

ID	Task	status	Comments
M01	Create prototype ERSAP configurations for INDRA and CLAS12 test systems	■	A CLAS12 example and "Hello World" example have been placed in Github. INDRA has not been done yet.
M02	Identify or capture SRO formatted data from CLAS12 and INDRA test systems with data tag/filtering capability (output data ready for further offline processing)	✓	Data was captured at various beam currents from CLAS12 on Dec. 17. INDRA data capture done using pulser inputs to SAMPA setup.
M03	Evaluate existing solutions for configuring and launching remote distributed processes	✓	see evaluations in document on EPSCI wiki.
M04	Establish code repository(s), project site, and method of documentation	✓	This has been done here: <a href="https://github.com/JeffersonLab/SRO-RTDP">https://github.com/JeffersonLab/SRO-RTDP</a>
M05	Create stream splitter program for EVIO or HIPO data formatted files	✓	Created for GlueX. (See text for details on HIPO)
M06	Create stream splitter program for simulated data in PODIO for ePIC	✓	Prototype tested using FABRIC testbed. Simulated ePIC data sent from CERN to 8 different US sites.
M07	Create VTP emulator using files produced by stream splitter	■	Mostly done for raw data. Not started for simulated data.
M08	Create controller program to synchronize multiple VTP emulators	✓	Satisfied through alternate design using synchronizing system clocks.
M09	Determine appropriate schema for all aspects of monitoring	■	Monitoring info. extracted as JSON records from both docker and /proc sources on Linux. Display in Grafana prototyped, but not yet complete.
M10	Establish databases for monitoring system using existing JLab servers.	✗	This work has not begun
M11	Integrate Hydra as monitoring component.	■	Work done to containerize GlueX online monitoring in order to allow full test with Hydra. The Hydra is nearly complete containerizing Hydra (for off project purposes) which we will use.
M12	Integrate off-line data analysis framework into platform for CLAS12 data	-	planned for FY24Q4
M13	Integrate off-line data analysis framework into platform for ePIC or GlueX simulated data	-	planned for FY24Q4
M14	Integrate example JANA2 analysis into platform	-	planned for FY24Q4

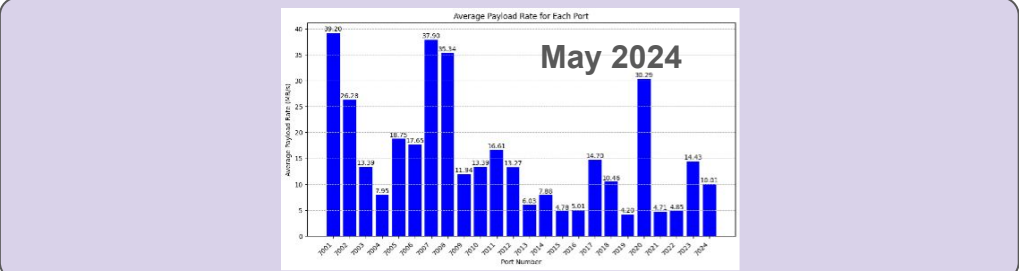
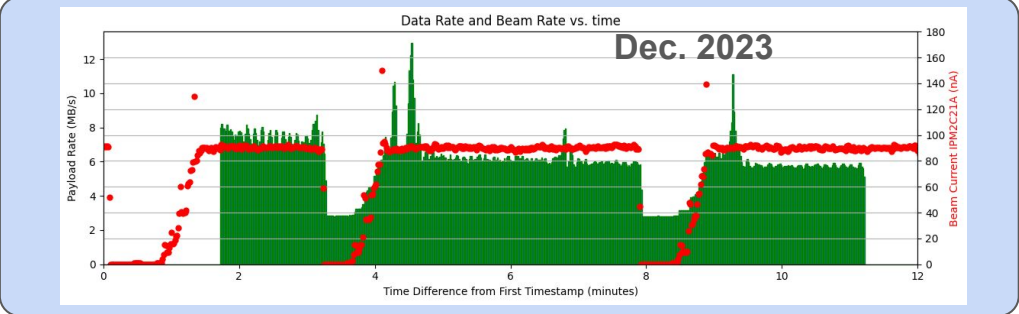
## Major Highlights:

- Containerize GlueX online
- Second CLAS12 Data Capture exercise
- DPPUI Development
- Dynamic I/O monitoring of processes from user space
- ePIC PODIO data sent via FABRIC Testbed from CERN to 8 different sites across US

**EXPERIMENTAL NUCLEAR PHYSICS**

TEST DEMONSTRATES FULL DATA-STREAMING CAPABILITY OF CLAS12 FORWARD DETECTOR

On Thursday, May 16, a successful beam-test of a streaming readout system comprised of 24 data streams covering one-third of the CLAS12 Forward Detector was conducted. The data were streamed from a real physics experiment that was running at various beam currents on the dual LD2-Pb target in Hall B as part of Run Group E. The data streamed directly from the front-end crates to the Data Center in CEBAF Center. It was captured to preserve the detailed time structure of the network traffic, so that it can be replayed in the same way during accelerator-down times, when the beam is unavailable. This is a significant advance beyond earlier tests that were limited in scope and not performed under realistic conditions. The test demonstrated that full streaming is possible for the CLAS12 Forward Detector. Streaming readout systems are advanced systems that are able to collect and process all data generated by the detector in real time, while traditional systems rely on highly specialized hardware to select events of interest and discard the rest of the data.



# Budget

