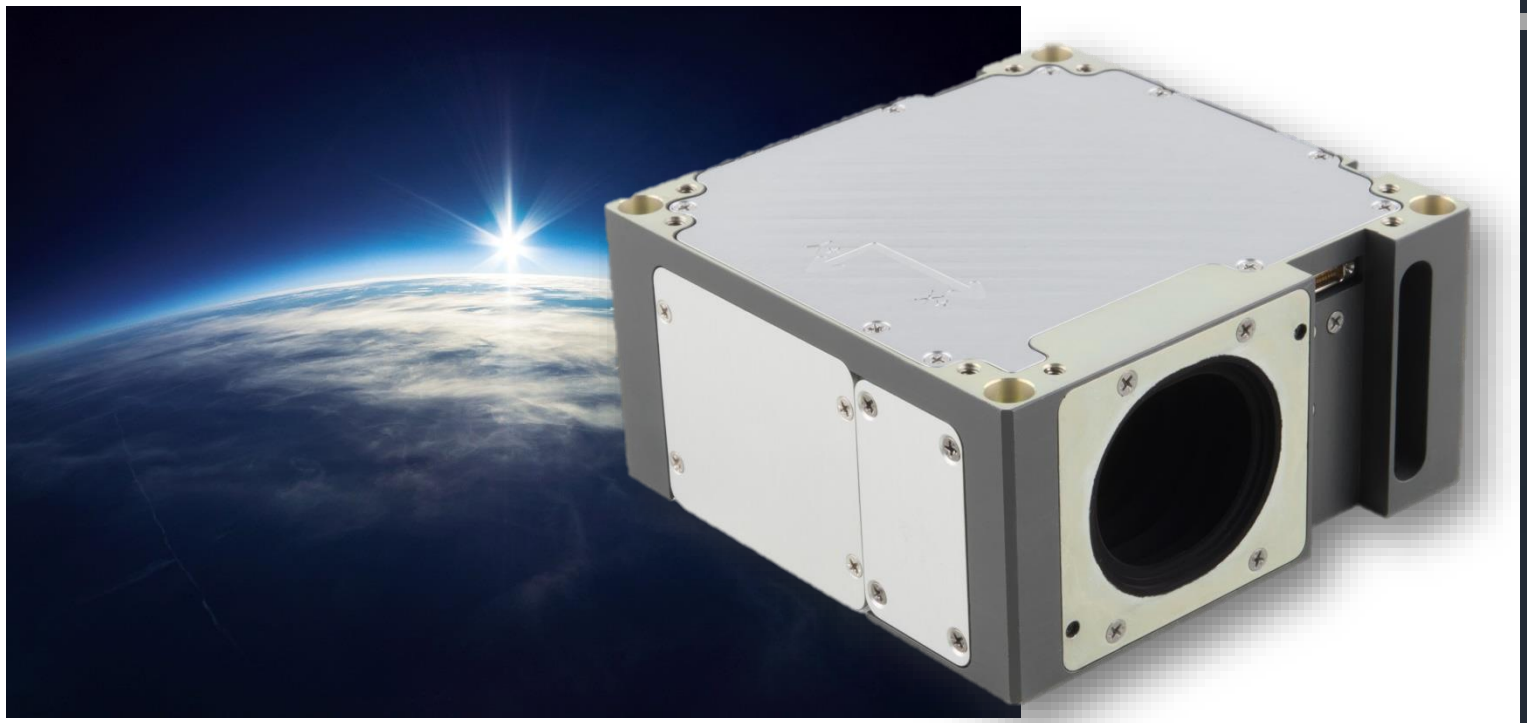




# XACT™

High-Performance Attitude Determination for CubeSats

**Precise 3-axis stellar attitude determination in a micro-package**



#### Key Features

- ◆ 3-axis Stellar Attitude Determination with integrated stray light baffle
- ◆ 0.5U Micro-package
- ◆ Multiple pointing reference frames: Inertial, LVLH, Earth-fixed, Solar
- ◆ Low jitter 3-axis reaction wheel control (also sold as single wheel)
- ◆ User-friendly software for simulation, integration and customization
- ◆ Self-calibrating reaction wheels, with advanced digital controls, provide unparalleled torque precision

**Total Integrated Mission Solutions**



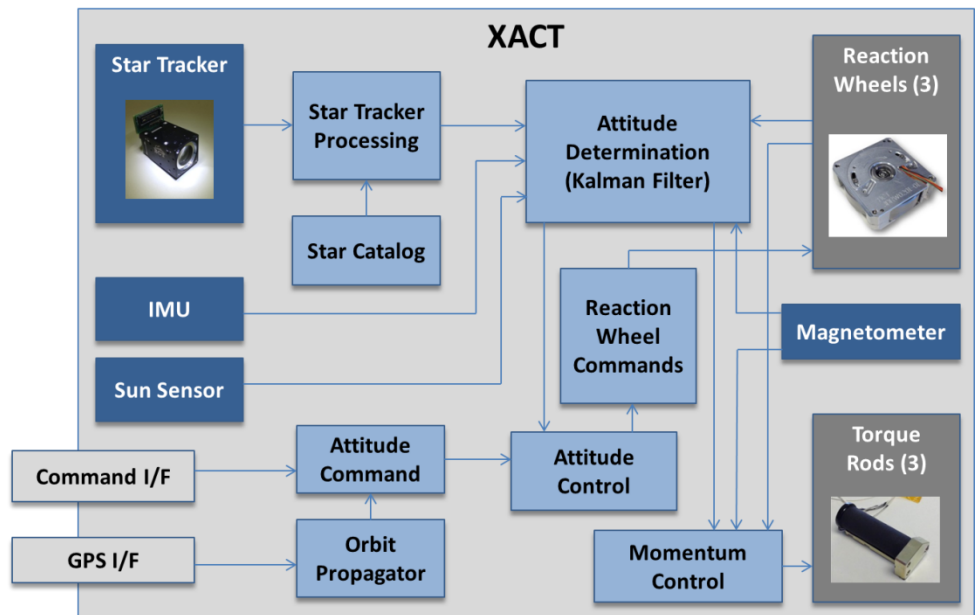
**XACT** is a reliable CubeSat attitude control system compatible with a variety of configurations and missions. The highly integrated XACT architecture leverages a powerful processing core with BCT's Micro Star Tracker and Micro Reaction Wheel assemblies to enable a new generation of highly capable, miniaturized spacecraft. XACT features 3-axis Stellar Attitude Determination in a micro-package. Built-in flexible commanding allows for multiple pointing reference frames: Inertial, LVLH, Earth-Fixed, and Solar. Precise 3-axis control is provided by low jitter reaction wheels, torque rods and integrated control algorithms. Software is available to support simulation, system integration, and customization of the ADCS functionality.



### XACT Capability

Specification	Performance
<b>Spacecraft Pointing Accuracy</b>	$\pm 0.003$ deg (1-sigma) for 2 axes $\pm 0.007$ deg (1-sigma) for 3 <sup>rd</sup> axis
<b>Spacecraft Lifetime</b>	3 Years (LEO)
<b>XACT Mass</b>	0.85 kg
<b>XACT Volume</b>	10 x 10 x 5 cm (0.5U)
<b>XACT Electronics Voltage</b>	5V
<b>XACT Reaction Wheel Voltage</b>	12V
<b>Data Interface</b>	RS-422 (can support SPI)
<b>Slew Rate (4kg, 3U CubeSat)</b>	$\geq 10$ deg/sec

Operational Case	Power (W)
XACT (low power standby mode)	0.85
XACT (5 Hz operation)	1.05
XACT + 3 TR (ON STATE)	1.80
XACT + 3 RW (@ 600 rpm)	1.19
XACT + 3 RW (@ 600 rpm) + 3 TR (ON STATE)	1.94
XACT + 3 RW (@ 1500 rpm)	2.20
XACT + 2RW (@600 rpm) + 1 RW (max speed @6000 rpm)	2.83



### Blue Canyon Technologies

2425 55<sup>th</sup> St. STE 200-A

Boulder, CO 80301

720.458.0703

[www.bluecanyontech.com](http://www.bluecanyontech.com)