

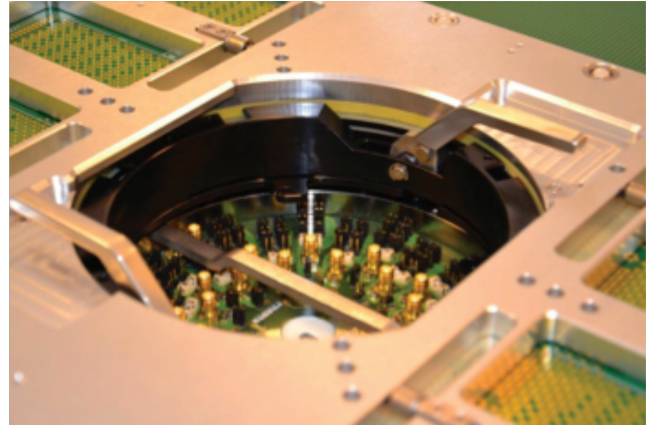
## Presto Engineering Echo™ Solution

**Presto Engineering's Echo™ Solution tests ultra-wide band (UWB) devices on existing automated test equipment (ATE) at very low cost.**

Ultra-wide band (UWB) is a technology for transmitting information spread over a large bandwidth (>528 MHz); it is used at a very low energy level for short-range, high-bandwidth communications using a large portion of the radio spectrum. Most recent applications include: sensor data collection, precision locating and tracking devices.

UWB devices are radio-frequency (RF) units with high-bandwidth coverage, therefore the test requirements are very advanced and require sophisticated, top-of-the-line RF testers. Sometimes additional external RF instrumentation is required for bandwidth coverage. This drives up the cost of test to higher than usual.

**Presto Engineering's Echo solution has been designed to enable low cost testing of UWB RF transceivers by enabling functional test and bit error rate (BER) testing on the existing digital test platform.** It supports extended test coverage of OOK, PPM, ASK, FSK and QAM modulated IR-UWB or TH-UWB transceivers over the full 528 MHz bandwidth.



Echo combines two key functionalities offering full test coverage at optimal cost:

- Time hopped ultra-wide band (TH-UWB) or impulse radio ultra-wide band (IR-UWB) in-chip RF dedicated frequency sensor IP
- Full-band functional self-testing capability in loopback mode for multiple IR-UWB modulations scheme with specific patented off chip DUT interface board self-test feature.

### Typical Applications

- Real-time localization system chip testing (RTLS)
- Impulse ultra-wide band radar
- Wireless connectivity, such as ECMA-368 WiMEDIa PHY
- ZigBee 802.15.4(a) PHY
- TransferJet™



## Advanced Features

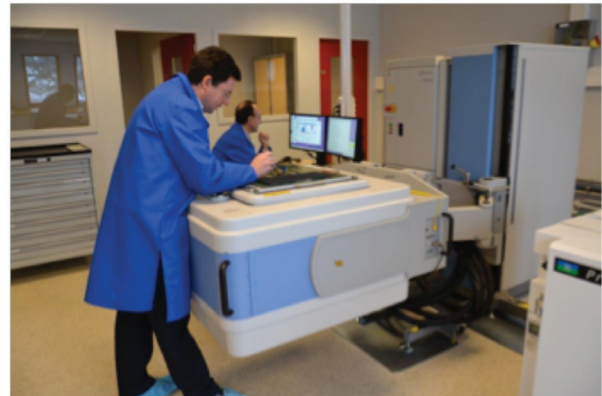
- Full RF FCC UWB spectrum bands testing from 3.4 GHz to 10.2 GHz with digital ATE resources over the 528 MHz bandwidth for all channels.
- Multisite self-functional test on any digital tester without any external equipment for Tx or Rx.
- Support for both electrical wafer probe (EWS) and final test.
- Support for both “time of flight” and receiver (Rx) sensitivity tests, due to embedded self-attenuation.
- External loopback for chip with single antenna output and system-in-package (SIP) with switches and passives in package.
- In-silicon RF carrier testing with negligible overhead.

## Test Coverage

- Functional bit error rate in loopback
- RX sensitivity
- TX center frequency
- Pulse time of flight

The Echo IP solution has been silicon proven in the 130nm RF-CMOS process and is scalable to the most aggressive technology node.

The Echo off-chip loadboard or probecard loopback is a design patented by Presto Engineering, Inc.



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## About Presto Engineering - an ISO 9001:2008 and ISO 17025 company

Presto Engineering provides comprehensive semiconductor product engineering and production solutions to IDM, fabless and electronics companies, contributing to improving ramp time, margins and quality of new products.

We are recognized experts in the development of test solutions, for component characterization and production. This expertise, combined with state of the art ESD, reliability and failure analysis capabilities, produces a competitive advantage for our customers in optimizing end-product performance, including accelerating time to market. We offer turn-key solutions from customer tape-out to delivery of finished goods to end-customer(s), including assembly, test, qualification, industrialization, and production sustaining activities.

Presto Engineering is headquartered in San Jose, California and has operations in Europe and Israel. Additional information is available on the company's website at [www.presto-eng.com](http://www.presto-eng.com).

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