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### MIL TECH TRENDS

## Test and evaluation of advanced radar systems

TONY GIRARD, MERCURY SYSTEMS

Advances in both electronic warfare (EW) and radar systems present numerous challenges in the test and evaluation of these modern systems. Radar capabilities such as synthetic aperture radar (SAR) imaging, multiple degrees of agility, and a wide spectral range ? coupled with the introduction of cognitive/adaptive EW jamming techniques ? have dramatically increased the complexity and cost of developing effective test environments.

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EDITOR'S PERSPECTIVE

# Open architectures and standards for space

JOHN MCHALE, EDITORIAL DIRECTOR

Open architecture initiatives and open standards are regularly discussed in this space, but I don't often get to discuss them with an open architecture guru such as Patrick Collier, one of the minds behind the Sensor Open Systems Architecture (SOSA) initiative and the OpenVPX standard, like I did in a recent podcast on ? Open Architectures in Space.?



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INDUSTRY SPOTLIGHT

# As the military supply chain expands, so does the information security risk

KEVIN DEAL, IFS

The military supply chain continues to expand, with the result that more confidential unclassified information

(CUI) spreads further than just military servers. With business information now also commonly stored in the cloud, keeping this data secure quickly becomes a complex task. Information assurance flows downstream in this ecosystem by necessity, with the result that it now touches all defense contractors. Those who can demonstrate secure and compliant data processes stand to gain real business advantages in this increasingly cyber-aware ecosystem.

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## MIL TECH TRENDS

### Multicore processors in the mission-critical context

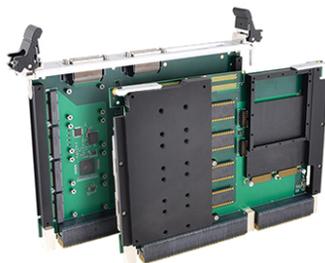
GUILLEM BERNAT, RAPITA SYSTEMS

Multicore processors are increasingly being adopted in the critical systems domain, especially within the mission-critical military context. They offer a solution to the issue of long-term availability of single-core processors and the increasing processing power needed to facilitate increased innovation in military systems. As multicore processors offer neither a deterministic environment nor predictable software execution times, a new verification approach ? one that solves the challenges of multicore timing analysis ? is needed for their safe use.

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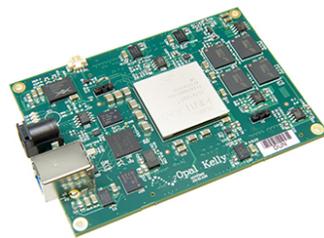


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## INDUSTRY SPOTLIGHT

### Obsolete and counterfeit electronics remain challenges for the military

SALLY COLE SENIOR EDITOR

Legacy military electronics systems are a frequent target of counterfeiters, a common problem driven by obsolescence. Nondestructive testing solutions are emerging, however, that can help detect counterfeits.

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## FIELD INTELLIGENCE

### Image-processing programming: Hope for non-nerds?

CHARLOTTE ADAMS, ABACO SYSTEMS

Enhanced and augmented vision systems are becoming faster, smaller, and more capable, and the same is true for target-detection and tracking systems. Next in the pipeline will be automatic target recognition and artificial intelligence (AI)-assisted machine vision and robotics.

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## SPECIAL REPORT

### Shipboard electronics evolve to match the pace of threat

EMMA HELFRICH, ASSOCIATE EDITOR

The threat environment for the U.S. Navy is ever-evolving, as is modern warfare as a whole, with the result that shipboard electronics must keep up in order to address electronic warfare (EW) concerns. Leveraging open architecture and agnostic design in a ship's defense system is therefore the paramount goal of the Navy's Surface Electronic Warfare Improvement Program (SEWIP). Major players in the shipboard electronics design market are bringing major advancements to the naval EW arena.

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## Extreme Engineering Solutions (X-ES)

Extreme Engineering Solutions? XPedite7683 is an Intel? Xeon? D-1500 Processor-Based 3U VPX Module with 32 GB of DDR4, XMC Support, and SecureCOTS?

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### SPONSORED ARTICLE

## Test Engineering Trends for Aerospace and Defense

NATIONAL INSTRUMENTS

Whether you're putting pencil to paper for your next program bid, assessing the mass-migration costs to move your teams to Windows 10, or serving as a

portfolio manager for software engineers to support a growing inventory of legacy testers, you are consistently evaluated on your ability to manage cost and risk. You are not alone.

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## Why Smart Video Displays May Not Be the Cleverest Choice

CURTISS-WRIGHT

All in one video display and computing solutions no longer have an obvious advantage over simple, standalone displays. In many cases, a simple video display connected to a separate computing component is the better choice. As a result, it is critical for anyone evaluating video displays to thoroughly consider their requirements and understand the advantages and disadvantages of smart and simple displays before choosing a solution.

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## Selecting the Optimal DSP Solution for EW Applications

ABACO

Invisible conflicts on the electronic battlefield are won or lost in tiny fractions of a second, with implications that can decide the success of a mission or the survival of warfighters. The conflicts are waged by embedded RF systems; some drive radar systems, while others jam and spoof radars, or jam the control signals for an IED.

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## Safety Critical RTOS Adapting Across Applications

WITTENSTEIN High Integrity Systems

This paper discusses what safety means to an RTOS, and is an essential read for those working with or planning to work with a safety RTOS. Gain a deep understanding of the implications for RTOS within a



safety critical embedded platform across applications  
such as medical, automotive, or industrial.

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## Reaching DAL A Certification for COTS Hardware, Software to DAL A

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