

Gen2 ASIM – SmallSat Device Interface

Simplifying Interfaces

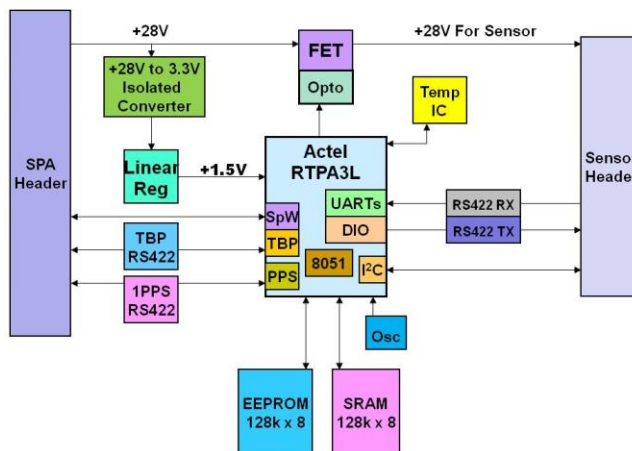
PnP Innovations has developed several key avionics components to support plug-and-play for space. Plug-and-play is essential to rapidly assemble configurable spacecraft. One such component is the ASIM (Advanced Sensor Interface Module), whose purpose is to facilitate interfacing components to a PnP satellite architecture. The PnP protocol specifies interfaces at many levels, including power subsystems, data communications, test signal injection support, and timing distribution & synchronization. For a component developer, handling these interfaces can be a daunting task. Using an ASIM as the interface component facilitates straightforward integration within the PnP network. The ASIM contains the necessary PnP interfaces to be fully compliant while also providing component side interfaces such as serial ports, digital I/O with RS422 signaling, and other configurable peripherals.



ASIM



AIB



SPA INTERFACES

- Fully SpaceWire compliant with DMA to host
- PPS (Timing Synchronization)
- +28V (nominal) Isolated Input Power
- Test ByPass Interface

SENSOR (USER) INTERFACES

- 8051 Embedded Processor
- 16kB RAM, 64kB Program Code
- xTEDS support up to 56kB
- User non-volatile memory of 8kB
- 16 Digital I/O (3.3V)
- 6 RS422 Channels
- Integrated FET Switch
- Synchronous Serial Port
- 68 Pin expansion connector

ANALOG INTERFACE BOARD (AIB)

- Mates directly with ASIM
- 6 ADC Input channels with op amp conditioning circuitry
- Two conditioned DAC outputs (+/- 15V)
- Two full bridge drivers
- 6 Open Collector outputs, 4 high voltage inputs

FLIGHT QUALIFIED VERSIONS

- Direct path to 100 krad flight unit
- Functionally equivalent to laboratory unit

DELIVERABLES

- User Manual
- Keil Software Library
- Example application code