

Sujet : R: R: [swa_reunion_technique] R: End of PAS commissioning.

De : Mele Gennaro <gennaro.mele@leonardocompany.com>

Date : 20/04/2020 à 08:57

Pour : BARTHE Alain <alain.barthe@irap.omp.eu>

Hi Alain

The less you can use is enclosed.

It represents a table with the current limit stored on board, where the different worksheet assume the following meaning:

1. **"monitoring"** worksheet: is a table in which are defined the monitoring items by identifying
 - o the associated parld;
 - o the validityParld1 and validityParld2;
 - o the filter;
 - o the rate (i.e. how many time the monitoring will be scheduled);
 - o the parType;
 - o the monitoring default status;
 - o the parld Low and High limit
 - o the Low and High event associated to the low/high limit violation
2. **"eventHandler"** worksheet: is a table in which are defined the event associated to the monitoring violation. To each event are associated the following information:
 - o the event enabled/disable status;
 - o a filter used to confirm the event;
 - o the event severity associated to recoveries management(i.e. 2 recovery levels are possible).
Once an event is triggered, and there is a recovery associated to the event different from OVR_NO_RECOVERY, the ASW will:
 1. generate a TM(5,x), where x is the event severity, to notify the monitoring failure and the start of the associated recovery;
 2. Start the associated recovery
 3. Notify the end of the recovery by issuing a TM(5,1) with code 0xAA27
 - o The level handling associated to each recoveries;
3. **"Parld"** worksheet: is a table containing the list of the possible parameter to be used to define a monitoring item.
4. **"ValidityParam"** worksheet: is a table containing the list of the possible validity parameter to be used to validate the execution of a monitoring item.
5. **"Recovery"** worksheet: is a table containing the list of the possible recovery action associated to the event handler.
6. **"Monitoring Schedule"** worksheet: is a table containing the list of monitoring executed in each time slice according to the (Major,minor) couple of information (i.e. the content of **fdirActivityTable**).

When a PAS event is triggered due to an out of limit condition you will observe one of the following event reported via TM(5,2):

PasEmOffEvt	AA82	Event generated when a PAS emergency switch OFF is required(See FDIR in UM)
PasDetOffEmrOFF	AA83	Event generated when a PAS Detector Off/On is required(See FDIR in UM)
PasDetOffNomOFF	AA84	Event generated when a PAS Detector Off/

		emergency switch OFF is required(See FDIR in UM)
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And the TM(5,2) structure is the following one:

Word	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	VN		T	DFH	PID = 99						CAT = 7					
2	SF		SC													
3	PL = 0x1b															
4	SFH	PVN = 001		Spare = 0000				ST = 5								
5	SS = 2							DI = 0x00								
6	OBRT															
7																
8																
9	EventID															
10	Error															
11	Recovery															
12	monId															
13	parvalue															
14	LowTh															
15	HighTh															

Where the field will be decoded in the following way:

EventID	The event triggered
Error	This field contains the kind of error (PAR_LOWER=2, PAR_GREATER=3)
Recovery	This field contains the kind of recovery (FirstLevel=0, SecondLevel=1)
monId	This field contains the monitoring Id associated to the recovery: <ul style="list-style-type: none"> · <i>EAS2POWER_MI</i> = 0, · <i>EAS1POWER_MI</i> = 1, · <i>HISPOWER_RED_MI</i> = 2, · <i>PASPOWER_MI</i> = 3, · <i>THERMIST_A_MI</i> = 4, · <i>IMON_DCDC_MI</i> = 5, · <i>SPWPOWER_MI</i> = 6, · <i>THERMIST_B_MI</i> = 7, · <i>TC20MISSING</i> = 8, · <i>TIMECODEMISSING</i> = 9, · <i>THFIREFLAG_MI</i> = 10, · <i>SASTEERING_MI</i> = 11, · <i>PASampOverCurrent</i> = 12, · <i>HISPOWER_YEL_MI</i> = 13, · <i>EAS2PWR_RED_MI</i> = 14, · <i>EAS1PWR_RED_MI</i> = 15 , · <i>PASPWR_RED_MI</i> = 16 ,

·	<i>V_MON_C_MI</i>	= 17,
·	<i>V_MON_L_MI</i>	= 18,
·	<i>I_MON_C_MI</i>	= 19,
·	<i>I_MON_L_MI</i>	= 20,
·	<i>T_MON_C_MI</i>	= 21 ,
·	<i>T_MON_L_MI</i>	= 22 ,
·	<i>PLUS_24_V_CEM_OUT_MI</i>	= 23 ,
·	<i>PLUS_5_V_CEM_OUT_MI</i>	= 24 ,
·	<i>PLUS_12_V_HT_OUT_MI</i>	= 25 ,
·	<i>MINUS_12_V_HT_OUT_MI</i>	= 26 ,
·	<i>PLUS_3V_3_FPGA_OUT_MI</i>	= 27,
·	<i>PLUS_1V_5_FPGA_OUT_MI</i>	= 28,
·	<i>TEMP_DCDC_MI</i>	= 29 ,
·	<i>TEMP_FPGA_MI</i>	= 30 ,
·	<i>HK_I_PLUS_24V_CEM_MI</i>	= 31 ,
·	<i>HK_I_PLUS_5V_CEM_MI</i>	= 32 ,
·	<i>HK_I_PLUS_12V_HT_MI</i>	= 33 ,
·	<i>HK_I_MINUS12V_HT_MI</i>	= 34 ,
·	<i>HK_I_3V_3_FPGA_MI</i>	= 35 ,
·	<i>HK_I_PLUS_28V_PRI_MI</i>	= 36 ,
·	<i>HK_I_1V5_FPGA_MI</i>	= 37 ,
·	<i>HK_MHV_POS_MI</i>	= 38 ,
·	<i>HK_MHV_NEG_MI</i>	= 39 ,
·	<i>TEMP_HVPS_MI</i>	= 40 ,
·	<i>EAS1SPWHEARTBEAT_MI</i>	= 41,
·	<i>EAS2SPWHEARTBEAT_MI</i>	= 42,
·	<i>EAS1HKHEARTBEAT_MI</i>	= 43,
·	<i>EAS2HKHEARTBEAT_MI</i>	= 44,
·	<i>PASSPWHEARTBEAT_MI</i>	= 45,
·	<i>PASHKHEARTBEAT_MI</i>	= 46,
·	<i>HISHEARTBEAT_MI</i>	= 47,
·	<i>E1_3V3_MI</i>	= 48,
·	<i>E1_1V5_MI</i>	= 49,
·	<i>E10PTMPMON</i>	= 50,
·	<i>E1HVOUTVMON</i>	= 51,
·	<i>E1MCPVMON</i>	= 52,
·	<i>E1GRIDVMON</i>	= 53,
·	<i>E110VAPOSVMON</i>	= 54,
·	<i>E128VPOSVMON</i>	= 55,
·	<i>E1HVGENTHERMON</i>	= 56,
·	<i>E1HVMODTHERMON</i>	= 57,
·	<i>E2_3V3_MI</i>	= 58,
·	<i>E2_1V5_MI</i>	= 59,
·	<i>E20PTMPMON</i>	= 60,
·	<i>E2HVOUTVMON</i>	= 61,

	<ul style="list-style-type: none"> · <i>E2MCPVMON</i> = 62, · <i>E2GRIDVMON</i> = 63, · <i>E210VAPOSVMON</i> = 64, · <i>E228VPOSVMON</i> = 65, · <i>E2HVGENTHERMON</i> = 66, · <i>E2HVMODTHERMON</i> = 67, · <i>HK_I_PLUS_28V_PRI_SCI_MI</i> = 68 , · <i>SPARE_02_MI</i> = 69, · <i>SPARE_03_MI</i> = 70, · <i>SPARE_04_MI</i> = 71, · <i>SPARE_05_MI</i> = 72, · <i>SPARE_06_MI</i> = 73, · <i>SPARE_07_MI</i> = 74, · <i>SPARE_08_MI</i> = 75, · <i>SPARE_09_MI</i> = 76, · <i>SPARE_10_MI</i> = 77, · <i>SPARE_11_MI</i> = 78, · <i>SPARE_12_MI</i> = 79, · <i>SPARE_13_MI</i> = 80, · <i>SPARE_14_MI</i> = 81, · <i>SPARE_15_MI</i> = 82, · <i>SPARE_16_MI</i> = 83, · <i>SPARE_17_MI</i> = 84, · <i>SPARE_18_MI</i> = 85, · <i>SPARE_19_MI</i> = 86, · <i>SPARE_20_MI</i> = 87, · <i>SPARE_21_MI</i> = 88, · <i>SPARE_22_MI</i> = 89, · <i>SPARE_23_MI</i> = 90, · <i>SPARE_24_MI</i> = 91, · <i>SPARE_25_MI</i> = 92, · <i>SPARE_26_MI</i> = 93, · <i>SPARE_27_MI</i> = 94, · <i>SPARE_28_MI</i> = 95, · <i>SPARE_29_MI</i> = 96, · <i>SPARE_30_MI</i> = 97, · <i>SPARE_31_MI</i> = 98, · <i>SPARE_32_MI</i> = 99, · <i>SPARE_33_MI</i> = 100,
parValue	The current value associated to the monitoring
LowTh	This field contains the low threshold associated to the monitoring
HighTh	This field contains the high threshold associated to the monitoring

For what concern PAS:

- EventID could be 0xAA82,0XAA83 or 0xAA84
- monId: the one associate to PAS HK are yellow highlighted and actual limits are described in the "**monitoring**" sheet of the file enclosed

R: R: [swa_reunion_technique] R: End of PAS com...

In case you need more help let me know

Gennaro

-----Messaggio originale-----

Da: BARTHE Alain [mailto:alain.barthe@irap.omp.eu]

Inviato: venerdì 17 aprile 2020 14:28

A: Mele Gennaro

Oggetto: Re: R: [swa_reunion_technique] R: End of PAS commissioning.

Le 17/04/2020 à 14:12, Mele Gennaro a écrit :

> I'll send the DPU UM and indicate how you can check FDIR trip

I'm just execting it's shorter than ICD.... I don't like word documents with my Linux computer..

In any case, many thanks for your help.

> Ciao

> Gen

>

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> Company General Use

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> -----Messaggio originale-----

> Da: BARTHE Alain [mailto:alain.barthe@irap.omp.eu]

> Inviato: venerdì 17 aprile 2020 12:51

> A: Mele Gennaro; Vito Fortunato

> Oggetto: Re: [swa_reunion_technique] R: End of PAS commissioning.

>

> Hi Genaro and Vito,

>

> I would like to join with Andreai to thanks you for your help, very appreciated.

>

> Hope to see you both soon after this strange period...

>

>

> Genaro : do you have an idea of how I could do some processing to help investigate problem in case of FDIR ?

>

> I'm not yet very familiar with FDIR, and it was difficult to find in the ICD how I could process some data to help such debugging...

>

> In the past, in Prague I can remember, you help me with TARS and TECF to compute TC timetags...

>
> If you could indicate me to some part of this document, it could save time....
>
> Thanks in advance
>
>> It is wonderful!
>> And I'm very honored to give a personal contribution to the application SW in charge to manage PAS sensor!
>>
>> Regards
>> Gennaro
>>
>>
>> Company General Use
>>
>>
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>> -----Messaggio originale-----
>> Da: owner-so_swa_team@mssl.ucl.ac.uk
>> [mailto:owner-so_swa_team@mssl.ucl.ac.uk] Per conto di Philippe Louarn
>> Inviato: mercoledì 15 aprile 2020 21:11
>> A: swa Solar orbiter; swa_reunion_technique@irap.omp.eu;
>> tous-peps@irap.omp.eu; Christopher J Owen; Fratter Isabelle; Amsif
>> Kader; Direction IRAP
>> Oggetto: End of PAS commissioning.
>>
>> Dear Chris, dear all
>>
>> It's with great pleasure that, on behalf of PAS team and the whole SWA team, I send 'my' report on PAS commissioning. There will be more technical reports to complete this. These are my views, shared with Andrei. I'm not far to think that there is already science here.
>>
>> Chris, I let you communicate with ESA and other PI's.
>>
>> This commissioning was smooth and almost perfect, even above my expectations... and I can ensure you that I was absolutely confident in the skills and the work done by all the team ! But we all know that things are not under full control.
>>
>> There is still a few details to correct but clearly we have a 'great'
>> PAS onboard Solar Orbiter...
>>
>> We are very happy. This is the result of 10 years of work and nice to
>> have that in these stormy days. Champaign ! (second bottle for us at
>> IRAP...)
>>
>> Thanks to all of you, with special + to Andrei ! The words are what they are, but the

measurements are great !
>>
>> Sorry for emphasis, just a ' happy Philippe' , Head of PAS sensor
>>
>>
>> ;*** for people not familiar with solar wind at IRAP, I will explain later...
>>
>>
>>
> --
>

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> BARTHE Alain  
>  
> IRAP - Institut de Recherche en Astrophysique et Planétologie  
> 9 avenue du Colonel Roche  
> BP 44346  
> 31028 Toulouse Cedex 4  
>  
> Tel : (+33) 05 61 55 83 69  
> Mail :alain.barthe@irap.omp.eu  
>

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BARTHE Alain

IRAP - Institut de Recherche en Astrophysique et Planétologie
9 avenue du Colonel Roche
BP 44346
31028 Toulouse Cedex 4

Tel : (+33) 05 61 55 83 69
Mail :alain.barthe@irap.omp.eu

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—Pièces jointes : —

FDIR_LIMIT.xlsx

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