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The McHale Report, by mil-embedded.com Editorial Director John McHale, covers technology and procurement trends in the defense and aerospace electronics community.

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FEATURE

PODCAST: Thermal management challenges in military systems



Thermal management of electronics in military systems is a continuous challenge for designers as the aircraft, ground systems, and naval platforms become more complex. In this podcast with thermal management expert Gerry Janicki, Vice President, Meggitt Defense Systems, he discusses challenges, requirements, and design trends trends in military-electronics thermal management. He also details how thermal management needs to be thought of from the ground up on new designs and in tandem with power management; how thermal management costs factor into a platform's life cycle cost, and much more.

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SPECIAL REPORT

Shipboard electronics evolve to match the pace of threat



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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[RFSoc Deployment for SWaP environments](#)

Pentek's new QuartzXM SoM speeds custom deployment of RFSoc in SWaP critical environments. Measuring only 2.5 by 4 inches, the [QuartzXM Model 6001](#) includes all of the circuitry needed to maximize the performance of the RFSoc. The Model 6001 can be housed on the Pentek 3U VPX Model 5950 or it can be deployed on a custom carrier. Pentek's complete design kit ensures success for customers building their own carrier.

TOP STORY

[Do dragonflies hold the secret to](#)

TOP STORY

[ORCCA submarine combat system](#)

better missile defense?



A researcher at Sandia National Laboratories is exploring how dragonfly brains might be wired to be extremely efficient at calculating complex trajectories.

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launched by kta Naval Systems



The system called ORCCA combines maximum adaptability with IT security. It enables its operator to conduct an integrated data analysis from a wide range of systems on board via one multifunctional console.

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SPECIAL REPORT

Hypersonic weapons contract awarded to Lockheed Martin



The U.S. Army awarded Lockheed Martin a contract at an estimated value of \$347 million as part of a multi-year hypersonic weapons development in support of the Army's focus in long-range precision strike missiles.

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SPECIAL REPORT

A black box for high-speed boats



High-speed boats for military, law enforcement, and search and rescue (SAR) applications can take an unwanted pounding, as can their operators and critical electronic payloads.

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TOP STORY

AI-powered Agile Condor capability to be demonstrated with MQ-9



General Atomics Aeronautical Systems, Inc. (GA-ASI) has been awarded a contract from the U.S. Air Force (USAF) to demonstrate the Air Force Research Lab's Agile Condor capability using a MQ-9 Remotely Piloted Aircraft (RPA) owned by GA-ASI.

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TOP STORY

DoD AI chief cites progress on agency's artificial-intelligence capabilities

Lt. Gen. Jack Shanahan, director of the Department of Defense (DoD) Joint Artificial Intelligence Center (JAIC), said in a recent press conference that he is "optimistic that 2020 will be a breakout year for the department when it comes to fielding A.I.-enabled capabilities," according to a DoD transcript.

MARKETS/BUSINESS DEALS

Radar market to reach \$38.01 billion globally by 2025, study says

The global radar market is expected to be valued at \$38.01 billion by 2025, according to a study conducted by Grand View Research, Inc., "Radar Market Size, Share & Trends Analysis Report By Component (Antenna, Transmitter, Receiver), By Service, By Platform, By Frequency Band, By Range, By End Use, By Region, And Segment Forecasts, 2019-2025."



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TOP STORY

Counter-swarm electromagnetic weapon developed by AFRL



The Air Force Research Laboratory (AFRL) Directed Energy Directorate at Kirtland Air Force Base, N.M., has developed a counter-swarm, high-power weapon called the Tactical High-power Operational Responder (THOR) to eliminate an enemy's unmanned systems.

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First 100Gb-Capable COTS FPGA Board, for High-Bandwidth Applications



For the most challenging real-time data digitization, processing, and storage applications, there is a new, higher-performing 6U OpenVPX board – the [WILDSTAR 6XB2](#). RT3 backplane connectors deliver 100Gb per Fat Pipe.

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TOP STORY

Portable ground station will enable beyond-line-of-sight comms without satellite



Collins Aerospace Systems (a United Technologies Corp. business unit) has launched Universal Radio Group (URG)-IV, a new wideband high frequency (HF) portable ground station that delivers high-speed data and clear digital voice beyond-line-of-sight communications without the need for satellites.

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TOP STORY

Identification Friend or Foe systems to see upgrades

Raytheon BAE Systems has been awarded a Phase 2 contract to develop machine-learning capabilities aimed to help the military gain better awareness of space scenarios for the U.S. Defense Advanced Research Projects Agency (DARPA).

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TOP STORY

UUV will have AI, geospatial info built in to hunt mines and other sea hazards



Geospatial and data company Envitia -- together with partner BAE Systems Applied Intelligence, has won a contract to embark on one of the first artificial-intelligence (AI) projects for the British navy: To develop and deliver

MIL TECH TRENDS

Key considerations in radar test



Makers of traditional radar and electronic warfare (EW) test and measurement equipment are adapting to meet new requirements, introducing modular instruments and additional modeling and simulation during different test phases. Modeling and simulation will also reduce the need for expensive full-system

an AI-equipped unmanned underwater vehicle (UUV) that will hunt underwater mines.

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testing and aid in identifying and solving problems earlier in the testing process to reduce schedule risk.

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TOP STORY

USAF recon plane to get radio, comms upgrades



Collins Aerospace Systems (a unit of United Technologies Corp.) has won a contract with the U.S. Air Force to upgrade the service's

fleet of U-2 "Dragon Lady" reconnaissance aircraft with the Collins Aerospace HF-9087D high-frequency (HF) radios.

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TOP STORY

Next-gen jammer mid-band on a Growler previewed by Raytheon



Raytheon has provided first images of Next Generation Jammer Mid-Band on the EA-18 GROWLER as a sneak peek into its production.

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TOP STORY

New way for robots to exchange messages developed by Army



Scientists at the U.S. Combat Capabilities Development Command Army Research Laboratory developed an approach to improve the communications range and allowing for covert behavior using a team of robots for future U.S.

Army multi-domain operations.

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TOP STORY

Aegis system upgrades to be conducted by Lockheed Martin



Lockheed Martin Rotary and Mission Systems received a \$50.3 million U.S. Navy contract modification for upgrades to the Aegis missile defense system, the

Defense Department announced.

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GUEST BLOG

Hypersonic vehicles and the kill web

The U.S., China, and Russia are spending a ton of money on research and development for hypersonic vehicles these days, so it's time to explore what the

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Test Engineering Trends for Aerospace and Defense



aeronautical engineers are doing and why.

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