Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic:

Date:

Issue:

FOS Report for week 32, year 2019

from 05 AUG 2019 to 12 AUG 2019

1.0

1   General Comments

Activities scheduled for this week are those planned for the 32nd calendar week of 2019:

```
05 AUG 2019 to 12 AUG 2019 (DOYs 217 to 224).
```

The following routine activities were planned this week (see Gantt chart on next page and CRF 825).

- One PMS Offset on 08 AUG 2019 (DOY 220), including three Short Calibrations at 07:37:00.0z, 07:37:34.8z, and 07:38:09.6z (orbit 51315).
- Local Oscillator Calibrations every 10 minutes.
- *X* band Passes over ESAC and Svalbard.

2   Mission Planning Deviations

None.

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Schedule Name: 2019_w32_cr   ###   Display start: 05-08-2019 00:00:00.000   ###   Display end: 12-08-2019 00:00:00.000

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3 TC Failures

None.

4 On Board Anomalies

- MIRAS instrument MM, partitions P4, P5 and P3 (this is chronological ordering), latched up starting 2019-08-08T14:30:01,783z (DOY 220). The following parameters went out of limits in the PLPC system:

  2019.220.14.30.01.783z   DMASME08   LU Switch P4
  2019.220.14.30.01.783z   DMASME37   SDD LU Detected
  2019.220.14.30.06.583z   DMASME08   LU Switch P5
  2019.220.14.30.06.583z   DMASME37   SDD LU Detected
  2019.220.14.30.07.783z   DMASME08   LU Switch P3

  This anomaly was geolocated over the southern Pacific Ocean:
  Latitude   = -51.14°
  Longitude   = 243.38°

  These were three consecutive, rather short lived latch-ups (P4=18 s; P5=15.6 s; P3=9.6 s). They occurred in the middle of PRO-CRP-800 execution to recover previously latched up P10. The sequence of events was as follows:

  - P10 latched up 07 AUG 2019
  - 2019.220.14.30.00.000z: PRO-CRP-800 started
  - 2019.220.14.30.01.783z: P04 latched up
  - 2019.220.14.30.06.583z: P05 latched up
  - 2019.220.14.30.07.783z: P03 latched up
  - 2019.220.14.30.17.383z: P03 cleared
  - 2019.220.14.30.19.783z: P04 cleared
  - 2019.220.14.30.22.183z: P05 cleared
  - 2019.220.14.30.31.783z: P10 cleared

  MM scrubbing had been disabled during recovery. An elevated number of SB errors afterwards suggested a real occurrence. Similar ones took place twice during the mission so far: 08 JAN 2013, 30 APR 2014 and 01 JUL 2019. As in those occasions, no clear conclusions could be drawn as to the causes of this anomaly. There were no science data losses associated with these anomalies because it affected partitions P3, P4, and P5, while the Read and Write pointers were both on partition P1.

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Recovery took place within the already on-going PRO-CRP-800 [CRF 827, started 08 AUG 2019, 14:30:00z). At the time of the anomaly the position of the MM pointers were as follows:

P4 latch-up

READ	*=*	*564019*	*(partition P1)*
WRITE	*=*	*718604*	*(partition P1)*

P5 latch-up

READ	*=*	*564019*	*(partition P1)*
WRITE	*=*	*718809*	*(partition P1)*

P3 latch-up

READ	*=*	*564019*	*(partition P1)*
WRITE	*=*	*718885*	*(partition P1)*

5 On Board Events Telemetry

The following RAM Single Bit errors befell this week:

Event Description	Packet ID	Severity	Event Time	Parameters
RAM single Bit Error	730	WARN	2019-08-09T10:35:13	211878C
RAM single Bit Error	730	WARN	2019-08-08T08:43:22	23F2548
RAM single Bit Error	730	WARN	2019-08-07T07:51:16	20B85A4

6 FOS Systems Status

- As it happened during the last few weeks, FOSEXT PC rebooted itself on the 6th of August at 03:32:29z. Further analysis of the dump logs, showed that all the reboots were caused by the same faulty *Intel* driver *iastorb.sys* used by the PC *Intel* application "*Intel Rapid Storage Technology Enterprisedriver*".

  As result of this ESAC IT team was contacted and the following actions performed:

  -Current version of this driver 4.6.0.1048 is deinstalled
  -Previous driver version 4.0.0.1040 is instead installed on the PC
  -Windows updates are deactivated to prevent the possibility to automatically update the faulty version of the driver

  After these changes FOSEXT PC is not showing problems anymore.

7 Data Reception from CNES

All *S* band passes were correctly received from CNES and successfully processed by the FOS PLPC system.

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8 *X* Band Data Reception in PXMF

None, all *S* band passes successfully received and processed.

9 Exceptional Activities

None.

10 AOB

None.

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APPENDIX A: OOLs

During the latch up recovery of partition P10 the following parameter went out of limit on the FOS PLPC system (further details are included in section four of this report)

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2019-08-08T17:26:15	2019-08-08T14:30:06	DMASME37	SDD LU Detected	FALSE	TRUE
2019-08-08T17:26:15	2019-08-08T14:30:06	DMASME07	LU Switch P5	OFF	ON
2019-08-08T17:26:15	2019-08-08T14:30:07	DMASME09	LU Switch P3	OFF	ON
2019-08-08T17:26:15	2019-08-08T14:30:01	DMASME37	SDD LU Detected	FALSE	TRUE
2019-08-08T17:26:15	2019-08-08T14:30:01	DMASME08	LU Switch P4	OFF	ON

The following OOLs were received on PLPC system at the time of the MM latch up on partition P10.

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2019-08-07T15:17:40	2019-08-07T12:25:31	DMASME37	SDD LU Detected	FALSE	TRUE
2019-08-07T15:17:40	2019-08-07T12:25:31	DMASME02	LU Switch P10	OFF	ON