Title: CoRA Smart AOCS&GNC Elements (SAGE)

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Abstract:

Compact Reconfigurable Avionics Smart AOCS&GNC Elements (CoRA-SAGE) is a multidisciplinary activity aimed to implement AOCS & GNC functional chains with reliable sensors and actuators in a compact and reconfigurable way fitting in the overall avionics architecture called CoRA and developed in parallel with the MBAD and RDHC activities.
The key drivers of the product that is developed are:

- Flexible and modular approach in the definition of the AOCS/GNC Modes, based on Space Rider GNC
- Star Tracker Engineering Model included in the closed loop testing, stimulated with an OGSE, and with processing SW to be loaded into the data handling core
- HW/SW functional decomposition of the main elements of the AOCS/ GNC subsystem: STR processing, FDI algorithms. AOCS/GNC modes, ...
- Highly modular and scalable CoRA-SAGE EGSE configuration, making easy to add new capabilities in terms of additional HW units, interfaces and simulated HW models.
- Reconfigurability of the EGSE, incorporating the possibility of using different models of AOCS/GNC units: STR HW unit stimulated by an OGSE, sensor raw data simulation for processing in GPP or FPGA and sensors/actuators performance simulation models.
- Implementation of the requested HW I/F's: Spacewire, RS-422 and CAN bus, although the proposed architecture may easily add other interfaces like MIL-1553.

CoRA-SAGE is developed by a consortium lead by SENER (Spain) with the participation of Sodern (France) and Elecnor Deimos (Spain), with a well proven expertise in the required engineering disciplines, technologies and methodologies.