Airborne Payload Management Computer

CURTISS-WRIGHT

Application

- High-performance, multi-interface sensor fusion solution

- U.S. Navy MQ-4C Triton UAS program

- Open standard network centric solution

System

- Features new and improved high-speed interface suite

- Based on VPX open architecture system utilizing latest processing technology

- Supports modular and scalable network centric architectures

Results

- Collaborative and innovative efforts

- Full Qualification

- Scalable and flexible solutions

Application

Curtiss-Wright is a subcontractor to Northrop Grumman, providing an optimized, scalable, flexible and affordable Advanced Mission Management System (AMMS) solution for the MQ-4C Triton Unmanned Aircraft System (UAS), designed and built to meet the U.S. Navy's maritime surveillance needs.

Curtiss-Wright leveraged previous UAS system development experience in supplying the Sensor Management Unit (SMU) system to Northrop Grumman for the RQ-4 Global Hawk UAS and used it to design the AMMS for Triton.

The AMMS ties all onboard payload sensors and interfaces to the communication link in the UAS. The AMMS is a rugged VPX module-based system that integrates an internal volatile storage system, a new DIO sub-system and a Discipline Rubidium Oscillator (DRO) module, along with Curtiss-Wright's latest Freescale® Power® Architecture VPX single board computer modules and Gigabit Ethernet (GbE) network switch modules.

Curtiss-Wright's AMMS solution adds to the intelligence, surveillance, and reconnaissance (ISR) capabilities of Triton and contributes to the success of the overall program.
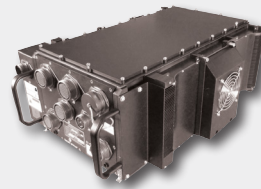
Advanced Mission Management System

System

Leveraging Curtiss-Wright's system building blocks and design experience with SMU-based systems, the AMMS is the network centric system responsible for mission management and data collection on the Triton platform. The AMMS unit has a new and improved high-speed interface suite that will address higher processing requirements, along with supporting modular and scalable network-centric architectures.

The AMMS is a VPX-based open architecture system utilizing the latest processing technology, an expanded GbE interface count and legacy protocol support.

Some of the product features of the AMMS system are:

- VPX-based Chassis System
- Multiple Power® Architecture processors - 8x nodes scalable to 13x
- Expanded I/O – Analog/Digital/1553/RS-232/422
- 1 PPS DRO & Distribution
- Blanking Control Subsystem with 32 channels
- Trunked GbE (24x ext ports)
- 32GB of internal high speed RAM Storage

The need for increased ISR capabilities is driving greater demand for powerful, scalable and open standard computing solutions and sensors. The use of VPX architecture allows the AMMS unit to be fully customizable for changing mission computing needs, today and tomorrow. Additional features include optimizing the ease of payload integration and the ability to provide fast and cost-effective sensor type configurability on the platform.

The AMMS interfaces the latest high-performance sensors. It delivers effective data fusion for platform data downlinks and uplinks to maximize bandwidth capabilities. These features are recognized as essential for providing an affordable and flexible solution to the warfighter.

Results

The successful execution of the AMMS is the result of collaborative and innovative efforts between Northrop Grumman's and Curtiss-Wright's engineering teams. Along with the AMMS hardware, Curtiss-Wright provides Board Support Packages (BSPs). These BSPs feature expanded Built-in-Test (BIT) capabilities and enable Northrop Grumman to integrate their Operational Flight Program (OFP) software in order to support the full range of AMMS requirements.

Overall, Curtiss-Wright's rugged and deployed systems provide scalable and flexible solutions, ranging in size and power for use on manned aircraft and on unmanned aircraft, such as the Triton.

The MQ-4C Triton is currently undergoing a comprehensive flight test program

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