

Monitor dump of PACS SPU DRAM memory area
File: H_FCP_OBS_4244.xls
Author: lstefanov-hp



Procedure Summary

Objectives

This Herschel OBSM nominal procedure is used to perform the dump monitoring of one or several PACS SPU DRAM memory areas. It is used for both SPU SWL and SPU LWL subsystems. 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

- PACS instrument in INIT mode (DPU ASW running)
- SPU ON
- DPU-SPU connection established

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

- PACS instrument in INIT mode (DPU ASW running)
- SPU ON
- DPU-SPU connection established

End of Procedure

Same as start

Reference File(s)

Input Command Sequences

Output Command Sequences

OFCP424R
OFCP424T

Referenced Displays

ANDs GRDs SLDs

Configuration Control Information

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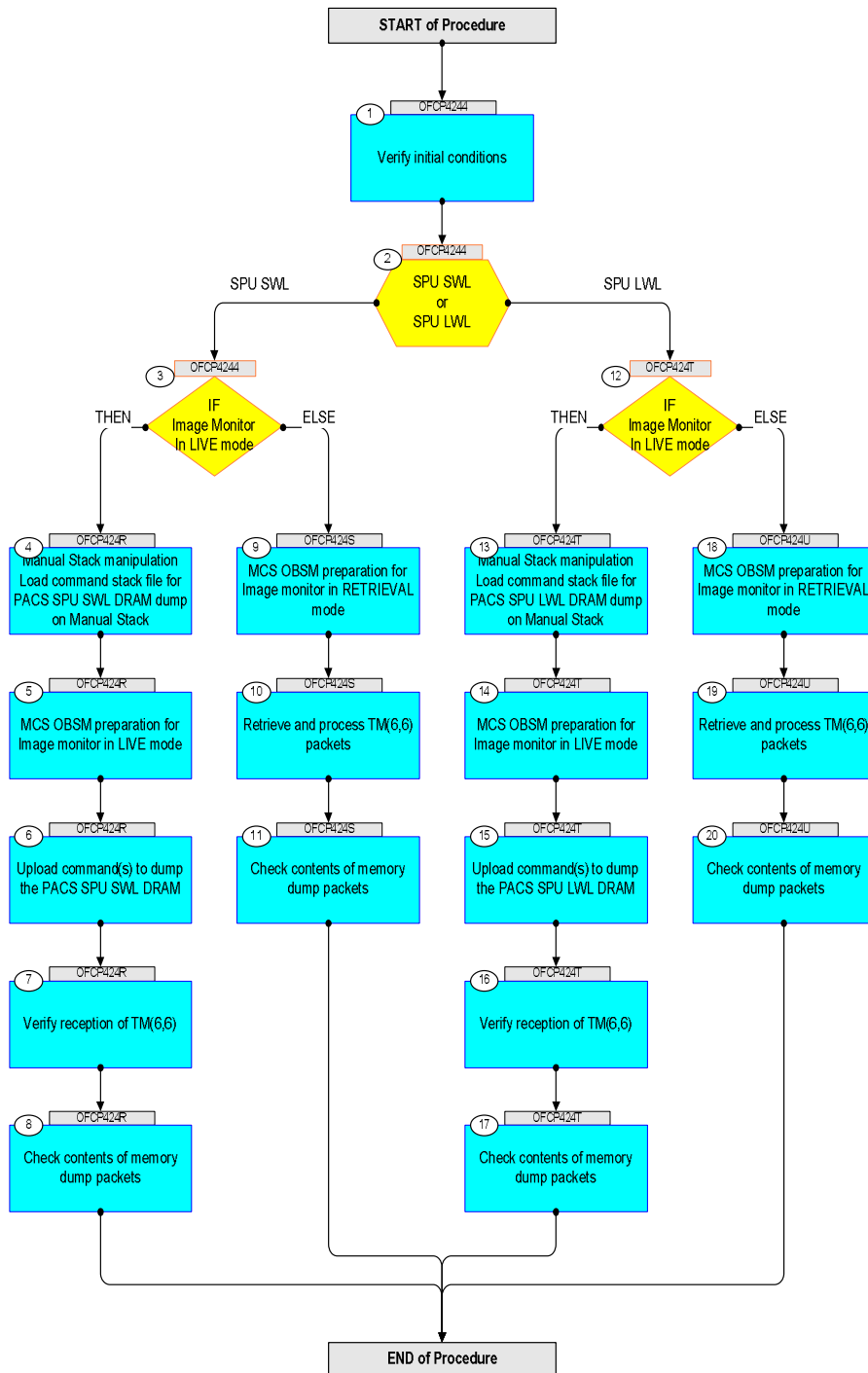


DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
05/09/08		1	Created	lstefanov-hp	
05/09/08	2	2	1. corrected typo in 'Objectives' on the cover page: "PRAM" replaced by "DRAM"	lstefanov-hp	

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Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
Beginning of Procedure					
OFCP4244 TC Seq. Name : OFCP4244 () PACS SPU DRAM dump monitoring TimeTag Type: B Sub Schedule ID: <input type="checkbox"/>					
1		Verify initial conditions		Next Step: 2	
		Check: - PACS instrument in INIT mode (DPU ASW running) - SPU ON - DPU-SPU connection established			
		Instrument SOE to confirm PACS instrument mode and SPU status.			
2		SPU SWL or SPU LWL type: [Switch]		Next Step: SPU SWL 3 SPU LWL 12	
3		IF Image Monitor In LIVE mode type: [If]		Next Step: THEN 4 ELSE 9	
OFCP424R TC Seq. Name : OFCP424R () PACS SPU SWL DRAM dump monitoring in LIVE mode TimeTag Type: B Sub Schedule ID: <input type="checkbox"/>					
4		Manual Stack manipulation Load command stack file for PACS SPU SWL DRAM dump on Manual Stack		Next Step: 5	
		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			
4.1		IF PACS Nominal			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Select file PASPRDSW_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine from directory /home/pmcops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PASPRDSW as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYY = 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: PASPRDSW_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043 - CT PASPRDSW1, ID 0003, Version 001 associated to the memory image: PASPRDSW_DI_0002001_C_PASPRDSW1_0003001_2007_337T093320.sun043			
4.2		ELSE PACS Redundant			
		Select file PASRDSWR_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine from directory /home/pmcops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PASRDSWR as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYY = 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: PASRDSWR_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043 - CT PASRDSWR1, ID 0003, Version 001 associated to the memory image: PASRDSWR_DI_0002001_C_PASRDSWR1_0003001_2007_337T093320.sun043			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment													
4.3		Check command stack loaded																
		Check that loaded stack contains one or several TCs PC028380																
		Display the Manual Stack in 'Full mode' and check that the Memory ID parameter in the PC028380 command(s) is set to 51 hex : Memory ID = 51 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 <div style="text-align: center;">DPU_MEMORY_DUMP</div> <i>Command Parameter(s) :</i> <table style="margin-left: 40px; border: none;"> <tr> <td>DPU_MEMORY_BLOCK_ID</td> <td>PP009380</td> <td>51xx hex</td> </tr> <tr> <td>DPU_MEMORY_ADDR</td> <td>PP003380</td> <td><hex> (Def)</td> </tr> <tr> <td>DPU_DATA_LENGTH</td> <td>PP008380</td> <td><dec> (Def)</td> </tr> </table> <i>TC Control Flags :</i> <table style="margin-left: 40px; border: none;"> <tr> <td>GBM IL DSE</td> <td></td> </tr> <tr> <td>--Y -- ---</td> <td></td> </tr> </table> <i>Subsch. ID : 90</i> <i>Det. descr. : DUMP OF A DPU MEMORY AREA</i> This Telecommand will not be included in the export	DPU_MEMORY_BLOCK_ID	PP009380	51xx hex	DPU_MEMORY_ADDR	PP003380	<hex> (Def)	DPU_DATA_LENGTH	PP008380	<dec> (Def)	GBM IL DSE		--Y -- ---		PC028380	TC	
DPU_MEMORY_BLOCK_ID	PP009380	51xx hex																
DPU_MEMORY_ADDR	PP003380	<hex> (Def)																
DPU_DATA_LENGTH	PP008380	<dec> (Def)																
GBM IL DSE																		
--Y -- ---																		
5		MCS OBSM preparation for Image monitor in LIVE mode		Next Step: 6														
		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.																
5.1		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.																
5.2		Select image to be monitored																
5.2.1		IF PACS Nominal																

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Select the image to be monitored for the memory device PASPRDSW . The 'Image MONITOR' window opens.			
5.2.2		ELSE PACS Redundant			
		Select the image to be monitored for the memory device PASRDSWR . The 'Image MONITOR' window opens.			
5.3		Start dump TM processing			
		In LIVE mode, processing of incoming real-time telemetry starts automatically after the image selection.			
6		Upload command(s) to dump the PACS SPU SWL DRAM		Next Step: 7	
		Uplink the PC028380 memory dump command(s) with ARM-GO			
		For each command, one or more TM(6,6) packets must be received on ground.			
7		Verify reception of TM(6,6)		Next Step: 8	
		Note: One or more TM(6,6) packets will be received for each memory dump command uplinked.			
7.1		IF PACS Prime			
		Verify Packet Reception MEMORY_DUMP Packet Mnemonic : MEMORY_DUMP APID : 1152 Type : 6 Subtype : 6 PI1 : PI2 :			
7.2		ELSE PACS Redundant			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Packet Reception MEMORY_DUMP Packet Mnemonic : MEMORY_DUMP APID : 1153 Type : 6 Subtype : 6 PI1 : PI2 :			
8		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.			
8.1		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					
TC Seq. Name : OFCP424S () PACS SPU SWL DRAM dump monitoring in Retrieval mode TimeTag Type: Sub Schedule ID: <input type="checkbox"/>					
9		MCS OBSM preparation for Image monitor in RETRIEVAL mode		Next Step: 10	
		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.			
9.1		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.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
9.2		Select image to be monitored			
9.2.1		IF PACS Nominal			
		Select the image to be monitored for the memory device PASPRDSW. The 'Image MONITOR' window opens.			
9.2.2		ELSE PACS Redundant			
		Select the image to be monitored for the memory device PASRDSWR. The 'Image MONITOR' window opens.			
9.3		Start dump TM packets processing			
		Set retrieval start time and start retrieval of TM packets using the PLAY buttons.			
10		Retrieve and process TM(6,6) packets		Next Step: 11	
		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.			
11		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.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
11.1		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					
OFCP424T TC Seq. Name : OFCP424T () PACS SPU LWL DRAM dump monitoring in LIVE mode TimeTag Type: B Sub Schedule ID: <input type="checkbox"/>					
12		IF Image Monitor In LIVE mode type: [If]		Next Step: THEN 13 ELSE 18	
13		Manual Stack manipulation Load command stack file for PACS SPU LWL DRAM dump on Manual Stack		Next Step: 14	
		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			
13.1		IF PACS Nominal			
		Select file PASPRDLW_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine from directory /home/pmsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PASPRDLW as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYY = 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: PASPRDLW_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043 - CT PASPRDLW1, ID 0003, Version 001 associated to the memory image: PASPRDLW_DI_0002001_C_PASPRDLW1_0003001_2007_337T093320.sun043			
13.2		ELSE PACS Redundant			
		Select file PASRDWR_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine from directory /home/pmcops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PASRDWR as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYY = 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: PASRDWR_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043 - CT PASRDWR1, ID 0003, Version 001 associated to the memory image: PASRDWR_DI_0002001_C_PASRDWR1_0003001_2007_337T093320.sun043			
13.3		Check command stack loaded			
		Check that loaded stack contains one or several TCs PC028380			
		Display the Manual Stack in 'Full mode' and check that the Memory ID parameter in the PC028380 command(s) is set to 71 hex : Memory ID = 71 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.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <p style="text-align: center;">DPU_MEMORY_DUMP</p> Command Parameter(s) : DPU_MEMORY_BLOCK_ID PP009380 DPU_MEMORY_ADDR PP003380 DPU_DATA_LENGTH PP008380 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 90 Det. descr. : DUMP OF A DPU MEMORY AREA This Telecommand will not be included in the export	PC028380	TC	
14		MCS OBSM preparation for Image monitor in LIVE mode		Next Step: 15	
		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.			
14.1		Select 'Image MONITOR' from the menu			
		Select the Image menu of the <i>OBSM Desktop</i> . From the Image menu, select Monitor . The 'Image Catalog' window opens.			
14.2		Select image to be monitored			
14.2.1		IF PACS Nominal			
		Select the image to be monitored for the memory device PASPRDLW . The 'Image MONITOR' window opens.			
14.2.2		ELSE PACS Redundant			
		Select the image to be monitored for the memory device PASRDLWR . The 'Image MONITOR' window opens.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
14.3		Start dump TM processing			
		In LIVE mode, processing of incoming real-time telemetry starts automatically after the image selection.			
15		Upload command(s) to dump the PACS SPU LWL DRAM		Next Step: 16	
		Uplink the PC028380 memory dump command(s) with ARM-GO			
		For each command, one or more TM(6,6) packets must be received on ground.			
16		Verify reception of TM(6,6)		Next Step: 17	
		Note: One or more TM(6,6) packets will be received for each memory dump command uplinked.			
16.1		IF PACS Prime			
		Verify Packet Reception MEMORY_DUMP Packet Mnemonic : MEMORY_DUMP APID : 1152 Type : 6 Subtype : 6 PI1 : PI2 :			
16.2		ELSE PACS Redundant			
		Verify Packet Reception MEMORY_DUMP Packet Mnemonic : MEMORY_DUMP APID : 1153 Type : 6 Subtype : 6 PI1 : PI2 :			
17		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.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		IF there are differences reported by OBSM between the dump data and the ground image, the merged image shall be saved for offline analysis.			
17.1		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					
OFCP424U TC Seq. Name : OFCP424U () PACS SPU LWL DRAM dump monitoring in Retrieval mode TimeTag Type: Sub Schedule ID: <input type="checkbox"/>					
18		MCS OBSM preparation for Image monitor in RETRIEVAL mode		Next Step: 19	
		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.			
18.1		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.			
18.2		Select image to be monitored			
18.2.1		IF PACS Nominal			
		Select the image to be monitored for the memory device PASPRDLW . The 'Image MONITOR' window opens.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
18.2.2		ELSE PACS Redundant			
		Select the image to be monitored for the memory device PASRDLR . The 'Image MONITOR' window opens.			
18.3		Start dump TM packets processing			
		Set retrieval start time and start retrieval of TM packets using the PLAY buttons.			
19		Retrieve and process TM(6,6) packets		Next Step: 20	
		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.			
20		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.			
20.1		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					