



NEWS RELEASE

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Curtiss-Wright, Green Hills Software®, and Harris® Corporation Demonstrate Two FACE™-Conformant Digital Moving Map Solutions for Defense Avionics

The demos feature FACE-conformant FliteScene® Digital Moving Map Software and Pre-Validated DO-254 Safety-Certifiable Board Sets for Embedded Avionics Applications

Army Aviation Mission Solutions Summit, Nashville, Tenn. (Booth #1407) – April 25, 2018 – [Curtiss-Wright's Defense Solutions division](#), in collaboration with [Harris Corporation](#) and [Green Hills Software](#), will present two demonstrations of COTS-based, Future Airborne Capability Environment (FACE)-conformant Airborne Digital Mapping Solutions at the 2018 Army Aviation Mission Solutions Summit. The demos will include both Intel® and Power Architecture® based rugged embedded solutions. These Digital Moving Map solutions simplify and speed the integration of situational awareness and high-performance digital mapping functions into embedded commercial and military avionics systems.

Both demonstrations, hosted at Curtiss-Wright's booth (#1407), will feature Harris's popular FliteScene Digital Moving Map software and Green Hills Software's industry-leading INTEGRITY®-178 Time-Variant Unified Multi-Processing (tuMP™) real-time multicore operating system. One of the demos will run on Curtiss-Wright's Power Architecture [VPX3-152, a DO-254 DAL A safety-certifiable single board computer \(SBC\)](#).

"We are very pleased, along with Harris and Green Hills Software, to demonstrate rugged digital mapping solutions that offers a complete FACE-conformant FliteScene software solution that must also meet the DO-254 and DO-178C assurance objectives for avionics systems," said Lynn Bamford, Senior Vice President and General Manager, Defense Solutions division. "These digital mapping solutions eliminate the cost and design risk associated with deploying new capabilities while delivering on the promise of the FACE open avionics Technical Standard to make software systems more robust, interoperable, portable, and secure."

Rugged OpenVPX SBCs and Graphics Modules

The Power Architecture®-based demo will feature Curtiss-Wright's [VPX3-152 SBC, a rugged 3U OpenVPX™ module](#). The VPX3-152, which features an NXP® QorIQ® T2080 multicore SOC, was designed from the ground up to be cost-effective and to support DO-254 DAL A safety certifiable for critical defense and aerospace avionics applications.

Both the VPX3-152 and the VPX3-1258 will be running Green Hills Software's INTEGRITY-178 tuMP, the only operating system in the world that is conformant to the FACE 2.1.1 Technical Standard and the first true multicore operating system to conform to any version of the FACE Technical Standard. INTEGRITY-178 tuMP conforms to both the FACE Safety Base and Security Profiles for the C, C++ and Ada programming languages. INTEGRITY-178 tuMP is also the only multicore operating system that meets all of the requirements defined in the current standard for ARINC-653, Supplement 4, which requires multicore operation as defined in Section 2 of the Supplement 4 standard: "Multiple processes within a partition scheduled to execute concurrently on different processor cores," and also support "Multiple partitions scheduled to execute concurrently on different processor cores". The INTEGRITY-178 tuMP operating system has successfully met the DO-178 DAL A certification objectives multiple times across several different multicore SOC architectures, with each SOC having a different core design. Green Hills Software's INTEGRITY-178 tuMP is the world's most advanced and proven high-assurance multicore operating system and it is available for all of Curtiss-Wright's DO-254 safety-certifiable products including its Power Architecture, Intel®, and Arm®-based SBCs.

"Green Hills Software is a proud partner of Curtiss-Wright, supporting all of their safety-certifiable multicore processor boards," said Dan O'Dowd, founder and chief executive officer of Green Hills Software. "The INTEGRITY-178 tuMP innovative multicore design, service history and certification pedigree when combined with Curtiss-Wright's industry-leading safety-certifiable hardware solutions provide the civil and military aviation industry a comprehensive and trusted end-to-end solution."

The Intel-based digital moving map solution being demonstrated will feature Curtiss-Wright's [VPX3-1258 SBC](#). This rugged 3U OpenVPX module features a field-proven 4th Gen Intel Core i7 (Haswell) processor. Pin-compatible with Curtiss-Wright's previous, and also our future generations of Intel SBCs, the VPX3-1258 delivers Quad-Core (8-thread) performance at 2.4 GHz. With up to 16 GB of dual-channel high-speed ECC-protected DDR3 memory, the VPX3-1258 SBC also includes an integrated Intel HD Graphics 4600 GPU, offering single-slot discrete GPU performance, or can be used with external graphics modules for additional graphics capabilities and interfaces.

The demonstrations will also feature Curtiss-Wright's rugged [VPX3-716 3U OpenVPX graphics module](#). The VPX3-716 is an industry-leading rugged 3U OpenVPX high performance graphics processor based on the AMD Radeon™ E8860 Graphics Processing Unit (GPU). The E8860 meets the long lifecycle availability required for military programs through the use of a suite of software drivers and 20-year component supply program. Designed for high reliability, the VPX3-716 is especially well-suited to support embedded training, moving maps, Geographic

Information Systems (GIS), 360 degree situational awareness, Degraded Visual Environment (DVE) and other graphics, video and compute-intensive applications.

Curtiss-Wright also offers a [DO-254 safety certifiable graphics module, the VPX3-719](#). This 3U OpenVPX module is ideal for avionics applications that require video capture and HD-SDI video interfaces. It supports extremely low latency video capture, graphics generation and overlay, and display output conversion. The VPX3-719's AMD Embedded Radeon E8860 high-performance GPU is supported with up to six independent and simultaneous graphics outputs selectable from 4x DVI, 2x HD-SDI, and 2x analog RGBHV or STANAG interfaces.

The module provides 2 GB of dedicated video memory, accelerating applications with complex textures and mapping data, and also supports multi-channel video capture with the ability to transfer captured video directly to the GPU memory for the lowest possible display latency.

All of Curtiss-Wright's DO-254/DO-178C safety certifiable products including its family of Power Architecture, Intel, and Arm-based SBCs, graphics, switch and I/O modules are designed specifically to address avionics applications and are available with re-usable DO-254 design artifacts that help speed and ease the system certification process while greatly reducing program risks and costs.

About the FACE Consortium

The FACE Consortium is a government-industry partnership that manages technical standards and business strategies for acquisition of affordable software systems and promotes innovation and rapid integration of portable capabilities across global defense programs. CERTON®, an approved FACE Verification Authority, verified the FliteScene software in accordance with the FACE Technical Standard and FACE Conformance Policy, resulting in Harris receiving FACE Conformant Certificate #2. CERTON has also verified INTEGRITY-178 tuMP conformance with the FACE Technical Standard edition 2.1.1.

About Harris FliteScene Digital Map

The Harris FliteScene Digital Map open architecture system provides situational awareness for both civilian and military operations. It supports advanced terrain awareness and obstacle avoidance features and offers three-dimensional synthetic vision modes. It has been integrated with modern tactical networks such as Link 16 and ANW2 providing a full real-time common operating picture. FliteScene supports a standard OpenGL interface that can be integrated with commercial off-the-shelf (COTS) processors and graphic accelerators. This combat-proven, feature-rich digital mapping software solution enables system integrators to seamlessly integrate critical situational awareness capabilities into demanding commercial and military airborne platforms. It provides scalable and configurable 2D and 3D terrain images, street maps, map overlays, and mission planning capabilities required for demanding aerospace, defense, law enforcement, fire, and search and rescue applications. For more information about FliteScene, please visit www.harris.com/solution/flitescene-digital-map.

FliteScene Performance Features:

- Capable of displaying raster maps in all relevant formats and scales in accordance with the requirements defined by DO-257
- 2D and 3D views for both cockpit and wingman, with extended scene and enhanced performance
- Map overlays for elevation, depth, vectors, targets, and other line-of-sight objects
- Multiple map underlay layers including terrain and bathymetry
- Multi-vehicle tracking and sensor footprint display
- Configuration via XML configuration files
- Multi-channel output with pan/zoom, and orientation capabilities

Software Support

Software support for FliteScene includes drivers for leading operating systems such as INTEGRITY®-178 tuMP, Linux®, Windows®, VxWorks®, LynxOS®, and more.

For more information about Curtiss-Wright's Defense Solutions division, please visit www.curtisswrightds.com.

About Green Hills Software

Founded in 1982, Green Hills Software, Inc. is the global leader and most accomplished supplier of high-assurance and secure software solutions for embedded systems. In January 2002, the Green Hills INTEGRITY-178 RTOS was the first commercially developed partitioned operating system certified to DO-178B Level A as part of a civil avionics TSO. In 2008, the Green Hills INTEGRITY-178 RTOS was the first and is still the only operating system to be [certified by NIAP \(National Information Assurance Partnership comprised of NSA & NIST\)](#) to EAL 6+, High Robustness, the highest level of security ever achieved for any software product. Green Hills Software's open architecture, integrated development solutions address deeply embedded, safety/security and high-reliability applications for the military/avionics, medical, industrial, automotive, networking, consumer and other markets that demand industry-certified solutions. Green Hills Software is headquartered in Santa Barbara, CA, with European headquarters in the United Kingdom. Visit Green Hills Software at www.ghs.com.

About Curtiss-Wright Corporation

Curtiss-Wright Corporation is a global innovative company that delivers highly engineered, critical function products and services to the commercial, industrial, defense and energy markets. Building on the heritage of Glenn Curtiss and the Wright brothers, Curtiss-Wright has a long tradition of providing reliable solutions through trusted customer relationships. The company employs approximately 8,600 people worldwide. For more information, visit www.curtisswright.com.

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