



# Aerospace and Defence Forum

Royal Air Force Museum, London, Thursday, 9<sup>th</sup> June 2011



In association with Media Partners: **AEROSPACE** MANUFACTURING **EMT** Electronics Manufacture And Test the**ENGINEER**

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# Aerospace and Defence Forum

Royal Air Force Museum, London, Thursday, 9<sup>th</sup> June 2011

Learn about the latest developments in automated test, measurement and control and RF communications specifically for the aerospace and defence industries. Hear from NI and industry engineers at this FREE one-day technical forum.

The conference includes demonstrations, case studies and hands-on sessions on the latest technologies for applications in aerospace and defence featuring:

## Advances in Automated Test ■

Incorporating longevity and advanced functionality into the design of complex, next-generation test systems for aerospace and defence applications.

## Measurement and Control ■

Adding measurements to aerospace and defence applications, from embedded control using field-programmable gate arrays (FPGAs) and reconfigurable I/O, to high-channel-count and structural testing.

## RF Communications ■

Implementing flexible software-defined test for RF and high-speed digital technology.

With a focus on using graphical system design to create software-defined test systems with PXI modular hardware, this forum provides an opportunity to learn about new technologies and network with your peers.

We are also offering one-to-one systems advice and the **Certified LabVIEW Associate Developer (CLAD)** examination FREE of charge at the forum.

## Exhibition

The forum features an exhibition hall with product demonstrations and representatives from National Instruments and 17 partners and integrators.

## Keynotes



### Improving Life-Cycle Management for Testing Aerospace and Defence Electronics

*Sean Thompson, Platform Manager Government/Military Applications, National Instruments*



### Aerospace and Defence – The Industry Viewpoint

*Mike Steeden, Director, Strategic Relations, Dstl*

Currently Director, Strategic Relations in the UK MoD's Defence Science and Technology Laboratory (Dstl), a Non-Executive Director with Ploughshare Innovations Ltd and a Past President of the Royal Aeronautical Society.

Mike's 32-year career has included 26 years in the MoD and 6 years in the private sector.

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8:15	Registration and Exhibition			
9:00	<b>Keynote:</b> Improving Life-Cycle Management for Testing Aerospace and Defence Electronics			
9:30	<b>Keynote:</b> Aerospace and Defence – The Industry Viewpoint			
10:00	Break and Exhibition			
	Presentation Track	Hands-On Track 1	Hands-On Track 2	Certification
10:25	Real-Time Testing of Complex Systems With Software-Defined Test Systems	Automated High-Performance Measurements on PXI-Based Modular Instruments	Introduction to LabVIEW and Data Acquisition with NI CompactDAQ	Certified LabVIEW Associate Developer (CLAD) Examination
11:25	NI FlexRIO and NI LabVIEW FPGA for Test Applications		Creating Embedded Measurement Systems With Real-Time Determinism Using NI CompactRIO	
12:25	Lunch and Exhibition			
13:25	Structural and Acoustical Testing for Efficient and Safe Systems	Implementing Software Engineering Tools With LabVIEW	Developing Advanced Control Systems With LabVIEW FPGA and NI CompactRIO	
14:25	Break and Exhibition			
14:40	Signal Intelligence and Software-Defined Radio With COTS Technologies	Build an Automated Test System With PXI and NI TestStand	Introduction to LabVIEW for Robotics	Certified LabVIEW Associate Developer (CLAD) Examination
15:40	Embedded Data Logging and Control With NI CompactRIO		Introduction to LabVIEW for Robotics	Certified LabVIEW Developer (CLD) Preparation Class
16:40	Prize Draw and Wrap Up			
16:50	Finish			

- Automated Test
- Measurement and Control
- RF Communications

*Agenda subject to change without notice.*

## Reserve Your Place

If you want to take a Hands-On Session, the CLAD Exam or the CLD Preparation Class, visit [ni.com/uk/milaero](https://ni.com/uk/milaero) to reserve your place.

# Session Descriptions

## KEYNOTE: **Improving Life-Cycle Management for Testing Aerospace and Defence Electronics**

Discover how to apply graphical system design to the design-test development chain. This session highlights the benefits of the modular, industry-standard PXI platform to ensure system stability, expandability and deployment longevity.

*Sean Thompson, Platform Manager Government/Military Applications, National Instruments*

## KEYNOTE: **Aerospace and Defence – The Industry Viewpoint**

Mike Steeden, the immediate past president of the Royal Aeronautical Society will draw upon over 25 years of experience working in the military to highlight the trends he sees in the aerospace and defence industries today.

*Mike Steeden, Director, Strategic Relations, Dstl*

## **Real-Time Testing of Complex Systems** ■ ■

Discover hardware-in-the-loop (HIL) methods for testing complex devices, such as full authority digital engine controls (FADECs), aircraft subsystems and missile guidance systems. Examine ways to combine the advantages of graphical system design, commercial off-the-shelf (COTS) hardware, deterministic buses and simulation models to develop real-time test systems using NI VeriStand.

*Javier Gutierrez, Business Development Manager, Embedded Design and Test, National Instruments*

## **NI FlexRIO and LabVIEW FPGA for Test Applications** ■ ■

From RF communication emulation to protocol-aware avionics test, user-programmable FPGAs are becoming increasingly common in test systems. This session explores how LabVIEW FPGA and NI FlexRIO enable increased versatility and speed in your test application.

*Jeremy Twaits, Technical Marketing Engineer, National Instruments  
Peter Richardson, Project Manager, Support & Test Services, SELEX Galileo*





## Structural and Acoustical Testing for Efficient and Safe Systems ■ ■

Whether you are performing ultrasonic non-destructive testing (NDT), long-term fatigue testing or measuring aerodynamics in a wind tunnel, structural testing is key to ensuring the critical safety of a deployed system. Learn new ways to rapidly acquire and analyse measurement data such as force, strain, sound and vibration using an open, scalable test and measurement platform.

*Richard Roberts, Applications Engineer, National Instruments*  
*David Lines, Chief Engineer, Diagnostic Sonar*

## Signal Intelligence and Software-Defined Radio With COTS Technologies ■

Signal intelligence is largely important in many aerospace and defence RF applications, from communications monitoring and software-defined radio to direction-finding and radar. See how the latest commercial off-the-shelf technologies are affecting signal intelligence today, such as flexible modular instruments helping to meet shorter development cycles and reconfigurable FPGAs providing inline signal processing and real-time response.

*Sacha Emery, Systems Engineer, National Instruments*

## Embedded Data Logging and Control With NI CompactRIO ■

Find out how to create rugged, stand-alone data logging systems for aerospace and defence applications, from controlling autonomous air vehicles to monitoring oxygen levels in submarines. See how NI CompactRIO, combined with signal-conditioned I/O modules, provides real-time data acquisition, direct sensor connectivity and deterministic control of devices.

*Tristan Jones, Technical Marketing Team Leader, National Instruments*  
*Nick Kimber, Senior Scientist, QinetiQ*

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# Hands-On Session Descriptions

## **Hands-On: Automated High-Performance Measurements on PXI-Based Modular Instruments** ■ ■

Get hands-on with PXI and modular instrumentation measurement hardware, using scopes, DMMs, arbitrary function generators and switches to test and characterise the behaviour of electronic devices under test (DUTs). See how you can use the combination of NI LabVIEW software and PXI-based modular instruments to implement a virtual instrumentation approach to automated test, powering automated measurements, data logging for post processing and inline analysis at run-time.

## **Hands-On: Implementing Software Engineering Tools With LabVIEW** ■

As the complexity of software applications increases and the size of your team grows, various software engineering process models have evolved to encourage efficient requirements gathering and code development, whilst ensuring quality and timeline compliance. In this session, you can learn how to use software engineering tools complementary to LabVIEW to implement source code control, code inspection and advanced debugging.

## **Hands-On: Build an Automated Test System With PXI and NI TestStand** ■ ■

Learn how to develop an automated test system from start to finish. Explore how to use NI TestStand test management software to quickly add sequencing, flow control, multithreading and reporting to your LabVIEW measurements and tests. See how to program NI modular instruments in PXI systems to perform functional tests on multiple devices and develop a high-throughput parallel test system.

## **Hands-On: Introduction to LabVIEW and Data Acquisition With NI CompactDAQ** ■

Test-drive PC-based data acquisition systems and learn how to use graphical programming techniques to create modular and flexible applications. Learn how to take highly accurate measurements with NI data acquisition and signal conditioning hardware, whilst using LabVIEW to easily acquire, analyse and present your data in minutes.

## **Hands-On: Creating Embedded Measurement Systems With Real-Time Determinism using NI CompactRIO** ■

Explore real-time technologies and develop a reliable and deterministic application using the LabVIEW Real-Time Module in the new LabVIEW 2010 application development environment. See how easy it is to implement real-time applications using target hardware such as NI CompactRIO.

## **Hands-On: Developing Advanced Control Systems With LabVIEW FPGA and NI CompactRIO** ■

Create applications using the power, flexibility and reliability of FPGAs. Learn how programming FPGAs in LabVIEW is straightforward and gain hands-on experience using a NI CompactRIO system.



## Hands-On Session Descriptions

### Hands-On: Introduction to LabVIEW for Robotics

Unmanned ground, air and naval vehicles are a hot topic in the military. Whether for combat, surveillance or troop recovery, they are ideal for deployment into dangerous environments. Learn how to apply concepts important to unmanned vehicles using LabVIEW graphical programming and the NI Single-Board RIO embedded control system to automate a mobile robot.



#### Certified LabVIEW Developer Exam Preparation Class

Attend this session to discover how to avoid the most common pitfalls and misconceptions in the **Certified LabVIEW Developer (CLD)** exam and give you the best chance to pass.

#### Certified LabVIEW Associate Developer Exam

NI certifications are industry-recognised credentials that distinguish expertise in using NI products for developing measurement and automation solutions. Take your first step onto the certification ladder and take your **Certified LabVIEW Associate Developer (CLAD)** exam at the event.



#### One-to-One Systems Advice

At the forum we are giving you the opportunity to get **FREE** systems advice from one of our experts.

#### Reserve Your Place

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# Location



**Thursday, 9<sup>th</sup> June 2011**

Royal Air Force Museum  
Grahame Park Way, London, NW9 5LL

Tube stop: **Colindale Underground Station**  
Railway Station: **Mill Hill Broadway Station**

## Prize Draw

### 1<sup>st</sup> Prize

£300 Red Letter Day  
voucher and a LEGO®  
MINDSTORMS® NXT 2.0



### 2<sup>nd</sup> Prize

£150 Red Letter Day  
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### 3<sup>rd</sup> Prize

£75 Red Letter Day  
voucher and a LEGO®  
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## Free Registration

For more details and to register, please visit [ni.com/uk/milaero](http://ni.com/uk/milaero)  
Alternatively, there are a number of other easy ways to register:

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Call: **01635 572498**

Mail: Simply complete the tear-off, prepaid form and mail it to us

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In conjunction with the Aerospace and Defence Forum is an exhibition featuring product vendors and system integrators. Visit [ni.com/uk/milaero](http://ni.com/uk/milaero) for more information about exhibitors attending the event.

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[www.emtworldwide.com](http://www.emtworldwide.com)

Launched in 1982, *Electronics Manufacture & Test* (EM&T), published by IML Group plc, has gained respect for its independent editorial stance and is the leading magazine for the electronics assembly industry in the UK and Ireland.



[www.theengineer.co.uk](http://www.theengineer.co.uk)

Launched in 1856, *The Engineer*, published by Centaur Media, provides the UK's engineering technology community with a fortnightly mix of news, features and analysis of emerging technologies, innovations and applications across industries, plus interviews with leading engineers and the latest job vacancies.



## TOP 10 REASONS TO ATTEND Aerospace and Defence Forum 2011

1. Industry Keynote presentation from Mike Steeden, Director, Strategic Relations, Dstl
2. Technical sessions on the latest trends and technologies
3. User presentations and case studies
4. Live hardware and software demonstrations
5. Industry-specific exhibitors including Goepel and Tektronix
6. One-to-one system advice
7. 10 hours of hands-on training
8. Opportunities to network with industry peers
9. Prize draw featuring Red Letter Day Experience
10. Venue: the Royal Air Force Museum, Hendon, London

*We are also offering the Certified LabVIEW Associate Developer (CLAD) examination FREE of charge.*

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