

Update ACC CPU System Registers ground image from memory dump
File: H_FCP_OBS_2249.xls
Author: lstefanov-hp



Procedure Summary

Objectives

This Herschel OBSM nominal procedure is used to conduct the dump of the readable ACC CPU System Registers. The procedure covers all ACC CPU System Registers with Read Access.

The ACC CPU System Registers dump is commanded using TC(6,5) and the memory locations content is received on ground in TM(6,6) packets.

To be noted that for register read activities the access can be done at Word/Hword/Byte level, as opposed to register write, which has to be done at Word level, with 32-bit address alignment. In this procedure, all registers are accessed at Word level (i.e. only 32-bit word dumps).

The procedure uses a MOIS generated command sequence and not a command stack generated by OBSM.

Summary of Constraints

ACC in Operational Mode

- Only one register may be accessed per dump command
- Write-only registers shall NOT be dumped

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

ACC in Operational Mode

End of Procedure

Same as start, except:
- ACC CPU System Registers dump executed

Reference File(s)

Input Command Sequences

Output Command Sequences

OFCP2249

Referenced Displays

ANDs GRDs SLDs

Configuration Control Information

Status : Version 2 - Unchanged
Last Checkin: 10/04/09

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 File: H_FCP_OBS_2249.xls
 Author: lstefanov-hp

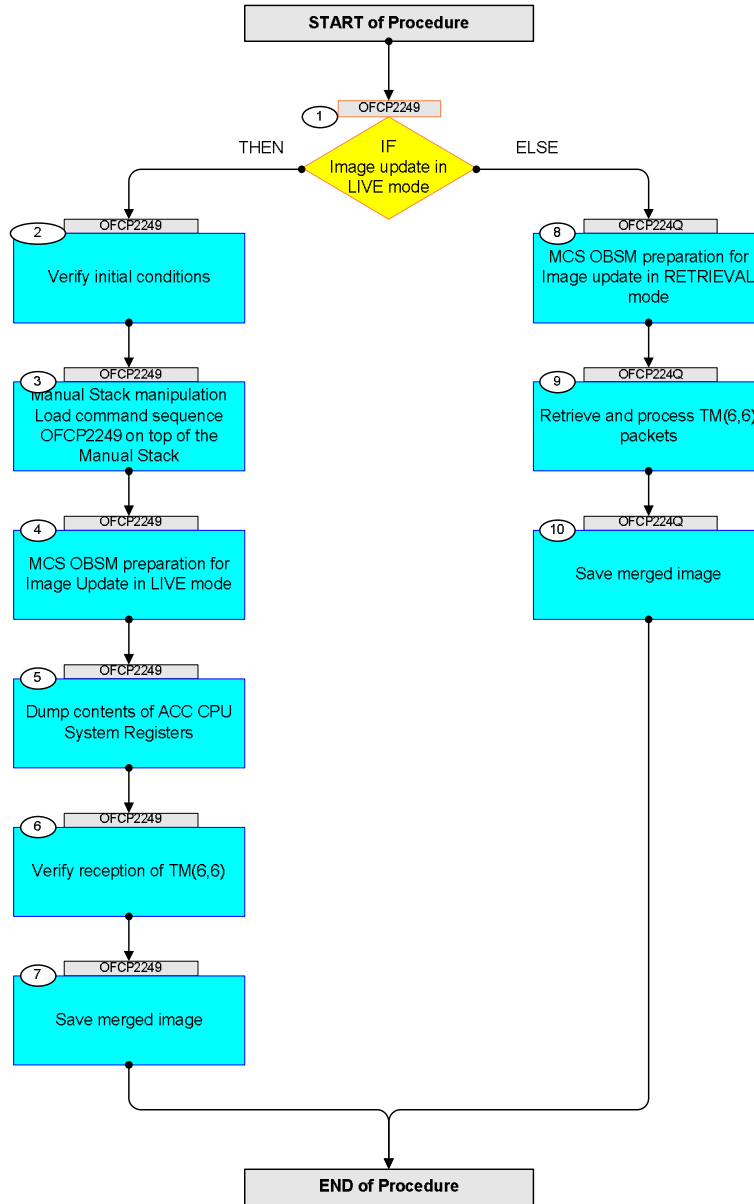



DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
13/01/09	2	1	Created	lstefanov-hp	
10/04/09	2.3	2	1. removed 'Manual Dispatch' on all commands except the first one in the sequence 2. corrected error in TC Seq. name: OFCP224J replaced by OFCP224Q	lstefanov-hp	

Update ACC CPU System Registers ground image from memory dump
 File: H_FCP_OBS_2249.xls
 Author: lstefanov-hp




Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
Beginning of Procedure					
OFCP2249 TC Seq. Name :OFCP2249 (ACC CpuSysReg Dmp) ACC CPU System Registers Gnd image update in LIVE mode TimeTag Type: N Sub Schedule ID: <div style="text-align: center;">□</div>					
1		IF Image update in LIVE mode type: [If]		Next Step: THEN 2 ELSE 8	
2		Verify initial conditions		Next Step: 3	
		Check: - ACC in Operational mode			
		ACMS SOE to confirm ACC mode			
3		Manual Stack manipulation Load command sequence OFCP2249 on top of the Manual Stack		Next Step: 4	
3.1		Sequence data FP: N/A TT: N/A			
4		MCS OBSM preparation for Image Update 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 UPDATE' from the menu			
		Select the Image menu of the <i>OBSM Desktop</i> . From the Image menu, select Update . The 'Image Catalog' window opens.			

Update ACC CPU System Registers ground image from memory dump
 File: H_FCP_OBS_2249.xls
 Author: lstefanov-hp




Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
4.2		Select image to be updated			
4.2.1		IF ACC PM A			
		Select the image to be updated for the memory device ACCSYRGR. The 'Image UPDATE' window opens.			
4.2.2		ELSE ACC PM B			
		Select the image to be updated for the memory device ACCSYRGB. The 'Image UPDATE' window opens.			
4.3		Start dump TM processing			
		In LIVE mode, processing of incoming real-time telemetry starts automatically after the image selection.			
5		Dump contents of ACC CPU System Registers		Next Step: 6	
		Uplink the AC063109 memory dump commands with ARM-GO			
		Note: The commands have Delta Release time. All TCs will be dispatched by ARM-GO .			
		For each command, a TM(6,6) packets must be received on ground.			
5.1		System Control Register			
		System Control Register [SYSCTR]:			

Update ACC CPU System Registers ground image from memory dump
 File: H_FCP_OBS_2249.xls
 Author: lstefanov-hp




Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.2		Memory Configuration Register			
		Memory Configuration Register [MCNFR]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.3		I/O Configuration Register			
		I/O Configuration Register [IOCNR]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.4		Waitstate Configuration Register			
		Waitstate Configuration Register [WSCNFR]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	

Update ACC CPU System Registers ground image from memory dump
 File: H_FCP_OBS_2249.xls
 Author: lstefanov-hp




Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
5.5		Access Protection Segment 1 Base Register			
		Access Protection Segment 1 Base Register [APS1BR]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.6		Access Protection Segment 1 End Register			
		Access Protection Segment 1 End Register [APS1ER]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.7		Access Protection Segment 2 Base Register			
		Access Protection Segment 2 Base Register [APS2BR]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.8		Access Protection Segment 2 End Register			
		Access Protection Segment 2 End Register [APS2ER]:			

Update ACC CPU System Registers ground image from memory dump
 File: H_FCP_OBS_2249.xls
 Author: lstefanov-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.9		Interrupt Shape Register			
		Interrupt Shape Register [INTSHR]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.10		Interrupt Pending Register			
		Interrupt Pending Register [INTPDR]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.11		Interrupt Mask Register			
		Interrupt Mask Register [INTMKR]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	

Update ACC CPU System Registers ground image from memory dump
 File: H_FCP_OBS_2249.xls
 Author: lstefanov-hp




Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
5.12		Interrupt Force Register			
		Interrupt Force Register [INTFCR]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.13		Watchdog Timer Register			
		Watchdog Timer Register [WDOGTR]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.14		Real Time Clock Timer Counter Register			
		Real Time Clock Timer Counter Register [RTCCR]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.15		Real Time Clock Timer Scaler Register			
		Real Time Clock Timer Scaler Register [RTCSR]:			

Update ACC CPU System Registers ground image from memory dump
 File: H_FCP_OBS_2249.xls
 Author: lstefanov-hp




Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
	ET=+ UT=+00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.16		General Purpose Timer Counter Register			
		General Purpose Timer Counter Register [GPTCR]:			
	ET=+ UT=+00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.17		General Purpose Timer Scaler Register			
		General Purpose Timer Scaler Register [GPTSR]:			
	ET=+ UT=+00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.18		Timers Control Register			
		Timers Control Register [TIMCTR]:			
	ET=+ UT=+00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	

Update ACC CPU System Registers ground image from memory dump
 File: H_FCP_OBS_2249.xls
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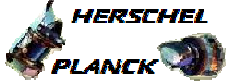

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
5.19		System Fault Status Register			
		System Fault Status Register [SYSFSR]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.20		Failing Address Register			
		Failing Address Register [FAILAR]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.21		General Purpose Interface Configuration Register			
		General Purpose Interface Configuration Register [GPICNFR]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.22		General Purpose Interface Data Register			
		General Purpose Interface Data Register [GPIDATR]:			

Update ACC CPU System Registers ground image from memory dump
 File: H_FCP_OBS_2249.xls
 Author: lstefanov-hp




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	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.23		Error & Reset Status Register			
		Error & Reset Status Register [ERRRSR]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.24		Test Control Register			
		Test Control Register [TESCTR]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	
5.25		UART Status Register			
		UART Status Register [UARTSR]:			
	ET+= UT+=00.00.04	Execute Telecommand Dump Memory Command Parameter(s) : Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109 Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses	AC063109	TC	

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 File: H_FCP_OBS_2249.xls
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
6		Verify reception of TM(6,6)		Next Step: 7	
		Note: A TM(6,6) packets will be received for each memory dump command uplinked.			
		Verify Packet Reception Memory Dump - Absolute Addresses - SAU 8 Packet Mnemonic : MemDmpAbsAdd APID : 512 Type : 6 Subtype : 6 PI1 : PI2 :			
6.1		Check OBSM dump packet processing			
		Check that the OBSM is processing the incoming memory dump packets.			
7		Save merged image		Next Step: END	
		Save merged image with new ID .			
End of Sequence					
OFCP224Q TC Seq. Name : OFCP224Q (ACC CpuSysReg Dmp Q) ACC CPU System Registers Gnd image update in Retrieval mode TimeTag Type: Sub Schedule ID: <input type="checkbox"/>					
8		MCS OBSM preparation for Image update 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 UPDATE' from the menu			
		Select the Image menu of the OBSM Desktop . From the Image menu, select Update . The 'Image Catalog' window opens.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
8.2		Select image to be updated			
8.2.1		IF ACC PM A			
		Select the image to be updated for the memory device ACCSYRGR. The 'Image UPDATE' window opens.			
8.2.2		ELSE ACC PM B			
		Select the image to be updated for the memory device ACCSYRGR. The 'Image UPDATE' 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		Save merged image		Next Step: END	
		Save merged image with new ID .			
End of Sequence					
End of Procedure					