Monitor dump of HIFI DPU DRAM memory area
File: H_FCP_OBS_3144.xls
Author: Liviu Stefanov

Procedure Summary

Objectives

This Herschel OBSM nominal procedure is used to perform the dump
monitoring of one or several HIFI DPU DRAM memory areas. The
memory dump is commanded using TC(6,5) and the memory locations
content is received on ground in TM(6,6) packets.

The procedure assumes that the command stack has already been
generated using the OBSM system and is ready for loading on the
Manual Stack. The command stack generation activity is not
covered by this procedure.

Summary of Constraints

CDMU in Operational Mode
- HIFI in Intermediate mode (ASW running)

Memory areas are dumped through TC(6,5); this TC will be delayed
when there is an ongoing:
- TC(6,2) Load Memory Using Absolute Addresses
- TC(6,5) Dump Memory Using Absolute Addresses
- TC(6,9) Check Memory Using Absolute Addresses
- TC(8,4,1,1) Copy Memory

Spacecraft Configuration

Start of Procedure

CDMU in Operational Mode
- HIFI in Intermediate mode (ASW running)

End of Procedure

Same as start

Reference File(s)

Input Command Sequences

Output Command Sequences

OFCP3144

Referenced Displays

ANDs   GRDs   SLDs

Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
30/01/08	1	1	Created	lstefanov-hp	

Doc No.   :PT-HMOC-OPS-FOP-6001-OPS-OAH
Fop Issue :   3.0
Issue Date: 13/04/10

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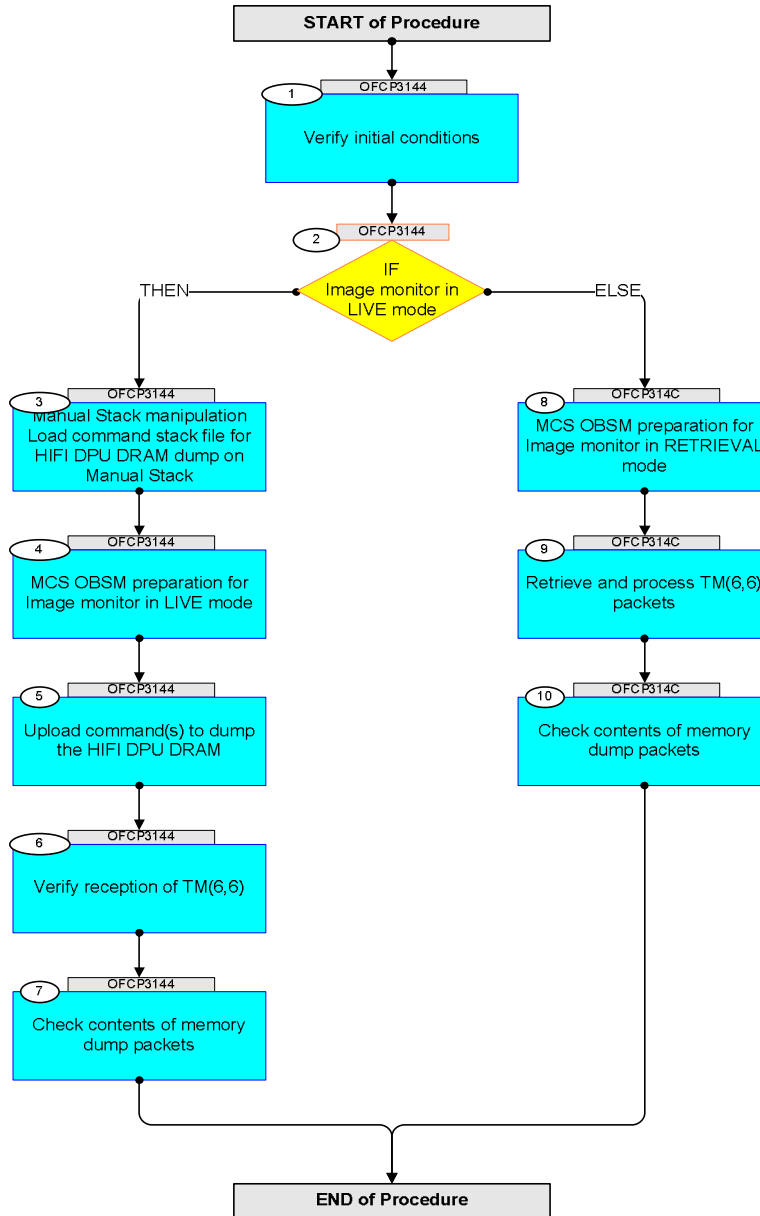
27/08/08		2	1. added current steps 3.1 and 3.2 to separate dump stack load for HIFI Nom and Red 2. current step 3.3 updated: TC HC004289 replaced by ESOC HIFI mem. dump TC XC005998 3. added steps 4.2.1 and 4.2.2 to separate image selection for HIFI Nom and Red 4. added steps 8.2.1 and 8.2.2 to separate image selection for HIFI Nom and Red	lstefanov-hp	
27/08/08	2	3	1. steps 3.1 and 3.2 updated: corrected typos in file name examples in 3rd comment - PI replaced by DI 2. step 3.3 updated: changed 2nd comment to reflect the 16 bit length of the Mem ID param. of TC XC005998	lstefanov-hp	
13/04/09	2.3	4	1. corrected typo in steps 3.1, 3.2: 'pmcsops' replaced by 'hmcsops' 2. step 3.3 updated: added comment to indicate the size of the whole memory area	lstefanov-hp	

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Procedure Flowchart Overview

```
                    START of Procedure

              1    OFCP3144
                   Verify initial conditions

              2    OFCP3144
                        IF
        THEN       Image monitor in      ELSE
                   LIVE mode

   3    OFCP3144                      8    OFCP314C
   Manual Stack manipulation          MCS OBSM preparation for
   Load command stack file for        Image monitor in RETRIEVAL
   HIFI DPU DRAM dump on               mode
   Manual Stack

   4    OFCP3144                      9    OFCP314C
   MCS OBSM preparation for           Retrieve and process TM(6,6)
   Image monitor in LIVE mode         packets

   5    OFCP3144                      10   OFCP314C
   Upload command(s) to dump          Check contents of memory
   the HIFI DPU DRAM                  dump packets

   6    OFCP3144
   Verify reception of TM(6,6)

   7    OFCP3144
   Check contents of memory
   dump packets

                    END of Procedure
```

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Beginning of Procedure			
OFCP3144		*TC Seq. Name :*OFCP3144 ( ) HIFI DPU DRAM dump monitor in Live mode *TimeTag Type: B* *Sub Schedule ID:*			
1		Verify initial conditions		Next Step: 2	
		Check HIFI instrument in **Intermediate mode** (ASW running)			
		Instrument SOE to confirm HIFI instrument mode			
2		IF Image monitor in LIVE mode type: [If]		Next Step: THEN 3 ELSE 8	
3		Manual Stack manipulation Load command stack file for HIFI DPU DRAM dump on Manual Stack		Next Step: 4	
		NOTE: The current procedure assumes that the memory dump in Live mode is performed using commands with immediate execution.			
		Select the File -> **LoadStack** option from the main menu of the Manual Stack window			
3.1		IF HIFI Nominal			
		Select file **HIDPRMDM_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine** from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/HIDPRMDM as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYYY = Image ID(X) and Version(Y) - depend on image used for stack generation YYYY_DDD hhmmss - depend on stack generation time machine - depends on the name of the machine used for stack generation			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		File name **examples** - No model associated to the memory image: HIDPRMDM_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043 - CT HIDPRMDM1, ID 0003, Version 001 associated to the memory image: HIDPRMDM_DI_0002001_C_HIDPRMDM1_0003001_2007_337T093320.sun043			
3.2		ELSE HIFI Redundant			
		Select file **HIDPRMDR_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine** from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/HIDPRMDR as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYYY = Image ID(X) and Version(Y) - depend on image used for stack generation YYYY_DDD hhmmss - depend on stack generation time machine - depends on the name of the machine used for stack generation			
		File name **examples** - No model associated to the memory image: HIDPRMDR_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043 - CT HIDPRMDR1, ID 0003, Version 001 associated to the memory image: HIDPRMDR_DI_0002001_C_HIDPRMDR1_0003001_2007_337T093320.sun043			
3.3		Check memory dump command stack loaded			
		Note: for the whole **HIFI DPU DRAM** dump: **MemID** = **01** hex **Start Address** = **00.0000** hex **End Address** = **07.FFFF** hex **Length** = **80000** hex			
		Check that loaded stack contains one or several TCs **XC005998**			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Display the Manual Stack in 'Full mode' and check that the **Memory ID** parameter in the XC005998 command(s) is set to **01 hex**: **Memory ID = 01 hex** **Note:** The Memory ID of the target memory device is stored in the MSB of the 16-bit long Mem ID TC parameter. The LSB of the same parameter carries the most significant 8 bits of the Start Address.			

		Execute Telecommand
		             HIFI Memory Dump
		
		Command Parameter(s) :
		        Memory ID XH008998
		        Start Address XH009998
		             Length XH010998
		
		TC Control Flags :
		             GBM IL DSE
		             --Y -- ---
		Subsch. ID : 70
		Det. descr. : Dump HIFI Memory Using Absolute Addresses
		This Telecommand will not be included in the export
			XC005998
			
			01xx <hex>
			<hex> (Def)
			<hex> (Def)
				TC	

4		MCS OBSM preparation for Image monitor in LIVE mode		Next Step: 5	
		Note: It is assumed that the OBSM application is already running and the OBSM Desktop is displayed on the MCS client. Starting the OBSM application is not covered by the current procedure.			
4.1		Select 'Image MONITOR' from the menu			
		Select the **Image** menu of the *OBSM Desktop*. From the Image menu, select **Monitor**. The 'Image Catalog' window opens.			
4.2		Select image to be monitored			
4.2.1		IF HIFI Nominal			
		Select the image to be monitored for the memory device **HIDPRMDM.** The 'Image MONITOR' window opens.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
4.2.2		ELSE HIFI Redundant			
		Select the image to be monitored for the memory device **HIDPRMDR.** The 'Image MONITOR' window opens.			
4.3		Start dump TM processing			
		In **LIVE** mode, processing of incoming real-time telemetry starts automatically after the image selection.			
5		Upload command(s) to dump the HIFI DPU DRAM		Next Step: 6	
		Uplink the **XC005998** memory dump command(s) with **ARM-GO**			
		For each command, one or more TM(6,6) packets must be received on ground.			
6		Verify reception of TM(6,6)		Next Step: 7	
		Note: One or more TM(6,6) packets will be received for each memory dump command uplinked.			
6.1		IF HIFI Prime			
		Verify Packet Reception HIFI_memory_dump Packet Mnemonic : H_mem_dump APID : 1024 Type : 6 Subtype : 6 PI1 : PI2 :			
6.2		ELSE HIFI Redundant			

```
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Packet Reception HIFI_R_memory_dump Packet Mnemonic :　　　　H_mem_dump APID :　　　　1025 Type :　　　　6 Subtype :　　　　6 PI1 : PI2 :			
6.3		Check OBSM dump packet processing			
		Check that the OBSM is processing the incoming memory dump packets.			
7		Check contents of memory dump packets		Next Step: 　END	
		Verify that there are **NO OBSM reported differences** between the memory dump data and the ground image used for monitoring.			
		IF there are **differences** reported by OBSM between the dump data and the ground image, **the merged image shall be saved** for offline analysis.			
7.1		Save merged image			
		IF there are **mismatches** reported by OBSM, save merged image with **new ID**.			
		Conduct off-line analysis of the reported mismatches.			
		End of Sequence			
OFCP314C		*TC Seq. Name :* OFCP314C ( ) HIFI DPU DRAM dump monitor in Retrieval mode *TimeTag Type:* *Sub Schedule ID:*			
8		MCS OBSM preparation for Image monitor in RETRIEVAL mode		Next Step: 　9	
		Note: It is assumed that the OBSM application is already running and the OBSM Desktop is displayed on the MCS client. Starting the OBSM application is not covered by the current procedure.			
8.1		Select 'Image MONITOR' from the menu			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Select the **Image** menu of the *OBSM Desktop*. From the Image menu, select **Monitor**. The 'Image Catalog' window opens.			
8.2		Select image to be monitored			
8.2.1		IF HIFI Nominal			
		Select the image to be monitored for the memory device **HIDPRMDM.** The 'Image MONITOR' window opens.			
8.2.2		ELSE HIFI Redundant			
		Select the image to be monitored for the memory device **HIDPRMDR.** The 'Image MONITOR' window opens.			
8.3		Start dump TM packets processing			
		Set **retrieval start** and **stop time** and start retrieval of TM packets using the **PLAY buttons**.			
9		Retrieve and process TM(6,6) packets		Next Step: 10	
		Use the **STEP** button to retrieve and process the TM(6,6) packets, packet by packet and starting from the time shown in the packet time field.			
		OR			
		Use the **PLAY** button to retrieve and process the TM(6,6) packets in automated mode. Pressing the PLAY button, the display will start to retrieve and process packets, starting from the time shown in the packet time field. This processing will stop automatically when a packet is received which creation time is greater than the one contained in the end time field.			
10		Check contents of memory dump packets		Next Step: END	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify that there are **NO OBSM reported differences** between the memory dump data and the ground image used for monitoring.			
		IF there are **differences** reported by OBSM between the dump data and the ground image, **the merged image shall be saved** for further analysis.			
10.1		Save merged image			
		IF there are **mismatches** reported by OBSM, save merged image with **new ID**.			
		Conduct off-line analysis of the reported mismatches.			
		End of Sequence			
		End of Procedure			