

## Ilrf-HWR-fe-software - Task #24578

### ACNET Connection

06/30/2020 03:53 PM - Shrividhyaa Sankar Raman

<b>Status:</b>	Resolved	<b>Start date:</b>	08/03/2020
<b>Priority:</b>	High	<b>Due date:</b>	
<b>Assignee:</b>	Shrividhyaa Sankar Raman	<b>% Done:</b>	100%
<b>Category:</b>		<b>Estimated time:</b>	0.00 hour
<b>Target version:</b>		<b>Spent time:</b>	59.25 hours
<b>Description</b>			
<ul style="list-style-type: none"><li>• Attempts to connect HWR system to ACNET initiated.</li><li>• Parameter Spreadsheet files attached to enable as ACNET devices.</li></ul>			

### History

#### #1 - 07/08/2020 08:21 AM - Shrividhyaa Sankar Raman

- File *hwr\_param\_data4.csv* added
- File *hwr\_param\_data3.csv* added
- File *hwr\_param\_data2.csv* added
- File *hwr\_param\_data1.csv* added
- File *hwr\_param\_data\_dev.csv* added

Revised Spreadsheet copies have been uploaded herewith.

#### #2 - 07/08/2020 08:21 AM - Shrividhyaa Sankar Raman

- File *deleted (hwr\_param\_data2.csv)*

#### #3 - 07/08/2020 08:21 AM - Shrividhyaa Sankar Raman

- File *deleted (hwr\_param\_data1.csv)*

#### #4 - 07/08/2020 08:21 AM - Shrividhyaa Sankar Raman

- File *deleted (hwr\_param\_data3.csv)*

#### #5 - 07/08/2020 08:21 AM - Shrividhyaa Sankar Raman

- File *deleted (hwr\_param\_data4.csv)*

#### #6 - 07/08/2020 08:21 AM - Shrividhyaa Sankar Raman

- File *deleted (hwr\_param\_data\_dev.csv)*

#### #7 - 07/09/2020 08:41 AM - Shrividhyaa Sankar Raman

- % Done changed from 0 to 60

The code for ACNET support has been developed and can be run as soon as a few small bugs have been addressed.

#### #8 - 07/09/2020 04:18 PM - Dennis Nicklaus

I created Acnet devices for 8 HWR cavities today. Awaiting coordination with PIP2IT ops and Shrividhyaa to actually attempt to communicate with HWR controllers from the Acnet/erlang frontend.

#### #9 - 07/17/2020 09:42 AM - Shrividhyaa Sankar Raman

- % Done changed from 60 to 70

- HWR ARM code was tested for connection to ACNET successfully.
- Next step is to establish simultaneous connection with ACNET and LabVIEW.
- Working on diagnosing the cause for this issue.

**#10 - 07/20/2020 11:44 AM - Shrividhyaa Sankar Raman**

- Front End ARM code communicates with LabVIEW but LabVIEW is not getting populated.
- Can see all the changes made on the front end but LabVIEW is only populated with 0s.
- Problem may be with the header that tries to contact LV.
- Mr Nicklaus claims when he tried to access the ACNET values for Systems 2, 3 and 4, he saw LV values on port 3001 (programmed in the old code).
- Both ACNET and LV worked in conjunction at one point. However, they were not synchronized.
- Testing to continue...

**#11 - 07/30/2020 09:06 AM - Shrividhyaa Sankar Raman**

- File ACNET\_Term.JPG added

- Went through Mr Chase's email and suggestions from Ed.
- Deactivated all ACNET related functions.
- The LabVIEW thread from Ed's code has been remodeled in the new code: the name is now receiver thread. This branches into the labview and ACNET threads, after establishing and checking for authenticated clients.
- Although the ACNET related functions are deactivated, the ERLANG server still tries to connect. But since the ACNET parts of the code are inactive, these connection requests are declined and terminated. (Image attached below)
- DAQ thread still not working.
- However, upon closer look, stream client sclient maybe causing the DAQ thread to stall.

Further updates on this soon.

**#12 - 07/30/2020 09:15 AM - Brian Chase**

Shrividhyaa Sankar Raman wrote:

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Comments - Brian

We see the threads are started. The code has been modified from older code that was working so I think it safe to point there. We do not really know if the DMA process is running. Diagnostics?

Further updates on this soon.

**#13 - 07/30/2020 12:26 PM - Shrividhyaa Sankar Raman**

- The add\_client function worked for the the client connection but not for the stream clients.
- The stream client value was not displayed due to a mutex that was not released.
- Once the mutex was removed from the add\_client function, the code seemed to run as usual.
- However, this block of code is not required for LV and therefore has been removed.

Conclusion: Semaphores/mutexes are pobably the reason for the DAQ stalls.

**#14 - 08/03/2020 07:33 AM - Shrividhyaa Sankar Raman**

- Start date changed from 06/30/2020 to 07/30/2020

- Got to this point by removing stream clients across the code as we are not using stream clients for ACNET either.
- This seems to have caused the issue with the DAQ thread updating values.
- Will continue to work on this.

**#15 - 08/03/2020 07:35 AM - Shrividhyaa Sankar Raman**

- There is synchronized behavior on ACNET and LV as far as the parameters are concerned.
- Still no updates on Waveforms.
- Will continue working on this on Monday.

**#16 - 08/03/2020 08:45 AM - Shrividhyaa Sankar Raman**

- Not printing waveforms due to the condition, "if(sys->param[par\_idx].lv\_wv[lv\_idx] == true)" in the DAQ\_thread part of the code.  
=> Value false.
- Assigned to true in LV\_commands when requesting for waveforms. Why is the condn failing?  
=>Print value when assigned to true -> Value: 1.  
=> Print lv\_idx when assigned to true -> LV\_idx: 2.
- Print lv\_idx in the DAQ\_thread when value is used -> LV\_idx: 0.
- Why is LV active at 2 in LV\_commands and 0 in the DAQ\_thread?

**#17 - 08/03/2020 10:38 AM - Shrividhyaa Sankar Raman**

- Start date changed from 07/30/2020 to 08/03/2020

- When LV\_commands is called, lv\_idx is passed to it by labview\_if\_recv.
- labview\_if\_recv also receives its lv\_idx value from receiver\_thread.
- Therefore, the source of the problem is at the receiver\_thread where the lv\_idx is passed.
- When labview\_if\_recv is called in the receiver\_thread, the lv\_idx loop ends much before the function is called.
- Therefore, lv\_idx value would be Max\_lv\_clients-1 when passed.
- Having a for loop for lv\_idx and calling the function for the lv\_idx that has an active client solved the waveform issue on LV.

**#18 - 08/09/2020 10:35 AM - Brian Chase**

Needs updating.

**#19 - 08/14/2020 12:32 PM - Shrividhyaa Sankar Raman**

- % Done changed from 70 to 90

- Status changed from New to Work in progress

- The problem with the ACNET code was an issue with the received packet from the ERLANG server.
- The ARM code went out of sync and the received packet accumulated over time before the SP and FF table values were updated in memory.
- Thus, the coding for the read operation was altered for ACNET.
- It reads the first 4 bytes of data which determines the number of bytes of data and then the data itself.
- This solves the issue of synchronization and string length error.
- This still did not allow LV to work.
- The function labview\_if\_receive was assigning all clients inactive which caused the LV to stop updating.
- Commenting this block of code solved the update of LV.
- Tried changing values on LV and on ACNET to see the change in the other.

**#20 - 01/27/2021 12:05 PM - Shrividhyaa Sankar Raman**

- % Done changed from 90 to 100

- Status changed from Work in progress to Resolved

**Files**

hwr_param_data_dev.csv	56.7 KB	07/08/2020	Shrividhyaa Sankar Raman
hwr_param_data1.csv	56.7 KB	07/08/2020	Shrividhyaa Sankar Raman
hwr_param_data2.csv	56.7 KB	07/08/2020	Shrividhyaa Sankar Raman
hwr_param_data3.csv	56.7 KB	07/08/2020	Shrividhyaa Sankar Raman
hwr_param_data4.csv	56.7 KB	07/08/2020	Shrividhyaa Sankar Raman
ACNET_Term.JPG	220 KB	07/30/2020	Shrividhyaa Sankar Raman