Miniature Integrated Star Tracker

SPACE MICRO

Features

- Radiation Hardened for extended missions (Optics and Electronics)
- Fully integrated solution
- High QE CMOS FPA
- Flight Proven Software and Electronics
- Quaternion and Rate Output
- Kalman Filtering Option
- Cubesat form factor (.5U)
- Applications: Satellite Attitude and Rate Determination
- GEO, MEO, LEO orbits

Specifications

Attitude Performance	
Attitude Knowledge Error	10 arcsec (1 sigma)
Update Rate	10 Hz
Availability	>99%
Solar Exclusion Angle	45°
Slew Tolerance (no degradation)	1deg/sec
Slew Tolerance (w/degradation)	5deg/sec
Time to First Star ID	< 1 sec
Physical Performance	
Mass w/Baffle	550 grams
Volume w/Baffle	< 10 X 10 X 5cm (0.5U)
Power Consumption	< 4 W
Mission Performance	
Mission Life	2-10 yrs
Scalable EEE Parts	Commercial to Hi Rel
TID Tolerance – Scalable	30 krads, up to 100krads optional
SEE Mitigation	SEL, SEFI and SEU

Software Features

- Star Identification Based on Pyramid Code
- Integrated Systematic Error Correction Allows for High Accuracy
- Real-Time On-orbit Calibration Accounts for Degradation
- Extended Kalman Filter Produces Attitude and Rate Estimates
- Less Sensitive to Spurious Signals and Upsets

Supporting Electronics

- Flight Proven High Performance Processor
- Radiation Hardened and Fault Tolerant (capable of running with or without EDAC)
- RS-422, SpaceWire, CAN
- Flexible I/O
- Low Power consumption

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