

Spacecraft Hardware and Software

Radiation Tolerant Hardware and High Reliability Flight Software

Space Experience

Recent Team Space Experience:

- RadT Crypto - Programmable Radiation Tolerant Crypto
- NPOESS - Radiation Hardened 1394 Data Bus Chipset
- WINDSAT - Data Handling Payload Hardware and Software
- TACSAT2 Payload - RF Emitter Detector/Locator

Long-Term Space Experience:

- Space Electronics Box Designers - 1980 (Harris Corp)
 - Wideband Data Formatter (WDF)
 - Narrow Band Data Formatter (NDF)
 - Hubble, Shuttle, DSP, PDMS
- Clementine, Clementine II
- LACE
- HTSSE II Digitizer
- TACSAT1 Payload – RF Emitter Detector/Locator



TACSAT Concept



Clementine Concept

Aeronix has 20 years of experience in the development of electronic systems and components for the space industry. In 1985 for its inaugural project, Aeronix investigated and developed a 100 Mb fiber-optic bus for communication on a spacecraft. Since then, we have developed data formatters, communication interfaces, and power management system electronics for various space programs.



NPOESS Concept

Aeronix has extensive experience in the space industry and has developed hardware and software on several space platforms including LACE, Clementine, Clementine II, HTSSE II, Windsat, TACSAT1 and 2, and NPOESS.

Aeronix offers engineering services for the development of spacecraft electronics including, but not limited to, system engineering, processor development, communications and network interface, FPGAs, and ASICs.

NPOESS Overview

In 2002, Aeronix was selected by the NPOESS Integrated Program Office to support the development of high-speed high-reliability spacecraft network based on COTS technology.

Aeronix designed and developed a three chipset implementation of the IEEE 1394 bus in radiation-hardened components. Aeronix designed and developed a reference platform and reference cards around the rad-hard 1394 chipset to demonstrate performance and capabilities.



*NPOESS
1394 NIC Prototype*



Windsat Rendering

WINDSAT (Coriolis) Overview

Aeronix designed and developed the payload controller and Data Handling System (DHS) for Windsat, a passive polarimetric microwave radiometer which determines wind vector magnitude and direction, to study ocean surface physics pertaining to wind and boundary layer conditions. Windsat is also being used to reduce development risk on the NPOESS Program.

The Windsat DHS is dual-purpose: it controls payload spin, and also collects payload and auxiliary data and sends it to the spacecraft bus for downlink, final processing, and interpretation.

Windsat was successfully launched on the Coriolis spacecraft in January 2003, and is currently exceeding performance expectations.

