PROBLEM REPORT
PR-1043
2005-07-15

STEREO IMPACT

FSW CPU Performance

PR Numbers: 1xxx=UCB, 2xxx=Caltech/JPL, 3xxx=UMd, 4xxx=GSFC/SEP, 5xxx=GSFC/Mag, 6xxx=CESR, 7xxx=Keil, 8xxx=ESTEC, 9xxx=MPAe

Assembly : Flight Software	**SubAssembly :** IDPU
Component/Part Number: n/a	**Serial Number:** Build 2.8
Originator: David Curtis	**Organization:** U.C. Berkeley
Phone : 510-642-5998	**Email :** dwc@ssl.berkeley.edu

Failure Occurred During (Check one √)

√ Functional test □ Qualification test □ S/C Integration □ Launch operations

Environment when failure occurred:

√ Ambient □ Vibration □ Shock □ Acoustic
□ Thermal □ Vacuum □ Thermal-Vacuum □ EMI/EMC

Problem Description

The CPU utilization on the IDPU reached 150% during loading tests performed on the Build 2.8 IDPU flight software which includes the new PLASTIC flight software code.

Analyses Performed to Determine Cause

The PLASTIC flight software requires complicated CPU intensive algorithms. UCB and Microtel are now reviewing the code for efficiency and will rework the code as needed.

Corrective Action/ Resolution

UCB submitted efficient code for matrix rates and initial tests look ok. Further work and testing is needed. Update 1/6/2006: PLASTIC FSW 3.03, IDPU v2.9 has been installed onto both observatories. CPT tests and mission simulations were performed with both the IMPACT suite and PLASTIC instrument running simultaneously with no issues. Currently the average CPU utilization over a minute is at ~85%.

√ Rework □ Repair □ Use As Is □ Scrap

Closure Approvals

Subsystem Lead: _____ Date:_____
IMPACT Project Manager: _____ Date _____
IMPACT QA: _____ Date:_____
NASA IMPACT Instrument Manager: _____ Date:_____