THE McHALE REPORT

November 2022

The McHale Report, by militaryembedded.com Editorial Director John McHale, covers technology and procurement trends in the defense and aerospace electronics community.
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EXECUTIVE Q&A

MOSA power supplies, custom components, engineering talent: Q & A with Vicor's John Sturm

Power is a key consideration for modern open architecture initiatives such as the Sensor Open Systems Architecture (SOSA) Technical Standard, says John Sturm, Vice President of Business Development for the Aerospace & Defense business unit of Vicor, when I interviewed him just before Thanksgiving. We also discussed where custom power supplies fit into the defense world and how commercial applications drive innovation and cost reductions in defense manufacturing. Edited excerpts follow.

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TOP STORY

Uncrewed Black Hawk helicopter flies in U.S. Army test

Lockheed Martin subsidiary Sikorsky and the Defense Advanced Research Projects Agency (DARPA) have demonstrated an uncrewed UH-60 Black Hawk helicopter flying autonomously for the U.S. Army, the company announced in a statement. The purpose of the tests was to show that a Black Hawk could be flown without a pilot for cargo resupply missions and a rescue operation, the statement reads.

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TOP STORY

Cybersecurity priorities at DoD to follow "zero-trust" strategy

The U.S. Department of Defense (DoD) unveiled a cybersecurity plan and roadmap that lays out a zero-trust strategy that will guide DoD agencies in their cybersecurity investments and efforts in the coming years to reach a certain level of zero-trust maturity over the next five years.

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TOP STORY

Hypersonic test bed contract from U.S. Navy awarded to Kratos

Naval Surface Warfare Center (NSWC) Crane Division has awarded a contract to Kratos Defense & Security Solutions to "increase America's capacity for hypersonic flight testing," the company announced in a statement.

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MARKET RESEARCH

Small satellite market to more than double by 2027: report

The global small satellite market is poised for an explosion in growth over the next five years, more than doubling from $3.68 billion in 2021 to $8.84 billion in 2027 for a compound annual growth rate (CAGR) of 15.73%, a new report predicts.

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TOP STORY

C-UAS system completes live fire tests in Yuma for U.S. Army

Northrop Grumman's short-range counter unmanned aerial systems (C-UAS) command and control (C2) system completed live fire tests for the U.S. Army at Yuma Proving Ground in Arizona recently, the company announced in a statement.

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GUEST BLOG

The Air Force's interim IT strategy could be a modernization road map for other agencies

It's been said before that the best plans tend to be the simple ones. While it's not clear whether that's ever been said about digital transformation, the Air Force's recently released interim Chief Information Officer (CIO) strategy could serve as an example of this truism, focusing on straightforward goals to modernize and secure the organization's information technology environment.

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TOP STORY

Anti-submarine training UUVs for Navy to get refresh, 10-year contract

The U.S. Navy's Naval Undersea Warfare Center Division, Newport has contracted with Saab to modernize and qualify the MK39 EMATT [expendable mobile antisubmarine warfare training target], a small (3 feet/22 pounds) sonobuoy-size unmanned underwater vessel (UUV) programmed to conduct various anti-submarine warfare (ASW) training scenarios.

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TOP STORY

Advanced missile tracking system for U.S. Space Force passes key milestone

A system used for tracking advanced missile threats from medium Earth orbit (MEO) has passed a key milestone for the U.S. Space Force's Missile Track Custody (MTC) program, manufacturer Raytheon Intelligence & Space announced in a statement.

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time parallel processing for compute-intensive SWaP applications.
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SPECIAL REPORT

Machine learning, GPS alternatives key for navigating future jammed environments

The U.S. and its military allies rely on GPS for navigation of high-value assets, but the technology is quite vulnerable to jamming and other interference. Teams in the military-communications industry are looking at solutions including machine learning (ML) and alternative navigation systems that are less susceptible to disruption.

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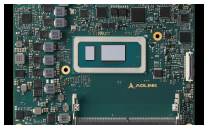
TOP STORY

PICMG consortium ratifies COM Express 3.1 to support high-speed serial interfaces



The PICMG consortium has ratified the new COM Express 3.1 specification to support high-speed serial interfaces such as PCIe Gen 4 and USB4.

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SPONSORED CONTENT

PRODUCT OF THE WEEK: SOSA aligned VX3060-S2 3U VPX rugged blade PC with Intel Core processing

This week's product, the Kontron VX3060-S2 3U VPX Rugged Blade PC, leverages the 11th Gen Intel Core processor for artificial intelligence (AI), CVGIP, and digital signal processing (DSP) workloads. Developed in alignment with the Sensor Open Systems Architecture (SOSA) Technical Standard, the VX3060-S2 serves demanding military programs with intensive processing and extreme ruggedization requirements.

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SPONSORED CONTENT

PRODUCT OF THE WEEK: X-ES XCalibur4740 D-1700 processor-based 6U VPX-REDI Module

This week's product, Extreme Engineering Solutions' (X-ES') XCalibur4740 6U VPX-REDI Module, is a single-board computer (SBC) based on the Intel D-1700 series (formerly Ice Lake-D) of processors. It is targeted at computationally heavy applications requiring maximum data and information protection such as command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR), radar, and other mission-critical defense systems.

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TOP STORY

Analog Devices officially opens RF/Microwave Learning Lab at UMass Lowell

The University of Massachusetts Lowell (UMass Lowell) and Analog Devices, Inc. (ADI) officially opened a state-of-the-art RF/Microwave Learning Lab UMass Lowell on November 7, a facility that will enable UMass Lowell to embed cutting-edge technology within engineering students' educational interactions.

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GUEST BLOG

Cryptanalysis, "Ulysses," dolphins, and talking to extraterrestrials

Let's take a break from studying the Kill Web and explore something else. Back in the late 1940s, Harvard linguist George Kingsley Zipf picked up a copy of James Joyce's novel "Ulysses" and read it. Although it was acclaimed by the pompous literary pundits in rumpled suits as a masterpiece, Zipf could not believe how incomprehensible and boring it was. In case you were not exposed to it in college, reading "Ulysses" is like being mercilessly waterboarded with the English language by shallow characters, in a dull story with no detectable plot, for an unbearable period of time.

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TOP STORY

Simulation project for military leverages VR/AR and cloud-computing engine

VR simulation company VRAI announced a collaboration with Microsoft to bring next-generation simulation to military end users, with a product leveraging virtual reality (VR), machine learning (ML), and the Microsoft Azure cloud-computing platform.

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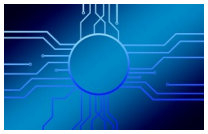
TOP STORY

AI gaming to assist U.S. Air Force commanders with air attack planning



The Air Force Research Laboratory has awarded BAE Systems a $17 million contract to introduce artificial intelligence (AI) into a game environment as part of the "Fight Tonight" program to provide air operations planners the ability to more quickly plan complex air attack operations, the company announced in a statement.

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TOP STORY

Rapita Systems enhances multicore expertise with Maspatechnologies acquisition

Danlaw Inc., a leading global automotive and aerospace electronics solutions provider, acquired Maspatechnologies SL, a spin-off of the Barcelona Supercomputing Center – Centro Nacional de Supercomputación (BSC-CNS). Maspatechnologies will join the Danlaw-owned Rapita Systems group and now operate as Rapita Systems SL from offices in Barcelona.

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TOP STORY

Japan intercepts ballistic missile targets with both SM-3 variants for first time

Japan's Maritime Self-Defense Force intercepted short- and medium-range ballistic missile targets with SM-3 interceptors during a recent test, SM-3 manufacturer Raytheon announced in a statement.

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The Rise of Autonomous Technology in the Military and What it Means

5G technology will influence every aspect of warfare. Autonomy is one of six focus areas for Defense Innovation Unit (DIU) in its work with the military. Applications vary from Squad Multipurpose Equipment Transport (SMET), Future Vertical Lift (FVL), and operating rooms, to cyber applications under development by the U.S. Special Operations Command.

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Combining the Best of Both Worlds: True Time Delays and Phase Shifters

This article reviews the strengths and weaknesses of two electronic beamforming techniques: phase shifters (PSs) and true time delays (TTDs). It argues that these two methods can be combined in a hybrid beamforming architecture to offer better SWaP-C and a comparatively less complex system design.

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