HD Oscilloscopes Deliver 12-bit Resolution, 8-GHz bandwidth And Up To 5 Gpts Of Memory

Teledyne LeCroy's WavePro HD high-definition oscilloscopes combine for the first time HD4096 12-bit technology and 8-GHz bandwidth for low noise and pristine signal fidelity. With a maximum of 5 Gpoints of fast, responsive, and easily navigable acquisition memory, also an industry first according to the company, WavePro HD oscilloscopes acquire extremely fine waveform details over long periods of time. A powerful toolset quickly exposes underlying system behaviors (see the figure).

WavePro HD 12-bit oscilloscopes support engineers in developing smaller, faster, and lower-power mobile and handheld devices; high-speed, deeply-embedded computing systems; and datacenter technologies. All of these are characterized by analog sensor inputs, sensitive power-distribution networks (PDNs) with very low-voltage power rails, and high-speed CPUs and serial-data interfaces. This requires an oscilloscope with a unique combination of high resolution, low noise, high bandwidth, and very long capture times at high sample rates to facilitate comprehensive system debugging.

All WavePro HD oscilloscopes feature a large 15.6-in., 1900 x 1080-pixel capacitive touch screen and Teledyne LeCroy's powerful MAUI with OneTouch user interface for intuitive, efficient operation. The instruments come in four models with bandwidths from 2.5 GHz to 8 GHz, all featuring sample rates up to 20 GS/s.

At the heart of WavePro HD is a new 8-GHz chipset comprising a low-noise front-end amplifier and a 12-bit ADC. That chipset, tightly integrated with a new low-noise, high-bandwidth system architecture, unlocks the full potential of HD4096 High Definition Technology in an 8-GHz, 12-bit oscilloscope. According to the vendor, competitive instruments either simply place a 10- or 12-bit ADC into a conventional 8-bit signal path, or use software techniques to sacrifice bandwidth for higher resolution. WavePro HD's HD4096 technology provides the highest resolution and lowest noise at full bandwidth without compromise, says the vendor.

With WavePro HD's next-generation signal-acquisition and memory-management architecture, 5-Gpoint acquisitions are fast and responsive. Meanwhile, WavePro HD's MAUI advanced user interface makes it easy to find, navigate to, and thoroughly analyze waveform features of interest. The instruments can acquire 250 ms at the full 20-GS/s sample rate, and always with 12-bit resolution, according to the company.

In WavePro HD, high-resolution analog inputs may be combined with optional mixed-signal oscilloscope (MSO) inputs for capture of a wide range of analog-sensor, digital logic, power-rail, serial-data, and other signals. A full complement of standard analysis tools is augmented by serial-data Trigger, Decode, Measure/Graph, and Eye-Diagram (TDME) options. Thus, WavePro HD performs long-capture causal analysis between any high- and low-speed signals, including power-distribution network (PDN) signals, analog sensor inputs, digital activities, and serial data messages. When combined with Teledyne LeCroy's powerful, deep toolbox and toolsets for high-speed serial-data jitter analysis and protocol compliance, users have at their fingertips a debug and analysis solution for deeply embedded computing systems.

WavePro HD's high bandwidth and high vertical resolution are well suited for measurement and analysis of on-die and system PDN behavior. High bandwidth means accurate characterization of high-speed, on-die effects such as ground bounce, while WavePro HD's high dynamic range and 0.5% gain accuracy ensure confidence in sensitive measurements such as rail-collapse characterization. The exceptionally low noise floor, combined with spectrum analyzer software tools, helps extract and identify subtle PDN aggressors.

The RP4030 4-GHz power-rail probe completes the WavePro HD's power-integrity capabilities by combining flexible connectivity options with a clean signal path. In the EMC lab, WavePro HD melds 2.5 or 4 GHz of bandwidth with very high sample rates and resolution for accurate pulse characterization. Meanwhile, on the test bench, system designers must discern EMI sources from within a dense electromagnetic landscape. WavePro HD's low noise and intuitive spectral-analysis capability yield a powerful interference-hunting tool.

WavePro HD has a new 8-GHz, BNC-compatible ProBus2 probe interface. New 8- and 6-GHz ProBus2 probes connect directly to the WavePro HD, as well as to the 4-GHz ProBus interface on other Teledyne LeCroy oscilloscopes. Additionally, ProBus-compatible probes also work with the new ProBus2 interface without adapters, ensuring compatibility with Teledyne LeCroy's range of existing probes.

The WavePro HD is available now with pricing of $31,000 for the 2.5-GHz 254HD, $39,500 for the 4-GHz 404HD, $57,000 for the 6-GHz 604HD, and $71,000 for the 8-GHz 804HD. All are available in mixed-signal versions. For more information, see the product page.

Figure. At the heart of WavePro HD is a new 8-GHz chipset comprising a low-noise front-end amplifier and a 12-bit ADC. That chipset, tightly integrated with a new low-noise, high-bandwidth system architecture, unlocks the full potential of HD4096 High Definition Technology in an 8-GHz, 12-bit oscilloscope. The scope's high bandwidth and high vertical resolution are well suited for measurement and analysis of on-die and system PDN behavior.