INDUSTRY SPOTLIGHT

DO-178C meets the FACE Technical Standard: High assurance and reusability for airborne software

DR. BENJAMIN BROSGOL, ADACORE

The DO-178C and FACE [Future Airborne Capability Environment] approaches form a natural union, enabling developers to combine best practices for airborne software production from both the military and commercial arenas. By developing and verifying software components based on the guidance offered in DO-178C and its supplements, FACE component providers can meet their FACE portability goals while achieving high-DAL [Design Assurance Level] reliability and safety.

MIL TECH TRENDS

Certifying embedded COTS software for military systems

RICH JAENICKE, GREEN HILLS SOFTWARE

Commercial off-the-shelf (COTS) software rarely goes through any type of certification process with independent verification of functionality, API [application programming interface] compliance, or security, with the main exception being software targeted at applications that require safety certification. Part of the issue is that most software standards do not specify certification test suites or a formal certification process. This is starting to change, however, for some military embedded systems,
driven partly by processes defined by the aviation community but that can be applied more generally beyond avionics.

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PODCAST

PODCAST: Defense avionics platforms benefit from FACE Technical Standard

JOHN MCHALE, EDITORIAL DIRECTOR

Adoption of the FACE Technical Standard continues to grow ? it?s in version 3.0 currently ? and the FACE Consortium, managed by The Open Group, has about 90 member companies with 20 products in the FACE registry. In this podcast, Jeffry Howington of Collins Aerospace ? also vice chairman of the FACE Consortium Steering Committee for nine years, discusses with me the impact of FACE on the military avionics community, the involvement of the user community, the benefits of FACE Technical Standard 3.0, and other topics.

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PODCAST

Defense industry response to COVID-
In this podcast, Mark Aslett, CEO of Mercury Systems, discusses with me how the nationwide shutdown is impacting the defense supply chain and the speed of the defense acquisition process as well as which types of defense electronic suppliers are likely to feel the most financial pain. He also shares positive examples of how defense companies are stepping up to help the victims of the virus either through fundraising or supplying much desperately needed equipment.

WARFARE EVOLUTION BLOG: The best way to start this essay is with a simple formula that shows how the kill web manipulates time and space, and then explain how it works: \( t = \frac{d}{s/i} \). Time \( t \) is equal to distance \( d \) divided by speed \( s \), divided by intelligence \( i \). The more intelligence we have about the enemy, the more we can manipulate time and space.
GUEST BLOG

Military power conversion: the value of strategic customization (Part 1)
MIKE EYRE, MILPOWER SOURCE, INC.

As the military-electronics industry continues to transition toward commercial off-the-shelf (COTS) products, established standards, and modular designs, the need for tailored solutions remains—there is a middle ground. In this, Part 1 of a two-part blog series, the benefits and drawbacks of custom parts are discussed.

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SISTER PUBLICATION

FMC enhancements for growing high-speed data needs
DYLAN LANG, SAMTEC

Field Programmable Gate Array (FPGA) technology has proven to be invaluable to embedded designers for many years. Often acting as an all-in-one solution, FPGAs negate the need for ASIC [Application-specific integrated circuit] technology and reduce the cost of custom IP algorithms in silicon. FPGAs have even aided in de-risking designs by allowing engineers to modify their logic after silicon is on the board. This allows for more efficient prototyping and a faster time to market.

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PENTEK

This paper describes the engineering considerations and design techniques used to develop a small form factor rugged recorder that can handle the extremely high data rates associated with very wide bandwidth RF signal recording.
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Advancements in High Reliability Interconnection Systems: Miniaturization of Connectors for the New High Speed Digital Electronics

OMNETICS CONNECTOR CORPORATION

This white paper reviews the improvements and changes needed to serve a very rapid demand for modernized interconnection and wiring systems that serve the new electronic applications in defense, space satellites and portable electronic systems.

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Applying AI in Rugged Embedded Systems

AITECH

Artificial intelligence (AI) has come a long way from merely carrying out automated tasks based on a data set. It is truly empowering embedded systems globally, providing rational computer-based knowledge using data input.

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