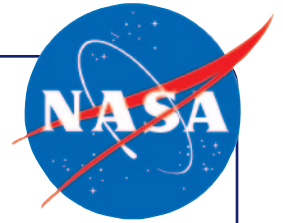
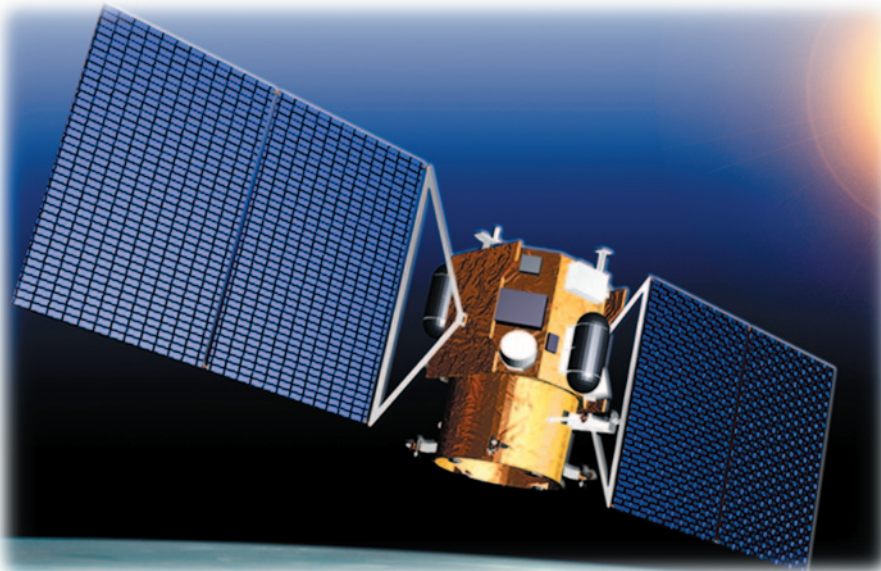


## SA-200HP Spacecraft



Spectrum Astro's SA-200HP (High Performance) spacecraft is a LEO adaptation of the bus currently in flight on JPL's highly successful New Millennium Deep Space 1 program. Ideally suited for LEO missions, this flexible bus is easily configured to support deep space, MEO, HEO, and GEO applications. Designed to support a mission lifetime of up to six years, the spacecraft can provide 3-axis control in a variety of modes that include inertial, solar, and nadir pointing, in addition to rotational and maneuverable modes. Design flexibility and modularity enable this low risk, affordable spacecraft to meet a wide range of Earth Science, MIDEX, Discovery, and Space Science missions. Two versions of the SA-200HP are currently in development to support the USAF Coriolis mission and NASA's MIDEX Swift mission. In addition, several upgrade options are available, including full redundancy, deep space configuration, ion propulsion, ground station planning support, and the addition of GPS and magnetic hardware.

### High performance spacecraft



For more information contact the Rapid Spacecraft Development Office  
NASA Goddard Space Flight Center • Mail Code 456 • Greenbelt, MD 20771 • USA  
Phone 301-286-1289 • Web <http://rsdo.gsfc.nasa.gov>

# SA-200HP Spacecraft Specification

## Mission & Program

S/C Bus Mass 421 kg (wet); 354 kg (dry)  
 S/C Bus Power 356 W orbit average  
 Launch Vehicle Taurus XL, Athena I, Athena II, Titan II, Delta II series, Atlas

Mission/Orbit LEO, MEO, HEO, GEO, deep space, heliocentric, L1 point

Lifetime Up to 6 years

Mission Effectiveness 0.816 at 4 years

Redundancy Architecture Partially redundant with graceful degradation

Sunlit Array Power 2,000 W (worst case EOL at 1 AU)

Parts Program 883B / JAN TXV space materials

Delivery Schedule 36 months standard (ARO to launch)

## Payload Accommodations

Payload Mass Up to 800 kg (LV dependent)

Payload Volume 5.5m<sup>3</sup> external; 0.6 m<sup>3</sup> internal

Payload Power 650 W orbit average (2,300 W peak)

Payload Voltage 26 to 34 V unregulated

P/L Field of View ~2 $\pi$  steradian

Payload Data Interface RS-422 (5 Mbps); MIL-STD-1553B (300 kbps); custom (up to 80 Mbps)

P/L Data Storage Up to 100 Gbits

S/C Cleanliness Level MIL-STD 1246C level 300A; (Class 10,000)

## Guidance & Control

ACS Architecture 3-axis stabilized, zero momentum bias

Pointing Control  $\pm 16$  arcsec (3 $\sigma$  inertial w on-orbit cal)

Pointing Knowledge  $\pm 0.5$  arcsec (3 $\sigma$  inertial w on-orbit cal)

Pointing Stability 0.1 arcsec/sec

Pointing Modes Inertial, solar, nadir, off-set, point tracking, maneuvering

Orbit Knowledge  $\pm 5$  km S-band ranging (GPS upgrade available - see Option 6)

S/C Propulsion Blowdown N<sub>2</sub>H<sub>4</sub> (67 kg capacity)

Momentum Management Thruster-based (magnetic upgrade available - see Option 6)

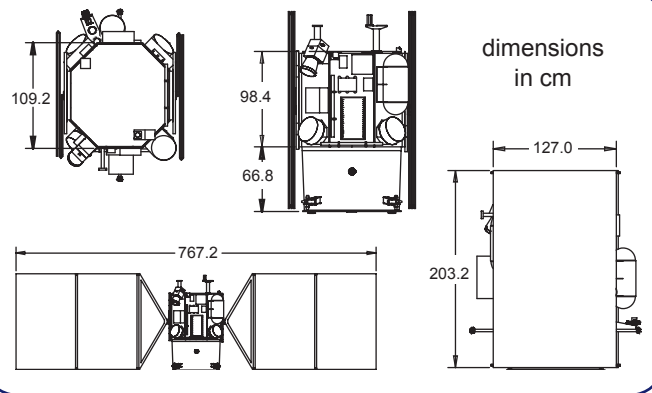
## Command and Data Handling

Ground Control I/F STDN/DSN; CCSDS compatible

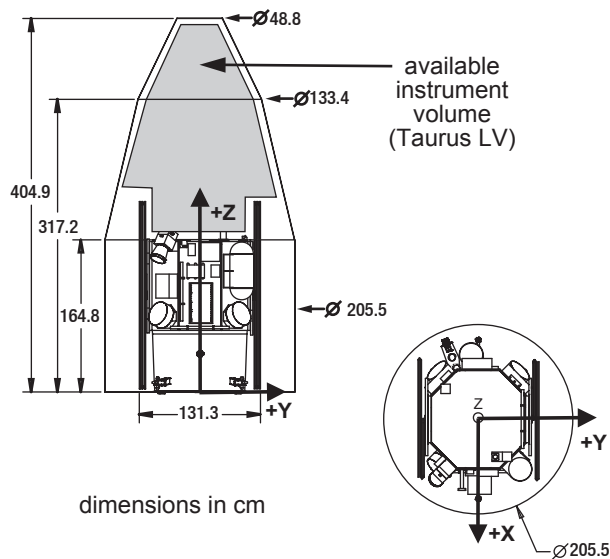
Data Downlink Rate 80 Mbps X-band science data  
 2.5 Mbps S-band backup science data  
 128 kbps real-time SOH telemetry

Command U/L Rate 2 kbps S-band

C&DH Architecture 32 bit RISC processor with onboard floating point co-processor; VME backplane; 20.2 MIPS performance



Stowed and Deployed Configuration



Payload Envelope in Taurus Fairing

For more information contact:  
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