THE COMPUTER SYSTEM IN THE RESEARCH INSTITUTE
OF ATMOSPHERICS

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The computer system in the Research Institute of Atmospherics has been replaced since March 1st 1989. The system block diagram is shown in Figure 1. The main computer is the ACOS 930/10 of NEC which has a 32-Mbyte main memory and a 128-Kbyte cash memory, and is equipped with an inner array processor. The instruction speed of the computer is 24-MIPS. The main storage memories consist of 8 sets of hard disks with an 8-Mbyte cash memory, and its total capacity is 10.6 Gbyte. The magnetic tape handlers consist of 4 sets of a high density (6250/1600 bpi) machine and one of low density (1600/800 bpi) machine. The operating system is the ACOS-6/MVX which is the same as in the former system.

The system power is controlled by an automatic operation control system and is switched on and off at prefixed time in normal state. At the time of closing, the control system checks the on-line user. If some user is still connected up to the computer, the control system extends the closing time 30 minutes. The system support processor monitors every apparatus, and it reports any malfunction of the apparatus to the maintenance center automatically by on-line modem.

The gate way processor connects the main system to the N-1 network which is the inter network system of university computer centers in Japan. The main system is also connected to a telephone line through an MNP class 5 modem.

Two sub-systems, which are the sferics fixing data acquisition and the interplanetary scintillation data acquisition, are also equipped. They are connected to the main computer by a light loop line with 32 Mbps data transfer speed. Each system consists of three mini computers and data transfer networks by telephone lines.

The 3-D color display has 1280 X 1024 pixels and 20 planes image memories and shows 1024 colors at one time. Tablet, control dials and function switches are equipped. The controller is connected to the host computer by RS-449 line at 1.2-Mbps data transfer speed. The screen can be copied in 1024 colors by color hard copy.

The 2-D color displays also have the 1280 X 1024 pixels and 10 planes image memories and show 256 colors at one time. The controllers are connected to the host computer by RS-449 lines which are the same as 3-D color display.

Two sets of engineering work stations, which have 8-Mbyte main memories and 147-Mbyte hard disks, are connected to the host computer by an ethernet line, and they work under the Unix operating system (System V). The system supports the network file system under Unix file. The color displays have the 1280 X 1024 pixels and show 256 colors at one time. One of the engineering work stations is connected to the telephone line through an MNP class 5 modem.

The office work station system has an image reader and an image printer; installed software can support mix image data and text data.

The major terminals have 2-Mbyte main memories, 20-Mbyte hard disks, and color displays can work as terminals for the main system and as personal computers. They are connected to the main computer by an omninet line at 3-Mbps data transfer speed.
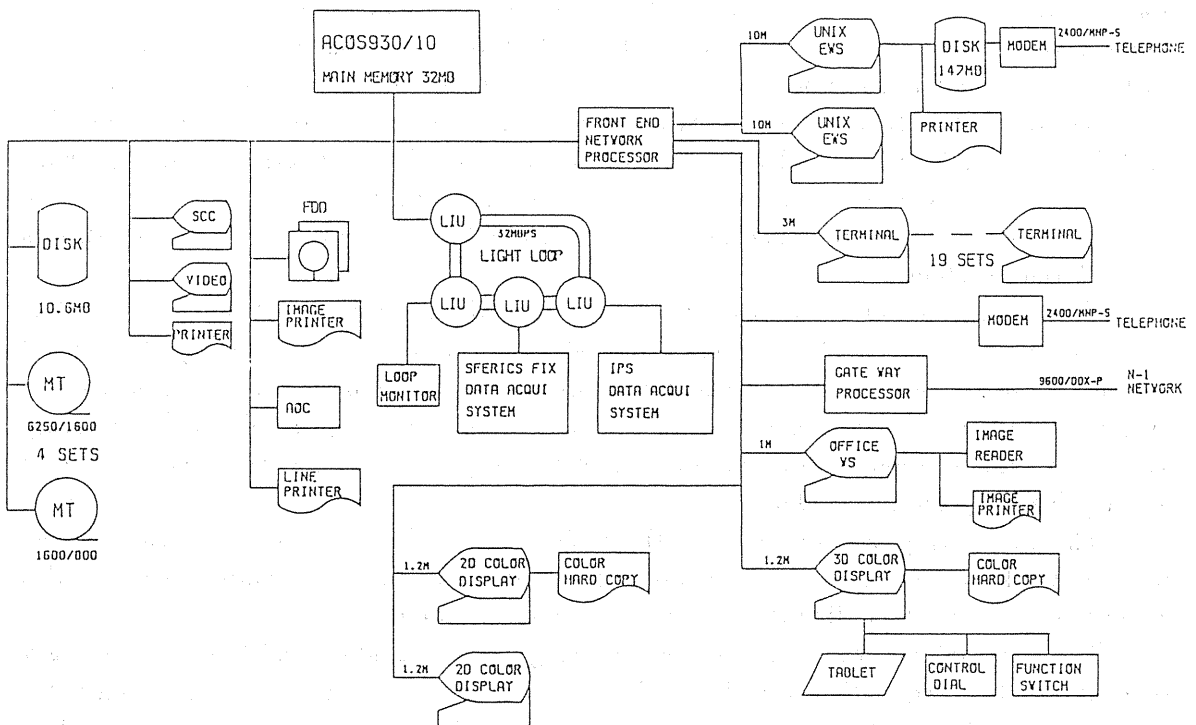

Fig. 1. Block diagram of ACOS system