

Dump memory area
 File: H_CRP_AOC_5ACD.xls
 Author: dsalt-hp



Procedure Summary

Objectives

The objective of this Herschel ACMS procedure is to dump the following memory areas/registers:

- CPU RAM
- Communication RAM
- PM PROM
- PM EEPROM
- SGM
- RM RAM
- RM EEPROM
- CPU System (ERC32), PM COCOS or RM CROME registers

The procedure involves the following activities:

- use TC(6,5) yo dump a specific memory area/registers
- confirmation of dump via TM(6,6) packets

Summary of Constraints

Memory areas/registers 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

n/a

End of Procedure

n/a

Reference File(s)

Input Command Sequences

Output Command Sequences

HFA5ACDA

Referenced Displays

ANDs **GRDs** **SLDs**
 (None)

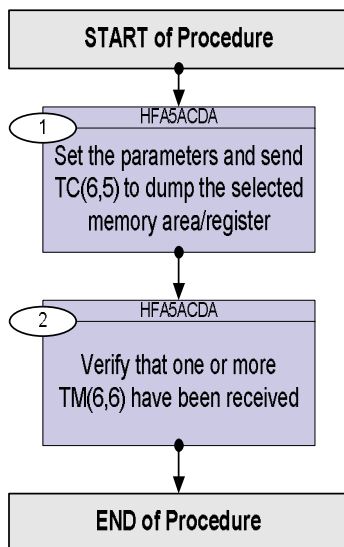
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
04/08/08	1	1	Created	dsalt-hp	

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Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
Beginning of Procedure				
HFA5ACDA Dump Memory Sequence Parameter(s) : Memory_ID MEM_ID1 <dec> Start_Address STAR_AD1 <dec> N SAU_LEN1 <dec> SSID :				
1		Set the parameters and send TC(6,5) to dump the selected memory area/register		Next Step: 2
		When the ACMS receives this request it will read the memory block, generate one or several TMs(6,6) containing the contents of this area and send these to the downlink.		
		In the TC(6,5) it is necessary to set the following parameters: - Memory ID: identifier of the memory block from which data shall be dumped. - Start Address: start address (in Smallest Addressable Units, SAUs, with the count starting from zero) within the memory block for dumping the data. - N: number of SAUs (8 bits) to be dumped.		
		The fields Memory ID and Start Address are treated as one 32-bit field where the 16 least significant bits of the address is stored in Start Address and the 16 most significant bit in the Memory ID field.		
		The length Smallest Addressable Unit (SAU) is always 8-bit.		
		<u>WARNING:</u> - The specified address range must not span over several types of memory. - Protected and unprotected parts of a memory are considered as different memory types. - SGM areas reserved for ASW and BSW are considered as different memory types. - For CPU System, PM COCOS or RM register accesses, no checking is performed that the provided address is a valid register or that register is readable. - For CPU System registers only the mapped ones are accessible.		
1.1		Ask for the Memory Dump details		□

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch															
		Refer to the Memory_Map worksheet																	
		<p>- In case of CPU System and PM COCOS registers only one register of 32 bits can be accessed per dump, thus N is constrained to 4</p> <p>- In case of RM areas all transfers must be 32bits transfers, thus N is constrained to be a multiple of 4. Furthermore the transfers need to be aligned to 32 its boundary, thus also constraining START_ADDRESS.</p>																	
1.2		Order the dump		<input type="checkbox"/>															
		<p>Execute Telecommand</p> <p style="text-align: right;">DumpMem_AbsAddr</p> <p style="text-align: right;">AC602070</p> <p>Command Parameter(s) :</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">Memory_ID</td> <td style="text-align: right;">AH003070</td> <td style="text-align: right;">MEM_ID1</td> </tr> <tr> <td style="text-align: right;">Start_Address</td> <td style="text-align: right;">AH004070</td> <td style="text-align: right;">STAR_AD1</td> </tr> <tr> <td style="text-align: right;">N</td> <td style="text-align: right;">AH105070</td> <td style="text-align: right;">SAU_LEN1</td> </tr> </table> <p>TC Control Flags :</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">GBM</td> <td style="text-align: right;">IL</td> <td style="text-align: right;">DSE</td> </tr> <tr> <td style="text-align: right;">--Y</td> <td style="text-align: right;">--</td> <td style="text-align: right;">---</td> </tr> </table> <p>SSID : 20</p>	Memory_ID	AH003070	MEM_ID1	Start_Address	AH004070	STAR_AD1	N	AH105070	SAU_LEN1	GBM	IL	DSE	--Y	--	---		
Memory_ID	AH003070	MEM_ID1																	
Start_Address	AH004070	STAR_AD1																	
N	AH105070	SAU_LEN1																	
GBM	IL	DSE																	
--Y	--	---																	
2		Verify that one or more TM(6,6) have been received		Next Step: END															
		<p>Verify Packet Reception</p> <p style="text-align: center;">Memory Dump - Absolute Addresses - SAU 8</p> <p>Packet Details:</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">APID:</td> <td style="text-align: right;">16</td> <td style="text-align: right;">MemDmpAbsAdd</td> </tr> <tr> <td style="text-align: right;">Type:</td> <td style="text-align: right;">6</td> <td></td> </tr> <tr> <td style="text-align: right;">Subtype:</td> <td style="text-align: right;">6</td> <td></td> </tr> <tr> <td style="text-align: right;">PI1:</td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">PI2:</td> <td></td> <td></td> </tr> </table>	APID:	16	MemDmpAbsAdd	Type:	6		Subtype:	6		PI1:			PI2:				
APID:	16	MemDmpAbsAdd																	
Type:	6																		
Subtype:	6																		
PI1:																			
PI2:																			
		Each TM packet contains the following parameters:																	
		<p>Verify Telemetry</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">Memory_ID</td> <td style="text-align: right;">DE060180</td> <td style="text-align: right;">= MEM_ID1</td> <td style="text-align: right;">(None)</td> </tr> </table>	Memory_ID	DE060180	= MEM_ID1	(None)													
Memory_ID	DE060180	= MEM_ID1	(None)																
		For the first packet:																	
		<p>Verify Telemetry</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">Start_Address</td> <td style="text-align: right;">DE061180</td> <td style="text-align: right;">= STAR_ID1</td> <td style="text-align: right;">(None)</td> </tr> </table>	Start_Address	DE061180	= STAR_ID1	(None)													
Start_Address	DE061180	= STAR_ID1	(None)																
		For subsequent packets:																	
		<p>Verify Telemetry</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">Start_Address</td> <td style="text-align: right;">DE061180</td> <td style="text-align: right;">Start address of the first byte dumped in the packet</td> <td style="text-align: right;">(None)</td> </tr> </table>	Start_Address	DE061180	Start address of the first byte dumped in the packet	(None)													
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry N DE062180	Number of bytes dumped in the packet	(None)
		The following parameters are repeated N times		
		Verify Telemetry Dumped_Byte DE063180		(None)
		Verify Telemetry Checksum DE064180		(None)
		Note: In case of CPU System, PM COCOS or RM CROME registers, the value of the checksum is irrelevant as no readback and verification of written data is one.		
End of Procedure				