



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.



### EXECUTIVE OUTLOOK

## GaN in space, military RF trends



Satellites, spacecraft, and communications systems are leveraging the performance benefits of gallium nitride (GaN)

RF components as demonstrated by the successful landing of the Mars Perseverance Rover. GaN also fuels innovation in military electronic warfare and radar systems. Dean White, senior director of Defense and Aerospace for Qorvo, discussed these trends with me in the following Q&A. We also covered the COVID-19 pandemic's impact on the U.S. semiconductor industry, military funding, and the engineering recruitment in the defense industry. Edited excerpts follow.

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### MIL TECH TRENDS

## DoD must innovate in AI by 2025



Developing artificial intelligence (AI) technology for the battlefield is a top priority for the U.S.

Department of Defense (DoD) as its adversaries continue to scale up their own AI and machine learning capabilities. Much of the DoD's AI wizardry is spun out of the U.S. Defense Advanced Research Projects Agency (DARPA), which looks to enable machines to become trusted, collaborative partners of not just warfighters but all humans.

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### TOP STORY

## Night vision systems for Army pilots to be upgraded by Elbit Systems



U.S. Army active duty and National Guard rotary-wing aviation units will receive an upgrade to their AN/AVS-6

Aviator's Night Vision Imaging Systems (ANVIS) with high performance white phosphor image intensifier tubes to be provided by Elbit Systems of America – Night Vision.

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### MARKET RESEARCH

## Hypersonic technology development in U.S. accelerating, study says



A recent study about hypersonic technology development within the United States by market analysis company Frost & Sullivan finds

that the ownership of hypersonic missiles by U.S. adversaries is accelerating the nation's expansion efforts of advanced hypersonic defense weapons.

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[8-Channel Phase Coherent RF Signal Recorder Extends Recording Capability for Beamforming and Radar Applications](#)

The [Talon Mode RTR 2628](#) is a 8-channel, phase coherent, 4U 19-inch rackmount recorder with integrated RF tuners and A/D converters. The rugged rackmount system is designed to operate under conditions of vibration and extended operating temperatures. The Talon RTR 2628 accepts signals from eight antennas to provide eight channels of phase-coherent RF signal recording. Each channel is tunable up to 6 GHz and captures up to 80 MHz of instantaneous bandwidth.

[Download Datasheet](#)

#### TOP STORY

## FACE conformance achieved by two Collins Aerospace software products



Collins Aerospace, company specializing in developing open systems architecture avionics, recently received new

Conformance Certificates from The Open Group Future Airborne Capability Environment (FACE) for two software products. Collins Aerospace is a unit of Raytheon Technologies Corp.

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#### TOP STORY

## Pegasus XL rocket launches Space Force payload into orbit



Northrop Grumman Corporation announced it has launched the Tactically Responsive Launch-2 (TacRL-2) payload into orbit for the

U.S. Space Force (USSF), using the company's Pegasus XL rocket. TacRL-2 was launched from Vandenberg Space Force Base.

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#### EDITOR'S PERSPECTIVE

## Returning IC manufacturing to U.S. shores



Supply cycles these days are slow whether you are buying lawn furniture, lumber, raw materials, or mission-critical microelectronics.

Reasons range from the pandemic and the resulting economic slowdown to the Suez Canal blockage to tariffs. You name it, you order it, you likely have to wait months to get it.

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#### TOP STORY

## Airborne laser weapon system intercepts UAVs in test with Elbit Systems



The Directorate of Defense R&D in the Ministry of Defense (MoD), together with Elbit Systems and the Israeli Air Force (IAF), has

intercepted several unmanned aerial vehicles (UAVs) using an airborne High-Power Laser Weapon System (HPL-WS). The UAVs were intercepted at various ranges and flight altitudes.

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#### TOP STORY

## AsUAS Ghost 60 systems delivered to Special Operations Forces



UAV Solutions, Inc. (UAVS) announced the company delivered and trained Special Operations Forces Operators on its AsUAS

Ghost 60 Multi-Rotor system. The Ghost 60 system was selected by the Irregular Warfare Technical Support Directorate (IWTSD), formerly the Counter Terrorism Technical Support Office (CTTSO), for their Affordable small UAS (AsUAS) program in January 2020.

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SPECIAL REPORT

## SDRs for satellites



Radio technology is and will continue to be an indispensable part of communication systems, particularly those used by the military. Software-defined radios (SDRs) have significantly reduced the cost of satellite systems while exponentially increasing their functionality, efficiency, and durability.

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TOP STORY

## Army TITAN team from Raytheon leverages MOSA expertise



Modular Open Systems Approach (MOSA) expertise is a key characteristic of the team Raytheon Technologies is putting together to support development of the U.S. Army's Tactical Intelligence Targeting Access Node (TITAN) program. TITAN is a tactical ground station that finds and tracks threats to support long-range precision targeting.

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TOP STORY

## Cyber contract for U.S. DoD worth \$495 million signed by Verizon



Verizon's Public Sector unit won a \$495 million contract with the U.S. Department of Defense (DoD) to set up and deliver the network for the agency that connects 200 research labs and supercomputer locations.

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TOP STORY

## Boeing's MQ-25 UAV first to refuel a U.S. Navy Super Hornet



The U.S. Navy and Boeing have demonstrated air-to-air refueling using an unmanned aircraft, the Boeing-owned MQ-25 T1 test asset, to refuel another aircraft.

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MARKET RESEARCH

## Military-communications market may reach \$39.72 billion by the year 2029, study predicts



Market revenue for the global military-communications market -- which accounted for \$28.50 billion in 2020 -- is expected to reach a value of around \$39.72 billion by the year 2029, with market growth marking a combined annual growth rate (CAGR) of approximately 3.38% over the forecast period, according to a new study by Market Forecast, "Global Military Communications Systems -- Market and Technology Forecast to 2029."

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TOP STORY

## Intelligent sensor program for DARPA garners Raytheon \$8.8

INDUSTRY SPOTLIGHT

## How a robust FPGA supply chain assures defense industry

## million contract



Raytheon won an award worth \$8.8 million cost-plus-fixed-fee completion contract from the Defense Advanced Research

Projects Agency (DARPA) for a research project for the agency's Fast Event-based Neuromorphic Camera and Electronics (FENCE) program.

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## preparedness



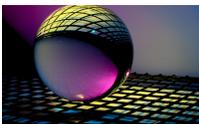
In the world of defense-grade FPGA [field-programmable gate array] devices, solder column attachment is the weakest link in

the assembly process. Today, 90% of America's FPGA device makers rely on a single subcontractor to attach solder columns, creating a potential supply chain vulnerability. The problem can be solved by engaging multiple subcontractors already established throughout North America. Device makers just need to qualify these alternative subcontractors in order to assure sustainability and resiliency of the defense-grade FPGA supply.

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### TOP STORY

## Artificial intelligence task force launched by White House, National Science Foundation



The White House Office of Science and Technology Policy (OSTP) and the National Science Foundation (NSF) have formed

the National Artificial Intelligence (AI) Research Resource Task Force, which is intended to craft the roadmap for expanding access to critical resources and educational tools that aim to spur AI innovation and economic prosperity across the U.S.

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### GUEST BLOG

## Kill Web technology update



There's been a number of advancements in technology going into the Kill Web lately but none of them, individually, would warrant a focused article unless I overhyped their potential, wildly speculated

about their capabilities, or just made-up some stuff. That approach could seriously jeopardize my standing as an amateur blogger and irritate my publisher. So, let's avoid that possibility and briefly cover a few of the developments here.

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### TOP STORY

## Robotic control of unmanned systems in development for USMC



Tomahawk Robotics has announced the award of the Radio Agile Integrated Device (RAID) Program through the Marine

Corps Warfighting Laboratory (MCWL). Program activities and deliveries will take place over the course of 2021 and 2022.

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### TOP STORY

## Type-X Robotic Combat Vehicle designed with AI and predictive

### TOP STORY

## Infrared countermeasure systems in development for U.S. Air Force

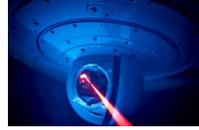
## maintenance



Milrem Robotics announced that the company will present their Type-X Robotic Combat Vehicle (RCV) designed to meet the U.S.

Army's RCV-M program at this year's Military RAS USA Conference.

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Northrop Grumman Corporation will install more Large Aircraft Infrared Countermeasure (LAIRCM) systems on United States and international fixed-wing and rotary wing aircraft under a \$146 million order from the U.S. Air Force.

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### SPONSORED WHITE PAPER

## AI Transportable Market



The general edge computing market not only continues to grow quickly, but also to segment quickly, creating new opportunities for forward-looking organizations. "AI transportables" is one such emerging edge segment, combining advanced high-performance computing, in-depth AI support and rugged packaging. This combination creates a flexible, versatile and proven platform.

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### SPONSORED WHITE PAPER

## AI for Embedded Defense is Here



Imagine an armed Humvee is moving at night thru a smoke-filled, urban battlefield. Using multiple displays, the crew has a 360° view that is daylight clear, delivered by an imaging system fusing data from optical, infrared, lidar, and radar sensors. Learn how Abaco's GVC1001 Ultra-High Performance Graphics, Vision and AI Evaluation Platform made this possible.

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