TITLE:	**DPU ASW Configuration Control - Issues**		
Date:	25/03/2020	**Issue:**	2.0
Reference:	EUCL-OPD-CS-7-001		
Custodian:	Eduardo Medinaceli		

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Change Log

Issue	Date	Page	Description Of Change
1.0	07/01/2019	all	First issue
1.0	29/02/2019		Added ASW Version v.1.2.1
1.0	26/03/2019		Added ASW Version v.1.2.2
2.0	25/03/2020		Added ASW version v1.2.3 ASW version v1.2.4 ASW version v1.2.4.1 ASW version v1.2.5 ASW version v1.2.5.1 ASW version v1.3 ASW version v1.3.1 ASW version v1.3.2 ASW version v1.3.3 ASW version v1.3.4 ASW version v1.3.5
2.0	28/04/2020	Reference Documents	Added RD8

Table of Contents

1. Documents

Applicable documents

AD	Title / Author	Document Reference	Issue	Date
0	EUCLID EID-A	SRE-PA/2010-026	2.0	20/04/2011
1	NI Warm Electronics to Focal Plane ICD	EUCL-OPD-ICD-7-001	4.8	06/04/2018
2	Euclid SIDECAR ASIC Firmware - ICD	MARKURY SCIENTIFIC	3.1	09/03/2017
3	Teledyne: SCS ICD	EUCL-TIS-TN-7007	3.1	12/02/016
4	NI-DPU ASW Interface Control Document	EUCL-OPD-ICD-7-003	3.1	04/05/2020
5	DPU ASW User Manual	EUCL-OPD-MA-7-001	2.0	04/05/2020

Reference documents

RD	Title / Author	Document Reference	Issue	Date
0	NISP Acronyms List	EUCL-IAP-LI-1-001	2.0	04/05/2013
1	Teledyne: SIDECAR ASIC Technical Manual	MAN-0013	1.0	20/07/2009
2	Teledyne: SIDECAR ASIC-kit start-up Manual	MAN-0007	1	31/03/2009
3	Teledyne: HAWAII-H2RG Technical Manual	MAN-0001	3	25/09/2007
4	Teledyne: Teledyne Feedback on Euclid NISP SCS Procurement Specifications			7/06/2011
5	Maxwell: SCS750 flight module	Doc. # 1004741	7.0	
6	Teledyne: SIDECAR ASIC Technical Manual	MAN-0003	3	31/03/2009
7	Data Processing Definition and Justification File	EUCL-OPD-RP-7-003	2.3	06/04/2018
8	SW Product Assurance Management Report	EUCL-OPD-RP-7-15	2.0	28/04/2020

2. Acronyms

See RD 0

3. Configuration Control

This document is a printed version of the configuration control (CC) of the DPU_ASW. For CC the Jira tool was used, with a repository provided by INFN. The tool provides a web interface at the following link: https://issues.infn.it/jira/browse/EUNIDPUASW/?selectedTab=com.atlassian.jira.jira-projects-plugin:summary-panel, to access INFN credential are need. The webpage as well as this document are organized by sections, corresponding to each release of the DPU_ASW versions. Starting in section 4 are listed the differences with respect to the previous release. The first release under CC is DPU-ASW version v0.0 (delta-CDR).

For each CC entry, an identification code is automatically generated, and a title is assigned e.g. [EUNIDPUASW-72] ICU counter test. Here the entry title (listed in the table of contents) is a hyperlink to the webpage of the corresponding entry in at Jira on-line documentation. Each entry is classified according to its type: New Feature or Bug, and a priority is assigned: Trivial, Minor or Major. The status is specified in the field Resolution: all Done. In the on-line version of the documentation, entries can be sort according any of these criteria; and ancillary attached files quoted in the entries can be downloaded from the on-line version of the document (here are included only plots and pictures).

DPU-ASW versioning is fully documented in RD-8.

4. Affect version DPU_ASW_v0.0, fixed version DPU_ASW_v1.0 change log:

[EUNIDPUASW-72] ICU counter test Created: 17/Dec/18 Updated: 29/Dec/18 Resolved: 17/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	1553
Affects Version/s:	DPU_ASW_v0.0
Fix Version/s:	DPU_ASW_v1.0

Type:	New Feature	**Priority:**	Trivial
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

in case of failure it is not communicated as error, neither executed

Comments

Comment by Eduardo Medinaceli Villegas [29/Dec/18]

```
uint16_t checkICUcounter(uint16_t icu_counter) /* use this, used in 1553 interface */
{
uint16_t result;
if (lastICUcounter_Global != icu_counter)
{ lastICUcounter_Global = icu_counter; result = res_ok; }
else
{ /* no "error" reported */ rejCMDCounter_Global++; result = res_notok; }
```

```
return result;
}
```

[EUNIDPUASW-79] serial access to DCU and SCE Created: 17/Dec/18 Updated: 17/Dec/18 Resolved: 17/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands, System
Affects Version/s:	DPU_ASW_v0.0
Fix Version/s:	DPU_ASW_v1.0

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

usage of a single semaphore for DCUs and SCEs

Comments

Comment by Eduardo Medinaceli Villegas [17/Dec/18]

using for both type of devices: SEM_ID semLockDcu;

[EUNIDPUASW-78] DCUTHSET hardware test Created: 17/Dec/18 Updated: 17/Dec/18 Resolved: 17/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands

Affects Version/s:	DPU_ASW_v0.0
Fix Version/s:	DPU_ASW_v1.0

Type:	Bug	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

in DCUTHSET wrong hardware test (TestHardwareAvailable) changed with TestDCUAvailable

[EUNIDPUASW-77] retrieve DCU telemetry when LCL 28V is trigger

Created: 17/Dec/18 Updated: 17/Dec/18 Resolved: 17/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v0.0
Fix Version/s:	DPU_ASW_v1.0

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

in order to get all the necessary info, the complete DCU telemetry has to be collected during these cycle, even if SCE all DCU will be turned off

[EUNIDPUASW-74] transition to SAFE STATE macro Created: 17/Dec/18 Updated: 17/Dec/18 Resolved: 17/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v0.0
Fix Version/s:	DPU_ASW_v1.0

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

added a task delay of 0.5s among commands CPUDABT e TurnOffFocalPlane required by DPU-EM unit

[EUNIDPUASW-71] telemetry tables initialization at ASW start-up Created: 17/Dec/18 Updated: 17/Dec/18 Resolved: 17/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	1553
Affects Version/s:	DPU_ASW_v0.0
Fix Version/s:	DPU_ASW_v1.0

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

added function void InitTelemetry1553Buff(void)
called by DPU_1553 function ASW1553.c::ASW1553(void) at MILBUS initialization

[EUNIDPUASW-69] command ID written in command verification telemetry

Created: 17/Dec/18 Updated: 17/Dec/18 Resolved: 17/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands, telemetry
Affects Version/s:	DPU_ASW_v0.0
Fix Version/s:	DPU_ASW_v1.0

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

using cmd.ID only, was complete word (cmd.ID + device)

Comments

Comment by Eduardo Medinaceli Villegas [17/Dec/18]

using recv_data[SubAddr][0]>>8 in function calls:
SendCMDVerTab2(ICU_REQUEST_COUNTER_Global, error, ver, recv_data[SubAddr][0]>>8, obt1, obt2, obt3);

[EUNIDPUASW-51] prototypes changed for all exposure types Created: 07/Dec/18 Updated: 17/Dec/18 Resolved: 07/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v0.0
Fix Version/s:	DPU_ASW_v1.0

Type:	New Feature	**Priority:**	Trivial
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 hour		

Description

SCE_exp, SCE_KTCEXP and SCE_IPCEXP function prototypes changed with SCEEXP, SCEKtcExp and SCEIPCExp

5. Affect version DPU_ASW_v1.0, fixed version DPU_ASW_v1.1 change log:

[EUNIDPUASW-25] configuration tables at SA = 18 Created: 09/Nov/18 Updated: 03/Jan/19 Resolved: 09/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	1553, Commands
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Description

configuration tables behaves as commands, therefore arrives to SA = 18 and the same test on the ICU_COUNTER is performed

Comments

Comment by Eduardo Medinaceli Villegas [28/Dec/18]

In file ASW1553.c the following initialization of SA 19, 20, and 21 where removed. Leaved only for SA=18

```
/* commands SA=18*/
if ((ms1553_rt_tr_data(RT_RX, sa_cmd, 0, (uword *)NULL, &gstatrx, FALSE, 0)) != RT_NO_ERROR)
{ ERRORLOG(BUS1553_EENRXSADCMD); }
```

Comment by Eduardo Medinaceli Villegas [28/Dec/18]

legalization of SA 19, 20, and 21 were also removed, leaving only the one for SA=18

```
/* legalize commands */
if ((ms1553_getSALegal(BUS_BRC_RCV, &ill_mask1)) != RT_NO_ERROR)
{ ERRORLOG(BUS1553_ELEGSACOMMD); }
```

```
ill_mask1 &= ~(1 << sa_cmd);
if ((ms1553_setSALegal(BUS_BRC_RCV, ill_mask1)) != RT_NO_ERROR)
{ ERRORLOG(BUS1553_ELEGSACOMMD); }
```

Comment by Eduardo Medinaceli Villegas [28/Dec/18]

In Command_Handler.c added
else if(devType > CMDID_SCE && devType <= CMDID_CONF) /* CONFIG TABLES */
{ /* each table has his own semaphore */ CONF_TABS_Handler(msgBuf.pars[0], devType); }
a handler for configuration tables

Comment by Eduardo Medinaceli Villegas [28/Dec/18]

configuration tables handler:

```
int16_t CONF_TABS_Handler(uint32_t SubAddr, uint16_t cmd_ID)
{
STATUS res;
uint16_t ver;
uint16_t error;
uint16_t obt1;
uint16_t obt2;
uint16_t obt3;
obt1 = 0U;
obt2 = 0U;
obt3 = 0U;
switch (cmd_ID)
{
case 150: /* DITHER_TAB */
dpu_MonitorTabGlobal.CMDBUSYFLAG = 1U;
getDITHER();
break;
case 151: /* SYS_CONFIG_TAB */
dpu_MonitorTabGlobal.CMDBUSYFLAG = 1U;
getSYSCONFIG();
break;
case 152: /* PROC_PARAM_TAB */
dpu_MonitorTabGlobal.CMDBUSYFLAG = 1U;
getPROCPARAM();
break;
default:
res = TimeTagLOBT(&obt1, &obt2, &obt3);
if (res != OK)
{ ERRORLOG(errno); ERRORLOG(OBTASW_EACC); ASWFullErrorLog(errno, IDtask2EntryID(taskIdSelf()),
taskIdSelf(), ASW_FUNC_TimeTagLOBT, ASW_ETIMEHAND, crit_low); }
rejCMDCounter_Global++;
error = param_flag;
ver = res_notok;
SendCMDVerTab2(ICU_REQUEST_COUNTER_Global, error, ver,
recv_data[SubAddr][0]>>8, obt1, obt2, obt3);
break;
```

```
}
dpu_MonitorTabGlobal.CMDBUSYFLAG = 0U;
return 0;
}
```

Comment by Eduardo Medinaceli Villegas [03/Jan/19]

In file MChandler.c: incoming directives are retrieved only for SA sa_cmd =18
Old implementation:

```
else if (currentMCdataword_Global == frame_id[RTid_Global - 1][MC_GETCMD_TABS])
{
ms1553_getDataTrans(&recv_data[sa_cmd][0], LENGTHCMD, sa_cmd, &recv_wrd);
ms1553_getDataTrans(&recv_data[sa_prc][0], LENGTHDITH, sa_prc, &recv_wrd);
ms1553_getDataTrans(&recv_data[sa_sys][0], LENGTHDITH, sa_sys, &recv_wrd);
ms1553_getDataTrans(&recv_data[sa_dit][0], LENGTHDITH, sa_dit, &recv_wrd);
}
```

New implementation:

```
else if (currentMCdataword_Global == frame_id[RTid_Global - 1][MC_GETCMD_TABS])
{
  ms1553_getDataTrans(&recv_data[sa_cmd][0], LENGTHCMD, sa_cmd, &recv_wrd);
}
```

Comment by Eduardo Medinaceli Villegas [03/Jan/19]

Then, only function getCommand is called, functions getDITHER, getPROCPARAM and getSYSCONFIG were removed:

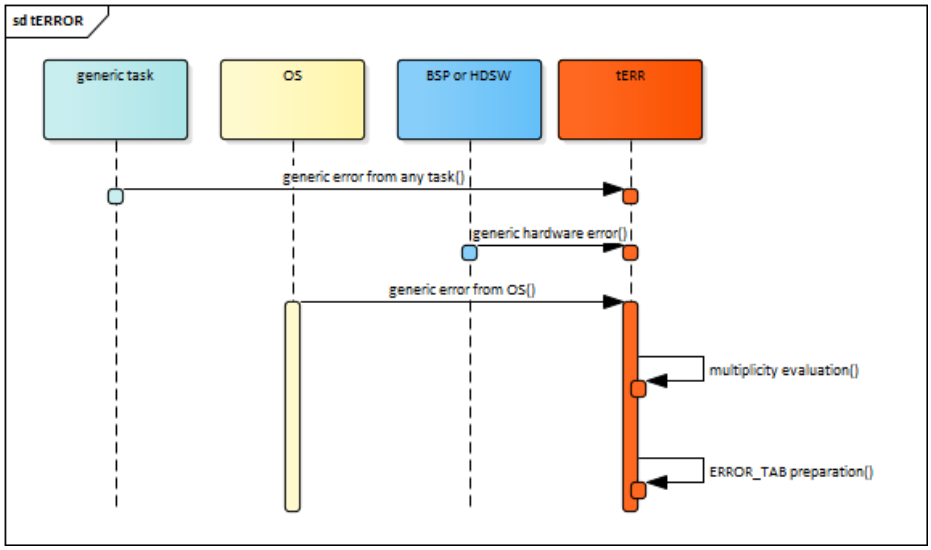
```
else if (currentMCdataword_Global == frame_id[RTid_Global - 1][MC_GETTABS1])
{
  getCommand(recv_data[sa_cmd][1]);
 }
```

[EUNIDPUASW-57] new error handling strategy Created: 11/Dec/18 Updated: 03/Jan/19

Status:	In Progress
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Unresolved	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Attachments:



Description

Old error strategy was improved taken into account several new features of the error handling. All the new features are described in document EUCL-OPD-TN-7-010 DPU ASW error handling strategy

Comments

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

A new package was included (replacing the old one):
task_ret_t ASWErrorHandlingTask(void)
a series of internal function were added to handle the error the new logic:
static void SetLocalError(uint16_t sub, uint32_t errnotag, uint32_t aswerr, uint16_t cmdid, uint16_t critic, uint16_t task);
static void InitErrorQueues(void);
static void FillErrorTLMTable(complessive_error_t errorarray, uint16_t errors1553);
static void EraseError(uint16_t critic, uint16_t errorentry);
global functions were also added to be used at error signaling in the ASW:
void ASWErrnoLog(int32_t err, uint16_t dev, int32_t IDtask); /* low level error */
void ASWErrorCmdLog(char_t **task_name, uint16_t cmd, int32_t errasw, uint16_t crit); /** task catching exception */
void ASWFullErrorLog(int32_t err, uint16_t dev, int32_t IDtask, uint16_t cmd, int32_t errasw, uint16_t crit); /* for tCMD */
void InitErrorTab(void);
uint16_t IDtask2EntryID(int32_t IDtask);

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

a change in the interface was implemented, the new error table has the following structure
struct ERROR_TAB
{ uint16_t ID; uint16_t ASW_Counter; uint16_t error_counter; uint16_t obt1; uint16_t obt2; uint16_t obt3; uint16_t errno_tag; /* driver or vxworks error code */ uint16_t subsystem; /* hardware devID (sce/dcu/dpu) or taskID */ uint16_t cmdID; /* command ID or software functionID */ uint16_t asw_err; /* generic aswerror */ criticity_t criticity; uint16_t multiplicity; }
which is translated in a 1553 table: ERROR_TAB

Comment by Eduardo Medinaceli Villegas [03/Jan/19]

for all tasks the taskSpawn procedure was done using DEFINES for the task name, and the task ID was saved in the global array task_id considering typedef enum task_seq
for example:
OLD:
tid_MC_Global = taskSpawn("tMC", TASK_INT_PRIORITY, VX_FP_TASK, 5000,
(FUNCPTR)MChandler, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0);
NEW:
tid_MC_Global = taskSpawn(TASKMC, TASK_INT_PRIORITY, VX_FP_TASK, 5000,
(FUNCPTR)MChandler, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0);
if taskSpawn is successfully executed then:
task_id[TASK_MC] = tid_MC_Global;
enum task_seq

{ TASK_ISRH = 0, TASK_SLCT = 1, TASK_MC = 2, TASK_CMD = 3, TASK_WD = 4, TASK_ERR = 5, TASK_PROC = 6, TASK_SCAN = 7, TASK_CPUL = 8 }

[EUNIDPUASW-33] counter reset Created: 16/Nov/18 Updated: 29/Dec/18 Resolved: 19/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	1553
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 week		

Description

counter reset is not longer performed by a dedicated command. ICU requested to uniform this command with the one implemented by the BootSW.
To do this, CPU_RBT was removed and the counter reset is performed directly by the 1553 interface. Because the new cmdID is not coherent with the DPU-ASW convention for this parameter.

Comments

Comment by Eduardo Medinaceli Villegas [16/Nov/18]

A test on the new ID is performed by the 1553 without passing through the tCMD
A protection flag was added to disable the aplication of the reset each second, because there is no any kind of test for this directive.

```
if( recv_data[sa_cmd][0] == 903U ) /* using same reset command ID as boot software */
{
if( reset_flag_Global == 0 )
{ ICU_REQUEST_COUNTER_Global = 0U; lastICUcounter_Global = 0U; ASW_Counter_Global = 0U;
reset_flag_Global = 1U; }
}
```

Comment by Eduardo Medinaceli Villegas [16/Nov/18]

The protection flag do not reduce the ICU need of counter reset in case of a double bootstrap. Because at the first reset all counters are reset, and at the second reset which is not applied in any case the ICU_COUNTER has already being clear. Therefore commanding can re start at any moment.
Comment by Eduardo Medinaceli Villegas [16/Nov/18]
The reset performs the ICU_COUNTER and ASW_COUNTER resets to zero
Comment by Eduardo Medinaceli Villegas [16/Nov/18]
CPU_RST dead code was removed

[EUNIDPUASW-80] memory leak in scientific telemetry

Created: 17/Dec/18 Updated: 17/Dec/18 Resolved: 17/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing, telemetry
Affects Version/s:	DPU_ASW_v0.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

fixed 32bit mem leak in scientific telemetry (finalDataPack.cmpErrors), found during Static Analysis/Unit tests

Comments

Comment by Eduardo Medinaceli Villegas [17/Dec/18]

memcopy jumping after DP_ERR_TAB_SIZE
tmpError = 15(MAX GROUPS added) x 1024

[EUNIDPUASW-76] wrong flag for the SpW link in telemetry Created: 17/Dec/18 Updated: 17/Dec/18 Resolved: 17/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	telemetry
Affects Version/s:	DPU_ASW_v0.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

when switched from nominal to redundant and vice versa

Comments

Comment by Eduardo Medinaceli Villegas [17/Dec/18]

changed:

```
if (DRBSPWSTATUS(drb_spw1, &dpu_StatusTabGlobal.DRBSPW1STAT) != OK)
{
  ERRORLOG(DRBASW_EACC);
}
if (DRBSPWSTATUS(drb_spw2, &dpu_StatusTabGlobal.DRBSPW2STAT) != OK)
```

```
{
  ERRORLOG(DRBASW_EACC);
}
```

[EUNIDPUASW-75] memory load/dump

Created: 17/Dec/18 Updated: 17/Dec/18 Resolved: 17/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands, telemetry
Affects Version/s:	DPU_ASW_v0.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

1553 buffer size array underestimated by one, changed in recv_data[32][32]
only first sub-address was used in the DUMP of the configuration tables (DITHER_CONFIG, and PROC_PARAM)

[EUNIDPUASW-73] raw lines to be send in scientific telemetry Created: 17/Dec/18 Updated: 17/Dec/18 Resolved: 17/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing, telemetry
Affects Version/s:	DPU_ASW_v0.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Carlotta Bonoli
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

rawDataLinesSizeGroupMMU were hardcoded to 5; now is customized through configuration table

Comments

Comment by Eduardo Medinaceli Villegas [17/Dec/18]

added in DPU_Process function Process.c::void SetRawDataLinesSize(void)
/*
Compute data and raw lines size in bytes per group for current exposure (same for each detector) as delivered to the MMU: they depend
on the value given in the procParam table.
*/
rawDataLinesSizeGroupMMU = (uint32_t)DP_RAW_LINES_SIZE * (uint32_t)procParamTabLocal.Raw_Lines * (uint32_t)dithConfTabLocal.Exposures[nExp].Frames;
/* Compute data and raw lines in bytes for current exposure (same for each detector, see above) */
rawDataLinesSizeMMU = rawDataLinesSizeGroupMMU * (uint32_t)dithConfTabLocal.Exposures[nExp].Groups;

[EUNIDPUASW-70] acceptance status updated Created: 17/Dec/18 Updated: 17/Dec/18 Resolved: 17/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v0.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Trivial
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

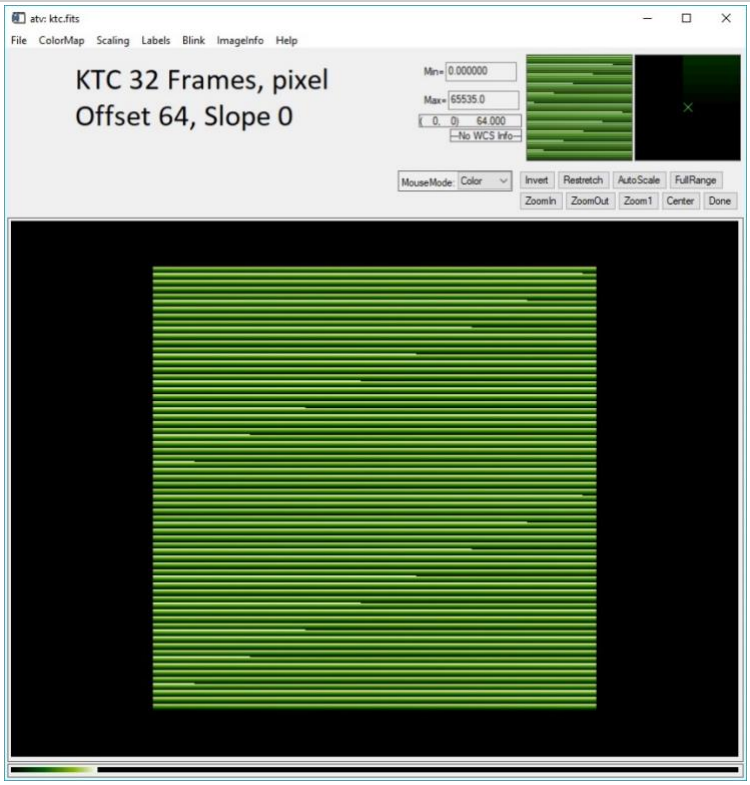
Description

FDIR enable/disable through DRB_SHSK command, included ASW_STATUS_PARKED
DCU_THSET, included ASW_STATUS_PARKED
uniformed statuses for DCU/SCE_SHSK commands
(ASW_STATUS_SCE_INIT | ASW_STATUS_MANUAL |
ASW_STATUS_OBS_WAIT | ASW_STATUS_OBS_PROC
SCE_EEF_STATUS_IDLE SCE_EEF_STATUS_EXPOSING)
automatic set-up of internal status, added an exception for command
CPUDABT when executed in MANUAL status
at ASW_STATUS_CPU_INIT bug inserted during Static Analysis (logic
and bit-wise and operator exchanged)
initial status of SCE after boot was SCE_EXP, corrected to SCE_IDLE

[EUNIDPUASW-46] KTC_exp Created: 07/Dec/18 Updated: 11/Dec/18 Resolved: 11/Dec/18	
Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Documentation
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 week		

Attachments:



Ktc 32.jpg

Description

added consistency tests in the command

Comments

Comment by Eduardo Medinaceli Villegas [07/Dec/18]

inside the KTC loops added checks on paramaters:
command register SCE_CMDREG; to check that the command was accepted
exposure status, register EXP_SCE_STATUS; to check if the exposure has finished
if both are OK, after a series of tests cknum, then continue with the next ktc-cycle (next exposure)
cknum = 64U; // Number of verifications for exposure termination, hardcoded
the time gap between exposures (ktc-cycles) is 100 ms

```
for (ii = 0; ii < cknum; ii++)
{
taskDelay(sysClkRateGet() / 10); // Wait (200/10)*5 = 100 mSec
ReadSCE(dcu_id, SCE_CMDREG, 1);
temp_data1 = *aux_pnt; // Get current SCE CMDREG contents
ReadSCE(dcu_id, EXP_SCE_STATUS, 1);
temp_data2 = *aux_pnt;
temp_data2 = temp_data2 & ST_MSK;
if ( (temp_data1 == 0) && (temp_data2 == 0) )
{ break; // The current KTC exp is terminated go ahead with next ktc interaction }
```

}
the exposure is done with fixed parameters (as in the previous implementation)
static const int32_t ktc_grp_const = 1; // For KTCEXP only one group per exposure is foreseen
static const int32_t ktc_frm_const = 1; // For KTCEXP only one frame per exposure/group is foreseen
static const int32_t ktc_drp2_const = 0x0; //For KTCEXP no drop2 are foreseen, if a single group (this case) is not useful
static const int32_t ktc_drp3_const = 0x0; // For KTCEXP no drop3 are foreseen

Comment by Eduardo Medinaceli Villegas [07/Dec/18]

changed in the documentation foreseen, and also in operations:
for the KTC_EXP caliration, in the DITHER_CONFIG_TAB the number of frames should be equal to the number of KTC-cycles. Otherwise there will be an error in the enqueue/dequeue phase because there the total number of raw lines (for each exposure=ktc-cycle) have to be considered

[EUNIDPUASW-56] bugfixing sizechi2 = 0 for RAW and LINEAR_CALIB modes and in Fawler

Created: 11/Dec/18 Updated: 11/Dec/18 Resolved: 11/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing, telemetry
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 week		

Description

in RAW and LINEAR_CALIB modes the chi2 frame should not be included in the scientific data-pack

Comments

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

added chi2size test in:
/* If required compress chi2 */
if (procParamTabLocal.Cmp_Flag == ASW_TRUE && (finalDataPack.uncHeader.cmpChi2Size != 0))

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

/* Set engineering data size (if any) */
if (insMode == ENG_RAW || insMode == CALIB_LIN)
{ finalDataPack.uncHeader.engDataSize = dithConfTabLocal.Exposures[nExp].Groups * TSIZE_MAX * sizeof(uint16_t); }

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

finalDataPack.uncHeader.cmpChi2Size = 0 in CALIB_LIN and fowler
if (dithConfTabLocal.Exposures[nExp].Groups <= 2) /* Fowler or pass through */
{ finalDataPack.uncHeader.cmpChi2Size = 0; /* No chi2 data to be sent */ }

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

Fixed bug with CALIB_LIN mode: chi2 was not taken int account. Note that in CALIB_LIN mode no processing is done and no chi2 is computed

```
/* If required, compress processed data. Of course skip if processing not done as in linear calibration mode */
if (insMode == CALIB_LIN)
{ finalDataPack.uncHeader.cmpDataSize = 0; finalDataPack.uncHeader.cmpChi2Size = 0; }
```

[EUNIDPUASW-55] upgrades to processing algorithm: new quality factor implemented, defensive programming

Created: 11/Dec/18 Updated: 11/Dec/18 Resolved: 11/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 week		

Description

The formula for the determination of the Quality Factor has been changed according to equation (19) of Kubik et al. 2016, but dropping the gain factor in the same equation

Comments

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

added
chi2Temp = abs(chi2Temp)

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

added:
if (alfa != -1.)
{ beta = sigma / (alfa + 1.0F) ; }

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

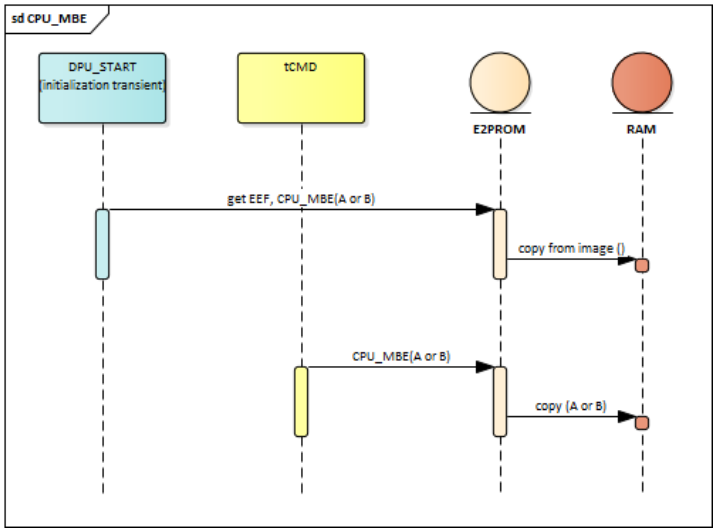
```
slope of the ramp and QF evaluation updated
fact = 0.0F;
for (j = 0; j < nGroupsMin1; j++)
{ diff[j] = ramp[j + 1] - ramp[j]; /* Take advantage of the loop for chi2 computation */ fact += (diff[j] + beta) *
(diff[j] + beta); }
fact /= (float32_t)nGroupsMin1;
/* nGroupsMin1 cannot be 0 because we are in the if section where nGroups > 2 */
if (fact >= 0.0F)
{ fact = (float32_t)sqrt((float64_t)fact) - beta; }
else
{ ERRORLOG(PRC_ESQPAR); }

/* compute the slope of the fit */
if (alfa != -1.) /* Defensive: to avoid dividing by zero */
{ slope = gamma * (float32_t) ( sqrt( 1.+ ((4.0F * (fact + beta) * (fact + beta)) / ((alfa + 1.) * (alfa + 1.))) ) -1. ) -
beta; }
else
{ ERRORLOG(PRC_ESQPAR); }
/* Compute chi square */
if (alfa != -1.) /* Defensive: to avoid dividing by zero */
{ chi2Temp = ( 2.0F / (alfa + 1.0F) ) * ((float32_t)nGroupsMin1 * fact - (ramp[nGroupsMin1] - ramp[0])); }
```

[EUNIDPUASW-53] CPUMBE in DPU Initialization Created: 07/Dec/18 Updated: 07/Dec/18 Resolved: 07/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 week		

Attachments:



CPU_MBE.png

Description

The ASW when initialized, has a copy of the EEF in RAM.
In order to have the exactly same copy written in E2PROM also in RAM, the CPU_MBE command is executed by the ASW in the DPU_Init phase.

Comments

Comment by Eduardo Medinaceli Villegas [07/Dec/18]

added to Supervisor.c in DPU_Init()

```
/* copy EEF from E2PROM (N or R) to RAM (to prevent misalignment), if fails keep RAM version */
res = CPUMBE(EEF_SEG_TYPEA);
if (res != OK)
{
ERRORLOG(CPUASW_ESEGTYPE);
res = CPUMBE(EEF_SEG_TYPEB);
if(res != OK)
{ ERRORLOG(CPUASW_ESEGTYPE); #ifdef ASW_DEBUG printf("CPUMBE: using EEF_boot_tab from RAM \n");
#endif }
else
{ #ifdef ASW_DEBUG printf("CPUMBE: Copy EEF_boot_tab from EEF_SEG_TYPE = (CPUMBE) %d \n",
EEF_SEG_TYPEB); #endif }
}
else
{ #ifdef ASW_DEBUG printf("CPUMBE: Copy EEF_boot_tab from EEF_SEG_TYPE = (CPUMBE) %d \n",
EEF_SEG_TYPEA); #endif }
```

[EUNIDPUASW-52] added reset of the transmission flag when end of exposure watch-dog is trigger Created: 07/Dec/18 Updated: 07/Dec/18 Resolved: 07/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

transmission flag was not reset when the WD_EOE was triggered

Comments

Comment by Eduardo Medinaceli Villegas [07/Dec/18]

/* Transmission bit set: finished transmission; in order to close the SpW file in the MMU with the received data */
dpu_MonitorTabGlobal.DPUTOMMU &= 0xFF00U;
added to WdExpHandler when is triggered

[EUNIDPUASW-50] changed SetChi2Mode switch (insSubMode) Created: 07/Dec/18 Updated: 07/Dec/18 Resolved: 07/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Trivial
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Description

case MODE_VOID: chi2Mode = CHI2SPECTRO; chi2Size = TSIZE_MAX; (spectro)

Comments

Comment by Eduardo Medinaceli Villegas [07/Dec/18]

```
static void
SetChi2Mode(void)
{
/* Set chi2 array according to exposure sub-type */
switch (insSubMode)
{ /* Spectro cases */ case MODE_VOID: case SPECTRO_GRISM_R_0: case SPECTRO_GRISM_R_270: case
SPECTRO_GRISM_R_180: case SPECTRO_GRISM_B_0: chi2Mode = CHI2SPECTRO; chi2Size = TSIZE_MAX;
break; /* Photo cases */ case PHOTO_FILTER_Y: case PHOTO_FILTER_J: case PHOTO_FILTER_H: chi2Mode =
CHI2PHOTO; chi2Size = TSIZE_MAX / 8U; break; }
}
```

[EUNIDPUASW-49] changed types in tag_ins_mode and tag_ins_sub_mode Created: 07/Dec/18 Updated: 07/Dec/18 Resolved: 07/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Trivial
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Description

types changed, for the tag_ins_sub_mode to be coherent with nominal filter and grism naming convention

Comments

Comment by Eduardo Medinaceli Villegas [07/Dec/18]

typedef enum tag_ins_mode
{ SCIENCE = 0U, ENG_RAW, // engsize det2send no raw lines ENG_DEBUG, // engsize (threshold) all no raw lines COMP_VERIFICATION, // chi2 spectro // engsize det2send no raw lines NUM_SIM_SCE_PIX, // chi2 spectro no raw lines NUM_SIM_SCE_FRM, // chi2 spectro no raw lines CALIB_LIN, // no processing // engsize det2send no raw lines CALIB_IPC, // chi2 spectro no raw lines CALIB_KTC_BIAS, // chi2 spectro no raw lines DCU_SIMUL_IMAGE, // chi2 spectro no raw lines ENG_DARK_SPECTRO, ENG_DARK_PHOTO }
ins_mode_t;
/* Instrument sub modes */
typedef enum tag_ins_sub_mode
{ MODE_VOID = 0U, SPECTRO_GRISM_R_0, // science SPECTRO_GRISM_R_270, // science SPECTRO_GRISM_R_180, // science SPECTRO_GRISM_B_0, // science PHOTO_FILTER_Y, // science PHOTO_FILTER_J, // science PHOTO_FILTER_H // science }
ins_sub_mode_t;

[EUNIDPUASW-48] serialization of DCU-SCE access, in TurnOffFocalPlane function

Created: 07/Dec/18 Updated: 07/Dec/18 Resolved: 07/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Description

TurnOffFocalPlane is a called by the transition to SAFE status; which, when commanded, is a CPU command that was not protected with the DCU-SCE semaphore.
The semaphore was included to guarranty the serial access

Comments

Comment by Eduardo Medinaceli Villegas [07/Dec/18]

semaphore semTake(semLockDcu, WAIT_FOREVER); added in the DCU power-off cycle

[EUNIDPUASW-47] CPU_RST command removed Created: 07/Dec/18 Updated: 07/Dec/18 Resolved: 07/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Trivial
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Description

death code

[EUNIDPUASW-45] limitation of raw mode (engineering mode), enhanced to groups number > 13 Created: 07/Dec/18 Updated: 07/Dec/18 Resolved: 07/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		

Remaining Estimate:	Not Specified
Time Spent:	Not Specified
Original Estimate:	Not Specified

Description

during Raw Mode acquisition, the data produced could be greather than 128 MByte (greather than 13 groups). Therefore transmission to MMU has to be done by steps

Comments

Comment by Eduardo Medinaceli Villegas [07/Dec/18]

changed function WriteDataRaw in Process package.
In the function, inside the groups loop, added the test
if(sumBytes > MAXDRBSPWSIZE) where MAXDRBSPWSIZE = 127MByte which is a conservative choice (<128MByte)
then a WriteToMMU and a memcpyDMA are performed the number of times needed.

Comment by Eduardo Medinaceli Villegas [07/Dec/18]

function WriteDataRaw is used in engineering modes RAW and CALIB_LIN
Linear calibration CALIB_LIN mode is a raw mode without processing
if (insMode == ENG_RAW || insMode == CALIB_LIN)
{ WriteDataRaw(data2Pack, dithConfTabLocal.Exposures[nExp].Groups); }

[EUNIDPUASW-44] uniform codes of command verification for commanding tables

Created: 06/Dec/18 Updated: 06/Dec/18 Resolved: 06/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	1553
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Trivial
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		

Time Spent:	Not Specified
Original Estimate:	Not Specified

Description

uniform DITH, PROC and SYS_CONFIG with new id-codes in CDM_VER_TAB

Comments

Comment by Eduardo Medinaceli Villegas [06/Dec/18]

using recv_data[sa_cmd][0]>>8 in SendCMDVerTab2(ICU_REQUEST_COUNTER_Global, error, ver, recv_data[sa_cmd][0]>>8, obt1, obt2, obt3); for: PROC_PARAM_TAB and SYS_CONFIG_TAB (DITH_CONFIG_TAB was OK)

[EUNIDPUASW-43] scientific data-pack digital telemetry

Created: 06/Dec/18 Updated: 06/Dec/18 Resolved: 06/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Carlotta Bonoli
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 week		

Description

number of raw lines (param 43)
deleted last synchr time (param 48 to 49)
deleted last synchr time (param 47 Delay Time before synchr. = 500 ms harcoded

position of raw lines (parameters 58 to 62) : all were set to zero, corrected
history parameter index (parameter 63)

Comments

Comment by Eduardo Medinaceli Villegas [06/Dec/18]

```
finalDataPack.uncHeader.telemetryDigital[47] = 500U;
finalDataPack.uncHeader.telemetryDigital[50] = dithConfTabGlobal.Exposures[nExp].Frames;
finalDataPack.uncHeader.telemetryDigital[58] = macc_Global.raw_row.raw_row_idx_1;
finalDataPack.uncHeader.telemetryDigital[59] = macc_Global.raw_row.raw_row_idx_2;
finalDataPack.uncHeader.telemetryDigital[60] = macc_Global.raw_row.raw_row_idx_3;
finalDataPack.uncHeader.telemetryDigital[61] = macc_Global.raw_row.raw_row_idx_4;
finalDataPack.uncHeader.telemetryDigital[62] = macc_Global.raw_row.raw_row_idx_5;
finalDataPack.uncHeader.telemetryDigital[63] = macc_Global.TLM_history_sel;
```

[EUNIDPUASW-36] DBB FPGA Temperature FDIR

Created: 19/Nov/18 Updated: 05/Dec/18 Resolved: 05/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

added FDIR procedure for the DBB's FPGA temperature in DRB_hsk

Comments

Comment by Eduardo Medinaceli Villegas [19/Nov/18]

```
alrm = TempLimCheck(curTemp, dbbHTThTemp, dbbLTThTemp, limCnt, &dbbHTC, &dbbLTC);
if (alrm == ALARMTEMP) /* Signal DBB exceeded temperature */
{
/* Signal temperature problem on DBB */
ERRORLOG(ALARM_DBBTEMP);
if(dbbFDIR_FPGATemp == ASW_TRUE)
{ Set_ASW_STATUS_CPU_PARKED(); /* to prevent generation of new data */ }
}
```

The FDIR if enable and triggered put the focal plane in PARKED

Comment by Eduardo Medinaceli Villegas [05/Dec/18]

tested at INFN using new threshold for DBB using SYS_CONFIG_TAB

[EUNIDPUASW-42] sizechi2 in processing

Created: 05/Dec/18 Updated: 05/Dec/18 Resolved: 05/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 week		

Description

sizechi2 = 0 for Fowler or pass trhough, LINEAR_CALIB engineering size was not set, bug in DEBUG_MODE (loop on frames)

Comments

Comment by Eduardo Medinaceli Villegas [05/Dec/18]

Fawler and Passthrough
if (dithConfTabLocal.Exposures[nExp].Groups <= 2)
{ finalDataPack.uncHeader.cmpChi2Size = 0; // No chi2 data to be sent isFowler = ASW_TRUE; }

Comment by Eduardo Medinaceli Villegas [05/Dec/18]

LINEAR_CALIB
if (insMode == CALIB_LIN)
{ finalDataPack.uncHeader.cmpDataSize = 0; // No processed data
finalDataPack.uncHeader.cmpChi2Size = 0; // set also chi2size to zero }

[EUNIDPUASW-41] retrieve HSK of DCU when DCU LCL 28V (SCE thresholds) has been triggered

Created: 05/Dec/18 Updated: 05/Dec/18 Resolved: 05/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	telemetry
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

In function DCU_hsk when FDIR 28V is active and triggered, all DCU registers are retrieved before performing the FDIR
if (dcuFDIR_28V & (0x0001 << dcu_id)) /* POWER OFF DCU dcu_id */
{
error_dcu_off = 1; }

```
  ...
  if (error_dcu_off == 1)
 {
     DCUPowerOff(dcu_id);
     SetDCUPowerOFF(dcu_id);
     SetSCEBootOFF(dcu_id);
  }
...
}
```

[EUNIDPUASW-40] CPUMBE Created: 04/Dec/18 Updated: 04/Dec/18 Resolved: 04/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

CPUMBE read EEF recursively in E2PROM 1st and last pages and all segments. New prototype: CPUMBE(uint16_t firmwareIm)

Comments

Comment by Eduardo Medinaceli Villegas [04/Dec/18]

Changed to loop over first and last pages, by checking crc16, to look for segment type. Then loops over all the segments until finds the requested segment type, checking crc32. If it not found, uses the copy in RAM.
pRomHeader = (EEPROM_HEADER_data *)HW_EEPROM_START; // first page
if crc16 test fails, then

```
pRomHeader = (EEPROM_HEADER_data *) TC_EEPROM_BACKUP_TABLE_ADDR;
// backup page
then inside a loop of all segments j,
seg_type = pRomHeader->segmentInfo[j].segmentType; // get segment type
if crc32 test is ok, copy to RAM
p = (uint16_t *)EEF_tab; // Get pointer to short
p[i] = pSourceAddr[i];
```

[EUNIDPUASW-39] enable sync on DRB slave Created: 19/Nov/18 Updated: 19/Nov/18

Status:	In Progress
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Unresolved	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

DRB sync ioctl missing in Slave. This action was not documented on OHB driver documentation. And was added before after OHB suggestion

Comments

Comment by Eduardo Medinaceli Villegas [19/Nov/18]

DONE at DPU_Start::Supervisor at initialization phase of the ASW
added:

```
/* enable sync in DRBs */
res = ioctl(drb_sync, IOC_DRB_ENABLE_SYNCH, 0);
in DPU_Init()
```

[EUNIDPUASW-38] power on cycle

Created: 19/Nov/18 Updated: 19/Nov/18 Resolved: 19/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Description

due to an OHB NCR seen as a HW criticity seen at TV test: concerning DCU power-on cycle, function DCUPowerOn5V is suggested to perform a Turn-off cycle before.

Comments

Comment by Eduardo Medinaceli Villegas [19/Nov/18]

in function DCUPowerOn5V added:
/* needed due to OHB requirement to asses nominal condition after thermal and vacuum tests */
res = ioctl(asw_dcu[dcu_id], IOC_DCU_IF_POWER_ON, FALSE);
before:
/* Turn ON 5V supply on DCU_ID FPGA */
res = ioctl(asw_dcu[dcu_id], IOC_DCU_IF_POWER_ON, TRUE);

[EUNIDPUASW-37] added FDIR to DCU 5V Created: 19/Nov/18 Updated: 19/Nov/18 Resolved: 19/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

added FDIR to 5V line of the DCU in DRB_hsk

Comments

Comment by Eduardo Medinaceli Villegas [19/Nov/18]

```
if( dcuFDIR_5V & (0x0001 << i) ) /** TODO test */
{
res = ioctl(asw_dcu[j], IOC_DCU_IF_POWER_ON, FALSE); /* Turn OFF DCU j */
if (res != OK)
{ ERRORLOG(errno); ERRORLOGID(DRBASW_EACC, j); }
SetDCUPowerOFF(j);
SetSCEBootOFF(j);
}
```

added status DCU power off and SCE boot off if IOC_DCU_IF_POWER_ON is FALSE

[EUNIDPUASW-35] DRB_SHSK

Created: 19/Nov/18 Updated: 19/Nov/18 Resolved: 19/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

FDIR DBB change in interface DRB_SHSK (Updated interface with enable/disable). Enable FDIRs:
DCU 5V
DBB FPGA

Comments

Comment by Eduardo Medinaceli Villegas [19/Nov/18]

new interface:
STATUS DRB_shsk(int32_t onoff, uint32_t period, uint16_t spare, uint16_t tempfdir, uint16_t dcdcfdir, uint16_t dcufdir5v)

[EUNIDPUASW-34] transmission flag

Created: 16/Nov/18 Updated: 16/Nov/18 Resolved: 16/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

end of transmission flag, it was set to zero by the arrival of the new Dither (wrong), should be done by processing. The problem happens in overlapping dithers.
MMU need a flag to close file.

Comments

Comment by Eduardo Medinaceli Villegas [16/Nov/18]

exposure watchdog reset the transmission flag

Comment by Eduardo Medinaceli Villegas [16/Nov/18]

ransmission flag is reset after the test over the function that write the data
res = WriteDataEnd(&finalDataPack);
if (res == OK)
{ dpu_MonitorTabGlobal.DPUTOMMU = (((curDet+1) << 8) | 0x1U); /* detector index expected from 1 to 8 */ }

[EUNIDPUASW-32] clear of DRB multiple EDAC error

Created: 16/Nov/18 Updated: 16/Nov/18 Resolved: 16/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

Multiple non correctable errors in EDAC were already considered and counted with the variable drbEdacMultErr_Global++ in the IsrHandler.c inside the diagnostic of the DRB (dev_drb_diagnostic). But the error register was not cleared

Comments

Comment by Eduardo Medinaceli Villegas [16/Nov/18]

the clear of the error was implemented
ioctl(drb_ddiag, IOC_DRB_DIAG_GET_ERROR, (int)&tmp); /* tmp last fail address 0x%x, tmp */
and the error was signaled with crit_medium
ASWErrnoLog(0, IDtask2EntryID(taskIdSelf()), taskIdSelf());
ASWErrorCmdLog(TASKISR, (uint16_t)0, (int32_t)DRBASW_EEDACMULT, crit_medium);
the procedure was decided with the support of OHB (Alessandro)

Comment by Eduardo Medinaceli Villegas [16/Nov/18]

the type of error that causes this procedure is:
EDAC error in amba bus error 100 (drb.h)

[EUNIDPUASW-31] CPUDABT command

Created: 14/Nov/18 Updated: 14/Nov/18 Resolved: 14/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 hour		

Description

added dpu_MonitorTabGlobal.DITHSTATUS = ASW_FALSE in command CPUDABT

[EUNIDPUASW-30] DCU_RST Created: 09/Nov/18 Updated: 09/Nov/18 Resolved: 09/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

after DCU_RST counter reset, do NOT flag "not booted SCE"

[EUNIDPUASW-29] acceptancy status for SCE_SOFTBOOT Created: 09/Nov/18 Updated: 09/Nov/18 Resolved: 09/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	1553
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		

Remaining Estimate:	Not Specified
Time Spent:	Not Specified
Original Estimate:	Not Specified

Description

added SCE_INT acceptancy status for SCE_SOFTBOOT as for SCE_HRDBOOT

[EUNIDPUASW-28] default for GTAB Created: 09/Nov/18 Updated: 09/Nov/18 Resolved: 09/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

set GTAB = 1 as default

[EUNIDPUASW-26] acceptancy status DCU_THSET Created: 09/Nov/18 Updated: 09/Nov/18 Resolved: 09/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

check status DCU_THSET (tested if MANUAL only), should be accepted also in PARKED | SAFE .
These two states were added in the internal DB

[EUNIDPUASW-27] acceptancy status SCE_BOOT Created: 09/Nov/18 Updated: 09/Nov/18 Resolved: 09/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas

Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

SCE_BOOT command should be accepted in PARKED state

[EUNIDPUASW-24] handshake test with ICU Created: 09/Nov/18 Updated: 09/Nov/18 Resolved: 09/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	1553
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Description

the test performed to check new commands send from ICU is done checking the ICU_COUNTER. The test is done using != from previous counter.
The old one was greater than

[EUNIDPUASW-23] asynchronous GTAB Created: 09/Nov/18 Updated: 09/Nov/18 Resolved: 09/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

GTAB one shot telemetry retrieval (not periodical)
decided with ICU-team

[EUNIDPUASW-22] chi2size Created: 09/Nov/18 Updated: 09/Nov/18 Resolved: 09/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

set chi2size = 0 for engineering mode: LINEAR_CALIB,
because only raw data is send in the scientific package. No need to send the chi2 frame filled with zeros.
Therefore the size of the scientific package was reduced.

[EUNIDPUASW-21] acceptancy parameter limits command SCEFMODE Created: 09/Nov/18 Updated: 09/Nov/18 Resolved: 09/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Description

added in CommandInit SCEFMODE 1 param for acceptancy,
and changed range for first param to (0,0,1024)

[EUNIDPUASW-17] serialization of DCU-SCE access Created: 09/Nov/18 Updated: 09/Nov/18 Due: 09/Nov/18 Resolved: 09/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	serialization		
Remaining Estimate:	1 day		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Description

enhanced serialization of the DCU-SCE access adding mutual exclusion semaphores semLockDCU to CPU functions accessign the DCUs (the semaphore was alredy used for serialized DCU and SCE access). In functions: command CPU_DABT (calling internally DCU_dabt)

Comments

Comment by Eduardo Medinaceli Villegas [09/Nov/18]

added to the processing task that could performs the ResetDcuAndDbb function in case of processing abort

Comment by Eduardo Medinaceli Villegas [09/Nov/18]

added semaphore to the TurnOffFocalPlane function associated to the transition to DPU SAFE status.

Comment by Eduardo Medinaceli Villegas [09/Nov/18]

mutual exclusion DCU semaphore added to DUMP/LOAD DCU

[EUNIDPUASW-20] telemetry DPU_STATUS_TAB scrubFlag Created: 09/Nov/18 Updated: 09/Nov/18 Due: 09/Nov/18 Resolved: 09/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	telemetry
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

flag changed
dpu_StatusTabGlobal.ASWWDGREG2 = scrubFlag | (cpuTRC << 8);
before the shift was << 16, but the var is 16bit.

[EUNIDPUASW-19] consistency check processing algorithm Created: 09/Nov/18 Updated: 09/Nov/18 Resolved: 09/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	algorithm, processing		

Remaining Estimate:	0 minutes
Time Spent:	Not Specified
Original Estimate:	1 day

Description

added consistency check chi2Temp = abs(chi2Temp) in processingAlgorithm.c
to prevent negative values

[EUNIDPUASW-18] change of status after CPUDABT Created: 09/Nov/18 Updated: 09/Nov/18 Resolved: 09/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	status		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Description

added dpu_MonitorTabGlobal.DITHSTATUS = ASW_FALSE
after execution of CPUDABT command

[EUNIDPUASW-16] code semantics Created: 09/Nov/18 Updated: 09/Nov/18 Due: 09/Nov/18 Resolved: 09/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Trivial
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	analysis, static		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 hour		
Environment:	Static Analysis/Unit tests		

Description

code semantics issue (if statement with not needed == 1) to enable
DCU FPGA FDIR, found during Static Analysis/Unit tests

[EUNIDPUASW-15] DCU_SHSK function for ANALOG telemetry Created: 09/Nov/18 Updated: 09/Nov/18 Resolved: 09/Nov/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.0
Fix Version/s:	DPU_ASW_v1.1

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Description

in command DCU_SHSK there was a loop on the acces to the ANALOG telemetry.
The loop was removed

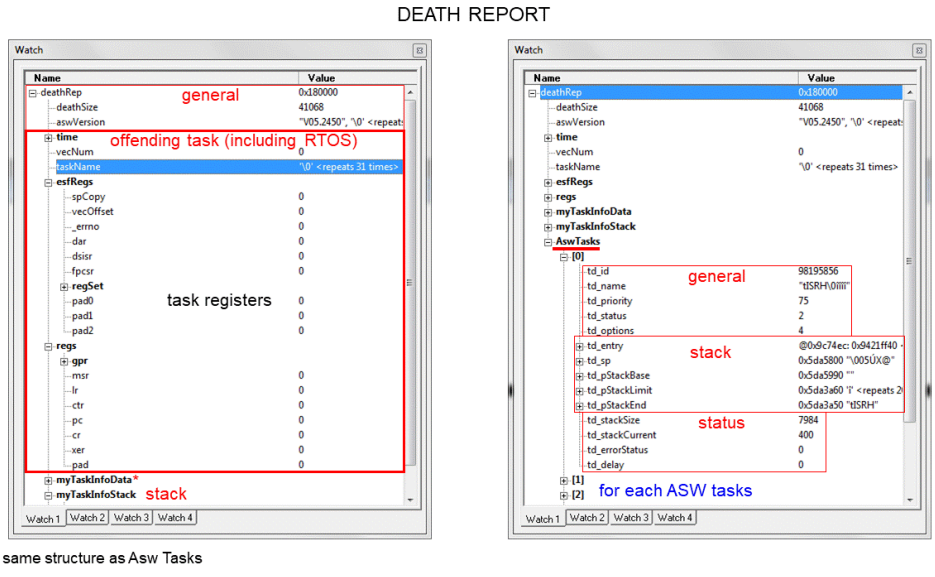
6. Affect version DPU_ASW_v1.1, fixed version DPU_ASW_v1.2 change log:

[EUNIDPUASW-61] enhanced functionality of the DEATH REPORT Created: 11/Dec/18 Updated: 12/Dec/18	
Status:	In Progress
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.1
Fix Version/s:	DPU_ASW_v1.2

Type:	New Feature	Priority:	Major
Reporter:	Eduardo Medinaceli Villegas	Assignee:	Eduardo Medinaceli Villegas
Resolution:	Unresolved	Votes:	0
Labels:	None		
Remaining Estimate:	3 weeks		
Time Spent:	Not Specified		
Original Estimate:	3 weeks		

Attachments:

DR.gif



Description

the old implementation of the Death Report was updated including much more information of the system

Comments

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

in DPU_ASW_types.h two ned structures were defined:
typedef struct TaskInfo_t /* TaskInfo - information structure */
{ int32_t td_id; /* task id */ char td_name[10]; /* name of task */ int32_t td_priority; /* task priority */ int32_t td_status; /* task status */ int32_t td_options; /* task option bits (see below) */ FUNCPTR td_entry; /* original entry point of task */ char * td_sp; /* saved stack pointer */ char * td_pStackBase; /* the bottom of the stack */ char * td_pStackLimit; /* the effective end of the stack */ char * td_pStackEnd; /* the actual end of the stack */ int32_t td_stackSize; /* size of stack in bytes */ int32_t td_stackCurrent; /* current stack usage in bytes */ int32_t td_errorStatus; /* most recent task error status */ int32_t td_delay; /* delay/timeout ticks */ }
TaskInfo;
and
struct deathRep_s /* Structure to map the death report memory area */
{ int32_t deathSize; /* Size of death report memory area */ char aswVersion[DEATH_VERS_MAX_SIZE]; /* Version of running ASW */ t_obt time; /* Time of last exception */ int32_t vecNum; /* Vector number that caused last exception */ char taskName[32]; /* Task name (ASCII) of the task that caused the last exception */ ESFPPC esfRegs; /* Exception registers */ REG_SET regs; /* Registers of offending task */ TaskInfo myTaskInfoData; char *myTaskInfoStack[10000]; TaskInfo AswTasks[TASK_N]; /* Written periodically, not written by exception handler */ /* global error */ }
;

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

two global functions were defined:
struct deathRep_s deathRep; / pointer to structure to map the death report memory area */
int32_t myTaskInfo(int32_t tId, TaskInfo* pTaskInfo);

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

defined functions:
void DeathHandler(int32_t tId, /* ID of offending task */
int32_t vecNum, /* exception vector number */
ESFPPC pEsf / pointer to exception stack frame */
);
void DeathReportInit();
void DeathHandler(int32_t tId, int32_t vecNum, ESFPPC *pEsf);
void DeathHandlerMCI(int32_t val); /* already present in previous implementation */
and
int32_t myTaskInfo(int32_t tId, TaskInfo* pTaskInfo);

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

The new DEATH REPORT include a header with general information (DPU-ASW version, size of the death report), a section for the offending tas info, including registers and stack plus information of the ASW task wich are periodically updated

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

in hsk scan in the loop of the CPU periodically actions was included
for(j = 0; j< TASK_N; j++)
{ myTaskInfo(task_id[j], &taskDesc); /* task_id is the ID of tasks assigned during task spawn */
memcpy(&deathRep->AswTasks[j], &taskDesc, sizeof(TaskInfo)); }
to update the status of the task each cpuPeriod. The number of tasks TASK_N is equal to 9

[EUNIDPUASW-62] static analysis issues Created: 11/Dec/18 Updated: 11/Dec/18 Resolved: 11/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.1
Fix Version/s:	DPU_ASW_v1.2

Type:	Bug	Priority:	Trivial
Reporter:	Eduardo Medinaceli Villegas	Assignee:	Eduardo Medinaceli Villegas
Resolution:	Done	Votes:	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Attachments:	JENKINS_DPU_ASWv1.2.txt

Description

static analysis was performed using the semi-automatic procedure implemented in Jenkins at builder.oapd.inaf.it

Comments

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

All the following were corrected:
Read_dither_tab.c:51:3: warning: Value stored to 'ver' is never read REMOVED
16:07:22 ver = 0U;
16:07:22 Read_dither_tab.c:52:3: warning: Value stored to 'error' is never read REMOVED
16:07:22 error = 0U;
16:07:22 ASW1553.c:779:3: warning: Value stored to 'droplines' is never read
16:07:22 droplines = 0U;
16:07:25 ReadSysConfigTab.c:51:3: warning: Value stored to 'ver' is never read REMOVED
16:07:25 ver = 0U;

16:07:25 ReadSysConfigTab.c:52:3: warning: Value stored to 'error' is never read REMOVED
16:07:25 error = 0U;
16:07:25 Read_proc_param_tab.c:53:3: warning: Value stored to 'ver' is never read REMOVED
16:07:25 ver = 0U;
16:07:25 Read_proc_param_tab.c:54:3: warning: Value stored to 'error' is never read REMOVED
16:07:25 error = 0U;
6:07:32 SCE_Commands.c:323:3: warning: Value stored to 'res' is never read ADDED TEST, PLUS RETURN IF ERROR
16:07:32 res = DCU_exp(dcu_id, ktc_grp_const, ktc_exp);
16:07:32 SCE_Commands.c:407:3: warning: Value stored to 'res' is never read ADDED TEST, PLUS RETURN IF ERROR
16:07:32 res = DCU_exp(dcu_id, grp, frm);
16:07:35 CONF_TABS_Handler.c:30:3: warning: Value stored to 'ver' is never read REMOVED
16:07:35 ver = 0U;
16:07:35 CONF_TABS_Handler.c:31:3: warning: Value stored to 'error' is never read REMOVED
16:07:35 error = 0U;
16:07:36 ASWErrorHandling.c:81:10: warning: variable ‘res’ set but not used [-Wunused-but-set-variable]
16:07:36 STATUS res;
16:07:37 ASWErrorHandling.c:100:3: warning: Value stored to 'res' is never read REMOVED
16:07:37 res = msgQSend(err_msg, (char_t *)&data, sizeof(data), NO_WAIT,
16:07:37 ASWErrorHandling.c:202:3: warning: Value stored to 'crit_index' is never read REMOVED
16:07:37 crit_index = 0;
16:07:37 ASWErrorHandling.c:204:3: warning: Value stored to 'exitflag' is never read REMOVED
16:07:37 exitflag = 0U;
16:07:37 ASWErrorHandling.c:207:3: warning: Value stored to 'j' is never read REMOVED
16:07:37 j = 0;
16:07:37 ASWErrorHandling.c:208:3: warning: Value stored to 'i' is never read REMOVED
16:07:37 i = 0U;
16:07:37 ASWErrorHandling.c:209:3: warning: Value stored to 'ii' is never read REMOVED
16:07:37 ii = 0U;
16:07:40 Process.c: In function ‘Process’:
16:07:40 Process.c:72:11: warning: unused variable ‘j’ [-Wunused-variable] PROTECTED WITH IFDEF ASW_DEBUG_1
16:07:40 int32_t j; /* Generic index */

[EUNIDPUASW-60] included exposure using a single detector with complete focal plane Created: 11/Dec/18 Updated: 11/Dec/18 Resolved: 11/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.1
Fix Version/s:	DPU_ASW_v1.2

Type:	New Feature	Priority:	Major
Reporter:	Eduardo Medinaceli Villegas	Assignee:	Eduardo Medinaceli Villegas
Resolution:	Done	Votes:	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 week		

Description

an exposure using a single detector when the focal plane is all turned on (or at least a second detector) was implemented.
three packages were updated to this scope:

- included single detector case in dequeue function, in DPU_1553
- included single detector case in IsrHandler to disable WdEOE in DPU_Start
- included single detector case in Processing to retreive the number of activeSCEs in DPU_Processing

Comments

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

in DPU_1553 function Read_dither_tab.c::enqueue(), added test on number of detectors to handle a single detector case.

```
for (nDet = 0; nDet < DETECTORS; nDet++)
{
if( (procParamTabGlobal.det2Send != DPU_BRD_DEV) && (procParamTabGlobal.det2Send != nDet) )
/* to perform enqueue for a single detector */
{ continue; }
```

... hardware availability ...
...
}

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

in DPU_Start, function IsrHandler.c::select_handler() added test on non broadcast device (!= DPU_BRD_DEV) to handle a single detector case
if (((procParamTabGlobal.det2Send == DPU_BRD_DEV) && (dcuReadyCounter_Global == GetNActiveSCE()))

(or)
(procParamTabGlobal.det2Send != DPU_BRD_DEV)) /* Last interrupt of exposure, for a single detector */

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

in DPU_Process in function Process.c::Process() added
inside the exposure loop ...
if (procParamTabGlobal.det2Send != DPU_BRD_DEV) /* single detector case */
{ activeSCE = 1; det2SendFlag = ASW_TRUE; }
to handle the single detector case

[EUNIDPUASW-59] set scientific telemetry chi2 threshold

Created: 11/Dec/18 Updated: 11/Dec/18 Resolved: 11/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	telemetry
Affects Version/s:	DPU_ASW_v1.1
Fix Version/s:	DPU_ASW_v1.2

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 week		

Description

set scientific telemetry parameter 50 (chi2 threshold) from DITH_CONFIG_TAB
finalDataPack.uncHeader.telemetryDigital[50] = dithConfTabGlobal.Exposures[nExp].Frames; /* same for all detectors */

[EUNIDPUASW-58] expo counter Created: 11/Dec/18 Updated: 11/Dec/18 Resolved: 11/Dec/18

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	telemetry
Affects Version/s:	DPU_ASW_v1.1
Fix Version/s:	DPU_ASW_v1.2

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

exposure counter function was changed

Comments

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

void
AddExpoCounter(void)
{ uint8_t expNum; uint8_t mem; expNum = (dpu_MonitorTabGlobal.EXPOCOUNT & 0xff); /* exposure counter */ mem = (dpu_MonitorTabGlobal.EXPOCOUNT >> 8); /* dither.membank */ expNum++; /* increase counter */ dpu_MonitorTabGlobal.EXPOCOUNT = ((expNum & 0xff) | (mem << 8)); return; }

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

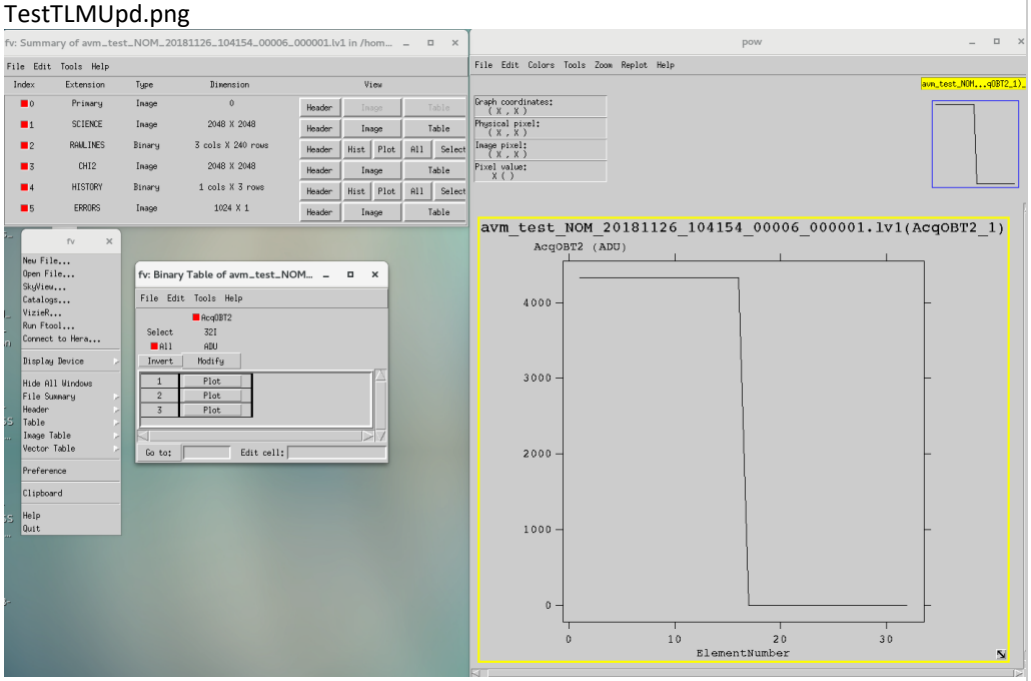
AddExpoCounter used in all exposure commands (SCE_EXP, SCE_KTC_EXP, SCE_IPC_EXP and SCETESTEXP)

[EUNIDPUASW-54] History parameter in scientific telemetry Created: 10/Dec/18 Updated: 11/Dec/18 Resolved: 10/Dec/18	
Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	telemetry
Affects Version/s:	DPU_ASW_v1.1
Fix Version/s:	DPU_ASW_v1.2

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Attachments:

TestTLMUpd.png



Description

corrected parameters saved in the History Telemetry buffer of the scientific data.

Comments

Comment by Eduardo Medinaceli Villegas [10/Dec/18]

in Process.c array added to store telemetry
static uint16_t tmpHistoryBuffer[NGROUP_MAX * DP_HIST_SIZE]; /** Temporary array to store history buffer */
copy in scientific data-pack
memcpy(finalDataPack.cmpHistoryBuffer, (char_t *)tmpHistoryBuffer, finalDataPack.uncHeader.cmpHistSize);

Comment by Eduardo Medinaceli Villegas [11/Dec/18]

default value for history telemetry set:
macc_Global.TLM_history_sel = 88L; Temperature!

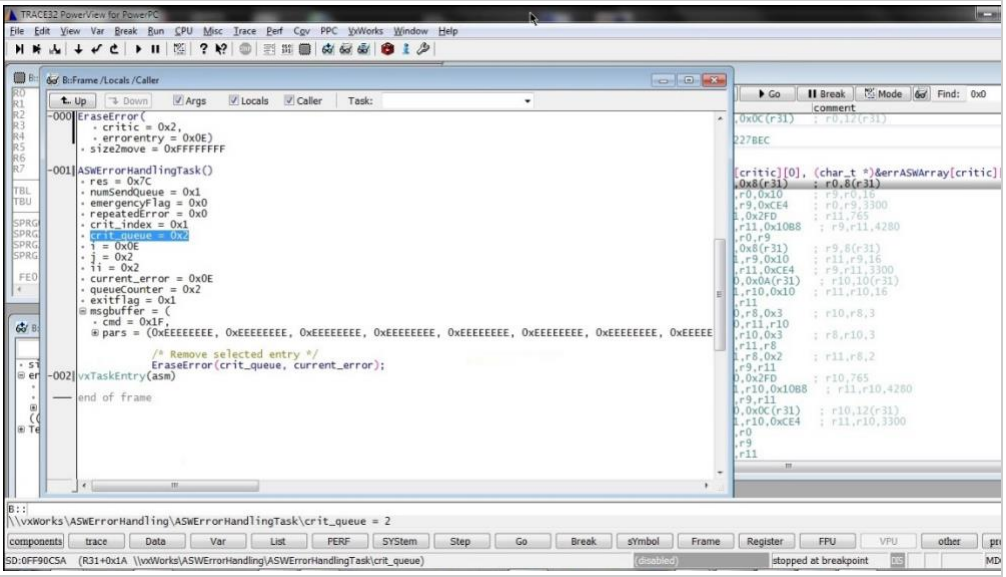
7. Affect version DPU_ASW_v1.2, fixed version DPU_ASW_v1.2.1 change log

[EUNIDPUASW-81] Error Handling failure for fast repeating errors of the same priority

Created: 19/Feb/19 Updated: 19/Feb/19 Resolved: 19/Feb/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	1553, error_handling
Affects Version/s:	DPU_ASW_v1.2
Fix Version/s:	DPU_ASW_v1.2.1

Type:	Bug	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		

Original Estimate:	Not Specified
Environment:	The powering down of a single DCU takes about 5 seconds; and only at the end of the whole procedure, the DCU is flag as power off in the internal registers of the DPU. Then there is no access by the housekeeping scanner to that unit; but, during these 5 seconds, there is a beating effect with the software housekeeping scanner. It also has a default period of 5 seconds, and tries to access to units that are not working nominally producing “fake” errors (due to only to access at the wrong time). That access occurs very fast because not only the DCUs are enquired but also all the SCEs. We found that those errors were not correctly handled by the ET.
Attachments:	

Description

The ET uses 3 queues for the errors (each one of type tag_t_ErrorStruct) according to their criticality, and each second, after evaluating the multiplicity, 1 error (if any) is embedded in a bigger structure (type tag_t_ASW_Complessive_Error) and made available through the 1553 interface. Then its related queue was reshuffled.
We saw an error in this operation provoking a memory leak. The cause was that the size of a memory reallocation inside this function was evaluated using the wrong type structure (tag_t_ASW_Complessive_Error instead of tag_t_ErrorStruct). The effect was enhanced when several error entries of the same criticality were the trigger. The issue became critical when multiple errors of criticality 1 (medium) appear, corrupting the memory area outside the statically allocated space for the events in the error queues. When this happens, the RTOS find the memory corrupted and reboots the CPU.

Comments

Comment by Eduardo Medinaceli Villegas [19/Feb/19]

We corrected the function static void EraseError(uint16_t critic) of the ASW Error Handling task, refactoring the function that performs the shuffling inside the corresponding criticality queue. The design of the function was not changed, only the bug was correct. Therefore, the associated documentation EUCL-OPD-TN-7-010 remains valid.
Unit testing was performed for the patched ASW Error Handling task, successfully.

In the attached image can be seen that the size of the array used by the EraseError was wrong. The image is a screenshot of the memory allocation management performed by the JTag debugger. It was connected to the DPU-EQM unit for debugging purposes.

Comment by Eduardo Medinaceli Villegas [19/Feb/19]

EreaseError function was refactored and the correct size was included.

```
static voidstatic void    EraseError(uint16_t critic){
   uint32_t i;
   for(i = 1U; i < MAXERRORSPERQUEUE; i++) /* queue entries */
   {       /* for each entry, shuffle */
      memcpy (&errASWArray[critic][i-1],  &errASWArray[critic][i],
                  sizeof(error_struct_t));
   }
    /* last entry is set (forced) to zero */
    memset((char *)&errASWArray[critic][MAXERRORSPERQUEUE-1],
    (uint32_t)NULL, sizeof(error_struct_t));
   /* decrement global pointer of last entry (defensive check to avoid rollover) */
   if (counterQueue[critic] > 0)
   {
      counterQueue[critic]--;
   }
  return;
}
```

Comment by Eduardo Medinaceli Villegas [19/Feb/19]

In ISR task_ret_t ASWErrorHandlingTask(void) the mechanism to resuffle the queues was refactored:

```
res = msgQReceive(err1553_msg, (char_t *)&msgbuffer, sizeof(msgbuffer), NO_WAIT);
if (res != ERROR) {
  if ((msgbuffer.cmd == CMD_ERR_SEND))
   /* Send ERRORS2SEND errors to 1553 and shuffle down array */
   {       /* Send message*/
     exitflag = FALSE;
```

```
    /* Fill in table for 1553 task */
    for(j = (PRIORITYQUEUES - 1); (j >= 0) && (exitflag == FALSE); j--)
     /* criticality queues  */
    {         /* check first element (if 0, list is empty)*/
        if((errASWArray[j][0].errortosend != FALSE) )
        { /* copy element to 1553 structure */
          FillErrorTLMTable(&(errASWArray[j][0]),senderrorTot);
          senderrorTot++;      /* clean element */
          EraseError(j);
          exitflag = TRUE;
        }
      }
    }
}
```

8. Affect version DPU_ASW_v1.2.1, fixed version DPU_ASW_v1.2.2 change log

[EUNIDPUASW-82] added error signaling for "Error DBB interrupt lost on spw device" SPV_EDBBINTLOST Created: 25/Mar/19 Updated: 25/Mar/19 Resolved: 25/Mar/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	error_handling
Affects Version/s:	DPU_ASW_v1.2
Fix Version/s:	DPU_ASW_v1.2.2

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	1 day		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Description

errors "DBB interrupt lost on spw device " in file Supervisor.c function IsrSelect (module DPU_Start) are not injected using SPV_EDBBINTLOST

Comments

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

added:

```
if (dbbpen.ilost != 0)
{
    ERRORLOGID(SPV_EDBBINTLOST, asw_dbb_spw[i]);
    ASWErrnoLog(errno, 0, taskIdSelf());
    ASWErrorCmdLog(TASKSLCT, (uint16_t)0, (int32_t)SPV_EDBBINTLOST,
                                crit_medium);
}
```

[EUNIDPUASW-93] gain factor in processing Created: 25/Mar/19 Updated: 25/Mar/19 Resolved: 25/Mar/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing
Affects Version/s:	DPU_ASW_v1.2
Fix Version/s:	DPU_ASW_v1.2.2

Type:	Bug	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	1 day		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Description

The conversion factor from e/ADU, was incorrectly set to 1.
This value is programmable using the PROC_PARAM_TAB with parameter Gain_Det[currentDetector].

Comments

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

```
gain = (float32_t)(p_procParam->Gain_Det[curDet_const]) / 100.0F;
then:
beta = (sigma*gain) / (alfa + 1.0F);
and
/* compute the slope of the fit */
slope = (gamma/gain) *
(float32_t) ( sqrt( 1.+ ((4.0F * gain *gain * (fact + beta) * (fact + beta)) / ((alfa + 1.) *
                    (alfa + 1.))) ) -1. ) - beta;
/* Compute chi square */
chi2Temp =
( (2.0F*gain) / (alfa + 1.0F) ) * ((float32_t)nGroupsMin1 * fact - (ramp[nGroupsMin1] -
ramp[0]));
```

[EUNIDPUASW-92] Death Report time tag Created: 25/Mar/19 Updated: 25/Mar/19 Resolved: 25/Mar/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Testing
Affects Version/s:	DPU_ASW_v1.2
Fix Version/s:	DPU_ASW_v1.2.2

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

added in DeathReport function DR_timetag() to Time Tag the DR

Comments

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

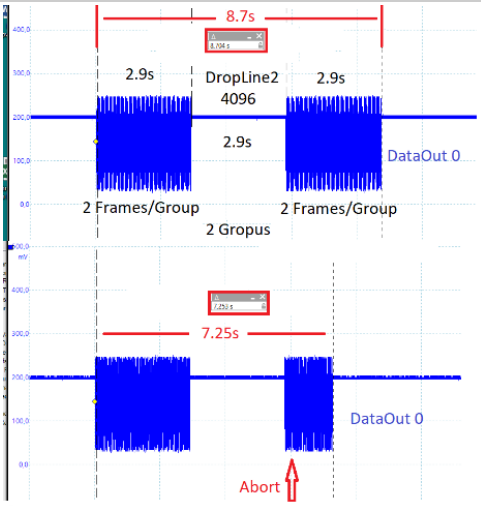
```
void DR_timetag(void)
{
  TimeTagTOBT(&deathRep->time);
  return;
}
```

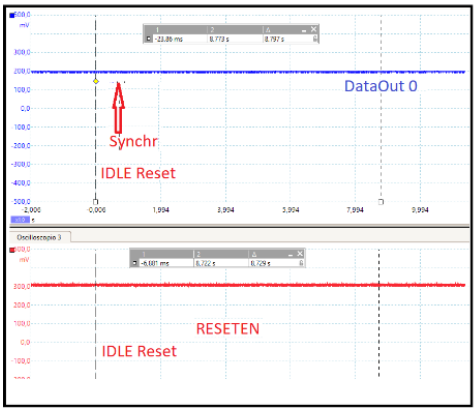
[EUNIDPUASW-91] CPU DBAT Dither Abort Command Created: 25/Mar/19 Updated: 25/Mar/19 Resolved: 25/Mar/19

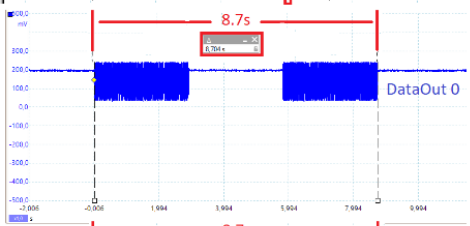
Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands, System
Affects Version/s:	DPU_ASW_v1.2
Fix Version/s:	DPU_ASW_v1.2.2

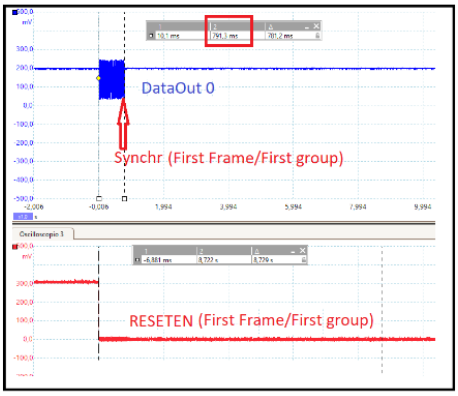
Type:	Bug	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 week		
Environment:	During tests with a multiplicity of DCU/SCE > 4 problems arose triggered by command CPU_DABT.		

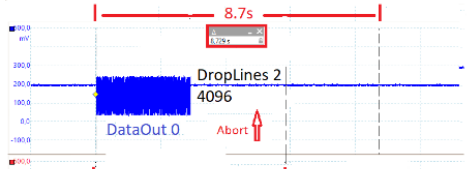
Attachments:

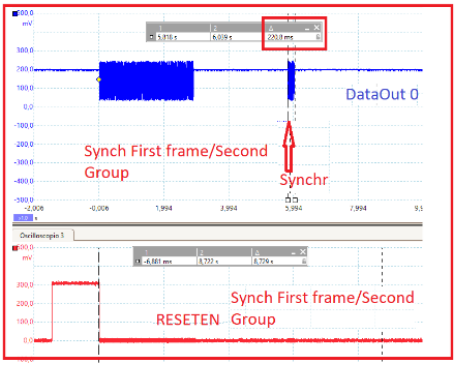


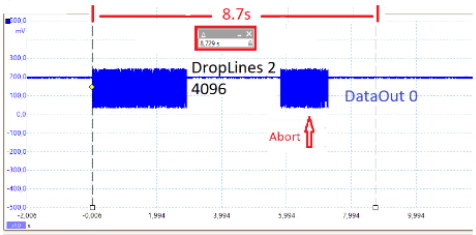


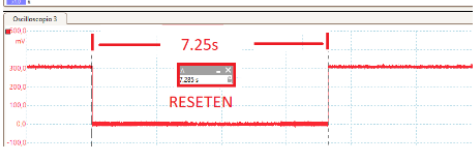












Description

The procedure used to trigger the errors was the following (using 6 DCU/SCE):

- DITHER(NOMINAL)
- SCE_EXP(1st MACCC)
- delta t = 10 s
- CPU_DABT
- DITHER(1xMACC(2,2,2))
- SCE_EXP(MACC(2,2,2))

Was observed a malfunctioning in the successive Dither acquisition; several types of errors were observed, among them:

PRC_ECRC (050c000a) /* Error checking crc32DCU with crc of downloaded data */
ASW_EENQUEUE (0a5703f1) /* Error enqueue */

Using the serial interface of the Maxwell board with Tornado (development ambient), was found that the main issue (not seen by the error handling) was that interrupts from the data transfer from the DCU to the DBB do not arrive for all detectors. Producing a high-level error:

WCD_WD_EXP_EXPIRED /* Error: exposure watchdog expiration, crit_high FDIR related */

of the expiration of the Exposure watchdog.

Command CPU_DABT perform the following operations:
- Force DCU mated SCE internal microcode to abort current exposure at next frame boundary (using a write function of the SCE)

- Wait the equivalent of a single frame time (1.5s) to abort DCU operations
- Clear all current enqueued exposures for dcu_id (running a dedicated ioctl)
- Force dcu_id to idle state and clear registers (running a dedicated ioctl)
- Reset dcu_id presently active SPW channels to DBB (running a dedicated ioctl)

Comments

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

The reset of the SCE is performed on a frame basis, therefore in the worst case it is performed at the beginning. The reset of the SCE is performed on a frame basis, therefore in the worst case, it is performed at the beginning of a frame, with a consequent delay of 1.45s. The delay of 1.5s was optimized using 3 DCU/SCEs. Each single operation (write and ioctls) are tested after the execution, and no error of this type was ever recorded; in case of malfunctioning error

DCUASW_EACC = 0xDC001 (error accessing DCU) is expected.
The change of the command, consists on increasing the delay to allow the reset of the SCE, and data arrival to the DCU before the reset operations. The hypothesis is that data could arrive to the DCU during of after the reset of the DCU; causing non-nominal operations of the DCU. The time delay was set to 3s (double time).

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

Figure attached (Abort vs synchr.png) shows the different time basis for the abort and reset operations of the SCE.

- abort is performed in a frame basis
- reset is performed in a line basis

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

Changing the timing of the SCE abort (probably related to data written on the DCU while performing
the reset operation), clearly changes the nominal behavior of the DCU.
And problems related to the DBB memory, as the enqueue, or in the DCU SpW interface of the DCU are related to the SCE reset; this kind of behavior cannot be recovery just by acting on the affected DCU, also the DBB memory has to be completely clear (ASW reboot) in order to have a full recovery of the nominal functionality.
The timing of the SCE abort, performed on a frame based is different to the nominal one in case of multiplicity greater and equal than four, this has to be investigated. It should be important to estimate the time lapse between the execution of the abort (commanded by the DCU) of the SCE and the end of the data transmission of the current frame.

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

Time delay between SCE and DCU reset, set to 3s, was extensively verified using the full detector load (8xDCU/SCE); repeating several times the test sequence.

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

In module Commands, in file DCU_Commands.c, in function DCUDABT
the total delay time after SCE abort (write) and before the DCU reset operations, was set to:

taskDelay(3xsysCloRateGet()) = 3s

CPU_DABT is a macro that executes internally DCUDABT

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

```
static STATUS DCU_dabt(int32_t dcu_id, uint32_t spw_link)
{
  STATUS res;
 /* Force mated SCE internal microcode to abort current exposure at next frame boundary  */
  res = WriteSCE(dcu_id, (uint32_t)SCE_CMDREG, (uint32_t)SCE_CMDABT);
```

```
  if (res != OK)
  {
      ERRORLOG(errno);
      ERRORLOGID(DCUASW_EACC, dcu_id);
   }
  /*  Wait the equivalent of a single frame time (1.5 Sec) to abort DCU operations
  taskDelay(3*sysClkRateGet());

 /*  Clear all current enqueued exposures for dcu_id */
  res = ioctl(asw_dbb_spw[dcu_id], IOC_DBB_SPW_RESET, 0);
  if (res != OK)
  {
      ERRORLOG(errno);
      ERRORLOGID(DCUASW_EACC, dcu_id);
    }  /*  Force dcu_id to idle state and clear registers */

  res = ioctl(asw_dcu[dcu_id], IOC_DCU_IF_COMMAND, DCU_CMD_ABORT_CMD);
  if (res != OK)
  {
      ERRORLOG(errno);
      ERRORLOGID(DCUASW_EACC, dcu_id);
  }

 /*  Reset dcu_id presently active SPW channels to DBB */
  res = ioctl(asw_dcu[dcu_id], IOC_DCU_IF_ENABLE_SPW, spw_link);
  if (res != OK)
  {
      ERRORLOG(errno);
      ERRORLOGID(DCUASW_EACC, dcu_id);
    }
    return (res);
}
```

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

removed loop on CPU_Commands.c, function CPU_DABT loop of DCUDABT + flag Dither OFF.
Now performed by processing in function ResetDcuAndDbb to be uniform with WD_EOD operations
CPU_DABT performs:
data.cmd = CMD_PRC_ABORT;
res = msgQSend(proc_msg, (char *)&data, sizeof(data), NO_WAIT, MSG_PRI_NORMAL);

[EUNIDPUASW-90] DITHER_FLAG OFF when WD_EXP expires Created: 25/Mar/19 Updated: 25/Mar/19 Resolved: 25/Mar/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.2
Fix Version/s:	DPU_ASW_v1.2.2

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

done by DCUDABT called by WD_EXP

[EUNIDPUASW-89] HskScan added defensive programming Created: 25/Mar/19 Updated: 25/Mar/19 Resolved: 25/Mar/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	telemetry
Affects Version/s:	DPU_ASW_v1.2
Fix Version/s:	DPU_ASW_v1.2.2

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	1 day		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Description

added test to func myTaskInfo before memcpy

Comments

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

```
for(j = 0; j< TASK_N; j++)
{
  /* added test:*/
  testres = myTaskInfo(task_id[j], &taskDesc);
  if(testres != ERROR)
  {
     memcpy(&deathRep->AswTasks[j], &taskDesc, sizeof(TaskInfo));
   }
}
```

[EUNIDPUASW-88] CPU Load task spawn Created: 25/Mar/19 Updated: 25/Mar/19 Resolved: 25/Mar/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	CPU Load
Affects Version/s:	DPU_ASW_v1.2
Fix Version/s:	DPU_ASW_v1.2.2

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	1 day		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Description

- added name for task GetCpuLoad define TASKGLOAD "tGETCPULOAD"
- changed taskSpawn name for function GetCpuLoad
- added error case injection for taskSpawn of function GetCpuLoad
- reset of oldTaskId = 0 if errors in taskSpawn GetCpuLoad
- delete else for if(oldTaskId == ERROR)

Comments

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

```
void GetCpuLoadS(void)void GetCpuLoadS(void)
{
  if (oldTaskId > 0)
  {
     taskDelete(oldTaskId);
  }
```

```
 oldTaskId = taskSpawn(TASKGLOAD, TASK_MID_PRIORITY, VX_FP_TASK, 10000,
              (FUNCPTR)GetCpuLoad, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0);

 if(oldTaskId == ERROR)
 {
    ERRORLOG(errno);
    ASWErrnoLog(errno, 0, taskIdSelf());
    ASWErrorCmdLog(TASKGLOAD, (int16_t)0, (int32_t)SPV_ECPUGETLOADSTART,
                              crit_medium);
 }
 return;
}
```

[EUNIDPUASW-87] acceptance status for SCE_BOOT

Created: 25/Mar/19 Updated: 25/Mar/19 Resolved: **25/Mar/19**

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.2
Fix Version/s:	DPU_ASW_v1.2.2

Type:	Bug	**Priority:**	Trivial
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Description

remove PARKED from acceptancy state for SCE_BOOT SOFT and HARD

[EUNIDPUASW-86] CPU watchdog Created: 25/Mar/19 Updated: 25/Mar/19 Resolved: 25/Mar/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.2
Fix Version/s:	DPU_ASW_v1.2.2

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

CPUWDG change acceptance status and added a customizable timeout

Comments

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

CPUWDG change acceptancy status: add MANUAL and PARKED and range of parameter Scrubbing time [0, min:max], no default for scrubFlag, should be = 25749 (once a day)

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

defined a static varible in Supervisor.c to set the default value for the timeout of the CPU hardware watchdog (time disarm of the WD).
In this way by checking the assembler map the address of the variable can be identified and the value changed. Not is assigned to a value equal to 1300 ms (WD_SCS_TIMEOUT)

static uint32_t defaultCPUWDtime = WD_SCS_TIMEOUT;

scsWatchdogTimerSet(defaultCPUWDtime);

[EUNIDPUASW-85] default value for PROC_PARAM_TAB parameter "detector to be send" Created: 25/Mar/19 Updated: 25/Mar/19 Resolved: 25/Mar/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing
Affects Version/s:	DPU_ASW_v1.2
Fix Version/s:	DPU_ASW_v1.2.2

Type:	Bug	**Priority:**	Trivial
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

default proc_param should have BROADCAST device = 9 as default.
In module DPUStart, function LoadDefaults added default proParamTabGlobal.det2Send = 9

[EUNIDPUASW-84] wrong error codes Created: 25/Mar/19 Updated: 25/Mar/19 Resolved: 25/Mar/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	error_handling
Affects Version/s:	DPU_ASW_v1.2
Fix Version/s:	DPU_ASW_v1.2.2

Type:	Bug	**Priority:**	Trivial
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	1 minute		
Time Spent:	Not Specified		
Original Estimate:	1 minute		

Description

some error codes were wrong due to repeated flag and due to a typo

Comments

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

wrong codes (duplicated)wrong codes (duplicated)
WCD_ESTARTEXP (WCD_OK + 0x03U) /* Error starting exposure watchdog */
WCD_ESTARTPRC (WCD_OK + 0x04U) /* Error starting Dither processing watchdog */

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

check error codes ASW_CONFTAB ASW_OK + 0x3EF changed to:
#define ASW_CONFTAB (ASW_OK + 0x3FU) /* Error accepting configuration table */
#define ASW_ETIMEHAND (ASW_OK + 0x4AU) /* Error handling time */

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

added error codes for SCE, CPU, DBB, DRB commands, replaced generic ones

[EUNIDPUASW-83] GTAB used to works only for first detector Created: 25/Mar/19 Updated: 25/Mar/19 Resolved: 25/Mar/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	telemetry
Affects Version/s:	DPU_ASW_v1.2
Fix Version/s:	DPU_ASW_v1.2.2

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	1 day		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Description

the retrieval of HSK2 and HSK3 for SCE only works for the SCEID=0.
The default value was set inside the detector loop, therefore the rest of the detectors were skipped

Comments

Comment by Eduardo Medinaceli Villegas [25/Mar/19]

SCEHSKFlag_Global = 1; set outside the DETECTORS loop

Generated at Mon Mar 25 15:31:25 CET 2019 by Eduardo Medinaceli Villegas using Jira 7.13.1#713001-sha1:5e06076c2d215a6f699b7e5c90ab2fae7ba5a1ce.

9. Affect version DPU_ASW_v1.2.2 fixed version DPU_ASW_v1.2.3 change log

[EUNIDPUASW-94] limits of parameter in acceptancy of command SCE_CONFIG

Created: 09/May/19 Updated: 02/Jul/19 Resolved: 24/May/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	Bug	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Attachments:	SCE_FMODE.pdf

Description

the internal database containing limits for each parameter was not updated for this command.

The values are:

COMMAND_t sceFMODE_cmd = { {104, 50, 0}, { {0, 0, 1024}, {0, 0, 0xFFFF}
, {0, 0, 0xFFFF}, {0, 0, 0xFFFF}, {0, 0, 0xFFFF}}, 8,
(ASW_STATUS_MANUAL | ASW_STATUS_SCE_INIT | SCE_EEF_STATUS_IDLE)
};

the non updated limit was the upper limit for the first parameter = 1024

Comments

Comment by Eduardo Medinaceli Villegas [24/May/19]

the limit for the first parameter was set to 0xFFF as for the other parameters

Comment by Eduardo Medinaceli Villegas [24/May/19]

COMMAND_t sceFMODE_cmd = {\{104, 50, 0} ,{{0, 0, 0xFFFF}
, {0, 0, 0xFFFF}, {0, 0, 0xFFFF}, {0, 0, 0xFFFF}, {0, 0, 0xFFFF}},8,
(ASW_STATUS_MANUAL | ASW_STATUS_SCE_INIT | SCE_EEF_STATUS_IDLE)};

Comment by Eduardo Medinaceli Villegas [02/Jul/19]

TEST see attached docuent SCE_FMODE.pdf

At the TV tests were found that the first parameter (frame readout configuration mode) of this command had an incorrect range at in the internal database used to perform the command verification procedure. And it was not possible to configure the IP mode with the buffered SCA readout mode buffered. The acceptance range was corrected, and the command tested.

- The test procedure used was the SFT08_01_IPCExposure.
- With this procedure, the readout configuration mode was programmed to 1028 (equal to IPC mode + SCA Buffered output)

[EUNIDPUASW-95] RAW mode, data size greater than 127 Mb Created: 09/May/19 Updated: 02/Jul/19 Resolved: 24/May/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	Bug	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Attachments:	RAWmode.pdf

Description

Function WriteDataRaw of module DPU_Process (file WriteData.c) in the case

```
if(sumBytes > MAXDRBSPWSIZE)
{
save = sumBytes;
sumBytes = MAXDRBSPWSIZE;
res = WriteToMMU();
if (res != OK){ return(res); }
sumBytes = save - MAXDRBSPWSIZE;
p2DrbMem -= MAXDRBSPWSIZE;
}
```

evaluate the new size, but the pointer is shifted to a wrong address: p2DrbMem -= MAXDRBSPWSIZE;

Therefore,

res = memcpyDMA((uint32_t)p_dataPack[i].data, p2DrbMem, size);

the copy has a correct size, but the data inside is corrupted. Because the first chunk of data is ok, but the second one is repeated with a part of the first chunk.

During tests most probably only the size was tested.

Comments

Comment by Eduardo Medinaceli Villegas [09/May/19]

email of 20-4-19 during EM-TV tests at LAM:

Dear Thierry,
today we further analyzed the problem of the RAW data with 15 groups. We confirm that the issue is not depending on the LED (neither the SpW), and that it is only related to the software. But by the outcome of the analysis of the IWS file, we clearly understand that the problem is always present for 15 groups! compressed or uncompressed; within the conditions discussed yesterday (well identified the function not working properly).
It was already decided that the DPU team will open an NCR for this case; and together with CSS and IWS experts we double cross-checked that RAW data for 14 groups that is OK.

But the data taken in the flat-field procedure of this morning was making a RAW data with 15 groups acquisition; William tell us that raw data in that case was only for a complementary check. I suggested him to run the procedure again (re-scheduling it), even if the data is not used; I will prefer that the data is correct even if not used. But the final decision is up to Thierry/William/Stefano. The duration of the test is about 1 hour, so it is feasible to re-schedule it.

Concerning already programmed test to come using RAW mode (non linearity), it should be done using 14 groups. Therefore, the test procedure has to be modified accordingly.
Regards,
eduardo

Comment by Eduardo Medinaceli Villegas [24/May/19]

Function
STATUS WriteDataRaw(struct Data2Pack_t p_dataPack[], int32_t nGroups) was refactored and the bug was corrected.

When data size (sumBytes) exceeds MAXDRBSPWSIZE (inside the groups loop) the function calls the routine WriteToMMU() to write data in the MMU, then the data size is reset to zero and the pointer is placed at the base memory address.

To be conservative the size MAXDRBSPWSIZE was reduced to

#define MAXDRBSPWSIZE
(DRB_SDRAM_MEM_SIZE - DRB_SDRAM_MEM_RESERVED_SIZE - (TSIZE_MAX* sizeof(uint16_t)))
/** Max usable size of the DRB mem including safety margin of 1 group */

to avoid having a chunk that exceeds the allowed memory size in the DRB buffer

Comment by Eduardo Medinaceli Villegas [24/May/19]

```
STATUS
WriteDataRaw(struct Data2Pack_t p_dataPack[], int32_t nGroups)
{
 STATUS res;
 const int32_t size = TSIZE_MAX * sizeof(uint16_t); /* total bytes x Frame */
 int32_t i;
 res = OK;
 for (i = 0; i < nGroups; i++)
 {
  if(sumBytes > MAXDRBSPWSIZE)
  {
   res = WriteToMMU();
   if (res != OK)
   {       return(res);      }
   sumBytes = 0;
   p2DrbMem = DRB_BASE_MEM_ADDR;
 }

 res = memcpyDMA((uint32_t)p_dataPack[i].data, p2DrbMem, size);
 if (res != OK)
{    ERRORLOG(errno);    /* error moved to function call on test on res */   }
 else
 {    sumBytes += size;   }
p2DrbMem += size;
 }

return (res);
}
```

Comment by Eduardo Medinaceli Villegas [02/Jul/19]

TEST: see attached document RAWmode.pdf

Engineering RAW mode calibration was performed to check the consistency of raw data produced for all groups as well as the processed frame.

- Sequence SFT08_04 was used for the test (with a dedicated initialization file with a MACC(15, 16, 7))

The successful criteria were, to check for the correct generation (size and format) of a file containing the raw data of 15 groups, and correctness of the frame produced by the processing, in the scientific package. The file produced was:
nisp_em_test_NOM_20190620_RAW_073445_00001_000001.lv1

[EUNIDPUASW-96] 1553 interface change DRB_SHSK Created: 17/Jun/19 Updated: 02/Jul/19 Resolved: 25/Jun/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	1553, Commands
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		
Environment:	Due to NISP-FDIR requirements, some new FDIRs were implemented. As a requeriment, all of those FDIR should have a switch to enable/disable them. Four new ones where implemented in table DRB_SHSK		

Attachments:	DRB_SHSK.pdf

Comments

Comment by Eduardo Medinaceli Villegas [25/Jun/19]

parameters added to the command, new prototype is:
static STATUS
DRB_shsk(int32_t onoff, uint32_t period, uint16_t dbbTfdir, uint16_t tempfdir, uint16_t dcdcfdir, uint16_t dcufdir5v, uint16_t sceupsetfdir, uint16_t EOEfdir, uint16_t EODfdir, uint16_t EOTfdir);

Comment by Eduardo Medinaceli Villegas [25/Jun/19]

successfully test performed at LAM with NISP-EM-TV setup,
report attached DRB_SHSK.pdf

Comment by Eduardo Medinaceli Villegas [02/Jul/19]

Redmine entry:

https://www.ict.inaf.it/redmine/issues/1833

Due to the new requirements of the FDIRs of NISP (final version of the document under preparation), the DPU interface with ICU is changed to allow the enable and disable of each new FDIR (being this a requirement of the DPU-ASW).
The added FDIRs are the following:

- SCE double memory upset
- End of Exposure WatchDog FDIR
- End of Processing Watchdog
- End of Transmission to MMU Watchdog

Therefore in command **DRB_SHSK** were added:

- word 8 for FDIR SCE double upset (item7),
- word 9 for FDIR WEOE (item8),
- word 10 for FDIR WEOD (item9),
- and word11 for FDIR WEOT2MMU (item10).

Another requirement of the DPU-ASW states that programmable settings of the DPU have to be echoed in telemetry tables;
this implies that the **MONITOR_TABLE** was modified to allow the copy of the set registers through the DRB_SHSK command.

The MONITOR_TABLE was modified in the following way:

- changed name and bit-field format of word19: DRB HSK Register 1,
  added Table 15-3 with description
- changed name and bit-field format of word20: DCUHSK Register 1,
  added Table 15-2 with description
- changed word 23: removed Repeated Error 1 (already send in Error_Tab); Added DRB HSK Register 2,
  added also Table 15-3-1 with the description of the bit-field
- changed word 24: removed Repeated Error 2 (already send in Error_Tab); Added DCU HSK Register 2,
  added also Table 15-2-1 with the description of the bit-field

*references of tables are to document EUCL-OPD-TN-7-004 (attached)

This Issue will be completed with a link to the DPU-ASW configuration control documentation of the changes (as soon as they'll be available); describing all the new features introduced in the DPU-ASW. This entry considers the 1553 interface with ICU only

[EUNIDPUASW-97] change of format MONITOR_TAB Created: 25/Jun/19 Updated: 02/Jul/19 Resolved: 25/Jun/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	1553, telemetry
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		
Environment:	because there were new NISP-FDIR switches activated through the DRB_SHSK that has to be echoed in telemetry, the format of the table has to be updated		

Attachments:	DRB_SHSK.pdf MONITOR_TAB.pdf

Comments

Comment by Eduardo Medinaceli Villegas [25/Jun/19]

the table was updated, the two words dedicated for the error counter were deleted (because already in the ERROR_TAB), and used for two new registers: DRBHSKMONITOR1 (word19), DRBHSKMONITOR2 (word21).
Also MONITOR_TAB.pdf DCUHSKReg1 (word20) and DCUHSKReg2 (word22) were reformated
registers format:
dpu_MonitorTabGlobal.DRBHSKMONITOR1 = ((period << 8) | (EOTfdir << 6) | (EODfdir << 5) | (EOEfdir << 4) | (dcdcfdir << 3) | (tempfdir << 2) | (dbbTfdir << 1) | onoff);
dpu_MonitorTabGlobal.DRBHSKMONITOR2 = ((sceupsetfdir << 8) | dcufdir5v);

Comment by Eduardo Medinaceli Villegas [25/Jun/19]

tests were performed successfully at LAM with the NISP-EM-TV setup (room temperature).
See more details in Issue DRB_SHSK

[EUNIDPUASW-99] NISP-FDIR Created: 02/Jul/19 Updated: 17/Jul/19 Resolved: 04/Jul/19	
Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		
Environment:	Document Euclid NISP Autonomy and FDIR Concept Document EUCL-OTO-TN-7-002 (Veuillez_signer_avec_DocuSign _EUCL-OTO-TN-7.pdf)define new FDIRs at NISP level to be implemented in the DPU.		

Attachments:	DPU-ASW_v1.2.3_test_2ndPart.pdf EUCL-OTO-TN-7-002_V3_4_NISP_FDIR - draft3SL_EM.xlsx NISP-FDIR_tests_part1.pdf Veuillez_signer_avec_DocuSign _EUCL-OTO-TN-7.pdf

Comments

Comment by Eduardo Medinaceli Villegas [02/Jul/19]

complete list of NISP-FDIRs:

NISP-FDIR-201 DCU temperature over lower threshold
NISP-FDIR-202 DCU temperature over higher threshold
NISP-FDIR-203 DCU over current threshold
NISP-FDIR-205 SCE over current threshold
NISP-FDIR-207 DBB operation fails
NISP-FDIR-209 large number if failed DCU/SCE accumulated in a single DPU
NISP-FDIR-210 internal DPU temperature - CPU board over lower threshold
NISP-FDIR-211 internal DPU temperature - CPU board over higher threshold
NISP-FDIR-212 internal DPU temperature - Main Power supply over lower threshold
NISP-FDIR-213 internal DPU temperature - Main Power supply over higher threshold

NISP-FDIR-214 internal DPU temperature – DBB board over threshold 1
NISP-FDIR-215 internal DPU temperature – DBB board over threshold 2
NISP-FDIR-216 CPU watchdog End of Exposure
NISP-FDIR-217 CPU watchdog End of Dither
NISP-FDIR-218 CPU watchdog End of Transmission
NISP-FDIR-220 SCE double upset
NISP-FDIR-221 DCU 28V
NISP-FDIR-222 DCU 5V

EUCL-OTO-TN-7-002_V3_4_NISP_FDIR - draft3SL_EM.xlsx

new implemented are:

NISP-FDIR-207 DBB operation fails
NISP-FDIR-216 CPU watchdog End of Exposure
NISP-FDIR-217 CPU watchdog End of Dither
NISP-FDIR-218 CPU watchdog End of Transmission
NISP-FDIR-220 SCE double upset
NISP-FDIR-209 large number if failed DCU/SCE accumulated in a single DPU
NISP-FDIR-210 internal DPU temperature - CPU board over lower threshold
NISP-FDIR-211 internal DPU temperature - CPU board over higher threshold
NISP-FDIR-212 internal DPU temperature - Main Power supply over lower threshold
NISP-FDIR-213 internal DPU temperature - Main Power supply over higher threshold
NISP-FDIR-214 internal DPU temperature – DBB board over threshold 1
NISP-FDIR-215 internal DPU temperature – DBB board over threshold 2

Comment by Eduardo Medinaceli Villegas [02/Jul/19]

Test of the NISP-FDIR requirements

Not all the DPU FDIRs have to be tested, because only for some of them there was a new procedure required.
NISP-FDIR that were already tested in previous campaigns are:
NISP-FDIR-201 DCU temperature over lower threshold
NISP-FDIR-202 DCU temperature over higher threshold
NISP-FDIR-203 DCU over current threshold
NISP-FDIR-204 (deleted)
NISP-FDIR-205 SCE over current threshold
NISP-FDIR-206 (deleted)
NISP-FDIR-208 (deleted)
NISP-FDIR-219 (deleted)
NISP-FDIR-221 DCU 28V
NISP-FDIR-222 DCU 5V

list of NISP-FDIR not possible to trigger with current configuration:
NISP-FDIR-207 DBB operation fail (impossible to trigger a hardware memory fail)**
NISP-FDIR-216 CPU watchdog End of Exposure*
NISP-FDIR-217 CPU watchdog End of Dither*
NISP-FDIR-218 CPU watchdog End of Transmission*
NISP-FDIR-220 SCE double upset (impossible to trigger a hardware memory fail)

-
  - the mechanism associated to a memory fail (error signaling) was already tested, in the previous tests were real memory problems were experienced.
- for these FDIRs all related to watchdogs in the current software configuration were the ASW is loaded through the serial interface one package at the time, there were dependences related to the order or code uploading. Therefore, the change of status (new feature for these FDIRs) cannot be called at this instance. Nevertheless, watchdog mechanisms were extensively tested during previous campaigns; therefore, only the status change associated to the watchdog was not tested. All these NISP-FDIRs could be tested once that the source code is loaded in the DPU E2PROM memory.

FDIRs under test are:
NISP-FDIR-209 large number if failed DCU/SCE accumulated in a single DPU
NISP-FDIR-210 internal DPU temperature - CPU board over lower threshold
NISP-FDIR-211 internal DPU temperature - CPU board over higher threshold
NISP-FDIR-212 internal DPU temperature - Main Power supply over lower threshold
NISP-FDIR-213 internal DPU temperature - Main Power supply over higher threshold
NISP-FDIR-214 internal DPU temperature – DBB board over threshold 1
NISP-FDIR-215 internal DPU temperature – DBB board over threshold 2

Comment by Eduardo Medinaceli Villegas [02/Jul/19]

see attached document NISP-FDIR_tests_part1.pdf**

NISP-FDIR-209 large number if failed DCU/SCE accumulated in a single DPU

- this FDIR was tested by powering on the focal plane (with a wrong configuration for the DCUs, lower thresholds) and consequently the DCUs started to power off.
  The successful criteria was to check the final state of the DPU (MONITOR_TAB word 11), and check the active DCU-SCE mask (MONITOR_TAB word 5).

It was verified that the active DCU-SCE mask was updated accordingly; and that when the last DCU was powered off by the DPU, the final state was PARKED.

NISP-FDIRs related to temperature thresholds

- for all the cases (NISP-FDIR 2010 to 2015) the test procedure was to change the thresholds in the SYSTEM_CONFIGURATION_TAB to trigger the over threshold.

The success criteria was to see the associated action over the hardware and detect the final status of the DPU.

NISP-FDIR-210 internal DPU temperature - CPU board over lower threshold

Measured temperature of the DPU was about T~ 300 K
Lower temperature threshold was set to T~low_th~ = 289 K
Higher temperature threshold was not changed and lived at T~high_th~ = 320 K

Results:

- An error of medium criticality = 2 was send with the error code 0xBBB002 (CPU temperature warning) each five seconds.
- the final state of the DPU was DPU_SAFE

NISP-FDIR-211 internal DPU temperature - CPU board over higher threshold

Measured temperature of the CPU board was about T~ 300 K
Lower temperature threshold was set to T~low_th~ = 289 K
Higher temperature threshold was set to T~high_th~ = 292 K

Results:

- An error of high criticality = 3 was send with the error code 0xAAA003 (CPU temperature alarm).
- the final state of the DPU was DPU_SAFE

****NISP-FDIR-212 internal DPU temperature - Main Power supply over lower threshold**

Measured temperature of the DCDC main power supply was about T~ 302 K
Lower temperature threshold was set to T~low_th~ = 289 K
Higher temperature threshold was not changed and lived at T~high_th~ = 330 K

Results:

- An error of medium criticality = 2 was send with the error code 0xBBB04 (DCDC temperature warning) each five seconds.
- the final state of the DPU was DPU_SAFE

NISP-FDIR-213 internal DPU temperature - Main Power supply over higher threshold

Measured temperature of the DCDC main power supply was about T~ 302 K
Lower temperature threshold was not changed and lived at T~low_th~ = 324 K
Higher temperature threshold was set to T~high_th~ = 292 K

Results:

- An error of high criticality = 3 was send with the error code 0xAAA05 (DCDC temperature alarm).
- the final state of the DPU was DPU_SAFE

NISP-FDIR-214 internal DPU temperature – DBB board over threshold 1

Measured temperature of the DBB was about T~ 302 K
Lower temperature threshold was set to T~low_th~ = 289 K
Higher temperature threshold was not changed and lived at T~high_th~ = 324 K

Results:

- An error of medium criticality = 2 was send with the error code 0xBBB03 (DBB temperature warning) each five seconds.
- the final state of the DPU was DPU_SAFE

NISP-FDIR-215 internal DPU temperature – DBB board over threshold 2

Measured temperature of the DCDC main power supply was about T~ 302 K
Lower temperature threshold was not changed and lived at T~low_th~ = 320 K
Higher temperature threshold was set to T~high_th~ = 292 K

Results:

- An error of high criticality = 3 was send with the error code 0xAAA04 (DBB temperature alarm).
- the final state of the DPU was DPU_SAFE

Comment by Eduardo Medinaceli Villegas [03/Jul/19]

IMPLEMENTATION:

new prototype for command DRB_SHSK:

STATUS DRBSHSK(int32_t onoff, uint32_t period, uint16_t dbbTfdir, uint16_t tempfdir, uint16_t dcdcfdir, uint16_t dcufdir5v, uint16_t EOEfdir, uint16_t EODfir, uint16_t EOTfdir)

NISP-FDIR-207

In file Process.c

```
res = ioctl(msgbuffer.pars[0], IOC_DBB_BUF_DEQUEUE, (uint32_t)&dbb_deq);
if (res != OK)
{
  ERRORLOG(errno);
  ERRORLOG(PRC_EDEQUEUE);
  ASWErrnoLog(errno, IDtask2EntryID(taskIdSelf()),
  taskIdSelf());
  ASWErrorCmdLog(TASKPROC,
  (uint16_t)ASW_FUNC_IOC_DBB_BUF_DEQUEUE, (int32_t)PRC_EDEQUEUE,
  crit_high);
  Set_ASW_STATUS_CPU_PARKED(); /* NISP-FDIR-207 */
  abortFlag = ASW_TRUE;
  break;  /* Can't control. Emergency exit with abort */
}
```

and

```
if (*data2Pack[i].crc != crc)
{
  ERRORLOG(PRC_ECRC);
 ASWErrnoLog(0, IDtask2EntryID(taskIdSelf()),
 taskIdSelf());
 ASWErrorCmdLog(TASKPROC, (uint16_t)0, (int32_t)PRC_ECRC,
 crit_high);
 Set_ASW_STATUS_CPU_PARKED(); /* NISP-FDIR-207 */
 crcErrorMask_Global |= 1 << i;
}
```

NISP-FDIR-209

```
void CheckFDIRactiveDCU(void)
{
  if(GetNActiveDCU() == 0)
 {   ASWErrnoLog(0, 0, taskIdSelf()); /* 2nd param, dcu_id = 0 */
     ASWErrorCmdLog(TASKCMD, 0, (int32_t)DCUASW_ALLDCUOFF,
     crit_high);
     Set_ASW_STATUS_CPU_PARKED();
 }
```

```
  return;
}
```

NISP-FDIR-210

In file DRB_Commands.c

```
ASWErrorCmdLog(TASKCMD, 0, (int32_t)WARNING_CPUTEMP, crit_high);

if (drbFDIR_CPUTemp == ASW_TRUE)
{    Set_ASW_STATUS_CPU_SAFE();  }
```

NISP-FDIR-211

In file DRB_Commands.c

```
ASWErrorCmdLog(TASKCMD, 0, (int32_t)ALARM_CPUTEMP, crit_ext);

if (drbFDIR_CPUTemp == ASW_TRUE)
{    Set_ASW_STATUS_CPU_SAFE(); }
```

NISP-FDIR-212

In file DRB_Commands.c

```
ASWErrorCmdLog(TASKCMD, 0, (int32_t)WARNING_DCDCTEMP, crit_high);

if (drbFDIR_DCDCTemp == ASW_TRUE)
{    Set_ASW_STATUS_CPU_SAFE(); }
```

NISP-FDIR-213

In file DRB_Commands.c

```
ASWErrorCmdLog(TASKCMD, 0, (int32_t)ALARM_DCDCTEMP, crit_ext); /* NISP-FDIR-213 */

if (drbFDIR_DCDCTemp == ASW_TRUE)
{    Set_ASW_STATUS_CPU_SAFE();  }
```

NISP-FDIR-214

In file DRB_Commands.c

```
ASWErrorCmdLog(TASKCMD, 0, (int32_t)WARNING_DBBTEMP, crit_high); /* NISP-FDIR-214 */

if(dbbFDIR_FPGATemp == ASW_TRUE)
{    Set_ASW_STATUS_CPU_SAFE(); /* to prevent generation of new data */ }
```

NISP-FDIR-215

In file DRB_Commands.c

```
ASWErrorCmdLog(TASKCMD, 0, (int32_t)ALARM_DBBTEMP, crit_ext); /* NISP-FDIR-215 */

if(dbbFDIR_FPGATemp == ASW_TRUE)
{    Set_ASW_STATUS_CPU_SAFE(); /* to prevent generation of new data */ }
```

NISP-FDIR-216

in file WdExp.c

```
if (EOEfdir_global == ASW_TRUE)
{    Set_ASW_STATUS_CPU_PARKED();  }
```

NISP-FDIR-217

In file WdProc.c

```
if (EODfdir_global == ASW_TRUE)
{    Set_ASW_STATUS_CPU_PARKED(); }
```

NISP-FDIR-218

In file WriteData.c

```
len = write(spwMMU_Global, (char_t *)DRB_BASE_MEM_ADDR, sumBytes);
if (len < sumBytes)
{
```

```
   ERRORLOG(errno);    res = ERROR;    ASWErrnoLog(errno, 0,
   taskIdSelf());    ASWErrorCmdLog(TASKPROC,
   (uint16_t)ASW_FUNC_WRITETOMMU,
   (int32_t)PRC_EMMUWRITE, crit_high);
   DataTransmissionError_Global = 1U; /* NISP-FDIR-218 */
}
```

in file process.c

```
if ( (DataTransmissionError_Global == 1U) && (EOTfdir_global == 1) )
{    taskDelay(sysClkRateGet());     Set_ASW_STATUS_CPU_PARKED(); /* NISP-FDIR-218
*/ }
```

NISP-FDIR-220

In file DCU_Commands.c

```
if (error_sce_off ==1)
{
  SetSCEBootOFF(dcu_id);
  DCUPowerOff(dcu_id);
  SetDCUPowerOFF(dcu_id);

  CheckFDIRactiveDCU(); /* NISP-FDIR-209 */

  if (SCEUPSET_global == ASW_TRUE)
 {   SetSCEBootOFF(dcu_id);
     DCUPowerOff(dcu_id);
     SetDCUPowerOFF(dcu_id);
    CheckFDIRactiveDCU();  /* NISP-FDIR-209 */
  }
}
```

[EUNIDPUASW-100] SYS_CONFIG elapsed time 1553 initialization Created: 02/Jul/19 Updated: 02/Jul/19 Resolved: 02/Jul/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	1553
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	Bug	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		
Environment:	in SYS_CONFIG Added elapsed time wait before automatic re-boot on 1553 missing communication at ASW boot/re-boot. Word 11, removed from COMMANDING_TABLES document. There was not such field in the DPU internal structure sysConfigTabGlobal		

[EUNIDPUASW-104] Error Handling Strategy: Death Report errors at initialization phase

Created: 05/Jul/19 Updated: 05/Jul/19 Resolved: 05/Jul/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Attachments:	DethRepTest_initErrors.pdf

Description

The structure of the Death Report was modified to include the driver/software error trapped at the initialization phase of the DPU-ASW, where there is not yet available the 1553 interface

Comments

Comment by Eduardo Medinaceli Villegas [05/Jul/19]

new structure

struct deathRep_s //Structure to map the death report memory area

{ int32_t deathSize; aswVersion[DEATH_VERS_MAX_SIZE]; t_obt time; int32_t driver_err; driver/ASW error, in the initialization phase int32_t vecNum; char taskName[32]; ESFPPC esfRegs; REG_SET regs; TaskInfo myTaskInfoData; char *myTaskInfoStack[10000]; TaskInfo AswTasks[TASK_N]; } ;

new parameter: int32_t driver_err;

Comment by Eduardo Medinaceli Villegas [05/Jul/19]

functions to inject error, in DPU_Utils.c:

critical error, error injected and reset of the CPU:

void UnrecoverableError(int32_t ext_err) /* errno */

```
{ deathRep->driver_err = ext_err; kickWatchdog_Global = ASW_FALSE; /* DPU reset */ return; }
```

less critical error (withou reset):

void InitializationError(int32_t ext_err)
{ deathRep->driver_err = ext_err; INIT_ERR_Global = ASW_TRUE; return; }

Comment by Eduardo Medinaceli Villegas [05/Jul/19]

Test in DethRepTest_initErrors.pdf

[EUNIDPUASW-105] Error Handling Strategy: new level of criticality Created: 05/Jul/19 Updated: 05/Jul/19 Resolved: 05/Jul/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	error_handling
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

To be compliant with the NISP-FDIR requirements a new level in the criticlity of erros was addes; indicating the higher criticality level wich is translated in a C3 PUS event by ICU

Comments

Comment by Eduardo Medinaceli Villegas [05/Jul/19]

The level 3 was added:

typedef enum /* check document Space to Ground ICD Part3 (EUCL-TAST-ICD-1-003) */

{ crit_low, /* 0, recovery error, warning */ crit_medium, /* 1, require autonomous on-board action */ crit_high, /* 2, stop of functionality / FDIR, require on-ground action */ crit_ext /* 3, stop of functionality / FDIR, require on-ground action, and is requested to SpC to turn OFF the DPU */ }

criticity_t;

A loop over this error queue was implemented in the Error Handling strategy with the highest priority.

Comment by Eduardo Medinaceli Villegas [05/Jul/19]

This level of error is applied in:

NISP-FDIR-211
NISP-FDIR-213
NISP-FDIR-215

Comment by Eduardo Medinaceli Villegas [05/Jul/19]

tets:

- new error handling strategy (highest criticality level)*

The new criticality level of error was successfully tested with the 1553 interface. The highest criticality error (equal to 3) was triggered and the associated ERROR_TAB was generated and retrieved. The criticality level was correctly reported in the ICU interface and at the SCOE, correspondingly. NISP-FDIR-211 was used as a trigger to test the new error interface.

[EUNIDPUASW-106] Optimization tables for 16 DCUs Created: 05/Jul/19 Updated: 17/Jul/19 Resolved: 05/Jul/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands, E2PROM
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

A set of personalized parameters for each DCU were saved in the configuration file written in E2PROM. The power on procedure of the DCUs access to these configuration values.

Comments

Comment by Eduardo Medinaceli Villegas [05/Jul/19]

The following structure was prepared for all 16 DCUs in the configuration file EEF in E2PROM:

/* DCU0 OPTAB Current Thresholds :
I Threshold VDD3P3 Max=20mAmp Min=12mAmp
I Threshold VDD2P5 Max=78mAmp Min=48mAmp
I Threshold VDDIO Max=80mAmp Min=48mAmp
I Threshold VDDA Max=105mAmp Min=96mAmp I Threshold VDDA Decimal values Max=135mAmp Min=105mAmp (Current Spike)
I Threshold VREF Max=2mAmp Min=1mAmp */

```
0x02, 0x22, 0x01, 0x43,
0x08, 0x50, 0x06, 0x00,
0x08, 0x88, 0x05, 0x13,
0x07, 0x00, 0x06, 0x63, /* Current Threshold VDDA Hex values 0x08, 0x99 (135mA), and
0x07, 0x00 (105mA) (Current spike)*/
0x06, 0x66, 0x03, 0xD3,

/* DCU0 OPTAB Voltage Threshold :
V Threshold VDD3P3 =3.5V
V Threshold VDD2P5 =2.8V
V Threshold VDDIO =2.2V
V Threshold VSSIO =1.4V
V Threshold VDDA =4.0V
V Threshold VREF =3.5V
V Threshold VDDA R =4.0V */

0x0B, 0x32,
0x09, 0x99,
0x07, 0x09,
0x04, 0x7A,
0x0C, 0xCC,
0x0B, 0x32,
0x0C, 0xCC,

/* DCU0 OPTAB V2P5,
VDDA Voltage settings : */

0x08, 0x01,
0x08, 0x01,
```

Comment by Eduardo Medinaceli Villegas [05/Jul/19]

A dedicated function to retrieve the corresponding value of each DCU was refactored to take into account the 2nd DPU, using the RT address

```
static uint16_t
GetDCUOptPoint(int32_t dcu_id)
{
uint16_t DCU_opt;

if ( (RTid_Global == 3) || (RTid_Global == 4) ) /* get configuration tables of DPU2 */

    { dcu_id += DETECTORS; }
```

```
/* Compute off-set to Start of DCU optimization section inside EEF_w16 */
DCU_opt = ( (16 * SCE_OPTAB_SIZE) + EEF_SIZE + (DCU_OPTAB_SIZE*dcu_id) );
return (DCU_opt);
}
```

Comment by Eduardo Medinaceli Villegas [17/Jul/19]

test:

1. **Focal plane turn-on with 16 DCUs and 16 SCEs customized configuration tables (EEF)**

Test 1 was repeated, with the difference that this time the configuration tables was read from E2PROM. In test 1 the power-on of the focal plane was tested using the copy in RAM of the EEF.
The DPU-ASW at the initialization phase performs a copy in RAM of the EEF from E2PROM. This procedure is performed using internally the function CPU_MBE which is the same function associated with command CPU_MBE of the 1553 command interface. The copy is performed recursively at initialization, checking first the 1^st^ page of the E2PROM image (controlling crc32 of the page) and checking for segment type 3; if the required segment id is not fount or the content is corrupted (crc16 is checked) then segment id = 4 is searched. This segment is the redundant copy of the EEF file. If neither segments id 3 nor 4 are found, the 2^nd^ E2PROM page is accessed and segments 3 and 4 are searched.

If both pages (1^st^ and 2^nd^ have corrupted information), the ASW startup with a copy on RAM of the EEF. In all the error cases, an error is saved (CPUASW_ESEGTYPEA=0xCCC01U, or CPUASW_ESEGTYPEB=0xCCC4DU) in the DEATH_REPORT and the generic error code (ASW_INTERROR = 0xA573F3U) is sent at the end of the DPU initialization.

The test procedure was the following:

- run SFT01 (to power on ICU)
- run SFT03 (to power on DPU, and turn on the focal plane: 6DCU/SCE)
- run SFT06 (Nominal Dither)
- run SFT07 (a shorter Dither, using simulated data)

Test Results:

- all DCUs powered on, and all SCE booted correctly
- data correctly generated by the detectors for both SFT06 and SFT07; correctly processed, and correctly transmitted. Without errors in any phase.

Note: in both cases, the data transmission was low! for SFT06 it takes 3 times nominal time; data transmission without errors, correctly written on IWS, sizes OK. Only very low-speed transmission. This issue comes from the setup, and not from the software; therefore, the test was evaluated as successful.

[EUNIDPUASW-107] Initialization error injection at DPU_START Created: 06/Jul/19 Updated: 06/Jul/19 Resolved: 06/Jul/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Attachments:	ASWinit_fromErrorHandlingStrategy.pdf

Description

Functions:
void InitializationError(int32_t ext_err) and
void UnrecoverableError(int32_t ext_err)
are used to inject erros when there is not yet available the 1553 interface

Comments

Comment by Eduardo Medinaceli Villegas [06/Jul/19]

It is foreseen to have an ASW initialization without any error in 1553 interface at the final state of the ASW (ASW_STATUS_SAFE or ASW_STATUS_PARKED); neither a reboot is expected at this phase for a regular initialization. But if, known issues related to the hardware (HW) could lead to medium criticality errors at the initialization. If those are expected because

the completely understand anomalous behavior of the HW, the ASW could still be run with the limitations generated by the error. In any case, this condition must be carefully examined by a DPU expert.

Comment by Eduardo Medinaceli Villegas [06/Jul/19]

1.1. List of medium criticality errors during the ASW initialization

In the following conditions the ASW_INITERROR will be send at the end of the ASW initialization (all from DPU_Start function supervisor.c):

- not able to copy the optimization EEF file from E2PROM in RAM (wrong segment A and/or wrong segment B)
- not able to open Nominal SpW channel form DRB interface with MMU
- not able to open Redundant SpW channel form DRB interface with MMU
- not able to open SpW link of DBB interface with DCU1
- not able to open SpW link of DBB interface with DCU2
- not able to open SpW link of DBB interface with DCU3
- not able to open SpW link of DBB interface with DCU4
- not able to open SpW link of DBB interface with DCU5
- not able to open SpW link of DBB interface with DCU6
- not able to open SpW link of DBB interface with DCU7
- not able to open SpW link of DBB interface with DCU8

- not able to send VxWorks message to DBB interrupt handler (IsrSelect)
- not able to open descriptor of DCU1
- not able to open descriptor of DCU2
- not able to open descriptor of DCU3
- not able to open descriptor of DCU4
- not able to open descriptor of DCU5
- not able to open descriptor of DCU6
- not able to open descriptor of DCU7
- not able to open descriptor of DCU8
- not able to open sdc interface of DCU1
- not able to open sdc interface of DCU2
- not able to open sdc interface of DCU3
- not able to open sdc interface of DCU4
- not able to open sdc interface of DCU5
- not able to open sdc interface of DCU6
- not able to open sdc interface of DCU7
- not able to open sdc interface of DCU8
- not able to open analog interface of DCU1
- not able to open analog interface of DCU2
- not able to open analog interface of DCU3
- not able to open analog interface of DCU4
- not able to open analog interface of DCU5

- not able to open analog interface of DCU6
- not able to open analog interface of DCU7
- not able to open analog interface of DCU8

- not able to initialize DRB memory

- not able to initialize DBB memory
- not able to receive VxWorks spv_msg from ErrorHandling task
- not able to receive VxWorks spv_msg from IsrSelect task
- not able to receive VxWorks spv_msg from IsrHandler task
- not able to receive VxWorks spv_msg from HW_watchdog task
- not able to initialize the CPU load task
- not able to receive VxWorks spv_msg from ASW1553 task
- not able to send VxWorks spv_msg from HW_watchdog task handler

For the rest of the initialization errors, the usual 1553 interface is used (ERROR_TAB).

1.2. List of unrecoverable errors during the ASW initialization

The following is the list of critical/unrecoverable errors causing the DPU-ASW malfunctioning; the internal ASW action is to trigger a CPU reboot saving the internal error in the DEATH REPORT (from DPU_Start function supervisor.c):

- not able to open redundant SpW channel (in the MMU interface), after failing to open the Nominal SpW channel
- not able to open DRB Diagnostic device
- not able to open DRB HSK analog device
- not able to open DRB Sync device
- not able to open DBB Diagnostic device
- not able to open DCU Broadcast device
- not able to open DCU sdc Broadcast device
- not able to enable DRB Sync
- not able to install and activate DRB driver
- not able to activate OBT driver
- not able to install and activate DBB driver
- not able to install and activate DCU driver
- not able to create spv_msg VxWorks message queue
- not able to spawn Error Handling task
- not able to spawn Select task
- not able to spawn Isr task
- not able to spawn Watchdog system task
- not able to create VxWorks semaphore semLockDitherTable
- not able to create VxWorks semaphore semLockProcParamTable
- not able to create VxWorks semaphore semLockSysConfigTable
- not able to create VxWorks semaphore semLockAswStatus
- not able to create VxWorks semaphore semLockDcu

- not able to create VxWorks semaphore semLockTimePackage
- not able to spawn Watchdog 1553 task

from function ASW1553.c:

- not able to create VxWorks message queue mcr1553_msg
- not able to attach ISR to YF_INT of the 1553 interface

- not able to attach ISR to MSG_INT of the 1553 interface

- not able to initialize Remote Terminal of the 1553 interface
- not able to enable any of the 1553 sub-address to transmission
- not able to enable any of the 1553 sub-address for receive
- not able to configure mode code 1 of the 1553 interface
- not able to configure mode code 17 of the 1553 interface
- not able to legalize any of the sub-addresses (29, 18, 17) of the 1553 interface
- not able to legalize any of the mode codes (1, 17) for broadcast of the 1553 interface
- not able to send VxWorks spv_msg from 1553 task handler

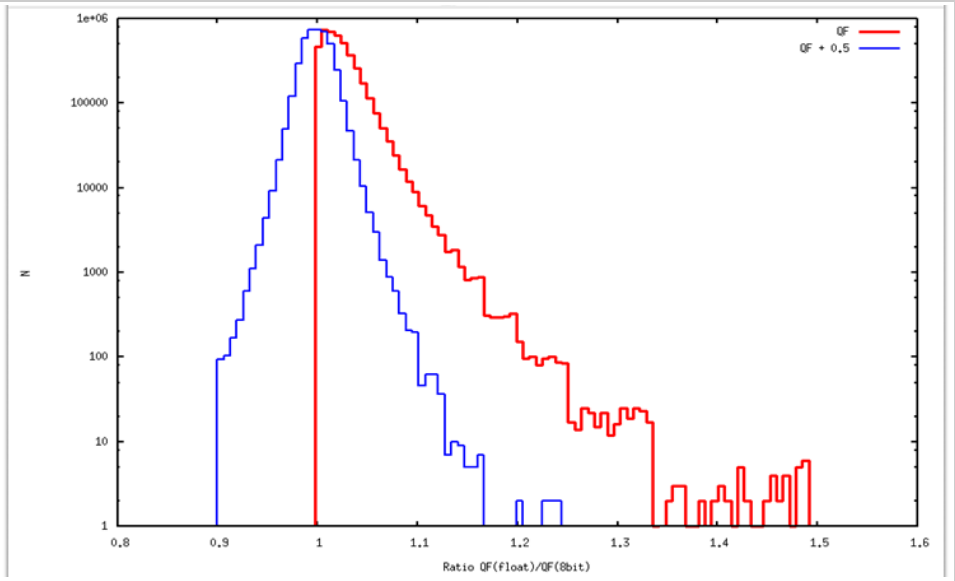
[EUNIDPUASW-108] Processing m chi2 rounding

Created: 10/Jul/19 Updated: 10/Jul/19 Resolved: 10/Jul/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Attachments:	ProcAlgo_increaseresolut_chi2.pdf ratio.png



Description

Due to casting chi2 into uchar_t (8bit) some resolution is lost. To increase the resolution of the rounding before the cast, a +0.5 is added

Comments

Comment by Eduardo Medinaceli Villegas [10/Jul/19]

chi2 definition unvariable, line 385

chi2Temp = (((2.0F*gain) / (alfa + 1.0F)) * ((float32_t)nGroupsMin1 * fact - (ramp[nGroupsMin1] - ramp[0])));

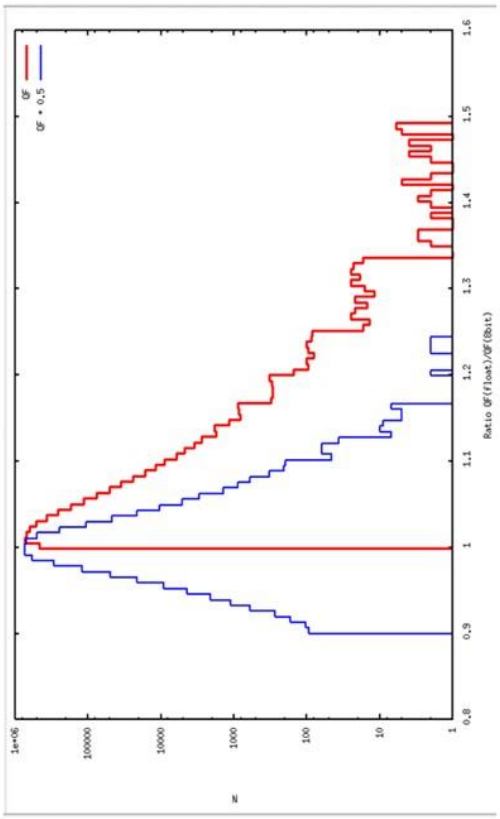
added +0.5 before the cast, line 407

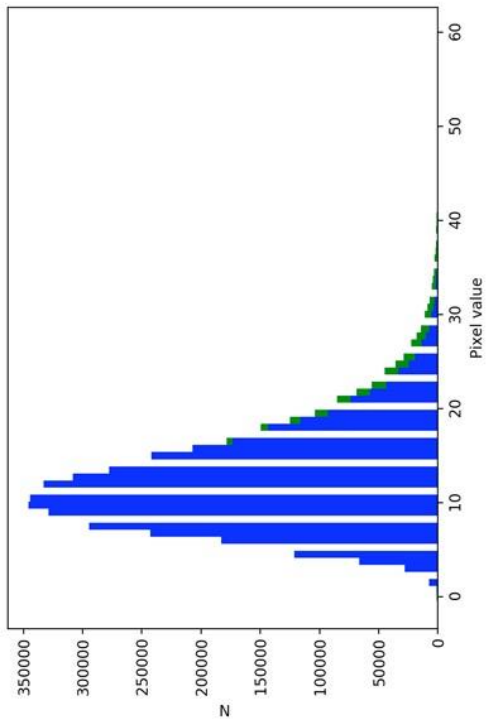
p_chi2[pix] = (uchar_t)(chi2Temp + 0.5); /* increase resolution of rounding in 8 bit */

DPU-ASW processing QF

EUCLID Consortium

Using data from LAM campaign: nisp_em_test_NOM_20190417_134424_00002_000001.lv1
Off-line processing performed with following arbitrary parameters RON=25 (e⁻) GAIN=1.7 e⁻/ADU





ratio (float/int) DPU QF

ratio (float/int+0.5) DPU QF

Blue: theoretical χ^2 value for 13 dof

Green: QF from DPU processing

$\chi^2 = (\text{uchar\_t}) \ (\chi^2 + 0.5)$;

DPU-ASW team

PM Marseille, 09/07/19

5/7

[EUNIDPUASW-101] CPU_WDG added limits for parameter: cpu scrubbing period, command acceptance. Changed DPU_STATUS_TAB format

Created: 02/Jul/19 Updated: 02/Jul/19 Resolved: 02/Jul/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		
Environment:	added min and max values for CPU scrubbing period		

Attachments:	CPU_WDG.pdf STATUS_TAB.pdf

Comments

Comment by Eduardo Medinaceli Villegas [02/Jul/19]

COMMAND_t cpuWDG_cmd = {{13, 1, 0} ,{{1, 0, 1} , {1, 0, 1}, {1, 0, 0xFFFF}, {1, 0, 0xFFFF}},7,
(ASW_STATUS_MANUAL | SCE_EEF_STATUS_IDLE | ASW_STATUS_CPU_SAFE | ASW_STATUS_CPU_PARKED)};

Comment by Eduardo Medinaceli Villegas [02/Jul/19]

reference https://www.ict.inaf.it/redmine/issues/1882

during the test at LAM were verified some issues with command CPU_WDG.
1. the 3rd argument of the command (CPU scrubbing period) send by ICU/SCOE was set to hours.
Due to changes in the documentation (commanding tables v2.8), where the period was changed from hours to arbitrary units [a.u.] (depending on the CPU board frequency, the total size of the

memory in cache lines) the period was not updated to a.u. From the DPU side, the command is implemented to be programmed using u.a for the scrubbing period.
Therefore, the parameter send by ICU/SCOE must be coherent with that convention.
Default values for these parameters are:
CPU scrubbing flag default = 25749 (corresponding to a complete day time lapse), and
CPU res-sync period = 10 s
2. the associated telemetry of the DPU to this command, which echoes the programmed parameters in the DPU_STATUS_TAB was kept in hours. And was used a single 16bit register to copy both the scrubbing period (parameter 3) and the CPU resrync time (parameter 4):
telemetry_register = ((cpu_resync << 8) | cpu_scrub);
Under the convention of point 1. this is a bug.
The proposal is to add a 16bit register in the DPU_STATUS_TAB (changing the 1553 interface); nevertheless, this should be the option with a less impact for the functionality of NISP (instead of changing CPU_WDG command expressing the scrubbing time in hours. This implies truncation of floating point operations)

{{The new format of the DPU_STATUS_TAB should include new 16bit 1553 word, then the final length of the table should be of }}
{{ 26 words (starting from 0). Where:}}
{{ word 25 = CPU scrubbing period}}
{{ word 26 = CPU re-sync period}}
{{ all the other words of the table remain unchanged.}}

Documentation (Commanding tables) will be updated accordingly, the attached pdf files (CPU_WDG.pdf, and STATUS_TAB.pdf) show the updated tables.

The following modification to the code will be traced with the configuration control toolkit (Jira) of the DPU:
dpu_StatusTabGlobal.ASWWDGREG1 = wdEOE | (wdEODP << 1);
dpu_StatusTabGlobal.ASWWDGREG2 = scrubFlag;
dpu_StatusTabGlobal.ASWWDGREG3 = cpuTRC;

see attached documents: CPU_WDG.pdf STATUS_TAB.pdf

[EUNIDPUASW-102] added error in Death Report at ASW initialization performing CPU_MBE Created: 05/Jul/19 Updated: 05/Jul/19 Resolved: 05/Jul/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		
Environment:	During initialization of the ASW the EEF is read from E2PROM, from segment A and in case it is not found, or not correct (wrong crc); then is retrieved from segment B. If also in this case there is not found or neither was not ok, the 3rd copy in RAM is used. In both failure cases, errors are signaled in the dedicated driver error field in the Death Report; it is done there because at this time there is not yet the 1553 link available.		

Comments

Comment by Eduardo Medinaceli Villegas [05/Jul/19]

Errors are injected using function InitializationError(ERROR), using ERROR codes: CPUASW_ESEGTYPEA and CPUASW_ESEGTYPEB respectively.
Both errors were added in the error list as:

#define CPUASW_ESEGTYPEA (CPUASW_OK + 0x01U) Wrong segment type A for EEF and
#define CPUASW_ESEGTYPEB (CPUASW_OK + 0x04DU) Wrong segment type B for EEF (using RAM copy of EEF)

Comment by Eduardo Medinaceli Villegas [05/Jul/19]

```
/* copy EEF from E2PROM (N or R) to RAM (to prevent misalignment), if fails keep RAM
version */
res = CPUMBE(EEF_SEG_TYPEA);
if (res != OK)
{
    ERRORLOG(CPUASW_ESEGTYPEA);
    res = CPUMBE(EEF_SEG_TYPEB);
   if(res != OK)
   {      ERRORLOG(CPUASW_ESEGTYPEB);
          #ifdef ASW_DEBUG
          printf("CPUMBE: using EEF_boot_tab from RAM \n");
          #endif
          InitializationError(CPUASW_ESEGTYPEB);
   }
   else
   {
    #ifdef ASW_DEBUG
    printf("CPUMBE: Copy EEF_boot_tab from EEF_SEG_TYPE = (CPUMBE) %d \n",
    EEF_SEG_TYPEB); #endif
    }
    InitializationError(CPUASW_ESEGTYPEA);
}
else
{
   #ifdef ASW_DEBUG
   printf("CPUMBE: Copy EEF_boot_tab from EEF_SEG_TYPE = (CPUMBE) %d \n",
   EEF_SEG_TYPEA);
   #endif
}
```

[EUNIDPUASW-103] added GainFactor and ReadOutNoise in digital telemetry Created: 05/Jul/19 Updated: 05/Jul/19 Resolved: 05/Jul/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	None
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Attachments:	DigitalTLM.pdf

Description

it was found necessary to have these values written in the digital telemetry in order to have all the necessary information inside the single SpW packet, to cross-check the processing.

Comments

Comment by Eduardo Medinaceli Villegas [05/Jul/19]

In Process.c added

```
finalDataPack.uncHeader.telemetryDigital[40] = procParamTabGlobal.Ron_Det[curDet];
finalDataPack.uncHeader.telemetryDigital[41] = procParamTabGlobal.Gain_Det[curDet];
```

[EUNIDPUASW-109] Toogle_ASW_STATUS_CPU_PARKED instead of Set in both WD

Created: 22/Jul/19 Updated: 22/Jul/19 Resolved: 22/Jul/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

Changed Toggle_ASW_STATUS_CPU_PARKED(); instead of
Set_ASW_STATUS_CPU_PARKED();
in both Eo*_WDs
because SCE should be in IDLE state after the ResetDcuAndDbb()

[EUNIDPUASW-110] NISP-FDIR-217 Created: 22/Jul/19 Updated: 05/Sep/19 Resolved: 22/Jul/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

When the EoD_WD expires the DPU should transit to ASW_PARKED; just after the VxWorks message CMD_PRC_ABORT is handled ResetDcuAndDbb() taking the DPU into OBSERVATION_WAITING and SCE_IDLE which takes some time to be excuted. Then a 2 s delay was added before the final change of status

Comments

Comment by Eduardo Medinaceli Villegas [22/Jul/19]

```
if (EODfdir_global == ASW_TRUE)
{   taskDelay(sysClkRateGet() * 2); // wait for ResetDcuAndDbb() to finish
   Toggle_ASW_STATUS_CPU_PARKED(); // NISP-FDIR-217
}
```

The 2s delay was tested using the DPU-EQM equipped with 6 SCE and has to be tested/tunned with 8

Comment by Eduardo Medinaceli Villegas [05/Sep/19]

While performing a test with the SSS simulator at LAM using the DPU-EQMwith 8 DCU/SCE it was seen that the transition to PARKED occurs but before the finalization of the DCUABORT which ends in an OBSERVATION state.

Therefore, the task delay was increased to 4s to prevent guarantee that transition to PARKED happens after the abort operations.

[EUNIDPUASW-111] change of status after DCUDABT Created: 22/Jul/19 Updated: 22/Jul/19 Resolved: 22/Jul/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

Added change of statuses to ASW_STATUS_OBS_WAIT() if not in MANUAL and SCE_EEF_STATUS_IDLE()
in DCUDABT called internally by the ASW when EO*_WD are triggered

Comments

Comment by Eduardo Medinaceli Villegas [22/Jul/19]

in this way when any of the WD will be triggered, the ASW will perform a full clean of the ongoing Dither.
It was already OK for EoE_WD and now is added to EoD_WD

Comment by Eduardo Medinaceli Villegas [22/Jul/19]

```
if ((AswStatusFlag_Global & ASW_STATUS_MANUAL) != ASW_STATUS_MANUAL) /*
if comes from MANUAL stay in MANUAL */
{
   // set-up of state OBSERVATION WAITING, without test on res of DCU_dabt
   Toggle_ASW_STATUS_OBS_WAIT();
```

```
}
  //set-up of state SCE EEF IDLE
  Toggle_SCE_EEF_STATUS_IDLE();
```

[EUNIDPUASW-112] DCU Error Flag in digital telemetry Created: 22/Jul/19 Updated: 27/Aug/19 Resolved: 22/Jul/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing, telemetry
Affects Version/s:	DPU_ASW_v1.2.2
Fix Version/s:	DPU_ASW_v1.2.3

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 day		

Attachments:	IWS_ERROR.PNG

Description

The DCU's error flag array data2Pack[i].errorTab was not correctly copied in the scientific telemetry.

Comments

Comment by Eduardo Medinaceli Villegas [22/Jul/19]

The error flag was correctly copied for each group

```
for (i = 0; i < dithConfTabLocal.Exposures[nExp].Groups; i++)
{
    memcpy((void *)&tmpErrors[i * DP_ERR_TAB_SIZE], (void *)data2Pack[i].errorTab,
    DP_ERR_TAB_SIZE);
}
```

but the size was not correct, the correct one is:

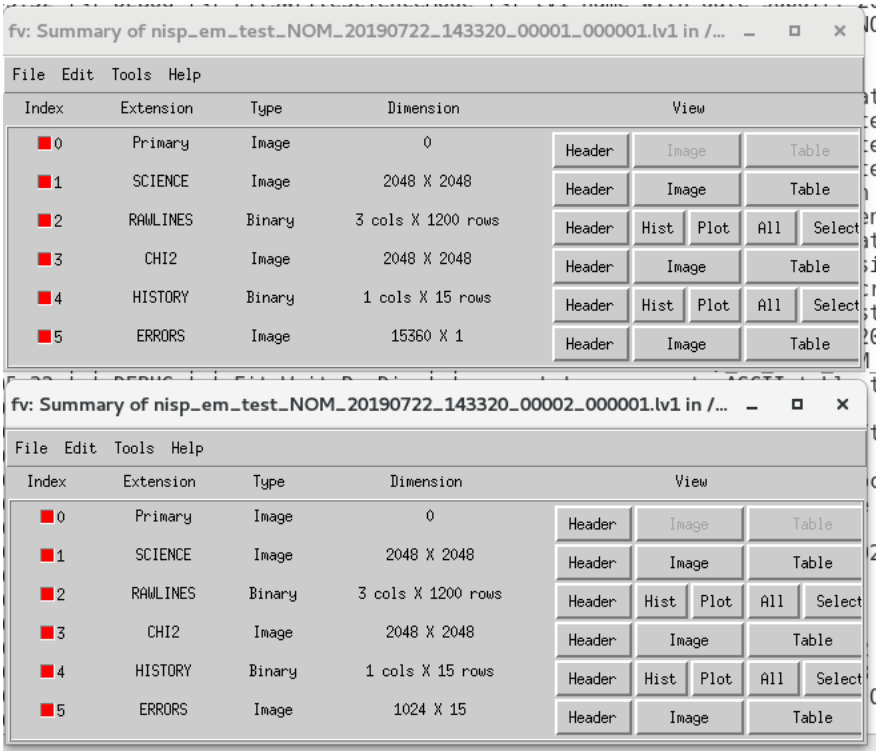
ErrFlagSizeNgroups = DP_ERR_TAB_SIZE * dithConfTabLocal.Exposures[nExp].Groups;

this size is used in both cases: compression failed, or flag of compression not enabled:

finalDataPack.uncHeader.cmpErrSize = ErrFlagSizeNgroups;
memcpy(finalDataPack.cmpErrors, tmpErrors, finalDataPack.uncHeader.cmpErrSize);

Comment by Eduardo Medinaceli Villegas [27/Aug/19]

the software was updated on the IWS as well. Now it contains an array of Ngroups times 1024



"Hi William,
Eduardo is testing a new version of the DPU ASW that is generating for the ErrorFlag data a vector of 1024xNumGroups values.The current version of the IWS software saves these values into a Nx1 image (top image in annex).
Another possibility is to create a 1024xNumGroups image (bottom image in annex).
Please let me know.
Cheers.
Massimo"

Generated at Wed Mar 25 14:41:15 CET 2020 by Eduardo Medinaceli Villegas using Jira 8.7.1#807001-sha1:03e3702defc755fa4d5476f90791e76696be4d38.

10. Affect version DPU_ASW_v1.2.3 fixed version DPU_ASW_v1.2.4 change log

[EUNIDPUASW-113] ResetDcuAndDbb producing a change of status Created: 15/Oct/19 Updated: 06/Nov/19 Resolved: 15/Oct/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	1553, Processing
Affects Version/s:	DPU_ASW_v1.2.3
Fix Version/s:	DPU_ASW_v1.2.4

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		
Environment:	added change of status to OBSERVATION_WAIT (if not coming from MANUAL state) and SCE_IDLE after function execution		

Comments

Comment by Eduardo Medinaceli Villegas [06/Nov/19]

using the same strategy for the EoE_WD and EoD_WD i.e. link change of status to previous status, and for the transition to SAFE

```
if ( ((AswStatusFlag_Global & ASW_STATUS_CPU_SAFE) != ASW_STATUS_CPU_SAFE)
OR ((AswStatusFlag_Global & ASW_STATUS_CPU_PARKED) !=
ASW_STATUS_CPU_PARKED) ) /** TODO test / / Eo*_WD case */
{
   if ((AswStatusFlag_Global & ASW_STATUS_MANUAL) != ASW_STATUS_MANUAL)
   /* if comes from MANUAL stay in MANUAL */
  { /* set-up of state OBSERVATION WAITING, without test on res of DCU_dabt */
```

```
    Toggle_ASW_STATUS_OBS_WAIT();
   } /* set-up of state SCE EEF IDLE */
  Toggle_SCE_EEF_STATUS_IDLE();
}
```

[EUNIDPUASW-115] acceptance status for CPU_SST Created: 15/Oct/19 Updated: 15/Oct/19 Resolved: 15/Oct/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.2.3
Fix Version/s:	DPU_ASW_v1.2.4

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		
Environment:	added acceptance status ASW_STATUS_OBS_PROC to command CPU_SST		

[EUNIDPUASW-118] DCUDABT removed change of status Created: 15/Oct/19 Updated: 17/Oct/19 Resolved: 15/Oct/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System, telemetry
Affects Version/s:	DPU_ASW_v1.2.3
Fix Version/s:	DPU_ASW_v1.2.4

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

because this function is called inside a loop, the status change is removed and done by calling function ResetDcuAndDbb()

Comments

Comment by Eduardo Medinaceli Villegas [15/Oct/19]

removed:

if ((AswStatusFlag_Global & ASW_STATUS_MANUAL) != ASW_STATUS_MANUAL) /* if comes from MANUAL stay in MANUAL */

```
{ /* set-up of state OBSERVATION WAITING, without test on res of DCU_dabt */
Toggle_ASW_STATUS_OBS_WAIT(); }
```

/* set-up of state SCE EEF IDLE */
Toggle_SCE_EEF_STATUS_IDLE();

this now is done by Processing::ResetDcuAndDbb()

Comment by Eduardo Medinaceli Villegas [17/Oct/19]

An exception was added for the transition to SAFE case, in function ResetDcuAndDbb() after executing DCUDABT for all detectors (that don't change the status) :

```
if ((AswStatusFlag_Global & ASW_STATUS_CPU_SAFE) != ASW_STATUS_CPU_SAFE)
/* if comes from SAFE stay in SAFE */
{
 if ((AswStatusFlag_Global & ASW_STATUS_MANUAL) != ASW_STATUS_MANUAL)
 /* if comes from MANUAL stay in MANUAL */
 {   /* set-up of state OBSERVATION WAITING, without test on res of DCU_dabt */
    Toggle_ASW_STATUS_OBS_WAIT();   }
    /* set-up of state SCE EEF IDLE */
    Toggle_SCE_EEF_STATUS_IDLE();
    /* Eo*_WD if triggered will wait 30s for the DCUDABT finalization */
 }
```

Generated at Wed Mar 25 14:42:28 CET 2020 by Eduardo Medinaceli Villegas using Jira 8.7.1#807001-sha1:03e3702defc755fa4d5476f90791e76696be4d38.

11. Affect version DPU_ASW_v1.2.4 fixed version DPU_ASW_v1.2.4.1 change log

[EUNIDPUASW-120] new SCE/SCA configuration for room temperature operations

Created: 18/Oct/19 Updated: 11/Nov/19 Resolved: 18/Oct/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	E2PROM, System
Affects Version/s:	DPU_ASW_v1.2.4
Fix Version/s:	DPU_ASW_v1.2.4.1

Type:	New Feature	**Priority:**	Critical
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		
Environment:	new time constraints for operations of Flight model SCE-SCA at room temperature		

Attachments:	image-2019-10-18-10-04-13-515.png

Description

Due to a time constraint of the operations of flight model detectors (SCE/SCA) at room temperature given by JPL, it was decided by NISP (ESA and JPL) to change the default configuration of the DSub bias of the SCE in order to have:

$\Delta Voltage = DSub - VReset \sim 50\ mV$

Comments

Comment by Eduardo Medinaceli Villegas [18/Oct/19]

The new value of Dsub bias (register 0x6002 of the SCE) written on DPU E2PROM and loaded by default in the SCE bootstrap operation is:

Dsub = 0x80B4 (HEX) [ADU] = 351 [mV]

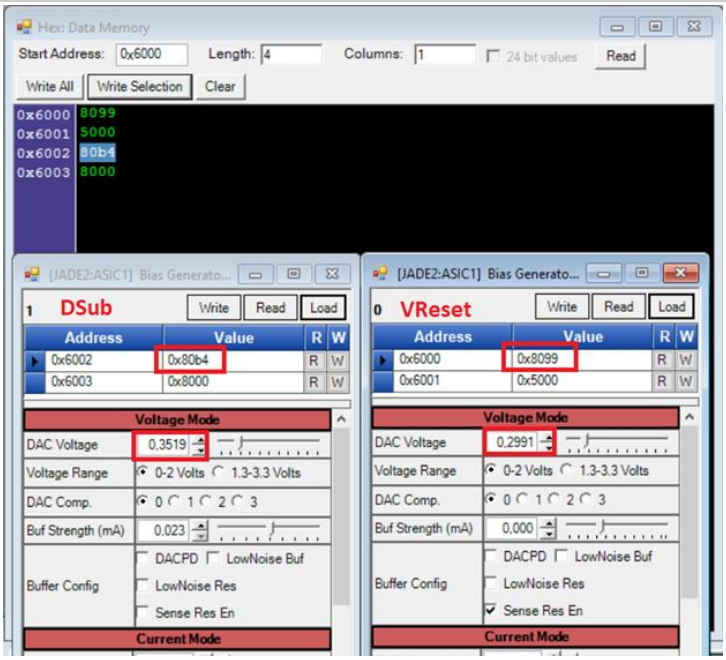
The VReset bias (register 0x6000 of the SCE) was not changed from the default value of VReset = 0x8099 (HEX) [ADU] = 300 [mV]

Therefore, the resulting difference is ΔVoltage = DSub - VReset ~ 51 mV

Comment by Eduardo Medinaceli Villegas [18/Oct/19]

Using Jade2 Prototype Board with IDE Software from Teledyne, the imposed DSub value was read directly from the SCE, see figure 2. The measured value for the delta bias was ΔVoltage = 52.8 [mV].
This result was obtained with a procedure described in section 4 (using a default set of conversion factors from ADU to mV); the same note quoted in that section is valid here:

it is important to remark that the used conversion factors are representative, they will be replaced with optimized values for each SCE/SCA (16x) flight models (Teledyne/Markury, Hardware(SCE-SCA)/Firmware V3.1 Software, suppliers), as well as the conversion factors for the SCE bias voltages (VDDA, VDDIO, VREF …..) of the DCUs (16x) flight models (OHB Hardware supplier).
Therefore, engineering values in telemetry can slightly change according to the set of conversion factors used. This ambiguity will disappear when decalibrations dedicated to each Flight SCE/SCA will be applied. In any case, the ΔVoltage is guaranteed to be equal to ~51 mV.



Comment by Eduardo Medinaceli Villegas [18/Oct/19]

Internal note SCE/SCA setup for cold Temperature operations ~ 135K was updated accordingly

[EUNIDPUASW-116] multiple RT actions

Created: 15/Oct/19 Updated: 11/Nov/19 Resolved: 15/Oct/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	1553, Commands
Affects Version/s:	DPU_ASW_v1.2.4
Fix Version/s:	DPU_ASW_v1.2.4.1

Type:	Bug	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Environment:	added internal execution of a command at the same CF

Comments

Comment by Eduardo Medinaceli Villegas [15/Oct/19]

aligned execution time of commands for all RTs

```
static const uint16_t frame_id[RTAMAX][MCFRAMEMAX] =
{ /*cmd1,cmd2*/   /*t*/
{1U, 2U, 6U, 7U, 8U, 12U, 13U, 20U, 36U, 38U, 39U, 41U, 50U, 55U} ,    /RTA1/
{1U, 3U, 6U, 8U, 9U, 12U, 13U, 21U, 36U, 39U, 40U, 42U, 51U, 56U},    /RTA2/
{1U, 4U, 6U, 9U, 10U, 12U, 13U, 22U, 36U, 40U, 41U, 43U, 52U, 57U},  /RTA3/
{1U, 5U, 6U, 10U, 11U, 12U, 13U, 23U, 36U, 41U, 42U, 44U, 53U, 58U} /RTA4/
};
```

[EUNIDPUASW-119] Synchronization mechanism modified Created: 15/Oct/19 Updated: 11/Nov/19 Resolved: 15/Oct/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.2.4
Fix Version/s:	DPU_ASW_v1.2.4.1

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	synchronization		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Attachments:	acceptancy_window.jpg newSyncMechanism.jpg test_postNRB.pdf

Description

increased the acceptancy window of the synchronization impulse for the Slave unit to 1s

Comments

Comment by Eduardo Medinaceli Villegas [15/Oct/19]

in function SCE_exp added test to function SynEnable()
res = SyncEnable();
/* Broadcast: we don't check. An error would be reported by LOGERROR */
if(res != OK)
{ return res; }

and added delay (SyncSlaveDelay_Global =1s) for the Slave unit to way for sync pulse:

timeDelay = SyncDelay_Global;
taskDelay(timeDelay); /* Wait ExpW default = SyncDelay_Global ms before sync pulse */

```
/* Send sync signal through DRB if master */
if (IsMaster_Global == ASW_TRUE)
{
   res = SyncSend();
   #ifdef ASW_DEBUG
   printf("DPU_BRD_DEV::Master:: Sync to DRB sent successfully\n");
  #endif
}
else
{ taskDelay( SyncSlaveDelay_Global ); }
```

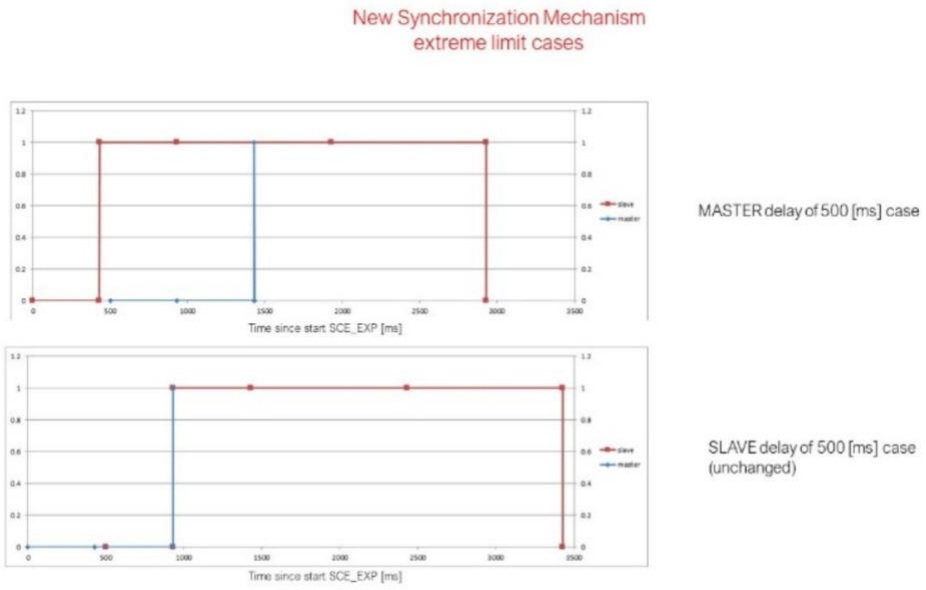
Comment by Eduardo Medinaceli Villegas [15/Oct/19]

NCR open and documentation produced, see file test_postNRB.pdf

Comment by Eduardo Medinaceli Villegas [06/Nov/19]

see pictures attached:

- newSyncMechanism.jpg = UML diagram of the new synchronization mechanism
- acceptancy_window.jpg



Synchronization Mechanism – new proposal

SCE_EXP:

	DPU operations time [ms]	wait before sync [ms]	DRB Sync [ms]	wait after sync [ms]
M	430	500	1	0
S	430	500	1	1000

proposal:
- add a wait of 1s (after DPU internal operations) on the Slave unit

no effect on the 2s constraint because the acquisition length is from Start() to SyncSend()

```
uint16_t delay_Global = 1000 ms;

if (IsMaster_Global == ASW_TRUE)
{
    res = SyncSend();
}
else
{
    taskDelay(delay_Global); // new code
}
```

[EUNIDPUASW-117] added global variables for fixed time delays Created: 15/Oct/19 Updated: 11/Nov/19 Resolved: 15/Oct/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.2.4
Fix Version/s:	DPU_ASW_v1.2.4.1

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

added global variables in order to allow the modification of this values in RAM runtime

Comments

Comment by Eduardo Medinaceli Villegas [15/Oct/19]

added:
/* TASK DELAYS */
/* synchronization */
uint32_t SyncDelay_Global; /* common delay before sync send */
uint32_t SyncSlaveDelay_Global; /* Slave delay before sync send */
/* DCU exp */
uint32_t DCUpktgenDelay_Global; /* Start simulated DCU frames */
uint32_t DCUframegroupDelay_Global;
/* wd */
uint32_t EOEwdDelay_Global;
uint32_t EODwdDelay_Global;
uint32_t EOTwdDelay_Global;
/* state transitions */
uint32_t GoToSafeDelay_Global;

/* housekeeping scanner */
uint32_t HSKdelay_Global;
uint32_t HSKfreq_Global;
/* SpW id depending on RT */
uint32_t spwid_Global;

Comment by Eduardo Medinaceli Villegas [15/Oct/19]

added initialization in InitGlobalVars.c
/* TASK DELAYS */
/* synchronization */
SyncDelay_Global = (sysClkRateGet()/2U); /* 500 ms */
SyncSlaveDelay_Global = (sysClkRateGet()**1U);** / 1000 ms */
/* DCU exp */
DCUpktgenDelay_Global = (sysClkRateGet()**5U);** / Start simulated DCU frames */
DCUframegroupDelay_Global = ((sysClkRateGet()/2U) + (sysClkRateGet()**2U));** / 2.5s delay */
/* wd */
EOEwdDelay_Global = (sysClkRateGet()**30U);** / wait for ResetDcuAndDbb() to finish */
EODwdDelay_Global = (sysClkRateGet()**30U);** / wait for ResetDcuAndDbb() to finish */
EOTwdDelay_Global = (sysClkRateGet()*1U);
/* state transitions */
GoToSafeDelay_Global = (sysClkRateGet()/2);
/* housekeeping scanner */
HSKdelay_Global = (sysClkRateGet()*5);
HSKfreq_Global = (sysClkRateGet()*1);
return;
}

Comment by Eduardo Medinaceli Villegas [17/Oct/19]

added dedicated global variables for delays in the SCE_IPCexp:
SyncDelayIPC_Global = (sysClkRateGet()/2U); /* 500 ms */
SyncSlaveDelayIPC_Global = (sysClkRateGet()**1U);** / 1000 ms */

Comment by Eduardo Medinaceli Villegas [17/Oct/19]

added global var for delay in DCU_dabt:
DABTdelay_Global = (sysClkRateGet()*3U);

Comment by Eduardo Medinaceli Villegas [06/Nov/19]

removed:
uint32_t EOEwdDelay_Global;
uint32_t EODwdDelay_Global;
also initialization
because not longer used for the EoE and EoD_WD FDIR strategy

Generated at Wed Mar 25 14:43:12 CET 2020 by Eduardo Medinaceli Villegas using Jira 8.7.1#807001-sha1:03e3702defc755fa4d5476f90791e76696be4d38.

12. Affect version DPU_ASW_v1.2.4.1 fixed version DPU_ASW_v1.2.5 change log

[EUNIDPUASW-114] strategy for NISP-FDIR of EoE_WD and EoD_WD Created: 15/Oct/19 Updated: 11/Nov/19 Resolved: 15/Oct/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	1553, System
Affects Version/s:	DPU_ASW_v1.2.4.1
Fix Version/s:	DPU_ASW_v1.2.5

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		
Environment:	added taskDelay(sysClkRateGet() * 30); /* wait for ResetDcuAndDbb() to finish */ if Eo_(E or D) is enabled		

Description

for EoE_WD:
function WdExpHandler changes the status to PARKED, and the Process::ResetDcuAndDbb perform a test over this state, and do not change it

Comments

Comment by Eduardo Medinaceli Villegas [06/Nov/19]

for EoD_WD:
function WdProcHandler changes the status to PARKED, and the Process::ResetDcuAndDbb perform a test over this state, and do not change it

[EUNIDPUASW-121] dump of SCE microcode in CPU_MDMUP Created: 11/Nov/19 Updated: 11/Nov/19 Resolved: 11/Nov/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands, E2PROM
Affects Version/s:	DPU_ASW_v1.2.4.1
Fix Version/s:	DPU_ASW_v1.2.5

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

CPU_MDUMP(uint16_t hardev, uint16_t length, uint16_t msword, uint16_t lsword) command in the case dev = 5 retrieves the EEF microcode from E2PROM.
The dedicated function accessing the E2PROM is GetRawE2PROMEEF(length, lsword); which arguments are length, and offset.
The offset is intended for DUMP inside a loop where the new start address is the previous on plus an offset. Because of the total length is always minor to the unin16_t value = 65536, the offset will always be lower. Therefore, only one uin16_t word is enough for this parameter.
ICU when performing recursive DUMPS save this info in the address (composed of lswrod and msword); then if for this case the offset value will be stord in the lsword.

Comments

Comment by Eduardo Medinaceli Villegas [11/Nov/19]

Then it was changed the second argument of function GetRawE2PROMEEF

```
STATUS CPUMDUMP(uint16_t hardev, uint16_t length, uint16_t msword, uint16_t lsword)
{  if (hardev == 5U) /* EEF */
 {
    res = GetRawE2PROMEEF(length, lsword);
  } ...
}
```

Generated at Wed Mar 25 14:43:56 CET 2020 by Eduardo Medinaceli Villegas using Jira 8.7.1#807001-sha1:03e3702defc755fa4d5476f90791e76696be4d38.

13. Affect version DPU_ASW_v1.2.5 fixed version DPU_ASW_v1.2.5.1 change log

[EUNIDPUASW-122] History telemetry (scientific file) Created: 26/Nov/19 Updated: 26/Nov/19 Resolved: 26/Nov/19

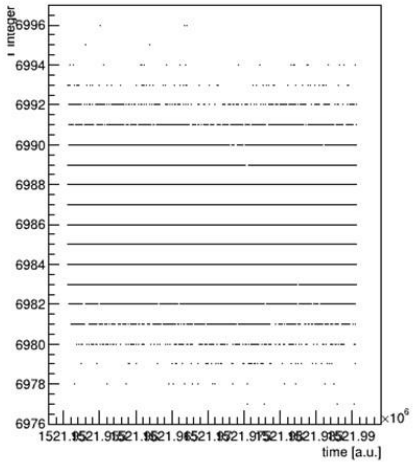
Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	telemetry
Affects Version/s:	DPU_ASW_v1.2.5
Fix Version/s:	DPU_ASW_v1.2.5.1

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	0 minutes		
Time Spent:	Not Specified		
Original Estimate:	1 day		

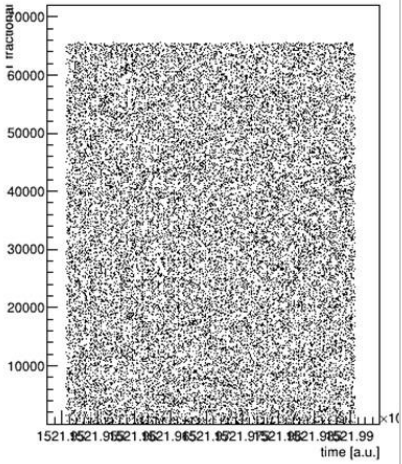
Attachments:	SCA_T1.jpg SCA_T2.jpg

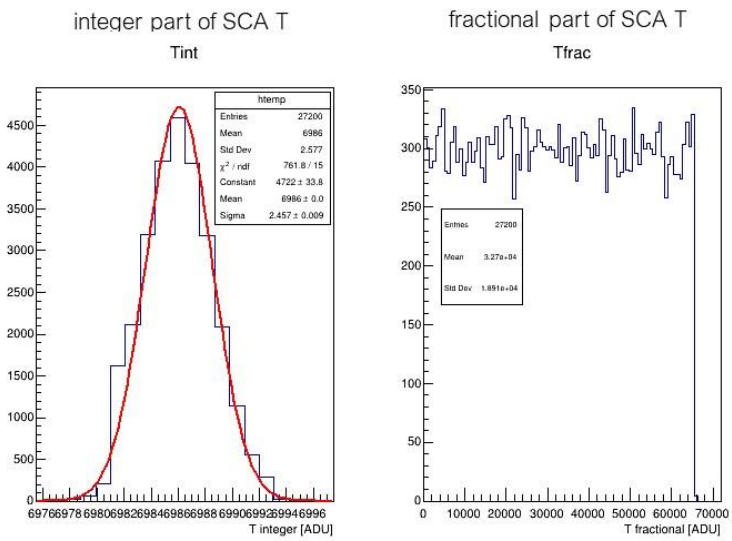
- no clear position of JPL about the parameter to be sampled
- Augustin preliminary check some JPL data on the Temperature -> hint (integer part is more significant, noise on it)
- check data
- CPPM data using FM-SCA ANDRO_Telemetry NL @ 85K – provided by Jean-Claude on 19/11/19

integer part of SCA T



fractional part of SCA T





Therefore, the default parameter sample by the DPU will be the integer part (upper 16bit) of averaged temperature sensor of H2RG (in the History scientific TLM):
ASIC digital telemetry ID = 87 of the of the Analogic TLM of the SCE instead of ID = 88 (fractional part lower 16bit)

Description

After a discussion and CPPM data (flight SCS) analysis with Markus Loose and JPL staff it was decided to save in the history telemetry array of the scientific package the integer part (16bit) of the SCA Temperature

Comments

Comment by Eduardo Medinaceli Villegas [26/Nov/19]

initialization of global table changed to:

macc_Global.TLM_history_sel = 87L; /* integer part of the SCA Temperature */

[EUNIDPUASW-124] DARK modes Created: 09/Dec/19 Updated: 09/Dec/19 Resolved: 09/Dec/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing
Affects Version/s:	DPU_ASW_v1.2.5
Fix Version/s:	DPU_ASW_v1.2.5.1

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

it was requested to allow different types of DARK sub-modes i.e. spectro and photo

Comments

Comment by Eduardo Medinaceli Villegas [09/Dec/19]

added switch of instrument sub-modes SPECTRO_DARK and PHOTO_DARK to ENG_DARK_SPECTRO and ENG_DARK_PHOTO modes.

In DPU_ASW_types.h:

/* Instrument sub modes */
typedef enum tag_ins_sub_mode

{ MODE_VOID = 0U, /* drop from documentation */ SPECTRO_GRISM_R_0, /* science */ SPECTRO_GRISM_R_270, /* science */ SPECTRO_GRISM_R_180, /* science */ SPECTRO_GRISM_B_0, /* science */ PHOTO_FILTER_Y, /* science */ PHOTO_FILTER_J, /* science */ PHOTO_FILTER_H, /* science */ SPECTRO_DARK, /* dark */ PHOTO_DARK /* dark */ }

ins_sub_mode_t;

and in Process.c:

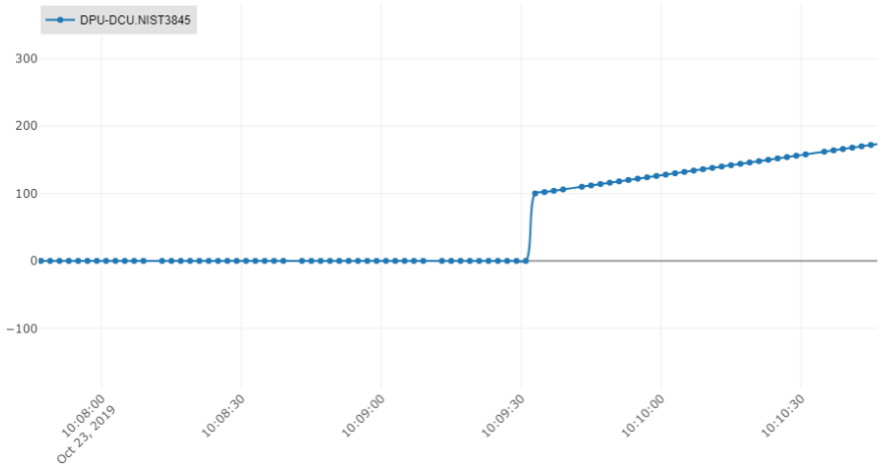
```
static void
SetChi2Mode(void)
{
   /* Set chi2 array according to exposure sub-type */
   switch (insSubMode)
  {  /* Spectro cases */
     case MODE_VOID: /* drop from documentation */
     case SPECTRO_GRISM_R_0:
     case SPECTRO_GRISM_R_270:
     case SPECTRO_GRISM_R_180:
     case SPECTRO_GRISM_B_0:
     case SPECTRO_DARK:
       chi2Mode = CHI2SPECTRO;
       chi2Size = TSIZE_MAX;
     break;
     /* Photo cases */
     case PHOTO_FILTER_Y:
     case PHOTO_FILTER_J:
     case PHOTO_FILTER_H:
     case PHOTO_DARK:
        chi2Mode = CHI2PHOTO;
       chi2Size = TSIZE_MAX / 8U;
     break;
  }
}
```

[EUNIDPUASW-125] silent action of failure of ICU_CMD_COUNTER check Created: 09/Dec/19 Updated: 09/Dec/19 Resolved: 09/Dec/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands, telemetry
Affects Version/s:	DPU_ASW_v1.2.5
Fix Version/s:	DPU_ASW_v1.2.5.1

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Attachments: DPU1_rejcounter.png RejecterCounter.pdf



Description

to make the ICU - DPU 1553 communication protocol more similar to the PUS standard, the reject command counter telemetry (dpu_MonitorTabGlobal.REJCMDCNT1 and dpu_MonitorTabGlobal.REJCMDCNT2) are not incremented when the tests fail i.e. when the information on the corresponding sub-address is not updated (no command send).
The tests is performed by the function checkICUcounter, which checks for a different that precedent counter

Comments

Comment by Eduardo Medinaceli Villegas [09/Dec/19]

shows the old behaviour of the counter which increments by one unit each second (without a new command).

With the newly implemented strategy, the counter does not increase when there is no new command

[EUNIDPUASW-127] enqueue for simulated DCU exposure Created: 17/Dec/19 Updated: 17/Dec/19 Resolved: 17/Dec/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.2.5
Fix Version/s:	DPU_ASW_v1.2.5.1

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

The DCU_exp function will be part of the ASW because it may help to simulate operations. Therefore, the possibility to perform the enqueue for the DCU_exp case without a test on the SCE availability was introduced

Comments

Comment by Eduardo Medinaceli Villegas [17/Dec/19]

added in STATUS enqueue():
For the enqueue procedure in the simulated DCU exposure case:

```
if( (SimulatedExposureFlag_Global == DCUSIMULEXP) &&
    (TestCurrentDCUAvailable(nDet) == ASW_TRUE) ) /* DCU simulated mode */
```

in the SCE exposure (nominal) case:

```
else if( (TestCurrentDCUAvailable(nDet) == ASW_TRUE) &&
         (TestCurrentSCEAvailable(nDet) == ASW_TRUE) ) /* SCE exposure mode */
```

For the DBB buffer setup the same logic was applied

Comment by Eduardo Medinaceli Villegas [17/Dec/19]

error code ASW_EDBBBUFFER was added for error selecting the DBB buffer

#define ASW_EDBBBUFFER (ASW_OK + 0x3F4U)
/* Error during enqueue at selecting DBB buffer */

[EUNIDPUASW-123] acceptance range for device ID for CPU_DUMP Created: 26/Nov/19 Updated: 26/Nov/19 Resolved: 26/Nov/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.2.5
Fix Version/s:	DPU_ASW_v1.2.5.1

Type:	Bug	**Priority:**	Trivial
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

the range of the device ID was increased to allow the dump of the of the SCE thresholds, IDs = 90-97

Comments

Comment by Eduardo Medinaceli Villegas [26/Nov/19]

internal database updated:

```
COMMAND_t cpuMDUMP_cmd = {{20, 1, 0},{{1, 1, 97}, {0, 0, 0xFFFF},
                                    0, 0, 0xFFFF}, {0, 0, 0xFFFF}},7,
                                   (ASW_STATUS_MANUAL | SCE_EEF_STATUS_IDLE)};
```

[EUNIDPUASW-126] added error code for DBB buffer selection Created: 17/Dec/19 Updated: 17/Dec/19 Resolved: 17/Dec/19

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	error_handling
Affects Version/s:	DPU_ASW_v1.2.5
Fix Version/s:	DPU_ASW_v1.2.5.1

Type:	New Feature	**Priority:**	Trivial
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

added:
#define ASW_EDBBBUFFER (ASW_OK + 0x3F4U)
// Error during enqueue at selecting DBB buffer

Generated at Wed Mar 25 14:44:22 CET 2020 by Eduardo Medinaceli Villegas using Jira 8.7.1#807001-sha1:03e3702defc755fa4d5476f90791e76696be4d38.

14. Affect version DPU_ASW_v1.2.5.1 fixed version DPU_ASW_v1.3 change log

[EUNIDPUASW-129] Personality files for Focal Plane Created: 20/Jan/20 Updated: 20/Jan/20 Resolved: 20/Jan/20

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	E2PROM, System
Affects Version/s:	DPU_ASW_v1.2.5.1
Fix Version/s:	DPU-ASW_v1.3

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Attachments:	personalization_test.txt

Description

personalization files of the 16 Flight SCS and the 16 flight DCUs included for operations at room temperature (VDsub = 50 mV)

Comments

Comment by Eduardo Medinaceli Villegas [20/Jan/20]

created binary file EEF_boot_tab_16DCU&SCE_50mV.bin to load in E2PROM

refactored file to be load in RAM
EEF_boot_tab_16DCU&SCE_50mV_ASWfile_wComments.c = EEF_boot_tab.c

Comment by Eduardo Medinaceli Villegas [20/Jan/20]

test performed:
perform the FP power-on procedure (DCUs power on, SCEs bootstrap) SFT3 (include SCEs HK1-2-3) using Flight HW see personalization_test.txt attached personalization_test.txt , result format:

SCE_ID, FM-SCS, INBIAS_I from register dump (from documentation), VDSUB_I from register dump (from documentation), VREF_MAIN_V from register dump (from documentation) ok for all 16 SCEs

Comment by Eduardo Medinaceli Villegas [20/Jan/20]

added Personality folder containing the toolkit needed to create the binary file containing the personalization of the flight SCEs (JPL) and flight DCUs (OHB);

[EUNIDPUASW-128] fake error injection

Created: 20/Jan/20 Updated: 20/Jan/20 Resolved: 20/Jan/20

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU_ASW_v1.2.5.1
Fix Version/s:	DPU-ASW_v1.3

Type:	Bug	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

in function enqueue:
removed error injection in case:

```
else{  /* ASWErrorCmdLog(TASKCMD, 0, (int32_t)ASW_EENQUEUE, crit_medium); */
        continue;
}
```

Comments

Comment by Eduardo Medinaceli Villegas [20/Jan/20]

tested using FM HW

[EUNIDPUASW-131] added initialization error Created: 20/Jan/20 Updated: 20/Jan/20 Resolved: 20/Jan/20

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	None
Affects Version/s:	DPU_ASW_v1.2.5.1
Fix Version/s:	DPU-ASW_v1.3

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

added in MChandler.c:
InitializationError(ASW_ESENDMSG); for error sending msg to ErrorHandling
added error code
#define ASW_ESENDMSGERRORLOG (ASW_OK + 0x03F5U) /* Error sending msg to Error Log */

Comments

Comment by Eduardo Medinaceli Villegas [20/Jan/20]

in Supervisor.c changed:
UnrecoverableError(errno); with
InitializationError(errno);

[EUNIDPUASW-130] removed TBD, and Dead code Created: 20/Jan/20 Updated: 20/Jan/20 Resolved: 20/Jan/20

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	System
Affects Version/s:	DPU_ASW_v1.2.5.1
Fix Version/s:	DPU-ASW_v1.3

Type:	New Feature	**Priority:**	Trivial
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

TBD /TODO removed:

- ClockSpeed_Global set to TIME_RATE (200)
  set to sysClkRateSet(TIME_RATE) i.e. time resolution = 5ms as VIS

DEAD CODE removed:

- #ifdef AFTERREST_ISSUE
- commented code in DPUSCE_StatusRegister.c DCU_ID == DPU_BRD_DEV
- #ifdef TESTREMOVETHIS in CMD_DPU_Handler.c
- removed from DPU_ASW_globals.h:
  int16_t errTabSendReady_Global; /* Error table ready to send */
  /* uint32_t EOEwdDelay_Global; */
  /* uint32_t EODwdDelay_Global; */
- removed from Process.c:
- if (((AswStatusFlag_Global & ASW_STATUS_CPU_SAFE) != ASW_STATUS_CPU_SAFE)

((AswStatusFlag_Global & ASW_STATUS_CPU_PARKED) != ASW_STATUS_CPU_PARKED)) / TODO test / / Eo*_WD case */**

- removed comment /* Eo*_WD if triggered will wait 30s for the DCUDABT finalization **/ /*** TODO remove comment */
- removed from InitGlobalVars.c
  /* EOEwdDelay_Global = (sysClkRateGet()*30U); wait for ResetDcuAndDbb() to finish */
  /* EODwdDelay_Global = (sysClkRateGet()*30U); wait for ResetDcuAndDbb() to finish */
- removed from WdExp.c: #ifdef OLD_IMPL
- removed from WdProc.c: #ifdef OLD_IMPL

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15. Affect version DPU_ASW_v1.3 fixed version DPU_ASW_v1.3.1 change log

[EUNIDPUASW-134] DCU simulated exposure Created: 20/Jan/20 Updated: 20/Jan/20 Resolved: 20/Jan/20

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU-ASW_v1.3
Fix Version/s:	DPU-ASW_v1.3.1

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

refactored case DCU_exp(simulated)

- added end = 1 to allow loop for single SCE case

Comments

Comment by Eduardo Medinaceli Villegas [20/Jan/20]

in if (SimulatedExposureFlag_Global == DCUSIMULEXP)
changed
start = 0;
/* end = 0; */
end = 1; /* single SCE case */ and

```
for (i = start; i < end; i++)
{
    if (TestCurrentDCUAvailable(sce_ID) == ASW_TRUE)
```

to allow loop on all detectors performed a single time cmd_ver_plus_telemetry:

```
if ( ver == res_ok)
{
    new_ver = cmd_ver_plus_telemetry(&sceEXP_cmd, &recv_data[SubAddr][2]);
    if (new_ver == res_notok){
      ERRORLOGID(ASW_ECMD, sce_ID);
     /* error is embedded in the cmd_ver_plus_telemetry */ }
}
else{ break; }
```

[EUNIDPUASW-132] acceptance parameters

Created: 20/Jan/20 Updated: 20/Jan/20 Resolved: 20/Jan/20

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	1553
Affects Version/s:	DPU-ASW_v1.3
Fix Version/s:	DPU-ASW_v1.3.1

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

DITHERCINF_cmd:

- added new indices for exp config2 (0-9) to allow DARK SPECTRO and DARK PHOTO modes
- changed comments
- changed lower limit for droplines to 0
  cpuRBT_cmd: - changed comment
  sceIPCEXP_cmd:
- added comments (param description)
- changed upper range for drop lines1 to 4095
- fixed limits to droplines2b to 0
- fixed limits to droplines2a to 2048
- changed upper limits to 0xFFFF to ipc start and step x, y
  sceKTCEXP_cmd:
- added comments (description of paramas)
- changed upper limit to reset frames
- changed upper limit to droplines1

Comments

Comment by Eduardo Medinaceli Villegas [20/Jan/20]

for Dither Tab: {0, 0, 9} , /**exp config 2**/

for SCE_IPCEXP_cmd:

- added comments: description to params
- limits:
  {8, 8, 0xFFFF}, /* ipc start y */
  {16, 16, 0xFFFF}, /* ipc step y */
  {8, 8, 0xFFFF} , /* ipc start x */
  {16, 16, 0xFFFF} , /* ipc step x */
  {0, 0, 0xFFFF}}, /* ipc reset voltage */
  for SCEEXP_cmd:
  {2048, 0, 0x090B} , /* drop lines 2 */
  {0, 0, 0xFFFF} , /* exp config */

[EUNIDPUASW-133] added semaphores to change of status in ResetDcuAndDbb function

Created: 20/Jan/20 Updated: 20/Jan/20 Resolved: 20/Jan/20

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU-ASW v1.3
Fix Version/s:	DPU-ASW v1.3.1

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

added semTake e semGive for semLockAswStatus

```
if ((AswStatusFlag_Global & ASW_STATUS_MANUAL) != ASW_STATUS_MANUAL) /*
if comes from MANUAL stay in MANUAL */
{ /* set-up of state OBSERVATION WAITING, without test on res of DCU_dabt */
     semTake(semLockAswStatus, WAIT_FOREVER);
     Toggle_ASW_STATUS_OBS_WAIT();
     semGive(semLockAswStatus); }
  /* set-up of state SCE EEF IDLE */
    semTake(semLockAswStatus, WAIT_FOREVER);
    Toggle_SCE_EEF_STATUS_IDLE();
    semGive(semLockAswStatus);
}
```

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16. Affect version DPU_ASW_v1.3.1 fixed version DPU_ASW_v1.3.2 change log

[EUNIDPUASW-136] changed maximum value in the allowance range for parameter

Created: 20/Jan/20 Updated: 20/Jan/20 Resolved: 20/Jan/20

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	1553
Affects Version/s:	DPU-ASW_v1.3.1
Fix Version/s:	DPU-ASW_v1.3.2

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

changed maximum value in the allowance range for parameter droplines1 for sceIPCEXP_cmd, sceEXP_cmd, and sceKTCEXP_cmd{128, 0, 4096} , /* drop lines 1 */

Generated at Wed Mar 25 14:46:02 CET 2020 by Eduardo Medinaceli Villegas using Jira 8.7.1#807001-sha1:03e3702defc755fa4d5476f90791e76696be4d38.

17. Affect version DPU_ASW_v1.3.2 fixed version DPU_ASW_v1.3.3 change log

[EUNIDPUASW-137] corrected upper limit of expoconfing and droplines2 Created: 20/Jan/20 Updated: 20/Jan/20 Resolved: 20/Jan/20

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU-ASW_v1.3.2
Fix Version/s:	DPU-ASW_v1.3.3

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

```
{2048, 0, 0xFFFF} , /* drop lines 2 */
{0, 0, 0x090B} ,     /* exp config */
```

[EUNIDPUASW-138] rollback DCU exposure simulated Created: 20/Jan/20 Updated: 20/Jan/20 Resolved: 20/Jan/20

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Commands
Affects Version/s:	DPU-ASW_v1.3.2
Fix Version/s:	DPU-ASW_v1.3.3

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

rollback to limited functionalities of the DCU_exp_SIM
functional for Broadcast only, without the exposure flag and with no watchdogs.
Removed the test of the DBB interrupts for this case

Comments

Comment by Eduardo Medinaceli Villegas [20/Jan/20]

removed in isr_handler

```
if(SimulatedExposureFlag_Global == DCUSIMULEXP) /* DCU simulated exposures case */
{
    if ( ((procParamTabGlobal.det2Send == DPU_BRD_DEV) &&
    (dcuReadyCounter_Global == GetNActiveDCU()))
     /* Last interrupt of exposure, broadcast case */
    (procParamTabGlobal.det2Send != DPU_BRD_DEV) ) /* Last interrupt of exposure, for a single detector */
    {   Toggle_SCE_EEF_STATUS_IDLE(); /* set the end of the SCE_EEF_STATUS_EXPOSURE status */
        dcuReadyCounter_Global = 0; /* no watchdog armed for DCU simulated exposures */
    }
}
```

Generated at Wed Mar 25 14:46:31 CET 2020 by Eduardo Medinaceli Villegas using Jira 8.7.1#807001-sha1:03e3702defc755fa4d5476f90791e76696be4d38.

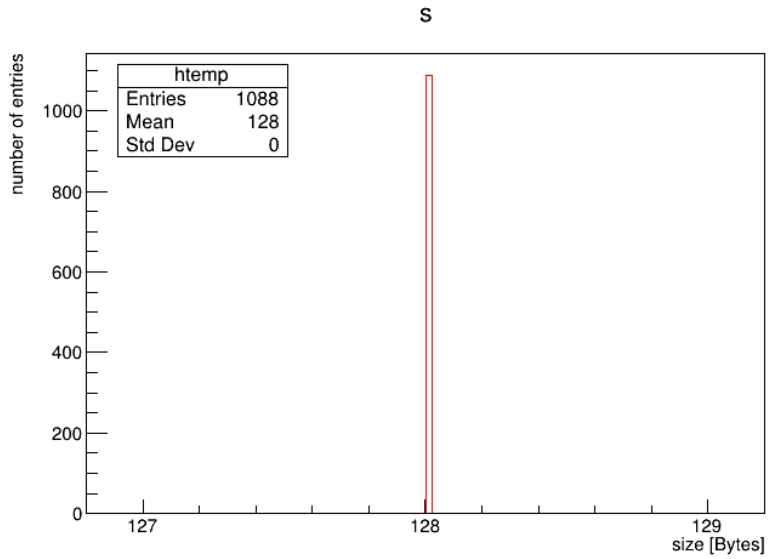
18. Affect version DPU_ASW_v1.3.3 fixed version DPU_ASW_v1.3.4 change log

[EUNIDPUASW-142] false positive error injection Created: 23/Mar/20 Updated: 23/Mar/20 Resolved: 23/Mar/20

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	error_handling
Affects Version/s:	DPU-ASW_v1.3.3
Fix Version/s:	DPU-ASW_v1.3.4

Type:	New Feature	**Priority:**	Critical
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Attachments: analogTLMsizes_widesurvey.gif



Description

error PRC_ECMPTEL removed because it was a FALSE POSITIVE

Comments

Comment by Eduardo Medinaceli Villegas [23/Mar/20]

verified that in all the cases the error was a false positive.
The error was related to a wrong test on the compression algorithm, that returns the same size of the uncompressed package.
Plot - analysis of a wide survey dataset - analogTLMsizes_widesurvey.gif shows the size of all the compressed files, indicating a size equal to the un-compressed one = 128 MB. In all these cases an error was injected incorrectly.

[EUNIDPUASW-143] New Baseline optimization results loaded by default

Created: 23/Mar/20 Updated: 23/Mar/20 Resolved: 23/Mar/20

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	E2PROM, System
Affects Version/s:	DPU-ASW_v1.3.3
Fix Version/s:	DPU-ASW_v1.3.4

Type:	New Feature	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

TV3 Baseline adjustment included CPPM-JCC 12/02/2020 data
included in the EEF_boot_tab.c file

[EUNIDPUASW-140] Static Tests input Created: 23/Mar/20 Updated: 23/Mar/20 Resolved: 23/Mar/20

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	ASW
Affects Version/s:	DPU-ASW_v1.3.3
Fix Version/s:	DPU-ASW_v1.3.4

Type:	New Feature	**Priority:**	Minor
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Attachments:	DPU ASW #86 Console [Jenkins].html

Description

Static test DPU-ASW #86 from Jenkins Console report, applied to the ASW

Comments

Comment by Eduardo Medinaceli Villegas [23/Mar/20]

- DPU_CmdHanlder/CMD_SCE_Handler.c:
  Static Tests: removed unused variable - uint16_t new_ver;
- DPU_ErrorHandling/ASWErrorHandling.c:
  Static Tests: removed unused variable - uint16_t current_error;
- int32_t emergencyFlag;
- initialization of queueCounter = 0U;
- DPU_Process/RiceComp.c:
  Static Test, comment added for macro putcbuf: macro defined in CFITSIO not maintained, static test exception added
- DPU_HskScan/HskSacn.c:
  Static Test, removed unused variable - uint32_t testres;
- DPU_Include/DPU_ASW_defs.h:
  added define for maximum number of elements in the ISR message queue, value not changed
- #define ASW_ISR_MSGMAX 10 (Max number of messages handled by ISR)

- DPU_Start/Supervisor.c:
  added define for maximum number of elements in the ISR message queue, value not changed
  if((select_msg = msgQCreate(ASW_ISR_MSGMAX, sizeof(mailbox_msg_t), MSG_Q_FIFO)) == NULL)
  Static Test, added comment for exception to unit test result: Vxworks definition cannot be changed
  DPU_Process/Process.c:
  Static Tests, added comment to value never reached: defensive coding. To increase code legibility
  for variables WdProcEnabled = ASW_FALSE; and
  abortFlag = ASW_FALSE
- DPU_Process/WriteData.c:
  Static test, added cast to Macro result (MAXDRBSPWSIZE) before comparison
  if(sumBytes > (int32_t)MAXDRBSPWSIZE)
- DPU_WatchdogLib/WdProc.c:
  Static Test, added comment to explain static test exception
  WdProcHandler(int32_t mode) (wdStart wants at least one parameter, exception added for Static test)

[EUNIDPUASW-139] disclaimer added CFITSIO code Created: 23/Mar/20 Updated: 23/Mar/20 Resolved: 23/Mar/20

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing
Affects Version/s:	DPU-ASW_v1.3.3
Fix Version/s:	DPU-ASW_v1.3.4

Type:	New Feature	**Priority:**	Trivial
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

Disclaimer added to RiceComp.c
Static Test, comment added for macro putcbuf: macro defined in CFITSIO not maintained, static test exception added

[EUNIDPUASW-141] Static test - CLANG format

Created: 23/Mar/20 Updated: 23/Mar/20 Resolved: 23/Mar/20

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	None
Affects Version/s:	DPU-ASW_v1.3.3
Fix Version/s:	DPU-ASW_v1.3.4

Type:	New Feature	**Priority:**	Trivial
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

static test, clang format Macro applied to all source code

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19. Affect version DPU_ASW_v1.3.4 fixed version DPU_ASW_v1.3.5 (Flight) change log

[EUNIDPUASW-144] default value for PROC_PARAM_TAB parameter "broadcast device" Created: 23/Mar/20 Updated: 23/Mar/20 Resolved: 23/Mar/20

Status:	Done
Project:	Application software for the Euclid NISP DPU
Component/s:	Processing
Affects Version/s:	DPU-ASW_v1.3.4
Fix Version/s:	DPU-ASW_v1.3.5

Type:	Bug	**Priority:**	Major
Reporter:	Eduardo Medinaceli Villegas	**Assignee:**	Eduardo Medinaceli Villegas
Resolution:	Done	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

updated broadcast device ID in default ProcParamTab, takin into account 1553 interface convention

Comments

Comment by Eduardo Medinaceli Villegas [23/Mar/20]

procParamTabGlobal.det2Send = 8U; (Detector number 1 = Detector ID 0)

Generated at Wed Mar 25 14:47:28 CET 2020 by Eduardo Medinaceli Villegas using Jira 8.7.1#807001-sha1:03e3702defc755fa4d5476f90791e76696be4d38.