



NEWS RELEASE

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Curtiss-Wright Introduces Cost-Effective COTS-based Radiation-Tolerant Data Acquisition System for Space Based Applications

Smart Backplane™ is the Space Industry's first rugged COTS-based chassis qualified for reliable data acquisition in space radiation environments

33RD SPACE SYMPOSIUM – Colorado Springs, Co. – April 3, 2017 -- [Curtiss-Wright's Defense Solutions division](#) today introduced the [Smart Backplane subsystem \(KAM/CSB/12U\)](#), a rugged multi-slot chassis designed specifically to address the unique performance and environmental requirements of data acquisition, data processing, and recording in radiation-intensive space environments. Because the Smart Backplane is designed as a commercial-off-the-shelf (COTS) solution, it lowers the cost of space flight while speeding development time and significantly reducing program risk.

A fundamental threat for electronics systems deployed in radiation-intensive environments is the destructive power of Single Event Latch-Ups (SEL). Until now, this threat has required the use of costly radiation-hardened electronics hardware. The Smart Backplane is the central component to the first data acquisition system designed for space applications that provides radiation protection in a manner that enables the use of 100+ cost-effective standard COTS I/O modules.

Curtiss-Wright's Smart Backplane technology has already been [selected by The Boeing Company to supply rugged data handling avionics for use in the Crew Space Transportation \(CST\)-100 spacecraft](#). More recently, Smart Backplane was [selected by Italy's ELV SpA \(Avio Group\) to provide a COTS-based telemetry data system for the new VEGA-C launcher](#). The highly rugged Smart Backplane is designed for use in demanding space-based mission critical data handling applications on launch vehicles, re-entry vehicles, and low earth orbit satellites.

"Curtiss-Wright has a long, proud legacy of innovation in the aviation and aerospace industries, and we are very excited to be continuing this heritage into the 21st Century with our unique Smart Backplane technology that helps lower the cost of space flight programs through the use of proven, rugged COTS electronics," said Lynn Bamford, Senior Vice President and General

Manager, Defense Solutions division. “Smart Backplane furthers our commitment to becoming the leading provider of data handling avionics for spacecraft.”

A COTS Radiation Tolerant Solution for Data Acquisition

Curtiss-Wright’s breakthrough Smart Backplane technology provides system designers with an intelligent multi-slot backplane that protects its critical data acquisition electronics with a unique [radiation tolerant architecture](#). If a potential SEL is detected on any of the chassis’ COTS modules, the Smart Backplane resets the operation of that module only. Typically the affected module is back operating again within a few seconds, eliminating the potential harmful effects of ionizing radiation, which can result in electronic circuit malfunction. Smart Backplane also helps to reduce the platform’s overall power requirements because it enables any of the chassis modules to be commanded individually to switch on or off during different phases of a spacecraft mission. For maximum reliability, the backplane also provides continuous health status information to the on-board mission computer as well as a watchdogging capability (e.g. it monitors whether an SEL is detected repeatedly in the same module, or if the unit temperature exceeds a pre-defined value).

About SEL Threats

An SEL is the inadvertent creation of a low-impedance path on an integrated circuit and is caused by ionizing radiation. The SEL triggers a high current which disrupts proper functioning of the circuit, possibly even leading to its destruction due to overcurrent. A fast power cycle is required to correct this situation and prevent permanent damage occurring in the device.

For more information on Curtiss-Wright’s experience in space programs, please visit www.curtisswrightds.com/space.

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 8,000 people worldwide. For more information, visit www.curtisswright.com.

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