3. MEASUREMENT AND COMPUTATION COMPLEX

In 1998, the server Enterprise 3000 with two Ultra Sparc II/250MHz processors, the operation memory 512 Mb and the disk space 40 Gb was put into operation in the framework of the project "Measuring and Computation Complex" (MCC). In the SUN-cluster, outdated SUN2 workstations were replaced by new Ultra 5/10 workstations and a transition to a new operational system, Solaris 2.6, was executed. The specific characteristics of Ultra Sparc II are the 64-bit length of the word and address, superscalar ability (the possibility of simultaneous execution of several instructions by independent devices) and an additional set of commands for graphical applications.

Also, an ATM/Ethernet net commutator Orange Ridge was put into operation to provide access to centralized computational and informational resources of JINR at a rate of up to 155 Mbyte/s. In the local area network (LAN) of FLNP there was completed the installation of fast commutators (in 1996 they were installed in the buildings of CMD and IBR-2 services) and organization on their basis of LAN internal segments, which enables data transmission between segments (buildings) at a rate of 100 Mb/sec via optic fibers and permits the optimization of internal traffic. All of the experimental instruments at IBR-2 and new computers are connected via twisted pairs (UTP).

As a result, a modern information infrastructure for the IBR-2 complex with characteristics and possibilities similar to those of the infrastructure of European neutron centers is created.

In another direction of the MCC project, VME data acquisition systems on the spectrometer EPSILON and the X-ray diffractometer SAX were put into operation in 1998. In-beam test experiments of the VME-system for the diffractometer HRFD are currently being carried out. Complex tuning with a source of two sets of unified VME-electronics for the position sensitive detectors of the spectrometers YUMO and DN-2 was conducted. The VME-electronics for the control of the mechanisms of SPN (20 stem-motors) and YUMO was manufactured and tuned. The was also manufactured and tested with a neutron source the detector electronics of the He-counters on the spectrometers NERA-PR (20 channels) and DN-12 (128 channels). In addition, creation and modernization of the detector electronics on the spectrometers KDSOG, UGRA, REFLEX, and DIN-2 were done.

The hardware and software for the KOLKHIDA spectrometer and a facility for investigations of the thermomagnetic effect were commissioned.

A measuring module for adjusting a ring in the SKAT facility was created. The temperature control devices were put into operation at the spectrometers KDSOG and NSVR (high pressure cell).

A number of new electronic blocks were developed:

- SMD-B2A to control bipolar step-motors. The block is compatible with control systems produced by the Huber firm;
- Detector number encoder with 64 inputs in VME standard;
- ВКП-8К time digital converter with 8192 channels with a minimum channel width of 40 nsec for the spectrometer UGRA.

Work to create software for reading, viewing and express analysis of the experimental data in neutron scattering continued. The developed programs are supplementary to the graphical packet PV-WAVE for which five licenses were additionally bought in 1998.

For experiments in nuclear physics, 10 preamplifiers for silicon detectors and 2 nanosecond TDC were manufactured and adjusted.

During the reported year routine maintenance of the measuring and control systems of the spectrometers was conducted.

In the theme, one Candidate of Science Degree was received from JINR in 1998.