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FILE MEMO

SUBJECT: Exchange Busy Indicator
Reference: Planning discussion, July 8, 1957
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The Exchange Busy Indicator is intended to replace the present feature of storing unexecuted instructions.

When the computer sends an input-output instruction to the Exchange, a test is made whether the Exchange has capacity left to handle that unit. If so, the Exchange proceeds to test the control word for the unit status in the usual way. If the instruction finds the Exchange busy, the Exchange Busy Indicator is set. One of two things can happen.

If the Exchange Busy Indicator mask bit is set to 0, the computer simply waits until some other unit or units disconnect. The instruction is then completed. (No attempt is made to reset the Indicator automatically when it is not interrogated. A NO OP instruction at the corresponding Interrupt location will clear the indicator as soon as the mask bit is set to 1.)

If the mask bit has been set to 1 when an input-output instruction finds the Exchange busy, an Interrupt takes place to permit the programmer to decide on a course of action. At the time of the Interrupt, the Instruction Counter is set to the instruction following the unexecuted input-output instruction.

Since in elementary situations the Exchange Busy condition will be a rare peak occurrence, the ability to hold up temporarily appears to be a satisfactory solution for many applications, requiring no program intervention at all.

Possible means for assigning priorities and interrogating the current weight count in the Exchange were discussed. Since a supervisory program can make its own assignments and counts, it seems unnecessary to make further hardware provisions.

WB/pkb