GRAPHICAL USER INTERFACE (GUI) FOR TESTING CAMAC MODULES

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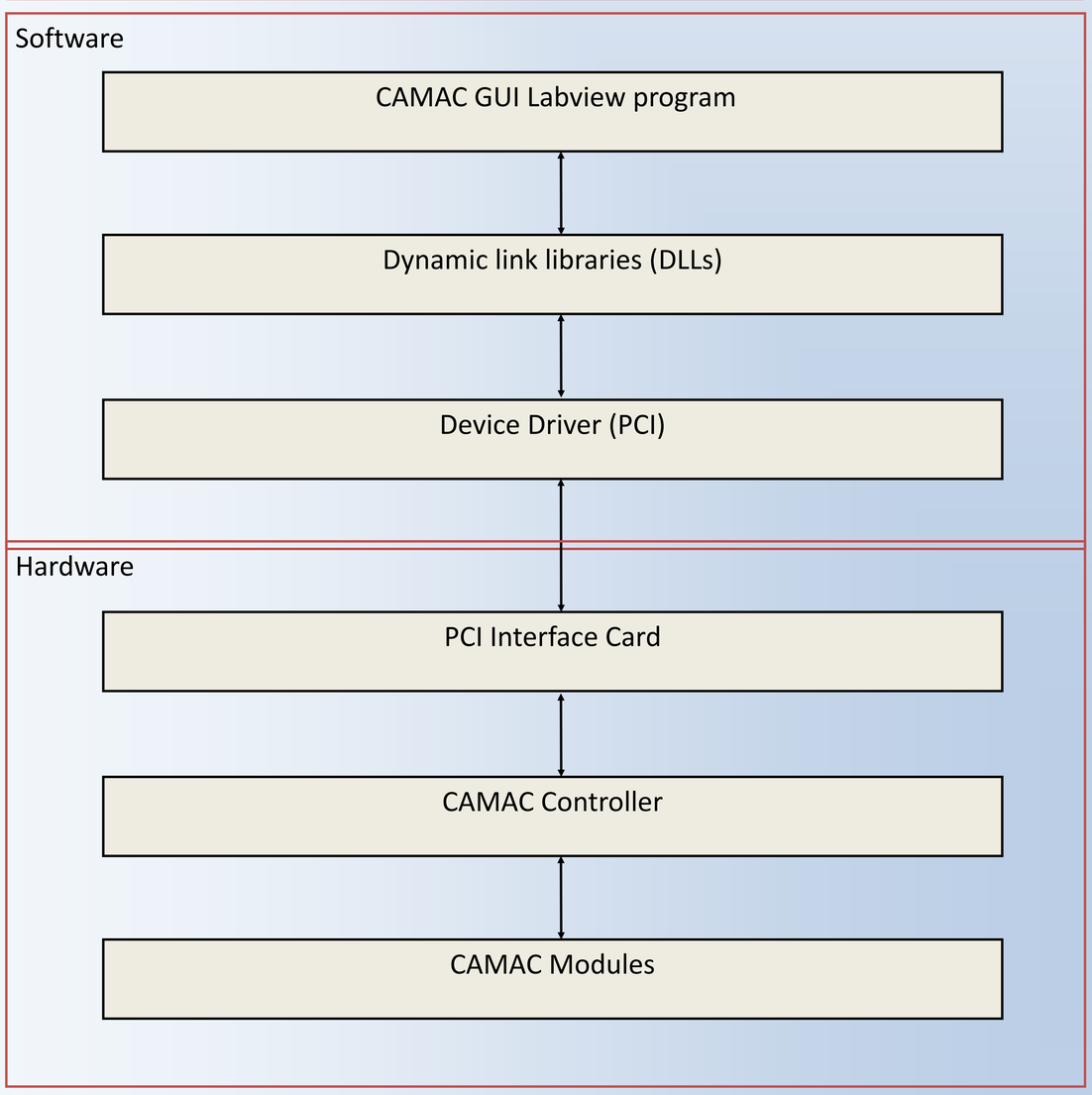
Abstract:

A new program (GUI) for testing CAMAC modules (CAMAC ADC, DAC, Input Gate, Output Register) is developed using Labview and dynamic link libraries (DLLs). On start-up, the program initializes the CAMAC Controller via PCI bus interface, thus enabling communication with CAMAC modules. It can test CAMAC modules through different controls like slider bars, buttons etc. and display status of individual channels with soft panel

Figure 1: CAMAC Testing Set-up Block Diagram



Point-wise Description of Block Diagram

*Labview is a graphical language and hence writing a GUI program for CAMAC is easily achieved. It has large number of controls which require only wiring for their implementation.

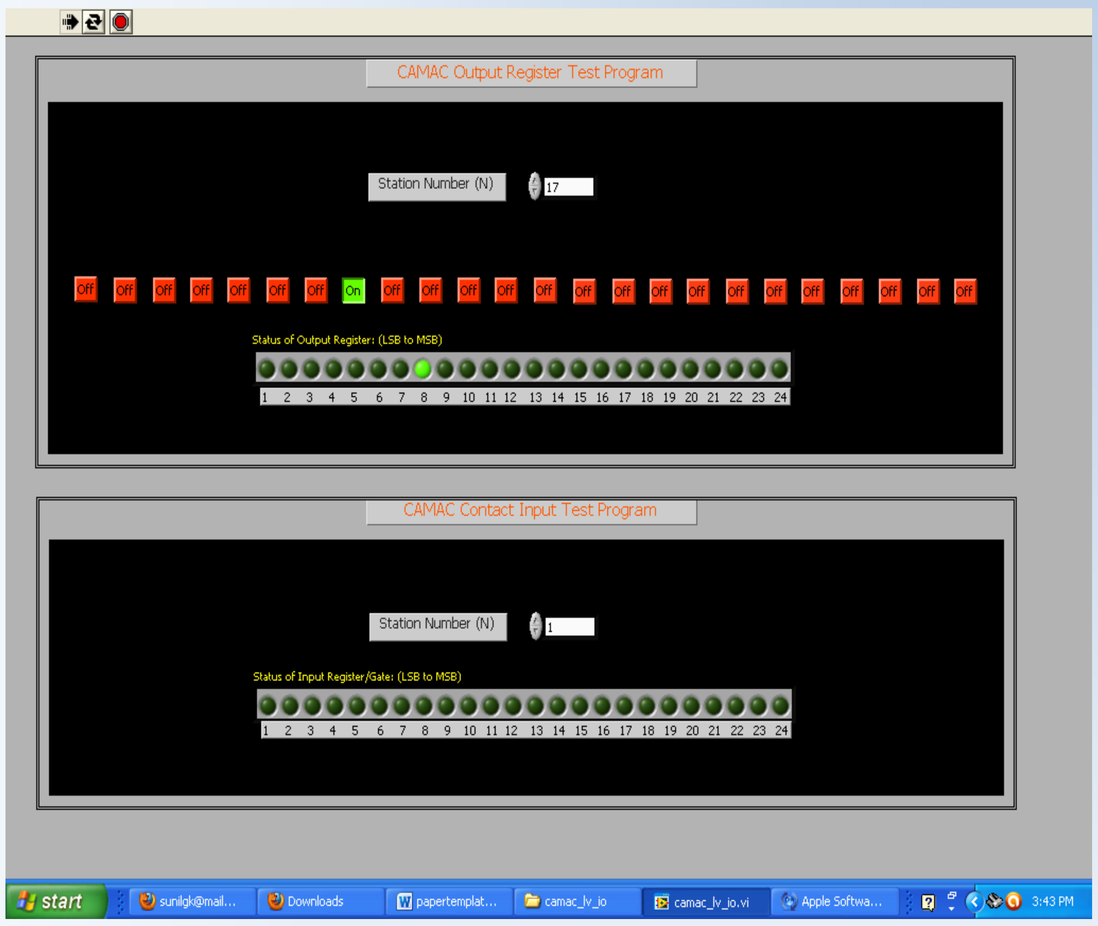
* Dynamic Link Libraries (DLLs) are used to isolate Labview GUI program for PCI driver calls. They are easily linked to Labview with “call library” control.

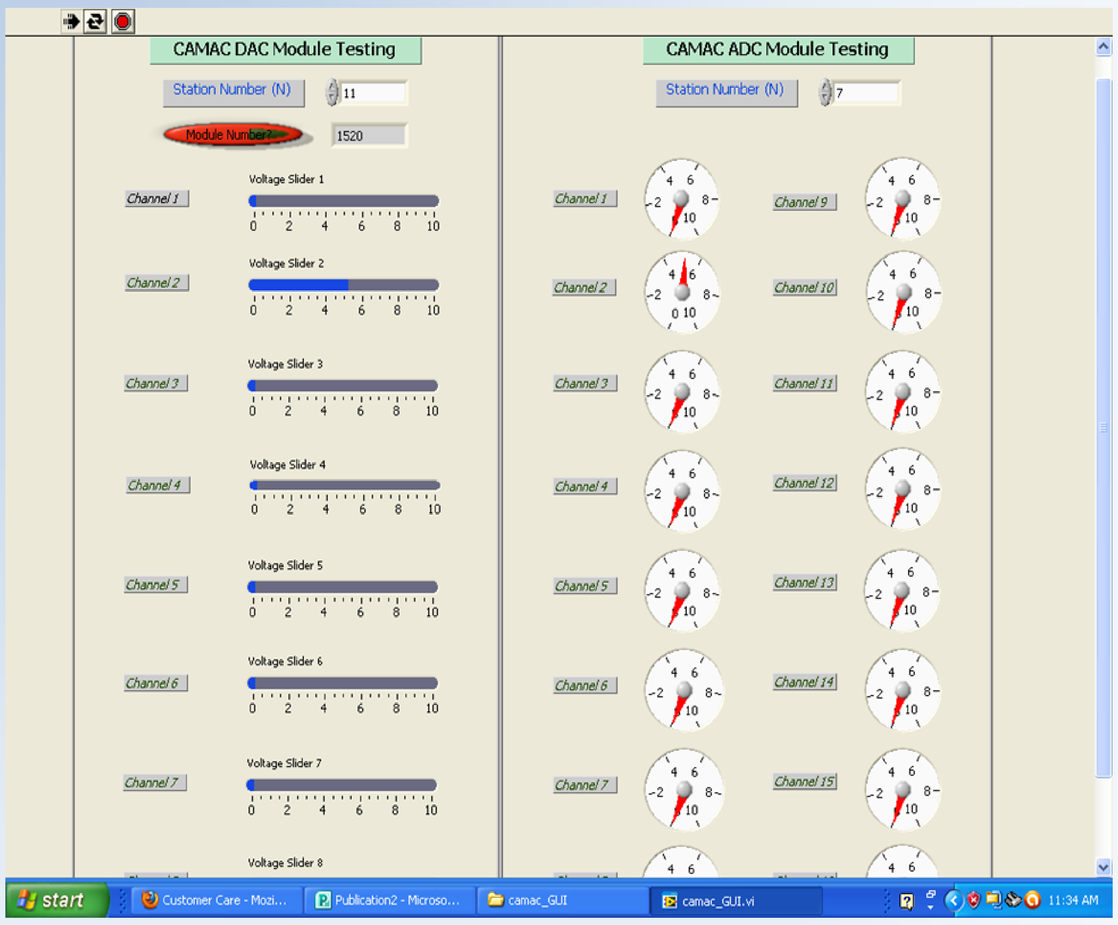
*PCI device driver actually communicates with the PCI Interface card. Device driver is specific to hardware chip which is PLX9052 which handles PCI protocol.

*PCI Interface card transmits all data from PC to CAMAC Controller and vice-versa. It has a parallel interface between PC to CAMAC Controller.

*CAMAC Controller communicates with PC as well as CAMAC modules. It decodes CAMAC command from PC and transmits it to appropriate module.

* CAMAC module respond to command coming from CAMAC Controller and sends/ receives data to/from Controller.





Conclusion:

1. The Labview program is useful for troubleshooting different CAMAC modules and tested modules are used for control of Pelletron Accelerator Facility, TIFR.
2. This program has helped in preventive as well as breakdown maintenance of CAMAC electronics.
3. Development of new modules is also possible due to this test program.