COTS HARDWARE SUPPORTING GREEN HILLS SOFTWARE INTEGRITY-178 tuMP RTOS

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Green Hills SOFTWARE

AIR LAND SEA

ACCELERATE YOUR TIME TO MARKET WITH A PROVEN COTS SOLUTION

Curtiss-Wright and Green Hills Software work closely together to ensure Curtiss-Wright's DO-254/DO-178 safety-certifiable COTS boards and embedded computing subsystems take full advantage of the high assurance real-time operating system (RTOS) capabilities of Green Hills Software's INTEGRITY®-178 tuMP™ safety-critical RTOS. With Green Hills Software and Curtiss-Wright, you can get your program started quickly by taking advantage of the multi-core processing power of Intel® x86, Arm® and NXP® Power Architecture® processors in industry standard OpenVPX™, VME, XMC, and custom form factors.

The Curtiss-Wright / Green Hills Software Partnership Advantage

- Get the best-of-breed safety-certifiable solutions with a leader in DO-254 COTS hardware paired with a leader in DO-178 COTS RTOS for multi-core systems.
- Improve SWaP for safety-critical applications with high core utilization resulting from optimized hardware and flexible multi-processor software architecture.
- Reduce avionics vendor lock with COTS solutions and software tools that enable upgrades with minimal retesting.
- Lower your risk with optimized INTEGRITY-178 tuMP BSPs for a broad selection of Curtiss-Wright DO-254/DO-178 safety-certifiable boards and electronic systems.
- Ease your safety certification cost and effort
  - + Green Hills Software and Curtiss-Wright provide end-to-end support for a customer's entire certification effort, from hardware/BSP development to hardware/software compatibility, device driver development, complete testing on hardware, appropriate life cycle data generation and delivery (hardware specific PSAC, SAS and verification results), and audit support, allowing the customer to take full credit for the delivered certification evidence.
  - + Curtiss-Wright's safety-certifiable COTS graphics, I/O and single board computer (SBC) modules provide the reduced cost and development risk benefits of COTS electronics to designers of safety-certifiable systems. Designed with an RTCA/DO-254 design process from the beginning of the development cycle, Curtiss-Wright's safety-certifiable multi-core processor SBCs, when combined with Green Hills Software's INTEGRITY-178 tuMP RTOS, provide system designers with a complete COTS hardware/software solution for avionics systems.
- Enhance your application's security with Curtiss-Wright's TrustedCOTS™ to securely boot the Green Hills Software INTEGRITY-178 tuMP RTOS, the only COTS OS certified to NSA's Separation Kernel Protection Profile.
- Depend on the mission-critical stability and reliability of Curtiss-Wright hardware and Green Hills Software to meet the flawless performance and high assurance requirements in demanding environments.

To find out more, visit our websites:

www.curtisswrightds.com

www.ghs.com/integrity-178b

INTEGRITY-178 tuMP RTOS

Key Features

- Comprehensive support for the entire DO-178B/C Level A certification effort, from customer-specific PSAC through SAS
- Complete time-, space- and resource-partitioned RTOS, with full support for the latest version of ARINC 653 Part 1 (Supplement 4)
- Certified conformant to the FACE™ 3.0 Technical Standard for both safety and security profiles on Intel, Arm, and Power Architecture
- Flexible software architecture with deterministic asymmetrical (AMP), symmetrical (SMP), and bound multi-processing (BMP) in a time-partitioned run-time environment
- Effective multi-core interference mitigation per CAST-32A, easing the burden on the system integrator
- Full multi-core support for hyperthreading, enabling the performance of eight virtual cores in a four-core processor
- Robust Multiple Independent Levels of Security (MILS) environment, based on the NSA's Separation Kernel Protection Profile (SKPP) and certified to EAL6+
- Capable of hosting Multi-Level Security (MLS) applications such as Cross Domain Solutions (CDS)

Available Layered Products

- Certified language support for C, C++, and Ada
- PJFS-178 high-assurance file system, designed for certification to DO-178 level A
- IPFLITE networking for UDP/IP, designed for certification to DO-178 level A
- ARINC 653 application executive (APEX) API, with health monitoring
- ARINC 653 Part 2 file system
- ARINC 615A Data Loader
- Security extensions for Audit Logging, SHA-1, and Abstract Machine Test (AMT)

Proven COTS Technology Building Blocks

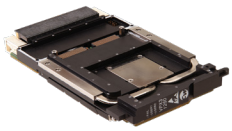
Curtiss-Wright's COTS modules are building blocks for embedded rugged computing platform systems. Green Hills Software provides Curtiss-Wright customers with BSPs for the following SBCs:

VPX3-1703

NXP Arm LS1043A
Single Board Computer

VPX3-1260

Intel 8th Gen Xeon®
Single Board Computer



VPX3-1220

Intel 8th Gen Xeon
Single Board Computer

VPX3-152

NXP Power Architecture T2080
Single Board Computer

VPX3-133

NXP Power Architecture T2080
Single Board Computer

VPX3-1259

Intel 5th Gen Core™ i7
Single Board Computer

VPX6-1959

Intel 5th Gen Core i7
Single Board Computer

Pre-Validated Embedded Solutions

Below are some examples of the rugged, powerful, pre-engineered solutions created by Curtiss-Wright and Green Hills Software, designed to save you time and money, reduce your program risk, and speed your time to deployment.

Safety-Certifiable SWaP-Optimized Application Processor

- NXP T2080 quad-core AltiVec™ processor
- Best-in-class time-, space-, and resource-partitioned RTOS supporting DO-178 DAL A certification

- **VPX3-152 DO-254 DAL A Safety-Certifiable Single Board Computer**
- **INTEGRITY-178 tuMP Safety-Critical RTOS**

Safety-Certifiable Multi-Head FACE Aligned Digital Moving Map Display

- Intel Core i7 quad-core or NXP T2080 processor
- High-performance graphics with full GPU and bandwidth performance
- Green Hills Software INTEGRITY-178 tuMP FACE Conformant RTOS for safety and security
- Richland Technologies or CoreAVI FACE aligned graphics drivers
- Harris® FliteScene® Digital Map FACE Conformant software

- **VPX3-1220 or VPX3-152 Single Board Computer**
- **VPX3-716 Graphics Processor**
- **INTEGRITY-178 tuMP High-Assurance RTOS**
- **OpenGL® SC Graphics Driver**
- **FliteScene Digital Map Software**

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