Java for Flight Software

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What is Java?

- Java is
  - A modern object-oriented programming language
  - Everywhere, from mobile phones to web servers
- Java allows software developers to be more productive.
- The Real-Time Specification for Java (RTSJ)
  - Extends Java for real-time development
• Pure Java detumble implementation based on the Deep Space 1 mission

**Advantages of Java**

- Java leads to improved software maintainability
- 40% reduction in development costs
- Two-fold increases in developer productivity
- Fewer bugs
Potential Industrial Applications

- Real-time control systems for
  - Aerospace industry
  - Automotive industry
  - Manufacturing
  - Embedded devices
- Fault Protection

Current Status

- Spacecraft Attitude Control prototype
  - Runs in real-time on a standard Java platform
- Re-usable Java Fault Protection framework
- Units of measure framework available
- Debug on a desktop
  - Deploy on a real-time system
- Currently integrating with the RTSJ
- Partnerships welcome