Signal Integrity Analysis Solutions

INSTRUMENTS FOR DESIGN CHARACTERIZATION
VERIFICATION
AND DEBUG

SIA-4000

15 Gb\s data
15 GHz clock

SIA-3600

4.5 Gb/s data
4.5 GHz clock

SIA-3400

3.5 Gb/s data
3.5 GHz clock

Wavecrest Instruments Deliver Results You Can Trust

Dependable results drive every critical objective in high-end test and measurement. They enable design engineers to create innovative, workable designs on a rapid schedule. They allow test engineers to meet rigorous specifications. They help production managers reduce costs and satisfy even the most demanding customers. Unfortunately, if you rely on conventional, general-purpose test equipment, you can't depend on your data to look the same from test to test, and you can't get the full picture of signal integrity. That's why forward-thinking engineers choose Wavecrest Signal Integrity Analysis (SIA) solutions from Wavecrest SIA.
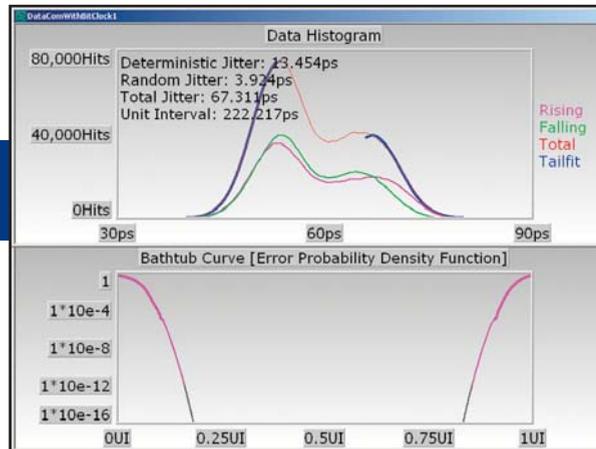
Ensure Optimized Device Performance with In-depth Jitter Analysis

There is no one universal test instrument designed for the broad range of signal integrity analysis issues that engineers are faced with today. Both functional and performance testing are important. The basic functionality of a device can be tested first, but its performance must also be analyzed and enhanced to improve test margins. Performance of a device is affected by the amount of jitter in the signal.

Wavecrest SIA solutions, the reference standard for jitter analysis, are designed to give in-depth measurements in the time domain separately from those in the amplitude domain. It is often easy to analyze a clean signal; when parts exhibit complex jitter behaviors it is difficult for other instruments to give reliable information.

Wavecrest SIA solutions measure the individual components of jitter and provide accurate, in-depth information through data files of each component along with multiple graphic views for the truest picture of the signal's jitter characteristics.

Obtain separate time and amplitude analysis on parts exhibiting complex jitter behavior

Maintain time-to-market schedules and improve design margins

Improve product quality and increase production yields

Hybrid design measures timing and amplitude separately

Accurate and repeatable signal integrity measurements require precise waveform reproduction. SIA instruments from Gigamax incorporate a high-resolution, direct measurement design that measures both timing and amplitude separately. This method is in contrast to digitizing real time oscilloscopes that use error-causing interpolation techniques. Because each oscilloscope manufacturer uses its own interpolation technique, it is extremely difficult for engineers to correlate measurement results.

Wavecrest instruments ANALYZE data
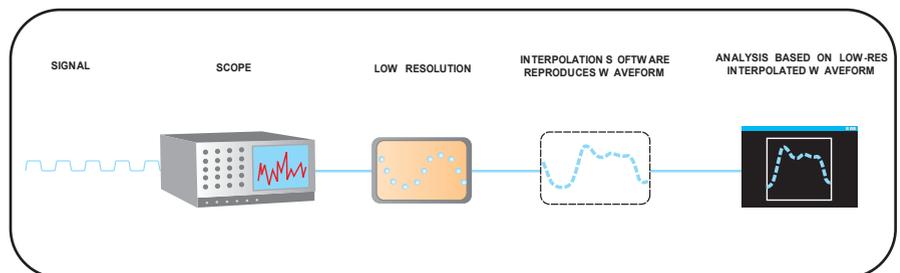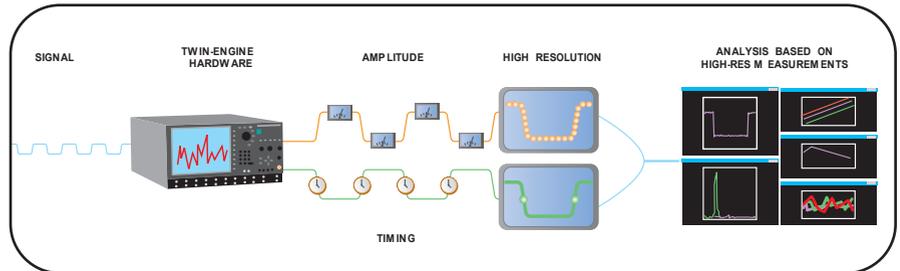
Digitizing Oscilloscopes INTERPOLATE data

Limited bandwidth coupled with interpolation techniques cause digitizing oscilloscopes to add error to the measurements. These measurement errors, together with rise/fall time, amplitude, timing and jitter, can keep you from meeting compliance standards and correlating with customer specifications. Wavecrest integrated an equivalent time sampling oscilloscope because it is the preferred instrument to precisely display fast signals due to its accuracy, high resolution and high-bandwidth capabilities. With Wavecrest SIA instruments, you measure the performance of your device, not the error of the instrument.

Same signal, different instruments
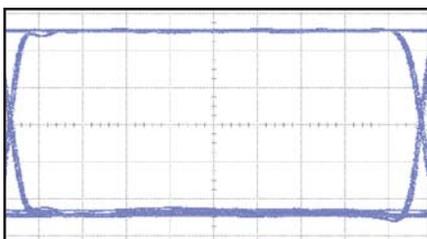
Equivalent Time Oscilloscope
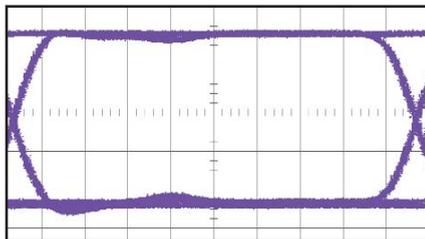
Wavecrest SIA
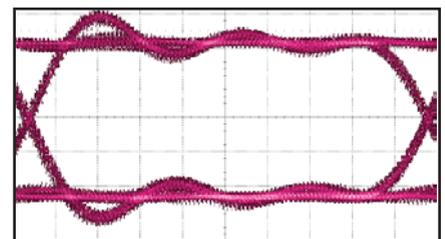
Real Time Oscilloscope

Test Beyond Minimum Compliance with Comprehensive Diagnostics

Meeting a minimum compliance specification is often simply a pass / fail functional test. If there are problems and parts fail, you need a comprehensive set of tools that allow you to quickly and easily determine root cause.

Modular GigaView software simplifies signal integrity analysis

GigaView™ software - the core application for Wavecrest SIA instruments - delivers a comprehensive set of diagnostic and compliance tools for signal integrity analysis. Its remarkably easy-to-use interface helps simplify timing and amplitude characterizations, enabling you to analyze performance, and diagnose problems faster than ever.

Datacom	Clock
GigaView	
DRCG	Databus
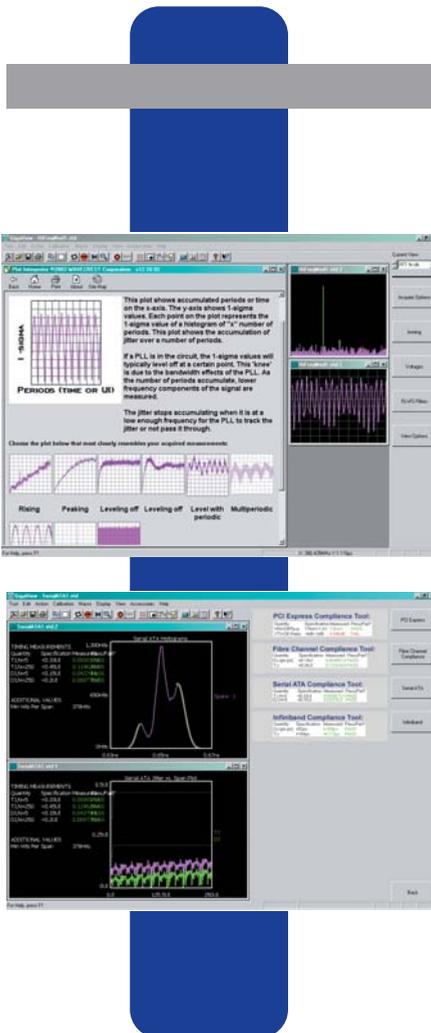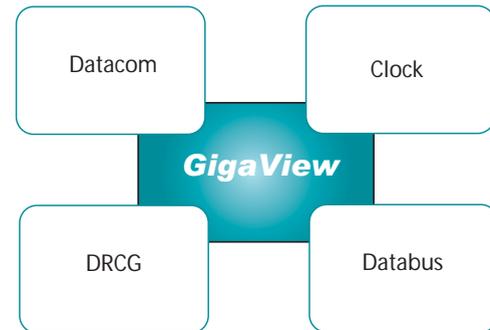
Produce results you can trust

GigaView software incorporates proven methodologies for signal integrity analysis, including the patented TailFit™ algorithm, that generate reliable, repeatable results from day to day, week to week, and month to month, under a wide range of operating conditions.

Shorten time-to-market

Advanced diagnostics enable faster isolation and resolution of device problems, significantly reducing the timetable from design to production and allowing you to deliver new components and systems to your customers in record time.

Improve ease of use

This intuitive software makes first-time users look like seasoned jitter experts. It also improves overall efficiency by displaying several views of signal integrity with a single interface, so you can assess several testing parameters simultaneously.

Macros allow you to recall session settings or test results with a single keystroke. Single-button compliance tools provide a quick and easy way to generate application specific measurements. Additionally, a Plot Interpreter™ matches your test data to similar results from actual device tests, complete with suggestions for fault analysis.

Tools for both Clock and Serial Data Jitter Analysis

This versatile software gives you the tools you need to meet compliance standards, plus the characterization and debug tools required to diagnose the root cause of signal integrity.

Serial Data

GigaView's application-specific tools for PCI Express, SATA, Fibre Channel and InfiniBand measure required signal integrity parameters in a single screen with pass/fail indicators, so you can perform compliance measurements in seconds instead of minutes.

- Display graphical views of periodic and random jitter over a bandwidth
- Separate and analyze random and deterministic jitter
- Measure DCD and ISI
- Perform total jitter measurements to 10^{-16} BER
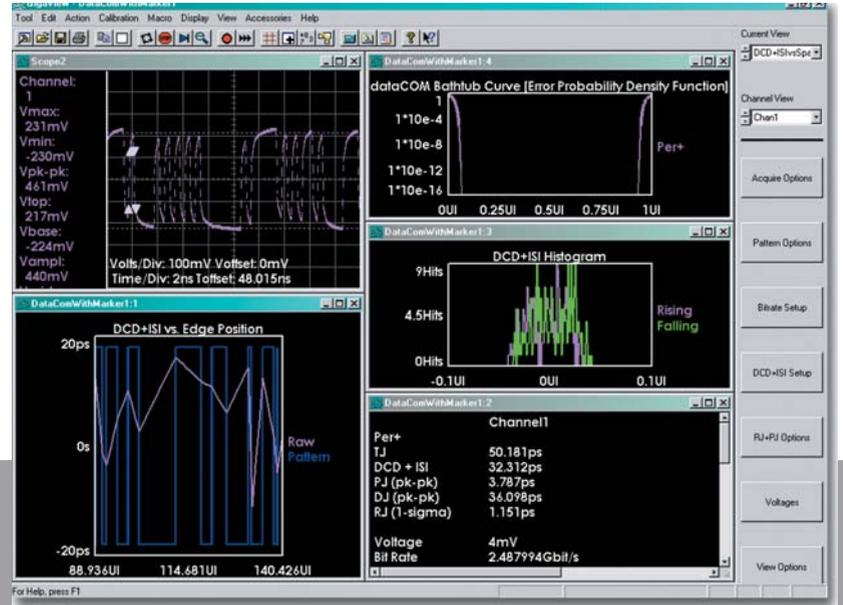
Clock / PLL

Clocks are "the heartbeat" of every application; even SERDES devices have a clock inside.

- Test 2nd and 3rd order PLL
- Analyze PLL transfer function
- Diagnose Skew & FFT of PSD for crosstalk
- View up to 8 differential channels at the same time
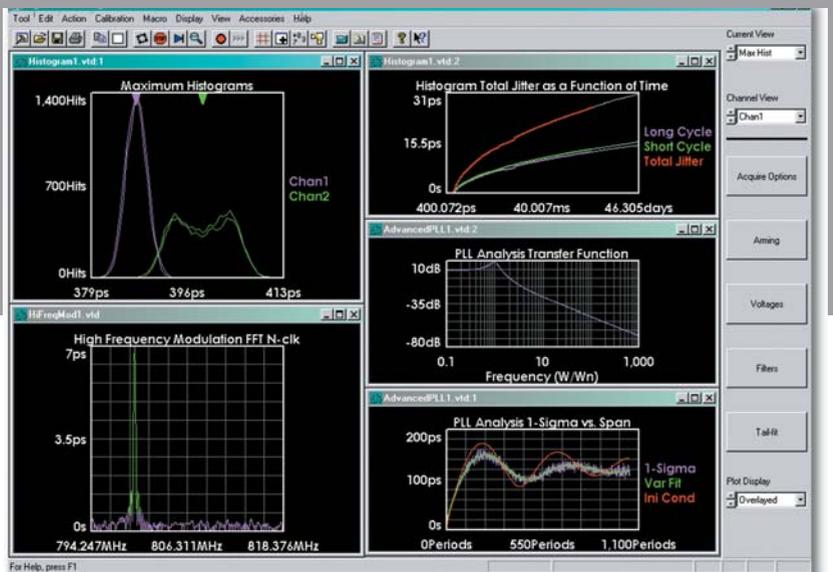
- Separate and analyze random and deterministic jitter
- View spectral components and determine RMS jitter over a bandwidth
- Measure Spread Spectrum Clocks

- Quantify all PLL design parameters, including natural frequency and damping factor, without the need for external stimuli

Multiple interface options for the bench

The SIA family of instruments provides several options for direct interface and function automation. In the lab, you can automate measurements with Lab View, Visual Basic Macros and other familiar applications using scripted macros. Engineers can set up a test in one location for deployment across multiple sites, which maintains test integrity and enables rapid startup for every group of users. You can also control other instruments through macro scripts and GPIB, creating an automated test set for jitter tolerance, voltage/temperature and other characterization analyses.

Lab diagnostics at production-level speeds

Wavecrest ATE production instruments use the same proven analysis techniques as our design-oriented systems. With production-oriented software, you can perform complete signal integrity analysis at production-level speeds. This allows your lab and production facility to use identical software tools from the design/debug phase through device characterization and production, substantially reducing the time spent on instrument and process correlation. More important, it dramatically lowers the cost of development and helps you meet tighter deadlines for production.

LAB

CORRELATION

PRODUCTION TEST

LABVIEW

VISUAL BASIC

GPIB   PAPI   REMOTE GIGAVIEW

Automation possibilities

Programmability options include GPIB and complete LabView support, VisualBasic Macros, Production API (PAPI) software, and Remote GigaView.

Remote GigaView enables diagnostics outside the test environment with quick access to an intuitive GUI for debugging and fast problem resolution.

The only lab instrument engineered for production test

When you use the SIA family of instruments, you can streamline the transition from design to production and significantly reduce time to market for new devices. We offer test and measurement solutions specifically designed for ATE systems and stand-alone production testing applications.

Test the most powerful components of today and tomorrow

Wavecrest SIA test and measurement systems are specifically engineered for the design, characterization and production testing of electronic components in today's fastest, most powerful computers and communications networks. Wavecrest SIA instruments include a level of scalability that ensure you can test emerging components and devices as clock speeds and data rates surpass today's boundaries. The architecture supports upgrades for channel cards to faster scope bandwidths and data rates, as well as software upgrades for functionality enhancements.

The Wavecrest SIA scalable architecture minimizes capital equipment expenditures by enabling you to upgrade your equipment rather than buying new for each project. You will also improve your return on assets by re-use and leveraging of existing capital equipment.

SIA Family

SIA-4000 Series

Configurable with up to 8 differential channels measuring data rates to 15 Gb/s with 200 femtosecond resolution. Includes full functioning, color gradient 15 GHz sampling oscilloscope.

SIA-3000 Series

Configurable with up to 8 differential channels measuring data rates to 4.5 Gb/s and beyond, with 200 femtosecond resolution. Includes 13 GHz sampling oscilloscope. Upgradable to SIA4000

GigaView Software

The software resident in the SIA-4000 is GigaView 2.x and 1.5x in the SIA-3x00.

GigaView Reader

A free version of GigaView is downloadable from our website. It allows you to view all of your datasets in the same environment as on the instrument but at your desk where you can cut and paste to create your reports.
Find it under Technical Resources | Downloads on our website. www.wavecrestsia.com

Accessories

Accessories include kits of our most popular and practical adapters, cables, attenuators and power dividers for signal integrity analysis.

Probes

Two types of high-bandwidth probes are available: active differential probe and passive resistive divider probe. Gigamax provides adapters for use with Agilent Infiniimax active probes.

Contact Us Today

To learn more about the SIA family of instruments, or to schedule a signal integrity analysis seminar at your company, please contact Wavecrest SIA today.

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