INTRODUCING

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Scalable PXI-Based ATE System

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SpectrumHS

- Highly configurable test system optimized for current and future UUT requirements
- Operational test
  - Factories
  - Repair Depots
- Easily scales from a small lab-based system to full-up turnkey production system
- HSSub-Ready PXI Chassis and G20X receiver
- Standard offering includes best-in-class PXI/LXI analog core capability

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(314) 777-1932
j.leonard@ieee.org

Frank Reyes (AESS, 2014)
(714) 394-8474
freyes210@ieee.org

Walter Downing (AESS, 2016)
Southwest Research Institute
(210) 522-3186
wdowning@srwi.edu

Robert Goldberg (I&M, 2016)
RMGA Consulting
(973) 944-0262 (work), (973) 219-3715 (cell)
goldbbob@gmail.com

Jeff Rubin (I&M, 2015)
JNR LLC
(904) 373-8721
jrubin@jnra.net

Chris Clendenin (Chair, IEEE AUTOTEST 2014)
Boeing IDS
(314) 234-4788
chris.clendenin@boeing.com

Kay Burch (Chair, IEEE AUTOTEST 2013)
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(410) 993-7412 (work)
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GENERAL CHAIR'S MESSAGE

On behalf of the IEEE Aerospace and Electronics Systems Society and the Instrumentation and Measurement Society, I would like to extend a personal Thank You for attending the 50th Anniversary of IEEE AUTOTEST, September 15 - 18, 2014 in St. Louis, Missouri – the birth place of IEEE AUTOTEST. The chairman for the first IEEE AUTOTEST held in St. Louis in 1964, Mr. Don Reed, is excited about the return of the event to St. Louis. Mr. Reed, now 88 years of age, stated that he remains a staunch supporter of the event and welcomes all of the participants to this year's show.

Our theme this year is: "Gateway to the Next 50 Years of Automated Test". As affordability is a key factor in this changing economy, technical sessions including standardization, life cycle cost reduction, reusable software, interoperability, and multinational support will appeal to a wide audience. When beginning to identify affordability, it is important that we challenge ourselves to find new ways to lower the cost of developing, producing, operating and supporting test systems. In the broader context, IEEE AUTOTEST is a forum for collaboration on approaches to reduce platform lifecycle support costs by leveraging the latest testing technologies and enabling net-centric logistics support to reduce the overall cost of sustainment. We are being offered an unprecedented opportunity to participate in this transformation and IEEE AUTOTEST is the only event where these ideas can be shared with virtually every stakeholder in the industry. Based upon coordination with a cross-section of the customer community since the 2013 event, we anticipate increased participation at this year's event and welcome all customers and companies who are planning to attend.

In order to present a detailed look into the current state of the automatic testing industry, a comprehensive cadre of companies offering product displays and demonstrations has been assembled. Our technical program presentations will emphasize the need for technical and system readiness, testing technology trends, automated test for the military and aerospace industry emerging requirements.

With innovative ideas and concepts, IEEE AUTOTEST 2014 will be a great achievement. A good part of the credit goes to our gold and silver promotional partners who are contributing both funds and products to help make the event the best it can be. Make sure that you stop by their booths and thank our Gold Partners Boeing and Northrop Grumman, and our Silver Partners Astronics, CSI, Lockheed Martin, and Marvin Test Solutions.

Chris K. Clendenin
General Chair
Boeing

AWARDS

Awards Lunch

Wednesday, 17 September 2014
12:00 PM - 1:30 PM
St. Louis Grand Renaissance Hotel

John Slattery Professional Achievement Award

The John Slattery Professional Achievement Award is sponsored by the Automatic Test Committee of the Systems Engineering Division of the National Defense Industrial Association (NDIA/ATC) and honors the memory of John Slattery for his professional contributions to the advancement of automated testing. It is presented to an individual who has made major contributions to improving the state of automatic testing in support of the national security posture of the United States, including: Outstanding Technical Achievements; Demonstrated Technical Innovation; Contributions to ATE technology; Participation in ATE Industry Peer Groups, Enthusiasm/eagerness to provide mentoring; Uncompromised ethics and professionalism; Industry contributions that reflect technical zeal, competence, and integrity; And an unswerving desire to achieve technical excellence, regardless of political or management considerations.

Walter E. Peterson Award

The IEEE AUTOTEST Walter E. Peterson Award is presented each year to the best paper on technical topics at AUTOTEST. It is awarded in honor of Mr. Peterson and perpetuates his technical leadership, interest and inspiration in the introduction and utilization of new and advanced technology in the design and manufacture of automated test systems. The award includes a plaque and a cash prize of $2,000.

David M. Goodman Award

The IEEE AUTOTEST David M. Goodman Best Paper Award for Management Topics recognizes the many contributions made by the late Dr. Goodman in the formation of IEEE AUTOTEST and his encouragement of management theory and concepts. The award carries a plaque and a cash prize of $2,000.

Best Student Paper Award

Undergraduate and graduate students were invited to submit papers to the 2014 Student Paper Contest sponsored by the IEEE Instrumentation and Measurement Society. Both travel awards (grants) and best paper awards will be made.

Travel grants to help defray travel of up to $1,000 for reimbursable expenses will be competitively awarded for papers selected for presentation. Best Paper awards will consist of up to two Undergraduate Student Outstanding Paper awards and up to two Graduate Student Outstanding Paper awards. Cash awards of up to $1,000 are included.

FROM THE TECHNICAL CHAIR

Welcome to the IEEE AUTOTEST 2014 technical program. The technical program is a great opportunity to explore the ideas, experience and views of the authors and panelists from government, industry and academia who will drive the next 50 years of Automatic Test. I encourage each of you to experience these sessions and interact with the participants.

The technical program kicks off on Monday with a full day of tutorials / seminars. You will want to take advantage of these opportunities to increase your ATE knowledge by learning from the experience of recognized experts. The tutorials offer insights into a wide range of topics including ATE technology and management, instrumentation and software standards, and platform Built-In-Test / Health Management.

Tuesday through Thursday we have an excellent array of papers and panel sessions arranged into four tracks that explore topics in:

- Automatic Test Systems and Test Program Set Development
- Advances in Test Technology and Instrumentation
- The latest innovations in Advanced Health Management and Net Centric Technology

Some of the papers presented will be theoretical, most will be practical and all will be informative. These presentations will capture and hold your interest. In addition, one track is devoted to panels of industry experts who will engage with the audience in the areas of:

- Design for Testability
- Modular Instrumentation
- Emerging Technical Trends as we begin the next 50 years.

As a first time IEEE AUTOTEST Technical Committee chair, I want to express my gratitude to Dr. John Sheppard and Mr. Mike Ellis, whose experience was invaluable in helping me assemble an excellent technical program. Additional thanks go to the Tutorial Chair, Mike Ellis, and his team of instructors that have provided invaluable training to us for decades through the Monday & Thursday seminar sessions.

Tim Wilmering
Boeing
St. Louis, MO

FEATURED SPEAKER

The Tuesday morning Keynote, “Update on Washington”, features the Honorable John Shimkus, United States Congressman:

John Shimkus is a lifelong resident of Collinsville, a suburb of St. Louis. While in the Army, he earned the Expert Infantry Badge, Ranger tab, and Parachutist Badge as well as served overseas with the 54th Infantry Regiment in West Germany.

He first ran for office in 1989, when he was elected a Collinsville Township trustee. A year later, he was elected as Madison County treasurer.

Among his duties in Congress, John serves on the House Energy and Commerce Committee. He is the chairman of the Subcommittee on Environment and the Economy. In addition, he serves on the Subcommittees on Energy and Power: Health: and Communications and Technology.

John is a U.S. delegate to the NATO Parliamentary Assembly. His Lithuanian heritage also allows him to focus on Eastern European issues and highlight the plight of people seeking democracy.

PLENARY SESSION PANEL

Two Plenary Sessions are planned for IEEE AUTOTEST 2014. Following the Tuesday Keynote Session, a panel on “Future DoD Automatic Test Systems Strategies” is scheduled.

Wednesday morning, industry representatives will participate in a panel session entitled "Nondestructive Testing for Aerospace Applications: Needs, Solutions, and Future".

TECHNICAL PROGRAM TRACKS

IEEE AUTOTEST 2014 features three technical paper presentation tracks that explore topics in the following areas:

- Automatic Test Systems and Test Program Set Development
- Advances in Test Technology and Instrumentation
- The latest innovations in Advanced Health Management and Net Centric Technology

And a track of panel sessions led by acknowledged industry experts who will engage with the audience in the areas of:

- Design for Testability
- Modular Instrumentation
- Emerging Technical Trends as we begin the next 50 years

and a Special Invited Paper Session:

- Future Naval Aviation ATS Strategies

NETWORKING EVENTS

Tuesday Lunch – 12:00 PM - 1:30 PM, Product Display & Demo Area, Cervantes Convention Center at America's Center

Tuesday Evening Networking Event – 6:00 PM - 8:00 PM, Product Display & Demo Area, Cervantes Convention Center at America's Center

Wednesday Awards Luncheon – 12:00 PM - 1:30 PM, Statler Room, St. Louis Grand Renaissance Hotel

Wednesday Evening Networking Event – 6:00 PM - 8:00 PM, Statler Room, St. Louis Grand Renaissance Hotel

DRESS CODE

Dress code for attendance at all daytime IEEE AUTOTEST 2014 functions, including Tutorials, Technical Program, and Lunches, is Business (coat/tie), Business Casual, or Military Uniform of the Day. Shorts, "flip-flops", T-shirts and similar are not permitted.

Dress code for the Tuesday & Wednesday Evening Networking events is also Business (coat/tie), Business Casual, or Military Uniform of the Day.

ATTENDEE BADGE

Attendee Badges must be worn at all times. Access to IEEE AUTOTEST 2014 functions will not be permitted without a valid badge.

ANCILLARY MEETINGS

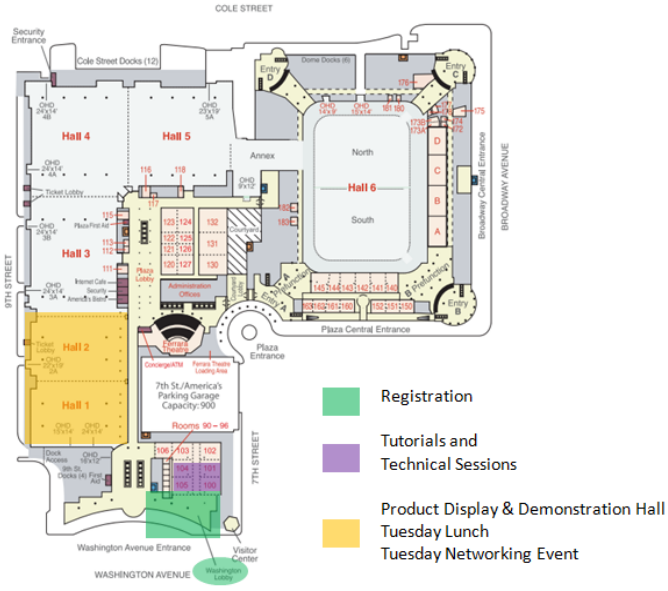
Ancillary meetings are a part of IEEE AUTOTEST 2014.

A complete listing is provided as a separate handout in your attendee bag for information only.

Such meetings are open to those specifically invited. Please check with the meeting host on status, such as date, time and location, which are subject to change.

FLOOR PLANS

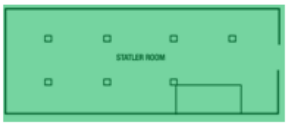
America's Center



FLOOR PLANS

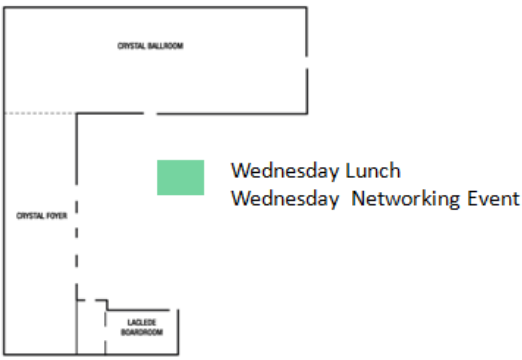
Renaissance Hotel

GRAND TOWER LOBBY LEVEL

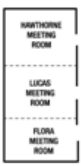


GRAND TOWER MEZZANINE LEVEL

GRAND TOWER 20TH FLOOR

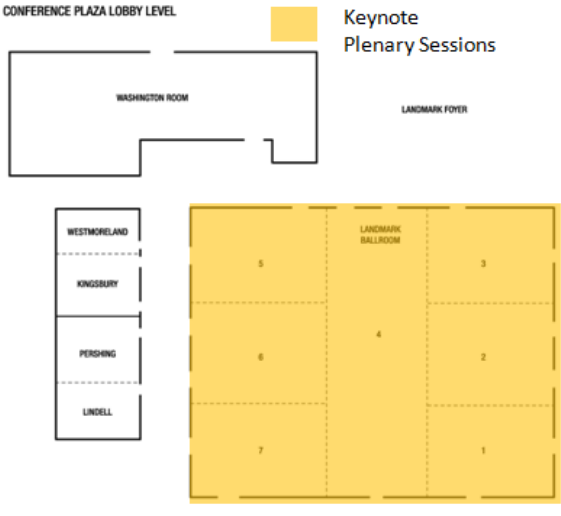


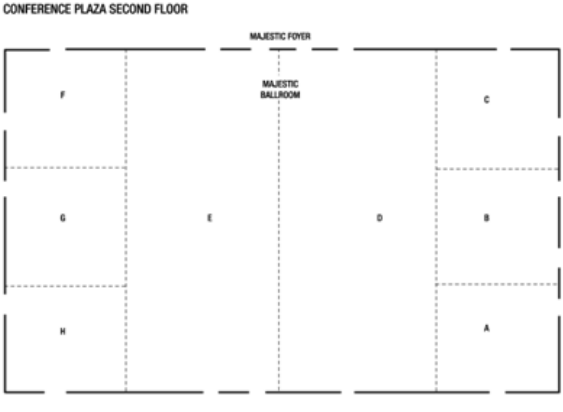
GRAND TOWER 21ST FLOOR



FLOOR PLANS

Renaissance Conference Center





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Teradyne's High Speed Subsystem

Visit our booth #413 to see the latest capabilities and live demonstrations of the **High Speed Subsystem (HSSub).** Learn what makes Teradyne's HSSub stand apart.

- ***Runtime-Defined Instruments*** rapidly configure instrument for specific UUT/TPS interface and protocol requirements
- ***Multiple, concurrently operating bus instruments*** tackle custom, standard, parallel, serial, digital and analog I/O ports of all speeds
- ***Three-tier Processing Architecture*** combines PC, real-time processing, and programmable interface hardware for high-bandwidth, low-latency UUT/ATE interaction

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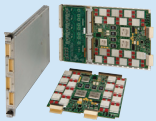
HSSub™

Other product demonstrations include:



Di-Series Digital Test Instruments

ZT-Series Analog Instrumentation

CSi System Instrumentation for NGATS

Spectrum HS Scalable PXI-Based ATE System

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IEEE AUTOTEST 2014 Master Schedule

Activity\Day		Sunday 14-Sep	Monday 15-Sep	Tuesday 16-Sep	Wednesday 17-Sep	Thursday 18-Sep
Product Display and Demonstration Hall *(America's Center Halls 1 & 2)*	Staff Access	1:00 PM - 10:00 PM	8:00 AM – 10:00 PM	7:00 AM – 5:00 PM	8:00 AM – 5:00 PM	8:00 AM – 10:00 PM
	VIP Tour			10:00 AM		
	Open to Attendees			10:45 AM – 5:00 PM	9:00 AM – 5:00 PM	9:00 AM – 11:00 AM
	Refreshments			6:00 PM – 8:00 PM		
Registration *(America's Center Washington Street Lobby)*		2:00 PM – 5:00 PM	7:00 AM – 6:00 PM	7:00 AM – 6:00 PM	7:00 AM – 5:00 PM	8:00 AM – 11:00 AM
Keynote & Plenary Panels *(Landmark Ballroom, Renaissance Conference Center)*				8:00 AM - 12:00 PM	8:00 AM - 10:00 AM	
Luncheons				12:00 PM - 1:30 PM (Product Display & Demo Hall)	12:00 PM - 1:30 PM Awards Lunch (Renaissance Hotel Statler Room)	
Wednesday Evening Networking Event *(Statler Room, Renaissance Hotel)*					6:00 PM - 8:00 PM	
Tutorials & Technical Program *(America's Center Rooms 100, 101, 104, 105)*			8:00 AM – 5:00 PM Tutorials	3:00 PM - 5:00 PM Technical Sessions	10:30 AM – 5:00 PM Technical Sessions	8:00 AM – 12:00 PM Technical Sessions

NOTES

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MISSION ASSURANCE THROUGH ADVANCED ATE

DRS Technologies is a leading supplier of integrated products, services and support to military forces, intelligence agencies and prime contractors worldwide. Focused on defence technology, DRS develops, manufactures and supports a broad range of systems for mission critical and military sustainment requirements, as well as homeland security.

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Monday, 15 September		
	ROOM 101	ROOM 104
8:00 AM – 12:00 PM	Automatic Testing from A to Z	
1:15 PM – 5:15 PM	VXI, PXI, IVI, LXI and AXIe Standards Improve ATE Systems Design	Design for Built-In Test and Diagnostics
Thursday, 18 September		
		ROOM 100
8:00 AM – 12:00 PM		ATE & TPS Management

IEEE AUTOTEST 2014 TUTORIAL PROGRAM

8:00 AM - 12:00 PM (Monday, 15 September) ROOM 101

Title: Automatic Testing from A to Z

Instructor: Mike Ellis; Retired. Previously Northrop Grumman Corp., Test Automation, ATE Associates, Harris Corp

Description: This Tutorial provides a complete overview of the world of ATE from a practical engineering and management viewpoint. Beginning by examining the ATE interfaces and their limitations, it offers managers and project engineers a quick and purposeful insight into the probable sources and causes of potential technical and management problems. Working from the interfaces, the Tutorial explores analog and digital test methods, examines the impact of new instrument technologies and covers the basics of switching systems and pin electronics.

The Tutorial will explore the elements of ATE SW, examining the role of each and the scaled limitations that they impose at the TPS level. ATE languages will also be discussed and the different language types analyzed to determine their effect on ATE and TPS performance Software now makes up over 50% of almost all military systems so no discussion of Automated Testing would be complete without exploring the need to consider SW testing as an integral part of the ATS environment. The Tutorial will discuss the impact of the growth in SW, look at some catastrophic example of what happens when we inadequately test software and discuss test requirements and methods. The Tutorial will conclude with a discussion of recent changes in DoD acquisition strategies and their potential impact on the future of ATE. Interoperability, net-centric operations, nanotechnology and smart sensors are high on OSD's wish-list for new systems and will become an inherent part of the test and maintenance process. Explore DoD's vision of the next generation of systems, where Test & Evaluation, Condition Based Maintenance, Training and Battle Damage Assessment become by-products of a distributed hierarchical, real-time information network. The future may be closer than you think!

IEEE AUTOTEST 2014 TUTORIAL PROGRAM

1:15 PM - 5:15 PM (Monday, 15 September) ROOM 101

Title: VXI, PXI, IVI, LXI and AXIe Standards Improve ATE Systems Design

Instructor: Bob Helsel, currently managing the following T&M consortia: VXIbus Consortium, PXI Systems Alliance, IVI Foundation, LXI Consortium, and AXIe Consortium.

Description: The VXIbus architecture was introduced 27 years ago, and is currently a well-established architecture used extensively in military, aerospace and commercial applications. However, many test engineers have no personal experience with it, or would like to brush up on its basics, as it will be around for another 10-20 years. We will cover the approval in 2004 of the VXI-1 Rev 3.0 spec, which again doubles the backplane speed to 160MB/s. And we will cover the approval of VXI 4.0 and its improvements in speed and flexibility. VXIplug&play standards are the software equivalent to the VXI hardware specifications, and are the definition to which all VXI drivers are now written. This software standard has formed the bedrock for many other software developments, such as Interchangeable Virtual Instrument (IVI) drivers.

PXI is a newer, more compact, faster hardware standard based on CompactPCI. It applies the same extensions to CPCI that VXI did to VME. This modular instrument standard rapidly gained acceptance and can be viewed as a companion standard to VXI, (or by some as a replacement). This 17-year-old hardware standard will be discussed in detail, as will its expected impact on the market. An update will be provided on Enhanced PXI specifications and their implementation, including Low Power Chassis. PXI Express and PXI MultiComputing will be explained with a review of PXI express products and their potential applications.

The Interchangeable Virtual Instrument (IVI) software standard, which has been extensively revised and expanded, will be covered with the latest information available. The IVI Foundation was founded in 1998 and incorporated in 2001. The purpose of the IVI Foundation is promoting specifications for programming test instruments that simplify interchangeability, provide better performance, and reduce the cost of program development and maintenance. IVI Instrument drivers have been available for about 12 years. New Specifications for Digital Test, Counter/Timer, and Signal Oriented test plus LXI triggering and sync will also be discussed.

The LXI Consortium is 9 years old now, and was formed to standardize the way instruments can be connected and controlled via the Internet in a Local Area Network. Extensions for discovery, triggering and synchronization, browser interface, initialization, and programming are all part of the extensions being considered in this standardization effort. We will introduce the latest release of the LXI Specification as well as the introduction of new LXI compliant products that are now available.

An emerging test and measurement standard called AXIe, AdvancedTCA eXtensions for Instrumentation (http://www.axiestandard.org/), is expected to find wide acceptance within the Automatic Test Equipment community as it offers many key benefits. It is expected that a *continued…*

… large number of COTS (commercial off-the-shelf) signal conditioning, acquisition and processing modules will become available from a range of different suppliers. AXIe uses AdvancedTCA® as its base standard, but then leverages test and measurement industry standards such as PXI (http://www.pxisa.org/), IVI (http://www.ivifoundation.org/), and LXI (http://www.lxistandard.org/), which were designed to facilitate cooperation and plug-and-play interoperability between COTS instrument suppliers. This enables AXIe systems to easily integrate with other test and measurement equipment. AXIe's large board footprint, available power and efficient cooling to the module payload allows high density in a 19" rack space, enabling the development of high-performance instrumentation in a density unmatched by other instrumentation form factors. Channel synchronization between modules is flexible and provided by AXIe's dual triggering structures: a parallel trigger bus, and radially-distributed, time-matched point-to-point trigger lines. Inter-module communication is also provided with a local bus between adjacent modules allowing data transfer rates up to 10 Gbits/s in each direction, for example between front-end digitizer modules and DSP banks. AXIe is a next-generation, open standard that extends AdvancedTCA® for general purpose and semiconductor test. First specifications were released in June 2010, and a 12-bit, 8-channel AXIe digitizer was elected as the 2013 TM Best in Test winner of the category signal analyzer.

1:15 PM - 5:15 PM (Monday, 15 September) ROOM 104

Title: Design for Built-In Test and Diagnostics

Instructors: Louis Y. Ungar, A.T.E. Solutions, Inc. &
Dr. John W. Sheppard, Montana State University

Description: This tutorial combines materials from two previous tutorials taught at IEEE AUTOTEST for many years. It provides attendees with a comprehensive overview of the Built-In-Test and Diagnostics challenges and solutions. With increased circuit and system complexity in recent years almost every test approach has had to settle for lower fault coverage, more difficulty in diagnoses and all at greater costs. The notable exception is Built-In Test (or Built-in Self Test, BIST) or as it is often called, embedded test. BIST is a phenomenon that capitalizes on greater circuit complexity (intelligence), better fault isolation from a hierarchical allocation of tests, and does not rely on costly external automatic test equipment (ATE) and test program sets (TPS). The inclusion of boundary-scan circuitry in increasing numbers of today's chips has made circuit testability more readily available at board and system levels. Inclusion of BIST structures in less, but significant number of chips, has made it possible to invoke chip-level tests even during normal operation. These two developments, already in place for the past several years, and greatly accelerated in the past few years, have not only made component-level, board-level and system-level BIST possible to run after system deployment, but it has also made hierarchical BIST feasible. With hierarchical BIST, diagnostic resolutions can be greatly improved, and self-testing, self-diagnostic, even self-prognostic systems are achievable.

The diagnostics section of this Tutorial provides an overview of traditional and more recent approaches to system-level diagnosis and prognosis. The emphasis is placed on different system modeling approaches and the algorithms that can be applied using resulting models. The Tutorial will review the basic issues and challenges in system diagnosis and prognosis. Fundamental terms and concepts of fault diagnosis will be presented with focus being given to historical approaches and the needs from the perspectives of the Department of Defense. Recent initiatives such as DoD ATS Framework, NxTest, ARGCS, and ATML will also be introduced. Central to this part of the Tutorial will be a continuing discussion of how one handles uncertainty in the diagnostic and prognostic process. It will include recent developments in applying Bayesian techniques and extensions such as hidden Markov models and dynamic Bayesian networks to fault diagnosis and prognosis. Prognosis will be related to the diagnosis problem in the context of "predictive" classification, and Bayesian extensions, will be discussed. Health Management Information Integration will also be addressed and will focus on using formal models, called ontologies, to define the semantics of the required information and then focus on processes for maturing diagnostic applications as maintenance information is collected. Throughout the discussion, the Tutorial will draw upon experiences of the instructors and participants to highlight issues related to diagnostic development within defense and commercial environments. This Tutorial is aimed at professionals in all areas of support, including reliability, maintainability and logistics, as well as engineers and managers from design, test, and quality assurance.

IEEE AUTOTEST 2014 TUTORIAL PROGRAM

8:00 AM - 12:00 PM (Thursday, 18 September) ROOM 100

Title: ATE & TPS Management

Instructors: Mike Ellis, Retired. Previously Northrop Grumman Corp., Test Automation, ATE Associates, Harris Corp.

Description: This four-part Tutorial is designed to cover the controversial and challenging issues of managing ATE and TPS development. This session is a must for all industry and government ATE/TPS managers. As with the morning ATE session, it focuses on real world situations and explores areas of frequent problems.

Part I of the Tutorial covers the tasks and challenges facing the government Acquisition Manager in preparing for, awarding and oversight of a TPS acquisition contract. It is based on the NAVAIR Generic OTPS RFP (aka Red Team) chaired by Ed Holland (NAVAIR retired). The session will cover the issues faced by the military in acquiring TPSs, but the general acquisition strategy is also common to ATE acquisitions.

Part 2 of the Tutorial deals with the challenges a facing the TPS Developer. It summarizes the lessons learned from twenty years of TPS Development Management on over 1000 TPSs for all armed service branches. This part of the Tutorial will focus on planning and controlling a military TPS development project. Planning objectives will be those elusive goals, happy customer and a profitable project.

In Part 3 of the TPS Tutorial, attendees will be provided in-depth insight into actual issues faced during TPS Acceptance Testing. This Tutorial section will lead attendees through an actual Acceptance Test, highlighting and discussing real-world problems and their resolution from the viewpoint of buyer and seller.

No ATE Tutorial would be complete without a discussion of Commercial Off The Shelf (COTS) hardware and software. A to Z will include a realistic, and entertaining examination of (COTS) application to the military ATE environment. Initially viewed as a panacea, it is now recognized that despite its many advantages, COTS is not a “free lunch”. Attendees are invited to visit “The Underside of the COTS Iceberg”, where they will travel through an actual COTS rehost of a complex ATE system. Take this opportunity to explore both sides of the COTS revolution, understanding both its opportunities and its challenges, while examining and learning from “other people’s mistakes”.

This unique four part Tutorial offers attendees the opportunity to "live" each of the TPS life cycle phases through the eyes of a proponent with over thirty years experience in each phase of the lifecycle. Many of the recommendations come from “lessons-learned”, and these will be explored during the tutorial. Remembering that good decisions come from experience and experience comes from bad decisions, Mike is not shy about sharing his failures as well as his successes. Along the way attendees will have the opportunity to examine the product and its challenges from four distinctly different viewpoints. They will explore the "pot holes" in the path to success and have the opportunity understand the implementation and impact associated with effective, on time TPSs delivered within budget

NOTES

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		Room 100 A	Room 101 B	Room 104 C	Room 105 D
Tuesday, 16 September					
8:00 AM		Keynote Speaker: The Honorable John Shimkus *(Landmark Ballroom, Renaissance Conference Center)*			
10:00 AM		Plenary Panel: Future DoD Automatic Test Systems Strategies *(Landmark Ballroom, Renaissance Conference Center)*			
3:00 PM	1	Design for Testability	Automatic Test Systems 1	Test Technology 1	Instrumentation 1
Wednesday, 17 September					
8:00 AM		Plenary Panel: Nondestructive Testing for Aerospace Applications...Needs, Solutions, and Future *(Landmark Ballroom, Renaissance Conference Center)*			
10:30 AM	2	Naval Aviation ATS Future Strategies	Automatic Test Systems 2	Design for Test 1	Instrumentation 2
1:30 PM	3	2014 Outlook of Modular Instrumentation in the T&M Industry	Automatic Test Systems 3	Test Technology 2	Test Program Set Development 1
3:30 PM	4	Emerging Technical Trends in Automated Test	Net-Centric Technologies	Advanced Health Management	RF Test Technology
Thursday, 18 September					
8:00 AM	5		Automatic Test Systems 4	Test Technology 3	Instrumentation 3
10:30 AM	6				Test Program Set Development 2

Tuesday, 16 September

Plenary Panel: Future DoD Automatic Test Systems Strategies

10:00 AM - 11:45 AM

Room: Landmark Ballroom, Renaissance Conference Center

Senior civilian leadership from the Army, Navy, Marine Corps and Air Force will participate in a DoD Panel Session to address future Automatic Test Systems Roadmaps and Strategies for each Service. Since the DoD has had limited participation in AUTOTEST the past several years and there has been significant re-alignment of the Defense budgets in recent years, this is an opportunity to get updated on current planning as it relates to DoD's Automatic Test Systems. Time will be scheduled for Q&A, so come prepared with your questions.

Moderator: Bill Ross, *Eagle Systems*

Panelists:

George Mitchell, *Army Representative*

Chris Giggey, *Naval Aviation Representative*

Mike Heilman, *Marine Corps Ground Representative*

Jimmy Baily, *Air Force Representative*

A1: Design for Testability (DFT) Panel
3:00 PM - 5:00 PM
Room: 100

Many designs lack the necessary features to detect, isolate and easily repair failed circuits. Commercial-off-the-shelf (COTS) reduces hardware costs, but has it made test and diagnosis of the system easier or more difficult? What can we do to get testable COTS? Some COTS are equipped with Built-In Test (BIT), but these test the individual subsystem – not the entire system – and that may not detect or isolate system faults. System level DFT and DFD (diagnosability) are essential for cost effective support. When do we plan for this? Is it cost-effective? Whom do we ask to implement it? How?

These are some of the issues that Panelists and the Audience will tackle and as in previous panels make pragmatic and useful recommendations to bring back to managers. Interestingly, at the IC level, DFT is widely supported by managers, at the board level it also finds some support, but at the system level testability is hard to come by. Why?

Moderator: Louis Y. Ungar, *A.T.E. Solutions, Inc.*

Panelists:
Dr. David R. Carey, *Associate Professor of Electrical Engineering, Wilkes University. Previously with Tobyhanna Army Depot*

Mike Ellis, Retired. *Previously Northrop Grumman Corp., Test Automation, ATE Associates, Harris Corp.*

Lyndon McCoy, *Lead Engineer, Airborne Electronic Attack Systems Division, Spectrum Warfare Dept., Naval Surface Warfare Center - Crane*

Loofie Gutterman, *President, Marvin Test Systems*

B1: Automatic Test Systems 1
3:00 PM - 5:00 PM
Room: 101
Session Chair: Michael Seavey (Northrop Grumman, USA)

ATE system level calibration and its impact on cost, quality and schedule
Lee Nichols (Keysight Technologies, USA)
Duane Lowenstein (Keysight Technologies, USA)
Joe LaGrotta (Keysight Technologies, Inc., USA)

Development of Attitude Control System Electric Simulators for Microsatellite
Guangquan Zhao (Harbin Institute of Technology, P.R. China)
Jin Yi (Harbin Institute of Technology, P.R. China)
Wei Xu (Chinese Academy of Sciences, P.R. China)
Sirui Xing (Chinese Academy of Sciences, P.R. China)

The CMA Program: an Example of Support and Service at the Customer's Air Base using LM-STAR®
Steven J O'Donnell (Lockheed Martin, USA)
Paolo Anzile (Selex ES, Italy)

Testing Ultra-Precise, Strategic-Grade Instrumentation Using a Flexible and Modular Common Test Station Architecture
Matthew Van Laethem (Draper Laboratory, USA)
Mitch Leammukda (Draper Laboratory, USA)
Peter Castelli (Draper Laboratory, USA)
Patrick Dunbeck (Bloomy Controls, USA)

TECHNICAL SESSIONS

C1: Test Technology 1
3:00 PM - 5:00 PM
Room: 104
Session Chair: Jerry Murdock (Boeing, USA)

The Behavioral Approach to Diagnostics of Cyber-Physical Systems
Victor Skormin (Binghamton University, USA)
Andrey Dolgikh (Binghamton University, USA)
Zachary Birnbaum (Binghamton University, USA)

Fuzzy PI Modification for Decision Making Simulation on a Conveyor
Jhonny de Sá Rodrigues (University Simon Bolivar, Venezuela)
Joaquín Santos (University Simon Bolivar, Venezuela)

Research on Fault Diagnosis Risk based on Electromagnetic Interference
Wang Gang (National University of Defense Technology, P.R. China)
Qiu Jing (National University of Defense Technology, P.R. China)
Guanjun Liu (National University of Defense Technology, P.R. China)
Kehong Lv (National University of Defense Technology, P.R. China)
Zhao Chenxu (National University of Defense Technology, P.R. China)

Efficient Testing of Simulation V&V for Closed-Loop Operations
Alan Campbell (Draper Laboratory, USA)
Dianna Velez (Draper Laboratory, USA)

A sub-Nyquist sampling spectrum sensing system based on PXI bus for multiband signals
Jingchao Zhang (Harbin Institute of Technology, P.R. China)
Tingting Yao (Harbin Institute of Technology, P.R. China)
Ning Fu (Harbin Institute of Technology, P.R. China)
Qiao Li-yan (Harbin Institute of Technology, P.R. China)
Wang Liu (Harbin Institute of Technology, P.R. China)

D1: Instrumentation 1
3:00 PM - 5:00 PM
Room: 105
Session Chair: Bob Helsel (VXIbus Consortium, PXI Systems Alliance, LXI Consortium, and AXIe Consortium, USA)

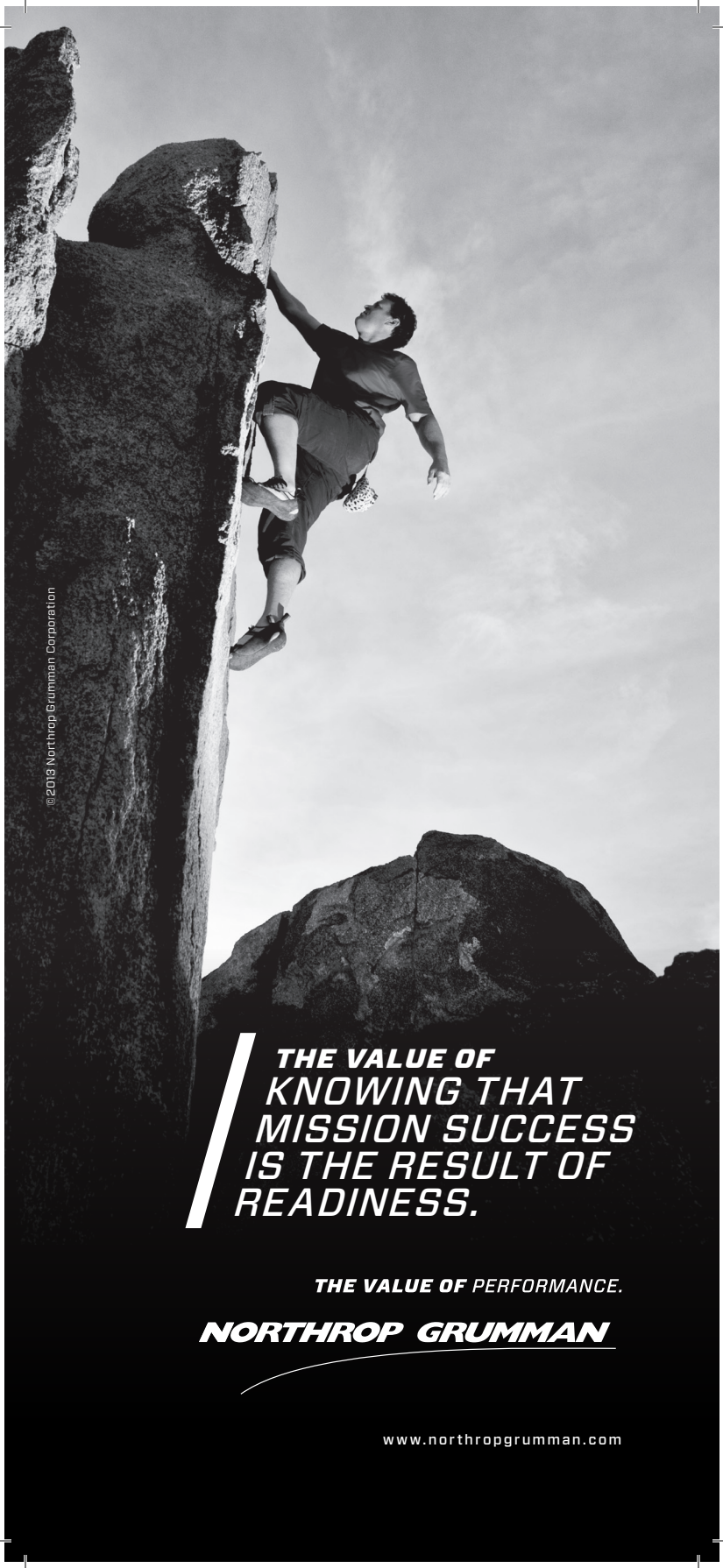
Development of High-Speed Data Acquisition Card based on PXI Express Bus
Wang Liu (Harbin Institute of Technology, P.R. China)
Lianzhong Wang (Harbin Institute of Technology, P.R. China)
Ning Fu (Harbin Institute of Technology, P.R. China)
Zhiming Yang (Harbin Institute of Technology, P.R. China)
Yang Yu (Harbin Institute of Technology, P.R. China)
Qiao Li-yan (Harbin Institute of Technology, P.R. China)

Test Requirements: Selecting the Optimal AC Power Source Technology for your Application: Linear or Switch Mode Technology considerations and trade-offs
Herman van Eijkelenburg (Pacific Power Source, Inc., USA)
Bruce Rouser (Pacific Power Source, Inc., USA)
Bill Monagle (Pacific Power Source, Inc., USA)

The Pitfalls of Instrument Compatibility
Mike Haney (Teradyne, Inc., USA)

Linearized Adaptation of Non-Linear Post Conversion Correction for TIADCs: A Behavioral Model Study
Charna Parkey (University of Central Florida, USA)
Wasfy Mikhael (University of Central Florida, USA)

NOTES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Wednesday, 17 September

Plenary Panel: Nondestructive Testing for Aerospace Applications...Needs, Solutions, and Future
8:00 AM – 10:00 AM
Room: Landmark Ballroom, Renaissance Conference Center

Nondestructive testing and evaluation (NDT&E) is a diverse field of science and engineering impacting maintenance and long-term health monitoring of critical systems and structures. Space, aerospace, civil infrastructure, military hardware and many more such systems, require NDT&E on a periodic and rigorous basis. Consequently, NDT&E techniques must capable of addressing a plethora of wide-ranging problems and requirements. This "Panel Discussion" aims to introduce issues specifically related to Aerospace NDT&E, needs, possible solutions as well as the future of NDT&E for Aerospace applications and requirements, such as in-spece inspection needs. The invited panel members offer broad technical backgrounds and experiences in this field and will speak to several important aspects of these issues. Following a short presentation by each panel member, the remainder of the session will be devoted to discussions among the attendees and the panel members.

Presenter & Co-Organizer: Dr. Donald D. Palmer, Jr. – Boeing
Presentation Title: *Evolution of Composites in Aerospace: Implications for NDE*

Presenter & Co-Organizer: Dr. Reza Zoughi – Missouri University of Science & Technology (S&T)
Presentation Title: *Evolution of Microwave & Millimeter Wave Imaging for Nondestructive Inspection*

Presenter: Mr. Bradley Gilliland – General Electric Measurement & Control Solutions
Presentation Title: *Digital Inspection for Nondestructive Testing Industry*

Presenter: Mr. Ron Goodman – Boeing
Presentation Title: *Automated Large Scale Production Inspection Systems*

Invited Presenter: Dr. Glenn M. Light – Southwest Research Institute
Presentation Title: *Aircraft Inspection and Monitoring on High Cycle Fatigue Components with Tear Down Validation*

Invited Presenter: Dr. William H. Prosser – NASA Langley Research Center
Presentation Title: *In-Space Nondestructive Inspection*

A2: Naval Aviation ATS Future Strategies
10:30 AM - 12:00 PM
Room: 100

The Navy will build on its Automatic Test Systems Roadmap provided during the DoD Opening Plenary Session to provide greater details on its plans to sundown the 20 year old CASS Test System and replace it with the modern replacement eCASS Test System. This session will provide briefings from several of the CASS Family of Tester's experts, addressing topics like the final major changes planned to CASS, eCASS description and planning, Family Member "Convergence", and TPS "Migration" from CASS to eCASS, as well as standards used or needed.

Moderator: *Sam Winters (NAVAIR ATS PM)*

CASS Sundown and CASS FoT convergence
Sam Winters (NAVAIR ATS PM) & Matt Morgan (NAVAIR ATS Eng.)

eCASS Sunrise
Sean Demme (NAVAIR ATS PM) & Joe Mikolaj (NAVAIR ATS Eng.)

OTPS Migration
Jose Cifredo (NAVAIR ATS Eng.) & Tony Conard (NAVAIR ATS PM)

Standards, Interoperability and Future TPS Development Environments
Bob Fox (NAVAIR ATS Eng.) & Mike Malesich (NAVAIR ATS Eng.)

B2: Automatic Test Systems 2
10:30 AM - 12:00 PM
Room: 101
Session Chair: Michael Dewey (Marvin Test Solutions, USA)

Integrated Solutions for Radio Test ATE: Targeting each level of maintenance
Michael S Caulfield (Astronics Test Systems, USA)
Charna Parkey (Astronics Test Systems, USA)
Ian Williams (Astronics Test Systems, USA)

A Next Generation ATE Switching Solution: As applied by Rockwell Collins
Robert Waldeck (Giga-tronics Incorporated, USA)
Robert Dahl (Rockwell Collins, USA)

Test Equipment Refresh For High Reliability, Mission Critical Hardware
Sean Buckley (Draper Lab, USA)

Automatic Hybrid Test Stations for Software-Defined Radios
Aydin Guney (ASELSAN Inc. & Middle East Technical University, Turkey)
Emrah Gingir (ASELSAN Inc. & Middle East Technical University, Turkey)
Unal Ulucay (ASELSAN Inc., Turkey)

C2: Design for Test
10:30 AM - 12:00 PM
Room: 104
Session Chair: Mike Ellis (Retired, USA)

Fiddly Fussy Finicky Failures can Deviously Evade Detection
Larry V. Kirkland (WesTest Engineering, USA)

Integrated Design and Testability Modeling for System Level BIT
Wang Gang (National University of Defense Technology, P.R. China)
Qiu Jing (National University of Defense Technology, P.R. China)
Guanjun Liu (National University of Defense Technology, P.R. China)
Kehong Lv (National University of Defense Technology, P.R. China)
Zhao Chenxu (National University of Defense Technology, P.R. China)

A Testability Growth Model and Its Application
Chenxu Zhao (National University of Defense Technology & University of Connecticut, P.R. China)
Krishna Pattipati (University of Connecticut, USA)
Jing Qiu (National University of Defense Technology, P.R. China)
Guanjun Liu (National University of Defense Technology, P.R. China)
Kehong Lu (National University of Defense Technology & Key Laboratory of Science and Technology on Integrated Logistics Support, P.R. China)

The True Nature of False Alarms
Louis Y. Ungar (A.T.E. Solutions, Inc., USA)

D2: Instrumentation 2
10:30 AM - 12:00 PM
Room: 105
Session Chair: Larry Kent (Draper Laboratory, USA)

Using FPGA as Synthetic Instrumentation in Automated Test Sets: Benefits and Examples
Madaline Dziuk (CACI INC.-Federal, USA)

Highly Synchronized, Simultaneous, High-Speed 24-bit Data Acquisition of Triaxial MEMS Accelerometers for Monitoring a Real World Civil Structure
Brianna Klingensmith (Draper Laboratory, USA)
Michael Feng (Draper Laboratory, USA)
Thomas Campbell (Draper Laboratory, USA)
Reza Mohammadi Ghazi (Massachusetts Institute of Technology, USA)
Oral Buyukozturk (Massachusetts Institute of Technology, USA)

Possible alternatives to overcoming speed limitations using Synthetic Instruments signal analysis architecture
John Stratton (Keysight Technologies, USA)

Firmware Development Methodologies for Synthetic Test Instrumentation
Michael Fluet (Teradyne, Inc., USA)
Joseph Manzi, III (Teradyne, Inc., USA)

A3: 2014 Outlook of Modular Instrumentation in the T&M Industry Panel
1:30 PM - 3:00 PM
Room: 100

What is the status and outlook for VXI, PXI, LXI, and AXIe instrumentation? Has modular instrumentation become the defacto standard of automated test? In what applications? What does this mean for Mil/Aero applications in particular? Five industry experts will give brief presentations on these topics followed by an interactive panel discussion.

Moderator: Bob Helsel, *Executive Director of the VXIbus Consortium, PXI Systems Alliance, LXI Consortium, and AXIe Consortium*

Panelists:

Reggie Rector, *Co-Chair PXISA Marketing Committee, National Instruments*

Tom Sarfi, *President, VXIbus Consortium; VP Marketing and Business Devt., VTI Instruments Corp.*

Larry Desjardin, *President, Modular Methods & former Chairman of the Board of the AXIe Consortium*

Von Campbell, *Chairman of the Board, AXIe Consortium; Platform Components R&D Manager, Software and Modular Solutions Division, Keysight Technologies*

Steve Schink, *President, LXI Consortium, Keysight Technologies*

B3: Automatic Test Systems 3
1:30 PM - 3:00 PM
Room: 101
Session Chair: Louis Ungar (A.T.E. Solutions, Inc., USA)

Automatic test system for large unmanned aerial vehicle
Deng Dawei (Beihang University, P.R. China)
Li Baoan (Beihang University, P.R. China)

Portable Automated Test Station: An Engineering-Design Partnership to Replace Obsolete Test Systems
Benjamin D Chase (USAF & AFMC 309th Software Maintenance Group, USA)

Expanding Emulation from Test to Create Realistic Virtual Training Environments
Daniel A Tagliente (US Army, ARDEC, USA)
Charles Lyding (US Army, ARDEC, USA)
Joshua Zawislak (US Army, ARDEC, USA)
Derek Marston (US Army, USA)

The Research on a New Implementation Scheme of the Portable General Purpose Automatic Test System
Yonghui Xu (Harbin Institute of Technology, P.R. China)
Jihui Zhang (Harbin Institute of Technology, P.R. China)
Xiaodong Liu (Harbin Institute of Technology, P.R. China)

C3: Test Technology 2
1:30 PM - 3:00 PM
Room: 104
Session Chair: Dean Matsuura (Teradyne Inc., USA)

Measurement of Field Complex Noise Using a Novel Acoustic Detection System
Jun Qin (Southern Illinois University Carbondale, USA)
Pengfei Sun (Southern Illinois University Carbondale, USA)
Jacob Walker (Southern Illinois University Carbondale, USA)

Analysis of Impulse Noise Based on Wavelet Transform for Military Applications
Pengfei Sun (Southern Illinois University Carbondale, USA)
Jun Qin (Southern Illinois University Carbondale, USA)

IEEE P1505.3 Universal Test Interface Framework and Pin Configuration for Portable/Bench Top Test Requirements Utilizing IEEE 1505 Receiver Fixture Interface Standard
Michael J Stora (System Interconnect Technologies, USA)
Robert Spinner (Advanced Testing Technologies, Inc. & ATTI, USA)
Stephen Mann (BCO, Inc, USA)
George Isabella (BAE Systems, USA)
David Droste (CGI Federal, USA)

Using Continuous-Time Bayesian Networks for Standards-Based Diagnostics and Prognostics
Logan Perreault (Montana State University, USA)
John W. Sheppard (Montana State University, USA)
Houston King (Montana State University, USA)
Liessman Sturlaugson (Montana State University, USA)

TECHNICAL SESSIONS

D3: Test Program Set Development 1
1:30 PM - 3:00 PM
Room: 105
Session Chair: Noe Duarte (Systems Integration & Test, USA)

Automated TPS Conversion
Joe Headrick (Lockheed Martin, USA)
Teresa P Lopes (Teradyne, Inc., USA)
Gilberto García (NAVAIR Jacksonville, FL, USA)
Michael Rutledge (IEEE & Astronics Test Systems, USA)

Automated HITS to LASAR Translation: Application, Evaluation, Opportunities, and Obstacles
Jeremy Shannon (76th Software Maintenance Group, Tinker Air Force Base, USA)
Christopher Richardson (76th Software Maintenance Group, Tinker Air Force Base, USA)
John Dyer (University of Oklahoma & MARIP, LLC, USA)

Development of a Test Program Set on the Consolidated Automated Support System for a Redesigned AN/APG-73 Radar Receiver Shop Replaceable Assembly
Gregory T Fedorak (Raytheon Canada Limited, Canada)

Creating an Expandable Test Executive for Automated Testing with LabVIEW Object-Oriented Programming (LVOOP)
Daniel Coons (Technology Service Corporation, USA)

A4: Emerging Technology Trends in Automated Test Panel
3:30 PM - 5:00 PM
Room: 100

Technology is always on the move – what challenges will the next 50 years of Automated Test provide? We will explore how Built in Test is being used to support the evolution of autonomous ATE environments, emerging trends for Synthetic Instrumentation, the challenges of testing dynamic user displays and environments, and the latest developments in RF Test technology.

Moderator: Peter Castelli, *Draper Laboratories*

Panelists:

Mark Lupo, Draper Laboratory – *"Autonomous System Test Evolution"*

Dr. David Carey, Wilkes University – *"Synthetic Instrumentation"*

Mitch Ayoob, Raytheon – *"Challenges of Automated Testing in Dynamic Display Environments"*

Pete Pragastis, National Instruments – *"Moving at the Speed of Software"*

B4: Net-Centric Technologies
3:30 PM - 5:00 PM
Room: 101
Session Chair: Conchetta Thompson (Boeing, USA)

An AI-ESTATE Conformant Interface for Net-Centric Diagnostic and Prognostic Reasoning
Houston King (Montana State University, USA)
Nathan Fortier (Montana State University, USA)
John W. Sheppard (Montana State University, USA)

The Unique Challenges of Testing Specialized Network-Based Data Acquisition Systems
Stephen Kilpatrick (Southwest Research Institute, USA)
Todd Newton (Southwest Research Institute, USA)

Study on Performance Monitoring and Analysis for Networked Test System
Zhaoqing Liu (Harbin Institute of Technology, P.R. China)
Peng Li (Harbin Institute of Technology, P.R. China)
Qiao Li-yan (Harbin Institute of Technology, P.R. China)

Using Commercial Web Services to Build Automated Test Equipment Cloud Based Applications
Dale Reitze (Northrop Grumman, USA)

C4: Advanced Health Management
3:30 PM - 5:00 PM
Room: 104
Session Chair: Eric Nicks (Boeing, USA)

Lightweight, Low-cost and Flexible Flight Data Monitoring
Brad W. Zarikoff (Latitude Technologies Corporation, Canada)
David Martin (Latitude Technologies Corporation, Canada)
Mark Insley (Latitude Technologies Corporation, Canada)

Integrated Battery Fuel Gauge and Optimal Charger
Bharath Pattipati (University of Connecticut & Systems & Optimization Lab, USA)
Balakumar Balasingam (University of Connecticut, Canada)
Ali Abdollahi (University of Connecticut, USA)
Gopi Avvari (University of Connecticut, USA)
Krishna Pattipati (University of Connecticut, USA)
Yaakov Bar-Shalom (University of Connecticut, USA)

Using Temporal Causal Models to Isolate Failures in Power System Protection Devices
Nagabhushan Mahadevan (Vanderbilt University, USA)
Abhishek Dubey (Vanderbilt University, USA)
Gabor Karsai (Vanderbilt University/ISIS, USA)

A Testbed for Implementing Prognostic Methodologies on Cryogenic Propellant Loading Systems
Chetan Kulkarn (NASA Ames Research Centre, USA)
Matthew Daigle (NASA Ames Research Centre, USA)
George Gorospe (NASA Ames Research Centre, USA)
Kai F. Goebel (NASA Ames Research Centre, USA)

D4: RF Test Technology
3:30 PM - 5:00 PM
Room: 105
Session Chair: Jeff Murrill (Northrop Grumman, USA)

Software Defined Radio as a solution to testing RF Avionics
Greg R. Shaw (CertTech LLC, USA)
Jerry Lopato (National Instruments, USA)

A Low Cost HF Direction Finding Antenna Array Simulator for Verification of HF-DF Receivers
Neriman Ergezer (ASELSAN Inc., Turkey)
Halil Nayir (ASELSAN Inc., Turkey)

Making Repeatable RF and microwave VNA Measurements from R&D to at platform for weapon systems
John Stratton (Keysight Technologies, Inc., USA)

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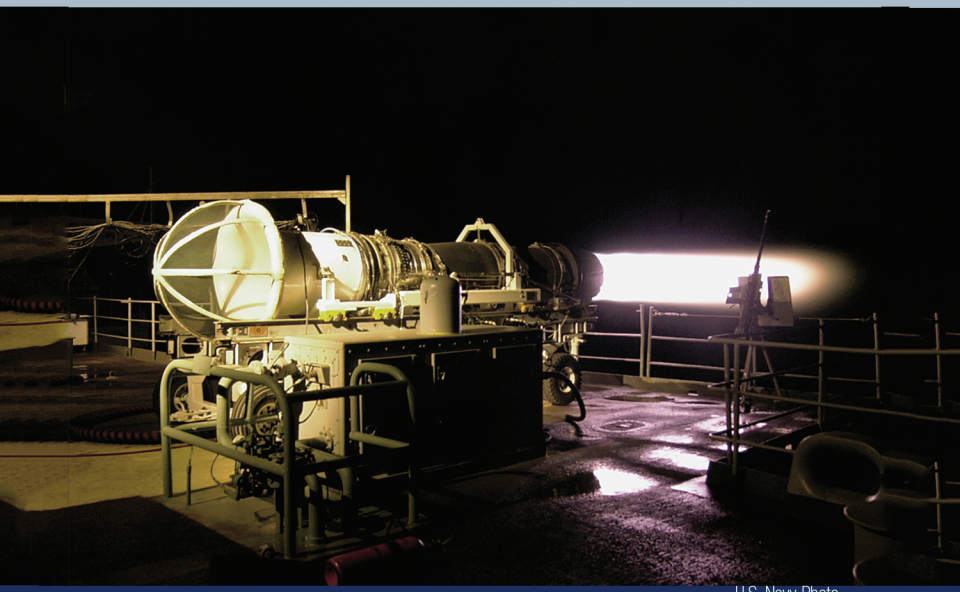

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Thursday, 18 September

B5: Automatic Test Systems 4
8:00 AM - 10:00 AM
Room: 101
Session Chair: Dale Reitze (Northrop Grumman, USA)

Using a Common Test Infrastructure for Standardized Interfaces
Veysel Yücesoy (ASELSAN Inc., Turkey)
Fatih Demir (ASELSAN Inc., Turkey)
Deniz Durusu (ASELSAN Inc., Turkey)

Techniques and Lessons Learned from a Rapid Response Deployment of an Automated Test System
Mitch Leammukda (Draper Laboratory, USA)
Brandon Jalbert (Draper Laboratory, USA)
Ari Lax (Draper Laboratory, USA)

Addressing Legacy ATE System Requirements with PXI
Michael J Dewey (Marvin Test Solutions, USA)

C5: Test Technology 3
8:00 AM - 10:00 AM
Room: 104
Session Chair: Chetan Kulkarni (NASA Ames Research Center, USA)

Application of Active Microwave Thermography to Inspection of Carbon Fiber Reinforced Composites
Ali Foudazi (Missouri University of Science and Technology, USA)
Mohammad Tayeb Ghasr (Missouri University of Science and Technology, USA)
Kristen M Donnell (Missouri University of Science and Technology, USA)

Real Time Scheduling of Multiple Executions of Tasks to Achieve Fault Tolerance in Multiprocessor Systems
Hussain Al-Asaad (University of California, Davis, USA)

Using Statistical Analysis Methods to Predict Switching Stability
Carl Liebmann, Jr. (Northrop Grumman, USA)
Martin Diorio (Northrop Grumman, USA)

Test Methodology For A GPS Denied Body-Worn Tracking System
Troy Jones (Draper Laboratory, USA)
Mitch Leammukda (Draper Laboratory, USA)
Evan Doyle (Yale University, USA)

D5: Instrumentation 3
8:00 AM - 10:00 AM
Room: 105
Session Chair: Robert Hoover (Teradyne, Inc., USA)

The Research on the Design and Application of a New Configurable Test Instrument
Yonghui Xu (Harbin Institute of Technology, P.R. China)
Jihui Zhang (Harbin Institute of Technology, P.R. China)
Xiaodong Liu (Harbin Institute of Technology, P.R. China)

Next Generation Synthetic Instruments
William Driver (National Instruments, USA)

D6: Test Program Set Development 2
10:30 AM - 12:00 PM
Room: 105
Session Chair: Peter Castelli (Draper Laboratory, USA)

Application of IEEE Standards and ATML in TPS Development for Ministry Of Defence UK
Steven Kelly (Ministry of Defence, United Kingdom)

A Flexible Software Framework with Dynamic Expansible Signals
Shuangcheng Niu (Naval Aeronautical Engineering Institute of China & NAEI, P.R. China)
Aiqiang Xu (Navy Aeronautic Engineering Institute, P.R. China)
Zhenyu Song (Navy Aeronautic Engineering Institute, P.R. China)

Efficient Algorithm for Test Vector Decompression Using an Embedded Processor
Kamran Saleem (The University of Texas at Austin, USA)
Nur Touba (The University of Texas at Austin, USA)

Upgrading Obsolete Integrated Circuits using Field Programmable Gate Arrays (FPGA)
Conchetta Thompson (Boeing, USA)

Adaptable Test Program Set Development Ensures an Adept Test Program
Larry V. Kirkland (WesTest Engineering, USA)

NOTES

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Booth: 627

Advanced Test Equipment Rentals
Since 1981, Advanced Test Equipment Rentals has shown its commitment to providing quality customer service by meeting our customer's equipment rental needs. Our primary focus is providing a complete rental solution of test and measurement equipment to industries such as Aerospace, Defense, Communications, EMC and more. Our wide inventory, custom solutions, flexible rental terms, and quality customer support differentiates us from our competitors as a complete solution for all test and measurement needs.
Booth: 721

Advanced Testing Technologies, Inc.
A multimillion dollar corporation that is recognized as an acknowledged leader and innovator in the design, development and production of Automatic Test Equipment. ATTI developed and introduced its Benchtop Reconfigurable Automatic Tester (BRAT) in 1989. These testers were initially introduced in Europe with KLM Airlines our first major client. Since then BRAT testers have been sold to numerous customers including the U.S. Air Force and NATO where they support various high performance aircraft.
Booth: 725

Aeroflex
Aeroflex is a global leader in Test and Measurement Instrumentation. At the show this year is the Aeroflex 7700 Integrated Microwave Test System, the IFF-7300S TACAN/IFF Automated Test System, the GPSG-1000 GPS/Galileo Portable Positional Simulator, the new 3515B Military Radio Test Set and the 7215 Configurable Automated Test Set.
Booth: 625

Agilent Technologies
As of August 1, 2014 Agilent’s measurement group is now Keysight Technologies. See Keysight Technologies.
Booth: 507

VENDORS

AIM-USA
AIM is a leading designer and manufacturer of high performance test & simulation modules, embedded interfaces, databus analyzers, network analyzers & customized systems for MIL-STD-1553A/B, Fibre Channel, ARINC429, AFDX/ ARINC664/ GigE, ARINC825 (CAN bus), STANAG3910/EFEX and MIL-STD-1760 (HS1760). We are featuring our newest generation of avionics high speed databus products, designed using our exclusive common core architecture for PCIe, cPCI, PXI platforms, as well as the latest enhancements to our class leading PBA.pro analysis software suite.
Booth: 913

Associated Power Technologies, Inc
Associated Power Technologies, Inc. (APT) is a leading manufacturer of AC power sources and frequency converters. APT offers single phase and 3 phase solutions in power configurations from 500 VA to 18 kVA. All of our products are available for shipment within 24 hours, and are provided with a 2-Year warranty. Visit the APT booth to learn more about our current products and services.
Booth: 330

Astronics Test Systems
Astronics Test Systems is a complete test and measurement provider. Products and capabilities include integrated test solutions, build-to-print or custom designs, turn-key hardware and software systems, communications test products, COTS instrumentation, test software, and solutions to address obsolescence. Our support organization includes logistics engineering, technical publications, training, and field services. Our Training and Simulation experts design, develop, manufacture and maintain maintenance training and simulation devices for the U.S. DoD and various branches of the armed forces, and prime defense contractors. We are known for some of the industry's most respected brands: Racal Instruments™, Talon instruments™, Tabor Electronics, KineticSystems, PAWS™, TestBase, SigBase, and TRD.
Booth: 219

Aversan
Aversan is an AS9100C certified global engineering company offering services and products in Aerospace, Defence, Electronic Healthcare, and Information Technology sectors. Aversan is a leader in Engineering Design and Development of End-to-End Solutions in Software, Hardware, Systems & mechanical engineering that are customized to suit your business needs.
Booth: 220

VENDORS

Berkeley Nucleonics
Berkeley Nucleonics manufactures class-leading microwave & RF signal generators and analyzers, programmable synthesizer modules, and dedicated phase noise test systems for ATE, lab or field use for a wide range of applications up to 26+ GHz. Unique and innovative designs provide new solutions at extremely competitive prices.
Booth: 526

Boeing
Boeing is the world's leading aerospace company and the largest manufacturer of commercial jetliners and military aircraft combined. Additionally, Boeing designs and manufactures rotorcraft, electronic and defense systems, missiles, satellites, launch vehicles and advanced information and communication systems. As a major service provider to NASA, Boeing is the prime contractor for the International Space Station. The company also provides numerous military and commercial airline support services. Boeing provides products and support services to customers in 150 countries and is one of the largest U.S. exporters in terms of sales.
Booth: 213

Copper Mountain Technologies
Copper Mountain Technologies is changing the way Vector Network Analyzers are incorporated in lab and production environments. The company's unique virtual VNAs deliver highly accurate measurements at half the cost of traditional VNAs. Leveraging breakthrough advances in RF technology, CMT's Planar VNAs provide high measurement accuracy, a wide dynamic range, a familiar UI and a broad variety of standard features. By developing VNAs that utilize external PCs, CMT offers users flexibility, portability, improved security and upgradeability.
Booth: 432

CSI
There is a new 'normal' in Test System design. No one has the time to complete ATE design and documentation before starting parts procurement, fabrication, assembly and test. Stop by CSI in booth 715, talk to us about how we adapt and change to dynamics and deal with simultaneous evolution of product and ATE requirements. CSI is the clear solution for any turnkey ATE design/development, BTP, complex fixtures, ITAs and test software development. A U.S. government SAM registered small business; we are well suited for small, as well as large projects. No job is too small for us to do!
Booth: 715

VENDORS

Dewetron, Inc.
We design and build DATA ACQUISITION INSTRUMENTS. Our solutions are considered best of breed in the field of physical measurement from sensors like strain, acceleration, temperature, force and many more. Our SYNC CLOCK technology allows additional data from a wide variety of interfaces (VIDEO, ARINC, 1553, GPS, CAN, IRIG…) to be recorded in perfect sync with the analog and digital data.
Booth: 324

Diagnosys
Exhibiting their range of PinPoint functional diagnostic and test systems. These include the PXI version that allows the integration of 3rd Party instrumentation and the new, rack mountable PinPoint UDA, that will be integrated into a mini-19" Rack. A Conformal Coating Removal system will also be on display.
Booth: 832

Dow Key Microwave
A Dover Corporation company that has been a leader in the design and manufacture of products to direct RF energy since 1945. Dow-Key is showcasing its new Reliant Switch(TM) and other products including RF coaxial switches operating up to 40GHz, Waveguides, Electromechanical, Solid State and Fiber Optic switch matrices, and custom solutions.
Booth: 631

Draper Laboratory
Draper is a not-for-profit research and development laboratory focused on the design, development, and deployment of advanced technological solutions for our nation's most challenging and important problems in security, space exploration, healthcare, and energy.
Booth: 610

DRS Technologies
A leading supplier of integrated products, services and support to military forces, intelligence agencies and prime contractors worldwide. Focused on defense technology, the Company develops, manufactures and supports a broad range of systems for mission critical and military sustainment requirements.
Booth: 212

Ducommun Incorporated
Ducommun is a leading manufacturer of RF products covering DC to 110 GHz. We have an extensive heritage of custom solutions including coaxial switches, switch matrices, switched filter banks, millimeter-wave components and subassemblies for commercial and military aircraft, communications, defense, industrial, medical, Satcom, space/High Rel, and test and measurement applications.
Booth: 826

ELMA
Elma Electronic is a global manufacturer of electronic packaging products for the embedded systems market -- from components, storage boards, backplanes and chassis platforms to fully integrated subsystems. To ensure our integrated solutions are optimized to our customer's needs, Elma partners with leading board manufacturers in the industry. Elma also provides enclosure solutions to electronics companies, from cases to vertical cabinets, as well as precision components such as rotary switches/encoders, front panels, and LEDs. The company has a broad base of proven standard products that can be tailored to individual applications, from initial concept to volume production. Elma's reliable solutions, flexibility, and design expertise are key reasons why the leading electronics companies in the world choose Elma time and again.
Booth: 732

Evaluation Engineering
Connect to the world of test engineering with EE magazine! Published in monthly print and digital edition, EE delivers in-depth technical information for buyers and specifiers of electronic test equipment and systems. AUTOTEST attendees: receive a free annual subscription at
http://:www.EvaluationEngineering.com/subscribe. Visit booth 231 to play TeckTrek at the show...win an Apple iPad mini!
Booth: 231

Exelis
Exelis is a diversified global aerospace, defense, information and services company that delivers affordable, mission-critical solutions for global customers. We are a leader in positioning and navigation, sensors, air traffic management solutions, image processing and distribution, communications and information systems; and focused on critical networks, ISR and analytics, electronic warfare and composite aerostructures. Exelis employs about 17,000 people and had 2013 sales of $4.8 billion.
Booth: 431

GigaTronics
Founded in 1980, Giga-tronics Incorporated, an ISO 9001 and AS 9100 certified company, headquartered in San Ramon, California, is a leading engineering-and-design manufacturer of best-in-class RF and microwave signal generators, microwave power amplifiers, USB power sensors, microwave power meters and broadband switching matrices. Our latest ASCOR Product Line including; 8000 Series RF Signal Switching Solutions, 8800 RF & Microwave Modular Platform and the 8900 Reconfigurable Microwave Switching Chassis will be on display. R&D, production and test managers, scientists, engineers and technicians, around the world, use Giga-tronics test equipment to realize higher productivity and greater ease of use in many applications: ATE systems, aerospace & defense, communications and general microwave component test.
Booth: 225

VENDORS

Huntron
Huntron, a leader in unpowered circuit card assembly (CCA) diagnostics and a key supplier for the USN Gold Disk (2M/MTR) program, will have Dual head Access DH Robotic Prober, Non-contact automated EME Diagnostics, and Huntron Tracker power-off diagnostics on demonstration at AUTOTEST 2014. Visit Huntron to see flexible, automated diagnostic solutions that help people solve circuit board problems.
Booth: 208

IEEE AES and I&M Societies
The IEEE Aerospace & Electronics Systems Society, which focused on aerospace and defense, and the IEEE Instrumentation & Measurement Society, which focuses on measurement systems and techniques, are the permanent sponsors of IEEE AUTOTEST
Booth: 406

IEEE AUTOTEST 2015
IEEE AUTOTEST 2015 will be held at the Gaylord Convention Center at the National Harbor in the Washington DC area, November 2-5, 2015. The technical program for IEEE AUTOTEST 2015 will be determined by the interests of those participants submitting for publication and presentation of a technical paper or organizing a technical session.
Booth: 309

IEEE AUTOTEST 2016
IEEE AUTOTEST 2016 will be held in Anaheim, CA.
Booth: 406

In-Phase Technologies
Visit Booth #712 to see examples of the single and multi-bay ATE Systems, Simulators, Burn-in Systems, Switch Matrices, Signal Conditioning Units, Interface Test Adapters, and Custom Test Fixtures that In-Phase Technologies has been supplying to the defense electronic, aerospace, satellite, medical electronic and component manufacturer markets since it's founding in 1994. Known for their expertise in RF, microwave and fiber optic related technologies, these test systems and related assemblies are typically designed and developed from customer provided specifications and SOW's. In-Phase is also heavily involved in Build-to-Print projects where customers are interested in replicating or upgrading existing systems.
Booth: 712

ION Corporation
ION Corporation was founded in 1984 as a Veteran Owned Small Business (VOSDB) by Wendell Maddox to provide a variety of scientific, engineering, and custom manufacturing services to its clientele in the public and private sector. Through its ongoing professional efforts and cumulative expertise, ION has consistently and efficiently provided high-quality products and services delivered in a timely, cost-conscious manner.
Booth: 218

JTAG Technologies
Provides industry leading hardware and software boundary scan tools to speed up circuit design and development, through to production test and field maintenance. We offer a full range of JTAG products to help you debug board designs with BGAs, test hardware that includes FPGAs, CPLDs, DSPs or microprocessors, detect faults and prove your design quickly and easily.
Booth: 727

Kepco Inc
Kepco Inc. is a leading manufacturer of DC power supplies, both modular and instrument type. Our new KLN 750 Watt series is a 1U, half rack, automatic crossover, high performance and low cost product. Remote analog and RS 485 programming are standard; GPIB or Ethernet are low cost options.
Booth: 607

Keysight Technologies
Keysight Technologies (formerly Agilent) delivers core platforms such as signal analyzers, signal sources, network analyzers, high-performance oscilloscopes in bench-top, rack-mounted, and modular configurations, and is expanding into new form factors such as hybrid systems. It also offers the most comprehensive EDA portfolio and the widest range of measurement application software.
Booth: 507

Lockheed Martin
Lockheed Martin is a leading provider of logistics and test support. The company was selected to provide the U.S. Navy with its electronic Consolidated Automated Support System, and also provides automated test equipment support for the U.S. military's F-35 Lightning II program. We offer a full range of logistics, mission operations, engineering support and integration services to reduce life-cycle costs.
Booth: 707

MAC Panel
MAC Panel provides a full range of modular interconnect solutions and services to support Automated Test Equipment (ATE) requirements of major aerospace, commercial, defense and medical electronics corporations on a global scale.
Booth: 518

Marvin Test Solutions, Inc.
Marvin Test Solutions has delivered innovative, feature-rich test solutions since 1988. As a member of the Marvin Group, an award-winning aerospace company with a 50-year history in the Defense and Commercial Aerospace industries, Marvin Test Solutions has test applications deployed and in use around the world – making test, maintenance, and sustainment of the most mission-critical systems easier and faster.
Booth: 619

VENDORS

MAX Technologies
MAX Technologies, established in 1988, specializes in the design and manufacturing of high performance and easy-to-use hardware and software COTS products for Test & Measurement and Simulation. MAX Technologies' products are based upon a unique, modular, and multi-protocol architecture using intelligent devices available on a variety of platforms with highly integrated software tools.
Booth: 513

Northrop Grumman Corporation
Northrop Grumman is a leading global security company providing innovative systems, products and solutions in aerospace, electronics, information systems, and technical services to government and commercial customers worldwide. Please visit www.northropgrumman.com for more information.
Booth: 419

OpenATE
OpenATE, an expert in PXI modules for full line testing of logic ICs, focus on product specifications, key functions of each module, and convenience of the end users. Customers may select a suitable suite of modules to assemble a custom test system, or integrate a test module into their existing ATE. We also provide FREE software platform - MTS3 for IC test and measurement. It's helping users simplify their designs and testing process with minimum effort. For more information, please visit http://www.openate.com
Booth: 626

Pacific Power Source, Inc.
Pacific Power Source offers a unique range of low noise linear and compact cost-effective switching precision programmable AC Power Source Products, ideally suited for Military ATE systems. Please visit us at booth #912 and let us help you meet your AC power requirements anywhere in the world.
Booth: 912

Pickering Interfaces, Inc
Designs and manufactures modular signal switching and instrumentation for use in electronic test and simulation. Pickering offers the largest range of switching cards in the industry for PXI, LXI, PCI and GPIB applications as well as a full range of supporting cables and connectors. Our products are specified in test systems installed throughout the world serving many industries including: Aerospace & defense, automotive, power generation and commercial electronics.
Booth: 708

VENDORS

Polyphase Microwave
Technology Service Corporation (TSC) is an employee-owned, high-technology company primarily engaged in providing engineering services to the US Government. These services involve support of systems throughout their life cycles from advanced concept development through operational support. TSC has supported Federal Government, commercial, and international customers for over 40 years. Our Government customers include the US Military Services, Defense Agencies, and the Federal Aviation Administration.
Booth: 326

QMAX
Qmax offers innovative products for the test and repair of electronic circuit cards. Qmax products support In-Circuit, Functional Edge, Boundary Scan, and Signature Analysis test.In addition to displaying our Mid-Range and Bench-top Test Platforms, Qmax is introducing the Qtouch Multi-headed prober system. Although Qtouch has advanced multi-head probing capability, it is a low cost prober offering economic solutions to PCB repair and reverse engineering requirements.
Booth: 925

R&D Altanova
From our headquarters in South Plainfield, NJ, R&D Altanova offers advanced PWB signal integrity and power integrity engineering and validation, PWB design, engineering, fabrication, assembly and socket and interconnect manufacturing services to leading electronics OEMs and their partners worldwide in the semiconductor test industry.
Booth: 929

Radiall USA
Radiall was founded in 1952 to make coaxial plugs for the emerging television industry. Today, Radiall is a global manufacturer of high reliability interconnect components for numerous demanding industries including Aerospace, Defense, Industrial, Medical, and Telecommunications. We recognize that relationships are based on trust.
Booth: 821

RADX Technologies
RADX Technologies is a DSP-focused, high-tech small business that develops cost-effective, high-performance, commercial Software Defined Radio (SDR) and Test and Measurement (T&M) Solutions. At IEEE AUTOTEST 2014, RADX will demo its LibertyGT 1200 Family of Modular, COTS, Realtime Software Defined Synthetic Instrumentation (SDSI) T&M Solutions for RF/Microwave and Wireless Communications applications.
Booth: 430

VENDORS

Ridgetop Group Inc.
Ridgetop Group, Inc. is the world leader in providing advanced electronic prognostics and health management (PHM) solutions, semiconductor IP blocks, and built-in self-test (BIST) solutions for critical applications. Ridgetop Group's Sentinel Suite™ and other tools provide solutions for board-level, subsystem and system diagnosis, prognosis, and test.
Booth: 228

Rohde & Schwarz
A leading manufacturer of electronic test and measurement and communications equipment. Our instruments set standards worldwide in research, development, manufacturing and service. We offer a complete range of signal generators, spectrum and signal analyzers, network analyzers, power meters, dedicated radiocommunication test sets and turn-key EMC/EMI measurement systems.
Booth: 226

SignalCore
SignalCore designs and manufactures high-performance, innovative, and cost effective electronic radio frequency (RF) and microwave instrument-grade subsystems. We serve customers worldwide in research and development laboratories, universities, and both the private and public sector industries of telecommunications, broadcasting, aerospace, defense, and electronics manufacturing. Our fundamental philosophy is to produce products that are highly linear and low in noise, and our strong engineering knowledge of low noise design, particularly low phase noise design, ensures that products we produce have noise levels that are among the lowest, if not the lowest, in the industry. Stop by our booth to see our latest products in multiple platforms: USB, SPI, RS-232, and PXI.
Booth: 831

Southwest Research Institute
SwRI® is an independent, nonprofit applied research and development organization. The staff of more than 2,800 specializes in the creation and transfer of technology in engineering and the physical sciences. The Institute occupies more than 1,200 acres in San Antonio, Texas, and provides nearly two million square feet of laboratories, test facilities, workshops and offices.
Booth: 227

Spectracom
Spectracom's mastery of global navigation satellite system's signals simplifies the integration of complex positioning, navigation and timing applications. Capabilities include signal generation (position and time), GPS and GNSS reception, synchronization and precise timing, signal distribution, test & validation, simulation, integration, real-time embedded systems, and technical and support services.
Booth: 921

TDK Lambda
Genesys™Series - most complete set of Programmable AC/DC sources. Identical user interfaces. Now 2400W in 1U. Platforms:1U Half Rack 750W, 1U 750/1500W/2400W, 2U 3.3/5kW, 3U 10/15kW. Standard: reliable Front Panel encoders, built-in RS-232/485, Remote Analog Programming. Optional IEEE, Isolated Analog or LAN Control. Wide range power factor corrected AC Inputs for operation world-wide.
Booth: 914

TEAL Electronics
We are the leading developer of integrated power management systems. We concentrate on power exclusively. We know the intricacies of electricity, especially how to meet industry-specific challenges, and we will work as an extension of your own engineering staff. TEAL will put you in tight control of your power quality.
Booth: 613

Teradyne
Teradyne, the world's largest ATE supplier, will demonstrate the High Speed Subsystem, featuring Runtime Defined Instruments, as well as its Core System Instrumentation, including the Ai-Series, Bi-Series, Di-Series, and the ZT-Series oscilloscopes and waveform generators. Teradyne will also be introducing its newest Spectrum test system - the Spectrum HS. The Spectrum HS performs analog and real-time bus test and is completely customizable to meet any advanced testing need.
Booth: 413

TEVET, LLC
TEVET, LLC is a Service-Disabled Veteran-Owned and HUBZone Small Business (SDVOSB) providing both new and refurbished test equipment from leading manufacturers such as Agilent Technologies. TEVET was founded on the premise that a commitment to superior product knowledge and a "second to none" sourcing network will enable the business to thrive in the complex and rapidly evolving field. It is this philosophy, coupled with proven best practices that make TEVET confident that it will succeed in fulfilling customer needs in all of their equipment requirements for years to come.
Booth: 730

Textron Systems
Textron Systems' businesses develop and integrate products, services and support for aerospace and defense customers, as well as civil and commercial customers including those in law enforcement, security, border patrol and critical infrastructure protection around the globe. Harnessing agility and a broad base of expertise, Textron Systems' innovative businesses design, manufacture, field and support comprehensive solutions that expand customer capabilities and deliver value.
Booth: 813

VENDORS

The Logical Company
The Logical Company manufactures NuVAX and NuPDP to replace your Qbus and Unibus-based VAX and PDP systems. NuVAX and NuPDP extend the life of real-time applications such as missile control and radar. Salem Automation specializes in modernization of legacy systems using vtVAX and vtALPHA emulators from Vere Technologies.
Booth: 818

United Electronic Industries
UEI is a leader in the PC/Ethernet data acquisition and control, Data Logger/Recorder and Programmable Automation Controller (PAC) and Modbus TCP markets. Our revolutionary “Cube” form factor provides a compact, rugged platform, ideal for applications in the automotive, aerospace, petroleum/refining, simulation, semiconductor manufacturing, medical, HVAC, and power generation fields – and more.
Booth: 714

Universal Switching Corporation
Universal Switching manufactures state-of-the-art programmable switching equipment and is the leader in cost effective switching solutions. Our wide product line and flexible system architectures allow you to specify exactly the type and size of system you require with built-in expansion capability for the future. The product line covers DC to 40GHz, and everything between including AC/DC power switching, audio, ATE instrumentation, composite video, HF, RF and IF signals, high resolution RGB+HV video, high speed ECL or LVDS digital data, cellular telephone, plus other >1GHz and microwave signals all the way to 40GHz.
Booth: 525

Verifide Technologies
For over 10 years, Verifide Technologies has provided Automated Test Software solutions to our distinguished Aerospace customers. We have a solid track record with our unique, enterprise-grade Test Executive solution that serves all the role players in the test process including Systems Engineering, AIT, Test Software, and Management. Our software allows our customers to leverage the modularity, innovation, and efficiency of our software so they can focus on their core competencies and improving their test accuracy and yield!
Booth: 216

Virginia Panel Corp
(VPC) is the world’s leading supplier of Mass InterConnect Solutions to the Automatic Test Equipment Industry. Mass InterConnect solutions provide simultaneous connection of varied signals through one interface allowing fast and reliable “unit under test” changeover, reduced test costs and improved production. VPC accommodate a wide range of ATE chassis sizes/configurations including PXI, LXI, SCXI and VXI applications.
Booth: 331

VT Miltope
VT Miltope specializes in the design, development and production of fully rugged computers, servers, printers, mass storage devices and related peripherals that must operate in the most demanding environmental conditions. All products are fully qualification tested to MIL-STD-810F and -461E and delivered after 100% Environmental Stress Screening (ESS).
Booth: 425

VTI Instruments Corporation
VTI Instruments Corporation; a business unit of AMETEK VTI delivers precision modular PXI Express, VXI and LXI instrumentation and ATE core subsystems for electronic signal distribution, acquisition, and monitoring, which are used in the world's most demanding test applications. Serving the aerospace and defense, power generation, energy, automotive and commercial electronics industries, VTI's solutions allow our customers to optimize their capital investment through product longevity while ensuring unmatched measurement integrity and data reliability. For additional information, please visit http://www.vtiinstruments.com.
Booth: 609

W-IE-NE-R & Hartmann Electronic
W-IE-NE-R and HARTMANN Electronic are presenting new VXI-4, VXS, VPX and cPCI-serial backplanes as well as complete line of chassis for ATE, military and scientific research applications. Further a unique line of universal, remotely controllable / programmable multi-channel low and high voltage DC power supply systems is presented.
Booth: 719

WesTest Engineering Corporation
WesTest has over 32 years of excellence in developing and supporting Automatic Test Equipment, Custom Test Equipment, Test Program Sets, Interface Test Adapters and the associated software for commercial and military applications. WesTest is one of the most experienced design, development, manufacturing, service, training, and support teams in the world.
Booth: 224

VENDORS

Wireless Telecom Group
Sponsor of the Internet Café Wireless Telecom Group designs and manufactures radio frequency (RF) and microwave-based products for wireless and advanced communications industries and markets its products and services worldwide under the Boonton, Microlab and Noisecom brands. Its complementary suite of high-performance instruments and components includes real-time USB power sensor, peak power meters, signal analyzers, power splitters, combiners, diplexers, noise modules and precision noise generators.
Booth: 427

Yokogawa Corp of America
Yokogawa is a leading manufacturer of Test & Measurement equipment. As market leaders in the development of data acquisition, electrical power measurement and optical spectrum analysis technology, Yokogawa will be displaying our unique Scopecorder Data Acquisition product line, Power Analyzers, Digital Oscilloscopes, Optical Spectrum Analyzers and Optical Time Domain Reflectometers.
Booth: 511

NOTES

SPECIAL THANKS

Special recognition is due to our

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for their significant contributions to the success of IEEE AUTOTEST 2014

ASTRONICS TEST SYSTEMS

CSI Custom Systems Integration

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MARVIN TEST SOLUTIONS

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