



NDIA ATC Meeting Commercial Liaison Report

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April 17, 2018

AGENDA

- News (Mergers/Acquisitions/Spin Offs/Announcements)
- Technology Trends
- PXI, VXI, AXIe, LXI Updates

NEWS

VIAVI to Acquire Cobham AvComm and Wireless Test and Measurement Businesses

- Strengthens VIAVI's position in the emerging 5G wireless deployment market
- Diversifies VIAVI's T&M business into military, public safety and avionics test markets
- Upon closing, adds more than \$200 million in annualized revenue, meaningfully accretive to both free cash flow and non-GAAP EPS, and monetizes VIAVI's NOLs



ThinkRF collaborates with Keysight Technologies on spectrum monitoring and analysis solutions

Posted August 22, 2017 by ThinkRF

Analyzer is first product to link to Keysight's 89600 VSA software

ThinkRF Corp, the leader in software-defined spectrum analysis, today announced that the **ThinkRF R5500 analyzer** is the first, third-party product to directly connect with the **Keysight 89600 VSA software**.



Share



NEWS

Keysight Technologies Announces PXIe Radio Test Set for Emerging Land Mobile Radio, Aerospace/Defense Military Communications

Bulletin

What:

The new **Keysight M8920A PXIe Radio Test Set**, with audio and RF frequency coverage from 100 kHz to 6 GHz and modulation bandwidth up to 160 MHz for generation and analysis of simple to complex waveforms used in emerging Land Mobile Radio (LMR) and aerospace and defense military communications (MilCom) applications.



Averna Introduces 500 MHz Wideband RF Record and Playback for Advanced GNSS Applications

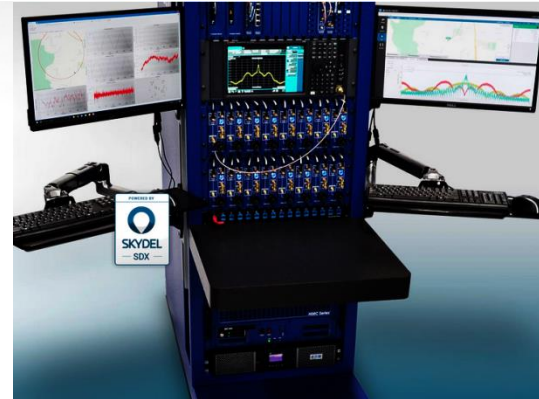
RP-6500 provides 500 MHz of streaming bandwidth for recording outdoor RF signals and repeatable testing in the lab

NEWS

Announcing SDX Support for Anechoic Chambers

Skydel SDX GNSS simulator now supports radiated emission testing in anechoic chambers.

Developed in partnership with Talen-X, SDX for anechoic chambers is available in configurations featuring up to 16 dual-frequency antennas, comes with calibration tools and brings its advanced interference testing capabilities to the lab.



RADX Announces the First SDR-Based COTS Solutions

www.microwavejournal.com

RADX® Technologies, Inc. announced the new LibertyGT® SDR Solutions-- the first COTS, Software-Defined, Multi-Function, Real-Time, RF Test and Measurement (T&M) Solutions that employ Software Defined Radios (SDRs) to radically reduce the cost of real-time RF T&M systems used in developing and testing radios, IoT devices and

NEWS

Marvin Test Solutions Announces Contract Award for A-10/C Flightline Test Sets



Portable Automated Test Set Model 70A (PATS-70A) Program Supports New Test Requirements for A-10/C Thunderbolt II

Irvine, Calif. – February 27, 2018 - Marvin Test Solutions, Inc. (MTS), a trusted provider of globally-deployed innovative test solutions for military, aerospace, and manufacturing organizations announced that it has been awarded an \$8.6M Firm-Fixed-Price (FFP) contract by the U.S. Air Force to provide chassis and instrumentation for the production of PATS-70A test sets used for O-Level and I-Level maintenance of A-10/C aircraft, as well as upgrade kits for existing PATS-70 test sets to the PATS-70A configuration. Work will be performed at the company's Irvine, CA facility with expected completion by mid-2019.

MTS partnered with the U.S. Air Force, Ogden Air Logistics Complex at Hill AFB, Utah in 2014 to design, produce, and deploy the PATS-70 test set based on its field-proven, COTS (Commercial Off The Shelf) [MTS-207](#) Rugged Field Test Set which replaces the obsolete PATS-30. The PATS-70A program will enhance the capabilities of the PATS-70 test set to support additional armament and weapon systems in addition to supporting the existing avionics test functionality.



MTS-207 - Rugged Field Test Set

The MTS-207 combines the benefits of PXI with a ruggedized design



Advanced Testing Technologies PXI/PXIe Inserts

The Advanced Testing Technologies PXI Insert allows the user to easily incorporate PXI/PXIe instruments into an existing VXI chassis. This product eliminates the need to replace a complete VXI chassis and currently sustainable instruments or find rack space to incorporate a new PXI chassis. These products do not require any micro-code overhead or associated complex software development.

NEWS



Astronics Launches Next-Gen Radio Test Solution

The ATS-3100 RTS enables users to test both legacy and modern military tactical radios using a single platform. Astronics integrated the most crucial features for radio test into the new ATS-3100 RTS, giving users the capability to test both airborne and ground legacy radios (e.g. SINCGARS) plus modern wideband waveforms (e.g. 117G, ANW 2, TSM) from virtually any original equipment manufacturer (OEM). The ATS-3100 RTS is the newest member of the ATS-3100 PXI Integration Platform product family.

The latest R&S FPC entry-level spectrum analyzer from Rohde & Schwarz combines three key RF test instruments

Rohde & Schwarz has extended its R&S FPC spectrum analyzer family, adding the R&S FPC1500. This compact instrument combines a spectrum analyzer, a one-port vector network analyzer and a CW signal generator. It is ideal for education, for applications in service and repair shops and for professional hobbyists. It is the first spectrum analyzer on the market to integrate the three most commonly used instruments on an RF engineer's workbench in one budget-friendly instrument.



NEWS



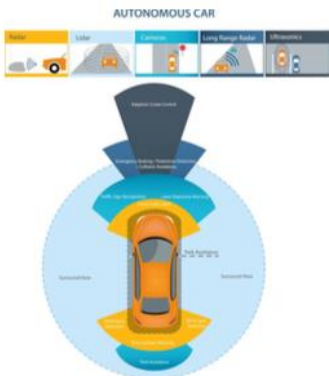
NI PXIe-1095 Chassis with 58 W Power and Cooling per Slot

The PXIe-1095 chassis offers 58 W of power and cooling in every slot, 50 percent higher than all previous NI PXI Express chassis. This specification is valid for a chassis filled with modules each requiring 58 W of power dissipation. More power and cooling in every slot allows higher power budgets for PXI modules and makes it possible for the PXI platform to continually serve challenging, high-performance applications.

INDUSTRY/TECHNOLOGY TRENDS

Technology Convergence is Driving Increased Complexity

- Phased Array Radars
 - 1000's of channels
 - Phase Coherent
 - Increased BW's
 - Large amounts of Data



Sensor Fusion and Autonomoums Systems

- Automotive Driver Assistance Systems
 - 100's of sensors
 - Interdependencies
 - Large amounts of Data
 - Multiple ECUs

INDUSTRY/TECHNOLOGY TRENDS



DARPA Spectrum Collaboration Challenge

"the world's first collaborative machine-intelligence competition to overcome spectrum scarcity"

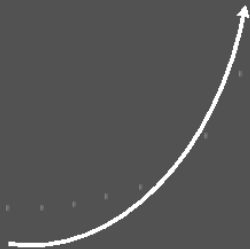
- An open competition to develop radio networks
- Operate in an environment without spectrum allocation
- Needs to adopt across multiple degrees of freedom
- Collaboratively optimizes the total spectrum capacity, moment to moment.

Something good

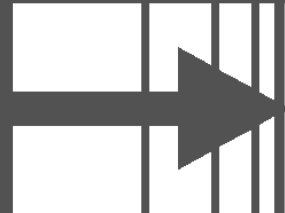
INDUSTRY/TECHNOLOGY TRENDS



CONVERGENCE



ACCELERATING
TECHNOLOGY



RAPID CHANGE

1011010
0101101
1011010

MORE DATA

INDUSTRY/TECHNOLOGY TRENDS

Cyber Security

Requirements?

RMF

NIST 800.171

NIST 800.53

DFAR 252.204-7008

DFAR 252.204-7009

DFAR 252.204-7012

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What is applicable depends
the system and its purpose

OS interoperability?

- Windows 10 SHB is a modification to the OS.
- Not all SHB configurations are the same.



Controller Implications?

- Ex. TPM Chipset
- Intel security flaws such as Meltdown/Spectre

INDUSTRY/TECHNOLOGY TRENDS

New Gripen Aims For Low Cost, High Capability

Mar 17, 2014

Bill Sweetman | *Aviation Week & Space Technology*



Airbus tells A320 suppliers to cut prices 10 percent

Feb Sept 25, 2015

Tim Hepher | Reuters



Lockheed's F-35 deal ratchets up pressure to slash production costs

Feb 3, 2017

Jeff Daniels | CNBC



VXI and PXI Update



- VXI Bus Consortium:
 - 13 Members
 - > 1500 Products
 - 394 Mfg. ID's issued
 - VXI 1 Revision 4.0
 - <http://www.vxibus.org>
 - Products at <http://vxibus.org/products.html>



- PXI Systems Alliance (PXISA):
 - 68 Members (10/2/2015)
 - PXI-7: PXI Multicomputing HW Spec, Rev 1.0
 - PXI -8: PXI Multicomputing SW Spec ,Rev 1.0
 - PXI-9: PXI & PXI Express Trigger Management Spec ,Rev 1.0
 - www.pxisa.org

AXIe and LXI Update

AXIe Consortium:



- 11 Members
- 29 Products
- AXIe 1.0 Base Arch Spec, Rev 2.0
- AXIe 2.0 Base Software Spec, Rev 1.0
- AXIe 3.1: Semiconductor Test Extension, Rev 1.0
- AXIe-0: Low Cost Instrumentation and Switch Architecture
- AXIe Wide PCI Express available soon
- www.axiestandard.org for overview presentation

LXI Consortium:



- 53 Members
- >3,000 products
- LXI 1.4 (Core + 7 Extended Functions)
- New LXI Reference Design
 - Soon to be released
 - Available to members only
- <http://lxistandard.org>