

## V. TELETYPE SERVICE ROUTINE AND OTHER "SLOW" I-O

In addition to the I-O Processor, the Executive contains a number of routines which drive "hard-copy" I-O devices. All of these devices are so slow that the user programs communicating with them must not be allowed to monopolize the user memory bank while the devices are sending or receiving messages. Devices which fall into this category, with their associated interrupt levels, are the following:

<u>Device</u>	<u>Interrupt Level</u>
Paper-tape reader	2
Line printer	3
Paper-tape punch	12
Console typewriter	14
Teletype-terminal scanner	6

Interrupts are generated each time that the device is ready to accept another character (output devices) or each time that a character is received at the computer (input devices). Input and output on these devices are controlled by two asynchronous processes. Information is moved between the user memory bank and buffers in Executive memory by means of IOT's activated by the user program. Information is transferred between the Executive memory buffers and the actual I-O device by the "service routines" activated by interrupts.

The Teletype service routine drives 64 devices rather than one, and each of the Teletypes is an interactive device at a remote location. With the exception of these special problems, however, all the I-O service routines are essentially the same.