-K-A
Kit of ProLink to K/2.92 mm Adapters	LPA-K-KIT-A
Oscilloscope Cart with Additional Shelf and Drawer	OC1024
Oscilloscope Cart	OC1021

Probes and Probe Accessories

WaveLink 13 GHz, 1.6 Vp-p Differential Probe System	D1305-PS
WaveLink 16 GHz, 1.6 Vp-p Differential Probe System	D1605-PS
WaveLink 20 GHz, 1.6 Vp-p Differential Probe System	D2005-PS
WaveLink 25 GHz, 1.6 Vp-p Differential Probe System	D2505-PS
18 GHz Differential Amplifier	DA18000
13 GHz Differential Probe System	D13000PS
11 GHz Differential Probe System	D11000PS
WaveLink 6 GHz Differential Amplifier Module with Adjustable Tip	D600A-AT*
WaveLink 4 GHz, 2.5 Vp-p Differential Amplifier Small Tip Module	D410*
WaveLink 4 GHz, 5 Vp-p Differential Amplifier Small Tip Module	D420*
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*
Differential Positioner Tip with Accessories (for use with D610 or D410)	Dx10-PT-Kit
Differential Positioner Tip with Accessories (for use with D620 and D420)	Dx20-PT-Kit
WaveLink ProLink Platform/Cable Assembly (4 – 6 GHz)	WL-PLink
WaveLink ProBus Platform/Cable Assembly (4 GHz)	WL-PBus
2.5 GHz, 0.7 pF Active Probe (÷10), Small Form Factor	HFP2500
1.5 GHz, 0.9 pF, 1 MΩ High Impedance Active Probe	ZS1500
200 MHz, 3.5 pF, 1 MΩ Active Differential Probe	ZD200
500 MHz, 1.0 pF, Active Differential Probe	ZD500
1 GHz, 1.0 pF, Active Differential Probe	ZD1000
1.5 GHz, 1.0 pF, Active Differential Probe	ZD1500
7.5 GHz Low Capacitance Passive Probe (÷10, 1 kΩ; ÷20, 500 Ω)	PP066
10/100/1000Base-T Ethernet Test Fixture	TF-ENET-B†
Telecom Adapter Kit 100 Ω Bal., 120 Ω Bal., 75 Ω Unbal.	TF-ET
SATA 1.5 Gb/s, 3.0 Gb/s and 6.0 Gb/s Compliance Test Fixture	TF-SATA-C
SATA 1.5 Gb/s, 3.0 Gb/s and 6.0 Gb/s Compliance Test Fixture Measure Kit	TF-SATA-C-KIT
SuperSpeed USB Compliance Test Fixture	TF-USB3

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

† Includes ENET-2CAB-SMA018 and ENET-2ADA-BNCSMA.

A variety of other active voltage and current probes are also available. Consult LeCroy for more information.

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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