# Demonstration of Autonomous Rendezvous Technology (DART)

Case Study Transcript

**DART Key Elements Continued**

The red boxes highlight the critical navigation system elements.

- The flight computer contains the mission profile, flight rule set, integrates the sensor input, performs the math, and directs the thrusters

- The reaction control system provides the thrust to maneuver the spacecraft

- The IMU or inertial measurement unit combines a classical Inertial Navigation System (INS) comprised of accelerometers aligned with each of the principal directional axes with a GPS unit. The GPS unit (referred to as the SIGI) provides corrections or updates to the INS position, velocity, acceleration solution which may drift or accumulate small errors over time.

- The navigational suite also includes a second GPS unit (referred to as the Surrey) which was added with the belief that it would provide more accurate information than the SIGI during on-orbit operations

- The AVGS is the Advanced Video Guidance System that employs video imagery with algorithms to perform the necessary geometry to determine bearing and distance with great accuracy. The AVGS was intended for use within close proximity to the target vehicle.