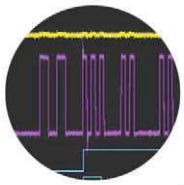
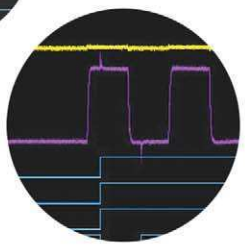




Agilent Technologies
Infiniium 54830 Series Oscilloscopes

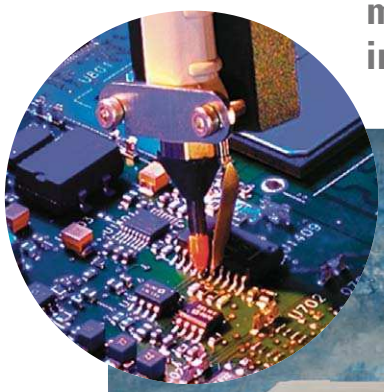
The Oscilloscopes for Digital System Developers

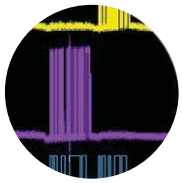
Now With Industry-Leading Deep Memory Up to 128 Mpts

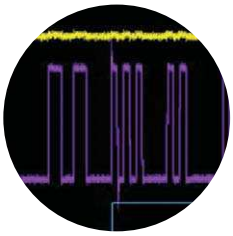
Contents

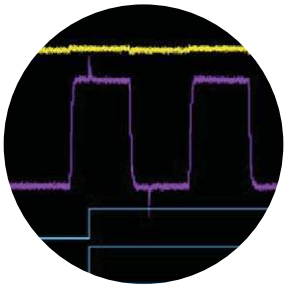
Agilent Technologies

Combining the benefits of industry-leading MegaZoom deep memory and mixed-signal oscilloscope models, Infiniium makes it faster and easier than ever to see what's happening in your high-speed digital or communications design.









View and Trigger on up to 4 Analog and 16 Digital Channels

With the Agilent 54830D Series of Mixed-Signal Oscilloscopes (MSOs), you can easily view the complex relationships of your analog and digital signals, as well as the analog characteristics of digital signals. If your embedded designs include complex digital buses such as PCI or SDRAM, the 54830D Series of MSOs allow you to easily trigger on and view up to 20 time-aligned analog and digital signals to isolate problems and cycles of interest.

Industry-Leading Deep Memory with Instant Response

With up to 128 Mpts of acquisition memory, the Agilent 54830 Series of MSOs and DSOs offers superior resolution when capturing long, complex waveforms. But a deep-memory scope doesn't have to be difficult to use.

Infiniium scopes from Agilent utilize MegaZoom technology through the full 128 Mpts for fast waveform updates and responsive user input controls.

The Performance You Need

- **600 MHz to 1 GHz bandwidth**
- **2+16-, 4+16-, 2- and 4-channel models**
- **Up to 4 GSa/s**
- **Up to 4 Mpts memory standard; up to 128 Mpts optional**
- **Advanced probing solutions**

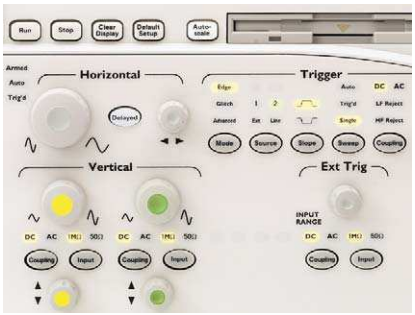
Award-Winning Scopes

Infiniium has received eight industry awards to date, including *EDN's* "Innovation of the Year" award (twice) and *T&M World's* "Best in Test." Agilent is committed to breaking new ground and providing tools that bring unique value to our customers.

Here's what engineers are saying about their Infiniium scopes.

"Everything is where you want it to be. Readouts, knobs — they are easy to see, easy to use."

Matt Berger
Senior Engineering Technician
National Semiconductor

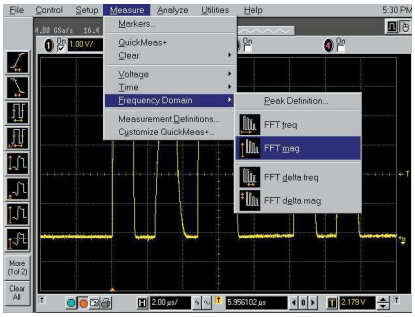


Simple things are simple

Analog-like front panel provides simple controls for basic functions – easy to find and easy to use.

"Other scopes are hard to use, hard to maneuver. With Infiniium, it's easy to find your way around when you're looking for advanced features."

Norm Reed
Radar Systems Technologist
Canadian Department of
National Defense

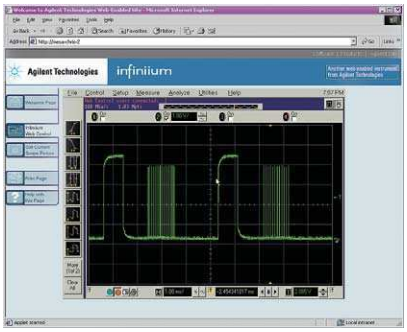


Easy access to advanced features

Familiar Windows®-based graphical user interface makes it easy to navigate and access advanced features.

"We use Infiniium to save large quantities of screen shots on our LAN — then we pull them up immediately over the network. It saves a lot of time and a lot of hassle."

Stu Nuffer
Senior Systems Engineer
LSI Logic

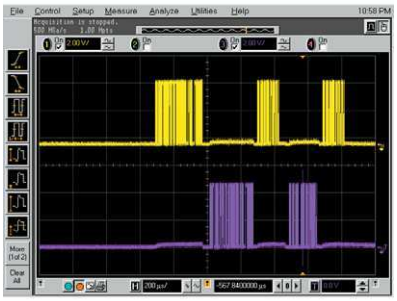


Convenient communication and data sharing

PC architecture with a standard LAN interface makes it easy to share your work and communicate your results.

"Complex triggering has its place, but sometimes I just want to capture everything and look at it."

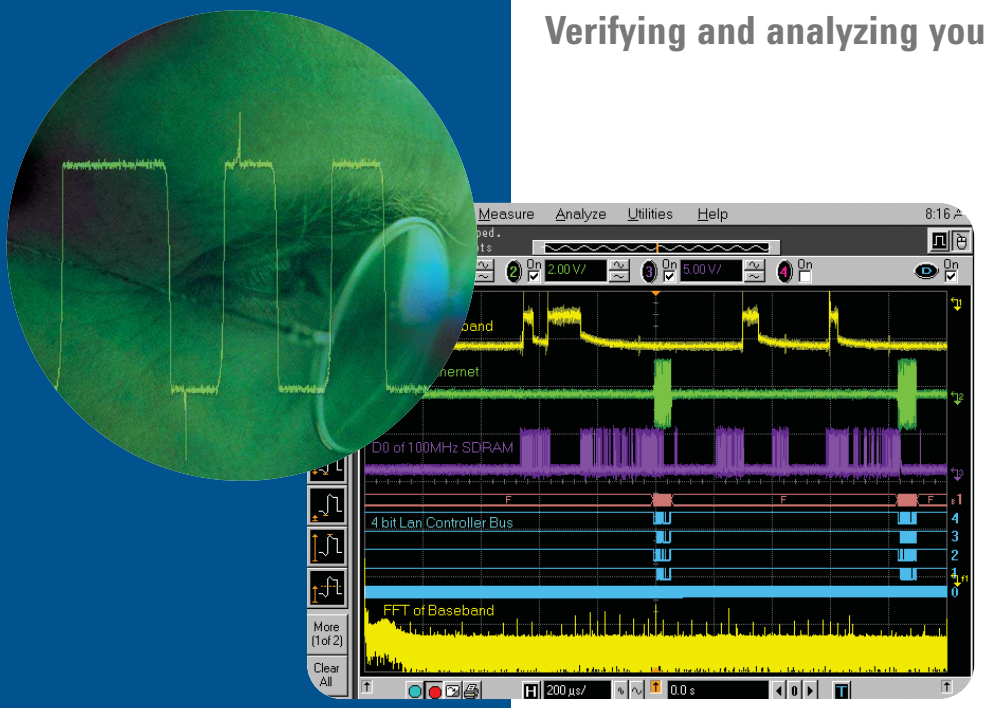
Chuck Hill
Consultant
Alta Engineering



Automatic deep memory with instant response

With Infiniium's MegaZoom deep memory, you can easily make long single-shot acquisitions and search through your data with instant response.

Verifying and analyzing your mixed-signal design



Here we see a data line and the clock of a standard SDRAM isolated in a write cycle. This was accomplished by triggering with 4 digital channels and 1 analog channel of the 54833D MSO when the SDRAM's CS, CAS, and WE lines are low, while RAS is high on the rising edge of the clock. The second analog channel is used for looking at the analog characteristics of a data line. The increased channels, deep memory, and advanced triggering of an MSO can help you debug today's complex designs more efficiently than you could with a DSO. Trying to do this with a traditional 2- or 4-channel DSO would be difficult or impossible. The traditional option for measuring a multi-channel system would be to connect and configure a logic analyzer with a DSO which can be costly and time-consuming. Fortunately, Agilent's MSO fills this need without the cost or frustration.

Seamless Integration of Analog and Digital Channels

The Agilent 54830D Series Mixed-Signal Oscilloscopes uniquely combine the detailed signal analysis of a high-performance scope with the 16-channel timing measurements of a logic analyzer, plus the benefits of fast, usable, and affordable MegaZoom deep memory.

On one display you can have both the analog circuit characteristics displayed on the 2 or 4 scope channels and the digital signals displayed on the 16 logic timing channels. Digital and analog events are aligned in time so you can easily relate cause and effect in difficult mixed-signal troubleshooting situations. The analog and digital channels are seamlessly integrated giving you familiar scope-like controls of both the analog and digital timing channels. And there is no compromise on the scope side – you just can treat all 18 or 20 channels the same.

Powerful Mixed-Signal Triggering

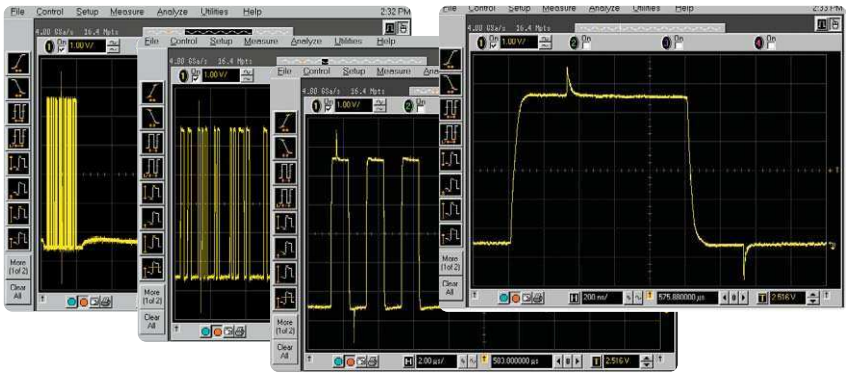
No matter how complicated the signals you're dealing with, the Infiniium MSO has a triggering feature that can help you easily untangle it. The Infiniium MSOs provide you with the most complete triggering functionality ever offered in an oscilloscope. The 54830D Series Infiniium MSOs come with powerful triggering capabilities across all 16 digital channels and all available analog channels so you can easily isolate and analyze complex signals and interactions in your mixed analog and digital designs.

X-Ray Vision for Your FPGAs

The new N5397A FPGA Dynamic Probe for the Infiniium MSO enables its 16 digital channels to capture and trigger on signals inside of your Xilinx FPGA that can then be correlated to external analog activity.

Industry-leading deep memory up to 128 Mpts, without annoying delays

The 54830 Series Infiniium scopes use advanced MegaZoom technology so you get all the benefits of fast, automatic, affordable deep memory. Due to its unique ASIC architecture, this powerful memory management system called MegaZoom can quickly display up to 128 million points of continuous signal history without the usual bottlenecks and frustrating delays.



Instant Response

While first-generation deep-memory scopes update the display slowly, Infiniium's MegaZoom memory management system instantaneously updates the display even with the deepest memory. And deep memory is on all the time — so you always have the maximum available sample rate and don't undersample or miss fast events. Discover problems you never found with your first-generation deep-memory scope.

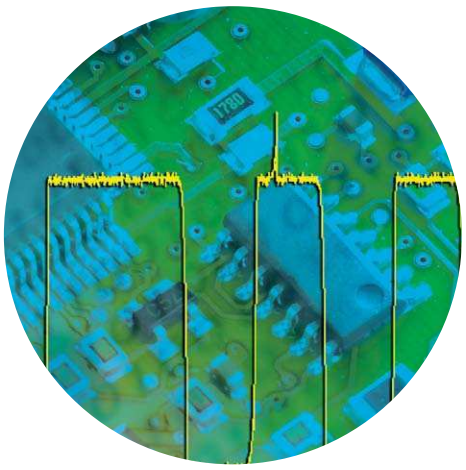
Optimum Resolution

Get the insight you need to solve your debugging challenges in a fraction of the time it used to take. Just press the Autoscale key to automatically adjust the sample rate to achieve the best waveform resolution. Then, as you change the horizontal scale to display more time and view your entire signal, MegaZoom adds more memory to give you the fastest sample rate and best resolution possible. Now you can automatically see events as narrow as 250 ps without using a special mode such as peak detect.

Unprecedented Deep Memory

Every Infiniium 54830 Series with MegaZoom is a deep-memory oscilloscope with up to a standard 2 Mpts of memory on each channel. Now memory options are available to configure your scope with *up to 128 Mpts* to capture the longest waveforms without reducing sample rate.

By combining powerful features, ease of use, and industry-leading specifications, Infiniium scopes help you find answers faster. A simple, analog-like front panel, Windows-based interface to easily access advanced features, and powerful connectivity make high-performance capabilities of Infiniium usable.



Infiniium: “It’s like someone who sits down and actually uses a scope designed this one.”

Steve Montgomery
Director of Engineering, Linx Technologies

Maximum sample rate and resolution on every measurement. The scope automatically adjusts memory depth *up to 128 Mpts* as you use it, so you get maximum sample rate and resolution on every measurement. You don't even have to think about it.

Get fast answers to your questions with the built-in information system. Infiniium's task-oriented Setup Guide provides step-by-step instructions for several advanced measurements and procedures.

See fast events — as fast as 250 ps — without using special modes like peak detect. Peak points are displayed in a darker color than the waveform indicating more data points are available. Just zoom in to see the event in detail.

Drag and drop markers with your mouse or use the arrow keys.

Bus mode display allows quick readout of digital channel value in hexa-decimal representation at every transition.

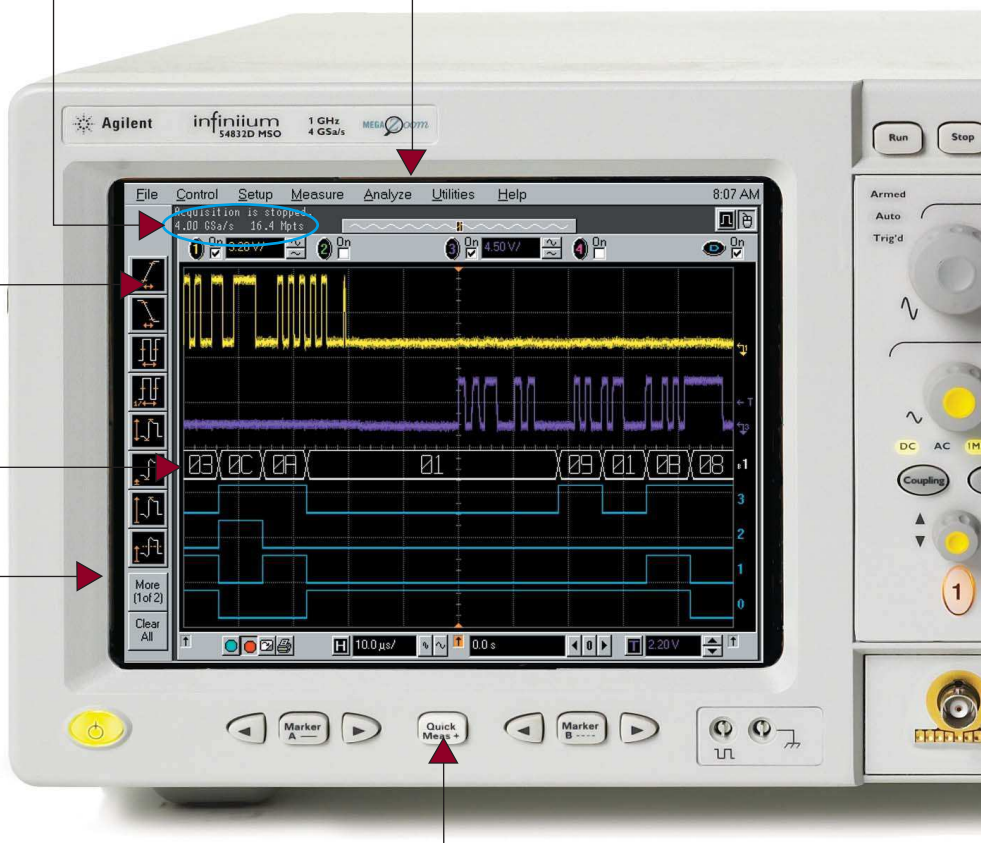
See your signal more clearly with a large (8.4-inch) high-resolution color display. Infiniium's bright TFT display with anti-glare coating lets you see the details of your signal from all angles.

Store all your setups and results on the ≥20 GB hard drive for future recall or sharing via the LAN interface. Order option 017 to make it removeable for operation in secure environments.

Remote access with web-enabled connectivity, e-mail on trigger, and GPIB over LAN.

Windows® XP Pro based open platform makes it easier than ever to run Windows applications inside f Infiniium.

Save all waveforms, including digital and analog channels, that allows you to store multiple waveforms in ASCII file formats to a single file with a single mouse click.



Pick out anomalies easily with intensity-graded persistence mode, color-graded persistence, a colorful visual representation of waveform distribution.

QuickMeas+ gives you any four automated measurements with the push of a button. You can also configure this key to print/save screen shots, save waveforms, or load a favorite setup. With the E2699A My Infiniium Software option, configure the QuickMeas+ key to execute a custom analysis executable program.

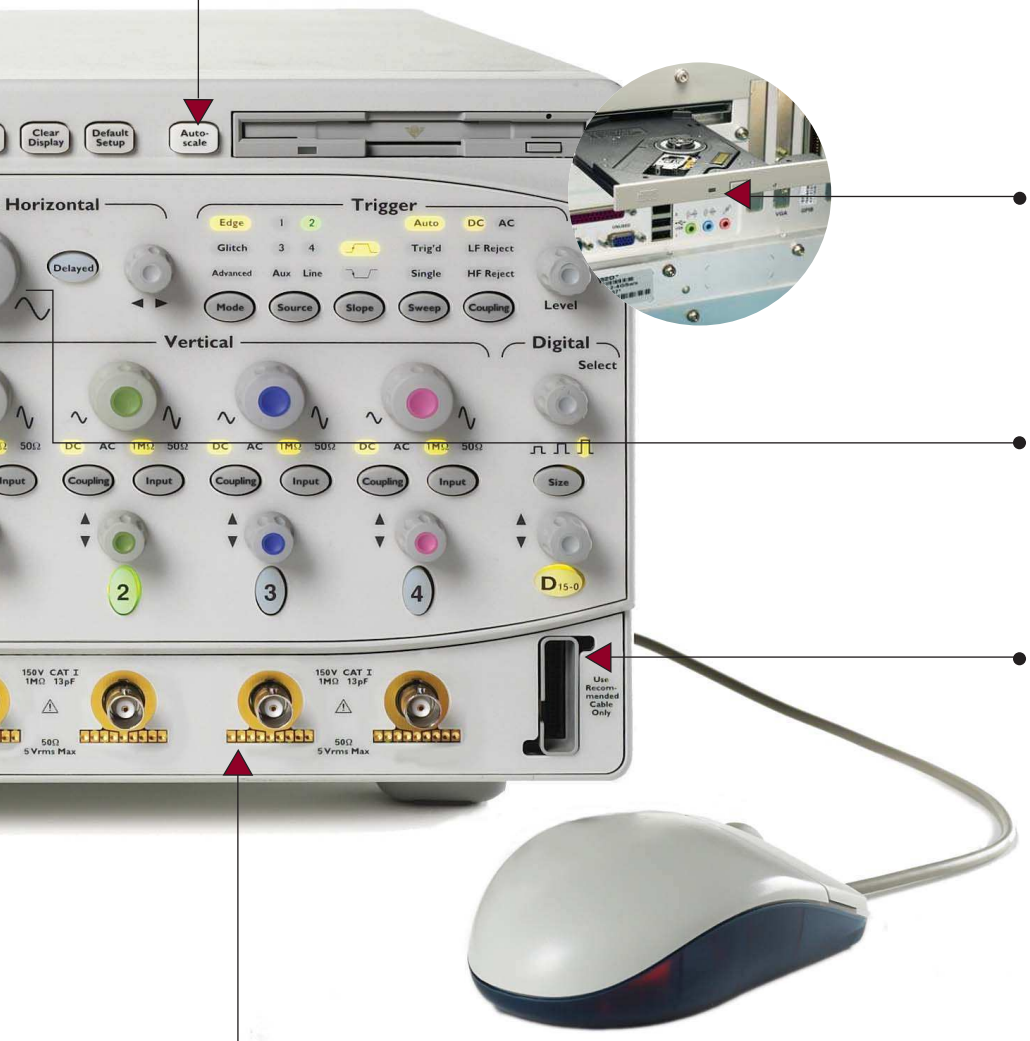
Autoscale automatically sets deep memory to the amount required *up to 128 Mpts* for the maximum sample rate and resolution. You never have to set deep memory manually.

Segmented memory acquisition mode captures bursting signals at maximum sample rate without consuming memory during periods of inactivity for very long periods of time.

Roll mode display allows for continuous scrolling capture of slow analog signals

Hands-free operation with the Infiniium VoiceControl option. Just speak into the collar-mounted microphone to operate front-panel controls.

Label waveforms and add notes to your screen captures — Infiniium's keyboard makes it easy.



Built-in CD-ROM drive on the rear panel allows you to update the system software conveniently.

Zoom and search with instant response. Zoom into your signal using the horizontal scale knob and search through your waveform with the position knob. Find your area of interest quickly and easily.

4 analog and 16 digital channel MSOs allow you to see up to 20 time-aligned signals on your scope screen. Also available in 2+16- , 2- and 4-channel models.

Easy access to advanced features like math and FFTs is provided by the Windows-based graphical user interface. This GUI also gives you unique capabilities like drag-and-drop measurements and zooming, and offers a graphical equivalent to all front panel controls.

AutoProbe interface completely configures your scope for use with a wide range of passive, active and differential probes.

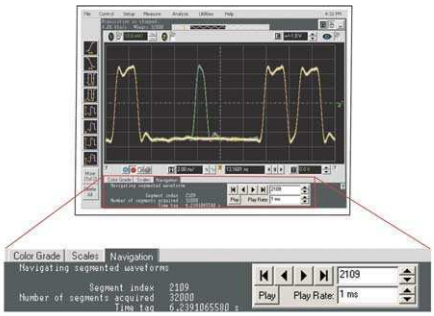
A familiar interface makes simple tasks simple. Infiniium's analog-like front panel has a full set of controls color coded to the LEDs, waveforms, and measurements.

10/100 Mbps LAN interface lets you easily print waveforms on networked printers, save your results on your office PC, and share information with others.

Infiniium: Helping you get the job done faster

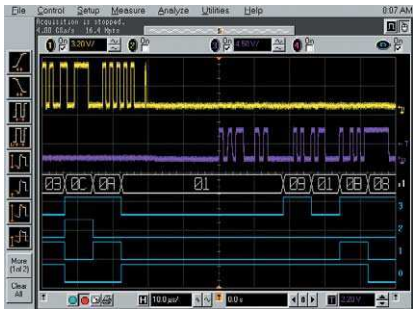
Segmented Memory Acquisition Mode*

Are you trying to capture communications or radar signals that are bursting in nature? The new Segment Memory acquisition mode allows you to capture the short bursts at maximum sample rate while not consuming memory during the periods of inactivity.



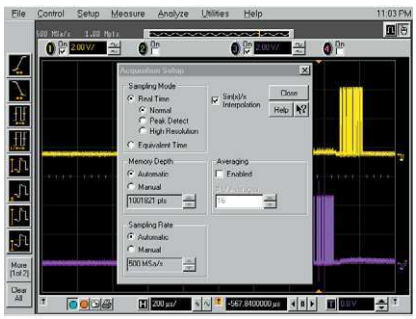
Bus Mode Display

Bus mode display on MSOs allows quick and easy read-out of hexa-decimal representation of logic signals. Bus state mode display allows the bus readout to be updated only upon the edge of the clock source you select. Available only with 54830D Series MSOs.



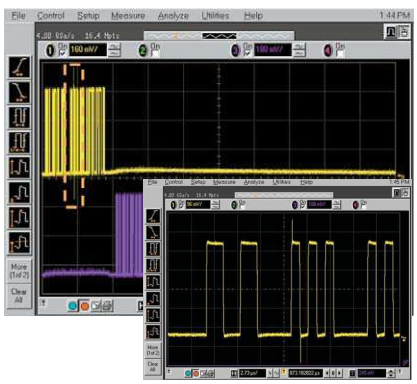
Dialog Boxes for Easy Setup

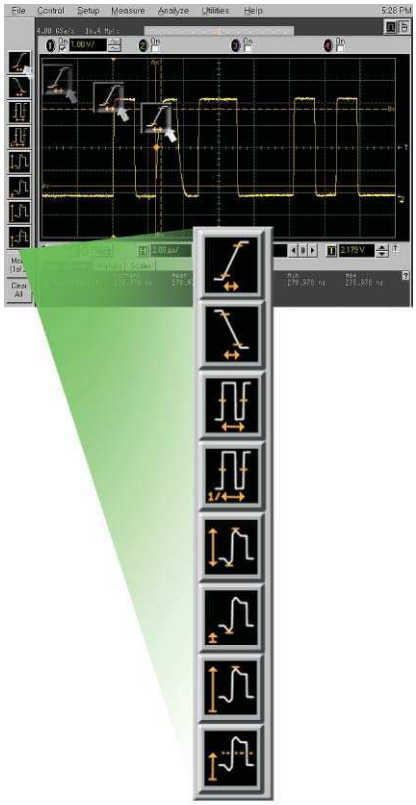
With Infiniium, you don't need to navigate through annoying softkey menus. Dialog boxes display all the choices you need for measurement setups, all in one place. Help is available for each field, guiding you through each step.



Simple Zooming

Zooming with Infiniium's graphical user interface is simple and convenient. Just use the mouse to draw a box around the area of interest and click inside. Zoom uses the full display so you get meaningful vertical as well as horizontal resolution gains. Use multiple zoom boxes to see deep inside your signal. Zooming couldn't be simpler or faster.





Drag-and-Drop Measurements

It's simple: drag an icon from the measurement bar and drop it on the cycle you want to measure. You can make up to four measurements on your waveforms, on up to four different cycles. All the measurements appear at the bottom of the display with statistics and are color coded to the channel you are measuring. Scope measurements have never been this powerful or this easy.

* Standard feature with version A.03.70 system software or higher, but only available on 54830B/31B/32B models with serial number MY41003401 or greater, 54830D/31D/32D models with MY42001701 or greater, or 54833A/33D models with MY43000601 or greater.

Infiniium: Simplifying tasks with easy access to advanced features

AutoMask and Mask Test

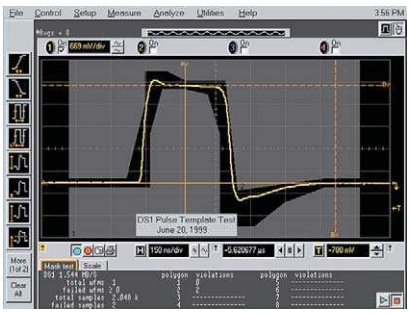
Mask testing is simplified with AutoMask. Acquire a waveform, define tolerance limits, and create a test envelope. Mask testing provides a pass/fail comparison of an incoming signal to the test envelope. Easily test your design's conformance to industry standards with the Communication Mask Test Kit option.

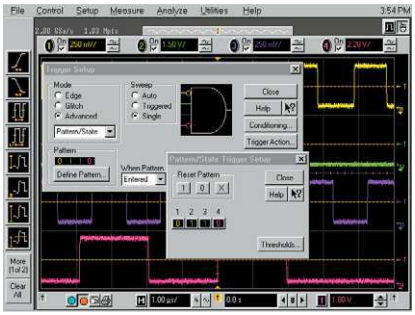
Advanced Triggering

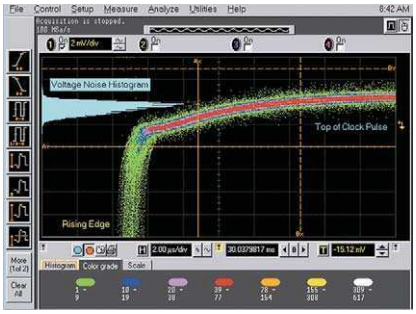
Advanced triggers are essential when investigating known problems. Infiniium offers a full range of advanced triggers to help you isolate and capture the condition you need to characterize. Advanced trigger setups are simplified by using intuitive dialog boxes with descriptive graphics.

Color-Graded Persistence with Histograms

By providing seven levels of color grades for a visual representation of waveform distribution, color-graded persistence makes it easy to pick out signal anomalies and see how often they occur. Histograms quantify both noise and jitter in your target system.







Intensity-Graded Persistence

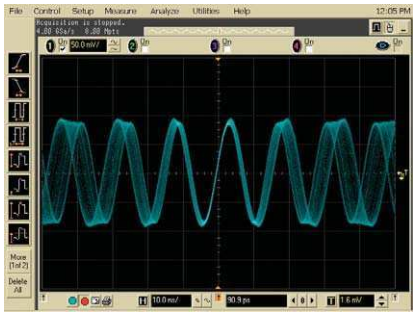
The intensity-graded persistence mode displays waveforms in the seven levels of intensity grades, enabling you to capture elusive signal anomalies in complex waveforms using user defined decay time.

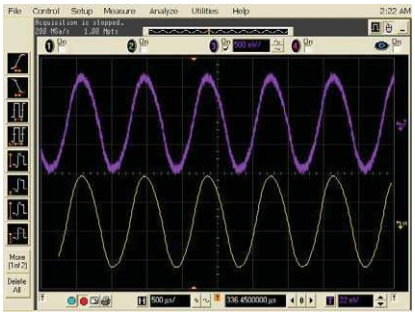
High/Low Pass Filter

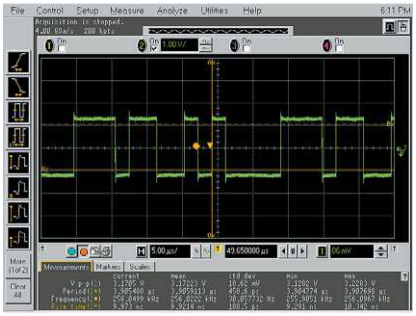
Applies a real-time digital filter to the source waveform that you choose. This filtering feature enhances your ability to examine important signal components by filtering out unwanted frequency components.

QuickMeasure and Statistics

Instantly make four common measurements on your signal, with easy-to-read statistics, by pressing the QuickMeas+ button on the front of your Infiniium. The measurements displayed can be easily customized.



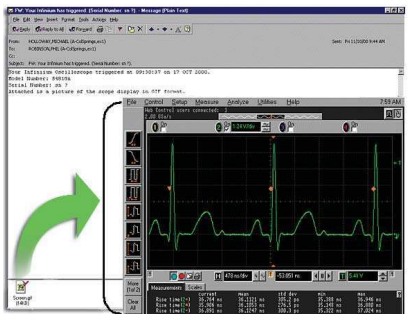




Infiniium: Simplifying tasks with easy access to advanced features

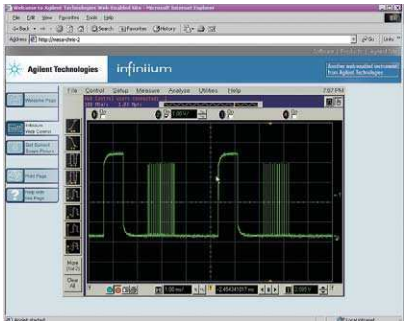
E-Mail on Trigger

Infiniium can automatically send an e-mail with a bit map of the display when the scope triggers. You can have your Infiniium send an e-mail to you or a message to your cell phone then control your scope from any Java-enabled web browser.



Web-Enabled Control

For distributed teams, simply set up Infiniium on your LAN, and up to three users can access it from any Java™-enabled Web browser. No special software is required. You can easily grab screen shots for a report, or troubleshoot designs at a remote location.



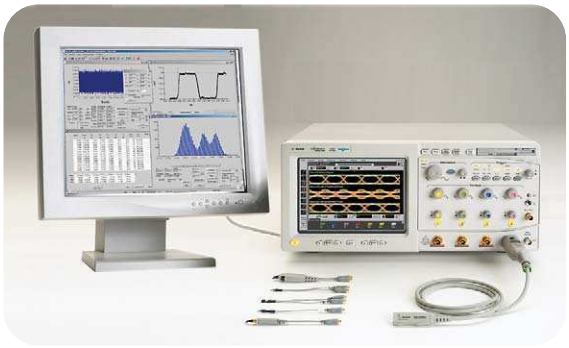
Infiniium IVI-COM Driver

For higher-level of instrument control, utilize the Infiniium IVI-COM instrument driver in your application. This IVI-COM driver takes full advantage of industry accepted standards and is compatible in application development environments such as Visual Studio® as well as in test and measurement development environments such as Agilent VEE Pro and National Instruments® LabView®. The Infiniium IVI-COM Instrument driver allows for easier use, higher performance, and instrument interchangeability in your oscillscope control program. Download the Infiniium IVI-COM driver for free from Agilent Developer's Network at **www.agilent.com/find/adn**.

Microsoft® Windows® xp Professional

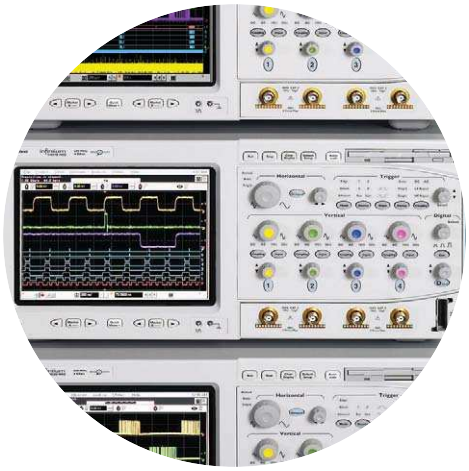
Windows XP Pro Open System

Want to run Windows applications inside your Infiniium scope? Yes you can. All Infiniium 54830 Series scopes are based on Windows XP Pro open platform that allows you to run Windows applications inside the Infiniium to add advanced analysis and functionaliy to the scope.

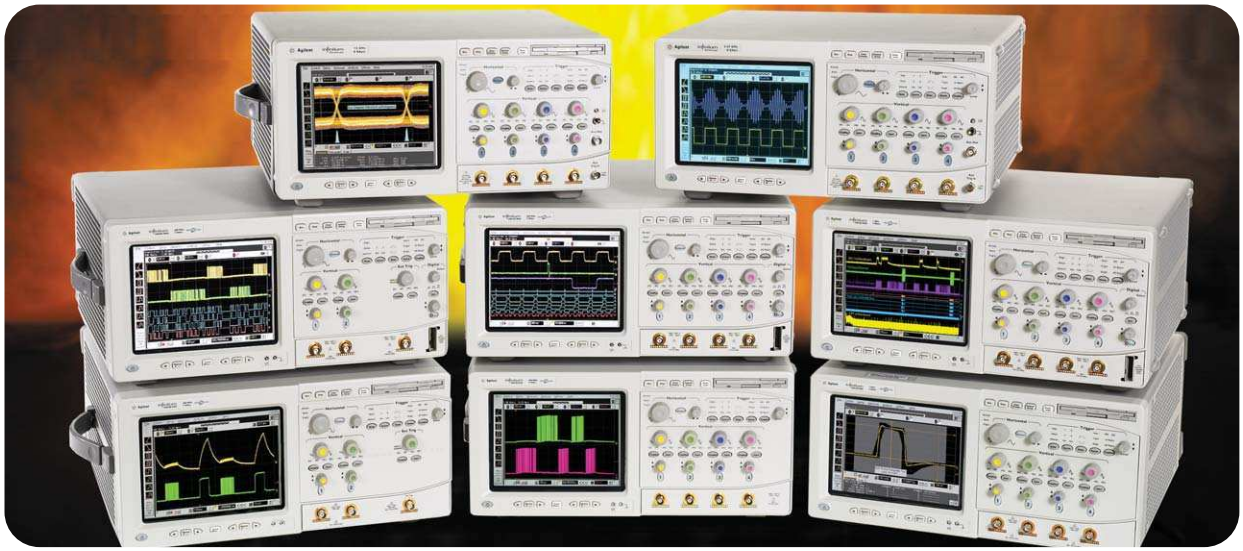


Dual Monitor Support

Dual Monitor mode allows you to run third-party applications on a large, external monitor with up to SXGA resolution (1280 x 1024 pixels) while using the scope's built-in monitor for waveform display.



Infiniium: High-performance scopes at competitive prices



54800 Series Infiniium Oscilloscopes

Mode	Bandwidth	Channels	Maximum Sample Rate	Standard Acquisition Memory	Optional Maximum Acquisition Memory
54830D	600 MHz	2+16	4 GSa/s	2 Mpts/ch (4 Mpts max.)	64 Mpts/ch (128 Mpts max.)
54831D	600 MHz	4+16	4 GSa/s	2 Mpts/ch (4 Mpts max.)	64 Mpts/ch (128 Mpts max.)
54832D	1 GHz	4+16	4 GSa/s	2 Mpts/ch (4 Mpts max.)	64 Mpts/ch (128 Mpts max.)
54833D	1 GHz	2+16	4 GSa/s	2 Mpts/ch (4 Mpts max.)	64 Mpts/ch (128 Mpts max.)
54830B	600 MHz	2	4 GSa/s	2 Mpts/ch (4 Mpts max.)	64 Mpts/ch (128 Mpts max.)
54831B	600 MHz	4	4 GSa/s	2 Mpts/ch (4 Mpts max.)	64 Mpts/ch (128 Mpts max.)
54832B	1 GHz	4	4 GSa/s	2 Mpts/ch (4 Mpts max.)	64 Mpts/ch (128 Mpts max.)
54833A	1 GHz	2	4 GSa/s	500 kpts/ch (1 Mpts max.)	64 Mpts/ch (128 Mpts max.)

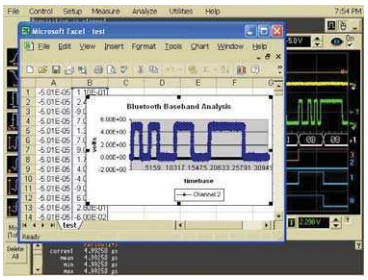
Common to All Infiniium 54830 Series Oscilloscopes

- 600 MHz and 1 GHz bandwidths
- Maximum 4 GSa/s sample rate
- 2 Mpts/ch MegaZoom memory standard (4 Mpts max) (except for 54833A)
- Optional up to 64 Mpts memory per channel (up to 128 Mpts max)
- Segmented Memory acquisition mode*
- Windows XP Pro based open system
- Simple analog-like front panel
- Advanced features are accessible with Windows GUI
- File and printer sharing with LAN
- Web-enabled, remote control from any web browser
- E-mail on trigger
- Intensity-graded persistence
- High/low pass filter functions
- Dual monitor support
- Advanced triggering
- Color-graded persistence and histograms
- Drag-and-drop measurements and zoom boxes
- USB (2), PS/2 (2), GPIB, VGA, LAN, Centronics ports
- QuickMeasure+
- Statistics
- Built-in information system
- ≥20 GB HDD, 1.44 MB floppy
- Waveform labels
- Math functions including FFTs
- Advanced, quiet multi-fan cooling system
- CD-ROM drive
- Optical USB mouse, condensed PS/2 keyboard
- ATX PC motherboard
- Pentium® III 1 GHz processor
- 512 MB CPU memory
- Eye diagram measurements
- AutoMask
- FPGA dynamic probe (for MSO models only)
- Low-speed serial data analysis option
- High-speed serial data analysis with clock recovery option
- My Infiniium integration package option
- EZJIT jitter analysis software option
- Time interval and jitter analysis option
- Ethernet compliance test option
- Communications mask testing option
- USB 2.0 test option (for 4-ch or 4+16-ch models only)
- VoiceControl option for hands-free control
- Support for Infiniium AutoProbes
- Standard 1-year warranty

* Standard feature with version A.03.70 system software or higher, but only available on 54830B/31B/32B models with serial number MY41003401 or greater, 54830D/31D/32D models with MY42001701 or greater, or 54833A/33D models with MY43000601 or greater.

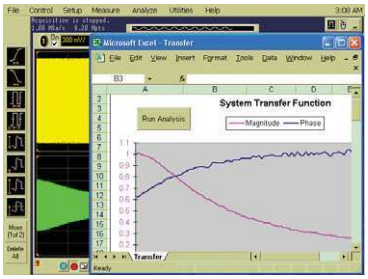
Infiniium Performance Upgrade Kit (N5383A)

The N5383A Infiniium Performance Upgrade Kit upgrades your existing Infiniium 54830 Series oscilloscopes to the A.03.10 or higher version of the system software based on Microsoft Windows XP Pro open operating system with expanded 512 MB CPU memory. The new system software offers users reliable system performance and the ability to run Windows applications inside the scope, making it a one-box acquisition/analysis solution.



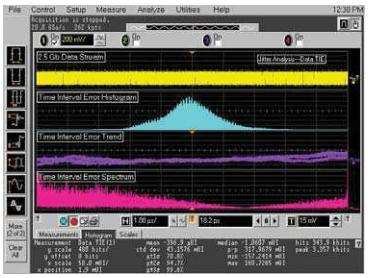
My Infiniium Integration Package* (Option 006 or E2699A)

The E2699A My Infiniium Integration Package option allows you to extend the power of your Infiniium oscilloscope by letting you launch your application directly from the oscilloscope's front panel or graphical user interface. Any program that can be run under Windows XP can be launched from Infiniium scope, including applications such as Agilent VEE, Microsoft Excel, or MATLAB®.



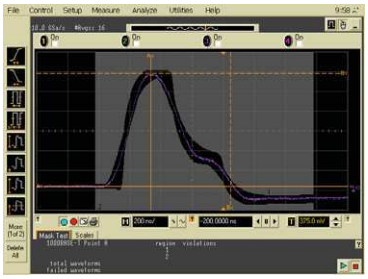
EZJIT Jitter Analysis Software* (Option 015 or E2681A)

The E2681A Jitter Analysis option provides the most commonly needed jitter measurements, including cycle-cycle jitter, N-cycle jitter, period jitter, time interval error, setup and hold time, measurement histograms, measurement trending and jitter spectrum. Our jitter option provides a setup wizard to guide you through the setup of the jitter measurement, how each jitter measurement works, and tells you when to use it.



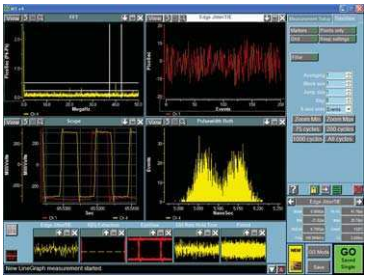
Ethernet Masks* (E2698A)

The E2698A Ethernet Masks option provides mask templates for 1000BaseTX, 100BaseT and 10BaseT. These masks provide pass/fail testing for Ethernet signals. The option provides four mask templates for 10BaseT testing, two mask templates for 100BaseT testing, and six mask templates for 1000BaseT testing as defined by IEEE 802.3 specification.



Time Interval and Jitter Analysis* (E2690A/2A and N5385A/7A)

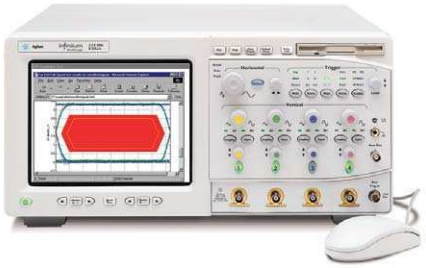
The Agilent E2690A (US domestic) and N5385A (international) Advanced Time Interval and Jitter Analysis Software, licensed from Amherst Systems Associates (ASA), offers the most powerful and comprehensive set of tools for exploratory debug of jitter, and it is remarkably easy to use. The E2692A (US domestic) and N5387A (international) Basic Time Interval and Jitter Analysis Software offers the basic tools you need for jitter debug with the same precision you get with the advanced version.



* This option works with all 54830 Series Infiniium oscilloscopes and requires Infiniium system software version A.03.10 or higher. Existing 54830 Series users can order the N5383A Infiniium performance upgrade kit to move from A.02.xx (Windows 98) to A.03.xx (Windows XP Pro) or higher revision of the system software.

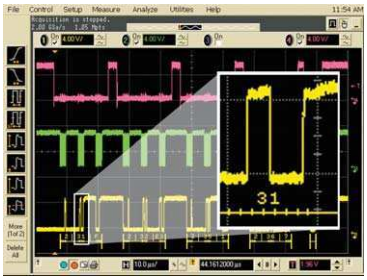
USB 2.0 Test Option (E2683A or N2855A)

The E2683A or N2855A USB 2.0 test option makes USB signal-integrity compliance testing as simple as capturing the signals with your Infiniium 4-ch or 4+16-ch oscilloscope. The Infiniium USB 2.0 test option features run-time MATLAB® embedded in the scope for use with the USB signal integrity scripts, providing a one-box solution. The USB-IF compliance program recognizes Infiniium as a recommended scope for use in compliance testing. In addition, all MATLAB scripts used with the USB test option come from the USB-IF organization.



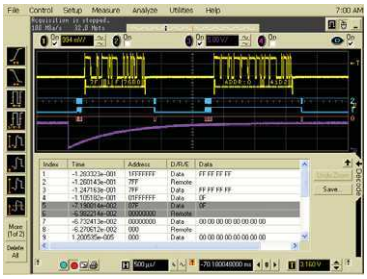
Low-Speed Serial Data Analysis Software† (Option 021 or N5391A)

The N5391A Low-Speed Serial Data Analysis (SDA) software provides a fast and easy way to debug Inter-Integrated Circuit (I^2C) and 2-wire or 3-wire Serial Peripheral Interface (SPI) serial communication busses. The Low-Speed SDA software provides the ability to capture and automatically display decoded serial data in numerical format synchronized with the analog or digital waveform view of I^2C or SPI serial data streams. The Low-Speed SDA software also features a listing window view with automatic click and zoom capability that contains a protocol decode list of all I^2C or SPI packets that have been captured.



CAN Serial Data Analysis Software* (N5402A)

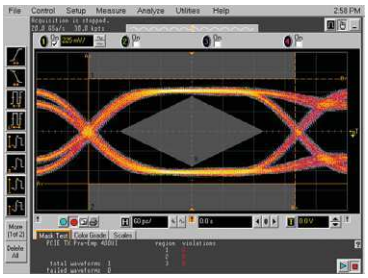
The Agilent Technologies N5402A CAN Serial Data Analysis (SDA) software allows engineers to view both protocol layer information and physical layer signal characteristics inside a single instrument, the Infiniium oscilloscope. Numerical decode values are automatically displayed and synchronized below the captured signal's waveform. A listing window view with automatic click and zoom capability shows the index number, time stamp value, address, data/remote/error frame type, and data content of all CAN packets that have been captured.



High-Speed Serial Data Analysis Software† (Option 003 or N5384A)

The N5384A High-Speed Serial Data Analysis (SDA) software provides an effective way to validate signal integrity for designs employing high-speed serial interfaces with embedded clocks. The High-Speed SDA software, when used with the Agilent 54830 Series Infiniium oscilloscopes, allows you to:

- recover embedded clocks with first-order PLL, second-order PLL, or constant frequency algorithms
- choose an external reference clock input
- display the recovered clock synchronized with the analog waveform view of the serial data stream
- build real-time eye diagrams
- unfold real-time eye diagrams to easily locate failures versus time



- perform custom mask testing
- make TIE jitter measurements relative to the recovered clock or external reference clock

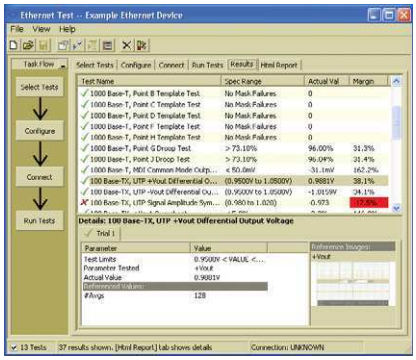
* This proudct works with all 54830 Series Infiniium oscilloscopes and requires version A.04.20 (Windows XP Pro) system software or higher. Existing 54830 Series users can order the N5383A Infiniium Performance Upgrade Kit to move from A.02.xx (Windows 98) to A.04.20 (Windows XP Pro) or higher revision of system software.

† This option works with all 54830 Series Infiniium oscilloscopes and requires version A.03.50 (Windows XP Pro) system software or higher. Existing 54830 Series users can order the N5383A Infiniium Performance Upgrade Kit to move from A.02.xx (Windows 98) to A.03.50 (Windows XP Pro) or higher revision of system software.

FPGA Dynamic Probe for Infiniium MSO* (N5397A)

The N5397A FPGA Dynamic Probe for the Infiniium MSO provides the most effective solution for validating and debugging embedded designs incorporating Xilinx FPGAs. This innovative solution enables you to:

- **View internal FPGA activity correlated to external analog events** — With the FPGA dynamic probe, the Infiniium MSO's 16 digital channels can be used to access hundreds of internal signals, unlocking visibility into your design that you never had before. With the power of the MSO, these internal FPGA signals can be correlated to external analog content for determining cause and effect relationships.
- **Make multiple measurements in seconds** — Moving probe points internal to an FPGA used to require time consuming design recompiles. Now, in less than a second you can easily measure a different set of internal signals without design changes. By not changing the design, FPGA timing stays constant when you select new sets of internal signals for probing.
- **Leverage the work you did in your design environment** — The FPGA dynamic probe automatically maps internal signal names from your FPGA design tool to the MSO's digital channel labels. This provides easy signal identification and eliminates unintentional mistakes while saving hours of time.

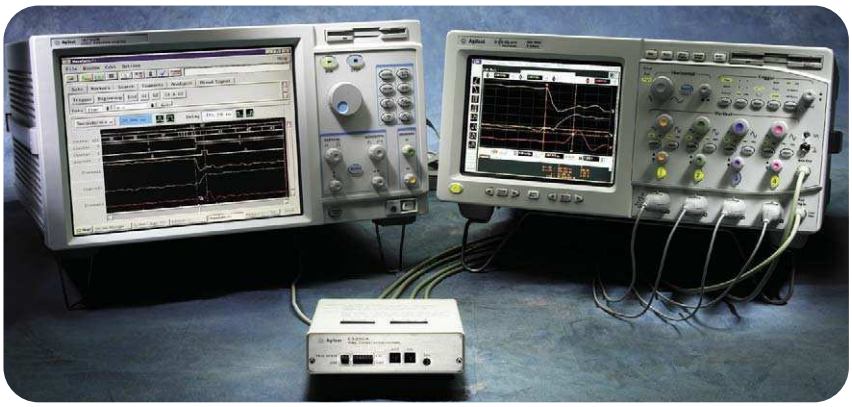


Ethernet Performance Validation and Compliance Software† (N5392A)

The N5392A Ethernet electrical performance validation and compliance option provides you with a fast and easy way to verify and debug your 1000Base-T, 100Base-TX and 10Base-T Ethernet designs. The Ethernet electrical test software, allows you to automatically execute Ethernet physical-layer (PHY) electrical tests, and it displays the results in a flexible report format. In addition to the measurement data, the report provides a margin analysis that shows how closely your device passed or failed each test. The Agilent N5395A Ethernet electrical compliance test fixture and N5396A Gigabit Ethernet jitter test cable are available for making the physical connection between the Infiniium oscilloscope and the device under test.

* This option works with all 54830 Series Infiniium mixed-signal oscilloscopes and requires version A.04.00 system software or highter. Existing 54830 Series users can order the N5383A Infiniium Performance Upgrade Kit to move from A.02.xx (Windows 98) or lower revision to A.03.xx (Windows XP Pro) or higher revision of system software.

† This option works with all 54830 Series Infiniium oscilloscopes and requires version A.03.50 (Windows XP Pro) system software or higher. Existing 54830 Series users can order the N5383A Infiniium Performance Upgrade Kit to move from A.02.xx (Windows 98) or lower revision to A.03.xx (Windows XP Pro) or higher revision of system software.



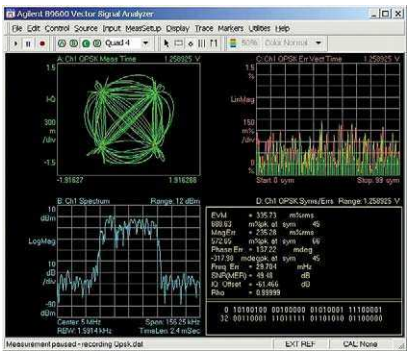
Communication Mask Test Kit (E2625A)

Take the frustration out of communications testing and prove your designs conform to industry standards with the Communication Mask Test Kit option. Infiniium's familiar Windows interface makes it easy for you to access the masks you need and configure your tests.

In addition, the Communication Mask Test Kit comes with a set of electrical communication adapters to ensure convenient, reliable, and accurate connections to your device under test. Includes more than 20 industry-standard ANSI T1.102, ITU-T G.703, and IEEE 802.3 communication signal mask templates. This option works with all Infiniium 54800 Series oscilloscopes.

Logic Analyzer/Oscilloscope Time-Correlation Fixture (E5850A)

Now you can more effectively verify and track down problems between the analog and digital portions of a design. Easily make time-correlated measurements between an Agilent 16700 Series logic analysis system or Agilent 1680/90 Series benchtop logic analyzer and an Infiniium 54800 Series oscilloscope. With the E5850A Time-Correlation Fixture, you can trigger the Infiniium from the logic analyzer (or vice versa), automatically deskew the waveforms, and simultaneously view the Infiniium analog waveforms and the logic analyzer's timing waveforms on your Agilent logic analyzer. This option works with all Infiniium 54800 Series oscilloscopes.



Vector Signal Analysis software for Infiniium (89601A)

The 89601A Vector Signal Analyzer (VSA) software, used with the Infiniium oscilloscope, enables flexible signal analysis and demodulation up to 13 GHz bandwidth for troubleshooting wideband modulated signals in radar and communications applications. The solution provides:

- Flexible demodulation for measuring constellation diagrams, carrier offset, and frequency error for QPSK signals, 256 QAM signals and much more
- display formats including spectrogram, phase vs. time, and frequency vs. time for rapid insight into complex signal behavior
- Error vector magnitude measurements (with 89601A option AYA)
- Markers to facilitate frequency, amplitude, offset, power, phase, other measurements
- Time gating that allows you to select specific portion of signals for signal analysis
- Variable frequency resolution

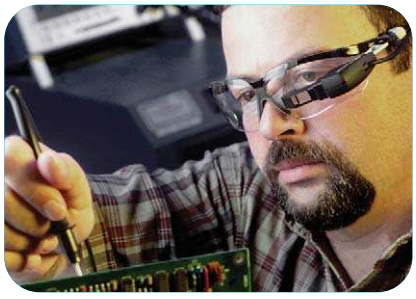
Testmobile (1184A)

Agilent's 1184A testmobile provides a convenient solution for your portability and storage needs. The 1184A includes a drawer for accessories and a keyboard tray with a mouse extension for either right- or left-hand operation.

VoiceControl Option (E2682A or N2850A)

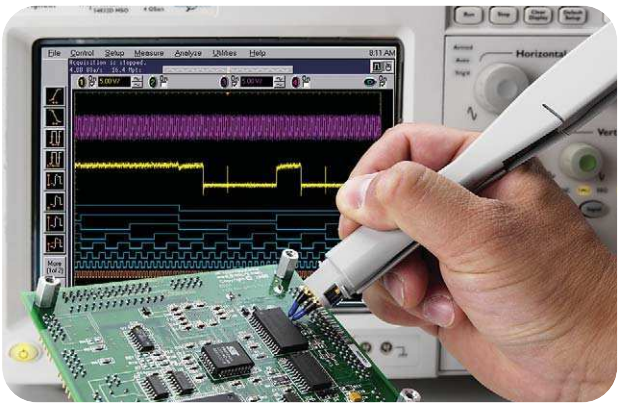
If you're making measurements on target systems with densely packed ICs, your hands are tied up holding probes, making it difficult to turn knobs and press buttons on the front panel of your scope. Infiniium's award-winning VoiceControl option solves this problem. Just speak into the collar-mounted microphone to operate your Infiniium's front-panel controls without using your hands. Simply tell the scope what you want it to do, using natural English-language commands, such as "set channel one to 1.25 volts per division." The VoiceControl system does not require the scope to be trained to understand a particular user. This option works with all Infiniium 54800 Series oscilloscopes.

Order N2850A for an existing Infiniium 54830 Series (version A.02.xx) purchase. Order E2682A for a new Infiniium 54830 Series (version A.03.10 or later) purchase.



Instrument Viewer®

The MicroOptical® SV-3 Instrument Viewer projects an image of your Infiniium VGA display in front of you, like having a monitor anywhere you want it. For additional information and ordering instructions, contact the MicroOptical Corp or see **http://www.microoptical.net**.



Active Probes

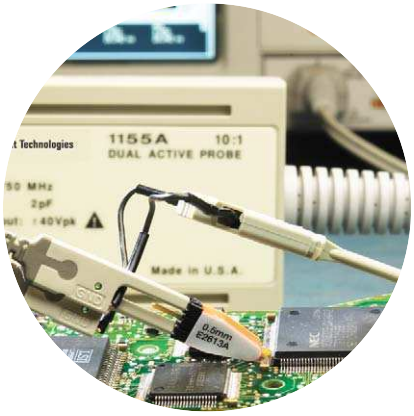
Probing high-frequency signals becomes more challenging as the variety of test points and the frequencies of the signals continue to grow. Probes need to be lightweight, small, affordable, and offer the accessories and probe tips you require to get your job done easily.

For high-speed differential signal measurements, the 1130A InfiniiMax differential probe is a perfect compliment to the Infiniium 54830 Series oscilloscopes. Its 1.5 GHz probe bandwidth, extremely low input capacitance, high common mode rejection and the patented resistor probe tip technology provide ultra-low loading of the DUT and superior signal fidelity.

The 1156A active probe is a small, low-mass, active probe with bandwidth up to 1.5 GHz. The probe offers a flat frequency response across the entire probe bandwidth, giving you accurate insight into your high-speed measurement. Agilent offers a variety of probe tips to help you probe any test point, and the revolutionary EZ-Probe Positioner® option provides stable, accurate X, Y, Z positioning of your probe.

The 1155A probe is a low-mass, versatile, and affordable 2-channel, 750-MHz active probe. Used with an optional Wedge Probe Adapter, this combination is an excellent solution for probing TQFP and PQFP packages. When used with the standard grabber tips, the 1155A can be used to probe any test point. When used with the 600 MHz Infiniium oscilloscopes, this pairing delivers 2 channels with a system bandwidth of 500 MHz.

For more information on probing solutions, accessories, and options, please visit our web site at **www.agilent.com/find/infiniium;** and see the *Infiniium 54800 Series Oscilloscope Probes, Accessories, and Options* Selection Guide, (Agilent literature No. 5968-7141 EN/EUS) and many other useful documents and webpages.



Model	Probe Bandwidth	System Bandwidth	Channels	Single-Ended/ Differential	Option No.
1155A	750 MHz	500 MHz with 54830B/D or 31B/D	2	single	011
1156A	1.5 GHz	1 GHz with 54832B/D or 33A/D	1	single	012
1130A	1.5 GHz	1 GHz with 54832B/D or 33A/D	1	differential*	019

* InfiniiMax 1130A probe amplifier supports both differential and single-ended measurements, depending on the choice of probe head and accessories.

Performance Characteristics

Vertical : Analog Channels	54830B, 54831B, 54832B, 54833A, 54830D, 54831D, 54832D and 54833D
Input Channels	54830B/54833A: 2 analog 54830D/54833D: 2 analog + 16 digital 54831B/54832B: 4 analog 54831D/54832D: 4 analog + 16 digital
Analog Bandwidth @50 Ω (-3 dB)*[1]	54830B/D, 54831B/D: 600 MHz 54832B/D, 54833A/D: 1 GHz
Calculated Rise Time[2] @50 Ω	54830D/B, 54831B/D: 583 ps 54832B/D, 54833A/D: 350 ps
Input Impedance*	1 MΩ ± 1% (13 pF typical), 50 Ω ± 1.5%
Sensitivity[3]	1 mV/div to 5 V/div (1 MΩ) 1 mV/div to 1 V/div (50 Ω)
Input Coupling	1 MΩ: AC, DC; 50 Ω:DC
Hardware Bandwidth Limit	20 MHz
Vertical Resolution[4]	8 bits, ≥12 bits with averaging
Channel-to-Channel Isolation (any two channels with equal V/div settings)	DC to 50 MHz: 50 dB >50 MHz to 500 MHz: 40 dB >500 MHz to 1 GHz: 30 dB
DC Gain Accuracy*[3, 5]	± 1.25% of full scale at full resolution channel scale
Maximum Input Voltage*	
1 MΩ	150 V RMS or DC, CAT I ± 250 V (DC + AC) in AC coupling
50 Ω	5 Vrms, CAT I
Offset Range	Vertical Sensitivity / Available Offset
1 MΩ	1 mV to <10 mV/div: ± 2 V 10 mV to <20 mV/div: ± 5 V 20 mV to <100 mV/div: ± 10 V 100 mV to <1 V/div: ± 20 V 1 V to 5 V/div: ± 100 V
50 Ω	1 mV to <5 mV/div: ± 2 V 5 mV to <200 mV/div: ± 5 V 200 mV to 1 V/div: ± 20 V
Offset Accuracy*[3]	± (1.25% of channel offset+2% of full scale+1 mV)
Dynamic Range	± 8 div from center screen (1 MΩ) ± 12 div from center screen (50 Ω)
DC Voltage Measurement Accuracy*[3, 5]	
Dual Cursor	± [(DC gain accuracy)+(resolution)]
Single Cursor	± [(DC gain accuracy)+(offset accuracy)+(resolution/2)] Example for single cursor accuracy for 70 mV signal, 10 mV/div, 0 offset: Accuracy = ± [1.25% (80 mV) + (1.25% (0) + 2% (80 mV) + 1 mV) + (0.4%/2) (80 mV)] = ±3.8 mV

Vertical: Digital Channels	(54830D/31D/32D/33D only)
Number of Channels	16 Digital – labeled D15 – D0
Threshold Groupings	Pod 1: D7 – D0 Pod 2: D15 – D8
Threshold Selections	TTL, 5.0V CMOS, 3.3V CMOS, 2.5V CMOS, ECL, PECL, User Defined
User-Defined Threshold Range	±8.00 V in 10 mV increments
Maximum Input Voltage	±40 V peak CAT I
Threshold Accuracy*	±(100 mV + 3% of threshold setting)
Input Dynamic Range	±10 V about threshold
Minimum Input Voltage Swing	500 mV peak-to-peak
Input Impedance	100 kΩ ± 2% (~ 8 pF) at probe tip
Channel-to-Channel Skew	2 ns typical, 3 ns maximum
Glitch Detect	≥ 2.5 ns
Resolution	1 bit

Horizontal	54830B, 54831B, 54832B, 54833A, 54830D, 54831D, 54832D and 54833D	
Main Time Base Range	54830B/D, 54831B/D 500 ps/div to 20 s/div	54832B/D, 54833A/D 200 ps/div to 20 s/div
Horizontal Position Range	0 to ± 200 s	
Delayed Sweep Range	1 ps/div to current main time base setting	
Resolution	4 ps	
Timebase Accuracy	15 ppm (±0.0015%)	
Delta-Time Measurement Accuracy	54830B/D, 54831B/D	54832B/D, 54833A/D
≥ 256 Averages, RMS	500 fs rms	400 fs rms
≥ 256 Averages, Peak	±[(2.2 ps) + ($15x10^{-6}$ x |reading|)] peak	±[(2.0 ps) + ($15x10^{-6}$ x |reading|)] peak
Average Disabled, RMS	10 ps rms	7 ps rms
Average Disabled, Peak	±[(35 ps) + ($15x10^{-6}$ x |reading|)] peak	±[(25 ps) + ($15x10^{-6}$ x |reading|)] peak
Channel-to-Channel Deskew Range	–100 µs to 100 µs	
Modes	Main, Delayed, Roll	
Reference Positions	Left, Center, Right	
Jitter Measurement Floor	54830B/D, 54831B/D	54832B/D, 54833A/D
Time Interval Error	7 ps rms	5 ps rms
Period Jitter	10 ps rms	7 ps rms
N-Cycle, Cycle-Cycle Jitter	15 ps rms	11 ps rms

Acquisition: Analog Channels	54830B, 54831B, 54832B, 54833A, 54830D, 54831D, 54832D and 54833D
Real Time Sample Rate (Max)	
2 Channels Interleaved	4 GSa/s
Each Channel	2 GSa/s
Equivalent Time Sample Rate (Max)	250 GSa/s
Memory Depth	Interleaved[10]/each channel
Standard	4 M / 2 M (1 M / 500 K for 54833A)
Option 040	8 M / 4 M
Option 080	16 M / 8 M
Option 160	32 M / 16 M
Option 320	64 M / 32 M
Option 640	128 M / 64 M
Sampling Modes	
Real Time	
Normal	Successive single-shot acquisitions
Peak Detect	Captures and displays narrow pulses or glitches at all real time sample rates
Hi Resolution	Real-time boxcar averaging reduces random noise and increases resolution
Equivalent Time	Random repetitive sampling (higher time resolution at faster sweep speeds)
Segmented Memory[11]	Captures bursting signals at maximum sample rate without consuming memory during periods of inactivity. Selectable number of segments up to 32,768 depending on memory option installed. Minimum inter-segment time (or the time between the end of the previous acquisition and the beginning of the next acquisition) of 20 µs.
Averaging	Selectable from 2 to 4096
Filters	
Sin[x])/x Interpolation	Filter On/Off selectable FIR digital filter. Digital signal processing adds points between acquired data points to enhance measurement accuracy and waveform display quality. BW= Sample Rate/4

Acquisition: Digital Channels	(54830D/31D/32D/33D only)
Maximum Real Time Sample Rate	1 GSa/s
Memory Depth per Channel	32 M
Minimum Width Glitch Detection	2.5 ns

Trigger	54830B, 54831B, 54832B, 54833A, 54830D, 54831D, 54832D and 54833D
Sensitivity	
Internal[8]	DC to 600 MHz: 0.6 div 600 MHz to 1 GHz: 1.5 div (50 Ω)
External	DC to 100 MHz: 0.05 x (signal range) 100 MHz to 600 MHz: 0.10 x (signal range) (54830B/D, 54833A/D) 600 MHz to 1 GHz: 0.18 x (signal range) (54833A/D)
Auxiliary	DC to 600 MHz: 300 mVp-p (54831B/31D/32B/32D/33A/33D)
Level Range	
Internal	± 8 div from center screen (1 MΩ) ± 8 div from center screen (50 Ω)
External	± 1 V, ± 5 V, ± 25 V (1 MΩ) ± 1 V, ± 5 V, ± 8 V (50 Ω) (54830B/D, 54833A/D)
Auxiliary	± 5 V (54831B/32B/31D/32D/33A/33D)
Sweep Modes	Auto, triggered, single
Trigger Coupling	DC, AC, low frequency reject (50 kHz high pass filter), high frequency reject (50 kHz low pass filter)
Trigger Conditioning	Noise reject adds hysteresis to trigger circuitry decreasing sensitivity to noise
Trigger Holdoff Range	80 ns to 320 ms (54830A/B Series) 50 ns to 10 s (54830D Series)
Trigger Jitter	8 ps ± 0.05 ppm x |delay setting| rms
Trigger Actions	Specify an action to occur, and the frequency of the action, when a trigger condition occurs. Actions include: e-mail on trigger and QuickMeas+
Trigger Modes	
Edge	Triggers on a specified slope and voltage level on any channel, auxiliary trigger (4 channel models), external trigger (2 channel models) or line input.
Glitch	Triggers on glitches narrower than the other pulses in your waveform by specifying a width less than your narrowest pulse and a polarity. Minimum glitch width is 500 ps (analog channels) or 2.5 ns (digital channels on 54830D/31D/32D/33D). Glitch range settings: <1.5 ns to <160 ms (54830A/B Series), <1.5 ns to <10 s (analog channels on 54830D/31D/32D/33D), <5 ns to <10 s (digital channels on 54830D/31D/32D/33D)
Line	Triggers on the line voltage powering the oscilloscope.
Pattern	Triggers when a specified logical combination of the channels is entered, exited, is present or absent for a specified period of time or is within a specified time range. Each channel can have a value of High (H), Low (L) or Don't care (X).
State	Pattern trigger clocked by the rising or falling edge of one channel. Logic type: AND or NAND.
Delay by Time	The trigger is qualified by an edge. After a specified time delay between 30 ns to 160 ms (5 ns to 10 s for 54830D/31D/32D/33D) a rising or falling edge on any one selected input will generate the trigger.
Delay by Events	The trigger is qualified by an edge. After a specified delay between 1 to 16,000,000 rising or falling edges on any one selected input will generate the trigger.
TV	Trigger on one of the three standard television waveforms: 525 lines/60 Hz (NTSC) 625 lines/50 Hz (PAL), or define a custom waveform
Violation Triggers	
Pulse Width	See Trigger Mode Glitch for performance characteristics.
Setup/Hold	Triggers on setup, hold or setup and hold violations in your circuit. Requires a clock and data signal on any two input channels as trigger sources. High and low thresholds and setup and/or hold time must then be specified.
Transition	Trigger on pulse rising or falling edges that do not cross two voltage levels in > or < the amount of time specified.

Trigger: Digital Channels	(54830D/31D/32D/33D only)
Threshold Range (user defined)	±8.0 V in 10 mV increments
Threshold Accuracy*	±(100 mV + 3% of threshold setting)
Predefined Thresholds	TTL=1.4 V, 5.0 V CMOS=2.5 V, 3.3 V CMOS=1.65 V, 2.5 V CMOS=1.25 V, ECL=–1.3 V, PECL=3.7 V

Measurements and Math	54830B, 54831B, 54832B, 54833A, 54830D, 54831D, 54832D and 54833D
Waveform Measurements	
Voltage (analog channels only)	Peak-to-Peak, Minimum, Maximum, Average, RMS, Amplitude, Base, Top, Overshoot, Preshoot, Upper, Middle, Lower, Area
Time (all channels)	Period, Frequency, Positive Width, Negative Width, Duty Cycle, Delta Time
(analog channels only)	Rise Time, Fall Time, Tmin, Tmax, Channel-to-Channel Phase
Frequency Domain	FFT Frequency, FFT Magnitude, FFT Delta Frequency, FFT Delta Magnitude
Eye Pattern	Eye Height, Eye Width, Jitter, Crossing %, Q-Factor, Duty Cycle Distortion
Measurement Modes	
Automatic Measurements	Measure menu access to all measurements, 4 measurements can be displayed simultaneously
QuickMeas+	Front panel button activates five pre-selected or five user defined automatic measurements
Drag and Drop Measurement Toolbar	Measurement toolbar with common measurement icons that can be dragged and dropped onto the displayed waveforms
Statistics	Displays the mean, standard deviation, minimum and maximum measurement values for the displayed automatic measurements
Histograms (analog channels only)	Vertical (for timing and jitter measurements) or horizontal (noise and amplitude change) modes, regions are defined using waveform markers. Measurements included: mean, standard deviation, peak-to-peak value, median, total hits, peak (area of most hits), and mean ± 1,2, and 3 sigma
Eye Diagram Measurements	Eye diagram display mode allows triggering on both negative-going and positive-going edges of a signal. Eye diagram measurements include eye height, eye width, jitter, crossing percentage, Q factor, and duty cycle distortion
Mask Testing	Allows pass/fail testing to user-defined or Agilent-supplied waveform templates. AutoMask allows user to create a mask template from a captured waveform and define tolerance range in time/voltage or percentage. Test modes include test forever, test to specified time or event limit, and stop on failure. Communications Mask Test Kit Option provides a set of ITU-T G.703, ANSI T1.102, and IEEE 802.3 industry standard masks for compliance testing
Marker Modes	Manual Markers, Track Waveform Data, Track Measurements
Waveform Math	4 functions f1-f4. Select from Add, Average, Differentiate, Divide, FFT Magnitude, FFT Phase, High Pass Filter, Integrate, Invert, Low Pass Filter, Magnify, Min, Max, Multiply, Subtract, Versus
FFT	
Frequency Range[6]	DC to 2 GHz (2 channels interleaved), DC to 1 GHz (each channel)
Frequency Resolution	Resolution = Sample Rate / Memory Depth
Best resolution at maximum sample rate	4 GSa/s / 16 M = 250 Hz
Frequency Accuracy	(1/2 frequency resolution)+(5x10^{-5})(signal frequency)
Signal-to-Noise Ratio[9]	80 dB at 1 Mpts memory depth
Window Modes	Hanning, Flattop, Rectangular

Performance Characteristics continued

Display, Computer System and Peripherals, I/O Ports	54830B, 54831B, 54832B, 54833A, 54830D, 54831D, 54832D and 54833D
Display	8.4 inch diagonal color TFT-LCD
Resolution	640 pixels horizontally x 480 pixels vertically
Annotation	Up to 12 labels, with up to 100 characters each can be inserted into the waveform area
Waveform Styles	Connect Dots, Dots, Persistence (minimum, variable, infinite), Color Graded Infinite Persistence
Simultaneous Grids	1, 2, or 4
Display Update Rate[7]	
Standard Waveforms/second	> 3,100
Standard Vp-p Measurements/second	> 190
Maximum Waveforms/second	> 8,800
Maximum Vp-p Measurements/second	> 200
Deep Memory Waveforms/second	> 50
Deep Memory Vp-p Measurements/second	> 10
Computer System and Peripherals	
CPU	Intel Pentium® III 1 GHz microprocessor
CPU Memory	512 MB
Drives	≥20 GB internal hard drive, CD-ROM drive on rear panel, 3.5 inch 1.44 MB floppy drive
Peripherals	Logitech optical USB mouse and condensed keyboard supplied. All Infiniium models support any Windows compatible input device with a serial, PS/2 or USB interface
File Types	
Waveforms	Internal Y values; X and Y values in ASCII or Microsoft Excel formats
Images	BMP, PCX, TIFF, GIF or JPEG
I/O Ports	
LAN	RJ-45 connector, supports 10Base-T and 100Base-T. Enables Web-enabled remote control, e-mail on trigger or demand, data/file transfers and network printing
GPIB	IEEE 488.2, fully programmable
RS-232 (serial)	COM1, printer and pointing device support
Parallel	Centronics printer port
PS/2	2 ports. Supports PS/2 pointing and input devices
USB	2 ports. Allows connection of USB peripherals and pointing devices while the oscilloscope is on
Video Output	15 pin VGA, full color
Auxiliary Output	DC (±2.4 V); square wave (715 Hz[±15%], [±5%]); trigger output (255 mV p-p into 50 Ω)
TTL Output	TTL compatible signal

Performance Characteristics continued

General Characteristics	54830B, 54831B, 54832B, 54833A, 54830D, 54831D, 54832D and 54833D
Temperature	
Operating	0°C to + 50°C
Non-operating	–40°C to + 70°C
Humidity	
Operating	Up to 95% relative humidity (non-condensing) at +40°C
Non-operating	Up to 90% relative humidity at +65°C
Altitude	
Operating	Up to 4,600 meters (15,000 feet)
Non-operating	Up to 15,300 meters (50,000 feet)
Vibration	
Operating	Random vibration 5-500 Hz, 10 minutes per axis, 0.3 g(rms)
Non-operating	Random vibration 5-500 Hz, 10 minutes per axis, 2.41 g(rms); resonant search 5-500 Hz, swept sine, 1 octave/minute sweep rate, (0.75g), 5 minute resonant dwell at 4 resonances per axis
Power	100-240 VAC, ± 10%, Cat II, 47 to 440 Hz; Max power dissipated: 390 W
Weight	Net: 13.4 kg (29.5 lbs.) Shipping: 16.4 kg (36.1 lbs.)
Dimensions (excluding handle)	Height: 216 mm (8.5 in); Width: 437 mm (17.19 in); Depth: 440 mm (17.34 in)
Safety	Meets IEC1010-1 +A2, CSA certified to C22.2 No.1010.1, Self certified to UL 3111

* Denotes Warranted Specifications, all others are typical. Specifications are valid after a 30-minute warm-up period and ±10°C from firmware calibration temperature.

1 Typical system bandwidth for 54830 Series in 1 MΩ input with standard 1165A passive probe attached is 600 MHz.

2 Rise time figures for 54830 Series are calculated from t r = 0.35/bandwidth.

3 54830B/31B/32B/33A/30D/31D/32D/33D: Magnification is used below 5 mV/div range. Below 5 mV/div, full scale is defined as 40 mV. Full scale is defined as the major attenuator setting above an intermediate setting. (Major settings 50 Ω: 10 mV, 20 mV, 50 mV, 100 mV, 200 mV, 500 mV, 1 V, 1 MΩ: all of the above plus 2 V).

4 Vertical resolution for 8 bits = 0.4% of full scale, for 12 bits = 0.024% of full scale.

5 The dc gain accuracy decreases 0.08% of full scale per degree C from the firmware calibration temperature.

6 FFT amplitude readings are affected by input amplifier roll-off 54830/31B/D (–3 dB at 600 MHz, with amplitude decreasing as frequency increases above 600 MHz), 54832B/32D/33A/33D: (–3 dB at 1 GHz, with amplitude decreasing as frequency increases above 1 GHz).

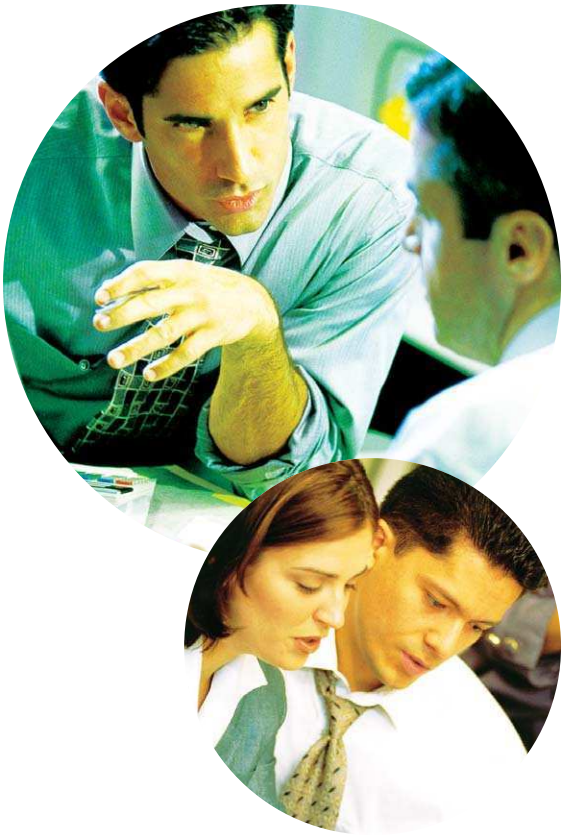
7 Standard measurement condition: Real time mode, 512 pts memory, minimum persistence display mode, triggered sweep mode, no interpolation, markers off, math off, connect dots off, 1 channel acquisition, 50 ns/div, only analog channels on (for 54830D models). Maximum condition is the same as standard condition except time/div is set to 1 ns/div. Deep memory condition is the same as standard condition except time/div is set to 200 µs/div and memory depth is set to 8 Mpts per channel.

8 For 54830B Series specification valid for vertical ranges > 5 mV / div.

9 Noise floor varies as memory depth increases with averaging on.

10 Maximum interleaved memory depth only available at maximum interleaved sample rate. Maximum each channel memory depth available at any selectable sample rate.

11 Standard feature with version A.03.70 system software or higher, but only available on 54830B/31B/32B models with serial number MY41003401 or greater, 54830D/31D/32D models with MY42001701 or greater, or 54833A/33D models with MY43000601 or greater.



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Ordering Information and Configuration

Agilent Model	Channels	Bandwidth	Sample Rate	Standard Memory Depth
54830D	2+16	600 MHz	4 GSa/s on half the channels (interleaved) 2 GSa/s on each channel	4 M on half the channels (interleaved) 2 M on each channel
54831D	4+16	600 MHz		
54832D	4+16	1 GHz		
54833D	2+16	1 GHz		
54830B	2	600 MHz		
54831B	4	600 MHz		
54832B	4	1 GHz		
54833A	2	1 GHz		1 M on half the channels (interleaved) 500 K on each channel

The above models include: Optical USB Mouse, Condensed Keyboard, User's Quick Start Guide in English language (other languages also available), Documentation CD (Service Guide, Programmer's Guide), Information System in English language, accessory pouch (54810-68701), front panel cover, power cord, and one-year warranty.

Standard Probes Included

Agilent Model	Passive Probes	Logic Cable Kit
54830D	1165A 10:1 10 MΩ probes (Qty 2)	54826-68701 MSO logic cable kit (Qty 1)
54831D	1165A 10:1 10 MΩ probes (Qty 4)	54826-68701 MSO logic cable kit (Qty 1)
54832D*	None	54826-68701 MSO logic cable kit (Qty 1)
54833D*	None	54826-68701 MSO logic cable kit (Qty 1)
54830B	1165A 10:1 10 MΩ probes (Qty 2)	None
54831B	1165A 10:1 10 MΩ probes (Qty 4)	None
54832B*	None	None
54833A*	None	None

* Passive probes not included, please order a passive probe option 001, 002, 004, or a recommended 1130A or 1156A active probe.

New 54852A, 2 GHz bandwidth, 10 GSa/s sample rate per channel affordably priced. More information available at **www.agilent.com/find/infiniimax**

The Agilent 81100A series pulse pattern generators are perfect complement to your Infiniium oscilloscope for a complete stimulus and response measurement system.

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Options	Description
New-purchase acquisition memory options (for analog channels only)	
040	8 Mpts on half the acquisition channels (interleaved) or 4 Mpts on each acquisition channel
080	16 Mpts on half the acquisition channels (interleaved) or 8 Mpts on each acquisition channel
160	32 Mpts on half the acquisition channels (interleaved) or 16 Mpts on each acquisition channel
320	64 Mpts on half the acquisition channels (interleaved) or 32 Mpts on each acquisition channel
640	128 Mpts on half the acquisition channels (interleaved) or 64 Mpts on each acquisition channel
N5407A	**After-purchase acquisition memory upgrade for 4-channel oscilloscope**
N5407A-040	8 Mpts on half the acquisition channels (interleaved) or 4 Mpts on each acquisition channel*
N5407A-080	16 Mpts on half the acquisition channels (interleaved) or 8 Mpts on each acquisition channel*
N5407A-160†	32 Mpts on half the acquisition channels (interleaved) or 16 Mpts on each acquisition channel*
N5407A-320†	64 Mpts on half the acquisition channels (interleaved) or 32 Mpts on each acquisition channel*
N5407A-640†	128 Mpts on half the acquisition channels (interleaved) or 64 Mpts on each acquisition channel*
N5408A	**After-purchase acquisition memory upgrade for 2-channel oscilloscope**
N5408A-040	8 Mpts on half the acquisition channels (interleaved) or 4 Mpts on each acquisition channel*
N5408A-080	16 Mpts on half the acquisition channels (interleaved) or 8 Mpts on each acquisition channel*
N5408A-160†	32 Mpts on half the acquisition channels (interleaved) or 16 Mpts on each acquisition channel*
N5408A-320†	64 Mpts on half the acquisition channels (interleaved) or 32 Mpts on each acquisition channel*
N5408A-640†	128 Mpts on half the acquisition channels (interleaved) or 64 Mpts on each acquisition channel*

† After-purchase acquisition memory upgrade option only available on 54830B/31B/32B models with serial number MY41003601 or greater, 54830D/31D/32D models with MY42001901 or greater, or 54833A/33D models with MY43000801 or greater.

* Users can install upgrades without opening the instrument case or requiring on-site service.

Probe Options	
001	Add two 1165A, 10:1 passive probes
002	Add one 1162A 1:1 passive probe
004	Add four 1165A, 10:1 passive probes
005	Add one 54826-68701 logic probe kit (This probe kit comes standard with the 54830D/31D/32D/33D)
007	Add one Wedge adapter kit (1 each 3/8/16 signals, 0.5 mm)
008	Add one 1153A 200 MHz differential probe

Options	Description
Probe Options (continued)	
011	Add one 1155A 2 Channel, 750 MHz active probe
012	Add one 1156A 1.5 GHz active probe
016 (E2654A)	EZ-Probe, Positioner: includes base, joystick, and articulating arm
1130A	1.5 GHz InfiniiMax probe amplifier – NO PROBE HEADS INCLUDED†
E2675A	InfiniiMax differential browser probe head kit
E5396A	Half-Size (17 channel) Soft Touch connecterless logic probe for MSO models

† For a complete probing solution, also order a connectivity kit or individual probe head(s). Recommend E2675A differential browser probe head.

Instrument Options	
017	≥ 20 GB removable hard disk drive. Replaces ≥ 20 GB internal hard disk with a ≥ 20 GB removable hard disk. Order the N5390A for additional hard disk drive cartridges that contain the full Windows operating system and oscilloscope application.
N5383A	Infiniium Performance Upgrade Kit for Infiniium 54830 Series oscilloscopes. Required to upgrade system software from A.02.xx (Windows 98) to A.03.xx or higher (Windows XP Pro)
006 (E2699A)	My Infiniium Integration Package Option
003 (N5384A)	High-Speed Serial Data Analysis Software Option
021 (N5391A)	Low-Speed Serial Data Analysis Software Option
015 (E2681A)	EZJIT Jitter Analysis Software Option
E2690A N5385A	Advanced Time Interval and Jitter Analysis US and Canada International
E2692A N5387A	Basic Time Interval and Jitter Analysis US and Canada International
E2693A N5388A	Subscription for one-year advanced product updates US and Canada International
E2694A N5389A	Subscription for one-year basic product updates US and Canada International
N5397A	FPGA Dynamic Probe for Infiniium Mixed-Signal Oscilloscopes
N5392A	Ethernet Electrical Performance Validation and Compliance Software
N5395A	Ethernet Electrical Compliance Test Fixture
N5396A	Gigabit Ethernet Jitter Test Cable
E2698A	Ethernet Masks Option
E2645A N2855A E2683A	USB 2.0 Test Option for 54800A Series for 54830B/D Series with software version A.02.xx or lower for 54830B/D Series and 54833A with software version A.03.xx or higher
E2646A	Additional USB 2.0 SQiDD Test Fixture

Options	Description
Instrument Options (continued)	
E2625A	Communication Mask Test Kit Option
E2635A N2850A E2682A	VoiceControl Option (English only) for 54800A Series for 54830B/D Series with software version A.02.xx or lower for 54830B/D Series and 54833A with software version A.03.xx or higher
1CM (E2609B)	Add one rackmount kit
1184A	Testmobile with keyboard and mouse tray, drawer for accessories
E5850A	Time-correlation fixture, link Infiniium scope to logic analyzer
Manual Options	
OB3	Printed service manual
OBF	Printed programmer's manual
AB2	Printed user's quick start guide in simplified Chinese
ABJ	Printed user's quick start guide in Japanese
Service Options	
A6J	ANSI Z540-compliant calibration

Related Literature

Publication Title	Publication Type	Publication Number
Agilent Technologies Digital and Mixed Signal Oscilloscopes	Selection Guide	5988-8460EN/ENUS
Infiniium 80000 Series Oscilloscopes and InfiniiMax II Series Probes	Data Sheet	5989-1487EN/ENUS
Infiniium 54850 Series Oscilloscopes and InfiniiMax 1130 Series Probes	Data Sheet	5988-7976EN/ENUS
Infiniium 54800 Series Oscilloscope Probes, Accessories and Options	Data Sheet	5968-7141EN/ENUS
N5397A FPGA Dynamic Probe for Infiniium Mixed-Signal Oscilloscopes	Data Sheet	5989-1848EN
N5400A EZJIT Plus Jitter Analysis	Data Sheet	5989-0109EN
E2681A EZJIT Jitter Analysis Software	Data Sheet	5989-0109EN
E2690A Time Interval and Jitter Analysis Software	Data Sheet	5988-9723EN
E2688A, N5384A High-Speed Serial Data Analysis and Clock Recovery Software	Data Sheet	5989-0108EN
N5391A Low-Speed Serial Data Analysis Software	Data Sheet	5989-1250EN
89601A Infiniium Oscilloscopes and 89601A Vector Signal Analysis Software	Data Sheet	5989-0947EN
N5393A PCI Express Electrical Performance Validation and Compliance Software	Data Sheet	5989-1240EN
N5392A Ethernet Electrical Performance Validation and Compliance Software	Data Sheet	5989-1527EN
N5394A DVI Electrical Performance Validation and Compliance Software	Data Sheet	5989-1526EN
USB 2.0 Compliance Test Software	Data Sheet	5989-0236EN
E2625A Communication Mask Test Kit and E2698A Ethernet Masks	Data Sheet	5989-0372EN
E2699A My Infiniium Integration Software	Data Sheet	5988-9934EN
Agilent Mixed Signal Oscilloscopes: 6-minute Video Demonstration	Video CD	5988-9288EN

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