

§1. Data Transfer and Direct Data Acquisition from GAMMA 10 to LHD Virtual Laboratory via SNET

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We started to exhibit the total collection data in GAMMA10 on Plasma Research Center, University of Tsukuba with the collaboration of LABCOM group since 2008. In GAMMA 10, base data acquisition is performed by using a CAMAC system by using Windows PC. These data is collected on the Soralis10 data server system with 4TB RAID system. In addition, we have many stand alone PC data collection systems for many diagnostics. We constructed the Linux (CentOS) data collection server system with 24TB RAID, in order to collect total collection data in GAMMA 10, such as CAMAC collection data and many other diagnostic data. We have connected the NIFS LABCOM/X system under the new framework of “Fusion Virtual Laboratory” where users can access the data equivalently regardless of their whereabouts. Such the activity is named “SNET”, which is based on a closed VPN on Japanese academic internet backbone SINET3 and covers multiple experimental remote devices. In Fig. 1, we show the SNET formation between GAMMA 10 local network and NIFS server segment. We send the

the total GAMMA 10 collection data. Total file size of transfer data is about 377 MB/shot and 2412 MB/year.

The essential information of experiment operation, the sequence timings and the shot number, are given by the GAMMA10 experiment control system through the hard wires and the http network communication, respectively.

In addition to share the already acquired data, a remote DAQ node was installed at GAMMA10 to measure eight channels of floating voltages of both plasma end plates. They were successfully measured by the remote DAQ node. Figure 2 shows the measured end plate voltages shown by using the LabVIEW Retrieve program.

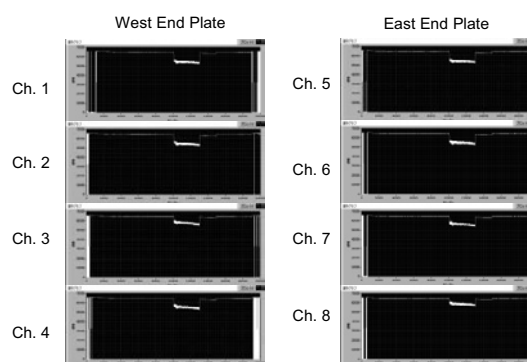


Fig. 2. measured end plate voltages shown by using the LabVIEW Retrieve program.

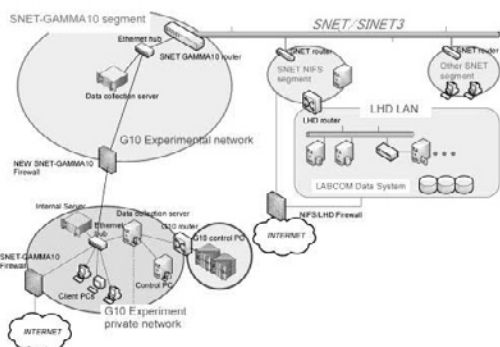


Fig. 1. SNET formation between GAMMA 10 local network and NIFS server segment.

GAMMA 10 total collection data from the GAMMA 10 data collection server to the NIFS LABCOM/X system, and succeeded. Now, we have started the GAMMA 10 data to transfer to the NIFS LABCOM/X system, in order to show