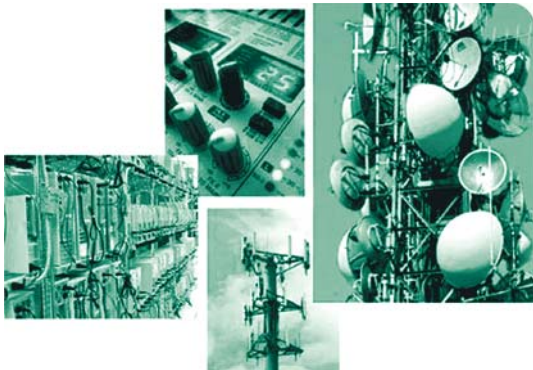




Application Overview

Ultra wideband signals are now extensively present in many microwave and wireless communications applications. The conventional design approach for narrow band receivers minimizes the RF analog front-end signal path by transposing RF processing in the digital domain as much as possible. However, this approach is not appropriate for ultra wideband systems because of band-pass constraints as well as the required high sampling rates and analog bandwidth. Agilent Acqiris waveform digitizer and signal analyzer solutions provide excellent dynamic range and low-level signal accuracy necessary for these ultra wideband applications.

Applications include: Multi-antenna systems used in SAR or UWB Radar, ECM/ESM and SIGINT/ELINT, along with wireless applications.



High Frequency Signal Analysis for Ultra Wideband Digital Receivers

Achieve High Accuracy Processing Low-Level Signals in Multi-Channel Antenna and Wireless Systems

Solution Description

- U1080A, 8-bit, 2 channel, 1 GHz, 1-2 GS/s digitizer with on-board FPGA processing.
- U1065A, 10-bit, 4 channel, 2 GHz, 2-8 GS/s, cPCI digitizer.

Key Features and Added Value

- 8-bit and 10-bit data sampling at up to 8 GS/s per channel achieves high fidelity signal conversion.
- Reduced number of discrete components lowers overall cost, power consumption and improves reliability.
- Patented cooling technique extends reliability and enhances performance.
- Small footprint.
- Trigger Time Interpolator (TTI) measures the time between trigger moment and next clock sample, eliminating the otherwise +/- 0.5 sample uncertainty, and greatly enhancing timing correlation between successive recordings.
- High bandwidth, asynchronous bus distributes trigger and clock signals to provide accurate synchronization between multiple receiver channels.



Key Requirements

- The Agilent Acqiris signal analyzer can achieve a sampling of 8-bit data at over 2 GS/s per channel, which is necessary for ultra wideband applications.
- The ADC/DAC chipset includes a proprietary front-end IC with internal calibration capability, and a sub-picosecond jitter clock generator allowing for accurate multi-channel interleaving to achieve this multi GHz sampling rate.

Resources

- U1080A digitizer with on-board FPGA processing brochure: <http://cp.literature.agilent.com/litweb/pdf/5989-7122EN.pdf>
- U1065A, 10-bit, cPCI digitizer brochure: <http://cp.literature.agilent.com/litweb/pdf/5989-7443EN.pdf>
- Article "Ultra Wideband Digital Receiver Applications": <http://cp.literature.agilent.com/litweb/pdf/5989-7555EN.pdf>
- Data Converter product selection guide: <http://cp.literature.agilent.com/litweb/pdf/5989-8038EN.pdf>
- Digitizers website: www.agilent.com/find/embedded-digitizers

Contact

- Agilent Technologies – MPO Embedded: edgar@agilent.com

www.agilent.com

© Agilent Technologies, Inc. 2009-2011
Printed in USA, May 19, 2011
5990-4669EN



Agilent Technologies