PnP Innovations, Inc.

The ASIM: A Plug-and-Play Component Interface

Simplifying Interfaces

PnP Innovations has developed several key avionics components to support plug-and-play for space. Plug-and-play is essential for rapidly assembled, and 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 daunting task. Using an ASIM as the interface component can vastly facilitate 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.

PnPI has developed a family of ASIMs to meet diverse requirements, ranging from rad hard 8 or 32-bit ASIMs, to compact low power CubeSat ASIMs.

CUBESAT ASIM
- Smallest form factor ASIM
- Microblaze (32-bit) processor embedded in Spartan6
- Low power (350 – 450 mW)
- Suitable for cubesat missions
- 4 RS422 channels
- 2 DAC Channels
- 4 ADC Channels

GEN2 ASIM
- 100 krad design
- 8-bit 8051 Embedded Processor
- Board size 3½" x 3½"
- Digital interfaces (UART, SSI, I^{2}C, RS422, etc)
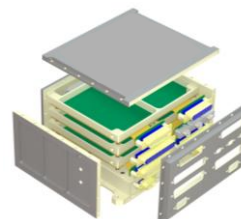- Mixed Signal expansion card (AIB)

Gen2 ASIM   Gen2 AIB

GEN3 PAYLOAD ASIM
- 100 krad design
- Fault Tolerant Leon3 Processor
- Multiple digital & analog interfaces
- Modular PCI Expansion bus for custom interfaces
- Suitable for NASA Class A Missions

Payload ASIM