Hall C-CAEN-SY4527 Test Results Shared with CAEN Support

Date: August 23, 2019
Time: 9:30 – 10:30

Attendees: Aaron Brown, Alberto Lucchesi, Greg Kibilko, Marc Mcmullen, Pablo Campero, Peter Bonneau, and Tyler Lemon

1. *HVCAEN-SY4527 EPICS Test Station* talk presented by Pablo Campero to show issues found during the mainframes and A7030/A1535 HV boards.
    1.1. Discussed about test conditions, procedure, and test parameters for CAEN HV boards.
    1.2. Explained EPICS-CSS screens developed to test SY4527 mainframes/HV boards.
    1.3. Form the test conclude that mainframe model SY4527, service name *hvcaentest2,* S/N 400 has CAEN software issues while is carrying A7030 or A1535 HV boards.
        1.3.1. Discrepancies between GECO2020 and EPICS PVs.
        1.3.2. Some board channels' parameters (*Vset, Iset, VRUp, VRdwn, and VMax*) arbitrarily changed from its pre-set values (set values at test time) to random values.
        1.3.3. Voltage vs time plots for all 36/24 channels showed in *Voltage Ramp Test* EPICS-CSS screens showed the random changes in above-mentioned parameters.
    1.4. Future task for DSG will be the development of a code by using CSS-Scan System to automate and speed up the test on the boards.

2. Discussion about the three users at Jlab who have experimented similar issues indicated in *HVCAEN-SY4527 EPICS Test Station* talk.
    2.1. User 1: Used CSS screens (EPICS client) to set/read PVs from CAEN EPICS server.
    2.2. User 2: Used cRIO EPICS clients to set/read PVs from CAEN EPICS server.
    2.3. User 3: Ran test by using only GECO 2020 to set/read parameters in SY4527 systems.

3. Marc Mcmullen presented his results with the issues found during CAEN-SY4527 hardware test performed for same mainframe S/N 400 and A7030/A1535 HV boards.
    3.1. Basic test stand setup for the test uses NI cRIO as EPICS client to write/read PVs in CAEN EPICS Service (running in CAEN SY4527) and external measurement devices (Keithley) to compare voltage/current readouts.
    3.2. Showed GECO2020 screenshots indicating the changes for *VRup* and *Iset* parameters during the test.
    3.3. Indicated the difficulties to work with *Radiall 52* connectors at CAEN-A7030 boards.
        3.3.1. The pin retention is not the adequate.
        3.3.2. Pins pushed in during Installation process.
    3.4. Noticed random changes for the channels' parameters.

4. CAEN support (Alberto Lucchesi/ Greg Kibilko) answered CAEN software questions
    4.1. SY4527 Control Firmware runs in the CPU (Mod. A4528).
        4.1.1. There is no changes for EPICS Service between 2.0.1 and 2.0.2 firmware versions.
    4.2. HiVoCS software runs in the CPU. Latest available version is 1.0.5.
    4.3. Secure Shell connection runs internally/locally in the mainframe and HV boards.

5. Suggestions by CAEN support to test SY4527 systems
    5.1. Test CAEN-SY4527 systems with only one board connected.
    5.2. Run test by using Secure Shell connection via SSH protocol to monitor if the mentioned parameters change randomly.
        5.2.1. For this test, CAEN recommended leaving the EPICS Server enable.
    5.3. Test results will be documented and shared with CAEN support.

6. CAEN support will look into more details of the DSG's presentation showing the issues mentioned and will contact DSG members with the solutions.
    6.1. Web links for DSG's presentations provided to CAEN support.