

§30. CHS Data Acquisition and Analysis System

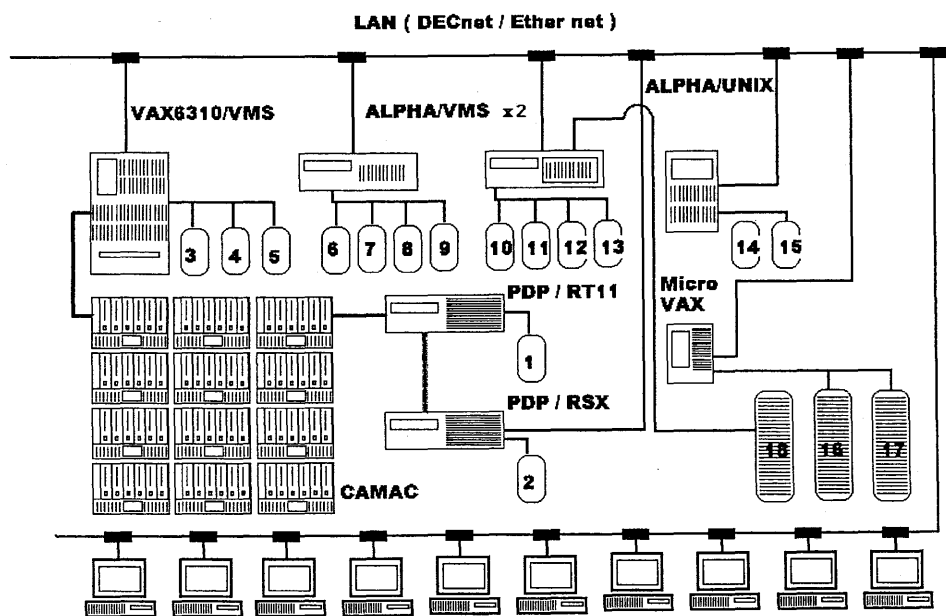
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I. Hardware extension

- [1] In this fiscal year, six AD/Cs, two memories with scalers and RS232C communication module of CAMAC were newly installed in the CHS data acquisition system (DAS). Data from CHS experiments are over 31 Mbyte/shot (3.1 Gbyte/day).
- [2] CHS had large experimental data storage system consisting of optical magneto cartridges and optical cartridges juke box machine (120 Gbyte) till the end of 1997. In this fiscal year, laid magnetic disk system was newly installed in the CHS data base system. This laid disk storage system has 4 Gbyte \times 20 disk drive units. Raw experimental data and analyzed data storage system has totally over 200 Gbyte. Using rate of these data base disk system is about 45% in this fiscal year.
- [3] CHS will be moved to new experimental site (Toki site, Gifu prefecture) next year, then we will plan to modify and add a new computer and acquisition system. Figure 1 shows a block diagram of the present DAS and data analysis system in Nagoya site.

II. Software extension.

CHS/DAS has some CAMAC, GP-IB, RS232C and digital Input / Output modules. CHS/DAS has two main computer systems which are composed of multi task and multi user operating system (OS-M), and single user and single task operating system (OS-S). OS-S is an early time disk base operating system, then it can not have a large address space, high transmission bandwidth rate and high data transmission capacity, but this operating system has a good time linearity about data acquisition sequence. This time linearity is; the control data setting and data acquisition time is constant. OS-M is a new generation general-purpose operating system. It can execute some processes under the order of precedence, but it can not have a linearity time while the data acquisition program acquires the large experimental data, because the OS-M performance almost depends on the interrupting process, disk swapping and user program process. Then we modified the data acquisition program and the tuning of OS-M for scaling up of this system. In this case, main modification parts of the acquisition program are to add a priority management tasks to user application programs. This task can exclusively control the priority number of user process (up or down) under the executing DAS program. This modification acquisition program could suppress the data acquisition uneven times which is about 150 sec \pm 10 sec in the past time to 150 sec \pm 6 sec.



From #1 to #18 disk system have over 200 Gbytes.

Fig.1. CHS data acquisition and analysis system in 1998.