



The McHale Report, by [militaryembedded.com](http://militaryembedded.com) Editorial Director John McHale, covers technology and procurement trends in the defense and aerospace electronics community. [View our archive](#) of recent and past issues of the McHale Report e-mail newsletter.

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### SPECIAL REPORT

## Countering military drone swarm threats via directed energy



As the threat of weaponized drone swarms continues to escalate for U.S. forces, defense planners are considering high-energy laser and high-power microwave countermeasures to combat the threat of these groups of unmanned aerial systems (UASs).

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### TOP STORY

## Black Hornet nano-UAV systems in development for U.S. Army SBS program



FLIR Systems, Inc. announced that it has won an additional \$15.4 million contract to deliver its FLIR Black Hornet 3 Personal Reconnaissance Systems (PRS) to the U.S. Army. The advanced nano-unmanned aerial vehicles (UAVs) are being used to augment squad and small unit-level surveillance and reconnaissance capabilities as part of the Army's Soldier Borne Sensor (SBS) program.

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### PODCAST

## Discussing the trajectory of AI-powered military technology



Artificial intelligence (AI) is one of the hottest topics in modern technology, and defense electronics are no exception. Base-patrolling robot dogs and algorithms designed to understand complex combat scenarios are currently in development, but that's just the beginning. In the debut episode of On the Radar, Emma Helfrich and John McHale of Military Embedded Systems discuss the current state of military AI and machine learning (ML), how these advancements are being financed, and the obstacles that stand in innovation's way. Also covered is the concept of defining the ethics of ML-powered systems and DoD research and development funding for AI.

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### MARKET RESEARCH

## Counter-UAS market will be driven by heavy investment in UASs by defense, commercial users, study says



The use of unmanned aerial systems (UASs) has gathered pace in recent years; as new technologies mature -- including AI and drone swarms -- countries will necessarily invest in cutting-edge counter-UAS (C-UAS) systems, according to a new study from GlobalData, "Counter-Unmanned Aerial System (C-UAS) in Aerospace and Defense -- Thematic Research."

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# [Pentek Announces SOSA Aligned Development Platform that Speeds Integration Tasks](#)

The [Model 8256](#) is a 3U VPX development platform that is aligned to the SOSA Technical Standard and includes IPMI and connectivity for RF and optical interfaces. The system is ideal for application development with Pentek's Quartz® RFSoc data acquisition and processing boards. Pentek's SOSA aligned products facilitate interoperability, re-use, and rapid technology insertion, all consistent with the SOSA Consortium's approach and vision.

[Download Datasheet](#)

## INDUSTRY SPOTLIGHT

### Moore's Law – or the law of more?



The insatiable demand for instantaneous information extends to the tactical edge and into the realm of unmanned aerial vehicles. But can underpinning technologies match that reach?

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## TOP STORY

### UUVs ordered by U.S. Navy are modular, portable, and upgradeable



Shipbuilder Huntington Ingalls Industries reported that the U.S. Navy has ordered two REMUS 300 unmanned underwater vehicles (UUVs) for use in national-security missions.

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## TOP STORY

### M-Code GPS modules to help DoD with electronic warfare operations



BAE Systems, Inc. has received a \$325.5 million contract from the Defense Logistics Agency for advanced Military Code (M-Code) Global Positioning System (GPS) modules that will aim to provide reliable and secure positioning, navigation, and timing data with anti-jamming and anti-spoofing capabilities. The modules will help warfighters conduct operations in contested electronic warfare environments.

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## TOP STORY

### Robotic dogs equipped with sensors and AI integrated at Air Force base



Teams within the Force Protection and Special Programs Divisions supplied and integrated the 325th Security Forces Squadron with four prototype Quad-legged Unmanned Ground Vehicles, sometimes referred to as 'robotic dogs'. They are semi-autonomous robots that can provide surveillance and perimeter security in difficult terrain or in harsh or unsafe conditions.

## TOP STORY

### AI- and ML-enabled spectrum management tech goal of DoD research



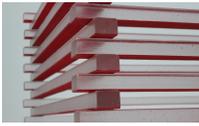
The U.S. Department of Defense (DoD) has issued a third Request for Prototype Proposal (RPPs) in support of electromagnetic spectrum research related to the capabilities of the over 400 members of the National Spectrum Consortium.

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[Read More +](#)

GUEST BLOG

## Changing at the right time makes all the difference



Jay Conrad Levinson (known for the “Guerrilla Marketing” books) offered this advice on advertising: “Don’t change your ads when you’re tired of them. Don’t change them when your employees are tired of them. Don’t even change them when your friends are tired of them. Change them when your accountant is tired of them.”

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TOP STORY

## Hypersonics research at UCF hints at possibility of flight at speeds up to Mach 17



Researchers at the University of Central Florida (UCF) are building on the technology needed to enable hypersonic flight, as they reported that they have found a way to stabilize the detonation required for hypersonic propulsion, mainly by creating a special hypersonic reaction chamber for jet engines.

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TOP STORY

## Synthetic vision avionics system to be integrated onto X-59 aircraft

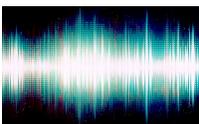


Collins Aerospace and Raytheon Technologies have been selected by Lockheed Martin to provide avionics for NASA’s X-59 Quiet SuperSonic Technology (QueSST) aircraft. Collins Aerospace will aim to help the aircraft’s pilot fly and land in all weather conditions without any forward-looking windows.

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TOP STORY

## Radio frequency and microwave company NSI-MI Technologies acquired by AMETEK



AMETEK, Inc. has announced the company’s acquisition of NSI-MI Technologies, a provider of radio frequency and microwave test and measurement solutions and services. NSI-MI was acquired for \$230 million and has annual sales of approximately \$90 million.

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MARKET RESEARCH

## Electronic warfare market to generate to \$23.56 billion by 2028, study says



The global electronic warfare (EW) market, which totaled \$15.81 billion in 2020, is estimated to reach \$23.56 billion by 2028 -- growing at a combined annual growth rate (CAGR) of 5.6% between 2021 and 2028 -- according to a new report published by Allied Market Research.

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TOP STORY

## Hacking for Defense program seeks to connect university minds with

SPECIAL REPORT

## IFF technology aims for a safer battlefield

## DoD, intel community



An often-heard comment in the defense community is that it's getting harder to attract and retain talent for industry and research

roles.

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Enemy suicide drones, spy drones, and drones that deliver death and destruction increasingly complicate the modern battlefield.

The advent of unmanned aircraft system (UAS) technology has enabled non-state actors to harness airpower in a way previously reserved for the large military forces of nation-states. For as little as \$650 for an off-the-shelf UAS, an enemy can eviscerate a parked F-22 worth \$344 million. This low-cost/high-impact threat vector fundamentally alters force protection and installation defense requirements for the U.S. and its allies.

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### TOP STORY

## LITENING color targeting pods by Northrop Grumman to equip F-16s



Northrop Grumman Corporation announced that its LITENING advanced targeting pod has been fielded for the first time with full-color, digital video capability with the Air Force Reserve and Air National Guard, intended to give pilots of the service's F-16s situational awareness and targeting certainty.

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### GUEST BLOG

## Disaggregation and the Kill Web



In my previous articles, I may have left the impression that with the technology we have today, hooking all ISR (intelligence, surveillance, and reconnaissance) and weapons systems together

into a seamless, multi-service, multi-domain battle network should be straightforward. Technologically, it is achievable. But operationally, there are serious complex trade-offs that make the decisions difficult. Let's look at a few of them here, so you have a better idea why building the Kill Web will take some time, lots of testing, and continuous updates to make it function properly.

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### TOP STORY

## Cyber tools and solutions in development for USMC cyberspace command



Perspecta Inc., a U.S. government services provider, announced that it was selected to develop cyber tools and solutions for the U.S.

Marine Corps Forces Cyberspace Command (MARFORCYBER).

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### TOP STORY

## Supercomputing in space could be achieved with Ramon.Space funding

Ramon.Space, company specializing in space computing solutions, has raised

### TOP STORY

## Sky Warden ISR strike aircraft in development for contested environments



\$17.5 million in Series A funding. The capital will be used to continue development of the company's computing solutions,

support its rapidly expanding U.S. and Israel operations, and expand the team globally.

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L3Harris Technologies and Air Tractor have teamed to produce the AT-802U Sky Warden, a production-ready aircraft designed

for airborne intelligence, surveillance, and reconnaissance (ISR) and other missions in extreme combat environments.

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## How Can I Teach My Machine to Learn?



In this white paper, we examine the supervised and unsupervised machine learning methods and the hybrid approach of semi-supervised machine learning. This paper also covers machine learning frameworks that simplify neural network creation, training and validation.

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SPONSORED WHITE PAPER

## Secure Networking: Five Things to Consider



This white paper describes the key considerations in implementing secure networking using advanced switch management software such as Abaco's OpenWare™.

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# Solving DAL-A Safety Certification Challenges for Military Avionics Systems

**Sponsored by:** Rapita Systems Ltd., ENSCO Avionics, Lynx Software Technologies

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