Table Top SPA (TT-SPA)
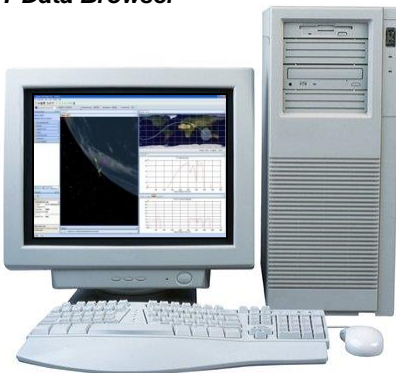
SPA Tools for the Home Laboratory Environment

Table Top SPA, or TT-SPA for short, has been developed to enable the wider aerospace community to develop PnP-compatible solutions at their home sites. TT-SPA utilizes COTS versions of the core infrastructure components and integrated software utilities to offer the same development capabilities that were resident at the Responsive Space Testbed in Albuquerque through the course of PnPSat development, Integration and Test.

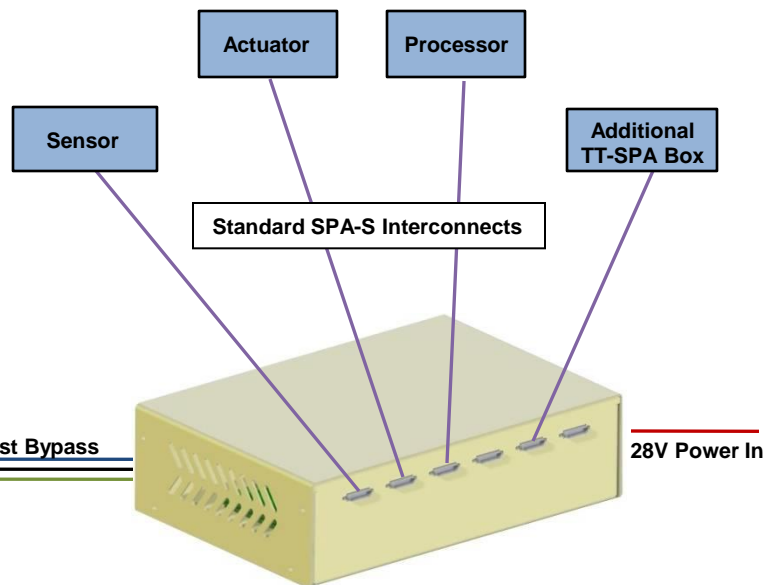## TT-SPA Hardware and Software Elements

TT-SPA houses a PowerHub and SpaceWire router with 10 SPA-S endpoints. Adding a SpaceWire based PnP Interface card (PCIe form factor) and interconnecting cabling provides an integrated development capability. TT-SPA also provides support for Test Bypass Interface. Each exposed port can be connected to a SPA-S compliant device (e.g. ASIM). This can include sensors, actuators, processing nodes, or additional TT-SPA's to extend the SPA-S network to support a greater number of devices. The PCIe card bridges data messaging from the external SpaceWire network into a test workstation so that PnP devices may be integrated with development and test tools such as *SDT Data Browser*. PnP software modules may also be run on the host PC or PnP Processing Node– interacting with simulation-resident device models or with real hardware residing on the TT-SPA physical network. Using the Test Bypass protocol, the simulation may be used to supply test data to each attached device so that coordinated "day-in-the-life" style testing may be conducted.

PC Workstation running
SDT Data Browser

Your PnP Test Articles Here…

Actuator

Processor

Sensor

Additional TT-SPA Box

Standard SPA-S Interconnects

Spacewire, Timing, Test Bypass

28V Power In

PnP Innovations SpaceWire Based PnP Interface Card

TT-SPA

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