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## **LeCroy Announces Industry's Most Comprehensive MIPI Test Solutions**

*New Automated MIPI Compliance Package, and D-PHY and DigRF3G Decoders  
Address Physical and Protocol Layer Test in the Oscilloscope*

**Chestnut Ridge, NY, September 9, 2010** – LeCroy, a leading supplier of oscilloscopes, protocol analyzers and serial data test solutions, today announced the industry's most comprehensive testing solutions for the mobile phone industry specifically targeted to MIPI (Mobile Industry Processor Interface) standards. The MIPI standards are driving the next generation of mobile devices—allowing for faster data transfer, lower power consumption, and higher resolution displays and cameras. Chip designers working with this standard demand tools to test these technologies well before they are ever released to the market. LeCroy is addressing these needs with an automated compliance package for the D-PHY physical layer that drives the current generation cameras and displays, as well as decoder solutions that solve protocol layer challenges.

### **QualiPHY MIPI-DPHY**

The QualiPHY MIPI-DPHY (QPHY-MIPI-DPHY) Test Solution provides automated control of LeCroy oscilloscopes when performing transmitter physical layer tests as described by the MIPI Alliance Specification for D-PHY version 1.00.00.

“The high level of variability in D-PHY measurements means that it is important to measure a large number of cycles in a very short period of time. We were happy to help LeCroy bring that level of performance to the MIPI community,” said Ashraf Takla, CEO of Mixel, the leader in silicon-proven MIPI PHY IP cores.

QPHY-MIPI-DPHY enables the user to obtain the highest level of confidence in their D-PHY interface by measuring a large number of cycles in a very short period of time so that the user can be confident that they are catching the true maximum and minimum points for their measurement. QPHY-MIPI-DPHY also displays and records the worst case instance of the test that is being performed. This worst case instance will be zoomed and captured in the compliance report.

In addition to automated characterization of MIPI D-PHY signals, QPHY-MIPI-DPHY enables powerful debug capability for MIPI D-PHY signals inside the oscilloscope. The integrated MIPI D-PHY Debug utility and decoders are the perfect combination for identifying the root cause of compliance failures.

The LeCroy QualiPHY platform provides an easy to configure user interface, allows for custom test and limit selection, displays connection diagrams to the user to ensure proper connectivity, and generates a comprehensive test report. In addition, all of the waveforms tested by QPHY-MIPI-DPHY can be saved to easily share information or rerun the tests at a later time.

### **D-PHY Decoder**

The D-PHY decoder is the perfect complement to the QualiPHY MIPI-DPHY package to provide a complete level of debug. The D-PHY decode package decodes the physical layer (D-PHY), as well as the camera (CSI-2) and the display (DSI) layers. The D-PHY decode package can quickly decode up to four lanes of data using a color-coded overlay on various sections of the waveform for an easy to understand visual display.

The D-PHY decoder offers debug tools consisting of protocol table views and search options, usually found only with bus analyzers. The table view turns the oscilloscope into a protocol analyzer by listing the decoded data packets in a tabular format. The D-PHY decoder offers up to 28 search options allowing for an easy debug method to pinpoint specific bits or groups within the data.

### **DigRF 3G Decoder**

The MIPI DigRF 3G standard is focused on the wireless mobile RFIC to BBIC interfaces in mobile devices. The benefit of the DigRF 3G standard to mobile devices is to reduce pin count, minimize power consumption, and provide a reliable physical layer so the phones will work cheaper, faster, and error free. As a result the digital I Q runs at a higher speed rate, adding complexity to decode and analysis for design engineers working in this area.

"When DigRF appeared, decode and analysis was a big challenge because the available analog equipment became obsolete. We were already using LeCroy's powerful WavePro 7 Zi oscilloscope, and proposed an idea to develop a DigRF analyzer directly embedded in the digital oscilloscope. The challenge was to keep the simplicity of use and full processing speed of the oscilloscope which is important for high performance and real time analysis in our R&D laboratory," said Franck Ernoul, Lab manager at Renesas Design France.

Together with Renesas Design France, a subsidiary of Renesas Electronics, a premier supplier of advanced semiconductor solutions, LeCroy co-developed a DigRF 3G decode interface that allows the user to quickly analyze the digital RF waveform, understand the protocol and data information in each packet, and characterize the timing and amplitude information while still preserving the exceptional responsiveness of the oscilloscope.

"Thanks to the multi-core architecture and the fast trigger of the LeCroy oscilloscope, the DigRF decoding does not disturb the trigger time and allows to keep the relative real time of the measurements," said Sebastien Brillet, team leader of tools development at Renesas Design France.

The decode setup is easy to configure, and is flexible to decode the Low speed (6.5 Mb/s), Medium speed (26 Mb/s) and High speed (312 Mb/s) signals that make up the transmission. The DigRF 3G decoder also features the same powerful navigation and protocol tools available in the D-PHY decoder such as the configurable table view, as well as search engine designed to quickly locate any of the 14 available search options to narrow down and message or payload within a large acquisition.

LeCroy's PROTObus MAG Serial Debug Toolkit adds additional capabilities for DigRF 3G validation by providing capability to extract the digitally encoded I and Q radio frequency data and plot the values as an analog waveform representation. Thus, even though the I and Q signal information is not available to be probed directly, it may be plotted and viewed as if it were, given DigRF 3G engineers a powerful new tool to understand and validate their designs faster.

Engineers and technicians who would like to know more can contact LeCroy at 1-800-5LeCroy (1-800-553-2769) or visit [www.lecroy.com](http://www.lecroy.com)

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### **About LeCroy**

LeCroy Corporation is a worldwide leader in serial data test solutions, creating advanced instruments that drive product innovation by quickly measuring, analyzing, and verifying complex electronic signals. The Company offers high-performance oscilloscopes, serial data analyzers, and global communications protocol test solutions used by design engineers in the computer and semiconductor, data storage device, automotive and industrial, and military and aerospace markets. LeCroy's 45-year heritage of technical innovation is the foundation for its recognized leadership in "WaveShape Analysis"—capturing, viewing, and measuring the high-speed signals that drive today's information and communications technologies. LeCroy is headquartered in Chestnut Ridge, New York. Company information is available at <http://www.lecroy.com>.

### **About Renesas Electronics Corporation**

Renesas Electronics Corporation (TSE: 6723), the world's number one supplier of microcontrollers, is a premier supplier of advanced semiconductor solutions including microcontrollers, SoC solutions and a broad-range of analog and power devices. Business operations began as Renesas Electronics in April 2010 through the integration of NEC Electronics Corporation (TSE:6723) and Renesas Technology Corp., with operations spanning research, development, design and manufacturing for a wide range of applications. Headquartered in Japan, Renesas Electronics has subsidiaries in approximately 20 countries worldwide. More information can be found at [www.renesas.com](http://www.renesas.com) for global Renesas Electronics, at [www.renesas.eu](http://www.renesas.eu) for Renesas Electronics Europe and at [www.rdf.renesas.com](http://www.rdf.renesas.com) for Renesas Design France.

### **About Mixel**

Mixel is the leading provider of mixed-signal mobile IP and offers a wide portfolio of high performance mixed-signal connectivity IP solutions. Mixel's mixed-signal portfolio includes Mobile PHYs (MIPI® D-PHYTM, M-PHYSM, and MDDI), PHYs and SerDes (suitable for PCI Express®, SATA, EPON, XAUI, Fiber Channel, DDR, and LVDS), general purpose Transceivers, and high performance PLL, DLL IP cores. For more information, contact Mixel at [info@mixel.com](mailto:info@mixel.com) or visit [www.mixel.com](http://www.mixel.com).

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