

Clear SW Alarm in ERC 32  
 File: H\_CRP\_DHS\_3057.xls  
 Author: S. Manganelli



## Procedure Summary

### Objectives

This procedure describes the steps needed to clear the pending SW alarm in the General Purpose Interface Data Register (GPIDATR) (CPU-ERC 32 register).

### Summary of Constraints

GPIDATR register (address 01f800ac hex) is read/written through TCs(6,5/2); these TCs 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

Moreover writing to CPU (ERC 32) registers is enabled and disabled through TC(8,4,7,1).

### Spacecraft Configuration

**Start of Procedure**

SW alarm pending in GPIDATR

**End of Procedure**

SW alarm cleared in GPIDATR

### Reference File(s)

**Input Command Sequences**

**Output Command Sequences**

HRD3057

### Referenced Displays

<b>ANDs</b>	<b>GRDs</b>	<b>SLDs</b>
ZAZAF999		(None)

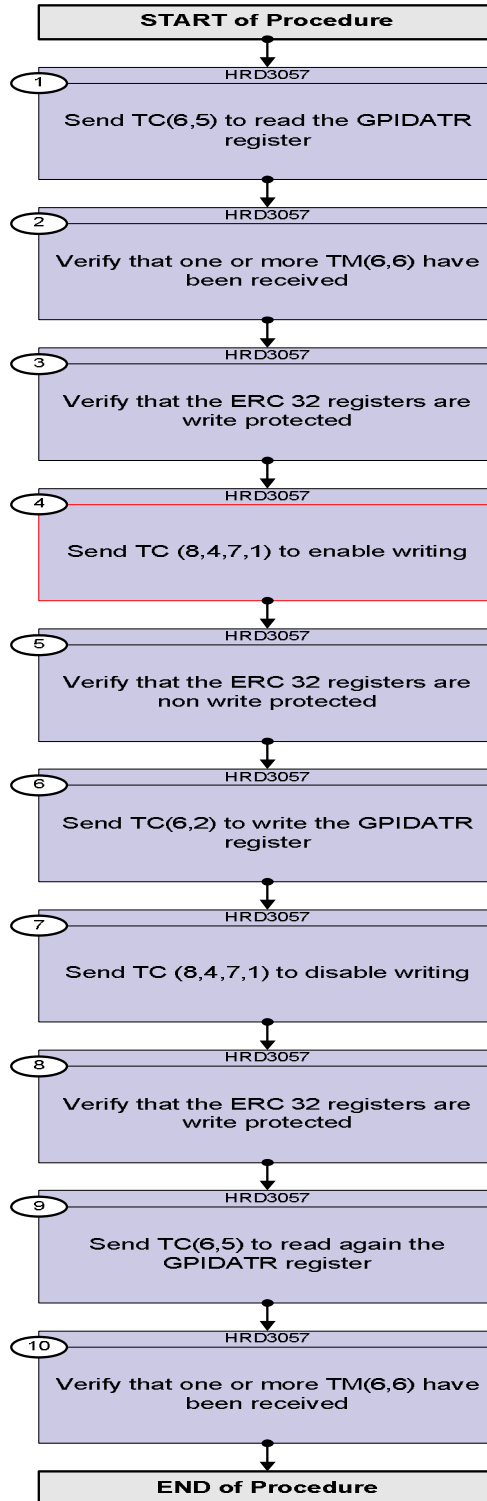
### Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
15/11/08		1	Created	S. Manganelli	
29/11/08	2	2	Added info sheet	S. Manganelli	
03/05/09	2.4	3	Added explanations and formal parameter	S. Manganelli	

Clear SW Alarm in ERC 32  
File: H\_CRP\_DHS\_3057.xls  
Author: S. Manganelli



## Procedure Flowchart Overview



Clear SW Alarm in ERC 32  
 File: H\_CRP\_DHS\_3057.xls  
 Author: S. Manganelli



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
<b>Beginning of Procedure</b>				
<p>TC Seq. Name :HRD3057 (Clear SW Alarm in ER)</p> <p>TimeTag Type: N            Sub Schedule ID:            Formal Parameter List :            Data GPIvalue=05 05 &lt;dec&gt;</p>				
1		Send TC(6,5) to read the GPIDATR register		Next Step: 2
		Execute Telecommand <div style="text-align: right;">DumpMem_AbsAddr</div> DC602180 Command Parameter(s) : <div style="display: flex; justify-content: space-between;"> <div> <p>Memory_ID           DH003180</p> <p>Start_Address       DH004180</p> <p>                          N           DH105180</p> </div> <div> <p>01F8 &lt;hex&gt;</p> <p>00AC &lt;hex&gt;</p> <p>4 &lt;dec&gt;</p> </div> </div> TC Control Flags : <div style="text-align: right;">GBM IL DSE</div> <div style="text-align: right;">--Y -- ---</div> Subsch. ID : 10 Det. descr. : Dump Memory Using Absolute Addresses		
2		Verify that one or more TM(6,6) have been received		Next Step: 3
		Verify Packet Reception <div style="text-align: right;">Memory Dump - Absolute Addresses - SAU 8      MemDmpAbsAdd</div> Packet Details: <div style="display: flex; justify-content: space-between;"> <div> <p>APID:           16</p> <p>Type:           6</p> <p>Subtype:       6</p> <p>PI1:</p> <p>PI2:</p> </div> <div> <p>16</p> <p>6</p> <p>6</p> </div> </div>		
		<b>Each TM packet (use TMPH and double click on MemDmpAbsAdd) contains the following parameters:</b>		
		Verify Telemetry <div style="display: flex; justify-content: space-between;"> <div> <p>Memory_ID           DE060180</p> </div> <div> <p>= 01F8 &lt;hex&gt;</p> </div> </div>		(None)
		Verify Telemetry <div style="display: flex; justify-content: space-between;"> <div> <p>Start_Address       DE061180</p> </div> <div> <p>= 00AC &lt;hex&gt;</p> </div> </div>		(None)
		Verify Telemetry <div style="display: flex; justify-content: space-between;"> <div> <p>                          N           DE062180</p> </div> <div> <p>= 4 &lt;dec&gt;</p> </div> </div>		(None)
		<b>Then parameter DE063180 Dumped_byte is repeated 4 times; the first three dumped bytes are reserved (value "don't care") the last byte will contain "1" in the MSBit (the one that would be masked with 0x80) if a SW alarm is pending. See examples below.</b>		
		Verify Telemetry <div style="display: flex; justify-content: space-between;"> <div> <p>Dumped_Byte       DE063180</p> </div> </div>		(None)

Clear SW Alarm in ERC 32  
 File: H\_CRP\_DHS\_3057.xls  
 Author: S. Manganelli



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry <b>Checksum</b> <b>DE064180</b>		(None)
		Example 1 : the hex value of the last byte is 05. binary 0000 0101 decodes to No SW alarm PM A / TTR A / PM enabled Image 1 selected Nom mode allowed Test connector inactive		
		Example 2 : the hex value of the last byte is 85. binary 1000 0101 decodes to <b>SW alarm raised</b> PM A / TTR A / PM enabled Image 1 selected Nom mode allowed Test connector inactive		
3		Verify that the ERC 32 registers are write protected		Next Step: 4
		Verify Telemetry <b>CpuCocosWrtProt</b> <b>DEL0G160</b>	<b>= ENABLED</b>	AND=ZAZAF999
4		Send TC (8,4,7,1) to enable writing		Next Step: 5
		Execute Telecommand <b>EnableRegWrite</b>  TC Control Flags :  <b>GBM IL DSE</b> <b>--Y -- ---</b>  Subsch. ID : 10 Det. descr. : Enable write to CPU and COCOS register	<b>DC803180</b>	
5		Verify that the ERC 32 registers are non write protected		Next Step: 6
		Verify Telemetry <b>CpuCocosWrtProt</b> <b>DEL0G160</b>	<b>= DISABLED</b>	AND=ZAZAF999
6		Send TC(6,2) to write the GPIDATR register		Next Step: 7
		Note: the checksum value is automatically calculated by MCS		

Clear SW Alarm in ERC 32  
 File: H\_CRP\_DHS\_3057.xls  
 Author: S. Manganelli



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand LoadMem_AbsAdd_EvenByte Command Parameter(s) : Memory_ID          DH003180 Start_Address      DH004180 N                  DH005180 Data                DH006180 Data                DH006180 Data                DH006180 Data                DH006180 Checksum           DH007180 TC Control Flags : GBM IL DSE --Y -- ---	DC601180  01F8 <hex> 00AC <hex> 4 <hex> 00 <hex> 00 <hex> 00 <hex> 00 <hex> GPIvalue 0000 <hex>	
		Subsch. ID : 10 Det. descr. : Load Even number of bytes inMemory Using Absolute Addresses		
7		Send TC (8,4,7,1) to disable writing		Next Step: 8
		Execute Telecommand DisableRegWrite TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : Disable write to CPU and COCOS register	DC801180	
8		Verify that the ERC 32 registers are write protected		Next Step: 9
		Verify Telemetry CpuCocosWrtProt          DEL0G160	= ENABLED	AND=ZAZAF999
9		Send TC(6,5) to read again the GPIDATR register		Next Step: 10
		Execute Telecommand DumpMem_AbsAddr Command Parameter(s) : Memory_ID          DH003180 Start_Address      DH004180 N                  DH105180 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : Dump Memory Using Absolute Addresses	DC602180  01F8 <hex> 00AC <hex> 4 <dec>	

Clear SW Alarm in ERC 32  
 File: H\_CRP\_DHS\_3057.xls  
 Author: S. Manganelli



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
10		Verify that one or more TM(6,6) have been received		Next Step: END
		Verify Packet Reception <b>Memory Dump - Absolute Addresses - SAU 8</b> <i>Packet Details:</i> APID: 16 Type: 6 Subtype: 6 PI1: PI2: <b>MemDmpAbsAdd</b>		
		<b>Each TM packet contains the following parameters:</b>		
		Verify Telemetry <b>Memory_ID</b> DE060180	= 01F8 <hex>	(None)
		Verify Telemetry <b>Start_Address</b> DE061180	= 00AC <hex>	(None)
		Verify Telemetry <b>N</b> DE062180	= 4 <dec>	(None)
		<b>The following parameters are repeated 4 times; in particular the first three dumped bytes are reserved (value "don't care") while last byte will contain "0" in the MSBit (masked with 0x80) if no SW alarm is pending.</b>		
		Verify Telemetry <b>Dumped_Byte</b> DE063180	= 00 <hex>	(None)
		Verify Telemetry <b>Checksum</b> DE064180		(None)
		Example 1 : the hex value of the last byte is 05. binary 0000 0101 decodes to No SW alarm PM A / TTR A / PM enabled Image 1 selected Nom mode allowed Test connector inactive		
		Example 2 : the hex value of the last byte is 85. binary 1000 0101 decodes to SW alarm raised PM A / TTR A / PM enabled Image 1 selected Nom mode allowed Test connector inactive		
<b>End of Procedure</b>				

Clear SW Alarm in ERC 32  
 File: H\_CRP\_DHS\_3057.xls  
 Author: S. Manganelli



**Info GPI**

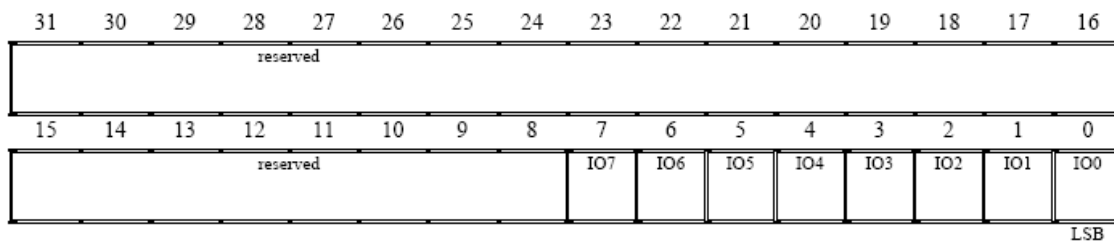
**Saab Ericsson Space AB**

Dokument ID <i>Document ID</i>	Friläppt datum <i>Date Released</i>	Utgåva <i>Issue</i>	Informationsklass <i>Classification</i>	Sida <i>Page</i>
P-HPL-ICD-00003-SE	2006-10-11	10	Company Restricted	56

5.1.6.6.1 General Purpose Interface Data Register

**General Purpose Interface Data Register [GPIDATR]**

RW



Field:	Direction:	Description:
IO0	Input	Test Connector Active* (Pin Tca_N in PM test connector). 0: Active (the monitor can be started) 1: Inactive (the application shall be started)
IO1	Input	PM Relay Status 0 (See SRD R/INI.02) 0: Reset (Nominal mode allowed) 1: Set (Survival mode)
IO2	Input	PM Relay Status 1 (SW Image Select) 0: Reset – Image 2 selected 1: Set – Image 1 selected
IO3	Input	Processor Module Enable: 0: Enabled 1: Disabled
IO4	Input	Selected TM/OBT: 0: TTR A 1: TTR B
IO5	Input	Selected PM 0: PM A 1: PM B
IO6	Input	Unused
IO7	Output	Software Alarm, connected to the both TTR Reconfiguration Modules: 0: Alarm deactivated 1: Alarm activated

Note: Write 8<sub>16</sub> to the General Purpose Interface Configuration Register to configure the GPI I/O bit IO7 as output.